

**BEFORE THE UTTAR PRADESH ELECTRICITY REGULATORY COMMISSION
LUCKNOW**

April 28, 2023,

IN THE MATTER OF

Proceedings on Truing-up for the financial year 2021-22 (FY22), Annual Performance Review FY23, and Annual Revenue Requirement and tariff determination for FY24 for the power distribution utilities in Uttar Pradesh

Submission from the Council on Energy, Environment and Water (CEEW)

The Hon'ble UPERC initiated proceedings on Truing-up for FY22, Annual Performance Review (APR) for FY23 and Annual Revenue Requirement and Tariff determination for FY24 for the state discoms (namely DVVNL, PVVNL, MVVNL, PuVVNL & KESCO). Hon'ble UPERC vide public notice dated 21st March 2023 invited comments on the proceedings. This submission is in response to the said notice and elaborates on a few points on the petitions. We request the Commission to accept this submission and allow us an opportunity to further elaborate on any of the suggestions, as per need.

For FY24, UP discoms (all 5) have projected the total annual revenue requirement at INR 92,547 crore. The average cost of supply (ACoS) (on energy sold basis) is projected to be INR 8.07/kWh, an increase of 7% over FY23 (approved). Moreover, an average tariff hike of 15.85% is proposed by Licensees before the Hon'ble Commission which needs to be examined carefully, for many reasons including, an increasing tariff burden on consumers who are also grappling with high inflation in general, the threat of increasing sales migration of C&I consumers to open access due to substantial tariff hike and the associated reduction in cross-subsidy support, increase in requirement for direct subsidy from the state government in view of a large number of newly electrified and poor consumers in need of tariff support. In parallel, the gaps in the quality and reliability of power supply in the state continue, despite such high-power tariffs. Through this submission, we aim to bring the Commission's attention to some salient action points to help improve the operational and financial efficiency of the discoms in the state. Below is the summary of issues/suggestions covered.

1. Sales projection and demand side intervention

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1. Sales projection and demand side intervention

1.1 Metering of Unmetered consumers

Despite repeated directions by the Commission, the discoms are still projecting unmetered consumption under several categories, with no substantial plan submitted for metering them.

Table 2: Unmetered Consumers in various consumer categories in UP

Unmetered consumers (FY 2023-24)	No. of consumers	Sales (MU)
LMV-1 Dom: Rural Schedule (unmetered)	2,22,461	755
LMV-3: Public Lamps	983	81
LMV-5: Rural Schedule (unmetered)	11,76,559	16,095
LMV-7: Public Water Works	4,310	553
LMV-10: Departmental Employees	98,581	639
Total	15,02,894	18,123

Source: Author's analysis from Discom's Tariff Petitions

Discoms should take up phase-wise metering campaigns for all major unmetered categories (LMV-1, LMV-3, LMV-5 and LMV-10) consumers under RDSS for the purpose of energy accounting, whilst ensuring these consumers that metering will not necessarily impact their electricity bills. This energy accounting will also help discoms to better forecast their energy demands.

1.2 Sales projections are higher than the actual sales for past 5 years

The DISCOMs in their tariff petitions have been periodically projecting higher sales and there is much variance from the actual sales achieved (during true-up). Although the error margin between the projected and actual sales is decreasing year-on-year (y-o-y), there are still high gaps in projections, if one looks at category-wise projections. Sales growth projections vis-a-vis the actual sales are highlighted in Table 1.

Table 1: High variance in the projected vs trued-up sales- trend for past 5 years

Years->	2017-18			2018-19			2019-20			2020-21			2021-22		
Category	Claimed in ARR	Trued Up	% error	Claimed in ARR	Trued Up	% error	Claimed in ARR	Trued Up	% error	Claimed in ARR	Trued Up	% error	Claimed in ARR	Trued Up	% error
	Sales (MU)	Sales (MU)		Sales (MU)	Sales (MU)		Sales (MU)	Sales (MU)		Sales (MU)	Sales (MU)		Sales (MU)	Sales (MU)	
LMV-1	38,736.51	37920	-2.15%	47,003.26	39,318.97	-19.54%	44,798.30	42,374	-5.72%	47,996.94	43337.19	-10.75%	45,070	43786	-2.93%
LMV-2	6,133.99	6802	9.82%	6,727.57	6,501.88	-3.47%	7,393.41	6,448	-14.66%	5,926.01	6076.61	2.48%	6,719	6568	-2.30%
LMV-3	1,353.11	1005	-34.64%	1,126.16	901.81	-24.88%	905.44	741	-22.19%	787.33	720.13	-9.33%	730	724	-0.83%
LMV-4	2,486.14	988	-151.63%	1,761.93	1,177.06	-49.69%	1,030.50	1,072	3.87%	835.66	953.58	12.37%	1,111	1020	-8.92%
LMV-5	13,539.15	11850	-14.25%	16,133.19	12,562.74	-28.42%	11,433.64	13,597	15.91%	12,992.50	15172.51	14.37%	13,999	15670.12	10.66%
LMV-6	3,865.36	3743	-3.27%	3,755.91	3,615.43	-3.89%	3,807.09	3,323	-14.57%	3,071.08	2916.83	-5.29%	3,425	3140	-9.08%
LMV-7	2,320.40	2050	-13.19%	2,416.12	1,775.09	-36.11%	1,722.08	1,736	0.80%	1,835.87	1615.32	-13.65%	1,797	1743	-3.10%
LMV-8	4,691.71	3748	-25.18%	4,286.83	3,097.17	-38.41%	3,173.43	2,944	-7.79%	2,953.46	3084.42	4.25%	2,863	2683	-6.71%
LMV- 10	690.07	562	-22.79%	623.64	595.40	-4.74%	605.04	621	2.57%	821.63	525.34	-56.40%	639	575	-11.13%
HV-1	3,701.10	3526	-4.97%	4,138.31	3,427.33	-20.74%	3,588.62	3,584	-0.13%	3,323.86	2756.35	-20.63%	3,750	3211	-16.79%
HV-2	11,599.08	11753	1.31%	11,852.65	12,039.10	1.55%	13,127.37	11,937	-9.97%	10,855.36	10252.25	-5.87%	12,353	11677	-5.79%
HV-4	1,184.66	914	-29.61%	976.85	769.35	-26.97%	713.85	696	-2.56%	707.91	651.8	-8.59%	707	590	-19.83%
Total	92,093.81	88139	-4.49%	1,04,379.83	88,095.25	-18.49%	94,517.64	91,486	-3.31%	92,409.33	90372.04	-2.26%	95,608	93745	-1.99%

Source: Author's analysis from Discom's Tariff Petitions

The Commission should take into consideration the past growth trends and current realities before approving final sales to ensure that the projections are realistic and not overestimated, as such a situation affects revenue gaps subsequently.

Further, it would also be prudent to take into consideration the [CEA draft guidelines for long term and medium term demand forecasting](#) released on 11 April 2023 that could be used as guiding document by the discoms to for medium term (more than 1 year and up to 5 years) as well as for long term (more than 5 years).

1.3 Need to revise normative consumption for unmetered agriculture connections using feeder-level data

Un-metered agricultural demand for FY24 projected by the petitioner accounts for about 83% of the total LMV-5 sales. The LMV-5 category is the predominant recipient of subsidies. The estimation of sales (though it is for normative booking/accounting under the discoms commercial statements) should be based on a more scientific and rigorous methodology. This is especially true as the demand estimations have implications on revenue recovery, cross-subsidy requirement, subsidy, and distribution losses estimation.

Based on FY 21-22 data it is observed that 98% of agricultural LMV 5 consumers fall under rural areas. **The actual consumption of rural metered LMV 5 consumer is 73.75 kWh/kW/month** and urban metered consumer is 147 kWh/kW/month. However, almost all rural consumers are unmetered and **their consumption is booked as per norm of 140 kWh/kW/month, which is much higher when compared to the actual consumption of metered rural consumers. Hence, there is a need to reassess the consumption norms.**

Moreover, the Hon'ble Commission vide order UPERC/Secy/D(T)/2016/336 dated December 09, 2016 approved the normative consumption on an interim basis for six months (till June 30, 2017) **and directed the discoms to complete the study of consumption norms based on MYT Distribution Tariff Regulations 2014**, before that. However, since 100% metering of LMV-1 and LMV-5 is still pending, the old norms still continue to be used by the Licensee for demand projection and ARR assessment. The study of consumption norms is yet to be carried out by the discoms.

We would also like to bring to the Commission's notice that in Uttar Pradesh, significant agriculture feeder separation has been done. **We request the Hon'ble UP Commission to initiate an independent study to assess agricultural consumption based on feeder and DT input data and sample surveys to inform the consumption norms concerning sales from FY25 onwards.** As an independent think-tank, CEEW will be happy to assist the commission on this front.

1.4 Need to account for the impact of PM-KUSUM scheme in LMV-5 sales projection

The impact of demand-side interventions such as solarisation of agriculture feeders under the PM-KUSUM scheme seems to be lacking from discoms' sales projections. MNRE has already sanctioned a 225 MW capacity target for UP under Component A of the scheme. The Government of UP (GoUP) recently issued an order dated January 13, 2021, sanctioning capacities of 150 MW to various State Implementing Agencies

(SIAs)/Discoms to implement Component-A. UPPCL had proposed a ceiling tariff of INR 3.10/kWh, approved by the Hon'ble Commission, for the procurement of solar energy under KUSUM.

We estimate that 225 MW of solar capacity can fulfil ~355 MU¹ of agricultural demand. The discoms should take the same into consideration while projecting the sales and corresponding power purchase requirements. The saving potential can be estimated to be the difference in power purchase cost required to cater for the demand of Agricultural consumers and the ceiling tariff of INR 3.10/kWh.

In December 2020, the Ministry of New and Renewable Energy (MNRE) issued revised guidelines for the PM-KUSUM scheme allowing feeder solarisation under Component C. Under Component C, a capital expenditure grant of 30% will be available to the discoms. With no conditionality of using farmers' land for project setup under this component, the surplus land near the substations could be leased out to develop small solar power plants to cater to agricultural feeders originating from the substation. Solarisation of agricultural feeders is important to ensure reliable daytime supply to farmers, meet renewable purchase obligations (RPO), reduce cross-subsidy requirements and tariff subsidy burden on the government, and cut down distribution losses. **We request the Hon'ble Commission to direct the discoms to leverage feeder solarisation actively and include them as part of their power procurement strategy. Further, if the feeder segregation has not been done, once smart metered, smart metering infrastructure can be leveraged to create virtual feeder segregation based on consumer category. Discoms can leverage the same under the RDSS scheme.**

2. Power purchase costs

The cost of power constitutes about 79% of the annual revenue requirement of the discoms. It is, therefore, necessary to optimise the power procurement cost so that the financial burden on discom can be reduced.

2.1 Need for efficient power purchase planning & optimization

Based on the true-up figures, it can be observed that the discoms incurred almost INR 510 crore on account of the unscheduled interchange (due to excess drawal than scheduled). Further, it is also observed that the discoms have purchased 1295 MUs from exchange @ INR 7.18 /unit, however, have sold almost 7272 MUs @3.78/unit which is much lower than the overall average purchase cost of INR 4.47/unit.

¹ Source: UPNEDA website

Assumption: ~Considering 18% CUF for 225 MW capacity (225*18%*365*24/1000) installed for projects under Component A

Table 3: High short-term prices paid by UPPCL in FY 22

Source	FY 2021-22					
	Total Available Units (MU)	Fixed Charges (Rs. Crore)	Energy Charges (Rs. Crore)	Other Charges (Rs. Crore)	Total cost (Rs Crore)	Average Energy Cost at Interface Point (Rs./kWh)
UI Charges	-508.06	-	-509.8	-	-509.8	10.03
Reactive Energy Charges	-	-	-	18.11	18.11	-
OA	830.15	-	366.09	-	366.09	4.41
IEX Purchase	1295.14	-	929.58	0	929.59	7.18
IEX sale	7271.72	-	2,749.45	-	2,749.45	3.78
Overall Power Purchase	1,23,406.88	18,870.02	27,605.79	9,019.36	55,152.13	4.47

Source: Discom's Tariff petitions

In FY 22, the petitioner sold 7,272 MUs on IEX at an average cost of INR 3.78/unit, while the overall APPC was INR 4.47/unit and the average Market clearing Price (MCP) on IEX was INR 4.4/unit², it is evident that the licensee did not optimise the procurement and selling of power. The table below shows the approximate loss for selling the 7,272 MUs on IEX at prices lower than the APPC and the MCP for FY 22.

Table 4: Low selling price by UPPCL on IEX compared to APPC and Average MCP on IEX

Units Sold on IEX	APPC	Average MCP on IEX for FY22	Cost for selling at APPC	Cost for selling at Average MCP of IEX	Total loss for selling below	
					APPC	MCP
MU	INR/Unit	INR/Unit	Rs. Cr.	Rs. Cr.	Rs. Cr.	Rs. Cr.
7,271.72	4.47	4.4	3,250.46	3,199.55	501.01	450.11

Source: Author's Analysis

Due to the unavailability of granular time-block-wise data, we could ascertain the exact impact, however based on above assessment, broadly, the discoms could have saved an approx. INR 1000 Crs by optimizing short term power procurement, which would have reduced the overall gap.

This points to inefficient power purchase planning & optimization and discoms not being able to leverage the real-time markets, which were clear directions by the Commission in previous tariff orders.

2.2 Need to evaluate the high fixed and variable charges projected for FY23

Discoms' submission shows about a 4% increase in total projected energy purchased in FY24 over FY23. However, the total fixed cost burden is projected to increase by almost 50%, from INR 21,006 crore (revised for FY23) to INR 31,783 crore in FY24.

² [As reported by The Hindu Business Line](#)

As per the discoms, the significant component of fixed costs (FC) for FY24 has been estimated by applying a 5% escalation factor to the plant-wise FC per kWh, as approved by the Commission in the Tariff Order dated July 20, 2022, and further applying these to the total dispatch, derived from the estimated total demand. However, we observe that the actual fixed charges are going in a downward trend year-on-year as can be seen in Table 5. Hence, we humbly submit that **the Hon'ble Commission must take a realistic view of the potential growth in retail sales in FY24 and accordingly approve the power purchase quantum and costs (including fixed cost).**

Table 5: Claimed, Approved and Actual Variable Charges (average) in INR/unit in past 6 years

Particulars	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
VC claimed	2.55	2.68	2.35	2.37	2.39	2.48	2.92
VC approved	2.43	2.61	2.31	2.29	2.3	2.54	
VC Actual	2.32	2.37	2.45	2.37	2.14	2.80	

Source: Discom's Tariff Petitions and Author's Analysis

Table 6: Claimed, Approved and Actual Fixed costs in INR Crore in past 6 years

Particulars	FY 2017-18	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
FC claimed	16643	17402	20709	28070	33350	32924	31783.09
FC approved	16516	15464	19122	22774	25319	26695	
FC Actual	13901	16977	17953	19419	22182	21006	

Source: Discom's Tariff Petitions and Author's Analysis

2.3 Need to relinquish old and stranded thermal capacity to optimise power purchase expenditure

It is observed that discoms have considered a power purchase quantum of 391.20 MU for FY24 from NCTPS-1. **Whereas the Hon'ble Commission** vide its Order dated 25.04.2022 in the Petition No. 1806 of 2021 in the matter of "seeking permission to relinquish purchase of power from NCTPS, Dadri Stage-I Generating Station in light of MoP Letter dated 22 March 2021 and in terms of Regulation 17 of CERC (Terms and Conditions of Tariff) Regulations, 2019" **allowed UPPCL to relinquish the power of 84 MW of NCTPS Dadri-I. Hence NCTPS-I shall not be considered in power purchase cost computation by the discoms.**

We have calculated that an increase of INR 0.08/kWh in the Average Power Purchase Cost (APPC) of UPPCL has been projected for FY24 (INR 5.17/unit) compared to FY 22-23, due to payments of fixed charges of stranded capacity. It should be noted that the stranded cost burden on the consumers impacts the overall affordability of electricity (being a direct pass-through in ARR). Therefore, it is essential to monitor the

utilisation level of the existing fleet and have robust demand-supply estimation to avoid such stranded capacity burden in the future. Uttar Pradesh, with high RE potential and surplus power, may approach to Ministry of Power for relinquishment of its share from Central Generating Stations (CGS). This will result in reducing the fixed cost burden of expensive and inefficient plants that are being sparingly dispatched. We have listed the plants identified on the basis of their age and cost in the table below.

Table 8: List of older power plants identified by CEEW that are placing a higher per kWh FC burden on UPPCL

S.No	Source	Contracted Capacity (MW)	Units (MU)	Annual Fixed Charges		Annual Energy/ Variable charge		Total cost		Age
		(Rs. / kWh)	(Rs. Cr.)	(Rs. / kWh)	(Rs. Cr.)	(Rs. / kWh)	(Rs. Cr.)	(Rs. / kWh)	(Rs. Cr.)	Years
1	ANTA GPS	91.2	16.38	28.61	46.88	6.71	10.99	34.93	57.24	34
2	DADRI GPS	245.61	296.69	3.17	94.03	9.01	267.37	13.06	387.48	31
3	TANDA -TPS	3.11	913.98	3.34	305.42	3.54	323.46	7.03	642.88	32
4	FGUTPS-I	286	633.87	2.42	153.11	3.04	192.76	5.73	362.91	33
5	FGUTPS-II	129	349.00	2.08	72.52	3.37	117.73	6.14	214.45	33
6	FGUTPS-III	63	200.03	2.62	52.46	3.42	68.42	6.47	129.33	33
7	FGUTPS-IV	223	789.08	2.68	211.81	2.98	234.97	5.87	462.97	33
8	KHTPS-I	326	279.14	1.62	45.33	2.43	67.93	4.05	113.15	29
9	NCTPS-I	1.56	983.93	0.54	53.41	2.84	279.69	3.39	333.10	31
10	KORBA-I STPS	3.79	16.51	0.59	0.97	1.25	2.06	1.86	3.07	40
11	RIHAND-I	3.11	1,968.42	0.83	163.70	1.39	274.38	2.23	439.68	35
12	SINGRAULI	6.16	3,938.48	0.72	284.44	1.48	582.91	2.20	867.07	39
	CONSOLIDATED	1,381.54	10,385.5	4.10	1,484.09	3.46	2,422.66	7.75	4,013.33	33.58

Source: Tariff petitions for FY 23-24

Note: The coloured rows signify our suggestion of plants that can be considered for relinquishing power.

In this regard, we propose that the discoms must identify a list of plants and include them in the “stranded capacity bucket”. The identified old and stranded capacity must be considered for gradual relinquishment in view of multiple economic and environmental benefits associated with such an action.

Moreover, the Ministry of Power, with the objective to facilitate the states to optimize their electricity generation/availability portfolio, considering the request of the States, vide guidelines dated 22.03.2021, allowed the States to exit from PPAs with Central Power Sector Utilities after the expiry of the PPA period. In line with this trend, MoP has finalised the “*Scheme for Pooling of Tariff of those plants whose PPAs have expired*”³ on 20th April 2023, under which MoP has created a common pool for plants that have completed the terms of their earlier PPAs, and offering a common tariff for the power procured from the pool. The

³Ministry of Power, Scheme for Pooling of Tariff of those plants whose PPAs have expired ([Link](#))

States/DISCOM(s) shall be billed a uniform capacity charge in Rs Cr/MW based on percentage allocation and total capacity charge of power from the Common Pool.

Further, Discoms can also leverage the Ministry of Power scheme “Flexibilisation of PPA for Optimal Utilization of Resources and Reduction on Cost of Power for Consumers” also called as ‘[PUSHp’ scheme](#), to reduce their fixed charges from the plants not being scheduled or sparingly schedule and benefiting the consumers, the generator as well.

2.4 Late payment surcharge due to generators should not be passed on to consumers

In their tariff petition, UP discoms have claimed a late payment surcharge (LPS) of about INR 499 crore (excluding the LPS paid for Transmission Charges) in FY22. We observe that UPPCL has been paying a large amount every year as LPS to the generators, which is later claimed to be levied on the consumers.

Table 9: Late payment surcharge levied on UP discoms during past three years

Year	FY 2018-19	FY 2019-20	FY 2020-21	FY 2021-22	Total
INR crore	1,134	1,447	4,096	499	7,276

Source: Discom`s Tariff Petitions and Author`s Analysis

As shown in table above, LPS on UP discoms has been increasing y-o-y, signifying that discoms are not paying the generators on time (highest amount attributed to state IPPs). As per the Praapti portal, UP discoms have outstanding dues of INR 3575.85 crore to the generators as on 21 April 2023. These will again invite an LPS. The central government has already come out with a [scheme](#) to liquidate the past dues of discoms which allows them to pay dues in up to 48 monthly instalments. **The Hon'ble Commission has not been allowing these Late Payment expenses in the past and it is expected, these will not be passed on to the consumers this year as well.**

2.5 Periodic review of the applicability of differential bulk supply tariff (DBST) for discoms

It is observed that the DBST (in lieu of PPA allocation to discoms) was approved by the Hon'ble Commission in the tariff order dated July 20, 2022. **However, the discoms have not claimed any True-up of DBST, but have only claimed DBST for APR & ARR projections in the FY24 petition.**

Further, it is for the Commission's consideration that the DBST mechanism promotes cross-subsidisation among discoms. Good-performing discoms (with better billing and collection efficiency) bear the brunt of the lesser-performing discoms. This dilutes the incentive for discoms to improve their operational and financial performance. The low-performing discoms should be nudged towards strict compliance and improvements.

In the medium term, the Hon'ble Commission, GoUP, and UPPCL/discoms should move towards the actual allocation of power purchase agreements (PPAs) among discoms rather than UPPCL and allow the power purchase cost for each discom to be reflective of the expenses incurred by them. This, in turn, would enable each discom to improve their operational efficiency and scheduling and dispatch principles.

Further, the implementation of new CERC Regulations like GNA & Deviation Settlement Mechanism 2022 would be further enabled by the allocation of PPAs between discoms.

2.6 Information on compliance with the RPO and HPO targets needs to be uniform

- It is observed that the energy purchased under the KUSUM scheme and from RSPV consumers is not being accounted for towards the RPO/HPO compliance. The discoms are requested to take note of such distributed energy resources that can be accounted for towards RPO compliance.
- Moreover, we would like to bring to the notice of the Hon'ble Commission that presents RPO and HPO targets are up to FY24. Considering the national target of 500 GW non-fossil capacity by 2030 along with low wind and solar prices, and existing RE procurement of the Discoms, **we suggest the commission should come out with much higher targets for the obligated entities up to FY30.** Other states such as Andhra Pradesh and Karnataka have already revised their RPO/HPO targets for the upcoming years in line with the new national target. We humbly suggest that UPERC should also commission studies for determining long-term targets for 2030 for the state.
- The Ministry of Power (MoP) has [notified](#) the renewable purchase obligation (RPO) and **energy storage obligation (ESO)**⁴ up to the fiscal year 2029-2030. The ESO will be calculated in energy terms as a proportion of total electricity consumption and will be regarded as satisfied only when at least 85 per cent of the total energy stored in the energy storage system is obtained from renewable energy sources each year. The prescribed storage obligation is 1 per cent in 2023-24 and increases up to 4 per cent in 2029-30.
- Energy storage obligations will expedite the implementation of technologies such as Battery energy storage systems (BESS), in line with the discoms' efforts⁵ of implementing the same. Such technologies can help the discoms to reduce their UI charges and optimise their power procurement in a more efficient manner.

Present RPO and HPO targets vide [UPERC/Secy/Regulation/2019-294](#) are up to FY24. Considering the national target of 500 GW non-fossil capacity by 2030 along with low wind and solar prices, and existing RE procurement of the Discoms, we suggest the commission should come out revised RPO and HPO (including ESO) trajectory with much higher targets for the obligated entities, up to FY30.

3. Distribution Losses

3.1 Need to rationalise the trajectory for distribution losses

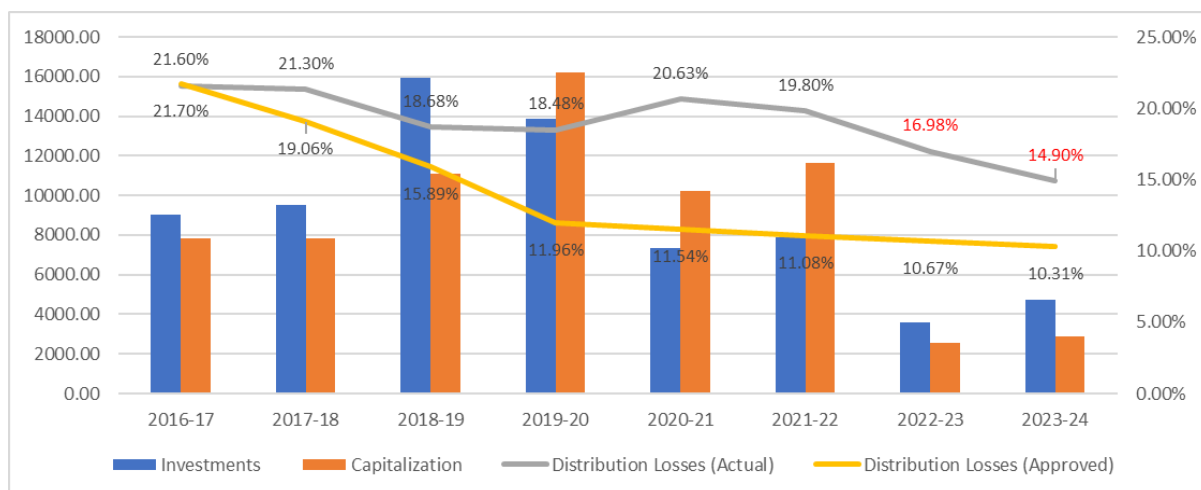
It is observed that the consolidated capital expenditure (CAPEX) by the discoms in the past six years is above INR 58,000 crore under various schemes such as RAPDRP, IPDS, Saubhagya, UDAY, etc. Despite such a huge capex on infrastructure upgradation, the losses have not been reduced to the approved limits prescribed by the Hon'ble Commission.

⁴ [Ministry of Power notification on RPO](#)

⁵ UPPCL issued the tender for 5 x 10 MW/40MWh BESS projects in UP in FY 22-23

The discoms should justify and submit the impact of the capex and grants spent under various schemes for performance improvement and loss reduction of each discom, and explain why the loss trajectory of consolidated for all discoms diverges significantly from the approved trajectory.

Figure 1: Capex vs distribution losses in Uttar Pradesh over the past 6 years



Source: CEEW analysis using discom Tariff Petition and previous year Tariff orders

Further, discoms have taken up implementation of central government scheme of Revamped Distribution Sector Scheme (RDSS), for implementation of pre-paid smart meters, related infrastructure with a target of reducing AT&C losses to below 15% by FY25.

There is incoherence in the loss trajectories projected/claimed by the discoms under the business plan, the losses approved by the commission and the loss trajectory submitted by discoms under the RDSS scheme.

The table below highlights the various trajectories of the 5 state discoms from FY 21 to FY 25.

Table 10: Distribution Loss trajectory in Business Plan and as submitted under RDSS

Particulars	FY	DVVNL	MVVNL	PVVNL	PuVVNL	KESCO
Claimed by Discoms (Business Plan)	FY21	21.45%	18.65%	14.65%	19.20%	8.50%
	FY22	20.10%	17.30%	13.55%	18.00%	8.45%
	FY23	18.05%	15.60%	12.25%	16.20%	8.40%
	FY24	15.45%	14.00%	11.00%	14.30%	8.35%
	FY25	14.40%	13.20%	10.35%	13.65%	8.30%
Approved Values by UPERC (Business Plan)	FY21	11.80%	11.51%	11.51%	11.83%	8.42%
	FY22	11.33%	11.04%	11.04%	11.36%	8.25%
	FY23	10.90%	10.63%	10.63%	10.93%	8.12%
	FY24	10.52%	10.26%	10.26%	10.55%	8.02%

Particulars	FY	DVVNL	MVVNL	PVVNL	PuVVNL	KESCO
	FY25	10.15%	9.90%	9.90%	10.18%	7.94%
RDSS Trajectory (mentioned in this year's petitions)	FY21	25.90%	20.22%	17.85%	20.65%	10.45%
	FY22	25.64%	17.36%	17.98%	20.15%	9.61%
	FY23	20.05%	17.21%	15.19%	17.58%	8.52%
	FY24	17.10%	15.23%	13.44%	15.56%	7.95%

Source: Discom`s Tariff Petitions and Author`s Analysis

Moreover, we would like to bring to the commission's notice that MoP has issued a Draft for proposed amendments in its principal Electricity Rules 2005. The proposed [Amendments](#) seek to address timely reimbursement of subsidy under section 65 of EA 2003 and also to align the discoms loss reduction trajectory in line with the trajectory approved under Central sector schemes / Programs and agreed upon by State Government.

The RDSS scheme present an opportunity wherein Hon'ble Commission can rationalize the large gap between the targets and actual distribution loss trajectory. The discoms have already been penalized by the Commission for not meeting the loss targets (till last year), hence rationalised loss targets would help discoms attain financial viability and provide better services to the consumers.

4. Revamped Distribution Sector Scheme (RDSS)

4.1 Details of RDSS scheme must be submitted by discoms in Tariff petition

Under RDSS, smart prepaid meters are to be installed in the state. Besides, the discoms will undertake several reforms, works and activities to augment the supply infrastructure and reduce losses. Despite the scale of these activities and its implications on discom and the consumers, no Detailed Project Reports (DPR) and Action Plan (approved by Monitoring committee) on installation of smart prepaid metering, loss reduction and system augmentation are available on public domain.

Access to grants for system modernisation and loss reduction works (other the advance) will depend on discoms meeting a pre-qualifying criterion and scoring a minimum 60 per cent against the Result Evaluation Matrix. However, discoms have made no public disclosure against some of the pre-qualifying criteria listed under RDSS. The status of the prequalifying conditionalities is as follows:

- Non-availability of all quarterly unaudited balance sheets of discoms
- No clarity on the clearance of bills of departments/local bodies
- No mention on the clearance of bills of departments/local bodies

The Commission is, therefore, **requested to direct discoms to put in public domain:**

- **The DPR and Action plan under RDSS that list the works and activities under each component of RDSS and the timelines for completing each activity.** Availability of DPR will also ensure public scrutiny of discoms' progress against the timelines and the result evaluation matrix.

- **The progress against the pre-qualifying criteria and performance against the result evaluation matrix** for transparency and public security.
- **The Commission may also direct discoms to provide the details of capex projected under the Public-charging Infrastructure for Electric Vehicles for RDSS scheme.**

4.2 Methodology for evaluation of cost-benefit analysis of large-scale smart meter deployment

The discoms have provided an assessment of the progress made in improvement in operational and financial efficiency due to smart meter deployment and in addition their plans under RDSS.

Before the mass rollout of smart metering (or prepaid metering, as has been seen in the recent push from the central government), the following aspects need to be considered:

- **Smart metering infrastructure should be deployed with a systemic approach**, focussing on high-loss feeders and building capacity of utility staff, and constituting a strong regulatory framework to guide responsible data storage and sharing practices, protection of consumer privacy and securing the system against ever-evolving cyber-attacks.
- **State Electricity Regulatory Commissions (SERCs) should incentivise discoms to carry out pilot studies at scale to ascertain the benefits and suitability of prepaid metering under different contexts.** The assumption that prepaid metering will do away with all problems associated with meter reading, billing, collection and disconnection on non-payment, needs to be validated in the Indian context, due to limited experience and evidence on the returns to discoms on pre-paid deployment.
- **Substation level energy audit:** To ascertain the benefits of smart metering in bringing down commercial losses (especially theft cases), a bottom-up approach should be deployed wherein an energy audit of consumption from the consumer level up until the substation level is conducted.
- **The time limit of three years to ensure prepaid metering needs to be reconsidered in view of several facts:**
 - the loss on investment against a large share of meters, particularly 79.80 lakh meters installed under Saubhagya, which have a significant remaining life.
 - Changing technology landscape, with new generation smart metering technologies based on Narrow Band - Internet of things (NB-IoT) and 5G being developed. A hasty approach would lock the discoms into an older technological regime.
 - A long timeframe would allow technology expansion to be driven by domestically manufactured meters, in line with the 'Make in India' initiative.
- While smart meters can be operated in both prepaid and post-paid modes, **consumers should be given a choice to opt for prepaid or post-paid, to suit their specific contexts.**

We request the Commission to:

- a) **Direct the discoms to submit the detailed breakup of works under RDSS scheme with year wise bifurcation under different heads.** This may include capex for metering, Infrastructure works,

modernisation, project management agency cost, cost of training and capacity building of employees

b) Direct the discoms to upload the state action plan, DPRs and result evaluation matrix on its website for the larger public to be aware of the intent and targets of the RDSS scheme for each discoms and the State as a whole.

5. Leverage Time of Day (ToD) tariffs to manage peak demand effectively

5.1 The Demand and Supply availability for Uttar Pradesh:

The present ToD tariff structure needs to be revisited in line with the recent load curves of the discoms

The present ToD structure (except for LMV-11) for Uttar Pradesh looks as below:

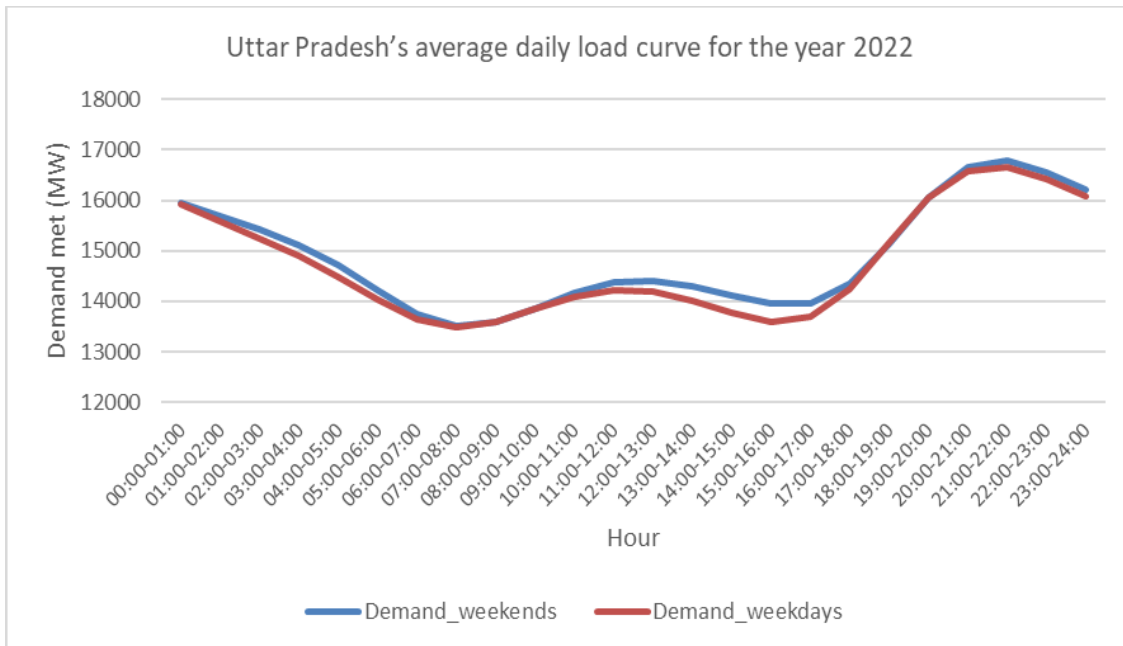
Summer Months (April- September)

Hours	% of Energy Charge
05:00 hrs – 11:00 hrs	(-) 15%
11:00 hrs – 17:00 hrs	0%
17:00 hrs – 23:00 hrs	(+) 15%
23:00 hrs – 05:00 hrs	0%

Winter Months (October- March)

Hours	% of Energy Charge
05:00 hrs – 11:00 hrs	0%
11:00 hrs – 17:00 hrs	0%
17:00 hrs – 23:00 hrs	(+) 15%
23:00 hrs – 05:00 hrs	(-) 15%

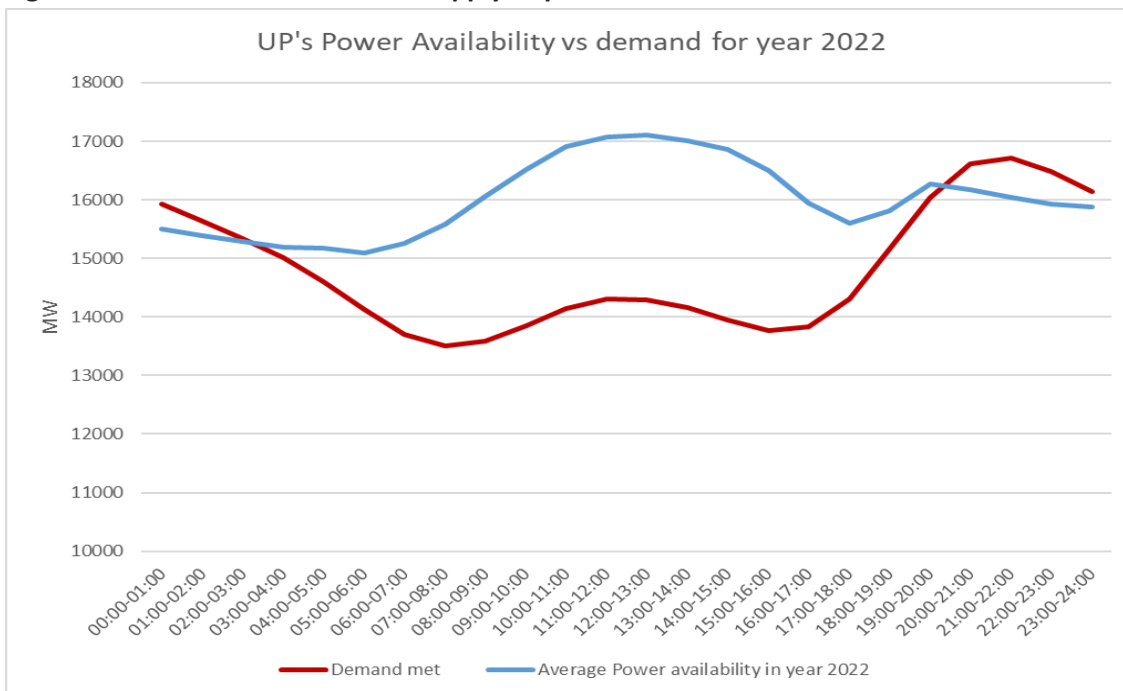
Figure 2: Uttar Pradesh’s average daily load curve for the year 2022



Source: Data published by Energy Analytics lab of IIT-Kanpur (retrieved from <https://eal.iitk.ac.in>)

The average daily load curve of Uttar Pradesh, as shown in the figure above suggests that the duration from 05:00 hrs - 10:00 hrs and 14:00 hrs -18:00 hrs can be treated as the off-peak hours. As per the present ToD structure no incentive is provided for the aforementioned duration. However, the Demand v/s Supply curve of UP looks as under.

Figure 3: Uttar Pradesh's Demand Supply Gap for FY22



Source: Authors' compilation using data vide UPERC Petitions and published by Energy Analytics lab of IIT-Kanpur (retrieved from <https://eal.iitk.ac.in>)

The average power availability curve suggests that it would be economical for discoms to shift the consumers demand to the periods 0600 hrs to 1700hrs as the power supply during these hours mostly comes from solar plants which are must-run plants. Hence, there is a need to rethink the ToD tariff structure for off-peak periods, based on the availability of such must-run power plants (wind, solar, hydro) and pass on the benefits to consumers in the form of reduced tariffs.

The demand-supply curve suggests that the demand/load needs to be shifted from evening 5 pm - 12 am to 6 am - 5 pm and the Time of day tariff should be designed accordingly.

Hence, the present ToD structure needs to be revisited, accordingly, we propose that a detailed analysis of load curves of the past 5 years as well as power availability for the next 5 years should be carried out by the discoms and the ToD tariff structure should be redesigned for individual consumer categories, season-wise, for better management of demand and supply.

5.2 High-consuming LT/HT consumers be brought under the ToD tariff

Given the current situation of increased power cuts, unavailability of energy supply, the future shift of agricultural demand to daytime with the implementation of KUSUM, uptake of rooftop solar PV and the importance of managing evening peaks, the scope of ToD tariffs need to be redefined. With the ongoing progress in smart metering end-consumers as well as distribution infrastructure, it is suggested that **all consumers with a connected load greater than 10 kW should be subject to ToD tariffs in the next 3 years. This is crucial as it will enable discom to incentivize LT consumers (LMV2, LMV5 & LMV6) to shift their loads as per the grid conditions and to effectively manage the load.**

6. Tariff Rationalisation

The present petition seeks an overall 15.85% increase in tariffs to cover the claimed revenue gap. This includes a sharp increase of 18.59% in the domestic category (LMV 1) tariff for which, the average billing rate proposed is Rs. 6.64/kWh. The tariff design also does not cross-subsidise small LMV-2 consumers. For example, the tariff for LMV 6 and HV 2 categories is proposed to be lesser than that of LMV 2.

With increased electrification in recent years in the state, it is important to ensure affordability of supply for small consumers. Considering this, the principles of tariff design can have the following provisions:

6.1 Reassessment of Lifeline consumers to improve affordability and simplify tariff design by removing separate categories for rural and urban consumers for all LV categories

The current tariff design accounts for lifeline consumption in both rural and urban areas. Thus, identical tariff categorisation and rates for other domestic consumers both in rural and urban areas will drive discoms to provide better quality supply and in turn, may improve revenue recovery from rural consumers.

The lifeline category in UP encompasses a broader consumption slab (0-100 units) compared to the other states, and nearly 50% of all domestic consumers (approx. 1.57 crore) fall under this category. Table 11 below depicts the comparison of lifeline tariffs for domestic consumers of UP vis-à-vis a few better-

performing states. The financial burden of both the fixed and energy charge for consumption up to 30 units is more than twice that in Gujarat and Maharashtra.

Table 11: Lifeline tariffs in UP is significantly higher than some of the better-performing states

State	Lifeline units (kWh)	Energy charge (INR/kWh)	Fixed charge (INR)	Total charge in INR (for consumption of 30 units/month)
Uttar Pradesh	0-100	3.5	55 per KW	160
Gujarat	0-30	1.5	5 per connection	50
Haryana	0-50	2.7	NA	81
Madhya Pradesh	0-30	3.34	NA	100
Maharashtra	0-30	1.1	25 per connection	58

Source: CEEW analysis of Tariff orders of representative states

To ensure affordability of electricity for poor consumers (both urban and rural), and improve payments rates among them, we request the Commission to revisit the lifeline category and consider the following:

1. Same tariff design for urban and rural consumers, as is the practice across Rajasthan, Maharashtra, Madhya Pradesh, Andhra Pradesh and other such states in India.
2. All domestic consumers using <50 units/month are considered lifeline consumers. Consumers with consumption >50 units for any three months in the year should not be considered lifeline consumers.

The table below depicts the proposed tariff for the domestic lifeline category. The proposed changes would reduce the state government an approx INR 2000 crore of subsidy⁶.

Category	Lifeline units' range (kWh)	Energy charge (INR/kWh)	Fixed charge (INR)	Total charge in INR (for consumption of 50 units/month)
LMV-1 Lifeline	0-50	1.5	50 per KW	125

6.2 Create a lifeline tariff category for LMV-2 consumers

The proposed ABR for LMV-2 non-domestic consumers is INR 10.94/unit, higher than that of HV industrial (LMV-6 and HV-2). Due to the lack of categorisation in tariff slab for small shops/businesses, many small

⁶ Assumptions used for share of consumers in <50 units in 0-100 slab: Lifeline (60%), RD (80%), UD (35%), as per CEEW's IRES survey and MVVNL master data.

shops/enterprises resort to running out of homes. This problem is prevalent in many parts of Uttar Pradesh, leading to many litigations and harassment cases.

To ensure affordable power for such small shopkeepers and provide ample growth opportunities for small businesses and prevent unauthorised use of electricity, **we request the Commission to consider creating a new tariff slab ‘non-domestic lifeline’ for 0-100 units a month.** This is already a practice in multiple states including Andhra Pradesh, Madhya Pradesh, Punjab, Rajasthan, Uttarakhand, Chhattisgarh, Telangana, and Tamil Nadu.

Hence, it is requested from the Hon’ble Commission to create **a new ‘Non-domestic lifeline’ for consumers using <100 units a month and up to 1 kW load, as proposed below.**

Category	Lifeline units’ range (kWh)	Energy charge (INR/kWh)	Fixed charge (INR)	Total charge in INR (for consumption of 100 units/month)
LMV-2 Lifeline	0-100	1.5	50 per KW	200

6.3 Substantial Tariff hike for consumers poses a risk of sales migration of C&I consumers to open access

The licensees seek increased tariffs for commercial and Industrial (C&I) consumers in their tariff petition for FY 24. The Average billing rate for the commercial consumers (LMV 2 and HV 1) is proposed to increase by 11- 14% and the industries (LMV 6 and HV 2) to increase by 15-17%, which poses the risk of sales migration of these consumers for the licensee.

Tariff rates for C&I consumers in Uttar Pradesh are among the highest and such a hike in tariff rates deter the investment plans in the state from the manufacturing and service industries, as envisaged by the Govt. of UP to achieve its vision for \$1 trillion economy by 2027. The table below represents the Average Billing Rates (ABR) of the C&I in other states which provide better tariff rates to these consumers to set up their businesses and contribute to the state’s economic growth.

Table 12: Average Billing Rate of C&I consumers in other states for comparison

Category	Uttar Pradesh*	Gujarat	Rajasthan	Madhya Pradesh	Haryana
LV - Commercial	10.94	7.35	11.15	9.45	6.94
LV - Industry	10.25			8.99	6.72
HV - Commercial	11.15	7.2	9.61	9.07	6.22
HV - Industry	9.21		8.61	7.86	6.84

Source: Author’s compilation from various SERC Tariff orders

Note: The ABR for Uttar Pradesh is proposed for FY 23-24 and the rest ABRs is for FY 22-23

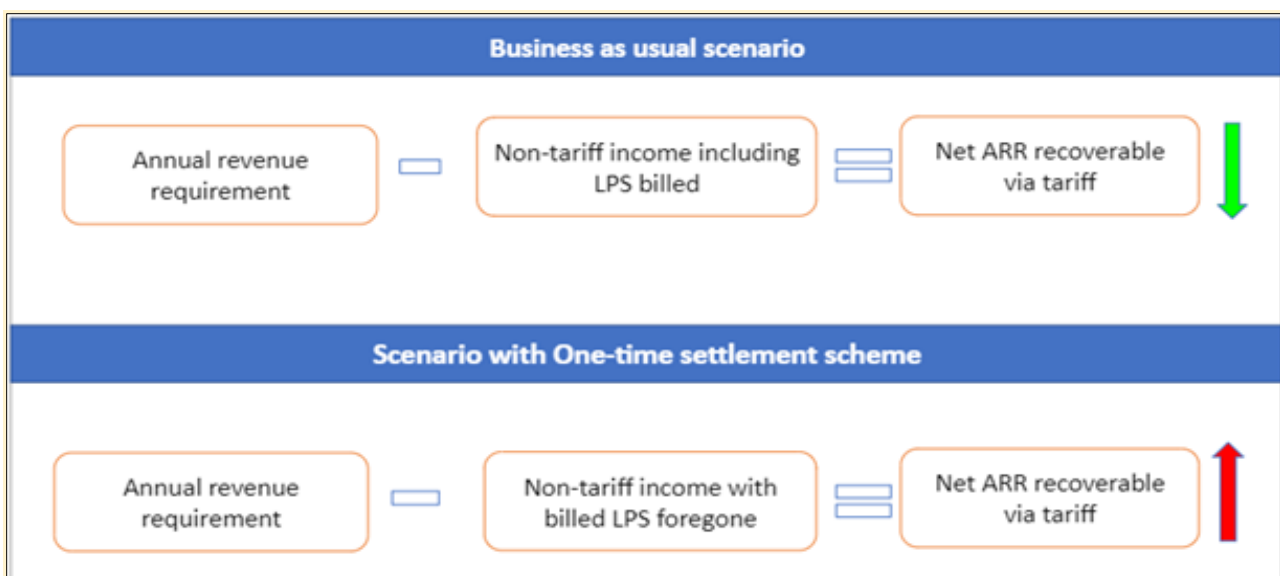
Hence, it is requested to the Hon’ble Commission that in the interest of state’s economic growth and supporting the vision of GoUP to make UP \$1 trillion economy by 2027, such **substantial tariff hikes for C&I consumers should be checked prudently before approving.**

7. Additional Costs and Revenue

7.1 Discoms should submit OTS details and the same should be treated in ARR

UPERC (MYT) Regulation, 2014 disallowed any OTS scheme post 31st March 2017 and was abolished by Commission. However, discoms and state governments keep on providing OTS schemes to non-paying consumers. Further, the Discoms were directed to submit year-wise OTS data from the beginning of FY 2021-22 by the Hon’ble Commission in the last order. However, Discoms haven’t provided any data.

Figure 4: Impact of OTS across consumer categories



Source: Authors’ analysis

We suggest that:

1. The discoms should submit the entire details of the LPS surcharge waiver to date along with carrying costs.
2. State Government should subsidise any waiver given to the Late payment surcharge to the consumers, it should not be levied on other consumers.

Hence, it can be seen from the figure above that the OTS scheme socialises the late payment surcharges of a few consumers on all the consumers via ARR recovery.

7.2 Discoms ought to publish a detailed breakup of the Non-tariff income

Last year, the Hon’ble Commission passed the [UPERC \(Facilitation Of Telecommunication Network\) Regulations, 2022](#). This is a welcome move as this may reduce the financial burden through extra income by leveraging the distribution assets and deriving income from such activities on an annual basis through ARR. The regulation instructs the licensee to claim the income from renting & related services of distribution assets towards non-tariff income in respective tariff order in accordance with the classification given under MYT Tariff Regulations.

Hence, it is requested that the petitioner should provide an estimate of income projected from Non-tariff income for FY 24 and from the next filing onwards the discom’s present a detailed breakup of the Non-tariff income, including the income from renting the distribution assets.

7.3 Need for data on interest accrued on security deposits

Discoms are required to share the interest on security deposits with the consumers. It is humbly requested from the Hon’ble Commission to direct the discoms to provide the data on interest on security deposit in ARR petition. The below format is suggested for Hon'ble Commission’s consideration:

Table 13: Format suggested for reporting information about consumer security deposit

Sr. No.	Particulars	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23
1	Opening Security Deposit				
2	Add: Deposits during the Year				
3	Less: Deposits refunded				
4	Less: Deposits in the form of BG/FDR				
5	Closing Security Deposit				
6	Bank Rate				
7	Interest on Security Deposit				
8	Cumulative Interest on Security Deposit including Past Years				
9	Interest on Security Deposit Paid				
10	Balance Interest on Security Deposit to be Paid during the FY				

Source: Authors’ compilation

8. Subsidy

8.1 Reconciliation of GoUP subsidy for LMV-5 consumers

GoUP had directed the discoms and the commission to bill the rural metered LMV-5 consumers as unmetered consumers. However, the government has clearly instructed that the unmetered LMV-5 consumers has to be metered for the purpose of energy accounting and subsidy computation. The excerpt for the same in tariff order dated July 20, 2022 is reproduced below.

8.2.21 Further, the Commission is in receipt of a GoUP Letter No. 707 / 24 – P- 1- 2021 dated March 25, 2021 under Section 108 of EA 2003, wherein GoUP mentioned that since majority of the rural LMV-5 consumers are unmetered, and taking into consideration the impact of Covid pandemic, GoUP has decided that tariff rates of rural LMV-5 unmetered consumers may be levied on LMV-5 metered consumers tariff and has directed the Commission to consider the same.

8.2.22. Subsequently, GoUP again sent a letter with Ref: 812/24-1-21-1307/2020 dated May 12, 2021 for billing LMV-5 rural metered as unmetered, **however metering of unmetered consumers will also be done and the meter reading will be used for the purpose of energy accounting and subsidy computation. The difference between the revenue at unmetered rates & revenue as per metered energy & rates, would be provided to the Licensees by GoUP.** 8.2.23. The Commission had accepted the above proposal in Tariff Order for FY 2021- 22 dated July 29, 2021 with Directions to conform to section 65 of the Electricity Act, 2003 in regard to the advance subsidy.

As on date the unmetered LMV-5 rural consumers comprise about 84% of the total LMV-5 consumers. The Licensee have to ensure that 100% metering needs to be completed as the bill for metered LMV-5 rural consumers is more than or equal to twice of that of the unmetered consumers. This can lead to increased subsidy requirement from the government.

Metering is the backbone of the financial health of discoms. Without 100% metering discoms can never ascertain the loss level and energy leakages to improve upon the same. **We suggest that Discoms should take up phase-wise metering campaigns for rural unmetered consumers for the purpose of Energy accounting, whilst ensuring these consumers that metering will not necessarily impact their electricity bills. This energy accounting will also help discoms to better forecast their energy demands and calculate subsidy.**

Further, in line with GoUP directions, the reconciliation of the difference between the revenue at unmetered rates & revenue as per metered energy & rates, must be submitted by the discoms.

8.2 Need for further deliberation on the design of Direct Benefit Transfer (DBT) of subsidy

Despite the repeated directions of the Commission, the discoms have not submitted a roadmap for the DBT of subsidy payments in the ARR for FY 24. The discoms must review the DBT models being practised across states and plan pilot projects following different models. Also, the objectives of the DBT model should be clearly specified. Any DBT scheme potentially fulfils one or more of the following objectives:

- Avoid pilferage in the transfer of funds from the government to the consumers or the discom, such as in the LPG scheme;
- Improve targeting so that the subsidy reaches intended beneficiaries;
- Ensure timeliness of payments through timely subsidy transfers either to the consumers or the discom, as applicable;
- Nudge behaviour change in consumers as the pilots in Punjab did to incentivise reduced power consumption;

- Inculcate a culture of making timely payments from consumers to discoms and improve the liquidity of the latter.

Further, the implementation of DBT is likely to face some challenges, which should be considered while drawing up such a roadmap.

- There needs to be clarity on how the DBT mechanism will be operationalised. Currently, there are four models available for consideration:
 - Transfer of subsidy amount to consumers' accounts with the discoms in advance,
 - Upfront payment of unsubsidised tariff by consumers to the discom and subsequent subsidy credit directly to consumers' bank accounts by the state government,
 - As has been implemented in Andhra Pradesh, the state government transfers subsidy amounts to escrow accounts in beneficiaries' names but operated by discoms, and
 - Adjustment of subsidy amount shown in consumers' electricity bill as a deduction against the total payable amount.
- The first and the second model would require KYC updation of all consumers along with their bank details. Discoms should provide a trajectory for undertaking the KYC exercise.
- Also, it is unclear how the first three models would resolve delays in subsidy disbursement and accountability of the state government in this matter. Discoms should be entitled to hold the state government accountable for delayed payments and appropriate provisions should be made in the model.
- Further, identifying and tagging beneficiaries is essential before using consumers' bank accounts or escrow accounts in their name for DBT. This is especially true for LMV-5 (agricultural) consumers, where the landowner and user of the electricity connection may be different people.
- In case of escrow accounts, the subsidy amounts will come and go from beneficiaries' accounts, and their involvement is only to the extent of being informed about the bill amounts. If consumers are not involved in the subsidy process, then any attempt to induce energy-efficiency or payment related behavioural change nudges will be futile. Shouldn't there be a vision to transition the subsidised consumer category into regularly paying consumers over time, or an attempt at engendering energy-saving or energy-efficient behaviours? A long-term vision is a pre-requisite to devising effective subsidy delivery models.
- DBT implementation must leverage the capability of smart meters to provide real-time consumption data, and remote meter reading, which would help in proper accounting of subsidy amounts to be disbursed. Therefore, discoms' smart meter rollout plan must be dovetailed with the DBT roadmap.

Given these complexities with DBT implementation, the implementation roadmap should include pilot projects at scale before proposing mass rollout.

9. Open Access

9.1 Cross-subsidy level (ABR % of ACOS) is still beyond the range prescribed in the Electricity Act

From the submission of the discoms, it can be clearly observed that the ABR of several categories are more than the limits of ACOS (+/-) 20% specified by the National Tariff Policy and the electricity Act.

Especially LMV-1 rural metered, LMV-2 and HV-1 categories. The Commission must design the tariff such that these cross-subsidy levels are brought under the 20% range. Further, the Commission in the tariff Order depicts ABR as % of ACOS without subsidy, however the same should also be depicted as ABR (with subsidy).

9.2 Computation of cross-subsidy surcharge (CSS) by discoms to be revisited

It is observed that the discoms have not computed the open access charges for each category/sub-category as per the methodology defined by the Hon`ble Commission in the Tariff Order of FY22. Also, the discoms have not considered distribution losses at each voltage level i.e. 220 KV, 110 kV, 33 kV and 11 kV for computation of cross-subsidy surcharges. As per the methodology adopted, voltage-wise losses, JERC methodology can be referred- as voltage-wise asset break-out.

9.3 Differential cross-subsidy surcharge (CSS) can be considered

We propose that the Commission may work out a differential CSS for the discoms based on the DBST values submitted by them. This would help align the CSS with the performance of discoms and avoid cross-subsidisation of one discom by another. Differential CSS would also encourage industrial consumers to opt for open access, which is currently discouraged by a common but high CSS. For example, an industry in Meerut may find a supplier in the NCR region and go for open access, compared to an industry in Kanpur. Such practice has already been adopted by SERCs of Gujarat and Maharashtra.