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ODISHA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
PLOT NO.4, CHUNOKOLI, SHAILASHREE VIHAR, BHUBANESWAR -751021
TEL. No. 2721048, 2721049
E-MAIL: oerc@odisha.gov.in
WEBSITE: www.orierc.org

Case No. 80/2024

PUBLIC NOTICE

TP Central Odisha Distribution Limited (TPCODL) has filed an application under Clause 3.2, 3.2.1 & 3.2.2 of the OERC (Terms and Conditions for determination of Wheeling Tariff Retail Supply Tariff) Regulations, 2022 for approval of Capital Investment Plan for the FY 2025-26 in its licensed area of supply in line with the order of the Commission passed in Case (Suo Motu Proceeding) No.11 of 2020. The Commission has now registered it as Case No.80 of 2024 and has decided in interim order dated 19.11.2024 to dispose of this case through a public hearing. The petition along with all Annexures submitted by M/s. TPCODL in this regard is available in OERC website (www.orierc.org) and M/s. TPCODL's website (www.tpwesternodisha.com).

Interested Persons/ Institutions/ Organizations may file their views/suggestions/ objections supported by affidavit before the Commission on or before **04.12.2024** serving copy to the applicant TPCODL.

By Order of the Commission

Sd/-
SECRETARY

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

Case No: _____/2024

IN THE MATTER OF: Application for approval of Capital Investment Plan for the FY 2025-26 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- 751012 represented by its Chief-Regulatory & Enforcement.

.... Petitioner

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

.... Respondents

Affidavit

24 OCT 2024

I, Bharat Kumar Bhadawat, aged about 53 son of late Shri Shankar Lal Bhadawat residing at Bhubaneswar do hereby solemnly affirm and say as follows:

1. I am the Chief –Regulatory & Enforcement of TP Central Odisha Distribution Ltd., the Petitioner in the above matter and I am duly authorized to swear this affidavit on its behalf.

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: 24.10.2024

Bharat Kumar Bhadawat

Chief – Regulatory & Enforcement

Identified by

Advocate

The Deponent above named being duly identified by Sri. P. R. Mohanty Advocate at appears before me on dt. 24/10/24 at about 9.45 A.M./ P.M. and states on oath that the contents of this affidavit are true to the best of his/her knowledge

ANIL KUMAR MOHANTY
NOTARY, BBSR
REGD. No.-ON-116/2009



File No TPCODL/Regulatory /2024/123/7125

24th Oct, 2024

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

Dear Sir,

Sub: Petition for Approval of the Capital Investment Plan for FY 2025-26

We are through this letter submitting a petition to the Hon'ble Commission for approval of the Capital Investment Plan for the FY 2025-26. We request you to kindly approve the same.

We trust our submissions are in order

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

(Bharat Kumar Bhadawat)
Chief – Regulatory & Enforcement



TP CENTRAL ODISHA DISTRIBUTION LIMITED

(A Joint Venture of Tata Power and Government of Odisha)

Corporate Office: Power House Square, Unit – 8, Bhubaneswar – 751012

Registered Office: Power House Square, Unit – 8, Bhubaneswar – 751012 Tel.:0674 2541575

Web: www.tpcentralodisha.com, Email : tpcodl@tpcentralodisha.com, CIN: U40109OR2020PLC032901

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

Case No: _____/2024

IN THE MATTER OF: Application for approval of Capital Investment Plan for the FY 2025-26 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 & Enforcement.

.... *Petitioner*

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

.... *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.



B. B. L. Das

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 Supplied)

While the Tariff Regulations, 2022 require submission of Annual Capital Investment Plan by 10th Sep, the petitioner has requested the Hon'ble Commission for extension of time against which the Hon'ble Commission, vide letter dated 08.10.2024, granted extension of time till 31.10.2024 for submission of the Capital Investment Plan for FY 2025-26.

Bebrudawf.



2. Total Capex approved by the Board of TPCODL for FY 2024-25 and FY 2025-26 and the Capex approved by the Hon'ble Commission for FY 2024-25

It is submitted that the Board of Directors of TPCODL in its meeting dated 20th October 2023 has accorded approval for the Capital Investment Plan of Rs. 416 for FY 2024-25 and Rs. 502 Cr for FY-2025-26 i.e. total amounting to Rs. 918 Cr for both the financial years. The certified true copy of the Board Resolution approving Capex for FY 2024-25 and FY 2025-26 has been submitted to the Hon'ble Commission vide letter TPCODL/Regulatory/2023/258/7324 dated 12th December 2023 during the course of proceeding of TPCODL's Capex petition for FY 2024-25 .

Based on the above approval, TPCODL has proposed capex of Rs. 416 Cr for FY 2024-25, against which the Hon'ble Commission has approved Rs.380.68 Cr vide Order dated 12.12.2023 in the matter of Case No.102/2023 thereby according short approval of Rs. 35.32 Cr (i.e. Rs. 416 Cr – Rs. 380.68 Cr).

TPCODL has carried out a detailed analysis including load flow study ,based on which it has estimated a capital investment of Rs. Rs.532.56 Cr for FY 2025-26. It is submitted that this proposed amount is well within the Board approved amount (i.e. considering the amount of Rs. 35.32 Cr not approved by the Hon'ble Commission against the Board approval for FY 2024-25 and the amount of Rs. 502 Cr approved by the Board for FY 2025-26).

3. Summary of the Capital Investment Plan for FY 2025-26

We are through this petition filing the proposal for approval of the Capital Investment Plan for FY 2025-26. While the detailed Capital Investment Plan for FY 2025-26 is provided in the **Appendix**, the summary of the proposal is provided in table below.

B. B. Choudhary



Table A: Capital Investment Plan for FY 2025-26 (Hard Cost Only)

Major Head	Activity	Capex Plan FY 2025-26 (Rs. Cr)	Annexures
Safety & Statutory	Interposing Pole to improve vertical clearance	10.01	Annexure-1
	Fencing / Boundary Wall	12.50	Annexure-2
	Testing Equipment	3.44	
	Safety Enhancement to comply with Statutory Requirement	3.59	
	Safety & Statutory	29.54	
Loss Reduction	Damaged Service Cable replacement	4.00	
	33kV Feeder Metering for Energy Accounting	2.45	
	Feeder Loss reduction – Augmentation / Interconnector	15.14	Annexure-3
	Conversion of LT Bare to LT AB Cable	17.41	Annexure-4
	Loss reduction	39.00	
Reliability	GSAS Implementation	2.00	Annexure-5
	Replacement of Old Equipment	20.00	Annexure-6
	33kV Network Infrastructure	85.58	Annexure-7
	11kV Network Infrastructure	157.42	Annexure-8
	Installation of Auto Recloser, Fault Passage Indicator (FPI), RMU and MCCBs.	30.00	Annexure-9
	Reliability	295.00	
Load Growth	New Connection Release	15.00	Annexure-10
	Service Cable for new Connection	6.00	Annexure-11
	Power Transformer Augmentation for Overloading mitigation	65.00	Annexure-12
	DT Augmentation/ Addition to meet Load Growth	25.02	Annexure-13
	Load Growth	111.02	
Infrastructure	IT - Software, User Devices, Back-up system, Storage devices and Applications and communication	28.00	
	Civil Upgradation	28.00	
	Ready to Use Admin Asset	2.00	
	Infrastructure	58.00	
Grand Total		532.56	

The Capital Investment Plan of Rs. 532.56 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

B. B. Haradani



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

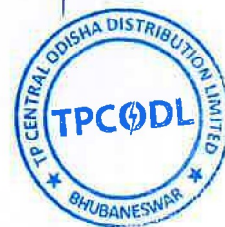
The detailed Capital Investment Plan for FY 2025-26 including status of Capex investment already made vis-à-vis the approved amounts is provided in the **Appendix**.

Prayers

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

1. Approve the Capital Investment plan (Hard Cost) for FY 2025-26.
2. Allow Employee Cost and Interest During Construction based on actuals to be capitalised over and above the Capex (Hard Cost) for FY 2025-26.
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

B. B. Malan





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1 Capital Investment Proposal for FY 2025-26

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, and make the network adequate enough to cater the load growth and implementation of the technology to bring process efficiency in the operations.

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 set up of safety culture through safety and testing equipment, fencing of DSS & switchyards etc, erecting interposing poles etc.
2. **Loss Reduction** – Investment required for taking initiatives for reducing the technical Losses in the network. This includes Energy accounting measures, 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 Old equipment replacement Feeder addition / augmentation, Installation of Auto Reclosers, RMU and MCCBs, Automation of conventional substations 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, Case 98 of 2022 for FY 2023-24 and also in the petition filed in Case 102 of 2023 for FY 2024-25.

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, FY 2023-24 and FY 2024-25.

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. Further, Rs. 380.68 Cr was approved by the Hon’ble Commission for FY 2024-25 in order dated 12.12.2023. The status of project progress against the Capex approved for FY 2020-21 , FY 2021-22 ,FY 2022-23 ,FY 2023-24 and FY 2024-25 as on 30.09.2024 is as provided in table below.

Table 1 Actual Status as on 30.09.2024 against Capex approved for FY -21 to FY-25 (Rs Cr)

Sr No	Major Category	Capex Approved by the Hon’ble Commission							Actual as on 30.09.2024	
		For FY 2020-21	For FY 2021-22	For FY 2022-23	Supplementary Capex	For FY 2023-24	For FY 2024-25	Total Approved (Cumulative)	Cumulative Capex as on 30.09.2024	Cumulative Capitalization as on 30.09.2024
		A	B	C	D	E	F	G =SUM(A:F)	H	I
1	Statutory & Safety	68.17	17.59	17.66	0.00	16.00	11.39	130.81	123.24	117.98
2	Loss Reduction	39.63	67.36	52.85	0.00	35.00	30.02	224.86	157.42	121.93
3	Reliability	72.48	114.42	87.77	43.86	115.00	196.83	630.36	464.19	363.81
4	Load Growth	9.00	30.52	24.87	93.39	50.00	77.29	285.07	220.02	181.31
5	Infrastructure & Technology	91.35	68.84	60.16	0.00	67.72	65.15	353.22	276.37	266.38
6	Total	280.63	298.73	243.31	137.25	283.72	380.68	1624.32	1241.25	1051.42

* 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 balance Capex on priority basis so that corresponding benefits to the stakeholders are accrued.

1.3. Summary of the Capital Expenditure for FY 2025-26

TPCODL in line with the philosophy adopted for FY 2020-21 to FY 2024-25, has considered Capital Expenditure under following five major 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 2025-26 (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 2025-26 (only Hard Cost i.e. without considering Employee Cost and IDC capitalization)

Major Head	Activity	Capex Plan FY 2025-26 (Rs. Cr)	Annexures
Safety & Statutory	Interposing Pole to improve vertical clearance	10.01	Annexure-1
	Fencing / Boundary Wall	12.50	Annexure-2
	Testing Equipment	3.44	
	Safety Enhancement to comply with Statutory Requirement	3.59	
	Safety & Statutory	29.54	
Loss Reduction	Damaged Service Cable replacement	4.00	
	33kV Feeder Metering for Energy Accounting	2.45	
	Feeder Loss reduction - Augmentation/ Interconnector	15.14	Annexure-3
	Conversion of LT Bare to LT AB Cable	17.41	Annexure-4
	Loss reduction	39.00	
Reliability	GSAS Implementation	2.00	Annexure-5
	Replacement of Old Equipment	20.00	Annexure-6
	33kV Network Infrastructure	85.58	Annexure-7
	11kV Network Infrastructure	157.42	Annexure-8
	Installation of Auto Recloser, Fault Passage Indicator (FPI), RMU, MCCBs	30.00	Annexure-9
	Reliability	295.00	
Load Growth	New Connection Release	15.00	Annexure-10
	Service Cable for new Connection	6.00	Annexure-11
	Power Transformer Augmentation for Overloading mitigation	65.00	Annexure-12
	DT Augmentation/ Addition to meet Load Growth	25.02	Annexure-13
	Load Growth	111.02	
Infrastructure	IT - Software, User Devices, Back-up system, Storage devices and Applications and communication	28.00	
	Civil Upgradation	28.00	
	Ready to Use Admin Asset	2.00	
	Infrastructure	58.00	
Grand Total		532.56	



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 25-26 is Rs.29.54 Cr. The details of the same are as given in the table below:

Table 3: Capital Expenditure Safety and Statutory

Major Head	Activity	Capex Plan for FY-2025-26 (in Rs. Cr)
Safety & Statutory	Interposing Pole to improve vertical clearance	10.01
	Fencing / Boundary Wall / DT plinth	12.50
	Testing Equipment	3.44
	Safety Enhancement to comply Statutory Requirement	3.59
	Total	29.54

The description of the various schemes are as under

2.1.1 Interposing Poles

Scheme Proposed	It is proposed to erect interposing poles to improve the vertical clearances and reduce the span length to ensure safety of employee, public and animals and ensure reliable power supply to end consumers
Capex Amount	Rs. 10.01 Crore
Benefit to customer	To ensure safety of the Employees and Public at large.

Existing System

TPCODL spanning over a geographical area of 29,354 sq.km has a vast network having 33kV, 11kV network. Different types of Pole infrastructures (like PSC POLES, WPB Poles and H Poles) are majorly installed in the existing network. Several irregularities in the span lengths of these networks are observed where the span length ranges from 70 meter 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 for LT Lines - 5.5 m along the Road and 5.8 m across the Road.

Similarly, for HT Lines, permissible limits are 5.8m along the road and 6.5m across the road.

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 long 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 and 11kV 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 electrical hazards and accidents.

Scope of Project

Table 4: Quantity-wise Costing for Interposing Poles

Sl. No.	Description	Unit	Unit Price (Rs.)	Quantity	Total Cost (In Cr.)
1	Installation of Interposing poles- (13 Mtr. WPB Pole) _33kV	No.	71,883.87	430	3.09
2	Installation of Interposing poles- (11 Mtr. WPB Pole) _33kV	No.	62,149.38	150	0.93
3	Installation of Interposing poles- (11 Mtr. WPB Pole)	No.	58,412.49	500	2.92
4	Installation of Interposing poles- (10 Mtr. PSC Pole)	No.	22,616.95	200	0.45
5	Installation of Interposing poles- (9 Mtr. PSC Pole)	No.	14,530.42	1800	2.62
6	Total				10.01

Please refer to **Annexure-1** for details of BoQ for the above cost estimate.

Proposal for CAPEX Investment

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

Benefit

With the installation 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.

2.1.2 Fencing / Boundary Wall

Table 5: Proposed Scope and Cost estimate for FY-26 for Fencing / Boundary Wall

Sl. No.	Item Description	Quantity Proposed	Cost Proposed in FY-26 (in Rs.Cr)
1	Chain-linking Fencing/Precast Compound walls in Switchyard and PSS	50	2.50
2	DSS Fencing	840	10.00
3	Total		12.50

Please refer to **Annexure-2** for detailed cost estimate for fencing of switchyard and cost estimate for fencing of DSS.

<u>Project Title</u>	<u>Chain link Fencing/Precast compound wall in Switchyard/ PSS</u>
<i>Background</i>	<p>There are 372 operational PSS across TPCODL as of today. At the time of takeover, 178 PSS were not having a proper boundary wall.</p> <p>So far from FY 20-21 to 23-24, 92 PSS boundary wall have been constructed / upgraded.</p> <p>Besides many of the PSSs are being used as section and sub-division offices and having a customer footfall. TPCODL is providing fencing to the 33KV Switchyard to restrict the unauthorized access to the live network and it is expected that 95 PSS will have metal fence between substation control room and 33KV switchyard by December 2024. However, still a large no of PSS requires fencing of the switchyards to safeguard the public.</p>
<i>Need of the Project</i>	<p>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.</p> <p>TPCODL intends to provide proper boundary wall and switchyard fence at each PSS at the earliest.</p>
<i>Proposal for the capex investment</i>	<p>It has been planned to construct 1.8 m height pre cast compound wall along with 0.6 meter concertina coil fence at 30 no of PSS to ensure safety and security of TPCODL staff, public, animals and network.</p> <p>TPCODL has also planned to construct metal chain link fence of height 1.8 meter between substation premises and switchyard at PSS to avoid entry of unauthorised persons in live switchyard which may lead to incident / accident.</p>
<i>Scope of the proposal</i>	<ul style="list-style-type: none"> • Construction / height extension of boundary wall and Construction of chain link fence for switchyard – 50 PSS
<i>Cost estimate</i>	Rs. 2.5 Crore for compound wall and chain link fence at 50 No's PSS.
<i>Benefits</i>	<ul style="list-style-type: none"> • Segregation of section office and 33KV switchyard. • Safety of TPCODL staff, and general public • Safety of network assets.

<i>Project Title</i>	<i>DSS Fencing</i>
<i>Background</i>	As per organization requirement chain link/ FRP 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.
<i>Need of the Project</i>	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.
<i>Statutory Compliance requirement</i>	Safety of employees, stray animals and residential people is one of the most important statutory compliance.
<i>Proposal for the capex investment</i>	It is proposed to Construct Fencing around DSS wherever required for Safety and Security Point of view.
<i>Scope of the proposal</i>	For enhancing safety, the DSS shall be barricaded using 1.8 meter high chain-link /FRP fence gate whichever is suitable for the Location.
<i>Cost estimate</i>	Rs. 10 Crore for 650 Locations
<i>Proposed system after implementation</i>	DSS Fencing shall eliminate the hazard of public contact and animal from live structure area.
<i>Benefits</i>	<ul style="list-style-type: none"> • 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.

2.1.3 Testing Equipment

Table 6: Proposed Cost estimate for FY-26 for Testing Equipment

Sl. No.	Item Description	Cost Proposed in FY-26 (in Rs. Cr)
1	Testing Equipment for Protection Team	1.96
2	Store Equipment	0.51
3	DT Workshop Equipment	0.97
4	Total	3.44

2.1.3.1 Testing Equipment for Protection Team

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 for 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.

Scheme Proposed

TPCODL network comprises of 426 numbers of 33kV feeders, 372 numbers of 33/11kV Primary Substations, 1400 numbers of 11kV feeders, and 70,000 numbers of distribution

transformers. Besides, there are numerous Rings Main Units, Auto Reclosers, Sectionalizers, and LT equipment in service across TPCODL.

TPCODL network is spread across 29,500 square kilometre. The entire area is divided into 5 circles, 20 divisions, and 247 sections. Besides there are close to 950 fuse call centres to take care of the entire network. TPCODL has implemented preventive and condition based maintenance system to ensure healthiness of the network equipment. Regular testing of each equipment is done to check the healthiness of power distribution equipment as part of preventive and condition based maintenance.

Most of the testing equipment were not available during erstwhile CESU. After inception, TPCODL is providing the testing equipment to field maintenance crews gradually. Following testing equipment are proposed to be procured and provided to field maintenance crews since the inception of TPCODL in FY 20-21. And we plan to continue procurement of these equipment till our total requirement is met in successive years:

Table 7: List of Testing Equipment required Vs. Available Vs. Proposal for FY 2025-26

Sl. No	Testing equipment	Total Requirement	Available	Proposed for FY 26	Balance	Per Unit Cost (In Rs)	Total Cost (Rs. Cr)
1	Advanced Secondary Injection kit	5	0	1	4	40,00,000.00	0.40
2	Contact Resistance Meter	20	12	4	4	1,35,450.01	0.05
3	Circuit Breaker Timer	20	11	4	5	1,09,150.00	0.04
4	Winding Resistance Meter	20	16	4	0	3,13,500.01	0.13
5	Transformer Turn Ratio Meter	20	19	1	0	2,62,966.67	0.03
6	CT PT analyser	10	2	3	5	25,00,000.00	0.75
7	Leakage current meter (AC)	27	26	1	0	25,000.00	0.00
8	AC clamp on meter	951	950	1	0	14,160.00	0.00
9	Low end Thermovision camera	65	45	20	0	90,860.00	0.18
10	Height meter	65	25	40	0	29,500.00	0.12
11	Power analyser	1	0	1	0	26,00,000.00	0.26
12	Grand Total Budget Requirement						1.96



Scheme Amount Proposed

The proposed budget for procuring the recommended testing equipment this upcoming financial year FY 25-26 is Rs 1.96 Crore.

Scheme Justification

As part of the preventive and condition based maintenance system, regular testing of equipment is done to check the healthiness of network equipment. To ensure this, testing equipment are required by each field maintenance crews. Since TPCODL geography is vast and there is long distance between adjacent sections, frequent transportation of testing equipment can cause damage to costlier equipment and rapid wear and tear.

Accordingly TPCODL has identified total testing equipment numbers required by maintenance crews and the same are being procured progressively since FY20-21.

Availability of testing equipment helps early detection of potential issues, ensures timely corrective measures, and reducing the risk of system failures and accidents. Besides regular and accurate testing helps minimize unplanned outages and downtime.

2.1.3.2 Store Equipment

Background

In the initial years of TPCODL, the conditions at the company's stores were not conducive for the use of Hydraulic Trolleys, as the floors were largely unpaved ("kachha"). Due to these limitations, manual handling of materials was a predominant practice. Additionally, the company has been meeting its forklift requirements by renting the equipment, incurring substantial costs of approximately ₹1 lakh per month over the last four years.

With the successful completion of flooring work by the Civil Department, the store floors are now fully prepared for the safe and efficient use of Hydraulic Trolleys. This improvement, along with a detailed cost-benefit analysis, has led to the current proposal for procuring 10 Hydraulic Trolleys and 3 Forklifts.

Scope of Work

Table 8: Proposed Scope and Cost estimate for Store Safety Equipment

Sl.No	Particulars	Store	Qty	Unit Price (approx.) in Rs.	Total Price in Rs.
1	Hydraulic Trolley (2.5 Ton)	Choudwar			
		Kendrapara	2	20,000	40,000
		Khordha	2	20,000	40,000
		Bhubaneswar	4	20,000	80,000
		Banarpal	2	20,000	40,000
		Hydraulic Trolley Total	10		2,00,000
2	Battery Operated forklift (2 Ton)	Choudwar	1	16,50,000	16,50,000
		Kendrapara			
		Khordha			
		Bhubaneswar	1	16,50,000	16,50,000
		Banarpal	1	16,50,000	16,50,000
		Battery Operated Forklift Total	3		49,50,000
3		Grand Total (Rs.)			51,50,000
4		Grand Total (Rs. Cr)			Rs. 0.515 Cr

Purpose of the Proposal

The primary objective of this proposal is to enhance the operational efficiency of material handling at the TPCODL stores by introducing suitable equipment under the CAPEX for FY 26. The two key components of this proposal for are:

- Hydraulic Trolleys: Now that the store floors are paved, 10 Hydraulic Trolleys are proposed to facilitate smoother, safer, and faster movement of materials within the stores, minimizing manual labour and enhancing productivity.
- Forklifts: Currently, TPCODL rents forklifts at a cost of ₹1 lakh per month. A detailed cost-benefit analysis has revealed that the procurement of 3 Forklifts would be more cost-effective in the long run compared to continued rental payments. By purchasing these forklifts, TPCODL can significantly reduce its operational expenses while improving material handling capabilities at its stores.

Benefit

Cost Savings: The total cost incurred over four years for renting forklifts has amounted to ₹48 lakhs. By purchasing 3 Forklifts, TPCODL will avoid this recurring cost and instead invest in long-term assets that will serve the organization more effectively.



Increased Efficiency: The introduction of Hydraulic Trolleys and owned Forklifts will improve the efficiency of material handling, reducing dependency on manual labour and enabling better management of inventory movement in the stores.

Improved Safety and Ergonomics: Both the trolleys and forklifts will reduce the physical strain on workers, improving workplace safety and reducing the risk of accidents during material handling.

Conclusion

This move will result in long-term savings for TPCODL and enable smoother, more efficient store operations. We kindly request honourable commission for the approval of this proposal for the upcoming financial year.

2.1.3.3 DT Workshop Equipment

Existing System in Place

The operational area of TPCODL is spread over five circles (20 divisions, 65 sub divisions and 247 sections) having an area of more than 29500 km². As on Jan 2024, TPCODL has more than 78000 DTRs of various ratings such as 16, 25, 63, 100, 250 and 500, 1000 kVA in its distribution network. Every year around more than 2800 distribution transformers of various ratings fail due to various reasons.

Approx. Rs. 14 Crore are spent every year in Opex to repair the failed transformers from out-sourced agencies. There is dependency on timelines on delivery of repaired DTs from these BAs. Repairing at vendor premises is again a very costly affair as the transportation charges for “To & Fro” journey is too expensive in addition to repairing cost.

Scope of Work

Table 9: DT Workshop - Scope of Work

Sr. No.	Description	Qty. (Nos.)	Cost in Lakhs (Approximate) Including GST	Remarks
1	Security Surveillance system including CCTV Camera and recording facility.	1	25.00	For Choudwar DTWS
2	Compressor Machine (Pneumatic Screw type) Painting of DTR as well as tightening & opening of Nut & bolts.	1	6.00	For Choudwar DTWS
3	Power Analyser (80Amp, 2300V)	1	0.70	As stand by (Lower Range)
4	Turns ratio meter--3 phase (For all rating Transformers)	4	2.40	For Banarpal, Jankia and Kendrapara DTWS
5	Winding Resistance meter--3 phase (10mA,100mA & 1A) (20 milliohms to 2 kilo ohms)	4	3.00	
6	Insulation Resistance Tester	3	4.50	
7	Oven with motorised trolley with oil collection tray (SMALL)	1	22.00	
8	Motorised chain pulley with structure (8 Ton)	3	21.00	
9	Hand Pallet Hydraulic Trolley	7	7.00	
10	Filter Machine(2000LPH)	1	5.00	
Total (in Rs. Lakhs)			96.6	
Total (in Rs. Cr)			Rs. 0.97 Cr	

Proposed System

In view of above, it was already proposed to set up DT Workshop at strategic location like Choudwar, Banarpala, Jankia and Kendrapara. To operationalize these workshop CAPEX has been proposed for requirement of Major equipment. The various activities that can be carried out in the workshop are in Phase-1 are given below:

- i. Replacement of bushing and studs
- ii. Cleaning of transformer tank and accessories
- iii. Replacement of transformer oil
- iv. Filtration of transformer oil
- v. Brazing of HV and LV terminals if required
- vi. Improvement of IR value through heat treatment
- vii. Minor rectification work of HV and LV terminals
- viii. Minor repair of transformer body and painting work
- ix. Replacement of tap switches for DTRs of 100 kVA rating and above Replacement of gaskets, nut bolts etc.
- x. Replacement of oil level gauge



Benefit

We do hope that this activity would help to enhance the life of DT through in-house 'testing & repair' facility as well as reduce the operational expenditure (OPEX) as compared to repairing of this high value assets at vendor premises.

2.1.4 Safety Enhancement to comply Statutory Requirement

Background

Safety is one of the core values of TPCODL, where the well-being of our employees, contractors, and the public is of utmost priority. The organization consistently strives to improve safety practices across all operations, in alignment with industry best practices and statutory requirements. Ensuring the safety of personnel involved in fieldwork, particularly in remote and high-risk areas, is critical to maintaining operational excellence and public trust.

To further enhance safety practices, particularly in training and daily operations, a new set of initiatives has been proposed to improve safety standards and compliance across the company. These initiatives include the procurement of specialized equipment, mobile training facilities, and improvements to infrastructure at primary substations and section offices.

Statutory Compliance

TPCODL is committed to adhering to all safety-related statutory guidelines, including those set forth by the OERC and other relevant regulatory bodies. Compliance with these regulations not only safeguards our employees but also ensures the safety of the general public by minimizing the risks associated with electrical distribution operations.

In line with these regulations, the safety proposals outlined in this request are intended to meet compliance requirements while enhancing safety preparedness across various locations. These initiatives will also align with national safety standards for electrical operations, including the installation of fire protection measures, improving safe working conditions, and providing the necessary training infrastructure to keep our workforce well-equipped and skilled.

Proposal

To ensure safety improvements and regulatory compliance, we request the inclusion of the following items in the **Capital Investment Plan FY 2025-26**:

Table 10: Proposal to Enhance Safe Working Environment

SI No.	Particulars	Unit Rate	Qty	Total Cost(Rs)	Justification
1	Mobile Training Centre (Bus)	32,00,000	1	32,00,000	Procurement of a bus with the capacity to train 20 participants. This bus will serve as a mobile training facility for remote locations where permanent training centres are unavailable. It will allow field employees to receive hands-on training without traveling long distances, thereby enhancing safety and skills.
2	Installation of Single pole for practice in every section	75,000	82	61,50,000	Single WPP pole of 11 meter height will be installed at every section office. This facility will be utilized for practicing of climb on daily basis. Total expenses of Rs 0.62 Cr will be required for installation of pole & procurement of 12 meter FRP Ladder.
3	Cable Height Meter(Laser)	35,000	21	7,35,000	Procurement of Cable Height Meters to be used by safety officers. These meters will help measure the vertical and horizontal clearances of conductors during periodic site visits, ensuring that all safety clearances are maintained and public safety is not compromised.
4	Pole straightener	55,000	5	2,75,000	The straighteners will be used to make tilted poles upright, ensuring the safety of power distribution infrastructure. These tools will be provided to each division to be used in unsafe locations.
5	Digital mannequins for first aid training	6,00,000	5	30,00,000	These mannequins will be placed in five Skill Development Centre's and will help improve first-aid response training for field personnel.
6	Fire buckets with stand & canopy	15,000	1500	2,25,00,000	Procurement and installation of fire buckets, stands, and canopies at all 375 No's 33/11kV primary substations. Installing fire safety equipment in each substation ensures compliance with regulatory requirements and improves fire preparedness. Each substation will be provided with four fire buckets.
7	Grand Total (Rs.)			3,58,60,000	
8	Grand Total (Rs. Cr)			Rs. 3.59 Cr	



Conclusion

The proposed safety initiatives are essential to ensure that TPCODL continues to prioritize safety and comply with regulatory mandates while expanding its operations. The procurement of a mobile training bus will extend safety training to remote areas, improving operational readiness and worker proficiency. The installation of 11-meter poles and FRP ladders will promote daily practice of essential skills, further embedding safety in everyday operations.

In addition, the provision of cable height meters, pole straighteners, digital mannequins, and fire safety equipment will directly enhance public and employee safety across all TPCODL operations. These investments will significantly reduce risks, improve compliance, and ensure that our employees are equipped with the tools they need to perform their duties safely. The total cost for these initiatives will be **Rs 3.59 Cr**, and it is requested that these items be approved in the **Capital Investment Plan FY 2025-26**.

2.2 Loss Reduction

The proposed budget for Loss Reduction under Capital Investment Plan FY 2025-26 is Rs.39.00 Cr. The details of the same are as given in the table below:

Table 11: Breakup of Capital Expenditure under Loss Reduction

Major Head	Activity	Capex Plan for FY 25-26 (in Rs. Cr)
Loss Reduction	Damaged Service Cable replacement	4.00
	33KV Feeder Metering for Energy Accounting	2.45
	Feeder Loss reduction - Aug/ Interconnector	15.14
	Conversion of LT Bare to LT AB Cable	17.41
	Total	39.00

The description of the various schemes are as under

2.2.1 Damaged Cable 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 12 : Cost of Cables for defective meter replacement

Sl. No	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) with GST	Rate of Installation (Rs) with GST	Cost of Material (Rs.Cr)	Cost of Installation (Rs. Cr)	Total Cost (Rs. Cr)
1	2*4	3950	118.5	53.39	1203.90	63.00	1562.7	0.75	0.62	1.36
2	2*6	4500	135	63.09	1190.20	74.45	1544.9	1.01	0.70	1.70
3	4*10	900	27	107.2	915.53	126.50	1188.4	0.34	0.11	0.45
4	4*25	600	18	165.51	918.28	195.30	1191.9	0.35	0.07	0.42
5	4*50	20	0.6	277.54	1725	479.60	2238.9	0.03	0.00	0.03
6	4*95	10	0.3	438.71	1724.86	479.60	2238.9	0.01	0.00	0.02
7	4*150	0.7	0.021	803.39	1805.71	732.10	2343.8	0.00	0.00	0.00
8	4*300	0.2	0.006	1427.97	1805.71	732.10	2343.8	0.00	0.00	0.00
9	4*2.5	0	0	117.8	538.25	732.10	698.6	0.00	0.00	0.00
10	6*2.5	0	0	184.24	538.25	732.10	698.6	0.00	0.00	0.00
11	10*2.5	70	0.7	202.00	538.25	200.00	698.6	0.01	0.00	0.02
12	Grand Total	10,050.90	300					2.50	1.50	4.00

Benefit to Consumer

- Reliable power supply
- Safety of person

2.2.2 33kV Feeder Metering for Energy Accounting

Present Status on 33kV Feeder Metering

The energy drawl on the T&D interface point between TPCODL as a DISCOM and OPTCL as Transmission entity is essentially at the secondary of the Power Transformer or at 33 kV Side at EHT Grid Substations. The BSP Charges & Transmission charges are being claimed to the DISCOMs in each month by GRIDCO & OPTCL respectively basing on these T&D interface meters, which are called Apex meters.

After this point, we were having our Energy Audit meters on each 33kV outgoing feeder panels emanating from OPTCL Grids. The details metering status on these 33kV feeders as on this month are as follows:

Table 13 : GSS Metering Status as on 01.09.2024

Sl No	Circle Name	Total No. of 33kV Grids	Defective	Dismantled by OPTCL	No Meter	Ok	Grand Total	% of OK Metered
1	Circle-01, BBSR	13	0	11	19	42	72	58%
2	Circle-02, BBSR	12	2	26	2	24	54	44%
3	Cuttack Circle	12	1	7	3	41	52	79%
4	Dhenkanal Circle	14	0	13	3	27	43	63%
5	Paradeep Circle	8	0	5	3	26	34	76%
6	Grand Total	59	3	62	30	160	255	63%

Statutory Requirements

Energy Accounting prescribes accounting of all energy inflows at various voltage levels in the distribution periphery of the network. As per the **CEA (Installation and Operation of meters) Regulations 2006** and amendment thereof, **Bureau of Energy Efficiency (Manner and Intervals for Conduct of Energy Audit (Accounting) in Electricity Distribution Companies Regulations 2021**, installation of meters on all feeders is Pre-requisite for Annual Energy Audit and Periodic Energy Accounting in a DISCOM. The target set in the First Schedule of this regulation by the Ministry of Power through BEE, India is as follows:

Table 14 : Target for Functional Meter

Meter	FY 22-23	FY 23-24	FY 24-25
Feeder Metering	98.50%	99.50%	99.50%
DT Metering	90%	95%	98%
Consumer Metering	93%	96%	98%

TPCODL is far away from the target set by BEE, India despite of various efforts made for convincing OPTCL to allow for installing meters inside control of their GSS. Moreover, the Hon'ble OERC is also focussing on voltage level Energy audit activities in the DISCOM. However, due to non-availability of metering system at these 33kV outgoing feeders energy accounting is not carried out at 33kV level.

Penal Provision for Statutory Non - Compliance:

The external Accredited Energy Auditors empanelled by the BEE, India during Annual Energy Audit has also expressed his displeasure over this 47% unmetered 33kV feeder metering at OPTCL Grid end.

It has been mentioned that for non-compliance to the provisions of the said BEE Regulation-2021 may attracts penalty under section 26 read with section 48 of the Energy Conservation Act, 2001. As per the said section, if any entity fails to comply with the provisions of EC Act, 2001, it will be liable to a penalty up to. **Ten Lakh Rupees for each non-compliance**. In case of continuing failure, with an additional penalty which may extend to **Ten Thousand Rupees** for every day during which such non-compliance continues.

Major Challenges Faced for Metering

OPTCL teams have removed 62 nos. of Meters installed by the erstwhile CESU as well as TPCODL on 33 KV feeders emanating from OPTCL Grids in view of integration of Grid Substations with SAS. TPCODL has approached OPTCL several times and raised this issue at various platforms like Coordination meeting, Transmission & Distribution Planning Committee meetings for allowing TPCODL to install meters inside control room.

Due to our continuous approach the Director Operation, OPTCL has agreed to our proposal during the Coordination Meeting held on 06th Jan 2024, and allowed as "TPCODL can install

separate metering panel Outside the Control Room of GSS where SAS has been implemented or to be implemented”. (Attached as Annexure-A, refer point no.8.).

Further TPCODL team with due permission from OPTCL and in presence of OPTCL EMR and Grid staff had carried out site survey at Mancheswar-A grid and accordingly, accorded for permission from OPTCL for installing Porta Cabin & metering panel in Mancheswar-A.(Annexure-B).

Objective of the Project

Objective of this DPR is to rollout smart metering infrastructure for 33kV Feeder Metering at OPTCL Grid End for Energy Audit Activity. Since, OPTCL has allowed for installation of meters on a separate metering panel outside the control room of GSS, we need to develop the housing infrastructure in this scheme of Capital Investment plan.

Benefit of the Investment

Smart meter is an advanced energy meter that measures consumption of electrical energy providing additional information compared to a conventional energy meter. The need of this investment is to implement the hassle-free metering infrastructure to house for all the smart meters in a single unit inside the OPTCL grid premises. In addition to this Smart metering has significant benefits. In addition to the statutory or regulatory requirement this scheme for metering infrastructure will be helpful for the following activities:

- i. Provides power consumption profile data from each individual and groups of meters to facilitate energy management, load research and tariff development.
- ii. Provides a low voltage network monitoring system to allow supply outages to be quickly identified resulting in better reliability and improved service levels.
- iii. It enables remote meter reading. This eliminates need for site visit to read the meter thus reducing meter reading cost and human error. Timely and accurate meter readings will result into correct Energy Audit at L-1 & L-2 level.
- iv. Effective Load management during peak & off-peak period of the day.
- v. Any malfunctioning of system (PT or CT connections) can be identified remotely. This will reduce losses.
- vi. Provides a mechanism for the implementation of Demand-Side Management initiatives. This improves energy efficiency and reduces Carbon emissions to the environment.

- vii. Effective management of load forecasting for day-ahead schedule of ABT mechanism by PSCC.
- viii. Smart Metering Infrastructure will eliminate costs like meter readings, quality checks, billing complaints, connection and disconnection wherever applicable.
- ix. Remote programming of meter possible (in case of change in TOD structure, demand interval, billing parameters etc.)
- x. Helps in revenue protection thereby finding the correct the Energy Audit data on the 33kV Consumers feeders:
- xi. Real time feeder-wise, voltage-wise energy audit is possible to capture any abnormal deviation.
- xii. More effective grid management:
- xiii. Cases of feeder overloading will be managed effectively and immediately.
- xiv. Scheduled Outage or Unscheduled Outage can be monitored at PSCC effectively.
- xv. Any alteration done inside the Grid premises in view of addition or upgradation of technology it will have less impact on the E-House porta-cabin structure.

Proposal for the Capex Investment

The implementation of smart metering Infrastructure through E-House porta cabin in TPCODL License area will be executed in two years in the following two phases. This will be executed by one E-House porta cabin in each GSS housing 2 or 3 nos. of metering panels within its boundary of each OPTCL's GSS.

62 nos. of meters has been removed from 33 KV feeders in Puri, Dhenkanal, Mancheswar, Khurda, Bidanasi, Samagra, Chainpal, Paradeep and Nayagarh Grid Substations

1. **Phase 1** – Development of smart metering infrastructure through E-House porta cabin for the
 - a) 09 nos. of OPTCL Grids namely Puri, Dhenkanal, Mancheswar-A, Khurda, Bidanasi, Samagra, Chainpal, Paradeep and Nayagarh Grid Substations covering 62 nos. of 33kV feeder meters removed by OPTCL in view of SAS implementation.
 - b) 06 nos. of Gas Insulated Sub-stations (GIS) of the OPTCL namely Infocity-II GIS, Unit-8 GIS, Khuntuni GIS, Mancheswar-B GIS, Pratapsasan GIS, Chandaka-B GIS having 23 nos. of 33kV feeder meters.

2. **Phase 2** - Development of smart metering infrastructure through E-House porta cabin for the balance 44 nos of Grids having 192 nos. of 33kV feeder meters. Since OPTCL has initiated to complete the SAS implementation on these grids within next 2 years, we will be installing E-house accordingly on these grids. Moreover, the existing meters on these grids are non-smart and cannot be replaced with the smart meters due to space constraint in the existing panels.

This DPR covers the Phase 1 and Phase 2 of implementation of Smart metering Infrastructure through E-House Porta Cabin in the TPCODL License area. Both Phases will be executed in the span of 2 years from FY 2025-26 to FY 2026-27.

Total cost for implementation of Smart Metering Infrastructure through E-House Porta Cabin at OPTCL Grid for Energy Audit Activity in TPCODL is estimated to be about Rs.10 Crore, which will be spent from FY 2025-26 to FY 2026-27.

Scope of Work

The implementation of smart metering Infrastructure through E-House porta cabin in TPCODL License area will be executed in two phases as stated in the above para. This will be executed by one E-House porta cabin in each GSS housing 2 or 3 nos. of metering panels within its boundary of each OPTCL's GSS depending on the number of 33kV feeders emanating from that grid. This DPR covers all the activities required for implementation of smart metering Infrastructure through E-House porta cabin.

Broadly it includes:

- i. Installation of E-House Porta-cabin along with its Civil Structure inside the OPTCL Grid premises
- ii. Installation of metering Panels with accessories including control cables for housing the smart meters in it.
- iii. Commissioning of smart meters against each 33 kV outgoing feeders as well as bus-couplers emanated from OPTCL Grids and integration of these with HES & MDM.

The first two part work as mentioned above will be executed through a single vendor or two nos. of separate vendor with overall supervision by Projects team. The last commissioning part for the smart meters will be executed by 3-phase MMG BAs with overall supervision of in-house 3-phase MMG team.

Cost Estimate of the Project

TPCODL is proposing to implement the smart metering Infrastructure through E-House porta cabin for 15 Nos of OPTCL Grids under first phase and the balance grids under the second phase. This will be executed by one E-House porta cabin in each GSS housing 2 or 3 nos. of metering panels within its boundary of each OPTCL's GSS. Since, the execution of this project is of similar nature across all the OPTCL Grids within TPCODL's licensee area we are submitting the cost estimation for One Grid.

Table 15 : Cost estimate for Implementation of Smart Metering Infrastructure

Sl. No.	REQUIREMENT	Per Unit Cost (In Lakhs)	Unit (Nos)	Projected Cost (In Lakhs)
1	Design, Fabrication, Transportation & Installation of E-House Porta Cabin (including Civil Work, Earthing, laying of trench if any, etc.) (Size may vary according to the site conditions) 4.5 M X 3 M X 3M	10	1	10
2	Design, Fabrication, Transportation, Earthing, Installation and Commissioning of Prewired Metering Panels	2	3	6
3	Commissioning of smart meters on the Metering Panels	0.2	1	0.2
4	Other Small Infra Requirements as per the site conditions	0.15	1	0.15
5	Sub-Total (Rs. Lakhs)			16.35

- For 1st Phase (i.e. 15 nos. of Grids) = 15 x Rs. 16.35 Lakh= Rs. 245.25 Lakh for the 1st Year.
- For 2nd Phase (i.e. Balance 44 no. of Grids) = 44 x Rs. 16.35 Lakh x 1.06 = Rs. 755.37 Lakh for the 2nd Year, i.e. FY 26-27.

Hence, the total projected cost for this scheme for both the phases

= Rs. 245.25 Lakh for the 1st Year + Rs. 755.37 Lakh for the 2nd Year

= Rs. 1000.62 Lakh or Say **Rs. 10.0062 Crore (Rupees Ten Crore and Sixty Two Thousand Only)**

Conclusion

In view of the above, Hon'ble commission is humbly requested to consider and approve **Rs 2.45 Crore** for development of 33kV Feeder Metering Infrastructure through E-House Porta Cabin at OPTCL Grid Ends for Energy Audit Activity for Capital Investment Plan FY 2025-26.

2.2.3 Feeder Loss Reduction – Augmentation/Interconnector

Scheme Proposed	Augmentation of existing feeders to strengthen the network and Interlinking of feeders to reduce the length of existing feeders in turn reduce the technical loss in the network
Capex Amount	Rs 15.14 Crore
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 and augmentation of feeders.

Please refer to **Annexure-3** for details of Cost estimate and details of the above proposals.

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 with lower sized conductors, lengthy and radial in nature at most of the places. Due to the lower sized conductors, lengthy and radial feeders, the overloading issues and low voltage issues increase in the network and which in turn increases the technical loss of the network.

Need of the Project

To reduce the technical loss in the existing 33kV network, the following measures are adopted:

- i. It is suggested to augment the lower sized conductors in the existing feeder in order to reduce the losses in the feeder and mitigate the overloading issue of the feeder.
- ii. 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:

- i. Reliable Power supply to the Consumers.
- ii. Loss reduction in the network. After execution of the above proposals, approx. 1.2 MW reduction in the technical loss is expected in these three Nos 33KV Feeders. Details are given in the Annexures.

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	Rs 17.41 Crore
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.

Please refer to **Annexure-4** for details of Cost estimate and BoQ Details.

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 in the power supply distribution system 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 and reduce the commercial losses in the system.

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.

Statutory Compliance requirement

Hon'ble OERC had given target of AT&C loss reduction for TPCODL and the same has been mandated in vesting order. By implementation of aerial bunched insulated cables instead of

bare conductors, pilferage of electricity can be curtailed which subsequently helps in reduction of AT&C losses.

Scope of Work

Table 16 : LT AB Cable Size Wise Quantity

Sl. No.	Description	Unit	Unit Cost (In Rs.)	Quantity	Total Cost (In Rs Cr.)
1	Conversion of LT Line from Bare to AB Cable using - 4C×95 mm ² (P)+1C×95 mm ² (M)+1CX16 mm ² (Street Light)	km	10,95,401.11	71.70	7.85
2	Conversion of LT Line from Bare to AB Cable using - 4C×50 mm ² (P)+1C×50 mm ² (M)+1CX16 mm ² (Street Light)	km	7,33,297.58	130.25	9.55
3	Total (Rs. Cr)				17.41

Benefit

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:

- i. Reliable Power supply to the Consumers since bare conductor will be replaced into insulated cable.
- ii. Comparatively safer than the LT Bare conductor and eliminate the element of risk if comes in close proximity.
- iii. Simpler installation, as crossbars and insulators are not required.
- iv. Suitable for congested lanes as well.
- v. Electricity theft becomes difficult as hooking would not be possible.
- vi. 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 and reduce losses in the distribution system.

2.3 Reliability

The proposed budget for Reliability under CAPEX FY 25-26 is Rs. 295 Cr. The details of the same are as given in the table below:

Table 17 : Break up of Capital Expenditure under Reliability

Major Head	Activity	Capex Plan for FY 25-26 (in Rs. Cr)
Reliability	GSAS Implementation	2.00
	Replacement of Old Equipment	20.00
	33KV Network Infrastructure	85.58
	11KV Network Infrastructure	157.42
	AR/FPI/MCCB/RMU	30.00
	Total	295.00

The description of the various schemes are as under

2.3.1 GSAS Implementation

Scheme Proposed

One of the significant challenges that the utilities face is restricting the fault at minimum possible section of the electrical network and clearing the fault in minimum possible time. To achieve this feat, utility works round the clock to minimize equipment failure, equipment down time and faster restoration thus ensuring reliability and enhanced MTTR. All the utilities across the globe moving towards deployment of smart grid to ensure above mentioned goals. Going towards that direction TPCODL deploys GSAS (Grid Station Automation System) in its working region – the very first step towards the direction of the integrated smart grid.

TPCODL has implemented SCADA system for improvement of network safety and reliability. SCADA system is helping us in monitoring of network on real time basis and supporting operations based on information.

TPCODL has planned to automate and integrate all PSS by FY-29. A total of 271 PSS shall be integrated by the end of FY25 as per the approval received from Hon'ble commission. We have requested only Rs 2 Cr. In FY: 25-26 to complete GSAS in 12 conventional PSSs. From FY: 27 onwards further budget will be required for GSAS and thus SCADA enablement at other PSS as per the below plan.

Table 18 : Plan for PSS Automation

Particulars	Total PSS	Till FY24	FY 24 - 25	FY 25 - 26	FY 26 - 27	FY 27 - 28	FY 28 - 29
No of Automated PSS	372	221	48	12	5	15	28
Cumulative Total		221	269	281	286	301	329

Note: Balance 43 PSSs are in WIP stages for GSAS and Automation.

Scheme Amount – Rs 2 Cr (Please refer to Annexure-5 for PSS wise cost estimate)

Table 19 : GSAS Implementation Budget

Budget Head	Activity	FY 24 - 25	FY 25-26	FY 26 - 27	FY 27 - 28	FY 28 - 29	Total
		Budget in Rs. Crores					
Reliability	GSAS Implementation	7	2	15	13	11	48

Scheme Justification

TPCODL has inherited 33/11kV conventional Primary Substations from erstwhile CESU. The equipment and relays installed at most of the conventional PSS are not SCADA compliant.

TPCODL has implemented state of the art SCADA system for monitoring and operation of the network on real time basis. The old control panels / relays installed at conventional substations are either electro-mechanical or static. As a result these PSS / Equipment can't be monitored and controlled from existing SCADA.

Under Grid Substation Automation System (GSAS) plan, TPCODL is replacing the obsolete/ non-communicable equipment with SCADA compliant equipment. This will help to improve the reliability of the PSS equipment as the equipment will be monitored and operated by experienced engineers available in Power System Control Center (PSCC) based on information.

2.3.2 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	Rs. 20 Crore

Benefit to Consumer	To ensure reliable and quality power supply to the consumers.
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Existing System

For any distribution company, apart from a strong 33kV & 11kV network, healthy & trouble free network equipment or asset base is a requisite. 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

1. Many 33 and 11kV equipment installed at 33/11kV primary substations are very old and have outlived their useful life of 25 years. Due to inadequate maintenance of network, and large number of fault operations during erstwhile CESU period, the operations count on circuit breakers have already exceeded the designed mechanical endurance. Besides, due to inadequate switches in the network, frequent operation of circuit breaker is necessitated for isolation of faulty section of network and for restoration of such networks after the repairing is completed. As a result, many circuit breakers are causing frequent troubles.

There have been many cases of flashover in indoor circuit breaker panels boards installed at 33/11kV primary substations during the erstwhile CESU period resulting in total deterioration of switchboard insulation. Many outdoor and outdoor / indoor circuit breakers do not have proper ingress protection and arc protection.

2. Existing 33 and 11kV equipment in the coastal areas mainly in Puri, Kendrapara, Marsaghai, Paradeep, and Jagatsinghpur have developed repeated cases of mechanism mal-operation due to rusting of parts on account of extreme saline climate. As a result, the cases of circuit breaker mal-operation are increasing day by day.
3. Existing 33 and 11kV RMUs in the coastal areas mainly in Puri, have developed repeated cases of gas leakage from the SF6 gas tank due to depletion of metal covers on account of extreme saline climate. Repairing of SF6 gas tank is not possible at site. As a result, the SF6 gas leakage is increasing, and frequent gas filling is necessitated in RMUs. As SF6 gas leakage is harmful for human beings, and the environment, replacement of these RMUs is necessary.



4. In addition to age, the AB switches installed on feeders have a lower rating of 400A. There is a need to upgrade these AB switches with isolators of higher capacity to avoid frequent burning of contacts. Besides, parts of these AB switches are not available for maintenance and upkeep.
5. Battery chargers installed at many 33/11kV primary substations have lived their useful life of 10 years. Spares of these battery chargers are not available. These battery chargers are also of lower capacity. As new equipment / automation equipment is being added, it is necessary to install battery chargers of higher capacity.
6. DC battery banks installed at many primary substations are 12v automobile batteries. As a result, they are required to be replaced every 3-4 years. TPCODL intends to use 2v batteries designed for installation in substations and having a useful life of 10+ years. This action will ensure safety and reliable operation of equipment at primary substations.
7. Many 33/11kV primary substations don't have station auxiliary supply transformers. Many station transformers are more than 25 years old and have poor IR values and severe oil leakages. These transformers are required to be installed / replaced urgently for smooth operation of substations.
8. Besides, many feeders and power transformers (5MVA, 3.15MVA, and 1.6MVA) were installed during CESU period without circuit breakers and proper bay equipment. Thus, the group of feeders and power transformers are controlled by a single circuit breaker. Faults in any of the feeder or power transformers in a group-controlled system result in total power supply failure to customers fed from the healthy feeder or power transformer as well. TPCODL intends to install proper switching equipment (circuit breakers, control panels, current transformers, lightning arresters, and isolators) for feeders and power transformers to isolate only faulty equipment without affecting the power supply to healthy networks. At few places, Ring Main Units are proposed to be installed to eliminate group control. This action will ensure reliable power supply to customers.

Proposal for Capex Investment

To provide uninterrupted power supply to customers, we need to replace the old and unreliable equipment. OEMs have stopped providing spares and services for many equipment. As a result, it is becoming difficult to ensure trouble free operation of these equipment. In order to keep the overall expenditure minimum, useful parts from the old equipment are planned to be used to service the same make of equipment installed at other PSS to extend their useful life.

The old equipment shall be decapitalized and removed from fixed asset register of TPCODL in line with the existing accounting principle.

Scope

Table 20 : Material list with costing for Replacement of Old Equipment

Sl. No.	Description	Unit	Unit Cost (In Rs.)	Qunatity	Total Cost (In Rs.Cr.)
1	11 kV Sick Indoor Switchgear replacement with 1250 A VCB (2 I/N+ 8 O/G+ 1 B/C + 2 BPT)	EA	1,43,11,595.74	4	5.72
2	Replacement of 33 kV Breaker	EA	4,66,256.26	22	1.03
3	Replacement of 11 kV Breaker	EA	4,65,698.91	72	3.35
4	Replacement of 33 kV CT	EA	1,10,111.51	60	0.66
5	Replacement of 11 kV CT	EA	92,026.02	120	1.10
6	Replacement of 33 kV PT	EA	89,745.68	57	0.51
7	Replacement of 11 kV PT	EA	69,137.24	54	0.37
8	Replacement of Battery Set (48 V)	SET	1,08,573.93	45	0.49
9	Replacement of Battery Set (24 V)	SET	61,007.26	14	0.09
10	Installation of 33/0.4 kV, 100 kVA Stn. Trf.	EA	16,41,688.28	8	1.31
11	PSS refurbishment	EA	29,75,000.00	18	5.36
TOTAL					20.00

Please refer to **Annexure: 6** for Detailed BoQ.

Benefit

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

2.3.3 33kV Network Infrastructure

Scheme Proposed	Proposal for construction of new 33kV lines, interconnection lines, conductor augmentation to optimize the feeder loadings, mitigate feeder overloading and strengthen the existing feeders to improve the reliability and safety to provide uninterrupted power supply to the consumers.
Capex Amount	Rs. 85.58 Cr
Benefit to customer	By executing the proposals as made in this head, 33kV network can be strengthened and consumers can avail reliable, safe 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:

- 33kV network refurbishment and interconnection for reliability
- Reliability improvement by 33kV Feeder overloading Mitigation

33kV network refurbishment and interconnection for reliability

33kV network plays important role of the power supply distribution system and spread across TPCODL licensed area for power distribution. During site visits, it was observed that most of the 33kV lines are in very poor condition and prone to frequent interruptions during inclement weather. Most of the 33kV feeders are passing through paddy field, dense vegetation having long span length, multiple joints resulting into high restoration time during interruptions. Proper upkeep of the feeders is important for ensuring reliability of power supply. Apart from this, most of the conductor are more than 20 years and aged therefore snapping of conductors are happening frequently causing interruptions to consumers. To maintain reliable network some of the highly dilapidated 33kV feeders are proposed for refurbishment under Capex 25-26 and other feeders' refurbishment will be done in subsequent capex.

33kV Interconnection for reliability improvement

Most of the 33kV feeders in TPCODL area are radially connected. During any breakdown or maintenance activities in the radial feeders it requires shut down and power supply is affected. To enable faster restoration of power supply in case of faults/ maintenance activities, 33kV interconnection from other 33kV feeder is proposed. The interconnection enables the conversion of radial feeders to ring connected feeders. All 33kV feeders are required to be connected in ring connectivity for reliable power supply. However, due to budget constraints priority is given towards 33kV feeders feeding industrial, urban and other critical areas. The other 33kV feeders ring connectivity will be considered in subsequent CAPEX.

33kV Feeder overloading Mitigation for Reliability improvement

In the annual network load flow study, out of a total 254nos. 33kV feeders, 64nos. 33kV feeders are identified to be overloaded (loading $\geq 100\%$) in the peak loading condition during Summer 26 with 2years load growth. In order to mitigate the overloading of the 33kV feeders proposals are identified after subsequent interaction with field teams. Overloading mitigation done through below initiatives:

- a) Conductor upgradation
- b) Load transfer through feeder interconnection
- c) New 33KV Feeder for load diversion

Out of these 64No's overloaded feeder 45Nos feeders mitigation proposal work in progress & same shall be completed before Summer 26. For 19nos. 33kV feeders there is no proposal is available & same is proposed under CAPEX FY: 2025-26.

Table 21 : Status of Overloaded Feed in Summer-FY26

Scheme name	CAPEX 24-25	CAPEX 25-26	CMPDP	DEPOSIT	GOVT. SCHEME	NOP	ODSSP PH-IV	OPEX	SCRIPS	SDMF	Total No. of 33KV Overloaded Feeder in Summer-26
Total no of 33kV overloaded feeders' mitigation proposals	10	19	11	1	2	7	7	1	5	1	64

Note: 4nos. 33kV feeders overloading mitigation proposal are covered under loss reduction category in CAPEX FY: 25-26.

Benefit:

- a. By executing the proposals as made in this head, 33kV network can be strengthened and we would be able to serve our consumers in much better way. Reliable Power supply to the consumers will be ensured.
- b. To improve the safety factor, minimize the accident risk, reduce the chances of fault & strengthen existing 33kV network, it is suggested for refurbishment of 33kV network. This in turn will help in providing reliable power supply for all consumers.

Total cost for 33KV feeder overloading mitigation & Network refurbishment is Rs. 85.58Cr

Table 22 : Capex proposal for 33KV feeder overloading mitigation & Network refurbishment

Sl. No	Proposal Head	Cost (Rs. Cr.)
1	33kV Overloading Feeder and Mitigation Details	63.35
2	33kV Network Refurbishment & Interconnection	22.23
Total		85.58

The detailed Cost estimate and Proposals are provided as **Annexure-7** to this submission.

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

2.3.4 11 kV Network Infrastructure

Scheme Proposed	Proposal for construction of new 11kV lines, interconnection lines, 11kV feeder bifurcation, and conductor augmentation in order to optimize the feeder loadings, mitigate feeder overloading and strengthen the existing feeders in order to improve the reliability and safety to provide uninterrupted power supply to the consumers.
Capex Amount	Rs 157.42 Crore
Benefit to customer	By executing the proposals as made in this head, following benefits will be achieved: Reliable, safe and quality power supply to consumers. Strengthening of 11kV feeders. Mitigation of 11kV feeder overloading issues. Mitigation of CSS overloading. 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.

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

- 33kV network refurbishment and interconnection for reliability.
- Reliability improvement by 11kV Feeder overloading Mitigation.

In order to ensure reliable power supply to the consumers and mitigate overloading issue some existing CSS are proposed for upgradation from 500/630/750kVA to 1000kVA along with new CSS are proposed in Puri and Bhubaneswar areas.

11kV network refurbishment and interconnection for reliability

11kV network plays important role of the power supply distribution system and spread across TPCODL licensed area for power distribution. During site visits, it was observed that most of the 11kV lines are in very poor condition and prone to frequent interruptions during inclement weather. Most of the 11kV feeders are passing through paddy field, dense vegetation having long span length, multiple joints resulting into high restoration time during interruptions. Proper upkeep of the feeders is important for ensuring reliability of power supply. Apart from this, most of the conductor are more than 20 years and aged therefore snapping of conductors are happening frequently causing interruptions to consumers. To maintain reliable network some of the highly dilapidated 11kV feeders are proposed for refurbishment under Capex 25-26 and other feeders' refurbishment will be done in subsequent capex.

11kV Interconnection for reliability improvement

Most of the 11kV feeders in TPCODL area are lengthy and radially connected. During any breakdown or maintenance activities in the radial feeders it requires shut down and power supply is affected. In order to enable faster restoration of power supply in case of faults/maintenance activities, 11kV interconnection from other 11kV feeder is proposed. The interconnection enables the conversion of radial feeders to ring connected feeders. All 11kV feeders are required to be connected in ring connectivity for reliable power supply. However, due to budget constraints priority is given towards 11kV feeders feeding industrial, urban and other critical areas. The other 11kV feeders ring connectivity will be considered in subsequent CAPEX.

11kV Feeder overloading Mitigation for Reliability improvement

In the annual network load flow study, 171nos. 11kV feeders overloading identified (loading $\geq 105\%$) in the peak loading condition during Summer 26 with 2years load growth. In order to mitigate the overloading of the 11kV feeders proposals were identified after subsequent interaction with field teams.

Overloading mitigation done through below initiatives

- a) Conductor upgradation
- b) Load transfer through feeder interconnection
- c) New 11KV Feeder for load bifurcation/ diversion

Out of these 171No's overloaded feeder, 76No's feeder's mitigation proposal work in progress & same shall be completed before Summer'26. For 80 No's 11kV feeders there is no proposal is available & same is proposed under CAPEX FY: 2025-26 as below.

Table 23 : Overloading Mitigation Plan

Scheme name	Total No. of 11KV Overloaded Feeder in Summer-26	CAPEX 24-25	CAPEX 25-26	CMPDP	DEPOSIT	ODSSP	OPEX	SDMF	Overloading mitigation plan available including CAPEX FY:25-26
Total no of 11 kV overloaded feeders and mitigation proposals	171	52	80	8	2	7	5	2	156

Note: 15nos. 11kV feeders (non-critical feeders) for which the loading is below 105% with 2years load growth, overloading mitigation proposal are not considered under Capital Investment Plan FY 2025-26.and same will be kept under observation.

Upgradation of CSS

Compact Substations are installed in the urban areas of Bhubaneswar and Puri areas to ensure reliable, safe and quality power supply to the consumers. The CSS enables to provide connectivity from dual source thereby improving reliability of power supply. In the existing scenario, some of the existing CSS in Bhubaneswar and Puri area are getting overloaded. Taking into consideration the rapid load growth in the area, it is proposed for CSS augmentation from 500/630/750kVA CSS to 1000kVA CSS. The dismantled CSS shall be used in other locations to meet load growth of that area.

Table 24 : Total Cost of Proposal

Sl. No.	Proposal	Costing (in Rs Cr.)
1	Proposal for mitigation of Overloading issue	143.53
2	Proposal for Feeder Refurbishment	8.59
3	Proposal for CSS Augmentation	5.3
TOTAL		157.42

Please refer to **Annexure-8** for details of Cost Estimate and Proposal details.

Benefit

These proposals will help in following:

- Mitigating overloading of the 11kV feeders.
- 11kV feeder interconnection will help in managing the load in case of any exigency and mitigate the issue of overloading.
- The overloading of existing CSS will be mitigated.
- The proposals will lead to strengthening of the 11kV feeder and ensure lower interruption.
- Ensure reliable, safe and quality power supply hence leading to satisfaction of the consumers.

2.3.5 Installation of Auto Recloser, Fault Passage Indicator (FPI), RMU and MCCBs

Scheme Proposed	To strengthen & make existing 33kV and 11kV network more reliable, it is suggested to install Auto Recloser, RMU and MCCBs.
Capex Amount	Rs. 30.00 Crore
Benefit to customer	<ul style="list-style-type: none"> ▪ Ease of operation to the field teams ▪ 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.

During contingency or in case of any fault in the network, it is not possible for the field teams to transfer the load to the healthy section/ isolate the faulty section from 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.

Provision of Auto Recloser

Auto Reclosers are used in overhead lines, distribution systems so that they can prevent or interrupt faults. The auto recloser is a protective device that would automatically trip and reclose for a pre-set number of times. The auto recloser is composed of a relay that would automatically close the recloser after clearing the fault. An auto recloser is a circuit breaker equipped with a mechanism that can automatically close the breaker after it has been opened due to a fault. These are used on overhead distribution systems to interrupt temporary faults. It has been found that majority of the faults are transient faults which exist in a system for a short time. This means these types of faults clear themselves and line can be charged. In this case the auto recloser restores the supply automatically by being closed and improves service reliability.

Protective devices are installed in the network to protect the network from damages which may take place in abnormal cases, short circuits etc. Major problem exists in dealing with transient faults. For e.g. a tree branch that is blown off a tree during windstorm and lands on the line may cause a short circuit that could cause damage. However, the fault will quickly clear itself as the branch falls to the ground. If the only protection system is the breakers at the substations/distribution centers, large areas of the substation would be blacked out while the operating personnel reset the breakers.

Reclosers address this problem by further dividing up the network into smaller sections. This means reclosers may be installed at each branch. As the reclosers are installed at smaller sections, they handle much less power than the breakers at feeder stations and therefore can be set to trip at much lower power levels. This means that a single event of fault will cut off only the section handled by the single recloser, long before the feeder station would notice a problem.

Provision of Ring Main Unit

Ring Main Unit is a compact Gas Insulated Switchgear cubicle equipped with SF6 Switch disconnecter and SF6 circuit breakers. Ring Main Units are the major part of Ring Main Network. The power is distributed through these RMUs for the end consumers.

The main aim of this ring main network is to provide consumers uninterrupted supply. This is possible by feeding consumers with another healthy feeder in case of loss of supply due to working feeder. If a fault occurs in any branch of sub transmission circuit, that branch is removed from service and power continues from the remaining loop without discontinuity in the supply. Every consumer has redundant supply in Ring main distribution system.

Advantages of Ring Main Units:

1. The major advantage of Ring Main Units is the safety they provide to the operators. Like the operation of switching devices with interlocking system requires less knowledge and effort.
2. Working with IEDs allows remote operation. SCADA implementation is easy with smart Ring main units.
3. The space occupied by RMUs is less as they are Gas Insulated Switchgear.
4. The time taken for installation and commissioning of RMUs is very less. RMUs require less maintenance.

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.

Provision of FPI (Fault Passage Indicator) in 33kV and 11kV line

A fault passage indicator (FPI) is a device that detects and locates faults on power lines, such as short circuits, ground faults, and load interruptions. FPIs work by detecting changes in the current flowing through a power line. They can provide information about permanent faults and count all events that have occurred.

When a fault occurs on the line, such as a short circuit or an overcurrent, the current level changes. The FPI detects this change in current and triggers a signal that indicates a fault has occurred.

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.

Moreover, in city area, interconnectors & load break switch is required to address the issue of overloading, load shifting during exigencies & improving reliability.

With installation of RMU, equipment safety will increase for field operation team, with less maintenance & beautification of the network. SCADA implementation will become easy with smart Ring Main Units.

Auto Reclosers will help in improving the reliability of the power distribution network

Scope of Work

Table 25 : Quantity wise cost for LTDB/FPI/RMU/AR

Sl. No.	Description	Unit	Unit Cost (In Rs.)	Quantity	Total Cost (In Cr.)
1	LT Distribution Box with MCCB, for 63/100kVA trf.	EA	1,87,970.52	500	9.40
2	LT Distribution Box with MCCB, for 250kVA trf.	EA	3,76,619.95	200	7.53
3	LT Distribution Box with MCCB, for 500kVA trf.	EA	5,21,068.72	50	2.61
4	33/11kV FPI	Set	72,048.64	191	1.38
5	11kV Auto-recloser/Sectionalizer	EA	11,59,716.04	5	0.58
6	33kV RMU (4W)	EA	61,95,326.70	4	2.48
7	11kV RMU (3W)	EA	20,68,053.21	20	4.14
8	11kV RMU (4W)	EA	23,67,130.78	8	1.89
TOTAL					30.00



The Detailed BoQ provided as **Annexure: 9** to this submission.

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

With auto-reclosers in 11KV feeders, field engineers would have flexibility to isolate the section locally instead of switching off entire feeder. In case of any tripping, maintenance engineer can isolate the faulty section and restore the supply of remaining consumers thereby improving the reliability. Consumer will experience less power cut and thus reduction in consumer complaint.

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 reliability of power supply to the consumers will be improved

2.4 Load Growth

The proposed budget for Load Growth under Capital Investment Plan FY 2025-26 is Rs. 111.02 Cr. The details of the same are as given in the table below:

Table 26 : Capital Expenditure for Load Growth of FY 25-26

Major Head	Activity	Capex Plan for FY 25-26 (in Rs. Cr)
Load Growth	New Connection Release	15.00
	Service Cable for new Connection	6.00
	Power Transformer Augmentation for Overloading mitigation	65.00
	DT Augmentation/ Addition to meet Load Growth	25.02
	Total	111.02

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/extension before 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	Rs. 15.00 Crore
Benefit to customer	Better the availability of materials, faster will be process of providing new connection hence more will be the customer satisfaction

In order to meet load growth, network infrastructure needs to be strengthened, and new connection need to be released.

The connections are being released from the existing network. However, in other cases, augmentation/addition/extension is required before release of new connection. To release such new connections, we propose expenditure to the tune of Rs 15 Crores under this head. This investment will enable us to meet growing demand, strengthen the network, and ensure the timely release of new connections, facilitating improved service reliability and operational efficiency.

The cost of break-up is provided as **Annexure-10** of this submission.

It is further submitted that, estimating the quantum of new connection and the resulting capex requirement is very difficult. TPCODL has witnessed unprecedented increase in new connection request in current FY.

TPCODL in its Capex petition for FY 2024-25 has requested Rs. 15 Cr towards 'New Connection Release' under the head 'Load Growth' based on previous year's consumption pattern and expected additional connection. Against the above submission of TPCODL, the Hon'ble Commission has accorded combined approval against two activities ('New Connection Release' and 'Service Cable for New Connection') under the head 'Load Growth', thereby approving Rs. 10 Cr against Rs. 23 Cr proposed by TPCODL.

On account of the unprecedented increase in new connection release requiring network extension witnessed in the current financial year, we have utilized Rs. 4.75 Cr under clause 32.1 of the License Condition for release of new connection (under 'Load Growth'). We have submitted the above matter to the Hon'ble Commission vide TPCODL's Letter TPCODL/Regulatory/2024/96/5702 dated 23rd Aug 2024. Further, Rs. 10 Cr has been requested against 'new connection' vide our letter dated 14th Aug'24 and 18th Oct '24 to meet the new connection request.

In view of the above, the Hon'ble Commission is requested to approve Rs. 15 Cr under this head.

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 6 Crores under Capital Investment Plan FY 2025-26.
Capex Amount	Rs. 6.00 Crore

The cost of break-up is provided as **Annexure-11** of this petition.

Benefit to Consumer

This proposal directly benefits consumers by ensuring that TPCODL continues to offer new connections without increasing the burden on applicants. Covering the cost differential through CAPEX will allow TPCODL to:

Improved Service Delivery: By ensuring that the full cost of installation is covered, TPCODL can continue to deliver high-quality and timely services for new connections, contributing to better reliability and customer satisfaction.

2.4.3 Power Transformer Augmentation for Overloading Mitigation

Scheme Proposed	To cater the increasing load demand, mitigation of PTR overloading is required. 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	Rs 65 Crore.
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.

The details of the proposal and cost estimate are provided as **Annexure-12** to this submission. In order to avoid any overloading issues of the 33/11kV Power Transformers, TPCODL has undertaken the assessment of the loading of the power transformers and found that in order to meet the load growth, below measures can be adopted to mitigate the overloading:

- a. 11kV Feeder load diversion to lightly loaded PTR.
- b. 11kV Feeder swapping with lightly loaded feeder in other lightly loaded PTR.
- c. PTR Swapping with higher rating PTR.
- d. Augmentation of existing PTR with higher rating of PTR.

To carry out the detailed study of the PTR, inputs were collected from existing log sheet data, Smart meter 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 >100% loading of PTR in Summer'26.

Hence based on the survey reports and discussion with the field teams, proposals have been identified to mitigate the overloading issue.

In order to mitigate the overloading of the PTRs, instead of considering the PTR augmentation of all the overloaded PTRs, we have considered for optimally utilizing our existing assets by 11kV load transfer or 11kV feeder swapping or PTR swapping schemes are undertaken under OPEX. The PTRs which are getting augmented under CAPEX schemes are further utilized under PTR Swapping (OPEX) scheme to mitigate overloading of the transformers.

Out of 57nos. overloaded PTRs in Summer'26 only 12nos. PTRs are proposed for augmentation under Capital Investment Plan FY 2025-26.. The PTR mitigation plan scheme wise is given in the below table.

Table 27 : PTR Mitigation Plan Scheme Wise

Sl.No	Proposal	Scheme						
		CAPEX FY 23-24	CAPEX FY 24-25	CAPEX FY 25-26	Deposit Work	Ongoing Govt. Schemes	OPEX	Total
1	PTR Augmentation		6	12				18
2	PTR Swapping		0	0			11	11
3	11kV Feeder load diversion	1	5	3	1	5	5	20
4	11kV Feeder Swapping		5	1			2	8
5	Total	1	16	16	1	5	18	57

The 16nos. Power Transformers overloading mitigation has been proposed under Capital Investment Plan FY 2025-26. as follows:

- a. Upgradation of 12nos. Power transformers are considered under load growth.
- b. 1no. PTR overloading mitigation done through feeder swapping inside the PSS with additional infrastructure under load growth scheme.
- c. 2nos. PTR overloading mitigation done through 11kV load diversion to nearby PSS under load growth scheme.

Note: 1 No. PTR overloading mitigation of 33/11kV Unit-8 PSS (PTR-1) is considered under 11kV feeder overloading mitigation proposal (11kV CBI feeder and 11kV OERC feeder) under Capital Investment Plan FY 2025-26. This will benefit PTR overloading mitigation at Unit-8 PSS.

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 details of the proposal and cost estimate are provided as **Annexure-12** to this submission.

2.4.4 DT Augmentation/ Addition to meet Load Growth

Scheme Proposed	To cater the increasing load demand DT augmentation and addition is required to avoid overloading of transformers leading to transformer failure and power interruptions.
Capex Amount	Rs 25.02 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 and addition is required to avoid overloading of distribution transformers leading to transformer failure and power interruptions.

In order to ensure reliable power supply to our consumers, Distribution Transformers loading have to be maintained 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, DTs are operating at overloaded condition or will be overloaded considering the load growth in the respective areas.

Therefore, to avoid these distribution transformer overloading issues where the load growth is high, it is required to augment the capacity of the Distribution transformers or addition in order to mitigate the overloading issues. The removed DTs after augmentation will be utilised at other locations to mitigate DT overloading.

Table 28 : Scope of DT Augmentation/ Addition with Cost

Sl. No.	Description	Unit	Unit Cost (in Rs.)	Quantity	Total Cost (in Cr.)
1	Installation of New 11/0.4 kV, 250 KVA DTR with accessories	No.	36,31,600.97	5	1.82
2	Installation of New 11/0.4 kV, 500 KVA DTR with accessories	No.	46,54,349.21	2	0.93
3	Augmentation of DTR from 11/0.4 KV, 250 kVA to 500 kVA DTR (Cu) along with accessories.	No.	31,82,010.26	70	22.27
Total					25.02

The Details of Cost estimate and BoQ are provided as **Annexure-13** to this submission.

Need of Project

The overloading of the Distribution Transformers 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 overloaded condition. Thus, to abide by the safe loading limits, augmentation of distribution transformers or DT addition 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 and addition for those DTs, which are identified as overloaded based on the peak load served.

Benefits

To cater the increasing load demand, DT augmentation and DT addition is required to avoid overloading of transformer leading to transformer failures and power interruptions. Further, in order 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.

2.5 Technology & Infrastructure

The proposed budget for Reliability under Capital Investment Plan FY 2025-26. is Rs. 58 Cr. The details of the same are as given in the table below:

Table 29 : Capital Expenditure for Technology & infrastructure for FY 25-26

Major Head	Activity	Capex Plan for FY 25-26 (in Rs. Cr)
Technology & Infrastructure	IT - Software, User Devices, Back-up system, Storage devices and Applications and communication	28.00
	Civil Upgradation	28.00
	Ready to Use Admin Asset	2.00
	Total	58.00

2.5.1 IT-Software, User Devices, Back-up System, Storage Devices, and Applications & Communication

Table 30 : Activity wise proposed budget for IT Schemes for CAPEX FY 25-26

SI No	Scheme	Details	FY 25-26 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	5.00
		Physical Security Solution (i.e. Surveillance System and Access Control, etc)	7.00
2	Strengthen Network Connectivity	Establishing network connectivity in Enterprise offices and PSS through various technologies viz. MPLS/OFC/5G/VSAT/Network Equipment	9.00
		Establishing Office LAN/Switches/Wi-Fi/Infrastructure Augmentation	1.28
3	Strengthening of Data Centre, Infrastructure and Software	Augmentation DC and DR Infrastructure Hardware and Software Expansion	2.00
		Storage and Backup	2.22
		Software and License (SAP/ERP/DB/OS/others etc) for Data Centre	1.50
	Total		28.00

Scheme Wise Detailed Justification:

2.5.1.1 Build & Strengthen end user IT infrastructure

a. Laptops / Desktops

Background

All locations offices of Central Odisha need to be enabled with an 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, Desktops, iPad, Printer, Scanner, UPS, etc. are required. Also, with the increase in consumer base and adoption/implementation of new technologies, an additional requirement of front-end devices arises.

Requirement

To achieve best in class services for consumers (increasing at around ~6% per annum), it is proposed to procure Laptops and Desktops with 4 years’ warranty till FY: 2025-26 and to replace out of Warranty Devices. Based 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 FY25-26.

Scope of Work

Table 31 : Budget Requirement for IT Schemes – User Devices for CAPEX FY 25-26

User Devices				
FY	Item Description	Estimated Nos.	Unit Cost including GST (Rs)	Amount (Rs Cr.)
FY 25 - 26	Laptops	418	1,00,806.98	4.21
	Desktop with UPS	100	79,000	0.79
Total Budget Requirement (Rs. Cr.)				5.00

Cost

The approx. Capex budget requirement to procure/ replace laptops and desktops is Rs.5 Crore including taxes.

Benefits

- Performing automated business processes
- Office automation
- Improved employee productivity
- Enhanced Consumer Satisfaction
- Faster communication
- Duplicate Bill and other important document print at Customer Care.
- Official document print.
- Record keeping.
- Doorstep Bill print and delivery.
- Scanning of official document.

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

Background

TPCODL has established PSS, offices, GRFs, consumer care centers, 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 a 24x7 basis. At various instances, Police also suggested installing 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 the Data Center. The video recorded at various locations will be transferred to central storage at defined intervals. There will be a centralized monitoring system comprising of big screen and operators' desks. The complete system will be monitored on a 24x7 basis from this central monitoring.

The number of locations for FY 25-26 are given below:

Table 32 : Number of Location for FY 25-26

Location	Numbers
PSS	35
Critical Offices	5
Total	40

A video surveillance system is required to be installed at the above-mentioned 40 locations. It is proposed to install the system in a phased manner - 10 locations in FY 2024-25 and the remaining 40 locations during FY 25-26 and 100 locations in subsequent FY.

Cost

A Capex budget of Rs. 7 Crore is estimated for procuring and installing Physical Security Solution at 40 locations of TPCODL for FY 25-26.

Benefits

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

2.5.1.2 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. This year we are planning to implement DR centre & ICC (Integrated Call centre) of TPCODL at Burla required for reliable communication.

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 24x7 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 33 : Budget Requirement for Optical Fibre Network

Communication			
Item Description	Unit Cost (Rs)	Estimated Nos.	Amount (Rs Cr.)
Connectivity of offices and PSS through various technologies viz. MPLS/OFC/5G/VSAT/Network Equipment (Around 95 locations shall be connected using different technologies and to be managed by Network Monitoring system)	9	Lump sum	9.00
Total Amount			9.00

Cost

The approx. Capex budget requirement to implement communication Network is Rs 9.0 Cr.

Benefits

- i. Communication backbone network for business-critical applications.
- ii. Providing reliable power supply to consumers through availability of IT & OT services
- iii. Ease in monitoring and control of network
- iv. Meeting PA timelines leading to consumer satisfaction
- v. Efficiency in performing critical business processes
- vi. 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 is 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 34 : Budget Requirement for IT Related- Locational Network

Locational Network				
FY	Item Description	Unit Cost (Rs)	Quantity	Amount (Rs Cr)
FY 25-26	Distribution Switches	1,00,000	30	0.3
	Wi Fi AP devices for field	96,000	50	0.48
	Office LAN Equipment	55,556	90	0.50
Total Amount				1.28

Cost

The total estimated budget for different types of Switches, Routers, and Wireless Access Points is Rs. 1.28 Cr.

Benefits

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

2.5.1.3 Augmentation of Data Center Infrastructure-Hardware and Software

a. Augmentation DC and DR Infrastructure Hardware and Software Expansion

Background

At present TPCODL has distribution switches in the data center. To implement industry standard 3 tier architecture (Core, Distribution and Access) in data center. We need to deploy core switches at the data center.

There is a statutory audit requirement to store images and audit logs for 12 months. Hence, there is a requirement to enhance capacity of storage & backup devices.

Requirement for FY 25-26

It is required to procure high-capacity core switches and storage and backup devices to meet data center requirements and DC & DR replication.

Cost

The approx. CAPEX Budget requirement for 10 numbers of core switches and 2 numbers of 100 TB storage at data centers is Rs. 4.22 Crores FY 25-26

Table 35 : Budget Requirement for IT Related- Core Switch & Storage

Core Switch and Storage				
FY	Item Description	Unit Cost (Rs)	Quantity	Amount (Rs Cr)
FY 25-26	Core Switches	20,00,000	10	2.00
	100 TB Storage	1,11,00,000	2	2.22
Total Amount				4.22

Mitigating Risks

The proposal will mitigate the following risks:

- Reduction in downtime of critical applications
- Non availability of systems
- Risk of crossing Performance Assurance Time lines for consumer services

b. 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.

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 different software's/License to cater to new requirement.

Table 36 : Budget Requirement for IT Related- Software Procurement

Software			
Item Description	Unit Cost (Rs)	Estimated Nos.	Amount (Rs Cr.)
MS office/ MS Project/ Anydesk / Team Viewer/ Server OS, SAP license etc.	1,50,00,000	Lumpsum	1.5
Total Amount			1.5

Cost

The approx. Capex budget requirement to procure the above-mentioned software is Rs. 1.5 Cr. During FY25-26.

2.5.2 Civil Upgradation

Table 37 : List of Activities covered under Civil Infrastructure

SI No	Activity	Budget (Rs.Cr)
1	Furniture at offices	2.00
2	Construction/ Strengthening	7.50
	a. Construction/ Strengthening of Section offices	3.00
	b. Construction/ Strengthening of SDO offices	2.00
	c. Construction/ Strengthening of BSK	1.00
	d. Construction/ Strengthening of Section Store	1.50
3	New Circle/ Division/ MRT Lab/ E&MR Office/ GRF Office/ Enhanced facility at Tirtol SDC	6.50
	a. New Circle office at BBSR1	1.00
	b. New Division office at BCDD1	1.00
	c. New Division office at Dhenkanal	2.50
	d. New MRT lab at KED	1.50
	e. New Dining Facility and Washroom at Tirtol SDC	0.50
4	Area development of offices at 25 Locations	1.00
5	Control room Upgradation at 15 locations	1.80
6	Switchyard Upgradation at 15 locations	3.80
7	DT Plinth Foundation at 50 Locations	0.50
8	Refurbishment of Safety Practice yard for 17 Locations	1.90
9	Store Yard Development (10,000 Sqm area)	3.00
10	Total	28.00

<i>Project Title</i>	<u>Furniture at offices</u>
<i>Background</i>	Existing furniture's are old and needs replacement. These furniture's are dilapidated and are beyond repairs. The furniture are not agronomical.
<i>Need of the Project</i>	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.
<i>Proposal for the capex investment</i>	Procurement of Furniture's such as Workstations, Tables Storage cabinets, Chairs etc.
<i>Scope of the proposal</i>	Supply and Installation of furniture at renovated and newly constructed offices.
<i>Cost estimate</i>	<i>The tentative cost including Installation of furniture shall be Rs. 2.0 Cr for 400 nos of seating arrangement) and the completion period shall be one year.</i>
<i>Benefits</i>	<ul style="list-style-type: none"> • 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.
<i>Conclusion</i>	Placement of Furniture at office is all about creating a functional, productive, and healthy environment for everyone using the space.

Project Title	Construction/ Strengthening of Section and SDO offices	
Background	<p>Out of 247 section office, 202 have been renovated/newly built. Remaining 45 to be taken up.</p> <p>Out of 65 SDO, 50 have been renovated/newly built. Remaining 15 to be taken up.</p>	
Need of the Project	<p>Presently Section and SDO offices operate from rented accommodation or in dilapidated condition. 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 ergonomically good work environment.</p>	
Proposal for the capex investment	<p>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.</p>	
Scope of the proposal	<p>New construction will be taken up for the offices located in 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.</p>	
Cost estimate	Construction/ Strengthening (Rs. Cr)	7.50
	a. Construction/ Strengthening of Section offices (Rs.Cr)	3.00
	b. Construction/ Strengthening of SDO offices (Rs.Cr)	2.00
	c. Construction/ Strengthening of BSK (Rs.Cr)	1.00
	d. Construction/ Strengthening of Section Store (Rs.Cr)	1.50
	<p><i>The total estimated cost will be Rs.7.50 Cr.</i></p>	
Benefits	<ul style="list-style-type: none"> • 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. 	

Project Title	<u>New Circle/ Division/ MRT Lab/ E&MR Office/ GRF Office/ Enhanced facility at Tirtol SDC</u>	
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 for the capex investment	It is proposed to construct new division office at nearby PSS premises at Paradeep, Dhenkanal and Cuttack.	
Scope of the proposal	Construction of New circle office at BBSR-1, division office at BCDD-1, Dhenkanal, MRT Lab at Paradeep, New E&MR Office at Dhenkanal, Paradeep and Cuttack, New GRF Office and Building at Paradeep, Dhenkanal 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	New Circle/ Division/ MRT Lab/ E&MR Office/ GRF Office/ Enhanced facility at Tirtol SDC (Rs. Cr)	6.50
	a. New Circle office at BBSR1 (Rs. Cr)	1.00
	b. New Division office at BCDD1 (Rs. Cr)	1.00
	c. New Division office at Dhenkanal (Rs. Cr)	2.50
	d. New MRT lab at KED (Rs. Cr)	1.50
	e. New Dining Facility and Washroom at Tirtol SDC (Rs. Cr)	0.50
	<i>All the buildings shall be completed in FY 26.</i>	
Benefits	<ul style="list-style-type: none"> • 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. 	

<i>Project Title</i>	<u>Area Development of Offices</u>
<i>Background</i>	Many offices under the jurisdiction of TPCODL are low lying and water logging. It is difficult for vehicle movement, smooth running of offices and stacking of materials in the office premises.
<i>Need of the Project</i>	During rainy season Most of the area in rural and semi-urban office campus get submerged, which affects the whole operation in term of cost, time and linear power supply. And also it will be strengthening and enhancing the mode of transportation in the operation area.
<i>Proposal for the capex investment</i>	It is proposed to develop the peripheral area around the office premises by providing approach roads and parking's for vehicles along with waiting areas for the consumers as well as working staff.
<i>Scope of the proposal</i>	New construction will be taken up for Parking sheds, approach roads & pathways and also yard development for stacking of outdoor materials.
<i>Cost estimate</i>	<i>The total estimated cost will be Rs.1.00 Cr for 25 Locations.</i>
<i>Benefits</i>	A well-developed area makes the movement of vehicles easier and stack the materials in its designated place. And gives a developed platform to enhance productivity and create a more pleasant working environment.
<i>Conclusion</i>	It helps in monitoring the material management and mode of transportation easier and preventing theft, and minimizing losses.

<u>Project Title</u>	<u>Control room Upgradation</u>
<i>Background</i>	At current scenario we have 237 conventional control rooms operational across TPCODL. In which the infrastructure of the buildings are in dilapidated and hazardous condition.
<i>Need of the Project</i>	The conventional Control rooms need to be restored and fully operational as the strengthening of infrastructure extends the lifespan of the existing equipment and the building.
<i>Proposal for the capex investment</i>	It is proposed to strengthen the control rooms by enhancing the structural stability and remodify utility of the building.
<i>Scope of the proposal</i>	Strengthening of Structural members of Control room includes the slab surface protection from the water seepage and percolation. Establishing secure communication and access in the control rooms in terms of safety. Also to protect the sensitive areas from theft cases and unauthorized entry.
<i>Cost estimate</i>	<i>The total estimated cost will be Rs.1.80 Cr for 15 Control rooms.</i>
<i>Benefits</i>	Upgrading infrastructure reduces the risk of electrical failures and other hazards, improving overall safety for electrical equipment as well as personnel.
<i>Conclusion</i>	By providing the best infrastructure of control rooms for reliable electric power supply and best service experience to the consumers.

<i>Project Title</i>	<u>Switchyard Upgradation</u>
<i>Background</i>	In the current scenario, we have many PSS under water logging area and low laying area across TPCODL. Due to this, it creates obstacles In smooth maintenance of Grid network and electrical equipment safety.
<i>Need of the Project</i>	It is required for Refurbishment and upliftment of PSS by developing the switch yard to make the electrical networks safe and secured in all location.
<i>Proposal for the capex investment</i>	Under this proposal, we need to improve the grid stability and reduced the risk of failures and upgrades the capacity to cater the growing demands of the electricity.
<i>Scope of the proposal</i>	Screening and levelling of sub graded material around the PSS area including the construction of toe wall and refurbishment of Cable trenches along with the Foundation of electrical networks and additionally the paved the area to counter from the unwanted vegetation's and improved grid network.
<i>Cost estimate</i>	<i>The total estimated cost will be Rs.3.80 Cr for 15 Locations.</i>
<i>Benefits</i>	<ul style="list-style-type: none"> • Ensuring safe operation of grid stations and reliability in power supply to the consumers. • A well designed switch yard can easily integrate the future technologies and expansions. • Secured the entire structure area from safety point of view.
<i>Conclusion</i>	Hence, the upgradation required for strengthen the live structure areas easily accessible and hazard free zone for the workforce while working in the switch yards.

<i>Project Title</i>	<i>DT Plinth Foundation</i>
<i>Background</i>	Currently many DT foundations are coming under submerged condition and most of the DT transformer need to be upgraded in upcoming years.
<i>Need of the Project</i>	New DT foundations need to be constructed to mitigate the DT foundation Requirement for load enhancement and load enhancement.
<i>Proposal for the capex investment</i>	It is proposed to construct Plinth foundation for Distribution Transformers of all grade from 100Kva to 500Kva and heightening of the plinth as per the grid network condition at site.
<i>Scope of the proposal</i>	Under this proposal, we need to construct new RCC DT Plinth Foundations.
<i>Cost estimate</i>	<i>Rs. 0.50 Cr proposed for 50 locations</i>
<i>Benefits</i>	<ul style="list-style-type: none"> • DT plinth not only ensures the safety and security of the Transformer but also enhances operational efficiency. • Reduces the maintenance cost • Reliable power Supply
<i>Conclusion</i>	Hence, it is required to secure the electrical network for relentless power supply and reduce the chances of accidents due to the natural calamities and living organism.

<i>Project Title</i>	<u>Refurbishment of Safety Practice Yard</u>
<i>Background</i>	In present scenario, we have 17nos safety practice yard operational in five circles across TPCODL In which the work forces are being trained.
<i>Need of the Project</i>	Updated facilities provide a more effective training experience, it ensures that practice yard meet current safety requirement. And also prevents accidents during training and allows the upgradation of modern equipment by replacing the old ones.
<i>Proposal for the capex investment</i>	Under this proposal, it is proposed to upgrade new platform in which the training programme can be done with safety and user friendly.
<i>Scope of the proposal</i>	Resurface the whole area by interlocking tiles to prevent slip and fall and ensure that the yard is accessible for all users in all season. Secured the whole area by chain linked fenced around it to avoid unauthorized entry and from theft cases.
<i>Cost estimate</i>	<i>Rs. 1.9 Crs proposed for 17 locations</i>
<i>Benefits</i>	<ul style="list-style-type: none"> • Refurbishment can identify and mitigate the hazards during training. • It can significantly enhance the safety and effectiveness of practice yards. • A well maintained yard can facilitate better learning outcomes and help reinforce safe practices.
<i>Conclusion</i>	It is crucial to maintaining the safe, effective training environment with hazard free zone.

<i>Project Title</i>	<i>Store yard Development</i>
<i>Background</i>	Under stores yard development work, we have developed 30,000 Sq.m areas in five stores across TPCODL Till now, including roads for heavy vehicle movement and material storage shed.
<i>Need of the Project</i>	Enhancing the store yard includes optimizing the layout for material storage, ensuring security and providing all weather access to stores.
<i>Proposal for the capex investment</i>	Under this proposal, it is proposed to upgrade the store yard by laying of paving tiles or asphalt concrete 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.
<i>Scope of the proposal</i>	Yard development includes improvement of drainage systems, yard levelling & laying paver block. These measures protect the stored materials from damage.
<i>Cost estimate</i>	<i>Rs. 3.00 Crs proposed for 10,000 Sqm area.</i>
<i>Benefits</i>	Proper development and planning of the storage yard ensure optimal use of the available space.
<i>Conclusion</i>	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.

2.5.3 Ready to Use Admin Assets

Background

Office Furniture: Furniture and fixture's available in many offices are from CESU period which are in poor condition.

Air-Conditioner: In offices, ACs are available till the Division level, and in Sub-Division offices, it is available in only SDO cabins. It is to be noted that there is no AC available in Section offices and the AC's available in most of the PSS's are very old and need replacement. The repair and maintenance charges are becoming high day by day due to frequent breakdown of old AC's.

Water Purifier: The Water purifiers are available in most of the offices, but due to unavailability of water sources and water connections, some of the offices are left out where we need to install water purifier to provide RO drinking water to the employees.

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 and meeting rooms for online meetings. Portable projection equipment is needed for outdoor training sessions.

Proposal for the capex investment

Table 38 : Item Wise Break for Admin Assets

SI No	Activity	Budget Proposed of FY 25-26 (Rs. Cr)
1	Office Furniture	0.50
2	Air-Conditioner	1.30
3	Water Cooler	0.05
4	Water Purifier	0.04
5	Photocopier	0.07
6	TV (Display Equipment)	0.04
7	Proposed Budget	2.00

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 have communication with senior leadership and guidance to achieve organizational target in terms of BE, CE, Safety etc.

Conclusion

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