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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 / orierc@gmail.com
WEBSITE: www.orierc.org

Together, Let us light up our lives

Case No. 77/2025

PUBLIC NOTICE

Hearing Application for approval of Capital Investment Plan for the FY 2026-27 in its licensed area of supply as per para 3.2 of the OERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations,2022.

M/s. Tata Power Central Odisha Ltd. has filed an application for approval of Capital Investment Plan for the FY 2026-27 in its licensed area of supply as per para 3.2 of the OERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations,2022.The Commission has registered it as **Case No. 77 of 2025** and has decided to dispose of this case through a public hearing vide order dated 23.12.2025. The petition along with all Annexures submitted by M/s.TPCODL in this regard is available in OERC website (www.orierc.org) and also in M/s. TPCODL's website **www.tpcentralodisha.com.**The persons/ organizations those who are interested to participate in the above proceeding may file their views/objections/suggestions, if any, on the petition of M/s. TPCODL on or before **05.01.2026** through affidavits with a copy to the Petitioner. M/s. TPCODL is directed to file its rejoinders, if any, to the objections/suggestions of the Respondents before this Commission on or before the date of hearing with a copy to the Respondents. Those persons who have filed their objections/suggestions/views by the due date to the above application of M/s. TPCODL shall participate in the hearing of the application by the Commission. The case shall be heard on **09.01.2026** at 11.00 AM by the Commission through Hybrid mode in its Office at Bhubaneswar. No further notice will be given in this regard.

By Order of the Commission

Dated:23.12.2025

Sd/-
S E C R E T A R Y

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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 / orierc@gmail.com
WEBSITE: www.orierc.org

No.1634/dt. 23.12.2025

Case No. 77/2025

To

The Chief Regulatory & Legal,
TP Central Odisha Distribution Limited (TPCODL)
Corporate Office, Power House,
Unit-8, Bhubaneswar-751012.

Sub: Public Notice for hearing of Application for approval of Capital Investment Plan for the FY 2026-27 in its licensed area of supply as per para 3.2 of the OERC (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations,2022.

Sir,

I am directed to inform that you are required to publish the matter as attached to this letter in English language in one issue of a daily English newspaper and in Odia language in Odia newspaper having wide circulation in the State of Odisha. The publication shall be made on **24.12.2025**.

You are directed to keep your application in your web- site immediately.

You may file your rejoinder to the objections filed by any objector on or before **09.01.2026** serving copy to the concerned objector.

The proof of publications published in English and Odia dailies shall be furnished to the Commission within five days of such publication.

By Order of the Commission

Encl : As above

Sd/-
SECRETARY

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

Case No:____/2025

IN THE MATTER OF: Application for approval of Capital Investment Plan for the FY 2026-27 in the Licensed Area of TP Central Odisha Distribution Ltd as per para 3.2 of the OERC (Terms and Conditions for determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2022

And

IN THE MATTER OF: TP Central Odisha Distribution Ltd., Corporate Office, Power House, Unit 8, Bhubaneswar- 751012 represented by its Chief-Regulatory & Legal.

.... Petitioner

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

.... Respondents

Affidavit

I, Bharat Kumar Bhadawat, aged about 54 son of late Shri Shankar Lal Bhadawat residing at Bhubaneswar do hereby solemnly affirm and say as follows:

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

2. The statements made in the submission herein shown to me are based on information provided to me and I believe them to be true.

NOTARY Jagyneswar Acharya Regd. No.-7791/2009 Dist.- Khurda BBSR, Odisha EXP. 11.2.29 8455885397 GOVERNMENT OF INDIA
SPECIAL ADHESIVE

Bhubaneswar

Dated: 10.09.2025

Bharat Kumar Bhadawat

Chief – Regulatory & Legal

IDENTIFIED BY ME
10/9/2025
ADVOCATE, BBSR

NOTARY Jagyneswar Acharya Regd. No.-7791/2009 Dist.- Khurda BBSR, Odisha EXP. 11.2.29 8455885397 GOVERNMENT OF INDIA

10/9/2025

Jagyneswar Acharya
Notary, Govt. of India
Odisha, BBSR, Dist.- Khurda
Regd. No.-7791/2009
8455885397

File No. TPCODL/Regulatory /2025/98/5978
10th September 2025

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

Dear Sir

Sub: Petition for Approval of the Capital Investment Plan for FY 2026-27

We are through this letter submitting a petition to the Hon'ble Commission for approval of the Capital Investment Plan for the FY 2026-27.

We have also submitted this petition vide our email dated 10.09.2025.

We request you to kindly approve the same.

We trust our submissions are in order

Thanking You,

Bharat Kumar Bhadawat
Chief – Regulatory & Legal

TP Central Odisha Distribution Ltd. TPCODL BBSR

Encl: Petition for Approval of Capital Investment Plan for FY 2026-27

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

Case No:_____/2025

IN THE MATTER OF: Application for approval of Capital Investment Plan for the FY 2026-27 in the Licensed Area of TP Central Odisha Distribution Ltd as per para 3.2 of the OERC (Terms and Conditions for determination of Wheeling Tariff and Retail Supply Tariff) Regulations, 2022

And

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

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

3.2. Capital Investment

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

TP Central Odisha Distribution Ltd. TPCODL BBSR

Plan applicable for the entire control period and annual proposal for each year of the Control Period.

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

(Emphasis Supplied)

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

33. Capital Investment

...

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

In compliance to the above regulatory requirements, we are submitting this application for approval of Capital Investment Plan for FY 2026-27.

2. Total Capex approved by the Board of TPCODL for FY 2026-27

It is submitted that the Board of Directors of TPCODL in its meeting dated 23rd July 2025 has accorded approval for the Capital Investment Plan of Rs. 570 Cr for FY 2026-27 .The certified true copy of the Board Resolution is enclosed as Annexure-A to this submission.

Central Odisha Distribution Ltd. TPCODL BBSR

3. Summary of the Capital Investment Plan for FY 2026-27

We are through this petition filing the proposal for approval of the Capital Investment Plan for FY 2026-27. While the detailed Capital Investment Plan for FY 2026-27 is provided in the **Appendix**, the summary of the proposal is provided in table below.

The Capital Investment Plan provided in **Appendix** includes scope and objective, purpose of investment, benefits and location wise details (wherever applicable).

All the scheme proposed in this petition for FY 2026-27 are prioritized scheme out of the balance scope based on Load flow study, field inputs, high loss and high risk locations etc.

The capital structure of investment will be in the form of debt to equity ratio of 70:30. As already mentioned, the Board of TPCODL has already accorded approval for Rs 570 Cr of Capex for FY 2026-27.

TP Central Odisha Distribution Ltd. TPCODL BBSR

Table A: Capital Investment Plan for FY 2026-27 (Hard Cost Only)

Major Head	Activity	Capex Plan for FY-2026-27 (in Rs. Cr)
Safety & Statutory	Testing Equipment	6.00
	Elimination of unsafe condition in the network a) Enhancing vertical clearance through interposing Poles b) Fencing / Boundary Wall of PSS and DSS	13.00
	Safety & Statutory	19.00
Loss reduction	Damaged Service Cable replacement	3.00
	33KV & 11kv Feeder Metering for Energy Accounting	2.00
	Feeder Loss reduction through length reduction	29.99
	Conversion of LT Bare to LT AB Cable	20.00
	Loss reduction	54.99
Reliability	Grid Sub-Station Automation System with SCADA enablement of Conventional Substation	18.89
	SCADA and Communication Strengthening of existing PSS	2.00
	33KV Network Infrastructure	80.00
	11KV Network Infrastructure	89.78
	Addition/upgradation of network components at 33/11 kV PSS for reliability improvement	51.18
	LT DB Installation for LT Protection	40.00
	Reliability	281.85
Load Growth	Power Transformer Augmentation	47.23
	Load Growth -11KV Network overload mitigation	82.77
	Distribution Transformer Augmentation	55.16
	Load Growth	185.16
Technology & Infrastructure	IT - Software, User Devices, Back-up system, Storage devices and Applications	8.00
	Civil Upgradation	13.00
	Enhancing Storage capacity in Existing / New Stores	6.00
	Ready to Use Admin Asset	2.00
	Technology & Infrastructure	29.00
	Grand Total	570.00

The Capital Investment Plan of Rs. 570 Cr as depicted in table above is hard cost only. The cost towards the Employees working on such projects would be in addition to the amount that would be approved by the Hon'ble Commission under this petition.

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

Central Odisha Distribution Ltd. TPCODL *BBSR*

The detailed Capital Investment Plan for FY 2026-27 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 2026-27.
2. Allow Employee Cost and Interest During Construction based on actuals to be capitalised over and above the Capex (Hard Cost) for FY 2026-27.
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.

Bharat Kumar Bhadawat

Chief – Regulatory & Legal

ANNEXURE-A

TPCODL

Certified True Copy of the resolution passed at the Board Meeting held on 23rd July 2025

"RESOLVED that Capital Expenditure (Capex) of the Company for FY27, be and is hereby approved, as under, subject to the approval of Odisha Electricity Regulatory Commission (OERC):

(₹ in crore)

Sl. No.	Capex Head	FY27	% Contribution
1.	Statutory and Safety	19	3
2.	Loss Reduction	55	10
3.	Reliability*	282	49
4.	Load Growth**	185	32
5.	Technology & Infrastructure	29	5
Total		**#570**	

including replacement of 32 nos. of PTRs amounting to ₹ 71 crore for FY27.

***including differential cost of ₹ 100 crore for Network infrastructure for providing 3 Phase New connection*

 # The above CAPEX cost is exclusive of Employee Cost, IDC and GRIDCO equity contribution in kind.

FURTHER RESOLVED that the Chief Executive Officer and Chief Financial Officer of the Company be and are hereby severally authorized to take all necessary steps in this regard."

Certified True Copy
For TP Central Odisha Distribution Limited

Suchitra Dash

(Suchitra Dash)
Company Secretary
ACS No. 24156
Address: Power House Square, Unit-8,
Bhubaneswar, Odisha-751012

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1 Capital Investment Proposal for FY 2026-27

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 for theft elimination etc.
3. **Reliability** – Investment required to improve the Reliability and Quality of Power Supply by taking various initiatives like addition / augmentation of 33 kV and 11 kV Network Infrastructure, Refurbishment of 33/11 kV PSS, Installation of LTDB for LT Protection, Grid Sub-Station Automation System with SCADA enablement of balance Conventional Substation 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, mitigation of network overloading etc.
5. **Technology and Infrastructure** – Investment related to strengthening of various infrastructure to improve internal as well as external customer satisfaction. This includes civil infrastructure and IT & Technology 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, Case 102 of 2023 for FY 2024-25 and also in the petition filed in Case 80 of 2024 for FY 2025-26.

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, FY 2022-23, FY 2023-24, FY 2024-25 and FY 2025-26.

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. Rs. 380.68 Cr was approved by the Hon'ble Commission for FY 2024-25 in order dated 12.12.2023. Further, Rs. 390.50 Cr was approved for FY 2025-26 vide order dated. 10.07.2025. 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 31.03.2025 is as provided in table below.

Table 1 : Actual Status as on 31.03.2025 against Capex approved for FY-21 to FY-25* (Rs Cr)

Major Category	Capex Approved by the Hon'ble Commission							Actual as on 31.03.2025	
	FY 2020-21	FY 2021-22	FY 2022-23	Supplementary Capex	FY 2023-24	FY 2024-25	Total Approved (Cumulative)	Cumulative Capex as on 31.03.2025	Cumulative Capitalization as on 31.03.2025
	A	B	C	D	E	F	G=SUM(A:F)	H	I
Safety & Statutory	68.17	17.59	17.66	0.00	16.00	11.39	130.81	136.38	134.36
Loss reduction	39.63	67.36	52.85	0.00	35.00	30.02	224.86	190.05	168.55
Reliability	72.48	114.42	87.77	43.86	115.00	196.83	630.36	599.22	554.87
Load Growth	9.00	30.52	24.87	93.39	50.00	87.04	294.82	282.12	259.68
Infrastructure & Technology	91.35	68.84	60.16	0.00	67.72	65.15	353.22	334.67	330.93
Total	**280.63**	**298.73**	**243.31**	**137.25**	**283.72**	**390.43**	**1634.07**	**1542.44**	**1448.39**

** Note: 1.The above is Hard Cost Only*

2. As Capex for FY 2025-26 was approved in July 2025, the same is not shown in above table.

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 2026-27

TPCODL in line with the philosophy adopted for FY 2020-21 to FY 2025-26, 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 2026-27 (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 2026-27 (only Hard Cost i.e. without considering Employee Cost and IDC capitalization)

Major Head	Activity	Capex Plan for FY-2026-27 (in Rs. Cr)	Annexures
Safety & Statutory	Testing Equipment	6.00	
	Elimination of unsafe condition in the network	13.00	Annexure 1a & 1b
	a) Enhancing vertical clearance through interposing Poles		
	b) Fencing / Boundary Wall of PSS and DSS		
	Safety & Statutory	**19.00**	
Loss reduction	Damaged Service Cable replacement	3.00	
	33KV & 11kv Feeder Metering for Energy Accounting	2.00	
	Feeder Loss reduction through length reduction	29.99	Annexure-2
	Conversion of LT Bare to LT AB Cable	20.00	Annexure-3
	Loss reduction	**54.99**	
Reliability	Grid Sub-Station Automation System with SCADA enablement of Conventional Substation	18.89	
	SCADA and Communication Strengthening of existing PSS	2.00	
	33KV Network Infrastructure	80.00	Annexure-4
	11KV Network Infrastructure	89.78	Annexure-5
	Addition/upgradation of network components at 33/11 kV PSS for reliability improvement	51.18	Annexure-6
	LT DB Installation for LT Protection	40.00	Annexure-7
	Reliability	**281.85**	
Load Growth	Power Transformer Augmentation	47.23	Annexure-8
	Load Growth -11KV Network overload mitigation	82.77	Annexure-9
	Distribution Transformer Augmentation	55.16	Annexure-10
	Load Growth	**185.16**	
Technology & Infrastructure	IT - Software, User Devices, Back-up system, Storage devices and Applications	8.00	Annexure -11 & 12
	Civil Upgradation	13.00	Annexure-13
	Enhancing Storage capacity in Existing / New Stores	6.00	
	Ready to Use Admin Asset	2.00	
	Technology & Infrastructure	**29.00**	
	Grand Total	**570.00**	

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 Capital Investment Plan

2.1 Safety and Statutory

The proposed budget for Safety & Statutory under CAPEX FY 26-27 is Rs. 19.00 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 2026-27 (in Rs. Cr)
Safety & Statutory	Testing Equipment	6.00
	Elimination of unsafe condition in the network	
	a) Enhancing vertical clearance through interposing Poles	5.00
	b) Fencing / Boundary Wall of PSS and DSS	8.00
	Total	**19.00**

The description of the various schemes are as under:

2.1.1 Testing Equipment

Table 4: Proposed activities of FY 27 for Testing Equipment

Sl. No.	Item Description	Cost Proposed in FY-27 (in Rs. Cr)
1	Requirement of Testing Kits	2.09
2	Safety & Fire Equipment, Tools & Tackles	2.81
3	DT Workshop Equipments	1.10
4	**Total**	**6.00**

2.1.1.1 Testing Kit Requirement

Background

TPCODL has been agile in adopting the latest technology in the power utility sector. Since vesting from CESU, it has focused on consumer service excellence, reducing AT&C losses, improving reliability, and enhancing consumer satisfaction.

Testing of electrical equipment is critical for determining the healthiness of assets. Currently, TPCODL operates across 30,000 sq. km, with 5 circles, 20 divisions, nearly 400 substations, 1200 PTRs, and 4200+ protective relays. However, there are only 2 centralized storage locations (Bhubaneshwar & Cuttack), with very limited and mostly defective testing kits (54 nos. defective listed). Heavy, outdated kits and limited availability have caused delayed fault responses, consumer dissatisfaction, unreliability, and safety risks.

Proposal

Procurement of advanced, portable, and standardized testing kits to be placed at decentralized EMR locations for faster response, improved monitoring, and proactive fault detection. This will ensure continuous health monitoring of critical assets and quicker restoration during breakdowns.

Requirement/ Need of the Proposal

i. **Deficiency in existing system:** Very few functioning kits, centralised storage, old heavy equipment, transportation difficulties, and poor fault response.
ii. **Scope for improvement:** Decentralised advanced kits will ensure better reliability, faster restoration, safer network operations, and reduced equipment failure.
iii. **Compliance:** Enhances safety standards, reduces risk of accidents, and ensures regulatory compliance with reliability and safety benchmarks.

Scope of Work

i. Procurement of modern testing kits (CRM, Timer, WRM, TTR, CT PT Analyser, Thermovision Cameras, PD kit, etc.).
ii. Calibration of kits before deployment.
iii. Distribution to each EMR/Distribution office.
iv. Training of manpower in using advanced kits at field & SDC.
v. Phased procurement aligned with yearly CAPEX planning.

Proposed Cost with Estimate Break-up

Table 5: BoM of Testing Kits proposed for FY 2026-27

Sl. No.	Description	Unit	Total Quantity	Unit Price (in lakh)	Total Amount	Remarks
1	CRM kit	Nos	2	1.35	2.71	Required for Distribution Division, E&MR, Protection Cable & Switchgear Department
2	Timer kit	Nos	2	1.09	2.18	
3	WRM	Nos	2	3.14	6.27	
4	CT PT analyser	Nos	2	29.84	59.68	
5	Low-end thermovision camera	Nos	20	0.91	18.17	
6	Power Quality analyser	Nos	1	3.89	3.89	
7	Battery Operated Portable Light	Nos	5	0.4	2	
8	High End Thermo Vision Camera	Nos	5	6	30	
9	Industrial Acoustic Imaging Camera for Partial Discharge Detection	Nos	2	29.84	59.68	
10	Remote-controlled battery-operated cable spiking and cutting tool	Nos	2	1.22	2.43	
11	0-70 kV AC Hipot Kit	Nos	1	1.93	1.93	
12	Portable neon tester for RMU & CSS maintenance	Nos	5	0.45	2.24	
13	Torque Wrench for RMU & CSS maintenance	Nos	38	0.06	2.35	
14	Hydraulic Cable Cutter 260 to 300 mm rachet cable cutter.	Nos	5	0.2	1	Required for Skill Development Centre for training purpose
15	Hydraulic Crimping device with Tools (Size 16 mm2 to 150 mm2)	Set	5	0.05	0.23	
16	Oil BDV Test Kit	Nos	5	0.5	2.5	
17	Hipot Test Kit	Nos	5	1.93	9.66	
18	CMRI	Nos	5	0.35	1.75	
19	**Total Cost (Rs. Lakhs)**				**208.67**	
	Total Cost (Rs. Cr)				**2.09**	

Cost Benefit Analysis

i. **Direct Saving from reliability improvement:** 10–12 MU saved annually; considering 20% = 2 MU saved. Which translates into additional annual revenue of Rs. 1.2 Cr (computed at approved ABR of Rs. 5.78/kwh for FY 2025-26)

ii. **Asset Failure Reduction:** Saving ~2 PTRs/year ≈ ₹1 Cr.

iii. **Safety Benefits:** Avoiding even 1 accident justifies cost.

a. **Total Annual Benefit ≈ Rs. 2.2 Cr**
i.e. payback period of less than a year.

Benefit to the System and Consumers

i. Faster response to faults → reduced downtime.
ii. Improved network reliability and consumer satisfaction.
iii. Reduction in equipment failure and extended asset life.
iv. Enhanced employee satisfaction by reducing repeated troubleshooting.
v. Continuous monitoring ensures better safety and compliance

2.1.1.2 Safety & Fire Equipment, Tools & Tackles

Background

TPCODL required strong safety infrastructure for enhance prevention of incidents related to Public, Employees and Consumers. New practice yards are required in uncovered areas. Mobile training facilities, safety displays etc are required to strengthen public and employee safety awareness through targeted campaigns in schools, villages, gram panchayats, and section offices. Portable safety tools and fire system upgradation are essential for emergency preparedness.

Proposal

To enhance Public & Employee Awareness, A mobile "Training on Wheels" on bus will be deployed and 25 Nos. of digital safety displays at key locations for campaigns in schools, villages, gram panchayats and section offices to provide structured safety awareness and skill development for Public & employees in remote locations. Additionally, 247 practice poles (9m PSC poles) will be installed at section offices for daily safe climbing practice. Portable safety tools such as collapsible ladders, improved discharge rods and voltage detectors will be used by maintenance teams at FCC level. Additionally, following critical activities are also planned to be taken up during FY 27 to enhance fire safety:

i. Firefighting Readiness is critical for effectively handling fire emergencies.
ii. Strengthening of the fire hydrant system is required in two critical areas e.g. stores and data centres, by installing one additional jockey pump at each location.
iii. Extension of store hydrant system is required to cover the transformer workshop.

iv. Integration of the data centre FDA system with PSCC/SCADA is needed for enhanced monitoring and control.

Requirement/ Need of the Proposal

To enhance safety standards, reduces risk of accidents, and ensures regulatory compliance with reliability and safety benchmarks.

i. "Training on Wheels" Training Centre for workforce of interior locations

TPCODL operates across a large and scattered geographical area of approximately 29,000 sq. km. At present, we have fixed-location training centers to build the technical and safety competencies of our workforce. While these centers are providing contributed to skill development, they are proving to be less effective **for employees working in remote and rural locations**. The primary challenges include:

a. Long travel time for employees to attend training sessions, leading to loss of productive man-hours.
b. Limited participation from field staff due to distance and logistical constraints.
c. High cost of travel and stay, which reduces the cost-effectiveness of training.

To overcome these challenges, we propose to establish Mobile Training Centers (Training Vans). These mobile units will take training directly to the field staff at their workplace or nearby location.

Key Advantages of Mobile Training Vans:

a. Accessibility & Reach – Ensures even employees in the most remote areas get equal access to training without the need for long-distance travel.
b. Time & Cost Efficiency – Saves significant travel time and associated costs while minimizing disruption to regular field operations.
c. Flexibility of Training – Vans can be deployed as per operational priorities and training needs, allowing just-in-time training and refresher programs.
d. Practical Demonstrations – Equipped with simulators, safety equipment, and demonstration kits to provide hands-on training close to the work environment.
e. Enhanced Participation – With training coming closer to their workplace, participation and engagement levels among field staff will significantly improve.
f. Collective Behavioural Alignment – When employees of a particular location are trained together, they develop a common understanding and uniform

practices, which leads to faster adoption of system improvements and better teamwork.

g. Scalable & Customizable – Training vans can be designed for multiple purposes such as technical skill-building, safety awareness, customer service training, and induction programs.
h. Quick Deployment in Emergencies – In case of accidents, safety lapses, or introduction of new technology, vans can be rapidly mobilized to provide immediate training and awareness.

Conclusion:

Introducing Mobile Training Vans will transform our training approach by making it more accessible, practical, and impactful, especially for our widely scattered workforce. This initiative will not only enhance competency, safety awareness, and collective discipline but also lead to improved productivity, faster system improvements, reduced costs, and greater employee satisfaction.

ii. Installation of dummy pole in every Section for regular practice of safe claiming

Many of the TPCODL and BA Linemen not know correct, quick and safe method of placing the ladder, climbing on ladders, importance of 3 point contact, correct use of full body safety harness, working with both hands at height after putting work positioning. By installing a dummy pole, they will practice it regularly to achieve excellence. It will reduce down time, enhance productivity and Safety.

iii. Digital Safety display at Various Public & Employee contact points:

To create awareness about safety better communication, information about electrical safety to public and employees, we want to put digital display at selected public and employees touch points.

iv. Additional Jockey Pumps for existing Fire system at Stores and Data Centre:

In any Fire Hydrant System, Jockey Pumps are playing a vital role by maintaining the Water 24 hours X 7 days a week. At Chowdwar TPCODL has its Main Store where Crores of worth of material is kept. Similarly at Power System Control Centre Building important department and entities like Data Centre, IT Department, Power Centre Control Department and Corporate Offices are located. Both the building are important from fire Protection point of view and provided with a Fire Hydrant System which has Single Jokey pump. Considering the importance and vulnerability of this pump, this investment has been proposed.

v. **Integration of FDA systems of Data centre with PSCC Monitoring system / SCADA**

At present FDA Systems monitoring panel is located at the ground floor in BMS room where physical monitoring 24/7 is not available. Integration of existing FDA system with PSCC monitoring system will help to monitor 24/7 at control desk on second floor. In case of any emergency situation arises PSCC desk engineers will inform to the emergency services.

vi. **Extension of fire hydrant system at Choudwar Stores to cover Transformer Workshop.**

Currently fire hydrant system is not available at Transformer repair work shop located at Choudwar this facility in more prone to risk of fire, considering the oil available in the location. So, it is proposed to extend the fire hydrant system around 200 mtrs from existing fire hydrant system of nearby Choudwar central stores. This will enable to meet compliance of fire risk assessment and fire preparedness at transformer repair workshop and its storage.

vii. **Lightweight Multi Purpose Discharge Rod:**

An ideation work shop was organised to overcome the issue and enhance the idea to develop the lightweight tools, the conventional type discharge rods are bulky and causing difficulty to carrying for field staff using two wheelers to attend daily maintenance activities. During the workshop one of the lineman form Khorda Dist. (Balugoan Division) came up with an idea to use discharge having mechanism to discharge all three phases. Further TPCODL developed this idea and worked with manufacturers. After several revisions and trials, a unique lightweight design was finalized without compromising safety standards. The new discharge rod can replace three conventional rods. Hence, it is proposed to provide this improved rod to all field staff at Fuse Call Camp level.

Scope of Work

Procurement of

i. Training of manpower using advanced tools
ii. Creating public awareness
iii. Phased procurement aligned with yearly CAPEX planning.

Proposed Cost with Estimate Break-up

Table 6: BoM of Safety & Fire Equipment, Tools & Tackles

Sl. No.	Category	Description	Unit	Total Quantity	Unit Price (in lakh)	Total Amount (In lakh)
1	Public Safety & Employee Awareness	"Training on Wheels" Training Centre for workforce of interior locations	Nos	1	45.00	45.00
2		Installation of pole in every Section for regular practice of safe claiming. (PSC Pole - 9 mtr)	Nos	247	0.12	29.64
3		Digital Safety display at Various Public & Employee contact points	Nos	25	0.20	5.00
4	Fire preparedness	Additional Jockey Pumps for existing Fire system at Stores and Data Centre	Nos	2	5.00	10.00
5		Integration of FDA systems of Data center with PSCC Monitoring system / SCADA	Nos	1	10.00	10.00
6		Extension of fire hydrant system at Choudwar Stores to cover Transformer Workshop.	Nos	1	35.00	35.00
7	Workplace Safety	Lightweight Multi Purpose Discharge Rod	Nos	975	0.15	146.25
8	**Total Cost (Rs. Lakh)**					**280.89**
	Total Cost (Rs. Cr)					**2.81**

Benefit

These measures will collectively improve safety preparedness, reduce accidents, and promote a stronger culture of safety among employees, consumers and the public.

2.1.1.3 Requirement of DT Workshop

Background

TPCODL has more than 69000 DTRs of various ratings such as 16, 25, 63, 100, 250 and 500, 1000 kVA in its distribution network. Every year around more than 2000 distribution

transformers of various ratings fail due to various reasons, incurring ~ Rs. 14 Cr Opex on outsourced repairs. There is dependency on timelines on delivery of repaired transformer from outsourced agency. To reduce cost and improve reliability, one workshop has been functional at Choudwar in the year FY 2024-25 where at present only minor repair work of DT are performed as per plan. Other two workshops at Jankia and Banarpal were planned to be functional in the year FY 2026-27. Due to unavailability of funds only workshop sheds were constructed. All the tools and tackles, major equipment's, balance civil infrastructure which are required for functionalisation of Workshop at Jankia and Banarpal are planned in this this CAPEX proposal.

Proposal

The upcoming requirements have been marked as Phase II (FY 2026-27). These phases will cover additional infrastructure, advanced testing facilities, and process enhancements to expand the workshop's repair and refurbishment capacity at Choudwar.

It was proposed to operationalize the two additional transformer workshops located at **Banarpal** and **Jankia**. Additionally, to upgrade the facility of **Choudwar** DT Workshop for **major** repair work of DTs. This will reduce the transportation of damaged DTs from farway places like Anugul District, Nayagarh District, Puri District.

Requirement/ Need of the Proposal

i. To develop in-house skills.
ii. To reduce Opex on DTR repair.
iii. To establish control on priority of DTR repair.
iv. The facility at Banarpal and Jankia will provide minor repair work of salvaged DTs, damage DTs and conditional maintenance work DTs up to 100KVA.
v. The facility of Choudwar workshop will be upgraded for major repair works DTs.

Scope of Work

A. For Choudwar Workshop:
   i. Procurement of HT and LT winding machine
   ii. Enhancement of capacity of existing Oven at Choudwar.
   iii. Procurement of mobile crane for movement of DTs from workshop to yard area and vice versa.

B. For Banarpal and Jankia Workshop:

i. Procurement all testing equipment, tools and tackles.
ii. Industrial wiring for functioning of all major equipment.
iii. Procurement of all equipment for repair of DTs.
iv. Removal of OH line from yard area on safety point.
v. Procurement of mobile crane for movement of DTs from workshop to yard area and vice versa.

Proposed Cost with Estimate Break-up

Table 7: BoM of Equipment related to DT Workshop

Sl. No.	Description	Unit	Total Quantity	Unit Price (in lakh)	Total Amount (In lakh)	Workshop Wise Breakup of Qty			
						Choudwar	Banarpal	Jankia	Total
1	Industrial Wiring	Nos	2	6.00	12.00	0	1	1	2
2	Filter Machine(1000LPH)	Nos	1	6.00	6.00	0	0	1	1
3	Tools and tackles	Nos	2	8.00	16.00	0	1	1	2
4	Hydraulic mobile floor crane	Nos	3	3.00	9.00	1	1	1	3
5	High voltage setup	Nos	2	2.50	5.00	0	1	1	2
6	Test bench for Loss test(NLL & LL) & DVDF test (Automatiic Variac, Power analyser, Mot-gen set & Test bench)	Nos	2	9.25	18.50	0	1	1	2
7	Oil BDV kit	Nos	2	0.50	1.00	0	1	1	2
8	Hand operated megger	Nos	2	0.20	0.40	0	1	1	2
9	Shelf for storing of consumables	Nos	2	3.50	7.00	0	1	1	2
10	Shifting of 11KV OH line from switchyard	Nos	2	9.00	18.00	0	1	1	2
11	Fire Extingusiher	Nos	2	1.00	2.00	0	1	1	2
12	HT Winding Machine	Nos	1	5.00	5.00	1	0	0	1
13	LT Winding Machine	Nos	1	4.50	4.50	1	0	0	1
14	Modification of Oven for improving productivity (Two stage motorised trolley)	Nos	1	6.00	6.00	1	0	0	1
15	**Total Cost**				**110.40**				
	Total Cost (Rs. Cr)				**1.10**				

Cost Benefit Analysis

i. Saving of Opex of Rs. 1.5 Cr from Choudwar workshop(Present output of workshop – 60 DT/Month)
ii. Saving of Opex of Rs. 1.5 Cr from Banarpal + Jankia.
iii. CAPEX recoverable within short payback period.

Benefit to the System and Consumers

i. Decentralized repair of DT workshop.
ii. Reduced transportation delays and costs.
iii. Faster turnaround of failed DTs.
iv. Improved supply reliability and consumer satisfaction.
v. Enhanced compliance, safety, and operational efficiency.

2.1.2 Enhancing vertical clearance through Interposing Poles

Background

TPCODL spanning over a geographical area of 29,354 sq.km has a vast network having 33kV, 11kV and LT 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 in old feeders, where the span length ranges from 70 meter to more than 100 meter at some places. These large span lengths have resulted in:

i. Sagging of conductors,
ii. 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.
iii. Accidents due to sagging & low ground clearances.

TPCODL has already installed 25,500 interposing poles under various categories, of which 5500 are done under CAPEX budget. Remaining another 43,079 locations have been identified, which will be mitigated in a phase-wise manner in upcoming years. The prioritization has been done based on factors such as maintaining phase to ground clearances as per statutory requirement particularly in residential areas, road crossing, high traffic marketplaces, as well as addressing sections with long spans to strengthen the network and considering environmental factors like elephant corridors, thereby ensuring safe operations.

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 8: Quantity-wise Costing for Interposing Poles

Sl. No.	Description	Unit	Cost per Unit (Rs.)	Total Quantity	Total Cost (Rs. Cr)
1	Installation of Interposing poles- (13 Mtr. WPB) at 33 kV line	EA	77740.25	85	0.66
2	Installation of Interposing poles- (11 Mtr. WPB) at 33 kV line	EA	67595.88	77	0.52
3	Installation of Interposing poles- (11 Mtr. WPB) at 11 kV line	EA	63688.22	277	1.76
4	Installation of Interposing poles- (9 Mtr. PSC) at 11 kV line	EA	16216.61	1264	2.05
5	**Total Cost**			**1703**	**5.0**

Please refer to **Annexure – 1.a** for details of **BoQ and proposed locations**.

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.

2.1.3 Fencing / Boundary Wall of PSS and DSS

Table 9: Proposed Scope and Cost estimate for FY-27 for Fencing / Boundary Wall

Sl. No.	Activity	Unit
1	Chain-linking/ Precast Compound walls in Switchyard and PSS	2
2	DSS Chain link/ FRP Fencing	6
3	**Total**	**8**

Sl. No.	Item	Rate (Rs.)	Quantity	Proposed Budget (Rs.)
1	Construction of Pre-cast Compound Wall for PSS		21	1,79,53,095.31
2	Chain-link Fencing for PSS	5,22,974.55	4	20,91,898.22
3	Chain-link Fencing for DSS	1,21,440.65	494	5,99,91,682.69
4	**Grand Total (Rs)**			**8,00,36,676.22**
	Grand Total (Rs. Cr)			**8.00**

2.1.3.1 Chain-linking/ Precast Compound walls in Switchyard and PSS

Background

There are 375 operational PSS across TPCODL as of today. At the time of takeover, 178 PSS were not having a proper boundary wall. So far from FY 20-21 to 24-25, 99 PSS boundary wall have been constructed / upgraded. 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 120 PSS will have metal fence between substation control room and 33KV switchyard by December 2025. However, still a large no of PSS requires fencing of the switchyards to safeguard the public.

Proposal

It has been planned to construct 1.8 m height conventional/pre-cast compound wall along with 0.6 meter concertina coil fence at 21 no of PSS to ensure safety and security of TPCODL staff, public, animals and network.

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 at 4 locations.

Requirement/ Need of the Proposal

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. TPCODL intends to provide proper boundary wall and switchyard fence at each PSS at the earliest.

Scope of Work

A. Construction / height extension of boundary wall at 21 location with a total length of 3205 M as provided in table below with location.

Table 10: Scope of Work with Location

Sr No	Location	Total Length (M)
1	Naharkanta	140
2	NACHUNI	50
3	Medical	100
4	BAMURU	450
5	Pipili	500
6	Jobra	200
7	Paldhuapada	60
8	New Baranga	500
9	Jankia	100
10	Parichhala	60
11	Ins CHILIKA	150
12	Badamba	70
13	Balipatana	300
14	Tulsipur	50
15	Baghamari	150
16	Gogua	45
17	Badadia	40
18	Duvalo	40
19	BARUAN	50
20	MERAMUNDALI	50
21	BOINDA	100
	Total	**3205**

B. Construction of chain link fence for switchyard at 4 PSS with a total length of 400 M. College Structure (Dhenkanal), Nischintakoili (Salepur), Ersama (Paradeep), Pallahara (Talcher)

Proposed Cost with Estimate Break-up

The Total estimated Cost of Boundary Wall and switchyard fencing will be **Rs 2.00 Cr.** Detailed **Estimate and Location** is attached in **Annexure – 1.b**.

Benefit to the System and Consumers

Compound wall prevents unauthorized personnel or animals wandering into the switchyard, where they could be exposed to high-voltage equipment and deters potential intruders or thieves from entering the switchyard and tampering with or stealing valuable equipment. Chain-link fencing prevents Public or animals from accidents/ unauthorised entry, tampering with or stealing valuable equipment from switchyard area.

Safety of network assets. Segregation of section office and 33KV switchyard. Safety of TPCODL staff, and general public.

2.1.3.2 **DSS Chain-link/ FRP Fencing**

Background

For safety requirement chain link/ FRP fencing are 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.

Proposal

It has been planned to construct 1.8 m height chain link fencing on a brick toe wall at 494 Nos. of DSS to ensure safety and security of TPCODL staff, public, animals and network.

Requirement/ Need of the Proposal

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.

Scope of Work

It is proposed to Construct Fencing around DSS wherever required for Safety and Security Point of view. For enhancing safety, the DSS shall be barricaded using 1.8 meter high chain-link /FRP fence gate whichever is suitable for the Location.

Proposed Cost with Estimate Break-up

The Total estimated Cost will be **Rs. 6.00 Cr.**
Estimate breakup are as follows.

Average Total Length of each chain link fencing 20 m considering 5m width and 5m length	1.05 Lakh

Detailed Estimate and Locations attached in Annexure – 1.b

Benefit to the System and Consumers

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. Safety of employees, stray animals and residential people are one of the most important statutory compliances.

2.2 Loss Reduction

The proposed budget for Loss Reduction under Capital Investment Plan FY 2026-27 is Rs. 54.99 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 2026-27 (in Rs. Cr)
Loss Reduction	Damaged Service Cable replacement	3.00
	33KV & 11kv Feeder Metering for Energy Accounting	2.00
	Feeder Loss reduction through length reduction	29.99
	Conversion of LT Bare to LT AB Cable	20.00
	Total	54.99

The description of the various schemes are as under:

2.2.1 Damaged Service Cable replacement for Safety, Pilferage Elimination & Reliability

Background

Since vesting, TPCODL has been undertaking systematic replacement of damaged and very old service cables to improve safety of households, reliability and eliminate pilferage of electricity.

However, during site inspections, it has been observed that several service connections continue to operate with defective or jointed cables which not only create risks of electrocution and theft but also result in unmetered consumption and reduced billing efficiency. Such cases are primarily associated with elimination of theft, load enhancement where existing service cables are undersized, meter shifting requirements to facilitate proper installation at designated locations, and defective service cable replacement identified during field inspections. Continuation of these defective connections adversely impacts collection efficiency, increases AT&C losses and poses significant consumer safety hazards, thereby necessitating an extension of the replacement program in a phased manner under the current CAPEX plan.

The Hon'ble Commission in its Order Dated 10.07.2025 in the matter of Case No-80/2024 has stipulated that such expenditure to be borne by the consumers.

TPCODL is recovering such expenditure from the consumers wherever it is clearly established that the service cable has been damaged dues to reasons attributable to the consumers, however in most of the cases the reason of damage is not attributable to the consumers (e.g. service cable have damaged due to old age, due to outdoor conditions etc.) or it cannot be established , in such cases these service cables needs to be replaced under capex.

Proposal

Capital Investment of **Rs. 3.00 Cr is proposed** towards replacement of damaged service cables. Replacement shall be undertaken only in specific cases such as:

i. Elimination of Pilferage of electricity cases.
ii. Load enhancement cases.
iii. Meter shifting requirements.
iv. Defective cable replacement.

The work will be executed based on inspection and certification by field officers, ensuring that only technically justified cases are taken up.

Need of the Proposal

The presence of defective service cables and joints contributes to:

i. Safety hazards due to possible electrocution.
ii. Unauthorized consumption and theft through pilferage points.
iii. Higher technical and commercial losses.
iv. Inefficient billing and revenue realization.

Replacing these cables will reduce risk, improve system reliability, and ensure accurate energy accounting.

Cost Estimate

The estimated cost for the proposed activity is **Rs. 3.00 Cr**, covering supply and installation of service cables in justified cases identified during inspections.

Table 12: Cost of Cables For Defective Service Cable Replacement

Sl. No	Cable Size (Core * Sq mm)	COUNT	Cable length - KM	Cost per MTR (Rs.)	Rate of Installation (Rs.)	Cost of Material (Rs. Cr)	Cost of Inst (Rs. Cr)	Total Cost (Rs Cr)
1	2*4	5200	156.000	65.1	1,156.46	1.02	0.60	1.62
2	2*6	3250	97.500	73.01	1,156.46	0.71	0.38	1.09
3	4*10	250	7.500	118.39	1,433.37	0.09	0.04	0.12
4	4*25	150	4.500	188.34	1,454.73	0.08	0.02	0.11
5	4*50	30	0.900	295	2,039.16	0.03	0.01	0.03
6	4*95	12	0.360	555.26	2,880.84	0.02	0.00	0.02
7	4*150	1	0.024	972.33	2,880.84	0.00	0.00	0.00
8	4*300	0	0.006	1626.77	3,894.00	0.00	0.00	0.00
9	4*2.5	0	0.000	139	1,156.46	0.00	0.00	0.00
10	6*2.5	0	0.000	217.4	1,156.46	0.00	0.00	0.00
11	**Grand Total**	**8893**	**266.78**			**1.95**	**1.04**	**3.0**

Benefit to Consumers & System

i. Enhanced consumer safety by eliminating risks of electrocution.
ii. Reduction in electricity theft and pilferage.
iii. Improvement in billing and collection efficiency.
iv. Lower AT&C losses leading to better financial health of the utility.
v. Improved reliability of supply and consumer satisfaction.

2.2.2 33kV & 11 kV Feeder Metering for Energy Accounting

Background

TPCODL input as a whole is identified from the T&D interface points (known as Apex points) at the OPTCL periphery. The energy flows from these Apex points to the end consumers within 20 numbers of Distribution Divisions through different 33kV Feeders, 11kV Feeders & LT Lines in TPCODL.

The Distribution Divisions are the key business nodal points for all the activities in the DISCOM. The Divisional input as well as the Circle-wise Input is utmost important to identify the Actual input for fixing the Accountability on the employees to bring down the T&D Loss % & AT&C Loss%. However, these 20 nos. of Divisions share many inter-division/circle import export points with each other to cater reliable power supply to end consumers.

The details of interzone metering between the divisions are as follows:

Table 13: The details of Interzone Metering between the Divisions are as follows

Circle	Inter-division 33kV Points				Inter-division 11kV Points		Total 33kV & 11kV Inter-division Points
	Smart Meter	Non-Smart Meter	No Meter	Total Points	No Meter	Total Points	
BBSR-1	1	0	2	3	10	10	13
BBSR-2	10	1	2	13	3	3	16
Cuttack	12	3	9	24	5	5	29
Dhenkanal	1	1	0	2	1	1	3
Paradeep	4	1	1	6	3	3	9
Total	**28**	**6**	**14**	**48**	**22**	**22**	**70**

Some of the few interzone import export points out of above are emanated from OPTCL GSS or TPCODL PSS and these are covered through our earlier CAPEX budget for 33kV & 11kV Feeder Metering in TPCODL. The balance interzone import export points as per the following table are at 33kV feeders or 11kV feeders which have not yet proposed for metering.

Table 14: Balance Interzone Import Export 33kV and 11kV Metering Status

Circle	Non-Smart Meter at 33kV Inter-division	No Meter at 33kV Inter-division	No Meter at 11kV Inter-division	Total Interdivision Points for Metering
BBSR-1	0	2	10	12
BBSR-2	1	2	3	6
Cuttack	3	9	5	17
Dhenkanal	1	0	1	2
Paradeep	1	1	3	5
Total	**6**	**14**	**22**	**42**

Proposal for the Capex Investment

The implementation of Inter-Division Boundary Metering for Energy Accounting at Division/Circle in TPCODL License area will be executed in FY 2026-27 in the following manner.

i. Providing Metering arrangement (DP structure) for 33kV and 11kV Inter division Feeders
ii. Replacing Non-smart meters with Smart meters at existing 33kV Inter-division feeders

Interdivision metering will be done in phase wise manner and in Phase-1 in FY2026-27 we will be covering the following quantity:

Table 15: Interdivision points to be covered in FY 2026-27

Circle	Non-Smart Meter at 33kV Inter-division	No Meter at 33KV Inter-division	No Meter at 11KV Inter-division	Total Interdivision Points for metering
BBSR-1	0	2	10	12
BBSR-2	1	2		3
Cuttack	3	9		12
Dhenkanal	1	0		1
Paradeep	1	1		2
Total	**6**	**14**	**10**	**30**

Requirement/ Need of the Proposal

Energy Accounting prescribes accounting of all energy inflows at various voltage levels as well as at all the business units across the distribution periphery of the network. The present practice for assessment of division Input are as follows due to non-availability of Energy meters at these points:

i. The average of previous month consumptions if metering arrangement was available earlier.

ii. The consumption at these points are assessed with the total DT sharing basis, Load sharing basis or current drawn basis.

iii. When, the above result does not fructify then mutually agreed consumption between both the importing & exporting divisions are taken into consideration.

Due to above, there always conflict arises in each month between the exporting & importing divisions regarding their division performance.

Objective of the Project

Objective is to identify the actual energy flow to a particular division or circle so that accountability on the employees can be fixed. The optimisation of Input can be held by them to achieve the company's goal in terms of bringing down the T&D Loss % & AT&C Loss %.

Scope of Work

The Energy Accounting & Audit meters at these locations will be in line with the **CEA (Installation and Operation of meters) Regulations 2006** and amendment thereof. The implementation of Inter-Division Boundary Metering for Energy Accounting at Division/Circle in TPCODL License area will be executed in FY 2026-27 with the following scope.

i. Inter-zone Metering for the Feeders:

We have planned to execute the 30 nos. of inter-zone feeder metering as there in the Table-03 for the defective metering point in following steps:

a. Construction of DP (Double Pole) Structure to house the 33kV or 11kV Metering Unit (MU)
b. Installation of 33kV or 11kV Metering Unit (MU) and HTTV Smart meters

The first part work regarding construction of DP Structure as mentioned above will be executed through a vendor with overall supervision by Projects team and the balance work will be through separate vendors with overall supervision by MMG team.

Cost Estimate of the Project

Since, the execution of this project is of similar nature across the TPCODL's licensee area we are submitting the cost estimate as follows as per the requirements in the above table for inter-zonal import export points between the Circles & divisions:

Sl. No	Requirement	Per Unit Cost (In Rs. Lacs)	Unit (Nos.)	Projected Cost (In Rs. Lacs)
1	Design, Fabrication, Transportation & Construction of 33 kV Double Pole (DP) Structure (including Civil Work, Earthing, Accessories such as Pin Insulator, Disc Insulator, Stay etc.)	6.70	14	93.80
2	33kV Metering Unit, HTTV Smart meters and its Installation & Commissioning on the DP Structure	2.50	20	50.00
3	Design, Fabrication, Transportation & Construction of 11 kV Double Pole (DP) Structure (including Civil Work, Earthing, Accessories such as Pin Insulator, Disc Insulator, Stay etc.)	4.46	10	44.60
4	11kV Metering Unit, HTTV Smart meters and its Installation & Commissioning on the DP Structure	1.44	10	14.40
Sub Total				**202.80**
Sub Total (Rs. Cr)				**2.0**

Hence, the total projected cost for this scheme is Rs. 2 Cr.

Location wise details are provided below

Table 16: Location wise details

Sl No	Circle	Name of the Feeder	TO	FROM	voltage level
1	Paradeep	33 KV Biridi Feeder	JED	CDD-2	33
2	Cuttack	33 KV MEDICAL NEW	CDD-1	CDD-II	33
3	Cuttack	CITY COLLEGE	CDD-1	CDD-II	33
4	Cuttack	33 KV Medical UG NEW	CDD-1	CDD-II	33
5	Cuttack	Sisubhaban	CDD-1	CDD-II	33
6	Cuttack	33 KV TP FDR-II at Kalyaninagar	CDD-II	CDD-1	33
7	Cuttack	33 KV TP FDR-II at Mahanadi Vihar	CDD-II	CDD-1	33
8	Cuttack	33 KV TP FDR No-II at Jagatpur Section	CDD-II	CDD-1	33
9	Cuttack	OSAP	CDD-II	CDD-1	33
10	Cuttack	33 KV Badambadi + BC	CDD-II	CDD-1	33
11	BBSR-2	IOCL	KHD	BCDD-2	33
12	BBSR-2	33 KV Dighalo	PED	NED	33
13	BBSR 1	Through FDR No. V, Mancheswar to Kalarahanga (33 KV metering required at Bhotapada)	BED	BCDD-II	33
14	BBSR 1	33 KV Satya Nagar, Sahid Nagar & Airport through RMU 1 & 2 from Rasulgarh, Mancheswar-B UG FDR th RMU1	BED	BCDD-I	33
15	Paradeep	33 KV Marshaghai O/G FDR	KED-2	KED-1	33
16	Dhenkanal	Chintapokhari	DED	TED	33
17	Cuttack	33 Kv B.C at Phulnakhara GRID	CED	BED	33
18	Cuttack	Cos board Pvt. Ltd	CDD-II	SED	33
19	Cuttack	Pragati Milk Product	CDD-II	SED	33
20	BBSR-2	Export through Bhusandapur to 33 KV BALIPADA FDR-	KHD	BaED	33

Circle	Division	Feeder type	Voltage Lvl	Description	Inter/Intra Div	From Division	To Division
BBSR-01	BCDD-01	11 KV O/G FEEDER	11 KV	11 KV SM RMU1	Inter-Div	BCDD-1	BCDD-2
BBSR-01	BCDD-02	11 KV O/G FEEDER	11 KV	11 KV BARAMUNDA DELTA	Inter-Div	BCDD-2	BCDD-1
BBSR-01	BCDD-02	11 KV O/G FEEDER	11 KV	11 KV IRC-3	Inter-Div	BCDD-1	BCDD-2
BBSR-01	BED	11 KV O/G FEEDER	11 KV	11 KV GANGESWAR	Inter-Div	BED	CED
BBSR-01	BED	11 KV O/G FEEDER	11 KV	11 KV BHINGARPUR	Inter-Div	BED	NED
BBSR-01	BED	11 KV O/G FEEDER	11 KV	11 KV GOBINDPUR RE	Inter-Div	BED	CED
BBSR-01	BED	11 KV O/G FEEDER	11 KV	11 KV TRINATH BAZAR	Inter-Div	BED	CED
BBSR-01	BED	11 KV O/G FEEDER	11 KV	11 KV PATASAINIPUR	Inter-Div	BED	NED
BBSR-01	NED	11 KV O/G FEEDER	11 KV	11 KV PIPILI	Inter-Div	NED	NED
BBSR-01	BCDD-02	11 KV O/G FEEDER	11 KV	11 KV Talagada Feeder	Inter-Div	BCDD-II (Godisahi Section)	KED (Jatamundia Section)

Benefits of the investment

Smart meter installed at these points 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 at inter-zone import export points to identify the actual energy input of the division. In addition to this Smart metering has following significant benefits.

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 Input of the division.
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 or 11kV Consumers feeders:
xi. More effective grid management:
xii. Cases of feeder overloading will be managed effectively and immediately.
xiii. Scheduled Outage or Unscheduled Outage can be monitored at PSCC effectively and will also be benefited out of this.

Conclusion

In view of the above, Hon'ble commission is humbly requested to consider and approve Rs.2 Crore in FY 2026-27 for development of hassle-free metering infrastructure at 33kV inter-Division import export points across TPCODL and 11kV Inter-division points of BBSR-1 Circle for Energy Accounting Purpose.

2.2.3 Feeder Loss Reduction through Length Reduction

Background

In the TPCODL license area, the 33kV network serves as the backbone of the power supply system, interconnecting various 33/11kV primary substations (PSS), where power is stepped down to 11kV for further distribution. However, in many areas, the 33kV feeders are constructed with lower-sized conductors are extended over long distances and are predominantly radial in nature. These characteristics contribute to frequent overloading and low voltage issues, which in turn lead to increased technical losses within the network. There are 23 no's of 33kV feeders which technical loss is more than 3% and 45 no's of feeder length is more than 30Ckm.

Proposal

In this proposal, TPCODL intends to implement proposals to reduce technical loss in the 33kV network through augmentation of feeders to strengthen the network, interlinking between

33kV feeders for load balancing and construction of new 33kV feeders nearby existing/ upcoming GSS to reduce the length of existing 33kV feeders.

Requirement/ Need of the Proposal

To reduce the technical loss and improve power supply reliability in the existing 33kV network, the following proposals are considered under capex 26-27 for selected 33kV feeders which cost effective & will also help in for power evacuation from upcoming OPTCL GSS, providing ring connectivity & N-1 connectivity.

i. It is proposed 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 proposed to have interconnectors in between existing 33kV network for better load balancing and 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.

It is proposed for construction of new 33kV feeder from nearby existing / upcoming OPTCL grids for load bifurcation & length reduction

Scope of Work

Table 17: Scope proposed for Loss Reduction of 33kV through Length Reduction

Sl. No	Circle	Division	GSS Name	33kV Feeder Name	Proposals	Estimated Cost (Rs. Cr)	Loss Saving with LLF (kW)
1	BBSR-II	KHD	Upcoming Hatabasta GSS	Proposed Hatabasta Feeder	New 33kV feeder for power evacuation from Upcoming Hatabasta GSS.	4.51	245
2	Cuttack	AED	Nuapatna GSS	Badamba Feeder	Augmentation of existing 33kV Badamba feeder.	7.28	241
3	Cuttack	CED	Chandikol GSS	Badachana Feeder	Augmentation of existing 33kV Badachana feeder.	10.37	370
4	Dhenkanal	DED	Gundichapada GSS	Dhakinakali Feeder	New linking line for Dakhinakali PSS from 33kV Gondia feeder.	3.34	50
5	Dhenkanal	TED	Upcoming Parjang GSS	Proposed Parjang Feeder	New 33kV feeder for power evacuation from Upcoming Parjang GSS.	2.99	366
6	Dhenkanal	ANED	Upcoming Athamalik GSS	Proposed Madhapur Feeder	New 33kV feeder for power evacuation from Upcoming Athamalik GSS.	1.49	299
Total						**29.99**	**1571**

The total cost for feeder loss reduction through length reduction is Rs. 29.99 Cr.

Proposed Cost with Estimate Break-up

Please refer to **Annexure-2** for details of BoQ for the above cost estimate.

Physical Target:

March 2027

Cost Benefit Analysis

Table 18: Cost Benefit through 33kV feeder Length reduction

Sr. No.	Description	Formula	New Value	UoM
A	Total cost of scheme	-	29.99	RS Cr
B	Additional load due to load growth	-	20291.3	kVA
C	Total kW due to load growth	BxPf(power factor)	19276.73	kW
D	Total units consumed yearly (Load x days x Hrs x load factor)	Cx365x24xLF	16886417	kWH
E	Power Purchase cost per unit	-	3.4	Rs.
F	Avg. Power Sale cost per unit	-	5.78	Rs.
G	Diff. (Sale-purchase)	F-E	2.33	Rs.
H	Revenue owing to serving additional load	(GxD)/10^7	3.93	RS Cr
I	Revenue owing to tech. loss reduction	Refer Technical Loss Calculation	4.68	RS Cr
J	Net Revenue Collected	H+I	8.61	RS Cr
K	Pay Back Period	100/K	3.48	Years

Benefit to the System and Consumers

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 33kV network.
iii. Voltage improvement in 33kV network due to load bifurcation & feeder length reduction.
iv. After execution of the above proposals, approx. 1.57 MW reduction in the technical loss is expected in the 33kV network.

2.2.4 Conversion of LT Bare to LT AB Cable

Background

In power distribution, LT network constitutes a critical element for last mile connectivity to the end consumers. Currently, a significant portion of the LT network relies on bare overhead conductors, which present multiple operational and commercial challenges. Bare conductors are highly susceptible to transient faults caused by external contacts, such as tree branches or accidental falling of foreign objects on the line. These frequent interruptions not only inconvenience consumers but also contribute to higher LT technical losses. In addition, bare LT lines are vulnerable to electricity theft through unauthorized direct hooking, leading to substantial revenue leakage and increased Aggregate Technical & Commercial (AT&C) losses.

Replacing bare LT conductors with Aerial Bunched Cables (ABC) offers a technically superior and commercially secure alternative. ABC provides insulation, ensures adequate safety clearances, minimizes transient faults, and significantly curtails theft, thereby supporting both operational efficiency and financial sustainability.

Proposal

TPCODL proposes to undertake systematic conversion of LT bare overhead conductors into LT AB Cable across identified network segments. The adoption of LT AB cable will help in mitigating frequent transient tripping and enhance consumer satisfaction while simultaneously reducing the electricity theft.

Requirement/ Need of the Proposal

The conversion from LT bare to LT AB Cable is necessitated by the following factors:

i. **Reduction of Faults:** LT AB Cable minimizes transient faults caused by external contacts, thereby reducing interruptions to consumers.
ii. **Mitigation of Theft:** Direct hooking on bare conductors will be effectively eliminated, reducing pilferage of electricity and lowering AT&C losses.
iii. **Revenue Protection:** By curbing unauthorized connections, the scheme will safeguard revenue and contribute to financial efficiency.
iv. **Improved Safety:** LT AB Cable provides enhanced safety by ensuring adequate clearance from consumer premises and reducing the risk of accidental electrocution.

<u>Statutory Compliance requirement</u>

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 19: LT AB Cable Size Wise Quantity

Sl. No	Description	Per Unit	Cost per Unit (in Rs. Cr)	Quantity	Total Cost (In Rs. Cr)
1	Conversion Bare to AB Cable using - LT ABC 4C×95 mm² (P)+1C×95 mm²(M)+1CX16 mm²(Street Light) and 9 Mtr. PSC pole	kM	0.09	42.00	3.88
2	Conversion Bare to AB Cable using - LT ABC- 4C×70 mm² (P)+1C×70 mm²(M)+1CX16 mm²(Street Light) and 9 Mtr. PSC pole	kM	0.06	75.00	4.76
3	Conversion Bare to AB Cable using - LT ABC - 4C×50 mm² (P)+1C×50 mm²(M)+1CX16 mm²(Street Light) and 9 Mtr. PSC pole	kM	0.05	181.00	9.27
4	Conversion Bare to AB Cable using - LT ABC 4C×35 mm² (P)+1C×35 mm²(M)+1CX16 mm²(Street Light) and 9 Mtr. PSC pole	kM	0.04	45.00	1.90
5	Conversion Bare to AB Cable using - LT ABC 2X35 + 1X25nLT AB Cable and 9 Mtr. PSC pole	kM	0.03	9.00	0.26
6	**Total**			**352**	**20.08**

The total cost for conversion of LT Bare to LT AB Cable is approx. Rs. 20.08 Cr.

Proposed Cost with Estimate Break-up

Please refer to **Annexure – 3** for details of BoQ for the above cost estimate and Locations covering the scope of work.

The Project is targeted to be completed by March-2027.

Cost Benefit Analysis

A. Commercial Loss Reduction			
Sr No	**Particulars**	**UoM**	**Value**
1	Span/ km (1 span=40m)	No	25
2	Hooking/ Span	No	5
3	Units/ hooking (after conversion to new consumers/ increase after parallel hooking removal)/month	Units	50
4	months (after full replacement)	No	12
5	Additional Units Available (Annual) per KM AB Cable	MU	0.075
6	Total Scope for FY 2025-26	KM	352.00
7	**Additional Energy due to reduction in Commercial Losses**	**MU**	**26.40**

Cost Benefit Analysis		
Particular	**UoM**	**Value**
Additional Energy due to reduction in Commercial Losses	MU	26.40
Additional Energy due to reduction in Technical Losses (Estimated)	MU	2.68
Total Additional Energy due to reduction in AT&C Losses	MU	29.08
LT ABR Approved in Tariff Order FY 2025-26	Rs/kWh	5.07
Additional Revenue	Rs. Cr	14.74
Total Investment Proposed	Rs. Cr	20.08
Payback Period	Years	**1.36**

Tangible Benefits

Reduced Theft: ABC systems are designed to minimize electricity theft, which can provide significant financial benefits for power utilities.

Intangible Benefits

i. Improved Safety:
   a. Reduced Electrocutions: The insulation of conductors in ABC cables significantly lowers the risk of accidental electrocutions for people and animals, making the system safer.
   b. Enhanced Fire Prevention: ABC cables are better suited for areas prone to bushfires, like forests and rural regions, reducing fire hazards compared to bare wires.

ii. Increased Reliability and Stability
   a. Fewer Outages: The bundled and insulated design protects against external disturbances like tree branches and lightning strikes, leading to fewer power interruptions.
   b. Better Performance in Harsh Conditions: ABCs are designed to withstand adverse weather, including intense sunlight, heat, and cold, providing a more dependable supply in all conditions.

iii. Reduced Power Losses & Improved Voltage Regulation
   a. Lower Losses: ABC cables have higher energy efficiency and lower overall system losses, as the close proximity of insulated conductors minimizes energy loss through electromagnetic fields (induction and radiation) compared to bare conductors.
   b. Better Voltage Regulation: This efficient energy transfer leads to better voltage regulation, providing a more stable and reliable power supply to consumers.

iv. Lower Operational & Maintenance Costs

a. Reduced Maintenance: Less need for frequent tree trimming, fewer fault repairs, and protection against environmental damage translate to lower maintenance costs.
b. Faster Installation: ABCs are easier and faster to install, especially in difficult terrains or congested urban areas, reducing project implementation time.
c. Ease of Connections: Insulation-piercing connectors (IPCs) allow for quick and safe connections to the network without the need to strip insulation.

v. Aesthetic Improvement:

a. In urban areas, bundled cables are often considered more aesthetically pleasing than traditional bare overhead lines.

2.3 Reliability

The proposed budget for Reliability under CAPEX FY 2026-27 is Rs. 282.00 Cr. The details of the same are as given in the table below:

Table 20 : Break up of Capital Expenditure under Reliability

Major Head	Activity	Capex Plan for FY 2026-27 (in Rs. Cr)
Reliability	Grid Sub-Station Automation System with SCADA enablement of Conventional Substation	18.89
	SCADA and Communication Strengthening of existing PSS	2.00
	33KV Network Infrastructure	80.00
	11KV Network Infrastructure	89.78
	Addition/upgradation of network components at 33/11 kV PSS for reliability improvement	51.18
	LT DB Installation for LT Protection	40.00
	Total	282

The description of the various schemes are as under

2.3.1 Grid Sub-Station Automation System with SCADA enablement of Conventional Substation

Background

Tata Power Central Odisha Distribution Limited (TPCODL), a joint venture between Tata Power (51%) and the Government of Odisha, began operations on June 1, 2020, after taking over from the erstwhile CESU. The company serves a large distribution area of about **29,354 square kilometres**, catering to a population of nearly **1.36 crore** people. With a customer base of around **32.96 lakh**, TPCODL is responsible for ensuring reliable electricity supply across Central Odisha. Its extensive distribution network includes approximately **4,265 circuit kilometres of 33 kV lines, 29,821 circuit kilometres of 11 kV lines and 41,568 circuit kilometres of low-tension lines**, **375 no. of Primary Substations,** making it one of the largest power distribution utilities in the region.

Initial Status at the Time of Inception:

At the time of vesting, TPCODL inherited 33/11 kV **conventional Primary Substations (PSS)** from erstwhile CESU. The substations were equipped with **electro-mechanical/static relays and control panels**, which were not SCADA compliant. This limited the monitoring and control capability of the substations, thereby impacting reliability, fault restoration time, and operational efficiency. SCADA was there for 52 Nos. RAPDRP stations and 4 PNP stations. It was not utilised for centralised remote control and monitoring.

Scope Completed Since Vesting:

TPCODL has already implemented a **state-of-the-art SCADA system**, enabling real-time monitoring and operations of the network. Till date, **253 PSS** have been automated and integrated with SCADA.

And it is planned to automate a cumulative of 328 PSS by March 2026.

In FY 2026-27 we are proposing to cover 28 stations under the GSAS scheme.

Then we will be left out with 19 stations which can be completed in FY27-28.

Proposal

Implementation of **Grid Substation Automation System (GSAS)** across all Primary Substations (33/11 kV) by replacing obsolete/non-communicable relays and control panels with **SCADA-compliant equipment**, ensuring **real-time remote monitoring and control** from the Power System Control Centre (PSCC).

28 and 19 PSS are proposed for this Grid sub-station automation system in 2 phases for FY 27 and FY 28 respectively.

Requirement/ Need of the Proposal

i. **Deficiency in the Existing System**
   a. Conventional substations with outdated electro-mechanical/static relays are **not SCADA compliant**.
   b. Inability to monitor and control substations remotely delays **fault isolation, restoration, and preventive maintenance**.
   c. Increased **Mean Time to Restore (MTTR)** and reduced network reliability.

ii. **Benefits of the Proposed Arrangement**

a. Centralized monitoring and control from PSCC.
b. Faster fault detection, isolation, and restoration.
c. Improved operational efficiency and asset reliability.
d. Reduction in downtime and customer interruptions.

iii. **Statutory Compliance**

a. Ensures compliance with **CEA guidelines** and regulatory directives for **automation, safety, and reliability**.
b. Supports the transition towards a **Smart Grid framework** as per national roadmap.

Scope of Work

i. Replacement of non-communicable relays/control panels with IED-based (Intelligent Electronic Device) SCADA-compliant relays.
ii. Integration of PSS with the existing SCADA system.
iii. Phase-wise execution as per approved roadmap.
iv. Installation of State-of-the-art CRP in place of old dilapidated CRP
v. SCADA enablement – including installation of RTUs

TPCODL has planned to implement Grid sub-station automation along with SCADA enablement in 28 No's of PSS within Rs. 19 Crore.

Proposed Cost with Estimate Break-up

Table 21 : Material wise quantity proposed for FY 26-27 under GSAS Budget

Material Description	UoM	Quantity	Unit Rate (Rs.)	Unit Rate (Rs.)	Estimated Value of Material (Rs.)
CR PANEL FR 3 FEEDER PROTECTION(33/11KV)	EA	46	700085	826100.3	3,80,00,613.80
CR PANEL FOR 2 TRF FDR PROTECTION 33 KV	EA	24	677000	798860	1,91,72,640.00
BCPU	EA	57	88500	104430	59,52,510.00
CABLE 1.1KV CU12CX2.5 SQMM ARMOURED PVC.	M	15000	344.91	406.9938	61,04,907.00
1.1KV ARMRD CUCONTROL CABLE-16Cx2.5SQMM.	M	10000	444.06	523.9908	52,39,908.00
1.1KV ARMRD CU CONTROL CABLE-4Cx2.5SQMM.	M	20000	126.69	149.4942	29,89,884.00
CONTROL CABLE CU PVC 1.1KV7Cx2.5MM2 ARM.	M	10000	196.36	231.7048	23,17,048.00
Switchgear (2I/C + 4OG + 1BC + 2BPT) +ITC	SET	4	11013097	12995454	5,19,81,818.00
Control Room		2			60,00,000.00
Services					3,11,64,939.00
SCADA Enablement		10			2,00,00,000.00
Total Cost					**18,89,24,267.80**
Total Cost (Rs. Cr)					**18.89**

SCADA Enablement Cost Break-up

Item Description	No. of Locations	Rate	Total Budget Required
SITC of RTU at PSS	10	10,00,000.00	1,00,00,000.00
DC System at PSS with charger	10	6,00,000.00	60,00,000.00
Miscellaneous services	10	4,00,000.00	40,00,000.00
Total Budget Required			**2,00,00,000.00**

Table 22 : Station wise cost estimate proposed for FY 26-27 under GSAS Budget

SL NO	CIRCLE	DIVISION	PSS NAME	ESTIMATED COST (Rs.)
1	BBSR2	Khordha	Sunadeimundia	33,72,500
2	BBSR2	Khordha	Jatamundia	34,67,572
3	PDP	JED	Nabapatna	35,30,084
4	BBSR2	Nayagarh	NUAGAON	35,30,084
5	DKL	TED	KHAMAR	36,96,460
6	DKL	TED	Kaniha	38,00,324
7	DKL	AnED	Bantala	38,86,604
8	PDP	KED1	Aul	40,05,444
9	CUTTACK	AED	BADAMBA	46,85,924
10	DKL	AnED	JARAPADA	46,85,924
11	PDP	JED	Sova	46,85,924
12	BBSR2	PED	CHANDANPUR	46,85,924
13	PDP	KED2	Mahakalpada	48,04,764
14	BBSR2	Nayagarh	GANIA	48,14,864
15	BBSR2	PED	SUNAMUNHI	1,82,93,637
16	PDP	PDP	RAHAMA	1,82,93,637
17	BBSR2	PED	SATASANKHA	1,94,12,041
18	CUTTACK	AED	NUAPATNA	1,99,11,169
19	DKL	DED	KALIAPANI	12,55,840
20	DKL	AnED	Anandpur	23,74,244
21	DKL	AnED	MADHAVPUR	25,40,620
22	PDP	KED1	Indupur	36,96,460
23	DKL	AnED	CHHENDIPADA	41,00,516
24	DKL	DED	Kankadahad	46,85,924
25	PDP	JED	Balikuda	46,85,924
26	PDP	PDP	Trilochanpur	10,69,560
27	CUTTACK	CED	PALDHUAPADA	32,66,376
28	BBSR1	NED	BALAKATI	76,85,924
TOTAL COST (Rs.)				**16,89,24,268**
TOTAL COST (Rs. Cr)				**16.89**

Table 23 : Station wise list proposed for FY 27-28

SL NO	CIRCLE	DIVISION	PSS NAME
1	DKL	TED	IGIT SARANG
2	DKL	DED	DAYANABIL
3	DKL	DED	GODA
4	CUTTACK	AED	KHUNTUNI
5	DKL	TED	PARABIL
6	DKL	TED	RENGALI
7	CUTTACK	CED	BAHUGRAM1
8	PDP	KED1	PATRAPUR
9	CUTTACK	AED	TIGIRIA
10	CUTTACK	AED	NARANGBASTA
11	BBSR2	NAYAGARH	KANTILO
12	DKL	DED	MATHAKARGOLA
13	PDP	KED2	MARSHAGHAI
14	DKL	ANED	BAMUR
15	DKL	TED	SAMAL
16	PDP	KED1	RAJNAGAR
17	DKL	DED	BADASUANALA
18	BBSR2	NAYAGARH	BOLAGARH
19	BBSR2	PED	ATHARNALA

Cost-Benefit Analysis

i. Avoided equipment damage and reduced failure rates.
ii. Faster restoration will improve reliability.
iii. Lower O&M costs due to remote supervision.

   a. TPCODL currently operates 375 PSS (Power Substations), out of which 253 have already been integrated with SCADA under the GSAS scheme by FY25. To operate these substations in compliance with statutory norms, a total manpower of 2,632 is required. However, TPOCDL is managing operations with only 1,873 personnel, thereby optimizing manpower cost.

iv. Enhanced regulatory compliance and customer satisfaction.

Benefit to the System and Consumers

For the System:

i. Reliable and resilient grid with real-time monitoring.
ii. Enhanced control and operational efficiency.
iii. Reduced breakdowns and preventive maintenance support (Faster restoration will improve reliability).
iv. Readiness for Smart Grid integration.

For Consumers:

i. Reduced outage duration.
ii. Improved reliability and power quality.
iii. Better customer satisfaction due to faster service restoration

2.3.2 SCADA and Communication Strengthening of existing PSS

Background

TPCODL has been in the forefront, in adoption of latest technology in the power utility sector pan Odisha. Together with its culture of Consumer Service Excellence, Continuous Learning, Performance Orientation, Innovation and Empowerment, it has been able to set benchmarks in accelerated reduction of tripping, equipment failure, enhance consumer satisfaction and improve employee productivity.

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 feature utility works round the clock to minimize equipment failure, equipment down time and faster restoration thus ensuring reliability. All the utility across the globe moving towards deployment of technology to make the Grid smarter in order to ensure operation excellence and serve the consumer with green and continuous power supply with any interruption. To achieve the TPCODL Vision and Mission, TPCODL deploying the latest technology for automation of Primary Substation for Centralized monitoring and control of entire distribution network for faster decision making and corrective action for restoration of the network ensuring.

TPCODL already deployed Substation Automation System in FY 20-21 and till now integrated 57 Nos. of R-APDRP/IPDS/PNP substations, 130 Nos. of ODSSP substations and 66 Nos of

Conventional substations in phased manner from a centralized location in Bhubaneshwar. – Total of 253 Nos.

Brief of Proposal and Necessity

It is proposed to upgrade and strengthen Substation Automation System & Network Infrastructure by replacing the existing old RTUs in 52 Nos 33/11kV PSS and provisioning of industrial-grade Ethernet switches with structured network cabling (FO/ LAN) for higher system availability and enhanced reliability.

Modernization & Upgradation of 33/11kV PSS Substation Automation & Network Infrastructure under RAPDRP:

The existing RTUs installed under RAPDRP, IPDS, and PNP schemes—covering critical areas in Bhubaneswar, Cuttack, and Puri Town—have exceeded their vendor support lifecycle. This has resulted in frequent SCADA system unavailability, data outages, and increased maintenance overhead. Furthermore, the absence of redundant, managed communication switches poses a significant risk to network reliability, introducing single points of failure.

In addition to above following aspects are to be enhanced:

i. Obsolesce of Hardware, Spares & Support
ii. Missing latest upgradation, scalability & flexibility
iii. Non-compliance of Cybersecurity features & NCIIPC, Cert-IN Standards
iv. Reduced reliability & Performance
v. Non-Redundant RTU
vi. Interoperability Issue with Morden protocols like IEC-61850

The proposed arrangement will ensure improved uptime, SCADA visibility, cyber resilient system, and regulatory compliance across substations.

Statutory Compliance Requirement

All statutory requirement complied as and when required for the proposed CAPEX plan.
The communication infrastructure proposed for the integration of SCADA & Substation Automation System are from the services of Network Bandwidth Service Provider (NBSP). All statutory compliance with respect to communication infrastructure will be managed by NBSP in consultation with TPCODL.

The proposed SAS System will have the provision to comply all the guidelines issued of CERT-IN, NCIIPC during the implementation.

Proposal for the Capex Investment

TPCODL has identified a number of challenges related to Safety, 33KV/11KV Substation Automation infrastructure and Technology usage. These challenges are planned to be addressed through a systematic investment plan by TPCODL. The proposed "Capex Plan" represents a justified and efficient level of total capital investment estimated by TPCODL to meet the service obligation; improving safety, reliability of network and level of service standards.

Table 24 : Summary of Requirement

Sl. No.	Activity Planned	Capex Proposed (FY 2026-27)
1	Upgradation of Substation Automation System at 22 Nos of 33/11kV PSS at Cuttack City	1.27
2	Strengthening of Network Infrastructure at 22 Nos of 33/11kV PSS at Cuttack City	0.73
3	**Total Cost (Rs. Cr)**	**2**

Scope of the Proposal

In TPCODL there are approx. 52 Nos. of 33/11 kV Sub-stations under RAPDRP and are planned to upgrade the substation automation system & network infrastructure in two subsequent financial years. i.e. FY27 to FY28.

The proposal of FY 2026-27 is only for Cuttack city as mentioned in the table below:

Sl. No.	Scope of Work	No. of Substation	Execution Plan
1	Upgradation of Substation Automation System & Network Infrastructure at 33/11kV PSS of Cuttack Town Under RAPDRP	22	FY 2026-27

Table 25 : List of PSS to be covered

S.N	Primary Substation	Division
1	33/11kV Kalinga substation	CDD1
2	33/11kV Matamatha Substation	CDD1
3	33/11kV Drda Substation	CDD1
4	33/11kV Matagajpur substation	CDD2
5	33/11kV Jobra substation	CDD1
6	33/11kV Ogp substation	CDD2
7	33/11kV Badambadi substation	CDD2
8	33/11kV Sector-3 Substation	CDD1
9	33/11kV Medical Substation	CDD1
10	33/11kV Cda 6 substation	CDD1
11	33/11kV Old jail Substation	CDD1
12	33/11kV Chauliaganj substation	CDD2
13	33/11kV Crri substation	CDD2
14	33/11kV Jagatpur-1 substation	CDD2
15	33/11kV Gopalpur substation	CED
16	33/11kV High Court Substation	CDD1
17	33/11kV Ranihat Substation	CDD1
18	33/11kV OSAP Substation	CDD2
19	33/11kV Bentkar Substation	CDD2
20	33/11kV Japakuda Substation	SED
21	33/11kV Ipicol Substation	CDD2
22	33/11kV Mahandivihar Substation	CDD2

Cost Estimation and Execution Timeline

Table 26 : Detailed BOM for requirement under existing PSS SCADA enablement

SL. No	Proposal	Details	Total PSS	Total Qty	UoM	Unit Price	Total Cost
1	Existing RTU Replacement - under RAPDRP, IPDS scheme.	RTU - Cuttack - (22)	22	22	Nos.	5,76,000	1,26,72,000
2	SITC of Ethernet Switches for PSS - 16 Ports(12 Cu, 4 FO) (52 Nos) 3 Ethernet switches per PSS	Ethernet Switches with LAN Cabling LAN Cabling : 22 Nos PSS.	22	66	Nos.	90,000	59,40,000
3	Inter connection of extended substations on Fibre Link	1. 4 Nos. RS485 and 2Nos. Ethernet Ports Serial Server: 1 No./PSS	22	22	Nos.	30,000	6,60,000
		2. LIU with Adaptor plate & Adaptor: 12 Nos./PSS	22	44	Nos.	4,000	1,76,000
		3. Pre fab Patch cable 8 Nos./PSS	22	132	Nos.	200	26,400
		4. 12 Core SM armoured FO Cable: 800 Meters/PSS	22	8800	Meter	35	3,08,000
4	SITC of Diode - Oring or RAPDRP - ODSSP	20Amp Rating 24/48V Diode Oring Unit: 2 Nos. per PSS	22	22	Nos.	10,000	2,20,000
5	**Total**						**2,00,02,400**
	Total (Rs. Cr)						**2.00**

The entire Project execution to be completed by March – 2027

Benefits (Tangible & Intangible)

Upgradation of Substation Automation System would ensure optimum resource utilization and functionalities used in the SCADA System along with enhancement reliability and higher system availability. Other benefits include:

i. Improved SCADA Data Availability through modern automation hardware and reliable communication architecture.
ii. Reduction in Maintenance Efforts and Downtime due to supportable, upgraded, and standardized equipment.
iii. Cost Savings over the long term by eliminating recurring failures and manual interventions.
iv. Enhanced System Reliability and Uptime, contributing to better grid stability and customer satisfaction.
v. Future Scalability and Flexibility to integrate modern substations and advanced protocols (e.g., IEC-61850).
vi. Cybersecurity and Regulatory Compliance, aligning with guidelines of NCIIPC, CERT-In, and national standards.
vii. Operational Efficiency through improved data visibility, faster response times, and reduced manual dependency.
viii. Improved Interoperability across multivendor devices using standardized protocols.

Benefits to Customer

i. Reduction in restoration time of outage
ii. Improved reliability of service
iii. Better control of power quality and enhanced use of reactive power sources
iv. Useful feedback information to the customer in terms of expected outage duration time etc.
v. Monitoring the potential quality problems and also the reliability problems due to supply interruptions.

Indirect Savings/Improvements

i. Reduction in overall maintenance and inventory carrying cost.
ii. Strengthening of existing operational technology infrastructure.
iii. Detection and protection of operational system from Cyber Security vulnerabilities.
iv. Improvement in reliability of power supply to consumers.

2.3.3 33kV Network Infrastructure

Background

In TPCODL licensed area, 33kV network forms the backbone of the power supply system. This network is widely spread across the region and connects various 33/11kV Primary Substations (PSS), where power is stepped down to 11kV for further distribution. The 33kV feeders are critical assets for the distribution utility, as they interconnect power substations and ensure reliable power supply to end consumers.

To strengthen the existing network and address operational challenges, the following key intervention areas have been identified:

i. **33kV Feeder Overloading Mitigation** to improve reliability of the network and reduce technical losses.

ii. **33kV Network Refurbishment** to replace aging infrastructure and improve network operational performance.

iii. **Enhancement of Reliability of the 33kV Network**, with a focus on critical areas such as Bhubaneswar city, Cuttack city, industrial zones and other strategically important locations.

iv. Addition of network improvement technology to improve reliability.

Proposal

In this proposal, TPCODL intends to mitigate overloading and improve reliability of the 33kV feeders by feeder augmentation, feeder interconnection and construction of new feeders.

Requirement/ Need of the Proposal

33kV Feeder overloading Mitigation

In the existing condition (Summer-25), out of 278 Nos. 33kV feeders, 25 Nos. 33kV feeders are identified to be overloaded (loading≥100%), out of which 1 No feeder is dedicated feeder.

From 24 Nos. feeders, 10 Nos. 33kV feeders are below 110% and 14 Nos. are above 110%. All these feeder overloading mitigations are work under progress under different schemes (CAPEX & govt. schemes)

With 2 years load growth, 48 Nos. 33kV feeders will be overloaded (loading ≥100%) However, since there are many proposals are ongoing, only 7 Nos. 33kV feeder for which no proposal is available and same has been considered under CAPEX FY: 2026-27.

Table 27 : 33kV Feeders Over – load mitigation Proposals

Circle	Total	Overloaded Feeder and Mitigation Scheme								
		CAPEX 24-25	CAPEX 25-26	ODSSP PH-III	ODSSP PH-IV	GSS commissioning under SCRIPS	CMPDP	SDMF	CAPEX 26-27	Dedicated
BBSR-I	13		4	1	1	3			3	1
BBSR-II	11		3		2		3	1	2	
Cuttack	6		1				3		2	
DKL	11	1	4		4		2			
PDP	7	1	3		2			1		
Grand Total	**48**	**2**	**15**	**1**	**9**	**3**	**8**	**2**	**7**	**1**

Overloading of 33kV feeders leads to increased technical losses, frequent voltage fluctuations and a higher risk of feeder tripping, especially during peak demand periods. In order to mitigate the overloading of the 33kV feeder proposals are identified after subsequent interaction with field teams. Overloading mitigation done through below initiatives:

i. Augmentation of feeder capacity by upgrading conductor size and associated infrastructure – 1 Nos.
ii. Load bifurcation through 33kV bus splitting at PSS – 4 Nos.*
iii. Interconnections with nearby feeders to enhance load-sharing capability and enhance network reliability – 2 Nos.

**2 Nos. 33kV bus splitting at PSS proposals, cost has been considered under Load Growth 'Power Transformer Augmentation and Addition' activity.*

These initiatives will contribute significantly to improving the reliability of the network, also reducing technical losses and improving quality of power supply for consumers.

The overloading mitigation of 7nos. overloaded 33kV feeders is proposed under CAPEX FY: 2026-27.

33kV Network Refurbishment

The 33kV network in the TPCODL licensed area includes a significant portion of undersized conductors, long spans, compromise vertical and horizontal clearances which leads to frequent breakdowns and prolonged shut down to the consumers. Most of these 33kV lines are very old, having porcelain insulators susceptible to repeated failures and pass-through paddy fields, difficult terrains and dense vegetation which requires urgent refurbishment. Refurbishment of this network is essential to strengthen the existing 33kV network by adding additional interposing poles, new conductors and associated accessories to meet the load demands, reliable power quality and safety standards. This initiative will enhance the current carrying capacity of feeders, reduce fault rates, improve voltage regulation and ensure reliable and uninterrupted power supply to consumers. Total number of undersized conductors. In the existing system, total 33kV feeder length is 4797Ckm (which includes OH+UG). Details of 33kV overhead conductor is given below:

Table 28 : 33kV Feeders of various conductor sizes in the System

Conductor Size	AS IS condition	March-2026 (with ongoing proposals)
34sqmm	15	10
55sqmm	165	148
80sqmm	193	137
100sqmm	1854	1766
148sqmm	1158	1541
173sqmm	104	104
232sqmm	723	924
Total	**4212**	**4630**

A total of 13 Nos. of 33kV feeder conductor augmentation is proposed for length of 108Ckm (148sqmm: 37.5Ckm, 232sqmm: 70.5Ckm) under CAPEX FY: 2026-27.

33kV Network Interconnection for ring connectivity

Most of the 33kV feeders and associated feeders are connected in radial nature. The 33kV interconnection enables the ring connectivity and help in load diversion during contingency situations and help in load bifurcation thereby reducing the risk of overloading on individual feeders. This helps provide alternative power supply to affected network during faults, maintenance, minimizing supply interruptions to consumers. This improves restoration time, reduces feeder tripping incidents and supports load growth without the immediate need for large-scale infrastructure expansion. Overall, feeder interconnection contributes to a more resilient and responsive distribution network across the TPCODL licensed area.

The 33kV ring connectivity considered for 10 Nos. 33kV feeders and 15nos. of PSS will have second connectivity under CAPEX FY: 2026-27.

Equipment for network Improvement

i. Fault Passage Indicator

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.

234 sets of FPI has been considered for 33kV Infrastructure under CAPEX FY: 2026-27.

ii. Provision of Ring Main Unit at T-off points and PSS for 33kV bus sectionalisation

A) RMU at T-OFF of 33kV Network

In the existing 33kV network, HT consumers and PSS are connected with T-off arrangement without any protection. During any fault in this T-off section, the entire 33kV feeder gets affected by opening of the breaker at GSS/ PSS. This causes unnecessary shutdowns to all the consumers connected in the feeder. Fault finding and isolation also takes longer duration during this breakdown period. In order to address this issue, 33kV RMUs are proposed at the T-off locations for quick identification and faster restoration.

Total no. of T-offs	33kV RMUs installed in the T-offs	RMU required at remaining T-off points	Ongoing under CAPEX FY: 2025-26	RMU considered under CAPEX FY: 2026-27
360	42	318	5	7

B) On-load bus sectionalisation operation at PSS with RMU

Most of the PSS are designed with continuous bus arrangement or bus isolator arrangement. So, in case of continuous bus arrangement even if there are 2nos. sources are present at the PSS, only 1no. source is able to feed the PSS and second source remains idle. It is therefore required to commission 33kV RMU as bus splitting arrangement so that both sources are optimally loaded with flexibility in operation. Similarly, there are PSS which are having bus sectionalising arrangement with off-load isolator also requires momentary shutdown of both feeders in order to changeover the source feeding both the transformers of the PSS. There are 56nos. PSS in BCDD-1, BCDD-2, BED and below are the proposals for bus sectionalisation under different schemes.

i. 4 Nos. PSS (Uttara, Baramunda, Nayapalli & Naharkanta), on-load operation for bus sectionalisation has been completed through 33kV RMU under CAPEX.
ii. 6 Nos. PSS (Unit-8, Badagada, Shantipally, Satyanagar(New), Kharvel Nagar & Bapuji Nagar) bus sectionalisation completed for on-load operation completed under SCRIPS.

iii. 3 Nos. PSS (Phulnakhara, Mancheswar & C.s.pur-1), bus sectionalisation work-in-progress under CAPEX FY: 2025-26.

iv. 9 Nos. PSS, bus splitting is considered under CAPEX FY: 2026-27 (5nos. PSS (Unit-4, Unit-3, Sainik School, Kanan Vihar & Rasulgarh), 33kV RMUs are proposed for bus splitting and 4nos. PSS (Board Colony, Dumduma, Mulapadia & Lingipur), bus splitting is covered along with 33kV feeder).

22nos. PSS the bus sectionalisation with on-load operation will be achieved after completion of CAPEX FY: 2026-27.

Ring Main Unit is a compact Gas Insulated Switchgear cubicle equipped with SF6 Switch Disconnector 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 with 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:

i. 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.

ii. Working with IEDs allows remote operation. SCADA implementation is easy with smart Ring main units.

iii. The space occupied by RMUs is less as they are Gas Insulated Switchgear.

iv. The time taken for installation and commissioning of RMUs is very less. RMUs require less maintenance.

Scope of Work

Table 29 : 33kV Feeders Proposals for Reliability enhancement over the years

Sl. No.	Proposed Head	Cost (in Cr.)	Annexure No
1	33kV Overloading Mitigation	6.02	Annexure- 4.1
2	Reliability Improvement for -BBSR City	26.31	Annexure- 4.2
3	Reliability Improvement for -Cuttack City	0.95	Annexure- 4.3
4	Reliability Improvement for -Industrial Area	6.91	Annexure- 4.4
5	Reliability Improvement for -Other Area	6.91	Annexure- 4.5
6	33kV Network Refurbishment	26.24	Annexure- 4.6
7	33kV RMU at T-off's and PSS Bus Splitting	5.49	Annexure- 4.7
8	33kV FPI	1.17	Annexure- 4.8
	Total cost for 33kV Network Infrastructure	**80.00**	

The total cost for 33kV Network Infrastructure is approx. Rs. 80.00 Cr.

Proposed Cost with Estimate Break-up

Please refer to **Annexure-4** for details of BoQ for the above cost estimate.

Physical Target: March 2027

Cost Benefit Analysis

The detailed cost benefit analysis is attached in the **Annexure-4.**

Benefit to the System and Consumers

Implementation of the proposed initiatives under this section will mitigate the overloading of 33kV feeders, strengthen the 33kV network, thereby enhancing the overall quality and reliability of power supply to consumers. These measures will improve system stability, reduce outages and ensure quality power supply.

2.3.4 11 kV Network Infrastructure

Background

In the TPCODL licensed area, the 11kV network serves as the primary distribution backbone for delivering electricity from 33/11kV primary substations (PSS) to end consumers. This network is extensively spread across both urban and rural regions and plays a crucial role in ensuring last-mile connectivity. The 11kV feeders are vital assets for the distribution utility, as they directly impact the quality, reliability and efficiency of power supply to consumers.

To strengthen the existing 11kV network, reduce the length of the lengthy feeders and address the reliability challenges the following key intervention areas have been identified:

i. Enhancement of Reliability of the 11kV Network, with a focused approach in high-density urban areas such as Bhubaneswar city and Cuttack city, as well as industrial belts and other critical zones where uninterrupted power supply is essential.
ii. Mitigation of issues due to lengthy 11kV feeders in order to mitigate low voltage issues and improve reliability of power supply to the consumers.
iii. 11kV Network Refurbishment to replace lower sized conductors and associated infrastructure, thereby improving reliability of power supply.
iv. Addition of network improvement technology to improve power supply reliability and faster restoration.

Proposal

In this proposal, TPCODL intends to improve reliability and reduce the length of lengthy 11kV feeders by feeder augmentation, feeder interconnection and construction of new feeders.

Requirement/ Need of the Proposal

Enhancement of Reliability of the 11kV Network

The enhancement of the 11kV network is imperative to ensure reliable and uninterrupted power supply in high-density urban areas such as Bhubaneswar and Cuttack, as well as in critical zones including industrial belts and other essential infrastructure. These regions are experiencing rapid load growth and host critical services where power outages can lead to significant economic, safety and operational disruptions. The existing 11kV infrastructure faces challenges such as overloading during N-1 contingency condition, limited redundancy, frequent faults due to network inadequacy such as DSS connecting to network without any protection device and inadequate capacity for future expansion. Strengthening the network is essential to improve supply reliability, reduce technical losses and ensure quality power supply.

11kV Feeder Length Reduction

In the existing TPCODL area, there are some lengthy feeders where the feeder length exceeds 50Ckm. This issue leads to voltage drops, increased technical losses and reduced power supply reliability. To address the issues, the construction of new 11kV feeders and bifurcation of existing lengthy feeders is essential. The proposals required will help in load diversion, reduce feeder length, improve voltage profiles and enhance the overall reliability of the network.

The 11kV network interconnection enables the diversion of load during peak demand or contingency situations, thereby reducing the risk of overloading on individual feeders and improving power quality. They also provide alternative power supply routes in case of faults/ maintenance, minimizing supply interruptions to consumers. Feeder interconnection

contributes to a more resilient and responsive distribution network across the TPCODL licensed area.

Table 30 : 11kV Feeders Length reduction (for length > 50 Ckm) for Reliability enhancement over the years

No of Feeders length in FY21	No of Feeders length by March '25	To be completed by March'26	Considered under CAPEX FY:2026-27
191	137	46	29

There are 137nos. 11kV feeders where the length is more than 50km. Out of the 137nos. feeders, 46nos. of 11kV feeder length reduction will be mitigated either through NOP change or from ongoing proposals WIP under different govt. and Capex schemes. Further out of the remaining 91nos. 11kV feeders, length reduction of 29nos. 11kV feeders are considered under CAPEX FY: 2026-27. The rest 62nos. 11kV feeder length reduction will be planned in subsequent schemes.

The length of the 11kV feeders can be reduced by the following 3 categories:

i. Reduction of 11kV feeder length by laying new 11kV feeders from existing PSS
ii. Reduction of 11kV feeder length by laying new 11kV feeders from approved upcoming PSS which are presently under execution
iii. Reduction of 11kV feeder length by proposing new 33/11kV PSS and laying new 11kV feeders from proposed PSS

11kV Network Refurbishment

The 11kV network in the TPCODL licensed area includes a significant portion of undersized conductors which leads to frequent breakdowns, higher technical losses and reduced reliability. Refurbishment of the network is essential to meet peak load demands and upcoming load growth in the areas. This will enhance the current carrying capacity of feeders, reduce fault rates, improve voltage regulation and ensure reliable and uninterrupted power supply to consumers.

Total 1066Ckm is required in 220nos. of feeders for 11kV network refurbishment, out of which only 7.21Ckm in 6nos. of feeders is considered for conductor refurbishment under CAPEX FY: 2026-27.

Equipment for network Improvement

i. Fault Passage Indicator

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.

ii. Ring Main Unit

Ring Main Unit is a compact Gas Insulated Switchgear cubicle equipped with SF6 Switch disconnector 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 with 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 11kV 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:

a. 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.
b. Working with IEDs allows remote monitoring and operation. SCADA implementation is easy with smart Ring main units.
c. The space occupied by RMUs is less as they are Gas Insulated Switchgear.
d. The time taken for installation and commissioning of RMUs is very less. RMUs require less maintenance.

iii. Mobile DTR

In current scenario, in case of Distribution Transformer failure, about 8-9 hrs. is required to complete the total process of issuing of transformer from stores, loading –unloading, use of manpower and use of crane for mounting transformer over plinth or concrete foundation. Supply interruption for this considerable amount of time leads to customer dissatisfaction apart from loss of MUs that would have been consumed.

Mobile Distribution transformers rapidly restore electrical service. Compact and easy mobility for emergency Service, forced outage repairs, temporary service restoration and regularly scheduled maintenance. Mobile transformers are designed to withstand the road travel

requirements and maximum stability and protection for safe movement over uneven pavement. Inclusion of Mobile distribution transformer will lead to:

a. Flexible and faster temporary restoration-Total time for restoration is equal to that required to move the trolley at the location and to connect the HT and LT jumpers
b. A lot of man-hours can be saved. For conventional method of replacement of failed distribution transformers, manpower is required for loading and unloading of the transformer and also to issue the transformer from stores is time consuming which involves a series of approvals. By use of these transformers, the time for recovery of supply is lowered down.
c. Replacement of DT in conventional method, involved road blockage which lead to disturbance for general public on road-However use of these trolley mounted portable distribution transformers, we will be able to reduce road congestion.

Till date TPCODL has procured 13 Nos. mobile DTR and additional 10 Nos. is proposed under CAPEX FY: 2026-27. However, in BBSR city, 3 divisions BCDD-1, BCDD-2 and BED, it has been proposed for 2 Nos. Mobile DT for each division to meet any exigency condition.

iv. 11kV DO Fuse

The 11kV Drop Out (DO) fuse is a critical protective component in the distribution network, safeguarding transformers and lines from faults and overcurrent conditions. Timely replacement of a blown DO fuse is essential to ensure quick restoration of power supply and to protect distribution transformer from internal fault along with minimizing downtime and maintain network reliability. Delays in replacing faulty fuses lead to prolonged outages, especially in urban and industrial areas, causing inconvenience to consumers and impacting essential services. It has the advantage of replacement without climbing on the pole and replacing fuse using Hot Stick. This will improve reliability indices such as SAIDI, SAIFI, safety and ensure quality power supply to the consumers.

Total DO Fuse requirement in 5nos. city divisions (BCDD-1, BCDD-2, BED, CDD-1 & CDD-2) is 9799 Nos., out of which 2000 Nos. has been considered under CAPEX FY: 2026-27.

v. 11kV AB Switch

The 11kV Air Break (AB) switch is a crucial isolating device in the distribution substation, primarily used to safely disconnect sections of the transformer during maintenance, fault isolation, or emergency operations. It provides a visible point of isolation, which is essential for ensuring the safety of field personnel working on the network. However, in many cases, these switches are outdated, manually operated, or damaged due to prolonged exposure to environmental conditions, which compromises both operational efficiency and equipment

safety. In case of faulty AB switches, 11kV feeder outage required from PSS to attend the defect in the distribution transformer which cause entire feeder shut down during this maintenance work of DT and affect a larger group of consumers connected to DT. Faulty AB switches increase the risk of unsafe operations, arcing and potential damage to downstream equipment such as transformers. It will help to avoid entire 11kV feeder shut down during fault at any of the DSS connected to the feeder.

Installation of AB switches are critical to ensuring safe and reliable operation of the 11kV network.

Total AB Switch requirement in 5nos. city divisions (BCDD-1, BCDD-2, BED, CDD-1 & CDD-2) is 1603 Nos., out of which 1000nos. has been considered under CAPEX FY: 2026-27.

vi. Auto Recloser

Auto Reclosers are critical devices in the 11kV distribution network that automatically detect and isolate transient faults, such as those caused by external object having transient nature or vegetation contact and restore supply within shortest interval without manual intervention. By eliminating the need for physical inspection and manual switching for temporary faults, auto reclosers significantly reduce outage duration, improve feeder reliability and enhance overall system performance. It helps maintain continuity of supply, minimizes customer complaints, and improves reliability indices such as SAIFI and SAIDI.

Scope of Work

Table 31 : Activity wise costing considered for 11kV Network Infrastructure

Sl. No.	Description	Cost (in cr.)	Annexure No.
1	Enhancement of Reliability of the 11kV Network	50.41	Annexure-5.1
2	Mitigation of issues due to lengthy 11kV feeders	24.07	Annexure-5.2
3	11kV Network Refurbishment	1.70	Annexure-5.3
4	Equipment for network Improvement		Annexure-5.4
4.a	11/04 kV, 500 kVA Mobile DTR	2.64	
4.b	Installation of FPI	0.69	
4.c	11kV 3WAY RMU 630A LVV(1I+2B)+AUXPT+FRTU	1.81	
4.d	11kV 4 Way RMU 630A LVVV(1I+3B)+FRTU+AUXPT	4.47	
4.e	Replacement of 11 kV DO Fuse	1.25	
4.f	Replacement of 11 kV AB Switch	1.71	
4.g	Installation of Auro-reclosure	1.03	
Total		**89.78**	

The total cost for 11kV Network Infrastructure is approx. Rs. 89.78 Cr.

Proposed Cost with Estimate Break-up

Please refer to **Annexure-5** for details of BoQ for the above cost estimate.

The Scheme is targeted to be executed by March 2027

Cost Benefit Analysis

The detailed cost benefit analysis is attached in the **Annexure-5**.

Benefit to the System and Consumers

Implementation of the proposals under this section will significantly strengthen the 11kV network, thereby enhancing the overall quality and reliability of power supply to consumers.

i. 11kV proposals will help in managing the load in case of any exigency and mitigate the issue of overloading.
ii. Strengthening of the 11kV feeder and ensure lower interruption.
iii. Ensure reliable, safe and quality power supply hence leading to satisfaction of the consumers.

2.3.5 Addition/upgradation of network components at 33/11 kV PSS for reliability improvement

Background

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 place's intervention at equipment level is required to make the network strong & trouble free so as to ensure reliable power distribution till customer point.

Proposal

Due to technology obsolescence, many of the existing equipment at 33/11 kV PSS require update with the latest technology, as OEMs have discontinued the supply of spares and services for several items. This has made it increasingly difficult to ensure reliable and trouble-free operation and ensuring reliable power supply to consumer. To optimize costs, usable parts from the dismantled equipment will be utilized to service similar makes of equipment still in operation at other PSS, thereby extending their useful life. At the same time, outlived equipment will also be replaced with state-of-the-art technology solutions to improve reliability, efficiency, and system performance.

Requirement/ Need of the Proposal

Phasing out of Vulnerable PTRs at PSS:

Power Transformers in 33/11 kV PSS are critical components in power distribution networks. Over time certain PTR models have been identified as vulnerable due to aging infrastructure, obsolete technology and lack of manufacturer support.

By phasing out transformers that have exceeded their designated service life, the initiative will minimize the risk of outages, equipment failure, and potential safety hazards. New efficient PTRs will reduce technical losses, improve voltage stability, power supply reliability and lower maintenance costs. Moreover, the investment supports regulatory compliance, strengthens asset health management and ensures readiness for uninterrupted power supply.

Total 41 Nos. of PTR which has completed 35 years and more and installed in different PSS across TPCODL distribution licensed area.

After 35 years of the useful life, power Transformers Insulation Breakdown increases, Core degradation started increasing and mechanical wire become significant which causes increase in Transformer failure rates. Theses transformer are required frequent maintenance and testing to keep the transformer in running condition.

Out of these 41 nos. of PTR we have considered 7 Nos. of PTRs are proposed in Capex 26-27 and rest will be considered in phase manner in sub-sequent Capex.

Description	**Total PTR required for replacement**	**Total requirement considered in Capex 26-27**	**Total Cost in Cr. considered in Capex 26-27**
PTR Ageing more than 35 Years	41	7	**15.18**

Installation of 2nd PTR at Single PTR PSS:

In the TPCODL area, some PSS were originally designed with a single Power Transformer. Due to this design limitation the power supply must be shut down if the transformer fails or is taken out of service for maintenance as there is no standby transformer available to ensure continuity.

As a standard design practice, it is recommended to have a minimum of two Power Transformers at each PSS to address such deficiencies. Installing a second transformer enhances system resilience, improves load-sharing capabilities, and supports future capacity expansion. It also facilitates the transition to a more robust and future-ready grid, allowing utilities to maintain service continuity, meet increasing demand, and achieve N-1 compliance.

In the TPCODL licensed area, there are 23 Nos. PSS currently operating with a single PTR.

Of these 7 Nos. PSS do not have sufficient space for installation of a second PTR. At these 7 Nos. locations mitigation will be done through 11 kV interlinking lines from nearby PSS.

Status of Single PTR Mitigations through 11 kV interlinking-

i. Out of 7 Nos. PSS, 2 Nos. have been mitigated through 11 kV interlinking lines from nearby PSS.
ii. For remaining 5 Nos. PSS, 11 kV interlinking lines are required to be established to enable load transfer and will be considered in future Capex.

Status of Single PTR Mitigations by installing 2nd PTR-

Out of the 16 Nos. of PSS where a second PTR can be installed.

i. 3 Nos. of PSS already have the second PTR installed.
ii. 2 Nos. of PSS have ongoing work for installation.
iii. In 4 Nos. of PSS the installation of a second PTR is proposed under the Capex plan for FY 2026–27.
iv. The remaining 7 Nos. of PSS will be considered in a phased manner under subsequent Capex plans.

Description	No. of PSS with Single PTR	Mitigation completed	WIP FY'26	Mitigations plan required for the left-out PSS	Total requirement considered in Capex 26-27	Total Cost in Cr. considered in Capex 26-27
Installation of 2nd PTR on Single PTR PSS	23	5	2	16	4	**6.16**

Enhancement of protection of equipment installed at PSS through elimination of Group control:

A number of 1.6, 3.15, and 5 MVA power transformers, 33, and 11kV feeders at 33/11kV primary substation don't have required circuit breakers along with associated protection equipment's. 33 and 11kV feeders, and power transformers are controlled through group circuit breaker leading to poor reliability.

Controlling multiple feeders with a single breaker introduces several critical challenges in safety, reliability, power system design and operation. This configuration is significantly hampering the reliability and operational risks, especially for the PSS. Relay settings and coordination become more complex, increasing the risk of maloperations, un co-ordinated tripping or slow fault clearance and stress on the equipment's life cycle. Each feeder with individual VCB can be switched on or off independently without affecting to other feeder. Where as in case of Group Control system, multiple feeders' shutdown is require whenever there is a breakdown or preventive work. It also causes delay in restoration and fault finding.

Since FY'21, TPCODL has taken the initiative for eliminating Group control by installing individual circuit breakers and its associated protections for each individual 33kV feeders, Power Transformers, and 11kV feeder. However, a substantial portion of this equipment's are still operating with group-control arrangement. Total requirement of VCB to eliminate the Group Control is given.

Description	Total Group Control as on FY-21	VCB Installed and WIP till March'26	Total VCB Requirement to eliminate Group control	Total no. VCB considered in Capex 26-27	Total Cost in Cr. considered in Capex 26-27
33KV Breaker with bay equipment	176	84	92	18	5.96
11 KV Breaker with bay equipment	172	72	100	61	15.02
Total	**348**	**156**	**192**	**79**	**20.98**

Total 79 Nos. of VCB along with associated protective equipment's costing of Rs. 20.98 Cr. In Capex for FY 2026-27.

Life Extension and refurbishment of existing 33/11 kV Primary substations:

A large number of 33/11kV primary substations are more than 30-35 years old and are in dilapidated / unsafe condition. Due to No / inadequate maintenance during erstwhile CESU period, and excessive fault operations, most of the circuit breakers have exceeded their designed mechanical endurance.

Many PSS don't have earth mat, gravels, trenches, and control room buildings. At few PSS, there is no space for addition of control panels. The bus bars and risers has undersize conductors.

TPCODL extended the life of these PSS / equipment through extensive maintenance but the same now requires replacement for ensuring safe and reliable power supply to all customers.

VCBs age beyond their designed service life (typically 15–25 years), several performance and safety issues begin to emerge. Normally VCB is built with 10k to 15k operations. In TPCODL, most of the feeders in Overhead and several transient faults reduces the life span of VCB based on the no. of operation. So, new VCB is proposed for minimizing the faults at PSS.

DC battery banks installed at many primary substations are 12V Batteries. As a result, they are required to be replaced every 5-6 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.

In addition to age, the AB switches installed on feeders have a lower rating of 400 A. 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.

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 station transformers are required to be replaced urgently for healthy protection system and smooth operation of substations.

Requirement of Lightning Arresters:

At the time of inception, lightning protection in the distribution network was limited to a few substations and line termination points, leaving a large portion of electrical assets exposed to lightning surges. Odisha experiences a high frequency of lightning incidents due to its geographical and climatic conditions, making the system particularly vulnerable.
Since vesting, Defunct LA/ no LA point has been addressed up to certain extent, however few equipment unprotected.

So, it is proposed to install Lightning Arresters (LAs) of suitable ratings at 33/11 kV substations, 33KV feeders, and at vulnerable feeder end points. The proposed arrangement will protect transformers, feeders' insulators, breakers, and associated equipment from damage caused by lightning surges, thereby improving system reliability and minimizing equipment failure.

Strengthening of protection system at PSS by improving the Earthing System:

At the time of vesting, it was observed that earthing systems across various PSS locations were either standalone, absent, damaged, or deteriorated due to depletion of electrodes and corroded connections. Grid earthing concept was missing in many conventional PSS. Since inception many efforts has been made to restore earthing in PSS, however, a significant volume remains to be completed.

It is proposed to strengthen the earthing system across the license area by carrying out connecting of Mesh and Grid Earthing at identified locations.

PSS Refurbishment:

Several power sub-stations under TPCODL's jurisdiction were found to be in deteriorated condition due to prolonged exposure to harsh environmental factors, such as high humidity and saline atmosphere. Many of these assets, including steel structures, equipment supports, and foundations, have suffered significant corrosion and wear, compromising structural integrity and operational safety.

i. The scope includes:
ii. Replacement of severely corroded steel structures (gantries, equipment supports, cable trays, etc.)
iii. Strengthening of foundations and earthing systems
iv. Surface treatment (sandblasting, anti-corrosive painting, galvanization)
v. Retrofitting of outdated panels and protection systems.
vi. Replacement of corroded clamps, connectors, and busbars.

Table 32 *:* Requirement for Refurbishment of 33/11 kV PSS

Description	Total Requirement at different PSS	Completed and WIP by March'26	Total requirement considered in Capex 26-27	Total Cost in Cr. considered in Capex 26-27
33 KV VCB	165	105	8	0.35
11 KV VCB	264	137	10	0.36
33 KV CT	812	572	10	0.13
11 KV CT	856	520	10	0.18
33 KV PT	325	303	8	0.07
11 KV PT	349	316	7	0.05
33 KV ISO with ES	417	116	15	0.23
33 KV ISO W/O ES	159	29	20	0.16
11 KV ISO with ES	1375	181	20	0.32
11 KV ISO W/O ES	435	373	40	0.25
24 V Battery Set	214	167	47	0.3
48 V Battery Set	58	32	26	0.28
PSS Refurbishment	44	6	10	3.46
Station Transformer	51	19	4	0.68
33 KV LA	1278	681	20	0.18
11 KV LA	1701	204	25	0.12
Earthing at PSS	220	69	70	1.75
Total Cost in Cr.				**8.87**

Total cost considered in Capex 26-27 is Rs. 8.87 Cr

Scope of Work

Table 33 *:* Material list with costing for Addition/upgradation of network components at 33/11 kV PSS for reliability improvement

Sl. No.	Description	Unit	Per Unit Cost (Rs. Cr)	Total Quantity	Total Cost (Rs. Cr)
1	Replacement of Outlive & Unreliable 12.5MVA PTR with new 12.5/16MVA PTR	EA	2.92	1	2.92
	Replacement of Outlive & Unreliable 7.5MVA PTR or 8MVA PTR with new 8MVA PTR	EA	2.04	6	12.26
2	Single PTR	EA		4	6.16
3	33 kV Fdr. group control	EA	0.33	18	5.96
4	11 kV Group control	EA	0.25	61	15.02
5	Replacement of Outlive & Unreliable 33 kV Breaker	EA	0.044	8	0.35
6	Replacement of Outlive & Unreliable 11 kV Breaker	EA	0.036	10	0.36
7	Replacement of Outlive & Unreliable 33 kV CT	SET	0.021	6	0.13
8	Replacement of Outlive & Unreliable 33 kV PT	SET	0.009	8	0.07
9	Replacement of Outlive & Unreliable 11 kV CT	SET	0.018	10	0.18
10	Replacement of Outlive & Unreliable 11 kV PT	SET	0.007	7	0.05
11	33 kV LA	SET	0.009	20	0.18
12	11 kV LA	SET	0.005	25	0.12
13	33 kV 1250 A Isolator with earth switch	EA	0.011	20	0.23
14	33 kV 1250 A Isolator without earth switch	EA	0.011	15	0.16
15	11 kV 630 A Isolator with earths witch	EA	0.016	20	0.32
16	11 kV 630 A Isolator without earth switch	EA	0.006	40	0.25
17	Earthing in PSS	EA	0.025	70	1.75
18	Replacement of Outlive & Unreliable Battery Set (48 V)	EA	0.011	26	0.28
19	Replacement of Outlive & Unreliable Battery Set (24 V)	EA	0.006	47	0.3
20	Installation of 33/0.4 kV, 100 kVA Stn. Trf.	EA	0.17	4	0.68
21	PSS refurbishment	EA	0.35	10	3.46
22	**TOTAL**				**51.18**

The total cost for addition/upgradation of Network Components at 33/11 kV PSS work is approx. Rs. 51.18 Cr.

Proposed Cost with Estimate Break-up

Please refer to **Annexure – 6** for details of BoQ for the above **cost estimate with location details**.

The Scheme is targeted to be executed by March-2027

Benefit to the System and Consumers

This will lead to:

i. Reliable power supply to consumers.
ii. Strengthening of sub-transmission network for future demand growth.
iii. Ease and flexibility for operation to the field teams.
iv. Improving the safety in terms of Equipment operation.

2.3.6 LT DB Installation for LT Protection

Background

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.

Proposal

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.

Requirement/ Need of the Proposal

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.

Scope of Work

In this scheme, it is proposed to install LT DB's for all 63 kVA and above rating DTRs, where LT side protection is not available, across the five city divisions of Bhubaneswar and Cuttack.

Table 34 *:* Scope of LTDB proposed for FY 26-27

DTR Rating	Description	BCDD-I	BCDD-II	BED	CDD-1	CDD-2	Total
63kVA	Total DT Qty	60	462	373	33	140	1068
	Total LT DB Installed till Date	34	215	112	10	9	380
	LT DB Installed under Capex FY20 to FY25	19	71	48	6	3	147
	Total Requirement	26	247	261	23	131	688
	Qty Considered in FY 26-27	**26**	**247**	**261**	**0**	**0**	**534**
	Unit Cost (Rs. in cr.)	0.014	0.014	0.014	0.014	0.014	
	Total Cost (Rs. in Cr.)	**0.36**	**3.46**	**3.65**	**0.00**	**0.00**	**7.48**
100kVA	Total DT Qty	287	899	781	98	246	2311
	Total LT DB Installed till Date	224	568	345	42	52	1231
	LT DB Installed under Capex FY20 to FY25	158	320	186	32	22	718
	Total Requirement	63	331	436	56	194	1080
	Qty Considered in FY 26-27	**63**	**331**	**436**	**0**	**0**	**830**
	Unit Cost (Rs. in cr.)	0.014	0.014	0.014	0.014	0.014	
	Total Cost (Rs. in Cr.)	**0.88**	**4.63**	**6.10**	**0.00**	**0.00**	**11.62**
250kVA	Total DT Qty	322	818	571	382	235	2328
	Total LT DB Installed till Date	285	617	362	180	74	1518
	LT DB Installed under Capex FY20 to FY25	214	372	275	155	42	1058
	Total Requirement	37	201	209	202	161	810
	Qty Considered in FY 26-27	**37**	**201**	**209**	**0**	**0**	**447**
	Unit Cost (Rs. in cr.)	0.029	0.029	0.029	0.029	0.029	
	Total Cost (Rs. in Cr.)	**1.07**	**5.83**	**6.06**	**0.00**	**0.00**	**12.96**
500kVA	Total DT Qty	185	470	322	177	109	1263
	Total LT DB Installed till Date	165	430	285	139	45	1064
	LT DB Installed under Capex FY20 to FY25	131	265	228	113	30	767
	Total Requirement	20	40	37	38	64	199
	Qty Considered in FY 26-27	**20**	**40**	**37**	**38**	**62**	**197**
	Unit Cost (Rs. in cr.)	0.04	0.04	0.04	0.04	0.04	
	Total Cost (Rs. in Cr.)	**0.80**	**1.60**	**1.48**	**1.52**	**2.48**	**7.88**
Total Cost (Rs Cr.)		**3.12**	**15.52**	**17.30**	**1.52**	**2.48**	**39.94**

The total cost for LTDB work is approx. 39.94cr.

Proposed Cost with Estimate Break-up

Please refer to **Annexure – 7** for details of BoQ for the above cost estimate and Locations covered in this scope.

The Scheme is proposed to be executed by March – 2027.

Benefit to the System and Consumers

This will lead to:

i. Reliable power supply to consumers
ii. Ease and flexibility for operation to the field teams
iii. Improving the safety in terms of Equipment operation
iv. Field engineers would have flexibility to isolate the faulty LT feeder locally instead of switching off entire 11kV feeder.
v. 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 2026-27 is Rs. 185.00 Cr. The details of the same are as given in the table below:

Table 35 *:* Capital Expenditure for Load Growth of FY 2026-27

Major Head	Activity	Capex Plan for FY 2026-27 (in Rs. Cr)
Load Growth	New Connection Release	Will be claimed in True-Up
	Power Transformer Augmentation	47.23
	Load Growth -11KV Network overload mitigation	82.77
	Distribution Transformer Augmentation	55.16
	Total	185

The description of the various schemes are as under:

2.4.1 New Connection Release

Background

In order to meet the increasing power demand, the existing distribution network infrastructure needs to be augmented/ strengthened/ expanded to release the new connection. Network extension/ augmentation/addition is required as some of the new connection cannot be released from the existing network and require augmentation/addition/extension before release of new connection.

The cost recovered from consumers by way of service connection charges are not adequate in certain new connection release cases and the Hon'ble Commission has been allowing this differential cost associated with new connection release including unrecovered cost of service cable in the capex.

In the Capex order dated 10.07.2025 in the matter of Case No-80/2024 , the Hon'ble Commission has stipulated that differential cost for new connection release will be allowed during Truing up at actual.

In view of the above directive, we are in this petition not proposing any amount towards 'New Connection Release' as the same will be claimed during truing up of FY 2025-26.

In the draft OERC (Condition of Supply) Code, 2025 notified by the Hon'ble Commission, a different methodology for recovering of expenditure towards new connection release has been proposed including exemption/relaxation to many categories which may result into huge impact on our Capex. It is requested that, any additional impact arising out of the proposed Supply Code, 2025 may kindly be allowed during Truing up.

2.4.2 Power Transformer Augmentation & Addition

Background

Overloading of Power Transformers is an alarming issue and need immediate attention for implementing overloading mitigation proposals. PTR overloading issue can be mitigated by below measures:

i. 11kV Feeder load diversion to lightly loaded PTR.
ii. 11kV Feeder swapping with lightly loaded feeder in other lightly loaded PTR.
iii. PTR Swapping with higher rating PTR.
iv. 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 and conducted load flow analysis taking into consideration the peak loading experienced during Summer'25. As per the load flow analysis, the loading of different PTRs overloading under TPCODL jurisdiction has been identified. Since the priority of Power transformer overloading mitigation is crucial, we have prioritized & considered PTR overloading mitigation wherein PTR loading is greater than 80% in Summer'25 which will be subsequently overloaded in Summer'27 with load growth. Additionally, 1no. PTR is considered under PTR augmentation in order to improve the N-1 reliability of the city area and 1no. PTR is considered under PTR addition in order to improve the N-1 reliability of Puri town area since these are feeding the critical loads.

As per the trend, load growth per year for BCDD-1 has been considered as 13%, BCDD-2 and BED have been considered as 15%, CDD-1 and CDD-2 have been considered as 10%, KHD and PED have been considered as 13%, CED, DED and ANED have been considered as 8% and for the remaining divisions load growth has been considered as 6%.

As per the PTR loading analysis, 34nos. PTRs are loaded beyond 80% in Summer'25 as follows

Table 36 *:* Details of overloaded PTRs beyond 80% loading in Summer'25

Sl. No.	Name of Circle	Name of Division	Name of 33/11kV PSS	PTR No.	PTR Rating (MVA)	Summer'25 Loading (MVA)	% Loading (Summer'25)	Loading with 2yrs LG (Sum'27)	% Loading with 2yrs LG (Sum'27)	Scheme	Proposal Head
1	BBSR-1	BCDD-1	Satyanagar	PTR-2	8	6.59	82%	8.42	105%	CAPEX FY: 2025-26	11kV Feeder load diversion
2	BBSR-1	BCDD-2	Bharatpur	PTR-1	12.5	10.06	80%	13.3	106%	CAPEX FY: 2025-26	PTR Augmentation
3	BBSR-1	BCDD-2	Chandaka	PTR-1	8	6.74	84%	8.92	111%	CAPEX FY: 2025-26	PTR Augmentation
4	BBSR-1	BCDD-2	Dumduma	PTR-2	8	6.86	86%	9.07	113%	CAPEX FY: 2026-27	PTR Augmentation
5	BBSR-1	BCDD-2	Niladri Vihar/ Lumbini Vihar	PTR-1	5	4	80%	5.29	106%	OPEX	11kV Feeder Load diversion
6	BBSR-1	BCDD-2	New Barang	PTR-2	8	6.74	84%	8.92	111%	OPEX	PTR Swapping
7	BBSR-1	BCDD-2	CS Pur-2	PTR-3	8	6.55	82%	8.67	108%	OPEX	11kV Feeder Swapping
8	BBSR-1	BCDD-2	Trisulia	PTR-1	3.15	2.63	83%	3.48	110%	OPEX	PTR Swapping
9	BBSR-1	BED	Badagada	PTR-4	12.5	10.44	84%	13.8	110%	OPEX	11kV Feeder Load diversion
10	BBSR-1	BED	Bhimatangi	PTR-4	12.5	10.13	81%	13.4	107%	CAPEX FY: 2025-26	11kV Feeder load diversion
11	BBSR-1	BED	Mancheswar	PTR-1	12.5	10.67	85%	14.11	113%	CAPEX FY: 2025-26	11kV Feeder Load diversion
12	BBSR-1	BED	Naharkanta	PTR-2	8	7.01	88%	9.27	116%	CAPEX FY: 2026-27	PTR Augmentation
13	BBSR-1	BED	Pradhan Sahi	PTR-2	5	4.36	87%	5.77	115%	OPEX	PTR Swapping
14	BBSR-1	NED	Astaranga	PTR-3	3.15	2.7	86%	3.04	96%	OPEX	PTR Swapping
15	BBSR-1	NED	Balipatna	PTR-1	5	4.23	85%	4.75	95%	OPEX	11kV Feeder Swapping
16	BBSR-1	NED	Banamalipur	PTR-1	5	4.11	82%	4.62	92%	OPEX	11kV Feeder Swapping
17	BBSR-1	NED	Kakatpur	PTR-1	8	7.24	90%	8.13	102%	CAPEX FY: 2025-26	11kV Feeder load diversion
18	BBSR-1	NED	Pipili	PTR-3	8	6.55	82%	7.36	92%	CAPEX FY: 2026-27	PTR Augmentation
19	BBSR-2	KHD	Khordha Town/ 10-Pole	PTR-1	12.5	10.34	83%	13.2	106%	OPEX	11kV Feeder load diversion
20	BBSR-2	KHD	Malipada	PTR-1	5	4.65	93%	5.93	119%	OPEX	PTR Swapping
21	BBSR-2	KHD	Tirimal	PTR-1	5	4.25	85%	5.42	108%	OPEX	PTR Swapping
22	BBSR-2	PED	Sri Ram Nagar	PTR-2	8	7.31	91%	9.34	117%	CAPEX FY: 2025-26	11kV Feeder Load diversion
23	CUTTACK	SED	Orikanta	PTR-1	5	4.08	82%	4.58	92%	ODSSP Ph-IV	11kV Feeder load diversion
24	CUTTACK	SED	Salipur	PTR-2	5	4.23	85%	4.75	95%	OPEX	PTR Swapping
25	DHENKANAL	DED	Gundichapada	PTR-1	8	6.4	80%	7.46	93%	CAPEX FY: 2025-26	PTR Augmentation
26	DHENKANAL	ANED	Hemsurpada	PTR-2	8	7.6	95%	8.86	111%	CAPEX FY: 2025-26	PTR Augmentation
27	DHENKANAL	ANED	RCMS	PTR-1	12.5	13.1	105%	15.29	122%	CAPEX FY: 2026-27	PTR Augmentation
28	DHENKANAL	ANED	RCMS	PTR-2	12.5	10.48	84%	12.22	98%	OPEX	11kV Feeder Swapping
29	DHENKANAL	TED	Talcher-1/ Hatatota-1	PTR-3	8	6.72	84%	7.55	94%	OPEX	PTR Swapping
30	DHENKANAL	TED	Kaniha	PTR-1	8	6.51	81%	7.32	91%	OPEX	PTR Swapping
31	PARADEEP	KED-1	Ayatan	PTR-1	5	4.34	87%	4.88	98%	OPEX	PTR Swapping
32	PARADEEP	KED-1	Kendrapada	PTR-5	5	4.27	85%	4.79	96%	CAPEX FY: 2026-27	PTR Augmentation
33	PARADEEP	KED-1	Pattamundai	PTR-1	5	4.04	81%	4.54	91%	OPEX	PTR Swapping
34	PARADEEP	KED-2	Korua/ Kudanagari	PTR-2	3.15	2.66	84%	2.99	95%	OPEX	PTR Swapping

Proposal

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 at locations required augmentation.

Out of 34nos. overloaded PTRs only 5nos. PTRs are proposed for augmentation under CAPEX FY 2026-27 for overloading mitigation.

Table 37 *:* Scheme wise PTR Overload mitigation plan

Proposal	Schemes				Total
	CAPEX FY: 2025-26 (WIP)	CAPEX FY: 2026-27	ODSSP Ph-IV (WIP)	OPEX	
11kV Feeder load diversion	5		1	3	**9**
11kV Feeder Swapping				4	**4**
PTR Augmentation	4	5			**9**
PTR Swapping				12	**12**
Total	**9**	**5**	**1**	**19**	**34**

Note: In addition to above 5nos. proposed PTRs, 1 Nos. PTR (Nayapalli PSS) is considered for augmentation and 1 Nos. additional PTR (Talabania PSS) is considered to improve reliability of power supply since these are feeding the critical loads making a total of 7nos. new PTRs under CAPEX FY:2026-27.

Requirement/ Need of the Proposal

Power transformer augmentation is required to mitigate the overloading of Power Transformers resulting due to continuous load growth and to ensure compliance with the N-1 contingency criteria feeding critical loads.

Scope of Work

There are 6nos. Power Transformers proposed for augmentation and 1no. addition is proposed under CAPEX FY: 2026-27 as follows:

i. Upgradation of 5nos. Power transformers are considered under load growth.
ii. Upgradation of 1no. Power transformer are considered to improve N-1 reliability.

iii. Addition of 1no. Power transformer are considered to improve N-1 reliability in Puri town area.

The approx. costing for PTR overloading mitigation is given below:

Proposed Cost with Estimate Break-up

Table 38 *:* Scope of PTR Augmentation with Cost

Sl. No	Name of Circle	Name of Division	Name of 33/11kV PSS	PTR No.	Proposal Details	Amount (in Cr.)
1	BBSR-1	BED	Naharkanta	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 20MVA at Naharkanta 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of Control Room.	7.9
2	BBSR-1	BCDD-2	Dumduma	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 8MVA to 16MVA at Dumduma 33/11kV PSS with other civil works along with installation of 33kV Switch panel board.	4.52
3	BBSR-1	BCDD-2	Nayapalli	PTR-2	Augmentation of 01no. Power Transformer (PTR-2) from 12.5MVA to 20MVA at Nayapalli 33/11kV PSS with other civil works along with installation of 11kV Switch panel board.	5.39
4	BBSR-1	NED	Pipili	PTR-3	Augmentation of 01no. Power Transformer (PTR-3) from 8MVA to 16MVA at Pipili 33/11kV PSS with other civil works.	3.04
5	BBSR-2	PED	Talabania	PTR-2	Addition of 01no. 20MVA PTR at Talabania 33/11kV PSS with other civil works along with installation of 33kV & 11kV Switch panel board and construction of Control Room.	9.09
6	DHENKANAL	ANED	RCMS	PTR-1	Augmentation of 01no. Power Transformer (PTR-1) from 12.5MVA to 20MVA at RCMS 33/11kV PSS with other civil works along with installation of 11kV Switch panel board and construction of Control Room.	7.9
7	PAREDEEP	KED-1	Kendrapada	PTR-3,4&5	Augmentation of 03no. Power Transformer (PTR-3,4,5) from 5MVA to 20MVA at Kendrapada 33/11kV PSS with other civil works along with installation of 33kV & 11kV Switch panel board and construction of Control Room.	9.39
8	**Total Cost (Cr.)**					**47.23**

The Scheme is targeted to be executed by March – 2027.

Cost Benefit Analysis

The detailed cost benefit analysis is attached in the **Annexure – 8**.

Benefit to the System and Consumers

i. To mitigate overloading condition and N-1 contingency of power transformers.
ii. To cater future load growth of the consumers connected to network.
iii. To ensure quality and reliable power supply to the consumers.

2.4.3 Load Growth -11KV Network overload mitigation

Background

11kV feeders are the main power link between Primary substations (PSS) with the distribution substation (DSS) and give power supply to 11kV HT consumers. In the TPCODL licensed area, some of 11kV feeders are experiencing overloading conditions with 2years load growth scenario. Prolonged overloading of 11kV feeders leads to increased technical losses, voltage drops at consumer ends, overheating of conductors and transformers and a higher frequency of feeder tripping. These factors collectively impact the reliability and quality of power supply, resulting in increased customer complaints and reduced network reliability.

Proposal

In the annual network load flow study, 147nos. 11kV feeders overloading are identified (loading ≥100%) with 2years load growth during Summer'27 out of which in CAPEX FY: 2026-27 we have considered only 55nos. feeders. For the rest feeders, work in progress under different schemes and expected to be completed by March-2026.

Table 39 : Plan of Overload 11kV feeder mitigation with 2 years Load Growth during Summer – 27

	Schemes						
Circle	CAPEX: 2024-25	CAPEX: 2025-26	CAPEX: 2026-27	CMPDP	Deposit	SDMF-I	Total
BBSR-1	5	15	16		1		**37**
BBSR-II	4	10	23		2		**39**
CUTTACK	6	17	5	3			**31**
DHENKANAL	4	16	8				**28**
PARADEEP	3	2	3	2		2	**12**
Grand Total	**22**	**60**	**55**	**5**	**3**	**2**	**147**

In order to mitigate the overloading of the 11kV feeder proposals were identified after subsequent interaction with field teams.

Overloading mitigation are done through below initiatives:

i. Conductor upgradation
ii. Load transfer through feeder interconnection
iii. New 11KV Feeder for load bifurcation/ diversion

Requirement/ Need of the Proposal

The conductor augmentation, feeder interconnections, feeder bifurcation and new feeders are required to mitigate the overloading of 11kV feeders resulting due to continuous load growth.

Scope of Work

Out of the total 1521nos. 11kV feeders in Summer'27, 55nos. 11kV feeders will be overloaded. The overloading mitigation proposals are considered under CAPEX FY: 2026-27. There are few proposals which will mitigate the overloading of multiple feeders, so as per our estimate 52 proposals (as mentioned below) will cover the mitigation issue for 55 Feeders as mentioned in above paragraph.

Table 40 : Proposals to mitigate feeders overloading

Circle	Conductor augmentation	Conductor Augmentation & Feeder interlinking	11kV Feeder interlinking	New feeder from PSS	Total
BBSR-1	5	3		8	**16**
BBSR-2	8	2		10	**20**
CUTTACK	1	1		3	**5**
DHENKANAL	5		3		**8**
PARADEEP	2	1			**3**
Total	**21**	**7**	**3**	**21**	**52**

Proposed Cost with Estimate Break-up

Table 41 : Scheme wise Costing proposed for 11kV overload feeder mitigation under CAPEX FY 26-27

Sl. No.	Circle	Division	11kV Feeder Name	Cost (Rs. Cr)
1	BBSR-1	BCDD-2	K-2	7.00
2	BBSR-1	BCDD-2	C.s.pur H B	1.54
3	BBSR-1	BCDD-2	Info-Kiit UG	2.03
4	BBSR-1	BCDD-2	K-5	2.65
5	BBSR-1	BCDD-2	K-9	3.40
6	BBSR-1	BCDD-2	Dumduma	3.77
7	BBSR-1	BCDD-2	Nalco	0.56
8	BBSR-1	BCDD-2	Housing board-2	0.97
9	BBSR-1	BCDD-2	Naranpur	3.14
10	BBSR-1	BCDD-2	Xavier Nalco	0.74
11	BBSR-1	BED	Balianta	4.20
12	BBSR-1	BED	Brahmeswar	3.33
13	BBSR-1	BED	Rasulgarh	4.04
14	BBSR-1	NED	Budhipada	1.40
15	BBSR-1	NED	Pipili bazar	1.90
16	BBSR-1	NED	Mangalpur	1.50
17	BBSR-2	NYED	Daspalla	2.57
18	BBSR-2	PED	Dutta Tota	3.54
19	BBSR-2	PED	Baliapanda-Kacheri	3.53
20	BBSR-2	PED	Mangalaghat	1.16
21	BBSR-2	PED	Prachi OH	4.23
22	BBSR-2	KHD	Haladia	2.69
23	BBSR-2	NYED	Lenkudipada	0.12
24	BBSR-2	NYED	Sinduria	1.48
25	BBSR-2	KHD	Sunakhala	0.70
26	BBSR-2	KHD	Golabai	0.40
27	BBSR-2	KHD	Madanpur	1.54
28	BBSR-2	BAED	Kalupada	1.34
29	BBSR-2	BAED	Balugaon	2.00
30	BBSR-2	PED	Alarnath	1.10
31	BBSR-2	PED	Satasankha	0.90
32	BBSR-2	KHD	Panabaraja	0.94
33	BBSR-2	KHD	Oilmill-1	0.50
34	BBSR-2	NYED	Madhyakhanda	1.14
35	BBSR-2	KHD	Bayapalli	0.30
36	BBSR-2	KHD	Chatrama	0.29
37	CUTTACK	CED	Niali Town	0.58
38	CUTTACK	CED	Phulnakhara	0.86
39	CUTTACK	CED	Pratap nagari	2.70
40	CUTTACK	CDD-I	Tulsipur-2	0.31
41	CUTTACK	CDD-2	Bentaker	0.58
42	DHENKANAL	TED	Hindol	0.34
43	DHENKANAL	TED	Gobara	0.57
44	DHENKANAL	TED	Old prajang	0.41
45	DHENKANAL	TED	Bhogabareni	0.09
46	DHENKANAL	TED	Talcher Palace	0.46
47	DHENKANAL	TED	Talcher Town-I	0.08
48	DHENKANAL	ANED	Bagedia	0.62
49	DHENKANAL	ANED	Dudhiabeda	0.74
50	PARADEEP	KED-I	Chhata	0.76
51	PARADEEP	KED-II	Marsaghai	0.47
52	PARADEEP	KED-I	Thakurpatna	0.56
Total				**82.77**

The Scheme is proposed to be completed by March 2027.

Cost Benefit Analysis

The detailed cost benefit analysis is attached in the **Annexure-9.**

Benefit

These proposals will help to eliminate overloading on identified feeders, improve voltage profiles, reduce technical losses and enhance network reliability. These measures will also support future load growth, reduce the risk of feeder tripping, improve operational flexibility and ensure reliable and quality power supply to consumers across the TPCODL licensed area.

2.4.4 Distribution Transformer Augmentation & Addition

Background

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 80% 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.

Proposal

In this proposal, TPCODL intends to carry out Distribution Transformer's augmentation and addition for those DTs, which are identified as overloaded and low voltage issues based on the peak load served.

Requirement/ Need of the Proposal

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.

There is a total of 336nos. of locations where DSS DTs are overloaded, out of which 173nos. DTs will be augmented with 250kVA and 500kVA DTR and 76nos. new DTs (100kVA – 47 Nos. and 250kVA – 29 Nos.).

Wherever the length of the new LT line is significant and the existing Distribution Transformer (DT) is overloaded, the provision of a new DT along with associated 11kV and LT lines is proposed to bifurcate the existing load, mitigate overloading, and enhance system reliability. In this DPR we have also considered the replacement of group of single phase DTRs with higher capacity three phase DTR.

Scope of Work

Table 42 *:* Scope of DT Augmentation with Cost

Sl. No.	Description	Unit	Unit Cost (Rs.)	Qty	Total Cost (Rs. Cr)
1	Augmentation of DTR from 11/0.4 KV, 100 kVA to 250 kVA DTR (Cu) along with accessories.	nos.	14,12,606.18	90	12.71
2	Augmentation of DTR from 11/0.4 KV, 250 kVA to 500 kVA DTR (Cu) along with accessories.	nos.	23,56,020.78	83	19.55
	Total Amount (In Cr.)			**173**	**32.27**

Table 43 *:* Scope of DT Addition with Cost

Sl. No.	Description	Unit	Unit Cost (Rs)	Qty	Total Cost (Rs Cr.)
1	Installation of 1 No. 11/0.4 KV, 250 KVA DTR (Cu) along with accessories.	nos.	16,25,325.34	29	4.71
2	Installation of 1 No. 11/0.4 KV, 100 KVA DTR (Al) along with accessories.	nos.	8,32,950.37	47	3.91
3	Construction of 1 CKM 11kV Line using 100 SQ.MM. -AAA Conductor and 11 Mtr. WPB pole.	Ckm	20,72,207.04	23	4.79
4	Construction of 1 CKM LT line using 9 Mtr. PSC pole and LT AB Cable of 4C×95 mm^2 (P)+1C×95 mm^2(M)+1CX16 mm^2 (Street Light)	Ckm	12,29,317.14	39	4.73
	Total Amount (Rs Cr.)				**18.15**

Table 44 *:* Scope of CSS with Cost

Sl. No.	Description	Unit	Unit Cost (Rs)	Qty	Total Cost (Rs Cr.)
1	Installation of 1 No. 11kV/0.433V 1000kVA CSS	nos.	67,56,361.69	7	4.73
	Total Amount (Rs Cr.)				**4.73**

The total cost for DT augmentation and new DT addition is approx. Rs. 55.16 Cr.

Proposed Cost with Estimate Break-up

Please refer to **Annexure-10** for details of BoQ for the above **cost estimate and details of locations.**

The above scheme is targeted to be completed by March 2027.

Cost Benefit Analysis

Table 45 *:* Cost Benefit Analysis through DT Augmentation for FY 26-27

Sr. No.	Description	Formula	Value	UoM
A	Total cost of scheme	-	55.15	RS Cr
B	Total Load Growth in 5years (in MVA)	-	26.94	MVA
C 1	Total Load Added (in MW)	Bxpf(power factor)	25.593	MW
C 2	Total Load Added (in KW)		25593	KW
D	Total units consumed yearly (Load x days x Hrs x load factor-30%)	Cx365x24xLF	67258404	kWH
E	Power Purchase cost per unit (incl. Transmisson Charges)	-	3.41	Rs./KWH
F	ABR approved for FY 2025-26	-	5.78	Rs./KWH
G	Diff. (Sale-purchase)	F-E	2.38	Rs./KWH
H	Revenue owing to serving additional load	(GxD)/10^5	15.97	RS Cr
I	Pay Back Period	A/H	3.45	Years

Benefit to the System and Consumers

i. 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.
ii. 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.
iii. Reliable power supply by reducing chances of fault in network, thereby reducing power interruptions
iv. Reduce over-burdening of existing Distribution transformers thereby reducing power cuts.

2.5 Technology & Infrastructure

The proposed budget for Technology & Infrastructure under Capital Investment Plan FY 2026-27 is Rs. 29 Cr. The details of the same are as given in the table below:

Table 46 : Capital Expenditure for Technology & infrastructure for FY 2026-27

Major Head	Activity	Capex Plan for FY 2026-27 (in Rs. Cr)
Technology & Infrastructure	IT - Software, User Devices, Back-up system, Storage devices and Applications	8.00
	Civil Upgradation	13.00
	Enhancing Storage capacity in Existing / New Stores	6.00
	Ready to Use Admin Asset	2.00
	Total	29.00

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

Table 47 : Activity wise proposed budget for IT Schemes for CAPEX FY 2026-27

Sl No	Scheme	Details	FY 26-27 Estimated cost in Rs Cr
1	**Build & Strengthen end user IT infrastructure**	End user Computing Devices Refreshment	6.423
2	**Strengthen Network Connectivity**	Establishing Office LAN/Switches/Wi-Fi/Infrastructure Augmentation	0.336
3	**Strengthening of Cyber Security Measures**	Digital Personal Data Protection (DPDP) Act Compliance (DLP + ZTNA) Solution	1.266
	Total		**8.025**

Detailed scheme is as follows.

2.5.1.1 End User Computing Devices Refreshment

Background

All location offices of TP 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/ Need of the Proposal

It is proposed to procure/ replace total out of warranty End-User IT Devices (Laptops and Desktops) during FY26-27 which were procured during FY 20-21 and generally the spare parts are not available due to change in technology. Further, it may be noted that these devices will be ending their useful life by that time. The quantity of such End-User IT devices are as detailed below.

Table 48 : Activity wise requirement for end user devices

Item Description	Quantity
Laptops	529
Desktop with UPS	264
Total	**793**

The list of above laptops and desktops with asset class and date of installation are enclosed as **Annexure - 11 and 12** to this submission. From the list, it can be observed that these devices are completing their lives in FY 2026-27.

Scope of Work

It is proposed to procure Laptops against the obsolete Laptops and Desktops with UPS for the following reasons.

i. Better ownership, accountability and device with data security
ii. Ease of use and mobility
iii. Space optimization
iv. Ease of maintenance

Item Description	Quantity
Laptops	793

Proposed Cost with Estimate Break-up

Table 49 : Proposed cost with scope for end user devices

Item Description	Quantity	Unit Rate incl GST (Rs)	Amount (Rs. Cr)
Laptops	793	81,000	6.423

The approx. Capex budget requirement for procurement against the abovementioned scope is Rs. 6.423 Cr. including taxes.

Benefit to the System and Consumers

- Performing automated business processes
- Office automation
- Improved employee productivity
- Enhanced Consumer Satisfaction
- Faster communication
- Duplicate Bill and other important document reproduction at Customer Care
- Record keeping

2.5.1.2 LAN Connectivity at Offices

Background

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

Proposal

In FY26-27, it is planned to deploy LAN connectivity at approximately 28 nos. of field offices.

Requirement/ Need of the Proposal

It is required to establish LAN connectivity at around 28 nos. of field offices.

Scope of Work

Item Description	Quantity
Office LAN Work	28

Proposed Cost with Estimate Break-up

Item Description	Unit Cost (Rs)	Quantity	Amount (Rs Cr)
Office LAN Work	1,20,000	28	0.336

The approx. Capex budget requirement for procurement against the abovementioned scope is Rs. 0.336 Cr. including taxes.

Benefit to the System and Consumers

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

2.5.1.3 Digital Personal Data Protection (DPDP) Act Compliance (DLP + ZTNA) Solution

Background

To support business growth and mitigate Cyber threats in TPCODL environment for business continuity, Cyber Security measures are to be taken which is also mandated by Govt. of India. This will ensure business continuity of critical processes like metering, billing, collection, power outage management and meeting performance assurance timelines which will also ensure availability of the critical services to consumers thereby impacting the consumer satisfaction. This will also ensure Digital Personal Data Protection of the consumer data, Business-Associate data and employee data etc.

Proposal

In FY26-27, it is planned to deploy the Digital Personal Data Protection (DPDP) Act Compliance (DLP + ZTNA) Solution for all IT End-User Devices and Servers.

Requirement/ Need of the Proposal

It is required to deploy the Digital Personal Data Protection (DPDP) Act Compliance (DLP + ZTNA) Solution for all IT End-User Devices and Servers.

Scope of Work

Item Description	Quantity
DPDP Act Compliance (DLP + ZTNA) Solution – Phase 1 Implementation	1150 (1000 End points + 150 servers)

Upon successful implementation of Phase1, Phase 2 shall be taken up during next FY for the balance quantity (out of total 3000 devices).

Proposed Cost with Estimate Break-up

Item Description	Unit Cost (Rs)	Quantity	Amount (Rs Cr)
DPDP Act Compliance (DLP + ZTNA) Solution	11,009	1150	1.266

The approx. Capex budget requirement for procurement against the abovementioned scope is Rs. 1.266 Cr. including taxes.

The proposed scope is to be covered by March 2027.

Benefit to the System and Consumers

This will also ensure

i. Digital Personal Data Protection of the consumer data, Business-Associate data and employee data etc.
ii. Encourage Digital Transformation
iii. Enhance trust of all stakeholders

2.5.2 Civil Upgradation

Table 50 : List of Activities covered under Civil Infrastructure

Sl No	Activity planned	Expenditure planned in FY 26 - 27 (Rs. Cr)
1	Construction of Circle Office at Cuttack	2.00
2	Construction of Sub Division office at 2 location	0.70
3	Construction of Section office at 9 location	3.15
4	Construction of SDC Store at 4 location	0.48
5	Construction of BSK at 5 location	0.50
6	Construction of Approach Road at 24 location	2.61
7	Furniture at 21 location for 350 seating capacity	2.66
8	Capacity Enhancement of DT Workshop	0.90
Total		**13.00**

2.5.2.1 Construction of Circle Office

Background

Initially, the Circle Office, Cuttack, was operating at Badambadi and was renovated in 2020 along with the Customer Care Centre. However, over time, the office has encountered significant challenges due to insufficient space, inadequate storage facilities, lack of proper customer interface areas, and deteriorating infrastructure. The building is severely affected by seepage and other structural issues, which are beyond feasible repair. The dilapidated condition has now reached a stage where further renovation is neither viable nor cost-effective, thereby underscoring the urgent need for establishing a new office.

Proposal

A new office at Badambadi, Cuttack to ensure adequate workspace, storage, and customer access.

Requirement/ Need of the Proposal

It will enable improved service standards and working conditions, directly benefiting both the staff and the residents served by the Circle Office and Customer Care Centre, while also ensuring compliance with workplace safety, fire safety, and other statutory norms. The proposed facility will also provide dedicated customer interface areas for enhanced consumer grievance redressal and better service delivery.

Scope of Work

Building Specification: G+1 RCC framed structure (approx. 9,000 sq.ft. total built-up area)
Location: Badambadi, Cuttack

Proposed Cost with Estimate Break-up

The Total estimated Cost will be **Rs. 2.00 Cr.**
Estimate Break up are Follows. Detailed Estimate attached in **(Annexure – 13. a)**

Sl. No	Particulars	Amount (Rs. Cr)	Remarks (Basis of Estimates)
1	Civil works (Structure, finishing)	1.30	Based on RC rates
2	Electrical & HVAC works	0.30	Based on RC rates
3	Plumbing and sanitation	0.20	Based on RC rates
4	Approach road, compound wall and parking	0.20	Based on RC rates

Cost Benefit Analysis

Improved Service Delivery and enhanced workplace environment for Employees.

Intangible benefits: Improved employee productivity, customer satisfaction, and compliance with statutory requirements.

Benefit to the System and Consumers

Improved employee productivity, customer satisfaction, and compliance with statutory requirements. It also creates a customer-friendly environment for grievance redressal and bill payment.

2.5.2.2 Construction of Sub-Division Offices

Background

We have constructed/ strengthened 58 numbers out of 65 across TPCODL. At present, the 07 Nos. Sub-Division Offices are operating from rented premises.

Proposal

It is proposed to Construct 2 Nos. new Sub division Office at our own land to provide best service experience to the consumers as well as working staff.

Requirement/ Need of the Proposal

SDO 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 better work environment.

Scope of Work

Building Specification**:** RCC framed structure (approx. 800 sq.ft. Total built-up area)
Location: Kujang, Marshaghai
Circle: Paradeep

Proposed Cost with Estimate Break-up

Sl. No	**Item Description**	**Amount (₹ in Cr)**	**Remarks (Basis of Estimate)**
1	Civil Works (Building construction incl. foundation, structure, plumbing, finishing)	0.25	Based on RC rates
2	Electrical & Networking Works	0.05	Based on RC rates
3	External development	0.05	Based on RC rates

The Total estimated Cost will be **Rs. 0.70 Cr. (35 Lakh Each),**
Detailed Estimate attached in **(Annexure – 13.b)**

Cost Benefit Analysis

New Building Cost: Rs. 35 Lacks Each
Current annual rent expenditure: Rs. 3.5 Lakhs approx., Each and Payback period: 10 Years

Benefit to the System and Consumers

User friendly work environment for Employees. Over extended periods, the total rent paid can surpass the cost of Building. Also, best Consumer Platform for Grievance Redressal.

2.5.2.3 Construction of Section Offices

Background

TPCODL currently operates a total of 247 section offices across its network. Of these, 215 offices have already been constructed or strengthened. At present, 32 section offices remain pending for construction. Among these, 23 offices are functioning from rented premises, which are often overcrowded, lack adequate infrastructure, and do not provide sufficient space for consumer interaction or staff operations. These limitations significantly impact the efficiency of service delivery and grievance redressal mechanisms.

Proposal

It is proposed to construct the remaining 32 section offices in a phased manner with standard design, layout, and facilities. Priority will be given to the 23 offices operating in rented and inadequate spaces, followed by the remaining 9 that require new construction for strengthening of consumer interface and field support.

Requirement/ Need of the Proposal

Rented premises are congested and lack adequate space for consumer service counters, meeting rooms, complaint desks, and storage of records. Also, Non-availability of essential utilities like waiting areas, toilets, parking space, and consumer-friendly infrastructure.

Scope of Work

Section Building Specification: RCC framed structure (approx. 800.00 sq.ft. total built-up area) at below 09 location.

Sl. No	Location	Sl. No	Location
1	Gridco Colony	6	Gondia
2	Kanan Vihar	7	Kamakhyanagar
3	Nuagaon	8	Hindol Town
4	Bhuttamundai	9	Rengali
5	Charbatia		

Proposed Cost with Estimate Break-up

The Total estimated Cost will be **Rs. 3.15 Cr. (for 09 no Locations- 35 Lakhs Each.)**
Detailed Estimate attached in **(Annexure – 13.c)**

Cost Benefit Analysis

New Building Cost: Rs. 35 Lacks Each. Current annual rent expenditure: Rs. 3.5 Lakhs approx., each
Payback period: 10 Years

Benefit to the System and Consumers

Faster grievance redressal due to improved facilities and organized consumer handling space. Best Consumer Platform for Grievance Redressal. Long-term sustainability with scope for future technological integration (smart service counters, IT-enabled facilities). Cost savings from elimination of rental expenditures

2.5.2.4 Construction of Training Center Store

Background

At present scenario, there is one Skill Development Centres in each circle for Hands on Technical and Safety training for TPCODL and BA employees as well as workers. Essential training tools and equipment's are required for imparting training which are being stored in unprotected open areas.

Sl. No	Item Description	Amount (₹ in Cr)	Remarks (Basis of Estimate)
1	Civil Works (Building construction incl. foundation, structure, plumbing, finishing)	0.25	Based on RC rates
2	Electrical & Networking Works	0.05	Based on RC rates
3	External development	0.05	Based on RC rates

Proposal

It is proposed to construct a tools and equipment store at each location to store tools and equipment in safe and secure environment.

Requirement/ Need of the Proposal

Protection of training tools and equipment from weather damage, pilferage and theft. Ensure compliance with safety standards for electrical material storage.

Scope of Work

Store room Specification: RCC framed structure (approx. 220 sq.ft. total built-up area)
Locations: Talabania, Angul, Tirtol, Badambadi

Proposed Cost with Estimate Break-up

The Total estimated Cost will be **Rs. 0.48 Cr. (12 Lakh for single Location.)** Detailed Estimate attached in **(Annexure – 13.d)**

Sl. No.	Item Description	Quantity (Nos)	Estimated Cost (Rs. Cr)	Remarks (Basis of Estimate)
1	RCC structure building with finishing	1	0.09	Based on RC rates
2	Racks/Bins & Store Fixtures	1	0.03	Based on RC rates

Cost Benefit Analysis

Covered and secure storage enhances equipment lifespan. And Faster and smoother material handling, resulting in imparting training in efficient manner.

Benefit to the System and Consumers

Ensure systematic storage of training tools and equipment.

2.5.2.5 Construction of Sub-Division Offices

Background

Bidyut seva kendra plays a vital role in the routine maintenance work and consumer grievance redressal in all areas across TPCODL. Some of the locations area having the electricity network

circuit around 15 to 20 km. With the growing demand of consumption of electricity it is difficult to manage a huge long range area during critical times.

Proposal

It is proposed to construct a permanent **Bidyut Seva Kendra** at a centrally accessible location to cater to consumer service requirements.

Requirement/ Need of the Proposal

Difficulty in ensuring timely resolution of outages, voltage fluctuations, and maintenance requirements across large geographical areas. Inadequate facilities for frontline staff for effective deployment and monitoring.

Scope of Work

The scope of work will include:

Building Type: RCC framed structure with **220 Sq Ft** plinth area including Washroom at below 05 Location.

Sl No	Location
01	Naharkanta
02	GOP
03	Delanga
04	Kamakhyanagar
05	Bhuttamundai

Proposed Cost with Estimate Break-up

The Total estimated Cost will be **Rs. 0.50 Cr. (10 Lacks for single Locations.)** Detailed Estimate attached in **(Annexure – 13.e)**

Cost Benefit Analysis

Payback Period: 4–5 years considering rent savings and enhanced revenue realization.

Benefit to the System and Consumers

Provides a **single-window system** for all consumer-related services and Improves **service delivery efficiency** and reduces turnaround time.

Long-term cost savings and asset creation for the utility. Enhanced consumer satisfaction, reduction in grievances, improved statutory compliance.

2.5.2.6 Construction of Approach Road

Background

Section and SDO offices play a critical role in the operational management and customer service delivery. Many of these offices currently lack proper approach roads, resulting in accessibility challenges for employees, visitors, and emergency vehicles, especially during adverse weather conditions or peak load period. Many offices are situated in low-lying areas, leading to frequent waterlogging.

Proposal

The proposal aims to construct a durable 3 m wide approach road within the premises, directly connecting the section and SDO offices to the main access road. The project will involve earthwork, roadbed preparation with GSB, drainage construction, Paver Block fixing to create a safe, all-weather, and reliable access route.

Requirement/ Need of the Proposal

Existing offices often become difficult to reach during rains, leading to service delays and inconvenience for staff and customers. Unobstructed access is essential for timely transformer maintenance, emergency response, and daily logistics. Improved road access reduces risks for vehicles and personnel, especially for movement of heavy equipment. Enhanced accessibility ensures uninterrupted customer-facing activities and compliance with regulatory requirements.

Scope of Work

The scope of work include the following:

i. Total number of identified office location where immediate approach road required: 24
ii. Approx. total road length: 2.652 KM
iii. Road type: GSB with Paver Blocks**.**

Sr No	Identified Office Locations
1	BBSR 1 Circle: 100 m
2	Dhenkanal Circle: 150 m
3	Dhenkanal Customer Care & EMR Office: 222 m
4	Kakatpur 1 Section, SDO & Control room:100 m
5	PED Division: 100 m
6	NyED Division: 50 m
7	SED Division: 100 m
8	CDD 1 Division:200 m
9	CED Jobra: 200 m
10	AnED Division: 50 m
11	KED 1 Division: 100 m
12	TED Chainpal Division: 100 m
13	Paradeep Section & CCC: 100 m
14	Mandasahi Section: 50 m
15	Ersama Section & Control Room: 150 m
16	Kujanga Section, SDO & SY: 100 m
17	NED Division: 100 m
18	Bolanda Section: 100 m
19	Hatatota Section & CCC: 150 m
20	Boinda SDO & Section: 70 m
21	Patrapur Section: 90 m
22	Korua Section: 70 m
23	Marshaghai: 110 m
24	Samal Section: 90 m

Proposed Cost with Estimate Break-up

The Total estimated Cost will be **Rs. 2.61 Cr at Rs 3280 per SQM.** Detailed Estimate attached in **(Annexure-13.f)**

Cost Benefit Analysis

Avoidance of damages to vehicles, equipment, and materials caused by waterlogging.

2.5.2.7 Furniture at Offices

Background

The existing office furniture is outdated, dilapidated, and beyond repair. Most of the current furniture lacks ergonomic design, which affects employee comfort and productivity. A replacement is essential to ensure a safe and efficient working environment.

Proposal

It is proposed to provide the office Furniture's such as Workstations, Tables Storage cabinets, Chairs etc**.**

Requirement/ Need of the Proposal

Modern furniture can be strategically selected and arranged to optimize available space and create distinct functional zones within the office. It enhances workflow, encourages interaction, and supports a healthier work culture.

Scope of Work

The scope covers the supply and installation of furniture across renovated and newly constructed Offices.

Proposed Cost with Estimate Break-up

Total Estimated Cost: Rs. **2.66 Cr.** Detailed Estimate attached in **(Annexure – 13.g)**
Seating Capacity: **350 Nos. at 21 location**

Sr No	Locations
1	CED Jobra Division
2	COS Office
3	Khandigiri SDO
4	Narsinghpur SDO
5	Nischintakoili SDO
6	BBSR1 Circle and BCDD-1
7	Dhenkanal Circle & DED
8	Cuttack Circle
9	Customer Care
10	Marshaghai Division
11	Kujanga SDO
12	Marshaghai SDO
13	Bhuttamundai Section
14	Kanan Vihar section
15	Gondia Section
16	Kamakhyanagar Sec

17	Gridco Colony Section
18	Nuagaon Section
19	Charbatia Section
20	Hindol Town Section
21	Rengali Section

Cost Benefit Analysis

Enhances employee comfort, reduces fatigue, and supports health.
Efficient layout and modularity allow better space utilization and Modular furniture adheres to safety standards, minimizing risks of accidents.

Benefit to the System and Consumers

Designed with replaceable parts (panels, drawers, and fittings), reducing wastage and Creates a uniform and modern look, improving workplace environment.
Improve Productivity & Cost effective in long run.

2.5.2.8 Capacity Enhancement of Transformer Workshop

Background

TPCODL records ~3,000 DT failures annually, incurring Rs. 14 Cr Opex on outsourced repairs. There is dependency on timelines on delivery of repaired transformer from outsourced agency. To reduce cost and improve reliability, one workshop has been functional at Choudwar in the year FY-25 where at present only minor repair work of DT are performed as per plan. Other two workshops at Jankia and Banarpal were planned to be functional in the year FY26-27.

In the existing DT Workshop at Choudwar, the facility of sitting arrangement of employee and storage is not enough to accommodate employees and materials, in line with our plan of enhancing the scope of the workshop to include winding of transformer coils.

Proposal

It is proposed to Construct Oil testing Lab, Sitting arrangement for Employees, Store Room and Security Cabin in Choudhwar transformer Workshop.

It is proposed to Construct Shed for cleaning and painting of transformer at Jankia and Banarpal transformer workshop. Also Epoxy flooring, Chain link fencing, Washroom Facility, Oil Tanker of 6000 l capacity for storing scrap and used oil, High mast light at banarpal and industrial high-speed fan to be provided at both locations.

Requirement/ Need of the Proposal

i. In-house capability development of TPCODL for transformer winding
ii. Faster turnaround of failed DTs.
iii. To establish control on priority of DTR repair,
iv. The facility at Banarpal and Jankia will provide minor repair work of salvaged DTs, damage DTs and conditional maintenance work DTs upto 100KVA.
v. The facility of Choudwar workshop will be upgraded for major repair works DTs.

Scope of Work

Location – Choudwar

i. Construction of Oil testing Lab, Sitting arrangement for Executive, Store Room and Security Cabin on existing RCC frame structure.

Location – Jankia and Banarpal

i. Construction of Shed for cleaning and painting of transformer, Epoxy flooring, Chain link fencing, Washroom Facility, Oil Tanker of 6000 l capacity for storing scrap and used oil and industrial high speed fan to be provided. High mast light at Banarpal to be installed.

Proposed Cost with Estimate Break-up

Table 51 : Item-wise Break-up of Proposed expenditure for Transformer Workshop

		Procurement Proposal (in Nos.)				Cost (in Lakhs)			
Sr. No.	Description	Choudwar	Banarpal	Jankia	Total	Choudwar	Banarpal	Jankia	Total
1	Office Room in First Floor (Oil testing Lab, Sitting arrangement for Employees, Store Room)	1	0	0	1	25	0	0	25
2	Epoxy Flooring	0	1	1	2	0	2.3	2.3	4.6
3	Fencing	0	1	1	2	0	2	2	4
4	Overhead tank with toilet	0	1	1	2	0	2	2	4
5	Oil tanker (6000ltr) (Scrap+Used)	0	1	1	2	0	3	3	6
6	Hi mast Light	0	1	0	1	0	4.5	0	4.5
7	Industrial high speed wall fan	0	4	4	8	0	1	1	2
8	Shed for cleaning, painting, unloading of size 15 mt x 4mt x 6mt (L xW xH)	0	1	1	2	0	18	18	36
9	Security Cabin	1	1	1	3	0	2	2	4
	Total (in Rs. Lakhs)					**25**	**34.80**	**30.30**	**90.10**
	Total (in Rs. Cr)					**0.25**	**0.348**	**0.303**	**0.901**

Benefit to the System and Consumers

i. Enhanced capacity of DT Workshop
ii. In-house capability development of TPCODL for transformer winding
iii. Faster turnaround of failed DTs.
iv. Improved supply reliability and consumer satisfaction.
v. Reduction of operational expenditure against DT Repair through outsource BA

2.5.3 Enhancing Storage capacity in Existing / New Stores

2.5.3.1 Asset Protection & Infrastructure Strengthening of Stores

Background

To uphold our commitment to operational excellence, safety compliance, and asset protection, it is essential to upgrade the infrastructure at both new and existing store locations.

Current yard conditions—characterized by unpaved surfaces, inadequate lighting, and limited surveillance—pose significant challenges in Store operation. Unpaved yards hinder equipment mobility, increase accident risk, and accelerate material deterioration. Insufficient illumination restricts working hours, compromises safety, and affects operational efficiency. Similarly, lack of CCTV surveillance exposes stores to security threats and limits incident traceability. This proposal aims to address these deficiencies through yard development with paver blocks, installation of high mast LED lighting, and deployment of CCTV systems, thereby ensuring safer, more efficient, and secure store operations.

Proposal

The proposal covers three major components.

i. Yard development is proposed to be carried out by paving approximately 8,000 square meters across designated store yards using interlocking paver blocks.
ii. Illumination will be enhanced through the supply and installation of high mast lighting systems of 16 meters height equipped with energy-efficient LED flood lights.
iii. Security infrastructure will be strengthened by installing CCTV surveillance systems at new open stores.

Requirement/Need of the Proposal

The proposed intervention is necessary to eliminate operational inefficiencies and enhance safety and security standards across stores. Paver block yard development will provide a stable surface for equipment and personnel, thereby reducing operational delays, safety risks, and material damage. High mast LED lighting will ensure uniform illumination across large yard areas, thereby improving visibility, extending working hours, and enabling safe operations even during late hours. CCTV surveillance will establish continuous monitoring, ensure asset protection, strengthen security against theft or unauthorized access, and fulfill statutory as well as internal audit requirements. Together, these measures will address deficiencies in the present system and ensure compliance with both operational and statutory standards.

Scope of Work

The scope of work includes yard development and road construction within store premises covering a total area of 9,000 square meters plus 6,256 square meters. High mast lighting, illumination systems, and CCTV surveillance will be installed at Kendrapada, Choudhwar, Khurda, and Banarpal Stores.

Scope of Work	Store Location
Yard Development including Road Construction in side the Store (Total Area: 9,000 SQM+6256 SQM)	Badambadi Store, Janla Store, Choudhwar Store (New Colony Area) & Bidanasi Store
	Kendrapada, Choudhwar, Khurda & Banarpal Stores

High Mast Lighting, Illumination and CCTV Surveillance System	

Proposed Cost with Estimate Break-up

Table 52 : Item-wise Break-up for Central Stores Asset Protection & Infrastructure Strengthening

Scope of Work	Store Location	Approximate Budget (Rs. Cr)
Yard Development including Road Construction in side the Store (Total Area: 9,000 SQM+6256 SQM)	Badambadi Store, Janla Store, Choudhwar Store (New Colony Area) & Bidanasi	1.39
High Mast Lighting, Illumination and CCTV Surveillance System	Kendrapada, Choudhwar, Khurda & Banarpal Stores	0.42
Total Estimated Cost (Rs. Cr)		**1.81**

The above proposed scope is targeted for completed by March 2027.

Cost-Benefit Analysis

The proposed yard development will ensure safe and smooth movement of forklifts and cranes, reduce material damage, minimize operational delays, and improve drainage as well as dust control. CCTV installation will strengthen security through enhanced inventory protection, enable real-time monitoring, provide incident traceability, and ensure compliance with audit and safety protocols. High mast lighting will guarantee uniform illumination across yards, extend working hours, improve safety, and reduce energy consumption by deploying energy-efficient LED technology.

Benefit to the System and Consumers

The proposed intervention will significantly

i. Enhance operational efficiency by streamlining material handling and dispatch activities.
ii. It will improve safety standards by reducing the risk of accidents and ensuring well-lit, secure work environments.
iii. The installation of CCTV will strengthen security infrastructure, safeguarding valuable assets and enabling continuous monitoring.
iv. Reliable yard conditions and infrastructure will ensure timely and safe material movement, thereby reducing the risk of product damage.
v. Collectively, these improvements will enhance responsiveness and overall service quality, resulting in a more reliable supply chain and better service delivery to consumers.

2.5.3.2 Racking Systems, Weather-Protected Sheds & Material Handling Facilities

Background

At the time of inception, warehouse storage was largely dependent on open/covered sheds with floor stacking. This method limited vertical utilization, increased material handling time, and compromised storage safety. Materials were often placed directly on the ground or with non-standard supports, resulting in inefficiencies and deterioration risks.

With TPCODL undertaking substantial capital investment annually under government-funded, deposit, and CAPEX schemes, it is essential to enhance store capacity in line with the growing material storage requirements.

Many of the sensitive materials had to be kept in makeshift shelters, exposing them to weather risks.

Hence, to enhance storage capacity and operate efficiency, there is a need for warehouses with **clad racks** that utilize vertical space effectively. Materials should be stored on **plastic pallets** to ensure safety, cleanliness, and protection from damage. Additionally, **proper illumination** inside the shed is essential for safe handling, easy identification, and improved operational efficiency.

Further, there is a need to establish a **Weather-Resistant Storage Shed** for keeping bulk and heavy equipment such as **Indoor Panels, RMUs, LTDBs, etc.** These materials require easy accessibility and frequent movement through forklifts and cranes.

Proposal

i. Construction of a **warehouse G+2 with clad racks**
ii. **Supply & Installation of Clad rack at existing sheds**
iii. Provision of **plastic pallets**
iv. Installation of **proper illumination**
v. Development of a Weather-Resistant Storage Shed

Requirement/ Need of the Proposal

i. To enhance storage capacity by optimizing vertical and horizontal space.
ii. To ensure safe and organized material storage using palletized systems.
iii. To improve working conditions and safety standards with adequate lighting.
iv. To provide a dedicated Weather-Resistant Storage Shed for bulk and heavy materials requiring frequent movement.

Scope of Work

Scope of Work	**Store Location**
Clad Racking System and Plastic Pallets for Safe Material Storage (Size: 60 × 25 × 8 FT)	Jagatpur & Banarpal, Kendrapada Store
Weather-Resistant Storage Infrastructure for the critical materials- Indoor Panels, RMUs, FRTUs, LTDBs (Size: 2X30 × 60 × 12 FT)	Chowdhwar, BBSR & Khurda Store
Construction of New Shed (G+2) with Clad Racking System and VRC (36 × 20 × 8 m), including Concrete Flooring for new Shed (G+2) (40 × 25 m)	BBSR Store

Proposed Cost with Estimate Break-up

Table 53 : Item-wise Break-up of Racking Systems, Weather-Protected Sheds & Material Handling Facilities for Central Stores

Scope of Work	Store Location	Approximate Budget (Rs. Cr)
Clad Racking System and Plastic Pallets for Safe Material Storage (Size: 60 × 25 × 8 FT)	Jagatpur & Banarpal, Kendrapada Store	0.59
Weather-Resistant Storage Infrastructure for the critical materials- Indoor Panels, RMUs, FRTUs, LTDBs (Size: 2X30 × 60 × 12 FT)	Chowdhwar, BBSR & Khurda Store	1
Construction of New Shed (G+2) with Clad Racking System and VRC (36 × 20 × 8 m), including Concrete Flooring for new Shed (G+2) (40 × 25 m)	BBSR Store	2.6
Total Estimated Cost (Rs. Cr)		**4.19**

Cost Benefit Analysis

Component	Key Benefit
Clad Racking System (Existing Sheds)	- 3x increase in vertical storage
	- Reduced material damage
	- Faster retrieval
Weather-Resistant Storage Shed	-Safe, accessible storage for heavy equipment
	- Reduced crane/forklift idle time
New G+2 Shed with Clad Rack & VRC	-increase in vertical storage
	- Efficient vertical movement
	-Reduce manpower
Plastic Pallets (400 Nos.)	- Clean, safe, stackable storage
	- Compliance with safety norms

Benefit to the System and Consumers

i. Reduced Material Handling Time
ii. Optimized Space Utilization
iii. Improved Inventory Management

iv. Reduced Risk of Damage
v. Enhanced Worker Safety
vi. Modular Infrastructure

2.5.4 Admin Infrastructure

Background

Air-Conditioner: With last year capex, we have installed AC's in all section offices. Further to strengthen the PSS, need to replace the existing AC's which are of 10-12 years old. We are experiencing frequent breakdowns of the AC's across location which in turn increasing the operational cost. In this context, it is pertinent to replace the old AC's so as to minimize day to day operational expenses.
There were only 1000 odd AC's across TPCODL at the time of inception and we have installed approx. 1100 nos. till date. We would require another approx. 1000 AC's to replace all the old AC's from PSS and to cover other forth coming new offices out of which we have got approval for 205 AC's in FY 25-26 capex and the remaining numbers shall be covered in next 3 years in phase-wise manner (FY 26-27, 27-28 & 28-29).

Water Purifier*:* We have covered 90% of the existing offices with water purifier and need to replace the remaining extreme old purifiers installed since erstwhile CESU period which are frequently breaking down.

We have already installed 439 RO's till date and we would require another 50 nos. for this year. From next year onwards, the requirement may be minimal.

Water Cooler: We have already installed 105 Water coolers across offices. Need to keep provision for forthcoming new offices.

Photocopier: We have already installed 53 photocopiers across offices. Need to keep provision for forthcoming new offices / departments.

TV (Display Equipment): 15 TV units of different sizes are required to install in the meeting and conference rooms to conduct meetings / trainings etc.

Office Furniture: The existing furniture's in most of the site offices are old and were provided either since erstwhile CESU period or during the inception of TPCODL. The life of the furniture's like chairs etc are less and need frequent replenishment due to round the clock usage and local offices. Therefore, a lumpsum amount is proposed (as under) to cater the

entire office furniture category which includes table, chair, storage unit, credenza, steel almirah, pedestal, tandem chair etc. This will be a recurring expense and may use in every year.

Proposal

The item wise break up is as below:

Sl No	Activity	Quantity Proposed for FY 26-27
1	Air-Conditioner	250
2	Water Purifier	50
3	Water Cooler	05
4	Photocopier	10
5	TV (Display Equipment)	15
6	Office Furniture	Lot

Requirement/ Need of the Proposal

i. The project aims to provide a better and safer workplace for employees to enhance business performance. Old ACs in PSS need replacement gradually to enhance the equipment life.
ii. Water purifiers are provided where water supply is available, with efforts to fix water sources where needed and for new offices, requires budget allocation.
iii. Water coolers are available up to sub-division offices, and new offices require budget allocation.
iv. Common printers are planned for all offices, wherein we have installed till Division level. For other offices and new offices, need budget allocation.
v. TVs will be installed in conference and meeting rooms for online meetings. Portable projection equipment is needed for outdoor training sessions.
vi. Furniture's shall be provided in new offices as well as replenish the old damaged furniture's.

Scope of Work

The quantities are mentioned in below table with estimate cost, which shall be catered for entire TPCODL

Proposed Cost with Estimate Break-up:

Table 54 : Item Wise Break for Admin Assets

Sl No	*Activity*	*Quantity Proposed for FY 26-27*	*Cost/Unit*	*Budget Proposed of FY 26-27*
1	Air-Conditioner	250.00	58000.00	1.45
2	Water Purifier	50.00	10000.00	0.05
3	Water Cooler	5.00	40000.00	0.02
4	Photocopier	10.00	100000.00	0.10
5	TV (Display Equipment)	15.00	55000.00	0.08
6	Office Furniture	Lumpsum		0.30
	Proposed Budget			**2.00**

Benefit to the System and Consumers:

i. Installation of AC in PSS will increase the lifespan of PSS equipment.
ii. Use of water purifier is a statutory compliance and will be beneficial for employee's health
iii. 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.
iv. 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.