## BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION, BIDYUT NIYAMAK BHAWAN.

PLOT No-4, CHUNOKOLI, SHAILASHREE VIHAR, BHUBANESWAR-751021

Case No: /2022

IN THE MATTER OF:

Application for approval of Capital Investment Plan for the FY 2022-23 (Supplementary) in the Licensed Area of TP Central Odisha Distribution

Ltd.

And

IN THE MATTER OF:

TP Central Odisha Distribution Ltd. (Formerly CESU), Corporate Office, Power House, Unit 8, Bhubaneswar- 751 012 represented by its Chief –

Regulatory & Government Affairs.

.... Petitioner

IN THE MATTER OF:

M/s GRIDCO Ltd, M/s OPTCL Ltd, Department of Energy, Govt. of Odisha and All Concerned Stakeholders.

.... Respondents

## Affidavit

- 8 SEP 2022

Pereby solemnly affirm and say as follows:

- 1. I am the Chief-Regulatory & Government Affairs of TP Central Odisha Distribution Ltd., the Petitioner in the above matter and I am duly authorized to swear this affidavit on its behalf.
- 2. The statements made in the submission -File No- TPCODL/Regulatory/2022/ 125/ 6876 herein shown to me are based on information provided to me and I believe them to be true.

Bhubaneswar.

Dated: 08.09.2022

Chief-Regulatory & Government Affairs

ADVOCATE, BESR

NOTARY, GOVT. OF INDIA BBSR, DIST- KHURDA, ODISHA REGD. NO. 7791/2009 MOB: 8455885397

Jagyneswar Acharya Notary, Govt. Of India Odisha, BBSR, Dist-Khurda Regd. No.-7791/2009 Mob:- 9861006174



September 08, 2022 File No TPCODL/Regulatory /2022/125/6876

Secretary
Odisha Electricity Regulatory Commission
Bidyut Niyamak Bhawan
Plot No 4, Chunokoli
Shailashree Vihar
Bhubaneshwar 751021

Dear Sir

Sub: Petition for Approval of additional Capital Investment Plan for FY 2022-23

We are through this letter submitting a petition to the Hon'ble Commission for approval of additional Capital Investment Plan for the FY 2022-23. We request you to kindly approve the same.

We trust our submissions are in order

Yours faithfully

(Puneet Munjal)

Chief - Regulatory and Government Affairs

# BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION, BIDYUT NIYAMAK BHAWAN. PLOT No-4, CHUNOKOLI, SHAILASHREE VIHAR, BHUBANESWAR-751021

Case	No:	/2022
Case	IVU.	/202/

IN THE MATTER OF:

Application for approval of Additional Capital Investment Plan for the FY

2022-23 in the Licensed Area of TP Central Odisha Distribution Ltd.

And

IN THE MATTER OF:

TP Central Odisha Distribution Ltd. (Formerly CESU), Corporate Office, Power House, Unit 8, Bhubaneswar- 751 012 represented by its Chief -

Regulatory & Government Affairs.

.... Applicant

IN THE MATTER OF:

M/s GRIDCO Ltd, M/s OPTCL Ltd, Department of Energy, Govt. of Odisha

and All Concerned Stakeholders.

.... Respondents

#### **Background for Submission of the Petition**

In compliance with the directives stipulated in the Vesting Order dated 26.05.2020 as well as the Odisha Electricity Regulatory Commission (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations 2014, TPCODL since its commencement of operation has been submitting its Capital Investment plan every year for the approval of the Hon'ble Commission.

The Capital Investment plan for FY 2022-23 was submitted by TPCODL on  $25^{th}$  January 2022 which was registered as Case 14 /2022 . The Hon'ble Commission in its order dated 19.07.2022 approved total Capex of Rs.243.31 Cr.

While we are thankful to the Hon'ble Commission for approving the Capex for FY 2022-23, we wish to submit that there is an exorbitantly high load growth observed this summer and some of the lines and Power Transformers are going to be overloaded in Summer'23. In order to maintain the reliability and cater to this high load growth, certain network strengthening proposals are required to be executed before Summer' 23 for which an in-principle approval is requested for Supplementary Capex. We wish to bring it to the kind notice of the Hon'ble Commission that these proposals are critical to avoid any load shedding on account of overloading during the ensuing summer of 2023. Further it is to submit that in some pockets, low voltage is observed and to mitigate the low voltage issues in these area, we

require construction of PSS for which approval is required now so that procurement and construction of these PSS can be started immediately and commissioning is completed before summer'24.

In view of this, TPCODL, through this submission, is requesting for additional capex approval of Rs. 137.25 Cr under the heads of 'Reliability' and 'Load Growth' for the activities as mentioned below.

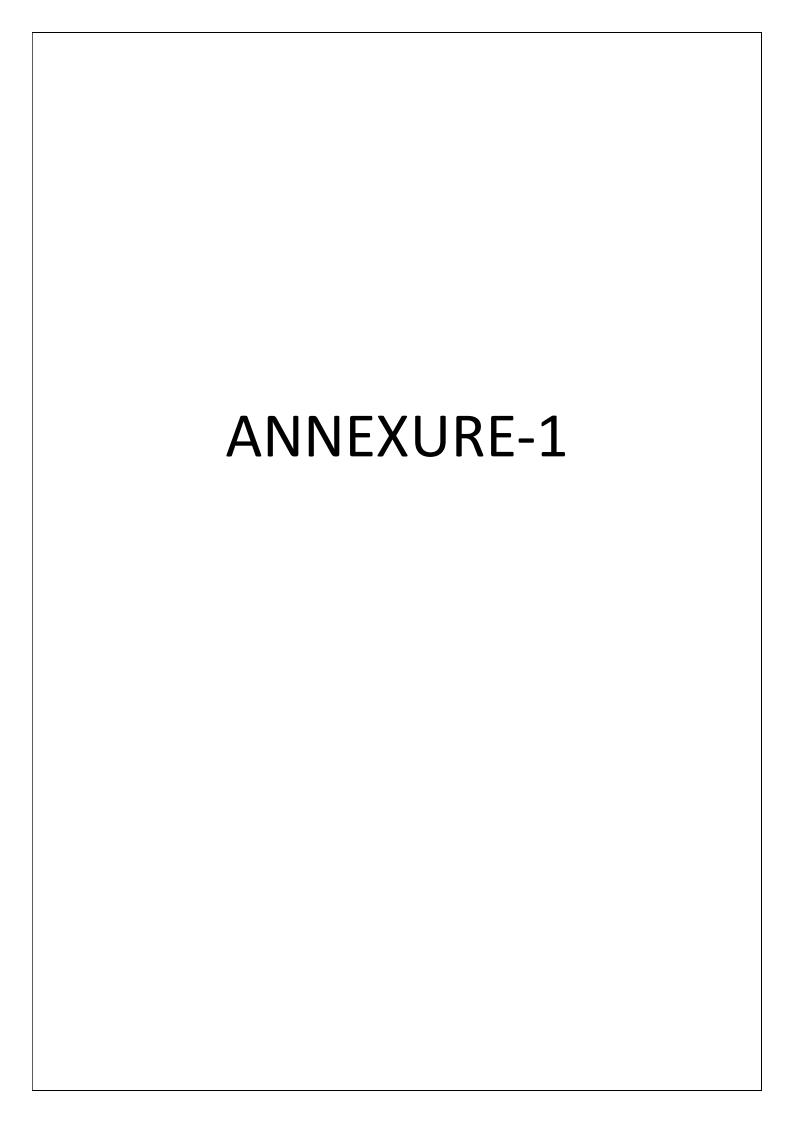
Sr No	Major Category	Activity	Capex Requirement (Rs. Cr)	Remark
1	Load Growth	11kV Feeder Overloading Mitigation	46.74	Details in Annexure-1
2	Load Growth	33kV Feeder Overloading Mitigation	22.71	Details in Annexure-2
3	Load Growth	Augmentation of 33/11 kV Power Transformers for mitigating the issues of Overloading	23.94	Details in Annexure-3
4	Reliability	Construction of 2 nos of 33/11KV PSS to mitigate low voltage issues	43.86	Details in Annexure-4
5	Total		137.25	

The detailed rationale of these activities along with cost estimate are provided in Annexure-1 to Annexure-4 as attached to this submission.

#### **Prayers**

TPCODL prays that the Hon'ble Commission may kindly pleased to;

- 1. Approve the Additional Capex of Rs. 137.25 Cr.
- 2. Permit making additional submission required in this matter
- 3. Grant any other relief as deemed fit & proper in the facts and circumstances of the case.



## **11kV Network Reliability Analysis**

11kV network of all circles is studied for overloading using peak load data in the summer period of FY:2022-23 and studied for AS IS network and for load growth is subsequent years down the line considering load growth. Mitigation proposals are undertaken in order to mitigate the overloading of 11kV feeders.

## I. Summary of proposal details :

SI. No.			Mitigation Type	Costing in Cr
1	BCDD-II	Refurbishment of 11kV Bharatpur Feeder for mitigation of Overload	Overloading	0.99
2	BCDD-II	Refurbishment of 11kV K-2 Feeder for mitigation of Overload	Overloading	0.33
3	BCDD-II	Bifurcation of 11kV Shree Vihar Feeder for mitigation of Overload	Overloading	5.64
4	BCDD-II	Refurbishment of 11kV Cs Pur-1 Housing Board Feeder for mitigation of Overload	Overloading	0.8
5	BCDD-II	Refurbishment of 11kV Cs Pur-2 Industry Feeder for mitigation of Overload	Overloading	1.18
6	BCDD-II	Refurbishment of 11kV Cs Pur-2 BDA-2 Feeder for mitigation of Overload	Overloading	0.21
7	BCDD-II	Bifurcation of 11kV Panchasakha Nagar Feeder for mitigation of Overload	Overloading	0.73
8	BCDD-II	Refurbishment of 11kV New Industry Feeder for mitigation of Overload	Overloading	0.62
9	BCDD-II Refurbishment of 11kV Polymer Complex Feeder for mitigation of Overload		Overloading	0.68
10	BCDD-II Refurbishment of 11kV Sikharchandi Feeder for mitigation of Overload		Overloading	0.29
11	BCDD-II Bifurcation of 11kV K-5 Feeder for mitigation of Overload		Overloading	1.47
12	BCDD-II	Bifurcation of 11kV KIIT Feeder for mitigation of Overload	Overloading	5.21
13	BCDD-II Bifurcation of 11kV kalarahanga Feeder for mitigation of Overload		Overloading	3.58
14	BCDD-II	Bifurcation of 11kV Patia Feeder for mitigation of Overload	Overloading	5.13
15	BCDD-II	Bifurcation of 11kV Kolathia Feeder for mitigation of Overload	Overloading	1.99
16	BCDD-II	Refurbishment of 11kV IRC-3 Feeder for mitigation of Overload	Overloading	0.21
17	BCDD-II Refurbishment of 11kV No-2, Sriram Bazar Feeder for mitigation of Overload		Overloading	0.93
18	BCDD-II	Swapping of 11kV NALCO feeder from PTR-1 to PTR-3 to mitigate PTR overloading issue	Overloading	0.3
19	BED	Mitigation of Overloading issue of 11kV Laxmisagar Feeder	Overload Mitigation	4.66
20	BED	Mitigation of Overloading issue of 11kV Jharapada Feeder	Overload Mitigation	3.85
21	BED	Mitigation of Overloading issue of 11kV PAHAL Feeder	Overload Mitigation	0.23
22	BED	Mitigation of Overloading issue of 11kV BADAGADA Feeder	Overload and N-1 Mitigation	1.83
23	BED	Mitigation of Overloading issue of 11kV WATER WORKS Feeder	Overload Mitigation	2.2
24	BED	Mitigation of Overloading issue of 11kV BADAGADA LINGRAJ Feeder	Overload Mitigation	0.72

SI. No.	Division	Mitigation Type	Costing in Cr	
25	BED	Mitigation of Overloading issue of 11kV MANCHESWAR Feeder No.3	Overload and N-1 Mitigation	0.22
26	BED	Mitigation of Overloading issue of 11kV MANCHESWAR Feeder No.2		0.66
27	CED	Refurbishment of 11kV OTM feeder and Manguli feeder for Mitigation of Overloading of Manguli feeder	Overloading	1
28	CDD-II	Bifurcation of existing 11kV Old Industry Feeder emanating from 33/11kV Jagatpur PSS by constructing 1 no. of new feeder from 33/11kV Jagatpur PSS through RMU.	Overloading	1.08
			TOTAL	46.74

## 1. Refurbishment of 11kV Bharatpur Feeder for mitigation of Feeder Overloading

**Proposal:** Augmentation of existing 11kV Bharatpur Feeder emanating from 33/11kV Bharatpur PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & UG Cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km.

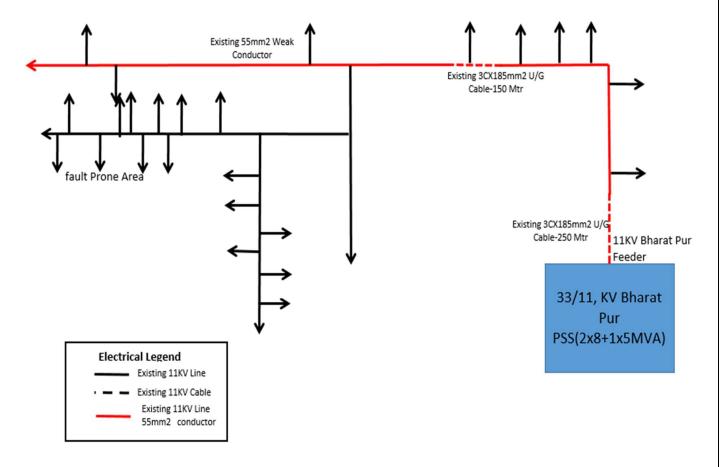
**Objective:** To mitigate the overloading issue of 11kV Bharatpur feeder.

#### **Existing Scenario:**

- At present, 11kV Bharatpur feeder is emanating from 33/11kV Bharatpur PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 37.24km and the peak load is 3.6MVA.
- In the existing scenario, conductor size of 11kV Bharatpur feeder is 55sqmm & the feeder is 102.69% loaded, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding urban consumers, several breakdown on 11kV feeder is encountered which hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

	EXISTING LOADING									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status			
Bharatpur	3.54	3.60	102.69	Over load & low voltage	5.33	150.5	Overload			

## Existing SLD (Summer'21):

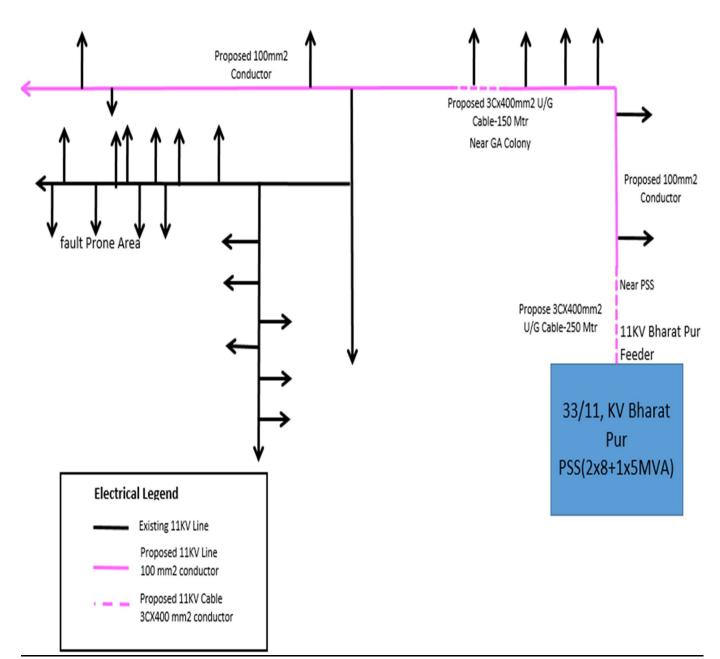


## **Proposed Scenario:**

Augmentation of 7.1km Existing 55sqmm old conductor with 100sqmm AAAC conductor & UG cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km (From Bharatpur PSS to Institute of Mathematics DSS).

	LOADING OF FEEDER AFTER PROPOSAL									
11 kV kV Feeder Capacity Name (MVA) Feeder (MVA)  Peak Loading Loading of feeder (MVA)  Peak Loading Status  Feeder Overloading Status  Feeder Overloading Status  10% Load Growth Considering after 2 years LG						Feeder Overloading Status				
Bharatpur	5.18	3.60	69.5	ОК	4.3	83.4	ОК			

## Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

Augmentation of 7.1km Existing 55sqmm old conductor with 100sqmm AAAC conductor & UG
Cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km (From Bharatpur PSS to Institute of
Mathematics DSS).

	TP CENTRAL ODISHA DISTRIBUTION LIMITED				
	Name of the Division :-	BCDD-II			
	Name of the Sub-Division : -	KHANDAGIRI			
	Name of the Section : -	Bharat Pur			
	Name of the Work :-	Part- A Augmentation of Conductor for 11kv Bharatpur Ring feeder From 55sqmm to 100sqmm of length-7.1km with 36 nos. Interposing poles. Part- B Laying of UG cable 3Cx400sqmm of length-0.4km in HDD Method (From Bharatpur PSS to Institute of Mathematics DSS).			
	Scope of work:-	Part- A Augmentation of Conductor for 11kv Bharatpur Ring feeder From 55 mm2 to 100 mm2 of length-7.1 Km with 36 no. Interposing poles.  Part- B Laying of UG cable 3Cx400mm2 of length-0.4 Km in			

	HDD Method (From Bharat Pur PSS to Institute of Mathematics DSS).				
	Names of Schemes: -				
	ABSTRA	ACT OF ESTIMATE			
SI. No.	Descript	Description			
1	Part- A Augmentation of conductor for 11kV Bharatpur Ring feeder from 55sqmm to 100sqmm of length 7.1km with 36 nos. Interposing poles		₹ 47,24,269.94		
2	Part- B Laying of UG cable 3Cx400sqmm of length 0.4km in HDD Method (from Bharatpur PSS to Institute of Mathematics DSS)		₹ 52,01,036.09		
3	Total Am	ount	₹ 99,25,306.03		
4	Total Amoun	t (In Cr.)	0.9		

	11kV Line Length with 40 Mtr. Span using 100	) SQ.IVIVI.	AAA Conduc	ctor	
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			2	
	MATERIALS OF DP With A	B Switch			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

07	V-ll O-lang D-intfer D-alaman d	1.4	050.00	4	4.000.40		
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40		
A	04	1- 04	Total Cost o		2,67,760.93		
В	50	ock, Stora	ge & Insurance		8,032.83		
С				otal (A+B)	2,75,793.76		
D				@ 3% of C	8,273.81		
E			Tools & Plants		5,515.88		
F			ransportation @		20,684.53		
G			@ 5% on Trf/B		5,462.49 15,511.92		
Н	3 0 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						
I	Erection Charges @ 20% o	of PSC po			-		
J			Sun	n of (C to I)	3,31,242.39		
01	<u>Civil &amp; Services</u>	T	Γ				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00		
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00		
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00		
K			Total Civil	& Services	33,253.00		
L				Total (J+K)	3,64,495.39		
М	Other overheads (Including 6% supervision of	harges) of	L (for DP With	AB Switch)	21,869.72		
N			Sub 7	Γotal (L+M)	3,86,365.11		
0			Total GST @		69,545.72		
			Total CESS (	② 1% of (N)	3,863.65		
Р	Gross Total Material +Serv	vices (N+0	O) for DP With	AB Switch	4,59,774.48		
	11 Kv Line Length In KM with 40 Mtr. Span						
	(Ref. Drawing No TPCODL-MVD-0003)			7.1			
	MATERIALS FOR 11 KV Pin Poi	nts With	WPB				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	36	9,54,610.20		
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	36	34,408.80		
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	36	6,372.00		
4	Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of	No.	94.40	36	3,398.40		
5	0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	10.83	958.67		
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	108.00	10,195.20		
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	43.33	3,834.67		
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	108	25,488.00		
9	Earthing of Support ( Coil Type )	No.	195.88	36	7,051.68		
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	9.43	834.73		
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	52.20	4,804.49		
12	100 mm2 AAAC	K.M.	64,900.00	21.94	14,23,841.10		
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-		
14	Black Paint	Ltr	259.60	36.0	9,345.60		
15	Yellow Colour Paint for Background	Ltr	259.60	72.0	18,691.20		
Α			Total Cost o	f materials	25,03,834.74		
В	Sto	ock, Stora	ge & Insurance	i.e 3% of A	75,115.04		
			O l. T	otal (A+B)	25,78,949.78		

					77,368.49
D	Contigency @ 3% of C				
E	<u> </u>				
F			ransportation (		1,93,421.23
G	Erection Charge				49,162.43
Н	Erection Charges @ 10% of C (except Trf/Breake		•		1,59,570.13
I	Erection Charges @ 20%	of PSC po	le- Not to be us	sed for 33kv	-
J			Sur	n of (C to I)	31,10,051.05
	Civil & Services				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	16.20	1,05,300.00
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	4.05	26,325.00
3	Dismantling of 34/55sqmm AAAC	KM	6,300.00	21.94	1,38,215.70
K	K Total Civil & Services				
L Total Material+Services (I+K)				33,79,891.75	
M Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				2,02,793.51	
N Sub Total (L+M)				35,82,685.26	
O Total GST @ 18% of (N)					6,44,883.35
O1 Total CESS @ 1% of (N)					35,826.85
Р	Gross Total Material +Services (N+O+	O1) for 11	KV Pin Points	With WPB	42,63,395.46
	CO/ Companision Channel	<u> </u>			
	6% Supervision Charges		(C D.D.) M. (C.)	45.0 " 1)	04.000.70
2	Other overheads (Including 6% supervision of			· · · · · · · · · · · · · · · · · · ·	21,869.72
5	Other overheads (Including 6% supervision char	, ,		,	2,02,793.51
			6% supervisio	n charges)	2,24,663.23
	Gross Total Summa				
2	Gross Total Material +S				4,59,774.48
5					42,63,395.46
Q	Inspection Fee of Over F	•	,		200.00
R	Inspection Fee of Over H				
S	Inspection Fe		ng Checking a	• •	400.00
Т			sion by electric	·	500.00
U	Gross Total Material, Services	and Inspe	ction Fees (P-	+Q+R+S+T)	47,24,269.94

	ply Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	0.4		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.80	17,70,000.00	14,16,000.00
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
	Sub Total (Supply Portion) (in F	Rs.)			15,47,253.76
Erec	tion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b>	km	0.8	28,00,000.00	22,40,000.00

	Sub Total (Erection Portion) (in Rs.)					
<u> </u>						
SI. No.	Portion  Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)	
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench			(III No.)	(III KS.)	
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)		0.4	4 400 40	00.057.00	
3	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.) Supply and Erection of Cable Route Marker along the cable route	Mtr	64	1,463.40	93,657.60	
3	at an interval of 30mtrs with civil works	Nos.	13	1,012.00	13,156.00	
	Sub Total (Civil Portion) (in Rs	5.) 			1,06,813.60	
Α	Sub Total (Supply Portion)				15,47,253.76	
В	Stock, Storage & Insurance @ 3 % of A				46,417.61	
С	Sub Total (A+B)				15,93,671.37	
D	Contingency @ 3 % of C					
Е	Tools & Plants Charges @ 2% of C (considered for earthing items)	)			-	
F	Transportation @ 7.5% of C					
G	Erection Charges @ 10% of earthing items					
Н	Total (C+D+E+F+G)					
I	Sub Total (Erection Portion + Civil Portion)					
J	Total Cost (H+I)					
K	Other Overhead /(including Supervision Charges) @ 6 % of J					
L	Total Estimated Capital Cost i.e. (J+K)				43,70,408.48	
М	GST @ 18% of L					
M1	CESS @ 1% of L					
N	Grand Total (L+M)					
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.					
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km					
Q	Inspection Fee of RMU - Rs. 2000/ RMU				C	
R	Inspection Fee of Drawing Checking and Approval					
S	Final decision by electrical Inspector					
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q	+R+S)			52,01,036.09	

## Benefit:

- To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because
  of overloading is addressed through above proposal.

## 2. Refurbishment of 11kV K-2 Feeder for mitigation of Overloading

**Proposal:** Augmentation of existing 11kV K-2 Feeder emanating from 33/11kV Bharatpur PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable from 3Cx185sqmm to 3Cx400sqmm of length 0.4km.

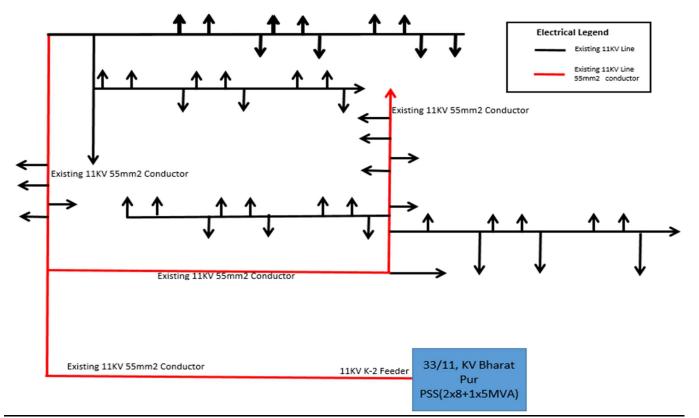
Objective: To mitigate the overloading issue of 11kV K-2 feeder.

#### **Existing Scenario:**

- At present, 11kV K-2 feeder is emanating from 33/11kV Bharatpur PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 25.14km and the peak load is 4.1MVA.
- In the existing scenario, conductor size of 11kV K-2 feeder is 55sqmm & the feeder is loaded up to 115.82% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several breakdown on 11kV feeder is contributing to hamper the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

EXISTING LOADING									
11 kV kV Feeder Capacity Name (MVA)  Feeder Capacity (MVA)  Feeder Capacity FY' 22-23 Loading of feeder		Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status				
K-2	3.54	4.10	115.82	Overload	6.11	172.6	Overload		

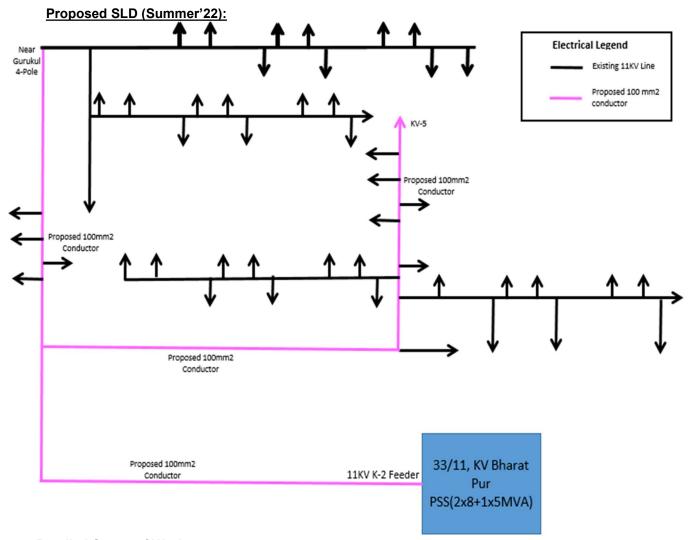
#### Existing SLD (Summer'21):



#### **Proposed Scenario:**

 Augmentation of 4.8km existing 55sqmm old conductor with 100sqmm AAAC conductor. (From Bharatpur PSS to SUM 4Pole structure).

	LOADING OF FEEDER AFTER PROPOSAL									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status			
K-2	5.18	4.10	79.1	OK	4.9	95.0	ОК			



## **Detailed Scope of Work:**

• Augmentation of 4.8km Existing 55sqmm old Conductor with 100sqmm AAAC conductor. (From Bharatpur PSS to SUM 4Pole structure).

TP CENTRAL ODISHA DISTRIBUTION LIMITED					
Name of the Division :-	BCDD-II				
Name of the Sub-Division : -	KHANDAGIRI				
Name of the Section : -	Bharatpur				
Name of the Work :-	Part- A Augmentation of Conductor for 11kv K2 feeder From 55 mm2 to 100 mm2 of length-4.8 Km with 24 no. Interposing poles				
Scope of work:-	Part- A Augmentation of Conductor for 11kV K2 feeder From 55sqmm to 100sqmm of length-4.8 Km with 24nos. Interposing poles				
Names of Schemes: -	TPCODL CAPEX Scheme				

	ABSTRAC	OF ESTIMATE	
SI. No.	Description		Amount
1	Part- A Augmentation of Conductor for 11kv K2 feeder From 55 mm2 to 100 mm2 of length-4.8 Km with 24 no. Interposing poles	₹	33,26,053.52
2	Total Amount	₹	33,26,053.52
3	Total Amount (In Cr.)		0.33

	<ul> <li>A Augmentation of Conductor for 11kv K2 feeder From 55 mn posing poles</li> </ul>	12 10 100	minz or lengt	11-4.0 Kill With	24 110.
	11kV Line Length with 40 Mtr. Span using 1	100 SQ.M	MAAA Cond	luctor	
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			2	
	MATERIALS OF DP With	AB Swite	<u>:h</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

27	Valley Colour Daint for Dackground	l tr	250.60	4	1 020 10		
27 <b>A</b>	Yellow Colour Paint for Background	Ltr	259.60	t of materials	1,038.40 <b>2,67,760.93</b>		
<u>А</u> В	Stock, Storage & Insurance i.e 3% of A						
C	Sub Total (A+B)						
	Contigency @ 3% of C						
E				nts @ 2% of C	8,273.81 5,515.88		
F				n @ 7.5% of C	20,684.53		
G	Erection			f/Breaker/Joist	5,462.49		
Н	Erection Charges @ 10% of C (except Trf/Breake				15,511.92		
I	Erection Charges @ 20%	of PSC p	ole- Not to be	used for 33kv	-		
J			S	um of (C to I)	3,31,242.39		
	Civil & Services	<u>s</u>					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00		
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00		
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00		
K			Total Civ	/il & Services	33,253.00		
L	L Total (J+K)						
М	Other overheads (Including 6% supervision	charges)	•		21,869.72 <b>3,86,365.11</b>		
N	,						
0				@ 18% of (N)	69,545.72		
01 <b>P</b>	Gross Total Material +Service	(N+O+		S @ 1% of (N)	3,863.65 <b>4,59,774.48</b>		
Г	GIOSS TOTAL MATERIAL + Service	ES (INTOT		III AB SWIICII	4,55,774.46		
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)			4.8			
	MATERIALS FOR 11 KV Pin P	oints Witl	h WPB				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	24	6,36,406.80		
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	24	22,939.20		
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	24	4,248.00		
4	Danger Plate, 1 no's. for each pole	No.	94.40	24	2,265.60		
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	7.22	639.11		
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	72.00	6,796.80		
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	28.89	2,556.45		
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	72	16,992.00		
9	Earthing of Support ( Coil Type )	No.	195.88	24	4,701.12		
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	6.29	556.49		
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	34.80	3,202.99		
12	100 mm2 AAAC	K.M.	64,900.00	14.83	9,62,596.80		
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27	04.0	- 0.000.40		
	RIGGY MOINT	Ltr	259.60	24.0	6,230.40		
14 15	Black Paint  Yellow Colour Paint for Background	Ltr	259.60	48.0	12,460.80		

Α	Total Cost of materials				
В	Stock, Storage & Insurance i.e 3% of A				
С	Sub Total (A+B)				
D			Contiger	ncy @ 3% of C	51,992.11
Е			Tools & Pla	nts @ 2% of C	34,661.41
F				n @ 7.5% of C	1,29,980.28
G	Erection Charg				32,774.95
Н	Erection Charges @ 10% of C (except Trf/Break			. ,	1,07,757.13
I	Erection Charges @ 20%	of PSC p			-
J			S	Sum of (C to I)	20,90,236.21
	Civil & Service	<u>s</u>			
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	10.80	70,200.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.70	17,550.00
3	Dismantling of 55sqmm AAAC	KM	6,300.00	14.83	93,441.60
K	Total Civil & Services				1,81,191.60
L	,				
М	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				1,36,285.67
N	Sub Total (L+M)				24,07,713.48
0			Total GST	@ 18% of (N)	4,33,388.43
01	Total CESS @ 1% of (N)				24,077.13 <b>28,65,179.04</b>
Р	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB				
	6% Supervision Charges	Summary	L		
2	Other overheads (Including 6% supervision	charges)	of L (for DP W	ith AB Switch)	21,869.72
5	Other overheads (Including 6% supervision cha	rges) (for 1	1 KV Pin Poi	nts With WPB)	1,36,285.67
		Total	(6% supervi	sion charges)	1,58,155.39
	Gross Total Sumn	nary			
2	Gross Total Material +Serv	ices (N+O	+O1) for DP V	Vith AB Switch	4,59,774.48
5	Gross Total Material +Services (N+	O+O1) for	11 KV Pin Po	ints With WPB	28,65,179.04
Q	Inspection Fee of Over	Head Line	(HT) - Rs. 20	0 for 1st 5 km.	200.00
R	Inspection Fee of Over I	lead Line (	(HT) - Rs. 30/	Additional Km	
S	Inspection F	ee of Drav	ving Checking	and Approval	400.00
Т		Final ded	cision by elect	trical Inspector	500.00
U	Gross Total Material, Services	and Insp	ection Fees	(P+Q+R+S+T)	33,26,053.52

## **Benefit:**

- To maintain reliable of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

#### 3. Bifurcation of 11KV Shree Vihar Feeder for mitigation of Overload & Low Voltage issue

**Proposal:** Bifurcation of existing 11kV Shree Vihar Feeder emanating from 33/11kV Cs Pur-1 PSS by constructing 1 no. new feeder from 33/11kV Infocity PSS.

**Objective:** To mitigation the overloading & low voltage issue of the 11kV feeder.

#### **Existing Scenario:**

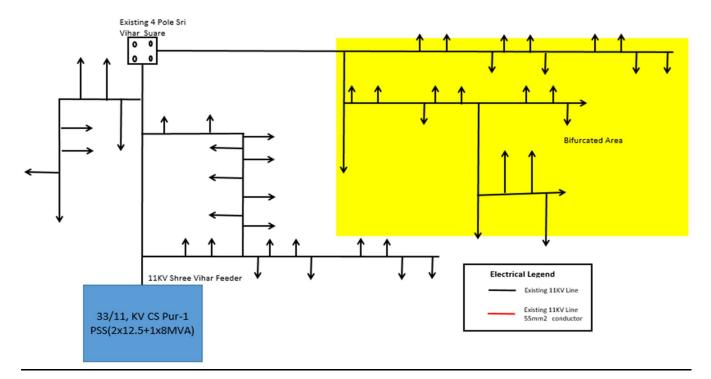
- At present, 11kV Shree Vihar feeder is emanating from 33/11kV CS Pur-1 PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 18.3km and the peak load is 4.1MVA.
- In the existing scenario, conductor size of 11kV Shree Vihar feeder in the trunk line where overloading is encountered is 80sqmm & the feeder is loaded 115.3%.
- This feeder is mainly feeding Urban consumers, several breakdown on 11kV feeder due to
  overloading of feeder hampers the reliability of power supply and also considering future load
  growth of the residential building, bifurcation of this feeder is proposed for improving reliability.
  Linking line is proposed for mitigation of N-1 issue.

	EXISTING LOADING OF FEEDER									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status			
Sri Vihar	4.51	5.20	115.3	OVERLOAD	7.8	172.4	OVERLOAD			

**Proposal:** Construction of New Feeder from 33/11kV Infocity PSS of length-6.5km by laying 3Cx400sqmm U/G Cable for Feeder Bifurcation. Installation of 4nos. of 11kV 4 way RMU for N-1 connectivity feeder bifurcation. Construction of 11kV O/H line of length-0.5 km for mitigating N-1 issue for improving reliablity.

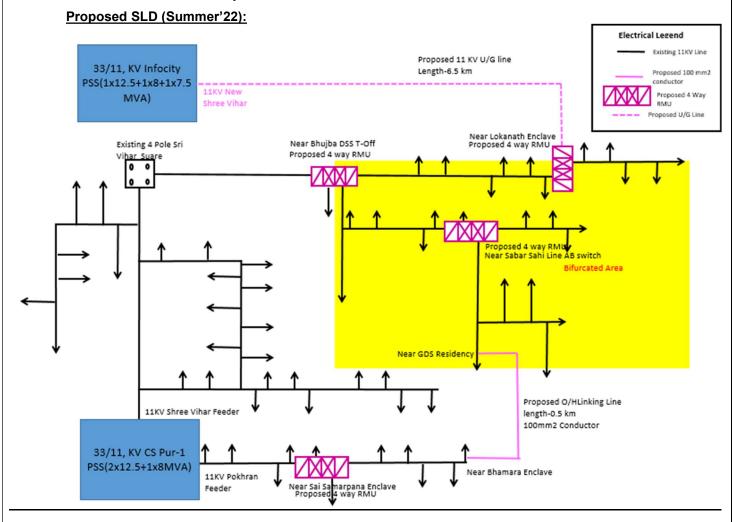
**Objective:** To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigating N-1 contingency issue.

## Existing SLD (Summer'21):



## **Proposed Scenario:**

- Construction of New 11kV Feeder from 33/11kV Infocity PSS of length 6.5km by laying 3Cx400sqmm U/G Cable from Infocity PSS to Lokanath Enclave DSS.
- Installation of 4no. of 11kV 4 way RMU for N-1 connectivity feeder bifurcation.
- Construction of 11kV O/H Line of length 0.5km for mitigating N-1 issue for improving reliablity from GDS Residency of Shree Vihar feeder to Bhamara enclave of Pokharan feeder.



#### **Detailed Scope of Work:**

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5km by using in 3Cx400sqmm U/G Cable from Infocity PSS to Lokanath Enclave DSS.
- Installation of 4nos. 11kV 4 way RMU for N-1 connectivity feeder bifurcation.
- Construction of 11kV O/H line of length-0.5 km for mitigating N-1 issue for improving reliablity from GDS Residency of Shree Vihar feeder to Bhamara enclave of Pokharan feeder.

TP CE	NTRAL ODISHA DISTRIBUTION LIMITED
Name of the Division :-	BCDD-II
Name of the Sub-Division : -	Periphery
Name of the Section : -	CS Pur-1
Name of the Work :-	Part A- Construction of U/G Cable - 6.5 km without spare (from Infocity PSS to Lokanath Enclave DSS) Part- B :-Interlinking line on Srivihar feeder of 100sqmm of length-0.5km
Scope of work:-	Part A- Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to Lokanath Enclave DSS)

		Part- B :-Interlinkir Km	ng line on Srivihar fe	eder of 100 mm2 of length-0.5				
	Names of Schemes: -	TPCODL CAPEX	TPCODL CAPEX Scheme					
		ABSTRACT OF	F ESTIMATE					
SI. No.	Description		Amount					
1	Part- A :Construction of U/G Cable - 6.5 Km (from Infocity PSS to Lokanath Enclave DSS)		₹	5,54,48,765.54				
2	Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.5 Km		₹	9,54,098.38				
3	Total Amou	unt	₹	5,64,02,863.92				
4	Total Amount (	(In Cr.)		5.64				

Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	1.3		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	5.2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.50	17,70,000.00	1,15,05,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	25	29,874.06	7,46,851.50
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	16	11,306.76	1,80,908.16
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	1.30	6,94,910.00	9,03,383.00
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	4		
С	No. of 11kV 3Way RMU (LLV+M)	nos.			
d	No. of 11kV 4Way RMU (LLVV+M)	nos.			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	4	5,57,710.00	22,30,840.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	52.80	88.50	4,672.80
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	8	1,239.00	9,912.00
4	FRTU and OFC for RMU SCADA Automation				
	Supply of 12 core fibre optic cable single mode, duct type, fibre	<b>.</b>	0.5	FC F4F 00	2 67 247 50
4.1	armoured laid along UG cable.  Supply of HDPE PLB duct of size 32/26mm for laying of OFC	km	6.5	56,515.00	3,67,347.50

4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13	6,766.00	87,958.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	8	7,535.00	60,280.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4	4,35,542.00	17,42,168.00
	Sub Total (Supply Portion) (in	Rs.)			1,84,11,882.84
Erecti	on Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	1.30	94,500.00	1,22,850.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	25	2,400.00	60,000.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	16	1,900.80	30,412.80
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	5.2	28,00,000.00	1,45,60,000.00
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	1.30	1,04,114.67	1,35,349.07
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV) Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	15,000.00 15,000.00	
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	60,000.00
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	
3	FRTU and OFC for RMU SCADA Automation	1100.		10,000.00	
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.5	27,296.35	1,77,426.28
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	6.5	1,22,488.27	7,96,173.76
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13.0	612.54	7,963.02
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	8.0	1,225.07	9,800.56
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4.0	6,124.36	24,497.44
	Sub Total (Erection Portion) (in	Rs.)			1,59,92,076.12
Civil F	Portion	<u> </u>			
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench			1	
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
_	Earth work excavation of <b>soil</b>	Cum	910	700.00	6,37,000.00
1.1.a	Land Work oxeditation of Con				
1.1.a 1.1.b	Earth work excavation of hard rock	Cum	390	1,720.00	6,70,800.00

1.3	Filling with fine river sand after laying of cable inside the trench	Cum	520	2,500.00	13,00,000.00		
1.4	Back filling with excavated soil outside and above the trench	Cum	780	202.00	1,57,560.00		
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	1.3	26,43,670.63	34,36,771.82		
2	Civil works for Prefabricated RCC foundation with supply of all materials						
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	4	23,145.30	92,581.20		
3	Supply of GI Fencing with Gate around each RMU	sqmtr	80	3,600.00	2,88,000.00		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	8	2,407.00	19,256.00		
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80		
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	217	1,012.00	2,19,604.00		
	Sub Total (Civil Portion) (in F	Rs.)			70,02,210.82		
Α	Sub Total (Supply Portion)	1			1,84,11,882.84		
В	Stock, Storage & Insurance @ 3 % of A				5,52,356.49		
С	Sub Total (A+B)				1,89,64,239.33		
D	Contingency @ 3 % of C						
Е	Tools & Plants Charges @ 2% of C (considered for earthing items)						
F	Transportation @ 7.5% of C						
G	Erection Charges @ 10% of earthing items						
Н	Total (C+D+E+F+G)						
I	Sub Total (Erection Portion + Civil Portion)				2,29,94,286.94		
J	Total Cost (H+I)				4,39,51,574.08		
K	Other Overhead /(including Supervision Charges) @ 6 % of J				26,37,094.44		
L	Total Estimated Capital Cost i.e. (J+K)				4,65,88,668.52		
М	GST @ 18% of L				83,85,960.33		
M1	CESS @ 1% of L				4,65,886.69		
N	Grand Total (L+M)				5,54,40,515.54		
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00		
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km						
Q	Inspection Fee of RMU - Rs. 2000/ RMU				8000		
R	Inspection Fee of Drawing Checking and Approval						
S	Final decision by electrical Inspector						
Т	Gross Total Material, Services and Inspection Fees (N+O+P+	Q+R+S)			5,54,48,765.54		

Part-	B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.5	Km				
	11kV Line Length with 40 Mtr. Span using 10	0 SQ.MI	MAAA Conduc	tor		
	No. of Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-MVD-0004)					
	MATERIALS FOR 11 KV Cut Point wit	h 180 De	egree Angle			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95	

2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =( 2x9.56x1.2)	KG	88.50	22.944	2,030.54
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	5.2864	467.85
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	5.85072	517.79
5	Danger Plate, 1 no's.	No.	94.40	1	94.40
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	1.2036	106.52		
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support ( Coil Type )	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	3.55	326.74
16	Black Paint	Ltr	259.60	0.5	129.80
17	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
Α			Total Cost	of materials	46,673.09
В	S	Stock, St	orage & Insurance	e i.e 3% of A	1,400.19
С			Sub	Total (A+B)	48,073.28
D			Contigenc	y @ 3% of C	1,442.20
E			Tools & Plant	s @ 2% of C	961.47
F			Transportation (	@ 7.5% of C	3,605.50
G	Erection	on Charg	es @ 5% on Trf/E	Breaker/Joist	1,365.62
Н	Erection Charges @ 10% of C (except Trf/Breake	er/WPB/	H-Pole/HT stay se	et/PSC pole)	2,076.08
I	Erection Charges @ 20%	of PSC	pole- Not to be u	sed for 33kv	-
J			Su	m of (C to I)	57,524.14
	0: 10 0 1: 10				,
	Civil & Services			<u>'</u>	,
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
· · · ·		Unit Cu. mtr	<b>Unit Rate</b> 6,500.00	, 0.0.	Total
No.	Description of Materials	Cu.		Quantity	Total Amount
<b>No.</b>	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu. mtr Cu.	6,500.00 6,500.00	Quantity 0.45	Total Amount 2,925.00
<b>No.</b> 1	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu. mtr Cu.	6,500.00 6,500.00	0.45 0.11	Total Amount 2,925.00 731.25
1 2 K	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu. mtr Cu. mtr	6,500.00 6,500.00 <b>Total Civi</b> l	Quantity  0.45  0.11  & Services  Total (J+K)	Total Amount 2,925.00 731.25 3,656.25
No.  1  2  K L	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 <b>Total Civil</b> Point with 180 De	Quantity  0.45  0.11  & Services  Total (J+K)	Total Amount 2,925.00 731.25 3,656.25 61,180.39
No.  1  2  K  L  M	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 <b>Total Civil</b> Point with 180 De <b>Sub</b>	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)	Total Amount 2,925.00 731.25 3,656.25 61,180.39 3,670.82
No.  1  2  K  L  M  N	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil Point with 180 De Sub Total GST @	Quantity  0.45  0.11  & Services  Total (J+K)  egree Angle)  Total (L+M)	Total Amount 2,925.00 731.25 3,656.25 61,180.39 3,670.82 64,851.22
No.  1  2  K  L  M  N	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil Point with 180 De Sub Total GST @ Total CESS	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)  Total (L+M)  18% of (N)  1% of (N)	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22
No.  1  2  K  L  M  N  O  O1	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr  Other overheads (Including 6% supervision charges) of L (for 11	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil Point with 180 De Sub Total GST @ Total CESS	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)  Total (L+M)  18% of (N)  1% of (N)	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22  648.51
No.  1  2  K  L  M  N  O  O1	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr  Other overheads (Including 6% supervision charges) of L (for 11  Gross Total Material +Services (N+O+O1) for 11 Inc.  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)	Cu. mtr Cu. mtr KV Cut	6,500.00  6,500.00  Total Civil  Point with 180 De  Sub  Total GST @  Total CESS  Point with 180 De	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)  Total (L+M)  18% of (N)  1% of (N)	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22  648.51
No.  1  2  K  L  M  O  O1  P	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr  Other overheads (Including 6% supervision charges) of L (for 11  Gross Total Material +Services (N+O+O1) for 11 II  No. of Cut Point with 90 Degree Angle	Cu. mtr Cu. mtr KV Cut	6,500.00  6,500.00  Total Civil  Point with 180 De  Sub  Total GST @  Total CESS  Point with 180 De	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)  Total (L+M)  18% of (N)  1% of (N) egree Angle	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22  648.51  77,172.95
No.  1  2  K  L  M  N  O  O1  P	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr  Other overheads (Including 6% supervision charges) of L (for 11 Gross Total Material +Services (N+O+O1) for 11 Including No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with Description of Materials	Cu. mtr Cu. mtr KV Cut	6,500.00  6,500.00  Total Civil  Point with 180 De  Sub  Total GST ©  Total CESS  Point with 180 De	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)  Total (L+M)  0.18% of (N)  0.1% of (N) egree Angle  1  Total Quantity	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22  648.51  77,172.95  Total Amount
No.  1  2  K  L  M  N  O  O1  P	Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr  Other overheads (Including 6% supervision charges) of L (for 11  Gross Total Material +Services (N+O+O1) for 11 II  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with	Cu. mtr Cu. mtr KV Cut	6,500.00 6,500.00 Total Civil Point with 180 De Sub Total GST © Total CESS Point with 180 De	Quantity  0.45  0.11  Services  Total (J+K)  egree Angle)  Total (L+M)  18% of (N)  21% of (N)  egree Angle  1  Total	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22  648.51  77,172.95
No.  1  2  K  L  M  N  O  O1  P	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Other overheads (Including 6% supervision charges) of L (for 11  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)	Cu. mtr Cu. mtr KV Cut	6,500.00  6,500.00  Total Civil  Point with 180 De  Sub  Total GST ©  Total CESS  Point with 180 De	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)  Total (L+M)  0.18% of (N)  0.1% of (N) egree Angle  1  Total Quantity	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22  648.51  77,172.95  Total Amount
No.  1  2  K  L  M  N  O  O1  P	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr  Other overheads (Including 6% supervision charges) of L (for 11  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel	Cu. mtr Cu. mtr KV Cut	6,500.00 6,500.00 Total Civil Point with 180 De Sub Total GST @ Total CESS Point with 180 De  gree Angle Unit Rate 26,516.95	Quantity  0.45  0.11  & Services  Total (J+K) egree Angle)  Total (L+M) 0 18% of (N) 0 1% of (N) egree Angle  1  Total Quantity  1	Total Amount  2,925.00  731.25  3,656.25  61,180.39  3,670.82  64,851.22  11,673.22  648.51  77,172.95  Total Amount  26,516.95

	Danger Plate, 1 no's.	No.	94.40	1	94.40
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of				0.11.10
6	0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support ( Coil Type )	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
16	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
17	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
18	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
19	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	K.g.	92.04	7.433	684.13
20	Black Paint	Ltr	259.60	0.5	129.80
21	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
Α	-	1	Total Cost	of materials	55,592.66
В	5	Stock, Sto	orage & Insurance	e i.e 3% of A	1,667.78
С		<u> </u>		Total (A+B)	57,260.44
D			Contigency	/ @ 3% of C	1,717.81
Е			Tools & Plants	_	1,145.21
F			Transportation (	_	4,294.53
G	Frection	on Charg	es @ 5% on Trf/E	_	1,365.62
H	Erection Charges @ 10% of C (except Trf/Breake				2,423.56
	Erection Charges @ 20%			. ,	-
J				m of (C to I)	68,207.17
	Civil & Services			01 (0 10 1)	
SI.				Total	Total
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount
	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4)				
1	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu. mtr	2,250.00 6,500.00	0.5	4,500.00 2,925.00
	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	Cu.	6,500.00 6,500.00	0.5	· 
2	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu. mtr Cu.	6,500.00 6,500.00	0.5	2,925.00
2	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu. mtr Cu.	6,500.00 6,500.00	0.5	2,925.00 731.25
2 3 <b>K</b>	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil	0.5 0.1 & Services Total (J+K)	2,925.00 731.25 <b>8,156.25</b>
2 3 K L	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 <b>Total Civil</b> at Point with 90 De	0.5 0.1 & Services Total (J+K)	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b>
2 3 K L	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 <b>Total Civil</b> at Point with 90 De	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M)	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b> 4,581.81
2 3 K L M	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil at Point with 90 De Sub	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M)  0 18% of (N)	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b> 4,581.81 <b>80,945.23</b>
2 3 K L M N	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil at Point with 90 De Sub Total GST @ Total CESS	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M)  18% of (N)  19 1% of (N)	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b> 4,581.81 <b>80,945.23</b> 14,570.14
2 3 K L M N O	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Other overheads (Including 6% supervision charges) of L (for 1	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil at Point with 90 De Sub Total GST @ Total CESS	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M)  18% of (N)  19 1% of (N)	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b> 4,581.81 <b>80,945.23</b> 14,570.14 809.45
2 3 K L M N O	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Other overheads (Including 6% supervision charges) of L (for 1	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil at Point with 90 De Sub Total GST @ Total CESS	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M)  18% of (N)  19 1% of (N)	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b> 4,581.81 <b>80,945.23</b> 14,570.14 809.45
2 3 K L M N O	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Other overheads (Including 6% supervision charges) of L (for 1	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil at Point with 90 De Sub Total GST @ Total CESS Point with 90 De	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M) 0 18% of (N) 0 1% of (N) egree Angle	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b> 4,581.81 <b>80,945.23</b> 14,570.14 809.45
2 3 K L M N O	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Other overheads (Including 6% supervision charges) of L (for 1	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil at Point with 90 De Sub Total GST @ Total CESS Point with 90 De	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M) 0 18% of (N) 0 1% of (N) egree Angle	2,925.00 731.25 <b>8,156.25</b> <b>76,363.42</b> 4,581.81 <b>80,945.23</b> 14,570.14 809.45
2 3 K L M N O O1 P	Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excavation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Other overheads (Including 6% supervision charges) of L (for 1  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poi	Cu. mtr Cu. mtr	6,500.00 6,500.00 Total Civil at Point with 90 De Sub Total GST @ Total CESS Point with 90 De	0.5  0.1  & Services  Total (J+K) egree Angle)  Total (L+M) 0 18% of (N) 0 1% of (N) egree Angle  0.5	2,925.00 731.25 8,156.25 76,363.42 4,581.81 80,945.23 14,570.14 809.45 96,324.82

			I	T T			
3	Top bracket 100x50X6 mm Gl channel (2kg each)	No.	177.00	12	2,124.00		
4	Danger Plate, 1 no's. for each pole	No.	94.40	12	1,132.80		
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	3.61	319.56		
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	36.00	3,398.40		
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	14.44	1,278.22		
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	36	8,496.00		
9	Earthing of Support ( Coil Type )	No.	195.88	12	2,350.56		
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.14	278.24		
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	17.40	1,601.50		
12	100 mm2 AAAC	K.M.	64,900.00	1.55	1,00,270.50		
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-		
14	Black Paint	Ltr	259.60	12.0	3,115.20		
15	Yellow Colour Paint for Background	Ltr	259.60	24.0	6,230.40		
Α			Total Cost	of materials	4,60,268.38		
В		Stock, St	orage & Insurance		13,808.05		
С				Total (A+B)	4,74,076.43		
D				y @ 3% of C	14,222.29		
E			Tools & Plants	_	9,481.53		
F			Transportation (	_	35,555.73		
G		_	% on Trf/Breaker/V		16,387.48		
H	Erection Charges @ 10% of C (except Trf/Breake			· · · · · ·	14,632.69		
<u> </u>	Erection Charges @ 20%	of PSC	•		-		
J			Su	m of (C to I)	5,64,356.15		
	<u>Civil &amp; Services</u>	0	<u> </u>	I I			
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu. mtr	6,500.00	5.40	35,100.00		
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr	Cu. mtr	6,500.00	1.35	8,775.00		
3	Dismantling of 34/55sqmm AAAC	KM	6,300.00	1.55	9,733.50		
K				& Services	53,608.50		
L			Total Material+Se		6,17,964.65		
M	Other overheads (Including 6% supervision cha	rges) (to			37,077.88		
N			Total GST @	Total (L+M)	6,55,042.53		
0 01			Total CESS	, ,	1,17,907.66 6,550.43		
P	Gross Total Material +Services (N+O	+01) for		- , ,	7,79,500.61		
-	GIOSS TOTAL MATERIAL TOELVICES (NTO	101)101	TI KV FIII FOIIIG	S WILLI WE B	1,19,300.01		
	6% Supervision Charges S	Summar	<u> </u>				
1	Other overheads (Including 6% supervision ch			t AR Switch)	_		
2							
3	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)  Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)						
	1 2 1				3,670.82 4,581.81		
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)  Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPR)						
5	Other overheads (Including 6% supervision cha	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)  Total (6% supervision charges)					
	Other overheads (Including 6% supervision cha	- , ,	al (6% supervision	on charges)	45,330.51		
	Other overheads (Including 6% supervision cha	Tot	al (6% supervision	on charges)	45,330.51		
		Tot ary	•	<u> </u>	45,330.51		
5	Gross Total Summa	Tot ary s (N+O+	O1) for DP Withou	ut AB Switch	45,330.51 - -		
5	Gross Total Summa Gross Total Material +Service	Tot ary s (N+O+ vices (N+	O1) for DP Withou	ut AB Switch	45,330.51 - - - 77,172.95		
1 2	Gross Total Summa  Gross Total Material +Service  Gross Total Material +Serv	Tot ary s (N+O+ rices (N+ 1 KV Cu	O1) for DP Withou O+O1) for DP Wit It Point with 180 D	ut AB Switch h AB Switch egree Angle			
5 1 2 3	Gross Total Summa  Gross Total Material +Service  Gross Total Material +Serv  Gross Total Material +Services (N+O+O1) for 1	Tot ary s (N+O+ rices (N+ 1 KV Cu	O1) for DP Withou O+O1) for DP Wit It Point with 180 D out Point with 90 D	ut AB Switch h AB Switch egree Angle egree Angle	- - 77,172.95		
1 2 3 4	Gross Total Summa  Gross Total Material +Service  Gross Total Material +Serv  Gross Total Material +Services (N+O+O1) for 1  Gross Total Material +Services (N+O) for	Tot ary s (N+O+ rices (N+ 1 KV Cu 11 KV C O+O1) fo	O1) for DP Withou O+O1) for DP Wit It Point with 180 D Out Point with 90 D Or 11 KV Pin Point	ut AB Switch h AB Switch egree Angle egree Angle s With WPB	77,172.95 96,324.82		
5 1 2 3 4 5	Gross Total Summa  Gross Total Material +Service  Gross Total Material +Serv  Gross Total Material +Services (N+O+O1) for 1  Gross Total Material +Services (N+O) for  Gross Total Material +Services (N+O)	Totary s (N+O+ rices (N+ 1 KV Cu 11 KV C O+O1) fo	O1) for DP Withou O+O1) for DP Wit It Point with 180 D out Point with 90 D or 11 KV Pin Point ne (HT) - Rs. 200	ut AB Switch h AB Switch egree Angle egree Angle s With WPB for 1st 5 km.	77,172.95 96,324.82 7,79,500.61		
5 1 2 3 4 5 Q	Gross Total Summa  Gross Total Material +Service  Gross Total Material +Services  Gross Total Material +Services (N+O+O1) for 1  Gross Total Material +Services (N+O) for  Gross Total Material +Services (N+O)  Inspection Fee of Over Inspection Fee Over Insp	Totary s (N+O+ rices (N+ 1 KV Cu 11 KV C O+O1) fo Head Lin	O1) for DP Withou O+O1) for DP Wit It Point with 180 D out Point with 90 D or 11 KV Pin Point ne (HT) - Rs. 200	ut AB Switch h AB Switch egree Angle egree Angle s With WPB for 1st 5 km. dditional Km	77,172.95 96,324.82 7,79,500.61		

U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	9.54.098.38
_		-,,

#### Benefit:

- 1) To maintain reliable power supply to Urban consumers by mitigating Overload & N-1 Issue.
- 2) Mitigation the overloading issue with load growth of 5 years.
- 3) Faulty part of feeder can be isolated through proposed RMU to provide reliable power supply.

#### 4. Refurbishment of 11kV Housing board Feeder for mitigation of Overloading

**Proposal:** Augmentation of existing 11kV Housing board Feeder emanating from 33/11kV CS Pur-1 PSS from 55sqmmlower size conductor to 100sqmm AAAC conductor & construction of 0.7km new linking line for mitigation of N-1 redundancy.

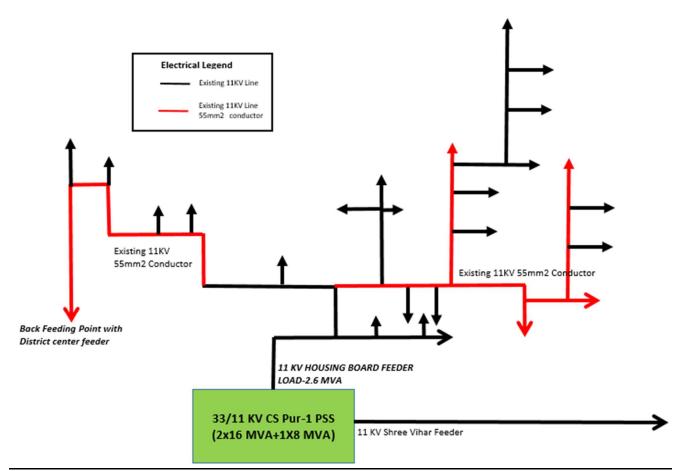
**Objective:** To mitigate the overloading issue of 11kV Housing Board feeder.

#### **Existing Scenario:**

- At present, 11kV Housing Board feeder is emanating from 33/11kV CS Pur-1 PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 6km and the peak load is 4.3MVA.
- In the existing scenario, conductors size of 11kV Housing Board feeder where overloading is encountered is 80sqmm & the feeder is loaded up to 95.3% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11kV feeder is hampers
  the reliability of power supply and also considering future load growth of the residential building,
  augmentation of this feeder is proposed for improving reliability. Construction of linking line is
  proposed for mitigation of N-1 issue.

	EXISTING LOADING								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status		
CS PUR-1 HB	4.51	4.30	95.3	OVERLOAD	6.43	142.6	OVERLOAD		

#### Existing SLD (Summer'21):

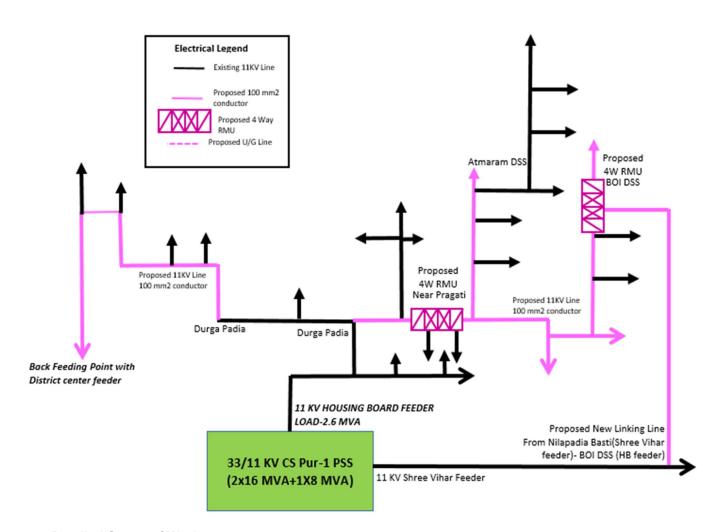


## **Proposed Scenario:**

- Augmentation of 2.8km existing 55sqmm old conductor with 100sqmm AAAC conductor. (From Durga padia to DC back feeding & from Durga padia to Atmaram DSS).
- Installation of 2 nos. of RMU for backfeeding & feeder bifurcation purpose.

	LOADING OF FEEDER AFTER PROPOSAL								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status		
CS PUR-1 HB	5.18	4.30	83.0	ОК	5.2	99.6	OK		

## Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

- Augmentation of 2.8km existing 55sqmm old conductor with 100sqmm AAAC conductor. (From Durga padia to DC back feeding & from Durga padia to Atmaram DSS).
- Installation of 2 nos. of RMU for backfeeding & feeder bifurcation purpose.

	TP CENTRAL ODISHA DISTRIBUTION LIMITED						
	Name of the Division :- BCDD-II						
	Name of the Sub-Division : -	Periphery					
	Name of the Section : -	Cs Pur-1					
	Part- A :Installation of 3 no. 4Way RMU at different location on C HB feeder with associated cables on CS pur HB feeder Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length (From Nilapadia Basti of 11kV Sri Vihar Feeder with Bank of Indi Part-C:- Conductor Augmentation - 2.8km						
	Scope of work:-	Part- A :Installation of 3 no. 4Way RMU at different location on CS pur HB feeder with associated cables on CS pur HB feeder Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.7 kg					
	Names of Schemes: -	TPCODL CAPEX Scheme					
		ABSTRACT OF ESTIMATE					
SI. No.		Description	Amount				

5	Total Amount (In Cr.)	0.80
4	Total Amount	₹ 80,38,732.36
3	to 100 mm2 of length-2.8 Km (From DurgaPadia to DC Back feeding & from Durga padia to Atmaram DSS)	₹ 19,02,341.68
_	PART-C- Augmentation of Conductor of CS pur HB feeder from 55/ 34 mm2	
2	Part- B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.7 Km (From Nilapadia Basti of 11KV sri vihar Feeder with Bank of India DSS)	₹ 12,58,836.91
1	Part- A :Installation of 3 no. 4Way RMU at different location on CS pur HB feeder with associated cables on CS pur HB feeder	₹ 48,77,553.77

Part-	A :Installation of 3 no. 4Way RMU at different location on CS	3 pur HB	feeder with	associated cable	s
Suppl	y Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.20	17,70,000.00	3,54,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set		29,874.06	-
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.00	6,94,910.00	-
2	Supply of 11kV RMU				
 a	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
С	No. of 11kV 3Way RMU (LLV+M)	nos.	_		
d	No. of 11kV 4Way RMU (LLVV+M)	nos.			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	0.2	56,515.00	11,303.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	0.2	77,990.00	15,598.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0	6,766.00	-
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (i	n Rs.)			26,26,545.24

SI. No.	on Portion  Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				· · ·
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.20	94,500.00	18,900.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	2,400.00	-
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.00	1,04,114.67	-
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	0.2	27,296.35	5,459.27
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	0.2	1,22,488.27	24,497.65
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0.0	612.54	-
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion)	(in Rs.)	1		1,26,418.72
Civil F	 Portion				
SI.	Description of items	Unit	Quantity	Rate	Amount
No. 1	Civil works with supply of all materials like cement, MS			(in Rs.)	(in Rs.)
'	tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	140	700.00	98,000.00
1.1.b	Earth work excavation of hard rock	Cum	60	1,720.00	1,03,200.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	120	171.55	20,586.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	80	2,500.00	2,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	120	202.00	24,240.00

Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)						
S	Final decision by electrical Inspector						
R	Inspection Fee of Drawing Checking and Approval						
Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000		
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km						
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00		
N	Grand Total (L+M)				48,73,303.77		
	CESS @ 1% of L						
M1					40,952.13		
M	GST @ 18% of L				7,37,138.39		
L	Total Estimated Capital Cost i.e. (J+K)				40,95,213.25		
K	Other Overhead /(including Supervision Charges) @ 6 % of J				2,31,804.52		
J	Total Cost (H+I)				38,63,408.73		
I	Sub Total (Erection Portion + Civil Portion)				8,73,104.92		
н	Total (C+D+E+F+G)				29,90,303.81		
G	Erection Charges @ 10% of earthing items				751.12		
F	Transportation @ 7.5% of C						
E	Tools & Plants Charges @ 2% of C (considered for earthing items)						
D	Contingency @ 3 % of C						
С	Sub Total (A+B)				27,05,341.60		
В	Stock, Storage & Insurance @ 3 % of A						
Α	Sub Total (Supply Portion)						
	, ,,				7,46,686.20		
	Sub Total (Civil Portion) (in Rs.)						
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	7	1,012.00	7,084.00		
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00		
3	Supply of GI Fencing with Gate around each RMU	sqmtr	40	3,600.00	1,44,000.00		
2.1	Prefabricated RCC foundation of 11kV RMU Nos. 2 23,145.30						
2	cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials						
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of km 26,43,670.63						

	B :-Interlinking line on Srivihar feeder of 100 mm2 of length-0.7 h n Nilapadia Basti of 11KV sri vihar Feeder with Bank of India DSS					
	11kV Line Length with 40 Mtr. Span using 100	SQ.MM.	AAA Conduc	tor		
	No. of Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-MVD-0004)			1		
MATERIALS FOR 11 KV Cut Point with 180 Degree Angle						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95	
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =( 2x9.56x1.2)	KG	88.50	22.944	2,030.54	

3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	5.2864	467.85		
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	5.85072	517.79		
5	Danger Plate, 1 no's.	No.	94.40	1	94.40		
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63		
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20		
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52		
9	11 KV pin insulator polymer	No.	236.00	3	708.00		
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00		
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00		
12	Earthing of Support ( Coil Type )	EA	195.88	1	195.88		
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19		
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40		
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)  Black Paint	K.g.	92.04	3.55	326.74		
16		Ltr	259.60	0.5	129.80 519.20		
17	Yellow Colour Paint for Background						
<b>А</b> В	Total Cost of materials  Stock, Storage & Insurance i.e 3% of A						
C	5100	ck, Storag		otal (A+B)	1,400.19 <b>48,073.28</b>		
D			Contigency		1,442.20		
E		7	ools & Plants	_	961.47		
F			ansportation @	_	3,605.50		
G	Frection (		5% on Trf/Br		1,365.62		
Н	Erection Charges @ 10% of C (except Trf/Breaker/M				2,076.08		
i i	Erection Charges @ 20% of			. ,	-		
J				of (C to I)	57,524.14		
	Civil & Services			(- 33 )	,		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.45	2,925.00		
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu.mtr	6,500.00	0.11	731.25		
	mtr						
K							
K					3,656.25 61,180,39		
L		/ Cut Poir		Total (J+K)	61,180.39		
-	Other overheads ( Including 6% supervision charges) of L (for 11 KV	/ Cut Poir	t with 180 Deg	Total (J+K) gree Angle)	<b>61,180.39</b> 3,670.82		
L M		√ Cut Poir	t with 180 Deç Sub 1	rotal (J+K) gree Angle) rotal (L+M)	<b>61,180.39</b> 3,670.82 <b>64,851.22</b>		
L M N		/ Cut Poir	t with 180 Deg	rotal (J+K) gree Angle) rotal (L+M) 18% of (N)	<b>61,180.39</b> 3,670.82		
L M N			nt with 180 Deg <b>Sub 1</b> Total GST @  Total CESS @	rotal (J+K) gree Angle) rotal (L+M) 18% of (N) 1% of (N)	61,180.39 3,670.82 64,851.22 11,673.22		
L M N O	Other overheads ( Including 6% supervision charges) of L (for 11 KV		nt with 180 Deg <b>Sub 1</b> Total GST @  Total CESS @	rotal (J+K) gree Angle) rotal (L+M) 18% of (N) 1% of (N)	61,180.39 3,670.82 64,851.22 11,673.22 648.51		
L M N O	Other overheads ( Including 6% supervision charges) of L (for 11 KV		nt with 180 Deg <b>Sub 1</b> Total GST @  Total CESS @	rotal (J+K) gree Angle) rotal (L+M) 18% of (N) 1% of (N)	61,180.39 3,670.82 64,851.22 11,673.22 648.51		
L M N O O1 P	Other overheads ( Including 6% supervision charges) of L (for 11 K)  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle	Cut Poin	t with 180 Deg Sub 1 Total GST @ Total CESS @ t with 180 Deg	rotal (J+K) gree Angle) rotal (L+M) 18% of (N) 1% of (N) gree Angle	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95		
L M N O O1 P	Other overheads ( Including 6% supervision charges) of L (for 11 KV  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)	Cut Poin	t with 180 Deg Sub 1 Total GST @ Total CESS @ t with 180 Deg	Total (J+K) gree Angle) Total (L+M) 18% of (N) 1% of (N) gree Angle  1	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95		
L M N O O1 P	Other overheads ( Including 6% supervision charges) of L (for 11 KV  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with  Description of Materials	Cut Poin	Total GST @ Total CESS @ t with 180 Deg	rotal (J+K) gree Angle) rotal (L+M) 18% of (N) 1% of (N) gree Angle	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95		
L M N O O1 P	Other overheads ( Including 6% supervision charges) of L (for 11 KV  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with	Cut Poin	t with 180 Deg Sub 1 Total GST @ Total CESS @ t with 180 Deg	Total (J+K) gree Angle) Total (L+M) 18% of (N) 1% of (N) gree Angle  1	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95		
L M N O O1 P	Other overheads (Including 6% supervision charges) of L (for 11 KV  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel	Cut Poin  90 Degree  Unit  No	Total GST @ Total CESS @ t with 180 Deg tee Angle Unit Rate 26,516.95	Total (J+K) gree Angle) Total (L+M) 18% of (N) 1% of (N) gree Angle  1  Total Quantity 1	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95 Total Amount 26,516.95		
L M N O O1 P SI. No.	Other overheads (Including 6% supervision charges) of L (for 11 KV  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's	Cut Poin  90 Degree  Unit  No  KG	Total GST @ Total CESS @ t with 180 Deg twith 180 Deg  Total CESS @ twith 180 Deg	Total (J+K) gree Angle) Total (L+M) 18% of (N) 1% of (N) gree Angle  1  Total Quantity 1 45.888	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95 Total Amount 26,516.95 4,061.09		
L M N O O1 P SI. No. 1 2	Other overheads (Including 6% supervision charges) of L (for 11 KV)  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel	Out Poin  90 Degree  Unit  No  KG  K.g.	Total GST @ Total GST @ Total CESS @ t with 180 Deg  Eee Angle  Unit Rate 26,516.95 88.50	Total (J+K) gree Angle) Total (L+M) 18% of (N) 1% of (N) gree Angle  1  Total Quantity 1 45.888 10.5728	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95  Total Amount 26,516.95 4,061.09 935.69		
L M N O O1 P SI. No. 1 2	Other overheads (Including 6% supervision charges) of L (for 11 KV  Gross Total Material +Services (N+O+O1) for 11 KV  No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)	Cut Poin  90 Degree  Unit  No  KG  K.g.	Total GST @ Total GSS @ Total CESS @ t with 180 De  ee Angle  Unit Rate  26,516.95  88.50  88.50	Total (J+K) gree Angle) Total (L+M) 18% of (N) 1% of (N) gree Angle  1  Total Quantity 1  45.888  10.5728  11.70144	61,180.39 3,670.82 64,851.22 11,673.22 648.51 77,172.95  Total Amount 26,516.95 4,061.09 935.69 1,035.58		

8       Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)       KG       88.50       1.2036         9       11 KV pin insulator polymer       No.       236.00       3         10       H W fitting(B&S) 70KN, 3Bolt       No.       413.00       6       2,         11       Disc insulator (B&S) 70 KN polymer       No.       1,357.00       6       8,         12       Earthing of Support ( Coil Type )       EA       195.88       1         13       No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing       K.g.       88.50       0.262         14       PG Clamp for 100 sq.mm AAA conductor       NO.       684.40       6       4,         15       H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)       Pair       147.50       2         16       H.T. Stay set (Complete )       Set       1,239.00       2       2,
10       H W fitting(B&S) 70KN, 3Bolt       No.       413.00       6       2,         11       Disc insulator (B&S) 70 KN polymer       No.       1,357.00       6       8,         12       Earthing of Support ( Coil Type )       EA       195.88       1         13       No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing       K.g.       88.50       0.262         14       PG Clamp for 100 sq.mm AAA conductor       NO.       684.40       6       4,         15       H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)       Pair       147.50       2         16       H.T. Stay set (Complete )       Set       1,239.00       2       2,
11       Disc insulator (B&S) 70 KN polymer       No.       1,357.00       6       8,         12       Earthing of Support ( Coil Type )       EA       195.88       1         13       No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing       K.g.       88.50       0.262         14       PG Clamp for 100 sq.mm AAA conductor       NO.       684.40       6       4,         15       H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)       Pair       147.50       2         16       H.T. Stay set (Complete )       Set       1,239.00       2       2,
12       Earthing of Support ( Coil Type )       EA       195.88       1         13       No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing       K.g.       88.50       0.262         14       PG Clamp for 100 sq.mm AAA conductor       NO.       684.40       6       4,         15       H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)       Pair       147.50       2         16       H.T. Stay set (Complete )       Set       1,239.00       2       2,
13       No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing       K.g.       88.50       0.262         14       PG Clamp for 100 sq.mm AAA conductor       NO.       684.40       6       4,         15       H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)       Pair       147.50       2         16       H.T. Stay set (Complete)       Set       1,239.00       2       2,
13       pole with Coil earthing       K.g.       88.50       0.262         14       PG Clamp for 100 sq.mm AAA conductor       NO.       684.40       6       4,         15       H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)       Pair       147.50       2         16       H.T. Stay set (Complete)       Set       1,239.00       2       2,
15     H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required (1 Pair)     Pair     147.50     2       16     H.T. Stay set (Complete)     Set     1,239.00     2     2,
15   no's qty. required ( 1 Pair)   Pair   147.50   2
47   LLT Otan In and tan Time O
17H.T. Stay Insulator Type-CNo.59.002
18         7/10 SWG Stay Wire 15kg /stay         K.g.         88.50         30         2,
19 GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole) K.g. 92.04 7.433
20         Black Paint         Ltr         259.60         0.5
21   Yellow Colour Paint for Background   Ltr   259.60   2
A Total Cost of materials 55
B Stock, Storage & Insurance i.e 3% of A 1,
C Sub Total (A+B) 57
D Contigency @ 3% of C 1,
E Tools & Plants @ 2% of C 1,
F Transportation @ 7.5% of C 4,
G Erection Charges @ 5% on Trf/Breaker/Joist 1,
H Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole) 2,
I Erection Charges @ 20% of PSC pole- Not to be used for 33kv
I Erection Charges @ 20% of PSC pole- Not to be used for 33kv  Sum of (C to I) 68
J Sum of (C to I) 68.  Civil & Services  SI. Description of Materials  Unit Unit Rate Total To
J Sum of (C to I) 68  Civil & Services  SI. Description of Materials  Unit Unit Rate Quantity American
SI. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing &
SI. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.
SI. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr Cu.mtr 6,500.00 0.5  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu Cu mtr 6,500.00 0.1
SI. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  2 Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr
SI. No. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  2 Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr
SI. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Total Civil & Services  8,
SI. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr
SI. No. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  2 Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr
SI. No. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  2 Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr
Sum of (C to I)   68
SI. No. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  2 Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr
Sum of (C to I)   68.   Civil & Services
SI. No. Description of Materials  SI. No. Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the execvation including exevation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  2 Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr
SI. No. Description of Materials Unit Unit Rate Quantity Am  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx800mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  2 Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr Cu.mtr 6,500.00 0.5 2, 3 Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu Cu.mtr 6,500.00 0.1  K Total Civil & Services 8, L Total (J+K) 76. M Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle) 4, N Sub Total (L+M) 80, O Total GST @ 18% of (N) 14 O1 Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle 96.  11 KV Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points With WPB
Sum of (C to I)   68.
St. Description of Materials  St. No. Description of Materials  St. No. Description of Materials  St. No. Description of Materials  St. Description of Materials
Sum of (C to I)   68
Sum of (C to I)   68.
Sum of (C to I)   68   Civil & Services
Sum of (C to I)   68
Sum of (C to I)   68   Civil & Services   Civil & Services   St.   Description of Materials   Unit   Unit Rate   Total Quantity   Total Quantity   Am

		1				
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	20.46	1,810.82	
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	51	12,036.00	
9	Earthing of Support ( Coil Type )	No.	195.88	17	3,329.96	
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	4.45	394.18	
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	24.65	2,268.79	
12	100 mm2 AAAC	K.M.	64,900.00	2.16	1,40,378.70	
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-	
14	Black Paint	Ltr	259.60	17.0	4,413.20	
15	Yellow Colour Paint for Background	Ltr	259.60	34.0	8,826.40	
Α		1	Total Cost o	f materials	6,50,375.70	
В	Stock, Storage & Insurance i.e 3% of A					
С	Sub Total (A+B)					
D	Contigency @ 3% of C					
Е	Tools & Plants @ 2% of C					
F	Transportation @ 7.5% of C					
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole					
Н	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)					
ı	Erection Charges @ 20% of PSC pole- Not to be used for 33kv					
J		-	Sum	of (C to I)	7,97,395.94	
	Civil & Services			, ,		
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	7.65	49,725.00	
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.91	12,431.25	
Κ						
L		Total	Material+Ser	vices (I+K)	8,59,552.19	
М	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)					
N	Sub Total (L+M)					
0			Total GST @	18% of (N)	1,64,002.56	
01			Total CESS @	0 1% of (N)	9,111.25	
Р	Gross Total Material +Services (N+O+O	1) for 11 k	V Pin Points	With WPB	10,84,239.14	
	6% Supervision Charges Su	immary				
1						
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)					
3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)					
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)					
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)					
	Total (6% supervision charges)					
	Gross Total Summary	Y				
1						
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch				-	
3	Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle				77,172.95	
4	Gross Total Material +Services (N+O) for 11	KV Cut Po	oint with 90 De	gree Angle	96,324.82	
5	Gross Total Material +Services (N+O+	O1) for 11	KV Pin Points	With WPB	10,84,239.14	
Q	Inspection Fee of Over He				200.00	
R	Inspection Fee of Over Hea	•	•			
S	•		•		400.00	
Т	Inspection Fee of Drawing Checking and Approval Final decision by electrical Inspector					
U	, , ,					
-		- 1	1-	,	12,58,836.91	

PART-C- Augmentation of Conductor of CS pur HB feeder from 9 DurgaPadia to DC Back feeding & from Durga padia to Atmaram			
11kV Line Length with 40 Mtr. Span using 100 SQ.MMAAA Conductor			
No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)	1		

	MATERIALS OF DP Wit	h AB Sw	<u>itch</u>			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90	
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36	
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88	
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34	
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	6.692	592.24	
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51	
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68	
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62	
9	Danger Plate, 2 no's.	No.	94.40	2	188.80	
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26	
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00	
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00	
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00	
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00	
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00	
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63	
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40	
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04	
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00	
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00	
21	11 KV pin insulator polymer	No.	236.00	3	708.00	
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00	
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00	
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40	
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60	
26	Black Paint	Ltr	259.60	1	259.60	
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20	
Α	Total Cost of materials					
В	Stock, Storage & Insurance i.e 3% of A					
С	Sub Total (A+B)					
D	Contigency @ 3% of C					
E	Tools & Plants @ 2% of C					
F	Transportation @ 7.5% of C					
G	Erection Charges @ 5% on Trf/Breaker/Joist					
H	Erection Charges @ 10% of C (except Trf/Breake		<b>·</b>	• ' '	7,755.96	
<u> </u>	Erection Charges @ 20%	of PSC	•		-	
J				Sum of (C to I)	1,65,621.19	
SI. No.	Description of Materials	<u>es</u> Unit	Unit Rate	Total Quantity	Total Amount	

1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all	No.	2,250.00	2	4,500.00		
2	labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00		
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00		
K		1	Total C	ivil & Services	16,626.50		
L				Total (J+K)	1,82,247.69		
М	Other overheads (Including 6% supervision	charges)	of L (for DP V		10,934.86		
N	Caron eventual ( menaning eve capering ev	· •	•	ub Total (L+M)	1,93,182.56		
0				Γ @ 18% of (N)	34,772.86		
01				SS @ 1% of (N)	1,931.83		
P	Gross Total Material +Service	os (N+O+			2,29,887.24		
•	Gross rotal material - Gervic	(14.0)	01)101 01 4	Titli AD OWITCH	2,23,007.24		
	11 Kv Line Length In KM with 40 Mtr. Span						
	(Ref. Drawing No TPCODL-MVD-0003)			2.8			
	MATERIALS FOR 11 KV Pin Points With WPB						
SI.	<u></u>			Total	Total		
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount		
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	14	3,71,237.30		
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	14	13,381.20		
3	Top bracket 100x50X6 mm Gl channel (2kg each)	No.	177.00	14	2,478.00		
4	Danger Plate, 1 no's. for each pole	No.	94.40	14	1,321.60		
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.21	372.82		
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	42.00	3,964.80		
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	16.85	1,491.26		
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	42	9,912.00		
9	Earthing of Support ( Coil Type )	No.	195.88	14	2,742.32		
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.67	324.62		
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	20.30	1,868.41		
12	100 mm2 AAAC	K.M.	64,900.00	8.65	5,61,514.80		
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-		
14	Black Paint	Ltr	259.60	14.0	3,634.40		
15	Yellow Colour Paint for Background	Ltr	259.60	28.0	7,268.80		
Α			Total Co	st of materials	9,81,512.33		
В	(	Stock, Sto	rage & Insura	nce i.e 3% of A	29,445.37		
С			Sı	ıb Total (A+B)	10,10,957.70		
D			Contige	ncy @ 3% of C	30,328.73		
Е				ants @ 2% of C	20,219.15		
F				on @ 7.5% of C	75,821.83		
	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole						
G	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)						
Н	Erection Charges (Ø 10% of C (except 1n/Break)	Erection Charges @ 20% of PSC pole- Not to be used for 33kv					
		of PSC	pole- Not to b	e used for 33kv ⊥	-		
H		of PSC	·		12,19.304.46		
	Erection Charges @ 20%	'	·	e used for 33kv Sum of (C to I)	12,19,304.46		
H		'	·		12,19,304.46 40,950.00		
H I J	Erection Charges @ 20%  Civil & Servic  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =	es		Sum of (C to I)			

K	Total Civil & Services	1,05,695.10		
L Total Material+Services (I+K)				
М	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	79,499.97		
N	Sub Total (L+M)	14,04,499.53		
0	Total GST @ 18% of (N)	2,52,809.92		
01	Total CESS @ 1% of (N)	14,045.00		
Р	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	16,71,354.44		
	6% Supervision Charges Summary			
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)			
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	79,499.97		
Total (6% supervision charges)				
	Gross Total Summary			
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24		
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	16,71,354.44		
Q	200.00			
R	R Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km			
S	Inspection Fee of Drawing Checking and Approval			
Т	Final decision by electrical Inspector	500.00		
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	19,02,341.68		

- To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because
  of overloading is adressed through above proposal.

## 5. Refurbishment of 11kV CS Pur-2 Industry Feeder for mitigation of Overloading

**Proposal:** Augmentation of existing 11kV Industry Feeder emanating from 33/11kV CS Pur-2 PSS from 80sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable from 3Cx185sqmm to 3Cx400sqmm of length-0.6km.

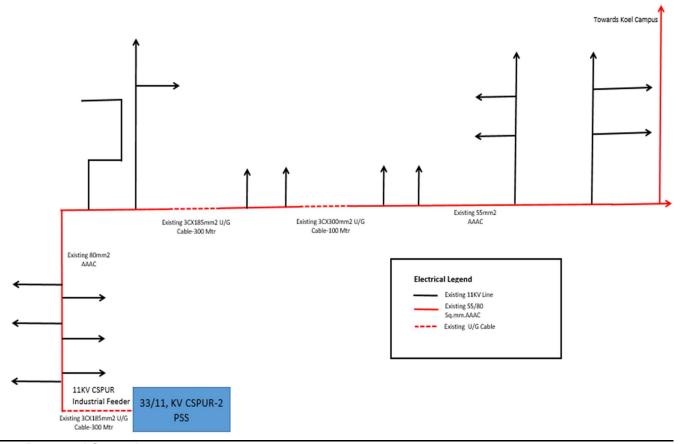
**Objective:** To mitigate the overloading issue of CS Pur-2 11kV Industry feeder.

#### **Existing Scenario:**

- At present, 11kV CS Pur-2 Industry feeder is emanating from 33/11kV CS Pur-2 PSS. Only
  Urban & Industrial consumers are connected from this feeder. Total length of this feeder is
  7.5km and the peak load is 4.2MVA.
- In the existing scenario, conductor size of 11kV CS Pur-2 Industry feeder is 80sqmm & the feeder is loaded up to 93.13% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban & Industrial consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

	EXISTING LOADING									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status			
CS Pur-2 Industry	4.51	4.20	93.13	Overload	6.20	137.5	Overload			

#### Existing SLD (Summer'21):

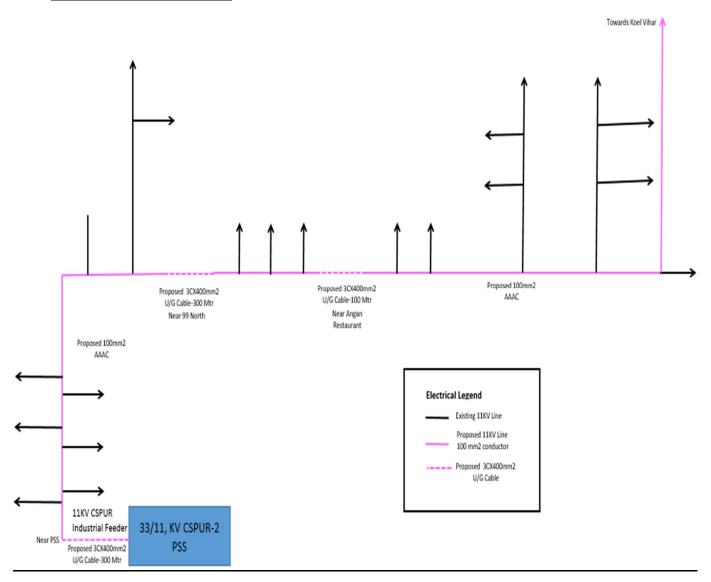


#### **Proposed Scenario:**

Augmentation of 4.5km Existing 80sqmm old Conductor with 100sqmm AAAC conductor & U/G
 Cable from 3Cx185sqmm to 3Cx400sqmm (From CS Pur-2 PSS to KOEL Campus).

LOADING OF FEEDER AFTER PROPOSAL								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status	
CS Pur-2 Industry	5.18	4.20	81.1	ОК	5.0	97.3	OK	

# Proposed SLD (Summer'22):



# **Detailed Scope of Work:**

Augmentation of 4.5km Existing 80sqmm old Conductor with 100sqmm AAAC conductor & U/G
 Cable from 3Cx185sqmm to 3Cx400sqmm (From CS Pur-2 PSS to KOEL Campus).

TP CENTRAL ODISHA DISTRIBUTION LIMITED					
Name of the Division :-	BCDD-II				
Name of the Sub-Division : -	Periphery				
Name of the Section : -	Cs Pur-2				
Name of the Work :-	Part- A: Laying of UG cable 3Cx400sqmm - Length 0.65km (From CS Pur-2 PSS to Koel Campus) PART-B- Augmentation of Conductor of CS pur Industrial FDR from 55/34sqmm to 100sqmm of length-4.5 Km				
Scope of work:-	Part- A : Laying of UG cable 3Cx400sqmm - Length 0.65km (From CS Pur-2 PSS to Koel Campus)				

		PART-B- Augmentation of Conductor of CS pur sqmm to 100sqmm of length-4.5 km	Industrial FDR from 55/ 34
	Names of Schemes: -	TPCODL CAPEX Scheme	
		ABSTRACT OF ESTIMATE	
SI. No.	Description		Amount
1	Part- A : Laying of UG cab 2 PSS to Koel Campus)	ole 3Cx400mm2- Length 0.65KM (From CS Pur-	₹ 86,08,185.69
2	PART-B- Augmentation of mm2 to 100 mm2 of lengtl	₹ 31,72,297.96	
3	Total Amount		₹ 1,17,80,483.65
4		Total Amount (In Cr.)	1.18

	A : Laying of UG cable 3Cx400mm2- Length 0.65KM (Fro				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories			,	
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.6		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	1.20	17,70,000.00	21,24,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	4	29,874.06	1,19,496.24
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	1.20	6,94,910.00	8,33,892.00
	Sub Total (Supply Portion)	(in Rs.)			31,43,015.12
SI.	Description of items			Doto	
110.		Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method	Unit	Quantity	(in Rs.)	Amount (in Rs.)
	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method  Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	Unit km	Quantity 1.20		
<b>1</b>	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method  Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)			(in Rs.)	(in Rs.)
1 1.1 1.2	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method  Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	km	1.20	(in Rs.) 94,500.00	(in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method  Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable	km Set	1.20	94,500.00 2,400.00	(in Rs.)

	laying of individual run of UG cable at main road and					
1.6	unaccessable place.  Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	1.20	1,04,114.67	1,24,937.60	
2	Erection, Commissioning, Wiring and Testing of 11kV					
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-	
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	15,000.00	-	
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-	
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-	
	Sub Total (Erection Portion	) (in Rs.)			2,55,540.80	
Civil	Portion					
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)	
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench			, ,	· · · ·	
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)					
1.1. a	Earth work excavation of <b>soil</b>	Cum	420	700.00	2,94,000.00	
1.1. b	Earth work excavation of hard rock	Cum	180	1,720.00	3,09,600.00	
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	360	171.55	61,758.00	
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	240	2,500.00	6,00,000.00	
1.4	Back filling with excavated soil outside and above the trench	Cum	360	202.00	72,720.00	
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with	km	0.6	26,43,670.63	15,86,202.38	
2	supply of all materials					
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-	
3	Supply of GI Fencing with Gate around each RMU	sqmtr	0	3,600.00	-	
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-	
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80	
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	20	1,012.00	20,240.00	
	Sub Total (Civil Portion) (	in Rs.)			29,91,349.18	
Α	Sub Total (Supply Portion)				31,43,015.12	
В	Stock, Storage & Insurance @ 3 % of A				94,290.45	
С	Sub Total (A+B)				32,37,305.57	
D	Contingency @ 3 % of C					
Е	Tools & Plants Charges @ 2% of C (considered for earthin	g items)	-		-	
F	Transportation @ 7.5% of C				2,42,797.92	
G	Erection Charges @ 10% of earthing items				-	
Н	Total (C+D+E+F+G)				35,77,222.66	
I	Sub Total (Erection Portion + Civil Portion)				32,46,889.98	
J	Total Cost (H+I)				68,24,112.64	

K	Other Overhead /(including Supervision Charges) @ 6 % of J	4,09,446.76
L	Total Estimated Capital Cost i.e. (J+K)	72,33,559.40
М	GST @ 18% of L	13,02,040.69
M1	CESS @ 1% of L	72,335.59
N	Grand Total (L+M)	86,07,935.69
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	86,08,185.69

	11kV Line Length with 40 Mtr. Span using 10	0 SQ.MM	AAA Condu	ıctor		
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)	2				
	MATERIALS OF DP With A	B Switch	1			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80	
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =(2x9.56x3)	KG	88.50	114.72	10,152.72	
3	Fish Plate 50x6 mm, 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77	
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68	
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48	
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02	
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36	
8	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23	
9	Danger Plate, 2 no's.	No.	94.40	4	377.60	
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52	
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00	
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00	
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00	
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00	
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00	
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26	
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80	
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07	
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00	
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.0	

	44107		222.22		4 440 00			
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00			
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00			
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00			
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80			
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21			
26	Black Paint	Ltr	259.60	2	519.20			
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40			
Α			Total Cost of	of materials	2,67,760.93			
В	Stock, Storage & Insurance i.e 3% of A							
С			Sub 1	otal (A+B)	2,75,793.76			
D	Contigency @ 3% of C							
Е			Tools & Plants	@ 2% of C	5,515.88			
F		Tr	ansportation (	2) 7.5% of C	20,684.53			
G	Erection	Charges (	② 5% on Trf/B	reaker/Joist	5,462.49			
Н	Erection Charges @ 10% of C (except Trf/Breaker/				15,511.92			
ı	Erection Charges @ 20% of	PSC pol	e- Not to be us	sed for 33kv	_			
J	<u> </u>			n of (C to I)	3,31,242.39			
	Civil & Services			. ( ,				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00			
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00			
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00			
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00			
K			Total Civil	& Services	33,253.00			
L				Total (J+K)	3,64,495.39			
М	Other overheads (Including 6% supervision ch	arges) of	L (for DP With	AB Switch)	21,869.72			
N			Sub	Total (L+M)	3,86,365.11			
0			Total GST @	18% of (N)	69,545.72			
01			Total CESS (	@ 1% of (N)	3,863.65			
Р	Gross Total Material +Services	(N+O+O1	) for DP With	AB Switch	4,59,774.48			
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)			4.5				
	MATERIALS FOR 11 KV Pin Poi	nts With	WPB					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	23	6,09,889.85			
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	23	21,983.40			
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	23	4,071.00			
4	Danger Plate, 1 no's. for each pole	No.	94.40	23	2,171.20			
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	6.92	612.48			
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	69.00	6,513.60			
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	27.68	2,449.93			
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	69	16,284.00			
9	Earthing of Support ( Coil Type )	No.	195.88	23	4,505.24			
-	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting							
10	pole with Coil earthing	K.g.	88.50	6.03	533.30			

11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	33.35	3,069.53			
12	100 mm2 AAAC	K.M.	64,900.00	13.91	9,02,434.50			
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-			
14	Black Paint	Ltr	259.60	23.0	5,970.80			
15	Yellow Colour Paint for Background	Ltr	259.60	46.0	11,941.60			
Α			Total Cost	of materials	15,92,430.43			
В	Sto	ck, Storaç	je & Insurance	e i.e 3% of A	47,772.91			
С			Sub 7	Total (A+B)	16,40,203.35			
D			Contigency	/ @ 3% of C	49,206.10			
Е	Tools & Plants @ 2% of C							
F		Tr	ansportation (	@ 7.5% of C	1,23,015.25			
G	Erection Charges	@ 5% on	Trf/Breaker/V	VPB/ H-Pole	31,409.33			
Н	Erection Charges @ 10% of C (except Trf/Breaker/	NPB/ H-P	ole/HT stay se	et/PSC pole)	1,01,201.68			
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv							
J			Sui	m of (C to I)	19,77,839.77			
	Civil & Services							
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	10.35	67,275.00			
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.59	16,818.75			
3	Dismantling of 55sqmm AAAC	KM	6,300.00	13.91	87,601.50			
K		'	Total Civil	& Services	1,71,695.25			
L		Tota	l Material+Se	rvices (I+K)	21,49,535.02			
М	Other overheads (Including 6% supervision charge	es) (for 11	KV Pin Points	With WPB)	1,28,972.10			
N			Sub	Total (L+M)	22,78,507.13			
0			Total GST @	) 18% of (N)	4,10,131.28			
01			Total CESS	@ 1% of (N)	22,785.07			
Р	Gross Total Material +Services (N+O+O	1) for 11	KV Pin Points	With WPB	27,11,423.48			
	6% Supervision Charges S	Summary						
2	Other overheads (Including 6% supervision ch	arges) of	L (for DP With	AB Switch)	21,869.72			
5	Other overheads (Including 6% supervision charge	es) (for 11	KV Pin Points	With WPB)	1,28,972.10			
	, , , , , , , , , , , , , , , , , , , ,	Total (	6% supervisio	on charges)	1,50,841.82			
	Gross Total Summa							
2	Gross Total Material +Service		D1) for DP Wit	h AB Switch	4,59,774.48			
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB							
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.							
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km							
S	·				400.00			
T	Inspection Fee of Drawing Checking and Approval Final decision by electrical Inspector							
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T							

- To maintain reliable power supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

## 6. Refurbishment of 11KV BDA-2 Feeder for mitigation of Overload

**Proposal:** Augmentation of existing 11kV BDA-2 feeder emanating from 33/11kV CS Pur-2 PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor.

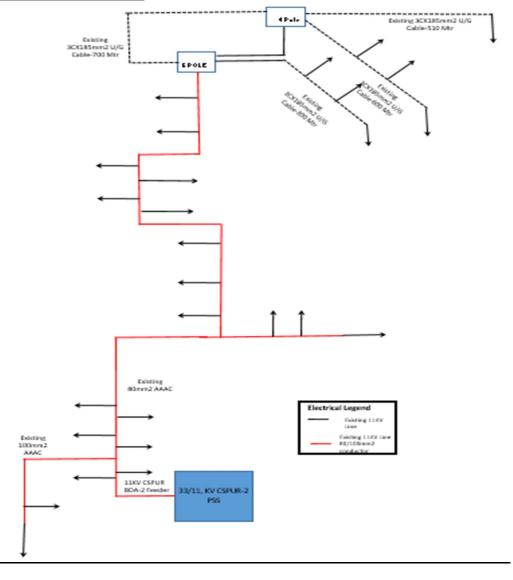
Objective: To mitigate the overloading issues of 11kV BDA-2 feeder.

#### **Existing Scenario:**

- At present, 11kV BDA-2 feeder is emanating from 33/11kV CS Pur-2 PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 13.21km and the peak load is 4.5MVA.
- In the existing scenario, conductor size of 11kV BDA-2 feeder is 55sqmm & the feeder is loaded up to 127% w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several breakdown on 11 KV feeder is hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

EXISTING LOADING								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status	
CS Pur-2 BDA-2	3.54	4.50	127.12	Overload	6.73	190.1	Overload	

# Existing SLD (Summer'21):

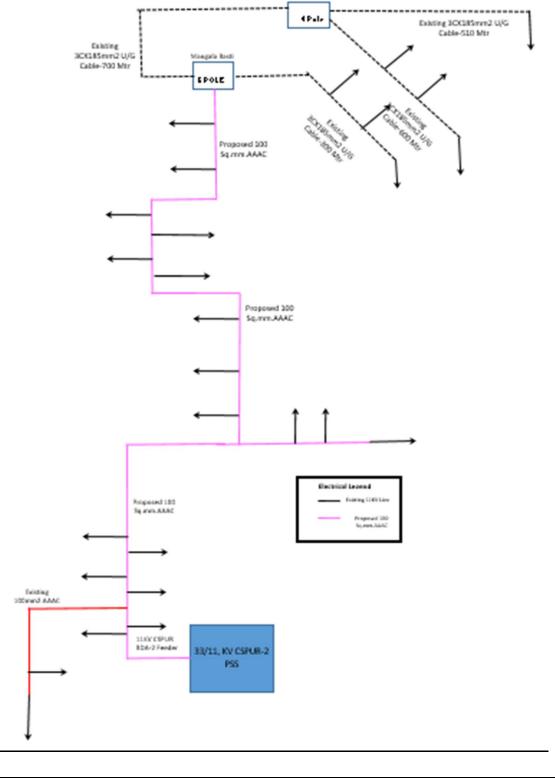


# **Proposed Scenario:**

 Augmentation of 3km Existing 55sqmm old conductor with 100sqmm AAAC conductor (From CS Pur-2 PSS to Mangala Basti 6 Pole).

	LOADING OF FEEDER AFTER PROPOSAL								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status		
CS Pur-2 BDA-2	5.18	4.50	86.9	ОК	5.4	104.2	OK		

# Proposed SLD (Summer'22):



# **Detailed Scope of Work:**

 Augmentation of 3km existing 55sqmm old conductor with 100sqmm AAAC conductor (From CS Pur-2 PSS to Mangala Basti 6 Pole).

	TP CENTRAL OF	)ISH	A DISTRIBUTION LIMITED				
	Name of the Division :-	ВС	DD-II				
j	Name of the Sub-Division : -	Per	riphery				
]	Name of the Section : -	CS	Pur-2				
	Name of the Work :-	PART-A- Augmentation of Conductor of CS pur I fdr from 55/ 34 mm2 to 100 mm2 of length-3 Km (From CS pur-2 PSS to Mangala Basti 6Pole					
	Scope of work:-	PART-A- Augmentation of Conductor of CS pur BDA2 fdr from 55/ 34 mm2 to 100 mm2 of length-3 Km (From CS pur-2 PSS to Mangala Basti 6Pole					
	Names of Schemes: -	TP	CODL CAPEX Scheme				
	<u>ABSTI</u>	RAC	T OF ESTIMATE				
SI. No.	Description		Amount				
2	PART-A- Augmentation of Conductor of CS pur BDA2 fdr from 55/ 34 mm to 100 mm2 of length-3 Km (From CS pur-2 PSS to Mangala Ba 6Pole	2	₹ 20,53,295.72				
3	Total Amount		₹ 20,53,295.72				
4	Total Amount (In Cr.)		0.21				

	11kV Line Length with 40 Mtr. Span using	100 SQ.I	ИМAAA Cond	ductor	
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			1	
	MATERIALS OF DP With	AB Swi	<u>tch</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =(7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required = (9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80

10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26			
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00			
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00			
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00			
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00			
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00			
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63			
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40			
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04			
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00			
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00			
21	11 KV pin insulator polymer	No.	236.00	3	708.00			
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00			
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00			
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40			
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60			
26	Black Paint	Ltr	259.60	1	259.60			
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20			
Α	Total Cost of materials							
В	St	ock, Stora	age & Insurance	i.e 3% of A	4,016.41			
С			Sub T	Γotal (A+B)	1,37,896.88			
D	Contigency @ 3% of C							
Е			Tools & Plants	@ 2% of C	2,757.94			
F		T	Transportation @	② 7.5% of C	10,342.27			
G	Erection Charges @ 5% on Trf/Breaker/Joist							
Н	Erection Charges @ 10% of C (except Trf/Breaker	/WPB/ H-I	Pole/HT stay se	t/PSC pole)	7,755.96			
ı	Erection Charges @ 20% of	of PSC po	ole- Not to be us	sed for 33kv				
J			Sur	m of (C to I)	1,65,621.19			
	Civil & Service	<u>es</u>						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00			
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00			
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50			
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00			
K			Total Civil	& Services	16,626.50			
L				Total (J+K)	1,82,247.69			
М	Other overheads (Including 6% supervision of	charges) o	f L (for DP With	AB Switch)	10,934.86			
N			Sub	Total (L+M)	1,93,182.56			
0			Total GST @	) 18% of (N)	34,772.86			
01			Total CESS (	@ 1% of (N)	1,931.83			
Р	Gross Total Material +Service	s (N+O+C	1) for DP With	AB Switch	2,29,887.24			
	11 Kv Line Length In KM with 40 Mtr. Span							
	I I IVV LINE LENGTH IN IVIN WITH AN INNE STRAIT			3				

	MATERIALS FOR 11 KV Pin I	Points Wi	th WPB				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	15	3,97,754.25		
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	15	14,337.00		
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	15	2,655.00		
4	Danger Plate, 1 no's. for each pole	No.	94.40	15	1,416.00		
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.51	399.44		
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	45.00	4,248.00		
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	18.05	1,597.78		
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	45	10,620.00		
9	Earthing of Support ( Coil Type )	No.	195.88	15	2,938.20		
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.93	347.81		
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	21.75	2,001.87		
12	100 mm2 AAAC	K.M.	64,900.00	9.27	6,01,623.00		
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-		
14	Black Paint	Ltr	259.60	15.0	3,894.00		
15	Yellow Colour Paint for Background	Ltr	259.60	30.0	7,788.00		
Α			Total Cost of		10,51,620.35		
В	St	ock, Stora	ige & Insurance		31,548.61		
С				Total (A+B)	<b>10,83,168.96</b> 32,495.07		
D	Contigency @ 3% of C						
<u>E</u>	Tools & Plants @ 2% of C						
F	Transportation @ 7.5% of C						
G H	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)						
	Erection Charges @ 10% of C (except 17/1/Breaker			. ,	67,348.21		
J	Election Charges @ 20 %	л гос ро		n of (C to I)	13,06,397.63		
_	Civil & Service	20	Oui	11 01 (0 10 1)	10,00,007.00		
	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =				40.0==.00		
1	0.45Cu.mtr	Cu.mtr	6,500.00	6.75	43,875.00		
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.69	10,968.75		
3	Dismantling of 80sqmm AAAC	KM	9,000.00	9.27	83,430.00		
K				& Services	1,38,273.75		
L	011 1 1 1 1 1 1 00/		al Material+Se	` ′	14,44,671.38		
M N	Other overheads ( Including 6% supervision charg	ges) (for 1			86,680.28 15 31 351 66		
0			Total GST @	Total (L+M)	<b>15,31,351.66</b> 2,75,643.30		
01			Total CESS (	, ,	15,313.52		
P	Gross Total Material +Services (N+O+	01) for 11		- , ,	18,22,308.48		
•	5.555 15th Material 100171005 (11101)	,	m i Vinta		. 5,22,550.70		
	6% Supervision Charge	s Summa	ry	<u> </u>			
2	Other overheads (Including 6% supervision of			AB Switch)	10,934.86		
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)						
	Total (6% supervision charges)						
	Gross Total Sum			•			
2	Gross Total Material +Service	•	,		2,29,887.24		
5	Gross Total Material +Services (N+C				18,22,308.48		
Q	Inspection Fee of Over H		• ,		200.00		
R	Inspection Fee of Over Ho	,					
S	Inspection Fe		ing Checking a		400.00 500.00		
Т	Final decision by electrical Inspector						

U Gross Total Material, Services and Inspection Fees (P+Q+R+S+T) 20,53,295.72

- To maintain reliable power supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

#### 7. Bifurcation of 11kV Panchasakha Nagar Feeder for mitigation of Overloading

**Proposal:** Bifurcation of existing 11kV Panchasakha Nagar feeder emanating from 33/11kV Dumduma PSS by constructing 1 no. of new feeder from 33/11kV Dumduma PSS.

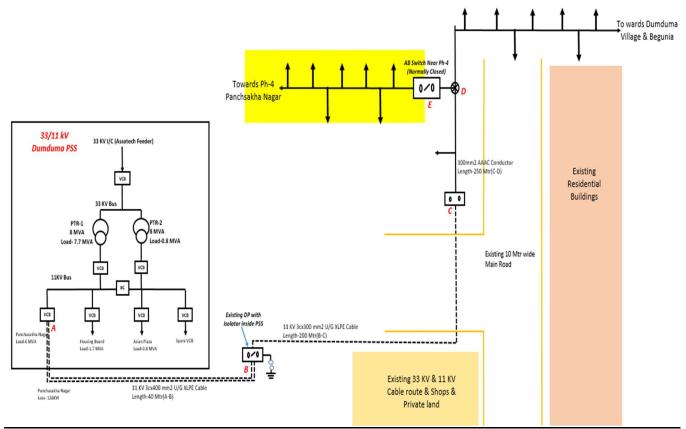
**Objective:** To mitigation of Overloading issue of Panchasakha nagar feeder.

#### **Existing Scenario:**

- At present, 11kV Panchasakha Nagar feeder is emanating from 33/11kV Dumduma PSS. Only
  Urban consumers are connected from this feeder. Total length of this feeder is 11 KM and the
  peak load is 5.3MVA.
- In existing scenrio 11kV Panchasakha nagar feeder Conductors size is 100sqmm & the feeder is loaded up to 102.3%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11kV feeder due to
  overload is hampered the reliability of power supply and also considering future load growth of
  the residential building, bifurcation of this feeder is proposed for improving reliability.

	EXISTING LOADING OF FEEDER									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status			
Panchasakha	5.18	5.30	102.31	OVERLOAD	7.9	153.0	OVERLOAD			

# Existing SLD (Summer'21):



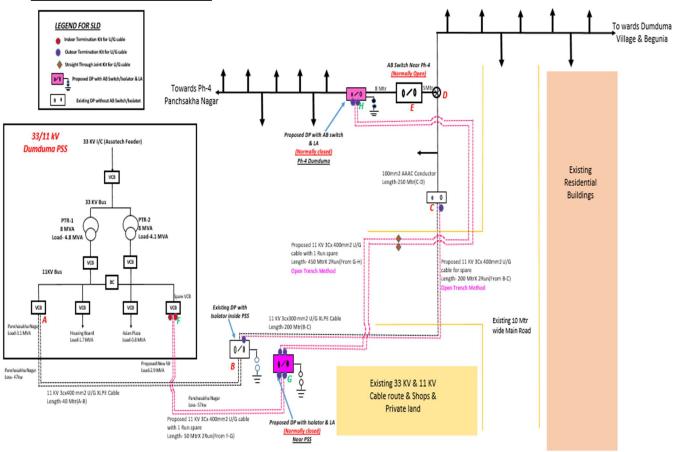
# **Proposed Scenario:**

- Installation of 11kV line DP with Isolator inside 33/11 KV Dumduma PSS.
- Laying of 11kV U/G cable of length-50mtr using 11kV 3cx400sqmm U/G cable with 1 run spare from existing spare VCB to proposed DP with isolator inside PSS.

- Laying of 11kV U/G cable of length-450mtr using 11kV 3cx400sqmm U/G cable with 1 run spare from Proposed DP with isolator inside PSS to Proposed DP with AB switch near Ph-4. (Refer Point G-H in SLD)
- Installation of 11kV line DP with AB switch near Ph-4 Dumduma.
- Laying of 11kV U/G cable of length-200mtr using 11kV 3Cx400sqmm U/G cable for spare in existing Panchsakha Feeder. (Refer Point A-B in SLD)

	LOADING OF FEEDER w.r.t Proposal											
11 kV kV Feeder Name	Feeder Capaci ty (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status					
Panchasakha	5.18	3	57.9	ОК	4.5	86.6	ОК					
Panchasakha- NEW	5.75	2.30	40.0	OK	3.44	59.8	OK					

#### Proposed SLD (Summer'22):



#### **Detailed Scope of Work:**

- Installation of 11kV line DP with Isolator inside 33/11kV Dumduma PSS.
- Laying of 11kV U/G cable of length-50 mtr using 11KV 3cx400sqmm U/G cable with 1 Run spare from existing spare VCB to Proposed DP with isolator inside PSS.
- Laying of 11kV U/G cable of length-450 Mtr using 11KV 3Cx400sqmm U/G cable with 1 Run spare from Proposed DP with isolator inside PSS to Proposed DP with AB switch near Ph-4. (Refer Point G-H in SLD)
- Installation of 11kV line DP with AB switch near Ph-4 Dumduma.
- Laying of 11 KV U/G cable of length-200 mtr using 11KV 3cx400sqmm U/G cable for spare in existing Panchsakha Feeder. (Refer Point A-B in SLD)

	TP CENTR	RAL ODISHA DISTRIBUTION LI	MITED				
	Name of the Division :-	BCDD-II					
	Name of the Sub-Division : -	KHANDAGIRI					
	Name of the Section : -	Dumduma					
	Name of the Work :-	11kV Panchasakha Nagar Fee Dumduma PSS to reduce over Dumduma.	der bifurcation of 33/11 KV loading under electrical section				
	Scope of work:-	11kV Panchasakha Nagar Feeder bifurcation of 33/11 KV Dumduma PSS to reduce overloading under electrical section Dumduma.					
	Names of Schemes: -	TPCODL CAPEX Scheme					
		ABSTRACT OF ESTIMATE					
SI. No.	Desc	ription	Amount				
1	PART-A- Installation of 11 KV 33/11 KV Dumduma PSS.	line DP with Isolator inside	₹ 2,83,167.64				
2	Part- B: Laying of 11 KV U/G 11KV 3cx400mm2 U/G cable existing spare VCB to Propos PSS.	with 1 Run spare From	₹ 3,84,982.48				
3	Part- C :Laying of 11 KV U/G 11KV 3cx400mm2 U/G cable	cable of length-450 Mtr using with 1 Run spare From ide PSS to Proposed DP with	₹ 49,50,378.22				
4	Part- D Laying of 11 KV U/G of 11 KV 3cx400mm2 U/G cable Panchsakha Feeder.	₹ 14,16,881.15					
5	PART-E- Installation of 11 KV Ph-4 dumduma	/ line DP with AB switch near	₹ 2,29,887.24				
3	Total A	Amount	₹ 72,65,296.74				
4	Total Amo	ount (In Cr.)	0.73				

PAR	T-A- Installation of 11 KV line DP with Isolator inside 33/11 K	V Dumdu	ma PSS.							
	11kV Line Length with 40 Mtr. Span using 100 SQ.MMAAA Conductor									
	No. of DP required With Isolator (Ref. Drawing No TPCODL-MVD-0001)									
	MATERIALS OF DP With	AB Swite	<u>:h</u>							
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount					
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90					
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36					
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88					
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34					
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required = (9.56x2x0.35)	KG	88.50	6.692	592.24					

K			l otal Civil	& Services Total (J+K)	16,626.50 2,24,486.79
4	construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr Installation of Earth Pit, Charcoal, Salt etc. including	Cu.mtr	6,500.00	0.23	1,462.50
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
=	Civil & Service	<u>s</u>		( /	, , ,
J	- J @	- 1-		m of (C to I)	2,07,860.29
I	Erection Charges @ 20%				-
Н	Erection Charges @ 10% of C (except Trf/Breake				11,204.05
G	Erectio		s @ 5% on Trf/E		2,731.25
 F		-	Transportation (		12,928.33
E			Tools & Plants		3,447.56
D				y @ 3% of C	5,171.33
С				Total (A+B)	1,72,377.78
В	S	tock. Stor	age & Insurance		5,020.71
A		1		of materials	1,67,357.07
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
26	with AB Switch) Black Paint	Ltr	259.60	1	259.60
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP	K.g.	92.04	13.718	1,262.60
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
20	11KV 400 AMP isolator with earth switch with PI(polymer)	Set	47,459.60	1	47,459.60
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	K.g. No.	88.50 1,239.00	30	2,655.00 2,478.00
13 14	H.T. Stay Insulator Type-C 7/10 SWG Stay Wire 15kg /stay	No.	59.00	2	118.00
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
10	Back Clamp for danger Plate 25X3 mm. flat, $0.59$ Kg/Mtr. Flat of $0.510$ mtr length 2 no's = $(2x0.59x0.510)$	KG	88.50	0.6018	53.26
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	85.68	7,582.68
	7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51

М	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	13,469.21
N	Sub Total (L+M)	2,37,956.00
0	Total GST @ 18% of (N)	42,832.08
01	Total CESS @ 1% of (N)	2,379.56
Р	Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,83,167.64

Supp	oly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories			, ,	, ,
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.05		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.10	17,70,000.00	1,77,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set		29,874.06	-
1.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	11,306.76	22,613.52
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	16,406.72	32,813.44
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km		6,94,910.00	-
	Sub Total (Supply Portion) (i	n Rs.)			2,32,426.90
Erec	tion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.10	94,500.00	9,450.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	2,400.00	-
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.00	1,04,114.67	-
	Sub Total (Erection Portion) (	in Rs.)			17,053.20
Civil	Portion	<u> </u>			
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				

5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	16	1,463.40	23,414.40			
	Sub Total (Civil Portion) (in Rs.)							
Α	Sub Total (Supply Portion)				2,32,426.96			
В	Stock, Storage & Insurance @ 3 % of A				6,972.81			
С	Sub Total (A+B)				2,39,399.77			
D	Contingency @ 3 % of C				7,181.99			
Е	Tools & Plants Charges @ 2% of C (considered for earthing	g items)			-			
F	Transportation @ 7.5% of C		17,954.98					
G	Erection Charges @ 10% of earthing items				-			
Н	Total (C+D+E+F+G)							
I	Sub Total (Erection Portion + Civil Portion)				40,467.60			
J	Total Cost (H+I)				3,05,004.34			
K	Other Overhead /(including Supervision Charges) @ 6 % of	fJ			18,300.26			
L	Total Estimated Capital Cost i.e. (J+K)				3,23,304.61			
М	GST @ 18% of L				58,194.83			
M1	CESS @ 1% of L				3,233.05			
N	Grand Total (L+M)				3,84,732.48			
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00			
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km							
Q	Inspection Fee of RMU - Rs. 2000/ RMU				0			
R	Inspection Fee of Drawing Checking and Approval							
S	Final decision by electrical Inspector							
Т	Gross Total Material, Services and Inspection Fees (N+	O+P+Q+R+	S)		3,84,982.48			

	y Portion	1			
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				•
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.45		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.90	17,70,000.00	15,93,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.90	6,94,910.00	6,25,419.00

	Sub Total (Supply Portion) (in Rs.)								
Erect	ion Portion			·					
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)				
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method								
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.90	94,500.00	85,050.00				
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00				
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-				
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20				
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with</b> km 0 28,00,000.00 <b>HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.								
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.90	1,04,114.67	93,703.2				
	Sub Total (Erection Portion) (in Rs.)								
SI.	Portion	<u> </u>		Rate	Amount				
No.	Description of items	Unit	Quantity	(in Rs.)	(in Rs.)				
1	Civil works with supply of all materials like cement, MS								
•	tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench								
1.1									
1.1	etc for UG Cable Trench	Cum	315	700.00	2,20,500.0				
1.1 1.1.a	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)	Cum	315 135	700.00 1,720.00					
1.1 1.1.a	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km				2,32,200.0				
1.1 1.1.a 1.1.b 1.2	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench	Cum Cum	135 270 180	1,720.00 171.55 2,500.00	2,32,200.0 46,318.5 4,50,000.0				
1.1 1.1.a 1.1.b 1.2	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench	Cum	135 270	1,720.00 171.55	2,32,200.0 46,318.5 4,50,000.0				
1.1 1.1.a 1.1.b 1.2	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Cum Cum	135 270 180	1,720.00 171.55 2,500.00	2,32,200.0 46,318.5 4,50,000.0				
1.1 1.1.a 1.1.b 1.2 1.3	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with	Cum Cum Cum	135 270 180	1,720.00 171.55 2,500.00 202.00	2,32,200.0 46,318.5 4,50,000.0				
1.1 1.1.a 1.1.b 1.2 1.3 1.4	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	Cum Cum Cum	135 270 180	1,720.00 171.55 2,500.00 202.00	2,32,200.0 46,318.5 4,50,000.0 54,540.0				
1.1 1.1.a 1.1.b 1.2 1.3 1.4 1.5	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU	Cum Cum Cum km	135 270 180 270	1,720.00 171.55 2,500.00 202.00 26,43,670.63	2,32,200.0 46,318.5 4,50,000.0 54,540.0				
1.1 1.1.a 1.1.b 1.2 1.3 1.4 1.5 <b>2</b>	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU	Cum Cum Cum Km	135 270 180 270	1,720.00 171.55 2,500.00 202.00 26,43,670.63	2,32,200.0 46,318.5 4,50,000.0 54,540.0				
1.1 1.1.a 1.1.b 1.2 1.3 1.4 1.5 <b>2</b> 2.1 3	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Cum Cum Cum Nos. sqmtr	135 270 180 270	1,720.00 171.55 2,500.00 202.00 26,43,670.63 23,145.30 3,600.00	2,32,200.0 46,318.5 4,50,000.0 54,540.0				
1.1 1.1.a 1.1.b 1.2 1.3 1.4 1.5 2 2.1 3	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B	Cum Cum Cum Km Nos. sqmtr Set	135 270 180 270 0 0	1,720.00 171.55 2,500.00 202.00 26,43,670.63 23,145.30 3,600.00 2,407.00	2,32,200.0 46,318.5 4,50,000.0 54,540.0				
1.1 1.1.a 1.1.b 1.2 1.3 1.4 1.5 2 2.1 3 4	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable	Cum Cum Cum Km Nos. sqmtr Set Mtr Nos.	135 270 180 270 0 0 0	1,720.00 171.55 2,500.00 202.00 26,43,670.63 23,145.30 3,600.00 2,407.00 1,463.40	2,32,200.0 46,318.5 4,50,000.0 54,540.0				
1.1 1.1.a 1.1.b 1.2 1.3 1.4 1.5 2 2.1 3 4	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Cum Cum Cum Km Nos. sqmtr Set Mtr Nos.	135 270 180 270 0 0 0	1,720.00 171.55 2,500.00 202.00 26,43,670.63 23,145.30 3,600.00 2,407.00 1,463.40	2,32,200.00 46,318.50 4,50,000.00 54,540.00 46,828.80 15,180.00 10,65,567.30				
1.1 1.1.a 1.1.b 1.2 1.3 1.4 1.5 2 2.1 3 4 5	etc for UG Cable Trench  Earth work excavation of soil (1mtr. width X 1mtr. depth)  Earth work excavation of soil  Earth work excavation of hard rock  Shifting of excavated soil to a lead distance of 10km  Filling with fine river sand after laying of cable inside the trench  Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in	Cum Cum Cum Km Nos. sqmtr Set Mtr Nos.	135 270 180 270 0 0 0	1,720.00 171.55 2,500.00 202.00 26,43,670.63 23,145.30 3,600.00 2,407.00 1,463.40	2,20,500.00 2,32,200.00 46,318.50 4,50,000.00 54,540.00 46,828.80 15,180.00 10,65,567.30 23,43,794.00 70,313.82				

D	Contingency @ 3 % of C	72,423.23
Е	Tools & Plants Charges @ 2% of C (considered for earthing items)	-
F	Transportation @ 7.5% of C	1,81,058.09
G	Erection Charges @ 10% of earthing items	-
Н	Total (C+D+E+F+G)	26,67,589.14
I	Sub Total (Erection Portion + Civil Portion)	12,56,723.70
J	Total Cost (H+I)	39,24,312.84
K	Other Overhead /(including Supervision Charges) @ 6 % of J	2,35,458.77
L	Total Estimated Capital Cost i.e. (J+K)	41,59,771.61
М	GST @ 18% of L	7,48,758.89
M1	CESS @ 1% of L	41,597.72
N	Grand Total (L+M)	49,50,128.22
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	49,50,378.22

aquS	nsakha Feeder. Iy Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.20	17,70,000.00	3,54,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set		29,874.06	-
1.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	16,406.72	32,813.44
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.18	6,94,910.00	1,27,863.44
	Sub Total (Supply Portion) (i	n Rs.)			5,14,676.88
Erect	ion Portion			1	
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				

1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG	km	0.40	94,500.00	37,800.00			
1.2	cable by <b>open trench method</b> .  Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG	Set	0	2,400.00				
1.2	cable kits for 3core (set)	361	U	2,400.00				
1.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-			
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60			
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-			
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.18	1,04,114.67	19,157.10			
	Sub Total (Erection Portion) (	in Rs.)	1		60,758.70			
Civil P	Portion							
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)			
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench			(111113.)	(III KS.)			
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)							
1.1.a	Earth work excavation of <b>soil</b>		140	700.00	98,000.00			
1.1.b	Earth work excavation of <b>hard rock</b>		60	1,720.00	1,03,200.00			
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	120	171.55	20,586.00			
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	80	2,500.00	2,00,000.00			
1.4	Back filling with excavated soil outside and above the trench	Cum	120	202.00	24,240.00			
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km		26,43,670.63	-			
2	Civil works for Prefabricated RCC foundation with supply of all materials							
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-			
3	Supply of GI Fencing with Gate around each RMU	sqmtr	0	3,600.00	-			
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-			
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	16	1,463.40	23,414.40			
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	7	1,012.00	7,084.00			
	Sub Total (Civil Portion) (in	Rs.)			4,76,524.40			
Α	Sub Total (Supply Portion)				5,14,676.88			
В	Stock, Storage & Insurance @ 3 % of A							
С	Sub Total (A+B)				15,440.31 <b>5,30,117.19</b>			
D	Contingency @ 3 % of C				15,903.52			
E	Tools & Plants Charges @ 2% of C (considered for earthing it	ems)			-			

G	Erection Charges @ 10% of earthing items	-
Н	Total (C+D+E+F+G)	5,85,779.49
I	Sub Total (Erection Portion + Civil Portion)	5,37,283.10
J	Total Cost (H+I)	11,23,062.59
K	Other Overhead /(including Supervision Charges) @ 6 % of J	67,383.76
L	Total Estimated Capital Cost i.e. (J+K)	11,90,446.35
М	GST @ 18% of L	2,14,280.34
M1	CESS @ 1% of L	11,904.46
N	Grand Total (L+M)	14,16,631.15
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	14,16,881.15

	11kV Line Length with 40 Mtr. Span using 10	0 SQ.MM	lAAA Condu	ctor						
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)	1								
MATERIALS OF DP With AB Switch										
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount					
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90					
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36					
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88					
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34					
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	6.692	592.24					
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51					
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required = (7.14x3x4)	KG	88.50	85.68	7,582.68					
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62					
9	Danger Plate, 2 no's.	No.	94.40	2	188.80					
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26					
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00					
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00					
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00					
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00					
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00					
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63					
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40					

18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04				
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00				
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00				
21	11 KV pin insulator polymer	No.	236.00	3	708.00				
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00				
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00				
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40				
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60				
26	Black Paint	Ltr	259.60	1	259.60				
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20				
Α			Total Cost of	f materials	1,33,880.47				
В	Sto	ock, Stora	ge & Insurance	i.e 3% of A	4,016.41				
С			Sub T	otal (A+B)	1,37,896.88				
D			Contigency	@ 3% of C	4,136.91				
Е	Tools & Plants @ 2% of C								
F	Transportation @ 7.5% of C								
G									
Н									
I									
J	Sum of (C to I)								
	Civil & Services								
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00				
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mt r	6,500.00	0.90	5,850.00				
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mt r	6,500.00	0.23	1,462.50				
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00				
K	Total Civil & Services								
L				Total (J+K)	1,82,247.69				
М	Other overheads (Including 6% supervision cl	narges) o	f L (for DP With	AB Switch)	10,934.86				
N			Sub T	Total (L+M)	1,93,182.56				
0			Total GST @	18% of (N)	34,772.86				
01			Total CESS @	y 1% of (N)	1,931.83				

- 1) To maintain reliable of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
- 2) Mitigation of Overloading issue with load growth of 5 years.
- 3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

## 8. Refurbishment of 11kV New Industry-1 Feeder for mitigation of Overloading

**Proposal:** Augmentation of existing 11kV New Industry-1 Feeder emanating from 33/11kV Infocity PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length 350mtr.

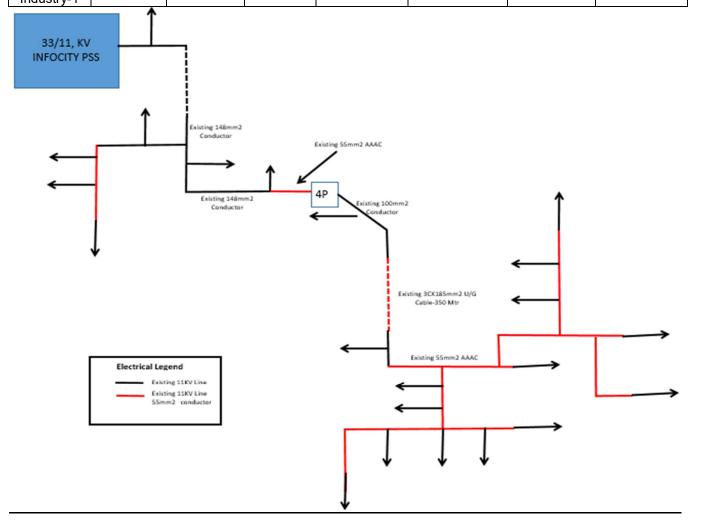
**Objective:** To mitigate the overloading issue of 11kV New Industry-1 feeder.

#### **Existing Scenario:**

- At present, 11kV New Industry-1 feeder is emanating from 33/11kV Infocity PSS. Only Urban & Industrial consumers are connected from this feeder. Total length of this feeder is 7.33km and the peak load is 4.4MVA.
- In the existing scenario, conductor size of 11kV New Industry feeder is 55sqmm at location (Near KIIT international School) & starting patch from PSS to Near Sikharchandi is on 148mm2.
   Considering 80sqmm in the trunk side the feeder where the feeder loading is higher, the loading is up to 82.04%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Industrial & Urban consumers, several breakdown on 11kV feeders hampers the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving reliability.

**Existing SLD (Summer'21):** 

,	EXISTING LOADING										
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status				
New Industry-1	4.51	3.7	82.04	OVERLOAD	5.53	122.69	Overload				

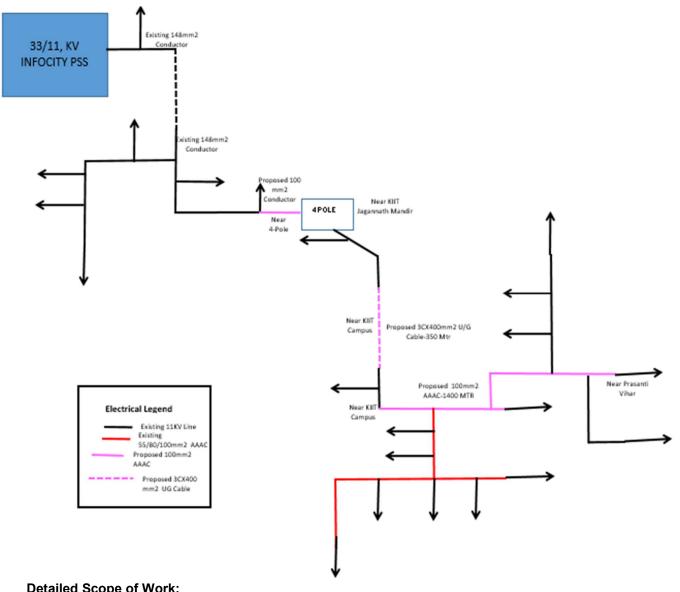


## **Proposed Scenario:**

Augmentation of 1.4km Existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

	LOADING OF FEEDER AFTER PROPOSAL									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 2 years LG	% Loading of feeder after 2 years LG	Feeder Overloading Status			
New Industry-1	6.67	4.40	66.0	OK	5.3	79.2	ОК			

# Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

Augmentation of 1.4km existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

	TP CENTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :-	BCDD-II				
	Name of the Sub-Division : -	Periphery				
	Name of the Section : -	C.s.pur-2				

	Name of the Work :-	Part- A: Laying of UG cable 3Cx400sqmm- Ler PART-B- Augmentation of Conductor of Infocity 55/ 80sqmm to 100sqmm of length-1.4k				
	Scope of work:-	Part- A : Laying of UG cable 3Cx400mm2- Length 0.35KM PART-B- Augmentation of Conductor of Infocity New Industry-1 FDR from 55/ 80 mm2 to 100 mm2 of length-1.4 Km				
	Names of Schemes: -	TPCODL CAPEX Scheme				
		ABSTRACT OF ESTIMATE				
SI. No.		Description	Amount			
1	Part- A : Laying of UG cab	ole 3Cx400mm2- Length 0.35KM	₹ 50,74,531.92			
2	PART-b- Augmentation of 55/ 80 mm2 to 100 mm2 c	₹ 10,81,397.87				
3		Total Amount	₹ 61,55,929.79			
4		Total Amount (In Cr.)	0.62			

Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				,
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.35		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.70	17,70,000.00	12,39,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.70	6,94,910.00	4,86,437.00
	Sub Total (Supply Portion) (i	n Rs.)			18,50,812.00
Erect	ion Portion	,		<u>l</u>	<u> </u>
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.70	94,500.00	66,150.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20

	Supply, Installation, Laying, Commissioning, Testing of						
1.5	11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual	km	0	28,00,000.00	-		
	run of UG cable at main road and unaccessable place.						
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.70	1,04,114.67	72,880.27		
2	Erection, Commissioning, Wiring and Testing of 11kV RMU						
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-		
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	15,000.00	-		
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-		
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-		
	Sub Total (Erection Portion) (	in Rs.)			1,51,433.47		
Civil B	Portion						
SI.				Rate	Amount		
No.	Description of items	Unit	Quantity	(in Rs.)	(in Rs.)		
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench						
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)						
1.1.a	Earth work excavation of <b>soil</b>	Cum	245	700.00	1,71,500.0		
1.1.b	Earth work excavation of <b>hard rock</b>	Cum	105	1,720.00	1,80,600.0		
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	210	171.55	36,025.5		
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	140	2,500.00	3,50,000.0		
1.4	Back filling with excavated soil outside and above the trench	Cum	210	202.00	42,420.0		
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.35	26,43,670.63	9,25,284.72		
2	Civil works for Prefabricated RCC foundation with supply of all materials						
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	0	23,145.30	-		
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	0	3,600.00	-		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-		
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.8		
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	12	1,012.00	12,144.0		
	Sub Total (Civil Portion) (in	Rs.)	T		17,64,803.0		
Α	Sub Total (Supply Portion)				18,50,812.00		
В	Stock, Storage & Insurance @ 3 % of A				55,524.30		
С	Sub Total (A+B)				19,06,336.30		
D	Contingency @ 3 % of C				57,190.09		
Е	Tools & Plants Charges @ 2% of C (considered for earthing it	ems)			-		
F	Transportation @ 7.5% of C				1,42,975.23		
·							
G	Erection Charges @ 10% of earthing items				-		

K	Total Cost (H+I)  Other Overhead /(including Supervision Charges) @ 6 % of J	<b>40,22,738.17</b> 2,41,364.29
L	Total Estimated Capital Cost i.e. (J+K)	42,64,102.46
М	GST @ 18% of L	7,67,538.44
M1	CESS @ 1% of L	42,641.02
N	Grand Total (L+M)	50,74,281.92
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	50,74,531.92

PAR	T-B- Augmentation of Conductor of Infocity New Industry-1 FD	R from 5	55/ 80 mm2 to	100 mm2 of	length-1.4 Km
	11kV Line Length with 40 Mtr. Span using 10	0 SQ.MM	IAAA Cond	uctor	
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			1	
	MATERIALS OF DP With A	B Switch	<u>1</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40

		1							
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04				
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00				
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00				
21	11 KV pin insulator polymer	No.	236.00	3	708.00				
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00				
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00				
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40				
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60				
26	Black Paint	Ltr	259.60	1	259.60				
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20				
Α			Total Cost of		1,33,880.47				
В	Sto	ck, Storag	e & Insurance		4,016.41				
С				otal (A+B)	1,37,896.88				
D				@ 3% of C	4,136.91				
E F			Tools & Plants		2,757.94				
G	Fronting		ansportation @ @ 5% on Trf/B		10,342.27 2,731.25				
Н	Erection Charges @ 10% of C (except Trf/Breaker/\)				7,755.96				
	Erection Charges @ 10% of C (except 11/breaker)  Erection Charges @ 20% of				7,755.90				
J	Election charges @ 20 % of	F3C poi		n of (C to I)	1,65,621.19				
	Civil & Services		Jui	11 01 (0 10 1)	1,03,021.13				
	<u>Civii &amp; Gervices</u>								
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00				
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00				
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50				
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00				
K		-	Total Civil	& Services	16,626.50				
L				Total (J+K)	1,82,247.69				
М	Other overheads (Including 6% supervision ch	arges) of	L (for DP With	AB Switch)	10,934.86				
N			Sub	Total (L+M)	1,93,182.56				
0			Total GST @	18% of (N)	34,772.86				
01									
<b>P</b>	Gross Total Material +Services	(N+O+O1		· , ,	2,29,887.24				
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)		) for DP With	· , ,					
P	11 Kv Line Length In KM with 40 Mtr. Span		) for DP With	AB Switch					
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Polescription of Materials		) for DP With  WPB  Unit Rate	AB Switch	Total Amount				
SI. No.	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Pol Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	Unit No.	) for DP With  WPB  Unit Rate  26,516.95	1.4  Total Quantity 7	<i>Total Amount</i> 1,85,618.65				
SI. No. 1 2	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Pol  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each)	ints With Unit No. No.	) for DP With  WPB  Unit Rate  26,516.95  955.80	Total Quantity 7 7	Total Amount 1,85,618.65 6,690.60				
SI. No. 1 2 3	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Pol  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)	ints With Unit No. No. No.	WPB Unit Rate 26,516.95 955.80 177.00	Total Quantity 7 7 7	Total Amount 1,85,618.65 6,690.60 1,239.00				
SI. No. 1 2	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Pol  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles 11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole	ints With Unit No. No.	) for DP With  WPB  Unit Rate  26,516.95  955.80	Total Quantity 7 7	Total Amount 1,85,618.65 6,690.60				
SI. No. 1 2 3	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Pol  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)	ints With Unit No. No. No.	WPB Unit Rate 26,516.95 955.80 177.00	Total Quantity 7 7 7	Total Amount 1,85,618.65 6,690.60 1,239.00				
SI. No. 1 2 3 4	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Pol  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles 11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of	ints With Unit No. No. No. No.	WPB Unit Rate 26,516.95 955.80 177.00 94.40	Total Quantity 7 7 7 7	Total Amount 1,85,618.65 6,690.60 1,239.00 660.80				

		1	I	1				
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	21	4,956.00			
9	Earthing of Support ( Coil Type )	No.	195.88	7	1,371.16			
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.83	162.31			
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	10.15	934.21			
12	100 mm2 AAAC	K.M.	64,900.00	4.33	2,80,757.40			
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-			
14	Black Paint	Ltr	259.60	7.0	1,817.20			
15	Yellow Colour Paint for Background	Ltr	259.60	14.0	3,634.40			
Α			Total Cost of		4,90,756.16			
В	Sto	ck, Storag	ge & Insurance		14,722.68			
С				Total (A+B)	5,05,478.85			
D				@ 3% of C	15,164.37			
E			Tools & Plants		10,109.58			
F			ansportation (		37,910.91			
G	Erection Charges	_			9,559.36			
Н	Erection Charges @ 10% of C (except Trf/Breaker/				31,429.16			
l	Erection Charges @ 20% of PSC pole- Not to be used for 33kv							
J			Sur	n of (C to I)	6,09,652.23			
	<u>Civil &amp; Services</u>							
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	3.15	20,475.00			
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.79	5,118.75			
3	Dismantling of 80sqmm AAAC	KM	9,000.00	4.33	38,934.00			
K			Total Civil	& Services	64,527.75			
L		Tota	l Material+Se	rvices (I+K)	6,74,179.98			
М	Other overheads (Including 6% supervision charge	es) (for 11	KV Pin Points	With WPB)	40,450.80			
N			Sub	Total (L+M)	7,14,630.78			
0			Total GST @	) 18% of (N)	1,28,633.54			
01			Total CESS (	@ 1% of (N)	7,146.31			
Р	Gross Total Material +Services (N+O+O	1) for 11	KV Pin Points	With WPB	8,50,410.62			
	6% Supervision Charges S	│ Summarv						
2	Other overheads (Including 6% supervision ch		L (for DP With	AB Switch)	10,934.86			
5	Other overheads (Including 6% supervision charge	<u> </u>	,	,	40,450.80			
	(		6% supervisio		51,385.66			
	Gross Total Summa			5/	,			
2	Gross Total Material +Service		01) for DP With	h AB Switch	2,29,887.24			
5	Gross Total Material +Services (N+O+	•			8,50,410.62			
Q	Inspection Fee of Over He				200.00			
R	Inspection Fee of Over Hea				200.00			
S	Inspection Fee				400.00			
T	•		sion by electric		500.00			
U	Gross Total Material, Services a			-	10,81,397.87			
•	Si ossi i otal material, del vices a	aope	JO 1 003 (I	٠ ١٠٠٠)	. 0,0 .,007.07			

- To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because
  of overloading is adressed through above proposal.

# 9. Refurbishment of 11kV Polymer Complex Feeder for mitigation of Overloading

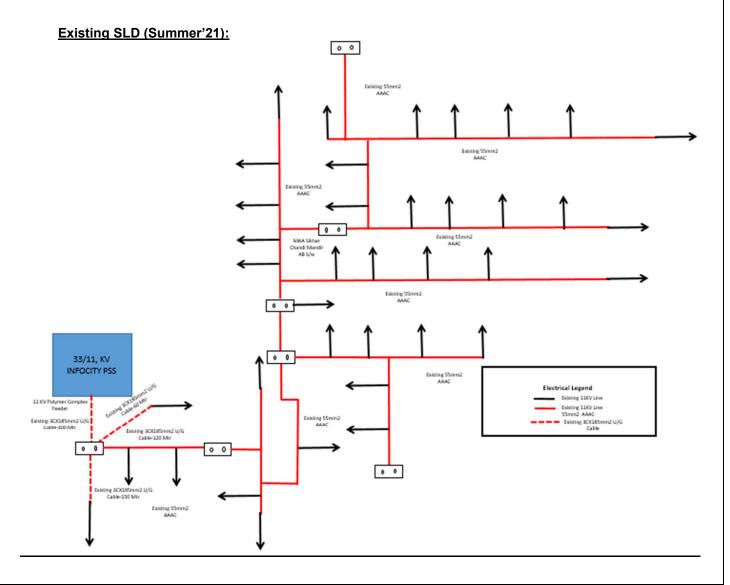
**Proposal:** Augmentation of existing 11kV Polymer Complex Feeder emanating from 33/11kV Infocity PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor & U/G Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

**Objective:** To mitigate the overloading issue of 11kV Polymer Complex feeder.

#### **Existing Scenario:**

- At present, 11kV Polymer Complex feeder is emanating from 33/11kV Infocity PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 14.2km and the peak load is 3MVA.
- In the existing scenario, conductor size of 11kV Polymer Complex feeder is 55sqmm & the feeder is loaded up to 84.75%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several breakdown on 11kV feeder hampers
  the reliability of power supply and also considering future load growth of the residential building,
  augmentation of this feeder is proposed for improving reliability.

	EXISTING LOADING										
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status				
Polymer Complex	3.54	3.00	84.75	Overload	4.50	127.1	Overload				

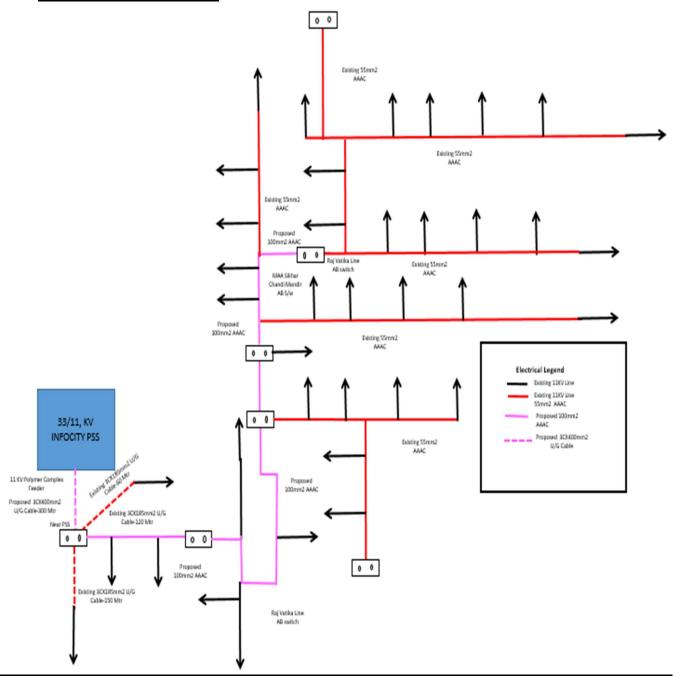


## **Proposed Scenario:**

Augmentation of 2.5km existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G
 Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr.

	LOADING OF FEEDER AFTER PROPOSAL										
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status				
Polymer Complex	5.18	3.00	57.9	OK	3.6	69.5	Ok				

## Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

Augmentation of 2.5km Existing 55sqmm old conductor with 100sqmm AAAC conductor & U/G
 Cable - 3Cx185sqmm to 3Cx400sqmm of length-350mtr (From Infocity PSS to Rajvatika Line AB Switch).

	TP	CENTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :-	BCDD-II					
	Name of the Sub-Division : -	Periphery					
	Name of the Section : - CS Pur-2						
	Part- A: Laying of UG cable to 3Cx400mm2- Length 0.35KM  Name of the Work:- PART-B- Augmentation of Conductor of Infocity Polymer complex FDR fro 55/ 80 mm2 to 100 mm2 of length-2.5 Km						
	Part- A: Laying of UG cable 3Cx400mm2- Length 0.35KM Scope of work:- PART-B- Augmentation of Conductor of Infocity Polymer complex FDR fror 55/80 mm2 to 100 mm2 of length-2.5 Km						
	Names of Schemes: -	TPCODL CAPEX Scheme					
		ABSTRACT OF ESTIMATE					
SI. No.		Description	Amount				
1	Part- A : Laying of UG cable 3	3Cx400mm2- Length 0.35km	₹ 50,74,531.92				
2	PART-B- Augmentation of Comm2 to 100 mm2 of length-2.	₹ 17,74,895.77					
3		Total Amount	₹ 68,49,427.70				
4		Total Amount (In Cr.)	0.68				

Sunn	ly Portion						
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)		
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories						
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.35				
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.70	17,70,000.00	12,39,000.00		
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12		
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-		
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88		
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.70	6,94,910.00	4,86,437.00		
	Sub Total (Supply Portion) (in Rs.)						
	ion Portion						
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)		
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method						
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0.70	94,500.00	66,150.00		

1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open	km	0.70	1,04,114.67	72,880.27
2	trench.  Erection, Commissioning, Wiring and Testing of 11kV				
	RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	15,000.00	-
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	
	Sub Total (Erection Portion) (i	n Rs.) ⊤			1,51,433.47
Civil	 Portion				
SI.				Rate	Amount
No.	Description of items	Unit	Quantity	(in Rs.)	(in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	245	700.00	1,71,500.00
1.1.b	Earth work excavation of hard rock	Cum	105	1,720.00	1,80,600.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	210	171.55	36,025.50
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	140	2,500.00	3,50,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	210	202.00	42,420.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.35	26,43,670.63	9,25,284.72
2	Civil works for Prefabricated RCC foundation with supply				
21	of all materials  Prefabricated RCC foundation of 11kV RMU	Nos	0	23 145 30	
2.1	Prefabricated RCC foundation of 11kV RMU Supply of GI Fencing with Gate around each RMU	Nos.	0	23,145.30 3,600.00	-
	Prefabricated RCC foundation of 11kV RMU Supply of GI Fencing with Gate around each <b>RMU</b> Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab	Nos. sqmtr	-		- -
3	Prefabricated RCC foundation of 11kV RMU Supply of GI Fencing with Gate around each <b>RMU</b> Installation of Earth Pit, Charcoal, Salt etc. including	sqmtr	0	3,600.00	- - - 46,828.80
3	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each <b>RMU</b> Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable	sqmtr Set	0	3,600.00 2,407.00	- - 46,828.80 12,144.00
3 4 5	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each <b>RMU</b> Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	sqmtr Set Mtr Nos.	0 0 32	3,600.00 2,407.00 1,463.40	12,144.00
3 4 5	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each <b>RMU</b> Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable	sqmtr Set Mtr Nos.	0 0 32	3,600.00 2,407.00 1,463.40	
3 4 5	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each <b>RMU</b> Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	sqmtr Set Mtr Nos.	0 0 32	3,600.00 2,407.00 1,463.40	12,144.00
3 4 5 6	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in I	sqmtr Set Mtr Nos.	0 0 32	3,600.00 2,407.00 1,463.40	12,144.00 17,64,803.02 18,50,812.00
3 4 5 6	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in I	sqmtr Set Mtr Nos.	0 0 32	3,600.00 2,407.00 1,463.40	12,144.00 17,64,803.02 18,50,812.00 55,524.36
3 4 5 6 A B	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in I	sqmtr Set Mtr Nos.	0 0 32	3,600.00 2,407.00 1,463.40	12,144.00 17,64,803.02 18,50,812.00
3 4 5 6 A B C	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Sub Total (Supply Portion)  Stock, Storage & Insurance @ 3 % of A  Sub Total (A+B)	Set  Mtr  Nos.  Rs.)	0 0 32	3,600.00 2,407.00 1,463.40	12,144.00 17,64,803.02 18,50,812.00 55,524.36 19,06,336.36
3 4 5 6 A B C D	Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Installation of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Installation of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Installation of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Installation of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Set  Mtr  Nos.  Rs.)	0 0 32	3,600.00 2,407.00 1,463.40	12,144.00 17,64,803.02 18,50,812.00 55,524.36 19,06,336.36

н	Total (C+D+E+F+G)	21,06,501.68
I	Sub Total (Erection Portion + Civil Portion)	19,16,236.49
J	Total Cost (H+I)	40,22,738.17
K	Other Overhead /(including Supervision Charges) @ 6 % of J	2,41,364.29
L	Total Estimated Capital Cost i.e. (J+K)	42,64,102.46
М	GST @ 18% of L	7,67,538.44
M1	CESS @ 1% of L	42,641.02
N	Grand Total (L+M)	50,74,281.92
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	50,74,531.92

	11kV Line Length with 40 Mtr. Span using 100	SQ.MM/	AAA Conduct	or					
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			1					
MATERIALS OF DP With AB Switch									
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90				
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36				
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88				
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34				
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(9.56x2x0.35)	KG	88.50	6.692	592.24				
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51				
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.68				
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62				
9	Danger Plate, 2 no's.	No.	94.40	2	188.80				
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26				
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00				
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00				
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00				
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00				
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00				
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63				
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40				
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04				

19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00		
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00		
21	11 KV pin insulator polymer	No.	236.00	3	708.00		
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00		
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00		
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40		
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60		
26	Black Paint	Ltr	259.60	1	259.60		
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20		
Α			Total Cost o		1,33,880.47		
В	Stoc	ck, Storage	e & Insurance	i.e 3% of A	4,016.41		
С				otal (A+B)	1,37,896.88		
D			Contigency	_	4,136.91		
E			ools & Plants		2,757.94		
F			nsportation @		10,342.27		
G	Erection (	Charges @	) 5% on Trf/Bi	eaker/Joist	2,731.25		
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	VPB/ H-Pc	ole/HT stay se	/PSC pole)	7,755.96		
I	Erection Charges @ 20% of	PSC pole	- Not to be us	ed for 33kv	-		
J			Sun	n of (C to I)	1,65,621.19		
	Civil & Services						
SI.	Description of Materials	Unit	Unit Rate	Total	Total		
<b>Vo.</b> 1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with	No.	2,250.00	Quantity 2	4,500.00		
	all labour and material as per TPCODL Drawing & Standard.		0.500.00	0.00	5.050.00		
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00		
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu.mtr	6,500.00	0.23	1,462.50		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00		
K			Total Civil		16,626.50		
L				Γotal (J+K)	1,82,247.69		
М	Other overheads (Including 6% supervision cha	arges) of L	•	,	10,934.86		
NI				otal (L+M)	1,93,182.56		
N							
0				• • • • • •	34,772.86		
0 01			Total CESS @	0 1% of (N)	1,931.83		
0	Gross Total Material +Services		Total CESS @	0 1% of (N)			
0 01	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)	(N+O+O1)	Total CESS (	0 1% of (N)	1,931.83		
O O1 P	11 Kv Line Length In KM with 40 Mtr. Span	(N+O+O1)	Total CESS (	2.5 1% of (N)	1,931.83 <b>2,29,887.24</b>		
O D1 <b>P</b>	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)	(N+O+O1)	Total CESS (	2.5	1,931.83 2,29,887.24 Total		
O O1 P SI. No. 1	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003) MATERIALS FOR 11 KV Pin Points	(N+O+O1) s With WF	Total CESS (c) for DP With	2.5 1% of (N)	1,931.83 2,29,887.24 Total Amount		
O D1 <b>P</b> SI. No.	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )	s With WF	Total CESS (c) for DP With  PB  Unit Rate	2.5  Total Quantity	1,931.83 2,29,887.24  Total Amount 3,44,720.35		
O O1 P	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	s With Will Unit No.	Total CESS (c) for DP With  PB  Unit Rate  26,516.95	2.5  Total Quantity  13	1,931.83 2,29,887.24  Total Amount 3,44,720.35		
O O1 P SI. No. 1	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )	s With WH Unit No. No.	PB Unit Rate 26,516.95 955.80	2.5  Total Quantity  13	1,931.83 2,29,887.24  Total Amount 3,44,720.35 12,425.40		
O D1 P SSI. No. 1 2 3	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)	s With WH Unit No. No.	PB Unit Rate 26,516.95 955.80 177.00	2.5  Total Quantity 13 13 13	1,931.83 2,29,887.24  Total Amount 3,44,720.35 12,425.40 2,301.00		
O O1 P SI. No. 1 2 3 4	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	s With WH  Unit  No.  No.  No.  No.  KG	PB Unit Rate 26,516.95 955.80 177.00 94.40	2.5  Total Quantity 13 13 13 13	1,931.83 2,29,887.24  Total Amount 3,44,720.35 12,425.40 2,301.00 1,227.20 346.19		
O O1 P SI. No. 1 2 3 4 5	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat	s With WH  Unit  No.  No.  No.  No.	PB Unit Rate 26,516.95 955.80 177.00 94.40 88.50	2.5  Total Quantity  13  13  13  13  3.91	1,931.83 2,29,887.24  Total Amount 3,44,720.35 12,425.40 2,301.00 1,227.20		
O O1 P SI. No. 1 2 3 4 5 6 7	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	s With WH  Unit  No.  No.  No.  KG  KG  KG	PB Unit Rate 26,516.95 955.80 177.00 94.40 88.50 94.40 88.50	2.5  Total Quantity  13  13  13  13  3.91  39.00  15.65	1,931.83 2,29,887.24  Total Amount 3,44,720.35 12,425.40 2,301.00 1,227.20 346.19 3,681.60 1,384.74		
O O1 P SI. No. 1 2 3 4 5	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Points  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat	s With WH  Unit  No.  No.  No.  KG  Kg	Total CESS (c) for DP With  PB  Unit Rate  26,516.95  955.80  177.00  94.40  88.50  94.40	2.5  Total Quantity  13  13  13  3.91  39.00	1,931.83 2,29,887.24  Total Amount 3,44,720.35 12,425.40 2,301.00 1,227.20 346.19 3,681.60		

11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	18.85	1,734.95		
12	100 mm2 AAAC	K.M.	64,900.00	7.73	5,01,352.50		
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-		
14	Black Paint	Ltr	259.60	13.0	3,374.80		
15	Yellow Colour Paint for Background	Ltr	259.60	26.0	6,749.60		
Α			Total Cost of	f materials	8,91,350.20		
В	Sto	ck, Storag	e & Insurance	i.e 3% of A	26,740.51		
С			Sub T	otal (A+B)	9,18,090.71		
D			Contigency	@ 3% of C	27,542.72		
Е		7	Tools & Plants	@ 2% of C	18,361.81		
F		Tra	ansportation @	7.5% of C	68,856.80		
G	Erection Charges	@ 5% on	Trf/Breaker/W	PB/ H-Pole	17,753.10		
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	VPB/ H-Po	ole/HT stay set	PSC pole)	56,302.87		
I	Erection Charges @ 20% of	PSC pole	e- Not to be us	ed for 33kv	-		
J			Sum	of (C to I)	11,06,908.02		
	Civil & Services						
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	5.85	38,025.00		
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.46	9,506.25		
3	Dismantling of 80sqmm AAAC	KM	9,000.00	7.73	69,525.00		
K	-		Total Civil	& Services	1,17,056.25		
L		Total	Material+Ser	vices (I+K)	12,23,964.27		
М	Other overheads (Including 6% supervision charge	s) (for 11	KV Pin Points	With WPB)	73,437.86		
N			Sub T	otal (L+M)	12,97,402.13		
0			Total GST @	18% of (N)	2,33,532.38		
01			Total CESS @	0 1% of (N)	12,974.02		
Р	Gross Total Material +Services (N+O+O	1) for 11 k	(V Pin Points	With WPB	15,43,908.53		
	6% Supervision Charges Su	mmary		<u> </u>			
2	Other overheads (Including 6% supervision ch		_ (for DP With	AB Switch)	10,934.86		
5	Other overheads (Including 6% supervision charge		•		73,437.86		
	, , , ,	, \	% supervision		84,372.72		
	Gross Total Summary	•	•	<b>U</b> /	·		
2							
5							
Q	,				15,43,908.53 200.00		
R	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.  Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km						
S	Inspection Fee		,		400.00		
T			ion by electrica		500.00		
U			,	•	17,74,895.77		
_	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)						

- To maintain reliable Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

## 10.Refurbishment of 11kV Sikharchandi Feeder for mitigation of Overloading

**Proposal:** Augmentation of existing 11kV Sikharchandi Feeder emanating from 33/11kV Kalarahanga PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor.

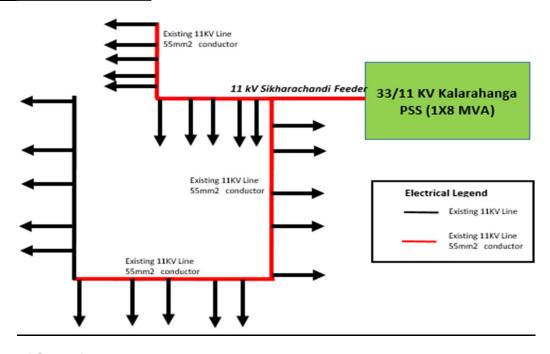
**Objective:** To mitigate the overloading issue of 11kV Sikharchandi feeder.

#### **Existing Scenario:**

- At present, 11kV Sikharchandi feeder is emanating from 33/11kV Kalarahanga PSS. Only
  Urban consumers are connected from this feeder. Total length of this feeder is 13.21km and
  the peak load is 3.5MVA.
- In the existing scenario, conductor size of 11kV Sikharchandi feeder is 55 sq mm & the feeder is loaded up to 98.87 %, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

	EXISTING LOADING								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status		
Sikharchandi	3.54	3.50	98.87	Overload	5.20	146.9	Overload		

#### **Existing SLD (Summer'21):**

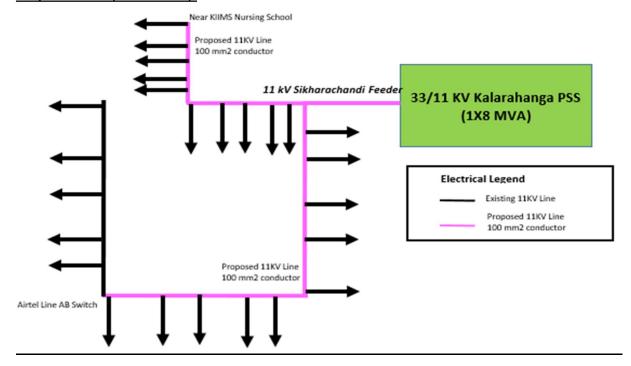


## Proposed Scenario:

 Augmentation of 4km existing 55sqmm old conductor with 100sqmm AAAC conductor (from Kalarahanga PSS to Airtel line DP AB switch).

	LOADING OF FEEDER AFTER PROPOSAL										
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status				
Sikharchandi	5.18	3.50	67.6	OK	4.2	81.1	Ok				

## Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

 Augmentation of 4km existing 55sqmm old conductor with 100sqmm AAAC conductor (from kalarahanga PSS to Airtel line DP AB switch).

	TP CENTRAL ODISHA DISTRIBUTION LIMITED								
	Name of the Division :-	BCDD-II							
	Name of the Sub-Division : -	Periphery							
	Name of the Section : -	Kanan Vihar							
	Name of the Work :-	ART-A- Augmentation of Conductor From 80 & 55 mm2 to 100 mm2							
		of length-4 Km from kalarahanga PSS to Airtel lin	ne DP AB SWIICH.						
	Scope of work:-  Names of Schemes: -	PART-A- Augmentation of Conductor From 80 & 55 mm2 to 100 mm2 of length-4 Km from kalarahanga PSS to Airtel line DP AB switch.  TPCODL CAPEX Scheme							
		ABSTRACT OF ESTIMATE							
SI. No.		Description	Amount						
1		nductor From 80 & 55 mm2 to 100 mm2 of a PSS to Airtel line DP AB switch.	₹ 29,23,355.97						
2		Total Amount	₹ 29,23,355.97						
3	T	otal Amount (In Cr.)	0.29						

	PART-A- Augmentation of Conductor From 80 & 55 mm2 to 100 mm2 of length-4 Km from kalarahanga PSS to Airtel line DP AB switch.						
	11kV Line Length with 40 Mtr. Span using 1	00 SQ.MM.	-AAA Conduc	ctor			
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)	2					
	MATERIALS OF DP With	AB Switch					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		

1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, $0.59Kg/Mtr$ . Flat of $0.510mtr$ length 2 no's = $(2x0.59x0.510)$	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
Α			Total Cost o		2,67,760.93
В	Sto	ock, Storag	e & Insurance		8,032.83
С				otal (A+B)	2,75,793.76
D	-		Contigency	@ 3% of C	8,273.81
Е			Γools & Plants	_	5,515.88
F		Tra	ansportation @	7.5% of C	20,684.53
G	Erection	Charges (	0 5% on Trf/Br	reaker/Joist	5,462.49
Н	Erection Charges @ 10% of C (except Trf/Breaker				15,511.92
I	Erection Charges @ 20% o	of PSC pole			-
J			Sun	n of (C to I)	3,31,242.39
	Civil & Services				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount

1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
К	COVCI		Total Civil	& Services	33,253.00
L				Total (J+K)	3,64,495.39
М	Other overheads (Including 6% supervision c	harges) of	L (for DP With	AB Switch)	21,869.72
N				Γotal (L+M)	3,86,365.11
0			Total GST @	18% of (N)	69,545.72
01			Total CESS @	2) 1% of (N)	3,863.65
Р	Gross Total Material +Serv	rices (N+O	) for DP With	AB Switch	4,59,774.48
	No. of Cut Point with 180 Degree Angle			2	
	(Ref. Drawing No TPCODL-MVD-0004)  MATERIALS FOR 11 KV Cut Point with	th 180 Dec	ree Anale		
SI.				Total	Total
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =( 2x9.56x1.2)	KG	88.50	45.888	4,061.09
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	10.5728	935.69
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	11.70144	1,035.58
5	Danger Plate, 1 no's.	No.	94.40	2	188.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.6018	53.26
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	6	566.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	2.4072	213.04
9	11 KV pin insulator polymer	No.	236.00	6	1,416.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
12	Earthing of Support (Coil Type)  No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting	EA	195.88	2	391.76
13	pole with Coil earthing	K.g.	88.50	0.524	46.37
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	7.1	653.48
16	Black Paint	Ltr	259.60	1	259.60
17	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
Α			Total Cost o		93,346.17
В	Sto	ock, Storag	e & Insurance	-	2,800.39
С				otal (A+B)	96,146.56
D				@ 3% of C	2,884.40
E			Tools & Plants	_	1,922.93
F			ansportation @		7,210.99
G			0 5% on Trf/B	-	2,731.25
H	Erection Charges @ 10% of C (except Trf/Breaker		•		4,152.16
J	Erection Charges @ 20% o	л PSC pol		n of (C to I)	1,15,048.29

	Civil & Services								
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00				
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50				
K			Total Civil	<b>Total Civil &amp; Services</b>					
L	Total (J+K)								
M	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)								
N			Sub 1	Total (L+M)	1,29,702.43				
0			Total GST @	18% of (N)	23,346.44				
			Total CESS @	0 1% of (N)	1,297.02				
Р	Gross Total Material +Services (N+O) for 11 K	V Cut Poin	t with 180 De	gree Angle	1,54,345.90				
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)			4					
	MATERIALS FOR 11 KV Pin Po	ints With V	VPB						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	20	5,30,339.00				
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	20	19,116.00				
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	20	3,540.00				
4	Danger Plate, 1 no's. for each pole	No.	94.40	20	1,888.00				
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	6.02	532.59				
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	60.00	5,664.00				
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	24.07	2,130.37				
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	60	14,160.00				
9	Earthing of Support ( Coil Type )	No.	195.88	20	3,917.60				
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	5.24	463.74				
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	29.00	2,669.16				
12	100 mm2 AAAC	K.M.	64,900.00	12.36	8,02,164.00				
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-				
14	Black Paint	Ltr	259.60	20.0	5,192.00				
15	Yellow Colour Paint for Background	Ltr	259.60	40.0	10,384.00				
Α			Total Cost o	f materials	14,02,160.47				
В	Sto	ock, Storag	e & Insurance	i.e 3% of A	42,064.81				
С			Sub T	otal (A+B)	14,44,225.28				
D			Contigency	@ 3% of C	43,326.76				
Е		-	Γools & Plants	@ 2% of C	28,884.51				
F		Tra	ansportation @	7.5% of C	1,08,316.90				
G	Erection Charges	_			27,312.46				
Н	Erection Charges @ 10% of C (except Trf/Breaker,		•		89,797.61				
ı	Erection Charges @ 20% o	of PSC pole			-				
J			Sun	of (C to I)	17,41,863.51				
	<u>Civil &amp; Services</u>		T						
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	9.00	58,500.00				
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.25	14,625.00				
3	Dismantling of 80sqmm AAAC	М	1,200.00	12.36	14,832.00				
K			Total Civil	& Services	87,957.00				
L			Material+Ser		18,29,820.51				
М	Other overheads (Including 6% supervision charg	es) (for 11	KV Pin Points	With WPB)	1,09,789.23				
N				otal (L+M)	19,39,609.74				
0			Total GST @	18% of (N)	3,49,129.75				

01	Total CESS @ 1% of (N)			
Р	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	23,08,135.59		
	6% Supervision Charges Summary			
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	21,869.72		
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	1,09,789.23		
	Total (6% supervision charges)			
•	Gross Total Summary			
2	Gross Total Material +Services (N+O) for DP With AB Switch	4,59,774.48		
3	Gross Total Material +Services (N+O) for 11 KV Cut Point with 180 Degree Angle	1,54,345.90		
4	Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle			
5	5 Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB			
Total				
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00		
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km			
S	Inspection Fee of Drawing Checking and Approval	400.00		
Т	Final decision by electrical Inspector	500.00		
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	29,23,355.97		

- To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- The above arrangement will help to release power supply to upcoming potential consumers.
- Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

#### 11.Bifurcation of 11kV K-5 Feeder for mitigation of Overloading & Low Voltage issue

**Proposal:** Bifurcation of existing 11kV K-5 Feeder emanating from 33/11kV Kalinga Nagar PSS by constructing 1no. of new feeder from 33/11kV CET PSS.

**Objective:** To mitigate the overloading issue of 11kV K-5 feeder.

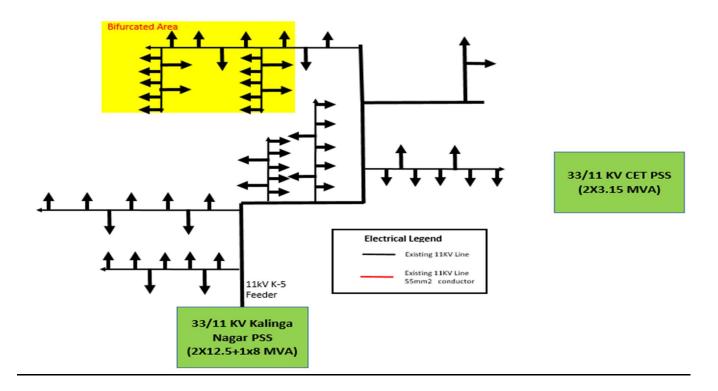
#### **Existing Scenario:**

- At present, 11 KV K-5 feeder is emanating from 33/11 KV Kalinga Nagar PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 17 KM and the peak load is 5.5 MVA.
- In the existing scenario, conductor size of 11kV K-5 feeder where the feeder is overloaded is 80sqmm & the feeder is loaded up to 122.83%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to
  overloading hampers the reliability of power supply and also considering future load growth of
  the residential building, bifurcation of this feeder is proposed for improving Reliability &
  mitigation of Overload.

	EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status	
K-5	4.51	5.54	122.83	OVERLOAD	8.3	183.7	OVERLOAD	

**Proposal:** Construction of New Feeder from 33/11kV CET PSS of length-1.5km by laying 3Cx400sqmm U/G Cable for feeder bifurcation. Installation of 2 No. of 11kV 4 way RMU for N-1 connectivity feeder bifurcation.

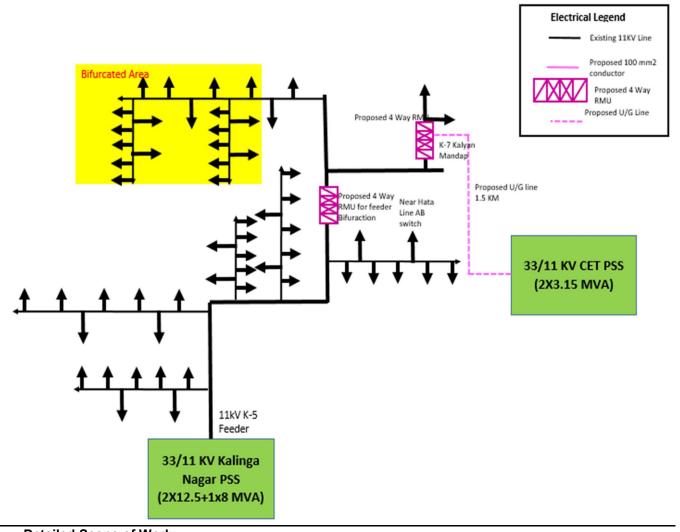
**Objective:** To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.



- Construction of New Feeder from 33/11 KV CET PSS of length-1.5 KM by using in 3Cx400mm2
   U/G Cable from CET PSS to K-7 Kalyan mandap DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

	LOADING OF FEEDER w.r.t Proposal									
11 kV kV Feeder Name	Capacity (MVA) Fy' 22-23 Existing Constitution (MVA) Fy' 22-23 Constitution (MVA) Fy' 22-23 Constitution (MVA) Constitution (MV		% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status					
K-5	5.18	3	57.9	OK	4.5	86.6	OK			
K-5- NEW	5.75	2.54	44.2	ОК	3.80	66.1	ОК			

#### Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

- Construction of New Feeder from 33/11 KV CET PSS of length-1.5 KM by using in 3Cx400mm2
   U/G Cable from CET PSS to K-7 Kalyan mandap DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

	TP CENTRAL ODISHA DISTRIBUTION LIMITED					
Name of th	ne Division :-	BCDD-II				
Name of th	ne Sub-Division : -	KHANDAGIRI				
Name of th	ne Section : -	Kalinga Nagar				
Name of th	ne Work :-	Part- A :Construction of U/G Cable - 1.5 Km without spare (from CET PSS to K7 Kalyan mandap) with 2 no.s 4W RMU				

Names of Schemes: - TPCODL CAPEX Scheme	
ABSTRACT OF ESTIMATE	
SI. Description	Amount
Part- A :Construction of U/G Cable for new feeder - 1.5 Km without spare (from CET PSS to K7 Kalyan mandap) with 2 no.s 4W RMU ₹	1,47,01,367.97
2 Total Amount ₹	1,47,01,367.97
3 Total Amount (In Cr.)	1.47

Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.3		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	1.2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	1.50	17,70,000.00	26,55,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	5	29,874.06	1,49,370.30
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.30	6,94,910.00	2,08,473.00
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	1.5	56,515.00	84,772.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	1.5	77,990.00	1,16,985.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	3	6,766.00	20,298.0
	Supply of end Connector and accessories for OFC	Set	4	7,535.00	30,140.0
4.4	connection at RMU, Supply of Standard FRTU 4Way with FRTU networking			, i	

	3 Way & 4 way RMU.  Sub Total (Supply Portion) (i	n Rs.)			54,14,916.16
Erect	ion Portion	,			,,
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .		0.30	94,500.00	28,350.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	2,400.00	12,000.00
1.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.4
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.2	28,00,000.00	33,60,000.00
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.30	1,04,114.67	31,234.40
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.0
3.1	FRTU and OFC for RMU SCADA Automation  Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	1.5	27,296.35	40,944.5
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	1.5	1,22,488.27	1,83,732.4
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	3.0	612.54	1,837.62
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.7
	Sub Total (Erection Portion) (	in Rs.)	, , , , , , , , , , , , , , , , , , , ,		37,28,057.5
Civil I	Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	210	700.00	1,47,000.0
1.1.b	Earth work excavation of hard rock	Cum	90	1,720.00	1,54,800.0
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	180	171.55	30,879.0
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	120	2,500.00	3,00,000.0
1.4	Back filling with excavated soil outside and above the trench	Cum	180	202.00	36,360.0
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.3	26,43,670.63	7,93,101.1

2	Civil works for Prefabricated RCC foundation with supply of all materials					
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60	
3	Supply of GI Fencing with Gate around each RMU	sqmtr	40	3,600.00	1,44,000.00	
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab Set cover			2,407.00	9,628.00	
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80	
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	50,600.00				
	Sub Total (Civil Portion) (in Rs.)					
Α	Sub Total (Supply Portion)		54,14,916.16			
В	Stock, Storage & Insurance @ 3 % of A				1,62,447.48	
C	Sub Total (A+B)	55,77,363.64				
D	Contingency @ 3 % of C	1,67,320.91				
Е	Tools & Plants Charges @ 2% of C (considered for earthing it		150.22			
F	Transportation @ 7.5% of C					
G	Erection Charges @ 10% of earthing items					
Н	Total (C+D+E+F+G)					
I	Sub Total (Erection Portion + Civil Portion)		54,87,545.14			
J	Total Cost (H+I)				1,16,51,433.31	
K	Other Overhead /(including Supervision Charges) @ 6 % of J				6,99,086.00	
L	Total Estimated Capital Cost i.e. (J+K)				1,23,50,519.31	
М	GST @ 18% of L				22,23,093.48	
M1	CESS @ 1% of L				1,23,505.19	
N	Grand Total (L+M)		1,46,97,117.97			
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00				
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km					
Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000	
R	Inspection Fee of Drawing Checking and Approval					
S	Final decision by electrical Inspector					
Т	Gross Total Material, Services and Inspection Fees (N+O+	1,47,01,367.97				

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

## 12.Bifurcation of 11kV KIIT Feeder for mitigation of Overloading

**Proposal:** Bifurcation of existing 11kV KIIT Feeder emanating from 33/11kV Kanan Vihar PSS by constructing 1 No. of new feeder from 33/11 KV Infocity PSS.

Objective: To mitigation of Overloading issue of feeder.

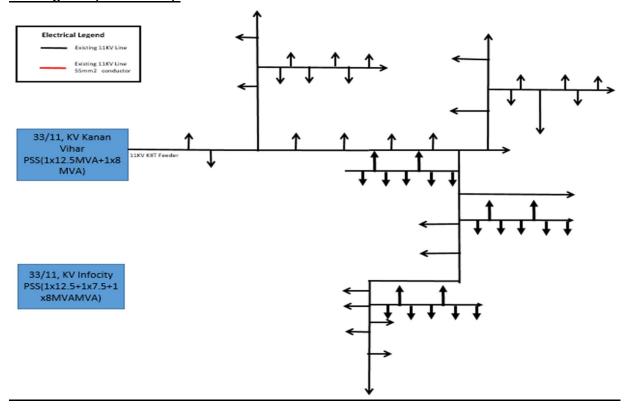
#### **Existing Scenario:**

- At present, 11kV KIIT feeder is emanating from 33/11 KV Kanan Vihar PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 13.15 KM and the peak load is 5.8 MVA.
- In the existing scenario, conductor size of 11kV K-5 feeder is 55sqmm & the feeder is loaded up to 113.27%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overload hampers the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder is proposed for improving Reliability & mitigation of Overload.

	EXISTING LOADING OF FEEDER							
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status	
KIIT	3.54	4.01	113.27	OVERLOAD	6.0	169.4	OVERLOAD	

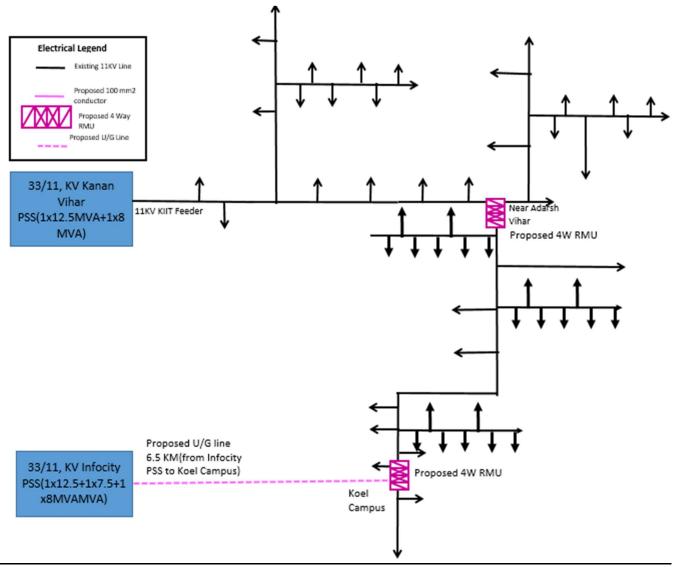
**Proposal:** Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

**Objective:** To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.



- Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to KOEL CAMPUS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

## Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6.5 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to KOEL CAMPUS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

	TP CENTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :-	BCDD-II				
[	Name of the Sub-Division : -	PERIPHERY				
[	Name of the Section : -	Kanan Vihar				
	Name of the Work :-	Part- A :Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to KOEL Campus ) with 2 no.s 4W RMU				
	Scope of work:-	Part- A :Construction of U/G Cable - 6.5 Km without spare (from Infocity PSS to KOEL Campus ) with 2 no.s 4W RMU				

	1					
}	Names of Schemes: -	TPCODL CAPEX Scheme				
$\vdash$	Names of Schemes	I FCODE CAPEX Scrience				
<u> </u>	ABSTRACT OF ESTIMATE					
SI.	Description	n		Amount		
SI. No.	•			Amount		
No.	Part- A :Construction of U/G	Cable - 6.5 Km	₹			
1	•	Cable - 6.5 Km PSS to KOEL	₹	<b>Amount</b> 5,20,77,245.23		
No.	Part- A :Construction of U/G without spare (from Infocity P	Cable - 6.5 Km PSS to KOEL IU	₹			
<b>No.</b>	Part- A :Construction of U/G without spare (from Infocity P Campus ) with 2 no.s 4W RM	Cable - 6.5 Km PSS to KOEL IU nt		5,20,77,245.23		

Part-	A :Construction of U/G Cable - 6.5 Km without spare (from Inf	ocity PS	S to KOEL (	Campus ) with 2	no.s 4W RMU
Suppl	y Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	1.3		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	5.2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.50	17,70,000.00	1,15,05,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	25	29,874.06	7,46,851.50
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	1.30	6,94,910.00	9,03,383.00
2	Supply of 11kV RMU				
a	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
С	No. of 11kV 3Way RMU (LLV+M)	nos.	_		
d	No. of 11kV 4Way RMU (LLVV+M)	nos.			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	_
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	_
3	Earthing			3,13,1100	
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	6.5	56,515.00	3,67,347.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	6.5	77,990.00	5,06,935.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13	6,766.00	87,958.00

4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in	Rs.)			1,62,97,492.36
Erecti	on Portion				I
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	1.30	94,500.00	1,22,850.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	25	2,400.00	60,000.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	5.2	28,00,000.00	1,45,60,000.00
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	1.30	1,04,114.67	1,35,349.07
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.5	27,296.35	1,77,426.28
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	6.5	1,22,488.27	7,96,173.76
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	13.0	612.54	7,963.02
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in	Rs.)			1,59,29,720.72
Civil F	Portion				
SI.	Description of items	Unit	Quantity	Rate	Amount
No. 1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench			(in Rs.)	(in Rs.)
	Earth work excavation of soil (1mtr. width X 1mtr. depth)	-			

4.4	Forth words and the state of th		040	700.00	0.07.000.00
1.1.a	Earth work excavation of <b>soil</b>	Cum	910	700.00	6,37,000.00
1.1.b	Earth work excavation of hard rock	Cum	390	1,720.00	6,70,800.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	780	171.55	1,33,809.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	520	2,500.00	13,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	780	202.00	1,57,560.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	1.3	26,43,670.63	34,36,771.82
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each RMU	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	217	1,012.00	2,19,604.00
	Sub Total (Civil Portion) (in F	Rs.)			68,02,292.22
Α	Sub Total (Supply Portion)				1,62,97,492.36
В	Stock, Storage & Insurance @ 3 % of A				4,88,924.77
С	Sub Total (A+B)				1,67,86,417.13
D	Contingency @ 3 % of C				5,03,592.51
Е	Tools & Plants Charges @ 2% of C (considered for earthing item	s)			150.22
F	Transportation @ 7.5% of C				12,58,981.28
G	Erection Charges @ 10% of earthing items				751.12
Н	Total (C+D+E+F+G)				1,85,49,892.27
Ι	Sub Total (Erection Portion + Civil Portion)				2,27,32,012.94
J	Total Cost (H+I)				4,12,81,905.21
K	Other Overhead /(including Supervision Charges) @ 6 % of J				24,76,914.31
L	Total Estimated Capital Cost i.e. (J+K)				4,37,58,819.52
М	GST @ 18% of L				78,76,587.51
M1	CESS @ 1% of L				4,37,588.20
N	Grand Total (L+M)				5,20,72,995.23
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
Т	Gross Total Material, Services and Inspection Fees (N+O+P+	·Q+R+S)			5,20,77,245.23

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply

## 13. Bifurcation of load of 11kV Kalarahanga Feeder for mitigation of Overloading

**Proposal:** Bifurcation of existing 11 KV Kalarahanga Feeder load emanating from 33/11 KV Kanan Vihar PSS by constructing 2 No. of new feeder from 33/11 KV Baranga Kalarahanga PSS through RMU.

**Objective:** To mitigation of Overloading issue of feeder.

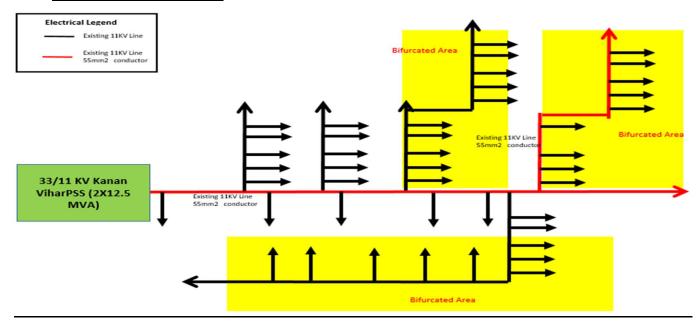
#### **Existing Scenario:**

- At present, 11 KV Kalarahanga feeder is emanating from 33/11 KV Kanan Vihar PSS. Only
  Urban consumers are connected from this feeder. Total length of this feeder is 13.21 KM and
  the peak load is 3.4 MVA.
- In the existing scenario, conductor size 11kV Kalarahanga feeder where feeder loading is observed is 80 sq mm & the feeder is loaded up to 75.38%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to
  overload is hampered the reliability of power supply and also considering future load growth of
  the residential building, bifurcation of this feeder & Conductor augmentation is proposed for
  improving Reliability & mitigation of Overload.

EXISTING LOADING OF FEEDER								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status	
KALARAHANGA	4.51	3.40	75.38	OK	5.1	143.6	OVERLOAD	

**Proposal:** Construction of 2 Nos. of New Feeder from 33/11 KV Baranga Kalarahanga PSS of length-3.5 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 4 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation. Augmentation of 55mm2 Conductor to 100mm2 conductor for mitigation of N-1 issue.

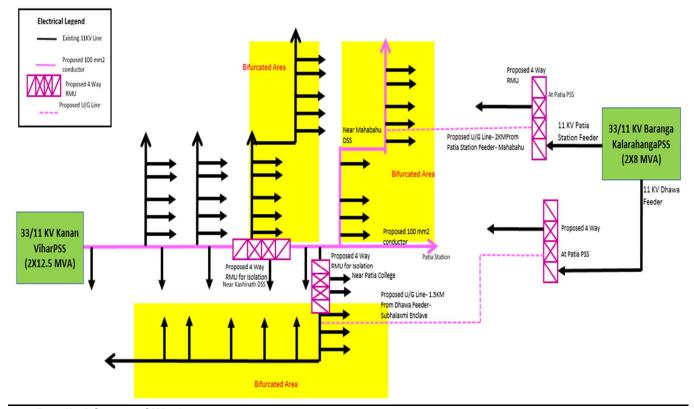
**Objective:** To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.



- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS(Patia station feeder) to Mahabahu DSS.
- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-1.5 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS( Dhawa feeder) to Subhalaxmi Enclave DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

LOADING OF FEEDER w.r.t Proposal									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status		
KALARAHANGA	5.18	1.4	27.0	OK	2.1	40.4	OK		
KALARAHANGA NEW-1	5.75	1.00	17.4	ОК	1.50	26.0	ОК		
KALARAHANGA NEW-2	5.75	1.00	17.4	OK	1.50	26.0	ОК		

#### Proposed SLD (Summer'22):



#### **Detailed Scope of Work:**

- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS (Patia station feeder) to Mahabahu DSS.
- Construction of New Feeder from 33/11 KV Baranga kalarahanga PSS of length-1.5 KM by using in 3Cx400mm2 U/G Cable from Baranga karahanga PSS( Dhawa feeder) to Subhalaxmi Enclave DSS.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.

	TP C	ENTRAL ODISHA DISTRIBUTION LIMIT	ED				
	Name of the Division :-	BCDD-II					
	Name of the Sub-Division : -	PERIPHERY					
	Name of the Section : -	Kanan Vihar					
	Name of the Work :-	PSS(11KV Dhawa feeder) to Subhalaxmi Enclave 1.5 KM with 2 No. RMU Part- C :-Conductor Augmentation of length-3.5 KM  Part- A :Construction of 1 No. of new Feeder in UG Through RMU from barang Kalarahanga PSS(11KV Patia Station Feeder) to Mahabahu DSS 2 KM with 2 No. RMU					
	Scope of work:-						
Ì	Names of Schemes: -	TPCODL CAPEX Scheme					
		ABSTRACT OF ESTIMATE					
SI. No.		Description	Amount				
1		of new Feeder in UG Through RMU S(11KV Patia Station Feeder) to No. RMU	₹ 1,86,02,217.23				
2	Part- B :Construction of 1 No. Kalarahanga PSS(11KV Dhav KM with 2 No. RMU	of new Feeder from barang wa feeder) to Subhalaxmi Enclave 1.5	₹ 1,48,64,246.54				
3	Part- C :-Conductor Augment	ation of length-3.5 KM	₹ 23,20,942.75				
4		otal Amount	₹ 3,57,87,406.52				
5	Total	Amount (In Cr.)	3.58				

	er) to Mahabahu DSS 2 KM with 2 No. RMU				
Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.4		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	1.6		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.00	17,70,000.00	35,40,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	7	29,874.06	2,09,118.42
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.40	6,94,910.00	2,77,964.00
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		

С	No. of 11kV 3Way RMU (LLV+M)	nos.			
d	No. of 11kV 4Way RMU (LLVV+M)	nos.			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	_
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	- 11,10,120.00
			0		_
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	U	8,13,749.00	<u>-</u>
3	Earthing Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for				
3.1	equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2	56,515.00	1,13,030.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.0	77,990.00	1,55,980.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4	6,766.00	27,064.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (i	in Rs.)			65,68,800.66
Eroot	ion Portion				
	IOII FOILIOII		T		
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.40	94,500.00	37,800.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG	Set	7	2,400.00	16,800.00
	cable kits for 3core (set)	Set	·	2,100.00	
1.3	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable	Set	8	1,900.80	15,206.4
1.3	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable		·		
	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual	Set	8	1,900.80	15,206.40
1.4	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with	Set Set	8	1,900.80	15,206.40 44,80,000.00
1.4	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open	Set Set	8 8 1.6	1,900.80 1,900.80 28,00,000.00	15,206.40 44,80,000.00
1.4 1.5 1.6 <b>2</b> 2.1	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU  Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Set Set km km	8 8 1.6 0.40	1,900.80 1,900.80 28,00,000.00 1,04,114.67	15,206.40 15,206.40 44,80,000.00 41,645.87
1.4 1.5 1.6 2 2.1 2.2	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU  Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)  Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Set Set km km Nos. Nos.	8 8 1.6 0.40	1,900.80 1,900.80 28,00,000.00 1,04,114.67 15,000.00 15,000.00	15,206.40 44,80,000.00 41,645.87
1.4 1.5 1.6 2 2.1 2.2 2.3	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU  Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)  Erection of RMU 3W 11kV 630A with metering unit (LLV+M)  Erection of RMU 4W 11kV 630A with metering unit	Set Set km km Nos. Nos. Nos.	8 8 1.6 0.40	1,900.80 1,900.80 28,00,000.00 1,04,114.67 15,000.00 15,000.00 15,000.00	15,206.40 44,80,000.00 41,645.83
1.4 1.5 1.6 2 2.1 2.2 2.3 2.4	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU  Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)  Erection of RMU 3W 11kV 630A with metering unit (LLV+M)  Erection of RMU 4W 11kV 630A with metering unit (LLV+M)	Set Set km km Nos. Nos.	8 8 1.6 0.40	1,900.80 1,900.80 28,00,000.00 1,04,114.67 15,000.00 15,000.00	15,206.40 44,80,000.00
1.4 1.5 1.6 2 2.1 2.2 2.3	cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU  Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)  Erection of RMU 3W 11kV 630A with metering unit (LLV+M)  Erection of RMU 4W 11kV 630A with metering unit	Set Set km km Nos. Nos. Nos.	8 8 1.6 0.40	1,900.80 1,900.80 28,00,000.00 1,04,114.67 15,000.00 15,000.00 15,000.00	15,206.40 44,80,000.00 41,645.87

	Laving of 40 care fibre outle cable single goods, duct time	1			1
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.0	1,22,488.27	2,44,976.54
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4.0	612.54	2,450.16
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion)	(in Rs.)			49,55,827.07
Civil F	Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	280	700.00	1,96,000.00
1.1.b	Earth work excavation of hard rock	Cum	120	1,720.00	2,06,400.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	240	171.55	41,172.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	160	2,500.00	4,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	240	202.00	48,480.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.4	26,43,670.63	10,57,468.25
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each RMU	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	67	1,012.00	67,804.00
	Sub Total (Civil Portion) (ir	Rs.)			23,10,900.45
Α	Sub Total (Supply Portion)				65,68,800.66
В	Stock, Storage & Insurance @ 3 % of A				1,97,064.02
С	Sub Total (A+B)				67,65,864.68
D	Contingency @ 3 % of C				2,02,975.94
Е	Tools & Plants Charges @ 2% of C (considered for earthing it	ems)			150.22
F	Transportation @ 7.5% of C				5,07,439.85
G	Erection Charges @ 10% of earthing items				751.12
Н	Total (C+D+E+F+G)				74,77,181.81
I	Sub Total (Erection Portion + Civil Portion)				72,66,727.52
J	Total Cost (H+I)				1,47,43,909.33
K	Other Overhead /(including Supervision Charges) @ 6 % of J				8,84,634.56

L	Total Estimated Capital Cost i.e. (J+K)	1,56,28,543.89
М	GST @ 18% of L	28,13,137.90
M1	CESS @ 1% of L	1,56,285.44
N	Grand Total (L+M)	1,85,97,967.23
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	1,86,02,217.23

	B :Construction of 1 No. of new Feeder from barang Kalaral ve 1.5 KM with 2 No. RMU	nanga P	SS(11KV Dha	awa feeder) to Su	ıbhalaxmi
	y Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories			, ,	
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.3		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	1.2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	1.50	17,70,000.00	26,55,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	5	29,874.06	1,49,370.30
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.30	6,94,910.00	2,08,473.00
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
С	No. of 11kV 3Way RMU (LLV+M)	nos.			
d	No. of 11kV 4Way RMU (LLVV+M)	nos.			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	1.5	56,515.00	84,772.50
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	1.5	77,990.00	1,16,985.00
	Supply of Straight through connectors (Plastic coupler) and			l l	

4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (i	in Rs.)			54,80,543.04
Erecti	ion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.30	94,500.00	28,350.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	2,400.00	12,000.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.2	28,00,000.00	33,60,000.00
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.30	1,04,114.67	31,234.40
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	1.5	27,296.35	40,944.53
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	1.5	1,22,488.27	1,83,732.41
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	3.0	612.54	1,837.62
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion)	(in Rs.)			37,35,660.75
Oh -11 =					
SI.	Portion  Description of items	Unit	Quantity	Rate	Amount
No. 1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench	Jill	Quantity	(in Rs.)	(in Rs.)
	ELG TOT UG GADIE TTETTOTT				

1.1.a	Earth work excavation of <b>soil</b>	Cum	210	700.00	1 47 000 00
1.1.a 1.1.b	Earth work excavation of hard rock	Cum	90	1,720.00	1,47,000.00 1,54,800.00
1.1.5	Shifting of excavated soil to a lead distance of 10km	Cum	180	171.55	30,879.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	120	2,500.00	3,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	180	202.00	36,360.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.3	26,43,670.63	7,93,101.19
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	50	1,012.00	50,600.00
	Sub Total (Civil Portion) (in	Rs.)			18,06,316.39
Α	Sub Total (Supply Portion)				54,80,543.04
В	Stock, Storage & Insurance @ 3 % of A				1,64,416.29
С	Sub Total (A+B)				56,44,959.33
D	Contingency @ 3 % of C				1,69,348.78
E	Tools & Plants Charges @ 2% of C (considered for earthing it	ems)			150.22
F	Transportation @ 7.5% of C				4,23,371.95
G	Erection Charges @ 10% of earthing items				751.12
Н	Total (C+D+E+F+G)				62,38,581.40
I	Sub Total (Erection Portion + Civil Portion)				55,41,977.14
J	Total Cost (H+I)				1,17,80,558.54
K	Other Overhead /(including Supervision Charges) @ 6 % of J				7,06,833.51
L	Total Estimated Capital Cost i.e. (J+K)				1,24,87,392.05
М	GST @ 18% of L				22,47,730.57
M1	CESS @ 1% of L				1,24,873.92
N	Grand Total (L+M)				1,48,59,996.54
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
Q	Inspection Fee of RMU - Rs. 2000/ RMU				
R	Inspection Fee of Drawing Checking and Approval				
S	Final decision by electrical Inspector				
T	Gross Total Material, Services and Inspection Fees (N+O+	·P+Q+R+	S)		1,48,64,246.54

Part- C:-Conductor Augmentation of length-3.5 KM

11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			1	
	MATERIALS OF DP With AE	Switch			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15 16	Gi Pipe Earthing 40mm. 3 Mtr. Long 50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	No. KG	1,239.00 88.50	48.38	2,478.00 4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with	NO.	684.40	6	4,106.40
25	AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
Α			Total Cost of	materials	1,33,880.47
В	Stoc	i.e 3% of A	4,016.41		
С				otal (A+B)	1,37,896.88
D		@ 3% of C	4,136.91		
E			ools & Plants		2,757.94
F			nsportation @		10,342.27
G			5% on Trf/Br		2,731.25
H	Erection Charges @ 10% of C (except Trf/Breaker/M			. ,	7,755.96
<u> </u>	Erection Charges @ 20% of	PSC pole			4.05.004.40
J	0: "0 0		Sum	of (C to I)	1,65,621.19
SI.	Civil & Services		11-11-5-1	Total	Total
No.	Description of Materials  Fiving of complete (14/2/ line Complete stay set includes 1) Turn	Unit	Unit Rate	Quantity	Amount
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay	No.	2,250.00	2	4,500.00

	Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation					
	including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with					
	all labour and material as per TPCODL Drawing & Standard.					
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00	
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu	Cu.mtr	6,500.00	0.23	1,462.50	
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of	No.	2,407.00	2	4,814.00	
K	earthing chamber (Size: 2'x2') and RCC slab cover		Total Civil 8	Services	16,626.50	
L				otal (J+K)	1,82,247.69	
М	Other overheads (Including 6% supervision cha	raes) of L		• •	10,934.86	
N	(	-9,	•	otal (L+M)	1,93,182.56	
0			Total GST @	` '	34,772.86	
01			Total CESS @	` '	1,931.83	
Р	Gross Total Material +Services (	N+O+O1)	for DP With	AB Switch	2,29,887.24	
	11 Kv Line Length In KM with 40 Mtr. Span			3.5		
	(Ref. Drawing No TPCODL-MVD-0003)	4- 14/:46-14	/DD			
SI.	MATERIALS FOR 11 KV Pin Point	IS VVITA VV		Total	Total	
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	18	4,77,305.10	
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	18	17,204.40	
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	18	3,186.00	
4	Danger Plate, 1 no's. for each pole	No.	94.40	18	1,699.20	
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	5.42	479.33	
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	54.00	5,097.60	
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	21.66	1,917.33	
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	54	12,744.00	
9	Earthing of Support ( Coil Type )	No.	195.88	18	3,525.84	
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	4.72	417.37	
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	26.10	2,402.24	
12	100 mm2 AAAC	K.M.	64,900.00	10.82	7,01,893.50	
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA	EA	405.27		_	
	conductor Plant Paint			40.0	4.070.00	
14	Black Paint  Yellow Colour Paint for Background	Ltr Ltr	259.60 259.60	18.0 36.0	4,672.80 9,345.60	
A	reliow colour raint for background		Total Cost of		12,41,890.32	
В	Stock		& Insurance i		37,256.71	
С	0.000	ii, ciorago		otal (A+B)	12,79,147.03	
D			Contigency	` '	38,374.41	
E		@ 2% of C	25,582.94			
F		7.5% of C	95,936.03			
G	Erection Charges (	PB/ H-Pole	24,581.21			
Н	Erection Charges @ 10% of C (except Trf/Breaker/W		78,752.28			
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv					
J		of (C to I)	15,42,373.90			
	<u>Civil &amp; Services</u>	ı		1		
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	8.10	52,650.00	
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cumtr	Cu.mtr	6,500.00	2.03	13,162.50	
3	Dismantling of 34/55sqmm AAAC	KM	4,500.00	10.82	48,667.50	
K	Total Civil & Services					
L			Material+Serv		16,56,853.90	
М	Other overheads (Including 6% supervision charges	) (for 11 K			99,411.23	
N			Sub T	otal (L+M)	17,56,265.13	

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0	Total GST @ 18% of (N)	3,16,127.72
01	Total CESS @ 1% of (N)	17,562.65
Р	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	20,89,955.51
	6% Supervision Charges Summary	
1	Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)	-
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)	10,934.86
3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)	-
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)	-
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	99,411.23
	Total (6% supervision charges)	1,10,346.10
	Gross Total Summary	
1	Gross Total Material +Services (N+O+O1) for DP Without AB Switch	-
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch	2,29,887.24
3	Gross Total Material +Services (N+O+O1) for 11 KV Cut Point with 180 Degree Angle	-
4	Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	-
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	20,89,955.51
	TOTAL	23,19,842.75
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	23,20,942.75

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

#### 14.Bifurcation of 11kV Patia Feeder for mitigation of Overloading

**Proposal:** Bifurcation of existing 11 KV Patia Feeder emanating from 33/11 KV Kanan Vihar PSS by constructing 1 No. of new feeder from 33/11 KV Infocity PSS.

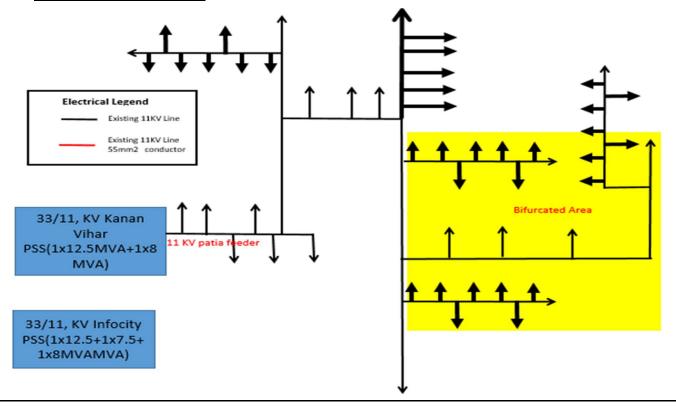
Objective: To mitigate of Overloading issue of feeder.

#### **Existing Scenario:**

- At present, 11 KV Patia feeder is emanating from 33/11 KV Kanan Vihar PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 10.62 KM and the peak load is 5.7 MVA.
- In the existing scenario, conductor size of 11kV Patia feeder where overloading is observed is 80sq mm & the feeder is loaded up to 126.38%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overload is hampered the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder.

	EXISTING LOADING OF FEEDER						
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status
PATIA	4.51	5.70	126.38	OVERLOAD	8.5	188.5	OVERLOAD

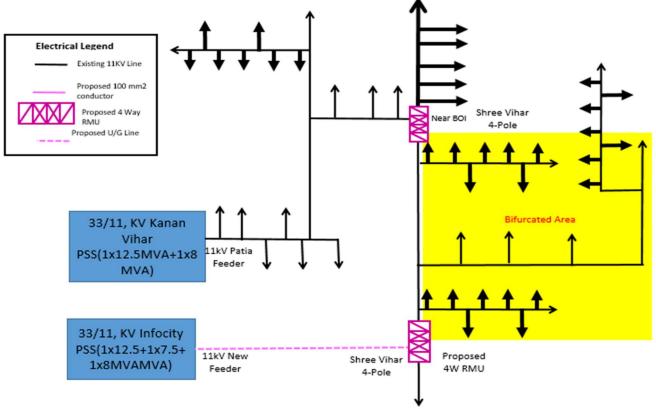
**Proposal:** Construction of New Feeder from 33/11 KV PSS of length-6 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation. Augmentation of 55sqmm Conductor to 100sqmm conductor for mitigation of N-1 issue. **Objective:** To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.



- Construction of New Feeder from 33/11 KV Infocity PSS of length-6 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to Sri Vihar 4 Pole.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-4.5 km.

	LOADING OF FEEDER w.r.t Proposal							
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status	
PATIA	5.18	3	57.9	OK	4.5	86.6	OK	
PATIA NEW	5.75	2.70	46.9	OK	4.04	70.2	ОК	

#### Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

- Construction of New Feeder from 33/11 KV Infocity PSS of length-6 KM by using in 3Cx400mm2 U/G Cable from Infocity PSS to Sri Vihar 4 Pole.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-4.5 km.

<del>DOQ!</del>						
TP CE	TP CENTRAL ODISHA DISTRIBUTION LIMITED					
Name of the Division :-	BCDD-II					
Name of the Sub-Division : -	PERIPHERY					
Name of the Section : -	Kanan Vihar					
Name of the Work :-	Part- A :Construction of 1 No. of new 11kv feeder from Infocity PSS to IOCL/Srivihar 4 Pole -6 KM with 2 Nos. of 4 Way RMU.  Part- B :Conductor Augmentation of length-4.5 KM on Patia feeder.					

	Scope of work:-	Part- A :Construction of 1 No. of new 11kv fe IOCL/Srivihar 4 Pole -6 KM with 2 Nos. of 4 Note: Part- B :Conductor Augmentation of length-4	Way RMU.
	Names of Schemes: -	TPCODL CAPEX Scheme	_
		ABSTRACT OF ESTIMATE	
SI.		ABSTRACT OF ESTIMATE	1
No.		Description	Amount
1		lo. of new 11kv feeder from Infocity PSS to with 2 Nos. of 4 Way RMU.	₹ 4,83,39,274.55
2	Part- B :Conductor Augmer	ntation of length-4.5 KM on Patia feeder.	₹ 29,10,839.14
3		Total Amount	₹ 5,12,50,113.69
4	Т	otal Amount (In Cr.)	5.13

-  -	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories			, ,	· ·
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	1.2		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	4.8		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.00	17,70,000.00	1,06,20,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	23	29,874.06	6,87,103.38
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.08
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	1.20	6,94,910.00	8,33,892.0
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
С	No. of 11kV 3Way RMU (LLV+M)	nos.			
d	No. of 11kV 4Way RMU (LLVV+M)	nos.			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	-
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	6	56,515.00	3,39,090.00
	Supply of HDPE PLB duct of size 32/26mm for laying of OFC				

4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12	6,766.00	81,192.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (in I	Rs.)			1,52,09,234.74
	on Portion	1	1		
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	1.20	94,500.00	1,13,400.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	23	2,400.00	55,200.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	4.8	28,00,000.00	1,34,40,000.00
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	1.20	1,04,114.67	1,24,937.60
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.0	27,296.35	1,63,778.10
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	6.0	1,22,488.27	7,34,929.62
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12.0	612.54	7,350.48
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in	Rs.)	1 1		1,47,09,554.40
Civil P	Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
	Civil works with supply of all materials like cement, MS tor			- /	- /
1	rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	rod, brick, coarse & fine aggregates and labour, T&P, etc for				

1.2   Shifting of excavated soil to a lead distance of 10km			1		1	T
1.3   Filling with fine river sand after laying of cable inside the trench	_					6,19,200.00
1.4   Back filling with excavated soil outside and above the trench   Cum   720   202.00   1.45.440.00						
Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (Inttr. width)	_	• • •			, ,	
A   all materials		Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench				31,72,404.76
Supply of GI Fencing with Gate around each RMU   sqmtr   40   3,600.00   1,44,000.00	2					
Installation of Earth Pit, Charcoal, Salt etc. including cover c	2.1		Nos.	2	· ·	46,290.60
Construction of earthing chamber (Size: 2'x2') and RCC slab   Set   4   2,407.00   9,628.00	3	• • • • • • • • • • • • • • • • • • • •	sqmtr	40	3,600.00	1,44,000.00
6         Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works         Nos.         200         1,012.00         2,02,400.00         2,02,511.00 <td>4</td> <td>construction of earthing chamber (Size: 2'x2') and RCC slab</td> <td>Set</td> <td>4</td> <td>2,407.00</td> <td>9,628.00</td>	4	construction of earthing chamber (Size: 2'x2') and RCC slab	Set	4	2,407.00	9,628.00
Sub Total (Civil Portion) (in Rs.)   62,97,708.16	5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
A Sub Total (Supply Portion)  1,52,09,234.74  B Stock, Storage & Insurance @ 3 % of A  4,56,277.04  C Sub Total (A+B)  1,56,65,511.78  D Contingency @ 3 % of C  4,69,965.35  E Tools & Plants Charges @ 2% of C (considered for earthing items)  150.22  F Transportation @ 7.5% of C  11,74,913.38  G Erection Charges @ 10% of earthing items  751.12  H Total (C+D+E+F+G)  1,73,11,291.86  I Sub Total (Erection Portion + Civil Portion)  2,10,07,262.56  J Total Cost (H+I)  3,83,18,554.42  K Other Overhead /(including Supervision Charges) @ 6 % of J  22,99,113.27  L Total Estimated Capital Cost i.e. (J+K)  4,06,17,667.69  N Grand Total (L+M)  0 Inspection Fee of UG Line (HT) - Rs. 250/ km.  250.00  P Inspection Fee of RMU - Rs. 2000/ RMU  R Inspection Fee of Drawing Checking and Approval  S Final decision by electrical Inspector	6		Nos.	200	1,012.00	2,02,400.00
B Stock, Storage & Insurance @ 3 % of A 4,56,277.04 C Sub Total (A+B) 1,56,65,511.78 D Contingency @ 3 % of C 4,69,965.35 E Tools & Plants Charges @ 2% of C (considered for earthing items) 150.22 F Transportation @ 7.5% of C 11,74,913.38 G Erection Charges @ 10% of earthing items 751.12 H Total (C+D+E+F+G) 1,73,11,291.86 I Sub Total (Erection Portion + Civil Portion) 2,10,07,262.56 J Total Cost (H+I) 3,83,18,554.42 K Other Overhead /(including Supervision Charges) @ 6 % of J 22,99,113.27 L Total Estimated Capital Cost i.e. (J+K) 4,06,176.68 M GST @ 18% of L 73,11,180.18 M1 CESS @ 1% of L 4,06,176.68 N Grand Total (L+M) 4,33,35,024.55 O Inspection Fee of UG Line (HT) - Rs. 250/ km. 250.00 P Inspection Fee of RMU - Rs. 2000/ RMU 4000 R Inspection Fee of Pawing Checking and Approval S Final decision by electrical Inspector		Sub Total (Civil Portion) (in Re	s.)			62,97,708.16
C       Sub Total (A+B)       1,56,65,511.78         D       Contingency @ 3 % of C       4,69,965.35         E       Tools & Plants Charges @ 2% of C (considered for earthing items)       150.22         F       Transportation @ 7.5% of C       11,74,913.38         G       Erection Charges @ 10% of earthing items       751.12         H       Total (C+D+E+F+G)       1,73,11,291.86         I       Sub Total (Erection Portion + Civil Portion)       2,10,07,262.56         J       Total Cost (H+I)       3,83,18,554.42         K       Other Overhead /(including Supervision Charges) @ 6 % of J       22,99,113.27         L       Total Estimated Capital Cost i.e. (J+K)       4,06,17,667.69         M       GST @ 18% of L       73,11,180.18         M1       CESS @ 1% of L       4,06,176.68         N       Grand Total (L+M)       4,83,35,024.55         O       Inspection Fee of UG Line (HT) - Rs. 250/ km.       250.00         P       Inspection Fee of RMU - Rs. 200/ RMU       4000         R       Inspection Fee of Drawing Checking and Approval       5 Final decision by electrical Inspector	Α	Sub Total (Supply Portion)				1,52,09,234.74
D Contingency @ 3 % of C  E Tools & Plants Charges @ 2% of C (considered for earthing items)  F Transportation @ 7.5% of C  111,74,913.38  G Erection Charges @ 10% of earthing items  751.12  H Total (C+D+E+F+G)  1,73,11,291.86  I Sub Total (Erection Portion + Civil Portion)  2,10,07,262.56  J Total Cost (H+I)  3,83,18,554.42  K Other Overhead /(including Supervision Charges) @ 6 % of J  22,99,113.27  L Total Estimated Capital Cost i.e. (J+K)  4,06,17,667.69  M GST @ 18% of L  73,11,180.18  M1 CESS @ 1% of L  9 Inspection Fee of UG Line (HT) - Rs. 250/ km.  Q Inspection Fee of RMU - Rs. 2000/ RMU  R Inspection Fee of Drawing Checking and Approval  S Final decision by electrical Inspector	В	Stock, Storage & Insurance @ 3 % of A				4,56,277.04
E Tools & Plants Charges @ 2% of C (considered for earthing items)  F Transportation @ 7.5% of C  11,74,913.38  G Erection Charges @ 10% of earthing items  751.12  H Total (C+D+E+F+G)  1,73,11,291.86  I Sub Total (Erection Portion + Civil Portion)  2,10,07,262.56  J Total Cost (H+I)  K Other Overhead /(including Supervision Charges) @ 6 % of J  L Total Estimated Capital Cost i.e. (J+K)  M GST @ 18% of L  73,11,180.18  M1 CESS @ 1% of L  73,11,180.18  N Grand Total (L+M)  Q Inspection Fee of UG Line (HT) - Rs. 250/ km.  Q Inspection Fee of RMU - Rs. 2000/ RMU  R Inspection Fee of Drawing Checking and Approval  S Final decision by electrical Inspector	С	Sub Total (A+B)				1,56,65,511.78
F       Transportation @ 7.5% of C       11,74,913.38         G       Erection Charges @ 10% of earthing items       751.12         H       Total (C+D+E+F+G)       1,73,11,291.86         I       Sub Total (Erection Portion + Civil Portion)       2,10,07,262.56         J       Total Cost (H+I)       3,83,18,554.42         K       Other Overhead /(including Supervision Charges) @ 6 % of J       22,99,113.27         L       Total Estimated Capital Cost i.e. (J+K)       4,06,17,667.69         M       GST @ 18% of L       73,11,180.18         M1       CESS @ 1% of L       4,06,176.68         N       Grand Total (L+M)       4,83,35,024.55         O       Inspection Fee of UG Line (HT) - Rs. 250/ km.       250.00         P       Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km       4000         Q       Inspection Fee of Drawing Checking and Approval       4000         S       Final decision by electrical Inspector       Final decision by electrical Inspector	D	Contingency @ 3 % of C				4,69,965.35
G         Erection Charges @ 10% of earthing items         751.12           H         Total (C+D+E+F+G)         1,73,11,291.86           I         Sub Total (Erection Portion + Civil Portion)         2,10,07,262.56           J         Total Cost (H+I)         3,83,18,554.42           K         Other Overhead /(including Supervision Charges) @ 6 % of J         22,99,113.27           L         Total Estimated Capital Cost i.e. (J+K)         4,06,17,667.69           M         GST @ 18% of L         73,11,180.18           M1         CESS @ 1% of L         4,06,176.68           N         Grand Total (L+M)         4,83,35,024.55           O         Inspection Fee of UG Line (HT) - Rs. 250/ km.         250.00           P         Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km         4000           Q         Inspection Fee of Drawing Checking and Approval         5           S         Final decision by electrical Inspector         Final decision by electrical Inspector	Е	Tools & Plants Charges @ 2% of C (considered for earthing items)				
H       Total (C+D+E+F+G)       1,73,11,291.86         I       Sub Total (Erection Portion + Civil Portion)       2,10,07,262.56         J       Total Cost (H+I)       3,83,18,554.42         K       Other Overhead /(including Supervision Charges) @ 6 % of J       22,99,113.27         L       Total Estimated Capital Cost i.e. (J+K)       4,06,17,667.69         M       GST @ 18% of L       73,11,180.18         M1       CESS @ 1% of L       4,06,176.68         N       Grand Total (L+M)       4,83,35,024.55         O       Inspection Fee of UG Line (HT) - Rs. 250/ km.       250.00         P       Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km       4000         Q       Inspection Fee of RMU - Rs. 2000/ RMU       4000         R       Inspection Fee of Drawing Checking and Approval       5         Final decision by electrical Inspector       5	F	Transportation @ 7.5% of C				11,74,913.38
I       Sub Total (Erection Portion + Civil Portion)       2,10,07,262.56         J       Total Cost (H+I)       3,83,18,554.42         K       Other Overhead /(including Supervision Charges) @ 6 % of J       22,99,113.27         L       Total Estimated Capital Cost i.e. (J+K)       4,06,17,667.69         M       GST @ 18% of L       73,11,180.18         M1       CESS @ 1% of L       4,06,176.68         N       Grand Total (L+M)       4,83,35,024.55         O       Inspection Fee of UG Line (HT) - Rs. 250/ km.       250.00         P       Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km       4000         Q       Inspection Fee of Drawing Checking and Approval       5         S       Final decision by electrical Inspector       5	G	Erection Charges @ 10% of earthing items				751.12
J       Total Cost (H+I)       3,83,18,554.42         K       Other Overhead /(including Supervision Charges) @ 6 % of J       22,99,113.27         L       Total Estimated Capital Cost i.e. (J+K)       4,06,17,667.69         M       GST @ 18% of L       73,11,180.18         M1       CESS @ 1% of L       4,06,176.68         N       Grand Total (L+M)       4,83,35,024.55         O       Inspection Fee of UG Line (HT) - Rs. 250/ km.       250.00         P       Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km       4000         Q       Inspection Fee of Drawing Checking and Approval       5         S       Final decision by electrical Inspector       5	н	Total (C+D+E+F+G)				1,73,11,291.86
K Other Overhead /(including Supervision Charges) @ 6 % of J  L Total Estimated Capital Cost i.e. (J+K)  M GST @ 18% of L  M1 CESS @ 1% of L  N Grand Total (L+M)  O Inspection Fee of UG Line (HT) - Rs. 250/ km.  P Inspection Fee of RMU - Rs. 2000/ RMU  R Inspection Fee of Drawing Checking and Approval  S Final decision by electrical Inspector	I	Sub Total (Erection Portion + Civil Portion)				2,10,07,262.56
L       Total Estimated Capital Cost i.e. (J+K)       4,06,17,667.69         M       GST @ 18% of L       73,11,180.18         M1       CESS @ 1% of L       4,06,176.68         N       Grand Total (L+M)       4,83,35,024.55         O       Inspection Fee of UG Line (HT) - Rs. 250/ km.       250.00         P       Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km       4000         Q       Inspection Fee of RMU - Rs. 2000/ RMU       4000         R       Inspection Fee of Drawing Checking and Approval       5         Final decision by electrical Inspector       5	J	Total Cost (H+I)				3,83,18,554.42
M       GST @ 18% of L       73,11,180.18         M1       CESS @ 1% of L       4,06,176.68         N       Grand Total (L+M)       4,83,35,024.55         O       Inspection Fee of UG Line (HT) - Rs. 250/ km.       250.00         P       Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km       4000         Q       Inspection Fee of RMU - Rs. 2000/ RMU       4000         R       Inspection Fee of Drawing Checking and Approval       5         Final decision by electrical Inspector       5	К	Other Overhead /(including Supervision Charges) @ 6 % of J				22,99,113.27
M1 CESS @ 1% of L 4,06,176.68  N Grand Total (L+M) 4,83,35,024.55  O Inspection Fee of UG Line (HT) - Rs. 250/ km. 250.00  P Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km  Q Inspection Fee of RMU - Rs. 2000/ RMU 4000  R Inspection Fee of Drawing Checking and Approval  S Final decision by electrical Inspector	L	Total Estimated Capital Cost i.e. (J+K)				4,06,17,667.69
N Grand Total (L+M)  O Inspection Fee of UG Line (HT) - Rs. 250/ km.  P Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km  Q Inspection Fee of RMU - Rs. 2000/ RMU  R Inspection Fee of Drawing Checking and Approval  S Final decision by electrical Inspector	М	GST @ 18% of L				73,11,180.18
O Inspection Fee of UG Line (HT) - Rs. 250/ km. 250.00 P Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km Q Inspection Fee of RMU - Rs. 2000/ RMU 4000 R Inspection Fee of Drawing Checking and Approval S Final decision by electrical Inspector	M1	CESS @ 1% of L				4,06,176.68
P Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km  Q Inspection Fee of RMU - Rs. 2000/ RMU  R Inspection Fee of Drawing Checking and Approval  S Final decision by electrical Inspector	N	Grand Total (L+M)				4,83,35,024.55
Q Inspection Fee of RMU - Rs. 2000/ RMU 4000 R Inspection Fee of Drawing Checking and Approval S Final decision by electrical Inspector	0	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00
R Inspection Fee of Drawing Checking and Approval S Final decision by electrical Inspector	Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km				
S Final decision by electrical Inspector	Q	Inspection Fee of RMU - Rs. 2000/ RMU				4000
	R	Inspection Fee of Drawing Checking and Approval				
T Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S) 4,83,39,274.55	S					
	T	Gross Total Material, Services and Inspection Fees (N+O+P+Q	+R+S)			4,83,39,274.55

Part- B :-Conductor Augmentation of length-4.5 KM				
11kV Line Length with 40 Mtr. Span using 100 SQ.MMAAA Conductor				
No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)	1			

	MATERIALS OF DP With A	AB Switch	<u>1</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
21	11 KV pin insulator polymer	No.	236.00	3	708.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
Α			Total Cost of	f materials	1,33,880.47
В	Sto	ck, Stora	ge & Insurance	i.e 3% of A	4,016.41
С			Sub T	otal (A+B)	1,37,896.88
D			Contigency	@ 3% of C	4,136.91
Е			Tools & Plants	@ 2% of C	2,757.94
F		Tı	ansportation @	7.5% of C	10,342.27
G	Erection	Charges	@ 5% on Trf/Br	eaker/Joist	2,731.25
Н	Erection Charges @ 10% of C (except Trf/Breaker/	NPB/ H-P	ole/HT stay set	/PSC pole)	7,755.96
I	Erection Charges @ 20% of	PSC po			-
J			Sum	of (C to I)	1,65,621.19
	Civil & Services				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount

	Fixing of complete 11KV line Complete stay set includes 1) Turn	T			
	Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the				
1	excvation including excvation, supply of 0.5Cum cement	No.	2,250.00	2	4,500.00
	concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL				
	Drawing & Standard.				
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab	No.	2,407.00	2	4,814.00
K	cover		Total Civil 8	& Services	16,626.50
L				Total (J+K)	1,82,247.69
М	Other overheads ( Including 6% supervision cl	harges) of		` '	10,934.86
N	(	J/	•	otal (L+M)	1,93,182.56
0			Total GST @	` '	34,772.86
01			Total CESS @	• • • • • •	1,931.83
Р	Gross Total Material +Services	(N+O+O			2,29,887.24
			,		, ,,,,,,
	11 Kv Line Length In KM with 40 Mtr. Span				
	(Ref. Drawing No TPCODL-MVD-0003)			4.5	
	MATERIALS FOR 11 KV Pin Po	ints With	<u>WPB</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total	Total
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	Quantity 23	<b>Amount</b> 6,09,889.85
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	23	21,983.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	23	4,071.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	23	2,171.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	6.92	612.48
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	69.00	6,513.60
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	27.68	2,449.93
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	69	16,284.00
9	Earthing of Support ( Coil Type )	No.	195.88	23	4,505.24
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	6.03	533.30
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	33.35	3,069.53
12	100 mm2 AAAC	K.M.	64,900.00	13.91	9,02,434.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	23.0	5,970.80
15	Yellow Colour Paint for Background	Ltr	259.60	46.0	11,941.60
Α			Total Cost of		15,92,430.43
В	Sto	ock, Storaç	ge & Insurance		47,772.91
С				otal (A+B)	16,40,203.35
D			Contigency	_	49,206.10
E			Tools & Plants		32,804.07
F			ransportation @		1,23,015.25
G	Erection Charges				31,409.33
H	Erection Charges @ 10% of C (except Trf/Breaker/		-		1,01,201.68
<u> </u>	Erection Charges @ 20% o	T PSC pol			-
J	Oi::# 0 O		Sum	of (C to I)	19,77,839.77
	<u>Civil &amp; Services</u>		I		
	Concreting ratio 1:1 5:2 /500mm\/500mm\/4000mm\/ =			1	07.075.00
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	10.35	67,275.00

3	Dismantling of 34/55sqmm AAAC	KM	4,500.00	13.91	62,572.50
K			Total Civil	& Services	1,46,666.25
L		Tota	l Material+Ser	vices (I+K)	21,24,506.02
М	Other overheads (Including 6% supervision charge	es) (for 11	KV Pin Points	With WPB)	1,27,470.36
N			Sub T	otal (L+M)	22,51,976.39
0			Total GST @	18% of (N)	4,05,355.75
01			Total CESS @	0 1% of (N)	22,519.76
Р	Gross Total Material +Services (N+O+O	1) for 11	KV Pin Points	With WPB	26,79,851.90
	6% Supervision Charges S	Summary			
1	Other overheads (Including 6% supervision charg	ges) of L (	for DP Without	AB Switch)	-
2	Other overheads (Including 6% supervision ch		•		10,934.86
3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				-
4	Other overheads (Including 6% supervision charges) of L (for 11 l	KV Cut Po	oint with 90 Dec	gree Angle)	-
5	Other overheads (Including 6% supervision charge	es) (for 11	KV Pin Points	With WPB)	1,27,470.36
		Total (	6% supervisio	n charges)	1,38,405.22
	Gross Total Summa	<u>iry</u>			
1	Gross Total Material +Services (I	N+O+O1)	for DP Without	AB Switch	-
2	Gross Total Material +Service	s (N+O+0	O1) for DP With	AB Switch	2,29,887.24
3	Gross Total Material +Services (N+O+O1) for 11 k	(V Cut Po	int with 180 De	gree Angle	-
4	Gross Total Material +Services (N+O) for 11	KV Cut F	oint with 90 De	gree Angle	-
5	Gross Total Material +Services (N+O+	O1) for 1	1 KV Pin Points	With WPB	26,79,851.90
	TOTAL				29,09,739.14
Q	Inspection Fee of Over He	ad Line (	HT) - Rs. 200 fo	or 1st 5 km.	200.00
R	Inspection Fee of Over Hea	ad Line (H	IT) - Rs. 30/ Ad	ditional Km	
S	Inspection Fee	of Drawi	ng Checkin <mark>g</mark> ar	nd Approval	400.00
Т	F	inal deci	sion by electrica	al Inspector	500.00
U	Gross Total Material, Services a	nd Inspe	ction Fees (P+	Q+R+S+T)	29,10,839.14

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

## 15. Bifurcation of 11kV Kolathia Feeder for mitigation of Overloading

**Proposal:** Bifurcation of existing 11 KV Kolathia Feeder emanating from 33/11 KV Khandagiri PSS by constructing 1 No. of new feeder from 33/11 KV Khandagiri PSS.

Objective: To mitigation of Overloading issue of feeder.

#### **Existing Scenario:**

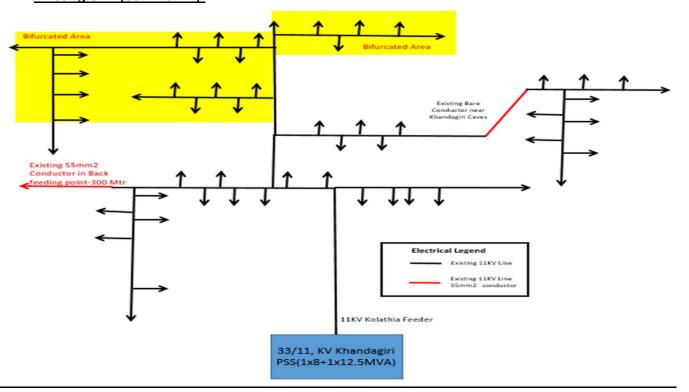
- At present, 11 KV Kolathia feeder is emanating from 33/11 KV Khandagiri PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 26.5 KM and the peak load is 5.5 MVA.
- In the existing scenario, Conductor size of 11 KV Kolathia feeder is 100 sq mm & the feeder is loaded 106.2%
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder due to overload is hampered the reliability of power supply and also considering future load growth of the residential building, bifurcation of this feeder.

			EXISTING LO	DADING OF FE	EDER		
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status
KOLATHIA	5.18	5.50	106.2	OVERLOAD	8.2	158.8	OVERLOAD

**Proposal:** Construction of New Feeder from 33/11 KV Khandagiri PSS of length-2 KM by using in 3Cx400mm2 U/G Cable for Feeder Bifurcation. Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation. Augmentation of 0.5 KM existing 55mm2 old Conductor with O/H insulated conductor from Near Khandgiri caves for making it unsafe to safe. Augmentation of conductor from 55mm2 to 100mm2 of length-300 Mtr Back feeding near DUMDUMA 6 Pole.

**Objective:** To maintain Reliability of Power Supply to Urban consumers by strengthening the line & mitigating N-1.

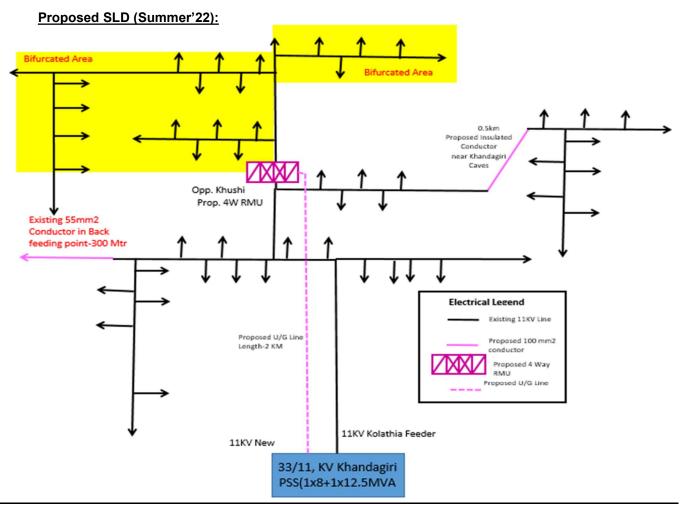
#### **Existing SLD (Summer'21):**



## **Proposed Scenario:**

- Construction of New Feeder from 33/11 KV Khandagiri PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Khandagiri PSS to 4 Pole opposit to Khusi Hotel.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-0.3 km near DUMDUMA
   6 Pole.
- Augmentation of 0.5 KM existing 55mm2 old Conductor with O/H insulated conductor from Near Khandgiri caves for making it unsafe to safe.

		L	OADING OF	FEEDER w.r.t	Proposal		
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status
KOLATHIA	5.18	3	57.9	OK	4.5	86.6	OK
KOLATHIA NEW	5.75	2.50	43.5	OK	3.74	65.0	ОК



## **Detailed Scope of Work:**

- Construction of New Feeder from 33/11 KV Khandagiri PSS of length-2 KM by using in 3Cx400mm2 U/G Cable from Khandagiri PSS to 4 Pole opposit to Khusi Hotel.
- Installation of 2 No. of 11KV 4 way RMU for N-1 Connectivity Feeder Bifurcation.
- Augmentation of 55mm2 Conductor to 100mm2 conductor of length-0.3 km near DUMDUMA
   6 Pole.

 Augmentation of 0.5 KM existing 55mm2 old Conductor with O/H insulated conductor from Near Khandgiri caves for making it unsafe to safe.

	TP C	ENTRAL ODISHA DISTRIBUTION LIMITED				
	Name of the Division :-	BCDD-II				
	Name of the Sub-Division : -	Khandagiri				
	Name of the Section : -	Khandagiri				
	Name of the Work :-	Part- A: Construction of 1 No. of new Feeder in UG Through RMU fro Khandagiri PSS 4 Pole offisite to Khusi Hotel 2 KM with 2 No. RMU Part- B:-Conductor Augmentation of length-0.3 KM near Dumduma 4pole from 80/55 sqmm to 100sqmm Part_C:-Augmentation of 11 KV line from OH bare 55sqmm to XLPE Covered 70 mm2 11 KV XLPE Covered Conductor - 0.5 Ckm. For making it Unsafe to Safe due to monkey tripping the lines				
	Scope of work:-	Part- A :Construction of 1 No. of new Feeder in UG Through RMU from Khandagiri PSS 4 Pole offisite to Khusi Hotel 2 KM with 2 No. RMU. Part- B :-Conductor Augmentation of length-0.3 KM near Dumduma 4pole from 80/55 sqmm to 100sqmm Part_C:-Augmentation of 11 KV line from OH bare 55sqmm to XLPE Covered 70 mm2 11 KV XLPE Covered Conductor - 0.5 Ckm. For making it Unsafe to Safe due to monkey tripping the lines				
İ	Names of Schemes: -	TPCODL CAPEX Scheme				
•		ABSTRACT OF ESTIMATE				
SI. No.		Description	Amount			
1	Khandagiri PSS 4 Pole offisit	of new Feeder in UG Through RMU from e to Khusi Hotel 2 KM with 2 No. RMU	₹ 1,86,02,217.23			
2	from 80/55 sqmm to 100sqmr		₹ 4,38,536.22			
3	Part_C:-Augmentation of 11 k Covered 70 mm2 11 KV XLPI Unsafe to Safe due to monke	(V line from OH bare 55sqmm to XLPE E Covered Conductor - 0.5 Ckm. For making it y tripping the lines	₹ 8,87,859.64			
4		Total Amount	₹ 1,99,28,613.09			
5	To	otal Amount (In Cr.)	1.99			
-						

Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.4		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	1.6		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.00	17,70,000.00	35,40,000.0
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	7	29,874.06	2,09,118.4
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	11,306.76	90,454.0
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.7

1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.40	6,94,910.00	2,77,964.0
2	Supply of 11kV RMU				
a	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
С	No. of 11kV 3Way RMU (LLV+M)	nos.			
<u>d</u>	No. of 11kV 4Way RMU (LLVV+M)	nos.	0	2.00.024.00	
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.0
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	·
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.4
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.0
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2	56,515.00	1,13,030.0
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.0	77,990.00	1,55,980.0
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4	6,766.00	27,064.0
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.0
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.0
	Sub Total (Supply Portion) (in	Rs.)			65,68,800.6
	ion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm,				
1.1	aluminium, XLPE insulation armoured (extruded type) UG cable	km	0.40	94,500.00	37,800.0
1.1	aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .  Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable	km Set	0.40 7	94,500.00	37,800.0 16,800.0
	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits				
1.2	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits	Set	7	2,400.00	16,800.0 15,206.4
1.2	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG	Set Set	7 8	2,400.00 1,900.80	16,800.0 15,206.4 15,206.4
1.2	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe	Set Set	7 8 8	2,400.00 1,900.80 1,900.80	16,800.0
1.2 1.3 1.4	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open	Set Set km	7 8 8	2,400.00 1,900.80 1,900.80 28,00,000.00	16,800.0 15,206.4 15,206.4 44,80,000.0
1.2 1.3 1.4 1.5	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	Set Set km	7 8 8	2,400.00 1,900.80 1,900.80 28,00,000.00	16,800.0 15,206.4 15,206.4 44,80,000.0
1.2 1.3 1.4 1.5	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU	Set Set km	7 8 8 1.6	2,400.00 1,900.80 1,900.80 28,00,000.00	16,800.0 15,206.4 15,206.4 44,80,000.0 41,645.8
1.2 1.3 1.4 1.5 1.6 2 2.1	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU  Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Set Set km km Nos.	7 8 8 1.6 0.40	2,400.00 1,900.80 1,900.80 28,00,000.00 1,04,114.67	16,800.0 15,206.4 15,206.4 44,80,000.0
1.2 1.3 1.4 1.5 1.6 2 2.1 2.2	aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.  Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)  Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.  Erection, Commissioning, Wiring and Testing of 11kV RMU  Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Set Set Km km Nos. Nos.	7 8 8 1.6 0.40	2,400.00 1,900.80 1,900.80 28,00,000.00 1,04,114.67 15,000.00 15,000.00	16,800.0 15,206.4 15,206.4 44,80,000.0 41,645.8

3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2.0	27,296.35	54,592.70
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.0	1,22,488.27	2,44,976.54
3.3	Erection of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4.0	612.54	2,450.16
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (ii	n Rs.)			49,55,827.07
	Portion				T -
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	280	700.00	1,96,000.00
1.1.b	Earth work excavation of hard rock	Cum	120	1,720.00	2,06,400.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	240	171.55	41,172.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	160	2,500.00	4,00,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	240	202.00	48,480.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.4	26,43,670.63	10,57,468.25
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	67	1,012.00	67,804.00
	Sub Total (Civil Portion) (in I	Rs.)			23,10,900.45
Α	Sub Total (Supply Portion)				65,68,800.66
В <b>С</b>	Stock, Storage & Insurance @ 3 % of A  Sub Total (A+B)				1,97,064.02 <b>67,65,864.68</b>
D	Contingency @ 3 % of C				2,02,975.94
E	Tools & Plants Charges @ 2% of C (considered for earthing item	ie)			150.22
F	Transportation @ 7.5% of C				5,07,439.85
G	Erection Charges @ 10% of earthing items				751.12
<u>н</u>	Total (C+D+E+F+G)				74,77,181.81
-''- 					
J	Sub Total (Erection Portion + Civil Portion)  Total Cost (H+I)				72,66,727.52 1,47,43,909.33
	, ,				
K	Other Overhead /(including Supervision Charges) @ 6 % of J				8,84,634.56

L	Total Estimated Capital Cost i.e. (J+K)	1,56,28,543.89
М	GST @ 18% of L	28,13,137.90
M1	CESS @ 1% of L	1,56,285.44
N	Grand Total (L+M)	1,85,97,967.23
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	1,86,02,217.23

	11kV Line Length with 40 Mtr. Span using 10	00 SQ.MI	MAAA Cond	luctor	
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			1	
	MATERIALS OF DP With A	B Switc	<u>h</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.9
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.3
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.8
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.3
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	6.692	592.2
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.5
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.6
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.6
9	Danger Plate, 2 no's.	No.	94.40	2	188.8
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.2
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.0
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.0
3	H.T. Stay Insulator Type-C	No.	59.00	2	118.0
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.0
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.0
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.6
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.4
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.0
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.0
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.0
21	11 KV pin insulator polymer	No.	236.00	3	708.0
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.0
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.0

24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Black Paint	Ltr	259.60	1	259.60
27	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
Α			Total Cost	of materials	1,33,880.47
В	Sto	ck, Stora	ige & Insuranc	e i.e 3% of A	4,016.41
С			Sub	Total (A+B)	1,37,896.88
D			Contigend	y @ 3% of C	4,136.91
Е			Tools & Plant	ts @ 2% of C	2,757.94
F		T	ransportation	@ 7.5% of C	10,342.27
G	Erection	Charges	@ 5% on Trf/	Breaker/Joist	2,731.25
Н	Erection Charges @ 10% of C (except Trf/Breaker/		•		7,755.96
ı	Erection Charges @ 20% of	PSC po			-
J			Su	ım of (C to I)	1,65,621.19
	<u>Civil &amp; Services</u>				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.m tr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.m tr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K	, , , , , , , , , , , , , , , , , , , ,		Total Civi	I & Services	16,626.50
L				Total (J+K)	1,82,247.69
М	Other overheads ( Including 6% supervision ch	narges) o	f L (for DP Wit	h AB Switch)	10,934.86
N			Sub	Total (L+M)	1,93,182.56
0			Total GST (	② 18% of (N)	34,772.86
01				@ 1% of (N)	1,931.83
Р	Gross Total Material +Services	(N+O+O	1) for DP Wit	h AB Switch	2,29,887.24
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)			0.3	
	MATERIALS FOR 11 KV Pin Pol	ints With	1 WPB		
SI. No.	Description of Materials	ints With Unit	Unit Rate	Total Quantity	Total Amount
	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles				
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount
No. 1	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	Unit No.	<b>Unit Rate</b> 26,516.95	Quantity 2	<b>Amount</b> 53,033.90
No. 1 2	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole	No.	<b>Unit Rate</b> 26,516.95 955.80	Quantity 2 2	<b>Amount</b> 53,033.90 1,911.60
No. 1 2 3	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)	Unit No. No.	Unit Rate 26,516.95 955.80 177.00	Quantity 2 2 2	Amount 53,033.90 1,911.60 354.00
No. 1 2 3 4	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of	No. No. No. No.	Unit Rate 26,516.95 955.80 177.00 94.40	Quantity 2 2 2 2 2	Amount 53,033.90 1,911.60 354.00 188.80
No. 1 2 3 4 5	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	Unit No. No. No. No. KG	Unit Rate 26,516.95 955.80 177.00 94.40 88.50	2 2 2 2 0.60	Amount 53,033.90 1,911.60 354.00 188.80 53.26
No. 1 2 3 4 5	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr.	No. No. No. No. KG	Unit Rate 26,516.95 955.80 177.00 94.40 88.50 94.40	Quantity  2  2  2  2  0.60  6.00	Amount 53,033.90 1,911.60 354.00 188.80 53.26 566.40
No. 1 2 3 4 5 6	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer, 3 Nos. required for each support  Earthing of Support (Coil Type)	Unit No. No. No. KG Kg KG	Unit Rate 26,516.95 955.80 177.00 94.40 88.50 94.40 88.50	Quantity  2  2  2  2  0.60  6.00  2.41	Amount 53,033.90 1,911.60 354.00 188.80 53.26 566.40 213.04
No. 1 2 3 4 5 6 7	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer, 3 Nos. required for each support	Unit No. No. No. KG KG KG No.	Unit Rate 26,516.95 955.80 177.00 94.40 88.50 94.40 88.50 236.00	Quantity  2  2  2  2  0.60  6.00  2.41  6	Amount 53,033.90 1,911.60 354.00 188.80 53.26 566.40 213.04 1,416.00
No. 1 2 3 4 5 6 7 8 9	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer, 3 Nos. required for each support  Earthing of Support ( Coil Type )  No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting	Vnit No. No. No. KG Kg KG No. No.	Unit Rate 26,516.95 955.80 177.00 94.40 88.50 94.40 88.50 236.00 195.88	Quantity  2 2 2 2 0.60 6.00 2.41 6 2	Amount 53,033.90 1,911.60 354.00 188.80 53.26 566.40 213.04 1,416.00 391.76
No. 1 2 3 4 5 6 7 8 9	Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer, 3 Nos. required for each support  Earthing of Support ( Coil Type )  No-8 Gl wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	Vnit No. No. No. KG Kg KG No. No. KG	Unit Rate 26,516.95 955.80 177.00 94.40 88.50 94.40 88.50 236.00 195.88 88.50	Quantity       2       2       2       2       2       0.60       6.00       2.41       6       2       0.52	Amount 53,033.90 1,911.60 354.00 188.80 53.26 566.40 213.04 1,416.00 391.76 46.37

14	DI I DIII				
4-	Black Paint	Ltr	259.60	2.0	519.20
15	Yellow Colour Paint for Background	Ltr	259.60	4.0	1,038.40
Α				of materials	1,20,161.95
В	Sto	ck, Stora	ge & Insuranc		3,604.86
С				Total (A+B)	1,23,766.80
D				y @ 3% of C	3,713.00
E			Tools & Plant		2,475.34
F			ransportation		9,282.51
G	Erection Charges	_			2,731.25
H	Erection Charges @ 10% of C (except Trf/Breaker/\			. /	6,914.19
<u> </u>	Erection Charges @ 20% of	PSC po			- 4 40 000 00
J			Su	m of (C to I)	1,48,883.09
1	<u>Civil &amp; Services</u>	C			
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.m tr	6,500.00	0.90	5,850.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.m tr	6,500.00	0.23	1,462.50
3	Dismantling of 80sqmm AAAC	KM	9,000.00	0.93	8,343.00
K			Total Civi	I & Services	15,655.50
L		Tota	al Material+Se	ervices (I+K)	1,64,538.59
М	Other overheads (Including 6% supervision charge	es) (for 1			9,872.32
N				Total (L+M)	1,74,410.91
0				2) 18% of (N)	31,393.96
01				@ 1% of (N)	1,744.11
Р	Gross Total Material +Services (N+O+O	1) for 11	KV Pin Point	s With WPB	2,07,548.98
. 1	6% Supervision Charges S				
1	Other overheads (Including 6% supervision charge				-
2	Other overheads (Including 6% supervision ch	- ,	•		10,934.86
3	Other overheads (Including 6% supervision charges) of L (for 11 K Other overheads (Including 6% supervision charges) of L (for 11 K				<del>-</del>
4 5	Other overheads (Including 6% supervision charges) of L (for 11)			0 0 /	9,872.32
5	Other overneads (including 6% supervision charge	, \	(6% supervisi		20,807.18
	Gross Total Summa		(6 /6 Supervisi	on charges)	20,007.10
1	Gross Total Material +Services (I		) for DP Witho	ut AR Switch	
2	Gross Total Material +Services (i		,		2,29,887.24
3	Gross Total Material +Services (N+O+O1) for 11 k	•			
4	Gross Total Material +Services (N+O) for 11				-
5	Gross Total Material +Services (N+O+			• •	2,07,548.98
-	TOTAL	/			4,37,436.22
Q	Inspection Fee of Over He	ad Line	(HT) - Rs. 200	for 1st 5 km.	200.00
R	Inspection Fee of Over Hea		,		_30.00
S	Inspection Fee	of Draw	ing Checking a	and Approval	400.00
Т	F	inal dec	ision by electri	cal Inspector	500.00
U	Gross Total Material, Services a	nd Inspe	ection Fees (P	P+Q+R+S+T)	4,38,536.22

	C:-Augmentation of 11 KV line from OH bare 55sqmm to XLP Ckm. For making it Unsafe to Safe due to monkey tripping the		d 70 mm2 11 K	V XLPE Cov	ered Conductor
No.	of DP required With AB Switch (Ref. Drawing No TPCODL- MVD-0001)			1	
	MATERIALS OF DP With	AB swite	<u>ch</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
	Civil & Service	<u>s</u>	Γ	<u>'</u>	
J			Sum	of (C to I)	1,67,798.43
I	Erection Charges @ 20% o	of PSC po	ole- Not to be us	ed for 33kv	
Н	Erection Charges @ 10% of C (except Trf/Breaker,				7,933.69
G	Erection		@ 5% on Trf/Br		2,731.25
F		7	Fransportation @		10,475.57
Е			Tools & Plants	_	2,793.48
D			Contigency	` '	4,190.23
С			-	otal (A+B)	1,39,674.22
В	Sto	ock, Stora	age & Insurance	i.e 3% of A	4,068.18
Α			Total Cost o	f materials	1,35,606.04
29	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
28	Black Paint	Ltr	259.60	1	259.60
27	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	13.718	1,262.60
26	Insulating Piercing Connector (IPC)	No.	208.53	6	1,251.18
25	11 KV, 90 KN, 4 Bolted type Single Tension Hardware fittings (B&S) with Clamp, Nut & Bolts suitable for covered conductor	No.	960.23	6	5,761.38
24	11KV, 90 KN, Polymer Tension insulator (B&S) with Clamp, Nut & Bolts	No.	905.61	6	5,433.66
23	Insulated Ties (Top ) for 11 KV Pin insulator	No.	236.33	3	708.99
22	11 KV pin insulator polymer	No.	236.00	3	708.00
21	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00
20	Lightning Arrester(11KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
19	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
18	Spike (GI) (using 50x6mm Flat welded with 8 mm square bar) ( 2 Nos of spike per Set in each Pole)	Set	824.19	4	3,296.76
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
8	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.68
6	9.56x2x0.35)  Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	5.712	505.51
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =(	KG	88.50	6.692	592.24
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34

1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K			Total Civil	& Services	16,626.50
L				Total (J+K)	1,84,424.93
M	Other overheads (Including 6% supervisio	n charges		` '	11,065.50
N	Calci evernedas ( iniciadanig e // capervisio	n onargoo	<u> </u>	otal (L+M)	1,95,490.43
0			Total GST @	` '	35,188.28
P				` ,	1,954.90
	One of Total Material 10	\		SS 1% of N	
Q	Gross Total Material +S	ervices (	N+O) for DP W	ith isolator	2,32,633.61
11	Kv Line Length In KM with 50Mtr. Span Ref. Drawing No TPCODL-MVD-0003)			0.5	
	MATERIALS FOR 11 KV Pin F	<u>Points Wit</u>	<u>h WPB</u>		
SI.	Description of Materials	Unit	Unit Rate	Total	Total
<b>No.</b>	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No.	26,516.95	<b>Quantity</b> 3	<b>Amount</b> 79,550.85
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	3	2,867.40
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	3	531.00
4	Danger Plate, 1 no's. for each pole	No.	94.40	3	283.20
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.90	79.89
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	9.00	849.60
7	Spike (GI ) (using 50x6mm Flat welded with 8 mm square bar) ( 2 Nos of spike per Set in each Pole )	Set	824.19	16	13,187.04
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	3.61	319.56
9	11 KV pin insulator polymer, 3 Nos. required for each support	No.	740.00	9	6,660.00
10	Insulated Ties (Top ) for 11 KV Pin insulator	No.	475.00	9	4,275.00
11	Earthing of Support ( Coil Type )	No.	195.88	3	587.64
12	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1	69.56
13	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	4.35	400.37
14	11 KV, 70 mm2, Single Core, AAAC overhead XLPE Covered Conductor	K.M.	1,90,000.00	1.55	2,93,550.00
15	11 KV Mid Span compression jointing kit for covered conductor	EA	258.18		-
16	Black Paint	Ltr	259.60	3.0	778.80
17	Yellow Colour Paint for Background	Ltr	259.60	6.0	1,557.60
A			Total Cost o		4,05,547.51
	C+	ock Store	ge & Insurance		12,166.43
R			go a moulance	U /U UI /\	
В	Si	ook, otora	<u> </u>	otal (A±P)	<b>₫ 17 712 Q</b> 4
С	Si		Sub T	otal (A+B)	4,17,713.94
<b>C</b>	Si	ook, otora	Sub T Contigency	@ 3% of C	12,531.42
C D E			Sub T Contigency Tools & Plants	@ 3% of C @ 2% of C	12,531.42 8,354.28
C D E		Т	Sub T Contigency Tools & Plants ransportation @	@ 3% of C @ 2% of C ) 7.5% of C	12,531.42 8,354.28 31,328.55
C D E F G	Erection Charge	T s @ 5% o	Sub T Contigency Tools & Plants ransportation @ n Trf/Breaker/W	@ 3% of C @ 2% of C ) 7.5% of C PB/ H-Pole	12,531.42 8,354.28 31,328.55 4,096.87
C D E	Erection Charge Erection Charges @ 10% of C (except Trf/Breaker	T s @ 5% o WPB/ H-F	Sub T Contigency Tools & Plants ransportation @ n Trf/Breaker/W Pole/HT stay se	@ 3% of C @ 2% of C ) 7.5% of C PB/ H-Pole	12,531.42 8,354.28 31,328.55
C D E F G	Erection Charge	T s @ 5% o WPB/ H-F	Sub T Contigency Tools & Plants ransportation @ n Trf/Breaker/W Pole/HT stay sei	@ 3% of C @ 2% of C ) 7.5% of C PB/ H-Pole	12,531.42 8,354.28 31,328.55 4,096.87

	Civil & Service	<u>s</u>					
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.35	8,775.00		
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	0.34	2,193.75				
K							
L		Tot	al Material+Ser	vices (I+K)	5,18,571.45		
М	M Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)						
N	5,49,685.74						
0	O Total GST @ 18% of (N)						
Р			CES	SS 1% of N	5,496.86		
Q	Gross Total Material +Services (N+O	+P) for 11	<b>KV Pin Points</b>	With WPB	6,54,126.03		
	6% Supervision Charges	Summa	<u>ry</u>				
1	Other overheads (Including 6% supervision c	harges) o	f L (for DP Witho	out Isolator)	-		
2	Other overheads (Including 6% supervisio	n charges	s) of L (for DP W	ith Isolator)	11,065.50		
3	Other overheads (Including 6% supervision charges) of L	(for 11 KV	Cut Point with 1	180 Degree Angle)	-		
4	Other overheads (Including 6% supervision charges) of L	(for 11 K	V Cut Point with	90 Degree Angle)	-		
5	Other overheads (Including 6% supervision charg	ges) (for 1	1 KV Pin Points	With WPB)	31,114.29		
		Total	(6% supervisio	n charges)	42,179.78		
	Gross Total Sumr	<u>nary</u>					
1	Gross Total Material +Serv	ices (N+C	+P) for DP With	out Isolator			
2	Gross Total Material	+Services	(N+O) for DP W	Vith Isolator	2,32,633.61		
3	Gross Total Material +Services (N+O+P) for 11	KV Cut P	oint with 180 De	gree Angle	-		
4	Gross Total Material +Services (N+O+P) for 1	1 KV Cut	Point with 90 De	gree Angle	-		
5	Gross Total Material +Services (N+	O+P) for 1	11 KV Pin Points	With WPB	6,54,126.03		
Q	Inspection Fee of Over H	lead Line	(HT) - Rs. 200 fo	or 1st 5 km.	200.00		
R	Inspection Fee of Over He	ead Line (	HT) - Rs. 30/ Ad	ditional Km			
S	Inspection Fe	e of Draw	ring Checking an	nd Approval	400.00		
Т		Final dec	ision by electrica	al Inspector	500.00		
U	Gross Total Material, Services	and Insp	ection Fees (P+	Q+R+S+T)	8,87,859.64		

- To maintain reliability of Power Supply to Urban consumers by mitigating Overload & N-1 Issue.
- Mitigation of Overloading issue with load growth of 5 years.
- Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

#### 16.Refurbishment of 11kV IRC-3 Feeder for Mitigation of Overload

**Proposal:** Augmentation of existing 11kV IRC-3 Feeder emanating from 33/11kV Nayapalli PSS from 55sqmm lower size conductor to 100sqmm AAAC conductor.

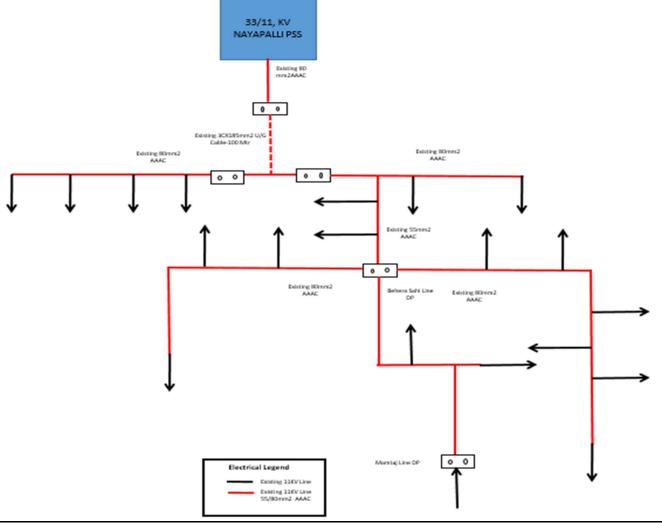
**Objective:** To mitigate the overloading issue of 11kV IRC-3 feeder.

#### **Existing Scenario:**

- At present, 11 KV IRC-3 feeder is emanating from 33/11 KV Nayapalli PSS. Only Urban consumers are connected from this feeder. Total length of this feeder is 9.45 KM and the peak load is 4.1 MVA.
- In the existing scenario, conductor size of 11kV IRC-3 feeder is 55 sq mm & the feeder is loaded up to 115.7%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

			EX	ISTING LOADII	NG		
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status
IRC-3	3.54	4.10	115.7	OVERLOAD	5.17	145.9	OVERLOAD

#### Existing SLD (Summer'21):

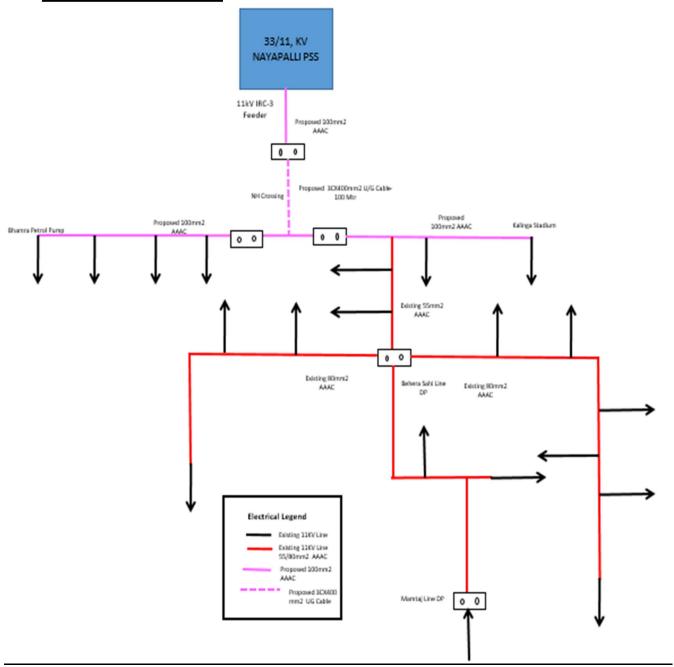


**Proposed Scenario:** 

Augmentation of 3 KM Existing 55mm2 old Conductor with 100mm2 AAAC conductor.

		LC	ADING OF	FEEDER AFTER	PROPOSAL		
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status
IRC-3	5.18	4.10	79.1	OK	4.9	95.0	OK

# Proposed SLD (Summer'22):



# **Detailed Scope of Work:**

 Augmentation of 3 KM Existing 55mm2 old Conductor with 100mm2 AAAC conductor From Nayapalli PSS to Bhamara Petrol Pump & kalinga stadium..

TP C	ENTRAL ODISHA DISTRIE	BUTION LIMITED
Name of the Division :-	BCDD-II	

Name of the Sub-Division : -	NAYAPALLI		
Name of the Section : -	NAYAPALLI		
Name of the Work :-	PART-A-Augmentation of 0 55 mm2 to 100 mm2 of len		ayapally IRC-3 feeder From 80 8
Scope of work:-	PART-A-Augmentation of 0 55 mm2 to 100 mm2 of len		ayapally IRC-3 feeder From 80 8
Names of Schemes: -	TPCODL CAPEX Scheme		
	ABSTRACT OF EST	<u>MATE</u>	
 Descr	ription		Amount
PART-A-Augmentation of Co feeder From 80 & 55 mm2 to	onductor of Nayapally IRC-3 o 100 mm2 of length-1.9 Km	₹	20,53,295.72
Total A	Amount	₹	20,53,295.72
Total Amo	unt (In Cr.)		0.21

PAR	T-A-Augmentation of Conductor of Nayapally IRC-3 feeder Fron	า 80 & 55	mm2 to 100 m	nm2 of length-	1.9 Km
	11kV Line Length with 40 Mtr. Span using 10	O SQ.MM	AAA Conduc	ctor	
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			1	
	MATERIALS OF DP With A	B Switch			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	57.36	5,076.36
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	42.84	3,791.34
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	6.692	592.24
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	5.712	505.51
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	85.68	7,582.68
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	63.216	5,594.62
9	Danger Plate, 2 no's.	No.	94.40	2	188.80
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
12	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
13	H.T. Stay Insulator Type-C	No.	59.00	2	118.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	48.38	4,281.63
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	3	12,567.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	1	13,983.00

22   F   23   F   24   F   25   7   26   F   27   7   26   F   27   7   27   27   27   27   27	11 KV pin insulator polymer H W fitting(B&S) 70KN, 3Bolt Disc insulator (B&S) 70 KN polymer PG Clamp for 100 sq.mm AAA conductor GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch) Black Paint Yellow Colour Paint for Background	No. No. No. NO. K.g. Ltr Ltr	236.00 413.00 1,357.00 684.40 92.04 259.60	3 6 6 6 13.718	708.00 2,478.00 8,142.00 4,106.40 1,262.60
23	Disc insulator (B&S) 70 KN polymer PG Clamp for 100 sq.mm AAA conductor GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch) Black Paint Yellow Colour Paint for Background	No. NO. K.g. Ltr	1,357.00 684.40 92.04 259.60 259.60	6 6 13.718	8,142.00 4,106.40
24 F 25 7 26 F 27 N A B C D E	PG Clamp for 100 sq.mm AAA conductor GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch) Black Paint Yellow Colour Paint for Background	NO. K.g. Ltr Ltr	684.40 92.04 259.60 259.60	6 13.718	4,106.40
25 / 26 E	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch) Black Paint Yellow Colour Paint for Background	K.g. Ltr Ltr	92.04 259.60 259.60	13.718	
26 E C D E F	AB Switch) Black Paint Yellow Colour Paint for Background	Ltr Ltr	259.60 259.60	-	1,262.60
27 N B C D E F	Yellow Colour Paint for Background	Ltr	259.60	1	
A B C D F	<u> </u>				259.60
B C D E F	St	tock, Stora		2	519.20
C D E F	St	tock, Stora	Total Cost	of materials	1,33,880.47
D E F			age & Insurance	e i.e 3% of A	4,016.41
E			Sub	Total (A+B)	1,37,896.88
F			Contigenc	y @ 3% of C	4,136.91
-			Tools & Plant	s @ 2% of C	2,757.94
			Transportation (	Ŭ	10,342.27
G			@ 5% on Trf/E		2,731.25
Н	Erection Charges @ 10% of C (except Trf/Breaker	/WPB/ H-	Pole/HT stay se	et/PSC pole)	7,755.96
I	Erection Charges @ 20% of	of PSC p	ole- Not to be u	sed for 33kv	-
J			Su	m of (C to I)	1,65,621.19
	Civil & Services				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1 6 E	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	2	4,500.00
2 (	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
4 (	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K			Total Civi	& Services	16,626.50
L				Total (J+K)	1,82,247.69
М	Other overheads (Including 6% supervision of	charges) c	of L (for DP With	n AB Switch)	10,934.86
N	` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` ` `		Sub	Total (L+M)	1,93,182.56
0			Total GST @	0 18% of (N)	34,772.86
01				@ 1% of (N)	1,931.83
Р	Gross Total Material +Ser	vices (N+	O) for DP With	n AB Switch	2,29,887.24
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)			3	
	MATERIALS FOR 11 KV Pin Poi	nts With	WPB		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
INU.	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	15	3,97,754.25
1 \	, , , , , , , , , , , , , , , , , , , ,	l NI-	955.80	15	14,337.00
1 \	11 KV V cross Arm (10.2 K.g. each )	No.	477.00	15	2,655.00
1 1	11 KV V cross Arm (10.2 K.g. each ) Top bracket 100x50X6 mm Gl channel (2kg each)	No.	177.00		
1 1	11 KV V cross Arm (10.2 K.g. each )		94.40	15	1,416.00
1 \\\ 2 \\\ 3 \\\ - \\\ 4 \\\ \ 1 \\\ 5 \\\ \ 1 \\\\ 1 \\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\ 1 \\\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1 \\\\ 1	11 KV V cross Arm (10.2 K.g. each ) Top bracket 100x50X6 mm Gl channel (2kg each)	No.		15 4.51	1,416.00 399.44
1 N 2 3 4 I 5 I	11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of	No.	94.40		
1 \\2 \\3 \\3 \\5 \\( \( \( \) \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\ \\	11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr.	No. No. KG	94.40 88.50	4.51	399.44
1	11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	No. No. KG Kg	94.40 88.50 94.40 88.50	4.51 45.00 18.05	399.44 4,248.00 1,597.78
1	11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer, 3 Nos. required for each support	No. No. KG Kg KG No.	94.40 88.50 94.40 88.50 236.00	4.51 45.00 18.05 45	399.44 4,248.00 1,597.78 10,620.00
1	11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	No. No. KG Kg	94.40 88.50 94.40 88.50	4.51 45.00 18.05	399.44 4,248.00 1,597.78

12	100 mm2 AAAC	K.M.	64,900.00	9.27	6,01,623.00	
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-	
14	Black Paint	Ltr	259.60	15.0	3,894.00	
15	Yellow Colour Paint for Background	Ltr	259.60	30.0	7,788.00	
Α			Total Cost	of materials	10,51,620.35	
В	S	tock, Stor	age & Insuranc	e i.e 3% of A	31,548.61	
С			Sub	Total (A+B)	10,83,168.96	
D			Contigenc	y @ 3% of C	32,495.07	
Е			Tools & Plant	s @ 2% of C	21,663.38	
F						
G Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole						
Н	Erection Charges @ 10% of C (except Trf/Breake	r/WPB/ H	Pole/HT stay s	et/PSC pole)	67,348.21	
I	Erection Charges @ 20%	of PSC p	ole- Not to be ι	sed for 33kv	-	
J			Su	m of (C to I)	13,06,397.63	
	Civil & Services					
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	6.75	43,875.00	
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.69	10,968.75	
3	Dismantling of 80sqmm AAAC	KM	9,000.00	9.27	83,430.00	
	Total Civil & Services					
K					1,38,273.75	
K L			tal Material+Se	ervices (I+K)	1,38,273.75 14,44,671.38	
	Other overheads ( Including 6% supervision char		tal Material+Se	ervices (I+K)	<b>14,44,671.38</b> 86,680.28	
L	Other overheads ( Including 6% supervision char		tal Material+Se 1 KV Pin Point Sub	ervices (I+K) s With WPB) Total (L+M)	14,44,671.38	
L M	Other overheads ( Including 6% supervision char		tal Material+Se 1 KV Pin Point Sub Total GST (	ervices (I+K) s With WPB) Total (L+M)  2 18% of (N)	<b>14,44,671.38</b> 86,680.28	
L M N O O1		ges) (for 1	tal Material+Se 1 KV Pin Point Sub Total GST @ Total CESS	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 1% of (N)	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52	
L M N	Other overheads ( Including 6% supervision char  Gross Total Material +Services (N+O+	ges) (for 1	tal Material+Se 1 KV Pin Point Sub Total GST @ Total CESS	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 1% of (N)	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30	
L M N O O1		ges) (for 1	tal Material+Se 1 KV Pin Point Sub Total GST @ Total CESS	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 1% of (N)	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52	
L M N O O1		ges) (for 1	tal Material+Se 1 KV Pin Point Sub Total GST @ Total CESS	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 1% of (N)	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52	
L M N O O1	Gross Total Material +Services (N+O+ <u>6% Supervision Charges S</u> Other overheads (Including 6% supervision	Ges) (for 1  Summary charges) (	tal Material+Se 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point	rvices (I+K) s With WPB) Total (L+M) 18% of (N) 19 18% of (N) with WPB The AB Switch	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52	
L M N O O1 P	Gross Total Material +Services (N+O+	Ges) (for 1  Summary charges) (	tal Material+Se 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point	rvices (I+K) s With WPB) Total (L+M) 18% of (N) 19 18% of (N) with WPB The AB Switch	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48	
L M N O O1 P	Gross Total Material +Services (N+O+ <u>6% Supervision Charges S</u> Other overheads (Including 6% supervision	·O1) for 1 Summary charges) (for	tal Material+Se 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 18% of (N) 18 With WPB  The AB Switch of the AB Switch of the AB Switch were as the weight of the AB Switch of the AB Switch were as the weight of the we	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48	
L M N O O1 P	Gross Total Material +Services (N+O+ <u>6% Supervision Charges S</u> Other overheads (Including 6% supervision	O1) for 1 Summary charges) (for 7 Total	tal Material+Se 1 KV Pin Point Sub Total GST @ Total CESS 1 KV Pin Point of L (for DP With	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 18% of (N) 18 With WPB  The AB Switch of the AB Switch of the AB Switch were as the work of the AB Switch of the AB Switch were as the work of the wore of the work of	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48 10,934.86 86,680.28	
L M N O O1 P	Gross Total Material +Services (N+O+  6% Supervision Charges S  Other overheads (Including 6% supervision Charges S)  Other overheads (Including 6% supervision charges S)	Ges) (for 1  Summary charges) (for 1  Total	tal Material+Set 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point of L (for DP With 1 KV Pin Point (6% supervisi	rvices (I+K) s With WPB) Total (L+M) 18% of (N) 19 18% of (N) s With WPB  The AB Switch S With WPB The AB Switch S With WPB The AB Switch S With WPB The AB Switch S With WPB The AB Switch	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48 10,934.86 86,680.28	
L M N O O1 P	Gross Total Material +Services (N+O+  6% Supervision Charges S  Other overheads (Including 6% supervision Other overheads (Including 6% supervision char  Gross Total Summa	O1) for 1 Summary charges) (for 7 Total ary Gervices (1	tal Material+Se 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point  of L (for DP Wit 1 KV Pin Point (6% supervisi	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 18% of (N) 18% of (N) which wPB  The AB Switch	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48 10,934.86 86,680.28 97,615.14	
L M N O O1 P 2 5	Gross Total Material +Services (N+O+  6% Supervision Charges S  Other overheads (Including 6% supervision Other overheads (Including 6% supervision char  Gross Total Summa  Gross Total Material +S	Ges) (for 1  Summary charges) (for 1  Total ary Services (I D+O1) for	tal Material+Se 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point  of L (for DP Wit 1 KV Pin Point (6% supervisi N+O) for DP Wi 11 KV Pin Poin	rvices (I+K) s With WPB) Total (L+M) 18% of (N) 18% of (N) 18% of (N) s With WPB  AB Switch s With WPB) on charges)  th AB Switch ts With WPB	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48 10,934.86 86,680.28 97,615.14	
L M N O O1 P 2 5	Gross Total Material +Services (N+O+  6% Supervision Charges S  Other overheads (Including 6% supervision Other overheads (Including 6% supervision char  Gross Total Summa  Gross Total Material +S  Gross Total Material +Services (N+O+O+O+O+O+O+O+O+O+O+O+O+O+O+O+O+O+O+O	Construction of the second sec	tal Material+Set 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point of L (for DP Wit 1 KV Pin Point (6% supervisi N+O) for DP Wit 11 KV Pin Poin (HT) - Rs. 200	rvices (I+K) s With WPB) Total (L+M) 18% of (N) 18% of (N) 18% of (N) s With WPB  The AB Switch S With WPB  The AB Switch S With WPB  The AB Switch The AB S	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48 10,934.86 86,680.28 97,615.14 2,29,887.24 18,22,308.48	
L M N O O1 P 2 5	Gross Total Material +Services (N+O+  6% Supervision Charges S  Other overheads (Including 6% supervision Other overheads (Including 6% supervision char  Gross Total Summa  Gross Total Material +S  Gross Total Material +Services (N+O  Inspection Fee of Over H  Inspection Fee of Over H	Construction of the second sec	tal Material+Set 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point of L (for DP Wit 1 KV Pin Point (6% supervisi N+O) for DP Wit 11 KV Pin Poin (HT) - Rs. 200	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 18% of (N) 18% of (N) which wPB The AB Switch as With WPB The AB Switch	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48 10,934.86 86,680.28 97,615.14 2,29,887.24 18,22,308.48	
L M N O O1 P 2 5 Q R	Gross Total Material +Services (N+O+  6% Supervision Charges S  Other overheads (Including 6% supervision Other overheads (Including 6% supervision char  Gross Total Summa  Gross Total Material +S  Gross Total Material +Services (N+O  Inspection Fee of Over H  Inspection Fee of Over H	Ges) (for 1  Summary charges) (for 7  Total  Ary Services (I D+O1) for Head Line lead Line lead Line	tal Material+Se 1 KV Pin Point Sub Total GST ( Total CESS 1 KV Pin Point  of L (for DP Wit 1 KV Pin Point (6% supervisi N+O) for DP Wi 11 KV Pin Poin (HT) - Rs. 200 (HT) - Rs. 30/ A	ervices (I+K) s With WPB) Total (L+M) 18% of (N) 18% of (N) 18% of (N) s With WPB  AB Switch s With WPB) on charges)  th AB Switch tts With WPB for 1st 5 km. dditional Km	14,44,671.38 86,680.28 15,31,351.66 2,75,643.30 15,313.52 18,22,308.48 10,934.86 86,680.28 97,615.14 2,29,887.24 18,22,308.48 200.00	

- 1) To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- 2) The above arrangement will help to release power supply to upcoming potential consumers.
- 3) Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

## 17.Refurbishment of 11kV No-2 Sriram bazar Feeder for Mitigation of Overloading

**Proposal:** Augmentation of existing 11kV\_No-2 Sriram Bazar feeder emanating from 33/11kV Baranga New PSS from 80 & 55sqmm lower size conductor to 100sqmm AAAC conductor.

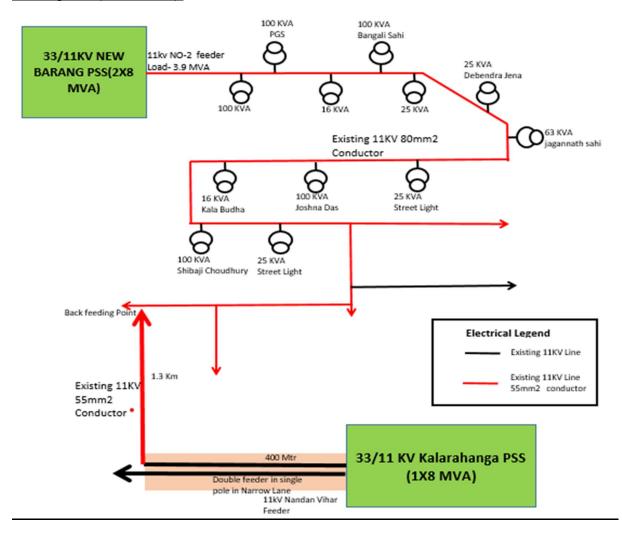
**Objective:** To mitigation of Overloading issue of feeder.

#### **Existing Scenario:**

- At present, 11kV No-2 Sriram Bazar feeder is emanating from 33/11 KV Baranga New PSS.
   Only Urban consumers are connected from this feeder. Total length of this feeder is 21 KM and the peak load is 3.9 MVA.
- In the existing scenario, conductors size of 11 KV No-2 Sriram Bazar feeder where overloading is observed is 80sqmm & the feeder is loaded up to 86.47%, w.r.t the current carrying capacity of the conductor.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building, augmentation of this feeder is proposed for improving Reliability.

	EXISTING LOADING							
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status	
No-2 Sriram Bazar	4.51	3.90	86.47	Low Voltage	5.17	145.9	OVERLOAD	

#### **Existing SLD (Summer'21):**

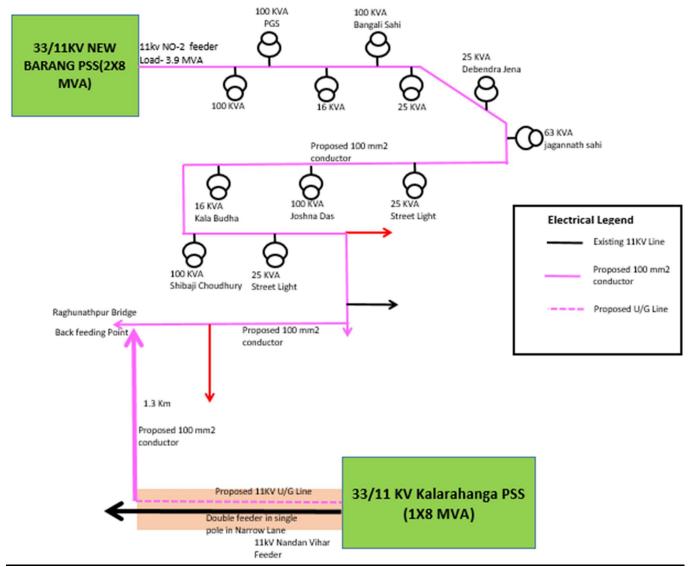


## **Proposed Scenario:**

- Augmentation of 8 KM Existing 55mm2 old Conductor with 100mm2 AAAC conductor.
- Augmentation of Conductor of length-1.3 Km of Nandan Vihar Feeder & O-H to U/G Conversion of length-400 Mtr of Nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth

	LOADING OF FEEDER AFTER PROPOSAL									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status			
No-2 Sriram Bazar	5.18	3.90	75.3	ОК	4.7	90.3	ОК			

### Proposed SLD (Summer'22):



## **Detailed Scope of Work:**

- Augmentation of 8km Existing 55 & 80sqmm old conductor with 100sqmm AAAC conductor from Barang New PSS to Raghunathpur Bridge.
- Augmentation of Conductor of length-1.3 Km of Nandan Vihar Feeder & O-H to U/G Conversion of length-400 Mtr of Nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth

1	TP (	CENTRAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	BCDD-II			
	Name of the Sub-Division : -	PERIPHERY			
	Name of the Section : -	Baranga			
	Name of the Work :-	PART-A-  1. Augmentation of Conductor of New Baranga No mm2 to 100 mm2 of length-8Km PART-B-  1. Augmentation of Conductor of backfeeding Nanc & 55 mm2 to 100 mm2 of length-1.3Km. Interposin per site condition Part- C :O-H to U/G Conversion of length-400 Mtr of unsafe to safe & mitigating backfeeding issue of re	dan Vihar feeder From 80 g poles not required as of nandan vihar feeder for		
	PART-A-  1. Augmentation of Conductor of New Baranga No.2 feeder From 80 & mm2 to 100 mm2 of length-8Km PART-B-  Scope of work:-  1. Augmentation of Conductor of backfeeding Nandan Vihar feeder From & 55 mm2 to 100 mm2 of length-1.3Km. Interposing poles not required per site condition Part- C :O-H to U/G Conversion of length-400 Mtr of nandan vihar feeder unsafe to safe & mitigating backfeeding issue of residential load growth				
	Names of Schemes: -	TPCODL CAPEX Scheme			
		100001000000000000000000000000000000000			
		ABSTRACT OF ESTIMATE			
SI. No.		Description	Amount		
_	to 100 mm2 of length-8Km		Amount  ₹ 61,35,348.90		
No.	Augmentation of Conducto to 100 mm2 of length-8Km  PART-B-     Augmentation of Conducto	Description			
<b>No.</b>	Augmentation of Conducto to 100 mm2 of length-8Km  PART-B-     Augmentation of Conducto 55 mm2 to 100 mm2 of length site condition  Part- C :O-H to U/G Conversion to 100 mm2 of length site condition	Description  r of New Baranga No.2 feeder From 80 & 55 mm2  r of backfeeding Nandan Vihar feeder From 80 &	₹ 61,35,348.90		
No. 1	Augmentation of Conducto to 100 mm2 of length-8Km  PART-B-     Augmentation of Conducto 55 mm2 to 100 mm2 of length site condition  Part- C :O-H to U/G Conversion to 100 mm2 of length site condition	Description  r of New Baranga No.2 feeder From 80 & 55 mm2  r of backfeeding Nandan Vihar feeder From 80 & n-1.3Km. Interposing poles not required as per on of length-400 Mtr of nandan vihar feeder for	₹ 61,35,348.90 ₹ 4,61,631.32		

PAR 1. Au	I-A- igmentation of Conductor of New Baranga No.2 feeder From 80	& 55 mm	2 to 100 mm2	of length-8K	m			
	11kV Line Length with 40 Mtr. Span using 100	OSQ.MM.	-AAA Conduc	tor				
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)							
	MATERIALS OF DP With A	B Switch						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80			
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72			
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77			
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68			
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48			

	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr.,				
6	each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, $0.59$ Kg/Mtr. Flat of $0.510$ mtr length 2 no's = $(2x0.59x0.510)$	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long 50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	No. KG	1,239.00 88.50	96.76	4,956.00 8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
Α			Total Cost o		2,67,760.93
В	Sto	ock, Stora	ge & Insurance		8,032.83
С				otal (A+B)	2,75,793.76
D			Contigency		8,273.81
E			Tools & Plants	_	5,515.88
F			ransportation @		20,684.53
G			@ 5% on Trf/Br		5,462.49
Н	Erection Charges @ 10% of C (except Trf/Breaker/			,	15,511.92
	Erection Charges @ 20% o	f PSC po			<u>-</u>
J	Civil & Samina		Sun	n of (C to I)	3,31,242.39
	<u>Civil &amp; Services</u>				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K			Total Civil	& Services	33,253.00
L				Total (J+K)	3,64,495.39

М	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch) 21,869.72							
N	Sub Total (L+M) 3							
0	Total GST @ 18% of (N)							
01	Total CESS @ 1% of (N)							
P	Gross Total Material +Services (N+O) for DP With AB Switch							
			,		4,59,774.48			
	11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)			9.3				
	MATERIALS FOR 11 KV Pin Poi	nts With I	<u>NPB</u>					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	47	12,46,296.65			
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	47	44,922.60			
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	47	8,319.00			
4	Danger Plate, 1 no's. for each pole	No.	94.40	47	4,436.80			
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	14.14	1,251.59			
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	141.00	13,310.40			
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	56.57	5,006.37			
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	141	33,276.00			
9	Earthing of Support ( Coil Type )	No.	195.88	47	9,206.36			
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	12.31	1,089.79			
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	68.15	6,272.53			
12	100 mm2 AAAC	K.M.	64,900.00	28.74	18,65,031.30			
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-			
14	Black Paint	Ltr	259.60	47.0	12,201.20			
15	Yellow Colour Paint for Background	Ltr	259.60	94.0	24,402.40			
Α			Total Cost o	f materials	32,75,022.99			
В	Sto	ock, Stora	ge & Insurance	i.e 3% of A	98,250.69			
С			Sub T	otal (A+B)	33,73,273.68			
D			Contigency	@ 3% of C	1,01,198.21			
Е			Tools & Plants	@ 2% of C	67,465.47			
F		T	ransportation @	7.5% of C	2,52,995.53			
G	Erection Charges	s @ 5% or	Trf/Breaker/W	PB/ H-Pole	64,184.28			
Н	Erection Charges @ 10% of C (except Trf/Breaker/				2,08,958.81			
ı	Erection Charges @ 20% c			. ,				
J	, J	•		of (C to I)	40,68,075.98			
	Civil & Services			- ( )	-,,-			
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	21.15	1,37,475.00			
	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	5.29	34,368.75			
2		KM	9,000.00	28.74	2,58,633.00			
	Dismantling of 80sgmm AAAC		.,					
2 3 <b>K</b>	Dismantling of 80sqmm AAAC		Total Civil	& Services	4,30,476.75			
3	Dismantling of 80sqmm AAAC	Tota			4,30,476.75 44,98,552.73			
3 <b>K</b>			l Material+Ser	vices (I+K)	44,98,552.73			
3 <b>K</b> L	Other overheads (Including 6% supervision charge		I Material+Ser KV Pin Points	vices (I+K) With WPB)	<b>44,98,552.73</b> 2,69,913.16			
3 K L M			I Material+Ser  KV Pin Points  Sub 1	wices (I+K) With WPB) Total (L+M)	<b>44,98,552.73</b> 2,69,913.16 <b>47,68,465.90</b>			
3 K L M N O			I Material+Ser KV Pin Points Sub 1 Total GST @	wices (I+K) With WPB) Total (L+M) 18% of (N)	<b>44,98,552.73</b> 2,69,913.16 <b>47,68,465.90</b> 8,58,323.86			
3 K L M N O O1	Other overheads ( Including 6% supervision charg	es) (for 11	KV Pin Points Sub 1 Total GST @ Total CESS @	wices (I+K) With WPB) Total (L+M) 18% of (N) 1% of (N)	<b>44,98,552.73</b> 2,69,913.16 <b>47,68,465.90</b> 8,58,323.86 47,684.66			
3 K L M N O		es) (for 11	KV Pin Points Sub 1 Total GST @ Total CESS @	wices (I+K) With WPB) Total (L+M) 18% of (N) 1% of (N)	<b>44,98,552.73</b> 2,69,913.16 <b>47,68,465.90</b> 8,58,323.86			
3 K L M O O 1	Other overheads ( Including 6% supervision charg	es) (for 11	KV Pin Points Sub 1 Total GST @ Total CESS @	wices (I+K) With WPB) Total (L+M) 18% of (N) 1% of (N)	<b>44,98,552.73</b> 2,69,913.16 <b>47,68,465.90</b> 8,58,323.86 47,684.66			
3 K L M O O 1	Other overheads ( Including 6% supervision charg  Gross Total Material +Services (N+O+C	es) (for 11  O1) for 11  Summary	KV Pin Points Sub 1 Total GST @ Total CESS @ KV Pin Points	wices (I+K) With WPB) Total (L+M) 18% of (N) 1% of (N) With WPB	<b>44,98,552.73</b> 2,69,913.16 <b>47,68,465.90</b> 8,58,323.86 47,684.66			
3 K L M N O O1 P	Other overheads ( Including 6% supervision charg  Gross Total Material +Services (N+O+O	es) (for 11  O1) for 11  Bummary  harges) of	KV Pin Points Sub 1 Total GST @ Total CESS @ KV Pin Points	wices (I+K) With WPB) Total (L+M) 18% of (N) 1% of (N) With WPB  AB Switch)	44,98,552.73 2,69,913.16 47,68,465.90 8,58,323.86 47,684.66 56,74,474.42			

Gross Total Summary							
2	Gross Total Material +Services (N+O) for DP With AB Switch						
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB	56,74,474.42					
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00					
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km						
S	Inspection Fee of Drawing Checking and Approval	400.00					
Т	Final decision by electrical Inspector	500.00					
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	61,35,348.90					

#### PART-B-

1. Augmentation of Conductor of backfeeding Nandan Vihar feeder From 80 & 55 mm2 to 100 mm2 of length-1.3Km. Interposing poles not required as per site condition

## 11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No.- TPCODL-MVD-0003)

1.3

(	ef. Drawing No TPCODL-MVD-0003)				
	<u>MATER</u>				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
12	100 mm2 AAAC	K.M.	64,900.00	4.02	2,60,703.30
Α		1	Tota	al Cost of materials	2,60,703.30
В			Stock, Storage & I	nsurance i.e 3% of A	7,821.10
С				Sub Total (A+B)	2,68,524.40
D			Co	ontigency @ 3% of C	8,055.73
Е			Tools	& Plants @ 2% of C	5,370.49
F			Transpo	ortation @ 7.5% of C	20,139.33
G	Ere	ection Charg	ges @ 5% on Trf/B	reaker/WPB/ H-Pole	-
Н	Erection Charges @ 10% of C (exce	pt Trf/Break	er/WPB/ H-Pole/H	T stay set/PSC pole)	26,852.44
I	Erection Cha	rges @ 20%	of PSC pole- No	t to be used for 33kv	-
J				Sum of (C to I)	3,28,942.39
		Civ	il & Services	1	
3	Dismantling of 80sqmm AAAC	KM	9,000.00	4.02	36,153.00
K		<u> </u>	То	tal Civil & Services	36,153.00
L		Total Material+Services (I+K)			
М	Other overheads (Including 6% sup	ervision cha	arges) (for 11 KV P	21,905.72	
N				Sub Total (L+M)	3,87,001.11
0			Tota	I GST @ 18% of (N)	69,660.20
01				I CESS @ 1% of (N)	3,870.01
Р	Gross Total Material +Ser	vices (N+O	+O1) for 11 KV Pi	n Points With WPB	4,60,531.32
			· · · ·		
	69	% Supervis	ion Charges Sum	mary	
2	Other overheads (Including 6%	supervision	charges) of L (for	DP With AB Switch)	-
5	Other overheads (Including 6% sup		<u> </u>		21,905.72
	, <u> </u>		Total (6% su	pervision charges)	21,905.72
		Gross	Total Summary		·
2	Gross Tota			r DP With AB Switch	_
5	Gross Total Material +S		` '		4,60,531.32
Q		•		Rs. 200 for 1st 5 km.	200.00
R				s. 30/ Additional Km	
S			. ,	ecking and Approval	400.00
T					500.00
	Final decision by electrical Inspector  Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)				

	Part- C :O-H to U/G Conversion of length-400 Mtr of nandan vihar feeder for unsafe to safe & mitigating backfeeding issue of residential load growth							
Supp	Supply Portion							
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)			

_	Supply of materials for 11kV, 3Core, 400sqmm, XLPE				
1	insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km			
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	0.4		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.40	17,70,000.00	7,08,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	1	29,874.06	29,874.06
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		11,306.76	-
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	2	16,406.72	32,813.44
	Sub Total (Supply Portion) (in	ı Rs.)			7,70,687.50
	tion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core,				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.00	94,500.00	-
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	1	2,400.00	2,400.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,900.80	-
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	1,900.80	3,801.60
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0.4	28,00,000.00	11,20,000.00
	Dismantling of 80sqmm AAAC	KM	0.4	9,000.00	3,600.00
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.00	1,04,114.67	-
	Sub Total (Erection Portion) (i	n Rs.)			11,90,327.99
C::1	Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	16	1,463.40	23,414.40
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	13	1,012.00	13,156.00
	Sub Total (Civil Portion) (in	Rs.)			36,570.40
Α	Sub Total (Supply Portion)				7,70,687.50
В	Stock, Storage & Insurance @ 3 % of A				23,120.63
С	Sub Total (A+B)				7,93,808.13
D	Contingency @ 3 % of C				23,814.24
Е	Tools & Plants Charges @ 2% of C (considered for earthing iter	ms)			_

# Supplementary CAPEX FY: 2022-23

F	Transportation @ 7.5% of C	59,535.61
G	Erection Charges @ 10% of earthing items	-
Н	Total (C+D+E+F+G)	8,77,157.98
ı	Sub Total (Erection Portion + Civil Portion)	12,26,898.39
J	Total Cost (H+I)	21,04,056.37
K	Other Overhead /(including Supervision Charges) @ 6 % of J	1,26,243.38
L	Total Estimated Capital Cost i.e. (J+K)	22,30,299.75
М	GST @ 18% of L	4,01,453.95
M1	CESS @ 1% of L	22,303.00
N	Grand Total (L+M)	26,54,056.70
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	0
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	26,54,306.70

- 1) To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- 2) The above arrangement will help to release power supply to upcoming potential consumers, safety to the public & working personnel will be improved since conductor snapping because of overloading is addressed through above proposal.

#### 18.Swapping of 11kV NALCO feeder from PTR-1 to PTR-3 for Mitigation of PTR Overload

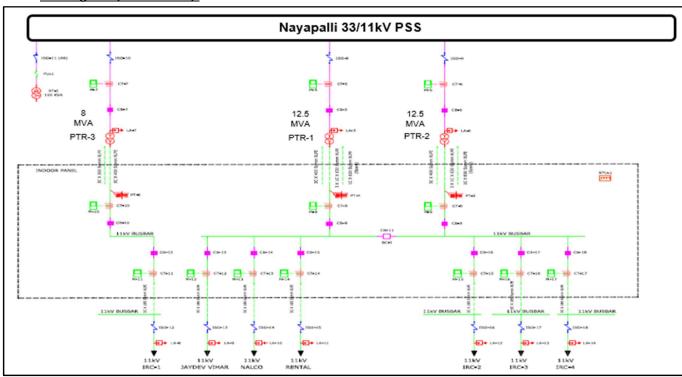
**Proposal:** Swapping of 11kV NALCO feeder from PTR-1 to PTR-3 to mitigate PTR overloading issue **Objective:** To mitigation of Overloading issue of PTR-3.

## **Existing Scenario:**

- At present, peak load of PTR-1 of Nayapalli PSS is 9.5MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 14.2MVA. The PTR will be overloaded.
- This feeder is mainly feeding Urban consumers, overloading of PTR will hamper the reliability of power supply to the consumers in the area.

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	% PTR Loading (AS IS)	Projected load PTR load in 5years	% PTR Loading	PTR Status
33/11kV	PTR-1	12.5	9.5	76%	14.2	114%	Overloaded
NAYAPALLI	PTR-3	8	2.9	36.25	4.3	52%	Ok

## **Existing SLD (Summer'21):**

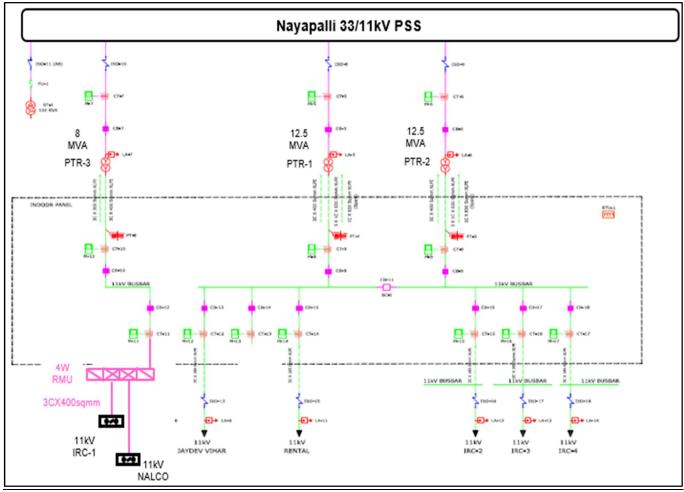


#### **Proposed Scenario:**

 Swapping of NALCO 11kV feeder (2.4MVA) from PTR-1 to PTR-3 in order to mitigate the overloading condition of PTR-1.

Structure Name	PTR Name	PTR Installed Capacity in MVA	Projected load PTR load in 2years after feeder swapping	% PTR Loading	PTR Status
33/11kV	PTR-1	12.5	8.6	69%	Ok
NAYAPALLI	PTR-3	8	6.4	80%	Ok

# Proposed SLD (Summer'22):



# **Detailed Scope of Work:**

• Swapping of NALCO 11kV feeder from PTR-1 to PTR-3 at Nayapalli 33/11kV PSS.

	TP CEN	ITRAL ODISHA DISTRIBUTION LIMITE	:D	
	Name of the Division :-	BCDD-II		
	Name of the Sub-Division : -	NAYAPALI		
	Name of the Section : -	Nayapalli		
	Name of the Work :-	Laying of UG cable 0.24km (with spare) and 4W RMU (LLVV) at Nayapalli 33/11kV PSS.		
	Scope of work:-	Laying of UG cable 0.24km (with spare) and Nayapalli 33/11kV PSS.	d 4W RMU (LLVV) at	
	Names of Schemes: -	TPCODL CAPEX Scheme		
		ABSTRACT OF ESTIMATE		
SI. No.		Description	Amount	
1	Laying of UG cable 0.24km (v Nayapalli 33/11kV PSS.	with spare) and 4W RMU (LLVV) at	₹ 29,94,424.42	
2		Total Amount	₹ 29,94,424.42	
3	Tota	al Amount (In Cr.)	0.30	

SI.	Description of items	Unit	Quantity	Rate	Amount
No. 1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories	Oilit	Quantity	(in Rs.)	(in Rs.)
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.12		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	0.12		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.24	17,70,000.00	4,24,800.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)  Supply of <b>Indoor termination kits</b> Heat Shrinkable type		0	29,874.06	-
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)		8	11,306.76	90,454.08
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)		4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.24	6,94,910.00	1,66,778.40
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.			
b	No. of 11kV 4Way RMU (LLVV)	nos.	1		
С	No. of 11kV 3Way RMU (LLV+M)	nos.			
d	No. of 11kV 4Way RMU (LLVV+M)	nos.			
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	3,99,034.00	_
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	5,57,710.00	5,57,710.0
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	
2.5	Supply of Standard FRTU 4Way with FRTU networking		1	4,35,542.00	4,35,542.00
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	13.20	88.50	1,168.20
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,239.00	2,478.00
	Sub Total (Supply Portion) (in	n Rs.)			17,44,557.50
Erect	ion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.24	94,500.00	22,680.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	2,400.00	-
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with</b>	km	0	28,00,000.00	

	HDPE pipe (160mm dia, PN8 PE80) for laying of individual				
	run of UG cable at main road and unaccessable place.				
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.24	1,04,114.67	24,987.52
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	0	15,000.00	-
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	15,000.00	15,000.00
2.3	Erection of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	15,000.00	-
2.4	Erection of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	15,000.00	-
2.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	6,124.36	6,124.36
	Sub Total (Erection Portion) (i	n Rs.)			91,601.48
	Portion	I	ı T	Data	A
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				,
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	84	700.00	58,800.00
1.1.b	Earth work excavation of hard rock	Cum	36	1,720.00	61,920.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	0	171.55	-
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	0	2,500.00	-
1.4	Back filling with excavated soil outside and above the trench	Cum	120	202.00	24,240.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0	26,43,670.63	-
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	20	3,600.00	72,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	2	1,012.00	2,024.00
	Sub Total (Civil Portion) (in	Rs.)			2,93,772.10
Α	Sub Total (Supply Portion)	<u> </u>	<u> </u>		17,44,557.56
В	Stock, Storage & Insurance @ 3 % of A				52,336.73
С	Sub Total (A+B)				17,96,894.29
D	Contingency @ 3 % of C				53,906.83
E	Tools & Plants Charges @ 2% of C (considered for earthing iter	ms)			75.11
F	Transportation @ 7.5% of C				1,34,767.07
G	Erection Charges @ 10% of earthing items				375.56
					40.00.040.00
Н	Total (C+D+E+F+G)	19,86,018.86			

# Supplementary CAPEX FY: 2022-23

J	Total Cost (H+I)	23,71,392.44
K	Other Overhead /(including Supervision Charges) @ 6 % of J	1,42,283.55
L	Total Estimated Capital Cost i.e. (J+K)	25,13,675.98
М	GST @ 18% of L	4,52,461.68
N	CESS @ 1% of L	25,136.76
0	Grand Total (L+M+N)	29,91,274.42
Р	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	2000
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (O+P+Q+R+S+T)	29,94,424.42

# Benefit:

• To mitigate the overloading issue of PTR-1 at Nayapalli 33/11kV PSS.

### 19. To mitigate 11KV Laxmisagar Feeder Overloading issue :

**Proposal:** Construction of New 11 kV feeder from LAXMISAGAR PSS to Jagananth Nagar AB switch with laying of 3Cx400sqmm UG XLPE CABLE of length 3 kM with installtion of 11 kV 4 Way RMU.

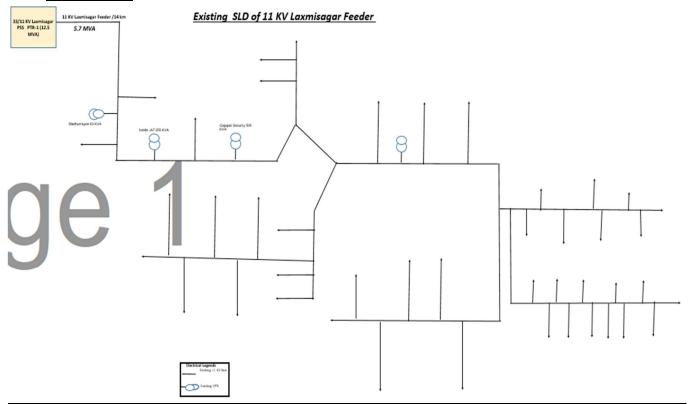
**Objective:** To Mitigate Overloading issue of 11 kV Laxmisagar feeder by bifurgation of load into two parts.

#### **Existing Scenario:**

- At present, 11 KV Laxmisagar feeder is emanating from 33/11 KV Laxmisagar PSS. Urban
  consumers are connected from this feeder. Total length of this feeder is 14 KM and the peak
  load is 5.7 MVA. Existing trunk size is 100sqmm of Laxmisagar feeder & the feeder loading has
  reached 109.4% of loading against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

	EXISTING LOADING OF LAXMISAGAR FEEDER							
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status	
LAXMISAGAR	5.18	5.67	109.4	OVERLOAD	8.5	163.7	OVERLOAD	

#### **Existing SLD:**



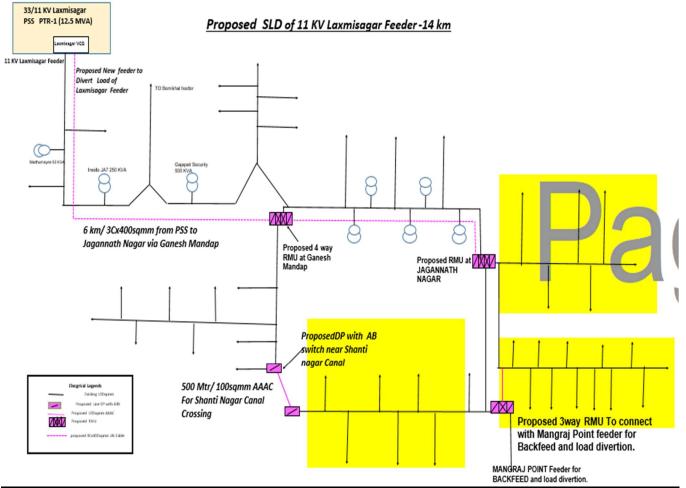
### **Proposed Scenario:**

- Laying of UG Cable of length 5km through HDD from PSS to Ganesh Mandap with RMU installation to bifurcate Laxmisagar Feeder load on two feeder to mitigate Overloading issue.
- After proposal of New feeder approx. 1.5 MVA load to be diverted on new feeder.

• Construction of 11kV line of length 500 Mtr over Canal Crossing for load diversion.

	LOADING OF LAXMISAGAR FEEDER w.r.t Proposal								
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status		
LAXMISAGAR	5.18	3.2	61.8	OK	4.8	92.4	OK		
NEW LAXMISAGAR	5.75	2.4	41.7	ОК	3.59	62.4	ОК		

## **Proposed SLD:**



## **Detailed Scope of Work:**

- · Laying of UG Cable of length 6km through HDD from PSS to Jagannath Nagar .
- Installation of 2 Nos of 4 way RMU at Ganesh Mandap and Jagannath Nagar and 1 Nos of 3 way RMU at Mangraj part to connect with Mangraj Point feeder for N-1 and load divertion.
- Construction of 11 KV line of length 500 Mtr for canal crossing with 2 Nos of DP with AB Switch.

TI	P CENTRAL ODISHA DISTRIBUTION LIMITED
Name of the Division :-	BED
Name of the Sub-Division : -	RASULGARH
Name of the Section : -	LAXMISAGAR
Name of the Work :-	Construction of New feeder from Laxmisagar PSS to Ganesh Mandap for bifurcation of load.
Scope of work:-	Part A- Construction of U/G Cable - 6 Km without spare (from LAXMISAGAR PSS to GANESH MANDAP DSS to Jagananath Nagar ) with 2 nos of 4 way RMU and 1 nos of 3 way RMU.

		Part- B :-Construction of 11 KV line using 100sqm canal crossing of length-0.5 Km Part- C :-Construction of DP with AB switch for car	
Na	ames of Schemes: -	TPCODL CAPEX Scheme	
		ABSTRACT OF ESTIMATE	
SI. No.	Description		Amount
1	Part A- Construction of U/G Cable - 6 Km without spare (from LAXMISAGAR PSS to GANESH MANDAP DSS to Jagannath Nagar) with 2 nos of 4 way RMU and 1 nos of 3 way RMU.		₹ 4,53,09,777.53
2	Part- B :-Construction over canal crossing of	₹ 8,31,236.87	
3	Part- C :-Construction	of DP with AB switch for canal crossing-2 nos	₹ 4,59,774.48
4	Total Amount		₹ 4,66,00,788.89
5	Total Amount (In Cr.)		4.66

Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	6		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	6.00	17,70,000.00	1,06,20,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	24	29,874.06	7,16,977.44
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	11	11,306.76	1,24,374.36
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	7	16,406.72	1,14,847.04
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	1		
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	39.60	88.50	3,504.60
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	6	1,239.00	7,434.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	6	56,515.00	3,39,090.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	6.0	77,990.00	4,67,940.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12	6,766.00	81,192.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	6	7,535.00	45,210.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3	4,35,542.00	13,06,626.00

F== =4	Sub Total (Supply Portion	) (in Rs.)			1,53,41,649.44				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)				
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method								
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	24	2,400.00	57,600.00				
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	11	1,900.80	20,908.80				
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	1,900.80	13,305.60				
1.5	laying of individual run of UG cable at main road and unaccessable place.								
2	RMU								
2.2 <b>3</b>	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV) FRTU and OFC for RMU SCADA Automation	Nos.	2	15,000.00	30,000.00				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	6.0	27,296.35	1,63,778.10				
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.		6.0	1,22,488.27	7,34,929.62				
3.3	Erection of SIraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	12.0	612.54	7,350.48				
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	6.0	1,225.07	7,350.42				
3.5	Erection, Commissioning, Testing of Standard FRTU								
	Sub Total (Erection Portion	n) (in Rs.	)		1,78,68,596.10				
	Portion	I	Ι Τ	Doto	A				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)				
2	Civil works for Prefabricated RCC foundation with supply of all materials								
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	3	23,145.30	69,435.90				
3	Supply of GI Fencing with Gate around each <b>RMU</b> Installation of Earth Pit, Charcoal, Salt etc. including	sqmtr	60	3,600.00	2,16,000.00				
4	construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	6	2,407.00	14,442.00				
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	56	1,463.40	81,950.40				
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	200	1,012.00	2,02,400.00				
Sub Total (Civil Portion) (in Rs.)									
Α	, , , ,								
	Stock, Storage & Insurance @ 3 % of A								
В	Stock, Storage & Insurance @ 3 % of A	Sub Total (A+B)							

D	Contingency @ 3 % of C	4,74,056.97
Е	Tools & Plants Charges @ 2% of C (considered for earthing items)	225.34
F	Transportation @ 7.5% of C	11,85,142.42
G	Erection Charges @ 10% of earthing items	1,126.68
Н	Total (C+D+E+F+G)	1,74,62,450.32
ı	Sub Total (Erection Portion + Civil Portion)	1,84,52,824.40
J	Total Cost (H+I)	3,59,15,274.72
K	Other Overhead /(including Supervision Charges) @ 6 % of J	21,54,916.48
L	Total Estimated Capital Cost i.e. (J+K)	3,80,70,191.20
М	GST @ 18% of L	68,52,634.42
M1	CESS @ 1% of L	3,80,701.91
N	Grand Total (L+M)	4,53,03,527.53
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	6000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	4,53,09,777.53

	11kV Line Length with 40 Mtr. Span usi	ng 100 SC	Q.MMAAA Co	nductor		
11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  0.5						
	MATERIALS FOR 11 KV Pi	n Points	With WPB			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	13	3,44,720.35	
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	13	12,425.40	
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	13	2,301.00	
4	Danger Plate, 1 no's. for each pole	No.	94.40	13	1,227.20	
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	3.91	346.19	
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	39.00	3,681.60	
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	15.65	1,384.74	
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	39	9,204.00	
9	Earthing of Support ( Coil Type )	No.	195.88	13	2,546.44	
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.41	301.43	
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	18.85	1,734.95	
12	100 mm2 AAAC	K.M.	64,900.00	1.55	1,00,270.50	
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		_	
14	Black Paint	Ltr	259.60	13.0	3,374.80	
15	Yellow Colour Paint for Background	Ltr	259.60	26.0	6,749.60	
Α		·	Total Cos	st of materials	4,90,268.20	

В		Ctook Cto	rago 9 Inquira	noo i o 20/ of A	14,708.05		
В <b>С</b>		nce i.e 3% of A  ub Total (A+B)	5,04,976.25				
D		ency @ 3% of C	15,149.29				
E		ants @ 2% of C	10,099.52				
F				on @ 7.5% of C	37,873.22		
G	Frection Ch	arges @ 5%		er/WPB/ H-Pole	17,753.10		
Н	Erection Charges @ 10% of C (except Trf/Bre				14,991.43		
	Erection Charges @ 2				14,001.40		
J	Erocuon charges & 2	.070 01 1 00		Sum of (C to I)	6,00,842.81		
	Civil & Ser	rvices		· ( · · · · )	3,00,01=101		
	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =						
1	0.45Cu.mtr	Cu.mtr	6,500.00	5.85	38,025.00		
2	Couping ratio 1:1.5:3 with dimension (500X500X450)=	Cu.mtr	6,500.00	1.46	9,506.25		
	0.1125 Cu mtr	Cu.mu	0,500.00	1.40	9,500.25		
3	Dismantling of 34/55sqmm AAAC	KM	6,300.00	1.55	9,733.50		
K	K Total Civil & Services						
L		Services (I+K)	6,58,107.56				
М	Other overheads (Including 6% supervision of	ints With WPB)	39,486.45				
N		ub Total (L+M)	6,97,594.01				
0	Total GST @ 18% of (N				1,25,566.92		
01				SS @ 1% of (N)	6,975.94		
Р	Gross Total Material +Services (N	ints With WPB	8,30,136.87				
	6% Supervision Cha						
5	Other overheads (Including 6% supervision of	<u> </u>		,	39,486.45		
			al (6% superv	ision charges)	39,486.45		
<u> </u>	Gross Total S						
5	Gross Total Material +Services (				8,30,136.87		
Q	Inspection Fee of Ov				200.00		
R	Inspection Fee of Over		` ,				
S	Inspection			g and Approval	400.00		
Т				ctrical Inspector	500.00		
U	Gross Total Material, Servi	ices and Ins	pection Fees	(P+Q+R+S+T)	8,31,236.87		

	11kV Line Length with 40 Mtr. Span using	100 SQ.N	IMAAA Con	ductor				
No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)								
MATERIALS OF DP With AB Switch								
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80			
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72			
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77			
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68			
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48			
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02			
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.36			

			Γ					
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23			
9	Danger Plate, 2 no's.	No.	94.40	4	377.60			
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52			
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00			
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00			
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00			
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00			
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00			
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	8,563.26						
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80			
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510) KG 88.50 4				426.07			
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00			
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00			
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00			
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00			
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00			
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80			
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21			
26	Black Paint	Ltr	259.60	2	519.20			
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40			
Α			Total Cos	t of materials	2,67,760.93			
В	Stock, Storage & Insurance i.e 3% of A							
С								
D								
Е			Tools & Plar	nts @ 2% of C	5,515.88			
F			Transportatior	@ 7.5% of C	20,684.53			
G	Erectio	n Charges	s @ 5% on Trf	/Breaker/Joist	5,462.49			
Н	Erection Charges @ 10% of C (except Trf/Breake	r/WPB/ H-	Pole/HT stay	set/PSC pole)	15,511.92			
I	Erection Charges @ 20%	of PSC p	ole- Not to be	used for 33kv	-			
J			s	um of (C to I)	3,31,242.39			
	Civil & Service	<u>:s</u>		·				
SI.				Total	Total			
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount			
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5) Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00			
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00			
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00			
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00			
K								
L	. Total (J+K)							
М	Other overheads ( Including 6% supervision	charges) o	of L (for DP W	ith AB Switch)	21,869.72			
N			Su	b Total (L+M)	3,86,365.11			
0			Total GST	@ 18% of (N)	69,545.72			
01			Total CESS	6 @ 1% of (N)	3,863.65			
	Gross Total Material +Service	es (N+O+0	O1) for DP Wi	th AB Switch	4,59,774.48			
Р	Gross Total Material +Services (N+O+O1) for DP With AB Switch							

## **Benefit:**

- 1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
- 2) Mitigation of Overloading issue with load growth of 5 years.
- 3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

### 20. To mitigate 11kV JHARAPADA Feeder Overloading issue :

**Proposal:** Construction of New 11 kV line from LAXMISAGAR PSS to Lagoon 500 kVA DTR with laying of 3Cx400sqmm UG XLPE CABLE of length 5 kM through HDD method with installtion of 11 kV 4 Way RMU at Lagoon 500 kVA DTR and OSCAR City.

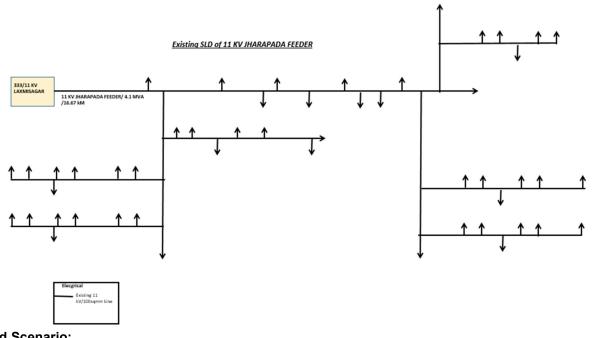
**Objective:** To Mitigate Overloading issue of 11 kV JHARAPADA feeder by bifurcation of load into two parts.

#### **Existing Scenario:**

- At present, 11 KV Jharapada feeder is emanating from 33/11 KV Laxmisagar PSS. Urban consumers are connected from this feeder. Total length of this feeder is 16.67 KM and the peak load is 4.2 MVA. Existing trunk size is 100sqmm of Jharapada feeder & the feeder loading is 81.1% of loading considering future Load Growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

	EXISTING LOADING OF JHARAPADA FEEDER								
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status		
JHARAPADA	5.18	4.2	81.1	Overload and Low voltage	6.1	118.2	OVERLOAD		

## **Existing SLD:**

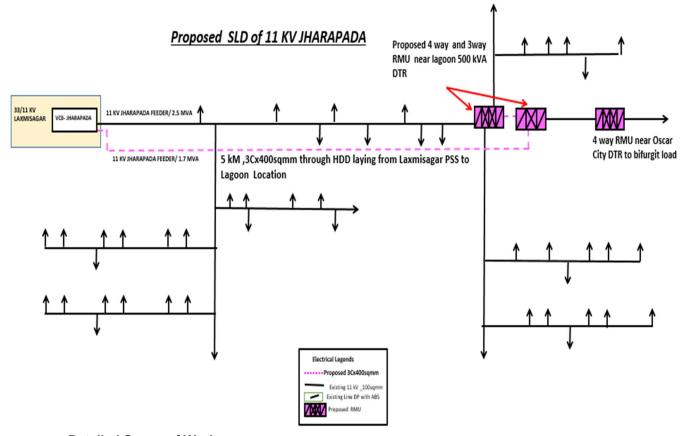


**Proposed Scenario:** 

- Laying of UG Cable of length 5km through HDD from PSS to Lagoon with RMU installation to bifurcate Jharapada Feeder load on two feeder to mitigate Overloading issue.
- Installation of 3 Nos of RMU for feeder connectivity and bifurcation of load.
- After proposal of New feeder approx.1.9 MVA load to be diverted on New feeder.

	LOADING OF JHARAPADAFEEDER w.r.t Proposal							
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status	
JHARAPADA	5.18	2.2	41.9	OK	3.2	62.7	OK	
NEW JHARAPADA	5.75	1.9	33.1	ОК	2.85	49.5	ОК	

#### **Proposed SLD:**



## **Detailed Scope of Work:**

 Laying of UG Cable of length 5km through HDD from PSS to Lagoon 500 kVA DTR and installation of 2 nos of 4 way RMU and 1 nos of 3 Way RMU at Lagoon and Oscar City for linking and load bifurcation of feeder.

TP CENTRAL ODISHA DISTRIBUTION LIMITED					
Name of the Division :-	BED				
Name of the Sub-Division :					
-	RASULGARH				
Name of the Section : -	LAXMISAGAR				
Name of the Work :-	Construction of New feeder from Laxmisagar PSS to Lagoon Mandap for bifurcation of Jharapada Feeder Load				
Scope of work:-					

	Part A- Construction of U/G Cable - 5 Km without spare (PSS to near Lagoon DSS) with 2 nos of 4 way RMU and	
Names of Schemes: -	TPCODL CAPEX Scheme	
	ABSTRACT OF ESTIMATE	
SI. No.	Description	Amount
1	Part A- Construction of U/G Cable - 5 Km without spare (from LAXMISAGAR PSS to naer Lagoon DSS) with 2 nos of 4 way RMU and 1nos of 3Way RMU.	₹ 3,85,45,119.94
2	Total Amount	₹ 3,85,45,119.94
3	Total Amount (In Cr.)	3.85

Part A- Construction of U/G Cable - 5 Km without spare (from LAXMISAGAR PSS to near Lagoon DSS) with 2 nos of 4 way RMU and 1nos of 3Way RMU.

Supply Po	rtion
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SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (HDD)	km	5		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)		5.00	17,70,000.00	88,50,000.00
1.2	Aluminium UG cable for 3Core (Set)		20	29,874.06	5,97,481.20
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	5	16,406.72	82,033.60
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	1		
b	No. of 11kV 4Way RMU (LLVV)	nos.	2		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	5,57,710.00	11,15,420.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	39.60	88.50	3,504.60
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	6	1,239.00	7,434.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	5	56,515.00	2,82,575.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	5.0	77,990.00	3,89,950.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	10	6,766.00	67,660.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	6	7,535.00	45,210.00

4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along with associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3	4,35,542.00	13,06,626.00
	Sub Total (Supply Portion	on) (in R	s.)		1,32,82,609.52
Erect	ion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	20	2,400.00	48,000.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	1,900.80	9,504.00
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.		5	28,00,000.00	1,40,00,000.00
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	2	15,000.00	30,000.00
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	5.0	27,296.35	1,36,481.75
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	5.0	1,22,488.27	6,12,441.35
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	10.0	612.54	6,125.40
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	6.0	1,225.07	7,350.42
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3.0	6,124.36	18,373.08
	Sub Total (Erection Port	ion) (in R	Rs.)		1,49,06,085.60
Civil	 Portion				
SI.	Description of items	Unit	Quantity	Rate	Amount
No. 2	Civil works for Prefabricated RCC foundation with supply of all materials	J		(in Rs.)	(in Rs.)
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	3	23,145.30	69,435.90
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	60	3,600.00	2,16,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	6	2,407.00	14,442.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	40	1,463.40	58,536.00

6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	167	1,012.00	1,69,004.00		
	Sub Total (Civil Portion) (in Rs.)						
Α	Sub Total (Supply Portion)				1,32,82,609.52		
В	Stock, Storage & Insurance @ 3 % of A				3,98,478.29		
С	Sub Total (A+B)				1,36,81,087.81		
D	Contingency @ 3 % of C				4,10,432.63		
Е	Tools & Plants Charges @ 2% of C (considered for eart	hing item	ıs)		225.34		
F	Transportation @ 7.5% of C				10,26,081.59		
G	Erection Charges @ 10% of earthing items				1,126.68		
Н	Total (C+D+E+F+G)				1,51,18,954.04		
I	Sub Total (Erection Portion + Civil Portion)				1,54,33,503.50		
J	Total Cost (H+I)				3,05,52,457.54		
K	Other Overhead /(including Supervision Charges) @ 6 9	% of J			18,33,147.45		
L	Total Estimated Capital Cost i.e. (J+K)				3,23,85,604.99		
М	GST @ 18% of L				58,29,408.90		
M1	CESS @ 1% of L				3,23,856.05		
N	Grand Total (L+M)				3,85,38,869.94		
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.				250.00		
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Kn	n					
Q	Inspection Fee of RMU - Rs. 2000/ RMU				6000		
R	Inspection Fee of Drawing Checking and Approval						
S	Final decision by electrical Inspector						
Т	Gross Total Material, Services and Inspection Fees	(N+O+P+	·Q+R+S)		3,85,45,119.94		

- 1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
- 2) Mitigation of Overloading issue with load growth of 5 years.
- 3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

#### 21.Refurbishment of 11KV PAHAL Feeder to mitigate Overloading:

**Proposal:** Augmentation of Existing 55sqmm AAAC Trunk Conductor to 100sqmm of length 3 kM from Phulnakhara PSS to trunk line to mitigate Overloading Issue.

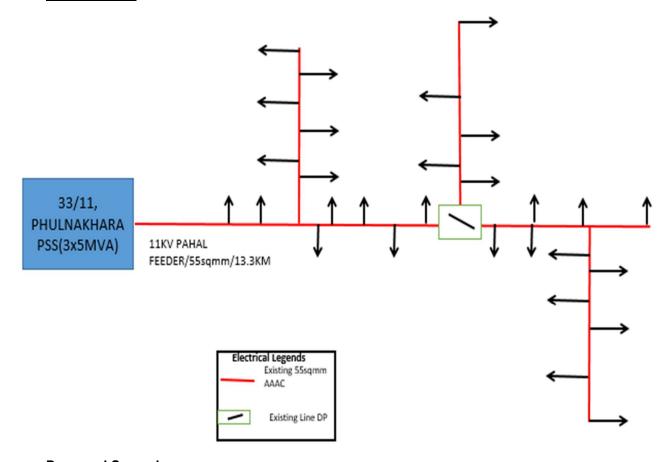
**Objective:** To Mitigate Overloading of 11 kV PAHAL feeder by augmentation of Trunk Conductor Conductor Size from 55sqmm to 100sqmm to enhance capacity of Conductor.

## **Existing Scenario:**

- At present, 11 KV PAHAL feeder is emanating from 33/11 KV Phulnakhara PSS. Urban consumers are connected from this feeder. Total length of this feeder is 13.3 KM .Existing trunk size is 55sqmm of PAHAL feeder & the feeder loading has reached 90.3% in existing and 135% of loading with load growth against its circuit capacity.
- This feeder is feeding both Urban and Rural consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

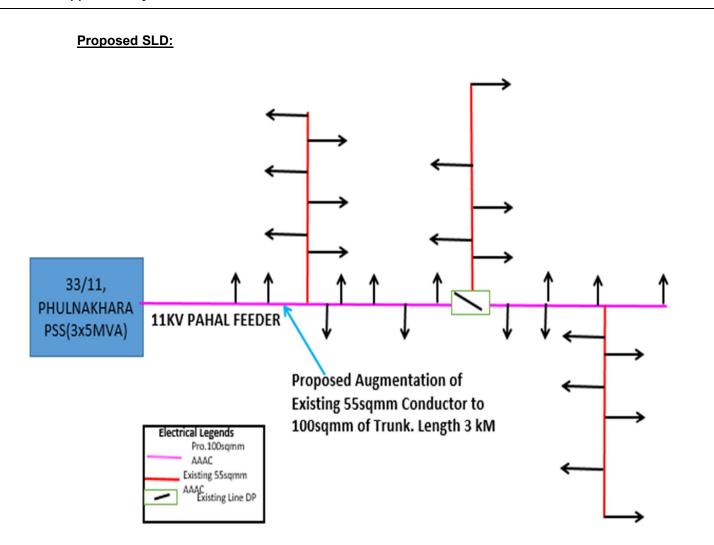
LOADING OF PAHAL FEEDER										
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 2 years LG	% Loading of feeder after 2 years LG	Feeder Overloading Status			
PAHAL	3.54	3.2	90.3	OK	3.872	109.3	OVERLOAD			

#### **Existing SLD:**



### **Proposed Scenario:**

- Augmentation of Existing trunk line from 55sqmm to 100sqmm AAAC of length 3 KM to mitigate Overloading issue of Feeder.
- After proposal of Conductor augmentation approx. overloading of feeder to be mitigate.



# **Loading Status:**

	LOADING OF PAHAL FEEDER AFTER PROPOSAL									
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status			
PAHAL	5.18	3.2	61.8	OK	3.87	74.7	OK			

# **Detailed Scope of Work:**

 Augmentation of Existing trunk line Conductor from 55sqmm to 100sqmm of length 3 km with interposing poles to strengthening of line and mitigate overloading issue.

	TP CENTRAL C	DISH	A DISTRIBUTION LIMITED				
	Name of the Division :-	BED					
	Name of the Sub-Division : -	RAS	ULGARH				
	Name of the Section : -	PHU	LNAKHARA				
	Name of the Work :-	Fron	rt- A Augmentation of Conductor for 11kv PAHAL feeder om 55 mm2 to 100 mm2 of length-3 Km with 15 no. erposing poles				
	Scope of work:-	Fron	Part- A - Augmentation of Conductor for 11kv PAHAL feeder From 55 mm2 to 100 mm2 of length-3 Km with 15 no. Interposing poles				
	Names of Schemes: -	TPC	ODL CAPEX Scheme				
	ABS	TRAC	T OF ESTIMATE				
SI. No.	Description		Amount				
1	PART-A -Augmentation of Conductor f 11kv PAHAL feeder From 55 mm2 to mm2 of length-3 Km with 15 no. Interposing poles						
2	Total Amount		₹ 22,51,611.38				
3	Total Amount (In Cr.)		0.23				

nter	posing poles  11kV Line Length with 40 Mtr. Span using	100 50 *	1M AAA Ca-	aduator						
	No. of DP required With AB Switch	100 SQ.N	IIIIAAA Cor							
	(Ref. Drawing No TPCODL-MVD-0001)			2						
MATERIALS OF DP With AB Switch										
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount					
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.8					
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.7					
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.7					
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.6					
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required = (9.56x2x0.35)	KG	88.50	13.384	1,184.4					
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required = (7.14x0.8x1)	KG	88.50	11.424	1,011.0					
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =(7.14x3x4)	KG	88.50	171.36	15,165.3					
8	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.2					
9	Danger Plate, 2 no's.	No.	94.40	4	377.6					
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.5					
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.0					
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.0					
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.0					
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.0					
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.0					
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.2					
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.8					
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.0					
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.0					
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.0					
21	11 KV pin insulator polymer	No.	236.00	6	1,416.0					
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.0					
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.0					
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.8					
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.2					
26	Black Paint	Ltr	259.60	2	519.2					
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.4					
Α			Total Cost o		2,67,760.9					
В	Stoc	k, Storag	e & Insurance		8,032.8					
С				otal (A+B)	2,75,793.7					
D			Contigency	-	8,273.8					
E		٦	Tools & Plants	@ 2% of C	5,515.8					
F			ansportation @		20,684.5					
G	Erection C	Charges @	0 5% on Trf/Bi	reaker/Joist	5,462.4					
Н	Erection Charges @ 10% of C (except Trf/Breaker/M	/PB/ H-Po	ole/HT stay se	t/PSC pole)	15,511.9					
I	Erection Charges @ 20% of	PSC pole	e- Not to be us	ed for 33kv						
J			Cun	n of (C to I)	3,31,242.3					

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00				
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00				
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00				
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00				
K		1	Total Civil	& Services	33,253.00				
L			•	Total (J+K)	3,64,495.39				
M	Other overheads (Including 6% supervision cha	arges) of L	(for DP With	AB Switch)	21,869.72				
N				Total (L+M)	3,86,365.11				
0			Total GST @	` '	69,545.72				
01			Total CESS (	• • •	3,863.65				
Р	Gross Total Material +Services (	(N+O+O1)	for DP With	AB Switch	4,59,774.48				
	11 Kv Line Length In KM with 40 Mtr. Span								
	(Ref. Drawing No TPCODL-MVD-0003)			3					
	MATERIALS FOR 11 KV Pin F	oints Wit	th WPB						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	15	3,97,754.25				
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	15	14,337.00				
3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	15	2,655.00				
4	Danger Plate, 1 no's. for each pole	No.	94.40	15	1,416.00				
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.51	399.44				
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	45.00	4,248.00				
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	18.05	1,597.78				
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	45	10,620.00				
9	Earthing of Support ( Coil Type )	No.	195.88	15	2,938.20				
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.93	347.81				
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	21.75	2,001.87				
12 13	100 mm2 AAAC Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	K.M. EA	64,900.00 405.27	9.27	6,01,623.00				
14	Black Paint	Ltr	259.60	15.0	3,894.00				
15	Yellow Colour Paint for Background	Ltr	259.60	30.0	7,788.00				
Α	Ĭ	1	Total Cost o		10,51,620.35				
В	Stoo	k, Storage	e & Insurance	i.e 3% of A	31,548.61				
С			Sub T	otal (A+B)	10,83,168.96				
D			Contigency	@ 3% of C	32,495.07				
E			ools & Plants		21,663.38				
			nsportation @	-	81,237.67				
F	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole								
G									
	Erection Charges @ 10% of C (except Trf/Breaker/M	VPB/ H-Pa	ole/HT stay se	. ,	67,348.21				
G		VPB/ H-Pa	ole/HT stay se e- Not to be us	. ,	67,348.21 - 13,06,397.63				

1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	6.75	43,875.00					
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.69	10,968.75					
3	Dismantling of 55sqmm AAAC	KM	6,300.00	9.27	58,401.00					
K			Total Civil	& Services	1,13,244.75					
L	Total Material+Services (I+K)									
М	Other overheads (Including 6% supervision charge	s) (for 11 k	(V Pin Points	With WPB)	85,178.54					
N	Sub Total (L+M) 15,04									
0	Total GST @ 18% of (N)									
01		② 1% of (N)	15,048.21							
Р	Gross Total Material +Services (N+O+O	With WPB	17,90,736.90							
	6% Supervision Charge	s Summaı	Υ							
2	Other overheads (Including 6% supervision ch	arges) of L	. (for DP With	AB Switch)	21,869.72					
5	Other overheads (Including 6% supervision charge	s) (for 11 k	(V Pin Points	With WPB)	85,178.54					
		Total (6	% supervisio	n charges)	1,07,048.27					
	Gross Total Sum	<u>mary</u>								
2	Gross Total Material +Service	s (N+O+O	1) for DP With	n AB Switch	4,59,774.48					
5	Gross Total Material +Services (N+O+	O1) for 11	KV Pin Points	s With WPB	17,90,736.90					
Q	Inspection Fee of Over He	ad Line (H	T) - Rs. 200 f	or 1st 5 km.	200.00					
R	Inspection Fee of Over Hea	d Line (HT	) - Rs. 30/ Ad	lditional Km						
S	Inspection Fee	of Drawing	g Checking ar	nd Approval	400.00					
Т	F	inal decisi	on by electric	al Inspector	500.00					
U	Gross Total Material, Services a	nd Inspec	tion Fees (P+	Q+R+S+T)	22,51,611.38					

- 1) To maintain reliability of Power Supply to Urban consumers by strengthening the line & mitigation of overloading issue.
- 2) The above arrangement will help to release power supply to upcoming potential consumers.
- 3) Safety to the public & working personnel will be improved since conductor snapping because of overloading is adressed through above proposal.

## 22.Refurbishment of 11KV Badagada Feeder for Mitigation of Overloading:

**Proposal:** Feeder refurbishment of existing Cuttack road feeder to bifurgate load of Badagada feeder on Cuttack Road feeder.

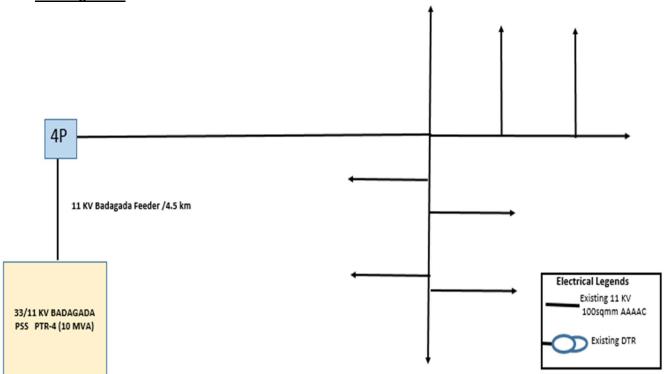
**Objective:** To Mitigate Overloading issue of 11 kV Badagada feeder by bifurgation of load on other nearby feeder with proposed connectivity.

#### **Existing Scenario:**

- At present, 11 KV Badagada feeder is emanating from 33/11 KV Badagada PSS. Urban consumers are connected from this feeder. Total length of this feeder is 8 KM and the peak load is 4.9 MVA. Existing trunk size is 100sqmm of Badagada feeder & the feeder loading has reached 142% of loading considering load growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.
- Cuttack road feeder cable is in faulty condition.

EXISTING LOADING OF BADAGADA FEEDER									
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status		
BADAGADA	5.18	4.92	95.0	OK	7.4	142.0	OVERLOAD		

#### **Existing SLD:**

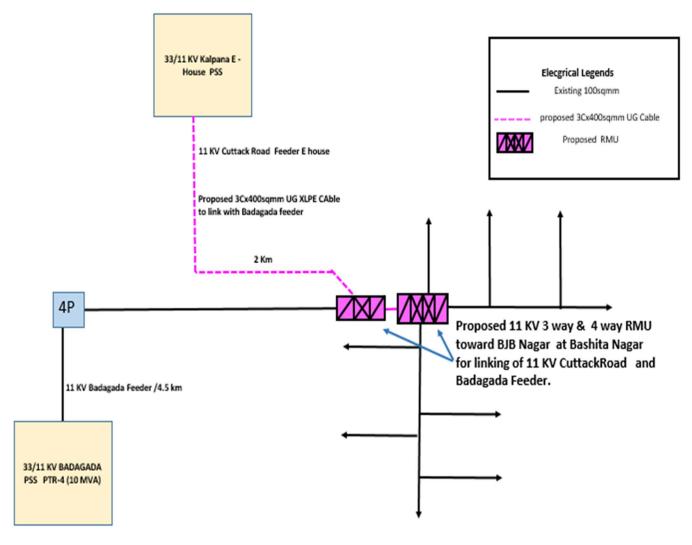


## **Proposed Scenario:**

- Replacement of existing faulty cable of Cuttack Road feeder with new Cable of length 2 KM and connect with Badagada feeder at BJB Nagar through proposed 4 way RMU to bifurcate Badagada Feeder load on two different feeder to mitigate Overloading issue.
- Installation of 4 way RMU proposed for feeder N-1connectivity and bifurcation of load.

	LOADING OF BADAGADA FEEDER w.r.t Proposal									
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status			
BADAGADA	5.18	2.9	56.4	OK	4.4	84.3	OK			
Cuttack Road	5.75	2.0	34.8	OK	2.99	52.0	OK			

# **Proposed SLD:**



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DUG	١.

TP CENTRAL	ODISHA DISTRIBUTION LIMITED	
Name of the Division :-	BED	
Name of the Sub-Division : -	RASULGARH	
Name of the Section : -	LAXMISAGAR	
Name of the Work :-	Construction of U/G Cable - 2 Km without spare (fro Nagar ) with 1 nos of 4 way & 3way RMU	m BADAGADA PSS to BJB
Scope of work:-	Part A- Construction of U/G Cable - 2 Km without sp PSS to BJB Nagar ) with 1 nos of 4 way RMU and 1-	•
Names of Schemes: -	TPCODL CAPEX Scheme	
	ABSTRACT OF ESTIMATE	
SI. No.	Description	Amount

3	Total Amount (In Cr.)		1.83
2	Total Amount	₹	1,82,79,539.20
1	Part A- Construction of U/G Cable - 2 Km without spare (from BADAGADA PSS to BJB Nagar ) with 1 nos of 4 way RMU and 1- 3 way RMU.	₹	1,82,79,539.20

	A- Construction of U/G Cable -2 Km without spare (fr and 1- 3 way RMU .	om BAI	DAGADA PSS	to BJB Nagar ) with	n 1 nos of 4 way
Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.4		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	1.6		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.00	17,70,000.00	35,40,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	8	29,874.06	2,38,992.48
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	7	11,306.76	79,147.32
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	5	16,406.72	82,033.60
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.40	6,94,910.00	2,77,964.00
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	1		
b	No. of 11kV 4Way RMU (LLVV)	nos.	1		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	5,57,710.00	5,57,710.00
2.3	Supply of RMU 3W 11kV 630A with metering unit (LLV+M)	Nos.	0	5,76,739.00	-
2.4	Supply of RMU 4W 11kV 630A with metering unit (LLVV+M)	Nos.	0	8,13,749.00	-
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2	56,515.00	1,13,030.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.0	77,990.00	1,55,980.00
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4	6,766.00	27,064.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion	on) (in R	s.)		63,79,471.80
Erect	ion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)

1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method								
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.40	94,500.00	37,800.00				
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	2,400.00	19,200.00				
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	1,900.80	13,305.60				
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	5	1,900.80	9,504.00				
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	1.6	28,00,000.00	44,80,000.00				
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.40	1,04,114.67	41,645.87				
2	Erection, Commissioning, Wiring and Testing of 11kV RMU								
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00				
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	15,000.00	15,000.00				
3	FRTU and OFC for RMU SCADA Automation								
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2.0	27,296.35	54,592.70				
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.0	1,22,488.27	2,44,976.54				
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	4.0	612.54	2,450.16				
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28				
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72				
	Sub Total (Erection Port	ion) (in R	Rs.)		49,50,623.87				
	Portion	I		Dota	A 4				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)				
2	Civil works for Prefabricated RCC foundation with supply of all materials								
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60				
3	Supply of GI Fencing with Gate around each RMU	sqmtr	40	3,600.00	1,44,000.00				
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00				
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	40	1,463.40	58,536.00				
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	67	1,012.00	67,804.00				
	Sub Total (Civil Portion) (in Rs.)								

# **Supplementary CAPEX FY: 2022-23**

В	Stock, Storage & Insurance @ 3 % of A	1,91,384.15
С	Sub Total (A+B)	65,70,855.95
D	Contingency @ 3 % of C	1,97,125.68
Е	Tools & Plants Charges @ 2% of C (considered for earthing items)	150.22
F	Transportation @ 7.5% of C	4,92,814.20
G	Erection Charges @ 10% of earthing items	751.12
Н	Total (C+D+E+F+G)	72,61,697.17
I	Sub Total (Erection Portion + Civil Portion)	72,26,402.72
J	Total Cost (H+I)	1,44,88,099.89
K	Other Overhead /(including Supervision Charges) @ 6 % of J	8,69,285.99
L	Total Estimated Capital Cost i.e. (J+K)	1,53,57,385.88
М	GST @ 18% of L	27,64,329.46
M1	CESS @ 1% of L	1,53,573.86
N	Grand Total (L+M)	1,82,75,289.20
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	1,82,79,539.20

- 1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
- 2) Mitigation of Overloading issue with load growth of 5 years.
- 3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply and provide N-1 connectivity to feeder.

#### 23.To mitigate 11kV Water Works Feeder Overloading issue :

**Proposal:** Construction of New 11 kV feeder from Badagada PSS to Akshay Sahi DTR with laying of 3Cx400sqmm UG XLPE CABLE of length 2.5 kM with installtion of 11 kV 3 Way RMU for linking of line.

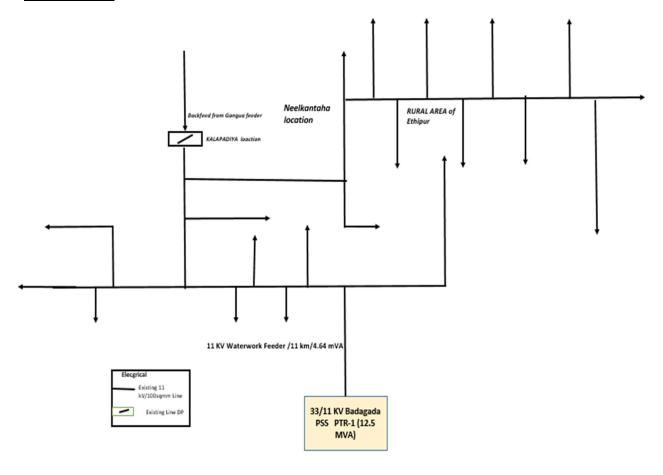
**Objective:** To Mitigate Overloading issue of 11 kV Water works feeder by bifurgation of load into two parts.

#### **Existing Scenario:**

- At present, 11 KV Water works feeder is emanating from 33/11 KV Badagada PSS. Urban consumers are connected from this feeder. Total length of this feeder is 11.56 KM and the peak load is 4.64 MVA. Existing trunk size is 100sqmm of Water works feeder & the feeder loading has reached 89.6% in existing scenario and 133.9% of loading with load growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11kV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

	EXISTING LOADING OF WATER WORKS FEEDER										
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status				
WATER WORKS	5.18	4.64	89.6	ОК	6.9	133.9	OVERLOAD				

# Existing SLD:

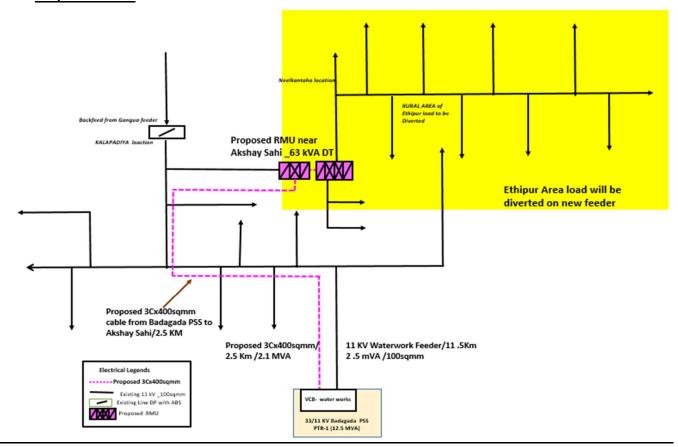


## **Proposed Scenario:**

- Laying of UG Cable of length 2.5 km through HDD from PSS to Akshay Sahi DTR with RMU installation to bifurcate Water works Feeder load on two feeder to mitigate Overloading issue.
- After proposal of New feeder approx. 2.1 MVA load to be diverted on new feeder.

	LOADING OF WATER WORKS w.r.t Proposal											
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status					
WATER WORKS	5.18	2.5	48.3	ОК	3.7	72.2	OK					
NEW WATER WORKS	5.75	2.1	37.2	OK	3.20	55.6	OK					

# **Proposed SLD:**



## **Detailed Scope of Work:**

- Laying of UG Cable of length 2.5 km from PSS to Abhay Sahi DTR.
- Installation of 1 nos of 3 way& 4way RMU near Abhay Sahi DTR for linking with feeder.

TP CENTRAL ODISHA DISTRIBUTION LIMITED						
Name of the Division :- BED						
Name of the Sub-Division : -	TEMPLE					
Name of the Section : -	BADAGADA					
Name of Feeder	WATER WORKS					

Name of the Wo			ole - 2.5 Km without spare hay Sahi DTR ) with 1 nos of 3		
		way RMU &4V	Vay RMU.		
Scope of wor	Part A- Construction of U/G Cable - 2.5 Km without spare (from BADAGADA PSS to Akshay Sahi DTR ) with 1 nos of 3 way RMU &4Way RMU.				
Names of Scher	nes: -	TPCODL CAP	EX Scheme		
	ABS	TRACT OF EST	<u>IMATE</u>		
SI. No.	Desci	ription		Amount	
1	Cable - 2.5 K spare (from B PSS to Aksha	Part A- Construction of U/G Cable - 2.5 Km without spare (from BADAGADA PSS to Akshay Sahi DTR ) with 1 nos of 3 way RMU & 4Way RMU		2,19,75,513.71	
2		Total Amount	₹	2,19,75,513.71	
3	Total A	mount (In Cr.)		2.20	

suppi	y Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
a b	Length of 11kV 3C, 400sqmm cable (open trench) Length of 11kV 3C, 400sqmm cable (HDD)	km km	0.5 2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	2.50	17,70,000.00	44,25,000.0
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	10	29,874.06	2,98,740.6
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	7	11,306.76	79,147.3
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.8
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.50	6,94,910.00	3,47,455.0
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	1		
b	No. of 11kV 4Way RMU (LLVV)	nos.	1		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.0
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	5,57,710.00	5,57,710.0
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.4
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.0
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	2.5	56,515.00	1,41,287.5
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	2.5	77,990.00	1,94,975.0
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	5	6,766.00	33,830.0
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	4	7,535.00	30,140.0
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.0
	Sub Total (Supply Portion) (in F	Rs.)			74,51,322.7
	ion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0.50	94,500.00	47,250.0
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	10	2,400.00	24,000.0
1.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	7	1,900.80	13,305.6
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.2
	Supply, Installation, Laying, Commissioning, Testing of 11kV,	km	2	28,00,000.00	56,00,000.0

			T		
	(extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.				
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.50	1,04,114.67	52,057.34
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
2.2	Erection of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	1	15,000.00	15,000.00
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2.5	27,296.35	68,240.88
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	2.5	1,22,488.27	3,06,220.68
3.3	Erection of Slraight through connectors (Plastic coupler) and accessories for OFC connection.	Set	5.0	612.54	3,062.70
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	4.0	1,225.07	4,900.28
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2.0	6,124.36	12,248.72
	Sub Total (Erection Portion) (in	Rs.)			61,68,889.39
	Portion	_			
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench			( constant	(*********)
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	350	700.00	2,45,000.00
1.1.b	Earth work excavation of hard rock	Cum	150	1,720.00	2,58,000.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	300	171.55	51,465.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	200	2,500.00	5,00,000.00
1.4	Back filling with excavated soil outside and above the trench  Damage of asphalt/tar road and other utilities and reconstructing	Cum	300	202.00	60,600.00
1.5	to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.5	26,43,670.63	13,21,835.32
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60
3	Supply of GI Fencing with Gate around each RMU	sqmtr	40	3,600.00	1,44,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	4	2,407.00	9,628.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	83	1,012.00	83,996.00
	Sub Total (Civil Portion) (in Re	s.)			27,67,643.72
Α	Sub Total (Supply Portion)				74,51,322.70
В	Stock, Storage & Insurance @ 3 % of A				2,23,539.68
С	Sub Total (A+B)				76,74,862.38
D	Contingency @ 3 % of C				2,30,245.87
E	Tools & Plants Charges @ 2% of C (considered for earthing items	)			150.22
F	Transportation @ 7.5% of C			5,75,614.68	
G	Erection Charges @ 10% of earthing items				751.12

# Supplementary CAPEX FY: 2022-23

I	Sub Total (Erection Portion + Civil Portion)	89,36,533.10
J	Total Cost (H+I)	1,74,18,157.37
K	Other Overhead /(including Supervision Charges) @ 6 % of J	10,45,089.44
L	Total Estimated Capital Cost i.e. (J+K)	1,84,63,246.81
М	GST @ 18% of L	33,23,384.43
M1	CESS @ 1% of L	1,84,632.47
N	Grand Total (L+M)	2,19,71,263.71
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	4000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	2,19,75,513.71

- 1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
- 2) Mitigation of Overloading issue with load growth of 5 years.
- 3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

## 24.To mitigate 11KV Badagada Lingraj Feeder Overloading issue :

**Proposal:** Construction of New 11 kV linking line from Badagada PSS to Proposed 4 way RMU with laying of 3Cx400sqmm UG XLPE CABLE of length 0.2 kM to divert load on Rajarani feeder.

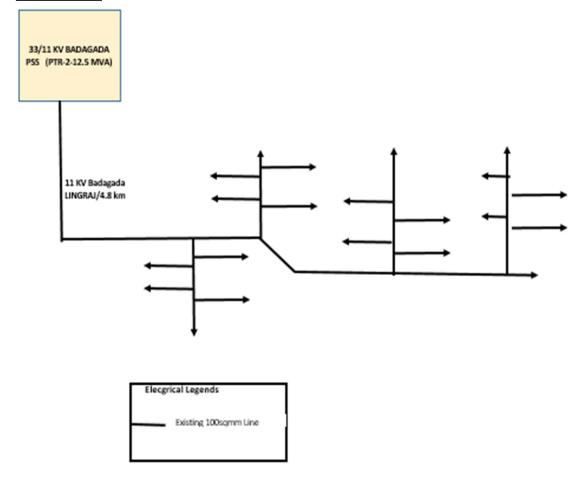
**Objective:** To Mitigate Overloading issue of 11 kV Badagada Lingraj feeder by bifurgation of load into two feeder.

#### **Existing Scenario:**

- At present, 11 KV Badagada Lingraj feeder is emanating from 33/11 KV Badagada PSS. Urban consumers are connected from this feeder. Total length of this feeder is 8 KM and the peak load is 4.91 MVA. Existing trunk size is 100sqmm of Badagada Lingraj feeder & the feeder loading has reached 94.8% in the existing scenario and 114.7% of loading with load growth against its circuit capacity.
- This feeder is mainly feeding Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

	EXISTING LOADING OF Badagada Lingraj FEEDER											
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 2 years LG	% Loading of feeder after 2 years LG	Feeder Overloading Status					
BADAGADA LINGRAJ	5.18	4.91	94.8	ОК	5.9	114.7	OVERLOAD					
RAJARANI	5.18	3.3	63.7	OK	4.0	77.1	OK					

### **Existing SLD**:

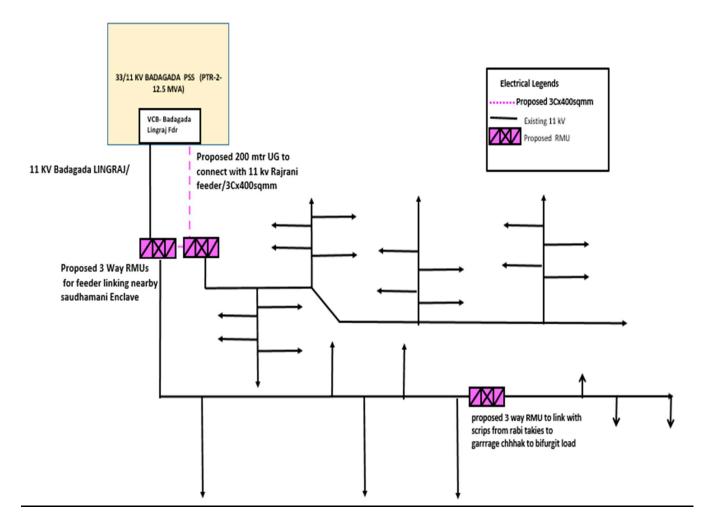


## **Proposed Scenario:**

- Laying of UG Cable of length 0.2 km from PSS to proposed 4W RMU to bifurcate load on two feeder to mitigate Overloading issue.
- Installation of 3 Nos of RMU for feeder connectivity and bifurcation of load.

	LOADING OF BADAGADA LINGRAJ FEEDER w.r.t Proposal										
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status				
BADAGADA LINGRAJ	5.18	3.50	67.6	OK	4.2	81.7	ОК				
RAJARANI	5.75	4.7	81.9	OK	5.7	99.1	ОК				

# **Proposed SLD**:



## **Detailed Scope of Work:**

 Laying of UG Cable of length 0.2 km from PSS to Proposed RMU and installation of 3 nos of 3 Way RMU for linking and load bifurcation of feeder load.

TP CENTRAL ODISHA DISTRIBUTION LIMITED			
Name of the Division :-	BED		
Name of the Sub-Division : -	TEMPLE		
Name of the Section : -	BADAGADA		

	Name of the Work :-	Part- A :Construction of U/G Cable - 0.2 Km with 1Run Spare in HDD  Work :- Method (from Badagada PSS to Rajararani fdr link) with 3 nos of 3  way RMU.				
	Scope of work:-	Part- A :Construction of U/G Cable - 0.2 Km with 1Run Spare in HDD Method (from Badagada PSS to Rajararani fdr link) with 3 nos of 3 way RMU.				
	Names of Schemes: -	TPCODL CAPEX Scheme				
		ABSTRACT OF ESTIMATE				
SI. No.		Description	Amount			
1	Part- A :Construction of U/0 Method (from Badagada P	₹ 72,14,433.26				
3		Total Amount	₹ 72,14,433.26			
4		Total Amount (In Cr.)	0.72			

	A :Construction of U/G Cable - 0.2 Km with 1Run Spare in with 3nos of 3way RMU.	HDD Me	thod (from E	Badagada PSS to	Rajarani fdr
Supp	ly Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km	0.2		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.40	17,70,000.00	7,08,000.00
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	3		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	3	3,99,034.00	11,97,102.00
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	39.60	88.50	3,504.60
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	6	1,239.00	7,434.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along UG cable.	km	0.2	56,515.00	11,303.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	0.2	77,990.00	15,598.00
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	6	7,535.00	45,210.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3	4,35,542.00	13,06,626.00
	Sub Total (Supply Portion) (i	n Rs.)			35,61,712.48
Erect	tion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)

1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0.4	28,00,000.00	11,20,000.00
2	Erection, Commissioning, Wiring and Testing of 11kV				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	3	15,000.00	45,000.00
3	FRTU and OFC for RMU SCADA Automation		-	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	0.2	27,296.35	5,459.27
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through HDD.	km	0.2	1,22,488.27	24,497.65
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	6.0	1,225.07	7,350.42
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	3.0	6,124.36	18,373.08
<u> </u>	Sub Total (Erection Portion) (	(in Rs.)			12,58,696.42
Civil SI. No.	Sub Total (Erection Portion) (  Portion  Description of items	(in Rs.) Unit	Quantity	Rate (in Rs.)	12,58,696.42  Amount (in Rs.)
SI.	Portion		Quantity		Amount
SI. No.	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply		<b>Quantity</b>		Amount
SI. No. 2	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU	Unit	-	(in Rs.)	Amount (in Rs.)
SI. No. 2	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU	Unit Nos.	3	(in Rs.) 23,145.30	Amount (in Rs.)
SI. No. 2 2.1 3	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Unit Nos. sqmtr	3 60	(in Rs.) 23,145.30 3,600.00	Amount (in Rs.)  69,435.90 2,16,000.00
SI. No. 2 2.1 3	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Unit  Nos. sqmtr Set Mtr Nos.	3 60 6	23,145.30 3,600.00 2,407.00	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00
\$I. No.  2 2.1 3 4 5	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable	Unit  Nos. sqmtr Set Mtr Nos.	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00  14,442.00  93,657.60
\$I. No.  2 2.1 3 4 5	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Unit  Nos. sqmtr Set Mtr Nos.	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50
\$I. No. 2 2.1 3 4 5	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in	Unit  Nos. sqmtr Set Mtr Nos.	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50
\$I. No. 2 2.11 3 4 5 6	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in	Unit  Nos. sqmtr Set Mtr Nos.	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50 35,61,712.48 1,06,851.37
\$I. No.  2 2.1 3 4 5 6 A B	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Sub Total (Supply Portion)  Stock, Storage & Insurance @ 3 % of A	Unit  Nos. sqmtr Set Mtr Nos.	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50 35,61,712.48
\$I. No.  2  2.1  3  4  5  6  A  B	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Sub Total (Supply Portion)  Stock, Storage & Insurance @ 3 % of A  Sub Total (A+B)	Unit  Nos. sqmtr Set Mtr Nos. Rs.)	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50 35,61,712.48 1,06,851.37 36,68,563.85
\$I. No.  2 2.1 3 4 5 6  A B C D	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Sub Total (Supply Portion)  Stock, Storage & Insurance @ 3 % of A  Sub Total (A+B)  Contingency @ 3 % of C	Unit  Nos. sqmtr Set Mtr Nos. Rs.)	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50 35,61,712.48 1,06,851.37 36,68,563.85 1,10,056.92
\$I. No.  2 2.1 3 4 5 6  A B C D E	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Sub Total (Supply Portion)  Stock, Storage & Insurance @ 3 % of A  Sub Total (A+B)  Contingency @ 3 % of C  Tools & Plants Charges @ 2% of C (considered for earthing ite	Unit  Nos. sqmtr Set Mtr Nos. Rs.)	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50 35,61,712.48 1,06,851.37 36,68,563.85 1,10,056.92 225.34
\$I. No. 2 2.11 3 4 5 6  A B C D E F	Portion  Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 11kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion) (in Sub Total (Supply Portion)  Stock, Storage & Insurance @ 3 % of A  Sub Total (A+B)  Contingency @ 3 % of C  Tools & Plants Charges @ 2% of C (considered for earthing ite Transportation @ 7.5% of C	Unit  Nos. sqmtr Set Mtr Nos. Rs.)	3 60 6	23,145.30 3,600.00 2,407.00 1,463.40	Amount (in Rs.)  69,435.90 2,16,000.00 14,442.00 93,657.60 7,084.00 4,00,619.50 35,61,712.48 1,06,851.37 36,68,563.85 1,10,056.92 225.34 2,75,142.29

# Supplementary CAPEX FY: 2022-23

J	Total Cost (H+I)	57,14,430.99
K	Other Overhead /(including Supervision Charges) @ 6 % of J	3,42,865.86
L	Total Estimated Capital Cost i.e. (J+K)	60,57,296.85
М	GST @ 18% of L	10,90,313.43
M1	CESS @ 1% of L	60,572.97
N	Grand Total (L+M)	72,08,183.26
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	6000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	72,14,433.26

- 1) To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
- 2) Mitigation of Overloading issue with load growth of 2 years.
- 3) Faulty part of feeder can be isolate through proposed RMU to provide reliable supply.

## 25.Refurbishment of 11kV Mancheswar Feeder -3 to mitigate Overloading:

**Proposal:** Augmentation of Existing 80 sqmm AAAC Trunk Conductor to 100sqmm of length 2.5 kM from Mancheswar PSS to trunk line of Samagadia area and Linking with Bhotapada feeder to divert load for mitigation of Overloading Issue.

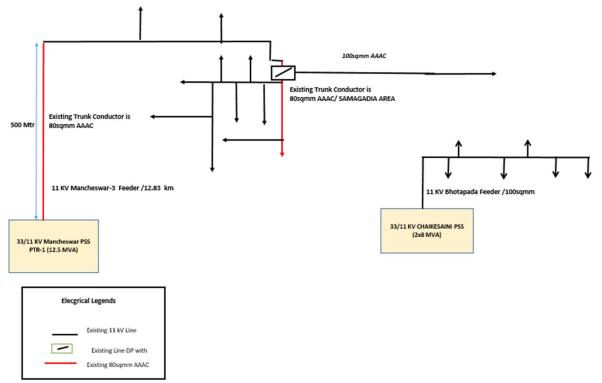
**Objective:** To Mitigate Overloading of 11 kV Mancheswar feeder-3 by augmentation of Trunk Conductor Conductor Size from 80 sqmm to 100sqmm to enhance capacity of Conductor and linking with Bhotapada feeder of Chaikesaini PSS to divert load.

#### **Existing Scenario:**

- At present, 11 KV Mancheswar feeder-3 is emanating from 33/11 KV Mancheswar PSS. Urban
  consumers are connected from this feeder. Total length of this feeder is 12.8 KM. Existing trunk
  size is 80 sqmm of Mancheswar feeder & the feeder loading has reached 114.5% in existing
  and 138.6% of loading with load growth against its circuit capacity.
- This feeder is feeding both Urban and Industrial consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.

EXISTING LOADING OF Mancheswar FEEDER-3							
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 2 years LG	% Loading of feeder after 2 years LG	Feeder Overloading Status
MANCHESWAR FDR-3	4.51	5.17	114.5	OVERLOAD	6.3	138.6	OVERLOAD

#### **Existing SLD:**



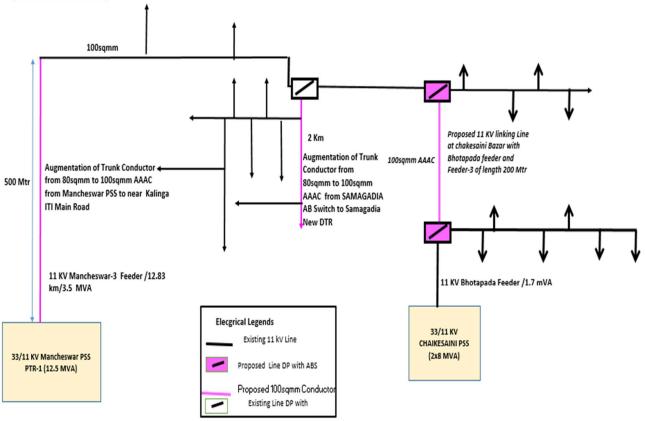
### **Proposed Scenario:**

 Augmentation of existing trunk size from 80 sqmm to 100sqmm of length 2.5 km from Mancheswar PSS to Samagadia Area. And linking of 11 KV line with existing Bhotapada feeder emanated from Chaieksaini PSS with 200 Mtr connectivity of linking line along with DP AB switch to bifurcate load of feeder.

• After proposal of New feeder approx. 1.7 MVA load to be diverted on new feeder.

LOADING OF MANCHESWAR FEEDER-3 w.r.t Proposal									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status		
MANCHESWAR FDR-3	5.18	3.50	67.6	OK	4.2	81.7	ОК		
BHOTAPADA	5.18	1.7	32.2	OK	2.0	39.0	OK		

### **Proposed SLD**:



# **Detailed Scope of Work:**

- Augmentation of 11kV Trunk line of length 2.5 KM from Mancheswar PSS to Samagadia
   Area from 80sqmm to 100sqmm AAAC.
- Linking of Mancheswar Feeder-3 to Bhotapada feeder of Chakeisiani PSS using 100sqmm AAAC conductor of length 200 Mtr and 2 nos of DP with AB Switch for connectivity and load bifurcation.

TP CENTRAL ODISHA DISTRIBUTION LIMITED					
Name of the Division :-	BED				
Name of the Sub-Division : -	RASULGARH				
Name of the Section : -	MANCHESWAR				
FEEDER Name	MANCHESWAR FEEDER-3				
Name of the Work :-	Part- A- Augmentation of Conductor for 11kv Mancheswar feeder-3 From 80 mm2 to 100 mm2 of length-2.5 Km and 2 no of Line DP with AB switch .				

	Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor For connectivity of fdr -3 with Botapada feeder of length-0.2 Km				
Scope of work:-	Part- A- Augmentation of Conductor for 11kv Mancheswar mm2 to 100 mm2 of length-2.5 Km and 2 no of Line DP wit Part- B :-Construction of 11 KV line using 100sqmm AAAC connectivity of fdr -3 with Botapada feeder of length-0.2 Km	th AB switch . Conductor For			
Names of Schemes: -	TPCODL CAPEX Scheme				
	ABSTRACT OF ESTIMATE				
SI. No.	Description	Amount			
1	Part- A- Augmentation of Conductor for 11kv RASULGARH feeder From 55 mm2 to 100 mm2 of length-1.5 Km with 8 no. Interposing poles and 1no of Line DP with AB switch.	₹ 19,78,473.36			
2	Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor For connectivity of fdr -3 with Botapada feeder of length-0.2 Km	₹ 2,16,843.84			
3	Total Amount	₹ 21,95,317.21			
4	Total Amount (In Cr.)	0.22			

Part- A- Augmentation of Conductor for 11kv Mancheswar feeder-3 From 80 mm2 to 100 mm2 of length-2.5 Km and	d
2 no of Line DP with AB switch	

# 11kV Line Length with 40 Mtr. Span using 100 SQ.MM. -AAA Conductor

No. of DP required With AB Switch
(Ref. Drawing No.- TPCODL-MVD-0001)

	MATERIALS OF DP With AB Switch							
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80			
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72			
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77			
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68			
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48			
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02			
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required = (7.14x3x4)	KG	88.50	171.36	15,165.36			
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23			
9	Danger Plate, 2 no's.	No.	94.40	4	377.60			
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52			
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00			
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00			
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00			
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00			
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00			
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26			
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80			

18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07		
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00		
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00		
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00		
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00		
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00		
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80		
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21		
26	Black Paint	Ltr	259.60	2	519.20		
27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40		
Α		Total Cost of materi					
В	Sto	ck, Storag	e & Insurance	i.e 3% of A	8,032.83		
С			Sub T	otal (A+B)	2,75,793.76		
D			Contigency	@ 3% of C	8,273.81		
Е		٦	Γools & Plants	@ 2% of C	5,515.88		
F		Tra	ansportation @	) 7.5% of C	20,684.53		
G	Erection (	Charges @	5% on Trf/Bi	reaker/Joist	5,462.49		
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	VPB/ H-Po	ole/HT stay se	t/PSC pole)	15,511.92		
I	Erection Charges @ 20% of	PSC pole	e- Not to be us	ed for 33kv	-		
J			Sun	of (C to I)	3,31,242.39		
	Civil & Services						
SI.				Total	Total		
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount		
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing	No.	2,250.00	4	9,000.00		
2	& Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00		
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00		
K		,	Total Civil	& Services	33,253.00		
L			-	Total (J+K)	3,64,495.39		
М		\ - <b>£</b>	/for DD With	AR Switch)	04 000 70		
IVI	Other overheads (Including 6% supervision ch	ding 6% supervision charges) of L (for DP With AB Switch)					
N	Other overheads (Including 6% supervision ch	arges) or i	•	Total (L+M)	21,869.72 <b>3,86,365.11</b>		
	Other overheads ( Including 6% supervision ch	arges) or i	Sub 1	Total (L+M)	3,86,365.11		
N	Other overheads (Including 6% supervision ch	arges) of I	Sub 1 Total GST @	Total (L+M) 18% of (N)	<b>3,86,365.11</b> 69,545.72		
<b>N</b>			Sub 1 Total GST @ Total CESS @	Total (L+M)  18% of (N)  1% of (N)	<b>3,86,365.11</b> 69,545.72 3,863.65		
<b>N</b> O O1	Other overheads ( Including 6% supervision ch		Sub 1 Total GST @ Total CESS @	Total (L+M)  18% of (N)  1% of (N)	<b>3,86,365.11</b> 69,545.72		
<b>N</b> O O1			Sub 1 Total GST @ Total CESS @	Total (L+M)  18% of (N)  1% of (N)	<b>3,86,365.11</b> 69,545.72 3,863.65		
<b>N</b> O O1	Gross Total Material +Services  11 Kv Line Length In KM with 40 Mtr. Span	(N+O+O1	Sub 1 Total GST @ Total CESS @ ) for DP With	Total (L+M)  18% of (N)  1% of (N)  AB Switch	<b>3,86,365.11</b> 69,545.72 3,863.65		
<b>N</b> O O1	Gross Total Material +Services  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)	(N+O+O1	Sub 1 Total GST @ Total CESS @ ) for DP With	Total (L+M)  18% of (N)  1% of (N)  AB Switch	<b>3,86,365.11</b> 69,545.72 3,863.65		
N O O1 P SI.	Gross Total Material +Services  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poir	(N+O+O1	Sub 1 Total GST @ Total CESS @ ) for DP With	Total (L+M)  18% of (N)  1% of (N)  AB Switch  2.5	3,86,365.11 69,545.72 3,863.65 4,59,774.48		
N O O1 P SI. No. 1	Gross Total Material +Services  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poin  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	(N+O+O1	Sub 1 Total GST @ Total CESS @ ) for DP With  VPB  Unit Rate 26,516.95	7otal (L+M) 18% of (N) 20 1% of (N) AB Switch 2.5  Total Quantity 13.0	3,86,365.11 69,545.72 3,863.65 4,59,774.48 Total Amount 3,44,720.35		
N O O1 P SI. No.	Gross Total Material +Services  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poin  Description of Materials	(N+O+O1  nts With V  Unit  No.	Sub 1 Total GST @ Total CESS @ ) for DP With  VPB  Unit Rate	Total (L+M) 18% of (N) 1% of (N) AB Switch 2.5  Total Quantity	3,86,365.11 69,545.72 3,863.65 4,59,774.48 Total Amount		
N O O1 P SI. No. 1	Gross Total Material +Services  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poin  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)	(N+O+O1  nts With V  Unit  No. No.	Sub 1 Total GST @ Total CESS @ ) for DP With  VPB  Unit Rate 26,516.95 955.80 177.00	Total (L+M) 18% of (N) 18% of (N) 1% of (N) AB Switch 2.5  Total Quantity 13.0 13	3,86,365.11 69,545.72 3,863.65 4,59,774.48 Total Amount 3,44,720.35 12,425.40 2,301.00		
N O O1 P SI. No. 1 2 3	Gross Total Material +Services  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poin  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles  11 KV V cross Arm (10.2 K.g. each)	(N+O+O1  nts With V  Unit  No.  No.  No.	Sub 1 Total GST @ Total CESS @ ) for DP With  WPB  Unit Rate 26,516.95 955.80	7 otal (L+M) 18% of (N) 2 1% of (N) AB Switch 2.5  Total Quantity 13.0 13 13	3,86,365.11 69,545.72 3,863.65 4,59,774.48 Total Amount 3,44,720.35 12,425.40		

		1	<u> </u>	ı	
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	15.65	1,384.74
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	39	9,204.00
9	Earthing of Support ( Coil Type )	No.	195.88	13	2,546.44
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.41	301.43
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	18.85	1,734.95
12	100 mm2 AAAC	K.M.	64,900.00	7.73	5,01,352.50
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-
14	Black Paint	Ltr	259.60	13.0	3,374.80
15	Yellow Colour Paint for Background	Ltr	259.60	26.0	6,749.60
Α			Total Cost of	f materials	8,91,350.20
В	Stock, Storage & Insurance i.e 3% of A				
С	Sub Total (A+B)				
D	Contigency @ 3% of C				27,542.72
Е			Tools & Plants	@ 2% of C	18,361.81
F	Transportation @ 7.5% of C				
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				
Н	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				
ı	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				
J	Sum of (C to I)				
	Civil & Services			- ( /	11,06,908.02
4	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =	0 1	0.500.00	5.05	00.005.00
1	0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125	Cu.mtr	6,500.00	5.85	38,025.00
2	Cu mtr	Cu.mtr	6,500.00	1.46	9,506.25
3	Dismantling of 55sqmm AAAC	KM	6,300.00	7.73	48,667.50
K		Total Civil & Services			
L	Total Material+Services (I+K)				12,03,106.77
М	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				72,186.41
N	Sub Total (L+M)				
0	Total GST @ 18% of (N)				2,29,552.77
01	Total CESS @ 1% of (N)			12,752.93	
Р	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB				15,17,598.88
	6% Supervision Charges S	ummary			
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				21,869.72
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)			72,186.41	
	Total (6% supervision charges)				94,056.13
	Gross Total Summary				
2	Gross Total Material +Services (N+O+O1) for DP With AB Switch			4,59,774.48	
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB			15,17,598.88	
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.			200.00	
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km				
S	Inspection Fee of Drawing Checking and Approval			400.00	
T	Final decision by electrical Inspector				500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)				19,78,473.36
<b>J</b>	Si Si Si Total Material, Gel Vices a	spec		~·····)	10,10,710.00

Part- B :-Construction of 11 KV line using 100sqmm AAAC Conductor For connectivity of fdr -3 with Botapada feeder of length-0.2 Km  11kV Line Length with 40 Mtr. Span using 100 SQ.MMAAA Conductor							
MATERIALS FOR 11 KV Pin Points With WPB							
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.) Interposing poles	No.	26,516.95	3	79,550.85		
2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	3	2,867.40		

3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	3	531.00	
4	Danger Plate, 1 no's. for each pole	No.	94.40	3	283.20	
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.90	79.89	
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	9.00	849.60	
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	3.61	319.56	
8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	9	2,124.00	
9	Earthing of Support ( Coil Type )	No.	195.88	3	587.64	
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.79	69.56	
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	4.35	400.37	
12	100 mm2 AAAC	K.M.	64,900.00	0.62	40,108.20	
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-	
14	Black Paint	Ltr	259.60	3.0	778.80	
15	Yellow Colour Paint for Background	Ltr	259.60	6.0	1,557.60	
Α			Total Cost of		1,30,107.67	
В	<u> </u>	Stock, Sto	rage & Insurance		3,903.23	
С				otal (A+B)	<b>1,34,010.90</b> 4,020.33	
D	Contigency @ 3% of C					
Е	Tools & Plants @ 2% of C					
F	Transportation @ 7.5% of C					
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole					
Н	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)					
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv				1,60,066.48	
J	Sum of (C to I)					
	<u>Civil &amp; Service</u>	<u>es</u>				
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.35	8,775.00	
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.34	2,193.75	
K	Total Civil & Services				10,968.75	
L	Total Material+Services (I+K)				1,71,035.23	
М	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				10,262.11	
N	Sub Total (L+M)				1,81,297.35	
0	Total GST @ 18% of (N)				32,633.52	
01	Total CESS @ 1% of (N)				1,812.97	
Р	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB				2,15,743.84	
	6% Supervision Charges Summary					
1	Other overheads (Including 6% supervision charges) of L (for DP Without AB Switch)				-	
2	Other overheads (Including 6% supervision charges) of L (for DP With AB Switch)				-	
3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree Angle)				-	
4	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)					
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)				10,262.11 <b>10,262.11</b>	
	Total (6% supervision charges)					
	Gross Total Summary					
5	Gross Total Material +Services (N+O+O1) for 11 KV Pin Points With WPB			2,15,743.84		
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.				200.00	
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km					
S	Inspection Fee of Drawing Checking and Approval				400.00	
Т	Final decision by electrical Inspector				500.00	
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)				2,16,843.84	

1)	To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
2)	Mitigation of Overloading issue with load growth of 2 years.
-	Faulty part of feeder can be isolate through proposed DP to provide reliable supply.

#### 26.Refurbishment of 11KV Mancheswar Feeder -2 to mitigate Overloading:

Proposal: Installation of 11 KV 4Way RMU for linking and bigurcation of load into two parts.

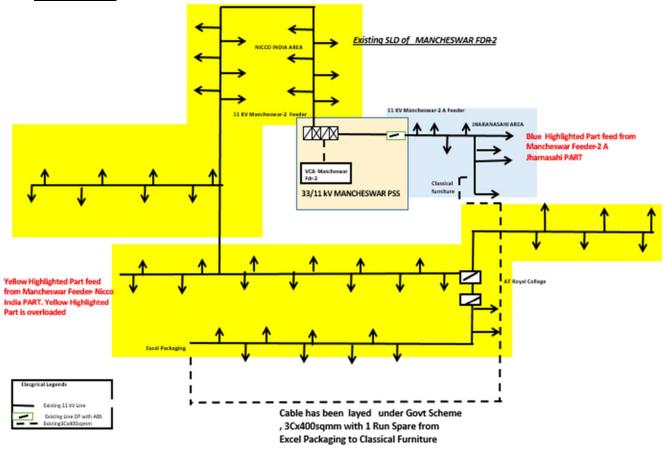
**Objective:** To Mitigate Overloading issue of 11 kV Mancheswar feeder -2 by bifurgation of load into two parts through connectivity with RMU.

#### **Existing Scenario:**

- At present, 11 KV Mancheswar feeder-2 is emanating from 33/11 KV Mancheswar PSS. Urban
  consumers are connected from this feeder. Total length of this feeder is 10.36 KM .Existing
  trunk size is 100 sqmm of Mancheswar feeder & the feeder loading has reached 89% in the
  existing scenario and 133.1% of loading with load growth against its circuit capacity.
- This feeder is feeding both Urban and Industrial consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth of the residential building.
- Cable is already laying at site of 3Cx400sqmm with spare to be used for Bifurcation of load.

EXISTING LOADING OF Mancheswar FEEDER-2											
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status				
MANCHESWAR FDR-2	5.18	4.61	89.0	ОК	6.9	133.1	OVERLOAD				

#### **Existing SLD:**



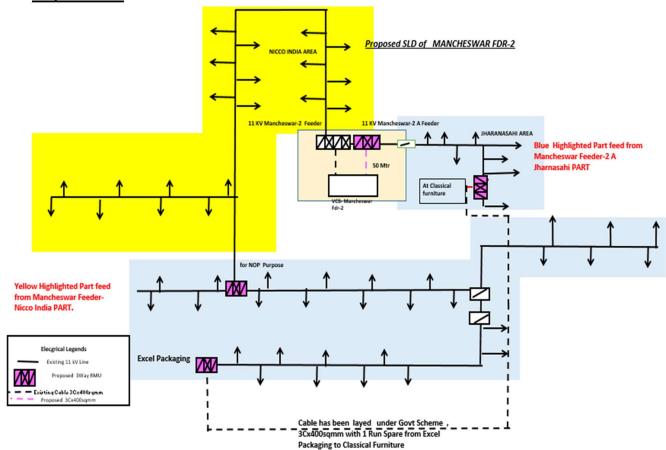
#### **Proposed Scenario:**

 Installation of 11 KV 4 way RMU at Royal College to connect Mancheswar Fdr-2 and Mancheswar feeder -2A through proposed RMU to bifurcate load of feeder into two parts. And 2 Nos of DP with AB switch is proposed for isolation.

- After proposal ,approx. 2 MVA load to be diverted on other feeder.
- · Cable is already laying at site for linking .

	LOADING OF MANCHESWAR FEEDER-2 w.r.t Proposal										
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status				
MANCHESWAR FDR-2	5.18	2.60	50.2	ОК	4.2	80.5	ОК				
MANCHESWAR FDR-2 A	5.18	2.0	38.8	ОК	3.2	62.2	ОК				

#### **Proposed SLD**:



#### **Detailed Scope of Work:**

 Linking of Mancheswar Feeder-2 and Mancheswar Feeder -2A through existing cable from Excel packaging to Classical Furniture with proposed 4 Nos of 3Way RMU for bifurcation of load and isolation of Faulty parts.

#### **BOQ**:

	TP CENTRAL ODISHA DISTRIBUTION LIMITED						
Name of the Division :-	BED						
Name of the Sub-Division : -	RASULGARH						
Name of the Section : -	MANCHESWAR						
Name of feeder	MANCHESWAR -2						
Name of the Work :-	Installation of 4nos of - 3 Way RMU for linking of line and laying of UG Cable of 50 mtr from VCB to proposed RMU.						
Scope of work:-	PART A-Installation of 4nos of - 3 Way RMU for linking of line and laying of UG Cable of 50 mtr from VCB to proposed RMU.						

Names of Schemes: -	TPCODL CAPEX Scheme		
	ABSTRACT OF ESTIMATE		
SI. No.	Description		Amount
1	PART A-Installation of 4nos of - 3 Way RMU for linking of line and laying of UG Cable of 50 mtr from VCB to proposed RMU.	₹	66,01,816.98
2	Total Amount	₹	66,01,816.98
3	Total Amount (In Cr.)		0.6

Suppl	y Portion				
SI.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories			, -,	- 7
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.05		
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.05	17,70,000.00	88,500.00
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	16,406.72	1,31,253.76
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.05	6,94,910.00	34,745.50
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	4		
b	No. of 11kV 4Way RMU (LLVV)	nos.	0		
2.2	Supply of 11kV RMU 4 Way, 2 Iso & 2 Brk 630A (LLVV)	Nos.	0	5,57,710.00	_
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	52.80	88.50	4,672.80
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	8	1,239.00	9,912.00
4	FRTU and OFC for RMU SCADA Automation				
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	8	7,535.00	60,280.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4	4,35,542.00	17,42,168.00
	Sub Total (Supply Portion)	(in Rs.)			38,10,074.43
Erecti	on Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.05	94,500.00	4,725.00

1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60			
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,900.80	15,206.40			
2	Erection, Commissioning, Wiring and Testing of 11kV RMU							
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	4	15,000.00	60,000.00			
3	FRTU and OFC for RMU SCADA Automation							
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	8.0	1,225.07	9,800.56			
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	4.0	6,124.36	24,497.44			
	Sub Total (Erection Portion	ı) (in Rs.	)		1,49,733.96			
Civil P	ortion							
SI.	Description of items	Unit	Quantity	Rate	Amount			
No.	•	Oilit	Quantity	(in Rs.)	(in Rs.)			
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench							
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)							
1.1.a	Earth work excavation of <b>soil</b>	Cum	35	700.00	24,500.00			
1.1.b	Earth work excavation of hard rock	Cum	15	1,720.00	25,800.00			
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	30	171.55	5,146.50			
1.3	Filling with fine river sand after laying of cable inside the trench		20	2,500.00	50,000.00			
1.4	Back filling with excavated soil outside and above the trench	Cum	30	202.00	6,060.00			
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.05	26,43,670.63	1,32,183.53			
2	Civil works for Prefabricated RCC foundation with supply of all materials							
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	4	23,145.30	92,581.20			
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	80	3,600.00	2,88,000.00			
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	8	2,407.00	19,256.00			
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,463.40	93,657.60			
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	2	1,012.00	2,024.00			
	Sub Total (Civil Portion)	(in Rs.)			7,39,208.83			
Α	Sub Total (Supply Portion)				38,10,074.43			
В	Stock, Storage & Insurance @ 3 % of A				1,14,302.23			
С	Sub Total (A+B)							
D	Contingency @ 3 % of C				1,17,731.30			
E	Tools & Plants Charges @ 2% of C (considered for earthing	items)			300.45			
F	Transportation @ 7.5% of C				2,94,328.25			
G	Erection Charges @ 10% of earthing items				1,502.23			
Н	Total (C+D+E+F+G)				43,38,238.89			
1	Sub Total (Erection Portion + Civil Portion)	Sub Total (Erection Portion + Civil Portion)						

### Supplementary CAPEX FY: 2022-23

J	Total Cost (H+I)	52,27,181.69
_	Total Goot (TTT)	02,27,101100
K	Other Overhead /(including Supervision Charges) @ 6 % of J	3,13,630.90
L	Total Estimated Capital Cost i.e. (J+K)	55,40,812.59
М	GST @ 18% of L	9,97,346.27
M1	CESS @ 1% of L	55,408.13
N	Grand Total (L+M)	65,93,566.98
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of RMU - Rs. 2000/ RMU	8000
R	Inspection Fee of Drawing Checking and Approval	
S	Final decision by electrical Inspector	
Т	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	66,01,816.98

### **Benefit:**

- 1)To maintain reliability of Power Supply to Urban consumers through mitigate Overloading issue of feeder.
- 2) Mitigation of Overloading issue with load growth of 5 years.
- 3. Faulty part of feeder can be isolate through proposed DP to provide reliable supply.

## 27. Refurbishment of 11KV OTM feeder and Manguli feeder for Mitigation of Overloading of Manguli feeder

#### Proposal:

Proposal for Refurbishment of 11KV OTM feeder and Manguli feeder for Mitigation of Overload of Manguli feeder.

**Objective:** To mitigation of Overloading issue of 11KV Manguli feeder.

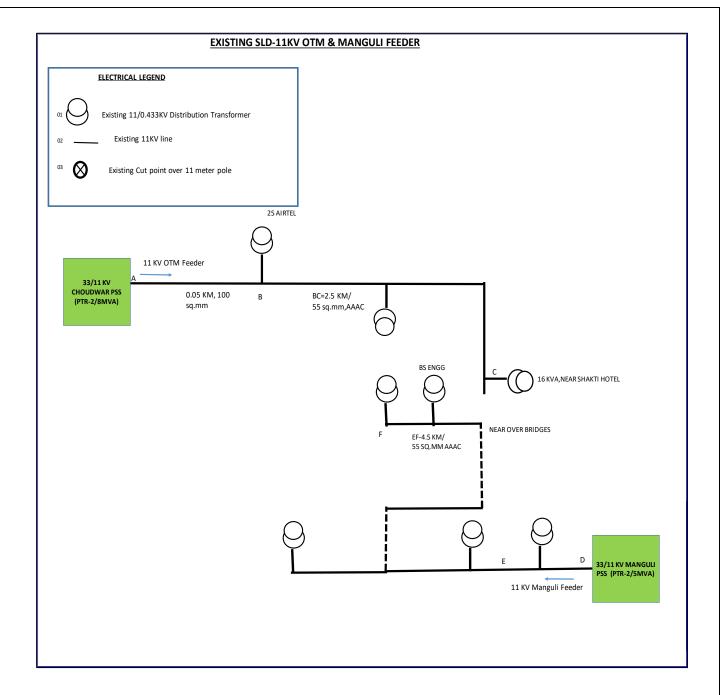
#### **Existing Scenario:**

- At present, 11 KV Manguli feeder is emanating from 33/11 KV Tangi PSS. Rural and Urban consumers are connectred from this feeder. Total length of this feeder is approx.45 KM and the peak load is 3.58 MVA. In existing scenrio, 11 KV Manguli feeder, which having minimum trunk conductor size is 55 sq.mm. Loading of 11 KV Manguli feeder was 3.58 MVA w.r.to feeder capacity of 3.54 MVA. Considering load growth, projected loading would be 4.33 MVA for year 24-25. And 11 KV OTM feeder was 1.41 MVA w.r.to feeder capacity of 3.54 MVA. Considering load growth, projected loading would be 1.706 MVA for year 24-25.
- Frequenty faults are observed due to lengthy feeder and over loaded.
- This feeder is mainly feeding Semi-Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth, augmentation of this feeder is proposed for providing continuous power supply to consumers in semi-urban areas.

	EXISTING LOADING OF 11 KV MANGULI FEEDER (FED FROM TANGI PSS)									
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 2 years LG	% Loading of feeder after 2 years LG	Feeder Overloading Status			
MANGULI	3.54	3.58	101.12	OVERLOAD	4.33	122.32	OVERLOAD			

	EXISTING LOADING OF 11 KV OTM FEEDER (FED FROM CHOUDWAR PSS)									
11 kV kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 2 years LG	% Loading of feeder after 2 years LG	Feeder Overloading Status			
OTM	3.54	1.41	39.83	OK	1.706	48.19	OK			

#### **Existing SLD (Summer:**



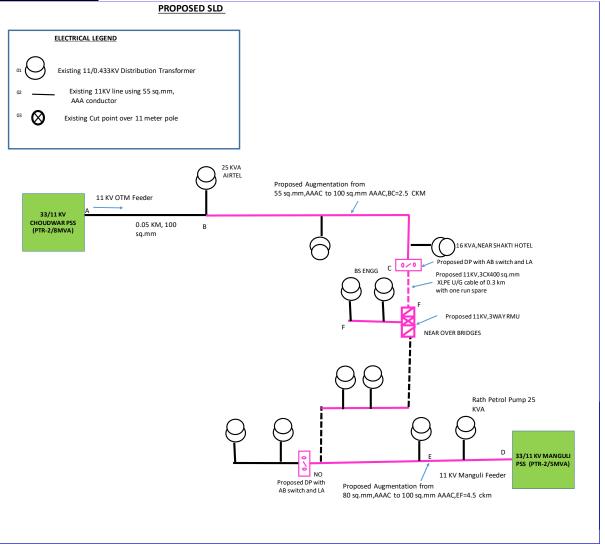
#### **Proposed Scenario:**

- Augmentation of O/H line of 4.5 Ckm length of 11 KV Manguli feeder of Tangi PSS is proposed from near Tangi PSS to near Over Bridge from 55 sq.mm to 100 sq.mm, AAAC conductor for mitigating over loading condition.
- To avoid frequent faults in 11 KV Manguli feeder due to lengthy networks, part load of Manguli feeder will be transferred to OTM feeder of Choudwar PSS.
- Hence Augmentation of O/H line of 2.5 CKM length of 11 KV OTM feeder of Choudwar PSS is proposed from near Choudwar PSS to near Shakti hotel. And linking line of 0.3 km U/G of 3CX400 sq.mm XLPE U/G with installation of 1 no of 11kv 3 WAY RMU proposed.
- Under proposed scenario, 11 KV Manguli feeder of Tangi PSS will be able to feed continuous power supply to consumers of semi urban areas. And proposed loading would be 2.24 MVA with respect to feeder capacity 5.18 MVA.
- Under proposed scenario, 11 KV OTM feeder of Choudwar PSS will be able to feed continuous power supply to consumers of semi urban areas. And proposed loading would be 2.24 MVA with respect to feeder capacity 5.18 MVA.

	PROPOSED LOADING SCENARIO AFTER PROPOSAL									
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status			
MANGULI	5.18	2.24	43.40	OK	2.71	52.32	OK			

	PROPOSED LOADING SCENARIO AFTER PROPOSAL									
11 kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	10% Load Growth Considering 2 Yrs.	% Loading of feeder after 2 years LG	Feeder Overloading Status			
OTM	5.18	2.74	52.97	OK	3.31	63.91	OK			

# **Proposed SLD:**



#### **Detailed Scope of Work:**

- Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sq.mm XLPE cable from near Shakti hotel of 11 KV OTM feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load transfer from Manguli feeder to OTM feeder.
- Installation of 1 No of 11 KV, 3 WAY at linking point near Over Bridge.
- Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm AAAC.
- Dismantling of conductor of 55 sq.mm AAAC for 4.5 CKM for Manguli feeder and 2.5 KM for OTM feeder

#### BOQ:

	TPCODL	
Name of	f the Division :-	CED,CUTTACK
Name of	f the Sub-Division : -	CHOUDWAR
Name of	f the Section : -	TANGI
Name of	f the Work :-	Refurbishment of 11KV OTM feeder and Manguli feeder for Mitigation of Overloading of Manguli feeder
Scope o	f work:-	1. Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sqmm XLPE cable from near shakti hotel of 11 KV OTM feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load trasfer from Manguli feeder to OTM feeder.  2. Installation of 1 No of 11 KV, 3 WAY RMU at linking point near Over Bridge.  3. Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm AAAC.  4. Dismantling of conductor of 55 sq.mm AAAC for 4.5 CKM for Manguli feeder and 2.5 KM for OTM feeder
Names	of Schemes: -	CAPEX-22-23
	Abstract of Es	timate
SI. No.	Description	Gross
1	Part - A:  1. Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sqmm XLPE cable from near shakti hotel of 11 KV OTM  1 feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load trasfer from Manguli feeder to OTM feeder.  2. Installation of 1 No of 11 KV, 3 WAY RMU at linking point near Over Bridge.	
2	Part-B:  1. Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm.  2. Dismantling of conductor of 55 sq.mm  AAAC for 4.5 CKM for Mnguli feeder and for 2.5 KM for OTM feeder	49,81,493.0
3	Total Estimated cost	1,00,22,133.53

#### Part:A

<sup>1.</sup> Laying of 11 KV U/G cable of 0.3 km with one run spare using 3CX400 sqmm XLPE cable from near shakti hotel of 11 KV OTM feeder to linking point of 11 KV Manguli feeder near Pinky Hotel for load trasfer from Manguli feeder to OTM feeder.

<sup>2.</sup> Installation of 1 No of 11 KV, 3 WAY RMU at linking point near Over Bridge.

SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories			( 1.6.)	( 1.0.)
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.3		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km			
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.60	17,70,000.00	10,62,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	6	11,306.76	67,840.56
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	4	16,406.72	65,626.88
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.57	6,94,910.00	3,94,708.88
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	1		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	13.20	88.50	1,168.20
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,239.00	2,478.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of end Connector and accessories for OFC connection at RMU,	Set	1	7,535.00	7,535.00
4.2	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	4,35,542.00	4,35,542.00
	Sub Total (Supply Portion) (in Rs.	)			24,95,681.64
Erect	tion Portion	<u>,                                      </u>			· · ·
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0.60	94,500.00	56,700.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	6	1,900.80	11,404.80
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	4	1,900.80	7,603.20
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.57	1,04,114.67	59,137.13
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
3	FRTU and OFC for RMU SCADA Automation				

3.2	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	6,124.36	6,124.36
	Sub Total (Erection Portion) (in Rs	s.)			1,61,994.56
	Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench		0.292	()	(mrsssy
	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
	Earth work excavation of <b>soil</b>	Cum	204.4	700.00	1,43,080.00
1.1.b	Earth work excavation of hard rock	Cum	87.6	1,720.00	1,50,672.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	175.2	171.55	30,055.56
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	116.8	2,500.00	2,92,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	175.2	202.00	35,390.40
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.07	26,43,670.63	1,85,056.94
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	20	3,600.00	72,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	32	1,463.40	46,828.80
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	10	1,012.00	10,120.00
	Sub Total (Civil Portion) (in Rs.)			1	9,93,163.00
Α	Sub Total (Supply Portion)				24,95,681.64
<u>^</u> В	Stock, Storage & Insurance @ 3 % of A				74,870.45
С	Sub Total (A+B)				25,70,552.09
D	Contingency @ 3 % of C				77,116.56
E	Tools & Plants Charges @ 2% of C (considered for earthing items)				75.11
F	Transportation @ 7.5% of C				1,92,791.41
G	Erection Charges @ 10% of earthing items				375.56
н	Total (C+D+E+F+G)				28,40,910.73
ı	Sub Total (Erection Portion + Civil Portion)				11,55,157.57
J	Total Cost (H+I)				39,96,068.30
K	Other Overhead /(including Supervision Charges) @ 6 % of J				2,39,764.10
L	Total Estimated Capital Cost i.e. (J+K)				42,35,832.39
M	GST @ 18% of L				7,62,449.83
N	CESS@1% OF (N)				42,358.32
0	Grand Total (L+M+N)				50,40,640.55

Part:B:
Augmentation of 11 KV O/H line of 7 CKM from 55 sq.mm to 100 sq.mm AAAC.

	No. of DP required Without AB switch (Ref. Drawing No TPCODL-MVD-0012)			2	
	MATERIALS OF DP Without	AB Switch	<u>1</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 2.3 mtr., 2 no's channel required =( 2x9.56x2.3)	KG	88.50	87.952	7,783.75
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.66 Mtr., 4 no's channel required =( 7.14x1.66x4)	KG	88.50	94.8192	8,391.50
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 2.671 mtr., 4 nos angle required = (4.5x2.671x4)	KG	88.50	96.156	8,509.81
6	Danger Plate, 2 no's.	No.	94.40	4	377.60
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
9	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
10	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
11	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	2	2,478.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	23.6	2,088.60
14	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
16	11 KV pin insulator polymer	No.	236.00	6	1,416.00
17	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
18	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
19	PG Clamp for 100 sq.mm AAA conductor GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP	NO.	684.40	12	8,212.80
20	without AB Switch)  Black Paint	K.g.	92.04 259.60	24.522	2,257.00
22	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
A	reliow Colour Failit for Background	Lu	Total Cost o		1,83,839.62
<u>А</u> В	Sto	ck Storage	e & Insurance		5,515.19
C	310	ck, Storage		otal (A+B)	1,89,354.81
D			Contigency	` '	5,680.64
E		Т	ools & Plants	_	3,787.10
F			ansportation @		14,201.61
G	Erection Charges				5,462.49
Н	Erection Charges @ 10% of C (except Trf/Breaker/V				6,868.02
 	Erection Charges @ 20% of				-
J				of (C to I)	2,25,354.68
-	Civil & Services			,	, -,
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00

	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125	0	0.500.00	0.45	0.005.00
3	Cu mtr Installation of Earth Pit, Charcoal, Salt etc. including	Cu.mtr	6,500.00	0.45	2,925.00
4	construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	2	4,814.00
K		'	Total Civil	& Services	28,439.00
L			•	Total (J+K)	2,53,793.68
М	Other overheads (Including 6% supervision charge	ges) of L (fo	or DP Without	AB Switch)	15,227.62
N			Sub 1	Total (L+M)	2,69,021.30
0			Total GST @	18% of (N)	48,423.83
Р			Total CESS @	2) 1% of (N)	2,690.21
Q	Gross Total Material +Services (N	N+O+P) for	r DP Without	AB Switch	3,20,135.35
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			2	
	MATERIALS OF DP With A	B Switch			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.00
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40					
A	Tellow Colour Failt for Background	Lu	Total Cost o	·	2,67,760.93					
В	Sto	ck. Storag	e & Insurance		8,032.83					
C		, <u>-</u>		otal (A+B)	2,75,793.76					
D			Contigency	` '	8,273.81					
Е		@ 2% of C	5,515.88							
F	Transportation @ 7.5% of C									
G	Erection Charges @ 5% on Trf/Breaker/Joist									
Н	Erection Charges @ 10% of C (except Trf/Breaker/	WPB/ H-Po	ole/HT stay se	t/PSC pole)	15,511.92					
I	Erection Charges @ 20% of	f PSC pole			3,31,242.39					
J										
	<u>Civil &amp; Services</u>									
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount					
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00					
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00					
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00					
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00					
K		1	Total Civil	& Services	33,253.00					
L			•	Total (J+K)	3,64,495.39					
М	Other overheads (Including 6% supervision ch	narges) of I	_ (for DP With	AB Switch)	21,869.72					
N				Total (L+M)	3,86,365.11					
0			Total GST @		69,545.72					
Р			Total CESS @	, ,	3,863.65					
Q	Gross Total Material +Service	s (N+O+P	) for DP With	AB Switch	4,59,774.48					
	No. of Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-MVD-0004)			2						
	MATERIALS FOR 11 KV Cut Point with	<u>h 180 Deg</u>	ree Angle	T						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount					
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90					
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =( 2x9.56x1.2)	KG	88.50	45.888	4,061.09					
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	10.5728	935.69					
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	11.70144	1,035.58					
		No.	94.40	2	188.80					
5	Danger Plate, 1 no's.		I		53.26					
5 6	Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.6018	33.20					
	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of	KG Kg	88.50 94.40	0.6018	566.40					
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)									
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer	Kg	94.40 88.50 236.00	6	566.40 213.04 1,416.00					
6 7 8 9 10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer  H W fitting(B&S) 70KN, 3Bolt	Kg KG No.	94.40 88.50 236.00 413.00	6 2.4072 6 12	566.40 213.04 1,416.00 4,956.00					
6 7 8 9	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer	Kg KG No.	94.40 88.50 236.00	6 2.4072 6	566.40 213.04 1,416.00					

	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting				
13	pole with Coil earthing	K.g.	88.50	0.524	46.37
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	7.1	653.48
16	Black Paint	Ltr	259.60	1	259.60
17	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
<u>A</u>		1 01	Total Cost o		93,346.17
В <b>С</b>	Sto	ck, Storage	e & Insurance	otal (A+B)	2,800.39
D			Contigency	·	<b>96,146.56</b> 2,884.40
E		т	ools & Plants	_	1,922.93
 F			insportation @	_	7,210.99
G	Erection		5% on Trf/Bi		2,731.25
Н	Erection Charges @ 10% of C (except Trf/Breaker/				4,152.16
ı	Erection Charges @ 20% of	f PSC pole	- Not to be us	ed for 33kv	-
J			Sun	of (C to I)	1,15,048.29
	Civil & Services				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.90	5,850.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.23	1,462.50
K			Total Civil		7,312.50
L	Other control of the heating COV companion of the control of the	44 10/ 0		Total (J+K)	1,22,360.79
M	Other overheads (Including 6% supervision charges) of L (f	or 11 KV C	ut Point With	Angle)	7,341.65
N			Sub 1	otal (L+M)	1,29,702.43
0			Total GST @	18% of (N)	23,346.44
Р			Total CESS @	0 1% of (N)	1,297.02
Q	Gross Total Material +Services (N+O+P) for 11 KV	/ Cut Point	with 180 Deg	gree Angle	1,54,345.90
	No. of Cut Point with 90 Degree Angle			2	
	(Ref. Drawing No TPCODL-MVD-0005)	th 00 Door	oo Anglo		
SI	MATERIALS FOR 11 KV Cut Point wit	th 90 Degr			Total
SI. No.		th 90 Degr	ee Angle Unit Rate	Total Quantity	Total Amount
	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)			Total	
No.	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)	Unit	Unit Rate	Total Quantity	Amount
<b>No.</b>	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	<i>Unit</i> No	<b>Unit Rate</b> 26,516.95	Total Quantity	<b>Amount</b> 53,033.90
<ul><li>No.</li><li>1</li><li>2</li><li>3</li><li>4</li></ul>	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)	Unit No KG K.g.	Unit Rate 26,516.95 88.50 88.50	Total Quantity  2  91.776  21.1456  23.40288	Amount 53,033.90 8,122.18 1,871.39 2,071.15
No.  1 2 3	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.	Unit No KG K.g.	Unit Rate 26,516.95 88.50 88.50	Total Quantity  2  91.776  21.1456	Amount 53,033.90 8,122.18 1,871.39
No. 1 2 3 4 5	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	Vnit  No  KG  K.g.  KG  No.  KG	Unit Rate 26,516.95 88.50 88.50 94.40 88.50	Total Quantity  2  91.776  21.1456  23.40288  2  0.6018	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80 53.26
No.  1 2 3 4 5	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support	Vnit No KG K.g. KG No.	Unit Rate 26,516.95 88.50 88.50 88.50 94.40	Total Quantity  2  91.776  21.1456  23.40288  2	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80
No.  1 2 3 4 5 6 7 8	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	Wnit  No  KG  K.g.  KG  No.  KG  KG	Unit Rate 26,516.95 88.50 88.50 88.50 94.40 88.50 94.40 88.50	Total Quantity  2  91.776  21.1456  23.40288  2  0.6018  6  2.4072	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80 53.26 566.40 213.04
No.  1 2 3 4 5 6 7 8 9	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer	Vnit  No  KG  K.g.  KG  No.  KG  Kg  No.	Unit Rate  26,516.95  88.50  88.50  94.40  88.50  94.40  88.50  236.00	Total Quantity  2  91.776  21.1456  23.40288  2  0.6018  6  2.4072  6	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80 53.26 566.40 213.04 1,416.00
No.  1 2 3 4 5 6 7 8 9 10	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer  H W fitting(B&S) 70KN, 3Bolt	Wnit  No  KG  K.g.  KG  No.  KG  Kg  No.  No.	Unit Rate  26,516.95  88.50  88.50  94.40  88.50  94.40  88.50  236.00  413.00	Total Quantity  2  91.776  21.1456  23.40288  2  0.6018  6  2.4072  6  12	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80 53.26 566.40 213.04 1,416.00 4,956.00
No.  1 2 3 4 5 6 7 8 9 10 11	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer  H W fitting(B&S) 70KN, 3Bolt  Disc insulator (B&S) 70 KN polymer	Wnit  No  KG  K.g.  KG  No.  KG  Kg  No.  No.  No.	### Unit Rate  26,516.95  88.50  88.50  88.50  94.40  88.50  94.40  88.50  236.00  413.00  1,357.00	Total Quantity  2  91.776  21.1456  23.40288  2  0.6018  6  2.4072  6  12  12	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80 53.26 566.40 213.04 1,416.00 4,956.00 16,284.00
No.  1 2 3 4 5 6 7 8 9 10 11 12	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer  H W fitting(B&S) 70KN, 3Bolt  Disc insulator (B&S) 70 KN polymer  Earthing of Support ( Coil Type )  No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting	Wnit  No  KG  K.g.  KG  No.  KG  Kg  KG  No.  EA	Unit Rate  26,516.95  88.50  88.50  94.40  88.50  94.40  88.50  236.00  413.00  1,357.00  195.88	Total Quantity  2  91.776  21.1456  23.40288  2  0.6018  6  2.4072  6  12  12  2	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80 53.26 566.40 213.04 1,416.00 4,956.00 16,284.00 391.76
No.  1 2 3 4 5 6 7 8 9 10 11	MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 4 no's channel required = (4x9.56x0.306)  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)  11 KV pin insulator polymer  H W fitting(B&S) 70KN, 3Bolt  Disc insulator (B&S) 70 KN polymer  Earthing of Support ( Coil Type )	Wnit  No  KG  K.g.  KG  No.  KG  Kg  No.  No.  No.	### Unit Rate  26,516.95  88.50  88.50  88.50  94.40  88.50  94.40  88.50  236.00  413.00  1,357.00	Total Quantity  2  91.776  21.1456  23.40288  2  0.6018  6  2.4072  6  12  12	Amount 53,033.90 8,122.18 1,871.39 2,071.15 188.80 53.26 566.40 213.04 1,416.00 4,956.00 16,284.00

15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
16	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
17	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
18	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
19	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	K.g.	92.04	14.866	1,368.2
20	Black Paint	Ltr	259.60	1	259.60
21	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
Α			Total Cost o	f materials	1,11,185.3
В	Sto	ck, Storage	e & Insurance	i.e 3% of A	3,335.50
С			Sub T	otal (A+B)	1,14,520.8
D			Contigency	@ 3% of C	3,435.6
Е		Т	ools & Plants	@ 2% of C	2,290.4
F		Tra	insportation @	7.5% of C	8,589.0
G	Erection	Charges @	5% on Trf/Br	eaker/Joist	2,731.2
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	VPB/ H-Pc	le/HT stay set	/PSC pole)	4,847.12
I	Erection Charges @ 20% of	PSC pole	- Not to be us	ed for 33kv	_
J			Sun	of (C to I)	1,36,414.3
	Civil & Services			,	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.0
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.9	5,850.0
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.2	1,462.5
K			Total Civil	& Services	16,312.5
L			7	Γotal (J+K)	1,52,726.8
N 4					
M	Other overheads (Including 6% supervision charges) of L (for 11 I	KV Cut Poi	int with 90 Deg	gree Angle)	9,163.6
N N	Other overheads (Including 6% supervision charges) of L (for 11 l	KV Cut Poi		otal (L+M)	
	Other overheads (Including 6% supervision charges) of L (for 11 l	KV Cut Poi		otal (L+M)	1,61,890.4
N	Other overheads (Including 6% supervision charges) of L (for 11 l		Sub T	Total (L+M) 18% of (N)	<b>1,61,890.4</b> 29,140.2
<b>N</b>	Other overheads (Including 6% supervision charges) of L (for 11 li		Sub Total GST @ Total CESS @	Total (L+M) 18% of (N) 1% of (N)	<b>1,61,890.4</b> 29,140.2 1,618.9
<b>N</b> O P	Gross Total Material +Services (N+O) for 11 K  11 Kv Line Length In KM with 40 Mtr. Span		Sub Total GST @ Total CESS @	Total (L+M) 18% of (N) 1% of (N)	<b>1,61,890.4</b> 29,140.2 1,618.9
<b>N</b> O P	Gross Total Material +Services (N+O) for 11 K'  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)	V Cut Poi	Sub 1 Total GST @ Total CESS @ nt with 90 De	Total (L+M) 18% of (N) 1% of (N) gree Angle	<b>1,61,890.4</b> 29,140.2 1,618.9
N O P Q	Gross Total Material +Services (N+O) for 11 K  11 Kv Line Length In KM with 40 Mtr. Span	V Cut Poi	Sub 1 Total GST @ Total CESS @ nt with 90 De	Total (L+M) 18% of (N) 1% of (N) gree Angle	<b>1,61,890.4</b> 29,140.2 1,618.9
N O P Q	Gross Total Material +Services (N+O) for 11 K <sup>o</sup> 11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poir	V Cut Poir	Sub 1 Total GST @ Total CESS @ nt with 90 De	Total (L+M)  18% of (N)  1% of (N)  gree Angle  7	1,61,890.4 29,140.2 1,618.9 1,92,649.6 Total Amount
N O P Q	Gross Total Material +Services (N+O) for 11 K  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poir  Description of Materials	V Cut Poil	Sub 1 Total GST @ Total CESS @ nt with 90 Dec	Total (L+M) 18% of (N) 1% of (N) gree Angle 7  Total Quantity	1,61,890.4 29,140.2 1,618.9 1,92,649.6 Total Amount 8,48,542.4
N O P Q SSI. No.	Gross Total Material +Services (N+O) for 11 K  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poir  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	V Cut Points With W	Sub 1 Total GST @ Total CESS @ It with 90 Dec  /PB  Unit Rate  26,516.95	Total (L+M) 18% of (N) 1% of (N) 1% of (N) Total Quantity 32	1,61,890.4 29,140.2 1,618.9 1,92,649.6 Total Amount 8,48,542.4 30,585.6
N O P Q Q SI. No. 1	Gross Total Material +Services (N+O) for 11 KV  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poir  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  11 KV V cross Arm (10.2 K.g. each )	V Cut Points With W Unit No. No.	Sub 1 Total GST @ Total CESS @ It with 90 December 1  If with 90 Dec	Total (L+M) 18% of (N) 19 1% of (N) gree Angle 7  Total Quantity 32 32	1,61,890.4 29,140.2 1,618.9 1,92,649.6 Total Amount 8,48,542.4 30,585.6 5,664.0
N O P Q 1	Gross Total Material +Services (N+O) for 11 K  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poir  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of	V Cut Points With W Unit No. No.	Sub 1 Total GST @ Total CESS @ nt with 90 De  /PB  Unit Rate  26,516.95  955.80  177.00	7 Total Quantity 32 32 32 32	1,61,890.4 29,140.2 1,618.9 1,92,649.6  Total Amount 8,48,542.4 30,585.6 5,664.0 3,020.8
N O P Q O O O O O O O O O O O O O O O O O	Gross Total Material +Services (N+O) for 11 KV  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poin  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole	V Cut Points With W Unit No. No. No.	Sub 1 Total GST @ Total CESS @ nt with 90 De  /PB  Unit Rate  26,516.95  955.80  177.00  94.40	7 Total (L+M)  7 Total Quantity  32 32 32 32 32	1,61,890.4 29,140.2 1,618.9 1,92,649.6  Total Amount 8,48,542.4 30,585.6 5,664.0 3,020.8
N O P Q SI. No. 1 2 3 4 5	Gross Total Material +Services (N+O) for 11 K'  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poin  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm GI channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	V Cut Poil  Its With W  Unit  No.  No.  No.  KG	Sub 1 Total GST @ Total CESS @ It with 90 De  //PB  Unit Rate  26,516.95  955.80  177.00  94.40  88.50	7 Total (L+M)  7 Total Quantity  32 32 32 32 9.63	1,61,890.4 29,140.2 1,618.90 1,92,649.6  Total Amount 8,48,542.4 30,585.6 5,664.00 3,020.80 852.11
N O P Q SI. No. 1 2 3 4 5 6	Gross Total Material +Services (N+O) for 11 K'  11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)  MATERIALS FOR 11 KV Pin Poir  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  11 KV V cross Arm (10.2 K.g. each )  Top bracket 100x50X6 mm Gl channel (2kg each)  Danger Plate, 1 no's. for each pole  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  Gl barbed wire anticlimbing device 3 Kg. Per support  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr.	V Cut Poil  Its With W  Unit  No.  No.  No.  KG  Kg	Sub 1 Total GST @ Total CESS @ It with 90 December 1    PB	7 Total (L+M)  18% of (N)  19 1% of (N)  gree Angle  7  Total Quantity  32  32  32  32  9.63  96.00	

	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting								
10	pole with Coil earthing	K.g.	88.50	8.38	741.98				
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	46.40	4,270.66				
12	100 mm2 AAAC	K.M.	64,900.00	21.63	14,03,787.00				
13	Crimping type Midspan Compression Joint for 100 sq.mm AAA conductor	EA	405.27		-				
14	Black Paint	Ltr	259.60	32.0	8,307.20				
15	Yellow Colour Paint for Background	Ltr	259.60	64.0	16,614.40				
Α			Total Cost o	f materials	23,63,781.34				
В	Sto	ck, Storag	e & Insurance	i.e 3% of A	70,913.44				
С			Sub T	otal (A+B)	24,34,694.78				
D			Contigency	@ 3% of C	73,040.84				
Е		٦	Tools & Plants	@ 2% of C	48,693.90				
F		Tra	ansportation @	7.5% of C	1,82,602.11				
G	Erection Charges	@ 5% on	Trf/Breaker/W	PB/ H-Pole	43,699.93				
Н	Erection Charges @ 10% of C (except Trf/Breaker/	WPB/ H-Po	ole/HT stay se	t/PSC pole)	1,56,069.61				
I	Erection Charges @ 20% o	f PSC pole	e- Not to be us	ed for 33kv	<u>-</u>				
J			Sun	n of (C to I)	29,38,801.18				
	Civil & Services								
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	6,500.00	14.40	93,600.00					
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.60	23,400.00				
K		- I	Total Civil	& Services	1,17,000.00				
L		Total	Material+Ser	vices (I+K)	30,55,801.18				
М	Other overheads (Including 6% supervision charge	es) (for 11	KV Pin Points	With WPB)	1,83,348.07				
N			Sub 1	Total (L+M)	32,39,149.25				
0			Total GST @	18% of (N)	5,83,046.86				
Р			Total CESS @	0 1% of (N)	32,391.49				
Q	Gross Total Material +Services (N+	O) for 11 k	(V Pin Points	With WPB	38,54,587.60				
	6% Supervision Charges S	ummary							
1	Other overheads (Including 6% supervision charge	ges) of L (f	or DP Without	AB Switch)	15,227.62				
2	Other overheads (Including 6% supervision ch	narges) of l	L (for DP With	AB Switch)	21,869.72				
3	Other overheads ( Including 6% supervision charges) of L (	for 11 KV (	Cut Point with	180 Degree Angle)	7,341.65				
4	Other overheads (Including 6% supervision charges) of L (for 11	KV Cut Po	int with 90 De	gree Angle)	9,163.61				
5	Other overheads (Including 6% supervision charge	es) (for 11	KV Pin Points	With WPB)	1,83,348.07				
		Total (6	% supervisio	n charges)	2,36,950.67				
	Gross Total Summa	ry		'					
1	Gross Total Material +Services	(N+O+P)	for DP Withou	t AB Switch	3,20,135.35				
2	Gross Total Material +Servi	, ,			4,59,774.48				
3	Gross Total Material +Services (N+O+P) for 11 l	· · · · · · · · · · · · · · · · · · ·			1,54,345.90				
4	Gross Total Material +Services (N+O) for 11				1,92,649.65				
5	Gross Total Material +Services (N	I+O) for 11	KV Pin Points	With WPB	38,54,587.60				
6	Gross Total Material, Services 49,81,492.98								

### **Benefits:**

- 1) To maintain reliability of Power Supply to semi-urban consumers by strengthening the line & mitigation of overloading issue.
- 2) The above arrangement will help to release power supply to upcoming potential consumers.
- 3) Annual Reduction in energy losses in year can be saved.
- 4) Voltage Regulation can be improved.

#### 28. Bifurcation of 11KV Old Industry Feeder for mitigation of Overload

**Proposal:** Bifurcation of existing 11 KV Old Industry Feeder emanating from 33/11 KV Jagatpur PSS by constructing 1 No. of new feeder from 33/11 KV Jagatpur PSS through RMU.

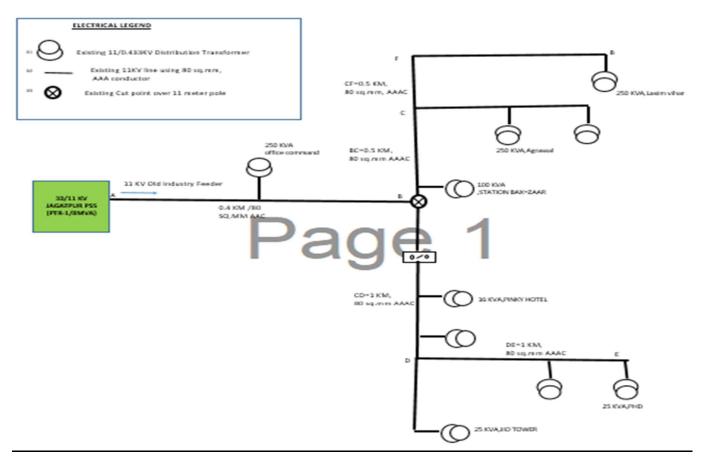
**Objective:** To mitigation of Overloading issue of feeder.

#### **Existing Scenario:**

- At present, 11 KV Old Industry feeder is emanating from 33/11 KV Jagatpur PSS.Total length
  of this feeder is approx.32KM.In existing scenrio, 11 KV Old Industry feeder, which having
  minimum trunk conductor size is 80 sq.mm. Loading of 11 KV Old Industry feeder was 4.28
  MVA w.r.to feeder capacity of 4.51 MVA. Considering load growth, projected loading would be
  6.4 MVA for YEAR 27.
- Frequenty faults are observed due to lengthy feeder and over loaded.
- This feeder is mainly feeding Semi-Urban consumers, several break down on 11 KV feeder is hampered the reliability of power supply and also considering future load growth, bifurcation of this feeder and conductor augmentation are proposed for providing continuous power supply to consumers in urban areas and mitigation of overload.

EXISTING LOADING OF 11 KV OLD INDUSTRY FEEDER										
11 KV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	Loading of feeder after 5 years LG	% Loading of feeder after 5 years LG	Feeder Overloading Status			
OLD I.E	4.51	4.53	100.55	OVERLOAD	6.77	150.21	OVERLOAD			

#### **Existing SLD (Summer'21):**



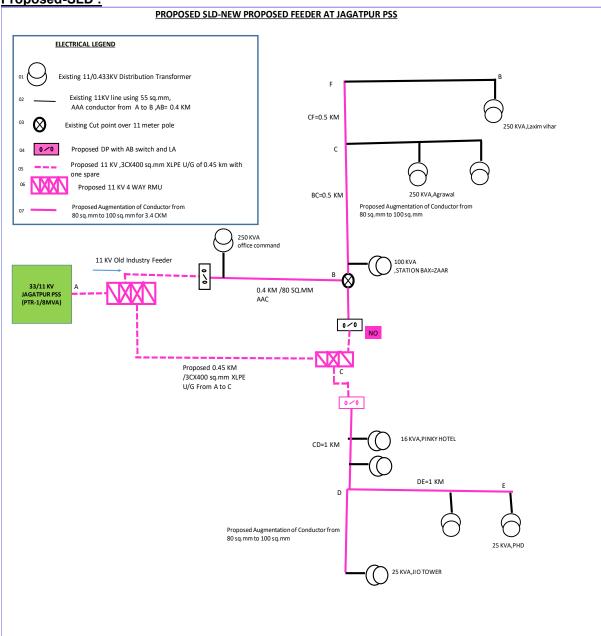
#### **Proposed Scenario:**

- Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sq.mm XLPE cable from Jagatpur PSS to near Pinky Hotel are proposed for 11 KV Old Industry feeder Bifurcation.
- Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.
- Augmentation of O/H line of 3.4 Ckm length of 11 KV Old Industry feeder of Jagatpur PSS is proposed from 80 sq.mm to 100 sq.mm, AAAC conductor for mitigating over loading condition.
- To avoid frequent faults in 11 KV Manguli feeder due to lengthy networks and overloaded, hence a new feeder is proposed .And approx.100 Amp load of old industry feeder will be diverted to new proposed feeder. Under proposed scenario, both old and proposed new feeder of Choudwar PSS will be able to feed continuous power supply to consumers of urban areas. And proposed loading of new proposed feeder would be 2.84 MVA with respect to feeder capacity 5.18 MVA.
- Proposed loading Old industry feeder would be 3.55 MVA with respect to feeder capacity 5.18 MVA.

PROPSED LOADING OF 11 KV NEW PROPOSED FEEDER										
11 KV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status			
OLD I.E	5.18	1.90	36.78	OK	2.84	54.85	OK			

	PROPOSED LOADING OF 11 KV OLD INUDSTRY FEEDER										
11 KV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22- 23 (MVA)	% Existing Loading of feeder	Feeder Overloading Status	% Load Growth Considering 5 Yrs.	% Loading of feeder after 5 years LG	Feeder Overloading Status				
OLD I.E	5.18	2.62	50.76	OK	3.91	75.64	OK				

Proposed-SLD:



#### **Detailed Scope of Work:**

- Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sq.mm XLPE cable from Jagatpur PSS to near Pinky Hotel for 11 KV Old Industry feeder Bifurcation.
- Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.
- Augmentation of 11 KV O/H line of 3.4 CKM from 80 sq.mm to 100 sq.mm AAAC.
- Dismantling of conductor of 80 sq.mm AAAC for 3.4 CKM,

#### **BOQ**:

TPCODL					
Name of the Division :-	CDD-II,CUTTACK				
Name of the Sub-Division : -	JOBRA				
Name of the Section : -	JAGATPUR				

Name	e of the Work :-	Bifurcation of existing 11 KV Old Industry Feeder emanating from 33/11 KV Jagatpur PSS by constructing 1 No. of new feeder from 33/11 KV Jagatpur PSS through RMU.				
Scope of work:-		1. Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sqmm XLPE cable from Jagatpur PSS to near Pinky Hotel for 11 KV Old Industry feeder Bifurcation.  2. Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.  3. Augmentation of 11 KV O/H line of 3.4 CKM from 80 sq.mm to 100 sq.mm AAAC.  4. Dismantling of conductor of 80 sq.mm AAAC for 3.4 CKM,				
Name	es of Schemes: -	CAPEX-22-23				
	Abstract of Es	timate				
SI. No.	Description	Gross				
1	Part - A:  1. Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sqmm XLPE cable from Jagatpur PSS to near Pinky Hotel.  2. Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.	83,32,803.46				
2	Part-B:  1. 3. Augmentation of 11 KV O/H line of 3.4 CKM from 80 sq.mm to 100 sq.mm AAAC.	23,84,898.6				
3	Part-C:  1. Dismantling of conductor of 80 sq.mm AAAC for 3CKM,	1,15,796.5				
4	Total Estimated cost	1,08,33,498.62				

1. Laying of 11 KV U/G cable of 0.45 km with one run spare using 3CX400 sqmm XLPE cable from Jagatpur PSS to near Pinky Hotel.

2. Installation of 1 No of 11 KV, 3 WAY and 1 No of 4 WAY RMU at Linking point and Jagatpur PSS respectively.

Suppl	y Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
а	Length of 11kV 3C, 400sqmm cable (open trench)	km	0.45		
b	Length of 11kV 3C, 400sqmm cable (HDD)	km			
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable (SC rating of cable in kA- 37.7kA and SC rating of Armour in kA- 15kA)	km	0.90	17,70,000.00	15,93,000.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	2	29,874.06	59,748.12
1.3	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	12	11,306.76	1,35,681.12
1.4	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	6	16,406.72	98,440.32
1.5	Supply of <b>HDPE</b> PE 80-PN8 pipe of <b>160mm</b> diameter (for 400sqmm HT cable laying)	km	0.85	6,94,910.00	5,92,063.32
2	Supply of 11kV RMU				
а	No. of 11kV 3Way RMU (LLV)	nos.	1		

b	No. of 11kV 4Way RMU (LLVV)	nos.	1		
2.1	Supply of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	3,99,034.00	3,99,034.00
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of end Connector and accessories for OFC connection at RMU,	Set	2	7,535.00	15,070.00
4.2	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion) (	in Rs.)			43,29,123.28
Erecti	on Portion	1	1		
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method				
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	0.90	94,500.00	85,050.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	2	2,400.00	4,800.00
1.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	12	1,900.80	22,809.60
1.4	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	6	1,900.80	11,404.80
1.5	Supply, Installation, Laying, Commissioning, Testing of 11kV, 3core, 1Run, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in <b>HDD method with HDPE pipe</b> (160mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	28,00,000.00	-
1.6	Laying of <b>160mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.85	1,04,114.67	88,705.70
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way, 2 Iso & 1 Brk 630A (LLV)	Nos.	1	15,000.00	15,000.00
3	FRTU and OFC for RMU SCADA Automation				
3.1	Erection of end Connector and accessories for OFC connection at RMU,	Set	2	1,225.07	2,450.14
3.2	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	6,124.36	12,248.72
	Sub Total (Erection Portion)	(in Rs.)			2,57,468.96
	Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench		0.426	, ,	. ,
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	298.2	700.00	2,08,740.00
1.1.b	Earth work excavation of hard rock	Cum	127.8	1,720.00	2,19,816.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	255.6	171.55	43,848.18
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	170.4	2,500.00	4,26,000.00
1.4	Back filling with excavated soil outside and above the trench	Cum	255.6	202.00	51,631.20

1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.07	26,43,670.63	1,85,056.94		
2	Civil works for Prefabricated RCC foundation with supply of all materials						
2.1	Prefabricated RCC foundation of 11kV RMU	Nos.	2	23,145.30	46,290.60		
3	Supply of GI Fencing with Gate around each RMU	1,44,000.00					
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab Set 4 2,407.00 cover						
5	Supply and erection of GI Pipe of dia. 150mm, Class-B Mtr 48 1,463.40						
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	15,180.00					
	Sub Total (Civil Portion) (in	n Rs.)			14,20,434.12		
Α	Sub Total (Supply Portion)				43,29,123.28		
В	Stock, Storage & Insurance @ 3 % of A				1,29,873.70		
С	Sub Total (A+B)				44,58,996.98		
D	Contingency @ 3 % of C				1,33,769.91		
E	Tools & Plants Charges @ 2% of C (considered for earthing i	tems)			150.22		
F	Transportation @ 7.5% of C				3,34,424.77		
G	Erection Charges @ 10% of earthing items				751.12		
Н	Total (C+D+E+F+G)				49,28,093.00		
I	Sub Total (Erection Portion + Civil Portion)				16,77,903.08		
J	Total Cost (H+I)				66,05,996.08		
K	Other Overhead /(including Supervision Charges) @ 6 % of J				3,96,359.77		
L	Total Estimated Capital Cost i.e. (J+K)						
М	GST @ 18% of L						
N	CESS@1% OF (N)				70,023.56		
0	Grand Total (L+M+N)				83,32,803.46		
Р	Gross Total Material and Services				83,32,803.46		

Part:B: Augmentation of 11 KV O/H line of 3.4 KM from 80 sq.mm to 100 sq.mm AAAC						
No. of DP required Without AB switch (Ref. Drawing No TPCODL-MVD-0012)			1			
	MATERIALS OF DP Without AB Switch					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	2	53,033.90	
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 2.3 mtr., 2 no's channel required =( 2x9.56x2.3)	KG	88.50	43.976	3,891.88	
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	3.9648	350.88	
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.66 Mtr., 4 no's channel required =( 7.14x1.66x4)	KG	88.50	47.4096	4,195.75	

5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length	KG	88.50	48.078	4,254.90			
	2.671 mtr., 4 nos angle required = (4.5x2.671x4)				•			
6	Danger Plate, 2 no's.	No.	94.40	2	188.80			
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	0.6018	53.26			
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00			
9	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00			
10	H.T. Stay Insulator Type-C	No.	59.00	2	118.00			
11	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00			
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	1	1,239.00			
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	11.8	1,044.30			
14	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	6	566.40			
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	2.4072	213.04			
16	11 KV pin insulator polymer	No.	236.00	3	708.00			
17	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00			
18	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00			
19	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40			
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without AB Switch)	K.g.	92.04	12.261	1,128.50			
21	Black Paint	Ltr	259.60	1	259.60			
22	Yellow Colour Paint for Background	Ltr	259.60	2	519.20			
Α		•	Total Cost of	materials	91,919.81			
В	Stoc	ck, Storage	& Insurance	i.e 3% of A	2,757.59			
С			Sub To	otal (A+B)	94,677.41			
D			Contigency	@ 3% of C	2,840.32			
E		Т	ools & Plants	@ 2% of C	1,893.55			
F		Tra	nsportation @	7.5% of C	7,100.81			
G	Erection Charges	@ 5% on <sup>-</sup>	Trf/Breaker/W	PB/ H-Pole	2,731.25			
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	VPB/ H-Po	le/HT stay set	/PSC pole)	3,434.01			
I	Erection Charges @ 20% of	PSC pole						
J			Sum of (C to I)					
			Juli		1,12,677.34			
	<u>Civil &amp; Services</u>	I	Juli		1,12,011.04			
SI. No.	Civil & Services  Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
		Unit No.			Total			
No.	Pixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing		Unit Rate	Quantity	Total Amount			
<b>No.</b>	Pixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =	No.	<b>Unit Rate</b> 2,250.00	Quantity 2	Total Amount 4,500.00			
1 2	Pixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab	No.	2,250.00 6,500.00	2 0.90	Total Amount 4,500.00			
1 2 3	Pixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including	No. Cu.mtr Cu.mtr	2,250.00 6,500.00 6,500.00	2 0.90 0.23	Total Amount 4,500.00 5,850.00 1,462.50			

	Other overheads (Including 6% supervision charge	s) or L (ic			7,613.81
N				otal (L+M)	1,34,510.65
0			Total GST @	· · · ·	24,211.92
Р			Total CESS @		1,345.11
Q	Gross Total Material +Services (N	+O+P) for	DP Without	AB Switch	1,60,067.67
	No. of DP required With AB Switch (Ref. Drawing No TPCODL-MVD-0001)			2	
	MATERIALS OF DP With AE	Switch			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	4	1,06,067.80
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3 mtr., 2 no's channel required =( 2x9.56x3)	KG	88.50	114.72	10,152.72
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77
4	AB switch Mounting Channel 75X40X4.8mm, 7.14KG/Mtr, each channel length 3 Mtr., 2 no's channel required =( 7.14x3x2)	KG	88.50	85.68	7,582.68
5	AB Switch Side Support Channel 100X50X6mm,9.56 KG/Mtr., each channel length 0.35 mtr., 2 no's channel required =( 9.56x2x0.35)	KG	88.50	13.384	1,184.48
6	Channel Support for down Pipe 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =(7.14x0.8x1)	KG	88.50	11.424	1,011.02
7	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 3.0 Mtr., 4 no's channel required =( 7.14x3x4)	KG	88.50	171.36	15,165.36
8	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.512 mtr., 4 nos angle required = (4.5x3.512x4)	KG	88.50	126.432	11,189.23
9	Danger Plate, 2 no's.	No.	94.40	4	377.60
10	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
11	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
12	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
13	H.T. Stay Insulator Type-C	No.	59.00	4	236.00
14	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
15	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
16	50x6mm GI Flat for earthing, 2.36kg/mtr., (12.5 Mtr. For L.A, 3 Mtr for AB Switch Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 20.5x2.36	KG	88.50	96.76	8,563.26
17	GI barbed wire anticlimbing device 3 Kg. Per support, 2 no's qty. required =(2x3kg)	Kg	94.40	12	1,132.80
18	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
19	Lightning Arrester(12KV,10KA) (Station Class,class-2)	EA	4,189.00	6	25,134.00
20	AB Switch (11KV,400A.3pole,50Hz)	Set	13,983.00	2	27,966.00
21	11 KV pin insulator polymer	No.	236.00	6	1,416.00
22	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	12	4,956.00
23	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	12	16,284.0
24	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	12	8,212.80
25	GI Nut , Bolt & Washer of different sizes (13.718 Kg each DP with AB Switch)	K.g.	92.04	27.436	2,525.21
26	Black Paint	Ltr	259.60	2	519.20

27	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40	
Α	•	1	Total Cost of	f materials	2,67,760.93	
В	Stock, Storage & Insurance i.e 3% of A					
С	Sub Total (A+B					
D			Contigency	` '	<b>2,75,793.76</b> 8,273.81	
E		Т	ools & Plants	_	5,515.88	
F Transportation @ 7.5% of C						
G Erection Charges @ 5% on Trf/Breaker/Joist						
H Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)						
I Erection Charges @ 20% of PSC pole- Not to be used for 33kv						
J Sum of (C to I)						
	Civil & Services					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.	No.	2,250.00	4	9,000.00	
2	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	1.80	11,700.00	
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00	
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00	
K			Total Civil 8	& Services	33,253.00	
L			7	Total (J+K)	3,64,495.39	
М	Other overheads ( Including 6% supervision cha	arges) of L	(for DP With	AB Switch)	21,869.72	
N			Sub T	otal (L+M)	3,86,365.11	
0			Total GST @	18% of (N)	69,545.72	
Р			Total CESS @	` ` '	3,863.65	
Q	Gross Total Material +Services	s (N+O+P)	for DP With	AB Switch	4,59,774.48	
	No. of Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-MVD-0004)			1		
	MATERIALS FOR 11 KV Cut Point with	180 Deg	ree Angle			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No	26,516.95	1	26,516.95	
2	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 2 no's channel required =( 2x9.56x1.2)	KG	88.50	22.944	2,030.54	
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	KG	88.50	5.2864	467.85	
4	Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 0.306 mtr., 2 no's channel required =(2x9.56x0.306)	KG	88.50	5.85072	517.79	
5	Danger Plate, 1 no's.	No.	94.40	1	94.40	
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63	
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20	

	<del>-</del>				
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52
9	11 KV pin insulator polymer	No.	236.00	3	708.00
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00
12	Earthing of Support ( Coil Type )	EA	195.88	1	195.88
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40
15	GI Nut , Bolt & Washer of different sizes (3.55 Kg each Cut Pole)	K.g.	92.04	3.55	326.74
16	Black Paint	Ltr	259.60	0.5	129.80
17	Yellow Colour Paint for Background	Ltr	259.60	2	519.20
Α			Total Cost of	materials	46,673.09
В	Stoo	ck, Storage	& Insurance	i.e 3% of A	1,400.19
С			Sub To	otal (A+B)	48,073.28
D			Contigency	@ 3% of C	1,442.20
Е		Т	ools & Plants	@ 2% of C	961.47
F		Tra	nsportation @	7.5% of C	3,605.50
G	Erection (	Charges @	5% on Trf/Br	eaker/Joist	1,365.62
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	VPB/ H-Po	le/HT stay set	/PSC pole)	2,076.08
ı	Erection Charges @ 20% of	PSC pole	- Not to be us	ed for 33kv	-
J			Sum	of (C to I)	57,524.14
	Civil & Services				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	6,500.00	0.45	2,925.00
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.11	731.25
K			Total Civil 8	& Services	3,656.25
L				Total (J+K)	61,180.39
М	Other overheads (Including 6% supervision charges) of L (for	or 11 KV C	ut Point with 1	•	3,670.82
N			Sub T	Angle) otal (L+M)	64,851.22
0			Total GST @	` '	11,673.22
Р			Total CESS @	` ,	648.51
Q	Gross Total Material +Services (N+O+P) for 11 KV			` , ,	77,172.95
					•
No. of Cut Point with 90 Degree Angle					
	No. of Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-MVD-0005)			•	
		<u>h 90</u> Degr	ee Angle	•	
SI.	(Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point wit				Total
SI. No.	(Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point wit  Description of Materials	th 90 Degr	Unit Rate	Total Quantity	Amount
1	(Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)			Total	
No.	(Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point wite  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)	Unit	Unit Rate	Total Quantity	Amount
<b>No.</b>	(Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point with Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel	<i>Unit</i> No	<b>Unit Rate</b> 26,516.95	Total Quantity	<b>Amount</b> 26,516.95
1 2	(Ref. Drawing No TPCODL-MVD-0005)  MATERIALS FOR 11 KV Cut Point wite  Description of Materials  WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)  Straight Cross Arm 100X50X6mm, 9.56 KG/Mtr., each channel length 1.2 mtr., 4 no's channel required = (4x9.56x1.2)  Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16	Unit No KG	<b>Unit Rate</b> 26,516.95 88.50	Total Quantity 1 45.888	<b>Amount</b> 26,516.95 4,061.09

6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	0.3009	26.63	
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	3	283.20	
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	1.2036	106.52	
9	11 KV pin insulator polymer	No.	236.00	3	708.00	
10	H W fitting(B&S) 70KN, 3Bolt	No.	413.00	6	2,478.00	
11	Disc insulator (B&S) 70 KN polymer	No.	1,357.00	6	8,142.00	
12	Earthing of Support ( Coil Type )	EA	195.88	1	195.88	
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.262	23.19	
14	PG Clamp for 100 sq.mm AAA conductor	NO.	684.40	6	4,106.40	
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.551 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00	
16	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00	
17	H.T. Stay Insulator Type-C	No.	59.00	2	118.00	
18	7/10 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00	
19	GI Nut , Bolt & Washer of different sizes (7.433 Kg each Cut Pole)	K.g.	92.04	7.433	684.13	
20	Black Paint	Ltr	259.60	0.5	129.80	
21	Yellow Colour Paint for Background	Ltr	259.60	2	519.20	
Α			Total Cost of	materials	55,592.66	
В	Stoc	k, Storage	& Insurance	i.e 3% of A	1,667.78	
С			Sub To	otal (A+B)	57,260.44	
D			Contigency	@ 3% of C	1,717.81	
E		Te	ools & Plants	@ 2% of C	1,145.21	
F		Tra	nsportation @	7.5% of C	4,294.53	
G			5% on Trf/Br		1,365.62	
- 1.1	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)					
H					2,423.56	
I	Erection Charges @ 20% of		- Not to be use	ed for 33kv	<u>-</u>	
I J	Erection Charges @ 20% of		- Not to be use		2,423.56 - <b>68,207.17</b>	
J			- Not to be use	ed for 33kv of (C to I)	68,207.17	
I	Erection Charges @ 20% of		- Not to be use	ed for 33kv	<u>-</u>	
J SI.	Erection Charges @ 20% of  Civil & Services	PSC pole	- Not to be use Sum	of (C to I)  Total	- 68,207.17 <i>Total</i>	
J SI. No.	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing	PSC pole	- Not to be use Sum Unit Rate	of (C to I)  Total Quantity	- 68,207.17 Total Amount	
SI. No.	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size ( 500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =	Unit No.	Unit Rate	Total Quantity	- 68,207.17 Total Amount 4,500.00	
J SI. No.	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125	Unit  No.	Unit Rate 2,250.00	Total Quantity  2  0.5  0.1	- 68,207.17  Total Amount  4,500.00	
1	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Vnit  No.  Cu.mtr  Cu.mtr	2,250.00  6,500.00  Total Civil &	Total Quantity  2  0.5  0.1  Services  Cotal (J+K)	- 68,207.17  Total Amount  4,500.00  2,925.00  731.25	
1 SI. No. 1 2 3 K	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125	Vnit  No.  Cu.mtr  Cu.mtr	Ont to be use Sum  Unit Rate  2,250.00  6,500.00  Total Civil & Test with 90 Degree Sum  Total Civil & Test with 90 Degree Sum  Sum  Sum  Sum  Sum  Sum  Sum  Sum	Total Quantity  2  0.5  0.1  Services  Total (J+K)  pree Angle)	- 68,207.17  Total Amount  4,500.00  2,925.00  731.25  8,156.25  76,363.42  4,581.81	
1 SI. No.  1  2  3  K L M N	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Voice Point Point PSC pole	Unit Rate  2,250.00  6,500.00  Total Civil & Total With 90 Deg Sub T	Total Quantity  2  0.5  0.1  Services  Total (J+K)  Iree Angle)  otal (L+M)	- 68,207.17  Total Amount  4,500.00  2,925.00  731.25  8,156.25  76,363.42  4,581.81  80,945.23	
1	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Unit  No.  Cu.mtr  Cu.mtr	Unit Rate  2,250.00  6,500.00  6,500.00  Total Civil & Total With 90 Deg Sub Total GST @	Total Quantity  2  0.5  0.1  R Services Total (J+K) pree Angle) otal (L+M)  18% of (N)	- 68,207.17  Total Amount  4,500.00  2,925.00  731.25  8,156.25  76,363.42  4,581.81  80,945.23  14,570.14	
1	Erection Charges @ 20% of  Civil & Services  Description of Materials  Fixing of complete 11KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts BA will do the excvation including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material as per TPCODL Drawing & Standard.  Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Void Poil	Cotal CESS @	Total Quantity  2  0.5  0.1  Services Total (J+K) Tree Angle Otal (L+M) 18% of (N) 2 1% of (N)	- 68,207.17  Total Amount  4,500.00  2,925.00  731.25  8,156.25  76,363.42  4,581.81  80,945.23	

No.   Description of Materials   Unit   Unit Refe   Quantity   Amount		11 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-MVD-0003)			3.4	
No.   Description of Materials   Unit   Unit Rate   Quantity   Amount		MATERIALS FOR 11 KV Pin Poil	nts With W	<u> </u>		
11 KV V cross Arm (10.2 k.g. each )		Description of Materials	Unit	Unit Rate		Total Amount
3   Top bracket 100x50X6 mm Gl channel (2kg each)	1	WPB 160x152 (11Mtr. Long, 30.44KG/Mtr.)	No.	26,516.95	10	2,65,169.50
Danger Plate, 1 no's, for each pole	2	11 KV V cross Arm (10.2 K.g. each )	No.	955.80	10	9,558.00
Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mt length 1 no's = (1x0.59x0.510)	3	Top bracket 100x50X6 mm GI channel (2kg each)	No.	177.00	10	1,770.00
0.510mtr length 1 no's = (1x0.59x0.510)	4	Danger Plate, 1 no's. for each pole	No.	94.40	10	944.00
Back Clamp for anticlimbing device 25X3 mm. flat. 0.59Kg/Mtr.   Flat of 0.510mtr length 4 no's = (4x0.59x0.510)   KG   88.50   12.04   1.068   811 KV pin insulator polymer, 3 Nos. required for each support   No.   236.00   30   7.086   25   25   25   25   25   25   25   2	5		KG	88.50	3.01	266.30
Flat of 0.510mt length 4 no's = (4x0.59x0.510)	6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	30.00	2,832.00
Searthing of Support (Coil Type )	7		KG	88.50	12.04	1,065.19
No-8 G Wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing (S Nut., Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	8	11 KV pin insulator polymer, 3 Nos. required for each support	No.	236.00	30	7,080.00
10   pole with Coil earthing	9	Earthing of Support ( Coil Type )	No.	195.88	10	1,958.80
12   100 mm2 AAAC	10		K.g.	88.50	2.62	231.87
13   Crimping type Midspan Compression Joint for 100 sq.mm AAA   EA   405.27	11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	14.50	1,334.58
Second conductor   Conductor   Conductor   Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =   Coumtr	12	100 mm2 AAAC	K.M.	64,900.00	10.51	6,81,839.40
15   Yellow Colour Paint for Background	13		EA	405.27		-
Total Cost of materials   9,81,83	14	Black Paint	Ltr	259.60	10.0	2,596.00
B	15	Yellow Colour Paint for Background	Ltr	259.60	20.0	5,192.00
C         Sub Total (A+B)         10,11,29           D         Contigency @ 3% of C         30,33           E         Tools & Plants @ 2% of C         20,22           F         Transportation @ 7.5% of C         75,84           G         Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole         13,65           H         Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)         73,81           I         Erection Charges @ 20% of PSC pole- Not to be used for 33kv         Sum of (C to I)         12,25,17           Civil & Services           1         Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr         Cu.mtr         6,500.00         4.50         29,25           2         Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr         Cu.mtr         6,500.00         1.13         7,31           K         Total Civil & Services         36,56           L         Total Material+Services (I+K)         12,61,73           M         Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)         75,70           N         Sub Total GST @ 18% of (N)         2,40,73           Total CESS @ 1% of (N)         13,37,44           O         Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB	Α			Total Cost of	materials	9,81,837.63
Contigency @ 3% of C   30,33	В	Stor	ck, Storage	e & Insurance	i.e 3% of A	29,455.13
Tools & Plants @ 2% of C   20,22	С			Sub To	otal (A+B)	10,11,292.76
Transportation @ 7.5% of C   75,846	D			Contigency	@ 3% of C	30,338.78
Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole   13,65     H   Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)   73,81     I   Erection Charges @ 20% of PSC pole- Not to be used for 33kv     J   Sum of (C to I)   12,25,17     Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) =	E		Т	ools & Plants	@ 2% of C	20,225.86
H						75,846.96
Total   Countr   Cu mtr   Cu						13,656.23
Sum of (C to I)   12,25,17		7 7 1			- ,	73,816.82
Civil & Services           1         Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr         Cu.mtr         6,500.00         4.50         29,250           2         Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu.mtr         Cu.mtr         6,500.00         1.13         7,312           K         Total Civil & Services         36,560           L         Total Material+Services (I+K)         12,61,733           M         Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)         75,700           N         Sub Total (L+M)         13,37,44           O         Total GST @ 18% of (N)         2,40,733           P         Total CESS @ 1% of (N)         13,374           Q         Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB         15,91,553           G% Supervision Charges Summary         6% Supervision Charges Summary	-	Election Charges @ 20% of	PSC pole			12,25,177.40
1       Concreting ratio 1:1.5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr       Cu.mtr       6,500.00       4.50       29,250         2       Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu.mtr       Cu.mtr       6,500.00       1.13       7,312         K       Total Civil & Services 36,560         L       Total Material+Services (I+K) 12,61,73         M       Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB) 75,70         N       Sub Total (L+M) 13,37,44         O       Total GST @ 18% of (N) 2,40,73         P       Total CESS @ 1% of (N) 13,37         Q       Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB 15,91,55         6% Supervision Charges Summary	•	Civil & Services		- Cuii	101 (0 10 1)	12,20,111.40
0.45Cu.mtr						
K         Total Civil & Services         36,566           L         Total Material+Services (I+K)         12,61,73           M         Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)         75,70           N         Sub Total (L+M)         13,37,44           O         Total GST @ 18% of (N)         2,40,73           P         Total CESS @ 1% of (N)         13,37           Q         Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB         15,91,55           6% Supervision Charges Summary	1	0.45Cu.mtr	Cu.mtr	6,500.00	4.50	29,250.00
L         Total Material+Services (I+K)         12,61,73           M         Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)         75,70           N         Sub Total (L+M)         13,37,44           O         Total GST @ 18% of (N)         2,40,73           P         Total CESS @ 1% of (N)         13,37           Q         Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB         15,91,55           6% Supervision Charges Summary			Cu.mtr			7,312.50
M         Other overheads ( Including 6% supervision charges) (for 11 KV Pin Points With WPB)         75,70           N         Sub Total (L+M)         13,37,44           O         Total GST @ 18% of (N)         2,40,73           P         Total CESS @ 1% of (N)         13,37           Q         Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB         15,91,55           6% Supervision Charges Summary						36,562.50
N         Sub Total (L+M)         13,37,44           O         Total GST @ 18% of (N)         2,40,73           P         Total CESS @ 1% of (N)         13,37           Q         Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB         15,91,55           6% Supervision Charges Summary         15,91,55		Othor overheads / Individue - 00/			` '	12,61,739.90
O         Total GST @ 18% of (N)         2,40,73           P         Total CESS @ 1% of (N)         13,37           Q         Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB         15,91,55           6% Supervision Charges Summary						75,704.39 13 37 444 30
P Total CESS @ 1% of (N) 13,374  Q Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB 15,91,556  6% Supervision Charges Summary						2,40,739.97
Q Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB 15,91,55						13,374.44
6% Supervision Charges Summary		Ţ.,,				15,91,558.71
		5.555 .5th. Material - 50171005 (1174				. 5,5 ,,550,7 1
		6% Supervision Charαes S	ummary	l	<u> </u>	
The state of the s	1			or DP Without	AB Switch)	7,613.81
		`	<u> </u>		,	21,869.72

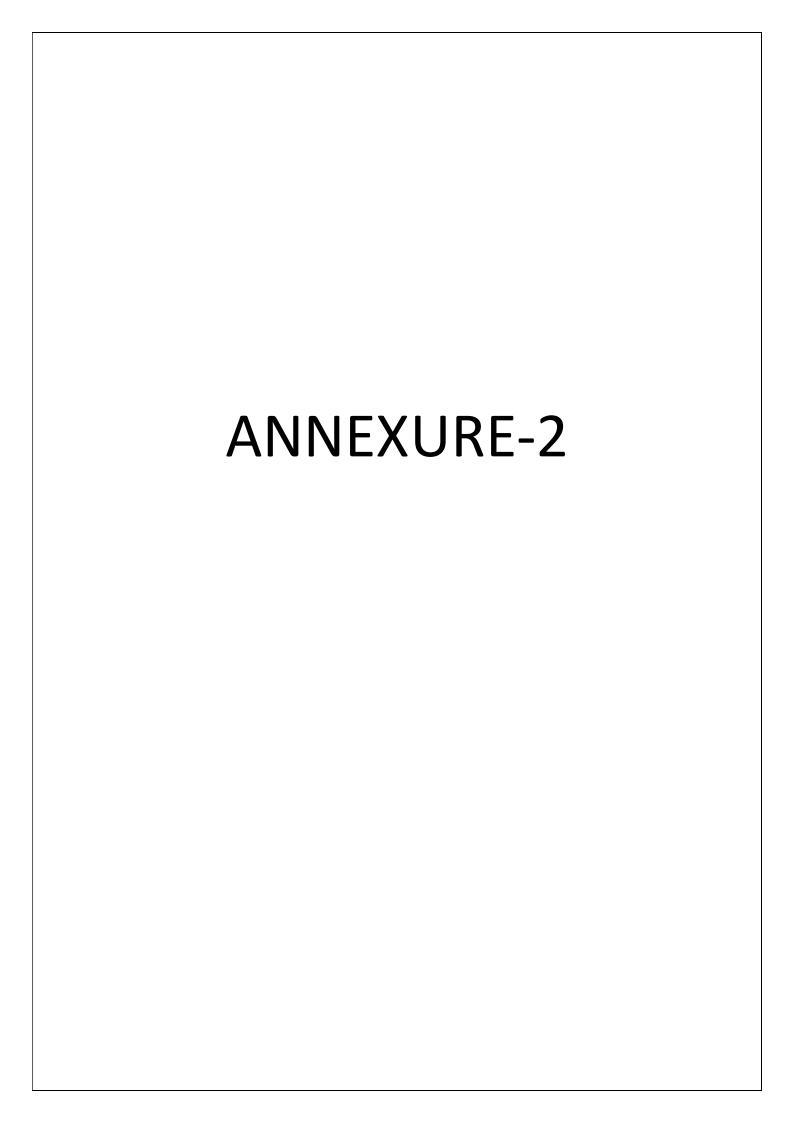
### **Supplementary CAPEX FY: 2022-23**

3	Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 180 Degree	3,670.82			
4	Angle)  4 Other overheads (Including 6% supervision charges) of L (for 11 KV Cut Point with 90 Degree Angle)				
5	Other overheads (Including 6% supervision charges) (for 11 KV Pin Points With WPB)	75,704.39			
	Total (6% supervision charges)				
Gross Total Summary					
1	Gross Total Material +Services (N+O+P) for DP Without AB Switch	1,60,067.67			
2	Gross Total Material +Services (N+O+P) for DP With AB Switch	4,59,774.48			
3	Gross Total Material +Services (N+O+P) for 11 KV Cut Point with 180 Degree Angle	77,172.95			
4	Gross Total Material +Services (N+O) for 11 KV Cut Point with 90 Degree Angle	96,324.82			
5	Gross Total Material +Services (N+O) for 11 KV Pin Points With WPB	15,91,558.71			
6	Gross Total Material, Services	23,84,898.64			

Part-C:-	Part-C:- Dismantling of conductor of 80 sq.mm AAAC for 3.4 CKM,							
SI.No.	Description of Materials	Unit	Quantity	Rate	Amount			
1	Dismantling of 80 mm2 AAAC Conductor.	Mtr	10200	9.00	91,800.00			
Α	Total Cost of materials				91,800.00			
В	Other overheads (Including 6% supervision charges)				5,508.00			
С	SubTotal (A+B)				97,308.00			
D	Total GST @ 18% of (C)			18% of (C)	17,515.44			
E	Total CESS @ 1% of (C)			973.08				
F	Gross Total Material (C+D+E)			1,15,796.52				

#### Benefit:

- 1. To maintain reliability of Power Supply to semi-urban consumers by strengthening the line & mitigation of overloading issue.
- 2. The above arrangement will help to release power supply to upcoming potential consumers.
- 3. Annual Reduction in energy losses in year can be saved.
- 4. Voltage Regulation can be improved.



<u>s</u>	Summary of Proposal Details to mitigate overloading in 33KV Network						
SI. No.	Division	Proposal Details	Mitigation Type	Costing in Cr.			
1	BCDD-II	Proposal for laying of 1CX630sqmm UG cable from Godisahi GSS to proposed RMU at 33kV Naraj feeder, conductor augmentation of Barang and Naraj feeder for providing reliable power supply and improving N-1 contingency condition of both Naraj and Barang 33kV feeders.	Overloading, Low Voltage and N-1	11.20			
2	BED	Proposal for conductor augmentation of Kesura_ Laxmisagar feeder - I & II from 148 sq.mm OH conductor to 232sqmm conductor to mitigate overloading issue and improving N-1 contingency condition.	Overloading and N-1	2.96			
3	BED	Proposals to mitigate overloading issue of 33kV Bhimtangi, Badagada and Lingipur feeders (Since there is a delay in commissioning of Proposed Badagada OPTCL GSS)  a) Proposal for conductor augmentation of Balakati feeder - 0.5km, interlinking of Badagada PSS to Uttra PSS with 232sqmm OH conductor - 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS.  b) Proposal for construction of new 33kv fdr from Pratpasashan Grid to Siula PSS.  c) Installation of 2No's 33KV RMU at Uttara & Lingipur d) Proposal for augmentation of interlinking 400Sqmm cable with 630sqmm near T-off to Lingipur PSS.	Overloading and N-1	7.77			
4	BED	Proposal for replacement of existing lower size 33kv (300Sqmm/400sqmm) HT cable inside Mancheswar-B GSS to mitigate overloading issue	Overloading	0.78			
	Total Amount 22.71						

## FDR-1 (Proposed Cable from Godisahi GSS to Naraj 33kV feeder along with augmentation of Barang and Naraj 33kV feeders)

#### **Proposal:**

Proposal for providing reliable power supply and improving N-1 contingency and mitigate overloading issue of Naraj and Barang 33kV feeders.

#### **Objective:**

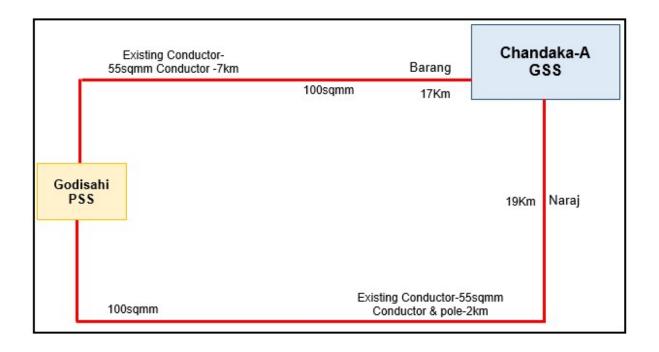
- Power evacuation from upcoming Godisahi Grid.
- To maintain reliable power supply along with improving N-1 connectivity, mitigate overload, low voltage issue and strengthening the existing network.

#### **Existing Scenario:**

- At present, Naraj and Barang 33kV feeders are emanating from Chandaka-A Grid, having mixed type conductor (55/100) with a length of 19km and 17km respectively.
- Present peak load of Barang 33kV feeder is 14.1 MVA and Naraj 33kV feeder is 4.23MVA.
- Considering present scenario, there is no N-1 reliability at both the feeders. In addition, both the feeders are not capable to meet the future load demand in the area.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Naraj	10.63	4.23	40%	OK	Not OK
Barang	15.54	14.1	91%	Partial Overload	Not OK

#### Existing SLD (FY' 22-23):



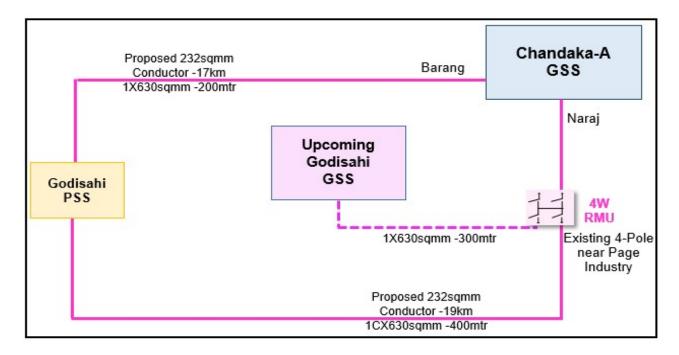
#### **Proposed Scenario:**

- After linking new feeder from Godisahi GSS and augmentation of Naraj and Barang 33kV feeders, the feeders will be, deliver reliable power supply to the consumers.
- Overloading, low voltage and N-1 issue of network will mitigate.

Considering 68% load growth, the feeder will capable to feed the load demand for next 7 to 8 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 29-30 (MVA)	" 29-30 %		Feeder N- 1 Status
Naraj	26.51	4.2	68%	7.06	27%	OK	ОК
Barang	26.51	10.1	68%	16.97	64%	OK	OK
New Fdr.	26.51	4.1	68%	6.89	26%	OK	OK

#### Proposed SLD (FY' 23-24):



#### **Detailed Scope of Work:**

Laying of 1CX630sqmm UG cable from Godisahi GSS to proposed RMU at 33kV Naraj feeder, conductor augmentation of Barang and Naraj feeder for providing reliable power supply and improving N-1 contingency condition of both Naraj and Barang 33kV feeders.

#### BOQ:

TP CENTRAL ODISHA DISTRIBUTION LIMITED					
Name of the Division :-	BCDD-II				
Name of the Sub-Division : -	Periphery				
Name of the Section : -	Godisahi				
Name of the Work :-	Proposal for laying of 1CX630sqmm UG cable from Godisahi GSS to proposed RMU at 33kV Naraj feeder, conductor augmentation of Barang and Naraj feeder for providing reliable power supply and improving N-1 contingency condition of both Naraj and Barang 33kV feeders.				
Scope of work:-	33kV, 1C 630sqmm UG Cable -0.3Ckm with 4- Way RMU (LLVV) -1no. Replacement of conductor along with poles from 232sqmm conductor at 33kV Naraj feeder -19Ckm Conductor augmentation of Barang feeder with 232sqmm conductor				

		along with interposing poles -17Ckm					
		0.6Km Cable Augmentation with 1Cx630sq.mm.					
		4 No's Cable DP.					
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)					
		ABSTRACT OF ESTIMATE					
SI. No.	Part	Description	Amount				
1	A	Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - 0.3km cable and 1nos 4 Way (LLVV) RMU.	94,73,668.56				
2	В	Estimate for replacement of existing (55/100/148) sqmm conductor along with poles to 232sqmm conductor at 33kV Naraj feeder - 19Ckm	4,87,39,691.03				
3	С	Estimate for conductor augmentation of Barang feeder from existing (55/100/148)sqmm OH conductor to 232sqmm conductor along with interposing poles -17Ckm	4,21,05,474.16				
	D	Estimate for 33kV, 1C 630sqmm UG Cable - 0.6km cable.	97,05,508.76				
4	Е	Estimate for construction of 33KV DP With Isolator - 4 No's	20,02,770.76				
		Total Amount	11,20,27,113.28				
		Total Amount (In Cr)	11.20				
Total	estimated cost is Rs. 11.2	Crore. (On TPCODL Capex Scheme)					

### Part-A

Standard BoQ and Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - 0.3km cable and 1nos 4 Way (LLVV) RMU.

### **Supply Portion**

	Feeder Length		0		
SI. No.	Description of items	Unit	Total Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (along with 1core spare cable) with accessories		0.3		
а	Length of 33kV 1C, 630sqmm cable (open trench)	km	0.3		
b	Length of 33kV 1C, 630sqmm cable (HDD)	km	o		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA-59.4kA and SC rating of Armour in kA-20kA)	km	1.2	13,37,130.00	16,04,556.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	4	9,726.50	38,906.02
1.3	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	О	9,726.50	-
1.4	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	12	7,409.93	88,919.14
1.5	Supply of materials for High Density Polyethylene (HDPE) pipe 110mm	km	0.9	5,20,436.00	4,68,392.40

	diameter, PE 80- PN8 for laying of 33kV				
	UG cable				
2	Supply of 33kV RMU				
а	No. of 33kV 3Way RMU (LLV+M)	nos.	0		
b	No. of 33kV 4Way RMU (LLVV+M)	nos.	0		
С	No. of 33kV 3Way RMU (LLV)	nos.	0		
d	No. of 33kV 4Way RMU (LLVV)	nos.	1		
e f	No. of 33kV 3Way RMU (LLL)	nos.	0		
2.1	No. of 33kV 4Way RMU (LLLL)  Supply of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M)	nos.	0	22,93,723.00	-
2.2	Supply of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M)	Nos.	0	31,74,874.00	-
2.3	Supply of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	17,87,101.00	-
2.4	Supply of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	23,35,264.00	23,35,264.00
2.5	Supply of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	14,46,210.00	-
2.6	Supply of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	19,59,421.00	-
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	13.20	88.50	1,168.20
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,239.00	2,478.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along 11kV UG cable.	km	1	56,515.00	56,515.00
4.2	Supply of HDPE PLB duct of size 32/26mm for laying of OFC Cables.	km	0	77,990.00	-
4.3	Supply of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0	6,766.00	-
4.4	Supply of end Connector and accessories for OFC connection at RMU,	Set	0	7,535.00	-
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along with associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	4,35,542.00	4,35,542.00
	Sub Total (Supply Pe	ortion) (ir	Rs.)		50,31,740.75
Erecti	ion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by <b>open trench method</b> .	km	1.2	94,500.00	1,13,400.00

	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV,				
1.2	1Core, 630sqmm, aluminium UG cable kits	Set	4	3,480.00	13,920.00
1.3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	0	3,480.00	-
1.4	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	12	3,480.00	41,760.00
1.5	Supply, Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by <b>HDD method</b> with HDPE pipe (110mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0	23,00,000.00	-
1.6	Laying of <b>110mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.90	1,04,114.67	93,703.20
2	Erection, Commissioning, Wiring and Testing of 33kV RMU				
2.1	Erection of RMU 33KV 3WAY 630A WITH METERING UNIT (LLV+M)	Nos.	0	15,000.00	-
2.2	Erection of RMU 33KV 4WAY 630A WITH METERING UNIT (LLVV+M)	Nos.	0	15,000.00	-
2.3	Erection of RMU 33KV 3WAY 630A (2ISLTR+ 1BKR) (LLV)	Nos.	0	15,000.00	-
2.4	Erection of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	1	15,000.00	15,000.00
2.5	Erection of RMU 33KV 3WAY 630AMP (3 ISOLATORS) (LLL)	Nos.	0	15,000.00	-
2.6	Erection of RMU 33KV 4WAY 630AMP (4 ISOLATORS) (LLLL)	Nos.	0	15,000.00	-
3	FRTU and OFC for RMU SCADA Automation				
3.1	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables. Laid along 11kV UG cable. through open trench	km	1	27,296.35	27,296.35
3.2	Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables. Laid along 11kV UG cable. through HDD.	km	0	1,22,488.27	-
3.3	Erection of Straight through connectors (Plastic coupler) and accessories for OFC connection.	Set	0	612.54	-
3.4	Erection of end Connector and accessories for OFC connection at RMU,	Set	0	1,225.07	-
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along with associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	1	6,124.36	6,124.36
	Sub Total (Erection P	ortion) (i	n Rs.)		3,11,203.91

SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				,
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	252	700.00	1,76,400.00
1.1.b	Earth work excavation of <b>hard rock</b>	Cum	108	1,720.00	1,85,760.00
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	0	171.55	-
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	О	2,500.00	-
1.4	Back filling with excavated soil outside and above the trench	Cum	360	202.00	72,720.00
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.15	26,43,670.63	3,96,550.59
2	Civil works for Prefabricated RCC foundation with supply of all materials				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	23,145.30	23,145.30
3	Supply of GI Fencing with Gate around each <b>RMU</b>	sqmtr	20	3,600.00	72,000.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	0	1,463.40	-
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	10	1,012.00	10,120.00
	Sub Total (Civil Por	tion) (in	Rs.)		9,41,509.89
Α	Sub Total (Supply Portion)				50,31,740.75
В	Stock, Storage & Insurance @ 3 % of A				1,50,952.22
С	Sub Total (A+B)				51,82,692.97
D	Contingency @ 3 % of C			<u> </u>	1,55,480.79
E	Tools & Plants Charges @ 2% of C (consider	erea for ea	artning items	)	75.11
F	Transportation @ 7.5% of C				3,88,701.97
G H	Erection Charges @ 10% of earthing items  Total (C+D+E+F+G)				375.56 <b>57,27,326.4</b> 1
 	Sub Total (Erection Portion + Civil Portion)				12,52,713.81
	Total Cost (H+I)				69,80,040.21
 К	Other Overhead /(including Supervision Cha	rnes) @ (	3 % of I		4,18,802.41
L	Total Estimated Capital Cost i.e. (J+K)	gos) w	. ,, Ji U		73,98,842.63
M	GST @ 18% of L				13,31,791.67

N	GST @ 1% of L	7,39,884.26
0	Grand Total (L+M+N)	94,70,518.56
Р	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	2000
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	94,73,668.56

<u>Part</u>	- <u>B</u>							
33k\	33kV Naraj feeder - 19km Aug.							
	No. of 33 KV DP required Without Isolator (Ref. Drawing No TPCODL-HVD-0004)							
	MATERIALS FOR 33 KV D	P Withou	ıt Isolator	1				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	13 Mtr. Long H-Pole	No	56,735.71	60	34,04,142.86			
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =( 2x9.56x3.25)	KG	88.50	1864.2	1,64,981.70			
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	118.944	10,526.54			
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =( 5x7.14x1.96)	KG	88.50	2099.16	1,85,775.66			
5	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	1853.28	1,64,015.28			
6	Danger Plate, 2 no's.	No.	94.40	60	5,664.00			
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	18.054	1,597.78			
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	60	8,850.00			
9	H.T. Stay set (Complete )	Set	1,239.00	60	74,340.00			
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	120	7,080.00			
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	900	79,650.00			
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	30	37,170.00			
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	354	31,329.00			
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	180	16,992.00			
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	72.216	6,391.12			

16   33KV pin insulator polymer							
18   Disc insulator (B&S) 90 KN polymer	16	33KV pin insulator polymer	No.	566.40	90	50,976.00	
19 PG Clamp for 232 sq.mm AAA conductor	17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	180	1,06,200.00	
20   GI Nut. Bolt & Washer of different sizes (12.261 Kg ach DP without Isolator)   Cach DP without Isolator)   Ltr   259.60   30   7,788.00   259.60   60   15,576.00   16,576.00   15,	18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	180	2,44,260.00	
20   each DP without Isolator)	19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	180	2,44,260.00	
229   Yellow Colour Paint for Background	20		K.g.	92.04	367.83	33,855.07	
Total Cost of materials   49,01,421.01	21	Black Paint	Ltr	259.60	30	7,788.00	
Stock, Storage & Insurance i.e 3% of A   1,47,042.63	22	Yellow Colour Paint for Background	Ltr	259.60	60	15,576.00	
1,47,042.53   50,48,463.64	Α		•	Total Cost of	materials	49,01,421.01	
C   Sub Total (A+B)   50,48,463.64	В	Stoc	k, Storage	e & Insurance	i.e 3% of A	1,47,042.63	
D	С			Sub To	otal (A+B)		
Tools & Plants @ 2% of C	D			Contigency	@ 3% of C		
Transportation @ 7.5% of C   3,78,634.77	Е		Т	ools & Plants	@ 2% of C		
Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole	F		Tra	nsportation @	7.5% of C	, ,	
H   Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)   1,36,717.89     I   Erection Charges @ 20% of PSC pole- Not to be used for 33kv	G	Erection Charges (	@ 5% on	Trf/Breaker/WI	PB/ H-Pole		
Sum of (C to I)   Sum of (C	Н	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)					
Si.   Description of Materials   Unit   Unit Rate   Total Quantity   Amount	ı	Erection Charges @ 20% of PSC pole- Not to be used for 33kv					
SI. No.  Description of Materials  Unit  Unit Rate  Total Quantity  Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) Coupring ratio 1:1.5:3 with dimension ( 500X500X450) = 0.1125 Cu mtr  Coupring ratio 1:1.5:3 with dimension ( 500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  K  Total Civil & Services  4,65,585.00  L  Total (J+K)  Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)  Sub Total (L+M)  68,44,566.11							
No. Description of Materials    Fixing of 33KV line Complete stay set includes 1)   Turn Buckle Assembly 2) Stay Rod & Stay plate 3)   Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including exevation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)    Concreting ratio 1:1.5:3 (500mmX500mmX2200mm)   cu.mtr   6,500.00   33   2,14,500.00     Couping ratio 1:1.5:3 with dimension (	J					59,91,552.84	
Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  2	J	Civil & Serv	ices			59,91,552.84	
2       = 0.55Cu.mtr       Cu.mtr       6,500.00       33       2,14,500.00         3       Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr       Cu.mtr       6,500.00       6.75       43,875.00         4       Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover       No.       2,407.00       30       72,210.00         K       Total Civil & Services         L       Total (J+K)       64,57,137.84         M       Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)       3,87,428.27         N       Total GST @ 18% of (N)	SI.			Sum	of (C to I)	Total	
3         Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr         Cu.mtr         6,500.00         6.75         43,875.00           4         Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover         No.         2,407.00         30         72,210.00           K         Total Civil & Services         4,65,585.00           L         Total (J+K)         64,57,137.84           M         Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)         3,87,428.27           N         Sub Total (L+M)         68,44,566.11	SI. No.	Description of Materials  Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will	Unit	Sum Unit Rate	Total Quantity	Total Amount	
Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  K  Total Civil & Services  4,65,585.00  Total (J+K)  Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)  Sub Total (L+M)  Total CST @ 18% of (N)	SI. No.	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.) Concreting ratio 1:1.5:3 (500mmX500mmX2200mm)	Unit No.	<b>Sum Unit Rate</b> 2,250.00	Total Quantity	Total Amount 1,35,000.00	
L Total (J+K) 64,57,137.84  M Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator) 3,87,428.27  N Sub Total (L+M) 68,44,566.11	\$ <i>I.</i> <b>No.</b> 1	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.) Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr Couping ratio 1:1.5:3 with dimension (	No.	Sum Unit Rate 2,250.00	Total Quantity  60	Total Amount 1,35,000.00	
M Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)  Sub Total (L+M)  Total GST @ 18% of (N)	\$I. No.  1	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and	No. Cu.mtr Cu.mtr	Sum Unit Rate 2,250.00 6,500.00	Total Quantity  60  33  6.75	Total Amount  1,35,000.00  2,14,500.00  43,875.00	
N Sub Total (L+M) 68,44,566.11	\$I. No.  1 2 3 4	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and	No. Cu.mtr Cu.mtr	Sum Unit Rate  2,250.00  6,500.00  6,500.00  2,407.00	60  33 6.75 30	Total Amount  1,35,000.00  2,14,500.00  43,875.00  72,210.00	
N Sub Total (L+M) 68,44,566.11	\$1. No.  1 2 3 4	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and	No. Cu.mtr Cu.mtr	Sum  Unit Rate  2,250.00  6,500.00  6,500.00  7,407.00  Total Civil 8	Total Quantity  60  33  6.75  30  See Services	Total Amount  1,35,000.00  2,14,500.00  43,875.00  72,210.00  4,65,585.00	
O Total CST @ 18% of (N)	\$1. No.  1 2 3 4 K L	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.  Cu.mtr Cu.mtr No.	Sum  Unit Rate  2,250.00  6,500.00  6,500.00  7 Total Civil 8	Total Quantity  60  33  6.75  30  8 Services  Total (J+K)	Total Amount  1,35,000.00  2,14,500.00  43,875.00  72,210.00  4,65,585.00  64,57,137.84	
	\$1. No.  1 2 3 4 K L	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.  Cu.mtr Cu.mtr No.	### Sum  ### Unit Rate  2,250.00  6,500.00  6,500.00  7 Otal Civil 8  ### S KV DP Without Sum	Total Quantity  60  33  6.75  30  Services  Total (J+K)  But Isolator)	Total Amount  1,35,000.00  2,14,500.00  43,875.00  72,210.00  4,65,585.00  64,57,137.84  3,87,428.27	

Р			Total GST @	) 1% of (N)	68,445.66
Q	Gross Total Material +Services (N+O+	P) for 33	KV DP Witho	ut Isolator	81,45,033.67
•	No. of 33 KV DP required With Isolator (Ref. Drawing No TPCODL-HVD-0004)				
	MATERIALS FOR 33 KV	DP With	<u>Isolator</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	16	9,07,771.43
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =( 2x9.56x4.3)	KG	88.50	657.728	58,208.93
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	31.7184	2,807.08
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =( 1x7.14x4.3)	KG	88.50	245.616	21,737.02
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =( 2x7.14x4.3)	KG	88.50	491.232	43,474.03
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =( 4x7.14x4.3)	KG	88.50	982.464	86,948.06
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	709.488	62,789.69
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 1x7.14x0.8)	KG	88.50	45.696	4,044.10
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	13.968	1,236.17
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	12.24	1,083.24
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =( 2x9.56x0.5)	KG	88.50	76.48	6,768.48
12	Danger Plate, 2 no's.	No.	94.40	16	1,510.40
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	4.8144	426.07
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	16	2,360.00
15	H.T. Stay set (Complete )	Set	1,239.00	16	19,824.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	32	1,888.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	240	21,240.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	16	19,824.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	453.12	40,101.12
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	48	4,531.20

21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's =	KG	88.50	19.2576	1 704 20
22	(8x0.59x0.510) Lightning Arrester(30KV,10KA) (Station Class,class-	EA		24	1,704.30
23	2) 33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	12,213.00 84,464.40	8	2,93,112.00 6,75,715.20
24	33KV pin insulator polymer	No.	566.40	24	13,593.60
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	48	28,320.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	48	65,136.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	48	65,136.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	177.2	16,309.49
29	Black Paint	Ltr	259.60	8	2,076.80
30	Yellow Colour Paint for Background	Ltr	259.60	16	4,153.60
Α			Total Cost of	f materials	24,73,830.00
В	Stoc	k, Storage	e & Insurance	i.e 3% of A	74,214.90
С			Sub To	otal (A+B)	25,48,044.90
D			Contigency	@ 3% of C	76,441.35
Е		@ 2% of C	50,960.90		
F		7.5% of C	1,91,103.37		
G	Erection Charges (	PB/ H-Pole	46,750.23		
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	/PB/ H-Pc	le/HT stay set	/PSC pole)	1,56,636.90
I 	Erection Charges @ 20% of	PSC pole			-
J	Civil & Servi	ices	Sum	of (C to I)	30,69,937.64
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	16	36,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	8.8	57,200.00
	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.8	11,700.00
3	300/300/430)= 0.1123 Od IIII				
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	16	38,512.00
	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and	No.	2,407.00  Total Civil 8		38,512.00 <b>1,43,412.00</b>

М	Other overheads ( Including 6% supervision charge	1,92,800.98			
N			Sub T	otal (L+M)	34,06,150.61
0			Total GST @	18% of (N)	6,13,107.11
Р			Total GST @	) 1% of (N)	34,061.51
Q	Gross Total Material +Services (N-	O+P) for	33 KV DP Wi	th Isolator	40,53,319.23
,-	No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-HVD-0002)				
	MATERIALS FOR 33 KV Cut Poir	t with 18	Degree Ang	<u>le</u>	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	30	17,02,071.43
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	975.12	86,298.12
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	158.592	14,035.39
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	175.5216	15,533.66
5	Danger Plate, 1 no's.	No.	94.40	30	2,832.00
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	9.027	798.89
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	90	8,496.00
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	36.108	3,195.56
9	33KV pin insulator polymer	No.	566.40	90	50,976.00
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	180	1,06,200.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	180	2,44,260.00
12	Earthing of Support ( Coil Type )	EA	195.88	30	5,876.40
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	7.86	695.61
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	180	2,44,260.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	146.37	13,471.89
16	Black Paint	Ltr	259.60	30	7,788.00
17	Yellow Colour Paint for Background	Ltr	259.60	60	15,576.00
Α			Total Cost of	f materials	25,22,364.95
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	75,670.95
С			Sub To	otal (A+B)	25,98,035.90
D			Contigency	@ 3% of C	77,941.08

Е		@ 2% of C	51,960.72		
F		Tra	ansportation @	7.5% of C	1,94,852.69
G	Erection Charges	@ 5% on	Trf/Breaker/WI	PB/ H-Pole	87,656.68
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	/PB/ H-Pc	ole/HT stay set	/PSC pole)	84,490.23
I	Erection Charges @ 20% of	PSC pole	e- Not to be use	ed for 33kv	-
J			Sum	of (C to I)	30,94,937.30
	<u>Civil &amp; Serv</u>	<u>ices</u>	I		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	16.5	1,07,250.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.375	21,937.50
K			Total Civil 8	& Services	1,29,187.50
L			7	otal (J+K)	32,24,124.80
М	Other overheads (Including 6% supervision charges	) of L (for		nt with 180 gree Angle)	1,93,447.49
N				otal (L+M)	34,17,572.29
0			Total GST @	18% of (N)	6,15,163.01
Р			Total GST @	) 1% of (N)	34,175.72
Q	Gross Total Material +Services (N+O+P) for 33 KV	Cut Point	t with 180 Deg	ree Angle	40,66,911.03
	No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-HVD-0003)				
	MATERIALS FOR 33 KV Cut Pol	nt with 90	Degree Ang	<u>le</u>	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	88.50	520.064	46,025.66
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	84.5824	7,485.54
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	88.50	93.61152	8,284.62
5	Danger Plate, 1 no's.	No.	94.40	8	755.20
	Back Clamp for danger Plate 25X3 mm. flat,	KG	00.50	2.4072	0.40.04
6	0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	1.0	88.50		213.04
7		Kg	94.40	24	2,265.60
	(1x0.59x0.510)				

10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	48	28,320.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	48	65,136.00
12	Earthing of Support ( Coil Type )	No.	195.88	8	1,567.04
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	2.096	185.50
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	48	65,136.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	8	1,180.00
16	H.T. Stay set (Complete )	Set	1,239.00	8	9,912.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	8	472.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	90.48	8,327.78
20	Black Paint	Ltr	259.60	8	2,076.80
21	Yellow Colour Paint for Background	Ltr	259.60	16	4,153.60
Α			Total Cost of	f materials	7,34,979.04
В	Stoc	k, Storage	e & Insurance	i.e 3% of A	22,049.37
С			Sub To	otal (A+B)	7,57,028.41
D			Contigency	@ 3% of C	22,710.85
Е		Т	ools & Plants	@ 2% of C	15,140.57
F		Tra	ansportation @	7.5% of C	56,777.13
G	Erection Charges (	@ 5% on	Trf/Breaker/WI	PB/ H-Pole	23,375.11
Н	Erection Charges @ 10% of C (except Trf/Breaker/N	/PB/ H-Pc	ole/HT stay set	/PSC pole)	26,667.66
ı	Erection Charges @ 20% of	PSC pole	e- Not to be use	ed for 33kv	-
J			Sum	of (C to I)	9,01,699.74
	<u>Civil &amp; Servi</u>	<u>ices</u>			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
K			Total Civil 8	& Services	52,450.00
L			ī	otal (J+K)	9,54,149.74

M	Other overheads (Including 6% supervision charges	oint with 90 gree Angle)	57,248.98		
N		otal (L+M)	10,11,398.72		
0		18% of (N)	1,82,051.77		
Р			Total GST @	) 1% of (N)	10,113.99
Q	Gross Total Material +Services (N+O+P) for 33 KV	Cut Poi	nt with 90 Deg	ree Angle	12,03,564.48
	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-HVD-0001)				
	MATERIALS FOR 33 F	(V Pin P	<u>oints</u>	T	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	114	64,67,871.43
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	114	2,12,541.60
3	Top bracket 100x50x6mm GI channel ( 2kg each)	No.	177.00	114	20,178.00
4	Danger Plate, 1 no's.	No.	94.40	114	10,761.60
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	34	3,035.78
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	342	32,284.80
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	137	12,143.12
8	33KV pin insulator polymer	No.	566.40	342	1,93,708.80
9	Earthing of Support ( Coil Type )	No.	195.88	114	22,330.32
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	30	2,643.32
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	165	15,214.21
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	59	1,08,41,975.70
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	114	29,594.40
15	Yellow Colour Paint for Background	Ltr	259.60	228	59,188.80
A			Total Cost of	f materials	1,79,23,471.88
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	5,37,704.16
С			Sub To	otal (A+B)	1,84,61,176.04
D			Contigency	@ 3% of C	5,53,835.28
Е		-	Γools & Plants	@ 2% of C	3,69,223.52
F		Tr	ansportation @	7.5% of C	13,84,588.20
G	Erection Charges (	@ 5% on	Trf/Breaker/W	PB/ H-Pole	3,33,095.38
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	PB/ H-P	ole/HT stay set	/PSC pole)	11,79,926.85

I	Erection Charges @ 20% of	ed for 33kv	-		
J		of (C to I)	2,22,81,845.26		
	<u>Civil &amp; Servi</u>	ices			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	219.45	14,26,425.00
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	44.8875	2,91,768.75
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	180	2,43,000.00
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.40	114	4,719.60
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	1200	9,504.00
6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	342	2,770.20
7	Dismantling of Disc Insulator with Hardware including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	120	972.00
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	58.71	5,28,390.00
K			Total Civil 8	& Services	25,07,549.55
L			7	otal (J+K)	2,47,89,394.81
М	Other overheads (Including 6% supervision of	charges) o	of L (for 33 KV	Pin Points)	14,87,363.69
N			Sub T	otal (L+M)	2,62,76,758.50
0			Total GST @	18% of (N)	47,29,816.53
Р			Total GST @	) 1% of (N)	2,62,767.59
Q	Gross Total Material +Service	Pin Points	3,12,69,342.62		
	6% Supervision Charg	ges Sumr	nar <u>y</u>		
1	Other overheads (Including 6% supervision charges) of	ut Isolator)	3,87,428.27		
2	Other overheads ( Including 6% supervision charge	ith Isolator)	1,92,800.98		
3	Other overheads (Including 6% supervision charges	1,93,447.49			
4	Other overheads ( Including 6% supervision charge	pint with 90 gree Angle)	57,248.98		
5	Other overheads (Including 6% supervision o	charges) o	of L (for 33 KV	Pin Points)	14,87,363.69
-		23,18,289.41			

	Gross Total Summary	
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	81,45,033.67
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	40,53,319.23
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	40,66,911.03
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	12,03,564.48
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	3,12,69,342.62
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	420.00
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	4,87,39,691.03

<u>Part-C</u>						
33kV Barang feeder - 17km Aug.						
	No. of 33 KV DP required Without Isolator (Ref. Drawing No TPCODL-HVD-0004)					
	MATERIALS FOR 33 KV L	OP Withou	ut Isolator			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	13 Mtr. Long H-Pole	No	56,735.71	54	30,63,728.57	
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =( 2x9.56x3.25)	KG	88.50	1677.78	1,48,483.53	
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	107.0496	9,473.89	
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =( 5x7.14x1.96)	KG	88.50	1889.244	1,67,198.09	
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	1667.952	1,47,613.75	
6	Danger Plate, 2 no's.	No.	94.40	54	5,097.60	
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	16.2486	1,438.00	
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	54	7,965.00	
9	H.T. Stay set (Complete )	Set	1,239.00	54	66,906.00	
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	108	6,372.00	
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	810	71,685.00	
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	27	33,453.00	

13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	318.6	28,196.10
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	162	15,292.80
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	64.9944	5,752.00
16	33KV pin insulator polymer	No.	566.40	81	45,878.40
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	162	95,580.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	162	2,19,834.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	162	2,19,834.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	331.047	30,469.57
21	Black Paint	Ltr	259.60	27	7,009.20
22	Yellow Colour Paint for Background	Ltr	259.60	54	14,018.40
Α			Total Cost of	f materials	44,11,278.91
В	Stoc	k, Storage	e & Insurance	i.e 3% of A	1,32,338.37
С			Sub To	otal (A+B)	45,43,617.28
D			Contigency	@ 3% of C	1,36,308.52
Е		Т	ools & Plants	@ 2% of C	90,872.35
F		7.5% of C	3,40,771.30		
G	Erection Charges (	@ 5% on	Trf/Breaker/W	PB/ H-Pole	1,57,782.02
Н	Erection Charges @ 10% of C (except Trf/Breaker/M	/PB/ H-Pc	le/HT stay set	/PSC pole)	1,23,046.10
I	Erection Charges @ 20% of	PSC pole	- Not to be use	ed for 33kv	-
J			Sum	of (C to I)	53,92,397.56
	<u>Civil &amp; Serv</u>	<u>ices</u>		1	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	54	1,21,500.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	29.7	1,93,050.00
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	6.075	39,487.50
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	27	64,989.00
K					
L			1	Total (J+K)	58,11,424.06

М	Other overheads (Including 6% supervision ch	OP Without Isolator)	3,48,685.44		
N		otal (L+M)	61,60,109.50		
0			Total GST @	18% of (N)	11,08,819.71
Р			Total GST @	) 1% of (N)	61,601.10
Q	Gross Total Material +Services (N+O+	P) for 33	KV DP Witho	ut Isolator	73,30,530.31
	No. of 33 KV DP required With Isolator (Ref. Drawing No TPCODL-HVD-0004)				
	MATERIALS FOR 33 KV	DP With	<u>Isolator</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	14	7,94,300.00
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =( 2x9.56x4.3)	KG	88.50	575.512	50,932.81
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	27.7536	2,456.19
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =( 1x7.14x4.3)	KG	88.50	214.914	19,019.89
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =( 2x7.14x4.3)	KG	88.50	429.828	38,039.78
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =( 4x7.14x4.3)	KG	88.50	859.656	76,079.56
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	620.802	54,940.98
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 1x7.14x0.8)	KG	88.50	39.984	3,538.58
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	12.222	1,081.65
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	10.71	947.84
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =( 2x9.56x0.5)	KG	88.50	66.92	5,922.42
12	Danger Plate, 2 no's.	No.	94.40	14	1,321.60
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	4.2126	372.82
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	14	2,065.00
15	H.T. Stay set (Complete )	Set	1,239.00	14	17,346.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	28	1,652.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	210	18,585.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	14	17,346.00

19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	396.48	35,088.48	
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	42	3,964.80	
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	16.8504	1,491.26	
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	21	2,56,473.00	
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with Pl(Polymer)	Set	84,464.40	7	5,91,250.80	
24	33KV pin insulator polymer	No.	566.40	21	11,894.40	
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	42	24,780.00	
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	42	56,994.00	
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	42	56,994.00	
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	155.05	14,270.80	
29	Black Paint	Ltr	259.60	7	1,817.20	
30	Yellow Colour Paint for Background	Ltr	259.60	14	3,634.40	
Α	A Total Cost of materials					
В	Stoc	k, Storage	e & Insurance	i.e 3% of A	64,938.04	
С			Sub To	otal (A+B)	22,29,539.29	
D			Contigency	@ 3% of C	66,886.18	
E		Т	ools & Plants	@ 2% of C	44,590.79	
F		Tra	ansportation @	7.5% of C	1,67,215.45	
G	Erection Charges (					
		@ 5% on	Trf/Breaker/W	PB/ H-Pole	40,906.45	
Н	Erection Charges @ 10% of C (except Trf/Breaker/M					
H	•	/PB/ H-Pc	ole/HT stay set	/PSC pole)	40,906.45	
	Erection Charges @ 10% of C (except Trf/Breaker/M	/PB/ H-Pc	ole/HT stay set	/PSC pole)	40,906.45	
I	Erection Charges @ 10% of C (except Trf/Breaker/M	/PB/ H-Pc	ole/HT stay set	/PSC pole) ed for 33kv	40,906.45 1,37,057.28	
I	Erection Charges @ 10% of C (except Trf/Breaker/M Erection Charges @ 20% of	/PB/ H-Pc	ole/HT stay set	/PSC pole) ed for 33kv	40,906.45 1,37,057.28	
J SI.	Erection Charges @ 10% of C (except Trf/Breaker/M Erection Charges @ 20% of <u>Civil &amp; Serv</u>	/PB/ H-Pc PSC pole	ole/HT stay set e- Not to be use Sum	/PSC pole) ed for 33kv of (C to I)	40,906.45 1,37,057.28 - 26,86,195.43	
J SI. No.	Erection Charges @ 10% of C (except Trf/Breaker/MErection Charges @ 20% of Civil & Server Description of Materials  Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will	PSC pole	ole/HT stay set e- Not to be use Sum Unit Rate	/PSC pole) ed for 33kv of (C to I)  Total Quantity	40,906.45 1,37,057.28 - 26,86,195.43 Total Amount	

4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	14	33,698.00
K		1	Total Civil 8	& Services	1,25,485.50
L			1	Total (J+K)	28,11,680.93
М	Other overheads ( Including 6% supervision charges	s) of L (fo	r 33 KV DP W	ith Isolator)	1,68,700.86
N			Sub T	otal (L+M)	29,80,381.79
0			Total GST @	18% of (N)	5,36,468.72
Р			Total GST @	) 1% of (N)	29,803.82
Q	Gross Total Material +Services (N+	O+P) for	33 KV DP Wi	th Isolator	35,46,654.33
,.	No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-HVD-0002)				
	MATERIALS FOR 33 KV Cut Poin	nt with 18	BO Degree Ang	<u>gle</u>	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	27	15,31,864.29
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	877.608	77,668.31
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	142.7328	12,631.85
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	157.9694	13,980.30
5	Danger Plate, 1 no's.	No.	94.40	27	2,548.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	8.1243	719.00
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	81	7,646.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	32.4972	2,876.00
9	33KV pin insulator polymer	No.	566.40	81	45,878.40
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	162	95,580.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	162	2,19,834.00
12	Earthing of Support ( Coil Type )	EA	195.88	27	5,288.76
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	7.074	626.05
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	162	2,19,834.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	131.733	12,124.71
16	Black Paint	Ltr	259.60	27	7,009.20
17	Yellow Colour Paint for Background	Ltr	259.60	54	14,018.40

Α		f materials	22,70,128.46			
В	Stoc	i.e 3% of A	68,103.85			
С			Sub To	otal (A+B)	23,38,232.31	
D			Contigency	@ 3% of C	70,146.97	
E		Т	ools & Plants	@ 2% of C	46,764.65	
F		Tra	ansportation @	7.5% of C	1,75,367.42	
G	Erection Charges (	@ 5% on	Trf/Breaker/W	PB/ H-Pole	78,891.01	
Н	Erection Charges @ 10% of C (except Trf/Breaker/M	/PB/ H-Pc	ole/HT stay set	/PSC pole)	76,041.21	
I	Erection Charges @ 20% of	PSC pole	e- Not to be use	ed for 33kv	-	
J			Sum	of (C to I)	27,85,443.57	
	<u>Civil &amp; Serv</u>	rices				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	14.85	96,525.00	
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.0375	19,743.75	
K			Total Civil 8	& Services	1,16,268.75	
L	L Total (J+K)					
М	Other overheads (Including 6% supervision charges)	) of L (for		nt with 180 gree Angle)	1,74,102.74	
N			Sub T	otal (L+M)	30,75,815.06	
0			Total GST @	18% of (N)	5,53,646.71	
Р			Total GST @	) 1% of (N)	30,758.15	
Q	Gross Total Material +Services (N+O+P) for 33 KV	Cut Point	t with 180 Deg	ree Angle	36,60,219.92	
	No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-HVD-0003)					
	MATERIALS FOR 33 KV Cut Poi	int with 9	0 Degree Ang	<u>le</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	13 Mtr. Long H-Pole	No	56,735.71	7	3,97,150.00	
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	88.50	455.056	40,272.46	
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	74.0096	6,549.85			
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	88.50	81.91008	7,249.04	
5	Danger Plate, 1 no's.	No.	94.40	7	660.80	

6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	2.1063	186.41	
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	21	1,982.40	
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	8.4252	745.63	
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	566.40	28	15,859.20	
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	42	24,780.00	
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	42	56,994.00	
12	Earthing of Support ( Coil Type )	No.	195.88	7	1,371.16	
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.834	162.31	
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	42	56,994.00	
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	7	1,032.50	
16	H.T. Stay set (Complete )	Set	1,239.00	7	8,673.00	
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	7	413.00	
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	105	9,292.50	
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	79.17	7,286.81	
20	Black Paint	Ltr	259.60	7	1,817.20	
21	Yellow Colour Paint for Background	Ltr	259.60	14	3,634.40	
Α			Total Cost of	f materials	6,43,106.66	
В	Stoc	ck, Storage	e & Insurance	i.e 3% of A	19,293.20	
С			Sub To	otal (A+B)	6,62,399.86	
D			Contigency	@ 3% of C	19,872.00	
Е		Т	ools & Plants	@ 2% of C	13,248.00	
F		Tra	ansportation @	7.5% of C	49,679.99	
G	Erection Charges	PB/ H-Pole	20,453.23			
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	/PSC pole)	23,334.20			
I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv					
J	` /					
	<u>Civil &amp; Serv</u>	<u>rices</u>				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	3.85	25,025.00	
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.7875	5,118.75	

Q   Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle   10,53,118.92		Fining of 2010/ Hims Consult to the Consult to the	1	I	I	
Comparison of Materials   Comparison of Ma	3	Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will	No.	2,250.00	7	15,750.00
Other overheads ( Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle	K			Total Civil 8	& Services	45,893.75
N   Degree Angle   50,092.86     N   Sub Total (L+M)   8,84,973.88     O   Total GST @ 18% of (N)   1,59,295.30     P   Total GST @ 1% of (N)   8,849.74     Q   Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle   10,53,118.92     33 KV Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-HVD-0001)   MATERIALS FOR 33 KV Pin Points     SI	L					8,34,881.02
N	М	Other overheads (Including 6% supervision charges	s) of L (fo			50,092.86
P   Total GST @ 1% of (N)   R,849,74	N			_		
Q   Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle   10,53,118.92	0			Total GST @	18% of (N)	1,59,295.30
33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No. TPCODL-HVD-0001)   MATERIALS FOR 33 KV Pin Points	Р			Total GST @	) 1% of (N)	8,849.74
SI.   Description of Materials   Unit   Unit Rate   Quantity   Total   Quantity   Amount	Q	Gross Total Material +Services (N+O+P) for 33 KV	Cut Poi	nt with 90 Deg	ree Angle	10,53,118.92
CRef. Drawing No TPCODL-HVD-0001   MATERIALS FOR 33 KV Pin Points   St. No.   Description of Materials   Unit   Unit Rate   Quantity   Amount		22 Ky Lino Longth In KM with 40 Mtr. Span				
SI.   Description of Materials   Unit   Unit Rate   Total Quantity   Total Amount		(Ref. Drawing No TPCODL-HVD-0001)				
No.         Description of Materials         Unit Variable         Quantity         Amount           1         13 Mtr. Long H-Pole         No.         56,735.71         102         57,87,042.86           2         33 KV V cross Arm (GI) 22Kg each         No.         1,864.40         102         1,90,168.80           3         Top bracket 100x50x6mm GI channel (2kg each)         No.         177.00         102         18,054.00           4         Danger Plate, 1 no's.         No.         94.40         102         9,628.80           5         D.SPKg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)         KG         88.50         31         2,716.22           6         GI barbed wire anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG         KG         88.50         123         10,864.90           8         33KV pin insulator polymer         No.         566.40         306         1,73,318.40           9         Earthing of Support ( Coil Type )         No.         195.88         102         19,979.76           10         No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing         K.g.         88.50         27         2,365.07           11         GI Nut, Bolt & Washer of different sizes (1.45 Kg/Pin Point)         K	SI				Total	Total
2 33 KV V cross Arm (GI) 22Kg each No. 1,864.40 102 1,90,168.80 3 Top bracket 100x50x6mm GI channel (2kg each) No. 177.00 102 18,054.00 4 Danger Plate, 1 no's. No. 94.40 102 9,628.80 5 Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = KG 88.50 31 2,716.22 (1x0.59x0.510) 6 GI barbed wire anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40 7 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90 8 Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90 8 33KV pin insulator polymer No. 566.40 306 1,73,318.40 9 Earthing of Support (Coil Type) No. 195.88 102 19,979.76 10 No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing GI Nut. Bolt & Washer of different sizes (1.45 Kg/ Kg. 92.04 148 13,612.72 12 232 sq.mm AAA conductor K.M. 1,84,670.00 53 97,00,715.10 13 Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor K.M. 1,84,670.00 53 97,00,715.10 14 Black Paint Ltr 259.60 102 26,479.20 15 Yellow Colour Paint for Background Ltr 259.60 204 52,958.40  A Total Cost of materials 1,60,36,790.63		Description of Materials	Unit	Unit Rate		
Top bracket 100x50x6mm GI channel (2kg each)  No. 177.00 102 18,054.00  Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = KG 88.50 31 2,716.22 (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  No. 566.40 306 1,73,318.40  Parthing of Support (Coil Type) No. 195.88 102 19,979.76  No. 8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing Kg. 88.50 27 2,365.07  Connecting pole with Coil earthing Kg. 92.04 148 13,612.72  In Pin Point) Kg. 92.04 148 13,612.72  Z32 sq.mm AAA conductor K.M. 1,84,670.00 53 97,00,715.10  Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor EA 648.42 0  Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor Ltr 259.60 102 26,479.20  Black Paint Ltr 259.60 204 52,958.40  Total Cost of materials 1,60,36,790.63	1	13 Mtr. Long H-Pole	No	56,735.71	102	57,87,042.86
4 Danger Plate, 1 no's.  Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)  GI barbed wire anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG 88.50 123 10,864.90  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28,886.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28.86.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28.86.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28.86.40  Back Clamp for anticlimbing device 3 Kg. Per support Kg 94.40 306 28.86.40  Back Clamp for anticlimbing devi	2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	102	1,90,168.80
Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)   KG   88.50   31   2,716.22	3	Top bracket 100x50x6mm GI channel ( 2kg each)	No.	177.00	102	18,054.00
5         0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)         KG         88.50         31         2,716.22           6         GI barbed wire anticlimbing device 3 Kg. Per support         Kg         94.40         306         28,886.40           7         Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)         KG         88.50         123         10,864.90           8         33KV pin insulator polymer         No.         566.40         306         1,73,318.40           9         Earthing of Support ( Coil Type )         No.         195.88         102         19,979.76           10         No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing         K.g.         88.50         27         2,365.07           11         GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)         K.g.         92.04         148         13,612.72           12         232 sq.mm AAA conductor         K.M.         1,84,670.00         53         97,00,715.10           13         Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor         EA         648.42         0         -           14         Black Paint         Ltr         259.60         204         52,958.40           A	4	Danger Plate, 1 no's.	No.	94.40	102	9,628.80
Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = KG	5	0.59Kg/Mtr. Flat of 0.510mtr length 1 no's =	KG	88.50	31	2,716.22
7       0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)       KG       88.50       123       10,864.90         8       33KV pin insulator polymer       No.       566.40       306       1,73,318.40         9       Earthing of Support ( Coil Type )       No.       195.88       102       19,979.76         10       No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing       K.g.       88.50       27       2,365.07         11       GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)       K.g.       92.04       148       13,612.72         12       232 sq.mm AAA conductor       K.M.       1,84,670.00       53       97,00,715.10         13       Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor       EA       648.42       0       -         14       Black Paint       Ltr       259.60       102       26,479.20         15       Yellow Colour Paint for Background       Ltr       259.60       204       52,958.40         A       Total Cost of materials	6		Kg	94.40	306	28,886.40
9 Earthing of Support ( Coil Type ) No. 195.88 102 19,979.76 10 No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing K.g. 88.50 27 2,365.07 11 GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point) K.g. 92.04 148 13,612.72 12 232 sq.mm AAA conductor K.M. 1,84,670.00 53 97,00,715.10 13 Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor EA 648.42 0 14 Black Paint Ltr 259.60 102 26,479.20 15 Yellow Colour Paint for Background Ltr 259.60 204 52,958.40  Total Cost of materials 1,60,36,790.63	7	0.59Kg/Mtr. Flat of 0.510mtr length 4 no's =	KG	88.50	123	10,864.90
10 No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing  11 GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)  12 232 sq.mm AAA conductor  13 Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor  14 Black Paint  15 Yellow Colour Paint for Background  16 Stock Storage & Insurance is a 3% of A	8	33KV pin insulator polymer	No.	566.40	306	1,73,318.40
Connecting pole with Coil earthing	9	Earthing of Support ( Coil Type )	No.	195.88	102	19,979.76
Pin Point   Pin	10	connecting pole with Coil earthing	K.g.	88.50	27	2,365.07
13 Crimping type Midspan Compression Joint for 232 EA 648.42 0 -  14 Black Paint Ltr 259.60 102 26,479.20  15 Yellow Colour Paint for Background Ltr 259.60 204 52,958.40  A Total Cost of materials 1,60,36,790.63	11		K.g.	92.04	148	13,612.72
13   sq.mm AAA conductor	12	232 sq.mm AAA conductor	K.M.	1,84,670.00	53	97,00,715.10
15 Yellow Colour Paint for Background Ltr 259.60 204 52,958.40  A Total Cost of materials 1,60,36,790.63	13		EA	648.42	0	-
A Total Cost of materials 1,60,36,790.63	14	Black Paint	Ltr	259.60	102	26,479.20
A Total Cost of materials 1,60,36,790.63	15	Yellow Colour Paint for Background	Ltr	259.60	204	52,958.40
Stock Storage & Insurance i.e. 3% of A	Α			Total Cost of	materials	1,60,36,790.63
4.81.103.72	В	Stoc	k, Storag	e & Insurance	i.e 3% of A	4,81,103.72

С		otal (A+B)	1,65,17,894.35		
D		@ 3% of C	4,95,536.83		
Е		Т	ools & Plants	@ 2% of C	3,30,357.89
F		Tra	nsportation @	7.5% of C	12,38,842.08
G	Erection Charges (	② 5% on <sup>-</sup>	Trf/Breaker/W	PB/ H-Pole	2,98,032.71
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	PB/ H-Po	le/HT stay set	/PSC pole)	10,55,724.02
I	Erection Charges @ 20% of	PSC pole	- Not to be use	ed for 33kv	-
J			Sum	of (C to I)	1,99,36,387.87
	<u>Civil &amp; Serv</u>	<u>ices</u>			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	56.1	3,64,650.00
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	11.475	74,587.50
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	119	1,60,650.00
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.4	90	3,726.00
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	400	3,168.00
6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	270	2,187.00
7	Dismantling of Disc Insulator with Hardware including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	120	972.00
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	52.53	4,72,770.00
К		& Services	10,82,710.50		
L		Total (J+K)	2,10,19,098.37		
М	Other overheads (Including 6% supervision c	Pin Points)	12,61,145.90		
N		otal (L+M)	2,22,80,244.27		
0		18% of (N)	40,10,443.97		
Р		) 1% of (N)	2,22,802.44		
Q	Q Gross Total Material +Services (N+O+P) for 33 KV Pin Points				
	20/ 2				
	6% Supervision Char	ges Sumr	<u>nary</u>		

1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	3,48,685.44
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	1,68,700.86
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	1,74,102.74
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	50,092.86
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	12,61,145.90
	Total (6% supervision charges)	20,02,727.80
	Gross Total Summary	
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	73,30,530.31
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	35,46,654.33
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	36,60,219.92
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	10,53,118.92
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	2,65,13,490.68
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	360.00
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	4,21,05,474.16

Part-D			
Standard BoQ and Estimate for 33kV. 1C	630sgmm UG Cable along with	33kV RMU - 0.6km ca	ble.

# **Supply Portion**

	Feeder Length		0		
SI. No.	Description of items	Unit	Total Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories		0.6		
а	Length of 33kV 1C, 630sqmm cable (open trench)	km	0.42		
b	Length of 33kV 1C, 630sqmm cable (HDD)	km	0.18		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	km	1.8	13,37,130.00	24,06,834.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	8	9,726.50	77,812.03
1.3	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	16	9,726.50	1,55,624.06

1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	1.26	5,20,436.00	6,55,749.36
	Sub Total (Supply Po	ortion)	(in Rs.)		32,96,019.46
Erection	n Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare				,
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by <b>open trench method</b> .	km	1.68	94,500.00	1,58,760.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	8	3,480.00	27,840.00
1.3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	16	3,480.00	55,680.00
1.4	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	0	3,480.00	-
1.5	Supply, Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by <b>HDD method with</b> HDPE pipe (110mm dia, PN8 PE80) for laying of individual run of UG cable at main road and unaccessable place.	km	0.72	23,00,000.00	16,56,000.00
1.6	Laying of <b>110mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	1.26	1,04,114.67	1,31,184.48
	Sub Total (Erection P	ortion)	(in Rs.)		20,29,464.48
Ois II Da					
Civil Po		Unit	Quantity	Rate	Amount
SI. No. 1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench	Unit	Quantity	(in Rs.)	(in Rs.)
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)				
1.1.a	Earth work excavation of <b>soil</b>	Cum	352.8	700.00	2,46,960.00
1.1.b	Earth work excavation of hard rock	Cum	151.2	1,720.00	2,60,064.00

	I B 1 600 10 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1			<u> </u>		
1.4	Back filling with excavated soil outside and above the trench	Cum	504	202.00	1,01,808.00	)
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.21	26,43,670.63	5,55,170.83	3
2	Civil works for Prefabricated RCC foundation with supply of all materials					
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	128	1,463.40	1,87,315.20	)
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	20	1,012.00	20,240.00	)
	Sub Total (Civil Por		13,71,558.03	3		
A	Sub Total (Supply Portion)				32,96,019.46	
В	Stock, Storage & Insurance @ 3 % of A				98,880.58	
С	Sub Total (A+B)				33,94,900.04	
D	Contingency @ 3 % of C				1,01,847.00	
E	Tools & Plants Charges @ 2% of C (cons	g items)	-			
F	Transportation @ 7.5% of C		2,54,617.50			
G	Erection Charges @ 10% of earthing item	าร			-	
Н	Total (C+D+E+F+G)				37,51,364.54	
I	Sub Total (Erection Portion + Civil Portion	ר)			34,01,022.52	
J	Total Cost (H+I)				71,52,387.06	
K	Other Overhead /(including Supervision 0	Charges)	@ 6 % of	fJ	4,29,143.22	
L	Total Estimated Capital Cost i.e. (J+K)				75,81,530.28	
М	GST @ 18% of L				13,64,675.45	
N	GST @ 1% of L				7,58,153.03	
0	Grand Total (L+M+N)				97,04,358.76	
Р	Inspection Fee of UG Line (HT) - Rs. 250	/ km.			250.00	
Q	Inspection Fee of UG Line (HT) - Rs. 100	/ Additio	nal Km			
R	Inspection Fee of RMU - Rs. 2000/ RMU					0
S	Inspection Fee of Drawing Checking and	Approva	al		400.00	
Т	Final decision by electrical Inspector				500.00	
U	Gross Total Material, Services and Ins	O+P+Q+R+S)	97,05,508.76			

<u>Part-D</u>							
DP with Iso - 4No's							
No. of 33 KV DP required With Isolator (Ref. Drawing No TPCODL-HVD-0004)	1						
MATERIALS FOR 33 KV DP With Isolator							

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =( 2x9.56x4.3)	KG	88.50	328.864	29,104.46
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	15.8592	1,403.54
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =( 1x7.14x4.3)	KG	88.50	122.808	10,868.51
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =( 2x7.14x4.3)	KG	88.50	245.616	21,737.02
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =( 4x7.14x4.3)	KG	88.50	491.232	43,474.03
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	354.744	31,394.84
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 1x7.14x0.8)	KG	88.50	22.848	2,022.05
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	6.984	618.08
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	6.12	541.62
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =( 2x9.56x0.5)	KG	88.50	38.24	3,384.24
12	Danger Plate, 2 no's.	No.	94.40	8	755.20
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	2.4072	213.04
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	8	1,180.00
15	H.T. Stay set (Complete )	Set	1,239.00	8	9,912.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	16	944.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	8	9,912.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	226.56	20,050.56
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	24	2,265.60
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	9.6288	852.15
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	12	1,46,556.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with Pl(Polymer)	Set	84,464.40	4	3,37,857.60
24	33KV pin insulator polymer	No.	566.40	12	6,796.80
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	24	14,160.00

26									
	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	24	32,568.00				
27	PG Clamp for 148 sq.mm AAA conductor	NO.	731.60	24	17,558.40				
	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	88.6	8,154.74				
29	Black Paint	Ltr	259.60	4	1,038.40				
30	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80				
Α		Т	otal Cost of	materials	12,21,905.40				
В	Stock,	Storage &	& Insurance i	i.e 3% of A	36,657.16				
С			Sub To	otal (A+B)	12,58,562.56				
D			Contigency	@ 3% of C	37,756.88				
Е		Too	ols & Plants	@ 2% of C	25,171.25				
F		Trans	sportation @	7.5% of C	94,392.19				
G	Erection Charges @	5% on Tr	f/Breaker/WI	PB/ H-Pole	23,375.11				
Н	Erection Charges @ 10% of C (except Trf/Breaker/WP	B/ H-Pole	/HT stay set/	/PSC pole)	76,772.46				
ı	Erection Charges @ 20% of Page 20%	SC pole- l	Not to be use	ed for 33kv	-				
			Sum	of (C to I)	15,16,030.46				
J	Civil & Services								
	<u>Civil &amp; Servic</u>	<u>ces</u>							
SI. No.	Description of Materials	<u>Unit</u>	Unit Rate	Total Quantity	Total Amount				
SI. No.									
SI. No.	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be	Unit	Rate	Quantity	Amount				
\$1. No.	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) =	Unit No.	<b>Rate</b> 2,250.00	<b>Quantity</b> 8	18,000.00				
\$1. No.	Pixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (	No.	2,250.00 6,500.00	Quantity 8 4.4	18,000.00 28,600.00				
\$1. No.	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and	No.  Cu.mtr  Cu.mtr  No.	2,250.00 6,500.00 6,500.00	8 4.4 0.9	Amount  18,000.00  28,600.00  5,850.00				
\$1. No.	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and	No.  Cu.mtr  Cu.mtr  No.	2,250.00  6,500.00  6,500.00  2,407.00  Total Civil 8	8 4.4 0.9	Amount  18,000.00  28,600.00  5,850.00  19,256.00				
\$1. No.	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and	No.  Cu.mtr  Cu.mtr  No.	### Rate  2,250.00  6,500.00  6,500.00  7 Total Civil & T	8 4.4 0.9 8 Services otal (J+K)	Amount  18,000.00  28,600.00  5,850.00  19,256.00  71,706.00				
\$1. No. 1 2 3 4 K L	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.  Cu.mtr  Cu.mtr  No.	2,250.00  6,500.00  6,500.00  7 Total Civil & T	8 4.4 0.9 8 Services otal (J+K)	### Amount  18,000.00  28,600.00  5,850.00  19,256.00  71,706.00  15,87,736.46				
\$1. No. 1 2 3 4 K L M	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.  Cu.mtr  Cu.mtr  No.	2,250.00  6,500.00  6,500.00  7 Total Civil & T	8 4.4 0.9 8 Services otal (J+K) th Isolator) otal (L+M)	### Amount  18,000.00  28,600.00  5,850.00  19,256.00  71,706.00  15,87,736.46  95,264.19				
3 4 K L M	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension (500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.  Cu.mtr  Cu.mtr  No.	2,250.00  6,500.00  6,500.00  7 Total Civil 8  T S KV DP Wi	8 4.4 0.9 8 Services otal (J+K) th Isolator) otal (L+M) 18% of (N)	### Amount  18,000.00  28,600.00  5,850.00  19,256.00  71,706.00  15,87,736.46  95,264.19  16,83,000.64				

### Benefit:

- Power evacuation from upcoming Godisahi GSS to present and future loads of 33kV Naraj feeder.
- Ensure reliable power supply, mitigate overloading, low voltage issue and improving N-1 connectivity.

### Proposal-2 (Proposed for augmentation of 33kV Kesura Laxmisagar fdr. I & II)

#### Proposal:

Proposal for mitiagtion of overloading of 33 KV Laxmisagar fdr. I & II emanating from Kesura Grid and improving network reliablity at N-1 contingency condition.

#### Objective:

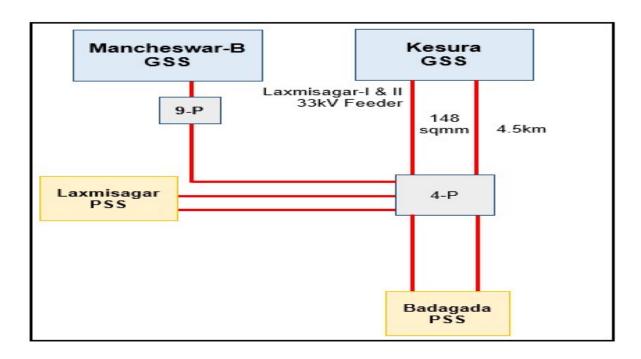
 To maintain reliability of power supply with improving N-1 connectivity, mitigate overload and strengthening the existing network.

#### **Existing Scenario:**

- At present, both 33kV Laxmisagar fdr. I and II are emanating from Kesura Grid.
- Present peak load of Laxmisagar I 33kV feeder is 19.88 MVA and Laxmisagar II 33kV feeder is 22.85MVA.
- Considering present scenario, there is overloading and no N-1 reliability at both the feeders. In addition, both the feeders are not capable to meet the future load demand in the area.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Laxmisagar - I	20	19.88	99%	Overload	Not OK
Laxmisagar - II	20	22.85	114%	Overload	Not OK

#### Existing SLD (FY' 22-23):

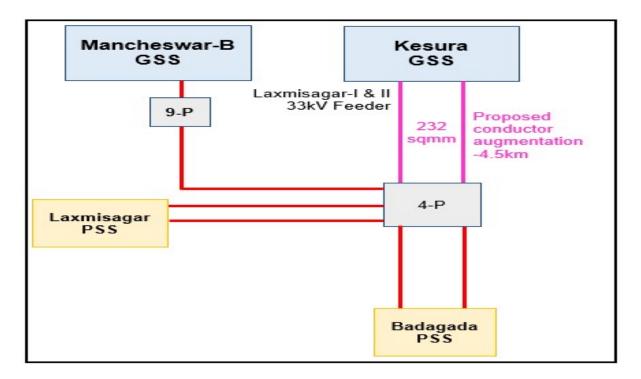


#### **Proposed Scenario:**

- After augmentation of Laxmisagar I &II 33kV feeders, the feeders will deliver reliable power supply to the consumers.
- Overloading of 33kV feeders will be mitigate.
- Considering 33% load growth, the feeders will be capable to feed the load demand for next 2 to 3 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 25-26 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Laxmisagar – I	26.51	19.88	33%	26.44	100%	OK	OK
Laxmisagar – II	26.51	22.85	33%	30.39	115%	OK	OK

## Proposed SLD (FY' 23-24):



### **Detailed Scope of Work:**

Augmentation of Laxmisagar feeder - I & II from 148 sq.mm OH conductor to 232sqmm conductor in order to mitigate overloading issue and improving N-1 contingency condition.

## BOQ:

	TP CEN	TRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :- BED						
	Name of the Sub-Division : - Rasulgarh						
	Name of the Section : - Rasulgarh						
	Name of the Work :-  Proposal for conductor augmentation of Laxmisagar feeder - I & II fro  148 sq.mm OH conductor to 232sqmm conductor to mitigate overloading issue and improving N-1 contingency condition.						
	Scope of work:-  Replacement of 148sqmm conductor along with poles to 232sqmm at 33kV Laxmisagar -I and II feeder on double ckt. line - 4.5 Ckm						
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)					
		ABSTRACT OF ESTIMATE					
SI. No.	Part	Description	Amount				
1	А	Estimate for conductor augmentation of Kesura_Laxmisagar I and II feeder (Kesura GSS to 4Pole) from 148sqmm OH conductor to 232sqmm conductor double ckt line - 4.5Ckm	2,95,75,986.22				
		Total Amount	2,95,75,986.22				
		Total Amount (In Cr)	2.96				
Total	estimated cost is Rs. 2.96 Cro	ore. (On TPCODL Capex Scheme)					

### Part-A

33kV Laxmisagar-I & II feeder - 4.5km Double Ckt Aug.

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)

	MATERIALS FOR 33 KV DP Without Isolator							
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	13 Mtr. Long H-Pole	No	56,735.71	28	15,88,600.00			
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =( 2x9.56x3.25)	KG	88.50	869.96	76,991.46			
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	55.5072	4,912.39			
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =( 5x7.14x1.96)	KG	88.50	979.608	86,695.31			
5	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	864.864	76,540.46			
6	Danger Plate, 2 no's.	No.	94.40	28	2,643.20			
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	8.4252	745.63			
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	28	4,130.00			
9	H.T. Stay set (Complete )	Set	1,239.00	28	34,692.00			
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	56	3,304.00			
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	420	37,170.00			
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	14	17,346.00			
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	165.2	14,620.20			
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	84	7,929.60			
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	33.7008	2,982.52			
16	33KV pin insulator polymer	No.	566.40	42	23,788.80			
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	84	49,560.00			
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	84	1,13,988.00			
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	84	1,13,988.00			
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	171.654	15,799.03			
21	Black Paint	Ltr	259.60	14	3,634.40			
22	Yellow Colour Paint for Background	Ltr	259.60	28	7,268.80			
Α								

В	Stoc	к, Storage	e & Insurance		68,619.89			
С	Sub Total (A+B)							
D		@ 3% of C	70,678.49					
Е		Т	ools & Plants	@ 2% of C	47,118.99			
F		Tra	ansportation @	7.5% of C	1,76,696.23			
G	Erection Charges (	@ 5% on	Trf/Breaker/W	PB/ H-Pole	81,812.90			
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	/PB/ H-Pc	ole/HT stay set	/PSC pole)	63,801.68			
I	Erection Charges @ 20% of	PSC pole	- Not to be use	ed for 33kv	-			
J			Sum	of (C to I)	27,96,057.99			
	Civil & Serv	<u>ices</u>						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	28	63,000.00			
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	15.4	1,00,100.00			
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	3.15	20,475.00			
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	14	33,698.00			
K			Total Civil 8	& Services	2,17,273.00			
L			7	Γotal (J+K)	30,13,330.99			
М	Other overheads (Including 6% supervision charges)	of L (for 33	3 KV DP Witho	out Isolator)	1,80,799.86			
N			Sub T	otal (L+M)	31,94,130.85			
0			Total GST @	18% of (N)	5,74,943.55			
Р	Total GST @ 1% of (N)							
Q	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator							
	No. of 33 KV DP required With Isolator				38,01,015.71			
	(Ref. Drawing No TPCODL-HVD-0004)							
	MATERIALS FOR 33 KV	DP With	<u>Isolator</u>					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71			
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =( 2x9.56x4.3)	KG	88.50	328.864	29,104.46			

			I	T	· · · · · · · · · · · · · · · · · · ·
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	15.8592	1,403.54
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =( 1x7.14x4.3)	KG	88.50	122.808	10,868.51
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =( 2x7.14x4.3)	KG	88.50	245.616	21,737.02
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required = (4x7.14x4.3)	KG	88.50	491.232	43,474.03
7	50x50x6mm.Gl Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	354.744	31,394.84
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 1x7.14x0.8)	KG	88.50	22.848	2,022.05
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	6.984	618.08
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	6.12	541.62
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =( 2x9.56x0.5)	KG	88.50	38.24	3,384.24
12	Danger Plate, 2 no's.	No.	94.40	8	755.20
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	2.4072	213.04
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	8	1,180.00
15	H.T. Stay set (Complete )	Set	1,239.00	8	9,912.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	16	944.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	8	9,912.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	226.56	20,050.56
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	24	2,265.60
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	9.6288	852.15
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	12	1,46,556.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	84,464.40	4	3,37,857.60
24	33KV pin insulator polymer	No.	566.40	12	6,796.80
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	24	14,160.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	24	32,568.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	24	32,568.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	88.6	8,154.74
29	Black Paint	Ltr	259.60	4	1,038.40

30	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80	
Α		12,36,915.00				
В	Stoo	i.e 3% of A				
С			Sub To	otal (A+B)	37,107.45	
D			Contigency		12,74,022.45	
E		Т	ools & Plants		38,220.67	
F			ansportation @		25,480.45	
G	Erection Charges (				95,551.68	
Н	Erection Charges @ 10% of C (except Trf/Breaker/W				23,375.11	
I	Erection Charges @ 20% of			. ,	78,318.45 -	
J		<u> </u>	Sum	of (C to I)	15,34,968.82	
	<u>Civil &amp; Serv</u>	<u>ices</u>			10,04,000.02	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00	
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00	
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00	
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	8	19,256.00	
K			Total Civil 8	& Services	71,706.00	
L			7	Γotal (J+K)	16,06,674.82	
М	Other overheads ( Including 6% supervision charge	s) of L (fo	r 33 KV DP W	ith Isolator)	96,400.49	
N		otal (L+M)	17,03,075.31			
0		18% of (N)	3,06,553.56			
Р		17,030.75				
Q	Gross Total Material +Services (N-	th Isolator	20,26,659.62			
,. No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-HVD-0002)						
MATERIALS FOR 33 KV Cut Point with 180 Degree Angle						
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	

1	13 Mtr. Long H-Pole	No	56,735.71	14	7,94,300.00
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)x3	K.g.	88.50	1365.168	1,20,817.37
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	222.0288	19,649.55
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	0	-
5	Danger Plate, 1 no's.	No.	94.40	14	1,321.60
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	4.2126	372.82
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	42	3,964.80
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	16.8504	1,491.26
9	33KV pin insulator polymer	No.	566.40	84	47,577.60
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	168	99,120.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	168	2,27,976.00
12	Earthing of Support ( Coil Type )	EA	195.88	14	2,742.32
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	3.668	324.62
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	84	1,13,988.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	68.306	6,286.88
16	Black Paint	Ltr	259.60	14	3,634.40
17	Yellow Colour Paint for Background	Ltr	259.60	28	7,268.80
Α			Total Cost of	f materials	14,50,836.01
В	Stoc	ck, Storag	e & Insurance	i.e 3% of A	43,525.08
С	Sub Total (A+B)				
D		44,830.83			
Е	Tools & Plants @ 2% of C 29,887.22				
F		1,12,077.08			
G	Erection Charges	PB/ H-Pole	40,906.45		
Н	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				67,623.21
I	Erection Charges @ 20% of	ed for 33kv	-		
J	Sum of (C to I)				17,89,685.89
	<u>Civil &amp; Serv</u>	<u>ices</u>			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	7.7	50,050.00

	T	I	T	T	
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.575	10,237.50
K	Total Civil & Services			60,287.50	
L		18,49,973.39			
М	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				1,10,998.40
N		otal (L+M)	19,60,971.79		
0			Total GST @	18% of (N)	3,52,974.92
Р			Total GST @	0 1% of (N)	19,609.72
Q	Gross Total Material +Services (N+O+P) for 33 KV	Cut Poin	t with 180 Deg	gree Angle	23,33,556.44
	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-HVD-0001)	/// Dia D	- : : : : : : : : : : : : : : : : : : :		20,00,000.44
	MATERIALS FOR 33 I	V PIN PO	<u>DINTS</u>		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	97	55,03,364.29
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	582	10,85,080.80
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 12 no's required = (12x2.36x0.280x)	K.g.	88.50	769	68,071.65
4	Danger Plate, 1 no's.	No.	94.40	97	9,156.80
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	29	2,583.08
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	291	27,470.40
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	117	10,332.30
8	33KV pin insulator polymer	No.	566.40	1164	6,59,289.60
9	Earthing of Support ( Coil Type )	No.	195.88	97	19,000.36
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	25	2,249.14
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	141	12,945.43
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	28	51,35,672.70
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	97	25,181.20
15	Yellow Colour Paint for Background	Ltr	259.60	194	50,362.40
Α		1,26,10,760.14			
В	Stoc	i.e 3% of A	3,78,322.80		
С		1,29,89,082.95			
D	Contigency @ 3% of C				3,89,672.49
Е	Tools & Plants @ 2% of C 2,59,781.66				2,59,781.66

F	Transportation @ 7.5% of C				9,74,181.22	
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				2,83,423.26	
Н	Erection Charges @ 10% of C (except Trf/Breaker/V	/PB/ H-Po	ole/HT stay set	/PSC pole)	7,32,061.77	
I	Erection Charges @ 20% of	PSC pole	- Not to be use	ed for 33kv	-	
J			Sum	of (C to I)	1,56,28,203.35	
	<u>Civil &amp; Serv</u>	ices				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	103.95	6,75,675.00	
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	21.2625	1,38,206.25	
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	180	2,43,000.00	
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.40	540	22,356.00	
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	800	6,336.00	
6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	900	7,290.00	
7	Dismantling of Disc Insulator with Hardware including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	360	2,916.00	
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	28	2,52,000.00	
K			Total Civil 8	& Services	13,47,779.25	
L			7	otal (J+K)	1,69,75,982.60	
М	Other overheads (Including 6% supervision of	Pin Points)	10,18,558.96			
N	Sub Total (L+M)				1,79,94,541.55	
0	Total GST @ 18% of (N)				32,39,017.48	
Р	Total GST @ 1% of (N)				1,79,945.42	
Q	Gross Total Material +Services (N+O+P) for 33 KV Pin Points				2,14,13,504.45	
•	6% Supervision Charges Summary					
	<del>-</del>					
1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)				1,80,799.86	
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator) Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180				96,400.49	
3	Degree Angle				1,10,998.40	

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4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	-			
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	10,18,558.96			
	Total (6% supervision charges)	14,06,757.71			
Gross Total Summary					
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	38,01,015.71			
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	20,26,659.62			
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	23,33,556.44			
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	-			
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	2,14,13,504.45			
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00			
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	150.00			
S	Inspection Fee of Drawing Checking and Approval	400.00			
Т	Final decision by electrical Inspector	500.00			
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	2,95,75,986.22			

## Benefit:

• Ensure reliable power supply, mitigate overload and improve N-1 connectivity.

# Proposal-3 (Proposal for mitigating overloading issue of 33kV Bhimtangi and Badagada Fdr. and N-1 connectivaty of 33kV Lingipur Fdr.)

#### Proposal:

- a) Proposal for mitiagtion of overloading of 33 KV Bhimtangi and Badagada emanating from Ransinghpur Grid and improve network reliablity.
- b) Proposal for mitiagtion of Overloading and N-1 connectivity of 33 KV Lingipur fdr emanating from Kesura Grid.

#### Objective:

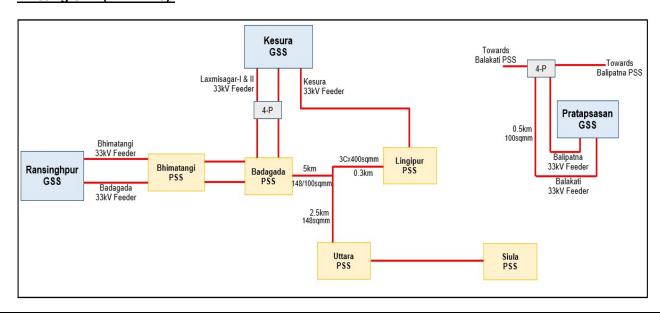
• To maintain reliable power supply, mitigation of overloading, improving N-1 connectivity and strengthening the existing network.

#### **Existing Scenario:**

- At present, both 33kV Bhimtangi and Badgada feeders are emanating from Ransinghpur Grid.
- Present peak load of Bhimtangi 33kV feeder is 27.43MVA and Badagada 33kV feeder is 22.85MVA.
- Considering present scenario, there is overloading of the 33kv feeder along with no N-1 reliability at both the feeders. In addition, both the feeders are not capable to meet the future load demand in the area.
- At present, 33kV Lingipur fdr is emanating from Kesura Grid having connectivity with Badagada and Uttra PSS with lower size of conductor/cable.
- Present peak load of Lingipur 33kV feeder is 15.65 MVA.
- Considering present scenario, there is overloading of the 33kV feeder along with N-1 reliability issue of the feeder.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Bhimtangi	26.51	27.43	103%	Overload	Not OK
Badagada	26.51	22.85	86%	OK	Not OK
Lingipur	15.54	15.65	101%	Overload	Not OK

#### Existing SLD (FY' 22-23):

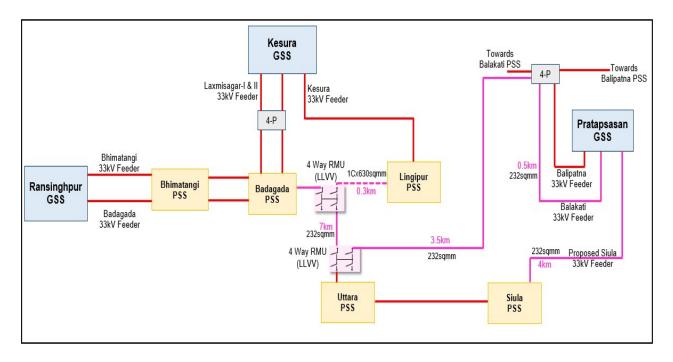


#### **Proposed Scenario:**

- After augmentation of Balakati 33kV feeder and interlinking to Uttra PSS along with proposed new feeder from Pratapsasan Grid to Siula PSS, the feeders will be deliver reliable power supply to the consumers.
- Overloading issue of network will mitigate.
- Considering 321% load growth, the feeder will capable to feed the load demand for next 2 to 3 years.
- After augmentation of interlinking line of Badagada T-off to Lingipur PSS, the feeder's N-1 connectivaty issue will improve.
- Overloading and N-1 issue of network will be mitigated.
- Considering 50% load growth, the feeder will be capable to feed the load demand for next 4 to 5 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 24-25 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Bhimtangi	26.51	20.43	21%	24.72	93%	OK	Not OK
Badgada	26.51	15.85	21%	19.18	72%	OK	Not OK
New Fdr.	26.51	14	21%	16.94	64%	OK	Not OK
Lingipur	25.71	15.65	50%	23.48	91%	OK	OK

#### Proposed SLD (FY' 23-24):



## **Detailed Scope of Work:**

- 1) Augmentation of Balakati feeder 0.5km, interlinking of Badagada PSS to Uttra PSS with 232sqmm OH conductor 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS.
- 2) New 33kv fdr from Pratpasasan Grid to Siula PSS- 4kM.
- 3) Augmentation of UG cable from interlinking line near Lingipur PSS 0.3km
- 4) 2 No's 33KV RMU at Uttara and Lingipur T-Off.

# BOQ:

		NTRAL ODISHA DISTRIBUTION LIMITED				
	Name of the Division :-	BED				
	Name of the Sub-Division : -	Pipli Balakati				
	Name of the Section : -					
	Name of the Work :-	Proposal for conductor augmentation of Balakati feeder - 0.5km, interlinking of Badagada PSS to Uttra PSS with 232sqmm OH conductor - 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS to mitigate overloading issue and improving N-1 contingency condition. load growth of 33kv Bhimtangi and Badagada fdrs. Since there is a delay in commissioning of Proposed Badagada OPTCL GSS.  Replacement of 100sqmm. conductor along with poles to 232sqmm at 33kV Balakati feeder line - 0.5 Ckm Replacement of interlinking line of Badagada PSS to Uttra PSS with 232sqmm OH conductor - 7km and 4km interlinking fdr from Balakati 4-Pole to Uttra PSS  2 No's RMU at Uttara and Lingipur T-Off. Replacement 0.3Ckt U/G 400 sqmm cable to 1CX630Sqmm near Lingipur PSS				
	Scope of work:-					
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)				
	1					
		ABSTRACT OF ESTIMATE				
SI. No.	Part	Description	Amount			
		Estimate for conductor augmentation of				
1	A	Balakati, Siula and Badagada interlinking feeder from 100/148 sqmm OH conductor to 232sqmm conductor - 7.5Ckm  2) New interlinking line from Balakati 4-Pole to Uttra PSS - 4Ckm	4,39,11,777.42			
1	A B	Balakati, Siula and Badagada interlinking feeder from 100/148 sqmm OH conductor to 232sqmm conductor - 7.5Ckm  2) New interlinking line from Balakati 4-Pole to	4,39,11,777.42 1,32,69,769.11			
·		Balakati, Siula and Badagada interlinking feeder from 100/148 sqmm OH conductor to 232sqmm conductor - 7.5Ckm  2) New interlinking line from Balakati 4-Pole to Uttra PSS - 4Ckm  Estimate for 2 No's RMU at Uttara and Siula T-Off.  Construction of new 33KV feeder from Pratapsan GSS to Uttara				
2	В	Balakati, Siula and Badagada interlinking feeder from 100/148 sqmm OH conductor to 232sqmm conductor - 7.5Ckm  2) New interlinking line from Balakati 4-Pole to Uttra PSS - 4Ckm  Estimate for 2 No's RMU at Uttara and Siula T-Off.  Construction of new 33KV feeder from Pratapsan GSS to Uttara  Replacement 0.3Ckt U/G 400 sqmm cable to 1CX630Sqmm near Lingipur PSS	1,32,69,769.11 1,58,41,920.56 46,55,457.30			
2	В	Balakati, Siula and Badagada interlinking feeder from 100/148 sqmm OH conductor to 232sqmm conductor - 7.5Ckm 2) New interlinking line from Balakati 4-Pole to Uttra PSS - 4Ckm Estimate for 2 No's RMU at Uttara and Siula T-Off. Construction of new 33KV feeder from Pratapsan GSS to Uttara Replacement 0.3Ckt U/G 400 sqmm cable to	1,32,69,769.11 1,58,41,920.56			

1)	) <u>Part-A</u>
	Estimate for conductor augmentation of Balakati, Siula and Badagada interlinking feeder from 100/148
	sqmm OH conductor to 232sqmm conductor - 7.5Ckm
	New interlinking line from Balakati 4-Pole to Uttra PSS - 4Ckm

No. of 33 KV DP required Without Isolator (Ref. Drawing No.- TPCODL-HVD-0004)

MATERIALS	<b>FOR 33 KV E</b>	OP Without Isolator
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SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	36	20,42,485.71
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =( 2x9.56x3.25)	KG	88.50	1118.52	98,989.02
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	71.3664	6,315.93

4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =( 5x7.14x1.96)	KG	88.50	1259.496	1,11,465.40
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	1111.968	98,409.17
6	Danger Plate, 2 no's.	No.	94.40	36	3,398.40
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	10.8324	958.67
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	36	5,310.00
9	H.T. Stay set (Complete )	Set	1,239.00	36	44,604.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	72	4,248.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	540	47,790.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	18	22,302.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	212.4	18,797.40
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	108	10,195.20
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	43.3296	3,834.67
16	33KV pin insulator polymer	No.	566.40	54	30,585.60
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	108	63,720.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	108	1,46,556.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	108	1,46,556.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	220.698	20,313.04
21	Black Paint	Ltr	259.60	18	4,672.80
22	Yellow Colour Paint for Background	Ltr	259.60	36	9,345.60
A			Total Cost of	materials	29,40,852.61
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	88,225.58
С	Sub Total (A+B)				
D	Contigency @ 3% of C				
Е	Tools & Plants @ 2% of C				
F	Transportation @ 7.5% of C				
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				
Н	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC pole)				
I	Erection Charges @ 20% of	PSC pole	e- Not to be use	ed for 33kv	-
J	Civil & Serv		Sum	of (C to I)	35,94,931.70

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	36	81,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	19.8	1,28,700.00
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	4.05	26,325.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	18	43,326.00
K			Total Civil 8	& Services	2,79,351.00
L			1	Total (J+K)	38,74,282.70
М	Other overheads (Including 6% supervision c	harges) o	f L (for 33 KV [	OP Without Isolator)	2,32,456.96
N			Sub T	otal (L+M)	41,06,739.67
0			Total GST @	18% of (N)	7,39,213.14
Р	P Total GST @ 1% of (N)				
Q	Gross Total Material +Services (N+O+	P) for 33	KV DP Witho	ut Isolator	41,067.40 48,87,020.20
	No. of 33 KV DP required With Isolator (Ref. Drawing No TPCODL-HVD-0004) <u>MATERIALS FOR 33 KV</u>	DP With	Isolator		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	8	4,53,885.71
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =( 2x9.56x4.3)	KG	88.50	328.864	29,104.46
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	15.8592	1,403.54
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =( 1x7.14x4.3)	10,868.51			
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =( 2x7.14x4.3)	KG	88.50	245.616	21,737.02
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =( 4x7.14x4.3)	KG	88.50	491.232	43,474.03
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	354.744	31,394.84
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 1x7.14x0.8)	KG	88.50	22.848	2,022.05

9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	6.984	618.08
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	6.12	541.62
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =( 2x9.56x0.5)	KG	88.50	38.24	3,384.24
12	Danger Plate, 2 no's.	No.	94.40	8	755.20
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	2.4072	213.04
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	8	1,180.00
15	H.T. Stay set (Complete )	Set	1,239.00	8	9,912.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	16	944.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	120	10,620.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	8	9,912.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	226.56	20,050.56
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	24	2,265.60
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	9.6288	852.15
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	12	1,46,556.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with Pl(Polymer)	Set	84,464.40	4	3,37,857.60
24	33KV pin insulator polymer	No.	566.40	12	6,796.80
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	24	14,160.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	24	32,568.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	24	32,568.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	88.6	8,154.74
29	Black Paint	Ltr	259.60	4	1,038.40
30	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80
Α	Total Cost of materials				
В	Stock, Storage & Insurance i.e 3% of A				
С	Sub Total (A+B)				
D	Contigency @ 3% of C				38,220.67
Е	Tools & Plants @ 2% of C				25,480.45
F	Transportation @ 7.5% of C				
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				

Н	Erection Charges @ 10% of C (except Trf/Breaker/N	/PSC pole)	78,318.45		
I	Erection Charges @ 20% of	PSC pole	- Not to be use	ed for 33kv	-
J	Sum of (C to I)				
	<u>Civil &amp; Serv</u>	<u>vices</u>			
SI. No.	Description of Materials	Total Amount			
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	8	18,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	4.4	28,600.00
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.9	5,850.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	8	19,256.00
K			Total Civil 8	& Services	71,706.00
L			1	Total (J+K)	16,06,674.82
М	Other overheads ( Including 6% supervision charge	s) of L (fo	r 33 KV DP W	ith Isolator)	96,400.49
N			Sub T	otal (L+M)	17,03,075.31
0			Total GST @	18% of (N)	3,06,553.56
Р			Total GST @	) 1% of (N)	17,030.75
Q	Gross Total Material +Services (N-	+O+P) for	33 KV DP Wi	th Isolator	20,26,659.62
,.	No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-HVD-0002)				
	MATERIALS FOR 33 KV Cut Poi	nt with 18	80 Degree An	<u>gle</u>	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	18	10,21,242.86
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	585.072	51,778.87
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	95.1552	8,421.24
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	105.313	9,320.20
5	Danger Plate, 1 no's.	No.	94.40	18	1,699.20
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	5.4162	479.33

7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	54	5,097.60
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	21.6648	1,917.33
9	33KV pin insulator polymer	No.	566.40	54	30,585.60
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	108	63,720.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	108	1,46,556.00
12	Earthing of Support ( Coil Type )	EA	195.88	18	3,525.84
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	4.716	417.37
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	108	1,46,556.00
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	87.822	8,083.14
16	Black Paint	Ltr	259.60	18	4,672.80
17	Yellow Colour Paint for Background	Ltr	259.60	36	9,345.60
Α			Total Cost of	materials	15,13,418.97
В	Stoc	k, Storage	e & Insurance	i.e 3% of A	45,402.57
С			Sub To	otal (A+B)	15,58,821.54
D	Contigency @ 3% of C				
Е	Tools & Plants @ 2% of C				
F		Tra	nsportation @	7.5% of C	1,16,911.62
G	Erection Charges (	@ 5% on	Trf/Breaker/WI	PB/ H-Pole	52,594.01
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	/PB/ H-Pc	ole/HT stay set	/PSC pole)	50,694.14
I	Erection Charges @ 20% of	PSC pole	- Not to be use	ed for 33kv	-
J	0: "0	_	Sum	of (C to I)	18,56,962.38
	<u>Civil &amp; Serv</u>	<u>rices</u>			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	9.9	64,350.00
2	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	2.025	13,162.50
K	Total Civil & Services				
L	. Total (J+K)				19,34,474.88
М	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)				1,16,068.49
N					20,50,543.37
0	Total GST @ 18% of (N)				3,69,097.81
Р			Total GST @	) 1% of (N)	20,505.43

Q	Gross Total Material +Services (N+O+P) for	33 KV Cu	it Point with 1	80 Degree Angle	24,40,146.62
-	No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-HVD-0003)				
	MATERIALS FOR 33 KV Cut Po	int with 9	0 Degree Ang	<u>lle</u>	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	4	2,26,942.86
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = $(4x 9.56x1.7)$	K.g.	88.50	260.032	23,012.83
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	42.2912	3,742.77
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)	K.g.	88.50	46.80576	4,142.31
5	Danger Plate, 1 no's.	No.	94.40	4	377.60
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	1.2036	106.52
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	12	1,132.80
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	4.8144	426.07
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	566.40	16	9,062.40
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	24	14,160.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	24	32,568.00
12	Earthing of Support ( Coil Type )	No.	195.88	4	783.52
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.048	92.75
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	24	32,568.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
16	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	4	236.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	45.24	4,163.89
20	Black Paint	Ltr	259.60	4	1,038.40
21	Yellow Colour Paint for Background	Ltr	259.60	8	2,076.80
Α			Total Cost of	f materials	3,67,489.52
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	11,024.69
С			Sub To	otal (A+B)	3,78,514.21
D			Contigency	@ 3% of C	11,355.43

Е		@ 2% of C	7,570.28		
F		7.5% of C	28,388.57		
G	Erection Charges (	@ 5% on	Trf/Breaker/W	PB/ H-Pole	11,687.56
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	/PB/ H-Pc	ole/HT stay set	/PSC pole)	13,333.83
I	Erection Charges @ 20% of	PSC pole	e- Not to be use	ed for 33kv	-
J			Sum	of (C to I)	4,50,849.87
	<u>Civil &amp; Serv</u>	rices			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.2	14,300.00
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	4	9,000.00
K			Total Civil 8	& Services	26,225.00
L			Т	otal (J+K)	4,77,074.87
М	Other overheads ( Including 6% supervision charges	s) of L (fo		oint with 90 gree Angle)	28,624.49
N				otal (L+M)	5,05,699.36
0			Total GST @	18% of (N)	91,025.89
Р			Total GST @	) 1% of (N)	5,056.99
Q	Gross Total Material +Services (N+O+P) for 33 KV	Cut Poir	nt with 90 Deg	ree Angle	6,01,782.24
	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-HVD-0001)				
	MATERIALS FOR 33	KV Pin P	oints		
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	231	1,31,05,950.00
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	231	4,30,676.40
3	Top bracket 100x50x6mm GI channel ( 2kg each)	No.	177.00	231	40,887.00
4	Danger Plate, 1 no's.	No.	94.40	231	21,806.40
5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	70	6,151.45
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	693	65,419.20

7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's =	KG		278	
'	(4x0.59x0.510)	NG	88.50	210	24,605.80
8	33KV pin insulator polymer	No.	566.40	693	3,92,515.20
9	Earthing of Support ( Coil Type )	No.	195.88	231	45,248.28
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	61	5,356.20
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	335	30,828.80
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	34	62,76,933.30
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-
14	Black Paint	Ltr	259.60	231	59,967.60
15	Yellow Colour Paint for Background	Ltr	259.60	462	1,19,935.20
Α			Total Cost of	materials	2,06,26,280.82
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	6,18,788.42
С			Sub To	otal (A+B)	2,12,45,069.25
D			Contigency	@ 3% of C	6,37,352.08
Е		Т	ools & Plants	@ 2% of C	4,24,901.38
F		Tra	ansportation @	7.5% of C	15,93,380.19
G	Erection Charges (	PB/ H-Pole	6,74,956.43		
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	/PB/ H-Pc	ole/HT stay set	/PSC pole)	7,74,594.07
I	Erection Charges @ 20% of	PSC pole	e- Not to be use	ed for 33kv	-
J			Sum	of (C to I)	2,53,50,253.40
	<u>Civil &amp; Serv</u>	<u>rices</u>			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	127.05	8,25,825.00
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	25.9875	1,68,918.75
3	Dismantling of 11 Mtr. Joist/WPB Pole- 150X150mm (Serviceable Pole) after digging the pit and taking out the pole, transportation and stacking the pole at a proper place in safe position within 10km /site store and refilling the pit with loose earth and ramming including removal and disposal of malba at proper location as per instruction of EIC.	EA	1,350.00	280	3,78,000.00
4	Dismantling / Removal of V Cross arm from pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site Store.	EA	41.40	47	1,945.80
5	Dismantling / Removal of MS Channel. from Double Pole Structure /pole including loading, transportation, unloading and staking of dismantled material at a proper place in safe position at Site store	KG	7.92	400	3,168.00

6	Dismantling of Pin Insulator with Pin including loading, transportation, unloading and staking at a	EA	9.10	141	1 112 10	
	proper place in safe position/ site store.  Dismantling of Disc Insulator with Hardware		8.10		1,142.10	
7	including loading, transportation, unloading and staking at a proper place in safe position/ site store.	EA	8.10	20	162.00	
8	Dismantling of ACSR/AAAC 80/100mm2 from overhead line, recoiling, loading, transportation, unloading and staking at a proper place in safe position/ site store	KM	9,000.00	21	1,89,000.00	
K			Total Civil 8	& Services	15,68,161.65	
L			T	otal (J+K)	2,69,18,415.05	
М	Other overheads (Including 6% supervision of	charges) o	of L (for 33 KV	Pin Points)	16,15,104.90	
N			Sub T	otal (L+M)	2,85,33,519.95	
0			Total GST @	18% of (N)	51,36,033.59	
Р			Total GST @	) 1% of (N)	2,85,335.20	
Q	Gross Total Material +Service	es (N+O	+P) for 33 KV	Pin Points	3,39,54,888.74	
	6% Supervision Char			S		
1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)					
2	2 Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)					
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)					
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90					
5	Other overheads (Including 6% supervision of	charges) o	of L (for 33 KV	Pin Points)	16,15,104.90	
-		Total (6	% supervision	n charges)	20,88,655.34	
	Gross Total Su	<u>ummary</u>				
1	Gross Total Material +Services (N+0	O+P) for 3	33 KV DP Witho	out Isolator	48,87,020.20	
2	Gross Total Material +Services (N	N+O+P) f	or 33 KV DP W	ith Isolator	20,26,659.62	
3	Gross Total Material +Services (N+O+P) for 33 K	gree Angle	24,40,146.62			
4	Gross Total Material +Services (N+O+P) for 33 I	KV Cut Po	oint with 90 De	gree Angle	6,01,782.24	
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points					
Q	Inspection Fee of Over Hea	ad Line (H	IT) - Rs. 200 fo	r 1st 5 km.	200.00	
R	Inspection Fee of Over Head	d Line (H	T) - Rs. 30/ Add	ditional Km	180.00	
S	Inspection Fee	of Drawin	g Checking an	d Approval	400.00	
Т	F	inal decis	ion by electrica	I Inspector	500.00	
U	Gross Total Material, Services an	nd Inspec	tion Fees (P+	Q+R+S+T)	4,39,11,777.42	

Patr-B

# Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - 2 Nos (LLVV) at Lingipur & Uttara

Supp	oly Portion				
	Feeder Length		0		
SI. No.	Description of items	Unit	Total Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories		0.2		
а	Length of 33kV 1C, 630sqmm cable (open trench)	km	0.2		
b	Length of 33kV 1C, 630sqmm cable (HDD)	km	0		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA-59.4kA and SC rating of Armour in kA-20kA)	km	0.8	13,37,130.00	10,69,704.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	4	9,726.50	38,906.02
1.3	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	32	9,726.50	3,11,248.13
1.4	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	24	7,409.93	1,77,838.27
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0.8	5,20,436.00	4,16,348.80
d	No. of 33kV 4Way RMU (LLVV)	nos.	2		
2.4	Supply of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	23,35,264.00	46,70,528.00
3	Earthing				
3.1	Earthing Conductor: <b>50X6 mm</b> (2.4kg./mtr.) <b>GI Flat</b> for equipment, structure etc.)	kg	26.40	88.50	2,336.40
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	4	1,239.00	4,956.00
4	FRTU and OFC for RMU SCADA Automation				
4.1	Supply of 12 core fibre optic cable single mode, duct type, fibre armoured laid along 11kV UG cable.	km	2	56,515.00	1,13,030.00
4.5	Supply of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	4,35,542.00	8,71,084.00
	Sub Total (Supply Portion	) (in Rs.	)		76,75,979.62
Erec	tion Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE	km	0.8	94,500.00	75,600.00

	cable as spare) in trefoil formation by <b>open trench method</b> .						
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	4	3,480.00	13,920.00		
1.3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	32	3,480.00	1,11,360.00		
1.4	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	24	3,480.00	83,520.00		
1.6	Laying of <b>110mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.80	1,04,114.67	83,291.74		
2	Erection, Commissioning, Wiring and Testing of 33kV RMU						
2.4	Erection of RMU 33KV 3WAY 630A (2ISLTR+2 BKR) (LLVV)	Nos.	2	15,000.00	30,000.00		
3.1	FRTU and OFC for RMU SCADA Automation  Laying of 12 core fibre optic cable single mode, duct type, fibre armoured in HDPE PLB duct of size 32/26mm for laying of OFC Cables.laid along 11kV UG cable. through open trench	km	2	27,296.35	54,592.70		
3.5	Erection, Commissioning, Testing of Standard FRTU 4Way with FRTU networking Equipment consisting of Fibre Optic switch (Mono mode along wilh associate LIU unit for connection of FO Cable. for 3 Way & 4 way RMU.	Nos.	2	6,124.36	12,248.72		
	Sub Total (Erection Portion	n) (in Rs	.)		4,64,533.16		
Civil	Civil Portion						
01	Portion						
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)		
		Unit	Quantity				
<b>No. 2</b> 2.1	Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU	Unit Nos.	2	(in Rs.) 23,145.30	(in Rs.) 46,290.60		
No.	Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU  Supply of GI Fencing with Gate around each RMU	<b>-</b>	-	(in Rs.)	(in Rs.)		
<b>No. 2</b> 2.1	Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU	Nos.	2	(in Rs.) 23,145.30	(in Rs.) 46,290.60		
2 2.1 3	Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Nos.	2 40	(in Rs.) 23,145.30 3,600.00	(in Rs.) 46,290.60 1,44,000.00		
2.1 3 4	Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm,	Nos. sqmtr	2 40 4	(in Rs.)  23,145.30 3,600.00  2,407.00	46,290.60 1,44,000.00 9,628.00		
2.1 3 4 5	Description of items  Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil	Nos. sqmtr Set Mtr Nos.	2 40 4 256	(in Rs.)  23,145.30 3,600.00  2,407.00  1,463.40	46,290.60 1,44,000.00 9,628.00		
2.1 3 4 5	Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU Supply of GI Fencing with Gate around each RMU Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.) Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion)	Nos. sqmtr Set Mtr Nos.	2 40 4 256	(in Rs.)  23,145.30 3,600.00  2,407.00  1,463.40	46,290.60 1,44,000.00 9,628.00 3,74,630.40 5,74,549.00		
No. 2 2.1 3 4 5	Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos. sqmtr Set Mtr Nos.	2 40 4 256	(in Rs.)  23,145.30 3,600.00  2,407.00  1,463.40	(in Rs.)  46,290.60 1,44,000.00 9,628.00 3,74,630.40		
No. 2 2.1 3 4 5 6	Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU Supply of GI Fencing with Gate around each RMU Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.) Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion)  Sub Total (Supply Portion)	Nos. sqmtr Set Mtr Nos.	2 40 4 256	(in Rs.)  23,145.30 3,600.00  2,407.00  1,463.40	(in Rs.)  46,290.60 1,44,000.00 9,628.00 3,74,630.40  5,74,549.00  76,75,979.62		
<ul><li>No.</li><li>2</li><li>2.1</li><li>3</li><li>4</li><li>5</li><li>6</li><li>A</li><li>B</li></ul>	Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion)  Stock, Storage & Insurance @ 3 % of A	Nos. sqmtr Set Mtr Nos.	2 40 4 256	(in Rs.)  23,145.30 3,600.00  2,407.00  1,463.40	46,290.60 1,44,000.00 9,628.00 3,74,630.40 5,74,549.00 76,75,979.62 2,30,279.39		
<ul> <li>No.</li> <li>2</li> <li>2.1</li> <li>3</li> <li>4</li> <li>5</li> <li>6</li> <li>A</li> <li>B</li> <li>C</li> </ul>	Civil works for Prefabricated RCC foundation with supply of all materials  Prefabricated RCC foundation of 33kV RMU  Supply of GI Fencing with Gate around each RMU  Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover  Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)  Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works  Sub Total (Civil Portion)  Stock, Storage & Insurance @ 3 % of A  Sub Total (A+B)	Nos. sqmtr Set Mtr Nos.	2 40 4 256 7	(in Rs.)  23,145.30 3,600.00  2,407.00  1,463.40	(in Rs.)  46,290.60 1,44,000.00 9,628.00 3,74,630.40  5,74,549.00  76,75,979.62 2,30,279.39 79,06,259.00		

G	Erection Charges @ 10% of earthing items	751.12
Н	Total (C+D+E+F+G)	87,37,317.54
I	Sub Total (Erection Portion + Civil Portion)	10,39,082.16
J	Total Cost (H+I)	97,76,399.70
K	Other Overhead /(including Supervision Charges) @ 6 % of J	5,86,583.98
L	Total Estimated Capital Cost i.e. (J+K)	1,03,62,983.68
М	GST @ 18% of L	18,65,337.06
N	GST @ 1% of L	10,36,298.37
0	Grand Total (L+M+N)	1,32,64,619.11
Р	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	4000
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00

	TP CEN	NTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :- BED						
	Name of the Sub-Division : -	Temple					
	Name of the Section : -	Badagada					
	Name of the Work :-	Proposal for construction of new 33kv fdr from Pratpasashan Grid to Siula PSS. To mitigate overloading issue and improving N-1 contingency of 33kv Lingipur, Bhimtangi and Badagada fdrs. Since there is a delay in comissioning of Proposed Badagada OPTCL GSS.					
	Scope of work:-	Construction of new 33kv fdr from Pratpasashan Grid to Siula PSS - 4km					
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)					
		ABSTRACT OF ESTIMATE					
SI. No.	Part	Description	Amount				
1	С	Estimate for construction of new 33kv fdr from Pratpasashan Grid to Siula PSS - 4km	1,58,41,920.56				
		Total Amount	1,58,41,920.56				
		Total Amount (In Cr)	1.58				
Tota	Total estimated cost is Rs. 1.58 Crore. (On TPCODL Capex Scheme)						

Construction of new 33KV feeder from Pratapsan GSS to Uttara						
	No. of 33 KV DP required Without Isolator					
	(Ref. Drawing No TPCODL-HVD-0004)					
	MATERIALS FOR 33 KV D	P Withou	ut Isolator			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	13 Mtr. Long H-Pole	No	56,735.71	12	6,80,828.57	

	T 01 1400VE0V0 0 50 VO VV	1	ı	1	1
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 3.25 mtr., 2 no's channel required =( 2x9.56x3.25)	KG	88.50	372.84	32,996.34
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	23.7888	2,105.31
4	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 1.96 Mtr., 5 no's channel required =( 5x7.14x1.96)	KG	88.50	419.832	37,155.13
5	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 3.432 mtr., 4 nos angle required = (4*4.5*3.432)	KG	88.50	370.656	32,803.06
6	Danger Plate, 2 no's.	No.	94.40	12	1,132.80
7	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	3.6108	319.56
8	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	12	1,770.00
9	H.T. Stay set (Complete )	Set	1,239.00	12	14,868.00
10	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	24	1,416.00
11	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	180	15,930.00
12	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	6	7,434.00
13	50x6mm GI Flat for earthing, 2.36kg/mtr., (2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 5x2.36	KG	88.50	70.8	6,265.80
14	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	36	3,398.40
15	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	14.4432	1,278.22
16	33KV pin insulator polymer	No.	566.40	18	10,195.20
17	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	36	21,240.00
18	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	36	48,852.00
19	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	36	48,852.00
20	GI Nut , Bolt & Washer of different sizes (12.261 Kg each DP without Isolator)	K.g.	92.04	73.566	6,771.01
21	Black Paint	Ltr	259.60	6	1,557.60
22	Yellow Colour Paint for Background	Ltr	259.60	12	3,115.20
Α			Total Cost of	f materials	9,80,284.20
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	29,408.53
С			Sub To	otal (A+B)	10,09,692.73
D			Contigency	@ 3% of C	30,290.78
Е		7	Tools & Plants	@ 2% of C	20,193.85
F		Tra	ansportation @	7.5% of C	75,726.95
G	Erection Charges (	@ 5% on	Trf/Breaker/WI	PB/ H-Pole	35,062.67
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	/PB/ H-Po	ole/HT stay set	/PSC pole)	27,343.58

I	Erection Charges @ 20% of PSC pole- Not to be used for 33kv					
J		of (C to I)	11,98,310.57			
	<u>Civil &amp; Serv</u>	ices				
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	12	27,000.00	
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	6.6	42,900.00	
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	1.35	8,775.00	
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	6	14,442.00	
K			Total Civil 8	& Services	93,117.00	
L			7	Гotal (J+K)	12,91,427.57	
М	Other overheads (Including 6% supervision c	harges) of	f L (for 33 KV I	OP Without Isolator)	77,485.65	
N			Sub T	otal (L+M)	13,68,913.22	
0			Total GST @	18% of (N)	2,46,404.38	
Р			Total GST @	) 1% of (N)	13,689.13	
Q	Gross Total Material +Services (N+O+	P) for 33	KV DP Witho	ut Isolator	16,29,006.73	
•	No. of 33 KV DP required With Isolator					
	(Ref. Drawing No TPCODL-HVD-0004)					
	MATERIALS FOR 33 KV	DP With	<u>Isolator</u>			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
1	13 Mtr. Long H-Pole	No	56,735.71	4	2,26,942.86	
2	Top Channel 100X50X6mm, 9.56 KG/Mtr., each channel length 4.3 mtr., 2 no's channel required =( 2x9.56x4.3)	KG	88.50	164.432	14,552.23	
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 6 no's required = (6x2.36x0.280)	KG	88.50	7.9296	701.77	
4	Insulator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 1 no's channel required =( 1x7.14x4.3)	KG	88.50	61.404	5,434.25	
5	Isolator Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 2 no's channel required =( 2x7.14x4.3)	KG	88.50	122.808	10,868.51	
6	Double Pole Belting Channel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 4.3 Mtr., 4 no's channel required =( 4x7.14x4.3)	KG	88.50	245.616	21,737.02	

	50v50v6mm CI Bracing Angle 4 EV a Imtr. coch				
7	50x50x6mm.GI Bracing Angle, 4.5Kg./mtr., each angle length 4.927 mtr., 4 nos angle required = (4*4.5*4.927)	KG	88.50	177.372	15,697.42
8	Isolator Operating Down Pipe Support Cahnnel 75X40X 4.8mm., 7.14KG/Mtr., each channel length 0.8 Mtr., 1 no's channel required =( 1x7.14x0.8)	KG	88.50	11.424	1,011.02
9	Down Pipe Diagonal Support Angle, 4.5Kg./mtr., each angle length 0.388mtr., 1 nos angle required = (1*4.5*0.388)	KG	88.50	3.492	309.04
10	Down Pipe Base Support Angle, 4.5Kg./mtr., each angle length 0.34mtr., 1 nos angle required = (1*4.5*0.340)	KG	88.50	3.06	270.81
11	Isolator Support Side Cahnnel 100X50X6mm, 9.56 KG/Mtr., each channel length 0.5 mtr., 2 no's channel required =( 2x9.56x0.5)	KG	88.50	19.12	1,692.12
12	Danger Plate, 2 no's.	No.	94.40	4	377.60
13	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 2 no's = (2x0.59x0.510)	KG	88.50	1.2036	106.52
14	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	4	590.00
15	H.T. Stay set (Complete )	Set	1,239.00	4	4,956.00
16	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	8	472.00
17	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	60	5,310.00
18	Gi Pipe Earthing 40mm. 3 Mtr. Long	No.	1,239.00	4	4,956.00
19	50x6mm GI Flat for earthing, 2.36kg/mtr., (15 Mtr. For L.A, 4 Mtr for Isolator Body, 2.5 mtr. For mesh formation and 2.5 mtr. For raising)= 24x2.36	KG	88.50	113.28	10,025.28
20	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	12	1,132.80
21	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 8 no's = (8x0.59x0.510)	KG	88.50	4.8144	426.07
22	Lightning Arrester(30KV,10KA) (Station Class,class-2)	EA	12,213.00	6	73,278.00
23	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	Set	84,464.40	2	1,68,928.80
24	33KV pin insulator polymer	No.	566.40	6	3,398.40
25	H W fitting(B&S) 90KN,4 Bolt	No.	590.00	12	7,080.00
26	Disc insulator (B&S) 90 KN polymer	No.	1,357.00	12	16,284.00
27	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	12	16,284.00
28	GI Nut , Bolt & Washer of different sizes (22.15 Kg each DP with Isolator)	K.g.	92.04	44.3	4,077.37
29	Black Paint	Ltr	259.60	2	519.20
30	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40
Α			Total Cost of	materials	6,18,457.50
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	18,553.72
С			Sub To	otal (A+B)	6,37,011.22

D			Contigency	@ 3% of C	19,110.34
Е		12,740.22			
F		Tra	ansportation @	7.5% of C	47,775.84
G	Erection Charges (	@ 5% on	Trf/Breaker/W	PB/ H-Pole	11,687.56
Н	Erection Charges @ 10% of C (except Trf/Breaker/W	/PB/ H-Po	ole/HT stay set	/PSC pole)	39,159.22
I	Erection Charges @ 20% of	PSC pole	- Not to be use	ed for 33kv	-
J			Sum	of (C to I)	7,67,484.41
	<u>Civil &amp; Serv</u>	ices			
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	4	9,000.00
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	2.2	14,300.00
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.45	2,925.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2,407.00	4	9,628.00
K			Total Civil 8	& Services	35,853.00
L			7	otal (J+K)	8,03,337.41
М	Other overheads (Including 6% supervision charges	s) of L (fo	r 33 KV DP W	ith Isolator)	48,200.24
N			Sub T	otal (L+M)	8,51,537.65
0			Total GST @	18% of (N)	1,53,276.78
Р			Total GST @	) 1% of (N)	8,515.38
Q	Gross Total Material +Services (N+	+O+P) for	33 KV DP Wi	th Isolator	10,13,329.81
,-	No. of 33 KV Cut Point with 180 Degree Angle (Ref. Drawing No TPCODL-HVD-0002)	<u> </u>			
	MATERIALS FOR 33 KV Cut Poin	nt with 18	0 Degree Ang	<u>ale</u>	
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	6	3,40,414.29
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 2 No's of Channel = (2x 9.56x1.7)	K.g.	88.50	195.024	17,259.62
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 8 no's required = (8x2.36x0.280)	K.g.	88.50	31.7184	2,807.08

4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 2 No's of Channel = (2x 9.56x0.306)	K.g.	88.50	35.10432	3,106.73						
5	Danger Plate, 1 no's.	No.	94.40	6	566.40						
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	1.8054	159.78						
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	18	1,699.20						
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	7.2216	639.11						
9	33KV pin insulator polymer	No.	566.40	18	10,195.20						
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	36	21,240.00						
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	36	48,852.00						
12	Earthing of Support ( Coil Type )	EA	195.88	6	1,175.28						
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	1.572	139.12						
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	36	48,852.00						
15	GI Nut , Bolt & Washer of different sizes (4.879 Kg each 180 deg. Cut point)	K.g.	92.04	29.274	2,694.38						
16	Black Paint	Ltr	259.60	6	1,557.60						
17	Yellow Colour Paint for Background	Ltr	259.60	12	3,115.20						
Α											
В	Stoc	k, Storage	e & Insurance	i.e 3% of A	15,134.19						
С			Sub To	otal (A+B)	Sub Total (A+B) 5,19,607.18						
D	Continency @ 3% of C										
			Contigency	@ 3% of C	15,588.22						
E		Т	Contigency  Tools & Plants		,						
E F				@ 2% of C	15,588.22						
	Erection Charges (	Tra	ools & Plants	@ 2% of C	15,588.22						
F	Erection Charges @ 10% of C (except Trf/Breaker/W	Tra @ 5% on	ools & Plants ansportation @	@ 2% of C 27.5% of C PB/ H-Pole	15,588.22 10,392.14 38,970.54						
F G	•	Tra @ 5% on <sup>*</sup> /PB/ H-Po	Tools & Plants ansportation @ Trf/Breaker/Wille/HT stay set	@ 2% of C 27.5% of C PB/ H-Pole /PSC pole)	15,588.22 10,392.14 38,970.54 17,531.34						
F G H	Erection Charges @ 10% of C (except Trf/Breaker/W Erection Charges @ 20% of	Tra  @ 5% on  /PB/ H-Po  PSC pole	Tools & Plants ansportation @ Trf/Breaker/Wille/HT stay set	@ 2% of C 27.5% of C PB/ H-Pole /PSC pole)	15,588.22 10,392.14 38,970.54 17,531.34						
F G H I	Erection Charges @ 10% of C (except Trf/Breaker/W	Tra  @ 5% on  /PB/ H-Po  PSC pole	Tools & Plants ansportation @ Trf/Breaker/Wille/HT stay set	@ 2% of C 7.5% of C PB/ H-Pole /PSC pole) ed for 33kv	15,588.22 10,392.14 38,970.54 17,531.34 16,898.05						
F G H	Erection Charges @ 10% of C (except Trf/Breaker/W Erection Charges @ 20% of	Tra  @ 5% on  /PB/ H-Po  PSC pole	Tools & Plants ansportation @ Trf/Breaker/Wille/HT stay set	@ 2% of C 27.5% of C PB/ H-Pole /PSC pole) ed for 33kv	15,588.22 10,392.14 38,970.54 17,531.34 16,898.05						
F G H J	Erection Charges @ 10% of C (except Trf/Breaker/M Erection Charges @ 20% of  Civil & Serv  Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Tra  @ 5% on  /PB/ H-Po  PSC pole	Trf/Breaker/Wl	@ 2% of C 27.5% of C PB/ H-Pole /PSC pole) ed for 33kv of (C to I)	15,588.22 10,392.14 38,970.54 17,531.34 16,898.05 - 6,18,987.46						
F G H I No.	Erection Charges @ 10% of C (except Trf/Breaker/M  Erection Charges @ 20% of  Civil & Serv  Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm)	Tra @ 5% on /PB/ H-Po PSC pole	Tools & Plants ansportation @ Trf/Breaker/Wi ble/HT stay set - Not to be use Sum Unit Rate	@ 2% of C 7.5% of C PB/ H-Pole /PSC pole) ed for 33kv of (C to I)  Total Quantity	15,588.22 10,392.14 38,970.54 17,531.34 16,898.05 - 6,18,987.46 Total Amount						
F G H I SI. No.	Erection Charges @ 10% of C (except Trf/Breaker/M Erection Charges @ 20% of  Civil & Serv  Description of Materials  Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr  Couping ratio 1:1.5:3 with dimension	Tra @ 5% on PSC pole ices Unit Cu.mtr	Trools & Plants ansportation @ Trf/Breaker/Wl ble/HT stay set - Not to be use Sum  Unit Rate 6,500.00	@ 2% of C 7.5% of C PB/ H-Pole PSC pole) ed for 33kv of (C to I)  Total Quantity 3.3 0.675	15,588.22 10,392.14 38,970.54 17,531.34 16,898.05 - 6,18,987.46 Total Amount 21,450.00						

М	Other overheads (Including 6% supervision charges)	of L (for		nt with 180 gree Angle)	38,689.50
N		otal (L+M)	6,83,514.46		
0		18% of (N)	1,23,032.60		
Р			Total GST @	) 1% of (N)	6,835.14
Q	Gross Total Material +Services (N+O+P) for 33 KV	Cut Poin	t with 180 Dec	gree Angle	8,13,382.21
	No. of 33 KV Cut Point with 90 Degree Angle (Ref. Drawing No TPCODL-HVD-0003)				
01	MATERIALS FOR 33 KV Cut Poi	nt with 9	0 Degree Ang		Total
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	13 Mtr. Long H-Pole	No	56,735.71	2	1,13,471.43
2	Straight Cross Arm Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 1.7 Mtr., 4 No's of Channel = (4x 9.56x1.7)	K.g.	88.50	130.016	11,506.42
3	Fish Plate 50x6 mm., 2.36 kg/Mtr., each 0.280 mtr. length, 16 no's required = (16x2.36x0.280)	K.g.	88.50	21.1456	1,871.39
4	Straight Cross Arm Top Channel 100 x 50 x 6 mm, 9.56 KG/mtr, each channel length 0.306 Mtr., 4 No's of Channel = (4x 9.56x0.306)		88.50	23.40288	2,071.15
5	Danger Plate, 1 no's.		94.40	2	188.80
6	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)		88.50	0.6018	53.26
7	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	6	566.40
8	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	2.4072	213.04
9	33KV pin insulator polymer (4 No's each 90 Deg. Cut point)	No.	566.40	8	4,531.20
10	H W fitting(B&S)90KN,4 Bolt	No.	590.00	12	7,080.00
11	Disc insulator (B&S)90 KN polymer	No.	1,357.00	12	16,284.00
12	Earthing of Support ( Coil Type )	No.	195.88	2	391.76
13	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	0.524	46.37
14	PG Clamp for 232 sq.mm AAA conductor	NO.	1,357.00	12	16,284.00
15	H.T. Stay clamp, 50x8 mm. flat, 3.14Kg/Mtr., 0.511 Mtr. Length, 2 no's qty. required ( 1 Pair)	Pair	147.50	2	295.00
16	H.T. Stay set (Complete )	Set	1,239.00	2	2,478.00
17	H.T. Stay Insulator Type-C (2 No's.)	No.	59.00	2	118.00
18	7/8 SWG Stay Wire 15kg /stay	K.g.	88.50	30	2,655.00
19	GI Nut , Bolt & Washer of different sizes (11.31 Kg each 90 deg. Cut point)	K.g.	92.04	22.62	2,081.94
20	Black Paint	Ltr	259.60	2	519.20
21	Yellow Colour Paint for Background	Ltr	259.60	4	1,038.40

Α		f materials	1,83,744.76				
В	Stoc	k, Storag	e & Insurance	i.e 3% of A	5,512.34		
С		otal (A+B)	1,89,257.10				
D		@ 3% of C	5,677.71				
Е		7	Γools & Plants	@ 2% of C	3,785.14		
F		Tra	ansportation @	7.5% of C	14,194.28		
G	Erection Charges (	@ 5% on	Trf/Breaker/W	PB/ H-Pole	5,843.78		
Н	Erection Charges @ 10% of C (except Trf/Breaker/M	/PB/ H-Pc	ole/HT stay set	/PSC pole)	6,666.92		
I	Erection Charges @ 20% of	PSC pole	e- Not to be us	ed for 33kv	-		
J			Sum	of (C to I)	2,25,424.93		
	<u>Civil &amp; Serv</u>	ices					
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount		
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	1.1	7,150.00		
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	0.225	1,462.50		
3	Fixing of 33KV line Complete stay set includes 1) Turn Buckle Assembly 2) Stay Rod & Stay plate 3) Stay Insulator 4) Stay Wire. 5)Stay clamps with Nuts & bolts, including excvation, supply of 0.5Cum cement concrete foundation 1:2:4 size (500mmx500mmx800mm) using 20mm BHG metal with all labour and material (Excavation of earth will be done of size 500X500X1500 mm.)	No.	2,250.00	2	4,500.00		
K			Total Civil 8	& Services	13,112.50		
L			7	Γotal (J+K)	2,38,537.43		
М	Other overheads (Including 6% supervision charge	s) of L (fo		oint with 90 gree Angle)	14,312.25		
N	-						
0			Total GST @	18% of (N)	45,512.94		
Р			Total GST @	) 1% of (N)	2,528.50		
Q	Gross Total Material +Services (N+O+P) for 33 KV	gree Angle	3,00,891.12				
	33 Kv Line Length In KM with 40 Mtr. Span (Ref. Drawing No TPCODL-HVD-0001)	101 B' -					
SI. Barriera & Materials FOR 33 KV Pin Points  Total							
No.	Description of Materials	Unit	Unit Rate	Quantity	Total Amount		
1	13 Mtr. Long H-Pole	No	56,735.71	84	47,65,800.00		
2	33 KV V cross Arm (GI) 22Kg each	No.	1,864.40	84	1,56,609.60		
3	Top bracket 100x50x6mm GI channel ( 2kg each)	No.	177.00	84	14,868.00		
4	Danger Plate, 1 no's.	No.	94.40	84	7,929.60		

5	Back Clamp for danger Plate 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 1 no's = (1x0.59x0.510)	KG	88.50	25	2,236.89		
6	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	94.40	252	23,788.80		
7	Back Clamp for anticlimbing device 25X3 mm. flat, 0.59Kg/Mtr. Flat of 0.510mtr length 4 no's = (4x0.59x0.510)	KG	88.50	101	8,947.56		
8	33KV pin insulator polymer	No.	566.40	252	1,42,732.80		
9	Earthing of Support ( Coil Type )	No.	195.88	84	16,453.92		
10	No-8 GI wire (Dia 4.6mm) 0.131 KG/ Mtr 2 Mtr. For connecting pole with Coil earthing	K.g.	88.50	22	1,947.71		
11	GI Nut , Bolt & Washer of different sizes (1.45 Kg/ Pin Point)	K.g.	92.04	122	11,210.47		
12	232 sq.mm AAA conductor	K.M.	1,84,670.00	12	22,82,521.20		
13	Crimping type Midspan Compression Joint for 232 sq.mm AAA conductor	EA	648.42	0	-		
14	Black Paint	Ltr	259.60	84	21,806.40		
15	Yellow Colour Paint for Background	Ltr	259.60	168	43,612.80		
Α		f materials	75,00,465.75				
В	Stock, Storage & Insurance i.e 3% of A 2,25,013.97						
С		otal (A+B)	77,25,479.73				
D		@ 3% of C	2,31,764.39				
Е		@ 2% of C	1,54,509.59				
F		7.5% of C	5,79,410.98				
G	Erection Charges (	@ 5% on	Trf/Breaker/WI	PB/ H-Pole	2,45,438.70		
Н	Erection Charges @ 10% of C (except Trf/Breaker/N	/PB/ H-Pc	ole/HT stay set	/PSC pole)	2,81,670.57		
I	Erection Charges @ 20% of	PSC pole			-		
J	Civil & Serv	vione	Sum	of (C to I)	92,18,273.96		
SI.	<u>Civii &amp; Serv</u>	ices		Total	Total		
No.	Description of Materials	Unit	Unit Rate	Quantity	Amount		
1	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	6,500.00	46.2	3,00,300.00		
2	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	Cu.mtr	6,500.00	9.45	61,425.00		
K		& Services	3,61,725.00				
L		Total (J+K)	95,79,998.96				
М	Other overheads (Including 6% supervision o	Pin Points)	5,74,799.94				
N		otal (L+M)	1,01,54,798.90				
0							
Р			Total GST @	) 1% of (N)	1,01,547.99		

Q	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	1,20,84,210.69					
6% Supervision Charges Summary							
1	Other overheads (Including 6% supervision charges) of L (for 33 KV DP Without Isolator)	77,485.65					
2	Other overheads (Including 6% supervision charges) of L (for 33 KV DP With Isolator)	48,200.24					
3	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 180 Degree Angle)	38,689.50					
4	Other overheads (Including 6% supervision charges) of L (for 33 KV Cut Point with 90 Degree Angle)	14,312.25					
5	Other overheads (Including 6% supervision charges) of L (for 33 KV Pin Points)	5,74,799.94					
	Total (6% supervision charges)	7,53,487.58					
	Gross Total Summary						
1	Gross Total Material +Services (N+O+P) for 33 KV DP Without Isolator	16,29,006.73					
2	Gross Total Material +Services (N+O+P) for 33 KV DP With Isolator	10,13,329.81					
3	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 180 Degree Angle	8,13,382.21					
4	Gross Total Material +Services (N+O+P) for 33 KV Cut Point with 90 Degree Angle	3,00,891.12					
5	Gross Total Material +Services (N+O+P) for 33 KV Pin Points	1,20,84,210.69					
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00					
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km						
S	Inspection Fee of Drawing Checking and Approval	400.00					
Т	Final decision by electrical Inspector	500.00					
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T) 1,58,41,920.56						

## Part-D

	TP CENT	RAL ODISHA DISTRIBUTION LIMITED			
	Name of the Division :-	BED			
•	Name of the Sub-Division : -	Temple			
	Name of the Section : -	Badagada			
	Name of the Work :-	Proposal for augmentation of interlinking line of Badgar T-off Lingipur PSS. To mitigate overloading issue and improving Notice contingency of 33kv Lingipur, Bhimtangi and Badagada fdrs. there is a delay in comissioning of Proposed Badagada OPT GSS.			
	Scope of work:-	Replacement of UG cable from interlinking line of Badgada T-off to Lingipur PSS - 0.3km			
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)			
		ABSTRACT OF ESTIMATE			
SI. No.	Part	Description	Amount		
1	D	Estimate for augmentation of UG cable from interlinking near Siula T-off - 0.3km	46,55,457.30		
		Total Amount	46,55,457.30		
	•	Total Amount (In Cr)	0.47		

Total estimated cost is Rs. 0.47 Crore. (On TPCODL Capex Scheme)

Patr-A					
	lard BoQ and Estimate for 33kV, 1C 630sqm	m UG (	Cable along	with 33kV RMU-0	).3km
Сиррі	y r ortion				
	Feeder Length		0		
SI. No.	Description of items	Unit	Total Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories		0.3		
а	Length of 33kV 1C, 630sqmm cable (open trench)	km	0.21		
b	Length of 33kV 1C, 630sqmm cable (HDD)	km	0.09		
1.1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	km	0.9	13,37,130.00	12,03,417.00
1.2	Supply of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG Cable kits for 1Core	Set	3	9,726.50	29,179.51
1.3	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	3	9,726.50	29,179.51
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0.63	5,20,436.00	3,27,874.68
	Sub Total (Supply Por	n Rs.)		15,89,650.70	
Erecti	on Portion			,	
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by <b>open trench method</b> .	km	0.84	94,500.00	79,380.00
1.2	Erection of <b>Straight through jointing kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, aluminium UG cable kits	Set	3	3,480.00	10,440.00
1.3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	Set	3	3,480.00	10,440.00
1.5	Supply, Installation, Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by <b>HDD method with</b> HDPE pipe (110mm dia, PN8 PE80) for laying of	km	0.36	23,00,000.00	8,28,000.00

	individual run of UG cable at main road and unaccessable place.					
1.6	Laying of <b>110mm dia</b> PE 80-PN8, <b>HDPE pipe</b> inside open trench.	km	0.63	1,04,114.67	65,592.24	
	Sub Total (Erection Po	rtion) (	in Rs.)		9,93,852.24	
Civil F	Portion					
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)	
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench			(	(	
1.1	Earth work excavation of soil (1mtr. width X 1.2mtr. depth)					
1.1.a	Earth work excavation of <b>soil</b>	Cum	176.4	700.00	1,23,480.00	
1.1.b	Earth work excavation of hard rock	Cum	75.6	1,720.00	1,30,032.00	
1.4	Back filling with excavated soil outside and above the trench	Cum	252	202.00	50,904.00	
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.105	26,43,670.63	2,77,585.42	
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	24	1,463.40	35,121.60	
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	10	1,012.00	10,120.00	
	Sub Total (Civil Port		6,27,243.02			
Α	Sub Total (Supply Portion)				15,89,650.70	
<u>А</u> В	Stock, Storage & Insurance @ 3 % of A				47,689.52	
C	Sub Total (A+B)				16,37,340.23	
D	Contingency @ 3 % of C				49,120.21	
E	Tools & Plants Charges @ 2% of C (considered for earthing items)					
F	Transportation @ 7.5% of C	1,22,800.52				
G	Erection Charges @ 10% of earthing items	-				
Н	Total (C+D+E+F+G)		18,09,260.95			
I	Sub Total (Erection Portion + Civil Portion)		16,21,095.26			
J	Total Cost (H+I)		34,30,356.21			
K	Other Overhead /(including Supervision Char		2,05,821.37			
L	Total Estimated Capital Cost i.e. (J+K)		36,36,177.58			
М	GST @ 18% of L				6,54,511.96	
N	GST @ 1% of L				3,63,617.76	
0	Grand Total (L+M+N)				46,54,307.30	

#### **Supplementary CAPEX FY: 22-23**

Р	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
R	Inspection Fee of RMU - Rs. 2000/ RMU	0
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	46,55,457.30

#### Benefit:

• Ensure reliable power supply, mitigate overload and improve N-1 connectivity.

<u>Proposal-4 (Proposal for replacement of existing lower size 33kv (300Sqmm/400sqmm) HT cable inside Mancheswar-B GSS to mitigate overloading issue)</u>

#### Proposal:

Proposal for mitiagtion of overloading of 33 KV fdr emanating from Mancheswar-B Grid.

#### Objective:

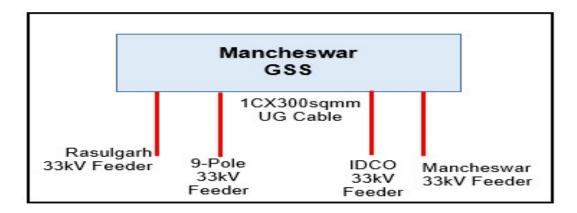
• To maintain reliability of power supply with improving N-1 connectivity and mitigate overloading issue of existing network.

#### **Existing Scenario:**

At present, outgoing 33kV feeders of Mancheswar-B GSS are laid with lower size cables (1Cx 300sq.mm), however their connectivity is with higher capacity of network (1Cx630sq.mm, 232sqmm and 400sqmm cables) which restrict the complet utilization of network capacity and cause overloading of 33kV feeders and non-reliable network.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Mancheswar	17.37	16.50	95%	Overload	OK
Rasulgarh	17.37	15.32	88%	OK	OK
IDCO	17.37	2.50	14%	OK	Not OK
New Fdr (9 Pole)	17.37	0.00	0%	WIP	WIP

#### Existing SLD (FY' 22-23):

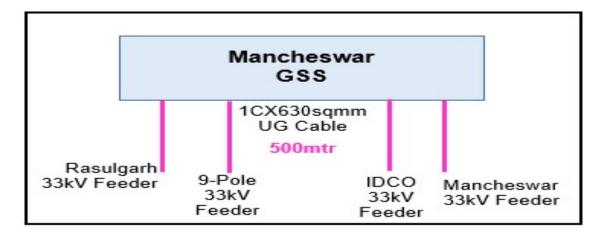


#### **Proposed Scenario:**

- After augmentation of all o/g feeders, reliability will improve and feeder can be operated at peak capacity.
- Overloading and N-1 issue of network will mitigate.
- Considering 41% load growth, the feeder will capable to feed the load demand for next 4 to 5 years.

33kV Feeder Name	Feeder Capacity (MVA)	Peak Loading FY' 22-23 (MVA)	% Load Growth	Projected load FY' 26-27 (MVA)	% Loading	Feeder Overloading Status	Feeder N-1 Status
Mancheswar	25.71	16.50	41%	23.26	90%	OK	OK
Rasulgarh	25.71	15.32	41%	21.60	84%	OK	OK
IDCO	25.71	2.50	41%	3.53	14%	OK	OK
New Fdr (9 Pole)	25.71	0.00	41%	0.00	0%	WIP	WIP

#### Proposed SLD (FY' 23-24):



#### **Detailed Scope of Work:**

Augmentation of UG cable 33kv o/g fdrs. from Mancheswar-B Grid- 0.5km (4 No's of 33kV Feeders)

## **BOQ**:

	TP CENTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :-	BED				
İ	Name of the Sub-Division : -	Rasulgarh				
	Name of the Section : -	Mancheswar				

	_	Total Amount (In Cr)	0.78				
		Total Amount	78,47,620.61				
1	А	Estimate for construction of new 33kv o/g fdrs. from Mancheswar-B Grid to near by DP 4No's - 0.8km	78,47,620.61				
SI. No.	Part	Description	Amount				
		ABSTRACT OF ESTIMATE					
	Names of Schemes: -	TPCODL CAPEX(FY 22-23)					
	Scope of work:-	Construction of new 33kv o/g fdrs. from Mancheswar-B Grid to near by DP 4No's - 0.8km					
	Name of the Work :-	(Rasulgarh), Capex 21-22 9Pole and Idco Fdr.					

## Part-A

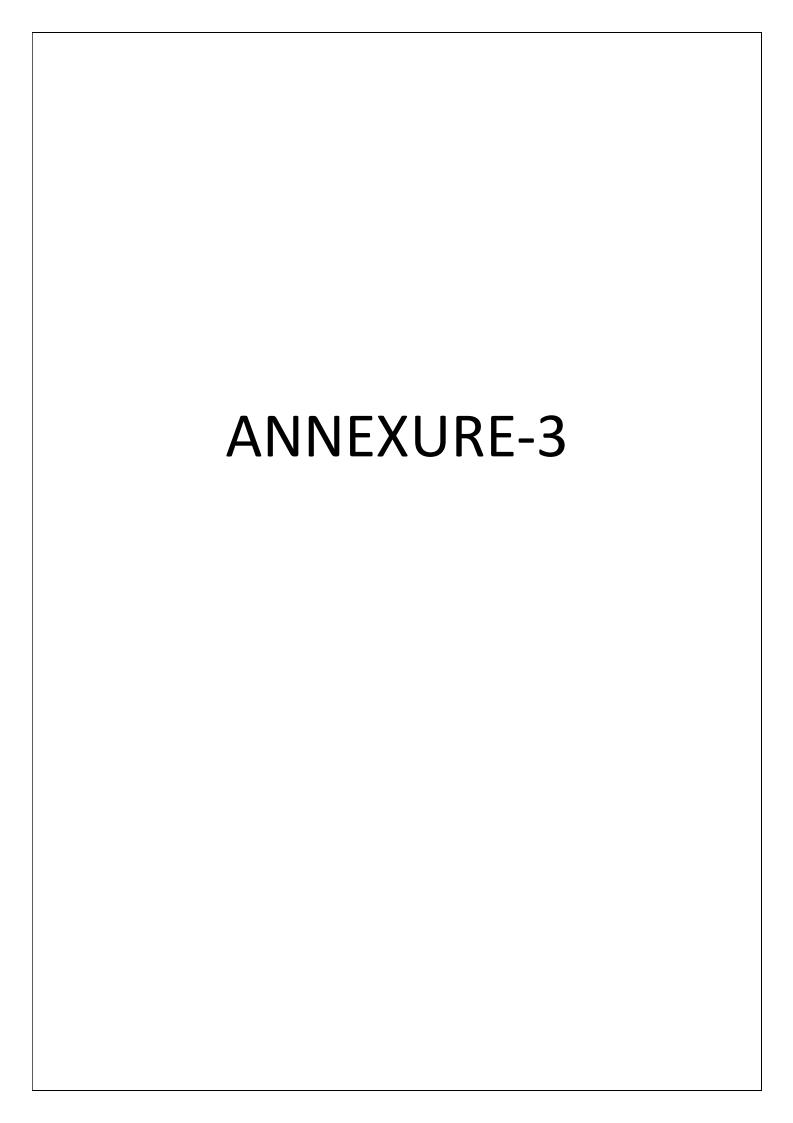
Standard BoQ and Estimate for 33kV, 1C 630sqmm UG Cable along with 33kV RMU - Mancheswar-B, 33KV -9Pole, Capex 9Pole and Idco Fdr. (0.8km- All 4 No's O/G cables form Grid to be replaced till DP)

Total estimated cost is Rs. 0.78 Crore. (On TPCODL Capex Scheme)

Sup	Supply Portion								
	Feeder Length		0						
SI. No	Description of items	Uni t	Total Quanti ty	Rate (in Rs.)	Amount (in Rs.)				
1	Supply of materials for 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories		0.8						
а	Length of 33kV 1C, 630sqmm cable (open trench)	km	0.8						
b	Length of 33kV 1C, 630sqmm cable (HDD)	km	0						
1. 1	Supply of 33kV, 1Core, 630sqmm Aluminium, XLPE insulation UG Cable (SC rating of cable in kA- 59.4kA and SC rating of Armour in kA-20kA)	km	3.2	13,37,130. 00	42,78,816.00				
1. 3	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	16	9,726.50	1,55,624.06				
1. 4	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG Cable kits for 1Core	Set	16	7,409.93	1,18,558.85				
	Sub Total (Supply Portio	n) (in	Rs.)		45,52,998.91				
Erec	Erection Portion								
SI. No	Description of items	Uni t	Quanti ty	Rate (in Rs.)	Amount (in Rs.)				
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 630sqmm, XLPE UG cable with one spare								

					T.	
1. 1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 630sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 630sqmm, XLPE cable as spare) in trefoil formation by <b>open trench method</b> .	km	3.2	94,500.00	3,02,400.00	)
1.	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	55,680.00				
1. 4	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 33kV, 1Core, 630sqmm, HT UG cable kits	55,680.00				
	Sub Total (Erection Portion	on) (in	Rs.)		4,13,760.00	)
Civi	l Portion					
SI. No	Description of items	Uni t	Quanti ty	Rate (in Rs.)	Amount (in Rs.)	
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	128	1,463.40	1,87,315.20	)
	Sub Total (Civil Portion	) (in R	s.)		1,87,315.20	)
Α	Sub Total (Supply Portion)	45,52,998.91				
В	Stock, Storage & Insurance @ 3 % of A	1,36,589.97				
С	Sub Total (A+B)		46,89,588.88			
D	Contingency @ 3 % of C	1,40,687.67				
Е	Tools & Plants Charges @ 2% of C (consider	ed for	earthing it	ems)	-	
F	Transportation @ 7.5% of C				3,51,719.17	
G	Erection Charges @ 10% of earthing items				-	
Н	Total (C+D+E+F+G)				51,81,995.71	
I	Sub Total (Erection Portion + Civil Portion)				6,01,075.20	
J	Total Cost (H+I)				57,83,070.91	
K	Other Overhead /(including Supervision Char	ges) @	0 6 % of J		3,46,984.25	
L	Total Estimated Capital Cost i.e. (J+K)				61,30,055.17	
М	GST @ 18% of L				11,03,409.93	
N	GST @ 1% of L	6,13,005.52				
0	Grand Total (L+M+N)	78,46,470.61				
Р	Inspection Fee of UG Line (HT) - Rs. 250/ km		250.00			
Q	Inspection Fee of UG Line (HT) - Rs. 100/ Ad					
R	Inspection Fee of RMU - Rs. 2000/ RMU			0		
S	Inspection Fee of Drawing Checking and App		400.00			
Т	Final decision by electrical Inspector	500.00				

U	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	
	2.000 Total material, con ricco and mopeotion ricco (14.0.1. Will'o)	78,47,620.61
<u>enefi</u>	t:	
	sure reliable power supply, mitigate overload and improve N-1 connectivity.	



## **PTR Augmentation**

Overloading of PTR is an alarming issue and need immediate attention for implementing mitigation proposals. PTR overloading issue can be mitigated by replacement of existing PTR with higher rating of PTR.

Since the priority of PTR, overloading is very high we have prioritized & considered wherein PTR loading is reaching near to 80% in AS IS condition and will be overloaded in 5years timeline since lot of unprecedented load growth is seen in summer 22.

Approx. costing is given below:

# **Summary of Proposal Details for PTR Augmentation:**

SI. No.	Division	Proposal Details	Mitigation Type	Costing in Cr
1.	BCDD-II	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25MVA at <b>Khandagiri</b> 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) along with modification and extension of Control Room with other civil works.	PTR Augmentation	5.82
2	BCDD-II	Supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) at <b>Infocity</b> along with modification and extension of Control Room with other civil works.	Switchgear Panel Board 11kV	1.97
3	BED	Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at <b>Laxmisagar</b> 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.	PTR Augmentation	11.01
4	PED	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at <b>Talabania</b> 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).	PTR Augmentation	2.87
5	DED	Augmentation of 01no. Power Transformer (PTR-1) PTR from 8MVA to 12.5/16MVA at <b>College</b> 33/11kV PSS. Augmentation		
Total Amount (in cr.)				

#### 1. Augmentation of Power Transformer at KHANDAGIRI Substation

#### **Proposal:**

Augmentation of existing 1no. 33/11kV 12.5MVA Power Transformer to 20/25MVA along with new switchgear panel is proposed at Khandagiri 33/11kV Substation in BCDD-2 to mitigate overloading condition & future load growth..

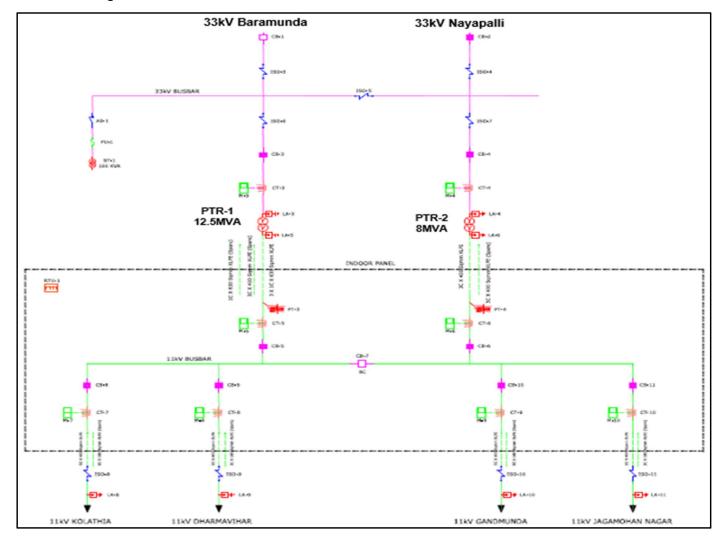
#### **Existing Scenario:**

Loading of 33/11kV Khandagiri PTR-1 is 9.1MVA at peak load condition of FY' 22-23 which is approx. 76% of loaded. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 13.67MVA.The PTR-1 will be loaded 109% in FY' 27-28.

#### Existing FY' 22-23 Loading for PTR-1:

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KHANDAGIRI	PTR-1	12.5	9.1	13.67	109%	Overloaded

## **Existing SLD of KHANDAGIRI 33/11kV PSS:**



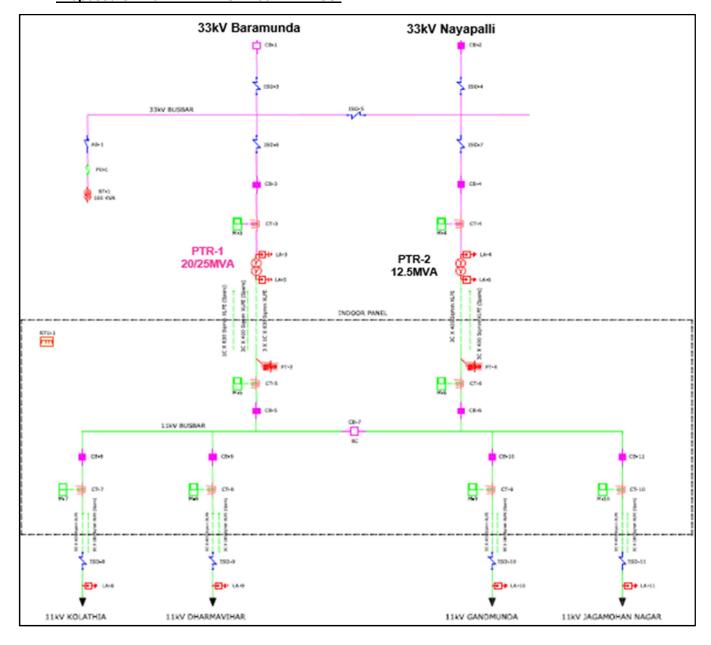
#### **Proposed Scenario:**

- It is proposed for augmentation of PTR-1 from 12.5 MVA to 20/25MVA at Khandagiri PSS to meet the full load of PTR-1 at peak load condition after 5years load growth.
- It is also proposed to install new 11KV switchgear panel to meet design requirement& evacuate additional power on 11KV from Khandagiri PSS to feed load nearby area.
- Since existing control room can not accommodate new switchgear it is proposed for extension of
  existing control room to accommodate the switchgear room.

•

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KHANDAGIRI	PTR-1	20/ 25	13.67	55%	OK

#### Proposed SLD of KHANDAGIRI 33/11kV PSS:



# **BOQ for Augmentation of PTR-1**

		TP CENTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :-	BCDD-II					
	Name of the Sub-Division : -	Khandagiri					
Name of the Section : - Khandagiri							
Name of the Work :-  Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25M Khandagiri 33/11kV PSS, supply and installation of Switchgear Panel Board VCB (8nos. Panels- 1 incomer and 7 outgoing) along with modification and e Control Room with other civil works.							
	Scope of work:-	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25MVA at Khandagiri 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing) along with modification and extension of Control Room with other civil works.					
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)					
		ABSTRACT OF ESTIMATE					
SI.	Part	Description Description	Amount				
1	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20/25MVA at Khandagiri 33/11kV PSS, supply and installation of		5,82,43,725.79				
		Total Amount	5,82,43,725.79				
	•	Total Amount (In Cr.)	5.82				

Total estimated cost is Rs. 5.82 Crore. (On TPCODL Capex Scheme)

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount				
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)								
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,37,90,354.98	1	2,37,90,354.98				
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	200.00	17,700.00				
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. Long	No	1,227.20	5	6,136.00				
4	GI Nuts & Bolts of Assorted size	Kg	92.04	100.00	9,204.00				
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,83,420.00	0.18	1,95,015.60				
6	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,256.21	6	13,537.26				
7	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,594.64	6	15,567.85				
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	376.5	33,320.25				

SI. No.	Description of Materials	Description of Materials Unit Unit Rate Quantity		Total Amount				
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing)	No.	63,49,155.20	1	63,49,155.20			
Α			Total Cost of	materials	3,04,29,991.14			
В		Stock,	Storage & Insurance	i.e 3% of A	9,12,899.73			
С			Sub To	otal (A+B)	3,13,42,890.88			
D		Contigency @ 3% of C						
Е			Tools & Plants	@ 2% of C	6,26,857.82			
F			Transportation @	7.5% of C	23,50,716.82			
G	Erection Cha	rges @	5% on Trf/Breaker/W	PB/ H-Pole	15,52,184.77			
Н	Erection Charges @ 10% of C (except Trf/Brea	PSC Pole)	6,835.11					
I	Erection Charges @ 20	-						
J			Sum	of (C to I)	3,68,19,772.12			

# Civil and Services Works (As per Technical Specification)

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	94,500.00	0.18	17,010.00
2	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	shall be in TPCODL scope.  Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.		4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
8	Excavating trenches of required width and depth for pipe, cables etc including Excavation for sockets including geting out the excavated materials, returning (refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming , watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttling, propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and	Cum	6,039.61	2	12,079.22

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
	all other machinaries required for the work etc., as directed by Engineer-in-Charge.				
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specification. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required densityScope of work also includes of jungle such as grass, small tree, plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including strutting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors, ground etc. as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
34	Modification and extension of Control Room along with other civil works	Cum	79,41,481.89	1	79,41,481.89
K			Total Civil 8	& Services	93,47,245.32
L			7	Total (J+K)	4,61,67,017.44

SI. No.	Description of Materials	Unit Unit Rate Total Quantity		Total Amount				
М	Other overheads	( Includi	ng 6% supervision cl	narges) of L	27,70,021.05			
N			Sub 1	Γotal (L+M)	4,89,37,038.48			
0			Total GST @	18% of (N)	88,08,666.93			
Р			CE	SS 1% of N	4,89,370.38			
Q	G	Gross Total Material +Services (N+O+P						
а	Inspection	Inspection Fee of Drawing Checking and Approve						
b		Fina	l decision by electric	al Inspector	500.00			
С			Inspection	Fee of PTR	5,500.00			
d	Inspe	ction Fee	e of UG Line (HT) - R	s. 250/ km.	250.00			
е	Inspection Fee	of UG Lir	ne (HT) - Rs. 100/ Ad	ditional Km	-			
f		Inspection Fee of Breaker						
R		Total Inspection Fees (a+b+c+d+e+f						
S	Gross Total Materia	Gross Total Material, Services and Inspection Fees (Q+S						

To help mitigating overloading condition on power transformer.

## 2. Supply and Installation of 11kV Switchgear Panel Board at INFOCITY Substation

### Proposal:

Installation of 11kV switchgear panel board (8nos. Panels- 1 incomer and 7 outgoing) at Infosys 33/11kV Substation in BCDD-2 for new 11kV feeders proposed in order to mitigate the overloading of the existing 11kV feeders emanating from Kanan Vihar PSS.

#### **Existing Scenario:**

2nos. 11kV feeders (KIIT, Patia) emanating from Kanan Vihar 33/11kV PSS and 1no. 11kV feeder (Sri Vihar) emanating from C.s.pur-1 33/11kV PSS are overloaded in peak load condition. The 11kV feeders are namely KIIT, Patia and Sri Vihar having loading of 5.8MVA, 5.7MVA and 5.2MVA respectively during peak load condition.

## **Existing FY' 22-23 Loading:**

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KANAN	PTR-1	12.5	9.1	13.6	109%	Overloaded
VIHAR	PTR-2	12.5/16	7.5	11.2	70%	Ok

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV C.s.Pur-1	PTR-2	8	4.9	7.3	92%	Overloaded

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV	PTR-1	12.5/16	1.2	1.8	11%	Ok
INFOCITY	PTR-2	8	4.4	6.6	82%	Ok
	PTR-3	7.5	3	4.5	60%	Ok

#### **Proposed Scenario:**

In order to mitigate this overloading of 11kV existing feeders it is proposed, 3nos. new 11kV feeders are to be extended from Infocity 33/11kV substation namely KIIT new, Patia new and Sri Vihar new to bifurcate the load of existing feeders and mitigate overloading issues.

For power evacuation in existing scenario there is no spare 11KV bay is available at Infocity PSS.11kV switchgear panel board is required to install at infocity PSS to facilitate power evacuation through proposed 11kV outgoing feeders from the 33/11kV substation.

 In order to mitigate the overloading of feeders, 3nos. 11kV new feeders are proposed in order to bifurcate the load from existing feeder. This proposal will resolve the overloading of feeders thereby improving reliability of power supply in the area. Since existing control room can not accommodate new switchgear it is proposed for extension of existing control room to accommodate the switchgear room.

## **Proposed Loading:**

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV KANAN	PTR-1	12.5	6.3	9.4	75.4%	Ok
VIHAR	PTR-2	12.5/16	4.8	7.2	44.9%	Ok

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV C.s.Pur-1	PTR-2	8	2.2	3.3	41.1%	Ok

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
22/11/1/	PTR-1	12.5/16	8.2	12.3	76.6%	Ok
33/11kV INFOCITY	PTR-2	8	4.4	6.6	82.3%	Ok
	PTR-3	7.5	4.2	6.3	83.7%	Ok

## **BOQ**

SI. No.	Description of Materials	Total Amount				
	SUPPLY OF FOLLOWING I (As per Technic			-S		
1	SWITCH GEAR PANEL BOARD 11kV I/D VCB (8nos. Panels- 1 incomer and 7 outgoing)	No   63 /0 155 20   1				
Α	A Total Cost of materials					
В	S	i.e 3% of A	1,90,474.66			
С			Sub T	otal (A+B)	65,39,629.86	
D			Contigency	@ 3% of C	1,96,188.90	
Е		@ 2% of C	1,30,792.60			
F	F Transportation @ 7.5% of C				4,90,472.24	
G	Erection Charg	es @ 5%	on Trf/Breaker/W	PB/ H-Pole	3,26,981.49	

Н	Erection Charges @ 10% of C (except Trf/Breake	/PSC Pole)	-		
I	Erection Charges @ 20%	of PSC	oole- Not to be us	ed for 33kV	-
J			Sun	n of (C to I)	76,84,065.08
	Civil and Ser (As per Technic		-		
1	Modification and extension of Control Room along with other civil works	79,41,481.89			
K			Total Civil	& Services	79,41,481.89
L	Total (J+K)				1,56,25,546.97
М	Other overheads ( li	ncluding	6% supervision ch	narges) of L	9,37,532.82
N			Sub 1	Total (L+M)	1,65,63,079.79
0			Total GST @	18% of (N)	29,81,354.36
Р			CE	SS 1% of N	1,65,630.80
Q	Gros	s Total	Material +Service	es (N+O+P)	1,97,10,064.95
Α	Inspection F	ee of Dra	wing Checking ar	nd Approval	400.00
В	Final decision by electrical Inspector			al Inspector	500.00
С			Inspection Fee	of Breaker	2,000.00
R		То	tal Inspection Fe	es (a+b+c)	2,900.00
S	Gross Total Material, S	Services	and Inspection F	ees (Q+R)	1,97,12,964.95

- 1) To mitigate the overloading of the existing 11kV KIIT, Sreevihar & Patia feeders.
- 2) Low voltage issue will be resolved at Srivihar, patia & KIIT area.
- 3) Loading will be optimized at Kananvihar PSS & infocity PSS.

### 3. Augmentation of Power Transformer at Laxmisagar Substation

### Proposal:

Augmentation of existing 2nos. 33/11kV 12.5MVA Power Transformers to 20/25MVA at Laxmisagar 33/11kV Substation in BED to mitigate overloading condition.

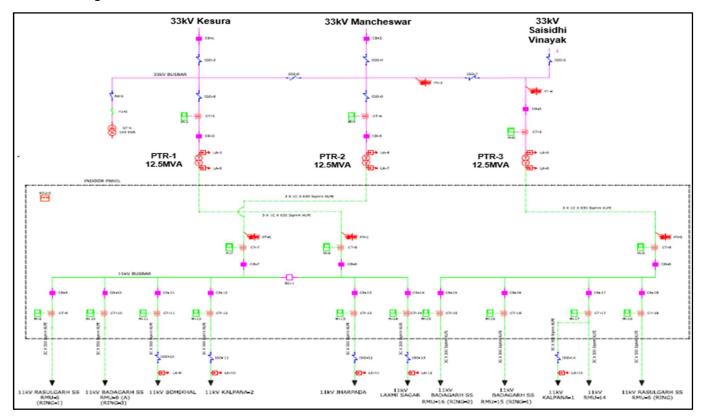
#### **Existing Scenario:**

- Loading of 33/11kV Laxmisagar PTR-2 is 9.6MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 14.32MVA.
- Loading of 33/11kV Laxmisagar PTR-3 is 9.2MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 3years, thereafter 6% load growth per year for next 2years), the projected loading of FY' 27-28 would be 13.83MVA.
- PTR-2 will be loaded 115% in FY' 27-28 and PTR-3 will be loaded 111% in FY' 27-28.
- Also, in the existing scenario, the 11kV Laxmisagar feeder is overloaded up to 5.67MVA, w,r t

#### **Existing FY' 22-23 Loading for PTR-1:**

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV	PTR-2	12.5	9.6	14.32	115%	Overloaded
LAXMISAGAR	PTR-3	12.5	9.2	13.83	111%	Overloaded

## **Existing SLD of LAXMISAGAR 33/11kV PSS:**

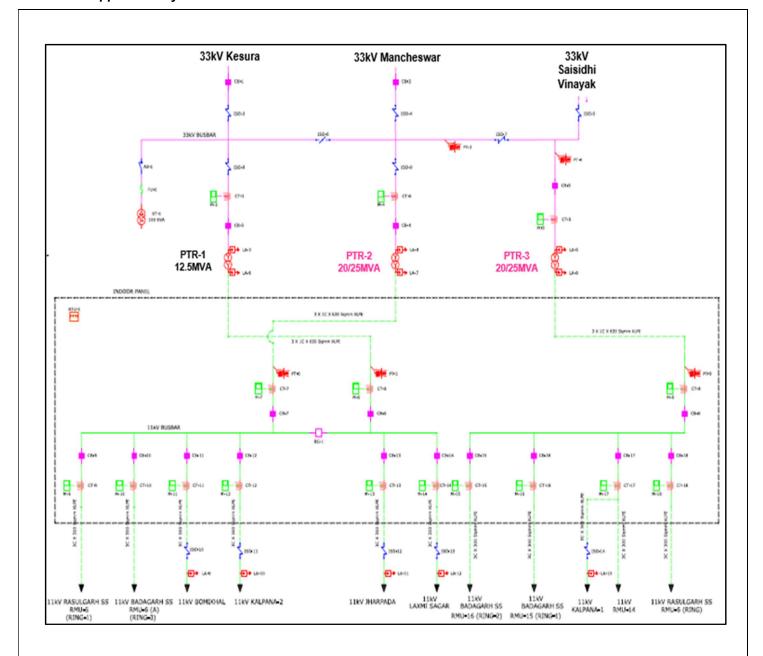


## **Proposed Scenario:**

- It is proposed for augmentation of existing PTR-2 & PTR-3 from 12.5 MVA to 20/25MVA at Laxmisagar PSS is proposed to meet the full load of both PTR-2 and PTR-3 at peak load condition after 5years load growth.
- It is also proposed to install new 11KV switchgear panel to meet design requirement& evacuate additional power on 11KV from laxmisagar PSS to feed load nearby area.
- Since existing control room can not accommodate new switchgear it is proposed for extension of
  existing control room to accommodate the switchgear room.

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV	PTR-2	20/25	14.32	57%	ОК
LAXMISAGAR	PTR-3	20/25	13.83	55%	OK

## Proposed SLD of LAXMISAGAR 33/11kV PSS:



# **BOQ for Augmentation of PTR-2 and PTR-3**

		TP CENTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :- BED						
	Name of the Sub- Division : -	Rasulgarh					
	Name of the Section : -	Laxmisagar					
	Name of the Work :-	Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at Laxmisagar 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.  Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at Laxmisagar 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.					
	Scope of work:-						
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)					
		ABSTRACT OF ESTIMATE					
SI. No.	Part	Description	Amount				
1	А	Augmentation of 02nos. Power Transformer (PTR-2 & 3) from 12.5MVA to 20/25MVA at Laxmisagar 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT) along with modification and extension of Control Room with other civil works.	11,01,04,571.22				
		Total Amount	11,01,04,571.22				
	•	Total Amount (In Cr.)	11.0				

Total estimated cost is Rs. 11.01 Crore. (On TPCODL Capex Scheme)

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount						
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)										
1	20/25 MVA, 33/11 KV Power Transformer with OLTC	Nos.	2,37,90,354.98	2	4,75,80,709.97						
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	400.00	35,400.00						
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long		1,227.20	10	12,272.00						
4	GI Nuts & Bolts of Assorted size	Kg	92.04	200.00	18,408.00						
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,83,420.00	0.36	3,90,031.20						
6	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)		2,256.21	12	27,074.52						
7	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,594.64	12	31,135.70						

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	753	66,640.50
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (19nos. Panels- 2 incomer, 1bus coupler and 14 outgoing, 2bus PT)	No.	1,50,79,243.60	1	1,50,79,243.60
Α			Total Cost of	materials	6,32,40,915.49
В		Stock, S	torage & Insurance	i.e 3% of A	18,97,227.46
С		otal (A+B)	6,51,38,142.95		
D			Contigency	@ 3% of C	19,54,144.29
Е			Tools & Plants	@ 2% of C	13,02,762.86
F			Transportation @	7.5% of C	48,85,360.72
G	Erection Charg	ges @ 5	% on Trf/Breaker/WI	PB/ H-Pole	32,26,987.61
Н	Erection Charges @ 10% of C (except Trf/Breake	PSC Pole)	13,670.21		
I	Erection Charges @ 20%	d for 33kV	-		
J			Sum	of (C to I)	7,65,21,068.64

# Civil and Services Works (As per Technical Specification)

SI. No.	Description of Materials		Unit Rate	Total Quantity	Total Amount
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	94,500.00	0.36	34,020.00
2	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	12	22,809.60
3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	12	22,809.60
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	40	30,060.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	2	1,51,800.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	2	8,434.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	40	19,280.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	80	1,04,400.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	200.00	20	4,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	80	14,400.00
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	8	41,040.00
12	Centring and shuttering including struttting, propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	106	31,906.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	3500	3,81,500.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	1600	2,01,600.00
15	BA has to do the installation, welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	800	21,600.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	66	18,612.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	4	24,158.44
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specification. Scope includes supply of all material	Cum	6,747.00	24	1,61,928.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	40	30,060.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	50	3,65,800.00
21	Supplying and spreading, filling other works with fine sand under floors, ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	34	34,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required densityScope of work also includes of jungle such as grass, small tree, plant etc.	Cum	2,235.00	94	2,10,090.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	24	11,568.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	96	1,25,280.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	30	6,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	48	8,640.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
28	Centring and shuttering including struttling, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	178	53,578.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	3006	3,27,654.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	106	29,892.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	38	2,78,008.00
33	Supplying and spreading, filling other works with fine sand under floors, ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	4	4,000.00
34	Modification and extension of Control Room along with other civil works	Cum	79,41,481.89	1	79,41,481.89
K			Total Civil 8	Services	1,07,53,008.75
L			Т	otal (J+K)	8,72,74,077.39
М	Other overheads (	Includin	g 6% supervision ch	arges) of L	52,36,444.64
N			Sub T	otal (L+M)	9,25,10,522.03
0			Total GST @	, ,	1,66,51,893.97
Р				SS 1% of N	9,25,105.22
Q			I Material +Services	` '	11,00,87,521.22
a	Inspection F		rawing Checking and	• •	800.00
b		Final	decision by electrica	-	1,000.00
С		F-:	Inspection F		11,000.00
d	•		of UG Line (HT) - Rs		250.00
e	Inspection Fee of	UG LINE	(HT) - Rs. 100/ Add		4 000 00
f R	-	Fotal Inc	Inspection Fee spection Fees (a+b		4,000.00 <b>17,050.00</b>
S	Gross Total Material,		•		11,01,04,571.22
ာ	Gross Total Material,	Service	s and inspection F	ees (U+3)	11,01,04,5/1.22

To help mitigating overloading condition on power transformers.

### 4. Augmentation of Power Transformer at Talabania Substation

### Proposal:

Augmentation of existing 1no. 33/11kV 8MVA Power Transformer to 12.5/16MVA at Talabania 33/11kV Substation in PED to mitigate overloading condition during N-1 contingency critical condition during **Puri Ratha Yatra**. As Puri Rath Yatra is the most important festival of the state and the providing reliable power supply to the area is of utmost importance, the PTR augmentation proposal is a requisite to mitigate N-1 contingency condition and provide quality and reliable power supply.

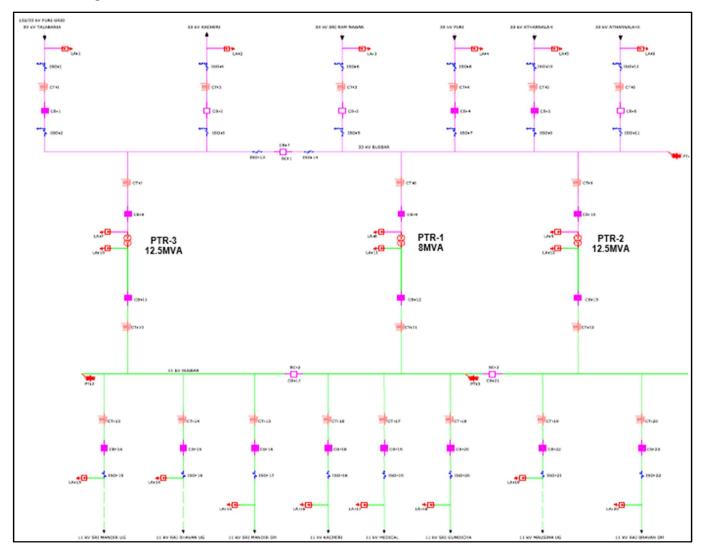
#### **Existing Scenario:**

- Loading of 33/11kV Talabania PTR-1 is 2.9MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 5years), the projected loading of FY' 27-28 would be 4.67MVA.
- During N-1 contingency condition which is specifically critical during Ratha Yatra the PTR is overloaded with 11.12MVA, w.r.t. PTR-2 and 11.26MVA, w.r.t. PTR-3. Considering load growth for 2years (10% load growth per year for 2years), the projected loading of FY' 24-25 would be 13.46MVA, w.r.t PTR-2 and 13.62MVA, w.r.t PTR-3.
- During N-1 contingency condition, PTR-1 will be loaded up to 168%, w.r.t PTR-2 and 170%, w.r.t PTR-3.

## Existing FY' 22-23 Loading at N-1 condition:

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	N-1 PTR Loading in MVA (FY' 22-23)	Projected N-1 PTR load in (FY' 24-25)	% PTR Loading N-1 condition	PTR Status
33/11kV TALABANIA	PTR-1	8	11.12 (w.r.t PTR-2)	13.46 (w.r.t PTR-2)	168%	Overloading
TALADANIA			11.26 (w.r.t PTR-3)	13.62 (w.r.t PTR-3)	170%	Overloading

# **Existing SLD of TALABANIA 33/11kV PSS:**

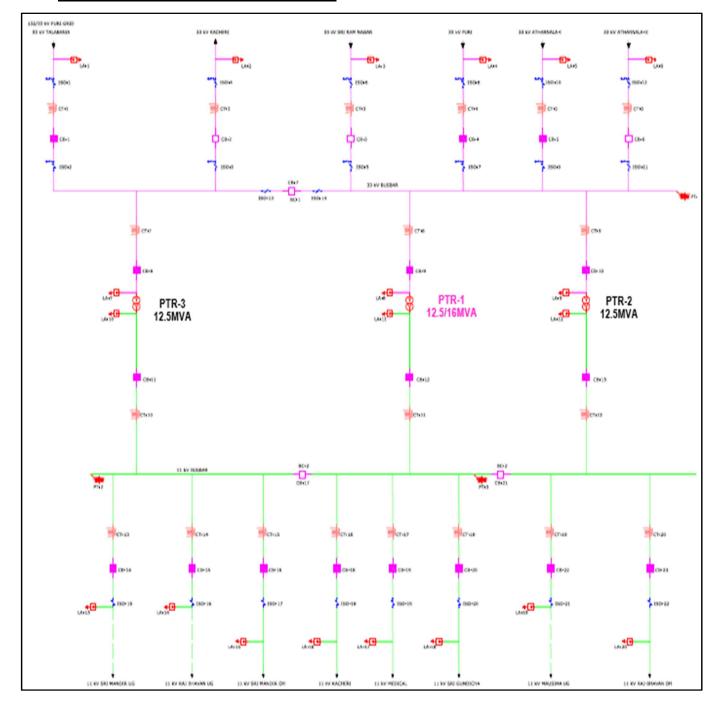


# **Proposed Scenario:**

Augmentation of PTR-1 from 8 MVA to 12.5/16MVA at Talabania PSS is proposed to mitigate the
 N-1 contingency overloading condition of both PTRs after 2years load growth.

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	N-1 PTR Loading in MVA (FY' 22-23)	Projected N-1 PTR load in (FY' 24-25)	% PTR Loading N-1 condition	PTR Status
33/11kV	PTR-1	12.5/16	11.12 (w.r.t PTR-2)	13.46 (w.r.t PTR-2)	84%	Ok
TALABANIA		.=. 37. 13	11.26 (w.r.t PTR-3)	13.62 (w.r.t PTR-3)	85%	Ok

# Proposed SLD of TALABANIA 33/11kV PSS:



# **BOQ for Augmentation of PTR-1**

	ר	P CENTRAL ODISHA DISTRIBUTION LIMITED					
	Name of the Division :-	PED	ED ED				
	Name of the Sub- Division : -	Sub Div3	Sub Div3				
	Name of the Section : -	Talabania					
	Name of the Work :-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MV/ at Talabania 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).					
	Scope of work:-	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at Talabania 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).					
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)					
		ABSTRACT OF ESTIMATE					
SI. No.	Part	Description	Amount				
1	А	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at Talabania 33/11kV PSS, supply and installation of Switchgear Panel Board 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing).	2,87,29,572.59				
_		Total Amount	2,87,29,572.59				
	•	Total Amount (In Cr.)	2.87				

Total estimated cost is Rs. 2.8	′ Crore. (On TPCODL (	Capex Scheme)
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SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount			
	SUPPLY OF FOLLOWING EQUIPMENT & MATERIALS (As per Technical Specification)							
1	12.5/16 MVA, 33/11 KV Power Transformer with OLTC	Nos.	1,34,00,000.00	1	1,34,00,000.00			
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	200.00	17,700.00			
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long	No	1,227.20	5	6,136.00			
4	GI Nuts & Bolts of Assorted size	Kg	92.04	100.00	9,204.00			
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	km	10,83,420.00	0.18	1,95,015.60			
6	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,256.21	6	13,537.26			
7	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	Set	2,594.64	6	15,567.85			
9	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	376.5	33,320.25			

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount	
10	SWITCH GEAR PANEL BOARD 11kV I/D VCB (5nos. Panels- 1 incomer and 4 outgoing)	No.	39,68,222.00	1	39,68,222.00	
Α	A Total Cost of materials					
В	Stock, Storage & Insurance i.e 3% of A				5,29,761.09	
С	Sub Total (A+B)				1,81,88,464.05	
D	Contigency @ 3% of C				5,45,653.92	
Е		@ 2% of C	3,63,769.28			
F	Transportation @ 7.5% of C				13,64,134.80	
G	Erection Charges @ 5% on Trf/Breaker/WPB/ H-Pole				8,94,463.43	
Н	Erection Charges @ 10% of C (except Trf/Breaker/WPB/ H-Pole/HT stay set/PSC Pole)			6,835.11		
I	Erection Charges @ 20%	of PSC	pole- Not to be use	d for 33kV	-	
J	Sum of (C to I)			of (C to I)	2,13,63,320.59	

# Civil and Services Works (As per Technical Specification)

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	km	94,500.00	0.18	17,010.00
2	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	EA	75,900.00	1	75,900.00
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane , charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe, cables etc including Excavation for sockets including geting out the excavated materials, returning (refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	40	52,200.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including strutting , propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation,welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine :50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specification. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
21	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required densityScope of work also includes of jungle such as grass, small tree, plant etc.	Cum	2,235.00	47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe, cables etc including Excavation for sockets including geting out the excavated materials, returning (refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	15	3,000.00
26	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	24	4,320.00
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including struttling, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	53	14,946.00
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	Supplying and spreading, filling other works with fine sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
K		& Services	14,05,763.43		
L		2,27,69,084.02			
М	Other overheads (Including 6% supervision charges) of L				13,66,145.04
N	Sub Total (L+M)				2,41,35,229.06
0	Total GST @ 18% of (N)				43,44,341.23
Р		S 1% of N	2,41,352.29		
Q	Gro	ss Tota	l Material +Service	s (N+O+P)	2,87,20,922.59
а	Inspection F	ee of D	rawing Checking an	d Approval	400.00
b		Final	decision by electrica	I Inspector	500.00
С	Inspection Fee of PTR				5,500.00
d	Inspection Fee of UG Line (HT) - Rs. 250/ km.			s. 250/ km.	250.00
е	Inspection Fee of	UG Line	e (HT) - Rs. 100/ Add	ditional Km	-
f			Inspection Fee	of Breaker	2,000.00
R	1	Total Ins	spection Fees (a+b	+c+d+e+f)	8,650.00
S	S Gross Total Material, Services and Inspection Fees (Q+S)				2,87,29,572.59

To help mitigating overloading condition on power transformers during N-1 contingency condition and mitigate the criticality of loading during Ratha Yatra.

## 5. Augmentation of Power Transformer at College Substation

## Proposal:

Augmentation of existing 1no. 33/11kV 8MVA Power Transformers to 12.5/16MVA at College 33/11kV Substation in DED to mitigate overloading condition.

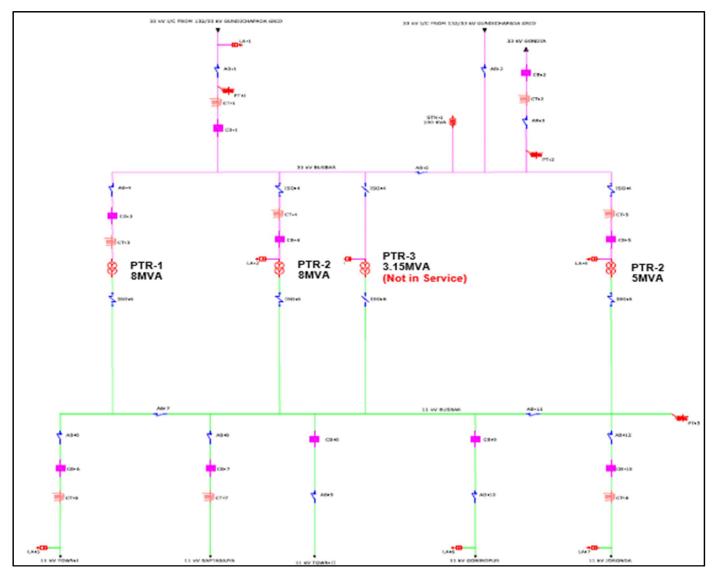
## **Existing Scenario:**

- Loading of 33/11kV College PTR-1 is 7.6MVA at peak load condition of FY' 22-23. Considering load growth for 5years (10% load growth per year for 5years), the projected loading of FY' 27-28 would be 12.24MVA.
- PTR-1 will be loaded 153% in FY' 27-28.

## **Existing FY' 22-23 Loading for PTR-1:**

Structure Name	PTR Name	PTR Installed Capacity in MVA	PTR Loading in MVA (FY' 22-23)	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV COLLEGE	PTR-1	8	7.6	12.24	153%	Overloaded

## **Existing SLD of COLLEGE 33/11kV PSS:**

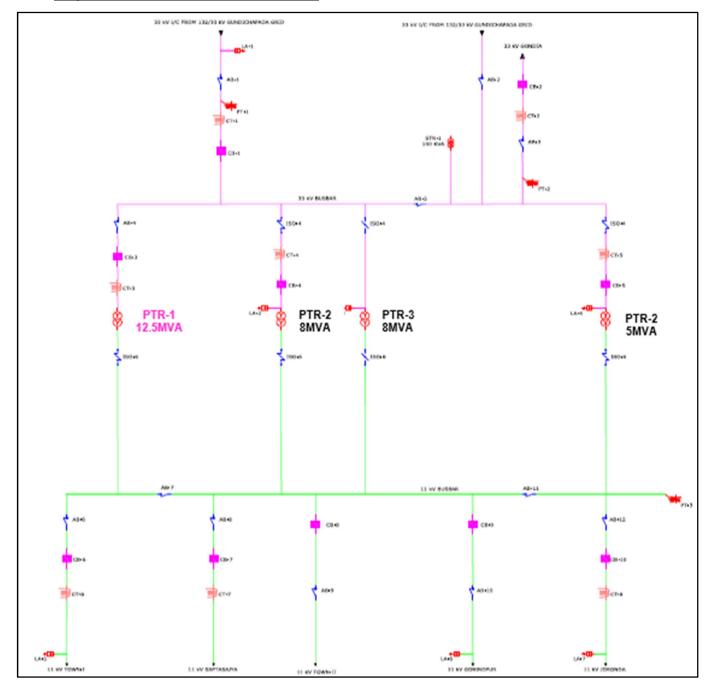


# **Proposed Scenario:**

• It is proposed for augmentation of PTR-1 from 8 MVA to 12.5/16MVA at College PSS to mitigate the overloading & meet the load growth for next 5years.

Structure Name	PTR Name	Proposed PTR Installed Capacity in MVA	Projected load PTR load in (FY' 27-28)	% PTR Loading	PTR Status
33/11kV COLLEGE	PTR-1	12.5/16	12.24	77%	OK

## Proposed SLD of COLLEGE 33/11kV PSS:



# **BOQ for Augmentation of PTR-1**

	Name of the Work :- Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to					
Name of the Work :- Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at College 33/11kV PSS.  Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to						
	Scope of work:-	12.5/16MVA at College 33/11kV PSS.				
	Names of Schemes: -	TPCODL CAPEX (FY: 2022-23)				
		ABSTRACT OF ESTIMATE				
SI. No.	Part	Description	Amount			
1	А	Augmentation of 01no. Power Transformer (PTR-1) from 8MVA to 12.5/16MVA at College 33/11kV PSS.	2,26,71,647.78			
		Total Amount	2,26,71,647.78			
		Total Amount (In Cr.)	2.:			

SI. No.	Description of Materials	Total Quantity	Total Amount			
1	12.5/16 MVA, 33/11 KV Power Transformer with OLTC	Nos.	1,34,00,000.00	1	1,34,00,000.00	
2	50x6mm GI Flat for earthing, 2.36kg/mtr.	KG	88.50	200.00	17,700.00	
3	40mm Nominal bore GI pipe (medium gauge) earthing device with 3 mtr. long					
4	GI Nuts & Bolts of Assorted size	9,204.00				
5	Supply of 11kV, 1Core, 630sqmm, XLPE insulation armoured UG cable	1,95,015.60				
6	Supply of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1Core, 630 sqmm, HT UG cable for 3Core (Set)	13,537.26				
7	Supply of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, HT UG cable for 3Core (Set)	15,567.85				
8	Channel 100X50X6mm, 9.56 KG/Mtr.	KG	88.50	376.5	33,320.25	
Α		materials	1,36,90,480.96			
В		i.e 3% of A	4,10,714.43			
С		otal (A+B)	1,41,01,195.39			
D		@ 3% of C	4,23,035.86			
Е		@ 2% of C	2,82,023.91			
F		7.5% of C	10,57,589.65			

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
G	PB/ H-Pole	6,90,100.00			
Н	Erection Charges @ 10% of C (except Trf/Breake	/PSC Pole)	6,835.11		
I	I Erection Charges @ 20% of PSC pole- Not to be used for 33kV				
J	J Sum of (C to I)				

# Civil and Services Works (As per Technical Specification)

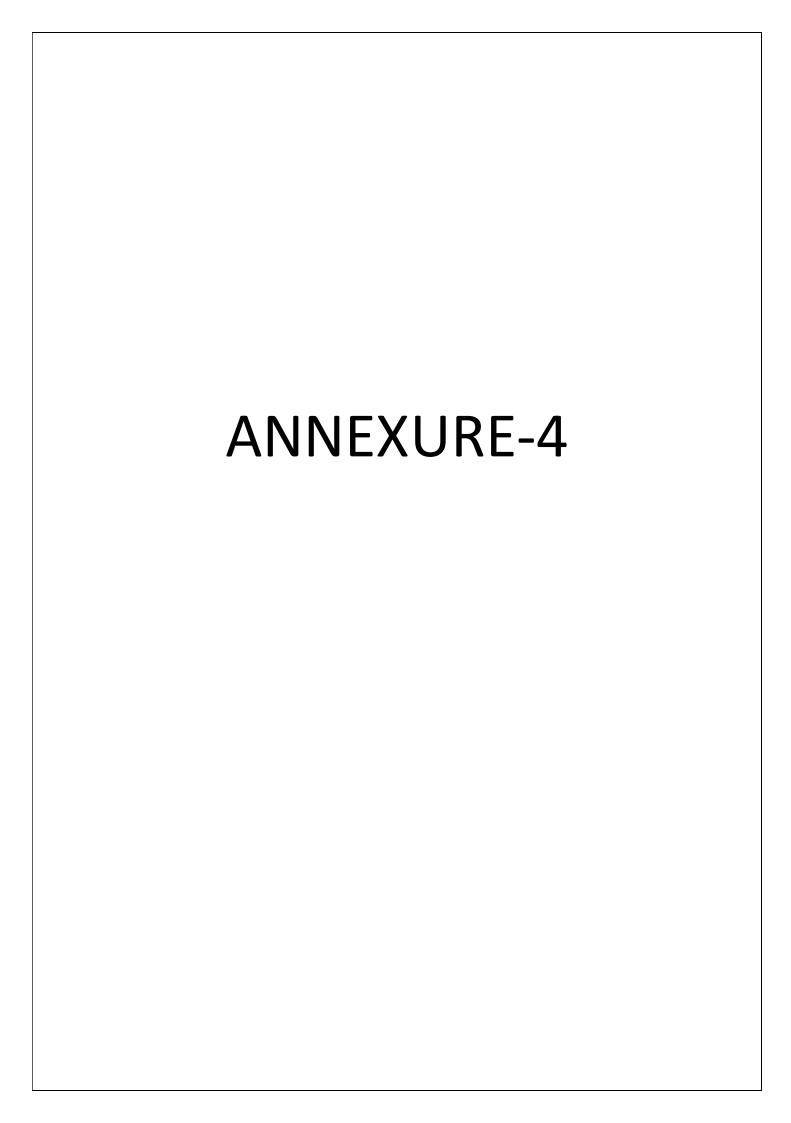
SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
1	Laying, Commissioning, Testing of 11kV, 1 core, 630sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by <b>open trench method</b> .	Km	94,500.00	0.18	17,010.00
2	Erection of <b>Indoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)	Set	1,900.80	6	11,404.80
3	Erection of <b>Outdoor termination kits</b> Heat Shrinkable type suitable for 11kV, 1 Core, 630 sqmm, aluminium UG cable kits for 3core (set)		1,900.80	6	11,404.80
	Demolition Work for Existing PTR				-
4	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
5	Dismantling of 12.5/8MVA 33/11kV PTR, Loading, Transportation within 30 Kms, Unloading of same PTR if Required. Insurance during transportation shall be in TPCODL scope.	75,900.00	1	75,900.00	
6	Transportation of various items from TPCODL store/site to other site or vice versa in TPCODL operational area - Tractor with labours as required (price per trip). Scope of work also include loading and unloading of materials heavy items like, Rail Pole, PCC Pole, HT Panel, Transformer, Cable Drum, LT Board . Item whose loading& unloading is to be done with crane, charges for crane will be paid separately.	EA	4,217.00	1	4,217.00
	Civil Work for New PTR				-
7	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.		482.00	20	9,640.00
8	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.	Cum	1,305.00	40	52,200.00
9	BA will Back fill the cable excavation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	Cum	200.00	10	2,000.00
10	BA will provide hard Barricading with zebra strip one use for cable excavation site for safety of the employees & pedestrians	Mtr	180.00	40	7,200.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
11	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	4	20,520.00
12	Centring and shuttering including struttling, propping etc.and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	53	15,953.00
13	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1750	1,90,750.00
14	Structural steel work riveted, bolted or welded in built up sections, trusses and framed work, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete. (Scope also include supply of material)	Kg	126.00	800	1,00,800.00
15	BA has to do the installation, welding & fabication work of different size GI Channel (100x50x6mm, 75x75x6mm, 50x50x6mm,75X40X4.6mm etc) as per size requirement	Kg	27.00	400	10,800.00
16	12 mm Cement Plaster of mix - 1:4 (1 Cement: 4 Fine sand (50 % fine:50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Sqm	282.00	33	9,306.00
17	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	2	12,079.22
18	Brick work with F.P.S. bricks of class designation 75 in foundation and plinth in Cement mortar 1:4 (1 Cement : 4 Coarse sand) as per TPCODL specification. Scope includes supply of all material	Cum	6,747.00	12	80,964.00
19	BA will demolish PCC & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.BA will provide necessary Tools,Machinery & Manpower for the activity.	Cum	751.50	20	15,030.00
20	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	25	1,82,900.00
21	Supplying and spreading, filling other works with fine sand under floors, ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	17	17,000.00

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
22	Supplying, Laying, spreading and compacting stone aggregate of specified sizes: 63 mm to 45 mm size stone aggregate to WBM specifications in uniform thickness, hand picking to proper grade and camber, applying and brooming requisite type of screening / binding material to fill up interstices of coarse aggregate, watering and compacting to the required densityScope of work also includes of jungle such as grass, small tree, plant etc.	izes: 63 mm to 45 mm size stone dicifications in uniform thickness, grade and camber, applying and of screening / binding material to parse aggregate, watering and red density . Scope of work also		47	1,05,045.00
23	BA will excavate the cable trench depth upto 2.5 MTR & remove the debris using necessary tools & machinery for excavation of cable trench & other civil works.	Cum	482.00	12	5,784.00
24	Excavating trenches of required width and depth for pipe,cables etc including Excavation for sockets including geting out the excavated materials,returning(refillig) the soil as required in layers not exceeding 200 mm depth, including consolidating each deposited layers by ramming, watering etc, stacking servicable materials for measurements and disposal of unservicable materials as direct by EIC for laying of different size of cable/pipes laying. Scope of work excludes laying of HUME/PVC Pipes as per TPCODL drawing in Rocky soil.		1,305.00	48	62,640.00
25	BA will Back fill the cable excvation site with same earth. BA will provide necessary Tools, Machinery & Manpower for the activity.	n site with same earth.		15	3,000.00
26	A will provide hard Barricading with zebra strip one use or cable excavation site for safety of the employees & Mtr 180.00 edestrians		24	4,320.00	
27	Providing and laying Plain Cement Concrete (PCC) of proportion (1:3:6) in foundations, Trench and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	5,130.00	2	10,260.00
28	Centring and shuttering including strutting, propping etc. and removal of form for Foundations, footings, bases of columns etc. for mass concrete	Sqm	301.00	89	26,789.00
29	Reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all copmplete, cold twisted bars/TMT as per TPCODL specification (Scope also include supply of material)	Kg	109.00	1503	1,63,827.00
30	12 mm Cement Plaster of mix - 1:4 (1 Cement : 4 Fine sand (50 % fine : 50% coarse) as per as per TPCODL specification. Scope includes supply of all material.	Fine		53	14,946.00
31	Providing and laying Plain Cement Concrete (PCC) of proportion (1:2:4) in foudations and plinths using approved quality of cement, 20mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machinaries required for the work etc., as directed by Engineer-in-Charge.	Cum	6,039.61	1	6,039.61

SI. No.	Description of Materials	Unit	Unit Rate	Total Quantity	Total Amount
32	Providing and laying Reinforced Cement Concrete (RCC) of proportion M25 (as per design mix) from RMC Batching Plant, using approved quality of cement, 20mm & 10mm size hard crusher broken granite stone metal and screened, washed sharp sand for mortar of approved quality and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and curing etc. complete to required levels in layers not exceeding 15cm thick in each layer including cost, conveyance, loading, unloading, royalties and taxes, cess, of all materials & cost of all labours, sundries, T&P and all other machineries required for the work etc., as directed by Engineer-in-Charge.	Cum	7,316.00	19	1,39,004.00
33	sand under floors,ground etc as per EIC instruction. Scope of work also includes watering, ramming, consolidating and dressing complete and other works if required at site.	Cum	1,000.00	2	2,000.00
K		14,05,763.43			
L		otal (J+K)	1,79,66,543.35		
М	Other overheads ( I	arges) of L	10,77,992.60		
N		otal (L+M)	1,90,44,535.95		
0		18% of (N)	34,28,016.47		
Р		SS 1% of N	1,90,445.36		
Q	Gro	s (N+O+P)	2,26,62,997.78		
а	Inspection F	d Approval	400.00		
b		I Inspector	500.00		
С		ee of PTR	5,500.00		
d	Inspecti	250.00			
е	Inspection Fee of	ditional Km	-		
f		of Breaker	2,000.00		
R	1	+c+d+e+f)	8,650.00		
S	Gross Total Material,	ees (Q+S)	2,26,71,647.78		

- 1)To help mitigating overloading condition on power transformer.
- 2) This will help to cater future load growth for next 5years.



# **Construction of 33/11kV PSS**

Summary of 2 no. substations to be taken in TPCODL Supplementary CAPEX are as below: -

SI. no	Name of Circle	Name of Division	Name of Site	Substation Capacity	Load category	Cost Estimate (in Cr)
1	Dhenkanal	AnED	Panchamahala	2X8MVA	Semi Urban	₹ 26.35
2	Cuttack	CED	Manguli	2X8MVA	Semi Urban	₹ 17.51
	•		Total	,		₹ 43.86

# 1. Panchmahal (2X8MVA)

## 1) **Executive Summary:**

The Proposal for installing of 33/11KV substation at Panchmahal is laid basing upon detailed Load Flow Analysis for existing loads in proposed area and catering low voltage issues through new Substation.

- The power supply to Panchmahal s/s is planned from 132/33KV Angul grid S/s at a distance of 9.5km. For n-1 redundancy, 33kv feeder will be laid from Meramundali Grid at a distance of 22.5KM. Four associated 11 kV feeders from Panchmahala s/s with a total 11 kV linking of 10.5km (approx) divert loads from RCMS 33/11 kV s/s thereby ensuring uniform power distribution.
- The proposed substation with an installed capacity of 2x8 MVA will cater loads to 2200 consumers of Panchamahala, Saradhapur, Karadagadia, Rantelai, Hulurisingha, Panchamahala, Saradhapur, Gadataila, Talabahal, Badabahal, Kumursingha, Sabalabhanga, Balakata, Shyamasundarpur, Kariabani with an anticipated load of 6MVA.
- The Panchmahal s/s, GIS Indoor will be SCADA enabled for smart operation with minimal human intervention in future.
- The total estimated cost for the proposed substation of Rs. 26.34Crs.

## 2) Introduction

Installation of 2x8 MVA 33/11 kV substation at Panchmahal with associated 11 kV lines is required in order to supply reliable power in the area as well as to meet the increasing load demand due to prospective loads. The main thrust is laid on improvement of voltage profile, to minimize interruption of power supply to the consumers, availability of alternate power supply and socio-economic development of the inhabitants.

#### 3) Existing Scenario

Presently the area is getting power supply from existing 33/11 kV RCMS substation through 11 kV feeder Town -1 from RCMS PSS and Sabalbhanga feeder from Bantala PSS. Consumers in these areas are facing low voltage problem and frequent break downs due to snapping of conductors.

## 4) Need of the Project

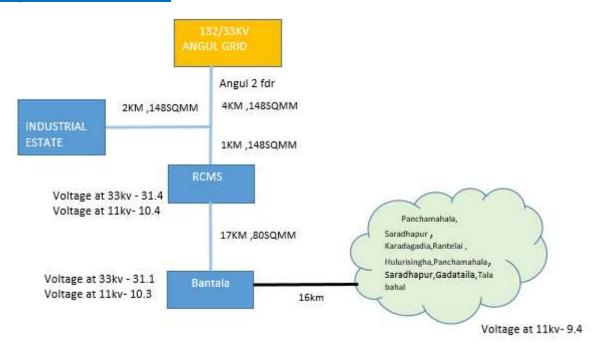
To eradicate low voltage problem, improvement of supply system and to cater the future load growth it is proposed to install a 33/11 kV substation at Pachmahala with Four numbers outgoing 11 kV feeders named Panchmahala, Adarsh, Agriculture and Govt Polytechnic feeder.

## 5) Load Details of the Proposed System:

Name of the proposed s/s	Name of the of proposed 11kV feeders	Length of feeder (km)	Anticipated load (MVA)	No. of consumers to avail supply from the feeder (Nos.)
	Panchmahala	4	2	900
Panchmahal (2X8 MVA)	Adarsh	2	2	900
	Agriculture	2	1.1	200
	Govt Polytechnic	2.5	0.9	200

## 6) Load flow Analysis Results:-

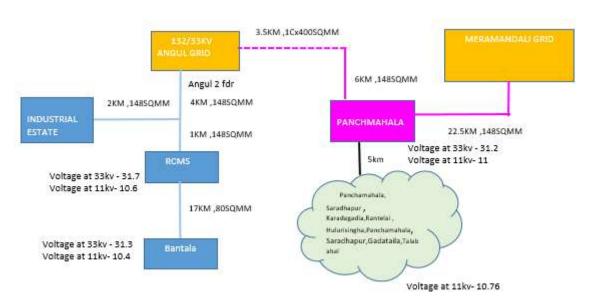
## **Existing Scenario with SLD: -**



- RCMS S/S and Bantala S/S connected from Angul 2 Feeder of Angul Grid.
- All 11 KV and LT consumers, important installation in RCMS town area are getting supply from RCMS S/S and Bantala s/s.

33 KV Feeder Name	Structure Name	33 KV Bus Voltage in KV	11 KV Bus Voltage in KV
Angul 2	RCMS	31.4	10.4
Angul 2	BANTALA	31.1	10.3

# Proposed Scenario with SLD: -



- Proposed Panchmala S/S connected from Angul Grid and Meramundali Grid.
- 6 MVA load will shift from RCMS S/S and Bantala S/S.
- The proposed Panchmahala S/S will Provide Reliable source for all 11KV and LT consumers.

33 KV Feeder	Structure Name	33 KV Bus Voltage	11 KV Bus Voltage
Name		in KV	in KV
PANCHMAHALA	PANCHMAHALA	31.2	11
Angul 2	RCMS	31.7	10.6
Angul 2	BANTALA	31.3	10.4

## **Scope of Work: -**

It is recommended to

- Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 22.5km from Meramundali Grid to Panchmahal PSS
- Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 6.8km. and Construction of 33kv line UG (4X1CX400sqmm) with length 3.5KM from Angul Grid to Panchmahla PSS
- Construction of 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work
- Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length (Panchamahala 11kV Feeder) = 4 km.
- Construction of 11kv line over 11mtr long 160x160, 30.44KG/MTR with 100mm2 AAAC.

Length (Adarsa 11kV Feeder) = 2 km.

- Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length (Agriculture Feeder) = 2 km.
- Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length (Govt. Polytechnic 11kV Feeder) = 2.5 km.
- Tower for Lingarajodi Nala crossing=2Nos.

TO CENTEAL ODISHA DISTRIBUTION LIMITED

- Construction of OPTCL 33kv Bay at Angul Grid
- Construction of OPTCL 33kv Bay at Meramundali Grid

#### 7) Cost Estimate

TP (	CENTRAL ODISHA DISTRIBU	TION LIMITED	
	Name of the Division :-	ANGUL ELECTRIC DIVISION (ANED)	
	Name of the Sub-Division : -		
	Name of the Section : -		
	Name of the Work :-	Construction of 2X8 MVA, 33/11 KV Panchmah 33 KV line (O/H) (22.5+6.8)KM 148sqmm and U (4X1CX400sqmm) with length 3.5KM	
	Scope of work:-	Construction of 2X8 MVA, 33/11 KV Panchmah 33 KV line (O/H) (22.5+6.8)KM 148sqmm and U (4X1CX400sqmm) with length 3.5KM	
	Names of Schemes: -	ODSSP PH- IV	T
	STRACT OF ESTIMATE		
SI. No.	Part	Description	Amount
1	A	1. Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 22.5km.	₹ 5,79,25,908.01
2	В	Construction of 33 line using 13mtr WPB Pole with 148 sqmm- 6.8km.	₹ 1,97,31,763.38
3	С	Construction of 33kv line UG (4X1CX400sqmm) with length 3.5KM	₹ 6,37,20,952.67
4	D	Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work	₹ 8,34,94,609.95
5	E	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Panchamahala 11kV Feeder) = 4 km.	₹ 82,83,271.48
6	F	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Adarsa 11kV Feeder) = 2 km.	₹ 46,10,805.17
7	G	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Agriculture Feeder) = 2 km.	₹ 40,96,800.54

8	Н	Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length(Govt. Polytechnic 11kV Feeder) = 2.5 km.	₹ 56,59,061.71
9	I	Tower for Lingarajodi Nala crossing=2Nos.	₹ 39,10,893.00
10	J	OPTCL Bay cost at Angul Grid	₹ 60,00,000.00
11	K	OPTCL Bay cost at Meramandali Grid	₹ 60,00,000.00
		Total Amount	₹ 26,34,34,065.93
		Total Amount (In Cr)	26.34

PART A: Construction of 22.5 CKM 33 KV O/H Line using 13 Mtr WPB Pole & 148 Sqmm AAAC Conductor, considering span length of 40 Mtr.

DP W/O ISO -58 nos, DP With ISO-08 Nos, 4 Pole-2 Nos.

SI.N o.	Description of Materials	Unit	Quantit y	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP				
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	5552	75	4,16,433.60
2	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR). (GI) 2. Support channel for Isolator ( 0.4mtr X2) (GI)	KG	11121	75	8,34,094.80
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	5821	75	4,36,590.00
5	Pipe Earthing 40mm. GI Pipe	No.	132	1050	1,38,600.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	6600	75	4,95,000.00
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	198	10350	20,49,300.00
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	264	75	19,800.00
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	SET	8	71580	5,72,640.00
10	PG Clamp for 148 sq.mm AAA conductor	NO.	396	620	2,45,520.00
	MATERIALS OF 4 POLE	1			l
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	673	75	50,476.80
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator ( 0.4mtr X2) (GI)	KG	1445.1	75	1,08,385.20
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	705.6	75	52,920.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	6	10350	62,100.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	32	75	2,400.00

18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	3	71580	2,14,740.00
19	PG Clamp for 148 sq.mm AAA conductor	NO.	12	620	7,440.00
	MATERIALS OF CUT POINT				
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	344	75.00	25,812.00
	MATERIALS OF LINE				
21	WPB 160x160-13M 30.44KG/MTR	No	635	29679.0 0	1,88,46,165.00
22	33 KV V cross Arm (MS) 22Kg each	No.	485	1580.00	7,66,300.00
23	Top bracket 100x50mm MS channel ( 2kg each)/	No.	485	150.00	72,750.00
0.4		<b></b>	1000	400	0.40.700.00
24	33KV pin insulator polymer	No.	1689	480	8,10,720.00
25	H W fitting(B&S)90KN,4 Bolt	No.	468	500	2,34,000.00
26	Disc insulator (B&S)90 KN polymer	No.	468	1150	5,38,200.00
27	H.T. Stay set (Complete )	Set	160	1050.00	1,68,000.00
28	H.T. Stay Insulator	No.	160	40.00	6,400.00
29	H.T. Stay clamp (1.95 K.g./ Pair )	Pair	160	125.00	20,000.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	2400	75.00	1,80,000.00
31	Earthing of Support ( Coil Type )	No.	495	166.00	82,170.00
32	148 mm2 AAAC	K.M.	69.525	82000.0	57,01,050.00
33	Red Oxide paint	Ltr	318	150.00	47,625.00
34	Alluminium Paint	Ltr	318	200.00	63,500.00
35	Black Paint	Ltr	635	220.00	1,39,700.00
36	Yellow Colour Paint for Background	Ltr	635	220.00	1,39,700.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	1905	75.00	1,42,875.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	2362.5	78.00	1,84,275.00
39	Danger Plate	No.	635	80.00	50,800.00
A-1	Total Cost of materials		-		3,39,64,882.40
A-2	Applicable Taxes to make it Landed Cost @18%				-
Α	Total landed Cost (A=A1 + A2)				3,39,64,882.40
В	Stock, Storage & Insurance i.e 3% of A				10,18,946.47
(A+B	Sub Total				3,49,83,828.87
) C	Contigency @ 3% of (A+B)				10,49,514.87
D	Tools & Plants @ 2% of (A+B)				6,99,676.58
E	Transportation @ 7.5% of (A+B)		26,23,787.17		
F	Erection Charges @ 5% on Trf/Breaker/Joist				9,70,577.50
G	Erection Charges @ 10% of other items				15,57,227.89
Н	Erection Charges @ 20% of PSC pole- Not to be used	for 33kv			0.00
	Sum of (A + B to H)				4,18,84,612.87

1	Fixing of stay set with 0.5Cum cement concrete	No.	160	2000.00	3,20,000.00
	foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set, stay wire, stay insulator.			2000.00	3,23,333,33
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.m tr	349.3	8446.00	29,49,765.50
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	635	676.00	4,29,260.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	140	2407	3,36,980.00
J1	Total Civil & Services	40,36,005.50			
J2	Applicable Taxes to make it Landed Cost @18%	-			
J	Total landed Cost (J=J1 + J2)		40,36,005.50		
K	Total Material+Services (I+J)		4,59,20,618.37		
L	Other overheads (Including 6% supervision charges)				27,55,237.10
М	SubTotal (K + L)				4,86,75,855.47
N	Total GST @ 18% of (M)				87,61,653.99
0	CESS @ 1% of (M)		4,86,758.55		
Р	Gross Total Material +Services (M+N+0)				5,79,24,268.01
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5	km.			
	In an artistic For at Over Head Line (HT) Do 20/ Addition		200.00		
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Addition	540			
S	Inspection Fee of Drawing Checking and Approval	400.00			
Т	Final decision by electrical Inspector		500.00		
U	Gross Total Material, Services and Inspection Fees (P+Q	+R+S+T	)		5,79,25,908.01

PART B: Construction of 6.8CKM 33 KV O/H Line using 13 Mtr WPB Pole & 148 Sqmm AAAC Conductor,
considering span length of 40 Mtr.

# DP W/O ISO -16 nos, DP With ISO-05 Nos, 4 Pole-3 Nos.

SI.No	Description of Materials	Unit	Quantit y	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF I	DP			
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	1767	75	1,32,501.60
2	Double Pole Bracing Channel 75X40X 4.8mm.7.14     KGx(4.4MTR) . (GI)     2. Support channel for Isolator ( 0.4mtr X2) (GI)	KG	3770	75	2,82,744.00

		1	1		
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	1852	75	1,38,915.00
5	Pipe Earthing 40mm. GI Pipe	No.	42	1050	44,100.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	2100	75	1,57,500.00
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	63	10350	6,52,050.00
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	84	75	6,300.00
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polymer)	SET	5	71580	3,57,900.00
10	PG Clamp for 148 sq.mm AAA conductor	NO.	126	620	78,120.00
	MATERIALS OF 4 F	OLE	I.		
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	1010	75	75,715.20
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14  KGx(4.4MTR) . (GI)	KG	2073.5	75	1,55,509.20
13	2. Support channel for Isolator ( 0.4mtr X2) (GI) 50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	1058.4	75	79,380.00
14	Pipe Earthing 40mm. GI Pipe	No.	12	1050	12,600.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	600	75	45,000.00
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	9	10350	93,150.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	48	75	3,600.00
18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	3	71580	2,14,740.00
19	PG Clamp for 148 sq.mm AAA conductor	NO.	18	620	11,160.00
	MATERIALS OF CUT	POINT	1		
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	516	75.00	38,718.00
	MATERIALS OF L	INE			
21	WPB 160x160-13M 30.44KG/MTR	No	200	29679.0 0	59,35,800.00
22	33 KV V cross Arm (MS) 22Kg each	No.	131	1580.00	2,06,980.00
23	Top bracket 100x50mm MS channel ( 2kg each)/	No.	131	150.00	19,650.00
24	33KV pin insulator polymer	No.	489	480	2,34,720.00
25	H W fitting(B&S)90KN,4 Bolt	No.	234	500	1,17,000.00
26	Disc insulator (B&S)90 KN polymer	No.	234	1150	2,69,100.00
27	H.T. Stay set (Complete )	Set	84	1050.00	88,200.00
28	H.T. Stay Insulator	No.	84	40.00	3,360.00
29	H.T. Stay clamp (1.95 K.g./ Pair )	Pair	84	125.00	10,500.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	1260	75.00	94,500.00
31	Earthing of Support ( Coil Type )	No.	146	166.00	24,236.00
01	Laiting of Support (Soil Type )	140.	140	100.00	24,200.00

	440 0 4440	14.14	04.040	000000	17.00.004.00	
32	148 mm2 AAAC	K.M.	21.012	82000.0 0	17,22,984.00	
33	Red Oxide paint	Ltr	100	150.00	15,000.00	
34	Alluminium Paint	Ltr	100	200.00	20,000.00	
35	Black Paint	Ltr	200	220.00	44,000.00	
36	Yellow Colour Paint for Background	Ltr	200	220.00	44,000.00	
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	600	75.00	45,000.00	
38	GI Nut , Bolt & Washer of different sizes	K.g.	882.5	78.00	68,835.00	
39	Danger Plate	No.	200	80.00	16,000.00	
A-1	Total Cost of materials		1,15,59,568.0 0			
A-2	Applicable Taxes to make it Landed Cos		-			
Α	Total landed Cost (A=A1 + A2)		1,15,59,568.0 0			
В	Stock, Storage & Insurance i.e 3% of	of A			3,46,787.04	
(A+B	Sub Total		1,19,06,355.0			
С	Contigency @ 3% of (A+B)				3,57,190.65	
D	Tools & Plants @ 2% of (A+B)				2,38,127.10	
E	Transportation @ 7.5% of (A+B)	<u> </u>			8,92,976.63	
F	Erection Charges @ 5% on Trf/Breake				3,05,693.70	
G	Erection Charges @ 10% of other it		001		5,79,248.10	
H	Erection Charges @ 20% of PSC pole- Not to b	e used to	or 33kv		0.00	
_	Sum of (A + B to H)				1,42,79,591.2 2	
	Civil & Services					
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	84	2000.00	1,68,000.00	
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mt	110	8446.00	9,29,060.00	
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	200	676.00	1,35,200.00	
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	54	2407	1,29,978.00	
J1	Total Civil & Services				13,62,238.00	
J2	Applicable Taxes to make it Landed Cost @18%					
J	Total landed Cost (J=J1 + J2)					
K	Total Material+Services (I+J)					
L	Other overheads (Including 6% supervisio	n charge	s)		9,38,509.75 1,65,80,338.9	
М	SubTotal (K + L)					
N	Total GST @ 18% of (M)					
	CESS @ 1% of (M)					
0	• • • • • • • • • • • • • • • • • • • •				1,65,803.39	
O P	CESS @ 1% of (M)  Gross Total Material +Services (M+N	N+0)			1,97,30,603.3	
	• • • • • • • • • • • • • • • • • • • •		5 km.		1,97,30,603.3	

S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	1,97,31,763.3

	PART-C. Construction of 3.5KM	33kv, 4	X1CX400 so	qmm line	
Supply Portion					
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				
1.1	Supply of 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable	km	14	7,83,000.00	1,09,62,000.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG Cable kits for 1Core	Set	56	19,679.00	11,02,024.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	8	6,869.00	54,952.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set		5,233.00	-
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	14	10,91,237.00	1,52,77,318.00
	Sub Total (Supply Po	rtion) (ir	Rs.)		2,73,96,294.00
Erection Portion					
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 400sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	2	2,80,497.64	5,60,995.28
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG cable kits	Set	56	4,286.75	2,40,058.00
1.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	8	2,327.04	18,616.32
1.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	0	1,959.72	-

1.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations	km	12	13,73,059.62	1,64,76,715.44
	and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable				
1.0	place.			10111107	0.00.000.04
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	2	1,04,114.67	2,08,229.34
	Sub Total (Erection Po	ortion) (i	n Rs.)	I	1,75,04,614.38
	0: 11 P. 11				
	Civil Portion				
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of soil	Cum	350	201.62	70,567.00
1.1.b	Earth work excavation of hard rock	Cum	150	884.35	1,32,652.50
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	300	171.55	51,465.00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	200	479.74	95,948.00
1.4	Back filling with excavated soil outside	Cum	300	30.28	9,084.00
	and above the trench				,
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0.5	26,43,670.63	13,21,835.32
2	Civil works for Prefabricated RCC foundation with supply of all materials				
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,607.00	1,02,848.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	117	376.13	44,007.21
	Sub Total (Civil Port	ion) (in	Rs.)		18,28,407.03
Λ 4	O. I. T-4-1/O	( Dant!			0.72.00.004.00
A-1	Sub Total (Supply	<u></u>	<u>'</u>	,	2,73,96,294.00
A-2	Applicable Taxes to make it			)	0.70.00.00::05
Α	Total landed Cost (A	A=A1 +	A2)		2,73,96,294.00

В	Stock, Storage & Insurance @ 3 % of A	8,21,888.82
С	Sub Total (A+B)	2,82,18,182.82
D	Contingency @ 3 % of C	8,46,545.48
Е	Tools & Plants Charges @ 2% of C (Not considered)	-
F	Transportation @ 7.5% of C	21,16,363.71
G	Total (C+D+E+F)	3,11,81,092.02
H-1	Sub Total (Erection Portion + Civil Portion)	1,93,33,021.41
H-2	Applicable Taxes to make it Landed Cost @18%	
Н	Total landed Cost (H=H1 + H2)	1,93,33,021.41
I	Total Cost (G+H)	5,05,14,113.42
J	Other Overhead /(including Supervision Charges) @ 6 % of I	30,30,846.81
K	Total Estimated Capital Cost i.e. (I+J)	5,35,44,960.23
L	GST @ 18% of K	96,38,092.84
М	CESS @ 1% of L	5,35,449.60
N	Grand Total (K+L+M)	6,37,18,502.67
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	1300
Q	Inspection Fee of Drawing Checking and Approval	400.00
R	Final decision by electrical Inspector	500.00
S	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	6,37,20,952.67

PART D: Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work

Sl. No.	DESCRIPTION OF ITEMS	UNIT S	Total Quantit	Basic Unit price	Total
			У	(İn Rs.)	
	SUPPLY OF FOLLOWING EQUIPM (As per Technical Speci		IATERIALS	6	
	(No per Teermieur epeer				
	33kV Equipment (Indoor Type)				
1	36kV Indoor GIS/SIS Equipment and accessories for				
	33/11kV GIS Substation as detailed below				
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6	Set	2.00	25,36,365.2	50,72,730.50
	gas monitoring system )/Solid insulated system for line			5	
	feeder bay module each comprising of SF6 gas				
	insulated vacuum circuit breaker (1250A),Double				
	Busbar (each 1250A) (Copper), inbuilt SA & CT (800-				
	400/1-1A), PT, bus-bar dis connectors (1250A) with				
	common grounding switch, for complete Line feeder				
	bay as per the technical specification. The module shall be provided with complete Line Feeder protection				
	system to suit for SCADA ( BCPU, Multi-function Meter				
	& other provisions as per tech spec).				
1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6	Set	2.00	24,75,453.1	49,50,906.29
	gas monitoring system )/Solid insulated system for	001	2.00	5	10,00,000.20
	Transformer feeder bay module each comprising of				
	SF6 gas insulated vacuum circuit breaker				
	(1250A), Double Busbar (each 1250A) (Copper), inbuilt				
	SA & CT (600-300/1-1-1A), bus-bar dis connectors				
	(1250A) with common grounding switch, for complete				
	Transformer feeder bay as per the technical				
	specification. The module shall be provided with				

		<u> </u>			
	complete Transformer Feeder protection system to suit				
	for SCADA (BCPU, Numerical Differential Relay				
	having inbuilt of REF protection, Multi-function Meter &				
	other provisions as per tech spec).				
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6	Set	1.00	44,03,929.8	44,03,929.80
1.0	gas monitoring system )/Solid insulated system for	001	1.00	0	44,00,020.00
	Bus-coupler bay module each comprising of SF6 gas			· ·	
	insulated vacuum circuit breaker (1250A),Double				
	Busbar (each 1250A) (Copper), inbuilt CT (800-400/1-				
	1A), bus-bar dis connectors (1250A) with grounding				
	switches, Each bus bar set shall be provided with				
	inductive voltage transformers(two sets) with				
	disconnector(s) for both the buses for complete Bus-				
	coupler bay as per the technical specification. The				
	module shall be provided with complete Bus-coupler				
	protection system to suit for SCADA ( BCPU, Multi-				
	function Meter & other provisions as per tech spec).				
	11kV Equipment (Indoor Type)				
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class),	Nos.	6.00	10,350.00	62,100.00
	Surge Arrester (for 33kV Incoming Line, HT side of			,	,
	2nos. Power Transformers and 33/0.433kV Station				
	Transformer) - Outdoor Type with Surge Counter				
3	12kV, 10kA, Metal Oxide, Class-2 (Station Class),	Nos.	6.00	3,550.00	21,300.00
	Surge Arrester with out surge counter( For				
	Transformers & Out Going Feeders) - Outdoor type				
4	11kV Indoor Air Insulated switchgear Panel consisting	No	2.00	6,41,174.55	12,82,349.09
	of Breaker-630A, Busbar-1250A(Copper) & CT (400-				
	200/1-1-1A) for Transformer Protection				
	Relays to be installed on the panel, Multi-function				
	Meter to be installed above the panel, Energy meter to				
	be installed on the panel				
5	11kV Indoor Air Insulated switchgear Panel consisting	No	6.00	7,21,808.20	43,30,849.18
	of Breaker-630A, Busbar-1250A (Copper), CT (400-				
	200/1-1-1A) for Feeder protection				
	Relays to be installed on the panel, Multi-function				
	Meter to be installed above the panel, Energy meter to				
-	be installed on the panel	NIa	1.00	E 70 70E 6E	E 70 70E CE
6	11kV Bus-Coupler Indoor AIS Panel consisting of	No	1.00	5,79,725.65	5,79,725.65
7	Breaker-630A, Bus-bar-1250A (Copper)	Set	2.00	2 67 129 96	7,34,257.71
'	11kV, 2 Core, Single Phase, IVT (11/ $\sqrt{3}$ kV / 110/ $\sqrt{3}$ -110/ $\sqrt{3}$ V), 3nos in a set, in a separate draw out	ુ <u>૩</u> ૯ા	2.00	3,67,128.86	1,04,201.11
	chamber with Digital Voltmeter inside Control Room				
	separately for Bus-1 & Bus-2 plug in type with				
	disconnector.				
	SCADA				
8	SCADA FOR Primary Substation	Set	1.00	2,60,000.00	2,60,000.00
	Transformer and RMU	231	1.00	_,00,000.00	2,00,000.00
9	8.0 MVA, 33/11kV Power Transformer DYn11 (Outdoor	No.	2.00	57,00,000.0	1,14,00,000.0
	Installation) with Accessories	140.	2.00	0	0
10	100 KVA 33/0.433kV Energy efficient Station	No	1.00	2,72,000.00	2,72,000.00
'0	Transformer	110	1.00	2,12,000.00	2,72,000.00
11	11 KV 4Way RMU	No.	0.00	4,49,500.00	_
<u> </u>	Substation Earthing System GI	.,,,,	3.00	., .5,555.55	
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat	Ka.	5301.00	75.00	3,97,575.00
12	for laying (spacing maximum 2m both ways)	Kg	3301.00	75.00	3,81,313.00
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat for	Kg	720.00	75.00	54,000.00
13	Raiser from the burial earth mat to equipment,	1.9	120.00	7 3.00	J <del>-</del> ,000.00
	structure etc.)				
	1 Stradial Octo.	l	l		

		T		I	
14	Earthing Device & Associated Accessories (Heavy duty	No	30.00	1,050.00	31,500.00
	GI Perforated Pipe of ID=40mm & OD=50mm with				
	3000mm long for treated Earth Pit) as per Drawing				
	33, 11 and Station Trf Structure				
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04 nos	Kg	532.00	75.00	39,900.00
	for one Power Transformer) for supporting of 33kV				
	Cable & 11kV cable (Unit Wt=0.0665 MT) & 10 mm				
	thick MS plate size 250X250 mm at the bottom of the				
	RS Joist duly welded & the MS plate to be suitably				
	grouted to the floor for the rigidity.				
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr - 06	Kg	229.44	75.00	17,208.00
	nos for one Power Transformer) for supporting of 33kV				
	& 11kV power Cable (Unit Wt=0.01912 MT)				
17	GI Nuts & Bolts etc. for column and beam & Equipment	Kg	500.00	78.00	39,000.00
	Structures				
18	Supply & Erection of GI Pipe of dia. 150mm, Class-B	Mtr.	50.00	1,607.00	80,350.00
19	High Density Polyethylene (HDPE) pipe 160 mm	KM	0.01	10,91,237.0	10,912.37
	diameter.			0	
20	LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	24,419.00	24,419.00
21	Supply and installation of 8way LDB with accessories	Nos.	2.00	8,960.00	17,920.00
	33 and 11 kv Power and Control, XLPE cables			3,000.00	,0_0.00
22	1C X 400 sqmm, 33 KV, XLPE, Power cable Armored,	KM	1.60	7,83,000.00	12,52,800.00
22	aluminium conductor, stranded, including their	KIVI	1.60	7,03,000.00	12,52,600.00
	termination materials like glands, lugs, tagging etc. as				
	required as per technical specifications and scope of				
	the works.				
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable	Set.	20.00	5,233.00	1,04,660.00
ZZ. I	termination kit complete with all accessories and	Set.	20.00	3,233.00	1,04,000.00
	tagging etc. as per technical specifications and scope				
	of the works.				
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable	Set.	20.00	6,869.00	1,37,380.00
22.2	termination kit complete with all accessories and	Set.	20.00	0,009.00	1,37,360.00
	tagging etc. as per technical specifications and scope				
	of the works.				
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power cable	KM	0.80	15,00,000.0	12,00,000.00
20	Armored, aluminium conductor, stranded, including	IXIVI	0.00	0	12,00,000.00
	their termination materials like glands, lugs, tagging				
	etc. as required as per technical specifications and				
	scope of the works.				
24	11 KV, 3C X 400 sqmm Heat Shrink In Door cable	Set.	16.00	9,582.00	1,53,312.00
	termination kit complete with all accessories and	001.	10.00	0,002.00	1,00,012.00
	tagging etc. as per technical specifications and scope				
	of the works.				
25	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable	Set.	16.00	13,904.00	2,22,464.00
	termination kit complete with all accessories and	001.	10.00	10,001.00	2,22, 10 1.00
	tagging etc. as per technical specifications and scope				
	of the works.				
26	Control Cables (Copper Armoured)				
26.1	4 Core x 2.5 mm <sup>2</sup>	Km	0.30	1,06,157.22	31,847.17
					*
26.2	7 Core x 2.5 mm <sup>2</sup>	Km	0.10	1,67,628.60	16,762.86
26.3	10 Core x 2.5 mm <sup>2</sup>	Km	0.20	2,34,997.61	46,999.52
26.4	12 Core x 2.5 mm <sup>2</sup>	Km	0.20	2,78,851.73	55,770.35
26.5	1 Core x 16 mm2 Aluminium cable from Battery to	Km	0.06	1,24,606.20	7,476.37
20.0	Battery Charger & Battery Charger to DCDB	'311	0.00	1,2 7,000.20	7,470.07
27	1.1 kV XLPE Power Cables				
27.1	XLPE 3 1/2 Core x 120 mm2 (for Station Transformer	Km	0.05	1 28 106 07	21 405 25
∠1.1	· ·	L/III	0.05	4,28,106.97	21,405.35
27.0	output )  VI DE 3.1/2 Core v 05 mm2 / for Oil Filtration Machine	1/22	0.02	2 26 000 00	10 000 67
27.2	XLPE 3 1/2 Core x 95 mm2 ( for Oil Filtration Machine	Km	0.03	3,36,088.92	10,082.67
27.3	Connection)	1/22	0.02	1 17 045 44	2 514 25
	XLPE 3 1/2 Core x 25 mm2 ( for Switchyard Lighting )	Km	0.03	1,17,045.14	3,511.35
27.4	XLPE 4 Core 16 mm2 ( for Switchyard Lighting )	Km	0.03	84,154.55 50,583.46	2,524.64 1,517.50
27.5	XLPE 2 Core 16 mm2 (for Switchyard Lighting)	Km			

28		Battery & Battery Charger			_	_
29	28	48 V, 100 AH, maintenance free VRLA Battery (Set. 4	Set	1.00	58,740.62	58,740.62
Sub-station Lighting And Fire Fighting System	29	48V, Float cum Boost Battery Charger (15 A float	No	1.00	1,90,907.01	1,90,907.01
Lighting (It includes supply of fixturies & Lamps (LED) with switch gear, Gl Conduit lete (1/20WX 4 sets and 100WX6 sets out side the control room, 20 Watt CFL tube-10 sets inside control room, 20 Watt CFL tube-10 sets inside control room. Control Room wiring to be done with Copper wires as per the requirement (Lighting fixtures are to be fixed rigidly on the Column at a suitable height with Gl tubular pole so that the required lux as per the technical specification is maintained).  31						
1.5 Ton capacity Split Air Conditioning units with Remote control facility: Including supply of split Air conditioner 5 Star rated, voltage stabiliser, control boxes etc. for completing the A.C scheme. (As per specification) for control room.	30	Lighting (it includes supply of fixtures & Lamps (LED) with switch gear, GI Conduit etc.(120Wx 4 sets and 100Wx6 sets out side the control room, 20 Watt CFL tube-10 sets inside control room .Control Room wiring to be done with Copper wires as per the requirement (Lighting fixtures are to be fixed rigidly on the Column at a suitable height with GI tubular pole so that the required lux as per the technical specification is	Lot	1.00		11,62,247.82
33   300 mm sweep 70W A/C Exhaust Fan ( for Battery room and Toilet )   100   100   101   101   102   101	31	1.5 Ton capacity Split Air Conditioning units with Remote control facility: Including supply of split Air conditioner 5 Star rated, voltage stabiliser, control boxes etc. for completing the A.C scheme. (As per	No	4.00	83,017.70	3,32,070.81
Fire Fighting System (portable and wheel mounted sets for control room)   34.1	32		No	5.00	2,905.62	14,528.10
Substitution   Subs		room and Toilet )	No	4.00	2,158.46	8,633.84
34.2   CO <sub>2</sub> -4.5 Kgs	34					
34.3   Dry powder 4.5 Kg		• .	No	2.00	4,981.06	9,962.12
34.4   Fire Bucket with Stand (4nos. in each Stand)   No   4.00   2,988.64   11,954.55	34.2	CO <sub>2</sub> - 4.5 Kgs	No	2.00	9,962.12	19,924.25
AC & DC System for Auxiliary supply   35	34.3	Dry powder 4.5 Kg	No	2.00	4,150.89	8,301.77
35	34.4	Fire Bucket with Stand (4nos. in each Stand)	No	4.00	2,988.64	11,954.55
35.1   ACDB (as per specification)   Lot   0.00   4,15,088.51   - 35.2   Main Lighting Distribution Board (as per specification)   Lot   1.00   1,66,035.40   1,66,035.40   35.3   Indoor Lighting Distribution Board as per specification   Lot   1.00   46,489.91   46,489.91   35.4   Receptable Panel near Power Transformer   No   1.00   14,943.19   14,943.19   36   DC System   Solution Board as per specification   No   1.00   2,07,544.25   2,07,544.25   37   Water Cooler with water purifier system as per   No   1.00   24,905.31   24,905.31   Technical Specification   Specification   Specification   Lot   1.00   9,96,212.42   9,96,212.42   Specification   Specification   Lot   1.00   2,49,053.10   2,49,053.10   2,49,053.10   Lot   1.00   Specification   Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing)   41.1   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Nos   2.00   20,322.28   40,644.56   (Unit Wt=0.013 MT)   41.2   (500x500x10) mm   GI plate 6 nos / Transformer each (Unit Wt=0.240 MT)   Cfequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)   4,18,10,369.5   MATERIALS (In Rs.)   4,18,10,369.5   MATERIALS (In Rs.)   Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)   4,18,10,369.5   Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)   4,18,10,369.5   Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)   Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & Materials for Supplement as per specification   A,18,10,369.5   A,18,10,369.5   A,18,10,369.5   Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)   Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)   Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)   Control Room 12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT & Materials for Installation of Installation of Installation		AC & DC System for Auxiliary supply				
35.2         Main Lighting Distribution Board (as per specification)         Lot         1.00         1,66,035.40         1,66,035.40           35.3         Indoor Lighting Distribution Board as per specification         Lot         1.00         46,489.91         46,489.91           35.4         Receptable Panel near Power Transformer         No         1.00         14,943.19         14,943.19           36         DC System         No         1.00         2,07,544.25         2,07,544.25           37         Water Cooler with water purifier system as per Technical Specification         No         1.00         24,905.31         24,905.31           38         Maintenance Testing Equipment as per Technical Specification         Lot         1.00         9,96,212.42         9,96,212.42           39         Tools and Plants (T&P's) Requirement as per Technical Specification         Lot         1.00         2,49,053.10         2,49,053.10           40         Office Furniture as per Technical Specification         Lot         1.00         8,30,177.01         8,30,177.01           41         Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)         Nos         2.00         20,322.28         40,644.56           41.2         (500x50x10) mm Gl plate 6 nos / Transformer each (Unit Wt=0.040 MT)         Nos         6.0	35	AC System				
35.3         Indoor Lighting Distribution Board as per specification         Lot         1.00         46,489.91         46,489.91           35.4         Receptable Panel near Power Transformer         No         1.00         14,943.19         14,943.19           36.1         A8 V DC Distribution Board as per specification.         No         1.00         2,07,544.25         2,07,544.25           37         Water Cooler with water purifier system as per Technical Specification.         No         1.00         24,905.31         24,905.31           38         Maintenance Testing Equipment as per Technical Specification.         Lot         1.00         9,96,212.42         9,96,212.42           39         Tools and Plants (T&P's) Requirement as per Lot Technical Specification.         Lot         1.00         2,49,053.10         2,49,053.10           40         Office Furniture as per Technical Specification.         Lot         1.00         8,30,177.01         8,30,177.01           41         Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing).         Nos         2.00         20,322.28         40,644.56           41.1         90 lb Rail 5.4 mts (2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT).         Nos         6.00         1,145.44         6,872.65           41.3         (65x65x5) mm Gl angle of 5.4 mts le		, , , ,	Lot			-
35.4   Receptable Panel near Power Transformer   No   1.00   14,943.19   14,943.19   36   DC System		,			1 1	
36		<u> </u>				
36.1         48 V DC Distribution Board as per specification .         No         1.00         2,07,544.25         2,07,544.25           37         Water Cooler with water purifier system as per Technical Specification         No         1.00         24,905.31         24,905.31           38         Maintenance Testing Equipment as per Technical Specification         Lot         1.00         9,96,212.42         9,96,212.42           39         Tools and Plants (T&P's) Requirement as per Technical Specification         Lot         1.00         2,49,053.10         2,49,053.10           40         Office Furniture as per Technical Specification         Lot         1.00         8,30,177.01         8,30,177.01           41         Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing)         Lot         1.00         8,30,177.01         8,30,177.01           41.1         90 lb Rail 5.4 mts ( 2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)         Nos         2.00         20,322.28         40,644.56           41.2         (500x500x10) mm Gl plate 6 nos / Transformer each (Unit Wt=0.026 MT)         Nos         6.00         1,145.44         6,872.65           41.3         (65x65x5) mm Gl angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)         Nos         2.00         2,290.88         4,581.77 <td< td=""><td></td><td>•</td><td>No</td><td>1.00</td><td>14,943.19</td><td>14,943.19</td></td<>		•	No	1.00	14,943.19	14,943.19
Water Cooler with water purifier system as per Technical Specification   Technical Specification   Lot   1.00   9,96,212.42   9,96,212.42   Specification   Specification   Lot   1.00   9,96,212.42   9,96,212.42   Specification   Specification   Lot   1.00   2,49,053.10   2,49,053.10   Technical Specification   Lot   1.00   2,49,053.10   2,49,053.10   Technical Specification   Lot   1.00   8,30,177.01   8,30,177.01   Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing)   41.1   90 lb Rail   5.4 mts (2.7x2)   44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)   Transformer each (Unit Wt=0.240 MT)   41.2   (500x500x10) mm   Gl plate   6 nos / Transformer each (Unit Wt=0.013 MT)   41.3   (65x65x5) mm   Gl angle of   5.4 mts   length   4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)   42   Chequered plate   1000X300X5.6mm thick for Cable Trench in side Control Room   12 Mtr   Sub-Total for SUPPLY OF EQUIPMENT &   4,18,10,369.5   MATERIALS (In Rs.)   9			NI-	4.00	0.07.544.05	0.07.544.05
Technical Specification   Specification   Specification   Specification   Specification   Specification   Specification   Specification   Specification   Specification   Specification   Specification   Specification   Specification   Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.240 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Materials for Installation of Power Transformer each (Unit Wt=0.040 MT)   Supply of Mater		·				
Specification   Specification   Lot   1.00   2,49,053.10   2,49,053.10		Technical Specification	INO			
Technical Specification	38	Specification	Lot	1.00	9,96,212.42	9,96,212.42
41       Supply of Materials for Installation of Power Transformer on Plinth (as per Drawing)       41.1       90 lb Rail 5.4 mts (2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)       Nos       2.00       20,322.28       40,644.56         41.2       (500x500x10) mm Gl plate 6 nos / Transformer each (Unit Wt=0.013 MT)       Nos       6.00       1,145.44       6,872.65         41.3       (65x65x5) mm Gl angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)       Nos       2.00       2,290.88       4,581.77         42       Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr       Kg       640.00       84.68       54,192.75         Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)       4,18,10,369.5       9		Technical Specification	Lot		2,49,053.10	2,49,053.10
Transformer on Plinth (as per Drawing)  41.1 90 lb Rail 5.4 mts ( 2.7x2) 44.62 kg per mtr /			Lot	1.00	8,30,177.01	8,30,177.01
Transformer each (Unit Wt=0.240 MT)           41.2         (500x500x10) mm Gl plate 6 nos / Transformer each (Unit Wt=0.013 MT)         Nos         6.00         1,145.44         6,872.65           41.3         (65x65x5) mm Gl angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)         Nos         2.00         2,290.88         4,581.77           42         Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr         Kg         640.00         84.68         54,192.75           Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)         4,18,10,369.5         9		Transformer on Plinth (as per Drawing)				
(Unit Wt=0.013 MT)       41.3       (65x65x5) mm Gl angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)       Nos       2.00       2,290.88       4,581.77         42       Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr       Kg       640.00       84.68       54,192.75         Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)       4,18,10,369.5       9		Transformer each (Unit Wt=0.240 MT)				
Transformer each (Unit Wt=0.026 MT)           42         Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr         Kg         640.00         84.68         54,192.75           Sub-Total for SUPPLY OF EQUIPMENT & MATERIALS (In Rs.)         4,18,10,369.5         9		(Unit Wt=0.013 MT)				
Trench in side Control Room 12 Mtr  Sub-Total for SUPPLY OF EQUIPMENT & 4,18,10,369.5  MATERIALS (In Rs.) 9		Transformer each (Unit Wt=0.026 MT)				
MATERIALS (In Rs.)	42	Trench in side Control Room 12 Mtr	Kg	640.00	84.68	
Material Landed Cost @18%		MATERIALS (In Rs.)				_
<u> </u>		Material Landed Cost @18	3%			
Total Cost in Cr. 4.18		Total Cost in Cr.				4.18

	ERECTION, TESTING & COMMISSIONING WORK (As per Technical Specif		OLLOWIN	G EQUIPMENT	
	33kV Equipment (Indoor Type)				
1	Erection, Commissioning, Testing of 33kV Equipment				
	for (INDOOR AIS Sub-Station )				
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6	Set	2.00	48,237.78	96,475.57
	gas monitoring system )/Solid insulated system for line				
	feeder bay module each comprising of SF6 gas				
	insulated vacuum circuit breaker (1250A),Double				
	Busbar (each 1250A) (Copper), inbuilt SA & CT (800-400/1-1A), bus-bar dis connectors (1250A) with				
	common grounding switch, for complete Line feeder				
	bay as per the technical specification. The module				
	shall be provided with complete Line Feeder protection				
	system to suit for SCADA ( BCPU, Multi-function Meter				
	& other provisions as per tech spec).				
1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6	Set	2.00	48,237.78	96,475.57
	gas monitoring system )/Solid insulated system for				
	Transformer feeder bay module each comprising of				
	SF6 gas insulated vacuum circuit breaker				
	(1250A), Double Busbar (each 1250A) (Copper), inbuilt				
	SA & CT (600-300/1-1-1A), bus-bar dis connectors (1250A) with common grounding switch, for complete				
	Transformer feeder bay as per the technical				
	specification. The module shall be provided with				
	complete Transformer Feeder protection system to suit				
	for SCADA ( BCPU, Numerical Differential Relay				
	having inbuilt of REF protection, Multi-function Meter &				
	other provisions as per tech spec).				
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6	Set	1.00	48,237.78	48,237.78
	gas monitoring system )/Solid insulated system for				
	Bus-coupler bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double				
	Busbar (each 1250A) (Copper), inbuilt CT (800-400/1-				
	1A), bus-bar dis connectors (1250A) with grounding				
	switches, Each bus bar set shall be provided with				
	inductive voltage transformers(two sets) with				
	disconnector(s) for both the buses for complete Bus-				
	coupler bay as per the technical specification. The				
	module shall be provided with complete Bus-coupler				
	protection system to suit for SCADA ( BCPU, Multi-				
F	function Meter & other provisions as per tech spec).				
Erecu	ion, Commissioning, Testing of 11kV Equipment (Indoor Type)				-
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class),	Nos.	6.00	428.00	2,568.00
	Surge Arrester (for 33kV Incoming Line, HT side of				,
	2nos. Power Transformers and 33/0.433kV Station				
	Transformer) - Outdoor Type with Surge Counter				
3	12kV, 10kA, Metal Oxide, Class-2 (Station Class),	Nos.	6.00	128.40	770.40
	Surge Arrester with out surge counter( For				
1	Transformers & Out Going Feeders) - Outdoor type	No	2.00	7 400 00	14 000 00
4	11kV Indoor Air Insulated switchgear Panel consisting of Breaker-1250A, Busbar-2000A(Copper) & CT (800-	No	2.00	7,490.00	14,980.00
	400/1-1-1A) Horizontal draw type for Transformer				
	Protection and Differential Relays to be installed on				
	the panel, Multi-function Meter to be installed above the				
	panel, Energy meter to be installed on the panel				
5	11kV Indoor Air Insulated switchgear Panel consisting	No	6.00	7,490.00	44,940.00
	of Breaker-1250A, Busbar-2000A (Copper), CT (600-				
	300/1-1-1A) for Feeder protection Relays to be				
	installed on the panel, Multi-function Meter to be				
	installed above the panel, Energy meter to be installed				
	on the panel				

6	11kV Bus-Coupler Indoor AIS Panel consisting of Breaker-1250A, Bus-bar-2000A (Copper), for Bus protection Relays to be installed on the panel, Multi- function Meter to be installed above the panel, Energy	No	1.00	7,490.00	7,490.00
	meter to be installed on the panel				
7	11kV, 2 Core, Single Phase, IVT (11/√3 kV / 110/√3-	Set	2.00	7,490.00	14,980.00
•	$110/\sqrt{3}$ V), 3nos in a set, in a separate draw out		2.00	7,400.00	14,000.00
	chamber with Digital Voltmeter inside Control Room				
	separately for Bus-1 & Bus-2 plug in type with disconnector.				
	Erection, Commissioning, Test	ing of SC	CADA		
8	SCADA FOR Primary Substation	Set	1.00	0.00	0.00
Erect	tion, Commissioning, Testing of Transformer and RMU				0.00
9	8.0 MVA, 33/11kV Power Transformer DYn11 (Outdoor Installation) with Accessories	No.	2.00	85,600.00	1,71,200.00
10	100 KVA 33/0.433kV Energy efficient Station Transformer	No	1.00	5,350.00	5,350.00
11	11 KV 4Way RMU	No.	0.00	4,813.00	-
`					-
4.0	Erection, Laying of Substation Ea			45.00	70.545.00
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat for laying (spacing maximum 2m both ways)	Kg	5301.00	15.00	79,515.00
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat for	Kg	720.00	15.00	10,800.00
	Raiser from the burial earth mat to equipment,				
14	structure etc.)  Earthing Device & Associated Accessories (Heavy duty	No	30.00	2,675.00	80,250.00
14	GI Perforated Pipe of ID=40mm & OD=50mm with	INO	30.00	2,073.00	80,230.00
	3000mm long for treated Earth Pit) as per Drawing				
	Erection of System GI 33, 11 and S			00.00	45.000.00
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04 nos for one Power Transformer) for supporting of 33kV Cable & 11kV cable (Unit Wt=0.0665 MT) & 10 mm thick MS plate size 250X250 mm at the bottom of the RS Joist duly welded & the MS plate to be suitably	Kg	532.00	30.00	15,960.00
	grouted to the floor for the rigidity.				
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr - 06 nos for one Power Transformer) for supporting of 33kV	Kg	229.44	30.00	6,883.20
17	& 11kV power Cable (Unit Wt=0.01912 MT) GI Nuts & Bolts etc. for column and beam & Equipment	Kg	500.00	30.00	15,000.00
	Structures	_			
18	GI Pipe of dia. 150mm, Class-B	Mtr.	0.00	-	-
19	High Density Polyethylene (HDPE) pipe 160 mm diameter.	KM	0.01	1,04,114.67	1,041.15
20	LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	1,000.00	1,000.00
Lay	ring of 11kV 33 and 11 kv Power and Control cables				-
21	1C X 400 sqmm, 33 KV, XLPE, Power cable Armored,	KM	1.60	2,80,497.64	4,48,796.22
	aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as				
	required as per technical specifications and scope of				
00.4	the works.	0.1	00.00	4.050.70	00.404.40
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable termination kit complete with all accessories and	Set.	20.00	1,959.72	39,194.40
	tagging etc. as per technical specifications and scope of the works.				
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable	Set.	20.00	2,327.04	46,540.80
	termination kit complete with all accessories and				
	tagging etc. as per technical specifications and scope of the works.				
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power cable	KM	0.80	2,08,229.35	1,66,583.48
	Armored, aluminium conductor, stranded, including				
	their termination materials like glands, lugs, tagging				

	-4	1	1	I	
	etc. as required as per technical specifications and scope of the works.				
	scope of the works.				
24.1	11 KV, 3C X 400 sqmm Heat Shrink In Door cable	Set.	16.00	1,470.29	23,524.64
24.1	termination kit complete with all accessories and	Jet.	10.00	1,470.29	23,324.04
	tagging etc. as per technical specifications and scope				
	of the works.				
24.2	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable	Set.	16.00	1,837.61	29,401.76
	termination kit complete with all accessories and				
	tagging etc. as per technical specifications and scope				
25	of the works. Control Cables (Copper Armoured)				_
25.1	4 Core x 2.5 mm <sup>2</sup>	Km	0.30	21,400.00	6,420.00
25.2	7 Core x 2.5 mm <sup>2</sup>	Km	0.10	21,400.00	2,140.00
25.2	10 Core x 2.5 mm <sup>2</sup>	Km	0.10	26,750.00	5,350.00
					•
25.4	12 Core x 2.5 mm <sup>2</sup>	Km	0.20	26,750.00	5,350.00
25.5	1 Core x 16 mm2 Aluminium cable from Battery to	Km	0.06	16,050.00	963.00
26	Battery Charger & Battery Charger to DCDB  Laying of 1.1 kV XLPE Power Cables				_
26.1	XLPE 3 1/2 Core x 120 mm2 (for Station Transformer	Km	0.05	32,100.00	1,605.00
20.1	output )	1 311	0.00	02,100.00	1,000.00
26.2	XLPE 3 1/2 Core x 95 mm <sup>2</sup> ( for Oil Filtration Machine	Km	0.03	29,960.00	898.80
	Connection )				
26.3	XLPE 3 1/2 Core x 25 mm2 ( for Switchyard Lighting )	Km	0.03	27,820.00	834.60
26.4	XLPE 4 Core 16 mm2 ( for Switchyard Lighting )	Km	0.03	25,680.00	770.40
26.5	XLPE 2 Core 16 mm2 ( for Switchyard Lighting )	Km	0.03	25,680.00	770.40
	Erection, Commissioning , Wiring & Testing				
27	48 V, 100 AH, maintenance free VRLA Battery (Set. 4 Nos of 12V Battery)	Set	1.00	5,350.00	5,350.00
28	48V, Float cum Boost Battery Charger (15 A float	No	1.00	5,350.00	5,350.00
	charging, 20 A boost charging)				
	Erection, Commissioning , Wiring & Testing of Substation Lighting And Fire Fighting System				-
29	Sub-Station Switchyard Lighting , Control Room	Lot	1.00	32,100.00	32,100.00
	Lighting (it includes supply of fixtures & Lamps (LED)			0=,:00:00	5_,:55:55
	with switch gear, GI Conduit etc.(120Wx 4 sets and				
	100Wx6 sets out side the control room, 20 Watt CFL				
	tube-10 sets inside control room .Control Room wiring				
	to be done with Copper wires as per the requirement (Lighting fixtures are to be fixed rigidly on the Column				
	at a suitable height with GI tubular pole so that the				
	required lux as per the technical specification is				
	maintained).				
30	1.5 Ton capacity Split Air Conditioning units with	No	4.00	1,498.00	5,992.00
	Remote control facility: Including supply of split Air				
	conditioner 5 Star rated, voltage stabiliser, control boxes etc. for completing the A.C scheme. (As per				
	specification) for control room.				
31	1400 mm sweep 250Volt A/C Celling Fan	No	5.00	107.00	535.00
32	300 mm sweep 70W A/C Exhaust Fan ( for Battery	No	4.00	107.00	428.00
	room and Toilet )				
33	Erection, Commissioning of Fire Fighting System (por	table and	l wheel mo	unted sets for o	control room)
33.1	Foam type- 5 Ltrs	No	2.00	53.50	107.00
33.2	CO <sub>2</sub> - 4.5 Kgs	No	2.00	53.50	107.00
33.3			2.00	53.50	107.00
33.3	Dry powder 4.5 Kg  Fire Bucket with Stand (4nos. in each Stand)	No No	4.00	107.00	428.00
33.4	Erection, Commissioning , Wiring &	1			420.00
34	AC System	i coung			_
54	AO Oystelli		l		-

34.1	ACDB (as per specification)	Lot	0.00	4,280.00	-
34.2	Main Lighting Distribution Board (as per specification)	Lot	1.00	2,140.00	2,140.00
34.3	Indoor Lighting Distribution Board as per specification	Lot	1.00	2,140.00	2,140.00
34.4	Receptable Panel near Power Transformer	No	1.00	1,605.00	1,605.00
35	DC System				-
35.1	48 V DC Distribution Board as per specification .	No	1.00	2,140.00	2,140.00
36	Erection, Commissioning of Water Cooler with water	No	1.00	802.50	802.50
	Purifier System				
37	Commissioning & Testing of Maintenance Testing	Lot	1.00	2,140.00	2,140.00
	Equipment				
38	Commissioning Tools and Plants (T&P's) Requirement	Lot	1.00	535.00	535.00
39	Commissioning Office Furniture	Lot	1.00	1,070.00	1,070.00
	Laying of Materials for Installation of Power				-
	Transformer on Plinth (as per Drawing)				
40	90 lb Rail 5.4 mts ( 2.7x2) 44.62 kg per mtr /	Nos	2.00	856.00	1,712.00
	Transformer each (Unit Wt=0.240 MT)				
41	(500x500x10) mm Gl plate 6 nos / Transformer each	Nos	6.00	74.90	449.40
40	(Unit Wt=0.013 MT)	NI.	0.00	00.05	100.50
42	(65x65x5) mm GI angle of 5.4 mts length.4.9 kg/mtr. /	Nos	2.00	80.25	160.50
43	Transformer each (Unit Wt=0.026 MT)  Construction of Cable Trench :	Mtr	71.85	23,041.98	16,55,566.26
43	2 tier 2 rows U-Type RCC Cable trench with M-20	IVIU	11.00	25,041.90	10,33,300.20
	Grade concrete: The internal width 2000 mm, depth				
	1005 mm, with 75X75X6 mm support angles fixed RCC				
	wall of 175 X 175 mm, Raft of 175mm & with ladder				
	type cable tray (45X45X5)mm two angles at both side				
	having welded flats of 25X5 mm at a gap of 150mm) for				
	Power & control Cable with RCC Trench Cover Slab as				
	per technical Specification, approved drawing and				
	Direction of Engineer Incharge. Complete work				
	including earth work in excavation in all kind of soil &				
	rock and refilling the cavity by selective soil, leveling				
	the surface around the pit with disposal of surplus				
4.4	earth.	Matria	0.64	6 400 00	4.005.06
44	Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr	Metric Ton	0.64	6,420.00	4,095.96
		1011			20 40 400 00
	Sub-Total for ERECTION, TESTING & COMMISSIONING WORKS (In Rs.)				32,18,120.80
	Total Cost in Cr.				0.32
	Total Cost III Cr.				0.32
Civil VV	$\perp$ orks with supply of all materials like Cement, MS tor rod, Br	iok Coo	oo O Fino	Naroarotoo 9 I	abour TOD ata
CIVII VV	orks with supply of all materials like Cement, MS torrou, br	ick, Coai	se a rille	Agregrates & L	Labour, rar etc.
1	Contour survey (36 mts.x 34 mts.), plotting the contour	Sqr	1,224.0	16.05	19,645.20
	on graph sheet and marking the finished ground level	Mtr	0		
1	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either			16.05 192.60	19,645.20 27,541.80
2	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.	Mtr Cum	0 143.00	192.60	27,541.80
	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside. Filling of S/S area with borrowed earth (rolling &	Mtr	0 143.00 2,320.0		
2	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside. Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking	Mtr Cum	0 143.00	192.60	27,541.80
3	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside. Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).	Mtr Cum	0 143.00 2,320.0 0	192.60 374.50	27,541.80 8,68,840.00
2	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside. Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/	Mtr Cum	0 143.00 2,320.0	192.60	27,541.80
2	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/ WATER FROM WASH BASIN AND CONTROL ROOM	Mtr Cum	0 143.00 2,320.0 0	192.60 374.50	27,541.80 8,68,840.00
3 4	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/ WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts	Mtr Cum	0 143.00 2,320.0 0	192.60 374.50	27,541.80 8,68,840.00
2 3 4 4.1	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts  Excavation in all type soil (1.35x10x0.7)	Mtr Cum Cum	0 143.00 2,320.0 0 - 9.45	192.60 374.50 - 214.00	27,541.80 8,68,840.00 - 2,022.30
2 3 4 4.1 4.2	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside. Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts  Excavation in all type soil (1.35x10x0.7)  PCC (1:3:6) (1.35x10x0.1)	Mtr Cum Cum	0 143.00 2,320.0 0 - 9.45 1.35	192.60 374.50 - 214.00 4,708.00	27,541.80 8,68,840.00 - 2,022.30 6,355.80
2 3 4 4.1 4.2 4.3	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts  Excavation in all type soil (1.35x10x0.7)  PCC (1:3:6) (1.35x10x0.1)  PCC (1:2:4) (0.3x10x0.05)	Mtr Cum Cum Cum Cum Cum	0 143.00 2,320.0 0 - 9.45 1.35 0.15	192.60 374.50 - 214.00 4,708.00 5,778.00	27,541.80 8,68,840.00 - 2,022.30 6,355.80 866.70
2 3 4 4.1 4.2	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts  Excavation in all type soil (1.35x10x0.7)  PCC (1:3:6) (1.35x10x0.1)  PCC (1:2:4) (0.3x10x0.05)  Brick Masonary with cement mortar (1:5)	Mtr Cum Cum	0 143.00 2,320.0 0 - 9.45 1.35	192.60 374.50 - 214.00 4,708.00	27,541.80 8,68,840.00 - 2,022.30 6,355.80
2 3 4 4.1 4.2 4.3 4.4	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts  Excavation in all type soil (1.35x10x0.7)  PCC (1:3:6) (1.35x10x0.1)  PCC (1:2:4) (0.3x10x0.05)  Brick Masonary with cement mortar (1:5) (0.25x10x0.925+1/2x0.15x0.93x10)+(0.25x10x0.925)	Cum Cum Cum Cum Cum Cum Cum	0 143.00 2,320.0 0 - 9.45 1.35 0.15 5.32	192.60 374.50 - 214.00 4,708.00 5,778.00 3,905.50	27,541.80 8,68,840.00 - 2,022.30 6,355.80 866.70 20,775.63
2 3 4 4.1 4.2 4.3	on graph sheet and marking the finished ground level Cutting for Levelling and disposal of excess earth either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling & compacting of filled up soil before taking measurement).  OUT DOOR DRAIN to DISCHARGE SWITCHYARD/WATER FROM WASH BASIN AND CONTROL ROOM ROOF (10 mts  Excavation in all type soil (1.35x10x0.7)  PCC (1:3:6) (1.35x10x0.1)  PCC (1:2:4) (0.3x10x0.05)  Brick Masonary with cement mortar (1:5)	Mtr Cum Cum Cum Cum Cum	0 143.00 2,320.0 0 - 9.45 1.35 0.15	192.60 374.50 - 214.00 4,708.00 5,778.00	27,541.80 8,68,840.00 - 2,022.30 6,355.80 866.70

5	Switch Yard and COMPOUND WALL as per Drawing		_	_	_
	Schedule and Specification. For PILE Foundation for				
	SBC Upto 10				
5.1	Construction of Compound-wall (with RCC column &	Run.	140.00	16,990.55	23,78,677.00
	beam with M-20 Grade concrete ) along the property	Mtr.			
	line of the sub-station as per technical specification and				
	instruction of the Engineer in Charge.(the size of the				
	bricks shall be 250mm having 1st class Fly-ash brick having compressive strength with 75kg/cm2). This also				
	includes excavation in all types of soil or rocks,				
	backfilling ,and disposal of excess earth . (Brick works				
	rested on RCC Beam and RCC Column & footings ,				
	including Cement Plastering, Cement wash, Wall				
	Painting two coats with weather coat.				
	Provision of the boundary wall Fencing with M.S Grill of				
	700 mm height fixing at the top of the wall. It includes				
	supply of all the materials & two coats of synthetic				
	enamel paintings after primer application of the fencing				
5.2	Switch Yard GI Chain Linking Fencing with 2.4 Mtr	Run.	60.00	5,000.00	3,00,000.00
	Height.	Mtr.			
6	Power Transformer Foundation / One (8 MVA)		-	-	-
6.1	Excavation in all type soil per Tfr.(3X3X1.1 mtr)	Cum	19.80	214.00	4,237.20
6.2	PCC (1:3:6 ) per Tfr.(3X3X0.075 mtr)	Cum	1.35	4,708.00	6,355.80
6.3	RCC (1:1.5:3 ) per Tfr. As per drawing	Cum	10.52	6,420.00	67,538.40
6.4	RRHG stone grouting with sand per Tfr.	Cum	9.00	1,926.00	17,334.00
7	Construction of 100kVA 33/0.4 kV station Trf. Plinth	0	-	-	-
7.1	Excavation in all type soil (2.5X2.5X0.750 mtr)	Cum	4.69	214.00	1,003.13
7.2	PCC (1:3:6) (2.5X2.5X0.075 mtr)	Cum	0.47	4,708.00	2,206.88
7.3	RCC ( 1:1.5:3 ) (1.5X1.5X0.1 mtr)	Cum	0.23	6,420.00	1,444.50
7.4	Brick Masonary work (2.5x2.5x.925+2x(.5 x1.5x2.25) (1:5)	Cum	61.19	3,905.50	2,38,967.78
7.5	Cement Plastering (1:6) (1.5x2.25x4)+(1.5x1.5) 20mm	Sq	15.75	107.00	1,685.25
	thick	Mtr			.,000.20
8	Construction of oil sump pit for Transformer (1.6 X 1.6		-	-	-
	X 2.3 )				
8.1	Excavation of Earth(2.0x2.0x2.1)	Cum	8.40	214.00	1,797.60
8.2	PCC (1:3:6) 2X2X0.1	Cum	0.40	4,708.00	1,883.20
8.3	RCC(1:1.5:3) 1.6X1.6X0.1 for Top Slab	Cum	0.26	6,420.00	1,643.52
8.4	Brick Masonary work(2x2.1+2x1.6)x0.25x2.3 (1:5)	Cum	4.26	3,905.50	16,617.90
8.5	Cement Plastering (1:6) 2.3 ( 4x2.1+ 4x1.6 )+ 1.6x1.6	Sq.mt	36.60	107.00	3,916.20
8.6	Drainage for Oil sump pit with 250 dia hume pipe	r Mtr	24.00	749.00	17,976.00
9	ROAD (5 Mtrs wide) Length of the road 20 mtrs as per	1714	-	-	-
	Drawing Schedule- OPTCL/CIVIL/11-REV-B.				
9.1	Excavation in all type soil 0.5mx1mx5m	Cum	50.00	214.00	10,700.00
9.2	Boulder Packing 0.5mx1mx5m	Cum	50.00	1,926.00	96,300.00
9.3	Water base course -I 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.4	Water base course -II 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.5	PCC ( 1:2:4 ) 0.1mx1mx5m	Cum	10.00	5,778.00	57,780.00
10	(125x70x5) mm RS GI joist 5Mtr ( STATION) as per		-	-	-
40 :	Drawing Schedule- OPTCL/CIVIL/2-REV-B.		0.00	011.55	471055
10.1	Excavation with back filling L 1m x W 1 x D 2	Cum	8.00	214.00	1,712.00
10.2	PCC (1:3:6)	Cum	0.40	4,708.00	1,883.20
10.3	RCC (1:1.5:3)	Cum	12.00	6,420.00	77,040.00
11	Baffle Wall	0	- 4.50	-	-
11.1	Excavation with back filling 4.2mx0.75mx0.5m	Cum	1.58	214.00	337.05
11.2	PCC 1:3:6 4.2mx0.75mx0.1m	Cum	0.32	4,708.00	1,483.02
11.3	RCC 1:1.5:3 0.75x3.8x0.2+0.5x3.4x0.2+2.5x3x0.15	Cum	5.80	6,420.00	37,203.90

12	PCC (1:4:8) With cement For S/S area(75 mm) per Sq. mts.( (8x16x0.075)	Cum	9.60	4,066.00	39,033.60
13	Metal Spreading 100 mm. per Sq. mts. Area of spreading.	Cum	12.80	1,605.00	20,544.00
	Switchgear Cum Control Room (22x10Mts) (column &		-	-	-
	beam based) (as per specification & Inclusive of doors,				
	windows, collapsible gate, PHD fittings, electrification,				
	inner cable trench, Two nos main doors with concrete				
	pillars, beams) etc. as per Technical specification in				
4.4	Civil section. Layout Drawing				
14	Switchgear Cum Control Room For Pile foundation in		-	-	-
14.1	FLOOD AREA (with SBC upto 10)  Boring and casting 300 mm dia single under reamed	Nos	252.00	6,420.00	16 17 940 00
14.1	pile of 5.00 m. long with R.C.C. M-20 using 20 mm	INOS	252.00	0,420.00	16,17,840.00
	down graded chips with cost of all materials, labours,				
	T&P etc. & all other machinaries required for the work				
	etc. Complete in all respect as per latest specification &				
	direction of the Engineer in charge.				
14.2	Earth work in excavation of foundation trenches in all	Cum	470.80	235.40	1,10,826.32
	kinds of soil including moorum, stony earth and earth				
	mixed with boulders except sheet rock and boulders				
	requiring blasting including dressing of sides and				
	leveling the bed up to the required depth and				
	depositing the excavated materials away from the work				
	site within initial leads and lifts, including shoring, shuttering & dewatering (if required) with cost of				
	labour,cess, hire & running charges of water pumps				
	sundries, T & P & all other machinaries required for				
	the work etc. Complete in all respect as per latest				
	specification & direction of the Engineer in charge.				
14.3	Supplying and filling in foundation and plinth with good	Cum	791.60	770.40	6,09,848.64
	river sand well watered and rammed in layers not				
	exceeding 23 cm in each layer including all leads and				
	lifts, cost of all materials, labour, cess, sundries, T&P				
	required for the work etc. Complete in all respect as per latest specification & direction of the Engineer in				
	charge.				
14.4	Providing and lying plain cement concrete of proportion	Cum	156.80	4,708.00	7,38,214.40
	(1:3:6) in foundation and plinths using approved quality				
	cement , 40 mm. size black hard crusher broken				
	granite stone metal and screened, washed sharp sand				
	for mortar of approved quality and from approved				
	quarry, including hoisting, lowering, laying concrete,				
	ramming, watering and curing etc. complete to required levels laid in layers not exceeding 15 cm. thick in each				
	layer including cost, conveyance, loading, unloading,				
	royalties and taxes of all materials and cost of all				
	labours, cess, sundries, T&P & all other machinaries				
	required for the work including shoring, shuttering and				
	dewatering if required including hire & running charges				
	of water pump etc. Complete in all respect as per latest				
	specification & direction of the Engineer in charge.				
14.5	K.B. Brick masonary in cement mortar (1:6) using the		-	-	-
	bricks of size 10" x 5" x 3" of crushing strength not less				
	than 100 kg / centimeter square with dimensional tolerance 3% after immersing the bricks for 6 hours in				
	water before use including hoisting to required height				
	placing in position scaffolding, splays cutting, circular				
	moulding, corbelling, chamfering and similar such type				
	of work watering and curing etc. including cost,				
	conveyance, royalty, cess, and taxes of all other				
	materials machinaries scaffolding all labour T&P				
	articles required for the work etc. complete in all				
	respect as per the latest specification confirming to	I			

	relevant IS Specification and direction of the Engineer-				
	in-charge.				
14.5.1	In Foundation and Plinth	Cum	108.00	4,494.00	4,85,352.00
				· ·	
14.5.2	Ground Floor	Cum	222.80	4,494.00	10,01,263.20
14.6	RCC work M-20 grade as per approved designs and		-	-	-
	drawings having a minimum compressive strength (in				
	work test) 200 Kg./ Sqcm.in 15 cm. cubes at 28 days after mixing and test conducted in accordance with				
	I.S.456 and I.S 516 using 12 mm. to 20 mm. size black				
	hard crusher broken granite stone chips, screened and				
	washed sharp sand for mortar of approved quality from				
	approved quarry, to be mixed in concrete mixture with				
	approved quality cement including hoisting, lowering,				
	laying and compacting concrete by using vibrators,				
	watering and curing for 28 days, centering and				
	shuttering and finishing the exposed surface smooth				
	providing grooves or beads wherever necessary				
	including cost, conveyance, loading, unloading,				
	royalties and taxes and cess of all materials, cost of all				
	labours, sundries, T&P & all other machinaries required				
	for the work but excluding cost and conveyance of M.S.				
	or Tor steel and binding wires etc. Complete in all				
	respect as per latest specification & direction of the				
44.0.4	Engineer in charge.	0	200.00	0.400.00	40.00.000.00
14.6.1	Pile cap & Grade beam	Cum	300.00	6,420.00	19,26,000.00
14.6.2	R.C.C. wall	Cum	70.80	6,420.00	4,54,536.00
14.6.3	Plinth Beam	Cum	24.40	6,420.00	1,56,648.00
14.6.4	Column & Beam- Ground Floor	Cum	144.00	6,420.00	9,24,480.00
14.6.5	Lintel-Ground Floor	Cum	8.80	6,420.00	56,496.00
14.6.6	65mm thick R.C.C.Chajja- Ground Floor	Sqm	88.40	588.50	52,023.40
14.6.7	Roof slab - Ground Floor	Cum	147.20	6,420.00	9,45,024.00
14.6.8	Staircase- Ground Floor	Cum	23.60	6,420.00	1,51,512.00
14.7	Cutting, Straightening coiled or bent up M.S. rods or		-	-	-
	Tor steel welding or jointing if necessary, bending,				
	binding, tying the grills as required for R.C.C. works,				
	providing fan hooks where necessary and hoisting,				
	lowering and placing in proper position according to				
	approved designs and drawings including cost,				
	conveyance, loading, unloading, taxes of M.S. rods or				
	Tor steel and binding wires of 18 to 20 gauge required				
	for the work and cost of all labour, sundries, T&P and				
	scaffolding complete in all respect as directed by the				
	Engineer in charge (payment will be made according to				
	the actual weight of M.S. rod / Tor steel consumed in the work and no separate payment will be made				
	towards weight of binding wires which is to be borne by				
	the contractor at his own cost etc. complete in all				
14.7.1	the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.	MT	72.00	58.850.00	42.37.200.00
14.7.1	the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.  Ground Floor	MT Sam	72.00 416.00	58,850.00 963.00	42,37,200.00
14.7.1	the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.  Ground Floor  Supplying, fitting and fixing vitrified tile 60x60cm plain	MT Sqm	72.00 416.00	58,850.00 963.00	42,37,200.00 4,00,608.00
	the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.  Ground Floor  Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in floors of approved make with				
	the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.  Ground Floor  Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in floors of approved make with application of polymer modified cement based water				
	the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.  Ground Floor  Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in floors of approved make with				
	the contractor at his own cost etc. complete in all respect as per direction of the Engineer-in-charge.  Ground Floor  Supplying, fitting and fixing vitrified tile 60x60cm plain Ivory 8 to 10 mm thick in floors of approved make with application of polymer modified cement based water resistant adhesive bed of required thickness of 10mm				

	nor the latest angelfication, and direction of the				
	per the latest specification and direction of the				
	Engineer-in-charge.				
14.9	Supplying, fitting and fixing vitrified tile 60x60cm plain	Sqm	36.80	963.00	35,438.40
	Ivory 8 to 10 mm thick in dado of approved make with	'			,
	application of polymer modified cement based water				
	resistant adhesive bed of required thickness of 10mm				
	and filling joints with epoxy grout of approved quality				
	including cost of all materials, takes labour T&P etc.				
	required for the work etc. complete in all respect as				
	per the latest specification and direction of the				
	Engineer-in-charge.				
14.10	Supplying, fitting and fixing Floor tile of size 40cmx40	Sqm	20.40	856.00	17,462.40
	cm / 30cmx30cm in floors on 25mm thick bed of				
	cement mortar 1:1 (1cement : 1sand) jointed with neat				
	cement slury mixed with pigment to match the shades				
	of the tiles of required thickness of approved quality				
	including cost of all materials, takes labour T&P etc.				
	required for the work.etc complete in all respect as per				
	the latest specification and direction of the Engineer-				
	in-charge.				
14.11	Providing fitting fixing Glazed /Ceramic tiles of size	Sqm	107.20	802.50	86,028.00
	20cmX30cm & 6.5 to 6.7mm thick of size up to				
	0.10sqm in wall dados skirting and on 12mm thick				
	cement plaster (1:3) jointed with neat cement slurry				
	mixed with pigments to match the shade of the tiles				
	including rubbing and polishing complete including cost				
	of precast tiles etc. complete in all respect as per the				
	latest specification and direction of the Engineer-in-				
	charge.				
14.1	Supplying, fitting and fixing 5"x2½" size Dressed	Cum	1.00	80,250.00	80,250.00
	seasoned Sal wood chaukaths including cost,				
	conveyance royality taxes of all materials. labour, all				
	other machinaries, T & P articles required for the work				
	complete in all respect as per the direction of the				
4440	Engineer-in-Charge.	0	F7.00	4.005.00	00.440.00
14.13	Supplying, fitting and fixing 30mm/32mm flush door	Sqm	57.60	1,605.00	92,448.00
	shutter (Non-Sal hard wood frame fixed with 4mm				
	DIVID also as both sides of frames including sect				
	BWR ply on both sides of frame.including cost				
	conveyance royality taxes of all materials. labour, all				
	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work				
	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the				
14 1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.	Sam	124 00	2 354 00	2 91 896 00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the	Sqm	124.00	2,354.00	2,91,896.00
14.1	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING	Sqm	124.00	2,354.00	2,91,896.00
	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW	·			
14.15	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW	Sqm	124.00	2,354.00 481.50	2,91,896.00 19,645.20
	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW  Providing and fixing of FRP door frame including cost conveyance royality taxes of all materials. labour, all	·			
	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW  Providing and fixing of FRP door frame including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work	·			
	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW  Providing and fixing of FRP door frame including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the latest specification	·			
	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW  Providing and fixing of FRP door frame including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the latest specification and direction of the Engineer-in-Charge.	·			
14.15	conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge.  Providing and fixing of sliding windows of approved make to be febricated from roll formed sections made of pre-painted steel (base steel as per IS-513 of 0.6 mm thick "D" quality, galvanized as per IS-277 with zinc of 120 Gm/ Sqm.) including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the direction of the Engineer-in-Charge. DOUBLE SHUTTER SLIDING WINDOW  Providing and fixing of FRP door frame including cost conveyance royality taxes of all materials. labour, all other machinaries, T & P articles required for the work complete in all respect as per the latest specification	Mtr	40.80	481.50	19,645.20

	complete in all respect as per the latest specification				
	and direction of the Engineer-in-Charge.				
14.17	Providing 16mm. thick cement plaster with cement		-	-	-
	mortar of mix (1:6) with approved quality cement with				
	screened and washed sharp sand for mortar and				
	finished smooth to the surface over brick work after				
	racking out the joints including watering and curing,				
	rounding of corners etc. complete with cost,				
	conveyance, loading, unloading, royalties, cess, and				
	taxes of all materials and cost of all labours, sundries,				
	T&P and scaffolding required for the work etc.				
	complete in all respect as desired by the Engineer in				
44.47	charge	0	0.400.0	400.40	2.00.040.04
14.17.	Ground Floor	Sqm	2,499.6	128.40	3,20,948.64
1			0		
14.18	Providing 12mm. thick cement plaster with cement		-	-	-
	mortar of mix (1:6) with approved quality cement and				
	screened and washed sharp sand for mortar and				
	finished smooth to the surface over brick work after				
	racking out the joints including watering and curing,				
	rounding of corners etc. complete with cost,				
	conveyance, loading, unloading, royalties and taxes,				
	cess, of all materials and cost of all labours, sundries,				
	T&P and scaffolding required for the work etc.				
	complete in all respect as desired by the Engineer in				
	charger in charge				
14.18.	Ground Floor	Sqm	1,588.4	107.00	1,69,958.80
14.10.	Giodila Flooi	Sqiii		107.00	1,09,930.00
	Durani dia na 40 mana attai ata a ana antan da atan anita a ana ant		0		
14.19	Providing 12mm. thick cement plaster with cement		-	-	-
	mortar of mix (1:3) with approved quality cement with				
	screened and washed sharp sand for mortar and				
	finished smooth to the surface in ceiling and R.C.C.				
	surface after chipping the surface in all floors including				
	watering and curing, rounding of corners etc. complete				
	with cost, conveyance, loading, unloading, royalties,				
	cess, and taxes of all materials and cost of all labours,				
	sundries, T&P and scaffolding required for the work				
	etc. complete in all respect as desired by the Engineer				
	in charge.				
14.19.					
1 1.10.	Ground Floor	Sqm	1,603.6	107.00	1,71,585.20
14.13.	Ground Floor	Sqm	1,603.6 0	107.00	1,71,585.20
1		Sqm		107.00	1,71,585.20
	Providing and finishing the wall surface with two coat of	Sqm		107.00	1,71,585.20
1	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost,	Sqm		107.00	1,71,585.20
1	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles,	Sqm		107.00	1,71,585.20
1	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work	Sqm		107.00	1,71,585.20
1	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S.	Sqm		107.00	1,71,585.20
1 14.20	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge	·	-	-	-
14.20	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S.	Sqm	5,655.2	107.00	1,71,585.20
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor	Sqm	5,655.2	6.42	36,306.38
14.20	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of	·	5,655.2 0 3,166.8	-	-
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5	Sqm	5,655.2	6.42	36,306.38
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design	Sqm	5,655.2 0 3,166.8	6.42	36,306.38
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all	Sqm	5,655.2 0 3,166.8	6.42	36,306.38
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for	Sqm	5,655.2 0 3,166.8	6.42	36,306.38
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to	Sqm	5,655.2 0 3,166.8	6.42	36,306.38
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for	Sqm	5,655.2 0 3,166.8	6.42	36,306.38
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to	Sqm	5,655.2 0 3,166.8	6.42	36,306.38
1 14.20 14.20.	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in Charge.	Sqm Kg	5,655.2 0 3,166.8	6.42	36,306.38 2,54,135.70
1 14.20 14.20. 1 14.21	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineerin Charge.  Supplying fitting and fixing of M.S grill made out of M.S	Sqm	5,655.2 0 3,166.8	6.42	36,306.38
1 14.20 14.20. 1 14.21	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineerin Charge.  Supplying fitting and fixing of M.S grill made out of M.S M.S.Flat 19 mm x 5 mm size, as per design provided	Sqm Kg	5,655.2 0 3,166.8 0	6.42	36,306.38 2,54,135.70
1 14.20 14.20. 1 14.21	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineerin Charge.  Supplying fitting and fixing of M.S grill made out of M.S M.S.Flat 19 mm x 5 mm size, as per design provided including cost, conveyance, royalities of all materials,	Sqm Kg	5,655.2 0 3,166.8 0	6.42	36,306.38 2,54,135.70
1 14.20 14.20. 1 14.21	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S.  Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineer-in Charge.  Supplying fitting and fixing of M.S grill made out of M.S M.S.Flat 19 mm x 5 mm size, as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc.	Sqm Kg	5,655.2 0 3,166.8 0	6.42	36,306.38 2,54,135.70
1 14.20 14.20. 1 14.21	Providing and finishing the wall surface with two coat of cement wash including scaffolding, all labour, cost, conveyance, cess, taxes of all materials, T&P articles, brushes all other machineries required for the work complete in all respect confirming to relevant I.S. Specification and direction of the Engineer-in-Charge Ground Floor  Supplying fitting and fixing of M.S shutter made out of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm x 5 mm size, M.S. guide, top hood cover etc. as per design provided including cost, conveyance, royalities of all materials, cost of all labour, T&P articles required for the work etc. complete in all respect confirming to relevant I.S specification and direction of the Engineerin Charge.  Supplying fitting and fixing of M.S grill made out of M.S M.S.Flat 19 mm x 5 mm size, as per design provided including cost, conveyance, royalities of all materials,	Sqm Kg	5,655.2 0 3,166.8 0	6.42	36,306.38 2,54,135.70

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14.23	Wall painting 2 coats with acrylic distemper over one		-	-	-
	coat of wall primer of approved shade on new work to				
	give an even shade in all floors at all height including				
	scafolding cost of brushes including cost of paint cost				
	conveyance royality of all materials labour,T&P articles				
	required for the work etc. complete in all respect as				
	per the latest specification and direction of the				
	Engineer-in-charge.				
14.23.	Ground Floor	Sqm	3,725.2	10.70	39,859.64
1 1		'	0		, , , , , , , ,
14.24	Painting two coats with weather coat on exterior walls		_	-	-
	surface of approved quality and approved shade over				
	a coat of primer in all floors at all height of approved				
	quality and shade including cleaning and sand				
	papering the surface and making the surface smooth				
	with cost, conveyance, loading, unloading, and taxes of				
	all materials, cost of all labour, sundries, T&P,				
	scaffolding etc. required for the work complete in all				
44.04	respect as directed by Engineer-in-charge	0	4.000.0	40.05	00.070.50
14.24.	Ground Floor	Sqm	1,930.0	16.05	30,976.50
1	Del Control of the Co	0	0	00.40	40.400.04
14.25	Painting two Coats with approved colour synthetic	Sqm	418.40	32.10	13,430.64
	enamel paint on wood / iron work in all floors at all				
	height including scafolding cost conveyance royality of				
	all materials labour,T&P articles required for the work				
	etc. complete in all respect as per the latest				
	specification and direction of the Engineer-in-charge.				
14.26	Providing cement concrete (1:1.5:3) using 12mm size	Cum	123.60	6,420.00	7,93,512.00
	black hard crusher broken granite stone chips,				
	screened & washed sharp sand for mortar of approved				
	quality and from approved quarry, including hoisting,				
	lowering, laying concrete, ramming, watering and				
	curing etc. complete to required levels laid in layers not				
	exceeding 15 cm. thick in each layer including cost,				
	conveyance, loading, unloading, royalties and taxes of				
	all materials and cost of all labours, cess, sundries,				
	T&P & all other machinaries required for the work				
	including shoring, shuttering and dewatering if required				
	including hire & running charges of water pump etc.				
	Complete in all respect as per latest specification &				
	direction of the Engineer in charge.				
14.27	Supplying, fitting and fixing of stainless steel of 304	Mtr	68.00	1,605.00	1,09,140.00
17.21	grade in hand railing using 50mm dia of 2mm thick	IVILI	00.00	1,000.00	1,00,140.00
	circular pipe with Balustrade of size 32mm x 32mm x				
	2mm @ 0.90mtr. C/C and stainless square pipe				
	bracing of size 32mm x 32mm x 2mm in 3 rows in stair				
	case as per approved design and specification, buffing,				
	polishing etc. with cost, conveyance, taxes of all				
	materials, labour, T&P etc. required for the complete in				
14.00	all respect.	Nos	120.00	160 50	10.260.00
14.28	Providing and fixing M.S. fan clamp type-I of 16mm dia	Nos	120.00	160.50	19,260.00
	M.S. bar bent to shape with hooked ends in R.C.C.				
	slab during laying including painting the exposed				
	portion of loop as per standard design complete as				
44.00	directed by the Engineer-in-charge.		40.40	407.00	F 470 00
14.29	Providing 12mm. thick cement plaster in cement mortar	Sqm	48.40	107.00	5,178.80
	of mix (1:4) with neat cement punning with approved				
	quality cement with screened and washed sharp sand				
	for mortar and finished smooth to the surface in ceiling				
	and R.C.C. surface after chipping the surface in septic				
	tank including watering and curing, rounding of corners				
		1	i		I
	etc. complete with cost, conveyance, loading,				
	etc. complete with cost, conveyance, loading, unloading, royalties, cess, and taxes of all materials and cost of all labours, sundries, T&P and scaffolding				

					T
	required for the work etc. complete in all respect as				
	desired by the Engineer in charge.				
14.30	Providing neat cement punning with approved quality	Sqm	958.00	16.05	15,375.90
	cement finished smooth to the surface etc. complete				
	with cost, conveyance, loading, unloading, royalties,				
	cess, and taxes of all materials and cost of all labours,				
	sundries, T&P and scaffolding required for the work				
	etc. complete in all respect as desired by the Engineer				
14.31	in charge.	Cam	<i>EEO</i> 00	225.40	1 20 650 22
14.51	40 mm thick grading concrete with cement concrete (1:2:4) using 12mm and down graded b.h.g. chips to	Sqm	550.80	235.40	1,29,658.32
	the roof surface with water proofing cement compound				
	finished smooth over RCC slab including hoisting and				
	laying in position watering and curing for required				
	number of days finished to smooth surface and desired				
	slope including cost conveyance, royalty and taxes of				
	all materials, labour T&P articles required for the work				
	etc. complete in all respect confirming to relevant I.S				
	specification and direction of the Engineer-in-Charge.				
15	P.H. Fitting (Internal & External) to Switch-Gear -Cum -		-	-	-
	Control Room				
15.1	Supplying all materials , labours , taxes and tools and		-	-	-
	plants for fitting and fixing of PVC pipes of following				
	nominal bore conforming to ASTM-D-1785 (Schedule-				
	80) including fittings and laying as per the site requirement etc., all complete including testing as per				
	the direction and specification of Engineer-in-charge				
15.1.1	15 mm dia	Mtr	15.00	107.00	1,605.00
15.1.2	20 mm dia	Mtr	20.00	133.75	2,675.00
15.1.3	25 mm dia	Mtr	15.00	187.25	2,808.75
15.1.4	40 mm dia	Mtr	20.00	214.00	4,280.00
15.1.5	50 mm dia	Mtr	20.00	267.50	5,350.00
15.2	Supplying all material, labour , T&P & fitting ,fixing the		-	_	_
	following different water supply fittings of approved				
	make with including supply of all necessary jointing				
	materials etc. all complete as directed by the Engineer-				
	materials etc. all complete as directed by the Engineer-in-charge.				
15.2.1	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve	Nos	2.00	695.50	1,391.00
15.2.1 15.2.2	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve	Nos Nos	2.00 2.00	695.50 1,070.00	1,391.00 2,140.00
	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve				
15.2.2	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve	Nos	2.00	1,070.00	2,140.00
15.2.2 15.2.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve	Nos Nos	2.00 2.00	1,070.00 695.50	2,140.00 1,391.00
15.2.2 15.2.3 15.2.4	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending	Nos Nos	2.00 2.00	1,070.00 695.50	2,140.00 1,391.00
15.2.2 15.2.3 15.2.4	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials	Nos Nos	2.00 2.00	1,070.00 695.50	2,140.00 1,391.00
15.2.2 15.2.3 15.2.4	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer-	Nos Nos	2.00 2.00	1,070.00 695.50	2,140.00 1,391.00
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge	Nos Nos Nos	2.00 2.00 2.00	1,070.00 695.50 1,070.00	2,140.00 1,391.00 2,140.00
15.2.2 15.2.3 15.2.4	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to	Nos Nos	2.00 2.00	1,070.00 695.50	2,140.00 1,391.00
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall	Nos Nos Nos	2.00 2.00 2.00 -	1,070.00 695.50 1,070.00 - 133.75	2,140.00 1,391.00 2,140.00 - 1,337.50
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall  Supplying all labour T&P and materials and making	Nos Nos Nos	2.00 2.00 2.00	1,070.00 695.50 1,070.00	2,140.00 1,391.00 2,140.00
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall  Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the	Nos Nos Nos	2.00 2.00 2.00 -	1,070.00 695.50 1,070.00 - 133.75	2,140.00 1,391.00 2,140.00 - 1,337.50
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall  Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the required depth and width for fixing pipes & fittings of	Nos Nos Nos	2.00 2.00 2.00 -	1,070.00 695.50 1,070.00 - 133.75	2,140.00 1,391.00 2,140.00 - 1,337.50
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall  Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the required depth and width for fixing pipes & fittings of sizes 15mm dia to 25mm dia in the grooves, testing	Nos Nos Nos	2.00 2.00 2.00 -	1,070.00 695.50 1,070.00 - 133.75	2,140.00 1,391.00 2,140.00 - 1,337.50
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall  Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the required depth and width for fixing pipes & fittings of sizes 15mm dia to 25mm dia in the grooves, testing the pipe line against leakage, and filling the grooves	Nos Nos Nos	2.00 2.00 2.00 -	1,070.00 695.50 1,070.00 - 133.75	2,140.00 1,391.00 2,140.00 - 1,337.50
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall  Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the required depth and width for fixing pipes & fittings of sizes 15mm dia to 25mm dia in the grooves, testing the pipe line against leakage, and filling the grooves with cement mortar(1:4) to bring the surface to original	Nos Nos Nos	2.00 2.00 2.00 -	1,070.00 695.50 1,070.00 - 133.75	2,140.00 1,391.00 2,140.00 - 1,337.50
15.2.2 15.2.3 15.2.4 15.3	materials etc. all complete as directed by the Engineer- in-charge.  25 mm dia Ball valve  50 mm dia Ball valve  25 mm dia F.W. valve  50 mm dia F.W. valve  Supplying all labour T&P and cutting holes in brick masonry wall for taking pipes through and mending good the damages with supply of all required materials etc. complete as per the direction of the Engineer- incharge  For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall  Supplying all labour T&P and materials and making grooves in brick walls vertically and horizontally to the required depth and width for fixing pipes & fittings of sizes 15mm dia to 25mm dia in the grooves, testing the pipe line against leakage, and filling the grooves	Nos Nos Nos	2.00 2.00 2.00 -	1,070.00 695.50 1,070.00 - 133.75	2,140.00 1,391.00 2,140.00 - 1,337.50

15.5	Supplying all materials , labour T&P and fittings of approved quality required for fixing of NP or CP Brass or GM fixtures of following sizes and specification with		-	-	-
	leak proof threaded joints tightened with spun yarn and white zinc or any tightened with spun yarn and white zinc or any including testing and rectification of detects, after testing complete as per direction of Engineer-in-				
	charge.				
15.5.1	Bibcock	Nos	5.00	160.50	802.50
15.5.2	Long Body Bibcock	Nos	2.00	321.00	642.00
15.5.3	Pillar cock	Nos	2.00	428.00	856.00
15.5.4	Angular stop cock	Nos	4.00	588.50	2,354.00
15.5.5	Soap Holder	Nos	2.00	80.25	160.50
15.5.6	Towel ring	Nos	2.00	160.50	321.00
15.5.7	Toilet paper holder	Nos	2.00	80.25	160.50
15.5.8	Glass self 22"	Nos	2.00	321.00	642.00
15.5.9	Towel rail 24"	Nos	2.00	374.50	749.00
15.5.1 0	Shower arm 190mm long light	Nos	2.00	749.00	1,498.00
15.5.1 1	CP Grating	Nos	2.00	80.25	160.50
15.5.1 2	Concealed stop cock	Nos	4.00	535.00	2,140.00
15.5.1 3	Connecting Pipe	Nos	2.00	160.50	321.00
15.5.1 4	Basin with pedestal	Nos	2.00	3,210.00	6,420.00
15.5.1 5	Providing and fixing vitreous China water closet (European with seat and lid), of Cerra Cascade "CASINO", CP brass buffers, 10 liter cascade dual flushing cistern hinges & rubber with fittings and brackets, 40 mm flush bend of CP brass, 20 mm overflow pipe with specials & mosquito proof coupling	Nos	1.00	16,050.00	16,050.00
15.5.1	complete, painting on brackets and making good the walls and floors wherever required.  Providing and fixing vitreous China water closet Indian	Nos	1.00	4,494.00	4,494.00
6	type of Orissa pattern size (580mmx440mm) of approved quality with PVC Slimeline (Parryware make) 12.5 ltr capacity low level cistrn with hinges & rubber with fittings and brackets, 40 mm flush bend of CP brass, 20 mm overflow pipe with specials & mosquito proof coupling complete, painting on brackets and making good the walls and floors wherever required.				
15.5.1 7	Providing and fixing vitreous China water urinal of Cerra/Parry ware with fittings and brackets, flush bend of CP brass, and making good the walls and floors wherever required.	Nos	2.00	2,675.00	5,350.00
15.6	Supply of all materials, labour, T&P, fitting and fixing in all floors fixed type bevelled plate glass mirror of size 600mm x 450mm x 5.5mm thick best Indian make ,supply of 13mm thick asbestos backing and CP Brass screw including cost conveyance, taxes of all materials complete as per specification and direction of Engineer-in-charge(Make-Modi Guard/Belgium)	Nos	2.00	802.50	1,605.00
15.7	Supply of all materials, joining materials, labour and T&P and laying UPVC SWR PIPES of Standard make with ISI Mark duly approved by the Engineer-in-charge including jointing, earthwork in excavation of trenches in all kind of soil to the required depth and refilling of pipe line trenches in 0.3048 mtrs layers with 300 mm deep sand around cushion duly watered and rammed or fixing to walls, floors with supply of necessary clamps, nails and cutting the pipe to length with		-	-	-

8, jointing materials etc., complete as per standard specification and direction of Engineer-in-charge.  15.7.1 100mm dia (ISI Marked) Mtr 10.00 535.00 5 15.7.2 150mm dia (ISI Marked) Mtr 25.00 642.00 11 15.7.2 150mm dia (ISI Marked) Mtr 25.00 642.00 11 15.8 Supplying all materials, labour T&P for jointing of the UPVC SWR SEWER pipe fittings of standard make duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.  15.8.1 100mm dia "P" Trap Nos 2.00 428.00 15.8.2 100mm dia Bend Plain Nos 3.00 181.90 15.8.2 100mm dia Bend Plain Nos 3.00 181.90 15.8.4 100 mm dia Single Junction with Door Nos 3.00 374.50 15.8.5 100 mm dia double Junction with Door Nos 3.00 428.00 15.8.6 100mm dia Terminal Guard Nos 2.00 214.00 15.8.7 100mm dia. Floor trap Nos 3.00 267.50 15.9 Supplying all materials, labor T&P for jointing of the UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.  15.9.1 100mm Pipe Nos 10.00 321.00 3 15.10 Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.  15.10 15.10 100mm Vent Cowl No 2.00 107.00 2 15.11 Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B. Bricks work having crushing strength 75 Kg to 99 Kg/cm² in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H. cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P. 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cement punning inside, Emembra Da					· · · · · · · · · · · · · · · · · · ·	
15.7.1   100mm dia (ISI Marked)   Mtr   10.00   535.00   535.00   15.7.2   150mm dia (ISI Marked)   Mtr   25.00   642.00   11.5.7.2   150mm dia (ISI Marked)   Mtr   25.00   642.00   11.5.8   Supplying all materials, labour T&P for jointing of the UPVC SWR SEWER pipe littings of standard make duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.   15.8.1   100mm dia PT Trap   Nos   2.00   428.00   15.8.2   100mm dia Bend Plain   Nos   3.00   181.90   15.8.3   100mm Door Bend   Nos   3.00   160.50   15.8.4   110mm dia Single Junction with Door   Nos   3.00   374.50   1   15.8.5   100 mm dia Gamel Junction with Door   Nos   3.00   2428.00   1   15.8.5   100 mm dia Final Guard   Nos   2.00   214.00   15.8.7   100mm dia Fernial Guard   Nos   2.00   244.00   1   15.8.7   100mm dia Final Guard   Nos   2.00   247.00   15.8.7   100mm dia Final Guard   Nos   2.00   267.50   15.9   Supplying all materials, labor T&P for jointing of the UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.   15.9.1   100mm Pipe   Nos   10.00   321.	W	vastage including supply of all Clamps, Clips, Endcaps				
15.7.1						
15.7.2		specification and direction of Engineer-in-charge.				
15.7.2						
15.7.2						
15.7.2						
15.8   Supplying all materials, labour T&P for jointing of the UPVC SWR SEWER pipe fittings of standard make duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.	5.7.1	100mm dia ( ISI Marked )	Mtr	10.00	535.00	5,350.00
15.8   Supplying all materials, labour T&P for jointing of the UPVC SWR SEWER pipe fittings of standard make duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.     15.8.1   100mm dia "P" Trap	5.7.2	,	Mtr	25.00	642.00	16,050.00
UPVC SWR SEWER pipe fittings of standard make duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.	5.8	Supplying all materials, labour T&P for jointing of the		_	-	-
duly approved by the Engineer-in-charge with joining material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.  15.8.1 100mm dia "P" Trap Nos 2.00 428.00 158.2 100mm dia Bend Plain Nos 3.00 181.90 158.3 100mm dia Single Junction with Door Nos 3.00 374.50 1 158.4 100 mm dia Single Junction with Door Nos 3.00 374.50 1 158.5 100 mm dia double Junction with Door Nos 3.00 428.00 1 158.6 100mm dia Terminal Guard Nos 2.00 214.00 158.7 100mm dia. Floor trap Nos 3.00 267.50 159. Supplying all materials, labor T&P for jointing of the UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.  15.9.1 100mm Pipe Nos 10.00 321.00 3 15.10 Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.  15.10. 100mm Vent Cowl 1 15.10. 100mm Vent Cowl 2 2 15.11 Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. rof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification in cluding cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.						
material etc. suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.						
15.8.1   100mm dia "P" Trap	r	material etc. suitably required for fixing on 100mm dia				
15.8.1		soil waste pipe complete with requisite testing as				
15.8.2		directed by Engineer-in-charge.				
15.8.3	.8.1	100mm dia "P" Trap	Nos	2.00	428.00	856.00
15.8.4   100 mm dia Single Junction with Door   Nos   3.00   374.50   1	.8.2	100mm dia Bend Plain	Nos	3.00	181.90	545.70
15.8.5   100 mm dia double Junction with Door   Nos   3.00   428.00   1	5.8.3	100mm Door Bend	Nos	3.00	160.50	481.50
15.8.5   100 mm dia double Junction with Door   Nos   3.00   428.00   1	.8.4	100 mm dia Single Junction with Door	Nos	3.00	374.50	1,123.50
15.8.6   100mm dia Terminal Guard   Nos   2.00   214.00     15.8.7   100mm dia. Floor trap   Nos   3.00   267.50     15.9   Supplying all materials, labor T&P for jointing of the UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.    15.9.1   100mm Pipe   Nos   10.00   321.00   321.00     15.10   Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.    15.10   100mm Pipe   Mtr   4.00   428.00   12.10     15.10   100mm Vent Cowl   No   2.00   107.00     2   15.11   Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.    15.11		-				1,284.00
15.8.7						428.00
15.9 Supplying all materials, labor T&P for jointing of the UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.  15.9.1 100mm Pipe Nos 10.00 321.00 3  15.10 Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.  15.10. 100mm Pipe Mtr 4.00 428.00 1  15.10. 100mm Vent Cowl No 2.00 107.00  2 Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm						802.50
UPVC SWR SEWER pipes & fittings of standard make duly approved by the Engineer-in-charge suitably required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.  15.9.1 100mm Pipe Nos 10.00 321.00 3  15.10 Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.  15.10. 100mm Pipe Mtr 4.00 428.00 1  15.11. Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm		•	1100	-	-	-
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required for fixing on 100mm dia soil waste pipe complete with requisite testing as directed by Engineer-in-charge.  15.9.1 100mm Pipe Nos 10.00 321.00 3  15.10 Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.  15.10. 100mm Pipe Mtr 4.00 428.00 1  15.10. 100mm Vent Cowl No 2.00 107.00  2 Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4						
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15.9.1   100mm Pipe   Nos   10.00   321.00   3   15.10   Fixing of UPVC vent pipes Including labour & T&P all complete as directed by the Engineer-in-charge.   To might be a support of the Engineer of the						
complete as directed by the Engineer-in-charge.  15.10.	5.9.1	100mm Pipe	Nos	10.00	321.00	3,210.00
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15.10. 100mm Vent Cowl No 2.00 107.00  2 15.11 Supplying all materials labour T&P and constructing inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4						
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inspection chamber C.C.(1:4:8) on bed with hard stone metal size 40mm and 250mm K.B.Bricks work having crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4		Cumplying all protogicle labour TOD and comptructions				
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crushing strength 75 Kg to 99 Kg/cm2 in cement mortar (1:4), R.C.C. roof slab with 500mm dia light pattern factory made SFRC M.H cover with frame, moulding and shaping the channel and benching with C.C. 1:2:4 with hard granite chips 12mm size, 12mm thick C.P 1:3 including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4						
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including cement punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  No 1.00 4,815.00 4						
outside the chamber, earth work in excavation in all kinds of soil and refilling the cavity around the chamber as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4						
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as per detail drawing & design and specification including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4	k	· · · · · · · · · · · · · · · · · · ·				
including cost, conveyance, taxes etc. all complete as directed by Engineer-in-charge.  15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4	"					
directed by Engineer-in-charge.	į į					
15.11. 750mmx 750mm x450mm No 1.00 4,815.00 4		• •				
·	i.11.		No	1.00	4,815.00	4,815.00
15.12   Providing and fixing 2000 litres capacity P.V.C Over	-					
	5.12			-	-	-
head (Sintex make) tank with all piping and valve						
arrangement with all labour & materials ,including cost,	a					
T&P , scaffolding etc., complete as directed by the						
Engineer-in-charge.	. 10		NI-	1.00	10 100 00	40 400 00
15.12. 2000 Ltr Capacity No 1.00 18,190.00 18		2000 Lit Capacity	INO	1.00	18,190.00	18,190.00

15.13	Supplying all material, labour, T&P and constructing	No	1.00	10,700.00	10,700.00
	manhole chamber of size as mentioned below with 250mm nominal size K.B. Brick having crushing				
	strength 75kg to 99kg /cm2 in CM 1:4 over a bed of 150mm thick C.C(1:4:8) using 40mm size HG metal,				
	plastering with 12mm thick cement mortar (1:3) on				
	internal and external surface, inside finish with neat				
	cement punning, providing & fixing step iron of				
	appropriate quality & size with 3 coats anticorrosive paint, RCC (1:1.5:3) cover slab using 20m & down size				
	graded HG chips along with factory made reinforced				
	concrete cover with frame including breaking of pipe				
	line where ever necessary and earth work in				
	excavation in all kind of soil & rock and refilling the cavity by selective soil, leveling the surface around the				
	chamber with disposal of surplus earth if any to a				
	distance of 50mt as per specification, design & drawing				
	including cost of curing and all taxes , royality , cost ,				
	conveyance etc. all complete as directed by the				
15.14	Engineer-in-charge. Supplying all material, labour, T&P and constructing	No	1.00	12,840.00	12,840.00
10.11	1.80m dia x 2.60m deep soak way pit with dry brick	. 10	1.00	12,010.00	12,010.00
	walling upto 2.00m height and 1st class K.B. Brickwork				
	in cement mortar (1:6) for the remaining 06.60m height				
	at top, 12mm thick cement plaster (1:4) inside and outside, 100mm thick gravel backing in the rear of well				
	staining, 125mm thick RCC cover slab fitted with with				
	iron lifting handles including earth work in excavation				
	in all kind of soil & rock and refilling the cavity by				
	selective soil, leveling the surface around the pit with disposal of surplus earth if any to a distance of 50mt				
	including cost of curing and all taxes , royality , cost ,				
	conveyance etc. all complete as directed by the				
16	Engineer-in-charge.	1.0	1.00	1 60 500 00	1 60 500 00
16	Watering system like 150 mm dia, 100 Mtr deep bore well (PVC pipe to be used) 1 HP submersivele pump,	LS	1.00	1,60,500.00	1,60,500.00
	switch yard water hydrant system for pouring water into				
	the earth pits, tap for garden, including PVC pipes &				
17	other accessories required etc.	No	2.00	F 250 00	10 700 00
17	Small wicket (GI) gate one in between Main Gate & Security shed & another in front of Customer Care	No.	2.00	5,350.00	10,700.00
	room of size 1.5 mtr width X 2 mtrs height single leaf				
	with locking arrangement etc. as per above.				
18	RRHG retaing wall with 1:5 cement mortar Considering		-	-	-
	0.6 mt height of retaining wall above the existing ground level per Meter as per Drawing TOTAL 74 Mtrs				
18.1	Excavation in all type of soil( 0.8 Cum / Mtr)	Cum	105.60	267.50	28,248.00
18.2	PCC (1:4:8) 200 mm thick. With cement ( 0.2 Cum /	Cum	26.40	4,280.00	1,12,992.00
18.3	Mtr) PCC (1:2:4) 50 mm thick With cement ( 0.02 Cum /	Cum	1.58	5,778.00	9,152.35
10.0	Mtr)	Odili	1.50	3,770.00	3,102.00
18.4	RRHG Cement Masonary (1:5) With cement ( 0.86	Cum	63.64	3,745.00	2,38,331.80
19	Cum / Mtr) Prefabricated RCC Foundation for RMU	Nos.	1.00	10 265 00	10,265.00
20	Design & providing Galvanised Chain Linking Fencing	Sq.	1.00	10,265.00 4,668.00	10,203.00
20	with 2 Mtr Height around RMUs, as per TPCODL specification.	mtr.		1,000.00	
	Sub-Total for CIVIL WORKS with supply of all materials				2,19,95,067.9
	like Cement, MS tor rod, Brick, Coarse & Fine				9
	Agregrates & Labour,T&P etc. (In Rs.)				2 20
_					2.20

Α	Total Cost for SUPPLY OF EQUIPMENT &	MATERIA	LS (In Cr	.)	4.18
В	Stock , Storage & Insurance @				
С	Sub - Total ( A+B )				4.18
D	Contingency @ 3 % of C	,			
E	Tools &Plants Charges @ 2% of C (NOT CONSIDERED)				-
F	Transportation @ 7.5% of C				0.31
G	Sub - Total ( C+D+E+F )				4.49
H1	Total Cost for ERECTION, TESTING & COMMISS	IONING V	VORKS	(In Cr.)	0.32
H2	Total Cost for CIVIL WORKS with supply of all materials like Cement, MS tor rod, Brick,				2.20
	Coarse & Fine Agregrates & Labour,T&P etc. (In Cr.)				
H3	Total Cost for Erection & Civil work	is (H1+H2	2)		2.52
H4	GST @ 18% of Erection & Civi	l works			
	Total Cost of Erection & Civil works in	า Cr.(H3+l	H4)		2.52
J	Total Cost (G+I)				7.02
K	Other Overhead /( including Supervision Charges) @ 6 % of J				
L	Total Estimated Capital Cost i.e. J+K				7.02
М	GST @ 18% of L				1.26
N	CESS @ 1% of L				0.07
0	Inspection Charges (As per Gov. Notification)				0.00050
Р	Total Estimate to be deposit in Cr @ L+M+N+O (In Cr.)				8.35

Part -E. Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC.

Length =4 km. (Panchamahala 11kV Feeder)

# Total DP without AB-6, DP with AB-3, 4pole-2nos

Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS	OF DP			
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	516	75	38,718.00
2	Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI)     Support channel for Isolator ( 3mtr X2) (GI)	KG	900	75	67,473.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	486	75	36,450.00
5	Pipe Earthing 40mm. GI Pipe	No.	18	1050	18,900.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	900	75	67,500.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	27	3550	95,850.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	36	75	2,700.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	54	580	31,320.00
	MATERIALS OF	4 POLE			
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	459	75	34,416.00

12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14	KG	813.96	75	61,047.00
	KGx3mtrX4) . (GI)				
40	2. Support channel for Isolator ( 3mtr X2) (GI)	I/C	E0.4	75	27 000 00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	504	75	37,800.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	6	3550	21,300.00
17	G.I. FLATS 25X3 MM for denger board and	KG	32	75	2,400.00
17	anticlimbing device	I NO	32	75	2,400.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	12	580	6,960.00
	MATERIALS OF C	UT POIN	T		
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56	K.g.	275	75.00	20,649.60
	KG/mtrX2				
	MATERIALS O	FLINE			
21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter)	No	115	25113.00	28,87,995.00
	(Each 335.06kg))				.,. ,
	· · · · · · · · · · · · · · · · · · ·				
	(1.0(1))				
22	11 KV V cross Arm (10.2 K.g. each )	No.	81	810.00	65,610.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	81	170.00	13,770.00
	,				
24	11 K.V. Pin Insulator (Polymer)	No.	243	200	48,600.00
25	11 K.V. H.W. Fitting (B & S ) 70 KN 3 Bolt	No.	114	351	40,014.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN	No.	114	1150	1,31,100.00
	(Polymer)				, ,
27	H.T. Stay set (Complete )	Set	42	1050.00	44,100.00
21	11.1. Stay Set (Complete )	Set	42	1030.00	44,100.00
28	H.T. Stay Insulator	No.	42	50.00	2,100.00
29	H.T. Stay Insulator  H.T. Stay clamp (1.95 K.g./ Pair )	Pair	42	125.00	5,250.00
30	7/10 SWG Stay Wire 15kg /stay		630	75.00	47,250.00
	, , ,	K.g. No.	89		•
31	Earthing of Support ( Coil Type )	l INO	89	166.00	14,774.00
	400 0 4440				0.70.000.00
32	100 mm2 AAAC	K.M.	12.36	55000.00	6,79,800.00
33	Red Oxide paint		12.36 115	55000.00 150.00	17,250.00
		K.M.	12.36	55000.00	
33	Red Oxide paint	K.M. Ltr	12.36 115	55000.00 150.00	17,250.00
33 34	Red Oxide paint Alluminium Paint	K.M. Ltr Ltr	12.36 115 115	55000.00 150.00 200.00	17,250.00 23,000.00 25,300.00
33 34 35 36	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint	K.M. Ltr Ltr Ltr Ltr	12.36 115 115 115 115	55000.00 150.00 200.00 220.00 220.00	17,250.00 23,000.00 25,300.00 25,300.00
33 34 35 36 37	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  Gl barbed wire anticlimbing device 3 Kg. Per support	K.M. Ltr Ltr Ltr Ltr Kg	12.36 115 115 115 115 115 345	55000.00 150.00 200.00 220.00 220.00 75.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00
33 34 35 36	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint	K.M. Ltr Ltr Ltr Ltr	12.36 115 115 115 115	55000.00 150.00 200.00 220.00 220.00	17,250.00 23,000.00 25,300.00 25,300.00
33 34 35 36 37	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  Gl barbed wire anticlimbing device 3 Kg. Per support	K.M. Ltr Ltr Ltr Ltr Kg	12.36 115 115 115 115 115 345	55000.00 150.00 200.00 220.00 220.00 75.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00
33 34 35 36 37 38	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  Gl barbed wire anticlimbing device 3 Kg. Per support  Gl Nut , Bolt & Washer of different sizes	K.M. Ltr Ltr Ltr Ltr Kg K.g.	12.36 115 115 115 115 115 345 489.5	55000.00 150.00 200.00 220.00 220.00 75.00 78.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00 38,181.00
33 34 35 36 37	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  Gl barbed wire anticlimbing device 3 Kg. Per support	K.M. Ltr Ltr Ltr Ltr Kg	12.36 115 115 115 115 115 345	55000.00 150.00 200.00 220.00 220.00 75.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00
33 34 35 36 37 38	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  Gl barbed wire anticlimbing device 3 Kg. Per support  Gl Nut , Bolt & Washer of different sizes	K.M. Ltr Ltr Ltr Ltr Kg K.g.	12.36 115 115 115 115 115 345 489.5	55000.00 150.00 200.00 220.00 220.00 75.00 78.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00 38,181.00
33 34 35 36 37 38	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  Gl barbed wire anticlimbing device 3 Kg. Per support  Gl Nut , Bolt & Washer of different sizes  Danger Plate	K.M. Ltr Ltr Ltr Ltr Kg K.g.	12.36 115 115 115 115 115 345 489.5	55000.00 150.00 200.00 220.00 220.00 75.00 78.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00 38,181.00 9,200.00
33 34 35 36 37 38 39	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  GI barbed wire anticlimbing device 3 Kg. Per support  GI Nut , Bolt & Washer of different sizes  Danger Plate  Total Cost of materials	K.M. Ltr Ltr Ltr Kg K.g.	12.36 115 115 115 115 345 489.5	55000.00 150.00 200.00 220.00 220.00 75.00 78.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00 38,181.00
33 34 35 36 37 38 39 A-1 A-2	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  GI barbed wire anticlimbing device 3 Kg. Per support  GI Nut , Bolt & Washer of different sizes  Danger Plate  Total Cost of materials  Applicable Taxes to make it Landed C	K.M. Ltr Ltr Ltr Kg K.g.	12.36 115 115 115 115 345 489.5	55000.00 150.00 200.00 220.00 220.00 75.00 78.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00 38,181.00 9,200.00 47,97,452.60
33 34 35 36 37 38 39 A-1 A-2 A	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  GI barbed wire anticlimbing device 3 Kg. Per support  GI Nut , Bolt & Washer of different sizes  Danger Plate  Total Cost of materials  Applicable Taxes to make it Landed C  Total landed Cost (A=A1 + A)	K.M. Ltr Ltr Ltr Kg K.g. No.	12.36 115 115 115 115 345 489.5	55000.00 150.00 200.00 220.00 220.00 75.00 78.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00 38,181.00 9,200.00 47,97,452.60
33 34 35 36 37 38 39 A-1 A-2	Red Oxide paint  Alluminium Paint  Black Paint  Yellow Paint  GI barbed wire anticlimbing device 3 Kg. Per support  GI Nut , Bolt & Washer of different sizes  Danger Plate  Total Cost of materials  Applicable Taxes to make it Landed C	K.M. Ltr Ltr Ltr Kg K.g. No.	12.36 115 115 115 115 345 489.5	55000.00 150.00 200.00 220.00 220.00 75.00 78.00	17,250.00 23,000.00 25,300.00 25,300.00 25,875.00 38,181.00 9,200.00 47,97,452.60

C Contigency @ 3% of (A+B)  D Tools & Plants @ 2% of (A+B)  E Transportation @ 7.5% of (A+B)  F Erection Charges @ 5% on Trf/Breaker/Jo  G Erection Charges @ 10% of other items  H Erection Charges @ 20% of PSC pole- Not to be used to see the second of th			1,48,241.29 98,827.52			
Transportation @ 7.5% of (A+B)  F Erection Charges @ 5% on Trf/Breaker/Jo  G Erection Charges @ 10% of other items  H Erection Charges @ 20% of PSC pole- Not to be us  I Sum of (A + B to H)  Civil & Services  1 Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  2 Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = Cu.mi			,			
F Erection Charges @ 5% on Trf/Breaker/Jo G Erection Charges @ 10% of other items H Erection Charges @ 20% of PSC pole- Not to be us I Sum of (A + B to H) Civil & Services  1 Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  2 Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = Cu.mi						
G Erection Charges @ 10% of other items H Erection Charges @ 20% of PSC pole- Not to be use I Sum of (A + B to H)  Civil & Services  1 Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  2 Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = Cu.mt			3,70,603.21			
H Erection Charges @ 20% of PSC pole- Not to be used to sum of (A + B to H)  Civil & Services  1 Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size (900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  2 Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  3 Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr  4 Installation of Earth Pit, Charcoal, Salt etc. including No.			1,48,731.74			
Sum of (A + B to H)  Civil & Services  1 Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  2 Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  3 Couping ratio 1:1:5:3 with dimension ( 500X500X450) = 0.1125 Cu mtr  4 Installation of Earth Pit, Charcoal, Salt etc. including No.	S		1,96,674.13			
Civil & Services  1 Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  2 Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  3 Couping ratio 1:1:5:3 with dimension ( 500X500X450) = 0.1125 Cu mtr  4 Installation of Earth Pit, Charcoal, Salt etc. including No.	sed for 33kv		0.00			
Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr  Couping ratio 1:1:5:3 with dimension ( 500X500X450) = 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including No.			59,04,454.08			
foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .  2						
0.45Cu.mtr  Couping ratio 1:1:5:3 with dimension (500X500X450)= EA 0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including No.	42	2000.00	84,000.00			
0.1125 Cu mtr  Installation of Earth Pit, Charcoal, Salt etc. including No.	ntr 51.75	8446.00	4,37,080.50			
	115	676.00	77,740.00			
construction of earthing chamber (Size: 2'x2') and RCC slab cover	. 26	2407	62,582.00			
J1 Total Civil & Services			6,61,402.50			
J2 Applicable Taxes to make it Landed Cost @2	18%					
J Total landed Cost (J=J1 + J2)			6,61,402.50			
K Total Material+Services (I+J)			65,65,856.58			
L Other overheads (Including 6% supervision ch	narges)		3,93,951.39			
M SubTotal (K + L)			69,59,807.97			
N Total GST @ 18% of (M)			12,52,765.43			
O CESS @ 1% of (M)			69,598.08			
P Gross Total Material +Services (M+N+0)	)		82,82,171.48			
Q Inspection Fee of Over Head Line (HT) - Rs. 200 fo	or 1st 5 km.		200.00			
R Inspection Fee of Over Head Line (HT) - Rs. 30/ Ad	dditional Km					
S Inspection Fee of Drawing Checking and App	oroval		400.00			
T Final decision by electrical Inspector			500.00			
U Gross Total Material, Services and Inspection Fees (F	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)					

	Part -F. Construction of 11kv line over 11mtr long 160x Length =2 km. (Adarsa 11			ith 100mm2	AAAC.
	Total DP without AB-4, DP with	AB-1, 4po	e-2nos		
Sl.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS	OF DP	1		

1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	287	75	21,510.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator ( 3mtr X2) (GI)	KG	471	75	35,343.00
4	50x50x6mm.Gl Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	270	75	20,250.00
5	Pipe Earthing 40mm. GI Pipe	No.	10	1050	10,500.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	500	75	37,500.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	15	3550	53,250.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	20	75	1,500.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	1	11850	11,850.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	30	580	17,400.00
	MATERIALS OF				
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	459	75	34,416.00
12	Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI)     Support channel for Isolator ( 3mtr X2) (GI)	KG	813.96	75	61,047.00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	504	75	37,800.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	6	3550	21,300.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	32	75	2,400.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	3 12	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor  MATERIALS OF C	NO.		580	6,960.00
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	172	75.00	12,906.00
	MATERIALS O	FINE			
21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter)	No	61	25113.00	15,31,893.00
	(Each 335.06kg))				, ,
22	11 KV V cross Arm (10.2 K.g. each )	No.	38	810.00	30,780.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	38	170.00	6,460.00
24	11 K.V. Pin Insulator (Polymer)	No.	114	200	22,800.00
25	11 K.V. H.W. Fitting (B & S ) 70 KN 3 Bolt	No.	72	351	25,272.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	72	1150	82,800.00
27	H.T. Stay set (Complete )	Set	28	1050.00	29,400.00
28	H.T. Stay Insulator	No.	28	50.00	1,400.00
29	H.T. Stay clamp (1.95 K.g./ Pair )	Pair	28	125.00	3,500.00

30	7/10 SWG Stay Wire 15kg /stay	K.g.	420	75.00	31,500.00
31	Earthing of Support ( Coil Type )	No.	43	166.00	7,138.00
32	100 mm2 AAAC	K.M.	6.18	55000.00	3,39,900.00
33	Red Oxide paint	Ltr	61	150.00	9,150.00
34	Alluminium Paint	Ltr	61	200.00	12,200.00
35	Black Paint	Ltr	61	220.00	13,420.00
36	Yellow Paint	Ltr	61	220.00	13,420.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	183	75.00	13,725.00
			310		<u> </u>
38	Gl Nut , Bolt & Washer of different sizes	K.g.	310	78.00	24,180.00
39	Danger Plate	No.	61	80.00	4,880.00
A-1	Total Cost of materials				26,63,700.00
A-2	Applicable Taxes to make it Landed (		%		
Α	Total landed Cost (A=A1 + A				26,63,700.00
В	Stock, Storage & Insurance i.e 3	% of A			79,911.00
(A+B)	Sub Total				27,43,611.00
С	Contigency @ 3% of (A+B	,			82,308.33
D	Tools & Plants @ 2% of (A-	-B)			54,872.22
Е	Transportation @ 7.5% of (A	.+B)			2,05,770.83
F	Erection Charges @ 5% on Trf/Bre	aker/Joist			78,892.49
G	Erection Charges @ 10% of other	er items			1,16,576.12
Н	Erection Charges @ 20% of PSC pole- Not	to be used	l for 33kv		0.00
I	Sum of (A + B to H)				32,82,030.99
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set, stay wire, stay insulator.	No.	28	2000.00	56,000.00
2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	27.45	8446.00	2,31,842.70
3	Couping ratio 1:1:5:3 with dimension ( 500X500X450)=	EA	61	676.00	41,236.00
_	0.1125 Cu mtr				,
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	18	2407	43,326.00
J1	Total Civil & Services				3,72,404.70
J2	Applicable Taxes to make it Landed (	Cost @18°	%		
J	Total landed Cost (J=J1 + J	,			3,72,404.70
K	Total Material+Services (I+		36,54,435.69		
L	Other overheads (Including 6% superv		2,19,266.14		
M	SubTotal (K + L)		38,73,701.83		
N	Total GST @ 18% of (M)		6,97,266.33		
0	CESS @ 1% of (M)		38,737.02		
Р	Gross Total Material +Services (I		46,09,705.17		
Q	Inspection Fee of Over Head Line (HT) - Rs	. 200 for 1	st 5 km.		200.00
R	Inspection Fee of Over Head Line (HT) - Rs.				
S	Inspection Fee of Drawing Checking a	and Approv	/al		400.00

Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	46,10,805.17

### Part -G. Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length =2 km. (Agriculture 11kV Feeder)

#### Total DP without AB-3, DP with AB-1, 4pole-1no

SI.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS	OF DP			
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	229	75	17,208.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator ( 3mtr X2) (GI)	KG	386	75	28,917.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	216	75	16,200.00
5	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	12	3550	42,600.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	16	75	1,200.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	1	11850	11,850.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	24	580	13,920.00
	MATERIALS OF	4 POLE			
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	229	75	17,208.00
12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator ( 3mtr X2) (GI)	KG	471.24	75	35,343.00
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	252	75	18,900.00
14	Pipe Earthing 40mm. GI Pipe	No.	4	1050	4,200.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	200	75	15,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	3	3550	10,650.00
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	16	75	1,200.00
18	AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	6	580	3,480.00
	MATERIALS OF C	UT POIN	İT		
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	138	75.00	10,324.80
	MATERIALS C	F LINE	<u>.                                      </u>		

21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter) (Each 335.06kg))	No	57	25113.00	14,31,441.00
22	11 KV V cross Arm (10.2 K.g. each )	No.	41	810.00	33,210.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	41	170.00	6,970.00
24	11 K.V. Pin Insulator (Polymer)	No.	123	200	24,600.00
25	11 K.V. H.W. Fitting (B & S ) 70 KN 3 Bolt	No.	54	351	18,954.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	54	1150	62,100.00
27	H.T. Stay set (Complete )	Set	20	1050.00	21,000.00
28	H.T. Stay Insulator	No.	20	50.00	1,000.00
29	H.T. Stay Insulator  H.T. Stay clamp (1.95 K.g./ Pair )	Pair	20	125.00	2,500.00
30	7/10 SWG Stay Wire 15kg /stay	K.g.	300	75.00	22,500.00
31	Earthing of Support ( Coil Type )	No.	45	166.00	7,470.00
32	100 mm2 AAAC	K.M.	6.18	55000.00	3,39,900.00
33	Red Oxide paint	Ltr	57	150.00	8,550.00
34	Alluminium Paint	Ltr	57	200.00	11,400.00
35	Black Paint	Ltr	57	220.00	12,540.00
36	Yellow Paint	Ltr	57	220.00	12,540.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	171	75.00	12,825.00
					<u> </u>
38	GI Nut , Bolt & Washer of different sizes	K.g.	238.5	78.00	18,603.00
39	Danger Plate	No.	57	80.00	4,560.00
A-1	Total Cost of materials				23,74,813.80
A-2	Applicable Taxes to make it Landed (	Cost @18	%		
Α	Total landed Cost (A=A1 + A	(2)			23,74,813.80
В	Stock, Storage & Insurance i.e 3	% of A			71,244.41
(A+B)	Sub Total				24,46,058.21
С	Contigency @ 3% of (A+B	)			73,381.75
D	Tools & Plants @ 2% of (A+	-B)			48,921.16
Е	Transportation @ 7.5% of (A	+B)			1,83,454.37
F	Erection Charges @ 5% on Trf/Bre	aker/Joist			73,719.21
G	Erection Charges @ 10% of other	er items			97,167.40
Н	Erection Charges @ 20% of PSC pole- Not to		d for 33kv		0.00
ı	Sum of (A + B to H)				29,22,702.10
	Civil & Services				, ,
1	Fixing of stay set with 0.5Cum cement concrete	No.	20	2000.00	40,000.00
	foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .				

2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	25.65	8446.00	2,16,639.90
3	Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	57	676.00	38,532.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	12	2407	28,884.00
J1	Total Civil & Services	'		•	3,24,055.90
J2	Applicable Taxes to make it Landed (	Cost @189	%		
J	Total landed Cost (J=J1 + J	2)			3,24,055.90
K	Total Material+Services (I+,	J)			32,46,758.00
L	Other overheads (Including 6% supervi	1,94,805.48			
М	SubTotal (K + L)	34,41,563.48			
N	Total GST @ 18% of (M)	6,19,481.43			
0	CESS @ 1% of (M)	34,415.63			
Р	Gross Total Material +Services (M		40,95,460.54		
Q	Inspection Fee of Over Head Line (HT) - Rs		200.00		
R	Inspection Fee of Over Head Line (HT) - Rs.		240		
S	Inspection Fee of Drawing Checking a	400.00			
Т	Final decision by electrical Insp	500.00			
U	Gross Total Material, Services and Inspection	40,96,800.54			

Part -H. Construction of 11kv line over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length =2.5 km. (Govt. Poly Technic 11kV Feeder).

#### Total DP without AB-6, DP with AB-1, 4pole-2no

SI.No.	Description of Materials	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	MATERIALS	OF DP			<u> </u>
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	402	75	30,114.00
2	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator ( 3mtr X2) (GI)	KG	643	75	48,195.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	378	75	28,350.00
5	Pipe Earthing 40mm. GI Pipe	No.	14	1050	14,700.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	700	75	52,500.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	21	3550	74,550.00
8	G.I. FLATS 25X3 MM_for danger board and anticlimbing device	KG	28	75	2,100.00
9	AB Switch (11KV,400A.3pole,50Hz)	SET	1	11850	11,850.00
10	PG Clamp for 100 sq.mm AAA conductor	NO.	42	580	24,360.00

	MATERIALS OF	F 4 POLE	<u> </u>		
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	459	75	34,416.00
12	1. Double Pole Bracing Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI)	KG	813.96	75	61,047.00
13	2. Support channel for Isolator ( 3mtr X2) (GI) 50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr	KG	504	75	37,800.00
13	length	NG	304	75	37,600.00
14	Pipe Earthing 40mm. GI Pipe	No.	8	1050	8,400.00
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	400	75	30,000.00
16	Lightning Arrester(12KV,10KA) Station Class-2	No.	6	3550	21,300.00
17	G.I. FLATS 25X3 MM_for denger board and	KG	32	75	2,400.00
18	anticlimbing device AB Switch (11KV,400A.3pole,50Hz)	SET	3	11850	35,550.00
19	PG Clamp for 100 sq.mm AAA conductor	NO.	12	580	6,960.00
13	MATERIALS OF C			300	0,900.00
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	172	75.00	12,906.00
	MATERIALS (	OF LINE			
21	160X 160mm WPB (11 Mtr long) (30.44 kg Per meter) (Each 335.06kg))	No	76	25113.00	19,08,588.00
22	11 KV V cross Arm (10.2 K.g. each )	No.	49	810.00	39,690.00
22	TT KV V Cross Affir (10.2 K.g. each )	INO.	49	810.00	39,090.00
23	Top bracket 100x50 mm GI channel (2kg each)	No.	49	170.00	8,330.00
24	11 K.V. Pin Insulator (Polymer)	No.	147	200	29,400.00
25	11 K.V. H.W. Fitting (B & S ) 70 KN 3 Bolt	No.	84	351	29,484.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	84	1150	96,600.00
27	H.T. Stay set (Complete )	Set	32	1050.00	33,600.00
28	H.T. Stay Insulator	No.	32	50.00	1,600.00
29	H.T. Stay clamp (1.95 K.g./ Pair )	Pair	32	125.00	4,000.00
30	7/10 SWG Stay Wire 15kg /stay	K.g.	480	75.00	36,000.00
31	Earthing of Support ( Coil Type )	No.	54	166.00	8,964.00
32	100 mm2 AAAC	K.M.	7.725	55000.00	4,24,875.00
33	Red Oxide paint	Ltr	76	150.00	11,400.00
34	Alluminium Paint	Ltr	76	200.00	15,200.00
35	Black Paint	Ltr	76	220.00	16,720.00
36	Yellow Paint	Ltr	76	220.00	16,720.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	228	75.00	17,100.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	367.5	78.00	28,665.00
39	Danger Plate	No.	76	80.00	6,080.00
A-1	Total Cost of materials				32,70,514.00
A-2	Applicable Taxes to make it Landed	Cost @1	8%		5_,. 5,5 1 1.00

Α	Total landed Cost (A=A1 + /		32,70,514.00		
В	Stock, Storage & Insurance i.e 3		98,115.42		
(A+B)	Sub Total				33,68,629.42
C	Contigency @ 3% of (A+E	3)			1,01,058.88
D	Tools & Plants @ 2% of (A-	+B)			67,372.59
E	Transportation @ 7.5% of (A	\+B)			2,52,647.21
F	Erection Charges @ 5% on Trf/Bre	eaker/Joist	t		98,292.28
G	Erection Charges @ 10% of oth	er items			1,40,278.38
Н	Erection Charges @ 20% of PSC pole- Not	to be use	d for 33kv		0.00
I	Sum of (A + B to H)				40,28,278.76
	Civil & Services				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	32	2000.00	64,000.00
2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.mtr	34.2	8446.00	2,88,853.20
3	Couping ratio 1:1:5:3 with dimension( 500X500X450)= 0.1125 Cu mtr	EA	76	676.00	51,376.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	22	2407	52,954.00
J1	Total Civil & Services	1			4,57,183.20
J2	Applicable Taxes to make it Landed	Cost @18	%		
J	Total landed Cost (J=J1 + c	J2)			4,57,183.20
K	Total Material+Services (I+	·J)			44,85,461.96
L	Other overheads (Including 6% superv	ision char	ges)		2,69,127.72
М	SubTotal (K + L)				47,54,589.67
N	Total GST @ 18% of (M)				8,55,826.14
0	CESS @ 1% of (M)				47,545.90
Р	Gross Total Material +Services (	M+N+0)			56,57,961.71
Q	Inspection Fee of Over Head Line (HT) - Rs	s. 200 for	1st 5 km.		200.00
R	Inspection Fee of Over Head Line (HT) - Rs				
S	Inspection Fee of Drawing Checking a		400.00		
Т	Final decision by electrical Ins	pector			500.00
U	Gross Total Material, Services and Inspection	Fees (P+	Q+R+S+T	.)	56,59,061.71

#### PART- I: 1. Construction of 2 nos. 'PC+6' EHT Tower for Lingarajodi Nala crossing (150 Mtr.) (To be executed in ODSSP Scheme) Supply of Material for Construction of 'PC+6' EHT Tower Unit Part-1 Discription Qty Rate Amount Cost of G.I PC +6 TYPE Tower super 1 structure (Main + Extention +Stub + Template) 75,000.00 PC Tower (6.214 MT/ Tower) ΜT 12.428 9,32,100.00 i)

ii)	+6 Mtr Extention (2.342 MT/ Tower)	MT	4.684	75,000.00	3,51,300.00
iii)	Template (1.904 MT/ Tower)	MT	3.808	75,000.00	2,85,600.00
2	Nut Bolts				-
i)	PC Tower (1.654 MT/ Tower)	MT	3.308	78,000.00	2,58,024.00
ii)	+6 Mtr Extention (0.592 MT/ Tower)	MT	1.184	78,000.00	92,352.00
3	Conductor and Accessories				-
i	33 kV 148sqmm conductor (AAAC)	Km	0.47	82,000.00	38,745.00
ii	Earth wire 7/1.5=150 meter +Tower earthing (50 x 3) = 150 meter + 12 meter wastage = 312 meter	Km	0.312	35,000.00	10,920.00
iii	Double tension Hardware Fittings	Set	12	3,460.00	41,520.00
iv	Disc insulator (B&S)120 KN polymer	Nos	12	1,440.00	17,280.00
V	Earth wire tension fittings	Set	6	450.00	2,700.00
iv	Vibration damper for earth wire	Nos	6	918.00	5,508.00
V	Vibration damper	Nos	12	975.00	11,700.00
vi	Mid-Span Joint	Nos	0	-	-
vii	Repair Sleeve	Nos	0	-	-
viii	Copper flexible bond	Nos	2	700.00	1,400.00
ix	Phase Plate (R,Y,B)	Set	6	150.00	900.00
х	Tower Number Plate	Nos	4	250.00	1,000.00
xi	Circuit Plate	Nos	2	150.00	300.00
xii	40 mm Dia. 3Mtr. long G.I Earthing device	Nos	4	1,050.00	4,200.00
xiii	GI Flat 50 x 6 mm	kg	200	75.00	15,000.00
xiv	Danger Board	Nos	4	80.00	320.00
ΧV	Bird Guard	Nos	6	200.00	1,200.00
xvi	Anticlimbing Device	kg	211.2	80.00	16,896.00
xvii	Loop Connector	Nos	6	250.00	1,500.00
Α	Total Cost of m	naterials			20,90,465.00
В	Stock , Storage & Insura		of A		62,713.95
С	Total ( A+	,			21,53,178.95
D	Contingency @	3 % of C	<u>.</u>		64,595.37
E	T&P Charges @ 2% of C				2,501.33
F	Transportation @ 7.5% of C				1,61,488.42
G	Errection Charge @ 10%	of C			12,506.67
Н	Sub - Total(C+D+E+F+G)				23,94,270.75
	Foundation, Civil W	orks and Stri	nging		
Part-2	Discription	Unit	Qty	Rate	Amount
1	Civil work (Excavation, Back Filling,PCC, RCC,etc.) for Tower including pile foundation (upto 12 mtr).	Each	2	3,00,000.00	6,00,000.00
2	Erection of tower super structure	MT	20.92	4,400.00	92,048.00
3	Stringing of 148sqmm conductor	C/Km	0.1575	49,500.00	7,796.25
4	Stringing of Earth wire	R/Km	0.3	15,000.00	4,500.00
I	Cost of Foundation, Civil Works and Stringing (Part-B)				7,04,344.25
J1	Sub-Total (I+H)				
K	K Other Overhead /( including Supervision Charges) @ 6 % of J				
L	L Total Estimated Capital Cost (J+K)				

#### **Supplementary CAPEX FY: 22-23**

М	GST @ 18% of L	5,91,215.74
N	CESS @ 1% of L	32,845.32
0	Inspection Charges	2300.00
Р	Total (L+M+N+O)	39,10,893.00

#### 8) Benefits

- Technical Loss savings of 48KW on 33kv and 203KW on 11kv level.
- N-1 redundancy for All important installation, 11KV and LT consumers
- Minimization of interruption.
- Strengthening of distribution network.
- Load shifting from RCMS and Bantala PSS

#### 9) Conclusion

Proposed s/s at Panchmahala is necessary after considering the length of 11 kV feeder and poor voltage profile which caters power supply to the subject areas. Based on the present and future load growth, installation of 2x8 MVA s/s GIS Indoor is proposed along with SCADA compatibility. The cost is as per OERC approved rates and Capex rates. Rates of some of the items which are not available in OERC approved rates and Capex rates are considered from Competitive Market prices, SCRIPS. The BoQ and Cost estimate of 33/11 kV s/s (GIS Indoor), 33 kV line and 11 kV line are finalized in consultation with NEG, STS, Projects and Division.

# 2. Manguli (2X8MVA)

#### 1) Executive Summary:

The Proposal for installing of 33/11KV substation at Manguli is laid basing upon detailed Load Flow Analysis for existing loads in proposed area and catering low voltage issues through new Substation.

- The power supply to Manguli s/s is planned from existing City Feeder from 132/33KV Choudwar grid S/s at a distance of 3.5KM. For n-1 redundancy, existing 33kv Tangi feeder will be tapped for a distance of 1km upto proposed SS. Three associated 11 kV feeders from Manguli s/s with a total 11 kV linking of 5km (approx) divert loads from Tangi 33/11 kV s/s thereby ensuring uniform power distribution.
- The proposed substation with an installed capacity of 2x8 MVA will cater loads to 5550 consumers of Manguli (Ind.), Nakhara & Kujibar, Napanga & Kesharpur, Sardola & Harianta. with an anticipated load of 4MVA.
- The Manguli s/s, GIS Indoor will be SCADA enabled for smart operation with minimal human intervention in future.
- The total estimated cost for the proposed substation of Rs. 17.51 Crs.

# 2) Introduction

Installation of 2x8 MVA 33/11 kV substation at Manguli with associated 11 kV lines is required in order to supply reliable power in the area as well as to meet the increasing load demand due to prospective loads. The main thrust is laid on improvement of voltage profile, to minimize interruption of power supply to the consumers, availability of alternate power supply and socio-economic development of the inhabitants.

#### 3) Existing Scenario

Presently the area is getting power supply from existing 33/11 kV Tangi substation through 11 kV feeders. There are Five outgoing 11 kV feeder emanating from Tangi substation namely Manguli, Haripur, Bhatimunda, NH-5 and Local. Out of these, existing Manguli 11 kV feeder having length of 7KMs (trunk and spur lines) carries 4MVA at its peak load. It caters power supply to area such as Manguli (Ind.), Nakhara & Kujibar, Napanga & Kesharpur, Sardola & Harianta. Consumers in these areas are facing low voltage problem and frequent break downs due to snapping of conductors.

#### 4) Need of the Project

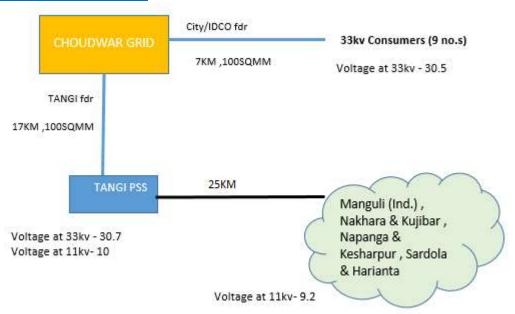
To eradicate low voltage problem, improvement of supply system and to cater the future load growth it is proposed to install a 33/11 kV substation at Manguli with Three numbers outgoing 11 kV feeders namely Manguli, Kashipur and Naktara. Proposed Manguli 11kV feeder will cater loads to the villages mainly Manguli (Ind.) bus stand, etc. Proposed Kesharpur 11 kV feeder will cater loads to the villages Napanga & Kesharpur, etc. Proposed Nakhara 11kv feeder will cater load to Nakhara & Kujibar area. Total 3960 consumers will be benefitted.

# 5) Load Details of the Proposed System:

Name of the proposed s/s	Name of the of proposed 11kV feeders	Length of feeder (km)	Anticipated load (MVA)	No. of consumers to avail supply from the feeder (Nos.)
	Manguli	1	1.2	1250
Manguli (2X8 MVA)	Kesharpur	2	2	830
	Nakhara	2	1	1880

# 6) Load flow Analysis Results: -

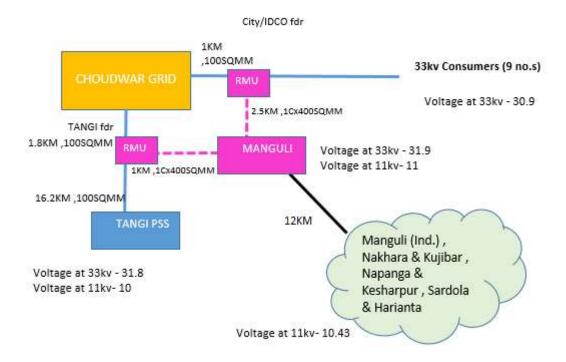
# **Existing Scenario with SLD: -**



- Tangi S/S connected from Tangi Feeder from Choudwar Grid.
- 33 KV consumers in Tangi area are connected through City/IDCO feeder.

33 KV Feeder Name	Structure Name	33 KV Bus Voltage in KV	11 KV Bus Voltage in KV
TANGI	Tangi	30.7	10
IDCO	33 KV Consumer end	30.5	-

#### **Proposed Scenario with SLD: -**



33 KV Feeder Name	Structure Name	33 KV Bus Voltage in KV	11 KV Bus Voltage in KV
Tangi	Tangi	31.8	10.1
IDCO	33 KV Consumer end	30.9	=
Tangi	Manguli	31.9	11

- Tangi S/S connected from Choudwar Grid.
- 33 KV consumers in Tangi area are connected through IDCO feeder.
- Proposed Manguli S/S connected from Choudwar Grid via Tangi fdr and NOP on IDCO feeder.
- 3.2 MVA load to be shifted in proposed Substation from Tangi PSS.

#### **Recommendations: -**

• It is recommended to connect Choudwar Grid with Manguli S/S by construction of UG 4X1CX300 sqmm for 2.5km from Idco/City Feeder and 33kv 3W RMU installation. For n-1 redundancy Manguli S/S will be connected with existing 33kv Tangi Feeder by installation of 33kv 3W RMU and extending the feeder on UG (4X1CX400 sqmm) with distance 1Km.

# 7) Cost Estimate

TP C	ENTRAL ODISHA DIST	RIBUTION LIMITED	
	Name of the Division :-	CED	
	Name of the Sub- Division : -	TANGI	
	Name of the Section :	CHOUDWAR	
	Name of the Work :-	Construction of Proposed 2X8 MVA, 33/11 KV MANO 33 KV line (U/G) T-off of IDCO/City fdr near Mundums proposed ODDSP MANGULI PSS and another 33KV of 33kv Tangi feeder near Shakti hotel to proposed O PSS for N-1 connectivity with associated 11 kv lines	al chawk to line (U/G) from T-off
	Scope of work:-	1. Construction of 33kv line(U/G) of 2.5 km lentgh with RMU from T-off of 33kv IDCO/City feeder near Munduproposed ODSSP Manguli PSS. 2. Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primar 2X5 MVA Trf., including complete Control Room Build Equipment Supply, Erection, Commissioning, Testing supply of all materials, Labour, T&P etc. As per techn and scope of work. 3. Construction of 33kv line (U/G) of 1 km length with RMU from T-off of 33kv Tangi feeder near shakti hote ODSSP Manguli PSS for N-1 connectivity. 4. Construction of 11kv line of 5 ckm over 11mtr long, 30.44KG/MTR with 100mm2 AAAC. Length with 11 lentgh of 0.8 km.	y Substation with ding and All , Civil Works with ical specification one 33KV,3WAY el to Proposed
	Names of Schemes: -	TPCODL CAPEX	I
ABS	TRACT OF ESTIMATE		
SI. No.	Part	Description	Amount
1	A	.Construction of 33kv line(U/G) of 2.5km lentgh with one 33KV,3WAY RMU from T-off of 33kv Choudwar feeder near Mundumal chawk to proposed ODSSP Manguli PSS	₹ 4,70,62,381.87
		Construction of one number of 33KV Incomer DP with Isolator at Proposed Manguli PSS.	₹ 3,84,229.59
3	В	Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work	₹ 9,18,34,492.30
2	С	1.Construction of 33kv line (U/G) of 1 km length with one 33KV,3WAY RMU from T-off of 33kv Tangi feeder near shakti hotel to Proposed ODSSP Manguli PSS.	₹ 2,06,62,800.38
		Construction of one number of 33KV Incomer DP	₹ 3,84,229.59

4	D	Construction of 11kv OH line of lentgh of 5 Ckm over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length with 11kv U/G,XLPE of lentgh of 0.8 km .Total no of 11kv feeders=3.	₹ 1,01,53,789.85 ₹ 45,81,616.99
		Total Amount	₹ 17,50,63,540.57
		Total Amount (In Cr)	17.51

Part-A Construction of 33kv line(U/G) of 2.5km lentgh with one 33KV,3WAY RMU from T-off of 33kv Choudwar feeder near Mundumal chawk to proposed ODSSP Manguli PSS Supply Portion SI. No. Description of items Unit Quantit Rate Amount (in Rs.) (in Rs.) У 1 Supply of materials for 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories 1.1 Supply of 33kV, 1Core, 400sqmm Aluminium, 10 7,83,000.00 78,30,000.00 km XLPE insulation UG Cable 1.2 36 19,679.00 7,08,444.00 Supply of Straight through jointing kits Heat Set Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG Cable kits for 1Core 1.3 Supply of Outdoor termination kits Heat Set 12 6,869.00 82,428.00 Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core 1.4 Supply of Indoor termination kits Heat 12 5.233.00 62.796.00 Set Shrinkable type suitable for 33kV, 1Core, 400sgmm, HT UG Cable kits for 1Core 1.5 Supply of materials for High Density 10 10.91.237.0 1,09,12,370.0 km Polyethelene (HDPE) pipe 160mm diameter, PE 0 80- PN8 for laying of 33kV UG cable 2 Supply of materials for 33kV, 1Core, 300sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories 2.1 Supply of 33kV, 1Core, 300sqmm Aluminium, km 0 6.85.000.00 XLPE insulation UG Cable 2.2 Supply of Straight through jointing kits Heat Set n 19.679.00 Shrinkable type suitable for 33kV. 1Core. 300sgmm, aluminium UG Cable kits for 1Core 2.3 Supply of Outdoor termination kits Heat Set 6,869.00 Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core 5,233.00 2.4 Supply of Indoor termination kits Heat Set Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core 2.5 Supply of materials for High Density km 0 10,91,237.0 Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable 3 Supply of materials for 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories 20,32,000.0 0 3.1 Supply of 33kV, 3Core, 400sqmm Aluminium, km XLPE insulation UG Cable with spare

2.0	Comply of Charlest through injusting tits 11 of	Cat	0	60 504 00	
3.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core,	Set	0	68,594.00	-
	400sqmm, aluminium UG Cable kits				
3.3	Supply of Outdoor termination kits Heat	Set		33,255.00	-
	Shrinkable type suitable for 33kV, 3Core,			<b>'</b>	
	400sqmm, HT UG Cable kits				
3.4	Supply of Indoor termination kits Heat	Set		20,503.00	_
0.4	Shrinkable type suitable for 33kV, 3Core,	OCI		20,303.00	
2.5	400sqmm, HT UG Cable kits	Luca		40.04.007.0	
3.5	Supply of materials for High Density	km	0	10,91,237.0	-
	Polyethelene (HDPE) pipe 160mm diameter, PE			0	
	80- PN8 for laying of 33kV UG cable				
4	Supply of materials for 33kV, 3Core, 300sqmm				
	Aluminium, XLPE insulation UG Cable (aloing				
	with spare cable) with accessories				
4.1	Supply of 33kV, 3Core, 300sqmm Aluminium,	km	0	17,56,000.0	-
	XLPE insulation UG Cable with spare			0	
		0 1		04.054.00	
4.2	Supply of Straight through jointing kits Heat	Set	0	61,254.00	-
	Shrinkable type suitable for 33kV, 3Core,				
	300sqmm, aluminium UG Cable kits				
4.3	Supply of Outdoor termination kits Heat	Set		33,255.00	-
	Shrinkable type suitable for 33kV, 3Core,				
	300sqmm, HT UG Cable kits				
4.4	Supply of Indoor termination kits Heat	Set		20,503.00	_
7.7	Shrinkable type suitable for 33kV, 3Core,	001		20,000.00	
	300sqmm, HT UG Cable kits				
4.5		lone	0	40.04.027.0	
4.5	Supply of materials for High Density	km	0	10,91,237.0	-
	Polyethelene (HDPE) pipe 160mm diameter, PE			0	
	80- PN8 for laying of 33kV UG cable				
5	Supply of materials for 33kV, 3Core, 185sqmm				
	Aluminium, XLPE insulation UG Cable (aloing				
	with spare cable) with accessories				
5.1	Supply of 33kV, 3Core, 185sqmm Aluminium,	km	0	13,66,000.0	-
	XLPE insulation UG Cable with spare			0	
	Completed Charles the according to the line to	0-4		04.054.00	
5.2	Supply of Straight through jointing kits Heat	Set	0	61,254.00	-
	Shrinkable type suitable for 33kV, 3Core,				
	185sqmm, aluminium UG Cable kits				
5.3	Supply of Outdoor termination kits Heat	Set		25,125.00	-
	Shrinkable type suitable for 33kV, 3Core,				
	185sqmm, HT UG Cable kits				
5.4	Supply of Indoor termination kits Heat	Set		18,082.00	_
	Shrinkable type suitable for 33kV, 3Core,			10,00=100	
	185sqmm, HT UG Cable kits				
5.5	Supply of materials for High Density	km	0	5,20,436.00	
5.5		KIII	U	3,20,430.00	-
	Polyethelene (HDPE) pipe 110mm diameter, PE				
	80- PN8 for laying of 33kV UG cable				
6	Supply of materials for 33kV, 3Core, 95sqmm				
	Aluminium, XLPE insulation UG Cable (aloing				
	with spare cable) with accessories				
0.4	Ourselv of 2014/ 2022 2522 At 11	Lance		40.04.000.0	
6.1	Supply of 33kV, 3Core, 95sqmm Aluminium,	km	0	10,24,000.0	-
	XLPE insulation UG Cable with spare			0	
6.2	Supply of Straight through jointing kits Heat	Set	0	43,131.00	-
	Shrinkable type suitable for 33kV, 3Core,	-	-		
	95sqmm, aluminium UG Cable kits				
6.3	Supply of Outdoor termination kits Heat	Set		19,384.00	
0.5		Set		19,304.00	-
	Shrinkable type suitable for 33kV, 3Core,				
	95sqmm, HT UG Cable kits			1	
6.4	Supply of Indoor termination kits Heat	Set		11,958.00	-
	Shrinkable type suitable for 33kV, 3Core,				
	95sqmm, HT UG Cable kits				

6.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	5,20,436.00	-
1	Supply of 33kV RMU				
1.1	Supply of 33kV, 630A, 25kA 3 Way NON- Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker Type LLV Model	Nos.	1	17,50,000.0 0	17,50,000.00
1.2	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker Type LLVV Model	Nos.	0	24,50,000.0 0	-
1.3	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker with metering panel Type LLV+M Model	Nos.	0	32,00,000.0	-
1.4	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker with metering panel Type LLVV+M Model	Nos.	0	45,00,000.0 0	-
1.5	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 3 Load Break Switch Type LLL Model	Nos.	0	15,50,000.0 0	-
1.6	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 4 Load Break Switch Type LLLL Model	Nos.	0	19,50,000.0 0	-
3	Earthing				
3.1	Earthing Conductor: 50X6 mm (2.4kg./mtr.) GI Flat for equipment, structure etc.)	kg	7.20	75.00	540.00
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,050.00	2,100.00
	Sub Total (Supply Portion	) (in Rs.	)		2,13,48,678.0 0
Erection Portion					
SI. No.	Description of items	Unit	Quantit y	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 400sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	9.2	2,80,497.64	25,80,578.29
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG cable kits	Set	36	4,286.75	1,54,323.00
1.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	2,327.04	27,924.48
1.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	1,959.72	23,516.64

		1		1	
1.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable	km	0.8	13,73,059.6	10,98,447.70
1.6	place.  Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	9.2	1,04,114.67	9,57,854.96
2	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 300sqmm, XLPE UG cable with one spare				
2.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	0	2,80,497.64	-
2.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, aluminium UG cable kits	Set	0	4,286.75	-
2.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	2,327.04	-
2.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	1,959.72	-
2.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,73,059.6	-
2.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
3	Erection, Commissioning & Testing of 33kV new line by 3Core, 400sqmm, XLPE UG cable with spare				
3.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 400sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	2,08,229.35	-
3.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG cable kits	Set	0	3,062.68	-
3.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG cable kits	Set	0	1,470.29	-
3.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG cable kits	Set	0	1,837.61	-
3.5	Laying, Commissioning & Testing of 33kV, 3Core, 1Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	14,13,306.0 1	-

2.6	Louing of 160mm dia DE 90 DN9 LIDDE nine	lena	0	1.04.114.67	
3.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	<u>-</u>
4	Erection, Commissioning & Testing of 33kV new line by 3Core, 300sqmm, XLPE UG cable with spare.				
4.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 300sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	2,08,229.35	-
4.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, aluminium UG cable kits	Set	0	3,062.68	-
4.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG cable kits	Set	0	1,470.29	-
4.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG cable kits	Set	0	1,837.61	-
4.5	Laying, Commissioning & Testing of 33kV, 3Core, 300sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 300sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	14,13,306.0 1	-
4.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
5	Erection, Commissioning & Testing of 33kV new line by 3Core, 185sqmm, XLPE UG cable with spare				
5.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 185sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	1,95,980.63	-
5.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, aluminium UG cable kits	Set	0	3,062.68	-
5.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG cable kits	Set	0	1,470.29	-
5.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG cable kits	Set	0	1,837.61	-
5.5	Laying, Commissioning & Testing of 33kV, 3Core, 1Runs, 185sqmm, XLPE insulation (extruted type) UG cable (with one 3core, 185sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 110mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,99,890.8 8	-
5.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
6	Erection, Commissioning & Testing of 33kV new line by 3Core, 95sqmm, XLPE UG cable with spare				
6.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 95sqmm, XLPE insulation (extruted type) UG cable with spare by open trench method.	km	0	1,95,980.63	-

					I
6.2	Erection of Straight through jointing kits Heat	Set	0	3,062.68	-
	Shrinkable type suitable for 33kV, 3Core,				
6.3	95sqmm, aluminium UG cable kits Erection of Outdoor termination kits Heat	Set	0	1,470.29	
0.3	Shrinkable type suitable for 33kV, 3Core,	Set	U	1,470.29	-
6.4	95sqmm, HT UG cable kits Erection of Indoor termination kits Heat	Set	0	1,837.61	
0.4		Set	0	1,037.01	-
	Shrinkable type suitable for 33kV, 3Core,				
6.5	95sqmm, HT UG cable kits	km	0	42.00.000.0	
0.5	Laying, Commissioning & Testing of 33kV,	KIII	0	13,99,890.8 8	-
	1Core, 1Runs, 95sqmm, XLPE insulation			0	
	(extruted type) UG cable (with one 3core,				
	95sqmm, XLPE cable as spare) including				
	looping at cable terminations and straight				
	through joints by HDD method with 110mm dia,				
	PE 80-PN8, HDPE pipe for laying of individual				
	run of UG cable at main road and unaccessable				
	place.			4 0 4 4 4 0 7	
6.6	Laying of 110mm dia PE 80-PN8, HDPE pipe	km	0	1,04,114.67	-
	inside open trench.				
1	Erection, Commissioning, Wiring and Testing of				
	33kV RMU				
1.1	Erection of 33kV, 630A, 25kA 3 Way NON-	Nos.	1	61,243.63	61,243.63
	Extensible, Motorized Outdoor Consisting of 2			,	,
	Load Break Switch & 1 Vacuum Circuit breaker				
	Type LLV Model				
1.2	Erection of 33kV, 630A, 25kA 4 Way NON	Nos.	0	61,243.63	-
	Extensible, Motorized Outdoor Consisting of 2			,	
	Load Break Switch & 2 Vacuum Circuit breaker				
	Type LLVV Model				
1.3	Erection of 33kV, 630A, 25kA 3 Way NON	Nos.	0	61,243.63	-
	Extensible, Motorized Outdoor Consisting of 2			,	
	Load Break Switch & 1 Vacuum Circuit breaker				
	with metering panel Type LLV+M Model				
1.4	Erection of 33kV, 630A, 25kA 4 Way NON	Nos.	0	61,243.63	-
	Extensible, Motorized Outdoor Consisting of 2			,	
	Load Break Switch & 2 Vacuum Circuit breaker				
	with metering panel Type LLVV+M Model				
1.5	Erection of 33kV, 630A, 25kA 3 Way NON	Nos.	0	61,243.63	-
	Extensible, Motorized Outdoor Consisting of 3			,	
	Load Break Switch Type LLL Model				
1.6	Erection of 33kV, 630A, 25kA 4 Way NON	Nos.	0	61,243.63	-
	Extensible, Motorized Outdoor Consisting of 4				
	Load Break Switch Type LLLL Model				
	Sub Total (Erection Portio	n) (in Rs	5.)		49,03,888.70
	·	<u> </u>			
Civil Portion					
	December of the control	1.1	O	D-4-	Δ 4
SI. No.	Description of items	Unit	Quantit	Rate	Amount
			У	(in Rs.)	(in Rs.)
1	Civil works with supply of all materials like				
•	cement, MS tor rod, brick, coarse & fine				
	aggregates and labour, T&P, etc for UG Cable				
	Trench				
1.1	Earth work excavation of soil (1mtr. width X				
1.1	1mtr. depth)				
1.1.a	Earth work excavation of soil	Cum	1610	201.62	3,24,608.20
1. T.d	Latti Work Choavation of 3011	Juili	1010	201.02	0,24,000.20
1.1.b	Earth work excavation of hard rock	Cum	690	884.35	6,10,201.50
		1			

1.2	Shifting of excavated soil to a lead distance of	Cum	1380	171.55	2,36,739.00
1.2	10km	Cuiii	1360	171.55	2,30,739.00
4.0	Fillian with fire since and fine lating of sold	0	000	470.74	4 44 200 00
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	920	479.74	4,41,360.80
	mode the tremon				
			4000	00.00	11 700 10
1.4	Back filling with excavated soil outside and above the trench	Cum	1380	30.28	41,786.40
1.5	Damage of asphalt/tar road and other utilities	km	2.3	26,43,670.6	60,80,442.45
	and reconstructing to bring to its original shape			3	
	after laying of cable in open trench (1mtr. width)				
2	Civil works for Prefabricated RCC foundation				
	with supply of all materials				
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	87,921.26	87,921.26
3	Supply of Galvanised Fencing around each	sqmt	20	4,668.00	93,360.00
	RMU with height 2 mtr for external protection	r			
4	Installation of Earth Pit, Charcoal, Salt etc.	Set	2	2,407.00	4,814.00
	including construction of earthing chamber				
5	(Size: 2'x2') and RCC slab cover Supply and erection of GI Pipe of dia. 150mm,	Mtr	96	1,607.00	1,54,272.00
	Class-B (8Mtr.)	IVIG	00		1,01,272.00
6	Supply and Erection of Cable Route Marker	Nos.	83	376.13	31,218.79
	along the cable route at an interval of 30mtrs with civil works				
	Sub Total (Civil Portion)	(in Rs.)		I.	81,06,724.40
A-1	Sub Total (Supply Po	rtion)			2,13,48,678.0
A 0	Applicable Tayon to make it laws	dad Cas	L @ 4 00/		0
A-2	Applicable Taxes to make it Land		(@18%		-
Α	Total landed Cost (A=A	1 + A2)			2,13,48,678.0 0
В	Stock, Storage & Insurance	@3%0	of A		6,40,460.34
С	Sub Total (A+B)				2,19,89,138.3
					4
D	Contingency @ 3 %				6,59,674.15
E	Tools & Plants Charges @ 2% of 0		onsidered)		-
F	Transportation @ 7.59				16,49,185.38
G	Total (C+D+E+F)	)			2,42,97,997.8
H-1	Sub Total (Erection Portion +	Civil Po	rtion)		1,30,10,613.1
	,		•		0
H-2	Applicable Taxes to make it Land		t @18%		-
Н	Total landed Cost (H=H	1 + H2)			1,30,10,613.1
I	Total Cost (G+H)	)			3,73,08,610.9
-	, ,	•			6
J	Other Overhead /(including Supervision			of I	22,38,516.66
K	Total Estimated Capital Co	st i.e. (I+	-J)		3,95,47,127.6
L	GST @ 18% of k	ζ			71,18,482.97
M	CESS @ 1% of L				3,95,471.28
141		_			5,55,777.20

N	Grand Total (K+L+M)	4,70,61,081.8
	,	7
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	150.00
Q	Inspection Fee of Drawing Checking and Approval	400.00
R	Final decision by electrical Inspector	500.00
S	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	4,70,62,381.8 7

	Construction of 33kv Incomer Isolator at Propos	sed Man	guli PSS		
	DP with Isolator-01				
SI.No.	Description of Materials	Unit	Quanti ty	Rate	Amount
1	2	3	4	5	6
	MATERIALS OF DP	)			
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	84	75	6,309.60
2	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator ( 0.4mtr X2) (GI)	KG	251	75	18,849.60
4	50x50x6mm.Gl Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	88	75	6,615.00
5	Pipe Earthing 40mm. GI Pipe	No.	2	1050	2,100.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	100	75	7,500.00
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	3	10350	31,050.00
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	4	75	300.00
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	1	71580	71,580.00
10	PG Clamp for 148 sq.mm AAA conductor	NO.	6	620	3,720.00
	MATERIALS OF 4 POL	E			
11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	0	75	-
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator ( 0.4mtr X2) (GI)	KG	0	75	-
13	50x50x6mm.Gl Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	0	75	-
14	Pipe Earthing 40mm. GI Pipe	No.	0	1050	-

15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	0	75	-
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	0	10350	-
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	0	75	-
18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	0	71580	-
19	PG Clamp for 148 sq.mm AAA conductor	NO.	0	620	-
	MATERIALS OF CUT PO	INT			
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	0	75.00	-
	MATERIALS OF LINE				
21	WBP 160x160-13M 30.44KG/MTR	No	2	29679. 00	59,358.00
22	33 KV V cross Arm (GI) 22Kg each	No.	0	1580.0 0	-
23	Top bracket 100x50mm MS channel ( 2kg each)/	No.	0	150.00	-
24	33KV pin insulator polymer	No.	6	480	2,880.00
25	H W fitting(B&S)90KN,4 Bolt	No.	6	500	3,000.00
26	Disc insulator (B&S)90 KN polymer	No.	6	1150	6,900.00
27	H.T. Stay set (Complete )	Set	2	1050.0	2,100.00
28	H.T. Stay Insulator	No.	2	40.00	80.00
29	H.T. Stay clamp (1.95 K.g./ Pair )	Pair	2	125.00	250.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	30	75.00	2,250.00
31	Earthing of Support ( Coil Type )	No.	0	166.00	-
32	148 mm2 AAAC	K.M.	0	82000. 00	-
33	Red Oxide paint	Ltr	1	150.00	150.00
34	Alluminium Paint	Ltr	1	200.00	200.00
35	Black Paint	Ltr	2	220.00	440.00
36	Yellow Colour Paint for Background	Ltr	2	220.00	440.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	6	75.00	450.00

38	GI Nut , Bolt & Washer of different sizes	K.g.	15	78.00	1,170.00				
39	Danger Plate	No.	2	80.00	160.00				
A-1	Total Cost of materials								
A-2	Applicable Taxes to make it Landed Cost @	018%			2,27,852.20				
Α	Total landed Cost (A=A1 + A2)				2,27,852.20				
В	Stock, Storage & Insurance i.e 3% of A	١			6,835.57				
(A+B)	Sub Total				2,34,687.77				
С	Contigency @ 3% of (A+B)				7,040.63				
D	Tools & Plants @ 2% of (A+B)				4,693.76				
Е	Transportation @ 7.5% of (A+B)				17,601.58				
F	Erection Charges @ 5% on Trf/Breaker/J	oist			3,056.94				
G	Erection Charges @ 10% of other item	s			17,354.90				
Н	Erection Charges @ 20% of PSC pole- Not to be ι	sed for 3	33kv		0.00				
I	Sum of (A + B to H)				2,84,435.58				
	Civil & Services				l				
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	2	2000.0	4,000.00				
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.m tr	1.1	8446.0 0	9,290.60				
3	Couping ratio 1:1.5:3 with dimension ( 500X500X450)= 0.1125 Cu mtr	EA	2	676.00	1,352.00				
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	2	2407	4,814.00				
J1	Total Civil & Services				19,456.60				
J2	Applicable Taxes to make it Landed Cost @	018%			-				
J	Total landed Cost (J=J1 + J2)	<u>, , , , , , , , , , , , , , , , , , , </u>			19,456.60				
K	Total Material+Services (I+J)				3,03,892.18				
L	Other overheads (Including 6% supervision o	harges)			18,233.53				
М	SubTotal (K + L)				3,22,125.71				
N	Total GST @ 18% of (M)				57,982.63				
0	CESS @ 1% of (M)				3,221.26				
Р	Gross Total Material +Services (M+N+0	))			3,83,329.59				
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 f		km.		·				
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km								
S	Inspection Fee of Drawing Checking and Ap	proval			400.00				
T	Final decision by electrical Inspector				500.00				

U Gross Total Material, Services and Inspection Fees (P+Q+R+S+T) 3,84,229.59

PART B: Construction of (36Mtr. X 34 Mtr.) 33/11 KV Primary Substation with 2X8 MVA Trf., including complete Control Room Building and All Equipment Supply, Erection, Commissioning, Testing, Civil Works with supply of all materials, Labour, T&P etc. As per technical specification and scope of work								
SI. No.	DESCRIPTION OF ITEMS	UNIT S	Total Quantity	Basic Unit price ( In Rs.)	Total			
	SUPPLY OF FOLLOWING EQUIP (As per Technical Spe			LS				
	33kV Equipment (Indoor Type)							
1	36kV Indoor GIS/SIS Equipment and accessories for 33/11kV GIS Substation as detailed below							
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system )/Solid insulated system for line feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper),	Set	2.00	25,36,365.25	50,72,730.50			
	inbuilt SA & CT (800-400/1-1A), PT, bus-bar dis connectors (1250A) with common grounding switch, for complete Line feeder bay as per the technical specification. The module shall be provided with complete Line Feeder protection system to suit for SCADA (BCPU, Multi-function Meter & other							
	provisions as per tech spec).							
1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system )/Solid insulated system for Transformer feeder bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt SA & CT (600-300/1-1-1A), bus-bar dis connectors (1250A) with common grounding switch, for complete Transformer feeder bay as per the technical specification. The module shall be provided with complete Transformer Feeder protection system to suit for SCADA (BCPU, Numerical Differential Relay having inbuilt of REF protection, Multi-function Meter & other provisions as per tech spec).	Set	2.00	24,75,453.15	49,50,906.29			
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated (SF6 gas monitoring system )/Solid insulated system for Bus-coupler bay module each comprising of SF6 gas insulated vacuum circuit breaker (1250A),Double Busbar (each 1250A) (Copper), inbuilt CT (800-400/1-1A), bus-bar dis connectors (1250A) with grounding switches, Each bus bar set shall be provided with inductive voltage transformers(two sets) with disconnector(s) for both the buses for complete Bus-coupler bay as per the technical specification. The module shall be provided with complete Bus-coupler protection system to suit for SCADA (BCPU, Multi-function Meter & other provisions as per tech spec).	Set	1.00	44,03,929.80	44,03,929.80			
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class), Surge Arrester (for 33kV Incoming Line, HT side of 2nos. Power Transformers and 33/0.433kV Station Transformer) - Outdoor Type with Surge Counter	Nos.	6.00	10,350.00	62,100.00			

3	12kV, 10kA, Metal Oxide, Class-2 (Station Class),	Nos.	6.00	3,550.00	21,300.00
	Surge Arrester with out surge counter( For				
4	Transformers & Out Going Feeders) - Outdoor type  11kV Indoor Air Insulated switchgear Panel	No	2.00	6,41,174.55	12,82,349.09
4	consisting of Breaker-630A, Busbar-1250A(Copper)	INO	2.00	0,41,174.55	12,02,349.09
	& CT (400-200/1-1-1A) for Transformer Protection				
	Relays to be installed on the panel, Multi-function				
	Meter to be installed above the panel, Energy meter				
	to be installed on the panel				
5	11kV Indoor Air Insulated switchgear Panel	No	6.00	7,21,808.20	43,30,849.18
	consisting of Breaker-630A, Busbar-1250A				
	(Copper), CT (400-200/1-1-1A) for Feeder				
	protection				
	Relays to be installed on the panel, Multi-function				
	Meter to be installed above the panel, Energy meter				
6	to be installed on the panel	No	1.00	5,79,725.65	5,79,725.65
0	11kV Bus-Coupler Indoor AIS Panel consisting of Breaker-630A, Bus-bar-1250A (Copper)	INO	1.00	5,79,725.65	5,79,725.05
7	11kV, 2 Core, Single Phase, IVT (11/ $\sqrt{3}$ kV / 110/ $\sqrt{3}$ -	Set	2.00	3,67,128.86	7,34,257.71
,	110/ $\sqrt{3}$ V), 3nos in a set, in a separate draw out	361	2.00	3,07,120.00	7,54,257.71
	chamber with Digital Voltmeter inside Control Room				
	separately for Bus-1 & Bus-2 plug in type with				
	disconnector.				
	SCADA				
8	SCADA FOR Primary Substation	Set	1.00	2,60,000.00	2,60,000.00
	Transformer and RMU			-	
9	8.0 MVA, 33/11kV Power Transformer DYn11	No.	2.00	57,00,000.00	1,14,00,000.0
	(Outdoor Installation) with Accessories				0
10	100 KVA 33/0.433kV Energy efficient Station	No	1.00	2,72,000.00	2,72,000.00
	Transformer				
11	11 KV 4Way RMU	No.	0.00	4,49,500.00	-
	Substation Earthing System GI				
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat	Kg	5301.00	75.00	3,97,575.00
	for laying (spacing maximum 2m both ways)				
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat	Kg	720.00	75.00	54,000.00
	for Raiser from the burial earth mat to equipment,				
4.4	structure etc.)	Nia	20.00	4.050.00	24 500 00
14	Earthing Device & Associated Accessories (Heavy duty GI Perforated Pipe of ID=40mm & OD=50mm	No	30.00	1,050.00	31,500.00
	with 3000mm long for treated Earth Pit) as per				
	Drawing				
	33, 11 and Station Trf Structure				
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04	Kg	532.00	75.00	39,900.00
	nos for one Power Transformer) for supporting of	1.9	002.00	10.00	00,000.00
	33kV Cable & 11kV cable (Unit Wt=0.0665 MT) & 10				
	mm thick MS plate size 250X250 mm at the bottom				
	of the RS Joist duly welded & the MS plate to be				
	suitably grouted to the floor for the rigidity.				
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr -	Kg	229.44	75.00	17,208.00
	06 nos for one Power Transformer) for supporting of				
47	33kV & 11kV power Cable (Unit Wt=0.01912 MT)	14	500.00	70.00	00 000 00
17	GI Nuts & Bolts etc. for column and beam &	Kg	500.00	78.00	39,000.00
18	Equipment Structures Supply & Fraction of CI Pine of dia 150mm, Class B	NAtr	50.00	1 607 00	80 350 00
	Supply & Erection of GI Pipe of dia. 150mm, Class-B	Mtr.	50.00	1,607.00	80,350.00
19	High Density Polyethylene (HDPE) pipe 160 mm	KM	0.01	10,91,237.00	10,912.37
20	diameter.  LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	24,419.00	24,419.00
21	Supply and installation of 8way LDB with	Nos.	2.00	8,960.00	17,920.00
۷ ا	accessories	1105.	2.00	0,900.00	17,320.00
	33 and 11 kv Power and Control, XLPE cables				
	JU S T. I. T. T. STEEL GITTE CONTROL, ALL L. CUDICO	l	<u> </u>		<u> </u>

22	1C X 400 sqmm, 33 KV, XLPE, Power cable	KM	1.60	7,83,000.00	12,52,800.00
	Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	, , , , , , , , , , , , , , , , , , , ,
	etc. as required as per technical specifications and scope of the works.				
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable	Set.	20.00	5,233.00	1,04,660.00
	termination kit complete with all accessories and			,	, ,
	tagging etc. as per technical specifications and				
	scope of the works.	0 /	22.22	0.000.00	4.07.000.00
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable termination kit complete with all accessories and	Set.	20.00	6,869.00	1,37,380.00
	tagging etc. as per technical specifications and				
	scope of the works.				
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power	KM	0.80	15,00,000.00	12,00,000.00
	cable Armored, aluminium conductor, stranded,				
	including their termination materials like glands, lugs,				
	tagging etc. as required as per technical specifications and scope of the works.				
24	11 KV, 3C X 400 sqmm Heat Shrink In Door cable	Set.	16.00	9,582.00	1,53,312.00
- 1	termination kit complete with all accessories and	001.	10.00	0,002.00	1,00,012.00
	tagging etc. as per technical specifications and				
	scope of the works.				
25	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable	Set.	16.00	13,904.00	2,22,464.00
	termination kit complete with all accessories and tagging etc. as per technical specifications and				
	scope of the works.				
26	Control Cables (Copper Armoured)				
26.1	4 Core x 2.5 mm <sup>2</sup>	Km	0.30	1,06,157.22	31,847.17
26.2	7 Core x 2.5 mm <sup>2</sup>	Km	0.10	1,67,628.60	16,762.86
26.3	10 Core x 2.5 mm <sup>2</sup>	Km	0.20	2,34,997.61	46,999.52
26.4	12 Core x 2.5 mm <sup>2</sup>	Km	0.20	2,78,851.73	55,770.35
26.5	1 Core x 16 mm2 Aluminium cable from Battery to	Km	0.06	1,24,606.20	7,476.37
	Battery Charger & Battery Charger to DCDB				
27	1.1 kV XLPE Power Cables	1.0	0.05	1.00.100.07	04.405.05
27.1	XLPE 3 1/2 Core x 120 mm2 (for Station Transformer output)	Km	0.05	4,28,106.97	21,405.35
27.2	XLPE 3 1/2 Core x 95 mm2 ( for Oil Filtration Machine Connection )	Km	0.03	3,36,088.92	10,082.67
27.3	XLPE 3 1/2 Core x 25 mm2 ( for Switchyard Lighting )	Km	0.03	1,17,045.14	3,511.35
27.4	XLPE 4 Core 16 mm2 ( for Switchyard Lighting )	Km	0.03	84,154.55	2,524.64
27.5	XLPE 2 Core 16 mm2 ( for Switchyard Lighting )	Km	0.03	50,583.46	1,517.50
	Battery & Battery Charger	_		-	-
28	48 V, 100 AH, maintenance free VRLA Battery (Set. 4 Nos of 12V Battery)	Set	1.00	58,740.62	58,740.62
29	48V, Float cum Boost Battery Charger (15 A float	No	1.00	1,90,907.01	1,90,907.01
	charging, 20 A boost charging)				
	Sub-station Lighting And Fire Fighting System				
30	Sub-Station Switchyard Lighting , Control Room	Lot	1.00	11,62,247.82	11,62,247.82
	Lighting (it includes supply of fixtures & Lamps (LED) with switch gear, GI Conduit etc.(120Wx 4				
	sets and 100Wx6 sets out side the control room, 20				
	Watt CFL tube-10 sets inside control room .Control				
	Room wiring to be done with Copper wires as per				
	the requirement (Lighting fixtures are to be fixed				
	rigidly on the Column at a suitable height with Gl				
	tubular pole so that the required lux as per the technical specification is maintained).				
31	1.5 Ton capacity Split Air Conditioning units with	No	4.00	83,017.70	3,32,070.81
	Remote control facility: Including supply of split Air				
	conditioner 5 Star rated, voltage stabiliser, control				

				Γ	
	boxes etc. for completing the A.C scheme. (As per				
	specification) for control room.				
	4400		= 00	0.005.00	14.500.40
32	1400 mm sweep 250Volt A/C Celling Fan	No	5.00	2,905.62	14,528.10
33	300 mm sweep 70W A/C Exhaust Fan ( for Battery	No	4.00	2,158.46	8,633.84
24	room and Toilet )				
34	Fire Fighting System (portable and wheel mounted sets for control room)				
34.1	Foam type- 5 Ltrs	No	2.00	4,981.06	9,962.12
34.2	CO <sub>2</sub> - 4.5 Kgs	No	2.00	9,962.12	19,924.25
34.3	Dry powder 4.5 Kg	No	2.00	4,150.89	8,301.77
34.4	Fire Bucket with Stand (4nos. in each Stand)	No	4.00	2,988.64	11,954.55
	AC & DC System for Auxiliary supply				
35	AC System				
35.1	ACDB (as per specification)	Lot	0.00	4,15,088.51	-
35.2	Main Lighting Distribution Board (as per specification)	Lot	1.00	1,66,035.40	1,66,035.40
35.3	Indoor Lighting Distribution Board as per specification	Lot	1.00	46,489.91	46,489.91
35.4	Receptable Panel near Power Transformer	No	1.00	14,943.19	14,943.19
36	DC System				
36.1	48 V DC Distribution Board as per specification .	No	1.00	2,07,544.25	2,07,544.25
37	Water Cooler with water purifier system as per	No	1.00	24,905.31	24,905.31
	Technical Specification				
38	Maintenance Testing Equipment as per Technical Specification	Lot	1.00	9,96,212.42	9,96,212.42
39	Tools and Plants (T&P's) Requirement as per Technical Specification	Lot	1.00	2,49,053.10	2,49,053.10
40	Office Furniture as per Technical Specification	Lot	1.00	8,30,177.01	8,30,177.01
41	Supply of Materials for Installation of Power				
	Transformer on Plinth (as per Drawing)				
41.1	90 lb Rail 5.4 mts ( 2.7x2) 44.62 kg per mtr / Transformer each (Unit Wt=0.240 MT)	Nos	2.00	20,322.28	40,644.56
41.2	(500x500x10) mm GI plate 6 nos / Transformer each (Unit Wt=0.013 MT)	Nos	6.00	1,145.44	6,872.65
41.3	(65x65x5) mm GI angle of 5.4 mts length.4.9 kg/mtr. / Transformer each (Unit Wt=0.026 MT)	Nos	2.00	2,290.88	4,581.77
42	Chequered plate 1000X300X5.6mm thick for Cable Trench in side Control Room 12 Mtr	Kg	640.00	84.68	54,192.75
	Sub-Total for SUPPLY OF EQUIPMENT &				4,18,10,369.5
	MATERIALS (In Rs.)				9
	Material Landed Cost @	18%		ı	
	Total Cost in Cr.				4.18
	ERECTION, TESTING & COMMISSIONING WO	RKS OF	FOLLOWII	NG EQUIPMEN	T
	(As per Technical Spe				
	33kV Equipment (Indoor Type)				
1	Erection, Commissioning, Testing of 33kV				
	Equipment for (INDOOR AIS Sub-Station)				
1.1	36KV,1250A,25KA for 3 sec, SF6 gas insulated	Set	2.00	48,237.78	96,475.57
	(SF6 gas monitoring system )/Solid insulated system				
	for line feeder bay module each comprising of SF6				
	gas insulated vacuum circuit breaker				
	(1250A), Double Busbar (each 1250A) (Copper),				
	inbuilt SA & CT (800-400/1-1A), bus-bar dis				
	connectors (1250A) with common grounding switch, for complete Line feeder bay as per the technical				
	specification. The module shall be provided with				
	complete Line Feeder protection system to suit for				
	SCADA ( BCPU, Multi-function Meter & other				
	provisions as per tech spec).				
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			1	I	T
1.2	36KV,1250A,25KA for 3 sec, SF6 gas insulated	Set	2.00	48,237.78	96,475.57
	(SF6 gas monitoring system )/Solid insulated system				
	for Transformer feeder bay module each comprising				
	of SF6 gas insulated vacuum circuit breaker				
	(1250A),Double Busbar (each 1250A) (Copper),				
	inbuilt SA & CT (600-300/1-1-1A) , bus-bar dis				
	connectors (1250A) with common grounding switch,				
	for complete Transformer feeder bay as per the				
	technical specification. The module shall be provided				
	with complete Transformer Feeder protection system				
	to suit for SCADA ( BCPU, Numerical Differential				
	Relay having inbuilt of REF protection, Multi-function				
	Meter & other provisions as per tech spec).				
1.3	36KV,1250A,25KA for 3 sec, SF6 gas insulated	Set	1.00	48,237.78	48,237.78
	(SF6 gas monitoring system )/Solid insulated system			,	,
	for Bus-coupler bay module each comprising of SF6				
	gas insulated vacuum circuit breaker				
	(1250A),Double Busbar (each 1250A) (Copper),				
	inbuilt CT (800-400/1-1A), bus-bar dis connectors				
	(1250A) with grounding switches, Each bus bar set				
	shall be provided with inductive voltage				
	transformers(two sets) with disconnector(s) for both				
	the buses for complete Bus-coupler bay as per the				
	technical specification. The module shall be provided				
	with complete Bus-coupler protection system to suit				
	for SCADA ( BCPU, Multi-function Meter & other				
	provisions as per tech spec).				
Erectio	n, Commissioning, Testing of 11kV Equipment (Indoor				-
	Type)				
2	30kV, 10kA, Metal Oxide, Class-2 (Station Class),	Nos.	6.00	428.00	2,568.00
	Surge Arrester (for 33kV Incoming Line, HT side of				
	2nos. Power Transformers and 33/0.433kV Station				
	Transformer) - Outdoor Type with Surge Counter				
3	12kV, 10kA, Metal Oxide, Class-2 (Station Class),	Nos.	6.00	128.40	770.40
	Surge Arrester with out surge counter( For				
	Transformers & Out Going Feeders) - Outdoor type				
4	11kV Indoor Air Insulated switchgear Panel	No	2.00	7,490.00	14,980.00
	consisting of Breaker-1250A, Busbar-			,	,
	2000A(Copper) & CT (800-400/1-1-1A) Horizontal				
	draw type for Transformer Protection and Differential				
	Relays to be installed on the panel, Multi-function				
	Meter to be installed above the panel, Energy meter				
	to be installed on the panel				
5	11kV Indoor Air Insulated switchgear Panel	No	6.00	7,490.00	44,940.00
3	consisting of Breaker-1250A, Busbar-2000A	110	0.00	7,430.00	77,340.00
	(Copper), CT (600-300/1-1-1A) for Feeder				
	protection Relays to be installed on the panel, Multi-				
	function Meter to be installed above the panel,				
	Energy meter to be installed on the panel		4.00	7 400 55	7 100 55
6	11kV Bus-Coupler Indoor AIS Panel consisting of	No	1.00	7,490.00	7,490.00
	Breaker-1250A, Bus-bar-2000A (Copper), for Bus				
	protection Relays to be installed on the panel, Multi-				
	function Meter to be installed above the panel,				
	Energy meter to be installed on the panel				
7	11kV, 2 Core, Single Phase, IVT (11/ $\sqrt{3}$ kV / 110/ $\sqrt{3}$ -	Set	2.00	7,490.00	14,980.00
	110/ $\sqrt{3}$ V), 3nos in a set, in a separate draw out				
	chamber with Digital Voltmeter inside Control Room				
	separately for Bus-1 & Bus-2 plug in type with				
	disconnector.				
	Erection, Commissioning, Te	estina of	SCADA	1	
0	<u> </u>			0.00	0.00
8	SCADA FOR Primary Substation	Set	1.00	0.00	0.00
Erection	on, Commissioning, Testing of Transformer and RMU				0.00

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9	8.0 MVA, 33/11kV Power Transformer DYn11 (Outdoor Installation) with Accessories	No.	2.00	85,600.00	1,71,200.00
10	100 KVA 33/0.433kV Energy efficient Station Transformer	No	1.00	5,350.00	5,350.00
11	11 KV 4Way RMU	No.	0.00	4,813.00	-
`	Function Louise of Cubatation		Custom Cl		-
	Erection, Laying of Substation				
12	Earthing Conductor 75X10 mm (5.89 Kg/Mtr.) GI Flat for laying (spacing maximum 2m both ways)	Kg	5301.00	15.00	79,515.00
13	Earthing Conductor: 50X6 mm (2.4Kg./Mtr.) GI Flat for Raiser from the burial earth mat to equipment, structure etc.)	Kg	720.00	15.00	10,800.00
14	Earthing Device & Associated Accessories (Heavy duty GI Perforated Pipe of ID=40mm & OD=50mm with 3000mm long for treated Earth Pit) as per Drawing	No	30.00	2,675.00	80,250.00
	Erection of System GI 33, 11 and				
15	(125x70x5) mm RS GI joist 5Mtr (13.3kg / Mtr) (04 nos for one Power Transformer) for supporting of 33kV Cable & 11kV cable (Unit Wt=0.0665 MT) & 10 mm thick MS plate size 250X250 mm at the bottom of the RS Joist duly welded & the MS plate to be suitably grouted to the floor for the rigidity.	Kg	532.00	30.00	15,960.00
16	(100 x 50 x5) mm GI Channel (9.56kg / Mtr) (2Mtr - 06 nos for one Power Transformer) for supporting of 33kV & 11kV power Cable (Unit Wt=0.01912 MT)	Kg	229.44	30.00	6,883.20
17	GI Nuts & Bolts etc. for column and beam & Equipment Structures	Kg	500.00	30.00	15,000.00
18	GI Pipe of dia. 150mm, Class-B	Mtr.	0.00	-	-
19	High Density Polyethylene (HDPE) pipe 160 mm diameter.	KM	0.01	1,04,114.67	1,041.15
20	LTDB for 100KVA, 33/0.433kV Station Transformer	Nos	1.00	1,000.00	1,000.00
Layi	ng of 11kV 33 and 11 kv Power and Control cables				-
21	1C X 400 sqmm, 33 KV, XLPE, Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	1.60	2,80,497.64	4,48,796.22
22.1	33 KV 1C X 400 sq.mm. Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	1,959.72	39,194.40
22.2	33 KV 1C X 400 sq.mm. Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	20.00	2,327.04	46,540.80
23	3C X 400 sqmm, 11 KV, XLPE, 3 phase Power cable Armored, aluminium conductor, stranded, including their termination materials like glands, lugs, tagging etc. as required as per technical specifications and scope of the works.	KM	0.80	2,08,229.35	1,66,583.48
24.1	11 KV, 3C X 400 sqmm Heat Shrink In Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	1,470.29	23,524.64
24.2	11 KV, 3C X 400 sqmm Heat Shrink Out Door cable termination kit complete with all accessories and tagging etc. as per technical specifications and scope of the works.	Set.	16.00	1,837.61	29,401.76
25	Control Cables (Copper Armoured)				-
25.1	4 Core x 2.5 mm <sup>2</sup>	Km	0.30	21,400.00	6,420.00
25.2	7 Core x 2.5 mm <sup>2</sup>	Km	0.10	21,400.00	2,140.00

25.3	10 Core x 2.5 mm <sup>2</sup>	Km	0.20	26,750.00	5,350.00
25.4	12 Core x 2.5 mm <sup>2</sup>	Km	0.20	26,750.00	5,350.00
25.5	1 Core x 16 mm2 Aluminium cable from Battery to	Km	0.06	16,050.00	963.00
	Battery Charger & Battery Charger to DCDB				
26	Laying of 1.1 kV XLPE Power Cables				-
26.1	XLPE 3 1/2 Core x 120 mm2 (for Station	Km	0.05	32,100.00	1,605.00
00.0	Transformer output )	14	0.00	00 000 00	200.00
26.2	XLPE 3 1/2 Core x 95 mm2 ( for Oil Filtration Machine Connection )	Km	0.03	29,960.00	898.80
26.3	XLPE 3 1/2 Core x 25 mm2 ( for Switchyard Lighting	Km	0.03	27,820.00	834.60
20.5	)	IXIII	0.03	27,020.00	034.00
26.4	XLPE 4 Core 16 mm2 ( for Switchyard Lighting )	Km	0.03	25,680.00	770.40
26.5	XLPE 2 Core 16 mm2 ( for Switchyard Lighting )	Km	0.03	25,680.00	770.40
	Erection, Commissioning , Wiring & Testin				
27	48 V, 100 AH, maintenance free VRLA Battery (Set.	Set	1.00	5,350.00	5,350.00
21	4 Nos of 12V Battery)	Set	1.00	5,350.00	5,350.00
28	48V, Float cum Boost Battery Charger (15 A float	No	1.00	5,350.00	5,350.00
20	charging, 20 A boost charging)	110	1.00	0,000.00	0,000.00
	Erection, Commissioning , Wiring & Testing of Sub-				-
	station Lighting And Fire Fighting System				
29	Sub-Station Switchyard Lighting , Control Room	Lot	1.00	32,100.00	32,100.00
	Lighting (it includes supply of fixtures & Lamps				
	(LED) with switch gear, GI Conduit etc.(120Wx 4				
	sets and 100Wx6 sets out side the control room, 20				
	Watt CFL tube-10 sets inside control room .Control				
	Room wiring to be done with Copper wires as per				
	the requirement (Lighting fixtures are to be fixed				
	rigidly on the Column at a suitable height with GI				
	tubular pole so that the required lux as per the				
20	technical specification is maintained).	No	4.00	1 100 00	E 002 00
30	1.5 Ton capacity Split Air Conditioning units with Remote control facility: Including supply of split Air	INO	4.00	1,498.00	5,992.00
	conditioner 5 Star rated, voltage stabiliser, control				
	boxes etc. for completing the A.C scheme. (As per				
	specification) for control room.				
31	1400 mm sweep 250Volt A/C Celling Fan	No	5.00	107.00	535.00
32	300 mm sweep 70W A/C Exhaust Fan ( for Battery	No	4.00	107.00	428.00
<b>02</b>	room and Toilet )	110	4.00	107.00	420.00
33	Erection, Commissioning of Fire Fighting System (p	ortable a	nd wheel n	nounted sets for	control room)
20.4			0.00	50.50	407.00
33.1	Foam type- 5 Ltrs	No	2.00	53.50	107.00
33.2	CO <sub>2</sub> - 4.5 Kgs	No	2.00	53.50	107.00
33.3	Dry powder 4.5 Kg	No	2.00	53.50	107.00
33.4	Fire Bucket with Stand (4nos. in each Stand)	No	4.00	107.00	428.00
	Erection, Commissioning, Wiring	& Testin	g of AC &	DC System	
34	AC System				-
34.1	ACDB (as per specification)	Lot	0.00	4,280.00	_
34.2	Main Lighting Distribution Board (as per	Lot	1.00	2,140.00	2,140.00
	specification)				
34.3	Indoor Lighting Distribution Board as per	Lot	1.00	2,140.00	2,140.00
	specification				
34.4	Receptable Panel near Power Transformer	No	1.00	1,605.00	1,605.00
35	DC System				-
35.1	48 V DC Distribution Board as per specification .	No	1.00	2,140.00	2,140.00
36	Erection, Commissioning of Water Cooler with water	No	1.00	802.50	802.50
	Purifier System				
37	Commissioning & Testing of Maintenance Testing	Lot	1.00	2,140.00	2,140.00
	Equipment				
38	Commissioning Tools and Plants (T&P's)	Lot	1.00	535.00	535.00
	Requirement				
	requirement				

39	Commissioning Office Furniture	Lot	1.00	1,070.00	1,070.00
	Laying of Materials for Installation of Power			.,00.0	-
	Transformer on Plinth (as per Drawing)				
40	90 lb Rail 5.4 mts ( 2.7x2) 44.62 kg per mtr /	Nos	2.00	856.00	1,712.00
	Transformer each (Unit Wt=0.240 MT)				
41	(500x500x10) mm GI plate 6 nos / Transformer each (Unit Wt=0.013 MT)	Nos	6.00	74.90	449.40
42	(65x65x5) mm GI angle of 5.4 mts length.4.9 kg/mtr.	Nos	2.00	80.25	160.50
72	/ Transformer each (Unit Wt=0.026 MT)	1100	2.00	00.20	100.00
43	Construction of Cable Trench :	Mtr	71.85	23,041.98	16,55,566.26
	2 tier 2 rows U-Type RCC Cable trench with M-20				
	Grade concrete: The internal width 2000 mm, depth				
	1005 mm, with 75X75X6 mm support angles fixed RCC wall of 175 X 175 mm, Raft of 175mm & with				
	ladder type cable tray (45X45X5)mm two angles at				
	both side having welded flats of 25X5 mm at a gap				
	of 150mm) for Power & control Cable with RCC				
	Trench Cover Slab as per technical Specification,				
	approved drawing and Direction of Engineer				
	Incharge. Complete work including earth work in				
	excavation in all kind of soil & rock and refilling the				
	cavity by selective soil, leveling the surface around the pit with disposal of surplus earth.				
44	Chequered plate 1000X300X5.6mm thick for Cable	Metric	0.64	6,420.00	4,095.96
	Trench in side Control Room 12 Mtr	Ton	0.01	0,120.00	1,000.00
	Sub-Total for ERECTION,TESTING &				32,18,120.80
	COMMISSIONING WORKS (In Rs.)				=======================================
	Total Cost in Cr.				0.32
-					
Civil Wo	orks with supply of all materials like Cement, MS tor rod,	Brick, Co	oarse & Fine	e Agregrates &	Labour,T&P etc.
1	Contour survey (36 mts.x 34 mts.), plotting the	Sqr	1,224.0	16.05	19,645.20
	contour on graph sheet and marking the finished	Mtr	0		
	ground level				
2	Cutting for Levelling and disposal of excess earth	Cum	143.00	192.60	27,541.80
3	either in low laying area in sub-station or outside.  Filling of S/S area with borrowed earth (rolling &	Cum	2.320.0	374.50	8,68,840.00
	compacting of filled up soil before taking	Cuiii	0	374.30	0,00,040.00
	measurement).				
4	OUT DOOR DRAIN to DISCHARGE SWITCHYARD/		-	-	-
	WATER FROM WASH BASIN AND CONTROL				
	ROOM ROOF (10 mts				
4.1	Excavation in all type soil (1.35x10x0.7)	Cum	9.45	214.00	2,022.30
4.2	PCC (1:3:6 ) (1.35x10x0.1)	Cum	1.35	4,708.00	6,355.80
4.3	PCC ( 1:2:4 ) (0.3x10x0.05)	Cum	0.15	5,778.00	866.70
4.4	Brick Masonary with cement mortar (1:5)	Cum	5.32	3,905.50	20,775.63
	(0.25x10x0.925+1/2x0.15x0.93x10)+(0.25x10x0.925				
4.4	Plastering with Cement mortar(1:6) (	92	42.75	107.00	4,574.25
4.4	2x0.25x10+2x0.925x10+1x0.925x10+1x1.0x10 )	Sq. mtr.	42.75	107.00	4,374.23
5	Switch Yard and COMPOUND WALL as per	1114.	_		_
	Drawing Schedule and Specification. For PILE		-	-	_
	Foundation for SBC Upto 10				
5.1	Construction of Compound-wall (with RCC column	Run.	140.00	16,990.55	23,78,677.00
	& beam with M-20 Grade concrete ) along the	Mtr.			
	property line of the sub-station as per technical				
	specification and instruction of the Engineer in				
	Charge (the size of the bricks shall be 250mm				
	having 1st class Fly-ash brick having compressive strength with 75kg/cm2). This also includes				
	excavation in all types of soil or rocks, backfilling				
	and disposal of excess earth . (Brick works rested				

			1		
	on RCC Beam and RCC Column & footings ,				
	including Cement Plastering, Cement wash, Wall				
	Painting two coats with weather coat.  Provision of the boundary wall Fencing with M.S Grill				
	of 700 mm height fixing at the top of the wall. It				
	includes supply of all the materials & two coats of				
	synthetic enamel paintings after primer application of				
	the fencing.				
	•				
5.2	Switch Yard GI Chain Linking Fencing with 2.4 Mtr	Run.	60.00	5,000.00	3,00,000.00
	Height.	Mtr.			
6	Power Transformer Foundation / One (8 MVA)		-	-	-
6.1	Excavation in all type soil per Tfr.(3X3X1.1 mtr)	Cum	19.80	214.00	4,237.20
6.2	PCC (1:3:6 ) per Tfr.(3X3X0.075 mtr)	Cum	1.35	4,708.00	6,355.80
6.3	RCC (1:1.5:3) per Tfr. As per drawing	Cum	10.52	6,420.00	67,538.40
6.4	RRHG stone grouting with sand per Tfr.	Cum	9.00	1,926.00	17,334.00
7	Construction of 100kVA 33/0.4 kV station Trf. Plinth		-	-	-
7.1	Excavation in all type soil (2.5X2.5X0.750 mtr)	Cum	4.69	214.00	1,003.13
7.2	PCC (1:3:6 ) (2.5X2.5X0.075 mtr)	Cum	0.47	4,708.00	2,206.88
7.3	RCC ( 1:1.5:3 ) (1.5X1.5X0.1 mtr)	Cum	0.23	6,420.00	1,444.50
7.4	Brick Masonary work (2.5x2.5x.925+2x(.5 x1.5x2.25) (1:5)	Cum	61.19	3,905.50	2,38,967.78
7.5	Cement Plastering (1:6) (1.5x2.25x4)+(1.5x1.5) 20mm thick	Sq Mtr	15.75	107.00	1,685.25
8	Construction of oil sump pit for Transformer (1.6 X 1.6 X 2.3 )		-	-	-
8.1	Excavation of Earth(2.0x2.0x2.1)	Cum	8.40	214.00	1,797.60
8.2	PCC (1:3:6) 2X2X0.1	Cum	0.40	4,708.00	1,883.20
8.3	RCC(1:1.5:3) 1.6X1.6X0.1 for Top Slab	Cum	0.26	6,420.00	1,643.52
8.4	Brick Masonary work(2x2.1+2x1.6)x0.25x2.3 (1:5)	Cum	4.26	3,905.50	16,617.90
8.5	Cement Plastering (1:6) 2.3 ( 4x2.1+ 4x1.6 )+ 1.6x1.6	Sq.mt	36.60	107.00	3,916.20
8.6	Drainage for Oil sump pit with 250 dia hume pipe	Mtr	24.00	749.00	17,976.00
9	ROAD (5 Mtrs wide) Length of the road 20 mtrs as per Drawing Schedule- OPTCL/CIVIL/11-REV-B.		-	-	-
9.1	Excavation in all type soil 0.5mx1mx5m	Cum	50.00	214.00	10,700.00
9.2	Boulder Packing 0.5mx1mx5m	Cum	50.00	1,926.00	96,300.00
9.3	Water base course -I 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.4	Water base course -II 0.075mx1mx5m	Cum	7.50	2,140.00	16,050.00
9.5	PCC ( 1:2:4 ) 0.1mx1mx5m	Cum	10.00	5,778.00	57,780.00
10	(125x70x5) mm RS GI joist 5Mtr ( STATION) as per Drawing Schedule- OPTCL/CIVIL/2-REV-B.		-	- -	-
10.1	Excavation with back filling L 1m x W 1 x D 2	Cum	8.00	214.00	1,712.00
10.2	PCC (1:3:6)	Cum	0.40	4,708.00	1,883.20
10.3	RCC (1:1.5:3)	Cum	12.00	6,420.00	77,040.00
11	Baffle Wall		-		-
11.1	Excavation with back filling 4.2mx0.75mx0.5m	Cum	1.58	214.00	337.05
11.2	PCC 1:3:6 4.2mx0.75mx0.1m	Cum	0.32	4,708.00	1,483.02
11.3	RCC 1:1.5:3	Cum	5.80	6,420.00	37,203.90
	0.75x3.8x0.2+0.5x3.4x0.2+2.5x3x0.15				,
12	PCC (1:4:8 ) With cement For S/S area(75 mm) per Sq. mts.( (8x16x0.075)	Cum	9.60	4,066.00	39,033.60
13	Metal Spreading 100 mm. per Sq. mts. Area of spreading.	Cum	12.80	1,605.00	20,544.00
	Switchgear Cum Control Room (22x10Mts) (column & beam based) (as per specification & Inclusive of doors, windows, collapsible gate, PHD fittings, electrification, inner cable trench, Two nos main doors with concrete pillars, beams) etc. as per		-	-	-

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	Technical specification in Civil section. Layout				
	Drawing				
14	Switchgear Cum Control Room For Pile foundation		-	-	-
	in FLOOD AREA (with SBC upto 10)				
14.1	Boring and casting 300 mm dia single under	Nos	252.00	6,420.00	16,17,840.00
	reamed pile of 5.00 m. long with R.C.C. M-20 using				
	20 mm down graded chips with cost of all materials,				
	labours, T&P etc. & all other machinaries required				
	for the work etc. Complete in all respect as per latest				
44.0	specification & direction of the Engineer in charge.		470.00	005.40	4 40 000 00
14.2	Earth work in excavation of foundation trenches in all	Cum	470.80	235.40	1,10,826.32
	kinds of soil including moorum, stony earth and earth				
	mixed with boulders except sheet rock and boulders				
	requiring blasting including dressing of sides and leveling the bed up to the required depth and				
	depositing the excavated materials away from the				
	work site within initial leads and lifts, including				
	shoring, shuttering & dewatering (if required) with				
	cost of labour,cess, hire & running charges of water				
	pumps sundries , T & P & all other machinaries				
	required for the work etc. Complete in all respect as				
	per latest specification & direction of the Engineer in				
	charge.				
14.3	Supplying and filling in foundation and plinth with	Cum	791.60	770.40	6,09,848.64
	good river sand well watered and rammed in layers				
	not exceeding 23 cm in each layer including all leads				
	and lifts, cost of all materials, labour,cess, sundries,				
	T&P required for the work etc. Complete in all				
	respect as per latest specification & direction of the				
	Engineer in charge.				
14.4	Providing and lying plain cement concrete of	Cum	156.80	4,708.00	7,38,214.40
	proportion (1:3:6) in foundation and plinths using				
	approved quality cement , 40 mm. size black hard				
	crusher broken granite stone metal and screened,				
	washed sharp sand for mortar of approved quality				
	and from approved quarry, including hoisting, lowering, laying concrete, ramming, watering and				
	curing etc. complete to required levels laid in layers				
	not exceeding 15 cm. thick in each layer including				
	cost, conveyance, loading, unloading, royalties and				
	taxes of all materials and cost of all labours, cess,				
	sundries, T&P & all other machinaries required for				
	the work including shoring, shuttering and				
	dewatering if required including hire & running				
	charges of water pump etc. Complete in all respect				
	as per latest specification & direction of the Engineer				
	in charge.				
14.5	K.B. Brick masonary in cement mortar (1:6) using		-	-	-
	the bricks of size 10" x 5" x 3" of crushing strength				
	not less than 100 kg / centimeter square with				
	dimensional tolerance 3% after immersing the bricks				
	for 6 hours in water before use including hoisting to				
	required height placing in position scaffolding, splays				
	cutting, circular moulding, corbelling, chamfering and				
	similar such type of work watering and curing etc.				
	including cost, conveyance, royalty, cess, and taxes of all other materials machinaries scaffolding all				
	labour T&P articles required for the work etc.				
	complete in all respect as per the latest specification				
	confirming to relevant IS Specification and direction				
1	, a is is is in the opposition and an obtion		i		
14.5.1	of the Engineer-in-charge. In Foundation and Plinth	Cum	108.00	4,494.00	4,85,352.00

14.5.2	Ground Floor	Cum	222.80	4,494.00	10,01,263.20
14.6	RCC work M-20 grade as per approved designs and		-	-	-
	drawings having a minimum compressive strength				
	(in work test) 200 Kg./ Sqcm.in 15 cm. cubes at 28				
	days after mixing and test conducted in accordance				
	with I.S.456 and I.S 516 using 12 mm. to 20 mm.				
	size black hard crusher broken granite stone chips, screened and washed sharp sand for mortar of				
	approved quality from approved quarry, to be mixed				
	in concrete mixture with approved quality cement				
	including hoisting, lowering, laying and compacting				
	concrete by using vibrators, watering and curing for				
	28 days, centering and shuttering and finishing the				
	exposed surface smooth providing grooves or				
	beads wherever necessary including cost,				
	conveyance, loading, unloading, royalties and taxes				
	and cess of all materials, cost of all labours,				
	sundries, T&P & all other machinaries required for				
	the work but excluding cost and conveyance of M.S. or Tor steel and binding wires etc. Complete in all				
	respect as per latest specification & direction of the				
	Engineer in charge.				
14.6.1	Pile cap & Grade beam	Cum	300.00	6,420.00	19,26,000.00
14.6.2	R.C.C. wall	Cum	70.80	6,420.00	4,54,536.00
14.6.3	Plinth Beam	Cum	24.40	6,420.00	1,56,648.00
14.6.4	Column & Beam- Ground Floor	Cum	144.00	6,420.00	9,24,480.00
14.6.5	Lintel-Ground Floor	Cum	8.80	6,420.00	56,496.00
14.6.6	65mm thick R.C.C.Chajja- Ground Floor	Sqm	88.40	588.50	52,023.40
14.6.7	Roof slab - Ground Floor	Cum	147.20	6,420.00	9,45,024.00
14.6.8	Staircase- Ground Floor	Cum	23.60	6,420.00	1,51,512.00
14.7	Cutting, Straightening coiled or bent up M.S. rods or		-	-	-
	Tor steel welding or jointing if necessary, bending,				
	binding, tying the grills as required for R.C.C. works,				
	providing fan hooks where necessary and hoisting,				
	lowering and placing in proper position according to				
	approved designs and drawings including cost, conveyance, loading, unloading, taxes of M.S. rods				
	or Tor steel and binding wires of 18 to 20 gauge				
	required for the work and cost of all labour, sundries,				
	T&P and scaffolding complete in all respect as				
	directed by the Engineer in charge (payment will be				
	made according to the actual weight of M.S. rod /				
	Tor steel consumed in the work and no separate				
	payment will be made towards weight of binding				
	wires which is to be borne by the contractor at his				
	own cost etc. complete in all respect as per				
14.7.1	direction of the Engineer-in-charge. Ground Floor	MT	72.00	58,850.00	42,37,200.00
14.7.1	Supplying, fitting and fixing vitrified tile 60x60cm	Sqm	416.00	963.00	4,00,608.00
1-7.0	plain Ivory 8 to 10 mm thick in floors of approved	Sqiii	710.00	300.00	4,50,000.00
	make with application of polymer modified cement				
	based water resistant adhesive bed of required				
	thickness of 10mm and filling joints with epoxy grout				
	of approved quality including cost of all materials,				
	takes labour T&P etc. required for the work etc.				
	complete in all respect as per the latest specification				
	and direction of the Engineer-in-charge.	C	36.80	062.00	25 420 40
14.0	Cupplying fitting and fixing vital: - 1 til - 00-00		1 3D XII	963.00	35,438.40
14.9	Supplying, fitting and fixing vitrified tile 60x60cm	Sqm	30.00		, , , , , ,
14.9	plain Ivory 8 to 10 mm thick in dado of approved	Sqiii	30.00		, , , , ,
14.9	plain Ivory 8 to 10 mm thick in dado of approved make with application of polymer modified cement	Sqiii	30.00		
14.9	plain Ivory 8 to 10 mm thick in dado of approved	Sqiii	00.00		

	TOD ( ) ( )		Т		
	takes labour T&P etc. required for the work etc.				
	complete in all respect as per the latest specification				
	and direction of the Engineer-in-charge.				
14.10	Supplying, fitting and fixing Floor tile of size	Sqm	20.40	856.00	17,462.40
	40cmx40 cm / 30cmx30cm in floors on 25mm thick	94	20.10	000.00	17,102.10
	bed of cement mortar 1:1 (1cement : 1sand) jointed				
	with neat cement slury mixed with pigment to match				
	the shades of the tiles of required thickness of				
	approved quality including cost of all materials, takes				
	labour T&P etc. required for the work.etc complete				
	in all respect as per the latest specification and				
	direction of the Engineer-in-charge.				
14.11	Providing fitting fixing Glazed /Ceramic tiles of size	Sqm	107.20	802.50	86,028.00
	20cmX30cm & 6.5 to 6.7mm thick of size up to				
	0.10sqm in wall dados skirting and on 12mm thick				
	cement plaster (1:3) jointed with neat cement slurry				
	mixed with pigments to match the shade of the tiles				
	including rubbing and polishing complete including				
	cost of precast tiles etc. complete in all respect as				
	per the latest specification and direction of the				
	Engineer-in-charge.		1.55	00.000	00.555
14.1	Supplying, fitting and fixing 5"x2½" size Dressed	Cum	1.00	80,250.00	80,250.00
	seasoned Sal wood chaukaths including cost,				
	conveyance royality taxes of all materials. labour, all				
	other machinaries, T & P articles required for the				
	work complete in all respect as per the direction of				
14.13	the Engineer-in-Charge.  Supplying, fitting and fixing 30mm/32mm flush door	Sqm	57.60	1,605.00	92,448.00
14.13	shutter (Non-Sal hard wood frame fixed with 4mm	Sqiii	37.00	1,005.00	92,446.00
	BWR ply on both sides of frame.including cost				
	conveyance royality taxes of all materials. labour, all				
	other machinaries, T & P articles required for the				
	work complete in all respect as per the direction of				
	the Engineer-in-Charge.				
14.1	Providing and fixing of sliding windows of approved	Sqm	124.00	2,354.00	2,91,896.00
	make to be febricated from roll formed sections	- 4		_, -,	_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
	made of pre-painted steel (base steel as per IS-513				
	of 0.6 mm thick "D" quality, galvanized as per IS-277				
	with zinc of 120 Gm/ Sqm.) including cost				
	conveyance royality taxes of all materials. labour, all				
	other machinaries, T & P articles required for the				
	work complete in all respect as per the direction of				
	the Engineer-in-Charge. DOUBLE SHUTTER				
	SLIDING WINDOW				
14.15	Providing and fixing of FRP door frame including	Mtr	40.80	481.50	19,645.20
	cost conveyance royality taxes of all materials.				
	labour, all other machinaries, T & P articles required				
	for the work complete in all respect as per the latest				
	specification and direction of the Engineer-in-				
44.0	Charge.	C 122	45.00	0.745.00	50,004,00
14.2	Providing and fixing of FRP door shutter including	Sqm	15.20	3,745.00	56,924.00
	cost conveyance royality taxes of all materials.				
	labour, all other machinaries, T & P articles required				
	for the work complete in all respect as per the latest specification and direction of the Engineer-in-				
	Charge.				
14.17	Providing 16mm. thick cement plaster with cement		_		_
1→.17	mortar of mix (1:6) with approved quality cement		-	-	_
	with screened and washed sharp sand for mortar				
	and finished smooth to the surface over brick work				
	after racking out the joints including watering and				
	curing, rounding of corners etc. complete with cost,				
	, , , , , , , , , , , , , , , , , , , ,				1

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	conveyance, loading, unloading, royalties, cess, and				
	taxes of all materials and cost of all labours,				
	sundries, T&P and scaffolding required for the work				
	etc. complete in all respect as desired by the				
	Engineer in charge				
14.17.	Ground Floor	Sqm	2,499.6	128.40	3,20,948.64
1	0.53	- 4	0		,,,,
14.18	Providing 12mm. thick cement plaster with cement		-	-	-
	mortar of mix (1:6) with approved quality cement and				
	screened and washed sharp sand for mortar and				
	finished smooth to the surface over brick work after				
	racking out the joints including watering and curing,				
	rounding of corners etc. complete with cost,				
	conveyance, loading, unloading, royalties and taxes,				
	cess, of all materials and cost of all labours,				
	sundries, T&P and scaffolding required for the work				
	etc. complete in all respect as desired by the				
11.10	Engineer in charger in charge		4.500.4	407.00	4.00.050.00
14.18.	Ground Floor	Sqm	1,588.4	107.00	1,69,958.80
14.10	Draviding 12mm, thick coment places with save and		0		+
14.19	Providing 12mm. thick cement plaster with cement mortar of mix (1:3) with approved quality cement		-	-	-
	with screened and washed sharp sand for mortar				
	and finished smooth to the surface in ceiling and				
	R.C.C. surface after chipping the surface in all floors				
	including watering and curing, rounding of corners				
	etc. complete with cost, conveyance, loading,				
	unloading, royalties, cess, and taxes of all materials				
	and cost of all labours, sundries, T&P and				
	scaffolding required for the work etc. complete in all				
	respect as desired by the Engineer in charge.				
14.19.	Ground Floor	Sqm	1,603.6	107.00	1,71,585.20
1			0		
14.20	Providing and finishing the wall surface with two coat		-	-	-
	of cement wash including scaffolding, all labour,				
	cost, conveyance, cess, taxes of all materials, T&P				
	articles, brushes all other machineries required for				
	the work complete in all respect confirming to				
	relevant I.S. Specification and direction of the Engineer-in-Charge				
14.20.	Ground Floor	Sqm	5,655.2	6.42	36,306.38
14.20.	Ground Fridor	Oqiii	0,000.2	0.42	30,300.30
14.21	Supplying fitting and fixing of M.S shutter made out	Kg	3,166.8	80.25	2,54,135.70
	of M.S Angle 40mmx40mmx6mmm, M.S.Flat 19 mm		0		,,
	x 5 mm size, M.S. guide, top hood cover etc. as per				
	design provided including cost, conveyance,				
	royalities of all materials, cost of all labour, T&P				
	articles required for the work etc. complete in all				
	respect confirming to relevant I.S specification and				
	direction of the Engineer-in Charge.				
14.22	Supplying fitting and fixing of M.S grill made out of	Kg	2,848.4	80.25	2,28,584.10
	M.S M.S.Flat 19 mm x 5 mm size, as per design		0		
	provided including cost, conveyance, royalities of				
	all materials, cost of all labour, T&P articles required				
	for the work etc. complete in all respect confirming to relevant I.S specification and direction of the				
	Engineer-in Charge.				
14.23	Wall painting 2 coats with acrylic distemper over one		_		_
17.20	coat of wall primer of approved shade on new work				
	to give an even shade in all floors at all height				
	including scafolding cost of brushes including cost of				
	paint cost conveyance royality of all materials				
	labour,T&P articles required for the work etc.	<u> </u>			

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	complete in all respect as per the latest specification				
	and direction of the Engineer-in-charge.				
14.23.	Ground Floor	Sqm	3,725.2	10.70	39,859.64
1		- 4	0		
14.24	Painting two coats with weather coat on exterior		_	-	_
	walls surface of approved quality and approved				
	shade over a coat of primer in all floors at all height				
	of approved quality and shade including cleaning				
	and sand papering the surface and making the				
	surface smooth with cost, conveyance, loading,				
	unloading, and taxes of all materials, cost of all				
	labour, sundries, T&P, scaffolding etc. required for				
	the work complete in all respect as directed by				
44.04	Engineer-in-charge	0	4.000.0	40.05	20.070.50
14.24.	Ground Floor	Sqm	1,930.0	16.05	30,976.50
1			0	00.40	40.400.04
14.25	Painting two Coats with approved colour synthetic	Sqm	418.40	32.10	13,430.64
	enamel paint on wood / iron work in all floors at all				
	height including scafolding cost conveyance royality				
	of all materials labour,T&P articles required for the				
	work etc. complete in all respect as per the latest				
	specification and direction of the Engineer-in-				
44.00	charge.		400.00	0.400.00	7.00.540.00
14.26	Providing cement concrete (1:1.5:3) using 12mm	Cum	123.60	6,420.00	7,93,512.00
	size black hard crusher broken granite stone chips,				
	screened & washed sharp sand for mortar of				
	approved quality and from approved quarry,				
	including hoisting, lowering, laying concrete,				
	ramming, watering and curing etc. complete to				
	required levels laid in layers not exceeding 15 cm.				
	thick in each layer including cost, conveyance,				
	loading, unloading, royalties and taxes of all				
	materials and cost of all labours, cess, sundries,				
	T&P & all other machinaries required for the work				
	including shoring, shuttering and dewatering if				
	required including hire & running charges of water				
	pump etc. Complete in all respect as per latest				
	specification & direction of the Engineer in charge.				
14.27	Supplying, fitting and fixing of stainless steel of 304	Mtr	68.00	1,605.00	1,09,140.00
	grade in hand railing using 50mm dia of 2mm thick				
	circular pipe with Balustrade of size 32mm x 32mm x				
	2mm @ 0.90mtr. C/C and stainless square pipe				
	bracing of size 32mm x 32mm x 2mm in 3 rows in				
	stair case as per approved design and specification,				
	buffing, polishing etc. with cost, conveyance, taxes				
	of all materials, labour, T&P etc. required for the				
	complete in all respect.				
14.28	Providing and fixing M.S. fan clamp type-I of 16mm	Nos	120.00	160.50	19,260.00
	dia M.S. bar bent to shape with hooked ends in				
	R.C.C. slab during laying including painting the				
	exposed portion of loop as per standard design				
	complete as directed by the Engineer-in-charge.				
14.29	Providing 12mm. thick cement plaster in cement	Sqm	48.40	107.00	5,178.80
	mortar of mix (1:4) with neat cement punning with	-			
	approved quality cement with screened and washed				
	sharp sand for mortar and finished smooth to the				
	surface in ceiling and R.C.C. surface after chipping				
	the surface in septic tank including watering and				
	curing, rounding of corners etc. complete with cost,				
	conveyance, loading, unloading, royalties, cess, and				
	taxes of all materials and cost of all labours,				
	sundries, T&P and scaffolding required for the work				

	ata complete in all respect as desired by the				
	etc. complete in all respect as desired by the Engineer in charge.				
	Lingiliteer in charge.				
14.20	Duraviding prost compact managing with approved	Carra	050.00	10.05	45 275 00
14.30	Providing neat cement punning with approved quality cement finished smooth to the surface etc.	Sqm	958.00	16.05	15,375.90
	complete with cost, conveyance, loading, unloading,				
	royalties, cess, and taxes of all materials and cost of				
	all labours, sundries, T&P and scaffolding required				
	for the work etc. complete in all respect as desired				
	by the Engineer in charge.				
14.31	40 mm thick grading concrete with cement concrete	Sqm	550.80	235.40	1,29,658.32
	(1:2:4) using 12mm and down graded b.h.g. chips to				
	the roof surface with water proofing cement				
	compound finished smooth over RCC slab including				
	hoisting and laying in position watering and curing for required number of days finished to smooth				
	surface and desired slope including cost				
	conveyance, royalty and taxes of all materials,				
	labour T&P articles required for the work etc.				
	complete in all respect confirming to relevant I.S				
	specification and direction of the Engineer-in-				
4.5	Charge.				
15	P.H. Fitting (Internal & External) to Switch-Gear -		-	-	-
15.1	Cum -Control Room Supplying all materials , labours , taxes and tools				
15.1	and plants for fitting and fixing of PVC pipes of		-	-	-
	following nominal bore conforming to ASTM-D-1785				
	(Schedule-80) including fittings and laying as per				
	the site requirement etc., all complete including				
	testing as per the direction and specification of				
	Engineer-in-charge				
15.1.1	15 mm dia	Mtr	15.00	107.00	1,605.00
15.1.2	20 mm dia	Mtr	20.00	133.75	2,675.00
15.1.3	25 mm dia	Mtr	15.00	187.25	2,808.75
15.1.4	40 mm dia	Mtr	20.00	214.00	4,280.00
15.1.5	50 mm dia	Mtr	20.00	267.50	5,350.00
15.2	Supplying all material, labour , T&P & fitting ,fixing		-	-	-
	the following different water supply fittings of				
	approved make with including supply of all				
	necessary jointing materials etc. all complete as directed by the Engineer-in-charge.				
15.2.1	25 mm dia Ball valve	Nos	2.00	695.50	1,391.00
15.2.1	50 mm dia Ball valve	Nos	2.00	1,070.00	2,140.00
15.2.2	25 mm dia F.W. valve	Nos	2.00	695.50	1,391.00
15.2.4	50 mm dia F.W. valve	Nos	2.00	1,070.00	2,140.00
15.2.4	Supplying all labour T&P and cutting holes in brick	1105	2.00	1,070.00	2,140.00
15.5	masonry wall for taking pipes through and mending		-	-	_
	good the damages with supply of all required				
	materials etc. complete as per the direction of the				
	Engineer-incharge	<u> </u>			
15.3.1	For 15mm to 50mm CPVC pipe to pass in 125mm to 250mm thick wall	Nos	10.00	133.75	1,337.50
15.4	Supplying all labour T&P and materials and making	Mtr	10.00	53.50	535.00
	grooves in brick walls vertically and horizontally to				
	the required depth and width for fixing pipes &				
	fittings of sizes 15mm dia to 25mm dia in the				
	grooves, testing the pipe line against leakage, and				
	filling the grooves with cement mortar(1:4) to bring the surface to original level including cost of				
<u> </u>	the surface to original level including cost of		1		

	manufacta acciding and acciding a functional at-		T .		
	mortars, curing and conveyance of materials etc.				
	complete as per direction of the Engineer-in-charge.				
15.5	Supplying all materials , labour T&P and fittings of		-	-	-
	approved quality required for fixing of NP or CP				
	Brass or GM fixtures of following sizes and				
	specification with leak proof threaded joints				
	tightened with spun yarn and white zinc or any				
	tightened with spun yarn and white zinc or any				
	including testing and rectification of detects, after				
	testing complete as per direction of Engineer-in-				
	charge.				
15.5.1	Bibcock	Nos	5.00	160.50	802.50
15.5.2	Long Body Bibcock	Nos	2.00	321.00	642.00
15.5.3	Pillar cock	Nos	2.00	428.00	856.00
15.5.4	Angular stop cock	Nos	4.00	588.50	2,354.00
15.5.5	Soap Holder	Nos	2.00	80.25	160.50
15.5.6	Towel ring	Nos	2.00	160.50	321.00
15.5.7	Toilet paper holder	Nos	2.00	80.25	160.50
15.5.8	Glass self 22"	Nos	2.00	321.00	642.00
15.5.9	Towel rail 24"	Nos	2.00	374.50	749.00
15.5.1	Shower arm 190mm long light	Nos	2.00	749.00	1,498.00
0	Shower arm 130mm long light	1403	2.00	743.00	1,450.00
15.5.1	CP Grating	Nos	2.00	80.25	160.50
1 15.5.1	Consociad stan soci	Nos	4.00	E3E 00	2 140 00
2	Concealed stop cock	INOS	4.00	535.00	2,140.00
15.5.1	Connecting Pipe	Nos	2.00	160.50	321.00
3	Connocting 1 ipe	1100	2.00	100.00	021.00
15.5.1	Basin with pedestal	Nos	2.00	3,210.00	6,420.00
4	'			, , , , , , , ,	, , , , , , , , , , , , , , , , , , , ,
15.5.1	Providing and fixing vitreous China water closet	Nos	1.00	16,050.00	16,050.00
5	(European with seat and lid), of Cerra Cascade				
	"CASINO", CP brass buffers, 10 liter cascade dual				
	flushing cistern hinges & rubber with fittings and				
	brackets, 40 mm flush bend of CP brass, 20 mm				
	overflow pipe with specials & mosquito proof				
	coupling complete, painting on brackets and making				
	good the walls and floors wherever required.				
15.5.1	Providing and fixing vitreous China water closet	Nos	1.00	4,494.00	4,494.00
6	Indian type of Orissa pattern size (580mmx440mm)				
	of approved quality with PVC Slimeline (Parryware				
	make) 12.5 ltr capacity low level cistrn with hinges &				
	rubber with fittings and brackets, 40 mm flush bend				
	of CP brass, 20 mm overflow pipe with specials &				
	mosquito proof coupling complete, painting on				
	brackets and making good the walls and floors				
45.5.4	wherever required.		0.00	0.075.00	5.050.00
15.5.1	Providing and fixing vitreous China water urinal of	Nos	2.00	2,675.00	5,350.00
7	Cerra/Parry ware with fittings and brackets, flush				
	bend of CP brass, and making good the walls and				
15.6	floors wherever required.  Supply of all materials, labour, T&P , fitting and fixing	Nos	2.00	802.50	1,605.00
10.0	in all floors fixed type bevelled plate glass mirror of	1105	2.00	002.30	1,003.00
	size 600mm x 450mm x 5.5mm thick best Indian				
	make ,supply of 13mm thick asbestos backing and				
	CP Brass screw including cost conveyance, taxes of				
	all materials complete as per specification and				
	direction of Engineer-in-charge(Make-Modi				
	Guard/Belgium)				
	Guaru/Deigiuiii)	<u> </u>	<u> </u>		<u> </u>

15.7	Supply of all materials, joining materials ,labour and		-	-	-
	T&P and laying UPVC SWR PIPES of Standard				
	make with ISI Mark duly approved by the Engineer-				
	in-charge including jointing, earthwork in excavation of trenches in all kind of soil to the required depth				
	and refilling of pipe line trenches in 0.3048 mtrs				
	layers with 300 mm deep sand around cushion duly				
	watered and rammed or fixing to walls, floors with				
	supply of necessary clamps, nails and cutting the				
	pipe to length with wastage including supply of all				
	Clamps, Clips, Endcaps & jointing materials etc.,				
	complete as per standard specification and direction				
	of Engineer-in-charge.				
15.7.1	100mm dia ( ISI Marked )	Mtr	10.00	535.00	5,350.00
15.7.2	150mm dia ( ISI Marked)	Mtr	25.00	642.00	16,050.00
15.8	Supplying all materials, labour T&P for jointing of the		-	-	-
	UPVC SWR SEWER pipe fittings of standard make				
	duly approved by the Engineer-in-charge with joining				
	material etc. suitably required for fixing on 100mm				
	dia soil waste pipe complete with requisite testing as				
15.8.1	directed by Engineer-in-charge. 100mm dia "P" Trap	Nos	2.00	428.00	856.00
15.8.2	100mm dia Bend Plain	Nos	3.00	181.90	545.70
15.8.3	100mm Door Bend	Nos	3.00	160.50	481.50
15.8.4	100 mm dia Single Junction with Door	Nos	3.00	374.50	1,123.50
15.8.5	100 mm dia double Junction with Door	Nos	3.00	428.00	1,284.00
15.8.6	100mm dia Terminal Guard	Nos	2.00	214.00	428.00
15.8.7	100mm dia. Floor trap	Nos	3.00	267.50	802.50
15.9	Supplying all materials, labor T&P for jointing of the	1100	-	-	-
10.5	UPVC SWR SEWER pipes & fittings of standard		_	_	
	make duly approved by the Engineer-in-charge				
	suitably required for fixing on 100mm dia soil waste				
	pipe complete with requisite testing as directed by				
	Engineer-in-charge.				
15.9.1	100mm Pipe	Nos	10.00	321.00	3,210.00
15.10	Fixing of UPVC vent pipes Including labour & T&P		-	-	-
1- 1-	all complete as directed by the Engineer-in-charge.				
15.10.	100mm Pipe	Mtr	4.00	428.00	1,712.00
1 15.10.	100mm Vent Cowl	No	2.00	107.00	214.00
2	Toomin vent cowi	NO	2.00	107.00	214.00
15.11	Supplying all materials labour T&P and constructing		-	-	_
	inspection chamber C.C.(1:4:8) on bed with hard				
	stone metal size 40mm and 250mm K.B.Bricks work				
	having crushing strength 75 Kg to 99 Kg/cm2 in				
	cement mortar (1:4), R.C.C. roof slab with 500mm				
	dia light pattern factory made SFRC M.H cover with				
	frame, moulding and shaping the channel and				
	benching with C.C. 1:2:4 with hard granite chips				
	12mm size, 12mm thick C.P 1:3 including cement				
	punning inside, Cement plaster (1:3) outside the chamber, earth work in excavation in all kinds of soil				
	and refilling the cavity around the chamber as per				
	detail drawing & design and specification including				
	cost, conveyance, taxes etc. all complete as directed				
	by Engineer-in-charge.				
15.11.	750mmx 750mm x450mm	No	1.00	4,815.00	4,815.00
1					1
	Providing and fixing 2000 litres capacity P.V.C Over		-	-	-
1	head (Sintex make) tank with all piping and valve		-	-	-
1	head (Sintex make) tank with all piping and valve arrangement with all labour & materials ,including		-	-	-
1	head (Sintex make) tank with all piping and valve		-	-	-

15.12.	2000 Ltr Capacity	No	1.00	18,190.00	18,190.00
15.13	Supplying all material, labour, T&P and constructing	No	1.00	10,700.00	10,700.00
10.10	manhole chamber of size as mentioned below with	110	1.00	10,700.00	10,700.00
	250mm nominal size K.B. Brick having crushing				
	strength 75kg to 99kg /cm2 in CM 1:4 over a bed of				
	150mm thick C.C(1:4:8) using 40mm size HG metal,				
	plastering with 12mm thick cement mortar (1:3) on internal and external surface, inside finish with neat				
	cement punning, providing & fixing step iron of				
	appropriate quality & size with 3 coats anticorrosive				
	paint, RCC (1:1.5:3) cover slab using 20m & down				
	size graded HG chips along with factory made				
	reinforced concrete cover with frame including breaking of pipe line where ever necessary and				
	earth work in excavation in all kind of soil & rock and				
	refilling the cavity by selective soil, leveling the				
	surface around the chamber with disposal of surplus				
	earth if any to a distance of 50mt as per				
	specification, design & drawing including cost of curing and all taxes, royality, cost, conveyance etc.				
	all complete as directed by the Engineer-in-charge.				
15.14	Supplying all material, labour, T&P and constructing	No	1.00	12,840.00	12,840.00
	1.80m dia x 2.60m deep soak way pit with dry brick				
	walling upto 2.00m height and 1st class K.B.				
	Brickwork in cement mortar (1:6) for the remaining 06.60m height at top, 12mm thick cement plaster				
	(1:4) inside and outside , 100mm thick gravel				
	backing in the rear of well staining, 125mm thick				
	RCC cover slab fitted with with iron lifting handles				
	including earth work in excavation in all kind of soil				
	& rock and refilling the cavity by selective soil, leveling the surface around the pit with disposal of				
	surplus earth if any to a distance of 50mt including				
	cost of curing and all taxes , royality , cost ,				
	conveyance etc. all complete as directed by the				
16	Engineer-in-charge.	1.0	4.00	1 60 500 00	1 60 500 00
16	Watering system like 150 mm dia, 100 Mtr deep bore well (PVC pipe to be used) 1 HP submersivele	LS	1.00	1,60,500.00	1,60,500.00
	pump, switch yard water hydrant system for pouring				
	water into the earth pits, tap for garden, including				
	PVC pipes & other accessories required etc.				
17	Small wicket (GI) gate one in between Main Gate &	No.	2.00	5,350.00	10,700.00
	Security shed & another in front of Customer Care room of size 1.5 mtr width X 2 mtrs height single leaf				
	with locking arrangement etc. as per above.				
18	RRHG retaing wall with 1:5 cement mortar		-	-	-
	Considering 0.6 mt height of retaining wall above the				
	existing ground level per Meter as per Drawing TOTAL 74 Mtrs				
18.1	Excavation in all type of soil( 0.8 Cum / Mtr)	Cum	105.60	267.50	28,248.00
18.2	PCC (1:4:8) 200 mm thick. With cement ( 0.2 Cum /	Cum	26.40	4,280.00	1,12,992.00
18.3	Mtr) PCC (1:2:4) 50 mm thick With cement ( 0.02 Cum /	Cum	1.58	5,778.00	9,152.35
10.3	Mtr)	Cum	1.56	5,776.00	9,152.35
18.4	RRHG Cement Masonary (1:5) With cement ( 0.86 Cum / Mtr)	Cum	63.64	3,745.00	2,38,331.80
19	Prefabricated RCC Foundation for RMU	Nos.	1.00	10,265.00	10,265.00
20	Design & providing Galvanised Chain Linking	Sq.	-	4,668.00	-
	Fencing with 2 Mtr Height around RMUs, as per TPCODL specification.	mtr.			
	Sub-Total for CIVIL WORKS with supply of all				2,19,95,067.9
	materials like Cement, MS tor rod, Brick, Coarse &				9
	Fine Agregrates & Labour,T&P etc. (In Rs.)				

	Total Cost in Cr.				2.20		
-							
-				es in Cr.			
Α	Total Cost for SUPPLY OF EQUIPMENT & MATERIALS (In Cr.)						
В	Stock , Storage & Insurance @ 3 % of A						
С	Sub - Total ( A+B	)			4.31		
D	Contingency @ 3 % o	of C			0.13		
Е	Tools &Plants Charges @ 2% of C (NOT CONSIDERED)				-		
F	Transportation @ 7.5% of C				0.32		
G	Sub - Total ( C+D+E+F )				4.76		
H1	Total Cost for ERECTION, TESTING & COMMI	SSIONII	NG WORKS	(In Cr.)	0.32		
H2	Total Cost for CIVIL WORKS with supply of all materials like Cement, MS tor rod, Brick, Coarse & Fine Agregrates & Labour, T&P etc. (In Cr.)						
H3	Total Cost for Erection & Civil w				2.52		
H4	GST @ 18% of Erection & 0	ivil work	(S				
l	Total Cost of Erection & Civil work	s in Cr.(	H3+H4)		2.52		
J	Total Cost (G+I)		-		7.28		
K	Other Overhead /( including Supervision Charges) @ 6 % of J				0.44		
L	Total Estimated Capital Cost i.e. J+K				7.72		
М	GST @ 18% of L				1.39		
N	CESS @ 1% of L				0.08		
0	Inspection Charges (As per Gov. Notification)				0.00050		
Р	Total Estimate to be deposit in Cr @ L+M+N+O (In Cr.)				9.18		
					9,18,34,492.3 0		

Part -C:-Constrcution of 33kv line (U/G) of 1 km length with one 33KV,3WAY RMU from T-off of 33kv Tangi feeder near shakti hotel to Proposed ODSSP Manguli PSS

Supply Portion					
SI. No.	Description of items	Unit	Quantit y	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				
1.1	Supply of 33kV, 1Core, 400sqmm Aluminium, XLPE insulation UG Cable	km	4	7,83,000.00	31,32,000.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG Cable kits for 1Core	Set	12	19,679.00	2,36,148.00
1.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	12	6,869.00	82,428.00
1.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG Cable kits for 1Core	Set	12	5,233.00	62,796.00
1.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	4	10,91,237.00	43,64,948.00
2	Supply of materials for 33kV, 1Core, 300sqmm Aluminium, XLPE insulation UG Cable (aloing with 1core spare cable) with accessories				

0.4	0 1 (001)/ 10 000 11 ::			0.05.000.00	
2.1	Supply of 33kV, 1Core, 300sqmm Aluminium, XLPE insulation UG Cable	km	0	6,85,000.00	-
2.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, aluminium UG Cable kits for 1Core	Set	0	19,679.00	-
2.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core	Set		6,869.00	-
2.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG Cable kits for 1Core	Set		5,233.00	-
2.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
3	Supply of materials for 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
3.1	Supply of 33kV, 3Core, 400sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	20,32,000.00	-
3.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, aluminium UG Cable kits	Set	0	68,594.00	-
3.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	Set		33,255.00	-
3.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 400sqmm, HT UG Cable kits	Set		20,503.00	-
3.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
4	Supply of materials for 33kV, 3Core, 300sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
4.1	Supply of 33kV, 3Core, 300sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	17,56,000.00	-
4.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, aluminium UG Cable kits	Set	0	61,254.00	-
4.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG Cable kits	Set		33,255.00	-
4.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 300sqmm, HT UG Cable kits	Set		20,503.00	-
4.5	Supply of materials for High Density Polyethelene (HDPE) pipe 160mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	10,91,237.00	-
5	Supply of materials for 33kV, 3Core, 185sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
5.1	Supply of 33kV, 3Core, 185sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	13,66,000.00	-
5.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, aluminium UG Cable kits	Set	0	61,254.00	-

5.3	Supply of Outdoor termination kits Heat	Set		25,125.00	-
	Shrinkable type suitable for 33kV, 3Core,				
5.4	185sqmm, HT UG Cable kits	Set		10.000.00	
5.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 185sqmm, HT UG Cable kits	Set		18,082.00	-
5.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	5,20,436.00	-
6	Supply of materials for 33kV, 3Core, 95sqmm Aluminium, XLPE insulation UG Cable (aloing with spare cable) with accessories				
6.1	Supply of 33kV, 3Core, 95sqmm Aluminium, XLPE insulation UG Cable with spare	km	0	10,24,000.00	-
6.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, aluminium UG Cable kits	Set	0	43,131.00	-
6.3	Supply of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG Cable kits	Set		19,384.00	-
6.4	Supply of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG Cable kits	Set		11,958.00	-
6.5	Supply of materials for High Density Polyethelene (HDPE) pipe 110mm diameter, PE 80- PN8 for laying of 33kV UG cable	km	0	5,20,436.00	-
1	Supply of 33kV RMU				
1.1	Supply of 33kV, 630A, 25kA 3 Way NON- Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker Type LLV Model	Nos.	1	17,50,000.00	17,50,000.00
1.2	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker Type LLVV Model	Nos.	0	24,50,000.00	-
1.3	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 1 Vacuum Circuit breaker with metering panel Type LLV+M Model	Nos.	0	32,00,000.00	-
1.4	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit breaker with metering panel Type LLVV+M Model	Nos.	0	45,00,000.00	-
1.5	Supply of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 3 Load Break Switch Type LLL Model	Nos.	0	15,50,000.00	-
1.6	Supply of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 4 Load Break Switch Type LLLL Model	Nos.	0	19,50,000.00	-
3	Earthing				
3.1	Earthing Conductor: 50X6 mm (2.4kg./mtr.) GI Flat for equipment, structure etc.)	kg	7.20	75.00	540.00
				+	
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	2	1,050.00	2,100.00

Erection Portion					
Sl. No.	Description of items	Unit	Quantit y	Rate (in Rs.)	Amount (in Rs.)
1	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 400sqmm, XLPE UG cable with one spare				
1.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	4	2,80,497.64	11,21,990.56
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, aluminium UG cable kits	Set	12	4,286.75	51,441.00
1.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	2,327.04	27,924.48
1.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 400sqmm, HT UG cable kits	Set	12	1,959.72	23,516.64
1.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 400sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,73,059.62	-
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	4	1,04,114.67	4,16,458.68
2	Erection, Commissioning & Testing of 33kV new line by 3X1Core, 300sqmm, XLPE UG cable with one spare				
2.1	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) in trefoil formation by open trench method.	km	0	2,80,497.64	-
2.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, aluminium UG cable kits	Set	0	4,286.75	-
2.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	2,327.04	-
2.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 1Core, 300sqmm, HT UG cable kits	Set	0	1,959.72	-
2.5	Laying, Commissioning & Testing of 33kV, 1Core, 4Runs, 300sqmm, XLPE insulation (extruted type) UG cable (with one single 1core, 400sqmm, XLPE cable as spare) including looping at cable terminations and straight through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and unaccessable place.	km	0	13,73,059.62	-
2.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
3	Erection, Commissioning & Testing of 33kV new line by 3Core, 400sqmm, XLPE UG cable with spare				

3.1	Laying, Commissioning & Testing of 33kV,	km	0	2,08,229.35	-
• • • • • • • • • • • • • • • • • • • •	3Core, 1Run, 400sqmm, XLPE insulation			_,,,,,,	
	(extruted type) UG cable with spare by open				
	trench method.	_			
3.2	Erection of Straight through jointing kits Heat	Set	0	3,062.68	-
	Shrinkable type suitable for 33kV, 3Core,				
0.0	400sqmm, aluminium UG cable kits	0-4	0	4 470 00	
3.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core,	Set	0	1,470.29	-
	400sqmm, HT UG cable kits				
3.4	Erection of Indoor termination kits Heat	Set	0	1,837.61	_
0.1	Shrinkable type suitable for 33kV, 3Core,			1,007.01	
	400sqmm, HT UG cable kits				
3.5	Laying, Commissioning & Testing of 33kV,	km	0	14,13,306.01	-
	3Core, 1Runs, 400sqmm, XLPE insulation				
	(extruted type) UG cable (with one 3core,				
	400sqmm, XLPE cable as spare) including				
	looping at cable terminations and straight				
	through joints by HDD method with 160mm dia, PE 80-PN8, HDPE pipe for laying of				
	individual run of UG cable at main road and				
	unaccessable place.				
3.6	Laying of 160mm dia PE 80-PN8, HDPE pipe	km	0	1,04,114.67	_
0.0	inside open trench.	1311		1,01,111.07	
4	Erection, Commissioning & Testing of 33kV				
	new line by 3Core, 300sqmm, XLPE UG cable				
	with spare.				
4.1	Laying, Commissioning & Testing of 33kV,	km	0	2,08,229.35	-
	3Core, 1Run, 300sqmm, XLPE insulation				
	(extruted type) UG cable with spare by open				
4.0	trench method.	Cot	0	2.002.00	
4.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 33kV, 3Core,	Set	0	3,062.68	-
	300sqmm, aluminium UG cable kits				
4.3	Erection of Outdoor termination kits Heat	Set	0	1,470.29	-
	Shrinkable type suitable for 33kV, 3Core,			.,	
	300sqmm, HT UG cable kits				
4.4	Erection of Indoor termination kits Heat	Set	0	1,837.61	-
	Shrinkable type suitable for 33kV, 3Core,				
	300sqmm, HT UG cable kits				
4.5	Laying, Commissioning & Testing of 33kV,	km	0	14,13,306.01	-
	3Core, 300sqmm, XLPE insulation (extruted				
	type) UG cable (with one 3core, 300sqmm, XLPE cable as spare) including looping at				
	cable terminations and straight through joints				
	by HDD method with 160mm dia, PE 80-PN8,				
	HDPE pipe for laying of individual run of UG				
	cable at main road and unaccessable place.				
4.6	Laying of 160mm dia PE 80-PN8, HDPE pipe	km	0	1,04,114.67	-
	inside open trench.				
5	Erection, Commissioning & Testing of 33kV				
	new line by 3Core, 185sqmm, XLPE UG cable				
E 1	with spare	lene	0	1 OF 000 60	
5.1	Laying, Commissioning & Testing of 33kV, 3Core, 1Run, 185sqmm, XLPE insulation	km	0	1,95,980.63	-
	(extruted type) UG cable with spare by open				
	trench method.				
5.2	Erection of Straight through jointing kits Heat	Set	0	3,062.68	_
	Shrinkable type suitable for 33kV, 3Core,			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	185sqmm, aluminium UG cable kits		<u> </u>		
5.3	Erection of Outdoor termination kits Heat	Set	0	1,470.29	-
	Shrinkable type suitable for 33kV, 3Core,				
	185sqmm, HT UG cable kits				

F 4	Fraction of Indoor town in ation Life Hoot	Cat	^	4 007 64	
5.4	Erection of Indoor termination kits Heat Shrinkable type suitable for 33kV, 3Core,	Set	0	1,837.61	-
5.5	185sqmm, HT UG cable kits Laying, Commissioning & Testing of 33kV,	km	0	13,99,890.88	-
	3Core, 1Runs, 185sqmm, XLPE insulation (extruted type) UG cable (with one 3core,				
	185sqmm, XLPE cable as spare) including looping at cable terminations and straight				
	through joints by HDD method with 110mm				
	dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and				
	unaccessable place.				
5.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
6	Erection, Commissioning & Testing of 33kV new line by 3Core, 95sqmm, XLPE UG cable				
6.1	with spare Laying, Commissioning & Testing of 33kV,	km	0	1,95,980.63	
0.1	3Core, 1Run, 95sqmm, XLPE insulation (extruted type) UG cable with spare by open	KIII	Ü	1,93,900.03	
6.2	trench method.  Erection of Straight through jointing kits Heat	Set	0	3,062.68	-
	Shrinkable type suitable for 33kV, 3Core, 95sqmm, aluminium UG cable kits				
6.3	Erection of Outdoor termination kits Heat Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG cable kits	Set	0	1,470.29	-
6.4	Erection of Indoor termination kits Heat	Set	0	1,837.61	-
	Shrinkable type suitable for 33kV, 3Core, 95sqmm, HT UG cable kits				
6.5	Laying, Commissioning & Testing of 33kV, 1Core, 1Runs, 95sqmm, XLPE insulation	km	0	13,99,890.88	-
	(extruted type) UG cable (with one 3core,				
	95sqmm, XLPE cable as spare) including looping at cable terminations and straight				
	through joints by HDD method with 110mm				
	dia, PE 80-PN8, HDPE pipe for laying of individual run of UG cable at main road and				
2.0	unaccessable place.			10111107	
6.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
1	Erection, Commissioning, Wiring and Testing of 33kV RMU				
1.1	Erection of 33kV, 630A, 25kA 3 Way NON- Extensible, Motorized Outdoor Consisting of 2	Nos.	1	61,243.63	61,243.63
	Load Break Switch & 1 Vacuum Circuit breaker Type LLV Model				
1.2	Erection of 33kV, 630A, 25kA 4 Way NON	Nos.	0	61,243.63	-
	Extensible, Motorized Outdoor Consisting of 2 Load Break Switch & 2 Vacuum Circuit				
1.3	breaker Type LLVV Model Erection of 33kV, 630A, 25kA 3 Way NON	Nos.	0	61,243.63	_
1.0	Extensible, Motorized Outdoor Consisting of 2	1100.	Ū	01,210.00	
	Load Break Switch & 1 Vacuum Circuit breaker with metering panel Type LLV+M				
1.4	Model Erection of 33kV, 630A, 25kA 4 Way NON	Nos.	0	61,243.63	
1.7	Extensible, Motorized Outdoor Consisting of 2	1103.	U	01,270.00	-
	Load Break Switch & 2 Vacuum Circuit breaker with metering panel Type LLVV+M Model				
		<u> </u>		<b></b>	
1.5	Erection of 33kV, 630A, 25kA 3 Way NON Extensible, Motorized Outdoor Consisting of 3	Nos.	0	61,243.63	-

1.6	Erection of 33kV, 630A, 25kA 4 Way NON Extensible, Motorized Outdoor Consisting of 4 Load Break Switch Type LLLL Model	-					
	Sub Total (Erection Portion	on) (in R	s.)		17,02,574.99		
Civil Portion							
SI. No.	Description of items	Amount (in Rs.)					
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench	od, brick, coarse & fine ur, T&P, etc for UG Cable					
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)						
1.1.a	Earth work excavation of soil	Cum	700	201.62	1,41,134.00		
1.1.b	Earth work excavation of hard rock	Cum	300	884.35	2,65,305.00		
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	600	171.55	1,02,930.00		
1.3	1.3 Filling with fine river sand after laying of cable inside the trench		400	479.74	1,91,896.00		
1.4	Back filling with excavated soil outside and above the trench	Cum	600	30.28	18,168.00		
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	1	26,43,670.63	26,43,670.63		
2	Civil works for Prefabricated RCC foundation with supply of all materials						
2.1	Prefabricated RCC foundation of 33kV RMU	Nos.	1	87,921.26	87,921.26		
3	Supply of Galvanised Fencing around each RMU with height 2 mtr for external protection	sqmt r	20	4,668.00	93,360.00		
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	2	2,407.00	4,814.00		
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	96	1,607.00	1,54,272.00		
6 Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works		Nos.	33	376.13	12,412.29		
	Sub Total (Civil Portion	(in Rs.	)		37,15,883.18		
A-1	Sub Total (Supply Po		96,30,960.00				
A-2	Applicable Taxes to make it Lar		st @18%		-		
Α	Total landed Cost (A=A				96,30,960.00		
В	Stock, Storage & Insurance	@ 3 %	of A		2,88,928.80		
С	Sub Total (A+B	)			99,19,888.80		

D	Contingency @ 3 % of C	2,97,596.66
E	Tools & Plants Charges @ 2% of C (Not considered)	-
F	Transportation @ 7.5% of C	7,43,991.66
G	Total (C+D+E+F)	1,09,61,477.12
H-1	Sub Total (Erection Portion + Civil Portion)	54,18,458.17
H-2	Applicable Taxes to make it Landed Cost @18%	-
Н	Total landed Cost (H=H1 + H2)	54,18,458.17
1	Total Cost (G+H)	1,63,79,935.29
J	Other Overhead /(including Supervision Charges) @ 6 % of I	9,82,796.12
K	Total Estimated Capital Cost i.e. (I+J)	1,73,62,731.41
L	GST @ 18% of K	31,25,291.65
М	CESS @ 1% of L	1,73,627.31
N	Grand Total (K+L+M)	2,06,61,650.38
0	Inspection Fee of UG Line (HT) - Rs. 250/ km.	250.00
Р	Inspection Fee of UG Line (HT) - Rs. 100/ Additional Km	
Q	Inspection Fee of Drawing Checking and Approval	400.00
R	Final decision by electrical Inspector	500.00
S	Gross Total Material, Services and Inspection Fees (N+O+P+Q+R+S)	2,06,62,800.38

	Construction of one number of 33KV Incomer DP with	Isolator a	t Proposed	Manguli PS\$	6.		
SI.No.	Description of Materials	Unit	Quantity	Rate	Amount		
1	2	3	4	5	6		
	MATERIALS OF	DP					
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	84	75	6,309.60		
2	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator ( 0.4mtr X2) (GI)	KG	251	75	18,849.60		
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	88	75	6,615.00		
5	Pipe Earthing 40mm. GI Pipe	No.	2	1050	2,100.00		
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	100	75	7,500.00		
7	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	3	10350	31,050.00		
8	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	4	75	300.00		
9	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	1	71580	71,580.00		
10	PG Clamp for 148 sq.mm AAA conductor NO. 6 620						
	MATERIALS OF 4	POLE					

11	Top Channel 100X50X6mm@9.56 KG/MTR. X (4.4 x2) (GI)	KG	0	75	-
12	1. Double Pole Bracing Channel 75X40X 4.8mm.7.14 KGx(4.4MTR) . (GI) 2. Support channel for Isolator ( 0.4mtr X2) (GI)	KG	0	75	-
13	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 4.9 mtr length	KG	0	75	-
14	Pipe Earthing 40mm. GI Pipe	No.	0	1050	-
15	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	0	75	-
16	Lightning Arrester(30KV, 10KA) (Station Class,class-2)	No.	0	10350	-
17	G.I. FLATS 25X3 MM_for denger board and anticlimbing device	KG	0	75	-
18	33 KV 630 AMP Double break (Turn & twist center rotating) isolator without earth switch with PI(Polvmer)	SET	0	71580	-
19	PG Clamp for 148 sq.mm AAA conductor	NO.	0	620	-
	MATERIALS OF CU	T POINT			
20	100 x 50 x 6 mm GI channel for Cut point 1.8X 9.56 KG/mtrX2	K.g.	0	75.00	-
	MATERIALS OF	LINE			
21	WBP 160x160-13M 30.44KG/MTR	No	2	29679.00	59,358.00
22	33 KV V cross Arm (GI) 22Kg each	No.	0	1580.00	-
23	Top bracket 100x50mm MS channel ( 2kg each)/	No.	0	150.00	-
24	33KV pin insulator polymer	No.	6	480	2,880.00
				500	
25	H W fitting(B&S)90KN,4 Bolt	No.	6	500	3,000.00
26	Disc insulator (B&S)90 KN polymer	No.	6	1150	6,900.00
27	H.T. Stay set (Complete )	Set	2	1050.00	2,100.00
28	H.T. Stay Insulator	No.	2	40.00	80.00
29	H.T. Stay clamp (1.95 K.g./ Pair )	Pair	2	125.00	250.00
30	7/8 SWG Stay Wire 15kg /stay	K.g.	30	75.00	2,250.00
31	Earthing of Support ( Coil Type )	No.	0	166.00	-
32	148 mm2 AAAC	K.M.	0	82000.00	-

33	Red Oxide paint	Ltr	1	150.00	150.00				
34	Alluminium Paint Ltr 1 200.00								
35	Black Paint	Ltr	2	220.00	200.00 440.00				
36	Yellow Colour Paint for Background	Ltr	2	220.00	440.00				
37			6	75.00	450.00				
31	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	O	75.00	450.00				
38	Gl Nut , Bolt & Washer of different sizes	K.g.	15	78.00	1,170.00				
39	Danger Plate	No.	2	80.00	160.00				
A-1	Total Cost of materials				2,27,852.20				
A-2	Applicable Taxes to make it Landed C	ost @18%	6		-				
Α	Total landed Cost (A=A1 + A2	2)			2,27,852.20				
В	Stock, Storage & Insurance i.e 39	% of A			6,835.57				
(A+B)	Sub Total				2,34,687.77				
С	Contigency @ 3% of (A+B)				7,040.63				
D	Tools & Plants @ 2% of (A+f	B)			4,693.76				
Е	Transportation @ 7.5% of (A+	+B)			17,601.58				
F	Erection Charges @ 5% on Trf/Brea	ker/Joist			3,056.94				
G	Erection Charges @ 10% of other	r items			17,354.90				
Н	Erection Charges @ 20% of PSC pole- Not to	be used	for 33kv		0.00				
I	Sum of (A + B to H)				2,84,435.58				
	Civil & Services								
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set , stay wire , stay insulator .	No.	2	2000.00	4,000.00				
2	Concreting ratio 1:1.5:3 (500mmX500mmX2200mm) = 0.55Cu.mtr	Cu.mtr	1.1	8446.00	9,290.60				
3	Couping ratio 1:1.5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	2	676.00	1,352.00				
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover								
J1	Total Civil & Services								
J2	Applicable Taxes to make it Landed Cost @18%								
J	Total landed Cost (J=J1 + J2)								
K	Total Material+Services (I+J)								
L	Other overheads (Including 6% supervision charges)								
М	SubTotal (K + L)				3,22,125.71				
N	Total GST @ 18% of (M)				57,982.63				
0	CESS @ 1% of (M)				3,221.26				
Р	Gross Total Material +Services (M	I+N+0)			3,83,329.59				

Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	3,84,229.59

Construction of 11kv OH line of lentgh of 5 Ckm over 11mtr long 160x160 ,30.44KG/MTR with 100mm2 AAAC. Length with 11kv U/G,XLPE of lentgh of 0.8 km .Total no of 11kv feeders=3.

No of WBP POLE - 142nos, Cut point - 5nos , Pin points - 105nos, DP without ABS-6nos, DP with ABS-8nos

SI.No	Description of Materials	Unit	Quan tity	Rate	Amount
1	2	3	4	5	6
			MAT	ERIALS OF DP	
1	Top Channel 100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)	KG	803	75	60,228.00
2	Double Pole Bracing	KG	1542	75	1,15,668.00
2	Channel 75X40X 4.8mm.(7.14 KGx3mtrX4) . (GI) 2. Support channel for Isolator ( 3mtr X2) (GI)	NG	1342	73	1,13,000.00
4	50x50x6mm.GI Bracing Angle@(4.5Kg./mtr.) 3.5 mtr length	KG	756	75	56,700.00
5	Pipe Earthing 40mm. GI Pipe	No.	28	1050	29,400.00
6	50x6mm GI Flat for earthing (2.4kg/mtr)	KG	1400	75	1,05,000.00
7	Lightning Arrester(12KV,10KA) Station Class-2	No.	42	3550	1,49,100.00

8	C L FLATS 25V2 MM for	KG	56	75	4,200.00
0	G.I. FLATS 25X3 MM_for danger board and	NG	36	75	4,200.00
	anticlimbing device				
9	AB Switch	SET	8	11850	94,800.00
	(11KV,400A.3pole,50Hz)				
10	PG Clamp for 100 sq.mm	NO.	84	580	48,720.00
	AAA conductor				,
				RIALS OF 4 POLE	
11	Top Channel	KG	229	75	17,208.00
	100X50X6mm@9.56 KG/MTR. X (3mtr x2) (GI)				
12	1. Double Pole Bracing	KG	428.4	75	32,130.00
12	Channel 75X40X	NG	420.4	7.5	32,130.00
	4.8mm.(7.14 KGx3mtrX4).				
	(GI)				
	Support channel for Isolator ( 3mtr X2) (GI)				
13	50x50x6mm.Gl Bracing	KG	252	75	18,900.00
	Angle@(4.5Kg./mtr.) 3.5 mtr				
14	length Dine Forthing 40mm, CL Dine	No.	4	1050	4 200 00
14	Pipe Earthing 40mm. GI Pipe	NO.	4	1050	4,200.00
15	50x6mm GI Flat for earthing	KG	200	75	15,000.00
	(2.4kg/mtr)				
16	Lightning	No.	3	7750	23,250.00
	Arrester(12KV,10KA) Station Class-2				
17	G.I. FLATS 25X3 MM_for	KG	16	75	1,200.00
17	denger board and	NG	10	75	1,200.00
	anticlimbing device				
18	AB Switch	SET	2	11850	23,700.00
	(11KV,400A.3pole,50Hz)				
19	PG Clamp for 100 sq.mm	NO.	6	580	3,480.00
19	AAA conductor	INO.		300	5,400.00
			MATER	IALS OF CUT POINT	
20	100 x 50 x 6 mm GI channel	K.g.	172	75.00	12,906.00
	for Cut point 1.8X 9.56				
	KG/mtrX2				
				ERIALS OF LINE	
21	160X 160mm WPB (11 Mtr	No	142	25113.00	35,66,046.00
	long) (30.44 kg Per meter) (Each 335.06kg))				
	(Edoi) 000.00kg//				
00	44 1/1/ 1/ /40 0	N1 -	405	040.00	05.050.00
22	11 KV V cross Arm (10.2 K.g. each )	No.	105	810.00	85,050.00
	rtig. Gdoir j				
<u> </u>	l		<u> </u>		

23	Top bracket 100x50 mm GI	No.	105	170.00	17,850.00
	channel (2kg each)				,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
24	11 K.V. Pin Insulator (Polymer)	No.	315	200	63,000.00
25	11 K.V. H.W. Fitting (B & S ) 70 KN 3 Bolt	No.	120	351	42,120.00
26	11 K.V. DISC Insulator (B & S) Double Disc 70KN (Polymer)	No.	120	1150	1,38,000.00
27	H.T. Stay set (Complete )	Set	42	1050.00	44,100.00
28	H.T. Stay Insulator	No.	42	50.00	2,100.00
29	H.T. Stay clamp (1.95 K.g./ Pair )	Pair	42	125.00	5,250.00
30	7/10 SWG Stay Wire 15kg /stay	K.g.	630	75.00	47,250.00
31	Earthing of Support ( Coil Type )	No.	110	166.00	18,260.00
32	100 mm2 AAAC	K.M.	15.45	55000.00	8,49,750.00
33	Red Oxide paint	Ltr	142	150.00	21,300.00
34	Alluminium Paint	Ltr	142	200.00	28,400.00
35	Black Paint	Ltr	142	220.00	31,240.00
36	Yellow Paint	Ltr	142	220.00	31,240.00
37	GI barbed wire anticlimbing device 3 Kg. Per support	Kg	426	75.00	31,950.00
38	GI Nut , Bolt & Washer of different sizes	K.g.	552.5	78.00	43,095.00
	D. 51.1		440	22.22	44,000,00
39	Danger Plate	No.	142	80.00	11,360.00

A-1	Total 0		58,93,151.00		
A-2	Applicable Taxes to	Cost @18%	-		
	<del>-</del>	10)	50.00.454.00		
A	Total lande	· ·	58,93,151.00		
B	Stock, Storage	3% of A	1,76,794.53		
(A+B)	0		60,69,945.53		
С	Contigen	•	1,82,098.37		
D	Tools & Pla		1,21,398.91		
E	Transportat	_	•	'	4,55,245.91
F	Erection Charges				1,83,651.37
G	Erection Charge				2,39,691.82
H	Erection Charges @ 20% o	-		to be used for 33kv	0.00
I	Sum	of (A + E			72,52,031.91
			Civil 8	Services	
1	Fixing of stay set with 0.5Cum cement concrete foundation 1:3:6 size ( 900mmx600mmx900mm) using 40mm BHG metal with all labor and material except stay set, stay wire, stay insulator.	No.	42	2000.00	84,000.00
2	Concreting ratio 1:1:5:3 (500mmX500mmX1800mm) = 0.45Cu.mtr	Cu.m tr	63.9	8446.00	5,39,699.40
3	Couping ratio 1:1:5:3 with dimension (500X500X450)= 0.1125 Cu mtr	EA	142	676.00	95,992.00
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	No.	32	2407	77,024.00
J1	Total	 Civil & S	ervices		7,96,715.40
J2	Applicable Taxes to			Cost @18%	1,30,110.40
٥٧	Applicable Taxes to	, mane Il	Landed	2001 (@ 1070	-

J	Total landed Cost (J=J1 + J2)	7,96,715.40
K	Total Material+Services (I+J)	80,48,747.31
L	Other overheads (Including 6% supervision charges)	4,82,924.84
М	SubTotal (K + L)	85,31,672.14
N	Total GST @ 18% of (M)	15,35,700.99
0	CESS @ 1% of (M)	85,316.72
Р	Gross Total Material +Services (M+N+0)	1,01,52,689.85
Q	Inspection Fee of Over Head Line (HT) - Rs. 200 for 1st 5 km.	200.00
R	Inspection Fee of Over Head Line (HT) - Rs. 30/ Additional Km	
S	Inspection Fee of Drawing Checking and Approval	400.00
Т	Final decision by electrical Inspector	500.00
U	Gross Total Material, Services and Inspection Fees (P+Q+R+S+T)	1,01,53,789.85

SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Supply of materials for 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable with accessories				
1.1	Supply of 11kV, 3Core, 400sqmm, XLPE insulation armoured UG cable	km	0.8	15,00,000.00	12,00,000.00
1.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	25,317.00	-
1.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set		9,582.00	-
1.4	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400 sqmm, HT UG cable for 3Core (Set)	Set	8	13,904.00	1,11,232.00
1.5	Supply of HDPE PE 80-PN8 pipe of 160mm diameter (for 400sqmm HT cable laying)	km	0.8	10,91,237.00	8,72,989.60
2	Supply of materials for 11kV, 3Core, 300sqmm, XLPE insulation armoured UG cable with accessories				
2.1	Supply of 11kV, 3Core, 300sqmm, XLPE insulation armoured UG cable	km	0	11,95,000.00	-
2.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 300 sqmm, Aluminium UG cable for 3Core (Set)	Set	0	25,317.00	-
2.3	Supply of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300 sqmm, HT UG cable for 3Core (Set)	Set		9,073.00	-
2.4	Supply of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300 sqmm, HT UG cable for 3Core (Set)	Set		13,220.00	-
2.5	Supply of HDPE PE 80-PN8 pipe of 160mm diameter (for 300sqmm HT cable laying)	km	0	10,91,237.00	-
3	Supply of materials for 11kV, 3Core, 185sqmm, XLPE insulation armoured UG cable with accessories				
3.1	Supply of 11kV, 3Core, 185sqmm, XLPE insulation armoured UG cable	km	0	8,55,000.00	-

3.2	Supply of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 185	Set	0	23,184.00	-
	sqmm, Aluminium UG cable for 3Core (Set)				
3.3	Supply of Indoor termination kits Heat Shrinkable	Set		8,505.00	-
	type suitable for 11kV, 3Core, 185 sqmm, HT UG			,	
	cable for 3Core (Set)				
3.4	Supply of Outdoor termination kits Heat Shrinkable	Set		11,756.00	-
0.1	type suitable for 11kV, 3Core, 185 sqmm, HT UG	001		11,700.00	
	cable for 3Core (Set)				
2.5		leno	0	E 20 426 00	
3.5	Supply of HDPE PE 80-PN8 pipe of 110mm	km	0	5,20,436.00	-
	diameter (for 185sqmm HT cable laying)				
4	Supply of materials for 11kV, 3Core, 120sqmm,				
"	XLPE insulation armoured UG cable with				
	accessories				
4.4		lena	0	6 50 000 00	
4.1	Supply of 11kV, 3Core, 120sqmm, XLPE	km	0	6,59,000.00	-
	insulation armoured UG cable			/ /	
4.2	Supply of Straight through jointing kits Heat	Set	0	23,149.00	-
	Shrinkable type suitable for 11kV, 3Core, 120				
	sqmm, Aluminium UG cable for 3Core (Set)				
4.3	Supply of Indoor termination kits Heat Shrinkable	Set		8,505.00	-
	type suitable for 11kV, 3Core, 120 sqmm, HT UG				
	cable for 3Core (Set)				
4.4	Supply of Outdoor termination kits Heat Shrinkable	Set		11,756.00	_
	type suitable for 11kV, 3Core, 120 sqmm, HT UG			,	
	cable for 3Core (Set)				
4.5	Supply of HDPE PE 80-PN8 pipe of 110mm	km	0	5,20,436.00	_
	diameter (for 120sqmm HT cable laying)			,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	, , , , , , , , , , , , , , , , , , , ,				
6	Supply of materials for 11kV, 3Core, 95sqmm,				
	XLPE insulation armoured UG cable with				
	accessories				
6.1	Supply of 11kV, 3Core, 95sgmm, XLPE insulation	km	0	5,71,000.00	-
	armoured UG cable			, ,	
6.2	Supply of Straight through jointing kits Heat	Set	0	17,483.00	-
	Shrinkable type suitable for 11kV, 3Core, 95			,	
	sqmm, Aluminium UG cable for 3Core (Set)				
6.3	Supply of Indoor termination kits Heat Shrinkable	Set		7,106.00	_
0.0	type suitable for 11kV, 3Core, 95 sqmm, HT UG	001		7,100.00	
	cable for 3Core (Set)				
6.4	Supply of Outdoor termination kits Heat Shrinkable	Set		10,949.00	
0.4		Set		10,949.00	-
	type suitable for 11kV, 3Core, 95 sqmm, HT UG				
2.5	cable for 3Core (Set)	1	^	F 00 400 00	
6.5	Supply of HDPE PE 80-PN8 pipe of 110mm	km	0	5,20,436.00	-
	diameter (for 95sqmm HT cable laying)				
2	Supply of 11kV RMU				
	σαρρίγοι τικν τινίο				
2.1	Supply of 11kV RMU 3 Way,2 Iso& 1 Brk 630A	Nos.	0	3,89,400.00	-
	Outdoor (LLV)				
2.2	Supply of RMU, 3WAY, WITH ISOLATORS, 11KV,	Nos.	0	2,94,075.49	_
	630A (LLL)				
2.3	Supply of 11kV RMU 4 Way 2 Iso & Brk 630A	Nos.	0	5,21,494.62	-
	OUTDOOR (LLVV)		-		
2.4	Supply of RMU, 4WAY, WITH ISOLATORS, 11KV,	Nos.	0	3,92,526.82	_
2.4	630A (LLLL)	1403.		0,02,020.02	_
2.5	Supply of RMU 3W 11kV with CTPT Unit	Nos.	0	7,30,023.05	
2.5	1	1105.	U	1,30,023.03	-
0.0	motorized O/D (LLV+M)	NI	^	0.05.400.00	
2.6	Supply of RMU 4W 11kV with CTPT Unit Non Ext	Nos.	0	9,25,428.22	-
	O/D (LLVV+M)				
3	Earthing				
1					

3.1	Earthing Conductor: 50X6 mm (2.4kg./mtr.) GI Flat for equipment, structure etc.)	kg	0.00	75.00	-		
3.2	Pipe Earthing 40mm. GI Pipe	Nos.	0	1,050.00	-		
	Sub Total (Supply Portion) (in Rs.)						
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)		
1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method						
1.1	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0	2,08,229.35	-		
1.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	3,062.68	-		
1.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,470.29	-		
1.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 400sqmm, aluminium UG cable kits for 3core (set)	Set	8	1,837.61	14,700.88		
1.5	Laying, Commissioning, Testing of 11kV, 3core, 400sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 160mm dia.	km	0.72	14,13,306.01	10,17,580.33		
1.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-		
2	Laying, Commissioning, Testing of 11kV, 3core, 300sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method and HDD method						
2.1	Laying, Commissioning, Testing of 11kV, 3core, 300sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable by open trench method.	km	0	2,08,229.35	-		
2.2	Erection of Straight through jointing kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits for 3core (set)	Set	0	3,062.68	-		
2.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,470.29	-		
2.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 300sqmm, aluminium UG cable kits for 3core (set)	Set	0	1,837.61	-		
2.5	Laying, Commissioning, Testing of 11kV, 3core, 300sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 160mm dia.	km	0	14,13,306.01	-		
2.6	Laying of 160mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-		

3	Laying, Commissioning, Testing of 11kV, 3core,				
	185sqmm, aluminium, XLPE insulation armoured				
	(extruded type) UG cable by open trench method				
	and HDD method				
3.1	Laying, Commissioning, Testing of 11kV, 3core,	km	0	1,95,980.63	-
	185sqmm, aluminium, XLPE insulation armoured				
	(extruded type) UG cable by open trench method.				
3.2	Erection of Straight through jointing kits Heat	Set	0	3,062.68	-
	Shrinkable type suitable for 11kV, 3Core,				
0.0	185sqmm, aluminium UG cable kits for 3core (set)	0.4		4 007 04	
3.3	Erection of Indoor termination kits Heat Shrinkable	Set	0	1,837.61	-
	type suitable for 11kV, 3Core, 185sqmm,				
3.4	aluminium UG cable kits for 3core (set)	Set	0	1 470 20	
3.4	Erection of Outdoor termination kits Heat Shrinkable type suitable for 11kV, 3Core,	Set	U	1,470.29	-
	185sqmm, aluminium UG cable kits for 3core (set)				
3.5	Laying, Commissioning, Testing of 11kV, 3core,	km	0	13,99,890.88	
3.5	185sqmm, aluminium, XLPE insulation armoured	KIII	U	13,99,090.00	-
	(extruded type) UG cable in HDD method with				
	HDPE pipe of 110mm dia.				
3.6	Laying of 110mm dia PE 80-PN8, HDPE pipe	km	0	1,04,114.67	-
0.0	inside open trench.		Ŭ	1,5 1,1 1.01	
4	Laying, Commissioning, Testing of 11kV, 3core,				
	120sqmm, aluminium, XLPE insulation armoured				
	(extruded type) UG cable by open trench method				
	and HDD method				
4.1	Laying, Commissioning, Testing of 11kV, 3core,	km	0	1,95,980.63	-
	120sqmm, aluminium, XLPE insulation armoured				
	(extruded type) UG cable by open trench method.				
4.2	Erection of Straight through jointing kits Heat	Set	0	3,062.68	-
	Shrinkable type suitable for 11kV, 3Core,				
4.2	120sqmm, aluminium UG cable kits for 3core (set)	Cat	0	4 007 64	
4.3	Erection of Indoor termination kits Heat Shrinkable type suitable for 11kV, 3Core, 120sqmm,	Set	0	1,837.61	-
	aluminium UG cable kits for 3core (set)				
4.4	Erection of Outdoor termination kits Heat	Set	0	1,470.29	_
7.4	Shrinkable type suitable for 11kV, 3Core,	Jet	U	1,470.29	_
	120sqmm, aluminium UG cable kits for 3core (set)				
4.5	Laying, Commissioning, Testing of 11kV, 3core,	km	0	13,99,890.88	-
	120sqmm, aluminium, XLPE insulation armoured		Ū	10,00,000.00	
	(extruded type) UG cable in HDD method with				
	HDPE pipe of 110mm dia.				
4.6	Laying of 110mm dia PE 80-PN8, HDPE pipe	km	0	1,04,114.67	-
	inside open trench.				
5	Laying, Commissioning, Testing of 11kV, 3core,				
	95sqmm, aluminium, XLPE insulation armoured				
	(extruded type) UG cable by open trench method				
	and HDD method			10505555	
5.1	Laying, Commissioning, Testing of 11kV, 3core,	km	0	1,95,980.63	-
	95sqmm, aluminium, XLPE insulation armoured				
	(extruded type) UG cable by open trench method.				
5.2	Erection of Straight through jointing kits Heat	Set	0	3,062.68	
0.2	Shrinkable type suitable for 11kV, 3Core,	561	U	0,002.00	-
	95sqmm, aluminium UG cable kits for 3core (set)				
5.3	Erection of Indoor termination kits Heat Shrinkable	Set	0	1,837.61	_
0.0	type suitable for 11kV, 3Core, 95sqmm, aluminium	55.	ŭ	.,557.151	
	UG cable kits for 3core (set)				
5.4	Erection of Outdoor termination kits Heat	Set	0	1,470.29	-
	Shrinkable type suitable for 11kV, 3Core,				
	95sqmm, aluminium UG cable kits for 3core (set)				

5.5	Laying, Commissioning, Testing of 11kV, 3core, 95sqmm, aluminium, XLPE insulation armoured (extruded type) UG cable in HDD method with HDPE pipe of 110mm dia.	km	0	13,99,890.88	-
5.6	Laying of 110mm dia PE 80-PN8, HDPE pipe inside open trench.	km	0	1,04,114.67	-
2	Erection, Commissioning, Wiring and Testing of 11kV RMU				
2.1	Erection of 11kV RMU 3 Way,2 Iso& 1 Brk 630A Outdoor (LLV)	Nos.	0	3,587.96	-
2.2	Erection of RMU, 3WAY, WITH ISOLATORS, 11KV, 630A (LLL)	Nos.	0	3,587.96	-
2.3	Erection of 11kV RMU 4 Way 2 Iso & Brk 630A OUTDOOR (LLVV)	Nos.	0	4,813.03	-
2.4	Erection of RMU, 4WAY, WITH ISOLATORS, 11KV, 630A (LLLL)	Nos.	0	4,813.03	-
2.5	Erection of RMU 3W 11kV with CTPT Unit motorized O/D (LLV+M)	Nos.	0	4,813.03	-
2.6	Erection of RMU 4W 11kV with CTPT Unit Non Ext O/D (LLVV+M)	Nos.	0	4,813.03	-
	Sub Total (Erection Portion	) (in Rs.)	)		10,32,281.21
SI. No.	Description of items	Unit	Quantity	Rate (in Rs.)	Amount (in Rs.)
1	Civil works with supply of all materials like cement, MS tor rod, brick, coarse & fine aggregates and labour, T&P, etc for UG Cable Trench				
1.1	Earth work excavation of soil (1mtr. width X 1mtr. depth)				
1.1.a	Earth work excavation of soil	Cum	0	201.62	-
1.1.b	Earth work excavation of hard rock	Cum	0	884.35	-
1.2	Shifting of excavated soil to a lead distance of 10km	Cum	0	171.55	-
1.3	Filling with fine river sand after laying of cable inside the trench	Cum	0	479.74	-
1.4	Back filling with excavated soil outside and above	Cum	0	30.28	-
1. F	the trench	3:::			
1 4 - 1		1			
1.5	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after laying of cable in open trench (1mtr. width)	km	0	26,43,670.63	-
2	Damage of asphalt/tar road and other utilities and reconstructing to bring to its original shape after	km	0	26,43,670.63	-

2.3	Prefabricated RCC foundation of 11kV RMU with	Nos.	0	11,735.61	_
2.0	metering unit	1403.	U	11,733.01	_
3	Supply of Galvanised Fencing around each RMU with height 2 mtr for external protection	sqmtr	0	4,668.00	-
4	Installation of Earth Pit, Charcoal, Salt etc. including construction of earthing chamber (Size: 2'x2') and RCC slab cover	Set	0	2,407.00	-
5	Supply and erection of GI Pipe of dia. 150mm, Class-B (8Mtr.)	Mtr	64	1,607.00	1,02,848.00
6	Supply and Erection of Cable Route Marker along the cable route at an interval of 30mtrs with civil works	Nos.	27	376.13	10,155.51
	Sub Total (Civil Portion)	(in Rs.)			1,13,003.51
A-1	Sub Total (Supply Por	tion)			21,84,221.60
A-2	Applicable Taxes to make it Land	ed Cost (	@18%		-
Α	Total landed Cost (A=A1	21,84,221.60			
В	Stock, Storage & Insurance (	65,526.65			
С	Sub Total (A+B)	22,49,748.25			
D	Contingency @ 3 % o	67,492.45			
E	Tools & Plants Charges @ 2% of C	-			
F	Transportation @ 7.5%	1,68,731.12			
G	Total (C+D+E+F)	24,85,971.81			
H-1	Sub Total (Erection Portion + 0	11,45,284.72			
H-2	Applicable Taxes to make it Land	-			
Н	Total landed Cost (H=H1	11,45,284.72			
I	Total Cost (G+H)				36,31,256.53
J	Other Overhead /(including Supervision	_	. —	ıf I	2,17,875.39
K	Total Estimated Capital Cos		38,49,131.92		
L	GST @ 18% of K				6,92,843.75
М	CESS @ 1% of L		38,491.32		
N	Grand Total (K+L+N		45,80,466.99		
0	Inspection Fee of UG Line (HT)	- Rs. 250	/ km.		250.00
Р	Inspection Fee of UG Line (HT) - Rs.	100/ Add	itional Km		
Q	Inspection Fee of Drawing Checking	ng and Ap	oproval		400.00
R	Final decision by electrical	Inspector			500.00
S	Gross Total Material, Services and Inspection	45,81,616.99			

## 8) Benefits

- Technical loss saving of 114kw on 33kv and 91kw on 11kv level
- N-1 redundancy for All important installations
- Minimization of interruption.
- Strengthening of distribution network.

## 9) Conclusion

Proposed s/s at Manguli is necessary after considering the length of 11 kV feeder and poor voltage profile which caters power supply to the subject areas. Based on the present and future

load growth, installation of 2x8 MVA s/s GIS Indoor is proposed along with SCADA compatibility. The cost is as per OERC approved rates and Capex rates. Rates of some of the items which are not available in OERC approved rates and Capex rates are considered from Competitive Market prices, SCRIPS. The BoQ and Cost estimate of 33/11 kV s/s (GIS Indoor), 33 kV line and 11 kV line are finalized in consultation with NEG, STS, Projects and Division.