

BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION
PLOT NO.4, CHUNUKOLI, SAILASHREE VIHAR,
CHANDRASEKHARPUR, BHUBANESWAR

IN THE MATTER OF: Application for approval of Capital Investment Plan for installation of Smart Meters for the FY 2025-26 to 2031-32 in the Licensed Area of TP Northern Odisha Distribution Limited.

And

IN THE MATTER OF: : TP Northern Odisha Distribution Limited

Corporate Office, Januganj, Balasore-756019

..... Petitioner

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

..... Respondents

Affidavit verifying the submission of TPNODL:

I, Dwijadas Basak, S/o Dhananjay Basak, aged about 57 years, residing at Balasore, do hereby solemnly affirm and state as follows:-

I am the Chief Executive Officer of TP Northern Odisha Distribution Limited, the applicant in the above matter and duly authorised to swear this affidavit on its behalf.

The statements made in the application along with the annexures annexed to this application are true to the best of my knowledge and the statements made are based on information and records and I believe them to be true.

Date: 30.11.2024

The deponent being identified by
Sri-
Advocate, Balasore solemnly affirm
and state that the facts stated above
are true to his/her knowledge and belief
and put his/her signature / Affix on this
day of Nov 20

20th Nov 2024
J. N. BEHERA
Notary Public, Balasore


DEPONENT

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1. Background for Submission of this Petition.

- 1.1** TPNODL in its ARR petition for FY 2024-25 has submitted a proposal for recovery of meter cost through capex instead of monthly meter rent, to which the Hon'ble Commission has stipulated following in the Tariff Order for FY 2024-25 dated 13.02.2024.

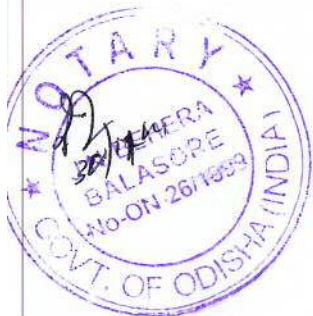
93. Tariff Related Issues

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Meter Cost to be recovered under CAPEX

The Commission thoughtfully analyzed the proposal. Though the proposal appears to be plausible, still it requires thorough analysis. There will be no issue as far as inclusion of meter cost in CAPEX, where the new meters will be installed. But there may be many Consumers who have already paid the meter rent in full and there may be other Consumers those who have paid the meter rent in part. In those cases, abolishing





meter rent may create problem in financial adjustment. Therefore, the DISCOMs are required to file a fresh proposal by giving all the details related to meter rent, number of Consumers in different metering categories, legal implications, if any, and detail plan for implementation etc. Accordingly, the Commission will examine the proposal for recovery under CAPEX.

In compliance to this directive of the Hon'ble Commission, TPNODL vide letter dated 31st May 2024 has submitted a proposal for installation of both Smart Meters and BLE Meters commencing FY 2024-25 to FY 2026-27 showing the impact on Retail Tariff.

- 1.2 Subsequently, it was realized that sooner or later all meters are eventually required to be converted into Smart meters based on the mandate of various Regulatory Frameworks (provided in following sections), thrust of the Government of India on Installation of Smart Meters, inherent benefits of the Smart meters and also to achieve the Solar initiatives target of the Govt. of India (e.g. PM Suryaghar Muft Bijli Yojana, PM Kusum Schemes, Rooftop Solar schemes etc.). Further, the common consumer will be the biggest beneficiary as all consumers can take benefit of Smart meters without having to pay any rent with very minimal impact on tariff as the Meter capex will be socialized in the ARR.
- 1.3 Accordingly, a comprehensive and combined proposal for all Discoms for a longer plan for Smart Meter installation covering all consumers was submitted to the Hon'ble Commission vide letter no. TPCODL/Regulatory/ 2024/91/5422 dated 12th Aug 2024.
- 1.4 We are through this petition submitting the Capital Investment Plan for Installation of Smart meters covering following as below for approval of the Hon'ble Commission.
 - i. Replacement of all existing Non-Smart Meters in TPNODL's network with Smart Meters
 - ii. All New Connections to be provided through Smart Meters only.

2. Benefits of Smart Meters.

The benefits of Smart Meters are quite significant, some of which is presented below.

- 2.1 **Cost Savings:** With availability of real time data on energy usages, the consumers will be able to find areas of inefficiency and excess consumption thereby taking prompt action to reduce unwanted consumption for optimization of energy consumption.
- 2.2 **Improved Accuracy:** Smart meters are much more accurate than traditional meters and without any human intervention, which means consumer will receive more accurate bills and less complaints related to billing errors.
- 2.3 **Better Planning and Forecasting:** With availability of real time data, the Discoms will be able to plan their power purchase more efficiently thereby reducing burden of excess power purchase on the consumers.
- 2.4 **No Meter Rent in Bill:** Relief to Consumers from Monthly Meters rent in their bills.
- 2.5 **Compliance:** The State will be able to meet the target set by the Central Government in the area of Smart Meter Installation.



A handwritten signature in blue ink, appearing to be 'S. B. S. S.', written in a cursive style.

- 2.6 Better Measurement of Reliability Indices:** Through IT and OT integration the interruption duration can be more accurately captured resulting in better measurement of Reliability Indices.
- 2.7 Increased uptake of distributed electricity generation:** Smart meters can help increase the uptake of distributed electricity generation, which can help reduce the carbon footprint and combat global warming.
- 2.8 Faster repairs:** Smart meters can be accessed remotely by energy providers, which can help identify issues with the energy supply more quickly.
- 2.9 Improved grid performance:** Smart meters can help improve the performance and quality of service for customers by providing information on the status of the electricity grid.
- 2.10 Reduction in Meter Reading cost:** Consumer shall be directly benefited for the reduction in the meter reading cost as the energy consumption data shall be directly fetched by the system for generation of electricity bills.
- 2.11 No Pilferage of Revenue:** Possibility of manipulation in meter reading leading to revenue pilferage shall be minimized. Also, detection of theft would be faster as smart meter data transmission may give early warning.

3 Regulatory Frameworks for Smart Meters Installation

- 3.1** As per Supply Code 2019, clause no 97(iv) (3) Smart Meters are to be installed in next 3years starting from 2019 as reiterated below:

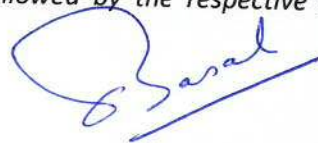
*The licensee/supplier shall gradually move on to **prepaid/smart/pre-paid smart meters** as and when available preferably **within three years**. In case pre-paid meter is installed, the meter shall conform to the technical requirements as specified in Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006 and amendments thereof. (Emphasis Supplied)*

- 3.2** The Central Electricity Authority (Installation and Operation of Meters) (Amendment) Regulations, 2022 clause no 3 stipulates following:

*"3 (b) All consumers in areas with communication network, shall be supplied electricity with **Smart Meters working in prepayment mode**, conforming to relevant IS, within the timelines as specified by the Central Government:*

*Provided that all consumer connections having current carrying capacity beyond that specified in relevant IS, shall be provided with meters having **automatic remote meterreading facility or Smart Meters as per relevant IS**.*

Provided further that in areas which do not have communication network, installation of prepayment meters, conforming to relevant IS, shall be allowed by the respective State Electricity Regulatory Commission" (Emphasis Supplied).



3.3 The Timelines for replacement of the Meters have been specified in the MoP Notification CG-DL-E-19082021-229126 issued through Gazette of India dated 19 Aug 2021 which has been subsequently amended vide notification CG-DL-E-26052022-236032 published on dated 26.05.2022, the relevant extract of which is reproduced below for ready reference:

2.1 All consumers (other than agricultural consumers) in areas with communication network, shall be supplied electricity with **Smart Meters** working in prepayment mode, conforming to relevant IS, within the timelines specified below:

(i) All Union Territories, all electrical divisions with high AT&C Loss (Urban Areas with AT&C loss >15% and rural areas with AT&C loss >25%), Industrial and Commercial consumers, all Government offices at Block level and above, shall be metered with smart meters, with prepayment mode, by 31st December, 2023:

Provided that these areas shall also be covered for smart Distribution Transformer (DT) metering by the Advanced Metering Infrastructure Service Provider (AMISP), on a priority basis, by 31st March, 2023;

Provided also that the State Regulatory Commission may, by notification, extend the said period of implementation, giving reasons to do so, only twice but not more than six months at a time, for a class or classes of consumers or for such areas as may be specified in that notification;

(ii) All other areas shall be metered with **smart meters, with prepayment mode**, by 31st March, 2025:

Provided that in these areas smart Distribution Transformer (DT) metering shall be completed by 31st December, 2023;

(iii) All feeders shall be metered by 31st December, 2022;

(iv) All the feeder meters shall be made communicable under National Feeder Monitoring System (NFMS) by 31st December, 2022 and shall have Automatic Meter Reading (AMR) facility or shall be covered under Advanced Metering Infrastructure (AMI).

(Emphasis Supplied).

3.4 The Operational Guidelines for Implementation of **PM Surya Ghar: Muft Bijli Yojana** for component "CFA to Residential Consumers" released by MNRE on 07.06.2024 stipulates following.

8 (ix) Generation and Benefits Tracking: The National Portal will receive generation data from connected inverters/smart meters for providing better analytical services to the consumer as well as to assist DISCOMs in collecting data. In case the RTS generation data (intermittent or real-time or near real-time) of an RTS is being received by the vendor through SIM/dongle/Wi-Fi etc., access to that data shall be provided by the vendor to the National Portal. This will enable tracking of the RTS generation data on the National Portal. **(Emphasis Supplied).**

3.5 The Hon'ble Commission's Order dated 19.08.2016 as amended up to 17.01.2018 on 'Net Metering / Bi-Directional Metering & their Connectivity with respect to Solar Projects' stipulates following.

10. Metering Arrangement:

.....In case of multiple solar generations sources in a single premise, separate solar meters would have to be installed by the solar power generator/prosumer for each of the sources with



facility for installation of modem along with all the solar meters for **remote recording of monthly generation data** through GSM or GPRS to the concerned distribution licensee.

..... One net meter/bi-directional meter (single phase or three phase as per requirement) capable of recording import and export of power in KWh is to be installed which shall be accepted by all for commercial settlement. These meters should be MRI and AMR complaint. **(Emphasis Supplied).**

3.6 Comprehensive guidelines for implementation of **PM KUSUM Scheme** (MNRE Order dated 17.01.2024) stipulates following.

6.3.6 (iii) All solar Agriculture pumps sanctioned under the Programme shall be provided with remote monitoring system by the vendor. It will be mandatory to submit performance data of solar power plant online to MNRE in the manner and format prescribed by MNRE. The remote monitoring system may consist of **smart meters**, communication hardware/IoT devices, software interface, web and mobile application and internet connection. **(Emphasis Supplied).**

3.7 The Hon'ble Commission vide letter No. OERC/Engg/2/2017/609 dated 03.05.2023 has stipulated that the Clause 97 (iv) (3) of Supply Code, 2019, Regulation 4 of CEA (installation and operation of Meters) Regulations, 2006 as amended on 28.02.2022; and Ministry of Power Notification dated 23.05.2022 on CEA (installation and operation of Meters) (Amendment) Regulations, 2019 desires Smart meters shall be installed for new connection; consumer without meter, consumer with defective meter or electromechanical meters; all 33kV and 11 kV feeders; and Distribution Transformers (DTs) (i.e. all feeders and DTs to conduct energy audit).

Further, the Hon'ble Commission has stipulated following priority order for installation of Smart meters.

3.7.1 Government Department and other sub-ordinate offices/PSUs/ Bodies (including the PRIs and ULBs, cooperative societies, etc.; Industrial Consumer (with meters more than 5 year old); three phase consumer with static meter (more than 5 years old) having consumption of more than 200 units per month; and the consumer willing for such installation in areas with communication network;

3.7.2 Single phase consumer with static meter (more than 5 years old) in areas with communication network;

3.7.3 Three phase consumer with static meter (more than 5 years old) having consumption of less than or equal to 200 units per month in areas with communication network.

3.8 In view of above statutory provisions & enormous benefits as described above, installation of smart meter is mandatory and beneficial to consumers accordingly, petitioner is submitting this petition for approval of the Hon'ble Commission.



4. Regulatory Framework for submission of Capital Investment Plan

4.1 Meter installation is a capex activity. The Hon'ble Commission in order of Case No 09/2021 ("Vesting Order") had directed TPNODL to seek the approval of the Capital Expenditure Plan in line with the regulations. The extracts from the Vesting Order are as follows:

42. Capital investment plan

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

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

3.2. Capital Investment

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

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

(Emphasis Supplied)

4.2 In compliance to the Tariff Regulations, 2022, TPNODL had filed its Business Plan for FY 2023-24 vide submission dated 31.12.2022 (registered as Case 10/2023) and Business Plan for FY 25 to FY 28 vide submission dated 31.05.2023 (registered as Case 43 /2023). The Business Plan application of TPNODL 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 of 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 43/2023 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 the approval by the Commission.

(Emphasis Supplied)

So, as per the above provisions/order before incurring any capex prior approval from the Hon'ble Commission is mandatory therefore petitioner is filling this petition in addition to the regular investment plan.

4.3 Since, this petition is for replacement of all existing meters with smart meters which may take at least 7 years and installation of smart meter in new connection cases being an ongoing activity, therefore, we are submitting consolidated proposal for 7 years including meters to be used for new connections.

5. Proposal

5.1 The detailed proposal of Capital Investment Plan for FY 2025-26 to 2031-32 for installation of Smart Meters as below:

5.2 After commencement of Operation, TPNODL has taken tremendous efforts for replacement of the defective and mechanical Meters. The present position of Meters is as given below:

Table 1: Status of Meters installed in TPNODL as on 31.10.2024

Sr. No.	Meter Type	Smart	Static	BLE	Mechanical	Total
1	Single Phase	153262	1628717	141738	8000	1931717
2	Three Phase (WC)	25528	12925	8397		46850
3	LTCT	1800	500	0		2300
4	HT	694	801	0		1495
Total		181284	1642943	150135	8000	1982362

5.3 The above various types of meters have been installed in both Urban and Rural Areas of the Discom. In our planning, we propose to install the Smart Meters covering the urban areas and those other areas where the communication is good first and then moving to other areas. The Scope of work for replacement of Smart Meters is as follows:

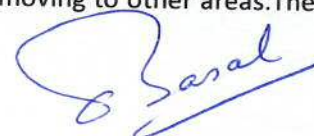


Table 2: Scope of work for Replacement existing Non-Smart Meters with Smart Meters

Sr No	DISCOMS	Existing Consumer Base	Smart Meters Already Installed	Balance Non Smart Meters	EHT Meters to remain as ABT (i.e . Not to be replaced with Smart Meters)	Balance Meters to be Replaced with Smart Meters
		A	B	C=A-B	D	E=C-D
1	TPNODL	1982362	181284	1801078	42	1801036

5.4 As can be seen there are about 18.01 Lakhs Non- Smart Meters in the present population that is required to be replaced with Smart Meters. However, the same will take some time and would be implemented in phased manner. Further, for areas where the communication network is not reliable, the implementation of Smart Meters in these areas would be deferred. The broad plan of replacement of existing Non-Smart meters with Smart Meters is as given below:

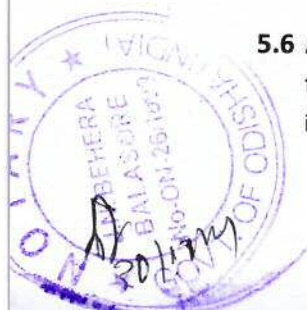
- Three phase Whole (WC) Current Meters would be carried out in FY 2025-26 and FY 2027-28.
- Installation of LT CT Meters and HT Meters would be carried out in the FY 2026-27.
- Single Phase Static Meters would be replaced over the period of 7 years i.e from FY 2025-26 to FY 2031-32
- For EHT Consumers, there is no plan to install any Smart Meters as ABT meters are already there.

Table 3: Plan for replacement of Existing Non-Smart Meters by Smart Meters

Sr No	Meter Type	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31	FY-32	Total
A	Smart Meters Replacment								
1	Single Phase	250000	300000	300000	300000	275000	250000	103455	1778455
2	Three Phase (WC)	7246	6000	8076	0	0	0	0	21322
3	LTCT	300	200	0	0	0	0	0	500
4	HT	600	159	0	0	0	0	0	759
5	Total	258146	306359	308076	300000	275000	250000	103455	1801036

5.5 It is submitted that TPNODL has already placed a commitment for purchase of 30000 BLE Meters. Such Meters have been ordered as these meters are cheaper than Smart Meters and also that the Meter Rent paid by the consumer for BLE Meters (Rs 40 per Month for 60 Months) is lower than the Rent of Smart Meters (Rs 60 per Month for 96 Months). Moreover, these meters i.e. BLE Meters have their value as they can be read from a distance of 30 meters. However, the installation of BLE meters have been limited to the ordered quantity only. Further, As soon as the life of the BLE meters are over and outlived their life we will replace the same with smart meters at the later stage.

5.6 Accordingly, the Smart Meter Plan for new consumers has been made after accommodating the above commitment made by the Discom for BLE Meters. Based on the same, the plan for installation of Smart Meters is as given below:



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Table 4: Plan of Smart Meters for New consumers

SL NO	Meter Type	New Connection_ Annual	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31	FY-32	Total
1	Estimated Single Phase Connections	63100	63100	63100	63100	63100	63100	63100	63100	441700
2	Less BLE Meters already committed		20000	10000						30000
3=1-2	Single Phase		43100	53100	63100	63100	63100	63100	63100	411700
4	Three Phase (WC)	5000	5000	5000	5000	5000	5000	5000	5000	35000
5	LTCT	700	700	700	700	700	700	700	700	4900
6	HT	250	250	250	250	250	250	250	250	1750
TOTAL		69050	49050	59050	69050	69050	69050	69050	69050	453350

Note: TPNODL has already placed order for 30,000 BLE Meters and the same is to be installed in the first two years of the proposed plan. Once the BLE Meters have outlive their life same will be replace with smart meters at later stage.

Based on the explanation provided above, the Meter Installation Programme for TPNODL is as provided below.

Table 5: Meter Installation Plan (both Smart and BLE)

Sr No	Meter Type	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31	FY-32	Total
A	Smart Meters Replacment								
1	Single Phase	250000	300000	300000	300000	275000	250000	103455	1778455
2	Three Phase (WC)	7246	6000	8076	0	0	0	0	21322
3	LTCT	300	200	0	0	0	0	0	500
4	HT	600	159	0	0	0	0	0	759
5	Total	258146	306359	308076	300000	275000	250000	103455	1801036
B	Smart Meters New Connection								
6	Single Phase	43100	53100	63100	63100	63100	63100	63100	411700
7	Three Phase (WC)	5000	5000	5000	5000	5000	5000	5000	35000
8	LTCT	700	700	700	700	700	700	700	4900
9	HT	250	250	250	250	250	250	250	1750
10	Total	49050	59050	69050	69050	69050	69050	69050	453350
C=A+B	Total Smart Meter Installation Plan								
11	Single Phase	293100	353100	363100	363100	338100	313100	166555	2190155
12	Three Phase (WC)	12246	11000	13076	5000	5000	5000	5000	56322
13	LTCT	1000	900	700	700	700	700	700	5400
14	HT	850	409	250	250	250	250	250	2509
15	Total	307196	365409	377126	369050	344050	319050	172505	2254386
D	BLE Meters								
16	Single Phase	20000	10000	0	0	0	0	0	30000
17	Total	20000	10000	0	0	0	0	0	30000

5.6 The summarized table for cost of various meters is provided below.



Table 6: Cost of Meters considered for Capital Investment Plan of Meters

SL NO	Meter Type	UoM	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31	FY-32
A Replacement of Meters by Smart Meters									
1	Single Phase	Rs/Meter	3993	3993	3993	3993	3993	3993	3993
2	Three Phase (WC)	Rs/Meter	7968	7968	7968	7968	7968	7968	7968
3	LTCT	Rs/Meter	8361	8361	8361	8361	8361	8361	8361
4	HT	Rs/Meter	31652	31652	31652	31652	31652	31652	31652
B New Connections by Smart Meters									
1	Single Phase	Rs/Meter	3993	3993	3993	3993	3993	3993	3993
2	Three Phase (WC)	Rs/Meter	7968	7968	7968	7968	7968	7968	7968
3	LTCT	Rs/Meter	19261	19261	19261	19261	19261	19261	19261
4	HT	Rs/Meter	145321	145321	145321	145321	145321	145321	145321
B BLE Meters									
1	Single Phase	Rs/Meter	1766	1766	1766	1766	1766	1766	1766

Note: As can be seen from the above table, there is a difference in the cost of LT CT Meters and HT Meters for replacement and such meters for new connections. The same is due to the cost of CT-PT units which would not be required to be changed when the meter is replaced.

5.7 The detailed break up the cost of various meters is provided in tables below.

Table 7: The detailed break up of Meter Cost- New Connection

Sr No	Particulars	Units	Single Phase 1-5 KW Smart	Single Phase 1-5 KW BLE Meters	Three Phase WC Meter > 5 KW Smart	LT CT Meter Smart	HT CT Meter 33KV Smart
1	Type of Meter						
2	Meter Cost	Rs/Meter	3367	1140	6344	6160	9505
3	Meter & Box Installation cost (including Meter/Box)	Rs/Meter	608	608	1601	2147	22056
4	Meter Seals	Rs/Meter	18	18	22.7	54.48	90.8
5	Meter Box (LTCT (avg cost of 100/5, 200/5 & 400/5) & HT)	Rs/Meter				10900	1879
6	Metering Unit	Rs/Meter					108560
7	Control cable (HT Metering @10mtr per installation)	Rs/Meter					3230
8	Employee Costs capitalised	Rs/Meter	0	0	0	0	0
9:sum(1:8)	Total cost of meter installation	Rs/Meter	3993	1766	7968	19261	145321

Table 8: The detailed break up of Meter Cost- Replacement

Sr No	Particulars	Units	Single Phase 1-5 KW Smart	Single Phase 1-5 KW BLE Meters	Three Phase WC Meter > 5 KW Smart	LT CT Meter Smart	HT CT Meter 33KV Smart
1	Type of Meter						
2	Meter Cost	Rs/Meter	3367	1140	6344	6160	9505
3	Meter & Box Installation cost (including Meter/Box/MU Removal Costs)	Rs/Meter	608	608	1601	2147	22056
4	Meter Seals	Rs/Meter	18	18	22.7	54.48	90.8
5	Meter Box (LTCT (avg cost of 100/5, 200/5 & 400/5) & HT)	Rs/Meter					
6	Metering Unit	Rs/Meter					
7	Control cable (HT Metering @10mtr per installation)	Rs/Meter					
8:sum(1:7)	Total cost of meter installation	Rs/Meter	3993	1766	7968	8361	31652



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5.8 At present, Back End Infrastructure in terms of Head End System (HES) and Meter Data Management (MDM) System for Smart Meters is capable of handling only 2 Lakh SmartMeters as the same initially was not planned for incorporating implementation of single phase Smart Meters. Considering the above addition planned (i.e. replacement of existing non-smart meters with smart meters and smart meters for new connections), there would be a need for investing in Back End infrastructure

i. **Head End System (HES)**

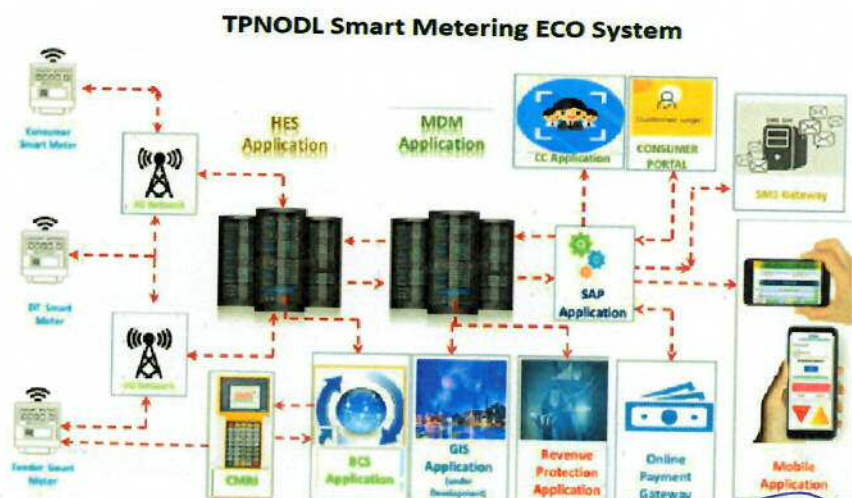
- HES is required to acquire meter data automatically avoiding any human intervention and monitor parameters acquired from meters.
- HES has the capability to receive or pull all meter related data.
- The HES reports the real time data reading as stored in meter memory, consumption and events to the MDM system.

ii. **Meter Data Management (MDM) software**

- MDM is the central repository for all type of data from all consumer meters covered under AMI.
- The MDM system can maintain and process the repository of all meter data such as interval usage data, event logs, register data & outage history for all the connected meters.
- The system will also have a facility to upload meter data collected through MRIs.
- MDM system will be integrated with billing system and data analytic system and other IT/OT systems etc. to have full scale benefit of the MDMS.

The schematic of the HES and MDM is as shown below:

Figure 1: Schematic for HES and MDM Application



- 5.9 Based on the current estimate, the capital cost (per meter) for the backend infrastructure is provided in table below.

Table 9: Backend Infrastructure Capital Investment Cost (Per Meter Cost)¹

Sr No.	Details	UoM	Amount	Remark
1	MDM development & Application Licence	Rs/Meter	0.00	It includes strengthening It infrastructure of MDM & associated infra cost and integration of Different Modules i.e SAP, RevP, GIS, Mobile App
2	Strengthening IT Infrastructure Setup for MDM, Smart Prepaid, Module and SMOC (Smart Metering Operation Centre)	Rs/Meter	36.39	
3	SAP AMI	Rs/Meter	50.00	
4	Contingency (3%)	Rs/Meter	2.59	
TOTAL			88.98	

Sr No	Particulars	Unit	Value
1	Smart Meters planned to be installed upto FY 32	No	2254386
2	Smart Meters already installed	No	181284
3	Total	No	2435670
	<u>Less</u>		
4	Present Back end System capacity	No	-200000
5	Additional Capacity Required	No	2235670

Based on the above, the capex towards backend infrastructure has been computed for after accounting for capacity for which backend infrastructure is already in place.

- 5.10 The following table summarizes the quantum of Capital Investment in the Meters and Backend Infrastructure System.

Table 10: Capital Investment in Meters (In Rs. Crs)

Sr. No	Meter Type	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31	FY-32	Total
1	Smart Meters Replacement	107.75	125.24	126.22	119.79	109.81	99.83	41.31	729.95
2	Smart Meters- New Connection	26.18	30.17	34.16	34.16	34.16	34.16	34.16	227.15
3	BLE Meters	3.53	1.77	0	0	0	0	0	5.30
4	Backend Infrastructure	19.89	0	0	0	0	0	0	19.89
5	Total	157.35	157.18	160.39	153.95	143.97	133.99	75.47	982.29



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5.11 TPNODL has made investments in the various years for meter installation and has recovered Meter Rent as per the rates approved in Tariff Orders. Once this proposed scheme (i.e. recovery of meter cost through capex route) is approved, the meter rent for all consumers will be stopped. Hence, the unrecovered cost in exiting installed meters needs to be recovered.

5.12 The Hon'ble Commission may kindly allow recovery of unrecovered cost on existing installed meters in the retail supply tariff.

6. Prayers

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

- 1.** Allow recovery of Meter Cost under Capex i.e. through Retail Supply Tariff instead of monthly Meter Rent.
- 2.** Meter Rent may be abolished from the date of launch of this Scheme for all consumers.
- 3.** Allow the installation of Smart meters under the Capex route and approve the trajectory of Smart meter installation.
- 4.** Allow the Capital Investment Plan for Smart meter Installation (Hard Cost) for FY 2025-26 to FY 31-32
- 5.** Allow Employee Cost and Interest during Construction based on actuals to be capitalized over and above the Capex (Hard Cost) for FY 2025-26.
- 6.** Allow recovery of unrecovered cost of existing meters in the Retail Supply Tariff so that the meter rent for all consumers can be stopped from the date of launch of this scheme.
- 7.** Permit Carrying forward of the unspent Capital Expenditure to subsequent years.
- 8.** The consequential impact of the above proposal may kindly be allowed as per the applicable Regulations.
- 9.** Permit making additional submission required in this matter.
- 10.** Grant any other relief as deemed fit and proper in the facts and circumstances of the case.
- 11.** Any other direction as the Hon'ble Commission may think appropriate

Place: Balasore
Dated: 30.11.2024

DWIJADAS BASAK
CHIEF EXECUTIVE OFFICER
TP Northern Odisha Distribution Limited



BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION
PLOT NO.4, CHUNUKOLI, SAILASHREE VIHAR,
CHANDRASEKHARPUR, BHUBANESWAR

Case No. 98/2024

IN THE MATTER OF: Additional Submission: Application for approval of Capital Investment Plan for installation of Smart Meters for the FY 2025-26 to 2031-32 in the Licensed Area of TP Northern Odisha Distribution Limited.

And

IN THE MATTER OF: TP Northern Odisha Distribution Limited,
Corporate Office, Januganj, Balasore-756019

..... Applicant

And

IN THE MATTER OF: All Concerned Stakeholders.

..... Respondents

Affidavit verifying the submission of TPNODL

I, Dwijadas Basak, S/o Dhananjay Basak, aged about 58 years, residing at Balasore, do hereby solemnly affirm and state as follows: -

I am the Chief Executive Officer of TP Northern Odisha Distribution Limited-the applicant in the above matter and duly authorised to swear this affidavit on its behalf.

The statements made in the application along with the annexures annexed to this application are true to the best of my knowledge and the statements made are based on information and records and I believe them to be true.

Date: 03.02.2025

The deponent being identified by
Sr. *Salt*
Advocate Balasore solemnly affirm
and state that the facts stated above
are true to his/her knowledge and belief
and put his/her signature and date on this
31/1 Feb 2025

J N BEHERA
Notary Public Balasore

Basak
DEPONENT

**BEFORE THE ODISHA ELECTRICITY REGULATORY COMMISSION
PLOT NO.4, CHUNUKOLI, SAILASHREE VIHAR,
CHANDRASEKHARPUR, BHUBANESWAR**

Case No. 98/2024

IN THE MATTER OF: **Additional Submission: Application for approval of Capital Investment Plan for installation of Smart Meters for the FY 2025-26 to 2031-32 in the Licensed Area of TP Northern Odisha Distribution Limited.**

And

IN THE MATTER OF: **TP Northern Odisha Distribution Limited,
Corporate Office, Januganj, Balasore-756019**

..... **Applicant**

And

IN THE MATTER OF: **All Concerned Stakeholders.**

..... **Respondents**

The above named applicant, TP Northern Odisha Distribution Limited

Most Respectfully Showeth,

1. The above petition was filed by the applicant vide submission dated 30th November 2024.
2. In compliance to the directive of the Hon'ble Commission given vide letter no. **98/2024/1524** dated 20th December 2024, the applicant has published the public notice in newspapers on 21st December 2024.
3. The proof of the publication has been submitted to the Hon'ble Commission vide letter TPNODL/Regulatory/2024/7862 dated 21st December 2024.
4. Following additional submissions in the above case matter is being submitted by the applicant for kind consideration of the Hon'ble Commission.

Additional Submission

5. The Hon'ble Commission vide Notification No. No. OERC-Engg-92/2003 (Vol.VIII) / 1424 Dated 09.12.2024 has notified standard service connection charges upto 150 kW for new connections.

6. In view of the above development that was notified after submission of our petition, certain portion of our original petition dated 30th November 2024 needs to be revised.



7. Licensee, would also like to revise the Backend Infrastructure Capital Investment Cost (Per Meter Cost).
8. In view of the above, **Table-6, Table-7, Table-9 and Table-10** of our petition dated 30th November 2024 stands revised and need to be replaced with followings updated tables.
9. **Revised Table -6:** Subsequent to the above notification dated 09.12.2024, the meter installation cost for new connection has been removed and the revised table is as provided below.

Table – 6 (Revised): Cost of Meters considered for Capital Investment Plan for Meters

Sr. No.	Meter Type	UoM	FY-25	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31
A	Replacement of Meters by Smart Meters								
1	Single Phase	Rs/Meter	3993	3993	3993	3993	3993	3993	3993
2	Three Phase (WC)	Rs/Meter	7968	7968	7968	7968	7968	7968	7968
3	LTCT	Rs/Meter	8361	8361	8361	8361	8361	8361	8361
4	HT	Rs/Meter	31652	31652	31652	31652	31652	31652	31652
B	New Connections by Smart Meters								
1	Single Phase	Rs/Meter	3385	3385	3385	3385	3385	3385	3385
2	Three Phase (WC)	Rs/Meter	6367	6367	6367	6367	6367	6367	6367
3	LTCT	Rs/Meter	17114	17114	17114	17114	17114	17114	17114
4	HT	Rs/Meter	123265	123265	123265	123265	123265	123265	123265
C	BLE Meters								
1	Single Phase	Rs/Meter	1158	1158	1158	1158	1158	1158	1158

10. **Revised Table -7:** Subsequent to the above notification dated 09.12.2024, the meter installation cost for new connection has been removed and the revised table is as provided below.

Table – 7 (Revised): The detailed break up of Meter Cost- New Connection

Sr. No.	Particulars	Units	Single Phase 1-5 KW	Single Phase 1-5 KW	Three Phase WC Meter > 5 KW	LT CT Meter	HT CT Meter 33KV
1	Type of Meter		Smart	BLE Meters	Smart	Smart	Smart
2	Meter Cost	Rs/Meter	3367	1140	6344	6160	9505
3	Meter Seals	Rs/Meter	18	18	22.7	54.48	90.8
4	Meter Box (LTCT (Avg. cost of 100/5, 200/5 & 400/5) & HT)	Rs/Meter				10900	1879
5	Metering Unit	Rs/Meter					108560
6	Control cable (HT Metering @10mtr per installation)	Rs/Meter					3230
7	Employee Costs capitalised	Rs/Meter	0	0	0	0	0
8	Total cost of meter installation (1 to 7)	Rs/Meter	3385	1158	6367	17114	123265



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11. **Revised Table-9:** The revised Backend Infrastructure Capital Investment Cost (Per Meter Cost) is furnished in the following table.

Table – 9 (Revised): Backend Infrastructure Capital Investment Cost (Per Meter Cost)

Sr. No.	Details	UoM	Amount	Remark
1	MDM development & Application Licence	Rs/Meter	55.00	It includes strengthening It infrastructure of MDM & associated infra cost and integration of Different Modules
2	Strengthening IT Infrastructure Setup for MDM, Smart Prepaid, Module and SMOC (Smart Metering Operation Centre)	Rs/Meter	35.00	
3	FG CIS/SPM Licence & Development	Rs/Meter	50.00	
4	Contingency (3%)	Rs/Meter	4.20	
Total			144.20	

12. **Revised Table -10:** Consequent to the above changes, the capital investment cost stands revised as furnished in table below.

Table – 10 (Revised): Capital Investment in Meters

(In Rs. Crs)

Sr. No.	Meter Type	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31	FY-32	Total
1	Smart Meters Replacement	107.75	125.24	126.22	119.79	109.81	99.83	41.31	729.95
2	Smart Meters- New Connection	22.05	25.44	28.82	28.82	28.82	28.82	28.82	191.60
3	BLE Meters	2.32	1.16	0	0	0	0	0	3.47
4	Backend Infrastructure	32.24	0	0	0	0	0	0	32.24
5	Total	164.36	151.84	155.05	148.61	138.63	128.65	70.13	957.26

13. **Submission of the Applicant:** While we have removed the meter installation charges for new connections, subsequent the notification dated 09.12.2024 it is submitted that because of implementation of Standard service connection charges there may be cases wherein there may be under recovery of meter installation cost than actuals and in some cases, there may be over recovery also. It is our submission that the net impact on account of both the cases (i.e. under and over recovery) may kindly be allowed to be trued up in the ARR of the applicant.

14. **Smart Meter Installation Approach:** While we have submitted our approach for Smart Meter installation and replacement under this proposed capex route at various sections of our original petition (Please refer Para 1.4,5.3 and 5.4), however for the ease of reference and appreciation of the Hon'ble Commission as well as all stakeholders the same is also summarized below.



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- I. All New Connections will be through Smart Meters Only.
- II. Meters that have completed 5 years will be replaced first then moving to lesser old meters. Urban Areas and areas with good communication network will be covered first then moving to other areas.
- III. Tempered, Defective, Burnt and Lost Meters will be replaced with Smart Meters irrespective of their age.
- IV. Installation of BLE meters will be limited to ordered quantities only and replacement with Smart meters will happen only after 5 years life.
- V. As already stipulated at Para 5.4 of our original petition (extract reproduced below for ease of reference)

5.4 As can be seen there are about 18.01 Lakhs Non- Smart Meters in the present population that is required to be replaced with Smart Meters. However, the same will take some time and would be implemented in phased manner. Further, for areas where the communication network is not reliable, the implementation of Smart Meters in these areas would be deferred. The broad plan of replacement of existing Non-Smart meters with Smart Meters is as given below:

- a. *Three phase Whole (WC) Current Meters would be carried out in FY 2025-26 and FY 2026-27.*
 - b. *Installation of LT CT Meters and HT Meters would be carried out in the FY 2025-26.*
 - c. *Single Phase Static Meters would be replaced over the period of 7 years i.e. from FY 2025-26 to FY 2031-32*
 - d. *For EHT Consumers, there is no plan to install any Smart Meters as ABT meters are already there.*
- VI. While the trajectory for Smart Meters installation and replacement given in our petition is based on current estimate and availability of resources, the Hon'ble Commission may kindly allow the applicant to expedite the installation and replacement activities for benefit of all stakeholders.

15. Meter Replacement Cost will be capitalized and will not be claimed under R&M and A&G Separately:

As this proposal is for installation of Smart Meters under Capex route, all associated costs are capital cost and will be capitalized (Table-10 of the petition may kindly be referred to). For the purpose of clarity, it is again reiterated that meter replacement costs will be capitalized and will not be claimed under R&M and A&G separately.



16. Capital Investment for Backend Information Technology (IT) infrastructure

At present, our backend infrastructure is capable of handling 2 Lakhs Smart Meters only. However, we have planned to install 22,54,386 Smart Meters by FY 2031-32 (Please refer to meter installation plan given at Table-5 of the petition). So for the balance meters we need to design, develop and install the back end infrastructure so that as and when Smart Meters are installed they are seamlessly integrated to our existing system and start working correctly.

The major component of backend IT infrastructure are outlined below.

- a. Meter Data Management (MDM) System Development and its Application.
- b. Strengthening of IT infrastructure setup for MDM, Smart Prepaid module and Smart Metering Operation Centre (SMOC).
- c. Strengthening of existing IT & associated infrastructure and integration of difference modules i.e. SAP, ReVP, GIS ,Mobile App etc.
- d. Purchase of FG CIS/SPM AMI license for integration with our existing MDM & SAP ERP System.
- e. This IT infrastructure is essential for smooth operation and data management between Smart Meters and our IT System.
- f. The data from Smart Meters gets accumulated in Head End System (HES) in raw form and it gets passed on to Meter Data Management (MDM) for processing. The processed data in MDM system goes to FG CIS/SPM for various purpose like Billing, Load data for network design, information to call center about consumer consumption profiles and power supply status, and various consumption related data.
- g. The requirement of Backend IT infrastructure depends upon no of meters and no of consumers using it. The system e.g. HES, MDM, Billing Engine and its integration within themselves and other system of the organization depends on numbers of meters. Further the computation capacity of the system (i.e. hardware) also depends on no of meters and consumers. More no of meters require more license and more no of computation (i.e. hardware).

The detailed justification and explanation on capital investment in backend infrastructure has already been provided in para 5.8 and 5.9 of our petition.



A handwritten signature in blue ink, which appears to read "G. Saral", followed by a horizontal line.

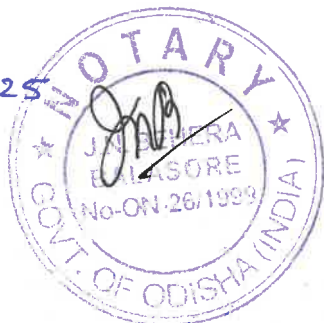
Prayer:

TPNODL most humbly prays that Hon'ble Commission may kindly be pleased to :

1. Consider additional submission made in this filing while disposing off the matter.
2. Allow recovery of Meter Cost under Capex i.e. through Retail Supply Tariff instead of monthly Meter Rent.
3. Meter Rent may be abolished from the date of launch of this Scheme for all Consumers.
4. Allow the installation of Smart Meters under the capex route and approve the trajectory of Smart meter installation including expediting the trajectory for benefit of all stakeholders.
5. Allow the Capital Investment Plan for Smart Meter Installation (Hard Cost) for FY 2025-26 to FY 31-32
6. Allow Employee Cost and Interest during Construction based on actuals to be capitalized over and above the Capex (Hard Cost) for FY 2025-26.
7. Allow recovery of unrecovered cost of existing meters in the Retail Supply Tariff so that the meter rent for all consumers can be stopped from the date of launch of this scheme.
8. Permit Carrying forward of the unspent Capital Expenditure to subsequent years.
9. The consequential impact of the above proposal may kindly be allowed as per the applicable Regulations.
10. The net impact of Over and Under recovery towards meters installation cost on account of the implementation of standards service connection charges upto 150 kW vide the Hon'ble Commission's notification dated 09.12.2024 may kindly allowed to be Trued up in the ARR of the Applicant.
11. Permit making additional submission required in this matter.
12. Grant any other relief as deemed fit and proper in the facts and circumstances of the case.
13. Any other direction as the Hon'ble Commission may think appropriate

Place: Balasore

Dated: 03.02.2025



DWIJADAS BASAK
CHIEF EXECUTIVE OFFICER
TP Northern Odisha Distribution Limited