

BEFORE THE RAJASTHAN ELECTRICITY REGULATORY COMMISSION

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IN THE MATTER OF

Petition for Approval of Multi Year Aggregate Revenue Requirement and Tariff and Investment Plan for FY2020-21 To FY2023-24

JVVNL, JdVVNL and AVVNL

Petitioner

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Prayas (Energy Group)'s submission focuses on the following critical issues:

1	Approach and Context for present submission	1
2	No tariff hike this year: Need for measures to sustain this proposal	2
3	Agriculture demand estimation and rationalisation of cost of supply	3
4	Redesigning ToD tariffs	6
5	Power procurement assessment required for cost-optimal decisions	8
6	Methodology for gain and loss sharing for distribution losses	9
7	Need for review of franchisees	9
8	Accountability and reporting of subsidy payments	10
9	Tariff design: Implications of shrinking cross subsidy	11
10	Allowing aggregate/ virtual net metering for public institutions	15
11	Measures to ensure accountability for quality of supply and service	16

1 Approach and Context for present submission

The average cost of supply of Rajasthan DISCOMs estimated for FY21 is unsustainably high at Rs. 9.17/unit. With such high costs, more and more consumers would find sales migration options, especially captive options more lucrative. Without adequate tariff support agricultural and domestic consumers would find it challenging to sustain access at such high costs.

By FY20, before the impacts of the COVID related lock-downs were fully realised, Rajasthan DISCOMs had short-term working capital loans of about Rs. 14,970 crores accounting for 27% of the ARR. As per DISCOM filings, the accumulated losses at the end of 2018-19 stood at Rs 89,854 crores. Without support to deal with past liabilities and future expenses, Rajasthan DISCOMs would find it challenging to provide reliable supply.

The three DISCOMs in Rajasthan have filed petitions under the multi-year tariff framework for performance and cost estimations for FY22 to FY24. Like in the previous years, the DISCOMs have proposed to not have any tariff hike for this year. Additionally, several measures have also been proposed to rationalise tariff.

Given the financial distress before the DISCOMs, the present tariff process could be seen as an opportunity to bring in changes to bring in certainty, fix performance and cost trajectories for DISCOMs and ensure the interest of small consumers are protected. Some comments and suggestions towards, improving financial viability of DISCOMs, enhancing performance accountability, ensuring affordable, reliable power to small consumers and providing choice to large consumers are listed in this submission.

2 No tariff hike this year: Need for measures to sustain this proposal

The DISCOMs have proposed to not have any tariff hike this year. However, such a proposal without adequate additional measures would only mean increased unfunded gaps, additional carrying cost burden and tariff hikes in the future. In order to address this, existing revenue gaps could be addressed via the following measures.

2.1 Issue of DISCOM bonds to manage past revenue gaps

Based on DISCOM submissions it is likely that an assessment of DISCOMs petitions shows that till FY21, there has been an estimated accumulated unfunded gap of Rs. 52,291 crores. The break-up of this is shown in Table 1.

Table 1: Extent of cumulative revenue gaps of DISCOMs

Revenue gap (in crores)	Cumulative revenue gap approved till FY19	Revenue gap in FY20 (Petition)	Revenue gap in FY21 (Petition)
JDVVNL	15,678	3,697	3,920
AVVNL	12,991	437	1,988
JVVNL	15,355	2,606	2,024
Total	44,024	6,740	7,932
Cumulative Revenue gap with carrying cost at 10% per annum	44,024	55,166	68,615

Even assuming this amount will be subject to prudence checks and reassessed, carry forward of gaps of such magnitude would only mean accumulating carrying cost for consumers. The DISCOMs could issue bonds backed by the State Government to ensure recovery of this regulatory asset. Annual payment to the tune of Rs. 10,000 crores (assuming a coupon rate of 7%) can be shared by DISCOM consumers (through a surcharge) and the state government (through a loan or grant). The amount could be lower after prudence check of the unfunded gap claimed. Further, such a step could potentially save Rs. 14,000 crores in interest costs over a 10 year period¹. Alternatively, the state government should step in to provide additional conditional transitional finance support akin to the design under the UDAY scheme to clear past liabilities.

2.2 Need for measures to reduce cost of supply through structural changes and efficiency measures

With no tariff increase proposed for the control period, the three DISCOMs claim a revenue gap for the control period as detailed in Table 2. If unrecovered, this translates to an accumulated carrying cost

¹ Assuming carrying cost at 10% as opposed to a coupon rate of 7%

burden of Rs. 1528 crores². These assessments can change with regulatory prudence checks. Clarity on the front of various performance and cost parameters is sought in this context in the submission.

Table 2: Projected revenue gap and associated carrying cost

Particulars (Rs. Cr)	FY22	FY23	FY24	Total
Revenue gap	5267	4220	2525	12012
Carrying cost		527	1001	1528

It is imperative that the utilities commit to measures to save a minimum average of Rs. 4000 crores in savings each year in the multi-year tariff period. These could be through measures to rationalise power procurement costs, reduce the cost of supply to agriculture through aggressive adoption of solar feeder, ensuring sustained and significant efforts for loss reduction and adopting equitable, risk sharing frameworks to enable sales migration. Some of these measures are also discussed in this submission.

3 Agriculture demand estimation and rationalisation of cost of supply

Agricultural consumption accounts for about 40% of the sale in Rajasthan and as such is a major recipient of subsidies and cross-subsidies. Given its significance, it is very critical that there is regulatory scrutiny and verification of data submitted for agricultural demand by the utilities and adoption of measures to optimise agricultural service costs.

3.1 Estimation of agricultural demand

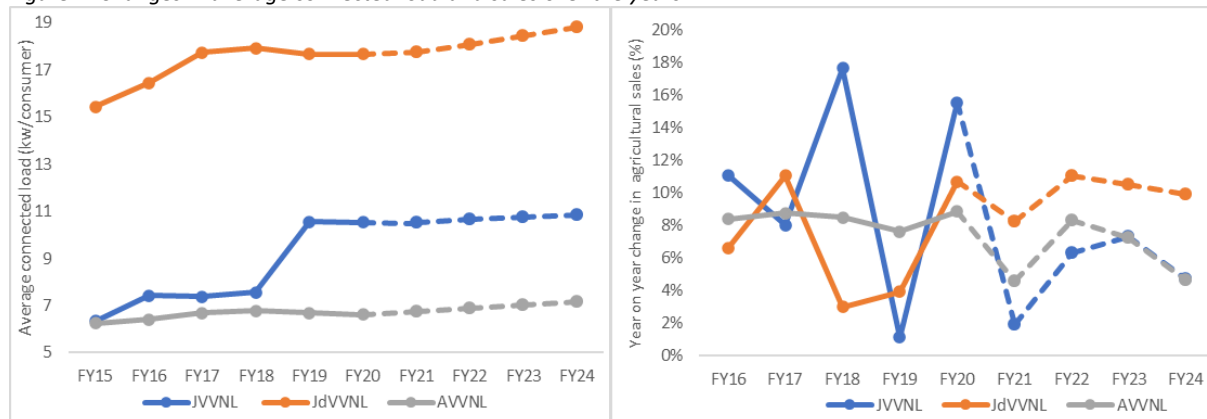
The specific consumption norm or the agricultural consumption norm used to project unmetered sales has not been assessed for over a decade in Rajasthan in which time hours of supply, cropping patterns and rainfall have also seen changes. In this context, the Commission has issued a directive to:

‘Carry out a detailed study of actual specific consumption of flat rate agriculture consumers of three Discoms separately and submit the same to Commission along with the next ARR and Tariff Petition. This study should be supported by Feeder meter reading and total of meters installed at Agriculture Consumers.’

However, the DISCOMs have not complied to this directive. In addition, the veracity of the data related to consumption of metered consumers also needs to be ascertained. There has been significant variation in average connected load as well as sales in the past as reported by the DISCOMs. Thus, the veracity of past data or the considerations for projections cannot be verified. This is shown in Figure 1 where the solid line represents actuals and the dotted line, projections/ estimations.

² Assuming a carrying cost of 10% per annum

Figure 1: Changes in average connected load and sales over the years



In order to understand agricultural demand trends, disaggregated data analysis is crucial. It is important to assess feeder level energy input and losses, especially for agricultural feeders. In addition, circle-wise or division-wise estimates for agricultural data would also highlight issues with demand estimation. However, such information is not submitted by the DISCOMs. Based on Commissions directives, the DISCOMs have been uploading feeder input data on their websites. As per the reports submitted by JdVVNL for 11,595 of its feeders, about 24% of the feeders catering to 23% of consumers have negative losses³. This highlights issues with meter reading. Further investigation is required to assess if these are from agricultural feeders.

Need for independent working group set up by RERC to assess metered/unmetered demand

It is likely that even metered consumers do not have functional meters and are subject to average billing for sustained periods. Thus, the estimation of sales for metered consumers needs to be reassessed. As DISCOMs are not complying with Commissions directives to conduct studies for agricultural estimation, it is urged that the Commission set up an independent working group to assess agricultural consumption. The Working Group can be convened by the Secretary of RERC and have representation from RERC staff. Further, the working group should include a consultant to support working group activities, survey agencies and independent members. Representatives of the DISCOMs can be invited as special invitees to aid the working group. DISCOMs should provide data, inputs to survey agencies and members and assist with any works to ensure the working group can complete its tasks.

The **terms of reference** of the working group could be:

- To ascertain agricultural consumption norm (units/HP/annum and/or hours/HP/annum) for different region/districts/zone/circles within Rajasthan based on approved sampling methodology
- To verify and validate metered AG consumption for select sample feeders based on sample survey and methodology to be formulated
- To devise methodology for verification and validation of AG consumption based on feeder AMR data.

³ Based on report by JdVVNL on 11kV feeder-wise energy audits for 11595 feeders for April 2019 to September 2019. Report available here: <https://energy.rajasthan.gov.in/content/dam/raj/energy/jodhpurvnl/pdf/IT/11KVfdrAprilSept19.pdf>

- d. To evolve methodology and formulate procedure for measurement and estimation of agricultural sales for future tariff determination processes of the Rajasthan DISCOMs.

A similar process was conducted by the Maharashtra ERC and the working group used a dual approach for estimation of agricultural consumption. The working group (WG) conducted a survey of 1.33 lakh agricultural consumers using mobile app-based data collection along with geo-tagging. Further AMR/MRI data for 502 feeders provided by MSEDCL was used to estimate consumption in agricultural feeders.

The results of the study in Maharashtra showed that meters were present for only 17% of the 'metered' agricultural consumers and where validation of readings were possible, more than 50% of the readings were incorrect. The analysis also showed that 30% to 40% of feeders were overloaded, possibly due to issues with high unregistered load or issues with consumer mapping. While such analysis highlighted the need for investment to understand and reduce technical losses at the feeder level, it also was able to establish that agricultural consumption (including for those deemed as metered) was high in Maharashtra.

Based on the hours of supply assessed using feeder-wise input data and consumer surveys, the WG was able to establish that agricultural consumption was overestimated by 10,000 MUs and distribution losses were underestimated by 7.3 percentage points. Using this analysis, the Commission re-estimated the norms to re-state distribution losses to a number 5.84 percentage points higher than that claimed by the DISCOM. The Commission also approved the following of the broader methodology for estimation of agricultural consumption in subsequent years. The report of the working group is available here: <https://www.prayaspune.org/peg/publications/item/457>

The Working Group constituted in Rajasthan can possibly adopt a similar methodology to the one followed in Maharashtra based on ground realities in the state. The exercise should be time-bound such that the findings of the working group can be used to re-state losses during the true-up process for FY2019-20. Restatement of sales and losses would result in disallowance of power purchase costs based on the gain and loss sharing framework prescribed in the state and result in savings in tariffs and revenue gaps for consumers.

3.2 Directives and regulatory targets to accelerate adoption of solar feeder approach

Solarisation of a dedicated agricultural feeder would not only help farmers access day time, reliable supply but will also help in savings of subsidy, cross-subsidy and line losses as well as help DISCOMs meet RPO obligations. The approach relies on a 1-10 MW plant being installed at the 11 kV feeder level based on competitive bidding approach. As the discovered tariff, say at Rs. 3.14/unit is fixed for 25 years, the DISCOMs will make savings as compared to the Rs. 4.85/ unit that it takes to supply power to agriculture from existing sources. The savings will increase over time given the fixed rate for solar and considering that current APPC is rising at 5% per annum.

As of now, most installations in the state for solarizing feeders have been under KUSUM Component A. However, given the recently revised MNRE guidelines⁴, states also have the option of installing solar

⁴ For more details, please see: https://mnre.gov.in/img/documents/uploads/file_f-1607073371212.pdf

feeder projects under KUSUM Component C. Under Component C, DISCOMs also get a 30% capex grant for the project from GoI.

The DISCOMs have reported targets under Kusum Component A and C as shown in Table 3. The total capacity target for the MYT period is 725 MW. Currently no targets for solar feeder approach have been specified under Component C. This is despite the fact that the MNRE guidelines specify that 50% of the pumps under Component C have to be solarized through feeder level solarisation.

Table 3: Targets under KUSUM Component A and C for the three DISCOMs

KUSUM Component	Particulars	FY-21	FY-22	FY-23	FY-24
Component A	Capacity	75	175	275	300
	Units Generated and fed into the grid (MU)	131	265	398	400
Component C	No of pumps	12745	41187	69604	94022
	Capacity (MW)	67	217	365	493
	Excess units generated and fed into the grid (MU)	67	213	356	470
	Effective Capacity for DISCOM as RPO capacity (MW)	38	121	203	268

Given the savings potential, the Commission should issue directives to the DISCOMs to accelerate the process for feeder solarisation by increasing the targets in the MYT period. If 30% of agricultural consumers receive power from solarised feeders by 2024, about 6000 MW of solar capacity would be required. This would result in a Rs. 2,950 crore savings in 2024 itself⁵.

Additional measures to ensure the benefit of solar feeder is realised would also be required. This includes:

- **Ensuring sizing of solar feeders is as per connected load on the feeder rather than as per MNRE guidelines** to avail incentive. This is crucial for Rajasthan where average pump sizes are higher than the national average of 7.5 HP prescribed by MNRE for incentive provision. Without appropriate sizing the dependence on DISCOMs for power will continue to be significant reducing the potential savings.
- **Expediting regulatory dispensations**, if required to ensure solar feeder approach under KUSUM C can be operationalised.

4 Redesigning ToD tariffs

4.1 Re-calibrate ToD tariffs to account for daily and seasonal variation due to RE

The DISCOMs in their proposals have also recognised the need to revisit the time of day tariff structure in the state. Currently the structure only allows for a rebate in off-peak hours to incentivise consumption. However, during stress periods, there is no penalty to dissuade consumption in that time

⁵ Assuming levelized tariff of 3.14 per unit for power from solar plant and landed cost of power from the DISCOM at Rs.5.32/unit (which is APPC of Rs. 4.29/unit grossed up for transmission and 33 kV loss of 9% and with intra-transmission charges of Rs. 0.5/unit)

period. With increasing renewable energy penetration in the system, it is imperative that the ToD framework has both incentives and penalties.

In the FY20 tariff order, the Commission had pointed out that during peak times, the DISCOMs still had surplus power and thus, there is no requirement for penalties. If this is the case, there is also a need to recalibrate peak and off-peak hours based on the stress periods of the DISCOMs. Additionally, the stress and high availability periods will also vary on a seasonal basis. Hence, ToD tariffs should be dynamic to account for this. Without such measures, it would be challenging for DISCOMs to optimise power procurement costs going forward, especially with high level of RE integration.

To operationalise this methodology, block-wise load and generation data from the DISCOM should be analysed for 3-4 years to identify stress periods during the day and off-peak periods. Similar analysis should be done on a seasonal basis using load duration curves. Given the significant addition of RE the stress and off-peak periods could also track RE availability. To account for RE changes, it is suggested that:

- neither an incentive nor penalty is levied for day-time consumption from 0900 Hrs-1700 Hrs (solar hours)
- the dis-incentive for consumption in the evening peak (shoulder periods/ stress hours) should be higher than the night time incentive
- during stress months, the disincentive for the shoulder periods should be increased
- during high wind months, the incentive for off-peak and evening peak periods can be increased

Considering this, our suggested ToD proposal which varies seasonally is detailed in Table 4.

Table 4: Proposed ToD slots and rates for various seasons

Seasons	Rs/kWh incentive (-) and disincentive (+) for each time slot			
	22:00-6:00	06:00-9:00	09:00-17:00	17:00 -22:00
Normal months	-1.08	0.5	0	1.5
Stress months	-1.08	1.0	0	2.0
Monsoon months	-1.30	0.75	0	1.2.5

The example is for illustrative purposes and should be recalibrated based on Rajasthan load profiles and generation availability.

4.2 Extend ToD tariffs to more consumers in a phase-wise manner

Given the increase in off-peak surplus, proliferation of captive and open access use from renewable energy technologies, increase in rooftop solar systems, shift of agricultural demand to day time with the implementation of KUSUM and the importance of managing evening peaks with increased electrification, introduction of ToD tariffs to a larger number of consumers is crucial.

In fact, given the recent advances and significant cost reduction in metering technologies, it is suggested that all consumers with a connected load greater than 10 kW should have ToD meters installed within a five year time-frame and should be subjected to ToD tariffs. This can be done in a phase wise manner

with introduction of ToD meters for 50 kW and above consumers in a year's time, 20 kW and above in 3 years and 10 kW and above in 5 years. The introduction should be widely publicised and adopted through a consultative approach.

In addition, it would also be crucial to ensure ToD based metering and billing for all opting for kW scale grid connected PV options. This would enable Rajasthan DISCOMs and the RERC to understand and better manage the shifts in the load curve.

5 Power procurement assessment required for cost-optimal decisions

5.1 Data and analysis to be shared transparently in the order to detail impact

Given the cost implications for power procurement, RERC should conduct a detailed assessment of power procurement in this MYT process. Crucial details which have not been reported in the tariff petitions must be reported and analysed in the order to provide consumers clarity regarding accountability for such a major component of costs. Some of the major areas where greater analysis is required in the tariff order include:

- Details of RPO compliance for FY19 and FY20 and capacity addition plans from various sources to meet RPO. Even though the Commission has a separate process for assessment of compliance, such an assessment, when included in the tariff proceedings, provides clarity in the context of the larger power procurement plans of the DISCOMs
- Impact of compensatory tariff awarded to various competitively bid projects especially with respect to change in law due to coal allocation. The treatment of the dispensation and its recovery (whether claimed as part of the MYT power procurement costs) or whether will be claimed subsequently through fuel surcharges should be clarified. The assessment should include compensatory tariff impact where claims have been agreed upon and also disputed claims to give consumers a clear idea of potential impact.
- Dispensations approved for installation of pollution control equipment in compliance with revised environmental norms.
- Capacity addition from various sources in the pipeline including RE for the next 5-7 years including expected date of commissioning.
- Plans for retirement of capacity including plans for replacement capacity addition for the next 10 years.
- Clarity on availability of surplus capacity and action plans to be reported by the DISCOM for seasonal/ annual contracts for boxed up capacity on DEEP/ power exchanges in the medium term.

5.2 Need for modelling exercises to optimise power procurement costs

DISCOMs have reported that they have been doing hourly load data assessments to optimise costs. Going forward with increase in RE capacity, shifts in load due to sales migration, increased day time use of power by agricultural consumers and increased use of air conditioners/ water heaters in the domestic segment the DISCOMs would need to re-evaluate strategies to optimise existing contracted capacity and strategies to add capacity. In this context, in-depth, scientific, rigorous analysis based on 15 minute load and generation data using models would be useful. The Commission should direct the DISCOMs to use detailed modelling exercises projecting for a 5/10/15 year period to aid:

- Techno-economic analysis of RE procurement choices by assessing capacity of the system.
- Determination of optimal Renewable Purchase Obligation for the benefit of the system and consumers
- System costs and impacts of adding new thermal capacity or early retirement of existing thermal capacity
- Impact of change in load (due to sales migration, shifting of agricultural load to day time, increase uptake of RE based power) on managing power procurement
- Requirement of short-term procurement and strategies for the same.

The assessment and proposals for the next MYT period should be informed by such modelling exercises rather than the current thumb rule approach. The DISCOMs could consider setting up an in-house modelling cell to aid this initiative.

6 Methodology for gain and loss sharing for distribution losses

The DISCOMs have proposed that the disallowed power purchase cost attributable to distribution losses above the Commission specified norm be valued at average variable cost of power instead of APPC.

It is submitted that valuation should continue at APPC as it reflects the power procurement cost incurred by the utilities. If the power were available, it could also have been sold on DEEP or power exchanges instead of being backed down. However, it is likely that the same is not possible due to high costs, reflective of poor power procurement decisions by DISCOMs while adding capacity. Thus, to address the issue of fixed cost burden, the DISCOMs should think of ways and means to optimise existing capacity rather than treat such burdens as fait accompli. Many states follow the current approach of valuing at APPC as used by the Commission.

Alternatively, if the methodology of the Commission is to be changed, it is our submission that the energy losses in excess of the normative distribution losses be valued at the average billing rate of the DISCOM. It is likely that much of the line losses is due to theft rather than technical loss. If that is the case, valuation at ABR correctly reflects the revenue foregone given that the same power could be sold to other consumers.

7 Need for review of franchisees

Rajasthan DISCOMs have already appointed franchisees and have plans to appoint many more in the near future. Given this trend, the Commission should conduct a review of the functioning of franchisees operating in the DISCOM licensee area particularly with respect to adherence to the DFA. In this context, the commission should direct DISCOMs to submit the following information and upload this information on their websites on an annual basis:

- Category-wise number of consumers, energy input, energy billed, revenue billed, subsidy and collection efficiency in existing franchisee areas.
- Loss reduction trajectory as per the franchisee agreement and its actual performance
- Annual capitalisation by the franchisee versus target
- Quarterly report on pending dues from franchisees

- Standards of Performance reporting as per RERC SoP Regulations and Section 59 (2) of the Electricity Act, 2003 for the franchisee area
- Proposed areas for franchisee development

In this MYT period, if the DISCOMs are planning to appoint franchisees, the DISCOMs should share sales, losses and energy input projections for the same and this should be accounted for in the order.

The DISCOMs have also proposed to account for the O&M in franchisee areas as part of their O&M expenses. As such expenses in the franchisee area are borne by the franchisee and its accounting is clarified in the distribution franchisee agreement, such expenses should not be accounted for again in the DISCOMs' ARR.

8 Accountability and reporting of subsidy payments

Accountability for delay in subsidy payment

The subsidy committed by the state government is to the tune of Rs. 11,000 crores. However, there seem to be delays in payment as per DISCOM submissions. In fact, about 30% of the promised subsidy has not been paid in FY19 and about 50% of the committed subsidy remained unpaid in FY20. Delays in subsidy payment contribute to the working capital strain of the DISCOMs. It is suggested that the Commission carries forward delay in subsidy payments along with carrying costs and accounts them in the subsidy commitment for the next year. This will ensure accountability for subsidy payments and will also help track contribution of delayed subsidy payments to DISCOM financial health. A similar process is adopted by the Punjab ERC to ensure accountability for subsidy payments. Excerpt from the PSERC order detailing the methodology is given below:

'Interest on delayed payment of subsidy: The GoP has paid Rs. 9036.43 Crore subsidy to PSPCL during FY 2018-19 in staggered instalments. There is a shortfall of Rs. 4885.55 Crore of subsidy paid by GoP by 31st March, 2018. The Commission observed that there was delay in payment of subsidy to PSPCL in FY 2018-19. With a view to compensate PSPCL on this account, the Commission levies interest on the delayed payment of subsidy @9.36% (effective rate of interest on working capital loan) which works out to Rs. 593.15 Crore. Accordingly, the subsidy payable for FY 2018-19, inclusive of interest on delayed payment of subsidy, has been determined by the Commission at Rs. 14333.98 (8855.28+593.15+4885.55) Crore against which GoP had paid subsidy of Rs. 9036.43 Crore. As such, there is shortfall subsidy of Rs. 5297.55 (14333.98-9036.43) Crore ending FY 2018-19. This has been carried forward to para 7.4.' (pp 125 in Tariff Order for PSPCL for FY20).

Reporting of implementation of DBT

Rajasthan was among the first states to announce DBT for subsidy transfer for Rs. 10000 per year to farmers in their bank accounts on a monthly basis. To account for this RERC formats (Form D 2.5) also requires reporting amounts disbursed via DBT. The Commission should direct DISCOMs to furnish details of DBT subsidy transfers and report it in the order.

Change in subsidy with change in agricultural tariffs

The DISCOMs have also proposed changes in fixed charges for agricultural consumers. However, it is not clear if there will be a commensurate change in subsidy. This should be clarified to RERC by the DISCOMs

based on relevant documentation to clarify state government commitment. Any proposal to change tariff design should be evaluated based on this commitment.

9 Tariff design: Implications of shrinking cross subsidy

Based on the data filings and the tariff design proposed by the DISCOMs, it is clear that there is very little role for cross-subsidy in the tariff design. Analysis of sales and revenue data of the three DISCOMs for the year FY23 shows that the contribution of revenue in excess of average cost of supply from various consumer categories is only to the tune of Rs. 358 crores which accounts for 0.6% of the net ARR⁶ proposed by DISCOMs.

This implies that even without tariff increase, most consumers are expected to pay at cost of supply. As the cost of supply is itself about 8.5/unit for FY23, it is likely that large consumers will reduce the dependence on the utility by opting for captive/ group captive or grid interactive renewable energy options. For small consumers who do not have access to competitive options, such a significant burden would mean high bills. This will contribute to increase in disconnections and rise in AT&C losses across the state.

The proposal also seeks to recalibrate fixed charges such that the contribution of revenue from fixed charges increases from 13% in FY19 to 17% in FY23. This proposal also needs to be seen given that small industrial, commercial and domestic consumers are already paying unsustainably high fixed charges⁷.

Therefore, along with efficiency improvement measures, it is vital that the tariff design ensures that tariffs are affordable for small consumers and large consumers have the freedom to migrate with an adequate risk sharing framework. Some ideas in this regard are discussed below:

9.1 Need to track migration of consumers using various modes

Currently, consumers save about 35% by opting for captive open access as compared to DISCOM sales. This is the case even with consumers paying, more or less, near to the cost of supply. The proposals to gradually increase the proportion of fixed charges will also not work beyond a point as reduction of contracted demand, investment in RE systems, especially behind the meter (BTM) and storage systems would become viable strategies for many consumers.

While the RERC tracks open access sales, there is hardly any tracking of captive sales and sales from rooftop, behind the meter and grid interactive renewable energy systems which will increase going forward. To help plan DISCOMs business and assess change in revenue centres, it is vital that the RERC issues directives for DISCOMs to submit quarterly reports on their website on:

- Sanctioned load and contracted demand of captive users (RE and non-RE) in DISCOM area
- Self-consumption by captive users (RE and non-RE) and energy purchased from DISCOM

⁶ Expenses net of non-tariff income and income from sales migration charges

⁷ Analysis of DISCOM proposals show that for FY 23, on an average, small commercial enterprises pay bills such that 60% to 80% of the revenue is from fixed charges and small industrial consumers have fixed charge contributing up to 35% of their bills.

- Sanctioned load and contracted demand of grid interactive renewable energy (GRE) systems in DISCOM area
- Self-consumption by GRE systems and energy purchased from DISCOM
- Number and capacity of registered behind the meter systems in DISCOMs area.
- ToD slot wise, month wise consumption via open access, captive and grid interactive renewable energy systems for each DISCOM in each quarter.

9.2 Fixation of sales migration charges

Going forward, there needs to be some compensation by migrating consumers for costs incurred by the DISCOMs which can be phased out in a time bound manner by which time the cost of supply of DISCOMs should reduce. To enable this, **RERC can combine the surcharge for cross-subsidy surcharge and additional surcharge and fix it at Rs. 2.5 per unit for a period of 5 years.** The Commission is not bound to follow the formula for fixation of surcharge as prescribed in the National Tariff Policy. Adopting such a methodology will reduce the complexity in rate fixation and nudge DISCOMs to be more efficient in cost reduction and managing power procurement. In turn, it will also provide certainty to investors and consumers with respect to the certainty in the rate.

9.3 Wheeling charges rationalisation

Similarly, RERC can also **fix the wheeling charge trajectory for a 5-7 year period.** This will enable provide certainty to investors and consumers and will also ensure that there is efficiency in distribution costs.

In addition, DISCOMs consumers connected to the EHV network should not be charged distribution/ wheeling costs as they are not availing services from the DISCOM network. A rebate to the extent of the wheeling charge should be provided to these consumers in energy charges.

9.4 Increase duty for captive, especially group captive/ RE captive

The statutory exemption of CSS was provided for captive power plants at a time when capacity addition was mostly coal-based and required significant investments and time. In the past decade, renewable energy based captive systems have become lucrative options for consumers. Unlike coal-based captive, such systems require relatively low investment, have short gestation periods and are modular and scalable. Further, many of the coal-based captive plants that came up under the aegis of such concessions have been in operation long enough to clear their debt servicing obligations.

In this context, it is necessary that captive consumers too contribute to meet the revenue gaps of the existing DISCOMs which need to cater to agricultural and small domestic consumers and small home-based enterprises. To enable this, the DISCOMs and the RERC can urge the State Government to increase the levy of duty on all captive consumers except those who are exempted under previous policy notifications. Going forward, exemptions for duty should not be provided to RE based captive systems.

The duty collected should be solely utilised to meet subsidy requirement and finance losses of the DISCOMs.

9.5 Recalibration of standby charges for captive rather than impose PoC charges

Given the development of markets, investments in the grid, existing surplus power with DISCOMs and reduced dependence on captive systems for power procurement, it is important to note whether parallel operation charges (PoC) is the right framework to evaluate grid services being provided by the utilities. Further, as per the DISCOMs proposals the proposed PoC will only be applicable on non RE systems. However, with the variable and intermittent nature of RE power the dependence on DISCOMs grid services (beyond banking) could be more significant for such systems.

In addition, the PoC services suggested by the DISCOMs is quite nominal and would not encourage the captive consumers to participate in market operations, ensure grid discipline (especially embedded captive) and make their own arrangements for standby supply.

In lieu of these multiple challenges, RERC can adopt a three-tiered standby service charge framework instead of the PoC charges which can be applicable to all captive consumers who require standby services from the DISCOMs. This is illustrated in Table 5.

Table 5: Proposed graded standby charges in lieu of PoC charges

Scenario	Energy Charges	Demand Charges on standby contracted capacity	Penal Additional Demand Charges
When standby demand is not utilized	Not applicable	25% of applicable demand charges on standby contracted capacity	Not applicable
Standby services in case of planned shut-down	Energy charge as approved in Tariff Order for relevant category	As approved in tariff Order for relevant category on total contracted standby capacity (on monthly basis).	2 times Demand Charges (on monthly basis) in force
Standby services in case of unplanned shut-down	Applicable Energy charge for temporary category	25% of applicable demand charges on standby contracted capacity	2 times Demand Charges (on monthly basis) in force

The proposed charges are reflective of the standby services provided by the DISCOMs for embedded captive systems synchronised with the grid. Without such charges, the supply quality and tariffs of DISCOM's regulated consumers will be affected.

9.6 Domestic tariff rationalization - Need to reduce contribution of fixed charges

The current tariff slabs (as shown in Table 6) for domestic require significant fixed charge payments and are unjust and unfair towards small consumers.

Table 6: Current applicable domestic tariffs

Domestic Service	Fixed charges (Rs/ connection/ month)	Energy charges Rs. /unit
BPL (up to 50 units/month)	100	3.5
Small Domestic (up to 50 units/month)	125	3.85
General (0-50 units/month)	230	4.75

General (50-150 units/month)	230	6.5
General (150-300 units/month)	275	7.35
General (300-500 units/month)	345	7.65
General (above 500 units/month)	400	7.95

With such a tariff structure, even if small consumers receive poor supply, have low appliance penetration and low usage, their bills will be significant.

For example, a SAUBHAGYA non-BPL consumer with 2 bulbs, a fan and a charging point will not have consumption higher than 25 units per month. Even with subsidy, such a consumer will be paying about Rs. 7.5/unit which is 90% of the average cost of supply projected by the utilities. As per this schedule even BPL consumers using 50 units paying more than 50% of the average cost of supply and prescribed by the utilities.

The tariff design also incentivises high end consumption as the average tariff and cross subsidy contribution reduces with increase consumption as shown in Table 7.

Table 7: Average tariff for typical consumption of domestic consumers and comparison with ACOS

Representative consumption for a typical consumer	Average tariff (Rs/unit)	% of ACOS
BPL (using 50 units)	5.5	65%
50 units	6.35	75%
100 units	7.925	93%
150 units	7.45	88%
300 units	7.55	89%
500 units	7.08	83%

It is suggested that the domestic tariff slabs be recalibrated such that:

- BPL consumers pay at 50% of cost of supply. Subsidy payments can be in addition to this tariff dispensation.
- BPL consumption is defined based on electrical BPL such that all consumers using less than 50 units (or even 30 units), not just BPL cardholders are able to avail BPL supply
- There is an annual limit for BPL consumption such that BPL status is only foregone if annual consumption in previous year is more than 600 units (or 360 units)
- Consumers using less than 100 units do not pay more than average cost of supply
- Telescopic tariffs kick in higher slabs with increase in fixed charges for consumption greater than 100 units.
- Tariffs linked to inflation such that there is automatic tariff revision every year to account for wider cost increase.

Given these considerations the proposed tariff slabs for domestic category is detailed in Table 8.

Table 8: Proposed slabs and tariffs for domestic category

Slabs proposed by PEG	Fixed charges proposed (Rs. /connection/month)	Energy charge proposed (Rs/unit)
Electrical BPL (less than 600/360 units annually)	70	3.05
General 0-100	110	5
General 100-300	150	8
General >300	300	12

Alternatively, keeping these principles in mind, the Commission can also consider providing a per kW charge, (say Rs.60/kW) uniform across general category consumer slabs.

As fixed charges change with increase in consumption, it is likely that some consumers would be incentivised to indulge in meter tampering and other practices to reduce bills. To address this issue, residential fixed charges can be based on average of past years actual consumption for a reference year (say, FY19) rather than this year's consumption. This could be revised at the end of the control period. This would also result in recovery of appropriate revenue from fixed charges for consumers who might opt for net metering.

In addition, RERC should also direct DISCOMs to take adequate measures to reduce instances of meter tampering and meter splitting and should detail an action plan for the control period for the same to the Commission.

9.7 Re-design tariffs for commercial consumers using less than 300 units

Many small consumers, especially home-based commercial enterprises and small industrial units with a connected load less than 2 kW and monthly consumption less than 200 units are subject to significant harassment by DISCOM officials due to unauthorised use. In order to ensure affordable tariffs for these consumers and to promote productive activities in rural areas, it is suggested that:

- Small commercial, like small industrial consumers with connected load less than 5 kW and using less than 200 units per month are charged tariffs less than cost of supply.
- The tariffs can increase with increase in consumption based on consumption slabs such that consumption of more than 200 units can be charged tariffs such that the tariff design is revenue neutral.

10 Allowing aggregate/ virtual net metering for public institutions

In their petitions the DISCOMs mentioned poor revenue recovery from offices of public bodies. State or public entities which are consumers of the DISCOM such as government offices, offices of urban and local authorities, public auditoriums, public schools, hospitals and public water works often have poor collection efficiencies with significant delays in bill payment.

RERC and the DISCOMs can capitalise on the recent reduction in costs for rooftop solar systems and ensure that demand of these consumers is mostly met via PV systems with virtual net metering mechanism. With such a mechanism, these public bodies can obtain credits on their electricity bill for

photo-voltaic systems that are installed off-site and shared among multiple users. This will enable such consumers to obtain power at fixed rates. Further the DISCOM can report consumption to meet their RPO requirement. In addition, as the consumption is adjusted based on rooftop generation (a capital investment), revenue recovery from such consumers would not affect the DISCOMs collection efficiencies.

11 Measures to ensure accountability for quality of supply and service

It is vital to ensure that DISCOMs do not side-line commitment to affordable and reliable quality of supply and service in this period where financial resources are constrained and there is no increase in revenue sources. There have been reports regarding metering and billing issues, DT failure rates without any verification of the performance of the DISCOMs. Data provided by the DISCOMs for consumption slab-wise sales and revenue in Form 5.3 indicates significant variations and data discrepancies. For example, the average consumption of BPL consumers is close to 50 units whereas general category consumption up to 50 units is much less than 50 units. This could indicate issues with average billing. Similar discrepancies were also seen with connected load data.

With respect to meeting standards of performance for supply and service quality, SoP reports only capture the status once complaints are received but it is likely that with low awareness, the number of complaints is low.

Given these realities, it is crucial that:

- RERC commission a study to evaluate the supply and service quality of its DISCOMs. The study should also include results from a state-wide survey covering several metering and billing related parameters.
- The Commission should also direct the DISCOM to submit information on DT failure rate, number of instances of average billing, zero billing and the number of functional and non-functional meters for each category of consumers for each circle.
- Based on the study and evaluation of DISCOM data, data the Commission should conduct a public review to hold the DISCOM accountable for supply and service quality.
- Based on public comments and the results from the study, the Commission should issue appropriate directions to the DISCOM with clearly specified timelines for compliance and penalties for non-compliance.

It is hoped that the suggested approaches in this submission would help protect the interest of small consumers and increase performance accountability for DISCOMs while aiding the financially stressed DISCOMs navigate uncertainties with respect to sales migration and future planning.

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