

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

Case No: _____/2024

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

And

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

.... *Petitioner*

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

.... *Respondents*

NOTARISED

Affidavit

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

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

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

Bhubaneswar.

Dated: 25th November' 2024

Bharat Kumar Bhadawat

Bharat Kumar Bhadawat
Chief – Regulatory & Enforcement



25-11-2024
DUSASAN SAMANTARAY
NOTARY, GOVT. OF ODISHA
BHUBANESWAR, ODISHA
REGD. NO. 88/2012
MOB-9439143015



File No. TPCODL/Regulatory /2024/ 134/ 7800
25th November 2024

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

Dear Sir,

Subject: Petition for Approval of the Capital Investment Plan for FY 2025-26 to 2031-32 for installation of Smart Meters

We are through this letter submitting a petition to the Hon'ble Commission for approval of the Capital Investment Plan for FY 2025-26 to 2031-32 for installation of Smart meters .We request you to kindly approve the same.

We trust our submissions are in order.

Yours faithfully

For **TP Central Odisha Distribution Limited**

(Bharat Kumar Bhadawat)

Chief – Regulatory & Enforcement



TP CENTRAL ODISHA DISTRIBUTION LIMITED

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

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

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

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

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

.... Petitioner

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

.... Respondents

1. Background for Submission of this Petition.

1.1 TPCODL 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

....

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, TPCODL vide letter dated 18th March 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 TPCODL'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 requirement efficiently.
- 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.
- 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 3 years 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 meter reading 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 19.08.2026 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 11/2020 ("Vesting Order") had directed TPCODL to seek the approval of the Capital Expenditure Plan in line with the regulations. The extracts from the Vesting Order are as follows:

4.2. *Capital investment plan*

(e) *TPCODL would be required to seek the Commission's approval on the detailed capital expenditure plan in line with the regulations. TPCODL shall satisfy the*



Commission that the capital expenditure plan submitted in line with regulations adheres to the capital expenditure plan submitted as part of the Bid.

The Odisha Electricity Regulatory Commission (Terms and Conditions for Determination of Wheeling Tariff and Retail Supply Tariff) Regulations 2022 (herein referred to as "Tariff Regulations, 2022") requires submission of Capital Investment Plan for each year of Control period and also 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, TPCODL had filed its Business Plan for FY 2023-24 vide submission dated 30.01.2023 (registered as Case 11/2023) and Business Plan for FY 25 to FY 28 vide submission dated 31.05.2023 (registered as Case 45 /2023). The Business Plan application of TPCODL comprised of, among other component of Business Plan as per Tariff Regulation, 2022, Capital Investment Plan for the Control Period. The Business Plan application for FY 2023-24 was disposed 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 45/2023 on 14.09.2023 and has stipulated following with regards submission of Capital Investment Plan.

3.3. Capital Investment

...

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



the Commission. The Commission also observes that the DISCOMs are required to catch up in capitalization with the approval by the Commission.

(Emphasis Suppled)

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 which had already been submitted and listed for hearing vide case No 80/2024.

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, TPCODL 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 TPCODL as on 31/10/2024

SL NO	Meter Type	Smart	Static	BLE	Mechanical	Total
1	Single Phase	34493	2844229	166172	99202	3144096
2	Three Phase (WC)	66487	60922			127409
3	LTCT	7246	1010			8256
4	HT	3126	120			3246
5	EHT (ABT)		40			40
TOTAL-TPCODL		111352	2906321	166172	99202	3283047

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	TPCODL	3283047	111352	3171695	40	3171655

5.4 As can be seen there are about 31.72 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 2026-27.
- Installation of LT CT Meters and HT Meters would be carried out in the FY 2025-26.
- 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	100000	150000	250000	400000	550000	750000	909603	3109603
2	Three Phase (WC)	36553	24369	0	0	0	0	0	60922
3	LTCT	1010	0	0	0	0	0	0	1010
4	HT	120	0	0	0	0	0	0	120
5	Total	137683	174369	250000	400000	550000	750000	909603	3171655

5.5 It is submitted that TPCODL has already placed a commitment for purchase of 152000 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:

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	109600	109600	109600	109600	109600	109600	109600	109600	767200
2	Less BLE Meters already committed		96000	56000						152000
3=1-2	Single Phase		13600	53600	109600	109600	109600	109600	109600	615200
4	Three Phase (WC)	7000	7000	7000	7000	7000	7000	7000	7000	49000
5	LTCT	3000	3000	3000	3000	3000	3000	3000	3000	21000
6	HT	300	300	300	300	300	300	300	300	2100
TOTAL		119900	23900	63900	119900	119900	119900	119900	119900	687300

Note: TPCODL has already placed order for 1,52,000 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 TPCODL 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	100000	150000	250000	400000	550000	750000	909603	3109603
2	Three Phase (WC)	36553	24369	0	0	0	0	0	60922
3	LTCT	1010	0	0	0	0	0	0	1010
4	HT	120	0	0	0	0	0	0	120
5	Total	137683	174369	250000	400000	550000	750000	909603	3171655
B	Smart Meters New Connection								
6	Single Phase	13600	53600	109600	109600	109600	109600	109600	615200
7	Three Phase (WC)	7000	7000	7000	7000	7000	7000	7000	49000
8	LTCT	3000	3000	3000	3000	3000	3000	3000	21000
9	HT	300	300	300	300	300	300	300	2100
10	Total	23900	63900	119900	119900	119900	119900	119900	687300
C=A+B	Total Smart Meter Installation Plan								
11	Single Phase	113600	203600	359600	509600	659600	859600	1019203	3724803
12	Three Phase (WC)	43553	31369	7000	7000	7000	7000	7000	109922
13	LTCT	4010	3000	3000	3000	3000	3000	3000	22010
14	HT	420	300	300	300	300	300	300	2220
15	Total	161583	238269	369900	519900	669900	869900	1029503	3858955
D	BLE Meters								
16	Single Phase	96000	56000	0	0	0	0	0	152000
17	Total	96000	56000	0	0	0	0	0	152000

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

Capex Plan for Installation of Smart Meters

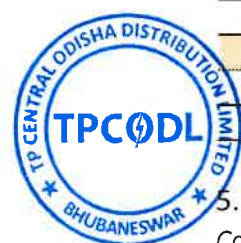


Table 6: Cost of Meters considered for Capital Investment Plan of Meters

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	Single Phase	Three Phase	LT CT	HT CT Meter
			1-5 KW	1-5 KW	WC Meter > 5 KW	Meter	33KV
1	Type of Meter		Smart	BLE Meters	Smart	Smart	Smart
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	Single Phase	Three Phase	LT CT	HT CT Meter
			1-5 KW	1-5 KW	WC Meter > 5 KW	Meter	33KV
1	Type of Meter		Smart	BLE Meters	Smart	Smart	Smart
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



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 Smart Meters 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.

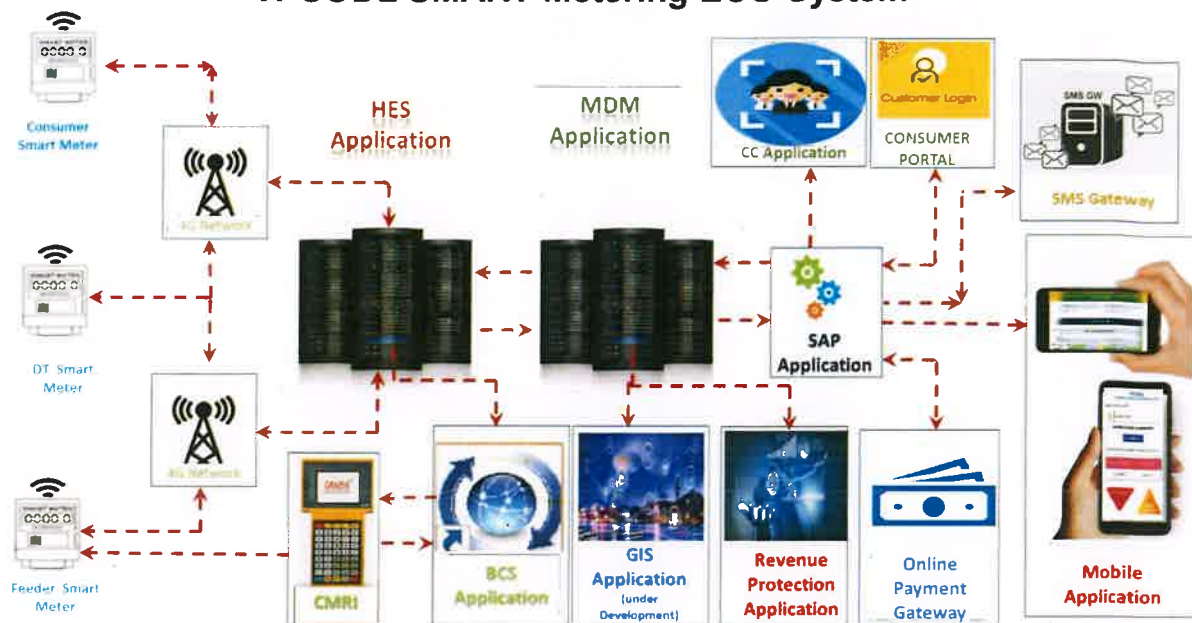
ii. Meter Data Management (MDM) software

- 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
TPCODL SMART Metering ECO System**



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

SL No	DETAILS	UoM	Amount	Remark
1	MDM developmen & Application	Rs/Meter	55.00	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 Infratructure Setup for MDM, Smart Prepaid, Module and SMOC (Smart Metering Operation Centre)	Rs/Meter	35.00	
3	SAP AMI	Rs/Meter	28.57	
4	Contingency (3%)	Rs/Meter	3.56	
TOTAL			122.13	

Sr No	Particulars	Unit	Value
1	Smart Meters planned to be installed upto FY 32	No	3858955
2	Smart Meters already installed	No	111352
3	Total	No	3970307
<u>Less</u>			
4	Present Back end System capacity	No	-200000
5	Additional Capacity Required	No	3770307



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

		<i>in Rs. Crores</i>							
Sr No	Meter Type	FY-26	FY-27	FY-28	FY-29	FY-30	FY-31	FY-32	Total
1	Smart Meters Replacment	70.28	79.31	99.83	159.72	219.62	299.48	363.20	1291.43
2	Smart Meters- New Connectio	21.15	37.12	59.48	59.48	59.48	59.48	59.48	355.66
3	BLE Meters	16.95	9.89	0	0	0	0	0	26.84
4	Backend Infrastructure	45.98	0	0	0	0	0	0	45.98
5	Total	154.35	126.32	159.30	219.20	279.09	358.95	422.68	1719.91

5.11 TPCODL 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

TPCODL 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

Rehman

