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

**Case No:_____/2023**

**IN THE MATTER OF:** Application for approval of Capital Investment Plan for the FY 2024-25 in the Licensed Area of TP Central Odisha Distribution Ltd.

**And**

**IN THE MATTER OF:** TP Central Odisha Distribution Ltd., Corporate Office, Power House, Unit 8, Bhubaneswar- 751 012 represented by its Chief –Regulatory & Government Affairs

***.... Petitioner***

**IN THE MATTER OF:** M/s GRIDCO, OPTCL, SLDC , Department of Energy, Govt. of Odisha and All Concerned Stakeholders.

***.... Respondents***

**Affidavit**

I, Puneet Munjal , aged about 60 son of late Jagdish Lal Munjal residing at Bhubaneswar do hereby 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 herein shown to me are based on information provided to me and I believe them to be true.

Bhubaneswar.
Dated: 30.10.2023

Chief –Regulatory & Government Affairs

IDENTIFIED BY ME
ADVOCATE. BBSR

NOTARY GOVERNMENT OF INDIA
Jagyneswar Acharya
Regd No.:7791/2009
Dist-Khurda
BBSR, Odisha
M-9861006174

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

30th Oct 2023
File No TPCODL/Regulatory /2023/246 /6520

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

**Subject: Petition for Approval of the Capital Investment Plan for FY 2024-25**

Dear Sir,

We are through this letter submitting a petition to the Hon'ble Commission for approval of the Capital Investment Plan for the FY 2024-25. We request you to kindly approve the same.

We trust our submissions are in order

Yours faithfully
For **TP Central Odisha Distribution Limited**

**(Puneet Munjal)**
Chief –Regulatory & Government Affairs

**BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION,**
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***…. Respondents***

## 1. Background for Submission of the Petition

The Hon'ble Commission in order of Case No 11/2020 ("Vesting Order") had directed TPCODL to seek the approval of the Capital Expenditure Plan in line with the regulations. The extracts from the Vesting Order are as follows:

*42. Capital investment plan*

> *( e ) TPCODL would be required to seek the Commission's approval on the detailed capital expenditure plan in line with the regulations. TPCODL shall satisfy the Commission that the capital expenditure plan submitted in line with regulations adheres to the capital expenditure plan submitted as part of the Bid.*

The Odisha Electricity Regulatory Commission (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations 2022 (herein referred to as "Tariff Regulations,2022") requires submission of Capital Investment Plan for each year of Control period and also separate annual Capital Investment Plan for each year of Control Period. The relevant extract from the Tariff Regulations,2022 is provided below.

*3.2. Capital Investment*

*3.2.1. The Distribution Licensee shall submit detailed capital investment plan, financing plan and physical targets for each year of the Control Period for strengthening and augmentation of distribution network, meeting the requirement of load growth, reduction in distribution losses, improvement in quality of supply, reliability, metering, reduction in congestion, etc., to the Commission for approval, as a part of the Business Plan applicable for the entire control period and annual proposal for each year of the Control Period.*

*3.2.2. The Distribution Licensee shall **file a separate annual Capital Investment Plan** comprising of capital investment plan, financing plan and physical targets for each year of the Control Period as per the timelines specified in Annexure-I. (emphasis supplied)*

In compliance to the Tariff Regulations,2022 ,TPCODL had filed its Business Plan for FY 2023-24 vide submission dated 30.01.2023 (registered as Case 11/2023) and Business Plan for FY 25 to FY 28 vide submission dated 31.05.2023 (registered as Case 45 /2023). The Business Plan application of TPCODL comprised of, among other component of Business Plan as per Tariff Regulation,2022, Capital Investment Plan for the Control Period. The Business Plan application for FY 2023-24 was disposed off by the Hon'ble Commission in the Tariff Order for FY 2023-24 dated 23.03.2023.The Hon'ble Commission has issued order in the matter of Case 45/2023 on 14.09.2023 and has stipulated following with regards submission of Capital Investment Plan.

*33. Capital Investment*

*…*

*j**. The Commission opines that the Capital expenditure involves multidimensional aspects which undergoes changes due to rapid urbanization & industrial growth. Ensuring reliability of power supply, reducing interruptions & AT&C loss and providing electricity at an affordable tariff to the consumers etc. are major challenges**. In view of such dynamism in the system, the Commission **directs the DISCOMs to submit the year wise Capex plan for the control period for approval of the Commission.** The Commission also observes that the DISCOMs are required to catch up in capitalization with the approval by the Commission. (emphasis suppled)*

While the Tariff Regulations, 2022 require submission of Annual Capital Investment Plan by 10th Sep , the Discoms have requested the Hon'ble Commission for extension of time against which the Hon'ble Commission ,vide letter dated 21.09. 2023, granted extension of time till 31.10.2023 for submission of the Capital Investment Plan for FY 2024-25.

## 2. Summary of the Capital Investment Plan for FY 2024-25

In view of the above and in compliance to the directive of the Vesting order , Tariff Regulations,2022 , and the Hon'ble Commission's directive in order dated 14.09.2023 in the matter of Case 45/2023 , we are through this petition filing the proposal for approval of the Capital Investment Plan for FY 2024-25. While the detailed Capital Investment Plan for FY 2024-25 is provided in the **Appendix** , the summary of the proposal is provided in table below. It is submitted that the Board of TPCODL in its meeting dated 20th October 2023 has accorded approval for the Capital Investment Plan for FY-2024-25 amounting to Rs. 416 Cr, activity wise details of which are provided in table below. The certified True Copy of the Board resolution will be submitted to the Hon'ble Commission as soon as the minutes of the Board meeting dated 20th October 2023 are approved and released.

**Table A: Capital Investment Plan for FY 2024-25 (Hard Cost Only)**

| Major Head | Activity | Capex Plan FY 2024-25 (in Rs. Cr) |
|---|---|---|
| **Safety & Statutory** | Testing Equipment for STS | 2 |
| | Interposing Pole | 3 |
| | Fencing / Boundary Wall / DT plinth | 4 |
| | Meter Testing Lab | 0.42 |
| | 11kV/ LT Network Refurbishment | 4 |
| | **Safety & Statutory** | **13.42** |
| **Loss reduction** | Damaged Service Line replacement - Cable Replacement | 4 |
| | DT Smart Meters | 8 |
| | Network Reconfiguration | 8 |
| | Conversion of LT Bare to LT AB Cable | 10 |
| | **Loss reduction** | **30** |
| **Reliability** | Automation of Conventional Substation | 19 |
| | FRTUs and Communication for RMU | 3 |
| | Replacement of Old Equipment | 20 |
| | 33KV Network Infrastructure | 56.63 |
| | 11KV Network Infrastructure | 89 |
| | LT DB Installation | 30 |
| | **Reliability** | **217.63** |
| **Load Growth** | New Connection Release | 15 |
| | Service Cable for new Connection | 8 |
| | Power Transformer Augmentation | 47 |
| | DT addition / Augmentation | 20 |
| | **Load Growth** | **90** |
| **Technology & Infrastructure** | Residential Training Centre | 13 |
| | IT - Software, User Devices, Back-up system, Storage devices and Applications | 32 |
| | Civil Upgradation | 16 |
| | Ready to Use Admin Asset | 4 |
| | **Infrastructure** | **65** |
| **Grand Total** | | **416** |

The Capital Investment Plan of Rs. 416 Cr as depicted in table above is hard cost only. The cost towards the Employees working on such projects would be in addition to the amount that would be approved by the Hon'ble Commission under this petition.

Similarly, the Interest During Construction (IDC) is required to be worked out on the Debt Component (70%) of the Capex. The same would depend on the quantum of the capital expenditure spread during the year. It is submitted that Interest During Construction amount would need to be added in addition to Hard Cost and Employee Cost to be capitalised

The detailed Capital Investment Plan for FY 2024-25 including status of Capex investment already made vis-à-vis the approved amounts is provided in the **Appendix.**

## Prayers

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

1. Approve the Capital Investment plan (Hard Cost ) for FY 2024-25.

2. Allow Employee Cost and Interest During Construction based on actuals to be capitalised over and above the Capex (Hard Cost ) for FY 2024-25.

3. Permit Carrying forward of the unspent Capital Expenditure to subsequent years.

4. Permit making additional submission required in this matter.

5. Grant any other relief as deemed fit and proper in the facts and circumstances of the case.

6. Any other direction as the Hon'ble Commission may think appropriate

# APPENDIX

**INDEX**

# Tables

# 1 Capital Investment Proposal for FY 2024-25

## 1.1. Need for Capital Expenditure

Capital investment is required to improve Power supply reliability, reduce the AT&C losses, ensure the safety and security of network, make the network adequate enough to cater the load growth and implementation of the technology to bring process efficiency in the operations. Further, other infrastructure inherited by the Company viz. Office, Stores, Customer Care/Service Centres etc. require significant refurbishment.

In view of achieving the above objectives, the TPCODL has been framing its Capex Investment plan, which is based upon the following need/requirements:

1. **Statutory & Safety** – Investment required for addressing unsafe conditions and making the network statutory compliant. This covers Refurbishment jobs, set up of safety culture through PPEs and testing equipment, Meter Testing lab etc..
2. **Loss Reduction** – Investment required for taking initiatives to improve Billing or collection efficiency or reducing the technical Losses in the network. This includes Energy auditing, LT Bare to AB Cable and Defective cable replacement, Network Reconfiguration, Damaged Service Line replacement etc.
3. **Reliability** – Investment required to improve the Reliability and Quality of Power Supply by taking various initiatives like Feeder addition / augmentation, N-1 redundancy, Old equipment replacement etc.
4. **Load Growth** – Investment is required to meet the Load Growth in the network and making the network future ready. This includes Augmentation / Addition of Power Transformers and DTs ,New Connection release etc.
5. **Technology and Infrastructure** – Investment related to technology adoption and strengthening of various infrastructure to improve internal as well as external customer satisfaction. This includes IT & Technology infrastructure, Civil infrastructure, etc.

As explained in our earlier petitions, TPCODL has identified a number of other challenges related to Metering infrastructure, Customer Services, and Technology usage. These challenges are planned to be addressed through a systematic investment plan prepared by TPCODL, a part of which was proposed by TPCODL for FY 2020-21 in the petition filed in Case No 32 of 2020, Case 05 of 2021 for FY 2021-22 , Case 14 of 2022 and Case 51 of 2022 for FY 2022-23 and also in the petition filed in Case 98 of 2022 for FY 2023-24.

Tata Power has been an early implementer of latest technology in India and has perhaps most number of standalone and integrated technology platforms in use. These technologies have been instrumental in improving the overall performance of the company and been able to deliver benefit in terms of lowering losses and improving reliability and better management of business and consumers.

TPCODL considers customers as its most important stakeholders. Hence, it has prepared its strategy to create value for the customers by improving the reliability of supply for better customer experience. So, Capex intervention is required to reinforce the network to enhance the useful life of assets and bring in new technology.

The proposed Capex plan represents a justified and efficient level of total capital investment estimated by TPCODL to meet its service obligation ensuring safe and reliable network, maintaining high level of service standards and to provide customer services at benchmark level through process improvement, capacity building and technology adoption.

### 1.2. Status of Capex and Capitalization against Capex approved by the Hon'ble Commission for FY 2020-21 , FY 2021-22 and FY 2022-23 and FY 2023-24

The Hon'ble Commission has approved Capex of Rs.280.63 Cr for FY 2020-21 in its order dated 08.09.2020. For FY 2021-22, the Hon'ble Commission has approved a Capex of Rs.298.73 Cr in its order dated 18.09.2021. For FY 2022-23, the Hon'ble Commission has approved a Capex of Rs. 380.56 Cr vide order dated 19.07.2022 and 16.12.2022. For FY 2023-24, the Hon'ble Commission has approved Capex of Rs. 283.72 Cr in order dated 21.06.2023. The status of project progress against the Capex approved for FY 2020-21 , FY 2021-22 ,FY 2022-23 and FY 2023-24 as on 30.09.2023 is as provided in table below.

Table 1 **Actual Status as on 30.09.2023 against Capex approved for FY -21 , FY-22 , FY-23 & FY-24 (Rs Cr)**

| Sr No | Major Category | Capex Approved by the Hon'ble Commission | | | | | | Actual as on 30.09.2023 | |
|---|---|---|---|---|---|---|---|---|---|
| | | For FY 2020-21 | For FY 2021-22 | For FY 2022-23 | Supplementary Capex | For FY 2023-24 | Total Approved (Cumulative) | Cumulative Capex as on 30.09.2023 | Cumulative Capitalization as on 30.09.2023 |
| | | A | B | C | D | E | F= SUM(A:E) | G | H |
| 1 | Statutory & Safety | 68.2 | 17.6 | 17.7 | 0.0 | 16.0 | 119.4 | 103.4 | 95.2 |
| 2 | Loss Reduction | 39.6 | 67.4 | 52.9 | 0.0 | 35.0 | 194.8 | 109.2 | 79.7 |
| 3 | Reliability | 72.5 | 114.4 | 87.8 | 43.9 | 115.0 | 433.5 | 255.6 | 216.9 |
| 4 | Load Growth | 9.0 | 30.5 | 24.9 | 93.4 | 50.0 | 207.8 | 132.7 | 69.9 |
| 5 | Infrastructure & Technology | 91.4 | 68.8 | 60.2 | 0.0 | 67.7 | 288.1 | 166.7 | 150.0 |
| **6** | **Total** | **280.6** | **298.7** | **243.3** | **137.3** | **283.7** | **1243.6** | **767.6** | **611.6** |

* Note: The above is Hard Cost Only

It is worthwhile to point out that, in addition to above, TPCODL has incurred substantial Capex under various Government Schemes also.

TPCODL is working towards executing the Capex against the approval accorded by the Hon'ble Commission . It is submitted that another Rs. 400 Cr of Capex is planned to be executed by 31.03.2024 over and above the Cumulative Capex executed till 30.09.2023.

### 1.3. Summary of the Capital Expenditure for FY 2024-25

TPCODL in line with the philosophy adopted for FY 2020-21, FY 2021-22 ,FY 2022-23 and FY 2023-24 has considered Capital Expenditure under five different heads:

a) Statutory and Safety
b) Loss Reduction
c) Reliability
d) Load Growth and
e) Technology and Infrastructure.

The summary of the Capex planned for FY 2024-25 (only Hard Cost i.e. without considering Employee Costs capitalized and Interest during Construction) is as summarized below

**Table 2: Summary of Capex plan for FY 2024-25 ( only Hard Cost i.e. without considering Employee Cost and IDC capitalization)**

| Head | Activity | Capex Plan for FY-25 (in Rs. Cr) | Annexures |
|---|---|---|---|
| **Safety & Statutory** | Testing Equipment for STS | 2 | |
| | Interposing Pole | 3 | Annexure-1 |
| | Fencing / Boundary Wall / DT plinth | 4 | Annexure-2 |
| | Meter Testing Lab | 0.42 | |
| | 11kV/ LT Network Refurbishment | 4 | Annexure-3 |
| | **Safety & Statutory** | **13.42** | |
| **Loss reduction** | Damaged Service Line replacement - Cable Replacement | 4 | |
| | DT Smart Meters | 8 | |
| | Network Reconfiguration | 8 | Annexure-4 |
| | Conversion of LT Bare to LT AB Cable | 10 | Annexure-5 |
| | **Loss reduction** | **30** | |
| **Reliability** | Automation of Conventional Substation | 19 | Annexure-6 |
| | FRTUs and Communication for RMU | 3 | Annexure-6 |
| | Replacement of Old Equipment | 20 | Annexure-7 |
| | 33KV Network Infrastructure | 56.63 | Annexure-8 |
| | 11KV Network Infrastructure | 89 | Annexure-9 |
| | LT DB Installation | 30 | Annexure-10 |
| | **Reliability** | **217.63** | |
| **Load Growth** | New Connection Release | 15 | |
| | Service Cable for new Connection | 8 | Annexure-11 |
| | Power Transformer Augmentation | 47 | Annexure-12 |
| | DT addition / Augmentation | 20 | Annexure-13 |
| | **Load Growth** | **90** | |
| **Technology & Infrastructure** | Residential Training Centre | 13 | |
| | IT - Software, User Devices, Back-up system, Storage devices and Applications | 32 | |
| | Civil Upgradation | 16 | |
| | Ready to Use Admin Asset | 4 | |
| | **Infrastructure** | **65** | |
| **Grand Total** | | **416** | |

### 1.4. Employee Costs and Interest During Construction to be capitalised

It is submitted that Employee Cost associated with the projects or capex schemes would also form a part of the Capex and would be eventually capitalized with the capital expenditure scheme. We wish to submit that the cost towards Employees working on such projects would be separate i.e in addition to the amount that is approved by the Hon'ble Commission under this petition.

Similarly, the Interest During Construction (IDC) is required to be worked out on the Debt Component (70%) of the Capex. The same would depend on the quantum of the capital expenditure spread during the year and hence the estimation has not been made at present in this petition. However we wish to submit that Interest During Construction amount would need to be added in addition to Hard Cost and Employee Cost to be capitalised.

# 2 Annual Capex Plan

## 2.1 Safety and Statutory

The proposed budget for Safety & Statutory under CAPEX FY 24-25 is Rs.13.42 Cr. The details of the same are as given in the table below:

**Table 3: Capital Expenditure Safety and Security**

| Head | Activity | Capex FY-25 (Rs.Cr) |
|---|---|---|
| **Safety & Statutory** | Testing Equipment for STS | 2 |
| | Interposing Pole | 3 |
| | Fencing / Boundary Wall / DT plinth | 4 |
| | Meter Testing Lab | 0.42 |
| | 11kV/ LT Network Refurbishment | 4 |
| | **Safety & Statutory** | **13.42** |

The description of the various schemes are as under

### 2.1.1 Testing Equipment for STS

- **Background**

TPCODL has been agile in the adoption of latest technology in the power utility sector. Together with its culture of Consumer Service Excellence, Continuous Learning, Performance Orientation, Innovation and Empowerment; we are eager to set benchmarks in accelerated reduction of AT&C losses, improve power reliability, enhance consumer satisfaction and improve employee productivity.
Testing of electrical equipment is one of the major job of a power distribution utility. Testing decides healthiness of equipment with the passage of time.

- **Business Objective**

After taking over the electricity distribution business from erstwhile CESU, one of the major operational challenge in front of TPCODL was to provide uninterrupted power supply. The expectation of consumers' kept on rising continuously with the improvement in power reliability over period of time. Meeting the regulatory targets of improving AT&C loss along with reliability and safety improvement is also one of the foremost requirement of TPCODL.

- **Justification**

TPCODL has 5 Electrical circles, 20 Divisions, 65 sub-divisions, and 247 sections. Besides, there are 5 E&MR divisions and 5 MRT divisions under its operational area. There are 371 nos. of 33/11kV substations with nearly 811 nos. of PTRs and 4000+ protective relays. Further, there are nearly 80,000 no's of distribution substations, 700+ Ring Main Units, and hundreds of auto-reclosers installed to control the huge network. TPCODL operational area has traditional as well as modern substation. The oldest substations are as old as 50 years and have either electromagnetic or static type of relays.

TPCODL require testing equipment for periodic testing of 33kV, 11kV, and LT equipment for ensuring smooth functioning of the network. There are nearly 325 maintenance units spread across 30,000 square kilometre. Since inception, TPCODL is providing testing equipment to these maintenance units gradually. Besides, we also have defective testing equipment beyond repair and their replacement is required for ensuring proper testing and maintenance of network equipment.

- **Proposed Solution**

To provide testing equipment to all maintenance units, budget of INR 20.13 crore is required. So far funds to the tune of INR 10.22 crores have been approved by Hon'ble commission for procurement of testing equipment. For FY 24-25, we have proposed INR 2.0 crore for procurement of testing and diagnostic equipment. Balance INR 7.90 crores will be considered in next two years.

Availability of testing equipment will help us to monitor the healthiness of power distribution equipment. It will also help to take proactive measures in case of abnormalities in the equipment.

- **Scope of the Proposal**

Details of the testing equipment proposed to be procured in FY 24-25 are given below

**Table 4 : Cost Estimate –Testing Equipment**

| Testing equipment | Per Unit Cost (Rs.) | Qty. | Amount (Rs.) |
|---|---|---|---|
| Tan delta Testing kit | 3127000 | 1 | 3127000 |
| CRM kit | 170500 | 2 | 341000 |
| Timer kit | 110200 | 2 | 220400 |
| IR testing kit | 97000 | 50 | 4850000 |
| Hi pot testing kit 40 KV | 77000 | 5 | 385000 |
| Hi pot testing kit 15 KV | 54000 | 20 | 1080000 |
| industrial grade laptops | 236000 | 2 | 472000 |
| WRM | 345000 | 2 | 690000 |
| TTR | 263000 | 2 | 526000 |
| Leakage current meter (AC) | 14000 | 10 | 140000 |
| Leakage current meter (DC) | 18000 | 10 | 180000 |
| AC clamp on meter | 15000 | 142 | 2130000 |
| Tool kit | 18000 | 15 | 270000 |
| Multi meter | 15000 | 50 | 750000 |
| IR camera | 249000 | 5 | 1245000 |
| Low end thermos vision camera | 73300 | 20 | 1466000 |
| Oil BDV tester | 43000 | 10 | 430000 |
| Earth Resistance Tester | 19000 | 50 | 950000 |
| Height meter | 37400 | 20 | 748000 |
| **Total (Rs.)** | | | **2,00,00,400.00** |
| **Total (Rs. Cr)** | | | **2.0** |

- **Proposed Capex for FY -25 : Rs. 2.0 Cr**

- **Benefits:**

1. Reduction in Equipment Downtime.
2. Reduction in Energy Not Served due to reduction in downtime.
3. Reliability improvement of the network.
4. Reduction in overall equipment failure.
5. Improved reliability.

### 2.1.2 Interposing Poles

| | |
|---|---|
| Scheme Proposed | It is proposed to erect interposing poles to ensure safety of employee, public and animals and ensure reliable power supply to end consumers. |
| Capex Amount | ₹ 3.00 Cr |
| Benefit to customer | To ensure safety and reliable power supply to end consumers |

**Existing System**

TPCODL spanning over a geographical area of 29,354 sq.km has a vast network having 33kV network of 3957 Ckm, 11kV network of 39277 Ckm & LT network of 50027 Ckm. 8mtr, 9mtr & 11mtr PSC poles as well as WPB poles are installed majorly in the existing network. Several irregularities in the span lengths of these networks are observed where the span length ranges from 70mtr to more than 100mtr at some places. These large span lengths have resulted in:

1) Sagging of conductors,
2) Low ground clearances - vertical clearance of conductor from ground is lower than the permissible limits of 5.8 m (for LT Lines) and 6.5 m (for HT Lines) and
3) Accidents due to sagging & low ground clearances.

**Need of Project**

To overcome such scenarios, where the span length is on the higher side and violates the safety and statutory guidelines, it is of utmost importance to provide intermediate poles in between the spans. Addition of intermediate poles will address the issue of sagging, low ground clearances & accidents caused due to this. Proper upkeep of the feeders is important for ensuring safety and reliability of power supply.

The sagged wires in 33kV, 11kV and LT feeders are posing major threat to the lives of human beings and animals. At some places, due to re-construction / widening of roads, vertical/horizontal clearances of the feeders have been reduced. This is not only causing violation of statutory guidelines but also increasing the chances of accidents. TPCODL got the approval under Capex for installing the Interposing poles wherever vertical clearances are not as per the CEA Safety Regulation 2010. Out of approved 8 Cr Capex, TPCODL has already done the expenditure of 4 Cr and remaining 4 Cr is expected to be utilized by March'24.

**Proposal for CAPEX Investment**

To ensure safety and cater reliable power supply to end consumers TPCODL proposes refurbishment of 33kV, 11kV and LV lines, i.e., installation of interposing poles emphasizing critical areas such as schools, hospitals, markets and other key installations of frequent human mobility.

**Benefit**

The span length in various locations is much more than standard limits as mentioned above. This leads to statutory violations of vertical clearances, as per guidelines.

With the use of interposing poles at low clearance locations, statutory compliances will be met and hence safety of employee, public and animals will be enhanced, reducing the chances of electrocution.

**Detailed Cost Estimate along with BoQ** provided at **Annexure-1** to this submission.

### 2.1.3 **Meter Testing Lab (**Battery Operated Drill Machine, Multi-meter, MRT Store Infra Development at MRT, Bhubaneswar)

**Existing System**

a) **Battery Operated Drill Machine:** - TPCODL receives 1 Lac new connection requests annually. In new connection during meter installation field team faces problem to carry out drilling activities at site for fixing of the meter boxes, due to un-availability of power supply. Team has to arrange initial supply from nearby location, which itself is unsafe and a time consuming job.

b) **Multimeter :** -In HT metering job field team are using clamp meters during checking & testing activity. After checking PT & CT connection are done on meter terminals. But in clamp meter there is no provision available for CT polarity checking.

c) **MRT Store Infra Development at MRT, Bhubaneswar :** -At present various teams/verticals are operating from MMG office, Bhubaneswar, such as Central MMG team, MMG BBSR circle team and NABL Accredited MRT Lab. The ground floor area is used for Meter Testing Laboratory, having 3 nos Test benches, office area and receive issue section area. And on 1st floor MMG office is functioning with officials of Central Team. However there is no space available for storage with proper security of testing equipment and accessories, being used by MMG Engineers. So currently there is no mechanism to restrict unauthorized access.

**Need of Project**

a) **Battery operated drill machine :** -As New connection is a prime activity of TPCODL, MMG team requires Battery operated drill machine on day to day basis.

b) **Multimeter:** -Testing equipment is required in order to ensure correct phase sequence connection of CTs during HT metering activities. This is a vital requirement as any wrong phase sequence connection affects the recording of the meter.

c) **MRT Store Infra Development at MRT, Bhubaneswar :** - As testing equipment & metering accessories are important assets of MMG team, so proper storage with security is a vital requirement. So that only authorized individuals can have access to the materials & any unfavorable circumstance or any disruption can be avoided.

**Proposed Scheme**

- It is proposed to purchase 300 nos. of Battery Operated Drill machines, which will be issued to MMG team to be used during meter installation in New Connection cases.
- It is proposed to purchase 20 nos. of Multi-meters, which will be issued to MMG team to be used during HT metering activity.
- Construction of a store room with size(12'X12') in the campus of MRT BBSR office required for safe custody of the testing equipment and accessories.

**Scope of Proposal**

**Table 5 : Scope and Cost Estimate-Meter Testing Lab**

| Main Budget | Activity | Material Required / Activity Planned | Capex FY -25 (Rs. Cr) |
|---|---|---|---|
| Safety & Statutory | Development of MRT LAB | Battery Operated Drill Machine | 0.18 |
| | | Multi-meter | 0.06 |
| | | MRT Store Infra Development at MRT, Bhubaneswar | 0.18 |
| **TOTAL** | | | **0.42** |

**Proposed System after Implementation**

- With availability of Battery Operated Drill machines it will benefit field team in terms of safety and ease of operation.
- With availability of Multi-meters it will benefit field team in terms of safety and ease of operation.
- The equipment and accessories can be stored in a designated place while restricting unauthorized access.

**Proposed Capex : Rs. 0.4 Cr**

**Benefit to Consumers:**

- Safe to operate
- Useful during meter installation activity during new connection
- Useful for checking CT polarity
- Safe custody of all testing equipment and accessories

### 2.1.4 Construction of Boundary Wall and Fencing

**Table 6: Proposed Scope and Cost estimate –Boundary Wall & Fencing**

| Item Description | Qty Proposed | Cost Proposed in FY-25 (in Rs.Crs) |
|---|---|---|
| PSS Compound Wall | 14 | 1.4 |
| Chain-linking Fencing in Switchyard | 15 | 0.6 |
| DSS Fencing | 200 | 2 |
| **Total Proposed** | | **4** |

| Project Title | PSS Compound Wall and Switchyard fencing |
|---|---|
| Background | There are 371 operational PSS across TPCODL as of today. At the time of takeover, 178 PSS were not having a proper boundary wall.<br><br>So far from FY 20-21 to 23-24, 95 PSS boundary wall have been constructed / modified and 83 no's of PSS shall be without new / damaged boundary wall.<br><br>Besides many of the PSSs are being used as section and sub-division offices. Costlier equipment and materials are stored at many PSSs and there are chances of theft. Only 56 PSS will have metal fence between substation control room and 33KV switchyard by March 2024.<br><br>Consumers used to visit section offices in large number to lodge no current complaints and commercial issues and there is a great risk of incident / accident. |
| Need of the Project | Due to non-availability of boundary wall with concertina coil fence, and metal fence between control room and 33kV switchyard, it is difficult to avoid entry of unauthorised staff, public, and animals into the PSS / live switchyard and there are chances of incident /accidents.<br><br>TPCODL intends to provide proper boundary wall and switchyard fence at each PSS at the earliest. |
| Proposal for the capex investment | It has been planned to construct boundary wall of height 1.8 meter along with 0.6 meter concertina coil fence at 15 no's of PSSs to ensure safety and security of TPCODL staff, public, animals and network.<br><br>TPCODL has also planned to construct metal chain link fence of height 1.8 meter between substation premises and switchyard at 15 no's of PSS to avoid entry of unauthorised persons in live switchyard which may lead to incident / accident.<br><br>After implementation of above proposal, still 68 PSS will have no proper boundary wall, and 319 PSS will be without metal fence between substation control room and 33kV switchyard. |
| Scope of the proposal | • Construction / repair of boundary wall – 15 PSS<br>• Construction of chain link fence for switchyard – 15 PSS |
| Cost estimate | INR 1.40 Crore for compound wall and 0.60 Crore for chain link fence at 15 No's PSS. |
| Benefits | • Segregation of section office and 33KV switchyard.<br>• Safety of TPCODL staff, and general public<br>• Safety of network assets. |

| **Project Title** | **Chain-link fencing in switch yard** |
|---|---|
| Existing System in place | Currently 170 offices are operated inside our PSS campus under TPCODL. Public visit these offices on daily basis for redressal of issues and bill payments at the collection counter, which is adjacent to the switchyard area /no entry zone. |
| Need of the Project | From safety and security point of view, the live structure area needs to be barricaded with chain link fencing to avoid public contact from live structure area inside the PSS. |
| Statutory Compliance requirement | Safety of employees, stray animals and residential people is one of the most important statutory compliance. |
| Proposal for the capex investment | Erecting of chain-link fencing at the PSS to restrict access to live structure area and to provide a clear path to access the offices. |
| Scope of the proposal | For ensuring enhanced security, the switchyard shall be barricaded by 1.8-meter high fence and covered with GI chain-link wire mesh. |
| Cost estimate | *INR 0.6 Crs (15 PSS in one year)* |
| Proposed system after implementation | Barricading Switchyard shall eliminate the hazard and access to local public. |
| Benefits | Chain-link fencing prevents Public or animals from accidents/ unauthorised entry, tampering with or stealing valuable equipment from switchyard area. |
| Conclusion | Chain-link fencing not only ensures the safety and security of the facility but also enhances operational efficiency, complies with regulations, and fosters positive community relations. |

| Project Title | DSS Fencing |
|---|---|
| Background | As per organization requirement barbed wire/ chain link/ compound wall fencing is being done for existing DSS across TPCODL. Every year TPCODL is installing Fencing to the Distribution Substations to restrict unauthorized access to the Distribution substation. |
| Need of the Project | From safety and security point of view, the DSS area needs to be Fenced to avoid public contact and animal accidents and provide secure area for working and maintenance purpose. |
| Statutory Compliance requirement | Safety of employees, stray animals and residential people is one of the most important statutory compliance. |
| Proposal for the capex investment | It is proposed to Construct Fencing around DSS wherever required for Safety and Security Point of view. |
| Scope of the proposal | For enhancing safety, the DSS shall be barricaded using 1.5-meter high fence and covered with GI chain-link wire mesh and brick masonry wall with MS gate whichever is suitable for the Location. |
| Cost estimate | *Rs. 2.00 Cr for 200 Locations* |
| Proposed system after implementation | DSS Fencing shall eliminate the hazard of public contact and animal from live structure area. |
| Benefits | By preventing unauthorized access, there is less chance of equipment being tampered with, which will help in providing reliable power distribution. DSS fencing will also help in avoiding any unforeseen incident of general public coming in contact with live equipment which otherwise might cause danger to life. |

**Conclusion**

Out of approved 15 Cr Capex, TPCODL has already done the expenditure of 9 Cr and remaining 6 Cr is expected to be utilized by March'24.

**Detailed Cost Estimate along with BoQ** provided at **Annexure-2** to this submission.

### 2.1.5 11KV and LT Network Refurbishment

| | |
|---|---|
| Scheme Proposed | It is proposed for replacement of defective LT AB cable/ LT Bare conductor to new LT AB cable, replacement of 11kV conductors to ensure safety of humans and animals along with ensuring reliable power supply to the end consumers. |
| Capex Amount | ₹ 4 Cr |
| Benefit to Consumer | To ensure safety of humans and animals along with ensuring reliability of power supply to the end consumer. |

**Existing System**

TPCODL has a vast LT network of 50027 Ckm and 11kV network of 39277 Ckm. This comprises of 11kV lines, LT OH bare conductors, UG cables and LT AB cables. LT network plays important role of the power supply distribution system and spread across TPCODL licensed area for power distribution. There are numerous LT Bare conductors and defective LT AB cables in the network, which result in accidents of common commuters in the area and animals. Insulation of LT AB cable degrades due to sun exposure. In various places at the 11kV network, degradation of conductors for frequent snapping of the conductors are witnessed due to overloading issues, occurrence of transient fault due to tree branch touching or any other interruptions. The LT bare overhead lines and defective LT AB cables used are more prone to transient fault due to tree branch touching or any foreign particle falls on the line. Due to this, consumer experiences frequent faults.

**Need of the Project**

To overcome such scenarios, where there are degraded 11kV lines, LT Bare overhead conductors and defective LT AB cables, it is of utmost importance to replace the same with new LT AB cables. Replacement with new 11kV lines, overhead LT AB cable will address the issue of accidents caused due to this along with mitigation of overloading issues. Proper upkeep of the feeders is important for ensuring safety and reliability of power supply. During site visits, it was observed that there and numerous 11kV lines, LT Bare overhead conductors and LT AB cables that are in deteriorated condition, which pose safety threat to the human beings and animals. Several feeders have binding wire / multiple joints. As a result, there are snapping of conductors and chances of subsequent electrocution of human beings / animals.

Proper upkeep of the feeders is important for ensuring safety and reliability of power supply. During site visits, it was observed that most of the 11kV lines are in very poor condition and pose safety threat to the human beings and animals. Most of the feeders have binding wire / multiple joints. As a result, there are chances of snapping of conductors and subsequent electrocution of human beings or animals

During site visits, it has been observed that in many areas degraded 11kV lines, LT Bare conductors and LT AB cables of different sizes are being used. This is not only causing violation of statutory guidelines but also increasing the chances of accidents.

**Proposal for Capex Investment**

To ensure safety and cater reliable power supply to end consumers TPCODL proposes replacement of 11kV lines with new 11KV Conductors and LT Bare overhead conductors and defective LT AB cable with new LT AB cable emphasizing critical areas such as schools, hospitals, markets and other key installations.

**Benefits**

By executing the proposals as made in this head, 11kV, LT network can be strengthened and we would be able to serve our consumers in much better way. Following benefits are envisaged from this investment:

1. Reliable Power supply to the consumers.
2. To avoid contact of LT Bare overhead conductors and degraded 11kV lines, LT AB cable due to degraded insulation with public and animals and avoid electrocution.

**Detailed Cost Estimate along with BoQ** provided at **Annexure-3** to this submission.

## 2.2 Loss Reduction

The Various schemes for loss reduction envisaged for FY 2024-25 with a proposed budget of Rs 30.00 Crs, is as follows:

Table 7: **Breakup of Capital Expenditure under Loss Reduction**

| Head | Activity | Capex -FY 25 (Rs. Cr) |
|---|---|---|
| **Loss reduction** | Damaged Service Line replacement - Cable Replacement | 4 |
| | DT Smart Meter | 8 |
| | Network Reconfiguration | 8 |
| | Conversion of LT Bare to LT AB Cable | 10 |
| | **Loss reduction** | **30** |

The description of the various schemes are as under

### 2.2.1 Damaged Service Line Replacement

**Existing system-**

During various site visit and review of data base it has been seen that about 1 Lac meters are still electromechanical meters. More over all these mechanical meters are more than 10 years old and have already completed their useful life. The above issues are resulting into reduction in billing efficiency, high AT&C losses and thus hampers the collection efficiency. Further, it is also observed that, every year 50,000 to 1 Lac defective meters are identified. These meters also have cables with joints and they can become cause of electrocution and electricity pilferage.

**Statutory compliance-**

As per CEA (Installation and Operations of Meters) regulations 2006, Clause 4(1) and Clause 4(2), there should be No Mechanical Meter in utilities. Abstract of clause 4 (1) and (2) of CEA (Installation and Operations of Meters) regulations 2006.*Clause 4 (1): All interface meters, consumer meters and energy accounting and audit meters shall be of static type. Clause 4(2) : The meters not complying with these regulations shall be replaced by the licensee on his own or on request of the consumer. The meters may also be replaced as per the regulations or directions of the Appropriate Commission or pursuant to the reforms program of the Appropriate Government. Same is covered in OERC supply code 2019 clause no 97.*

**Proposal-**

Based on the above condition, a budget of Rs.4.00 Cr has been requested for replacement of defective cables if a cable is identified as damaged or having joint on inspection by officers.

**Cost estimate- Rs. 4 Cr**

As per estimate Cost of Cables required or installation of meters. These cases are where the service line is already damaged or are having joints from where pilferage is possible.

**Table 8 : Cost of cables**

**Cost of cable**

| Cable Size (Core * Sq mm) | Count | Cable length - KM | Cost per unit (Rs) without GST | Rate of Installation (Rs) without GST | Cost per unit (Rs) | Rate of installation (Rs) | Cost of Mat (Cr) | Cost of Inst (Cr) | Total Cost (Rs Cr) |
|---|---|---|---|---|---|---|---|---|---|
| **2*4** | **8000** | 165 | 55.17 | 890.96 | 65.1 | 1156.5 | 1.07 | 0.93 | 2.00 |
| **2*6** | **6000** | 135 | 61.87 | 890.96 | 73.01 | 1156.5 | 0.99 | 0.69 | 1.68 |
| **4*10** | **375** | 8.82 | 100.33 | 1104.29 | 118.39 | 1433.4 | 0.10 | 0.05 | 0.16 |
| **4*25** | **130** | 3.78 | 159.61 | 1120.75 | 188.34 | 1454.7 | 0.07 | 0.02 | 0.09 |
| **4*50** | **15** | 0.45 | 250 | 1571 | 479.6 | 2039.2 | 0.02 | 0.00 | 0.02 |
| **4*95** | **6** | 0.18 | 470.56 | 2219.44 | 479.6 | 2880.8 | 0.01 | 0.00 | 0.01 |
| **4*150** | **0.4** | 0.012 | 824.01 | 2219.44 | 732.1 | 2880.8 | 0.00 | 0.00 | 0.00 |
| **4*300** | **0.1** | 0.003 | 1378.62 | 3000 | 732.1 | 3894 | 0.00 | 0.00 | 0.00 |
| **4*2.5** | **0** | 0 | 117.8 | 890.96 | 732.1 | 1156.5 | 0.00 | 0.00 | 0.00 |
| **6*2.5** | **0** | 0 | 184.24 | 890.96 | 732.1 | 1156.5 | 0.00 | 0.00 | 0.00 |
| **10*2.5** | **192** | 1.92 | 202 | 0 | 200 | 0 | 0.04 | 0.00 | 0.04 |
| **Grand Total** | **10634** | **315** | | | | | **2.31** | **1.70** | **4.00** |

**Benefit to Consumer**

- Reliable power supply
- Safety of person

### 2.2.2 Smart Meters for DT

**Project Title**: Procurement & Installation of DT meters, cable, LTCT Box, accessories for DT Metering > 63KVA

**Background:**

Energy Accounting prescribes accounting of all energy inflows at various voltage levels in the distribution periphery of the network, including renewable energy generation and open access consumers, as well as energy consumption by the end consumers.

Some of the major advantages of DT metering are :

- Tracks the parameters of power and distribution transformer
- Keeps the distribution transformers from failing
- Minimizes the losses of power distribution
- Monitors & alerts when the transformer phase fails.
- Can Build Strategies to Reduce Thief
- Puts a Spotlight on High Loss areas

**Statutory Compliance:**

*The Bureau of Energy Efficiency with the previous approval of Central Government, in The Gazette of India, has made the following regulations:*

*Bureau of Energy Efficiency (Manner and Intervals for conduct of Energy Audit in electricity distribution companies) Regulation 2021 on 06$^{th}$ Oct 2021.*

*As per the regulations, Distribution Companies shall:*

a. *Ensure that all feeder wise, circle wise and division wise periodic energy accounting shall be conducted by the energy manager of the electricity distribution company for each quarter of the financial year;*

b. *Submit the periodic accounting report to the Bureau and State Designated Agency andalso made available on the website of the electricity distribution company within 45 days from the date of the periodic accounting;*

c. *Conduct an annual energy audit for every financial year, submit the annual energy audit report to the Bureau and respective State Designated Agency and also made available on the website of the electricity distribution company within a period of four months from the expiry of the relevant financial year.*

*Prerequisite for annual energy audit and periodic energy accounting includes:*

a. *Installation of functional meters for all consumers, transformers and feeders*

*Provided that the meter installation is done in a phased manner within a period of three financial years (i.e. by FY 25) from the date of commencement of these regulations.*

**Cost Estimate:**

Total volume of meter requirement for TPCODL network is 18,000. However, TPCODL has planned to execute it in a phased manner, where in the first phase, it has been planned to cover 3500 meters with a total SITC cost of INR 8.00 Crs

Table 9: **Cost of LTCT Smart Meters**

| Meter | Meters (Count) | Cost per unit (Rs) without GST | Rate of Installation (Rs) without GST | Cost per unit (Rs) | Rate of Installation (Rs) | Cost of Material (Cr) | Cost of Installation (Cr) | Total Amount (Cr) |
|---|---|---|---|---|---|---|---|---|
| **LTCT SMART - 100/5A** | 3500 | 5220.00 | 1428.77 | 6159.6 | 1854.54 | 2.16 | 0.65 | 2.80 |
| **Grand total** | **3500** | | | | | **2.16** | **0.65** | **2.80** |

Table 10: Cost of Cable

| Cable Size (Core * Sq mm) | COUNT | Cable length -KM | Cost per unit (Rs) without GST | Rate of Installation (Rs) without GST | Cost per unit (Rs) | Rate of installation (Rs) | Cost of Mat (Cr) | Cost of Inst (Cr) | Total Cost (Rs Cr) |
|---|---|---|---|---|---|---|---|---|---|
| **4*95** | **3500** | 35 | 470.56 | 1880.88 | 479.60 | 2441.4 | 1.68 | 0.85 | 2.53 |
| **Grand Total** | **3500** | **35** | | | | | **1.68** | **0.85** | **2.53** |

Table 11: **Cost of LTCT Box**

| Boxes | Meter Box (Count) | Cost per unit (Rs) without GST | Rate of Installation (Rs) without GST | Cost per unit (Rs) | Rate of installation (Rs) | Cost of Mat (Cr) | Cost of Inst (Cr) | Cost (Cr) |
|---|---|---|---|---|---|---|---|---|
| **LTCT BOX-100/5** | 3500 | 7610.00 | 0.00 | 8979.80 | 0.00 | 3.14 | 0.00 | 3.14 |
| **Total** | **3500** | | | | | **3.14** | **0.00** | **3.14** |

**NB- As per direction of Hon'ble OERC to Complete the DT meter installation> 63 KVA**
**We have planned for installation of around 18000 DT meters > 63 KVA in next FY.**

**Benefit to Consumers:**

Accurate Energy Accounting at DT level

### 2.2.3 Network Reconfiguration

| | |
|---|---|
| Scheme Proposed | Interlinking of feeders to reduce the length of existing feeders in turn reduce the technical loss in the network |
| Capex Amount | ₹ 8.00 Cr |
| Benefit to Consumer | To ensure quality power supply to the consumers and reduction of loss in the network by reducing the length of the feeders. |

**Existing System**

In TPCODL, 33kV network is the backbone of power supply system and spread across TPCODL licensed area and connected with various 33/11kV PSS from where the power is transformed at 11kV for further distribution. 33kV networks are lengthy and radial in nature at most of the places. Due to the lengthy and radial feeders, the overloading issues and low voltage issues increase in the network and which in turn increase the technical loss of the network.

**Need of the Project**

To reduce the technical loss in the existing 33kV network, it is suggested to lay some interconnectors in the existing network to convert the system in ring and perform NOP changes to mitigate the high loss in the network. Further, this interconnection would help in managing the load in case of any exigency and mitigate the issue of overloading.

**Benefits**

By executing the proposals as made in this head, loss reduction in the network can be achieved. Following benefits are envisaged from this investment:

1. Reliable Power supply to the Consumers.
2. Loss reduction in the network.

**Detailed Proposal ,Cost Estimate and BoQ** is provided as **Annexure-4** to this submission.

### 2.2.4 Conversion of LT Bare to LT AB Cable

| | |
|---|---|
| Scheme Proposed | It is proposed for replacement of LT bare conductor with LT AB Cable to ensure reduced direct 'hooking' done on bare LT conductor lines thereby reducing commercial losses drastically in theft prone areas. |
| Capex Amount | ₹ 10.00 Cr |
| Benefit to Consumer | To ensure quality power supply to the consumers and reduction of frequent tripping and ensuring safety to public and animals along with reducing commercial losses. |

**Existing System**

In power distribution, LT network plays an important role for power supply distribution system and it is spread across TPCODL licensed area for distribution of power. The bare overhead conductor used is more prone to transient faults due to tree branch touching or when any foreign objects falls on the line. Due to this, consumer experiences frequent fault and subsequently LT technical losses also increases. These bare conductor lines are subject to electricity theft through direct hooking and thus causing revenue leakage in the system. Through conversion of LT bare conductor to LT ABC, safety will be ensured and it will help TPCODL in maintaining the adequate clearance from consumer's premises.

**Need of the Project**

Frequent tripping can be avoided by use of aerial bunched insulated cables instead of bare conductors. Theft of electricity through hooking will be reduced leading to lower AT&C losses. To avoid direct hooking, it is proposed to convert LT OH bare conductor into LT AB cable. This will help in eliminating the direct theft and thus protecting the revenue leakage.

Through the execution of this scheme, we are envisaging loss reduction through eliminating the theft of electricity.

By Implementation of aerial bunched insulated cables instead of bare conductors, pilferage of electricity can be curtailed which will subsequently help in reduction of AT&C losses.

**Benefits**

By executing the proposals as made in this head, 415V network can be strengthened and we would be able to serve our consumers in much better way. Following benefits are envisaged from this investment:

- Reliable Power supply to the Consumers since bare conductor will be replaced into insulated cable.
- Comparatively safer than the LT Bare conductor and eliminate the element of risk if comes in close proximity.
- Simpler installation, as crossbars and insulators are not required.
- Suitable for congested lanes as well.
- Electricity theft becomes difficult as hooking would not be possible.
- Maintenance required is less and necessary inspection of lines.

To improve the safety factor, minimize the safety accident risk, reduce the chances of fault and strengthen existing 415V network, it is suggested for replacement of overhead bare conductors with new aerial bundled cables. This in turn will help in providing reliable power supply for all consumers & stakeholders.

**The detailed Cost estimate and BoQ** is attached as **Annexure-5** to this submission**.**

## 2.3 Reliability

The Various schemes under the head of Reliability envisaged for FY 2024-25 is as follows:

**Table 12 : Break up of Capital Expenditure under Reliability**

| Head | Activity | Capex FY-25 (Rs. Cr) |
|---|---|---|
| Reliability | Automation of Conventional Substation | 19 |
| | FRTUs and Communication for RMU | 3 |
| | Replacement of Old Equipment | 20 |
| | 33KV Network Infrastructure | 56.63 |
| | 11KV Network Infrastructure | 89 |
| | LT DB Installation | 30 |
| | **Reliability** | **217.63** |

The description of the various schemes are as under

### 2.3.1 Automation of Conventional Sub-Station

**Background**

TPCODL has been in the forefront of adoption of modern technologies for reduction of interruptions, equipment failure, improve employee productivity, and enhance consumer satisfaction.

Likewise best in class utilities, TPCODL is also deploying GSAS (Grid station automation system) since FY 20-21 and till now have automated 216 PSS, integrated 185 no's of 33/11KV Primary Substations (PSS) with SCADA and unmanned 82 PSS. TPCODL automation journey so far is given below:

- FY 20-21: Integration of 52 RAPDRP PSS, 4 PNP PSS and 54 ODSSP PSS.
- FY 21-22: Integration of 80 ODSSP PSS and 22 old PSS in urban areas.
- FY 22-23: Integration of 42 PSS covering BBSR1, BBSR2 and Cuttack circles.
- FY 23-24: Integration of 18 PSS in Dhenkanal and Paradeep circles.
- FY 24-25: Integration of balance 103 PSS

In FY 23-24 we could undertake only 18 PSS due to limited fund allocation. So left over 103 PSS are considered for automation in FY 24-25.

**Need of the Project:**

After taking over the electricity distribution business from erstwhile CESU, one of the major operational challenges for TPCODL was to improve the reliability of power supply. Still there are large number of tripping in 33 and 11KV feeders and substations.

Implementation of GSAS has provided numerous benefits such as improved productivity of manpower, smart utilization of asset, quick decision making, automated remote monitoring and control along with state of the art asset management.

Out of 375 PSS, automation of 272 PSS would be completed by March 2024. This will further improve the reliability of power supply and reduce MTTR. Besides, there will be huge revenue saving on account of unmanning of the PSS and relocation of the available manpower for other maintenance activities.

Due to restricted budget allocation in FY 23-24, we could automate only 18 PSS. Remaining 103 PSS are planned to be covered in FY 24-25.

**Proposal:**

It has been decided to complete the automation of all 372 PSS by March 2025. 272 PSS would be automated by March 2024 and balance 103 are considered for automation in FY 24-25. List of balance 103 PSSs is attached for reference.

Based on PSS survey, budget of INR 16 crore would be required for automation of 103 no's of PSS across TPCODL. This budget is based on latest purchase orders**.** INR 3.00 Crores is proposed for enablement of SCADA. (Refer Annexure-6)

Total cost of project is INR 19.0 crore.

We request the Hon'ble Commission to kindly consider for GSAS of leftover 103 PSS under phase-4.

**Cost:**

Total Cost proposed: INR 19.00 Crs. **Out of which, INR 16.00 Crs is proposed for GSAS implementation and INR 3.00 Crs is proposed for enablement of SCADA. (Annexure 6 )**

**Cost Benefit Analysis:**

- Improvement in power reliability.
- Reduction in revenue loss due to reduction in unserved energy.
- Fact based network operations.
- Reduction in Operational Cost
- Significant reduction in equipment failure due to repetitive charging

- Increase in manpower productivity.
- Enhanced safety of manpower, general public and utility assets.

**Conclusion:**

Seeing the huge potential of the GSAS, it is requested to Hon'ble OERC to approve the budget of INR 16 crore for GSAS implementation in 103 PSS across TPCODL operational area and 3 Crs for SCADA enablement of 20 No.s of sub-stations.

### 2.3.2 FRTU and Communication for RMU

| | |
|---|---|
| Scheme Proposed | **FRTU & Communication for RMU** |
| Capex Amount | ₹ 3 Cr |

Note: Detailed DPR for the same is annexed as **Annexure-6**.

### 2.3.3 Replacement of Old Equipment

| | |
|---|---|
| Brief description | The Power distribution network & its equipment health is a critical factor for ensuring reliable & quality power supply to the end consumers. |
| Capex Amount | ₹ 20.00 Cr |
| Benefit to Consumer | To ensure reliable and quality power supply to the consumers. |

**Existing System**

For any distribution company, apart from a strong 33kV & 11kV network, healthy & trouble free network equipment or asset base is a must. It forms the base for reliable power supply to the consumer.

In TPCODL, based on the detailed survey reports, it was found that at some places intervention at equipment level is required to make the network strong & trouble free, so as to ensure reliable power distribution till customer point.

**Need of the Project**

To strengthen the existing network, it is suggested to replace the old equipment in the existing network.

Further, this replacement will help in utilization of the resource to the optimum level, managing the load in case of any exigency and mitigate the issue of overloading etc.

**Proposal for Capex Investment**

Although TPCODL field teams are committed for the upkeep the equipment by doing preventive maintenance, but still some of the old equipment get faulty and may result to failure due to frequent tripping. Failure of the equipment due to the ageing of the equipment results into long duration outages as it becomes difficult to restore the power supply if it happens during odd hours or if spare equipment are not available in the inventory.

Hence, to ensure highest reliability and achieve utmost efficiency, all equipment need to operate properly at all the times. In last year of operations, TPCODL has done the survey to identify the old equipment that exists in the system, which may fail, or lying faulty and proposal for their replacement are listed so that reliability to the end consumers can be ensured. In this scheme, we have proposed replacement of old network equipment at priority locations.

**Benefit:**

TPCODL intends to improve the reliability of power supply by identification and replacement of old equipment causing frequent tripping's.

**The detailed Cost Estimate and BoQ** is provided as **Annexure-7** to this submission.

### 2.3.4 33 kV Network Infrastructure

| | |
|---|---|
| Scheme Proposed | Proposal for construction of new 33kV lines, conductor augmentation and new 33kV feeders from upcoming/ existing grids in order to optimize the feeder loadings, mitigate feeder overloading and power evacuation from Grids. |
| Capex Amount | ₹ 56.63 Cr |
| Benefit to customer | By executing the proposals as made in this head, 33kV network can be strengthened and consumers can avail reliable and quality power supply. |

In TPCODL, 33kV network is the backbone of power supply system and spread across TPCODL licensed area and connected with various 33/11kV PSS from where the power is transformed at 11kV for further distribution. 33kV feeders are important asset for a distribution utility which connects various substations and provide power to end consumers.

To summarize, following areas where interventions can be made to strengthen the existing network are identified:

- Overloading of the 33kV feeders.
- Power evacuation from recently charged/ proposed GSS.
- 33kV network refurbishment

In order to mitigate overloading issues in the 33kV network, various proposals are outlaid vis-à-vis, conductor refurbishment and construction of new feeders. In addition, new feeders are proposed to evacuate power from the existing lightly loaded, recently commissioned or upcoming OPTCL 220/33kV or 132/33kV grid substations.

In order to provide the reliable and quality power supply to the consumers in TPCODL's licensed area, we have conducted the survey of all 33kV feeders to identify the weaker sections that require immediate attention. Based on the survey reports, it is observed that in some of the feeders, conductor sizes are different resulting to compromising of the circuit current carrying capacity, which is limited to the lowest size of the conductor available in the circuit and causing overloading of the feeders. However, looking at the existing load demand after Covid and factoring the projected load growth as per the trend, it is required to be rectified in order to avoid overloading of the network.

Moreover, in various forums, OPTCL has raised the issue of recently commissioned or to be commissioned 220/33kV or 132/33kV grids which are either lightly loaded or even have no loading. Additionally, new OPTCL grids are upcoming to be commissioned in the near future. OPTCL has asked TPCODL to evacuate power from these Grid substations and ease out the loading on other OPTCL Grids that are currently catering the loads. Therefore, TPCODL is also proposing evacuation of power from these OPTCL Grid substations by constructing new 33kV feeders or interconnectors to transfer the loads.

In the annual load flow study, out of a total 240nos. 33kV feeders, 59nos. 33kV feeders are identified to be overloaded (loading ≥90%) in the peak loading condition of FY:24 and after subsequent interaction with field teams the proposal requirements are summarised below:

In the annual load flow study, out of a total 240nos. 33kV feeders, 59nos. 33kV feeders are identified to be overloaded (loading ≥90%) in the peak loading condition of FY:24. After subsequent interaction with field teams the proposal requirements for 11nos. 33kV feeders are proposed under CAPEX FY: 2024-25 and for the remaining overloaded feeders, proposals are already considered under different TPCODL/ Govt. schemes (CAPEX FY: 21-22, 22-23, 23-24, CMPDP, ODSSP Ph-3, OPEX, SCRIPS, SDMF-1, etc).

**Table 13 : Mitigation Proposal for 33 kV Overloaded Feeders**

| Scheme | Capex 21-22 | Capex 22-23 | Capex 23-24 | Capex 24-25 | Capex 25-26 | CMPDP | ODSSP PH-III | ODSSP PH-IV | OPEX | SCRIPS | SDMF-I | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of Overloaded Feeder mitigation proposals | **2** | **9** | **11** | **11** | **1** | **11** | **1** | **5** | **2** | **4** | **2** | **59** |

**Table 14: Cost estimate -33 KV Network Infra**

| Sl. No | Proposal Head | Cost (Rs. Cr.) |
|---|---|---|
| 1 | 33kV Overloading Feeder and Mitigation Details | 33.45 |
| 2 | 33kV Upcoming GSS Power Evacuation | 13.18 |
| 3 | 33kV Network Refurbishment | 10 |
| **Total** | | **56.63** |

This overall expenditure will help in strengthening the 33kV network.

**The detailed Proposal ,Cost estimate and BoQ** is provided at **Annexure-8** to this submission.

### 2.3.5 11 kV Network Infrastructure

| | |
|---|---|
| Scheme Proposed | Proposal for conductor augmentation, new 11kV line and feeder interlinking for mitigation of 11kV feeder overloading. |
| Capex Amount | ₹ 89.00 Cr |
| Benefit to customer | ▪ Reliable power supply to consumers<br>▪ Mitigation of 11kV feeder overloading issues.<br>▪ Improvement in reliability Indices like SAIDI & SAIFI. |

**Existing System**

11kV feeders are the main power link between Primary substations (PSS) with the distribution substation (DSS) and give power supply to 11kV HT consumers. Below are the major observations in the existing 11kV network:

- 11kV feeders have conductor of different sizes used in different sections, which restricts the circuit current carrying capacity limiting to the lowest size of the conductor used in the circuit. This leads to overloading of the feeder and low voltage issues.
- Interconnection between feeders mostly are done through jumpering and some places through off-load AB switches, for normal load transferring from one feeder to another feeder it requires shutdown of both feeders.
- 11kV feeders in the network are overloaded.

**Need of the Project**

To strengthen the existing network, it is suggested to replace the sick equipment in the existing network.

Further, this replacement will help in utilization of the resource to the optimum level, managing the load in case of any exigency and mitigate the issue of overloading etc.

In TPCODL, most of the 11kV feeders are long and radial in nature and overloaded. During overloading conditions, it is not possible for the field teams to transfer the load to the healthy section and thus all consumers connected to the affected feeders remain out of service until the field team locates and repairs the fault.

This scheme is proposed to ensure flexibility to the field teams in 11kV feeder operation. In this head, all such issues can be mitigated by:

i. Laying of new 11kV feeders.

ii. Interlinking of 11kV feeders/ 11kV feeder bifurcation.

iii. Augmenting the existing 11kV feeders to address overloading issues of the feeders. This will help in strengthening the existing 11kV network.

In the annual load flow study, out of a total 1411nos. 11kV feeders, 117nos. 11kV feeders are identified to be overloaded (loading ≥90%) in the peak loading condition of FY:24 and after subsequent interaction with field teams the proposal requirements for 69nos. 11kV feeders are proposed under CAPEX FY: 2024-25 and for the remaining overloaded feeders, proposals are already considered under different TPCODL/ Govt. schemes (CAPEX FY: 22-23, 23-24, CMPDP, ODSSP Ph-3, OPEX, SCRIPS, SDMF-1, NOP changes, etc).

Table 15 : 11kV Overloaded Feeders mitigation plan

| Scheme | CAPEX 22-23 | CAPEX 23-24 | CAPEX 24-25 | CMPDP | Considered under 21Cr. Proposal | NOP | ODSSP-3 | OPEX | SCRIPS | SDMF-1 | Total |
|---|---|---|---|---|---|---|---|---|---|---|---|
| No. of Overloaded Feeder mitigation proposals | 12 | 7 | 69 | 5 | 7 | 4 | 5 | 6 | 1 | 1 | **117** |

**Benefit:**

These proposals will help in mitigating overloading of the 11kV feeders. Further, this interconnection would help in managing the load in case of any exigency and mitigate the issue of overloading. Thus, will lead to lower interruption and ensure quality power supply hence leading to satisfaction of the consumers.

**The detailed Proposal ,Cost estimate and BoQ** is provided at **Annexure-9** to this submission.

### 2.3.6 LTDB Installation

| | |
|---|---|
| Scheme Proposed | To make existing 11kV & LT network more reliable, it is suggested to install LT DBs. |
| Capex Amount | ₹ 30.00 Cr |
| Benefit to customer | ▪ Ease of operation to the field teams<br>▪ Improving the safety in terms of Equipment operation |

**Existing System**

In the existing scenario, due to the absence of LTDB it is not possible to individually control the LT feeders and any fault on LV side leads to the tripping of 11kV feeder breaker at DSS.

**Provision of LTDB at DSS**

Distribution Substation (DSS) comprises of various equipment, which perform specific task to ensure delivering the power supply at appropriate voltage to the end consumers. Main components are 11kV AB Switch, 11kV HG Fuse, Transformer, LV Protection, Earthing, Fencing and LT Distribution Box.

The most expensive equipment in the DSS is Transformer and its life depends upon the healthy condition of all other components, be it LV Protection, HV Protection, Earthing or fencing. It is observed at various locations that the LT side & HT Side protection is bypassed through GI wires. Due to this bypassed scenario, for any maintenance or corrective work at LT level, due to non-availability of switching equipment, outage / Hand trip is taken from the 33/11kV PSS

resulting into interruption to all the consumers connected on that 11KV feeder even though for a short duration. Similarly, for any fault on LV side leads to tripping of 11kV feeder breaker at DSS.

However, this can be addressed by installing a LTDB after the Distribution transformer so that only that LT feeder needs to be taken into outage where the work is supposed to be carried out. The main function of LTDB is to individually control the LT feeders thus helping in attending the complaint of any feeder without disturbing the power supply to other LT feeders from same Distribution transformer. This will help in reducing the affected consumers count and thus improving the reliability indices.

It is therefore recommended to carry out the installation of LTDBs at Distribution substation so that majority of the consumers are benefitted.

**Need of Project**

This scheme is proposed to ensure flexibility to the field teams in 11kV & LT operation. At some locations there is no LT protection at Distribution Transformers and therefore to attend/work at LT feeder, outage to be taken from 33/11kV PSS which results into interruption to all consumers connected to the particular 11kV feeder.

**Benefit**

This will lead to:

1. Reliable power supply to consumers
2. Improvement in Reliability Indices like SAIDI & SAIFI.
3. Ease of operation to the field teams
4. Improving the safety in terms of Equipment operation

In case of any tripping, maintenance engineer can isolate the faulty section and restore the supply of remaining consumers thereby improving the reliability. Consumers will experience less power cuts and thus reduction in consumer complaint and increase in consumer satisfaction

**The detailed Cost estimate and BoQ** is provided at **Annexure-10** to this submission.

## 2.4 Load Growth

The overall capital Expenditure proposed under this head is Rs. 90 Crs, a given in the table below:

Table 16 **: Estimated Capital Investment in Load Growth**

| Head | Activity | Capex Plan FY-25 (Rs. Cr) |
|---|---|---|
| **Load Growth** | New Connection Release | 15 |
| | Service Cable for new Connection | 8 |
| | Power Transformer Augmentation | 47 |
| | DSS DT addition / Augmentation | 20 |
| | **Load Growth** | **90** |

The description of the various schemes are as under

### 2.4.1 New Connection Release

| | |
|---|---|
| Scheme Proposed | In order to meet this growing load, network infrastructure needs to be strengthened, and new energy meters to be installed to release the new connection. Some of the connections can be released from the existing network and some may require augmentation/addition/extensionbefore release of new connection. For carrying out network extension/ augmentation/addition, we propose expenditure to the tune of Rs 15 Crores under this head. To consider load growth, network extension / augmentation / addition is expected to be carried out to cater the new demand. |
| Capex Amount | ₹ 15 Cr. |
| Benefitto customer | Better the availability of materials, faster will be process of providingnew connection hence more will be the customer satisfaction |

### 2.4.2 Service Cable for New Connection

| | |
|---|---|
| Scheme Proposed | In order to meet this growing load, network infrastructure needs to be strengthened, and new energy meters to be installed to release the new connection. New Meter connections has to be done for all the new connection. TPCODL is proposing for a differential cost of Rs 8.00 Crs under own CAPEX |
| Capex Amount | ₹ 8.00 Cr. |

The detailed Cost estimate is provided as **Annexure-11** to this submission.

### 2.4.3 Power Transformer Augmentation

| | |
|---|---|
| Scheme Proposed | To cater the increasing load demand, PTR augmentation is required to avoid any overloading conditions. In addition, to ensure reliable power supply to our consumers, PTRs have to be kept at optimum loading in order to avoid any mechanical stress on the transformers due to overloading. |
| Capex Amount | ₹ 47.00 Cr |
| Benefit to customer | To reduce over-burdening of existing PTRs complying to statutory requirements thereby reducing load shedding and improving quality of power supply to the consumers. |

In order to avoid any overloading issues especially in urban areas, where the load growth is high, TPCODL has undertaken the assessment of the loading of the power transformers and found that in order to meet the load growth, it is required to augment some of the power transformers which may get overloaded considering the current peak and load growth.

To carry out the detailed study of the PTR, inputs were collected from existing log sheet data and SCADA data from each 33/11 kV substations. Then we analysed the loading pattern & fixed the load growth.

While superimposing the future loading pattern on the existing network we found that some of the Power Transformers might be overloaded and the present capacity of transformers will not suffice the overloading criteria of >70% loading of PTR.

Hence based on the survey reports and discussion with the field teams, few proposals have been identified where we need to augment the Power transformers to have a trouble free summer.

To mitigate the same, various proposals are put forth for approval where we have considered:

1. Power Transformer augmentation
2. Power Transformer swapping
3. Load shifting from one transformer to other transformer within the substation/ other substation.

In the annual load flow study, out of a total 809nos. 33/11kV PTRs, 131nos. PTRs are identified to be overloaded in the peak loading condition of FY:24. After subsequent interaction with field teams, 7nos. 16MVA and 3nos. 25MVA PTR requirement proposals are considered in the costing and rest of the PTR overloading is proposed to be mitigated by PTR swapping/ 11kV feeder swapping/ 11kV feeder shifting/ 11kV feeder load diversion, etc under different TPCODL/ Govt. schemes (CAPEX FY: 22-23, 23-24, OPEX, SCRIPS, etc).

Table 17**: Scheme-wise O/L Transformer Augmentation Proposals**

| Total Nos. | OPEX | | | | CAPEX FY: 2022-23 | Suppl. CAPEX FY: 2022-23 | | | CAPEX FY: 2023-24 | CAPEX FY: 2024-25 | | SCRIPS |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 11kV Feeder load diversion | 11kV Feeder Shifting | 11kV Feeder Swapping | PTR Swapping | PTR Augmentation | 11kV Feeder load diversion | 11kV Feeder Shifting | PTR Augmentation | PTR Augmentation | 11kV Feeder load diversion | PTR Augmentation | |
| 131 | 11 | 32 | 8 | 38 | 3 | 3 | 2 | 4 | 9 | 4 | 13 | 4 |

**Benefit**

These proposals will thereby reduce the overloading of PTRs and in turn improve the reliability and ensure quality power supply to the consumers.

**The detailed proposal ,cost estimate and BoQ** is provided at **Annexure-12** to this submission.

### 2.4.4 DT Augmentation

| | |
|---|---|
| Scheme Proposed | To cater the increasing load demand DT augmentation and DSS addition is required to avoid overloading of transformers leading to transformer failure and power interruptions. |
| Capex Amount | ₹ 20.00 Cr |
| Benefit to customer | Reliable power supply by reducing chances of fault in network, thereby reducing power interruptions along with reduction of over-burdening of existing Distribution transformers thereby reducing power cuts. |

To cater the increasing load demand DT augmentation / DSS addition is required to avoid overloading of transformer leading to transformer failure and power interruptions.
Also to ensure reliable power supply to our consumers, Distribution Transformers has to be kept at optimum loading so as to avoid any mechanical stress on the transformers due to overloading.
When a distribution transformer loading exceeds 100% of the rated capacity of the transformer, then it is considered to be “overloaded”. After capturing the loading data of the Distribution Transformers, it has been observed that at several locations, especially in urban area, DTs are operating at overloaded condition or will be overloaded considering the load growth in the respective areas.
To avoid these overloading issues especially in urban areas where the load growth is high, it is required to augment the capacity of the Distribution transformers so as to mitigate the overloading issues.

**Need of Project** - In case of overloading of the Distribution Transformer, it not only hampers the power supply to the consumers but also may cause pre-mature failure of DT which occurs due to operating for long hours on overload condition. Thus to abide by the safe loading limits, augmentation of distribution transformers are proposed for locations, where loading is exceeding the maximum value.
When a distribution transformer loading exceeds 80% of the rated capacity of the transformer, then it is considered as trigger point for replacement as the DT will be overloaded in next 2years considering natural load growth.

**Proposal for Capex investment** - In this proposal, TPCODL intends to carry out Distribution Transformer’s augmentation along with additional LT feeder / DSS addition for those DTs, which are identified as overloaded based on the peak load served.

**Benefits** - To cater the increasing load demand, DT augmentation / DT addition is required to avoid overloading of transformer leading to transformer failures and power interruptions.
In addition, to ensure reliable power supply to our consumers, Distribution Transformers has to be kept at optimum loading to avoid any mechanical stress on the transformers due to overload.

**The detailed Cost estimate and BoQ** is provided at **Annexure-13** to this submission.

## 2.5 Technology & Infrastructure

The Capital Expenditure proposed for Technology and Infrastructure under FY 24-25 is Rs 65 Crs :

Table 18 **: Capital Cost for Technology & Infrastructure Development**

| Head | Activity | Capex Plan FY-25 (Rs. Cr) |
|---|---|---|
| Infrastructure | Residential Training Centre | 13 |
| | IT - Software, User Devices, Back-up system, Storage devices and Applications | 32 |
| | Civil Upgradation | 16 |
| | Ready to Use Admin Asset | 4 |
| | **Infrastructure** | **65** |

### 2.5.1 Residential Training Centre

**Background**

Currently there is only one training centre at Bhubaneshwar, where in employees across TPCODL have to come to attend the training and no accommodation facility is available.

**Need of the Project**

In order to conduct full syllabus training programs of two or more days, it is proposed to construct and residential training centre at Puri division in our own premises.

**Proposal of CAPEX Investment**

The training centre shall be G+2 building of approx. plinth area of 30 Sqm with 48 seating capacity and a 40 beds guesthouse of G+3/G+2 building, where ground floor shall be used for parking and other floor will have 40 bed accommodation along with other logistic and infrastructute.

**Proposed Cost**

Total Cost for execution of the above mentioned scope for Residential Training Centre is Rs 25 Crs, of which 13 Crs is proposed for FY 24-25, with completion period of 18 months.

**Proposed System after Implementation**

Training helps individuals to acquire new skills, especially skills involving physical work or machinery, training is important to ensure safe practices and reduce accidents and also acts a medium for employees from different age group and location to share their experiences.

**Benefits**

- Residential training centre offers an immersive learning environment that can lead to deeper understandings, faster skill acquisition and stronger bond among participants.
- In addition, it can be more cost effective for providing accommodation, food and training in one location than to source these services individually

**Conclusion**

It will be instrumental in the training and development of the organization's workforce, driving improved performance, retention and attraction of top talent.

### 2.5.2 IT - Software, User Devices, Back-up system, Storage devices and Applications

| Activity planned | Capex FY 24-25 |
|---|---|
| IT- Software, End User Devices, Infra & Communication at DC and DR | ₹ 32.15 Cr |

**Information Technology Schemes**

Table 19: **: Capex Proposals of IT Capex Schemes**

| Sl No | Scheme | Details | FY 24-25 Estimated cost in Rs Cr |
|---|---|---|---|
| 1 | **Build & Strengthen end user IT infrastructure** | End user Computing Devices for Users in line to HR Manpower Projection and refreshment of Old Asset and establishments as well as additional IT infrastructure | 5.11 |
| | | Physical Security Solution (i.e. Surveillance System and Access Control, etc) | 2 |
| 2 | **Strengthen Network Connectivity** | Establishing network connectivity in Enterprise offices and PSS through various technologies viz. MPLS/OFC/5G/VSAT/Network Equipment | 8 |
| | | Establishing Office LAN/Switches/Wi-Fi/Infrastructure Augmentation (DG/UPS/etc.) | 0.5 |
| 3 | **Augmentation of Data Centre Infrastructure-Hardware and Software** | Incremental roll out of up to date cyber security measures (SIEM/iNMS) | 6.04 |
| | | Augmentation DC and DR Infrastructure Hardware and Software Expansion | 7 |
| | | Software and License (SAP/ERP/DB/OS/others etc) for Data Centre | 1.5 |
| | | Implementation Analytical tools for operations & Implementation of Blockchain/latest technology as per Data Protection Act. 2023 Govt. of India | 2 |
| | **Total** | | **32.15** |

**Scheme Wise Detailed Justification**

**1. Build & Strengthen end user IT infrastructure**

**a. Laptops / Desktops**

**Background**

All locations offices of Central Odisha need to be enabled with IT system to provide reliable and quality power and best in class services to consumers. To enable employees to work on automated systems, and for providing various services to the Consumers, Laptops and Desktops are being required. Total 2182 Nos of front-end computing devices (1707 Nos of Laptop and 375 Nos of Desktop) have been procured since June 2020 and provided to the employees for this purpose. Also with increase in consumer base and adoption/implementation of new technologies, an additional requirement of front-end devices arises.

**Requirement**

In order to achieve best in class services for consumers (increasing at around ~6% per annum), it is proposed to procure Laptops and Desktops with 5 years' warranty till FY: 2024-26 and to replace out of Warranty Devices. Basing on requirement, other types of user devices viz. iPad, UPS, monitors, large displays and other accessories etc. may also be procured within the approved budget.

**Proposal**

It is proposed to procure/ replace total out of warranty Laptops and Desktops during FY24-26.

**Table 20: Scope of Proposal – Desktop & laptop**

| User Devices | | | | |
|---|---|---|---|---|
| FY | Item Description | Estimated Nos. | Unit Cost including GST (Rs) | Amount (Rs Cr.) |
| FY 24 - 25 | Laptops | 270 | 100000 | 2.7 |
| | Desktops | 40 | 73000 | 0.29 |
| Total Budget Requirement (Cr.) | | | | 3.00 |

**Budgetary Requirement**

The approx. Capex budget requirement to procure/ replace laptops and desktops is **Rs.3.00 Cr** including taxes.

**Benefits**

- Performing automated business processes
- Office automation
- Improved employee productivity
- Enhanced Consumer Satisfaction
- Faster communication

**b. Printers & Scanners**

**Background**

All offices of Central Odisha need to be enabled with IT system, Printing and Scanning facility to provide best in class services to consumers. Total 385 Nos of Printers and 365 Nos of Scanners have been procured since June 2020 for different offices. Also with increase in offices as well as consumer base and adoption/implementation of new technologies, an additional requirement of printers and scanners arises.

**Requirement**

For functioning of important business processes and meeting the PA timelines, TPCODL is required to procure approx. 600 numbers of printers and 600 numbers of scanners for the office locations. Basing on requirement, other types of printing and scanning devices viz. iPad and high-end Printers and All-In-One Printing devices, thermal printers etc. may also be procured within the approved budget.

Table 21 : **Scope of Proposal- Printers and Scanners**

| Printers and Scanners | | | | |
|---|---|---|---|---|
| FY | Item Description | Estimated Nos. | Unit Cost including GST (Rs) | Amount (Rs Cr.) |
| FY 24 - 25 | Printer | 400 | 18000 | 0.72 |
| | Scanner | 400 | 35000 | 1.4 |
| Total Budget Requirement for 2 Years (Cr.) | | | | 2.12 |

**Budgetary Requirement**

Approximate CAPEX Budget of **Rs. 2.12 Cr** including taxes is required for procuring the printers and scanners.

**Benefits**

- Duplicate Bill and other important document print at Customer Care.
- Official document print.
- Record keeping.
- Door step Bill print and delivery.
- Scanning of official document.
- Copy of official/important documents.
- Payment receipt printing.
- Cheque printing for Business Associates.
- Printing of various reports for Regulator and other stake holders
- Scanning of documents related to PA timelines for sending to Regulator.
- Printing of Finance data.
- Other official work.

## c. Physical Security Solution (i.e. Surveillance System and Access Control, etc)

**Background**

TPCODL has established PSS, offices, GRFs, consumer care center, cash collection centers etc. at various locations. Most of these locations are visited by consumers. It is required to monitor the activities going on at these offices on 24x7 basis. At various instance, Police also suggested to install Security Solution covering Video Surveillance system at these locations.

**Proposed Solution**

It is proposed to install Physical Security Solution at various locations of TPCODL. The system will comprise of various types of cameras (Dome, PTZ, Bullet, Night Vision etc.) and Video Recorder (NVR / DVR) installed at various locations. Central Server and Storage will be installed at Data Center. The video recorded at various locations will be transferred to central storage at defined interval. There will be centralized monitoring system comprising of big screen and operators' desk. Complete system will be monitored on 24x7 basis from this central monitoring.

The number of locations are given below:

| Location | Numbers |
|---|---|
| PSS | 50 |
| Critical Offices | 71 |
| **Total** | **121** |

Video surveillance system is required to be installed at above mentioned 121 locations. It is proposed to install the system in a phased manner - 05 locations in FY 2024-25 and remaining 116 locations during subsequent FYs.

**Budgetary Cost**

For FY 24-25, proposed value is INR 2.00 Crs.

**Benefits**

- 24 hrs. monitoring of critical locations like grids.
- Video surveillance system will act as a deterrent to crime. Seeing the Camera can be unnerving to a would-be criminal.
- Create the ability to apprehend a suspect when a crime occurs
- Protection of worthy elements like property and assets in terms of buildings, important installed equipment, goods, records etc.
- Monitoring can prevent any exigency, theft, intrusion and sabotage.

**2. Strengthen Network Connectivity**

**a. Communication Network**

**Background**

A robust, reliable, scalable and secure communication network is vital to ensure the running of critical IT & OT applications for providing reliable power and effective services to consumers.

TPCODL's communication network comprises of mainly MPLS Connectivity provided by different Telcos at approx. 110 locations. There is dependency on Telcos for the network connectivity. Since these locations are operational HUBS for critical services like Metering, GIS, CRM, SAP ERP, SAP-ISU etc. reliable communication network connectivity with sufficient bandwidth is essential for providing reliable power supply to consumers and ensuring best in class customer services.

It is proposed to develop a robust, reliable, resilient, scalable and Secure Communication system in phased wise manner. Communication network support various mission critical applications on 24×7 basis. This network will enable operational excellence, value added customer services, optimized distribution system asset performance, energy efficiency and conservations, and environmental sustainability.

**Requirement**

It is proposed for implementation of own Optical Fiber Network and technologies viz. MPLS/OFC/5G/VSAT/LEO/Network for various offices at Major towns of TPCODL along with stable connectivity between Data Centre and DR Centre for seamless replication.

**Table 22: Communication Network –Cost Estimate**

| Communication | | | |
|---|---|---|---|
| **Item Description** | **Unit Cost (Rs)** | **Estimated Nos.** | **Amount (Rs Cr.) for FY-25** |
| Connectivity of offices and PSS through various technologies viz. MPLS/OFC/5G/VSAT/Network Equipment | 8,00,00,000 | Lump sum | 8 |
| **Total Amount** | | | **8** |

**Budgetary Requirement**

The approx. Capex budget requirement to implement communication Network is **Rs** 8.00 Crs for FY 24-25.

**Benefits**

- Communication backbone network for business critical applications.
- Providing reliable power supply to consumers through availability of IT & OT services
- Ease in monitoring and control of network
- Meeting PA timelines leading to consumer satisfaction
- Efficiency in performing critical business processes
- Ease in inter office communication

**b. Network Equipment for Locations - LAN/Switches/Wi-Fi/Infrastructure Augmentation**

**Background**

To support business growth, multiple offices have been opened up at various locations of TPCODL. Users are also expected to increase at existing locations due to automation of business processes which is in implementation phase. Network connectivity at these locations is required to enable employees to perform business critical processes like metering, billing, collection, power outage management and meeting performance assurance timelines. Unavailability of network will increase the restoration time of power outage and delay in providing other critical services to consumers thereby impacting the consumer satisfaction. Hence, network connectivity at these locations are required to be enabled through network equipment like Routers and Switches.

**Requirement**

It is required to procure network equipment Routers, Switches, Wireless devices etc. to provide robust and secure network connectivity at office locations as per following details

**Table 23 : Network Equipment Cost Estimate**

| **Locational Network** | | | | |
|---|---|---|---|---|
| **FY** | **Item Description** | **Unit Cost (Rs)** | **Quantity** | **Amount (Rs Cr)** |
| FY 24-25 | 24 port network Switch | 2,80,000 | 10 | 0.28 |
| | Enterprise Router with 2 WAN ports | 1,60,000 | 10 | 0.16 |
| | Wi-Fi Devices with controller | 20,000 | 30 | 0.06 |
| **Total Amount** | | | | **0.50** |

**Budgetary Requirement**

The total estimated budget for different types of Switches, Routers, and Wireless Access Points is **Rs. 0.50 Cr for FY 24-25**.

**Benefits**

- Robust and secure IT network connectivity at various locations
- Meeting PA timelines leading to consumer satisfaction
- Efficiency in performing critical business processes

**3. Augmentation of Data Center Infrastructure-Hardware and Software**

a. **Cyber Security Initiatives - Up to date cyber security measures (SIEM/iNMS etc.)**

**Background**

TPCODL leverages Information Technology to conduct its business critical operations such as metering, billing, collection, recording consumer & employee information, monitoring & management of electrical network assets etc. To conduct these functions, software applications such as SAP ERP, SAP ISU, AMR, AMI, ADMS, GIS, Mobile Apps and other Applications have been deployed. Business critical data is being collected, processed, stored and made available to users through these applications. TPCODL also provides Web/Mobile Applications to its customers and employees on Internet and sends information through emails, SMS alerts etc. to consumers & employees.

More and more IT applications and services are being exposed to internet in order to make employees, consumers, vendors and other stakeholders to work from remote / home and ensure the continuity of business in unforeseen situations e.g. any natural disaster, global

pandemic like COVID -19 etc. Accessing and using IT applications and services through internet poses the risk of Cyber-attacks. This increases the probability of penetration into our network with cyber-attacks by unauthorized users / hackers resulting in disruption of critical business processes. During the COVID-19 lockdown, the rate of cybercrimes has exponentially increased all over the world.

Hence, it is important to protect our network, digital infrastructure, software applications and other services from malicious attacks and cybercrimes for business continuity and protection of customers and other stakeholders' confidential data. So, additional security measure should be adopted to ensure data protection, traffic filtration, and vulnerability assessment of deployed additional IT applications in the existing data center along with regular monitoring through Security Operations Centre (SOC) for preventive actions.

**Requirement**

It is proposed for Procurement of following IT security equipment's and their tentative cost mentioned below to be considered for FY: 2024-25.

**Table 24 : Cost Estimate- Cyber Security Initiatives**

| **Cyber Security Initiatives** | | | | |
|---|---|---|---|---|
| **FY** | **Item Description** | **Unit Cost (Rs.)** | **Quantity** | **Amount (Rs Cr.)** |
| FY24-25 | SIEM & SOAR | 4,50,00,000 | 1 | 4.50 |
| | PAM | 15,500 | 350 | 0.54 |
| | Email SPAM Protection | 2,266 | 2500 | 0.57 |
| | Antivirus Security - Servers | 46,526 | 70 | 0.33 |
| | Antivirus Security - User Devices | 3,600 | 300 | 0.11 |
| | **Total Amount** | | | **6.04** |

**Budgetary Requirement**

The approx. Capex budget requirement to implement cyber security initiative is **Rs. 6.04 Cr**.

**Benefits**

- Protect networks and data from unauthorized access.
- Improved information security and business continuity management.
- Improved stakeholder confidence in your information security arrangements.
- Improved company credentials with the correct security controls in place.

## b. Augmentation DC and DR Infrastructure Hardware and Software Expansion

**Background:**

TPCODL implemented SAP-ISU for Customer Relationship Management, reading, billing, etc., reports as full historical data. R-APDRP Server are now End-of-Life and side by side, for DR Set up, Servers with equivalent of DC Production capacity is also required.

**Requirement for FY 24-25**

It is required to procure generic multi-purpose servers for the afore-mentioned purpose.

**Budgetary Requirement:**

The approx. CAPEX Budget requirement for 21 numbers of servers and Server Management automation tool is Rs. 7 Crores during FY 24-25.

**Mitigating Risks**

The proposal will mitigate the following risks:

- Reduction in downtime of critical applications
- Non availability of systems
- Data loss / Data Corruption of Business Critical historical data due to server failure
- Risk of crossing Performance Assurance Time lines for consumer services

## c. Software and License (SAP/ERP/DB/OS/others etc) for Data Center

**Background**

**MS Office** is the most widely used tool for documenting and organizing information, delivering presentations, as well as processing data in offices environments.

**MS Project** is the most widely used tool for managing project in effective manner by tracking, controlling and using the resources in optimal manner.

**AnyDesk / TeamViewer** is an all-in-one solution for remote support, remote access, and online meetings which allows the employees to assist customers remotely, work with colleagues from a distance and also stay connected with own devices.

Along with the above-mentioned software various other licenses and tools viz. SAP, Server OS etc, shall be procured within the approved budget.

These application softwares are required for licensing which shall be used by TPCODL employees.

**Requirement**

It is proposed to procure 1000 Nos of MS office, 2000 Nos of Remote Support solution (Anydesk / TeamViewer), 30 Nos of Adobe Professional and Warehouse Management System to cater to new requirement.

**Table 25: Cost Estimate – Software & License**

| **Software** | | | |
|---|---|---|---|
| **Item Description** | **Unit Cost (Rs)** | **Estimated Nos.** | **Amount (Rs Cr.)** |
| MS office/ MS Project/ Anydesk / Team Viewer/ Server OS, SAP license etc. | 15000,000 | Lumpsum | 1.5 |
| **Total Amount** | | | **1.5** |

**Budgetary Requirement**

The approx. Capex budget requirement to procure above mentioned software is **Rs. 1.5 Cr.** during FY24-25

**d. Analytical tools for operations & Implementation of Block-chain/ latest technology for Data Protection**

With introduction of Data Protection Act 2023 of GoI and retention of logs for 10 years, it is vital to implement tools for Data protection.

Further, with huge transactions to cater to 30 Lakh consumers along with historical data, it is essential to have various Analytical tools for operations & Implementation of Blockchain/ latest technologies.

For the above-mentioned purpose, budget of Rs. 2 Crore is proposed during FY 24-25 to procure the required Hardware and software tools.

**Scope of Proposal**

Table 26 : Cost Estimate –Analytical Tools for Operation & Blockchain /latest technology for data protection

| Analytical tools for operations & Blockchain/ latest technology for Data Protection | | | | |
|---|---|---|---|---|
| **Item Description** | | **Unit Cost (Cr.)** | **Quantity (Nos)** | **Amount (Rs Cr.)** |
| Analytical tools for operations & Implementation of Blockchain/ latest technology for Data Protection | | 2 | Lumpsum | 2 |
| **Total Amount** | | | | **2** |

**Budgetary Requirement**

The approx. Capex budget requirement for this purpose is Rs 2.00 Crs in FY 24-25.

**Benefits**

- Statutory Compliance
- Protect data
- Accurate targeting basing on analytical reports

### 2.5.3 Civil Infrastructure

Table 27: List of Activities covered under Civil Infrastructure

| Sl No. | Activity planned | Proposed Budget (in Rs. Cr) |
|---|---|---|
| 1 | Furniture at offices | 2.50 |
| 2 | Storage solution for Corporate Office | 0.60 |
| 3 | Construction/ Strengthening of Section and SDO offices | 3.00 |
| 4 | Store yard Development | 3.50 |
| 5 | DT/Switchgear workshop in each circle. | 1.50 |
| 6 | Infrastructure for Skill Development centre (SDC) in 5 Circle. | 1.30 |
| 7 | New Division office at Paradeep | 1.30 |
| 8 | New Division office at Dhenkenal | 1.30 |
| 9 | New circle office at Cuttack | 1.00 |
| | **Total** | 16 |

## A. Furniture at offices

**Background**

Existing furniture's are old and needs replacement. These furniture's are dilapidated and are beyond repairs. The furniture are not agronomical.

**Need of the Project**

Furniture can be selected and arranged to make the best use of available space, creating distinct zones in the office, like work zones, relaxation zones, and meeting zones.

**Proposal of CAPEX Investment**

Procurement of Furniture's such as Workstations, Tables Storage cabinets, Chairs and etc

**Scope of Proposal**

Supply and Installation of document storage building in corporate office premises to facilitate streamlined workflow and other advanced functions for storing documents.

**Cost Estimate**

*The tentative cost including Installation for furniture shall be 2.50 Cr (200 No.s of seating arrangement) and the completion period shall be one year*

**Benefits**

- Furniture plays an integral role in office environments. It serves both functional and aesthetic purposes for employee comfort, Flexibility, space management and safety.
- Providing ergonomic sitting arrangements to employees and consumers through proper furniture is one of the mandatory requirements in our organization
- Availability of dedicated work spaces with tables and chairs for meetings, brainstorming sessions, or team collaborations encourage interaction and teamwork.
- Modular Furniture provided to adhere to specific safety standards to prevent accidents.

**Conclusion**

Placement of Furniture at office is all about creating a functional, productive, and healthy environment for everyone using the space.

## B. Storage Solution for Corporate Office

**Background**

At present, HR department documents is being stored in corporate office in designated rooms. The files are being stored in makeshift racks. With increasing volume of files, current system is not sufficient to cater to current and future requirement.

**Need of the Project**

Lock and key enabled Rack system storage solution is needed to optimize the departmental requirement of documentation considering files being of confidential nature. Also current rack system proposed will be easy to access with proper labelling, indexing and categorizing making it easy to locate and retrieve as and when needed.

**Proposal of CAPEX Investment**

Therefore is it proposed to construct a DT switchgear workshop in each circle, which can cater to repair of DT's at a long run.

**Scope of Proposal**

Supply and Installation of document storage building in corporate office premises to facilitate streamlined workflow and other advanced functions for storing documents.

**Cost Estimate**

*The total estimated cost will be **Rs.0.60 Cr**.*

**Benefits**

- Lock and key enabled Rack system storage solution for easy access of documents with proper labelling, indexing and categorizing making it easy to locate and retrieve as and when needed
- It will protect documents from environmental damage such as moisture, pests, or wear and tear.
- Efficient storage solution will lead to cost savings in the long run by reducing manpower requirement and time saving for document retrieval process.

**Conclusion**

Efficient storage solution will lead to cost savings in the long run by reducing manpower requirement and time saving for document retrieval process

## C. Construction/ Strengthening of Section and SDO offices

**Background**

Currently 36 section and 21 SDO offices operates from Rented Property under TPCODL. Out of which we have already taken up 20 section and SDO office construction work on our own land in FY 23-24.

**Need of the Project**

Presently Section and SDO offices operate from rented accommodation. These offices are situated in residential houses and are not user friendly. Shifting of offices from rented to own property using our land available near PSS campus for long-term rental cost savings and to provide a agronomical work environment.

**Proposal of CAPEX Investment**

It is proposed to Construct and strengthen the Section and SDO Offices by providing user-friendly working environment and best service experience to the consumers as well as working staff.

**Scope of Proposal**

New construction will be taken up for the offices located Rented space and also restructuring and Strengthening will be done for the offices those are operated in our own land for enhancing the structural life of Building.

**Cost Estimate**

*The total estimated cost will be **Rs.3.00 Cr**.*

**Benefits**

- Better work environment for Employees.
- Over extended periods, the total rent paid can surpass the cost of Building.
- Owning the office means we can customize, renovate, or modify as per our requirement to create user-friendly work environment for all.

## D. Store yard Development

**Background**

Under stores yard development work, yard development at various stores are completed in previous years.

**Need of the Project**

Enhancing the store yard includes optimizing the layout for material storage, ensuring security and providing all weather access to stores.

**Proposal of CAPEX Investment**

Under this proposal, it is proposed to upgrade the store yard by asphalt concreting, laying of paving tiles and concreting as per site conditions and type of usage for easy and all weather access and efficient storage to ease current and future needs at Stores across TPCODL.

**Scope of Proposal**

Yard development includes improvement of drainage systems, yard levelling & concreting and surfaces resistant to water logging areas. These measures protect the stored materials from damage.

**Cost Estimate**

*The total estimated cost will be **Rs.3.50 Cr**.*

**Benefits**

- Organized and systematically developed yards allow for easier and quicker access to stored materials.
- This speeds up operations, saving time and labour costs.
- Optimal use of Space

**Conclusion**

A well-developed store yard makes inventory management easier. Keeping track of materials becomes more straightforward when everything is in its designated place. It also helps in monitoring the stock, preventing theft, and minimizing losses.

## E. DT/Switchgear workshop in each circle

**Background**

At present, one DT repairing workshop is being set up at Chowdar ,Cuttack for repair up to 2.5 MVA Transformers . In addition, for minor repairs and active part replacement, workshops are being set up at two more circles . All these 3 workshops shall be functional by Mar'24.

**Need of the Project**

In order to have one DT workshop in each circle, two more DT workshops are required in remaining circle.

**Proposal of CAPEX Investment**

Therefore is it proposed to construct a DT switchgear workshop in each circle, which can cater to repair of DT's at a long run.

**Scope of Proposal**

Construction of sheds for carry out the repair work and storage for DT's and other necessary equipment's.

**Cost Estimate**

*The total estimated cost will be **Rs.1.50 Cr** for 2 DT workshop. Completion period of one year.*

**Benefits**

- Repairing of a transformer can often be more cost-effective than completely replacing it can also maintain consistent quality control standards, ensuring that repaired transformers are reliable and efficient.
- Dedicated DT workshop can perform refurbishments efficiently, extending the life of the transformer.

**Conclusion**

By repairing and refurbishing transformers, the workshop helps in reducing waste and promotes recycling, leading to a reduced environmental footprint.

## F. Infrastructure for Skill Development centre (SDC) in 5 Circle

**Background**

We have constructed Five skill development centre' at five respective circles in last FY for Technical trainings for Employees. Initially it was envisaged to build infra for training. Hence less prominence was given towards other facilities.

**Scope of Proposal**

Development of infrastructure to carry out various technical and behavioural trainings decentralized at circle level.

**Cost Estimate**

1.30 Cr. - @ 25 lakhs per training centre for civil infrastructure

## G. Construction of New Division office at Paradeep and Dhenkanal, Circle office at Cuttack

**Background**

At present scenario, Pradeep and Dhanekanal division office are operating from Rented Buildings, which are crowded and does not have enough space to provide best services to consumers. Cuttack circle office having dilapidated condition need to be demolished and rebuilt.

**Need of the Project**

Shifting offices from rented to own property by utilizing our land available near PSS campus for long-term rental cost savings and creating user-friendly work environment for consumers and employees.

**Proposal of CAPEX Investment**

It is proposed to construct new division office at nearby PSS premises at Paradeep, Dhenkanal and Cuttack.

**Scope of Proposal**

Construction of New Building at Paradeep, Dhenkenal and Cuttack to accommodate all the existing employees and space for future recruitment. Also the buildings shall have separate washrooms and A conference room at each location.

**Cost Estimate**

***INR 3.60 Crs proposed***
*Dhenkanal division Office – 1.30 Cr*
*Paradeep divisions office – 1.30 Cr*
*Cuttack circle office – 1.00 Cr.*

*All the buildings shall be completed in FY 25.*

**Benefit**

- Better and Hygienic work space management, leading to increased capacity to serve more consumers effectively.
- Over time, owning an office can be more cost-effective than renting.
- While there are upfront construction and purchase costs, in the long run, the business might save on monthly rent and other associated costs.

### 2.5.4 Admin Infrastructure

**Background**

Furniture from the previous CESU period is in poor condition. ACs are only available at the Division level, with only SDO cabins having them at the sub-division level. Section offices lack ACs. Water purifiers are available in most offices, but some without water sources lack them. Photocopiers are installed in Corporate, Circle, and Division Offices, with standalone printers in various offices. TVs are only in corporate offices and skill development centres. The available projectors are fixed at one place which can't be removed. The building is under construction and may be completed by Nov'2023.

**Need of the Project**

The project aims to provide a better and safer workplace for employees to enhance business performance. ACs are needed in section offices, and old ACs in PSS need replacement gradually. Water coolers are available up to sub-division offices, and new offices require budget allocation. Water purifiers are provided where water supply is available, with efforts to fix water sources where needed. Common printers are planned for all offices. TVs will be installed in conference halls for online meetings. Portable projection equipment is needed for outdoor training sessions. The building will serve as a technology centre and needs various amenities like AC, RO, water cooler, canteen equipment, and some furniture.

**Proposal for the capex investment**

**A total CAPEX investment of Rs 4.00 Crs is proposed for CAPEX FY 24-25**. The item wise break up is as below :

Table 28: Admin Infra- Cost Estimate

| ***Item*** | ***Cost in Crs proposed for CAPEX FY 24-25 (Rs. Cr)*** |
|---|---|
| Office Furniture | 0.75 |
| Air-Conditioner | 2.30 |
| Water Cooler | 0.08 |
| Water Purifier | 0.09 |
| Photocopier | 0.10 |
| TV (Display Equipment) | 0.10 |
| Projector & Screen | 0.08 |
| New Requirement for Technology Centre | 0.50 |
| **Total** | **4.00** |

**Proposed system after implementation**

Enhance workplace quality and employee satisfaction. Improve employee efficiency with on-site printing and scanning. Boost motivation through interaction with corporate leadership. Enhance employee skills. Equip offices with necessary amenities.

**Benefits**

- Installation of AC in PSS will increase the lifespan of PSS equipment.
- Use of water purifier is a statutory compliance and will be beneficial for employees health
- Installation of projector and screen will lead to better workspace

**Conclusion**

The proposal suggests capital investment for office furniture, ACs, water coolers and purifiers, projectors, TVs, photocopiers, and other upcoming offices Enhance workplace quality and employee satisfaction