BEFORE THE MAHARASHTRA REGULATORY COMMISSION

Case No. 217 of 2024

Date: 17th February 2025

IN THE MATTER OF

Petition filed by Maharashtra State Electricity Distribution Company Ltd. (MSEDCL) for Final True Up For FY23 and FY24, Provisional True Up For FY25 and ARR Projections and Tariff For FY26 to FY30

Maharashtra State Electricity Distribution Company Ltd. **Petitioner**

Prayas (Energy Group), Pune **Participant in public process/ Applicant**

SUBMISSION BY PRAYAS (ENERGY GROUP)

MSEDCL has filed a petition for determination of ARR Projections and Tariff for the 5th Control period (FY26 to FY30). In the same filing, MSEDCL has also proposed the performance and cost true-up for FY23, FY24 and a provisional true-up for FY25. Our comments and suggestions are related to MSEDCL's cost projections, estimation of agricultural supply and MSEDCL's resource adequacy plans. We also have specific comments on tariff design changes proposed by MSEDCL in this tariff petition.

Overview of MSEDCL projections

The trends in major cost heads for the true-up and MYT years are summarised in Table 1.

Table 1:Cost projections by MSEDCL

Heads (Rs Cr)	True-up		Prov.	Projections for 5th Control Period					FY26-30	
	FY23	FY24	FY25	FY26	FY27	FY28	FY29	FY30	Total	% Share
Power Purchase	80,135	81,328	80,249	90,054	1,00,774	1,08,276	1,14,632	1,20,047	5,33,782	69%
Transmission	9,868	12,206	12,676	13,688	14,261	16,176	17,814	19,159	81,097	11%
CapEx	5,806	5,768	6,652	8,024	8,681	8,821	8,778	8,597	42,901	6%
O&M Expenses	7,906	9,339	9,855	12,550	15,283	17,556	19,545	21,345	86,278	11%
Other costs	3,669	4,552	4,581	4,924	5,270	5,592	5,772	6,111	27,668	4%
Past gap recovery	4,018	10,510	17,017	-	-	-	-	-	-	0%
ARR	**1,11,402**	**1,23,703**	**1,31,031**	**1,29,228**	**1,44,260**	**1,56,413**	**1,66,532**	**1,75,249**	**7,71,682**	**100%**

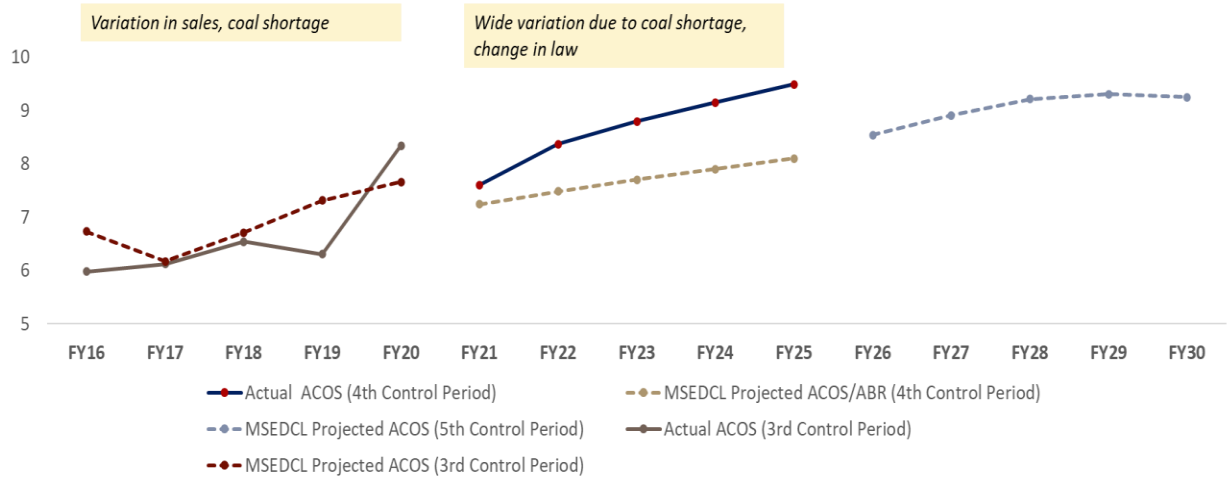
Table 1 shows that MSEDCL has projected a 1% per annum increase in costs between FY25 and FY30.This is much less than inflation and the past cost increase.

As shown in Figure 1,

— Historically, the actual costs per unit of sales have been rising at 5% per annum in the 3rd Control Period (FY16 to FY20) and 7% per annum in the 4th Control Period (FY21 to FY25).

— The actual tariff increase (including FAC) was also commensurate to the cost increase at 6% per annum on average in the 3rd control period and 5% per annum from FY21 to FY25.
— However, for the third control period and the fourth control period, MSEDCL had projected an average cost increase of 3% per annum on average, much less than actuals.

Figure 1: ACOS Trends across 3rd and 4th control periods



Source: Analysis MERC MYT orders and MSEDCL petitions

Given the negligible projected cost increase for the 5th Control Period, MSEDCL has proposed that overall average tariffs, more or less stay the same, with tariff reduction projected for certain categories.

Based on these projections, a revenue gap of Rs. 48,060 crores has been claimed in this petition. This is over and above the additional dispensation for past revenue gap recovery allowed by the Commission in Case No. 322 of 2019 and Case No. 226 of 2022. With increase in sales and marginal increase in ABR, an additional Rs. 42,187 crores is to be recovered leaving a projected gap of Rs. 5872 crores.

Table 2: Revenue gap projected for the 5th control period

Gap recovery through tariff increase	Rs. Crore
Revenue gap after true-up for FY23 to FY25	33,090
Applicable carrying cost for trued up revenue gap	8,806
Total revenue gaps	48,060
Incremental revenue from proposed tariff hikes	42,187
Projected Revenue gap from FY26 to FY30	5,872

Source: MSEDCL petition

The major reason for the negligible cost increase is the 35,000 MW of renewable energy capacity projected to be commissioned in the 5th Control Period. With this, MSEDCL's power procurement share by 2030 will be such that 44% of its power requirement will be met by renewables (including large hydro). This is shown in Figures 3 and 4.

As shown in Figure 4, the average power purchase cost (APPC) of RE capacity on average is about Rs 1/unit lower than other power sources. Thus, there is a marginal annual reduction in overall per unit power procurement costs projected by MSEDCL. The increase in RE capacity, especially with accelerated

capacity of 16,520 MW of RE by 2027 to meet agricultural demand by MSEDCL is commendable. So is the commitment to adding storage capacity in the control period to effectively integrate RE.

Figure 2: Increasing share of RE in control period

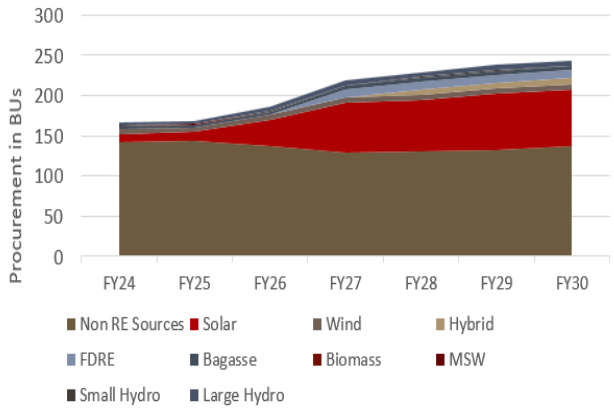
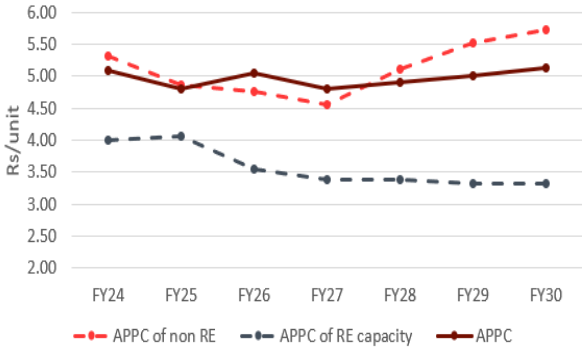


Figure 3: Reduction in power purchase cost due to RE



This creditable achievement also means that grid integration measures such as the proposed changes in Time of Day tariffs to provide significant discounts during solar hours and imposition of peak ToD surcharges during non-solar hours becomes critical for MSEDCL. So are the proposals to reduce green tariffs.

In addition, to manage costs and operations with sales migration due to net metering, open access and captive, a slew of measures have been proposed which include introduction of Grid Support Charges for net metered consumers, rebates for incremental consumption, bulk consumption, single shift industries operating in solar hours etc. All these measures are welcome as it is a move towards cost-reflective pricing, reduction of cross subsidy for concessional services and passing on the benefits of low cost RE procurement to wider sections of the consumers.

However, the next 4 years could see significant uncertainty in demand, technology and market changes, coal availability issues etc. MERC should ensure detailed cost and performance scrutiny of DISCOMs such that costs and therefore future tariffs/ carrying costs do not increase for MSEDCL consumers. At the same time, tariffs, charges proposed should be clear and easy to implement, fixed for the control period to provide certainty and equitable such that it fosters investment, competition and protects the interest of small consumers.

Our comments and suggestions in this submission focus on some of these aspects, especially uncertainties relating to costs and improvements in tariff design proposals by MSEDCL.

1 MSEDCL's power procurement plan and costs

1.1 Assumption regarding coal cost escalation not justified

Even by 2030, MSEDCL will depend on coal capacity for 50% of its procurement needs. The variable cost of this capacity has been estimated assuming escalation at 2% per annum which is not realistic. From FY20 to FY24, the average rate of increase was 8% per annum as shown in Table 3.

Table 3: Source wise historical actual and projected increase in variable charge for contracted coal power plants

Source	CAGRs (%)	
	FY 20-24 (Actuals)	FY 25-FY30 (Projections)
MSPGCL	10%	3%
NTPC	5%	1%
IPPs	8%	1%
Total	8%	2%

Note: This escalation does not include "other variable charges" which could have change in law related dispensations.

Further in MSEDCL's Resource Adequacy Plan, new coal capacity has escalation rates assumed at a higher 3.45% per annum.

If costs were to increase at 4% -5% per annum instead of 2% CAGR, the overall power purchase cost would increase by Rs. Rs. 10,300 crores to Rs. 17,300 crores.

This implies that:

- non-RE power purchase cost will increase by 17% in the control period
- Fuel adjustment charge would be higher than Rs.0.20 per unit of sales only due to variable cost of power procurement
- **Total power purchase cost would be increasing by 2.5% per annum even with RE procurement**

1.2 Close monitoring of RE capacity addition and generation required

MSEDCL has highlighted issues with tendering as well as CUFs of contracted capacity as reasons for the shortfall in RPO compliance for past years. With high RE capacity planned, the volume of procurement can be uncertain with:

- Lower than anticipated CUFs
- Slippages in contracted/ planned capacity
- Tariff discovery uncertainty for planned capacity

MERC should direct MSEDCL to submit the following:

- Quarterly Status report of RE capacity addition (capacity commissioned, contracted, LoA awarded, Tender Issued etc.). This should be available on MSEDCL website as well.
- Average Monthly CUFS of all capacities with reasons for shortfall from target, if any
- Annual bidding calendar with capacities planned to be procured by MSEDCL.

2 Need to correct inconsistencies in power procurement projections by MSEDCL

There are several inconsistencies in MSEDCL cost projections which can have implications on overall procurement cost. For example, there is a mismatch between the cost estimated by MSPGCL in its MYT petition for the 5th Control Period for the new Bhusawal 6 (660 MW). As shown in Table 4, there is a 1 to 7% variation in the energy charges and a 7 to 10% variation in fixed cost projections.

Table 4: Costs assumed for Bhusawal 6

AFC (Rs. Crore)	FY26	FY27	FY28	FY29	FY30
MSPGCL petition	1209	1214	1195	1176	1158
MSEDCL petition	1334	1311	1288	1265	1242
ECR (Rs./kWh)	**FY26**	**FY27**	**FY28**	**FY29**	**FY30**
MSPGCL petition	4.32	4.54	4.76	5.00	5.25
MSEDCL petition	4.26	4.41	4.57	4.74	4.91

Another example is the inconsistency in projections for Fixed Cost and Energy Charges for the recently contracted 1600 MW IPP under Section 63. For this capacity in Case No. 155 of 2024, MERC approved energy charges of Rs. 1.72/unit and Fixed Charges of Rs. 3.67/unit. This would imply that the capacity would be higher in the MoD stack. However, MSEDCL projections assume an energy charge closer to Rs.4/unit as shown in Table 5. The overall tariff is also projected to be higher. Such inconsistencies will affect projected MoD stack, energy sent out and fixed cost payments assumed.

Table 5:Cost projected for 1600 MW IPP

1600 MW IPP (S63)	MERC Approved Tariff	MSEDCL Projections	
		FY29	FY30
Fixed charge (Rs./kWh)	3.67	1.95	1.96
Energy Charge (Rs./kWh)	1.72	3.85	3.85
Total tariff (Rs./kWh)	5.39	5.81	5.81
Net Generation (MU)	11,139	4583	10990

2.1 Issues with Power Procurement Planning: MSEDCL Resource Adequacy Plan

MSEDCL submitted its resource adequacy plan for the Commission's approval as part of this petition. Prima facie, there were several inconsistencies between the RA plan and petition. MERC also raised queries regarding methodology and assumptions which have not been addressed by MSEDCL in their RA plans. Some inconsistencies noted are:

- The distribution losses considered in the RA plan is 1.3 percentage points lower than the MSEDCL petition for each year. This has implications for energy requirement and capacity requirements.
- Further, there is a 0.2% to 5% variation in sales projected between the petition and RA plan (even after the reconciliation required by MERC to provide clarity).
- More importantly, there is a variation in energy charges considered in the RA plan from the petition as shown in Table 6. While there is an escalation assumed in the petition, the RA plan assumes a reduction in energy charges, which also has implications for merit order dispatch.

Table 6: Variation in cost considered between RA plan and petition

Source	FY26 Weighted Average Energy Charge		FY30 Weighted Average Energy Charge		FY26 - FY30 Weighted Average CAGR	
	MYT Petition	RA Plan	MYT Petition	RA Plan	MYT Petition	RA Plan
MSPGCL	4.14	3.45	4.56	3.39	2.47%	-0.44%
NTPC	2.54	2.60	2.68	2.46	1.38%	-1.32%
IPP	3.75	3.88	4.11	3.87	2.27%	-0.09%

The document also has internal inconsistencies. For example, as shown in screenshots 1 and 2, 885 MW of capacity is considered in Table 9 for planned capacity is missing in Table 32 which records similar planned capacity. The omission is not explained.

Screenshots 1 and 2: Capacity mismatch for planned capacity in the RA plan

Table 32: MT-DRAP Capacity (in MW) contract requirement for future

Year	Thermal[4]		Solar		Wind	Hydro	Hybrid	FDRE		PSP		Biomass
	Contracted	Additional	Contracted	Additional	Additional	Contracted	Contracted	Contracted	Additional	Contracted	Additional	Contracted
2025-26	-	-	9605	-	-	-	300		-	-	-	-
2026-27	-	-	4475	-	-	109	2580	1468	-	-	-	345
2027-28	-	-	-	-	-	313	-	-	-	-	-	345
2028-29	228	-	-	4000	2000	104	-	-	461	-	933	-
2029-30	-	600	-	4000	-	-	-	-	71	324	3093	-
Total	228	600	14080	8000	2000	526	2880	1468	532	324	4027	690

Table 9: Existing planned portfolio considered in study(in MW)

Resource	Commissioned Capacity as of FY 2023-24	2024-25	2025-26	2026-27	2027-28	2028-29	2029-30
Thermal	21891	660	-	-	-	228	855*
Nuclear	1191	-	-	-	-	-	-
Large-Hydro	2642	183	-	109*	313*	104*	-
PSP-Storage	250	-	-	-	-	-	324
Wind	2823	-	-	-	-	-	-
Solar	4331	2095	9605	4475*	-	-	-
Hybrid	-	-	300	2580*	-	-	-
FDRE	-	-	-	1468	-	-	-
Bagasse	2731	180	-	345**	345**	-	-
Small Hydro	314	3	-	-	-	-	-
Total	36173	3121	9905	8977	658	332	1179

Note: - Resource Adequacy Study is done based on the above capacity addition plan (Already Contracted but not commissioned and consent given capacities)

**Consent Given*

*** 690 MW of biomass tender will be phased out in two years FY 2026-27 and FY 2027-28*

The most critical issue is that about 17,945 MW of planned/ contracted capacity by 2030 is not considered while estimating additional requirement in the RA plan. This is shown in Table 7.

Table 7: Pipeline capacity not considered while estimationg capacity requirement

Source	Projected Additional Requirement in the RA Plan (MW)	Pipeline Capacity Not considered while estimating requirement in RA plan (MW)	Net Addl capacity required with omitted capacity considered (MW)
Thermal	-285	1600	-1885
Solar	8000	11881	-3881
Wind	2000		2000
Hydro	0		0
SHP	0		0
Hybrid	0	1464	-1464
FDRE	532		532
Biomass	0		0
Nuclear	0		0
PSP	4027	3000	1027
DRE	6644		6644

As shown in the table, this omission, when reconciled, dramatically changes the requirement of thermal capacity, solar capacity, hybrid RE capacity as well as PSP.

Given these issues, MSEDCL would need to submit a more rigorous RA plan for next year which takes into consideration all methodological and consistency related issues and addresses the points already raised by MERC. **Till such a plan is approved, no new capacity should be approved for procurement by MERC.**

For the next years RA plan, we suggest that:

— **There is due public process even though the timeline for RA plan submission does not coincide with a tariff process:** The RA plan has significant implications for MSEDCL costs and sector investments, it is critical that the RA plan is approved only after due public process (public comments and public hearing). The RA plan for the upcoming year should not be submitted at the MTR for information alone as it will be ineffective and raise further questions about the plans efficacy in achieving optimal cost.

— **Approval of new projects should be provided with clear demonstration in the RA plan that this would be least cost option to meet demand and reliability requirements:** This is particularly significant as MSPGCL has sought board approval for Chandrapur 10 (800 MW), Paras 5 (800 MW). This clarity is also required for 3225 MW of PSPs being planned by MSPGCL along with SJVNL. Such capacity addition will have serious and long term cost implications for MSEDCL consumers.

3 Agricultural (AG) demand estimation not in line with MERC methodology

MSEDCL has claimed that agricultural demand 35% higher than MERC approved numbers for FY23 and 47% higher than for FY24. This increase is primarily because of the methodology for demand estimation adopted by MSEDCL and not so much because of increase in number of connections.

Table 8: Increase in projected AG sales for FY23 and FY24

AG Sales (MU)	FY23	FY24	FY25
MERC Approved (Projected)	27953	28177	27768
MSEDCL Petition (True-up)	37666	41314	37624
Deviation	9713	13137	9856
% Deviation	35%	47%	35%

3.1 Issues with AG sales estimation

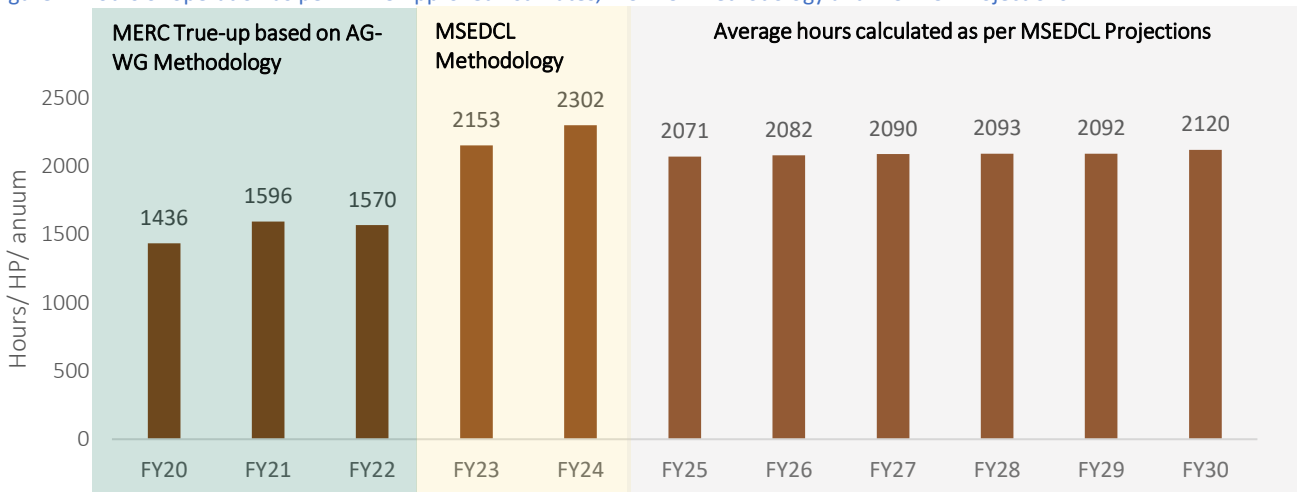
While similar to the AG-WG methodology approved by MERC, we find major issues with the methodology adopted by MSEDCL:

Selection of feeders: MSEDCL has increased the number of feeders from 529 to 1,697 given that many more AG feeders now have smart metering capabilities. However, the 1,168 additional selected feeders includes those with annual hours between 3000 and 4000. Feeders with average annual hours of operation above 3000 (i.e more than 10 hours per day) were considered outliers as per MERC. Due to this the hours/ HP/ year increases from 1724 (recorded by MSEDCL for the 529 MERC AG feeders) to 1834 (for all 1697 feeders).

Technical loss assumption of 9.1 %: Below 11 kV losses for AG feeders were assumed at 9.1% while the MERC approved methodology considered these losses much higher. MSEDCL claims this 9.1% loss level based on "average technical losses of 535 feeders as per CYMDIST software". For this study, MSEDCL used daily and monthly data the loading of AG feeders and load demand allocation. It should be clarified whether this data was for select days or months or all days and months in a year. The AG-WG dataset for estimation of technical losses was for all months in a year, as losses are expected to be higher during peak irrigation season. Assumption of low technical losses on AG feeders leads to increase in assumed average annual hours of pump operation from 1834 to 2153.

Thus, based on the methodology adopted by MSEDCL there has been an overall increase in Hours/HP/Yr from 1724 to 2153 (24%). This assumption is much higher than MERC approved numbers and will also have implications for AG demand estimations in the control period as shown in Figure 4.

Figure 4: Hours of operation as per MERC Approved Estimates, MSEDCL Methodology and MSEDCL Projections

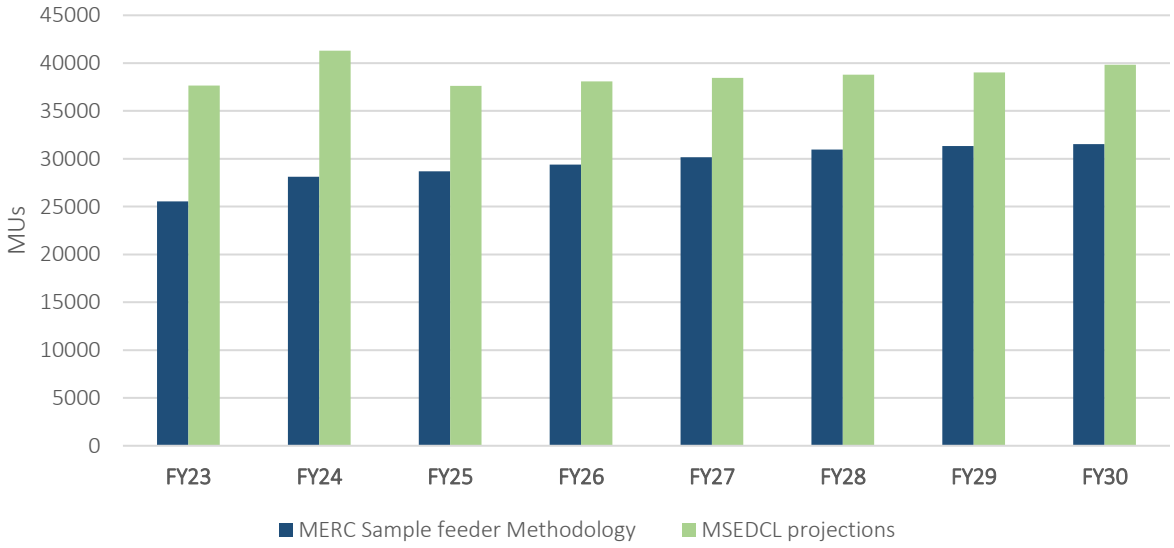


Hence, MERC should conduct an independent assessment of connected load, data from sample feeders and technical losses before approving the norm.

3.2 Implications of using MERC Methodology

If AG sales is estimated based on the specific consumption as per MERC methodology for the 502 feeders there is a wide variation from AG sales projected by MSEDCL. In fact, as shown in Figure 5, AG sales is overestimated by MSEDCL by about 10,000 MUs each year.

Figure 5:Variation in sales based MERC and MSEDCL methodology



This implies that:

— Distribution losses are underestimated by 9 pp. for FY23 and FY24 and by 5 pp. for the control period

— During the Control Period, with loss restatement, power purchase requirement can reduce leading to **savings in variable power purchase cost by Rs. 15,200 crores**

3.3 Need for stringent loss reduction targets

MERC should set a target of distribution loss at 10.95% by FY30. The rationale for the same is detailed below:

— If MSEDCL was indeed recording technical loss of 9.1% in many AG feeders, it implies that the overall technical losses must be less than 8% in MSEDCL's area of supply.

— In FY24, MSEDCL reported distribution losses at 17.95%. If technical losses are 8%, then non-technical losses are as high as 10 percentage points.

— MSEDCL claims that 92% of identified feeders and 16.5% DTs have smart meters with plans for 100% deployment by Feb 2025. In fact, the smart metering AMISPs have strict SLAs and O&M requirements which need to be enforced by MSEDCL. Thus, identifying and reducing non-technical losses should be feasible and high priority.

— Further, MSEDCL has proposed planned capital investment of Rs. 62,870 crores with majority of works for system strengthening and loss reduction.

— In addition, O&M norms have been revised for the Control Period such that O&M expenses more than double between FY25 and FY30.

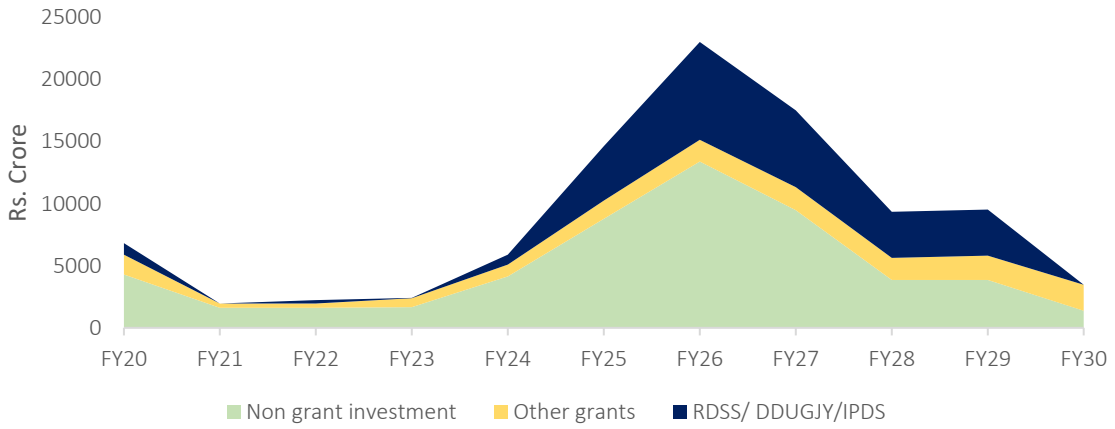
With these developments a minimum 7 percentage points reduction must be mandated in Distribution Loss from present levels. This would imply a distribution loss target of 10.95% for FY30.

With such a loss reduction trajectory, additional revenue can be generated as the energy lost as non-technical losses would now be sold. With non AG ABR of about Rs. 10/unit an additional Rs 17,036 crores of revenue can be earned without any overall tariff increase to consumers.

4 Uncertainty related to cost-passthrough with planned capital investments

MSEDCL has projected significant capital investment in the control period, 40% to 60% of which are to be financed through grants. 60% to 80% of the grants are under RDSS. This is evident from Figure 6.

Figure 6: Grant and non-Grant financing of capital investment



RDSS grants are subject to several conditionalities w.r.t financial and operational performance improvement of MSEDCL. In case these grants do not materialise, due to non-fulfilment of RDSS conditions, the investment will be financed from the ARR. **Even if 40% of the grants are not provided, the ARR between FY26 to FY30 can increase by Rs. 10,000 crores with additional implications for ARR in future years.**

In case capital works are not undertaken, it will result in reduction in GFA and therefore reduce the O&M costs of the MSEDCL.

Therefore, it is crucial that MERC monitors progress under RDSS schemes and DISCOMs compliance with RDSS conditionalities.

5 Operation and Maintenance Costs

MSEDCL O&M expenses see a dramatic increase in the control period, primarily due to revision in the methodology for estimation of norms as per the MYT Regulations applicable for the Control Period. There is a shift from inflation linked escalation of norms as was applicable in the 3rd and 4th control period to norms linked to growth in number of consumers in increase in GFA.

Based on the methodology specified by the Commission MSEDCL has projected that O&M expenses will increase from around Rs. 9000 crores (8% of ARR) in FY24 to Rs. 21,000 crores (11% of ARR) by FY30.

In the petition, the numbers considered for the projects such as break-up of wires and supply GFA considered and rationale for projections, the number of wires consumers is not clarified. This should be detailed to provide clarity on how MSEDCL has estimated O&M in line with MERC Regulations.

MSEDCL has not clarified what are its plans for ensuring O&M expenses are undertaken to improve quality of supply and service for consumers. Thus, it is likely that without a plan, just with the increase norms, there will be gains retained by MSEDCL without benefit of efficiency and service improvement for consumers.

The Commission should direct MSEDCL to submit detailed plans for O&M, especially R&M expenses on a circle-wise basis.

6 Tariff Design Related Suggestions

Our tariff design related suggestions relate to the following principles:

- **Certainty** in charges over control period for the benefit of consumers and investors
- **Clarity** on applicability, implementation especially for ToD, GSC, Banking
- Effective **Grid Integration** of Renewables
- Cost **Compensation** for DISCOMs
- **Affordability** for small consumers

In this regard, our suggestions on specific aspects are as follows:

6.1 Time of day tariff proposal

The proposed ToD tariff design for consumers is necessary and indispensable lever for effective RE integration, managing thermal fleet and optimal utilisation of storage capacity. It will also provide

consumers with significant rebate when consumption is aligned with low cost power availability. We welcome this bold approach of MSEDCL for tariff structure modification.

In addition, we suggest the following changes in the proposed ToD tariff design.

— With increased RE procurement, the rebates on energy charge should ideally increase to Rs.3/unit by 2030.
— In addition, non-solar ToD surcharges should also vary seasonally with change in demand. Therefore, monsoon months should have lower non-solar ToD surcharges between 10 pm to 6 am than non-solar months.

The proposed changes are illustrated in Table 9.

Table 9: Suggested changes to proposed ToD tariffs

Suggested changes to Proposed ToD Tariff									
Non-monsoon months					Monsoon months				
Rs/u	10 pm to 6 am	6 am to 9 am	9 am to 5 pm	5 pm to 10 pm	Rs/u	10 pm to 6 am	6 am to 9 am	9 am to 5 pm	5 pm to 10 pm
FY26	**1.17**	1.14	**-2.17**	1.17	FY26	**0.6**	1.14	**-2.17**	1.17
FY27	**1.31**	1.12	**-2.37**	1.3	FY27	**0.7**	1.12	**-2.37**	1.3
FY28	**1.35**	1.18	**-2.58**	1.38	FY28	**0.7**	1.18	**-2.58**	1.38
FY29	**1.33**	1.2	**-2.79**	1.33	FY29	**0.7**	1.2	**-2.79**	1.33
FY30	**1.29**	1.18	**-3**	1.26	FY30	**0.6**	1.18	**-3**	1.26

Based on the extent of RE procurement, the ToD tariff design can also be modified by the MTR. Thus, periodic review of RE procurement progress is essential.

6.2 Addressing issues related to banking for open access consumers with change in ToD slots

MERC Green Open Access Regulations has provided restrictions on ToD slot-wise banking such that banking is limited to similar slots (morning - morning peak| evening - evening peak |off peak- off-peak). In the proposed tariff design, with the removal of night-time rebates and neutral tariff zones, off-peak is restricted to day-time. For solar GEOA consumers, banking is thus restricted to solar hours.

With evening peak extending to night and early morning such restriction is justified for MSEDCL. However, till consumers are able to make alternate arrangements for the banking service provided by the DISCOM, we suggest that the service be provided but at a cost-reflective charge rather than 8% in-kind of energy banked.

The marginal cost for the DISCOM with high RE addition is the price of storage. On a per unit basis, based on recent tenders, the cost of providing stand-alone storage service is about Rs. 3.5/unit to Rs.4/unit[1]. **Thus, we urge the Commission to permit banking across slots. However, the banking charge in such cases should be at least Rs. 3.5/unit for drawal of banked units. This is also in line with the variable charges of**

[1] As per MERC Order in Case No 156 of 2024, PSP tariff is calculated as Rs. 3.22/unit including the 25% loss in cycle efficiency: https://merc.gov.in/wp-content/uploads/2024/09/Order-in-Case-No.156-of-2024.pdf . The market discovered rates for 2 hour stand-alone BESS is ~ 50 lakh/MW-yr and with a 2 cycle operation and considering losses, degradation etc, the effective cost of storage is Rs. 3.8-4/kWh.

marginal generation plants which is close to Rs. 4.1/unit. With energy charges north of Rs. 8/unit and solar cost at Rs. 3.5/unit, banking service will still save consumers as opposed to drawal from DISCOMs due to banking restrictions.

6.3 Suggestions to address impact on net metering consumers due to change in ToD tariff design

As per Regulation 11.4 (d) of the Grid Interactive Rooftop RE Generating Systems Regulation

"In case the Eligible Consumer is within the ambit of Time of Day (ToD) tariff, the electricity consumption in any time block, i.e. peak hours, off-peak hours, etc., shall be first compensated with the quantum of electricity injected in the same time block; any excess injection over and above the consumption in any other time block in a Billing Cycle shall be accounted as if the excess injection had occurred during off-peak hours;"

Many small domestic consumers, especially net metering consumers have will opt for smart meters to avail solar hour ToD benefit. However, with the proposed ToD tariff design for domestic consumers, off-peak would likely be interpreted as solar hours. Thus, as per Reg 11.4 (d), banking is restricted only to solar hours for those who have smart meters/ those who opt for ToD. This would adversely affect small consumers, especially Surya Ghar Muft Bijlee Yojana consumers.

To provide banking service to small net metering consumers, it is suggested that the Commission use Power to Relax specified in Reg 16 of the Grid Interactive Rooftop RE Generating Systems Regulation to **ensure consumers with maximum demand less than 10 kW (in non-solar hours) do not have ToD slot-wise banking restrictions specified in Regulation 11.4 (d). This can be made effective in this tariff order to provide clarity and certainty to consumers.**

6.4 Levy of Grid Support Charges (GSC)

MSEDCL has proposed GSC to be levied when RTPV capacity hits 5 GW. Till GSC is levied, MERC has proposed levy of banking charge similar to GEOA consumers.

Our suggestions with respect to GSC levy are as follows:

- **State clear effective date for levy of GSC**: While we support the levy of GSC, such a levy on the date when 5 GW of systems are installed in Maharashtra creates uncertainty and will come as a shock to many consumers. It is important that the effective date from when GSC is levied is informed in advance. **We suggest that GSC be levied from 1st of April 2027 as there would definitely be over 5 GW of RTPV systems in MSEDCL area of supply by that date.**
- **Clarify Eligibility of GSC**: As of now it is unclear if the systems installed before the effective date of GSC levy will be exempt from GSC. We believe that net metering service is concessional and results in increased cross subsidy burden on other consumers of the DISCOM. **Therefore, GSC should be estimated and levied on all consumers availing net metering facility and with sanctioned load above 10 kW, irrespective of when the system was installed**
- **Reject proposal for levy of banking charge till GSC applicability**: The interim arrangement for banking applicability till GSC is levied will lead to more implementation challenges. For example, it is not clear if the 30% banking restriction would apply and whether banking would be allowed on an

annual/monthly basis. It will also increase resistance from consumers towards GSC levy. We urge the Commission to reject this proposal.

6.5 Applicable tariff slabs for domestic net metering consumers

MSEDCL has proposed reverse telescopic charges for energy drawn by domestic net metering consumers. As per the proposal, the first 100 units of drawal is where consumer pays tariff in the 300 to 500 units slab. This would be Rs. 15.49/ unit as proposed for FY26. For all additional units, consumer pays tariff in the above 500 units slab at around Rs. 17.63/ unit. This tariff is applicable to all consumers, even small consumers with Surya Ghar Installations.

We support MSEDCL's proposal of charging higher than rate for lowest slab 0-100 units. This is especially with the proposed reduction of tariffs for this category during the control period and as many domestic consumers will be exempt from payment of GSC. **However, consumers with maximum demand/ sanctioned load of less than 2 kW should be exempt from such charges.**

We also propose changes in the slabs to ensure ease of implementation and towards cost-reflective compensation rather than penal charges. We propose that slabs begin from 101-300 for the first 200 units, 301 to 500 for the next 200 units and so on. The proposed tariffs are illustrated in Table 10 with an illustrative example of a net metered consumer who draws 400 units from MSEDCL in a month. To avoid confusion that the tariff order can specify a new tariff structure for domestic consumers with load above 2 kW availing net metering.

Table 10: Example of suggested slabs for domestic net metering consumer drawing 400 units from DISCOM

Illustrative example for applicable tariffs for new drawal of 400 units (For FY26 Energy Charges)					
Current Framework		**MSEDCL Proposal**		**Suggested Proposal**	
Units considered	Charges in Rs./ unit	Units considered	Charges in Rs./ unit	Units considered	Charges in Rs./ unit
First 100 units	4.37	First 100 units	15.49	First 100 units	11.14
Next 200 units	11.14	Next 300 units	17.63	Next 200 units	15.49
Next 100 units	15.49			Next 100 units	17.63

The suggested structure essentially implies that benefit of low tariff for first 100 unit consumption shall be given to consumers having net metering systems and contract / maximum demand of more than 2 kW.

6.6 Green Tariff Design

Green Tariffs are proposed at Rs. 0.25/unit, much lower than the Rs. 0.66/unit in the 4th Control Period. However, for sunshine industries like data centres and semi-conductor industries, RTC green power will be provided without any additional green tariff.

Provision of green power, especially green power for every block would be contingent on the planned capacity addition by MSEDCL and additional procurement of storage. Catering to this specialized requirement at no additional charge would be highly concessional and akin to cross subsidy provided tothese industries by the rest of MSEDCL consumers.

It is suggested that such RTC power, if available be provided to industrial consumers for an additional "RTC" Green Tariff of Rs. 1/unit.

7 Operational Aspects on MSEDCL Proposal

7.1 Interest cost passthrough for working capital borrowing

As per MYT Regulations, actual interest on working capital borrowing is subject to gain and loss sharing. However, for costs related to delay in recovery of legitimate dues, MSEDCL is also entitled to carrying cost (which is to compensate for interest cost burden incurred due to delay in recovery). Thus, consumers seem to be paying for interest costs incurred on both accounts.

It is suggested that this anomaly be corrected by netting carrying cost from the actual interest on working capital borrowing while determining amount for gain and loss sharing.

For FY23 and FY24, the interest on working capital passthrough to consumers would reduce by Rs. 1500 crores. The approach is detailed in Table 12.

Table 11: Passthrough of interest on working capital only in excess of carrying cost

Rs. Crore	Formula	FY23	FY24
Revised normative	A	115	131
Interest on working capital	B	2683	5452
Carrying cost on revenue gaps	C	6998	1808
IoWC in excess of carrying cost	D=B-C when B>C, else 0	0	3644
Consumer passthrough	E=D*1/3	0	1215
Net entitlement	F=A+E	115	1346
Difference in net entitlement		-971	-558

This treatment should be adopted by the Commission in this tariff order as it is in line with the intent of the clause in the MYT regulations.

7.2 Smart Metering

Smart metering has crucial links to implementation of ToD tariffs, loss reduction and improving collection and yet, there are several areas where there is lack of clarity. For example,

- Though a roll-out plan was submitted to the Commission no details were provided for Circle-wise, category-wise rollout- plan for smart meters (especially as 2.29 cr LT consumers are to have smart meters by May 2026). The rollout plan also does not clarify if smart metering will be in pre-payment or post paid mode.
- As per Schedule of Charges, MSEDCL has proposed revised charges for smart meter installations. This is as per the metering rates proposed based on the discovered rates under the tendering under RDSS. However, it is not clear whether all replacement meters with smart meters or the charges will apply only if consumers opts for the meters.
- Further there is a discrepancy between the actual status of smart metering reported in the petition and in the data gaps as compared to the National Smart Grid Mission Dashboard[2].
- One of the features of smart metering is real-time data monitoring. MSEDCL has proposed implementation of data monitoring for electric vehicle charging infrastructure. However, additional

[2] https://www.nsgm.gov.in/en/sm-stats-all

details regarding locations where the 50 charging stations will be installed and details regarding capital expenditure if any have not been provided.

— MSEDCL has proposed extension of SIM based services to include Smart Prepaid Metering for AG consumers as per section14.35.2. However, details of the plan, implementation and cost of Smart Prepaid Metering of AG consumers has not be provided in the MYT.

Given the importance of smart metering, we request the **Commission to direct MSEDCL to publish quarterly reports on circle-wise category wise smart meter installations (pre-paid/ post-paid) for consumers (opted in/ mandated) on their website.**

As smart metering will significant impact consumer service, it is critical that MERC evolve practice directions for installation and operation of smart meters to address implementation challenges and for effective consumer communication and engagement. Other ERCs such as Madhya Pradesh has also issued similar practice directions. It is critical that such practice directions are finalised only after due public consultation and hearings so that consumer issues and challenges are addressed.

7.3 MSEDCL payments for dedicated transmission infrastructure for Mumbai

MSEDCL has proposed that MSEDCL consumers not bear the cost of strengthening dedicated transmission infrastructure in Mumbai. To quote from the petition,

"MSEDCL submits that Mumbai Utilities are already benefitted due to present transmission infrastructure. N-2 mechanism is basically to strengthen the network from reliability point of view. This will enhance the power supply & will only be benefitting to Mumbai Utilities. Therefore, the transmission charges considered for strengthening of Infrastructure for Mumbai Utilities need to be recovered from Mumbai Consumers only and should not be burdened on MSEDCL."

We agree with MSEDCL's prayer in this petition and similar submissions in Case No. 230 of 2022, Case No. 239 of 2022. As mentioned by MSEDCL, ideally, the cost of transmission infrastructure can also be adjusted with savings in power procurement costs for Mumbai utilities. In Case No. 327 of 2019, MERC also acknowledged this as a challenge and stated:

"The Commission is conscious of the fact that efficient, economic development and optimal utilization of transmission network and its cost recovery in fair and equitable manner from all TSUs based on their usage is important and it should guide transmission pricing framework. ***The Commission is of the view that it would like to take a comprehensive review of all such cases in the State and evolve a transmission pricing framework whereby transmission charges are levied on all the beneficiaries giving due consideration to actual beneficiaries for whom infrastructure was set up, level of utilization by each beneficiaries etc., such that there is no undue benefit or burden on any beneficiaries."***

We therefore urge the Commission to amend MYT regulations to alter the pricing mechanism such that cost of Mumbai transmission network and reliability is not cross subsidized by MSEDCL consumers

7.4 Demand Side Management

Expenses for Load Research not accounted: As per MERC (Demand Flexibility and Demand Side Management – Implementation Framework, Cost-effectiveness Assessment; and Evaluation, Measurement and Verification) Regulations, 2024 the distribution licensee is allowed to recover the cost

for implementation of DSM/DF measures including conducting of Load Research (LR). The distribution licensee is required to submit load research to the Commission within one year of notification of the Regulations. However, the MYT does not include any provision or request for the same. The Commission should direct the distribution licensee to conduct thorough load research and make required provisions for the expenditure in the ARR.

Regarding replacement and safe disposal of old inefficient appliances: The MERC DSM/DF Regulations mandate the distribution licensee to include details of the mechanism to be adopted for replacement and safe disposal of inefficient appliances. The distribution licensee has made a proposal for replacement of 16,848 inefficient ceiling fans in its offices. However, no information has been provided related to mechanism that will be adopted for safe disposal of the removed ceiling fans. The Commission may request the licensee to provide the same.

Cost benefit analysis of Projects: The Commission may request the distribution licensee to provide detailed calculation for the benefits accrued from the implementation of the project. Some estimates provided in the table 13, especially project cost and savings accrued are not aligned. The savings estimated by MSEDCL is around 2.7 MUs per year. However, the % of savings is more like 60% rather than the 162% estimated by MSEDCL as shown in RHS of Table 13. Further the project cost is reported as Rs. 75 crore whereas in Para 4.29.6 it is estimated as Rs. 4.54 crore.

Table 12: Issues with project cost and savings calculation for DSM projects

MSEDCL Calculations in Petition			Corrections required in calculations		
Particulars	**Amount**	**Unit**	**Particulars (Corrected Values)**	**Amount**	**Unit**
Power consumption by conventional fans	75	Watts	Power consumption by conventional fans	75	Watts
Daily fan hours per day	12	hrs/day	Daily fan hours per day	12	hrs/day
Power consumed per equipment per day	700	watt/hr	Power consumed per equipment per day	700	watt/hr
Running days of fan in a year	300	Days	Running days of fan in a year	300	Days
Power consumed by Equipment /year	270	kWhr	Power consumed by current equipment	270000	kWh
Power consumption of star rated fan	30	Watts	Power consumed by efficient equipment	108000	kWh
Power saving per fan	108	Watts	Savings	162000	kWh
% of savings	162	%	% Savings	60%	
Energy Savings from efficiency improvement	16848	kWh/fan/day	Total Number of Fans to be replaced (As per 4.29.6)	16848	No.
Annual energy savings from efficiency improvement	2.73		Total Consumption	4548960	kWh
Fans offered for exchange	9.92	no.	Consumption by Efficient fans	1819584	kWh
Energy Saved under the scheme	**2.7**	**MU/year**	**Savings**	**2729376**	**kWh**
Average cost of unit	4.5	Rs./kWh		**2.729376**	**MU**

7.5 Green Open Access Implementation

While 100 kW and above consumers can avail open access and all consumers can invest in captive systems, several implementation issues persist. For example,

- Even with centralised registration at the national level, obtaining NoC/ consent from DISCOM is a challenge and not tracked on a portal
- There is limited clarity on metering requirement (especially on SEM requirement and cost) among MSMEs and small industrial consumers wanting to avail benefit from open access
- There is lack of clarity on implementation of Regulation 8.1 (regarding resultant power flow) of the Green Open Access Regulations which is being used as a reason to deny open access
- Similarly, how the requirement for Green Energy Open Access consumers to not change the quantum of power consumed through open access for at least twelve-time blocks will be operationalized, especially for consumers with ToD meters is not clear.

Further, existing commercial circulars of MSEDCL and SLDC guidelines are inadequate. Several implementation aspects, especially related to banking, timelines for applications, additional requirements for processes which are applicable to all open access consumers and not just green OA are not clarified in the context of GEOA.

It is suggested that:

- MERC direct SLDC develop a detailed guide clarifying all procedures, specifying timelines for each process and addressing implementation challenges.
- During the development, consultations with industrial and commercial consumers, developers, DISCOMs and other stakeholders should be held.
- This should be submitted to the MERC for approval within 3 months of the notification of the tariff order.

It is also suggested that MERC direct all DISCOMs to submit quarterly data on consent provided and reasons for non-provision of consent. DISCOMs should also report category-wise number of open access, captive consumers along with contract demand and sales in its area of supply on an annual basis.

Our comments and suggestions are towards increasing performance accountability of MSEDCL and introducing measures for cost-reflective pricing for various services provided by MSEDCL for consumers availing net metering, open access and captive and to protect interest of small consumers. This is all to ensure that the proposal for reducing costs over the control period and integrating significant RE capacity becomes a reality and meets the states developmental, fiscal goals. In this context, the following is a summary of our suggestions in this submission:

1. Scrutinise MSEDCL power procurement cost assumptions especially related to variation cost escalations.
2. Direct MSEDCL to provide quarterly reports on status of RE capacity addition, monthly CUFs for deviations as well as an annual bidding calendar for procurement.
3. MERC should not approve any new capacity till new RA plan has been submitted and approved for the upcoming year. The approval should be through due public process. All planned capacity should only be approved with RA plan can demonstrate that the capacity is least cost option for meeting demand.
4. Agricultural demand estimation for FY23 and FY24 by MSEDCL as well as future projections should be rejected. MERC should conduct an independent assessment of connected load, data from sample feeders and technical losses before approving the norm. Methodology followed by MERC for selected 502 feeders should be used for AG sales and D loss estimation
5. With smart metering, increased capex and opex and 9.1% technical loss on AG feeders, D loss trajectory should be such that D loss target by 2030 is 10.91% for MSEDCL.
6. MSEDCL compliance to RDSS conditionalities must be closely tracked by MERC and capex requirements be re-evaluated.
7. The Commission should direct MSEDCL to submit detailed plans for O&M, especially R&M expenses on a circle-wise basis.
8. Day time ToD rebate to be extended to Rs. 3/unit by 2030 and ToD tariffs to vary seasonally such that night-time ToD surcharges in monsoon season are reduced.
9. Off-peak to peak slot banking to be allowed for GEOA consumers only if banking charges of Rs. 3.5/unit are paid which reflect cost of storage and marginal generation cost
10. Consumers who opt for ToD with maximum demand less than 10 kW in non-solar hours should be exempt from restrictions on ToD slot-wise banking as specified in MERC Grid Interactive RE Regulations.
11. Effective date for GSC levy should be declared in the tariff order as 1st April 2027. It should be applicable on all net metering consumers with load greater than 10 kW, even existing consumers.
12. All net metering domestic consumers with sanctioned demand greater than 2 kW should be charged tariffs as per a new schedule where they pay charges equivalent to slab starting 100 – 300 units.
13. RTC green power, if available should be provided at an additional “RTC Green Tariff” of Rs.1/unit and not merely at category-wise tariff.
14. Passthrough of actual interest on working capital should be allowed for gain and loss sharing only after netting of carrying cost paid by consumers for the year.

15. Commission to direct MSEDCL to publish quarterly reports on circle-wise category wise smart meter installations (pre-paid/ post-paid) for consumers (opted in/ mandated) on their website.
16. MERC to evolve practice directions to address installation, operational and consumer engagement related aspects of smart metering. Practice directions to be finalised after due public process.
17. Commission should amend MYT regulations such that the cost of transmission lines dedicated to enhancing Mumbai's reliability are not borne by MSEDCL consumers.
18. Accounting for costs to conduct load research in compliance with MERC DSM/DF Regulations
19. MERC to ensure there are detailed operational guidelines developed through a public consultation process to guide green open access consumers, especially those with loads less than 1 MW to avail OA.

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