

**BEFORE THE HON'BLE
ODISHA ELECTRICITY REGULATORY COMMISSION
BIDYUT NIYAMAK BHAWAN
PLOT NO.4, CHUNOKOLI, SHAILASHREE VIHAR, CHANDRASEKHARPUR,
BHUBANESWAR-751021**

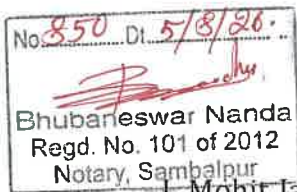
CASE NO: ____ of 2026

In the matter of: **Application for approval of Multi Year Capital Investment Plan for the period FY 2026-27 to FY 2030-31 in the Licensed Area of TP Western Odisha Distribution Limited in compliance with Directives of the Hon'ble Commission under the Retail Supply Tariff (RST) Order for FY 2026-27 dated 24.03.2026, as per para 3.2 of the OERC (Terms and Conditions for Determination of Wheeling and Retail Supply Tariff) Regulations, 2022.**

AND

In the matter of:

**M/s. TP Western Odisha Distribution Ltd. (TPWODL)
Regd. Office Burla, Sambalpur, Odisha-768017**



AFFIDAVIT

I, Mohit Jain, aged about 43 years, S/o Shri. Vijay Chand Jain, presently working as the Chief Financial Officer, TP western Odisha Distribution Limited, Corporate Office, Burla do hereby solemnly affirm, and state as follows: -

1. That, I am the authorized representative of the Applicant.
2. That, I have gone through the contents of the present application and am well versed with the facts laid down there-under.
3. That, the facts stated in the present application are true to the best of my knowledge and belief and the same are based upon available records.



DEPONENT

VERIFICATION

Solemnly affirmed at Sambalpur on this 05th day of June, 2026 that the contents of the above affidavit are true to my knowledge (as derived from the records), no part of it is false and nothing material has been concealed there from.

DEPONENT

PLACE: Sambalpur
DATE: 05/06/2026

THE DEPONENT SOLEMNLY
AFFIRMED BEFORE ME

Bhubaneswar Nanda
Notary, Sambalpur
Regd. No. 101/12

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ODISHA ELECTRICITY REGULATORY COMMISSION
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Regd. Office Burla, Sambalpur, Odisha-768017**

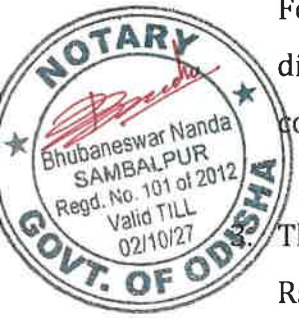
Most Respectfully Sheweth,

1. That, TPWODL has taken over the distribution business from erstwhile WESCO utility w.e.f. 01.01.2021 in accordance with the terms of Vesting Order.
2. That, TPWODL has a vast distribution area in western part of Odisha serving population of 95 lakhs with a consumer base of more than 29 lakhs and covering 48,373 sq.km, across 9 revenue districts of Odisha such as Bargarh, Bolangir, Deogarh, Jharsuguda, Kalahandi, Nuapada, Sambalpur, Sonepur and Sundargarh. For effective operations, license area is divided into 5 circles, which is further sub divided into 17 Divisions, 57 Sub-divisions and 201 Sections which manages the commercial and O&M activities in order to serve its consumer.

That, as per the commitment and mandate of Vesting Order, TPWODL has to invest Rs. 1663 Cr. towards CAPEX to ensure reliable power supply to the end customer. Since, such a huge investment would adversely affect tariff, so investment has been staggered in 5 years in the following manner:

FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	Total
306	500	333	322	202	1663

(All in Rs. Cr.)

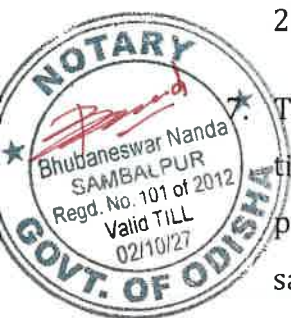


4. That, upon proposal of TPWODL regarding CAPEX requirement for FY 21-22, FY 22-23, FY 23-24, FY 24-25 & FY 25-26 (jointly filed), Additional CAPEX for FY 24-25 & FY 25-26 and CAPEX FY 26-27 the Hon'ble Commission through regulatory proceedings approved the Capital Expenditure for the 6 years vide Order dated 18.09.2021, 08.07.2022, 21.06.2023, 12.12.2023, 24.03.2025 and 15.05.2026 respectively. The following table provides the CAPEX approvals vis-à-vis the TPWODL proposals in the said years:

S. No.	Particulars	FY - 22	FY - 23	FY - 24	FY - 25	FY - 26	Addnl. CAPEX FY-25 & 26	FY - 27
1	CAPEX proposed by TPWODL (Rs. Cr.)	462.42	582.18	398.84	571.97	403.13	175.93	525.30
2	CAPEX approved by Hon'ble Commission (Rs. Cr.)	333.13	477.72	381.91	493.77	336.6	111.13	383.90

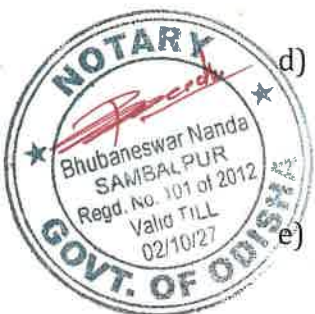
5. That, as can be seen from the above table, the cumulative approval provided by the Hon'ble Commission is Rs. 2518.16 Cr. till FY 26-27 out of the Vesting Order committed CAPEX of Rs. 1663 Cr. for 5 years. Accordingly, the licensee has capitalized Rs. 1945.28 Cr. till May 2026.

6. That, the Hon'ble Commission, in its Retail Supply Tariff Order for FY 2026-27 dated 24.03.2026, has issued specific directives to the Licensee pertaining to safety, protection, metering, AT&C loss reduction, reliability and improvement of voltage profile in the distribution network. Compliance with these directives necessitates capital investment over and above the scope of the Annual Capex Plan already approved by the Hon'ble Commission for FY 2026-27 in Case No. 82 of 2025, dated 15.05.2026.



That, in order to ensure adherence to the aforesaid directives within the stipulated timelines, TPWODL has prepared a Detailed Project Report (DPR) outlining the proposed investments under two broad categories namely: (A) Strengthening safety standards, reliability and improving the voltage profile across the licensed area; (B) DTR Metering for 63 kVA and above and AT&C Loss reduction of 11 kV feeders and associated DTs.

8. That, the Board of Directors of TPWODL, in its meeting held on 22nd April 2026, approved an additional capital investment of Rs.1637.79 Cr. A certified true copy of the Board's approval is enclosed as Annexure-I to this petition. Out of the approved amount, the Hon'ble Commission has already sanctioned Rs. 30 Cr. towards DTR Smart Metering & PSS Metering and Rs.3.33 Cr. towards installation of cradle guards for 11 kV road crossings. Subsequently, the Department of Energy, Government of Odisha, has revised the Cost Data for electrical materials covering 348 items. In line with this revision, the Licensee has updated its Bill of Quantities (BoQ). Accordingly, the revised investment proposal amounting to Rs. 1279.36 Cr. is now being submitted for the kind approval of the Hon'ble Commission.
9. That, in compliance with the regulatory requirements and in pursuance of the directives contained in the Tariff Order dated 24.03.2026, the Licensee hereby files this petition seeking approval of the Multi-Year Capital Investment Plan for the period FY 2026-27 to FY 2030-31.
10. That, the Hon'ble Commission, vide its Retail Supply Tariff Order for FY 2026-27 dated 24.03.2026, has issued the following key directives which constitute the basis and necessity of the present petition:
- Completion of metering of at least 2 to 3 nos. of 11 kV feeders in each division (with high revenue earning) and associated DTRs & consumers need to be completed in all respect by the end of financial year 2026-27 to assess actual technical loss and AT&C loss. (Para No. 267)
 - Strengthening of DTR metering up to and including 63 kVA rating (Para No. 268 & 300)
 - Targeted AT&C loss reduction measures in high-loss 11kV feeders. (Para No. 272)
 - Installation of Guard Wires / Cradle Guards and provision of Underground Cables at National Highway / State Highway and other major road crossings on 33kV and 11kV overhead lines, to mitigate safety hazards. (Para No. 299)
 - Provision of standardized HT and LT protection systems for all Distribution Transformers up to and including 63 kVA. (Para No. 300)
 - Addressing low voltage issues in urban and major city areas through augmentation and addition of DTRs, extension of HT/LT networks, and



conversion of single-phase LT networks to three-phase systems. (Para No. 301)

11. That, the above directives are in the nature of statutory compliance requirements and form the foundation of the proposed investments detailed in the DPR. Accordingly, these investments are being submitted for kind consideration and approval of the Hon'ble Commission.

12. That, in compliance with the directives issued by the Hon'ble Commission, the Licensee hereby submits a proposed Multi-Year Capital Investment Plan amounting to Rs. 1279.36 Cr. (Hard Cost only). The plan is structured into two distinct components under the Detailed Project Report (DPR), to be implemented in a phased manner over the period FY 2026-27 to FY 2030-31:

Part A – Safety & Reliability: Multi-Year CAPEX aimed at strengthening and enhancing the safety and reliability of the distribution network, with an investment outlay of **Rs. 975.04 Cr.**

Part B – Loss Reduction: Multi-Year CAPEX targeted at reducing losses on high AT&C 11 kV feeders, with an investment outlay of **Rs. 304.33 Cr.**

Accordingly, the summarized investment plan is presented in the table below:

Sl no	Activity	Total (Rs. Cr)	FY 27 (Rs. Cr)	FY 28 (Rs. Cr)	FY 29 (Rs. Cr)	FY 30 (Rs. Cr)	FY 31 (Rs. Cr)
Part A – Safety & Reliability							
1	Protection system on HV and LV side of DTRs of 63KVA and above	433.56	127.37	155.02	151.17	0.00	0.00
2	Protection system on HV and LV side of DTRs of 25KVA	422.87	0.00	101.13	116.32	115.01	90.41
3	Installation of Guard Wires for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads	90.69	90.69	0.00	0.00	0.00	0.00
4	Addressing Low Voltage issues in urban and major city areas	27.92	27.92	0.00	0.00	0.00	0.00
Sub - Total - Safety & Reliability		975.04	245.98	256.15	267.49	115.01	90.41
Part B – Loss Reduction							
1	DTR Metering or 63 kVA and above	10.78	10.78	0.00	0.00	0.00	0.00
2	AT&C Loss reduction of 11kV feeders and associated DTs	293.54	92.41	85.83	115.30	0.00	0.00
Sub- Total - Loss Reduction		304.32	103.19	85.83	115.30	0.00	0.00
Total Proposed Investment (Rs. Cr.)		1279.36	349.17	341.98	382.79	115.01	90.41

The above capital investment (Rs. 1279.36 Cr.) represents Hard Cost only, i.e., without considering Employee Cost capitalized and Interest During Construction

(IDC). The Employee Cost associated with the projects and the IDC on the Debt Component (70%) shall be in addition to the Hard Cost and shall be allowed to be capitalized as per applicable regulatory provisions.

The detailed Capital Investment Plan including scheme-wise scope, technical justification, phasing of investment, cost breakup and cost-benefit analysis is comprehensively presented in Part A and Part B of this petition.

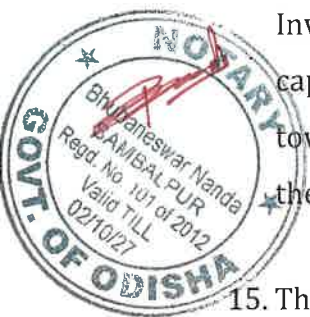
13. That, the proposed additional capital investment shall be implemented in a phased manner over five financial years from FY 2026-27 to FY 2030-31. The tentative phasing of the investment is as detailed in the table below: The Detailed time frame of expenditure is attached as Annexure-A & Annexure-B to the DPR.



Sl. No.	OERC Directive (RST Order FY 2026-27)	Total Cost (Rs. Cr.)	Year wise Budget Break-Up					Scope of Work
			FY-27	FY-28	FY-29	FY-30	FY-31	
1	Protection system on HV and LV side of DTRs of 63KVA and above	433.56	127.37	155.02	151.17	0	0	11KV AB Switch, 11KV Lightening arrester, MCCBs of suitable ratings are proposed for DTRs of 63 kVA and below 250 kVA, while ACBs of appropriate ratings are proposed for DTRs of 250 kVA and above. For HV protection, DO fuse units and 11 kV RMUs are proposed for DTRs up to 250 kVA and 500 kVA and above, respectively.
2	Protection system on HV and LV side of DTRs of 25KVA	422.87	0	101.13	116.32	115.01	90.41	MCCBs of suitable rating, 11KV AB Switch, and 11KV Lightening arrester are proposed for 25 kVA DTRs. For HV protection, DO fuse units are proposed.
3	Installation of Guard Wires and UG Cable for 33 kV & 11 kV overhead lines crossing over National & State Highway	90.69	90.69	0	0	0	0	Underground cable proposed at NH/SH Crossings while Cradle guarding proposed for other critical locations.
4	Addressing Low Voltage issues in urban	27.92	27.92	0	0	0	0	New DTR/ DTR augmentation, New/Augmentation of LT lines proposed.

Sl. No.	OERC Directive (RST Order FY 2026-27)	Total Cost	Year wise Budget Break-Up					Scope of Work
		(Rs. Cr.)	FY-27	FY-28	FY-29	FY-30	FY-31	
	and major city areas							
5	DTR Metering for 63 KVA and above	10.78	10.78	0	0	0	0	DT Metering for balance 6208 nos. of 63 kVA & Above after excluding approved CAPEX budget of FY 27 (For AT&C loss below 50% loss) proposed.
6	AT&C Loss reduction of 11KV feeders and Complete Metering of 2-3 nos. of 11KV feeders and associated DTs	293.55	92.42	85.83	115.30	0	0	Total of 19648 Nos. of DTR metering for 63 KVA below, 2034.95 kMs of LT bare to AB conversion, 122560 Nos of LT distribution box along with armored cables proposed.
	TOTAL COST (Rs. in Cr.)	1279.37	349.18	341.98	382.79	115.01	90.41	

14. That, the Employee Cost associated with the projects covered under this Capital Investment Plan would also form a part of the Capex and would be eventually capitalized along with the respective capital expenditure scheme. The cost towards employees working on such projects shall be separate, i.e., in addition to the Hard Cost amount proposed in this petition.



15. That, considering the voluminous nature of the investment proposal, the Licensee has divided the CAPEX Plan into 2 volumes (Volume-1: Affidavit & CAPEX DPR (Part A & Part B) and (Volume-2: Annexures A & B to the respective DPR).

16. That, all the expenditures are estimated based on comprehensive field studies and survey, which may vary on actual.

17. That, the funding of the proposed CAPEX of Rs. 1279.36 Cr. shall be made with loan of 70% & balance 30% with equity contribution.

[Handwritten signature]

Prayer

In the aforesaid facts and circumstances, the Licensee prays before Hon'ble Commission, may be pleased to

- a) Take the Multi-Year CAPEX application for FY 26-27 to FY 30-31 on record.
- b) Approve the Capital investment proposal of Rs. 1279.36 Cr.
- c) TPWODL may be permitted to submit additional documents, modify the present application if so required during the proceeding of the application.
- d) Any other relief, order or direction which the Hon'ble Commission may deem fit.

Place: Sambalpur
Date: 05.06.2026


Applicant
For & On Behalf of
TPWODL





MULTI-YEAR CAPEX PROPOSAL

FOR

FY 26-27 To FY 30-31

Volume - I

Detailed Project Report

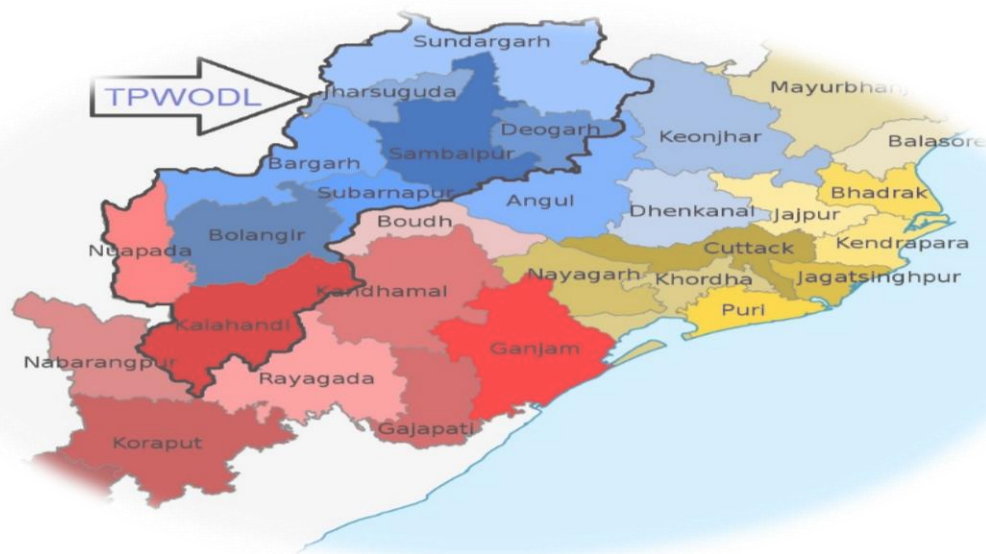
PART-A (Safety & Reliability)

&

PART-B (AT&C Loss Reduction)

SUBMITTED BY

TP WESTERN ODISHA DISTRIBUTION LTD.



Capital investment schemes details for In-Principal approval – PART A

Overview of the Detailed Project Report	
Index with the documents Page No.	Attached in page no 4
Name of Applicant	TP Western Odisha Distribution Limited
Name of the Capital Investment Work	Additional 5 Year Capital Expenditure in Compliance to direction of the Hon'ble Commission (RST Order FY'2026-27)
Nature of capex Scheme (New/ Resubmitted / revised / modified / extended)	New CAPEX scheme is being submitted as per direction of the Hon'ble Commission (RST Order FY'2026-27)
Details of the Location	Attached in Annexure 1 to 4
Date of Approval by Competent Authority designated by the Board of Directors of the Company	Date of Approval 22-04-26.
Category of DPR	As Per Para 4.1 of Draft CAPEX Regulation-2026 Distribution Infrastructure Strengthening and System Improvement Scheme 1. System strengthening for enhancing capacity 2. Capacity augmentation of distribution lines and transformers 3. Improvement in quality of supply, safety and reliability of distribution system
Objective of the Capital Investment	To improve network safety, voltage profile, reliability of power supply and distribution infrastructure.
Need Analysis	The scheme is proposed to address low voltage issues, inadequate safety & protection systems in network.
Overall cost-benefit analysis	Cost benefit analysis details mentioned in the Detailed Project Report.
Brief Scope and Specifications of Work	Detail Scope of work and specifications considered under respective schemes mentioned in the DPR.
Estimated cost (Rs Cr.)	Rs. 975.04 Cr.
Time frame of the expenditure	Attached in Table 1 and Table 2 of DPR
Benefits/Impact	Improvement in voltage profile, enhanced safety and reliability, reduction in faults and outages, improved consumer service and strengthening of overall distribution infrastructure.
Need of the investment	TPWODL's distribution network is required to be strengthened to address critical issues related to safety, reliability and quality of supply. The existing network in several locations has unsafe overhead crossings, inadequate protection at DTRs, long LT feeders and overloaded or undersized network elements, which together result in public safety risks and poor voltage profile at consumer end. The proposed capital investment is necessary to comply with the directions of the Hon'ble Odisha Electricity Regulatory Commission under the RST Order FY'2026-27 and to implement time-bound measures for system strengthening and network

safety improvement. The works proposed under this scheme, including underground cabling at NH/SH crossings, installation of cradle guards, provision of HV/LV protection at DTRs and augmentation of network in low-voltage areas, are intended to mitigate electrical hazards, reduce the risk of conductor snapping and accidental contact and improve operational safety for employees, consumers and the public.



**DETAILED PROJECT REPORT
FOR
MULTI-YEAR CAPEX FY 26-27 TO FY 30-31
FOR IMPROVING SAFETY AND RELIABILITY OF
DISTRIBUTION NETWORK
IN COMPLIANCE TO
DIRECTION OF THE HON'BLE COMMISSION
(RST ORDER FY 2026-27)**

PART - A

SUBMITTED BY
TP WESTERN ODISHA DISTRIBUTION LTD.

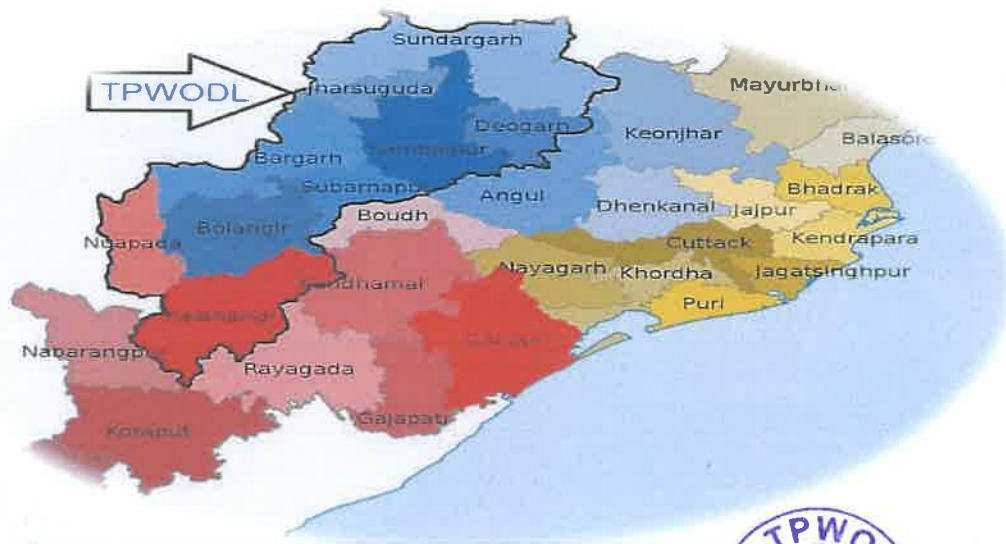


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1. Introduction

TP Western Odisha Distribution Limited (TPWODL) is incorporated as a joint venture of The Tata Power Company (51%) and the Government of Odisha (49%) under the Public-Private Partnership (PPP) model. TPWODL commenced its operations on 01.01.2021 on the basis of the Vesting Order issued dated 28.12.2021 by the Hon'ble Odisha Electricity Regulatory Commission (OERC). TPWODL took over the license to distribute electricity in the western part of Odisha, which was earlier served by erstwhile WESCO (Western Electricity Supply Company of Odisha), through a competitive bidding process.

As per the Tariff Order for FY 2026–27, Hon'ble OERC has issued specific directions to DISCOMs, including time-bound compliance requirements as well as operational guidelines and observations. In order to comply with these directives, necessary capital investments are envisaged. Accordingly, this DPR is being submitted for approval of the proposed CAPEX to facilitate timely implementation and ensure adherence to Hon'ble OERC's directions.

In alignment with the directives issued by the Hon'ble OERC in the RST Order for FY 2026–27, and with the objective of enhancing power distribution efficiency through systematic network optimization and restructuring, TPWODL proposes a comprehensive five-year investment plan (FY 2027 to FY 2031) under this DPR. The plan is strategically structured around key focus areas, supported by a phased and systematic implementation approach. The primary focus is on strengthening safety standards, reliability and improving the voltage profile across the TPWODL licensed area, thereby ensuring reliable and quality power supply to consumers.

This initiative focuses on **protecting human lives, safeguarding critical electrical assets, and enhancing the overall reliability of the distribution network**. It is aligned with the directives of Hon'ble OERC, with a focused emphasis on enhancing network safety and improving reliability.

This DPR includes:

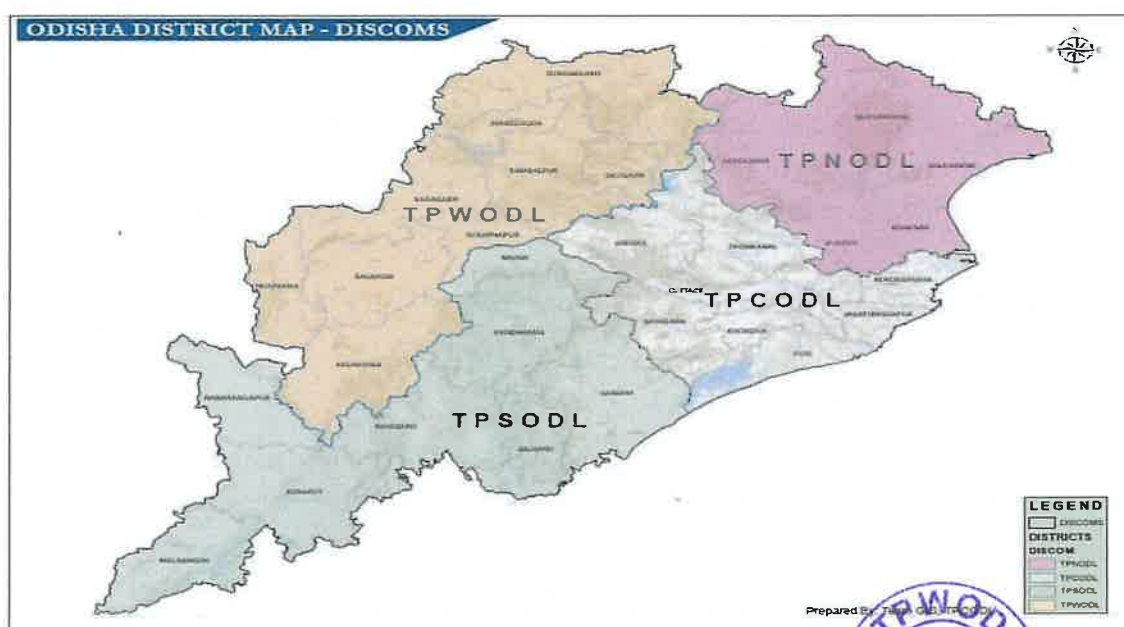
1. Protection system on HV and LV side of DTRs of 63kVA and above
2. Protection system on HV and LV side of DTRs of 25kVA
3. Installation of Guard Wires and UG Cable for 33kV & 11kV overhead lines crossing over National, State Highway and other roads
4. Addressing Low Voltage issues in urban and major city areas

2. TPWODL Network Overview

Traditionally the distribution network in Odisha is mainly divided into four divisions, TPCODL, TPNODL, TPWODL and TPSODL. TPWODL license area is spread over a geography of 48373 sq. km with population of 95 lakhs and serve the total consumer base of 29 lakhs. TPWODL procures power from GRIDCO which is a state-owned company, engaged in the business of purchase of electricity in bulk from various generators located inside Odisha and the state

share of power from Central generators for supply in all power distribution utilities, including TPWODL. It receives electrical power at a sub transmission voltage of 33 kV from Odisha Power Transmission Company Limited's (OPTCL) 220/132/33kV Grid Substations and then distributes the power at 33kV / 11kV / 440V / 230V depending on the demand of the consumers. For effective operations, license area is divided in 5 circles which is further sub divided in 17 Divisions and 57 Sub-divisions which manages the commercial and O&M activities in order to serve its consumer.

Circle Name	Division Name	District Name
Sambalpur Circle	SED – SAMBALPUR	Sambalpur
	SEED – SAMBALPUR	Sambalpur
	JED – JHARSUGUDA	Jharsuguda
	BNED – BRAJRAJNAGAR	Jharsuguda
	DED – DEOGARH	Deogarh
Rourkela Circle	RSED – ROURKELA	Sundargarh
	RED – ROURKELA	Sundargarh
	SED – SUNDARGARH	Sundargarh
	SED – RAJGANGPUR	Sundargarh
Bargarh Circle	BED –BARGARH	Bargarh
	BWED – BARGARH	Bargarh
Bolangir Circle	BED – BOLANGIR	Bolangir
	SED – SONEPUR	Sonepur
	TED – TITILAGARH	Bolangir
Bhawani-Patna Circle	NED – NUAPARA	Nuapada
	KEED –KALAHANDI	Kalahandi
	KWED –KALAHANDI	Kalahandi



TPWODL Area Map - Odisha



Key Information about TPWODL as on 31.03.2026

Sl. No.	Particulars	Unit	Details
1	Area	Sq kM	48373
2	Number of Circle	Nos.	5
3	Number of Divisions	Nos.	17
4	Number of Sub Divisional Offices	Nos.	57
5	Number of 33kV feeders	Nos.	235
6	Number of 11kV feeders	Nos.	1259
7	33kV Ckt length	CkM	6517
8	11kV Ckt length	CkM	54058
9	No. of 33/11kV PSS	Nos.	332
10	No. of 33/11kV PTRs	Nos.	726
11	No. of DT	Nos.	86878
12	LT length	CkM	75167
13	Installed Capacity (PTR)	MVA	3868
14	Installed Capacity (DT)	MVA	4549

3. Problems to be addressed

The distribution network is currently facing several issues related to system protection, public safety and the ability to provide reliable and quality power supply to consumers. The existing network infrastructure is old and deteriorated and does not fully meet present-day safety, reliability, and quality standards.

Many DTRs are operating without proper HT and LT protection systems. In many cases, protection devices are damaged, bypassed, or non-standard, increasing the risk of faults, equipment damage, fire incidents and safety hazards.

Further, consumers located at the tail end of LT networks in urban and high-load areas are experiencing low voltage. This is mainly due to long LT feeders, overloaded transformers, undersized and bare LT conductors and unbalanced load distribution. These issues lead to less voltage, higher technical losses and reduced quality of supply.

At several locations, overhead lines crossing National Highways, State Highways, roads, public places and areas near schools are unsafe. Insufficient guarding arrangements / UG cabling increases the risk of conductor snapping and accidental contact, posing a serious threat to public safety and property. These conditions also affect maintenance activities and reduce overall supply reliability.

Accordingly, this DPR proposes focused interventions to improve network safety, strengthen voltage profiles, in line with the directives and regulatory requirements of the Odisha Electricity Regulatory Commission, to build a safe, reliable and efficient distribution network.

4. Proposed Plan

Under this DPR titled **“Additional CAPEX 2026–27”, for improving safety and reliability of distribution network**, approval for a total investment of **Rs. 975.04 Cr.** over a five-year period is hereby sought, as detailed in Table-1 for the kind consideration and approval of the Hon’ble Commission.

The document covers the details of the network assets, their conditions, the inherent challenges in line with the network challenges to ensure reliable power supply and the proposed action plan to mitigate the above challenges to achieve the performance.

TPWODL proposes an expenditure of **Rs. 975.04 Cr** in line with the directives of the Hon’ble Commission as per RST Order FY 26-27 dated 24.03.2026.

The proposals have been framed by referring the approved cost data of electrical materials (FY 26-27) communicated by Dept of. Energy, GoO vide Letter no. 4947 on dt. 05.05.2026. Accordingly, 6% cost escalation on the base price of FY 26-27 have been considered for every subsequent year.

For materials not included in the Government-approved cost data for FY 2026-27, Rate Contract (RC) prices of TPWODL as on FY 25-26 have been considered and the escalation (6%) as depicted above.

The details of Projects mentioned in below table:

Sl. No.	Proposal	Amount (Rs in Cr.)
1	Protection system on HV and LV side of DTRs of 63kVA and above	433.56
2	Protection system on HV and LV side of DTRs of 25kVA	422.87
3	Installation of Guard Wires and UG Cable for 33kV & 11kV overhead lines crossing over National, State Highway and other roads	90.69
4	Addressing Low Voltage issues in urban and major city areas	27.92
Total cost (in Rs. Cr)		975.04

4.1. Protection system on HV and LV side of DTRs of 63kVA and above:

At present, a significant number of distribution substations lack adequate protection systems on both HT and LT sides. Critical equipment such as AB switches, DO fuses and LT Distribution Boxes are absent at several locations and in certain cases, temporary and unsafe arrangements are in place, posing risks to equipment, personnel and the public.

AB switches are essential for safe isolation of transformers during maintenance and fault conditions; however, their absence at many DTR locations adversely impacts system reliability. Given that the network is predominantly radial, effective sectionalisation during prolonged outages is crucial to limit the affected area, thereby reducing consumer interruptions and consumer-hours loss.

The proposed installation of LT protection systems for DTRs of 63 kVA and above is aimed at enhancing network safety, safeguarding transformers against faults and overloading, reducing failure rates and improving supply reliability. Accordingly, MCCBs of appropriate ratings are proposed for DTRs from 63 kVA up to 250 kVA, while ACBs are proposed for DTRs of 250 kVA and above.

For HV protection, DO fuse units and 11 kV RMUs are proposed for DTRs up to 250 kVA and for 500 kVA & above, respectively.

Further, Lightning Arresters (LAs) are critical for protecting electrical installations from lightning-induced surges. Considering the high incidence of lightning in Odisha, provision of LAs is essential to safeguard assets and ensure system resilience. The proposed investments will strengthen network safety, enhance reliability and contribute toward development of a robust and disaster-resilient power distribution system.

Proposed Scope of Work For 63 kVA and Above:

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
1	Protection system on HV and LV side of DTRs of 63kVA and above						
1.1	HT (11 kV) Protection - 4W RMU (500kVA and above DTRs)	Nos	92	12	80	3	77
1.2	HT (11 kV) Protection - 3W RMU (500kVA and above DTRs)	Nos	1044	14	1030	6	1024
1.3	11 kV DD Fuse Unit (<500kVA)	Set	30212	1112	29100	0	29100
1.4	11 kV AB Switch	Set	8727	1289	7438	114	7324
1.5	11 kV Lightning Arrester (12 kV, 10 kA)	Set	6842	3813	3029	53	2976
1.6	Installation of LT Protection (ACB/MCCB) for DTRs	Nos	31346	6197	25149	294	24855

Proposed Estimated Cost against balance scope:

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)	FY 30 (Cr)	FY 31 (Cr)
1	Protection system on HV and LV side of DTRs of 63 kVA and above	433.56	127.37	155.02	151.17	0.00	0.00

Note: - Proposals for FY 26-27 focuses on Sambalpur, Rourkela, District Head Quarter areas and other urban areas.

4.2. Protection system on HV and LV side of DTRs of 25 kVA:

The proposed installation of LT protection systems on DTRs of 25 kVA is essential to enhance network safety, protect transformers against faults and overloading, reduce failure incidence and improve overall supply reliability. The provision of such protections will also support preventive maintenance, minimize outages and ensure compliance with regulatory requirements. Accordingly, MCCBs of suitable rating are proposed for 25 kVA DTRs. For HV protection, DO fuse units are proposed.

Proposed Scope of Work for DTR 25 kVA

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
2	Protection system on HV and LV side of DTRs of 25KVA						
2.1	11 kV DD Fuse Unit	Set	37616	0	37616	0	37616
2.2	11 kV AB Switch	Set	15042	87	14955	0	14955
2.3	11 kV Lightening Arrester (12 kV, 10 kA)	Set	8336	953	7383	0	7383
2.4	MCCB for 25 kVA (40 Amp)	Nos	37616	429	37187	87	37100

Proposed Estimated Cost against balance scope:

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)	FY 30 (Cr)	FY 31 (Cr)
2	Protection system on HV and LV side of DTRs of 25kVA	422.87	0.00	101.13	116.32	115.01	90.41

Note: - Proposals for FY 27-28 focuses on Sambalpur, Rourkela, District Head Quarter areas and other urban areas.

4.3. Installation of Guard Wires and Underground cable for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads:

Safe and reliable network across highways is critical for ensuring uninterrupted electricity distribution. Presently, overhead lines crossing National and State Highways pose significant challenges, such as frequent damage due to vehicular accidents, increased vulnerability to storms and safety hazards for commuters. By shifting to underground cabling at these critical crossing points, TPWODL will enhance the reliability of supply, reduce the risk of outages and ensure compliance with statutory safety norms.

Underground cabling is provided at National Highway (NH) and State Highway (SH) road crossings to ensure the safety of the public and vehicles where electrical feeders must cross the roads. The underground cabling system enhances the reliability of the power supply to consumers and eliminates potential safety hazards associated with overhead crossings in high-traffic zones. The proposal is aligned with the provisions of the CEA (Measures Relating to Safety and Electric Supply) Regulations, 2023, which mandate adherence to safety requirements and risk mitigation at public road crossings. Further, as per NHA guidelines, all 11 kV and 33 kV electrical lines crossing NH / SH corridors are required to be laid underground, thereby necessitating conversion from OH to UG at such locations.

At road crossings (other than NH/SH), overhead 11kV lines are highly exposed to the risks of accidental contact with tall vehicles and construction equipment, or the falling of conductors in the event of snapping. Such incidents can result in electrical faults and prolonged outages, and more critically pose a severe threat to public safety. The installation of cradle guards at these crossings acts as an effective protective measure by preventing direct contact with live conductors, thereby ensuring both system reliability and public safety.

Currently, most of the network is overhead and there is no provision for guard or cradle wires beneath the conductors. This poses a serious safety threat to the public, especially given the deteriorated condition of the legacy network, where the possibility of conductor snapping cannot be ruled out. In such scenarios, cradle guards play a critical role in preventing accidents caused by falling live conductors.

Proposed Scope of Work

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
3	Installation of Guard Wires and UG Cable for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads						
3.1	Laying of 33 kV Underground Cable at NH / SH Crossings	Location	88	7	81	5	76
3.2	Laying of 11 kV Underground Cable at NH / SH Crossings	Location	280	0	280	0	280
3.3	11kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	Nos	729	0	729	67	662
3.3	33 kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	Nos	95	13	82	0	82

Proposed Estimated Cost against balance scope:

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)	FY 30 (Cr)	FY 31 (Cr)
3	Installation of Guard Wires and UG Cable for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads	90.69	90.69	0.00	0.00	0.00	0.00

Note: - All balance scope covered in FY 26-27.

4.4. Addressing Low Voltage issues in urban and major city areas

To identify low voltage pockets in urban and city division areas, a detailed field survey has been conducted. Based on the survey findings, several Distribution Transformers (DTRs) and associated LT networks are experiencing low voltage issues. The major causes include excessively long LT lines, overloading of DTRs and LT feeders and unbalanced load distribution across the network.

To mitigate low voltage issue and provide quality and reliable power supply to end consumer below proposals has been identified:

- Augmentation of existing DTR's with higher capacity, along with new LT feeders
- Addition of new DTR's along with associated HT and LT network, to bifurcate load of existing DT
- Addition of New LT feeder to reduce existing feeder length
- Upgradation of existing LT feeder network

4.4.1. DTR Augmentation (≥ 100 kVA):

Augmentation of existing distribution transformers with capacity 100kVA and above is proposed at locations where present transformers are operating under high loading conditions, resulting in voltage drop. Augmenting the transformer capacity helps in addressing peak demand, improving voltage regulation at LT consumer ends and reducing thermal stress and formation of hotspot on equipment. This measure enhances the reliability of supply in high-density urban and commercial areas and ensures adequate capacity to meet present and near-term load growth.

4.4.2. DTR Augmentation (< 100 kVA)

Augmentation of distribution transformers with capacity below 100kVA is proposed in residential and mixed-load urban pockets experiencing low voltage due to load growth over the years. Upgrading these under-rated transformers helps in improving voltage profile, reducing frequent overloading and enhancing power quality for LT consumers. This intervention ensures better utilization of the LT network and supports the increasing domestic load demand in urban areas.

4.4.3. New DTR with Structure, HT and LT Protection:

Provision of new distribution transformers along with complete supporting structure and adequate HT and LT protection is proposed to cater to newly developed load pockets and to de-load existing overstressed transformers. Installation of new DTRs helps in reducing LT feeder length, improving voltage at consumer premises and ensuring safe and reliable operation of the network. The inclusion of HT and LT protection enhances system safety, minimizes fault impact and improves overall network reliability.

4.4.4. New LT AB Cable – 95 Sq.mm with LT Protection

Installation of new LT Aerial Bunched (AB) cable of 95 sq.mm size along identified feeders is proposed to strengthen the LT network in moderately loaded urban areas. The use of LT AB cable reduces voltage drop, minimizes technical losses and improves reliability of supply. Provision of appropriate LT protection further ensures safe operation and quick isolation of faults, thereby improving service quality to consumers.

4.4.5. New LT AB Cable – 120 Sq.mm with LT Protection

New LT AB cable of 120 sq.mm size is proposed in high load density corridors and critical urban feeders where higher current-carrying capacity is required. This measure helps in maintaining statutory voltage limits, supporting peak load conditions and accommodating

future load growth. The installation of LT protection improves network safety and enables effective fault management, contributing to stable and quality power supply.

4.4.6. Conversion of O/H Bare to LT AB Cable – 95 Sq.mm

Conversion of existing undersized overhead LT bare conductors to LT AB cable of 95 sq.mm size is proposed in urban streets and congested areas experiencing frequent voltage drop and faults. This conversion improves voltage regulation, reduces losses and enhances reliability of the LT network. LT AB cables also provide better mechanical strength and operational performance, resulting in improved quality of supply to end consumers.

4.4.7. Conversion of O/H Bare to LT AB Cable – 120 Sq.mm

Conversion of existing heavily loaded undersized LT bare conductors to 120 sq.mm LT AB cables is proposed in critical feeders with severe low voltage issues. The higher conductor capacity helps in reducing voltage drop, improving current handling and ensuring consistent voltage at tail-end consumers. This intervention strengthens the LT network and supports sustainable operation under increasing urban load demand.

Proposed Scope of work

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
4	Addressing Low Voltage issues in urban and major city areas						
4.1	DTR Augmentation (<=100 kVA)						
4.1.1	25 kVA to 63 kVA	Nos	5	0	5	0	5
4.1.2	63 kVA to 100 kVA	Nos	4	0	4	0	4
4.2	DTR Augmentation (>100 kVA)						
4.2.1	100 kVA to 250 kVA	Nos	25	0	25	0	25
4.2.2	160 kVA to 250 kVA	Nos	2	0	2	0	2
4.2.3	250 kVA to 500 kVA	Nos	12	0	12	0	12
4.2.4	315 kVA to 500 kVA	Nos	2	0	2	0	2
4.3	New DSS including HT & LT Protections & associated HT & LT Lines						
4.3.1	100 kVA, 11/0.4 KV Sub Station	Nos	22	0	22	0	22
4.3.2	250 kVA, 11/0.4 KV Sub Station	Nos	16	0	16	0	16
4.3.3	500 kVA, 11/0.4 KV Sub Station	Nos	5	0	5	0	5
4.4	New LT AB Cable 95 Sq.mm with LT Protection	Km	62.61	0	62.61	0	62.61
4.5	New LT AB Cable 120 Sq.mm with LT Protection	Km	21.24	0	21.24	0	21.24

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
4.6	O/H Bare to LT AB Cable 95 Sq.mm	Km	15.75	0	15.75	0	15.75
4.7	O/H Bare to LT AB Cable 120 Sq.mm	Km	4.5	0	4.5	0	4.5

Proposed Estimated Cost against balance scope:

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)	FY 30 (Cr)	FY 31 (Cr)
4	Addressing low voltage issues in urban and major city areas	27.92	27.92	0.00	0.00	0.00	0.00

Note: - All balance scope covered in FY 26-27.

Comprehensive Scope of Work:

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
1	Protection system on HV and LV side of DTRs of 63 kVA and above						
1.1	HT (11 kV) Protection - 4W RMU (500 kVA and above DTRs)	Nos	92	12	80	3	77
1.2	HT (11 kV) Protection - 3W RMU (500 kVA and above DTRs)	Nos	1044	14	1030	6	1024
1.3	11 kV DD Fuse Unit (<500kVA)	Set	30212	1112	29100	0	29100
1.4	11 kV AB Switch	Set	8727	1289	7438	114	7324
1.5	11 kV Lightning Arrester (12 kV, 10 kA)	Set	6842	3813	3029	53	2976
1.6	Installation of LT Protection (ACB/MCCB) for DTRs	Nos	31346	6197	25149	294	24855
2	Protection system on HV and LV side of DTRs of 25kVA						
2.1	11 kV DD Fuse Unit	Set	37616	0	37616	0	37616
2.2	11 kV AB Switch	Set	15042	87	14955	0	14955
2.3	11 kV Lightning Arrester (12 kV, 10 kA)	Set	8336	953	7383	0	7383
2.4	MCCB for 25 kVA (40 Amp)	Nos	37616	429	37187	87	37100
3	Installation of Guard Wires and UG Cable for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads						
3.1	Laying of 33 kV Underground Cable at NH / SH Crossings	Location	88	7	81	5	76
3.2	Laying of 11 kV Underground Cable at NH / SH Crossings	Location	280	0	280	0	280
3.3	11kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	Nos	729	0	729	67	662
3.3	33 kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	Nos	95	13	82	0	82
4	Addressing Low Voltage issues in urban and major city areas						

4.1	DTR Augmentation (<=100 kVA)						
4.1.1	25 kVA to 63 kVA	Nos	5	0	5	0	5
4.1.2	63 kVA to 100 kVA	Nos	4	0	4	0	4
4.2	DTR Augmentation (>100 kVA)						
4.2.1	100 kVA to 250 kVA	Nos	25	0	25	0	25
4.2.2	160 kVA to 250 kVA	Nos	2	0	2	0	2
4.2.3	250 kVA to 500 kVA	Nos	12	0	12	0	12
4.2.4	315 kVA to 500 kVA	Nos	2	0	2	0	2
4.3	New DSS including HT & LT Protections & associated HT & LT Lines						
4.3.1	100 kVA, 11/0.4 kV Sub Station	Nos	22	0	22	0	22
4.3.2	250 kVA, 11/0.4 kV Sub Station	Nos	16	0	16	0	16
4.3.3	500 kVA, 11/0.4 kV Sub Station	Nos	5	0	5	0	5
4.4	New LT AB Cable 95 Sq.mm with LT Protection	Km	62.61	0	62.61	0	62.61
4.5	New LT AB Cable 120 Sq.mm with LT Protection	Km	21.24	0	21.24	0	21.24
4.6	O/H Bare to LT AB Cable 95 Sq.mm	Km	15.75	0	15.75	0	15.75
4.7	O/H Bare to LT AB Cable 120 Sq.mm	Km	4.5	0	4.5	0	4.5

5. Need of the Investment

Several distribution substations (DSS) lack adequate HT and LT protection systems. Essential equipment such as AB switches, DO fuses and LT Distribution Boxes are missing, compromising safety and reliability. In some cases, unsafe open fuse arrangements are used, increasing risks of faults, fire hazards, equipment damage and electrocution. Strengthening these systems is required for proper fault isolation and safer operations without widespread supply interruptions.

Investment in underground cabling along National Highways (NH), State Highways (SH) and major crossings where feeders pass through high-traffic corridors to enhance public and vehicular safety. This is essential to mitigate risks from overhead crossings, ensure statutory compliance and improve reliability by reducing outages and maintenance, thereby supporting a safe and resilient distribution network.

Further, installation of cradle/guard wires is proposed at critical crossings and vulnerable locations. In the event of conductor snapping, the live conductor will touch the cradle wire, enabling relay operation and rapid tripping of the circuit breaker, minimizing risks to human and animal life. This investment is necessary as a significant portion of the existing overhead network, particularly legacy sections, lacks adequate guarding and faces higher failure risk due to conductor deterioration.

Moreover, installation of Lightning Arresters (LAs) is proposed to protect equipment from frequent lightning incidents in Odisha. This will reduce equipment damage, enhance system resilience and ensure continuity of supply, justifying the need for investment in network protection infrastructure.

Impact of Investment:

- The proposed measures will significantly enhance reliability by reducing faults, outages and maintenance interventions.
- System safety will improve through mitigation of electrocution risks, fire hazards and accidental exposure to live conductors.
- The distribution network will become more resilient and compliant, ensuring sustainable and quality power supply.

6. Timelines of the Project and Phasing of Investment

Proposal breakup with individual item wise costing is summarised in Table - 1 below:

Table – 1

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)	FY 30 (Cr)	FY 31 (Cr)
1	Protection system on HV and LV side of DTRs of 63KVA and above	433.56	127.37	155.02	151.17	0.00	0.00
1.1	HT (11 kV) Protection - 4W RMU (500kVA and above DTRs)	17.03	3.99	6.77	6.26	0.00	0.00
1.2	HT (11 kV) Protection - 3W RMU (500kVA and above DTRs)	159.52	40.85	62.09	56.58	0.00	0.00
1.3	11 kV DD Fuse Unit (<500kVA)	32.50	7.64	12.97	11.89	0.00	0.00
1.4	11 kV AB Switch	16.89	3.96	6.72	6.21	0.00	0.00
1.5	11 kV Lightning Arrester (12 kV, 10 kA)	2.58	2.58	0.00	0.00	0.00	0.00
1.6	Installation of LT Protection (ACB/MCCB) for DTRs						
1.6.1	63 kVA, 11/0.4 kV Trf	136.70	0.00	66.47	70.23	0.00	0.00
1.6.2	100 kVA, 11/0.4 kV Trf	62.42	62.42	0.00	0.00	0.00	0.00
1.6.3	150 kVA to 250 kVA, 11/0.4 kV Trf	2.26	2.26	0.00	0.00	0.00	0.00
1.6.4	315 kVA, 11/0.4 kV Trf	0.55	0.55	0.00	0.00	0.00	0.00
1.6.5	500 kVA, 11/0.4 kV Trf	1.93	1.93	0.00	0.00	0.00	0.00
1.6.6	630 kVA, 11/0.4 kV Trf	0.30	0.30	0.00	0.00	0.00	0.00
1.6.7	750 kVA, 11/0.4 kV Trf	0.09	0.09	0.00	0.00	0.00	0.00
1.6.8	1000 kVA, 11/0.4 kV Trf	0.80	0.80	0.00	0.00	0.00	0.00
2	Protection system on HV and LV side of DTRs of 25kVA	422.87	0.00	101.13	116.32	115.01	90.41

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)	FY 30 (Cr)	FY 31 (Cr)
2.1	11 kV DD Fuse Unit	44.08	0.00	11.88	16.58	15.61	0.00
2.2	11 kV AB Switch	36.42	0.00	8.57	14.49	13.36	0.00
2.3	11 kV Lightning Arrester (12 kV, 10 kA)	6.98	0.00	3.39	3.59	0.00	0.00
2.4	MCCB for 25 kVA (40 Amp)	335.40	0.00	77.29	81.66	86.04	90.41
3	Installation of Guard Wires for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads	90.69	90.69	0.00	0.00	0.00	0.00
3.1	Laying of 33 kV Underground Cable at NH / SH Crossings	18.36	18.36	0.00	0.00	0.00	0.00
3.2	Laying of 11 kV Underground Cable at NH / SH Crossings	46.58	46.58	0.00	0.00	0.00	0.00
3.3	11kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	22.42	22.42	0.00	0.00	0.00	0.00
3.4	33kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	3.34	3.34	0.00	0.00	0.00	0.00
4	Addressing Low Voltage issues in urban and major city areas	27.92	27.92	0.00	0.00	0.00	0.00
4.1	DTR Augmentation (<=100 kVA)						
4.1.1	25 kVA to 63 kVA	0.29	0.29	0.00	0.00	0.00	0.00
4.1.2	63 kVA to 100 kVA	0.27	0.27	0.00	0.00	0.00	0.00
4.2	DTR Augmentation (>100 kVA)						
4.2.1	100 kVA to 250 kVA	3.52	3.52	0.00	0.00	0.00	0.00
4.2.2	160 kVA to 250 kVA	0.28	0.28	0.00	0.00	0.00	0.00
4.2.3	250 kVA to 500 kVA	3.06	3.06	0.00	0.00	0.00	0.00
4.2.4	315 kVA to 500 kVA	0.51	0.51	0.00	0.00	0.00	0.00
4.3	New DSS including HT & LT Protections & associated HT & LT Lines						
4.3.1	100 kVA, 11/0.4 kV Sub Station	3.06	3.06	0.00	0.00	0.00	0.00
4.3.2	250 kVA, 11/0.4 kV Sub Station	3.39	3.39	0.00	0.00	0.00	0.00
4.3.3	500 kVA, 11/0.4 kV Sub Station	1.58	1.58	0.00	0.00	0.00	0.00
4.4	New LT AB Cable 95 Sq.mm with LT Protection	7.73	7.73	0.00	0.00	0.00	0.00
4.5	New LT AB Cable 120 Sq.mm with LT Protection	2.85	2.85	0.00	0.00	0.00	0.00

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)	FY 30 (Cr)	FY 31 (Cr)
4.6	O/H Bare to LT AB Cable 95 Sq.mm	1.04	1.04	0.00	0.00	0.00	0.00
4.7	O/H Bare to LT AB Cable 120 Sq.mm	0.34	0.34	0.00	0.00	0.00	0.00
Total		975.04	245.98	256.15	267.49	115.01	90.41

Proposal breakup with individual item wise quantity is summarised in Table - 2 below

Table 2

Sl no	Activity	UoM	Balance	FY 27	FY 28	FY 29	FY 30	FY 31
				Qty	Qty	Qty	Qty	Qty
1	Protection system on HV and LV side of DTRs of 63kVA and above			<i>Refer Annexure 1 for location wise details</i>				
1.1	HT (11 kV) Protection - 4W RMU (500kVA and above DTRs)	Nos	77	19	31	27	0	0
1.2	HT (11 kV) Protection - 3W RMU (500kVA and above DTRs)	Nos	1024	279	400	345	0	0
1.3	11 kV DD Fuse Unit (<500kVA)	Set	29100	7295	11671	10134	0	0
1.4	11 kV AB Switch	Set	7324	1831	2930	2563	0	0
1.5	11 kV Lightning Arrester (12 kV, 10 kA)	Set	2976	2976	0	0	0	0
1.6	Installation of LT Protection (ACB/MCCB) for DTRs							
1.6.1	63 kVA, 11/0.4 kV Trf	Nos	16821	0	8411	8410	0	0
1.6.2	100 kVA, 11/0.4 kV Trf	Nos	7744	7744	0	0	0	0
1.6.3	150 kVA to 250 kVA, 11/0.4 kV Trf	Nos	160	160	0	0	0	0
1.6.4	315 kVA, 11/0.4 kV Trf	Nos	39	39	0	0	0	0
1.6.5	500 kVA, 11/0.4 kV Trf	Nos	65	65	0	0	0	0
1.6.6	630 kVA, 11/0.4 kV Trf	Nos	10	10	0	0	0	0
1.6.7	750 kVA, 11/0.4 kV Trf	Nos	2	2	0	0	0	0
1.6.8	1000 kVA, 11/0.4 kV Trf	Nos	14	14	0	0	0	0
2	Protection system on HV and LV side of DTRs of 25 kVA (Refer Annexure 2)			<i>Refer Annexure 2 for location wise details</i>				
2.1	11 KV DD Fuse Unit	Nos	37616	0	10745	14191	12680	0
2.2	11 KV AB Switch	Nos	14955	0	3739	5982	5234	0
2.3	11 kV Lightning Arrester (12 kV, 10 kA)	Nos	7383	0	3692	3691	0	0
2.4	MCCB for 25 kVA (40 Amp)	Nos	37100	0	9275	9275	9275	9275
3	Installation of Guard Wires and UG Cable for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads			<i>Refer Annexure 3 for location wise details</i>				
3.1	Laying of 33 kV Underground Cable at NH / SH Crossings	Nos	76	76	0	0	0	0
3.2	Laying of 11 kV Underground Cable at NH / SH Crossings	Nos	280	280	0	0	0	0
3.3	11kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	Nos	662	662	0	0	0	0
3.4	33 kV Road Crossing with DP & Cradle Guard (Other than NH and SH)	Nos	82	82	0	0	0	0
4	Addressing Low Voltage issues in urban and major city areas			<i>Refer Annexure 4 for location wise details</i>				
4.1	DTR Augmentation (<=100 kVA)							
4.1.1	25 kVA to 63 kVA	Nos	5	5	0	0	0	0
4.1.2	63 kVA to 100 kVA	Nos	4	4	0	0	0	0
4.2	DTR Augmentation (>100 kVA)							
4.2.1	100 kVA to 250 kVA	Nos	25	25	0	0	0	0

Sl no	Activity	UoM	Balance	FY 27	FY 28	FY 29	FY 30	FY 31
				Qty	Qty	Qty	Qty	Qty
4.2.2	160 kVA to 250 kVA	Nos	2	2	0	0	0	0
4.2.3	250 kVA to 500 kVA	Nos	12	12	0	0	0	0
4.2.4	315 kVA to 500 kVA	Nos	2	2	0	0	0	0
4.3	New DSS including HT & LT Protections & associated HT & LT Lines							
4.3.1	100 kVA, 11/0.4 kV Sub Station	Nos	22	22	0	0	0	0
4.3.2	250 kVA, 11/0.4 kV Sub Station	Nos	16	16	0	0	0	0
4.3.3	500 kVA, 11/0.4 kV Sub Station	Nos	5	5	0	0	0	0
4.4	New LT AB Cable 95 Sq.mm with LT Protection	Km	62.61	62.61	0	0	0	0
4.5	New LT AB Cable 120 Sq.mm with LT Protection	Km	21.24	21.24	0	0	0	0
4.6	O/H Bare to LT AB Cable 95 Sq.mm	Km	15.75	15.75	0	0	0	0
4.7	O/H Bare to LT AB Cable 120 Sq.mm	Km	4.5	4.5	0	0	0	0

7. Proposed Capital Investment Scheme

The scheme includes laying of underground cables, installation of cradle guards, provision of HT and LT protection for DTRs and mitigation of low voltage issues in urban areas, leading to improved reliability and safety parameters. The said investment is proposed over a period of five years.

Since, the proposed scheme involve creation of new infrastructures for strengthening of distribution network assets with long-term technical, operational and financial benefits to the utility, the expenditure is justified to be covered under CAPEX investment.

8. Technical Justification

TPWODL proposes underground cabling at National Highways (NH), State Highways (SH) and major feeder crossings in high-traffic corridors to mitigate risks associated with overhead conductors. This intervention will reduce fault incidences due to external interferences of public and vehicle movement, ensure statutory clearance compliance and enhance feeder reliability by minimizing interruptions and maintenance requirements (as per CEA Regulation 2023- Part-III-Sec-4).

Installation of cradle/guard wires at critical crossings and vulnerable network sections is proposed to address conductor snapping contingencies. Upon conductor failure, contact with guard wire provides a low-impedance fault path, ensuring effective relay operation and instantaneous circuit breaker tripping. This is particularly critical for ageing overhead networks where conductor degradation leads to mechanical failure and public safety risks.

Further, strengthening of HT and LT protection systems at DTR locations is proposed. Deployment of AB switches and DO fuses will enable sectionalization, fault isolation and safe maintenance practices, while LT Distribution Boxes will provide proper load distribution.

Elimination of open fuse systems will reduce risks of arcing, thermal faults and equipment damage, thereby improving system integrity and operational safety.

Additionally, installation of Lightning Arresters (LAs) is proposed for surge protection against frequent lightning activity in Western Odisha. Properly rated LAs will limit overvoltage transients, prevent insulation failure and enhance asset life, ensuring continuity and stability of power supply.

9. Statutory/Safety Requirement

The proposed scheme is essential for compliance with regulatory directives and statutory requirements related to improvement in reliability parameters and ensuring safety compliance.

The investment supports:

- **Compliance against Statutory requirement** By installation of cradle guards and laying of underground cables at NH/SH crossing (as per CEA Regulation 2023- Part-III-Sec-4).
- **Compliance against enhancing Safety & Reliability** By installation of HT & LT protection of DTRs in accordance with distribution sector reforms and utility standards.
- **Compliance against enhancing Reliability** by improving voltage profile in identified low voltage pockets by taking several initiatives like DTR Augmentation/Addition of DTRs, laying of new LT feeder etc.

These schemes also support safe and reliable operation of the distribution network by improving monitoring capability and reducing overloading and unsafe LT practices.

10. Cost Assessment/Cost Breakup

Below is the detailed Estimated Cost Summary for completion of the proposed scope of work:

Sl. No.	Proposal	Amount (Rs in Cr.)
1	Protection system on HV and LV side of DTRs of 63kVA and above	433.56
2	Protection system on HV and LV side of DTRs of 25kVA	422.87
3	Installation of Guard Wires and UG Cable for 33kV & 11kV overhead lines crossing over National, State Highway and other roads	90.69
4	Addressing Low Voltage issues in urban and major city areas	27.92
Total cost (in Rs. Cr.)		975.04

Please refer to Annexure – 5 to 55 for cost breakup of individual items covering the above scope of work.

11. Cost Benefit Analysis

With the intervention of above initiatives, the following improvement is expected as enumerated in Table below: -

Parameters	UOM	FY25-26	FY26-27 (Expected)	FY27-28 (Expected)	FY28-29 (Expected)	FY29-30 (Expected)	FY30-31 (Expected)
Tripping	Nos	102139.00	97032.00	92180.40	87571.38	83192.81	79033.17
SAIDI	Hrs.	301.52	286.45	272.13	258.52	245.60	233.32
SAIFI	Nos	375.25	356.49	338.67	321.73	305.65	290.36
DT Failure w.r.t kVA	%	2.41	2.17	1.95	1.76	1.58	1.42

12. Conclusion

Under the proposed scheme, a total capital expenditure of **Rs. 975.04 Cr** is submitted for the kind consideration and approval of the Hon'ble Odisha Electricity Regulatory Commission (OERC) for a period of five years. The detailed phasing is given in Table below. The Detailed Project Report (DPR) has been developed with a focused approach towards strengthening the network and implementing robust safety measures to mitigate operational risks, ensuring compliance with all applicable statutory and regulatory requirements.

The DPR is aimed at safeguarding human life and critical distribution assets, improving operational efficiency and fostering a robust safety culture across the distribution network. Implementation of the proposed interventions is expected to enhance voltage profiles, improve overall system reliability, mitigate safety risks and ensure the delivery of reliable and quality power supply, thereby contributing to the development of a safe, resilient and efficient distribution network.

Below is the detailed phasing for completion of work: -

Sl no	Activity	Total (Rs. Cr)	FY 27 (Rs. Cr)	FY 28 (Rs. Cr)	FY 29 (Rs. Cr)	FY 30 (Rs. Cr)	FY 31 (Rs. Cr)
1	Protection system on HV and LV side of DTRs of 63KVA and above	433.56	127.37	155.02	151.17	0.00	0.00
2	Protection system on HV and LV side of DTRs of 25KVA	422.87	0.00	101.13	116.32	115.01	90.41
3	Installation of Guard Wires for 33 kV & 11 kV overhead lines crossing over National, State Highway and other roads	90.69	90.69	0.00	0.00	0.00	0.00
4	Addressing Low Voltage issues in urban and major city areas	27.92	27.92	0.00	0.00	0.00	0.00
Total		975.04	245.98	256.15	267.49	115.01	90.41

The above schemes have been mapped in the annexure below for ready reference and are proposed to be considered under CAPEX.

Scheme details	Annexure
Protection system on HV and LV side of DTRs of 63 kVA & above	Annexure 1
Protection system on HV and LV side of DTRs of 25 kVA	Annexure 2
Installation of Guard Wires and UG Cable for 33 kV & 11 kV overhead lines crossing over National & State Highway	Annexure 3
Addressing Low Voltage issues in urban and major city areas	Annexure 4

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Capital investment schemes details for In-Principal approval – PART B

Overview of the Detailed Project Report	
Index with the documents Page No.	Attached in Page No-4
Name of Applicant	TP Western Odisha Distribution Limited
Name of the Capital Investment Work	Additional 3-year Capital Expenditure in Compliance to direction of the Hon'ble Commission (RST Order FY'2026-27)
Nature of capex Scheme (New/ Resubmitted / revised / modified / extended)	New CAPEX scheme is being submitted as per direction of the Hon'ble Commission (RST Order FY'2026-27)
Details of the Location	Attached in Annexure 1 and 2
Date of Approval by Competent Authority designated by the Board of Directors of the Company	Date of Approval 22-04-26.
Category of DPR	As Per Para 4.1 of Draft CAPEX Regulation-2026 Distribution Infrastructure Strengthening and System Improvement Scheme 1. All metering other than consumer metering
Objective of the Capital Investment	To reduce AT&C losses through strengthening of LT network, DTR metering.
Need Analysis	The scheme is proposed to address high AT&C losses. Incomplete DTR metering on high-loss 11 kV feeders limits energy accounting and loss identification, sustaining high AT&C losses. Additionally, bare LT networks enable power theft. The proposed scheme seeks to implement comprehensive metering and network improvements and ensure a reliable distribution system.
Overall cost-benefit analysis	Year on year Cost benefit analysis details is mentioned in the Detailed Project Report.
Brief Scope and Specifications of Work	Detail Scope of work and specifications considered under respective schemes mentioned in the DPR.
Estimated cost (Rs Cr.)	Rs.304.33 Cr
Time frame of the expenditure	Attached in Table 1 and Table 2
Benefits/Impact	Reduction in AT&C losses by reduction in pilferage and unauthorized consumption by conversion of O/H bare conductor to LT AB cable and enhanced distribution transformer-wise monitoring and energy auditing.
Need of the investment	Incomplete DTR metering limits energy accounting, improper loss assessment and control. High AT&C losses persist due to metering gaps, theft-prone LT networks and inefficiencies. The proposed investment in smart metering and LT infrastructure strengthening will enhance monitoring, enable targeted interventions, reduce pilferage, improve billing efficiency and ensure sustained compliance with regulatory directives.



The proposed capital investment is necessary to comply with the directions of the Hon'ble Odisha Electricity Regulatory Commission under the RST Order FY'2026-27 and to reduce AT&C losses by curbing unauthorized tapping and reducing T&D losses in high-loss pockets.





DETAILED PROJECT REPORT
FOR
MULTI-YEAR CAPEX FY 26-27 TO FY 30-31
FOR REDUCING LOSSES ON HIGH AT&C 11 KV FEEDERS
IN COMPLIANCE TO
DIRECTION OF THE HON'BLE COMMISSION
(RST ORDER FY 2026-27)
PART - B
SUBMITTED BY
TP WESTERN ODISHA DISTRIBUTION LTD.

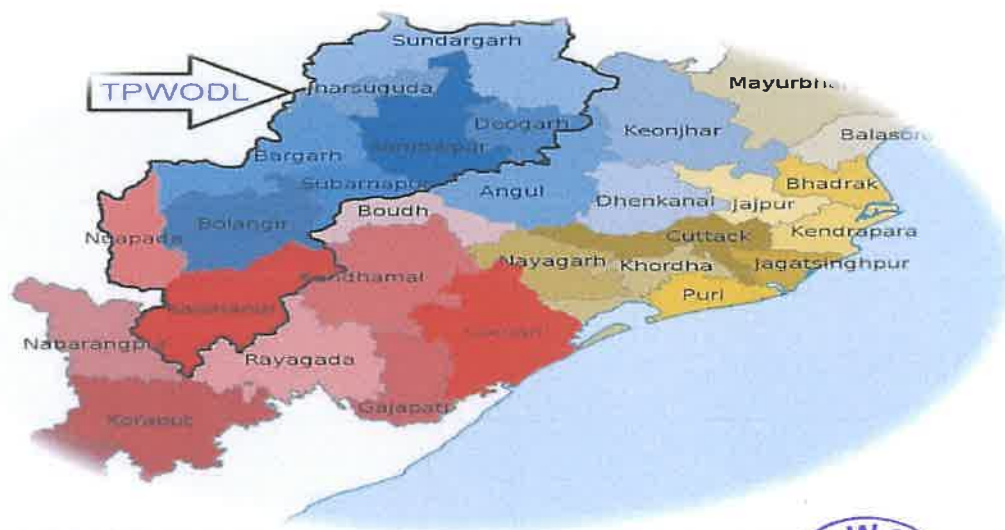


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1. Introduction

TP Western Odisha Distribution Limited (TPWODL) is incorporated as a joint venture of The Tata Power Company (51%) and the Government of Odisha (49%) under the Public-Private Partnership (PPP) model. TPWODL commenced its operations on 01.01.2021 on the basis of the Vesting Order issued dated 28.12.2021 by the Hon'ble Odisha Electricity Regulatory Commission (OERC). TPWODL took over the license to distribute electricity in the western part of Odisha, which was earlier served by erstwhile WESCO (Western Electricity Supply Company of Odisha), through a competitive bidding process.

As per the Retail Supply Tariff Order FY 2026–27, Hon'ble OERC has issued specific directions to DISCOMs, including time-bound compliance requirements as well as operational guidelines and observations. In order to comply with these directives, necessary capital investments are envisaged. Accordingly, this DPR is being submitted for approval of the proposed CAPEX to facilitate timely implementation and ensure adherence to the Hon'ble Commission's direction.

In alignment with the directives issued by the Hon'ble Commission in the RST Order for FY 2026–27 and with the objective of enhancing power distribution efficiency through systematic network optimization and restructuring, TPWODL proposes a comprehensive Three-year investment plan (FY 2027 to FY 2029) under this DPR. The plan is strategically structured around key focus areas, supported by a phased and systematic implementation approach. The primary focus is on reducing high AT&C losses through proper DTR metering, minimizing theft by converting O/H bare conductors to LT AB cables and installing pole-mounted distribution boxes with armoured cabling. This is expected to further enhance safety for both the public and our personnel by reducing exposure to electrical hazards and ensuring a more secure distribution system.

This DPR includes:

1. DTR Metering for 63kVA and above.
2. AT&C Loss reduction of 11kV feeders and associated DTs, conversion of O/H bare conductor to LT AB cable, DTR metering below 63 kVA and installation of LT distribution box on pole with armoured cable.

2. TPWODL Network Overview

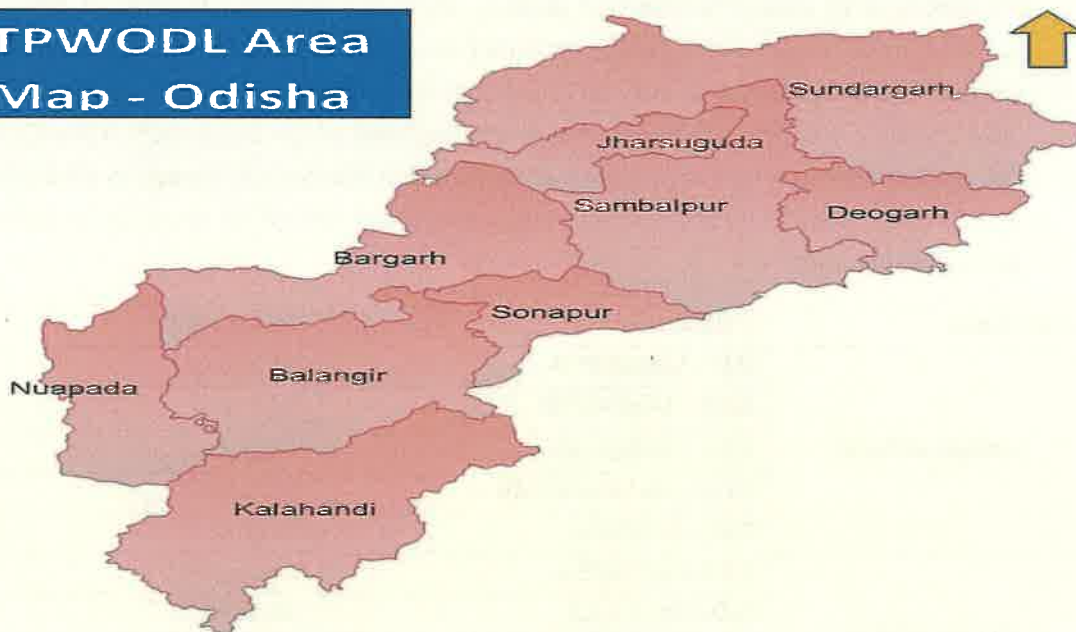
Traditionally the distribution network in Odisha is mainly divided into four Licensees are namely TPCODL, TPNODL, TPWODL and TPSODL. TPWODL license area is spread over a geography of 48373 sq. km with population of 95 lakhs and serve the total consumer base of 29 lakhs. TPWODL procures power from GRIDCO which is a state-owned company, engaged in the business of purchase of electricity in bulk from various generators located inside Odisha and the state share of power from Central generators

for supply in all power distribution utilities, including TPWODL. It receives electrical power at a sub transmission voltage of 33 kV from Odisha Power Transmission Company Limited's (OPTCL) 220/132/33kV Grid Substations and then distributes the power at 33kV / 11kV / 440V / 230V depending on the demand of the consumers. For effective operations, license area is divided in 5 circles which is further sub divided in 17 Divisions and 57 Sub-divisions which manages the commercial and O&M activities in order to serve its consumer.

Circle Name	Division Name	District Name
Sambalpur Circle	SED – SAMBALPUR	Sambalpur
	SEED – SAMBALPUR	Sambalpur
	JED – JHARSUGUDA	Jharsuguda
	BNED – BRAJRAJNAGAR	Jharsuguda
	DED – DEOGARH	Deogarh
Rourkela Circle	RSED – ROURKELA	Sundargarh
	RED – ROURKELA	Sundargarh
	SED – SUNDARGARH	Sundargarh
	SED – RAJGANGPUR	Sundargarh
Bargarh Circle	BED –BARGARH	Bargarh
	BWED – BARGARH	Bargarh
Bolangir Circle	BED – BOLANGIR	Bolangir
	SED – SONEPUR	Sonepur
	TED – TITILAGARH	Bolangir
Bhawani-Patna Circle	NED – NUAPARA	Nuapada
	KEED –KALAHANDI	Kalahandi
	KWED –KALAHANDI	Kalahandi



TPWODL Area Map - Odisha



Key Information about TPWODL as on 31.03.2026

Sl. No.	Particulars	Unit	Details
1	Area	Sq kM	48373
2	Number of Circle	Nos.	5
3	Number of Divisions	Nos.	17
4	Number of Sub Divisional Offices	Nos.	57
5	Number of 33kV feeders	Nos.	235
6	Number of 11kV feeders	Nos.	1259
7	33kV Ckt length	CkM	6517
8	11kV Ckt length	CkM	54058
9	No. of 33/11kV PSS	Nos.	332
10	No. of 33/11kV PTRs	Nos.	726
11	No. of DT	Nos.	86878
12	LT length	CkM	75167
13	Installed Capacity (PTR)	MVA	3868
14	Installed Capacity (DT)	MVA	4549

3. Problems to be addressed

A total of 368 nos. of High AT&C loss 11 kV feeders (50% & above) have been identified, out of which 47 feeders are having AT&C losses exceeding 80% and 321 nos. of feeders are having losses in the band of 50%-80%. As per the directions of the Hon'ble OERC in the RST Order for FY 2026-27, losses are to be reduced in accordance with the targets specified in Table below.

11 kV feeders with AT&C loss level	Expected AT&C loss level reduction
>80%	By 50% of existing level of loss
Between 50% to 80%	By 30% of existing level of loss
Between 20% to 50%	By 20% of existing level of loss

In many divisions, complete metering of associated Distribution Transformers (DTRs) for identified high-loss 11 kV feeders are yet to be achieved. Due to limited energy accounting, effective monitoring of energy flow and accurate loss assessment remains a constraint. This has led to persistently high AT&C losses in several 11 kV feeders and challenges in identifying and addressing high-loss areas. Additionally, the presence of O/H bare networks and open LT service connections is facilitating direct power theft by consumers.

Accordingly, this DPR proposes focused interventions to ensure comprehensive metering and reduce AT&C losses, in line with the directives and regulatory requirements of the Hon'ble Commission, to build a safe, reliable and efficient distribution network.

4. Proposed Plan

Under this DPR titled “**Additional CAPEX FY 2026-27**”, for reducing losses on high AT&C 11 kV feeders, approval for a total investment of **Rs. 304.33 Cr.** over a three-year period is hereby sought, as detailed in Table-1 are being submitted for the kind consideration and approval of the Hon'ble Commission.

The document outlines details of the network assets and their current condition, the inherent challenges in achieving a theft-free system with low AT&C losses and reliable power supply and the proposed action plan to address these challenges and meet the desired performance targets.

TPWODL proposes an expenditure of **Rs. 304.33 Cr** in line with the directives of the Hon'ble Commission as per RST Order FY 26-27 dated 24.03.2026.

The proposals have been framed by referring the approved cost data of electrical materials (FY 26-27) communicated by Dept of. Energy, GoO vide Letter no. 4947 on dt. 05.05.2026. Accordingly, 6% cost escalation on the base price of FY26-27 have been considered for each subsequent year.

For materials not included in the Government-approved cost data for FY 2026-27, Rate Contract (RC) prices of TPWODL as on FY 25-26 have been considered and the escalation of 6% as depicted above.

The details of Projects mentioned in below table:

Sl. No.	Proposal	Amount (Rs in Cr.)
1	DTR Metering for 63kVA and above	10.78
2	AT&C Loss reduction of 11 kV feeders and associated DTs, conversion of O/H bare conductor to LT AB cable, DTR metering below 63 kVA & installation of LT distribution box on pole with armoured cable.	293.55
Total cost (in CR)		304.33

4.1. DTR Metering for 63 kVA and above

DTR metering is critical for enabling transformer-wise energy audits, accurate assessment of technical and commercial losses, identification of theft-prone areas and effective monitoring of transformer loading. It also supports focused network improvement initiatives, enhances billing efficiency, improves supply reliability and ensures compliance with regulatory requirements.

Proposed Scope of Work:

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
1	DTR Metering for 63 kVA and above						
1.1	DTR Metering for 63 kVA & Above (For AT&C loss 50% and above 11 kV feeders)	Nos	10089	3645	6444	6444	0
1.2	DTR Metering for 63 kVA & Above (For AT&C loss below 50% loss)	Nos	21259	5561	15698	9490	6208

Proposed Estimated Cost against balance scope:

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)
1	DTR Metering for 63 kVA and above	10.78	10.78	0.00	0.00

Note: - All balance scope covered in FY 26-27.

4.2. AT&C Loss reduction of 11kV feeders and associated DTs.

In accordance with the directive of the Hon'ble OERC, TPWODL has identified 368 nos. of 11kV feeders having AT&C losses (50% & above), which need to be brought down by implementing the activities listed below.

- **DTR metering below 63 kVA on high AT&C loss 11kV Feeders (368 No's)**
- **Conversion of LT Bare to AB Cable in high loss DTs across TPWODL**
- **Installation of LT distribution box on LT pole**

The proposals will be undertaken in a phased manner based on feeder loss levels. Feeders with loss exceeding 80% and those in the loss band of 70%–80% are planned in FY 2026–27. Feeders in the loss band of 60%–70% will be considered in FY 2027–28, while feeders in the loss band of 50%–60% and 20%–50% are proposed to be considered in FY 2028–29.

4.2.1. DTR metering below 63 kVA on high AT&C loss 11kV Feeders (368 No's):

A total of 19977 DTRs are installed on the identified feeders, of which energy meters on 329 DTRs have already been installed till March'26. Energy metering for the balance DTRs is proposed to enable effective monitoring and assessment of DTR-wise AT&C losses. In view of the high AT&C losses on these 11 kV feeders, strengthening transformer-wise energy accounting is essential to identify high-loss areas, detect pilferage or abnormal consumption and implement targeted loss-reduction measures. The proposed intervention will improve feeder performance, enhance billing efficiency and ensure compliance with the directions of the Hon'ble Commission.

Proposed Scope of Work:

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
2.1	DT Metering Less than 63 kVA (10/16/25 kVA)	Nos	19977	329	19648	0	19648

Proposed Estimated Cost against balance scope:

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)
2.1	DT Metering Less than 63 kVA (10/16/25 kVA)	22.50	7.89	6.70	7.91

4.2.2. Conversion of LT Bare to AB Cable in high loss DTs across TPWODL

The proposed conversion of LT bare conductor to AB cable in high-loss distribution transformer areas is essential to reduce network accessibility, prevent power theft through illegal hooking and enhance overall network safety and reliability. This intervention will also minimize breakdowns, reduce maintenance requirements and support sustainable loss reduction in identified high-loss pockets.

Proposed Scope of Work:

SI no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
2.2	Conversion of LT Bare to AB Cable	Km	2034.95	0	2034.95	0	2034.95

Proposed Estimated Cost against balance scope:

SI no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)
2.2	Conversion of LT Bare to AB Cable	143.59	49.15	37.26	57.18

4.2.3. Installation of LT distribution box on LT pole

Installation of LT distribution boxes along with armoured cables is proposed to eliminate any possibility of electricity pilferage by consumers through tapping from LT poles. This will also help reduce "no current" complaints arising from open LT joints at poles and further enhance public as well as employee safety.

Proposed Scope of Work:

SI no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
2.3	LTDB along with armoured cable	Nos	122560	0	122560	0	122560

Proposed Estimated Cost against balance scope:

SI no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)
2.3	LTDB along with armoured cable	127.46	35.38	41.87	50.21

Comprehensive Scope of Work

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
1	DTR Metering for 63 kVA and above						
1.1	DTR Metering for 63 kVA & Above (For AT&C loss 50% and above 11 kV feeders)	Nos	10089	3645	6444	6444	0
1.2	DTR Metering for 63 kVA & Above (For AT&C loss below 50% loss)	Nos	21259	5561	15698	9490	6208
2	AT&C Loss reduction of 11 kV feeders and associated DTs						
2.1	Proposal for feeder having loss > 80%						
2.1.1.	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	2857	46	2811	0	2811
2.1.2	Conversion of Bare to LT AB (95 Sq. mm)	Km	324	0	324	0	324
2.1.3.	Conversion of Bare to LT AB (120 Sq. mm)	Km	1	0	1	0	1
2.1.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	11266	0	11266	0	11266
2.1.5	2 X 6 sq. mm Armoured Cable	Km	703	0	703	0	703
2.1.6	4 X 25 sq. mm Armoured Cable	Km	5	0	5	0	5
2.2	Proposal for feeder having loss band 70%-80%						
2.2.1.	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	4565	88	4477	0	4477
2.2.2	Conversion of Bare to LT AB (95 Sq. mm)	Km	398	0	398	0	398
2.2.3	Conversion of Bare to LT AB (120 Sq. mm)	Km	18	0	18	0	18
2.2.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	24448	0	24448	0	24448
2.2.5	2 X 6 sq. mm Armoured Cable	Km	1720	0	1720	0	1720
2.2.6	4 X 25 sq. mm Armoured Cable	Km	15	0	15	0	15
2.3	Proposal for feeder having loss band 60%-70%						
2.3.1.	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	5931	93	5838	0	5838
2.3.2	Conversion of Bare to LT AB (95 Sq. mm)	Km	509	0	509	0	509
2.3.3	Conversion of Bare to LT AB (120 Sq. mm)	Km	20	0	20	0	20
2.3.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	37088	0	37088	0	37088
2.3.5	2 X 6 sq. mm Armoured Cable	Km	2820	0	2820	0	2820
2.3.6	4 X 25 sq. mm Armoured Cable	Km	26	0	26	0	26
2.4	Proposal for feeder having loss band 50%-60%						
2.4.1	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	6624	102	6522	0	6522
2.4.2	Conversion of Bare to LT AB (95 Sq. mm)	Km	611	0	611	0	611
2.4.3	Conversion of Bare to LT AB (120 Sq. mm)	Km	30	0	30	0	30
2.4.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	45982	0	45982	0	45982
2.4.5	2 X 6 sq. mm Armoured Cable	Km	2910	0	2910	0	2910
2.4.6	4 X 25 sq. mm Armoured Cable	Km	40	0	40	0	40
2.5	Proposal for feeder having loss band 20%-50%						
2.5.1	Conversion of Bare to LT AB (95 Sq. mm)	Km	103.45	0	103.45	0	103.45

Sl no	Activity	UoM	Total Scope across system	Work Completed till Mar'26	Balance	Scope Covered under CAPEX FY 27	Balance Requirement
			A	B	C=A-B	D	E=C-D
2.5.2	Conversion of Bare to LT AB (120 Sq. mm)	Km	20.50	0	20.50	0	20.50
2.5.3	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	3776	0	3776	0	3776

5. Need of the Investment

Due to incomplete metering at Distribution Transformers, energy accounting lacks visibility of flow across the distribution network, impacting accurate assessment of technical and commercial losses and limiting monitoring and control of high-loss areas.

As a result, several 11kV feeders continue to show high AT&C losses due to DTR metering gaps, theft-prone LT networks and system inefficiencies. In the absence of smart meters at distribution transformers, energy flow cannot be tracked independently, making it difficult to identify high-loss pockets and take corrective action.

To address these issues, investment is proposed for strengthening the metering and LT distribution infrastructure in identified high AT&C loss making feeders. The proposed works include:

- Strengthening of smart DTR metering, for 63 kVA and above DTR capacity, to enable transformer-wise energy accounting and identification of loss /theft prone areas.
- Strengthening of smart DTR metering, on all the DTs at identified high loss 11 kV feeders above 50% AT&C loss, to enable transformer-wise energy accounting and identification of loss /theft prone areas.
- Conversion of LT bare conductors to LT AB cables in theft-prone areas to reduce pilferage, improve safety and enhance system reliability.
- Installation of LT distribution box on LT pole along with armoured cable to eliminate chances of energy pilferage.

The proposed investment will improve feeder monitoring, strengthen energy accounting, support targeted loss reduction measures, improve billing efficiency and ensure sustainable reduction of AT&C losses in compliance with regulatory directives.

6. Timelines of the Project and Phasing of Investment

Proposal breakup with individual item wise costing is summarised in Table - 1 below:

Table – 1

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)
1	DTR Metering or 63 kVA and above	10.78	10.78	0.00	0.00
1.1	DTR Metering for 63 kVA & Above (For AT&C loss 50% and above 11kV feeders)	0	0	0.00	0.00
1.2	DTR Metering for 63 kVA & Above (For AT&C loss below 50% loss)	10.78	10.78	0.00	0.00
2	AT&C Loss reduction of 11kV feeders and associated DTs	293.55	92.42	85.83	115.30
2.1	Proposal for feeder having loss > 80%	35.06	35.06	0.00	0.00
2.1.1	DT Metering less than 63 kVA (10/16/25 kVA)	3.04	3.04	0.00	0.00
2.1.2	Conversion of Bare to LT AB (95 Sq. mm)	21.40	21.40	0.00	0.00
2.1.3	Conversion of Bare to LT AB (120 Sq. mm)	0.08	0.08	0.00	0.00
2.1.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	3.72	3.72	0.00	0.00
2.1.5	2 X 6 sq. mm Armoured Cable	6.68	6.68	0.00	0.00
2.1.6	4 X 25 sq. mm Armoured Cable	0.14	0.14	0.00	0.00
2.2	Proposal for feeder having loss band 70%-80%	57.36	57.36	0.00	0.00
2.2.1	DT Metering less than 63 kVA (10/16/25 kVA)	4.85	4.85	0.00	0.00
2.2.2	Conversion of Bare to LT AB (95 Sq. mm)	26.29	26.29	0.00	0.00
2.2.3	Conversion of Bare to LT AB (120 Sq. mm)	1.38	1.38	0.00	0.00
2.2.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	8.07	8.07	0.00	0.00
2.2.5	2 X 6 sq. mm Armoured Cable	16.34	16.34	0.00	0.00
2.2.6	4 X 25 sq. mm Armoured Cable	0.43	0.43	0.00	0.00
2.3	Proposal for feeder having loss band 60%-70%	85.83	0.00	85.83	0.00
2.3.1	DT Metering less than 63 kVA (10/16/25 kVA)	6.70	0.00	6.70	0.00
2.3.2	Conversion of Bare to LT AB (95 Sq. mm)	35.64	0.00	35.64	0.00
2.3.3	Conversion of Bare to LT AB (120 Sq. mm)	1.62	0.00	1.62	0.00
2.3.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	12.68	0.00	12.68	0.00
2.3.5	2 X 6 sq. mm Armoured Cable	28.40	0.00	28.40	0.00
2.3.6	4 X 25 sq. mm Armoured Cable	0.79	0.00	0.79	0.00
2.4	Proposal for feeder having loss band 50%-60%	104.53	0.00	0.00	104.53
2.4.1	DT Metering less than 63 kVA (10/16/25 kVA)	7.91	0.00	0.00	7.91

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)
2.4.2	Conversion of Bare to LT AB (95 sq. mm)	45.20	0.00	0.00	45.20
2.4.3	Conversion of Bare to LT AB (120 sq. mm)	2.57	0.00	0.00	2.57
2.4.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	16.61	0.00	0.00	16.61
2.4.5	2 X 6 sq. mm Armoured Cable	30.96	0.00	0.00	30.96
2.4.6	4 X 25 sq. mm Armoured Cable	1.28	0.00	0.00	1.28
2.5	Proposal for feeder having loss band 20%-50%	10.77	0.00	0.00	10.77
2.5.1	Conversion of Bare to LT AB (95 Sq. mm)	7.65	0.00	0.00	7.65
2.5.2	Conversion of Bare to LT AB (120 Sq. mm)	1.76	0.00	0.00	1.76
2.5.3	LT Distribution Box with 4 x 25 sq. mm Charging cable	1.36	0.00	0.00	1.36
Total		304.33	103.20	85.83	115.30

Proposal breakup with individual item wise quantity is summarised in Table - 2 below

Table 2

Sl no	Activity	UoM	Balance	FY 27	FY 28	FY 29
				Qty	Qty	Qty
1	DTR Metering for 63 kVA and above			<i>Refer Annexure 1 for location wise details</i>		
1.1	DTR Metering for 63 kVA & Above (For AT&C loss 50% and above 11kV feeders)	Nos	0	0	0	0
1.2	DTR Metering for 63 kVA & Above (For AT&C loss below 50% loss)	Nos	6208	6208	0	0
2	AT&C Loss reduction of 11kV feeders and associated DTs			<i>Refer Annexure 2 for location wise details</i>		
2.1	Proposal for feeder having loss > 80%					
2.1.1	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	2811	2811	0	0
2.1.2	Conversion of Bare to LT AB (95/120 sq. mm)	Km	325	325	0	0
2.1.3	Conversion of Bare to LT AB (120 sq. mm)	Km	1	1	0	0
2.1.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	11266	11266	0	0
2.1.5	2 X 6 sq. mm Armoured Cable	Km	703	703	0	0
2.1.6	4 X 25 sq. mm Armoured Cable	Km	5	5	0	0
2.2	Proposal for feeder having loss band 70%-80%					
2.2.1	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	4477	4477	0	0
2.2.2	Conversion of Bare to LT AB (95 sq. mm)	Km	398	398	0	0
2.2.3	Conversion of Bare to LT AB (120 sq. mm)	Km	18	18	0	0
2.2.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	24448	24448	0	0
2.2.5	2 X 6 sq. mm Armoured Cable	Km	1720	1720	0	0
2.2.6	4 X 25 sq. mm Armoured Cable	Km	15	15	0	0
2.3	Proposal for feeder having loss band 60%-70%					
2.3.1	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	5838	0	5838	0
2.3.2	Conversion of Bare to LT AB (95 sq. mm)	Km	509	0	509	0
2.3.3	Conversion of Bare to LT AB (120 sq. mm)	Km	20	0	20	0
2.3.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	37088	0	37088	0
2.3.5	2 X 6 sq. mm Armoured Cable	Km	2820	0	2820	0
2.3.6	4 X 25 sq. mm Armoured Cable	Km	26	0	26	0

Sl no	Activity	UoM	Balance	FY 27	FY 28	FY 29
				Qty	Qty	Qty
2.4	Proposal for feeder having loss band 50%-60%					
2.4.1	DT Metering less than 63 kVA (10/16/25 kVA)	Nos	6522	0	0	6522
2.4.2	Conversion of Bare to LT AB (95 sq. mm)	Km	611	0	0	611
2.4.3	Conversion of Bare to LT AB (120 sq. mm)	Km	30	0	0	30
2.4.4	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	45982	0	0	45982
2.4.5	2 X 6 sq. mm Armoured Cable	Km	2910	0	0	2910
2.4.6	4 X 25 sq. mm Armoured Cable	Km	40	0	0	40
2.5	Proposal for feeder having loss band 20%-50%					
2.5.1	Conversion of Bare to LT AB (95 sq. mm)	Km	103.45	0	0	103.45
2.5.2	Conversion of Bare to LT AB (120 sq. mm)	Km	20.50	0	0	20.50
2.5.3	LT Distribution Box with 4 x 25 sq. mm Charging cable	EA	3776	0	0	3776

7. Proposed Capital Investment Scheme

The scheme includes installation of DTR metering, conversion of LT Bare Conductors to LT AB Cables and installation of LT distribution box along with armoured cable resulting reduction of AT&C losses over a period of three years.

Since, the proposed scheme involve creation of new infrastructures for strengthening of distribution network assets with long-term technical, operational and financial benefits to the utility, the expenditure is justified to be covered under CAPEX investment.

8. Technical Justification

Presently at several 11kV feeders there is high AT&C losses due to incomplete metering infrastructure, inaccurate energy accounting and theft-prone LT distribution systems. Installation of metering at Distribution Transformers will enable monitoring and energy auditing, thereby improve visibility of energy flow and facilitate identification of abnormal/high loss pockets. The energy recorded at these metering points can be audited against downstream connected consumers for effective monitoring and corrective action.

Strengthening DTR metering for 63 kVA and above DTR capacity is essential for transformer-wise energy accounting, technical loss assessment, monitoring transformer loading and identification of theft-prone and high-loss areas. It will also support data-driven planning and targeted network strengthening measures.

Conversion of LT bare conductors to LT AB cables will reduce hooking and pilferage, improve public safety, minimize technical losses and enhance reliability of power supply in theft-prone areas.

Installation of LT distribution box on LT pole along with armoured cable to eliminate chances of energy pilferage.

The integrated implementation of these measures will strengthen energy accounting from feeder to consumer level and support sustainable reduction of technical and commercial losses.

9. Loss Reduction

The proposed scheme is essential for compliance with regulatory directives related to energy accounting and loss reduction.

The investment supports:

- Compliance with directives of the Electricity Regulatory Commission regarding for AT&C loss reduction and energy auditing under Retail Supply Tariff (RST) Order for FY 26–27.
- Completion of smart metering at DTRs level in accordance with distribution sector reforms and utility standards.
- Strengthening of energy accounting and audit mechanisms required under applicable regulatory provisions.
- Loss reduction and improvement of public safety through replacement of LT bare conductors with XLPE insulated LT AB cables.
- Enhanced monitoring and control of unauthorized consumption and electricity theft.

These schemes also support safe and reliable operation of the distribution network by improving monitoring capability and reducing overloading and unsafe LT practices.

10. Cost Assessment/Cost Breakup

Below is the detailed Estimated Cost Summary for completion of the proposed scope of work:

Sl. No.	Proposal	Amount (Rs in Cr.)
1	DTR Metering for 63kVA and above	10.78
2	AT&C Loss reduction of 11kV feeders and associated DTs, conversion of O/H bare conductor to LT AB cable, DTR metering below 63 kVA and installation of LT distribution box on pole with armoured cable.	293.55
Total cost (in CR)		304.33

Please refer to Annexure – 3 to 21 for cost breakup of individual items covering the above scope of work.

11. Cost Benefit Analysis

As per RST Order FY 26-27 directions, the desired outcomes for next three years are specified in Table below.

Sr no	Parameter	UOM	FY27		FY28	FY29
1	11kV Feeder AT&C Loss band considered	%	>80%	70%-80%	60%-70%	50%-60%
2	Expected AT&C loss Reduction as per RST order directions	%	50% from existing loss level	30% from existing loss level	30% from existing loss level	30% from existing loss level
3	Total feeder considered	Nos	47	84	106	131
4	Energy Loss	MUs	288.36	356.53	306.60	301.24
5	Expected Energy Saving	MUs	144.18	106.96	91.98	90.37
6	LT ABR	Rs/Unit	4.89	4.89	4.89	4.89
7	Expected Saving	Cr	70.50	52.30	44.90	44.10
8	Impact on Overall AT&C Loss of TPWODL	%	1.41	1.05	0.90	0.88

Apart from the above benefit, the other significant operational, technical & commercial benefits to the utility are enumerated below: -

- Reduction in pilferage and unauthorized consumption by conversion of O/H bare conductor to LT AB cable.
- Enhanced distribution transformer-wise monitoring and energy auditing.
- Improved system reliability, power quality and transformer loading assessment.
- Better preventive maintenance planning and reduced network failures.
- Strengthened regulatory compliance and utility performance indicators.
- Reduction in maintenance expenditure related to LT bare conductor failures and theft damage.
- Long-term operational savings through improved monitoring and reduced field intervention.

12. Conclusion

Under the proposed scheme, a total capital expenditure of **Rs. 304.33 Cr** is submitted for the kind consideration and approval of the Hon'ble Commission for a period of three years. The Detailed Project Report (DPR) has been formulated with a focused emphasis on implementing comprehensive initiatives to reduce losses on identified high AT&C 11 kV feeders and as per the direction stipulated by Hon'ble Commission in RST Order FY 26-27. This will also mitigate operational risks and hazards, in strict adherence to applicable regulatory and statutory standards.

Below is the detailed phasing for completion of work: -

Sl no	Activity	Total (Cr)	FY 27 (Cr)	FY 28 (Cr)	FY 29 (Cr)
1	DTR Metering or 63 kVA and above	10.78	10.78	0.00	0.00
2	AT&C Loss reduction of 11kV feeders and associated DTs	293.55	92.42	85.83	115.30
Total		304.33	103.20	85.83	115.30

The above schemes have been mapped in the annexure below for ready reference and are proposed to be considered under CAPEX.

Scheme details	Annexure
DTR Metering for 63kVA and above	Annexure 1
AT&C Loss reduction of 11kV feeders and associated DTs, conversion of O/H bare conductor to LT AB cable & installation of LT distribution box on pole with armoured cable.	Annexure 2

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ANNEXURE-I

**Certified True Copy of the Resolution passed at the
Board Meeting held on 22nd April 2026**

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

(₹ in crore)

Sl. N o.	Proposal Details (As per the direction of Commission)	Total Cost	Budget Breakup in 5 Years				
			FY-27	FY-28	FY-29	FY-30	FY-31
1	Protection system on HV and LV side of DTRs of 63KVA and above	504.16	149.22	180.22	174.72	0.00	0.00
2	Protection system on HV and LV side of DTRs of 25KVA	520.79	0.00	127.00	155.78	144.97	93.05
3	Installation of Guard Wires and UG Cable for 33 kV & 11 kV overhead lines crossing over National & State Highway	107.64	107.64	0.00	0.00	0.00	0.00
4	Addressing Low Voltage issues in urban and major city areas	33.54	33.54	0.00	0.00	0.00	0.00
5	DTR Metering for 63 KVA and above	33.12	33.12	0.00	0.00	0.00	0.00
6	AT&C Loss reduction of 11KV feeders	438.54	134.14	125.99	178.41	0.00	0.00
Total		1,637.79	457.66	433.21	508.91	144.97	93.05

FURTHER RESOLVED that the Chief Executive Officer and the Chief Financial Officer of the Company be and are hereby severally authorized to do all such acts, deeds, matters, and things as may be necessary or expedient to give effect to this resolution."

Certified True Copy
For TP Western Odisha Distribution Limited

Kanaklata Swain
(Company Secretary)
FCS 13974

Regd./Corporate Office: Wesco Corporate Building Burla,
Besides Burla Police Station, Burla - 768017, Sambalpur, Odisha

TP WESTERN ODISHA DISTRIBUTION LIMITED

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

Regd./Corp Office: Burla, Dist-Sambalpur, Odisha -768 017

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