



REGULATORY INSIGHTS



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Editorial

With the national setting its target at 500 GW of renewables by 2030, this translates to about 57 GW of annual renewable energy (RE) capacity addition. This would include contribution of the grid connected RE as well as behind the meter installations. The performance on target achievement has not been able to keep pace with the target, more so in the context of rooftop solar (RTS) installations, which have faced technical, operational, financial and institutional challenges.

Declining cost of grid connected has been a shot in the arm for growth in grid connected renewables boosted by reverse bidding as well as those through regulation feed-in-tariff. Slower offtake of the capacity bid out by the nodal agencies, SECI, by the discoms highlights primarily the operational concerns while the discoms have been lapping up large solar PV capacity so far, due to its economic attractiveness.

The RTSPV capacity addition has been a laggard in contributing to the nations RE growth story. The disconnect between the targets at one end, the financial, operational, technical and institutional challenges on the other end can explain the story of target shortfall. Limited attention to methodological approach to RPO target setting has been attributed as one of the key factors explaining the wedge between the targets and the compliance on the ground. In the context of behind the meter installations, wherein electricity consumers are the decision-makers,

Solar policies issued across states have often touted high targets for RTSPV installations without commensurate effort on the ground to address the above bottlenecks. In the absence of analysis of past slippages from the target shortfall, the future policies often box the similar initiatives under the solar policy. We have highlighted this policy gap in our earlier opinion as well.

PM Surya Ghar Yojya aims to address a number of gaps in the implementation strategy for the rooftop schemes. Given the scale of investment targeted, it is also important to ensure that the implementation is transparent at all stages, especially with respect to the performance of the implementing agencies and response to customer service and the performance of the roof top installations.

The scheme may add about 30 GW solar PV capacity. System operators and the discoms should have visibility of such capacity, in terms of generation as well as consumption thereof. This is crucial for the day-to-day scheduling of power and adequacy planning by the discom in the long run.

Implementing a large-scale scheme can inform similar initiatives across other ministries, enhancing outreach and effectiveness. By incorporating transparency and IT solutions like apps, we can boost consumer confidence and streamline experiences. This approach would also enable measurable outcomes in installations and actual electricity generation.

We are pleased to mention that many recommendations for improving implementation have been inculcated in the final document.

Anoop Singh (Editor)

Founder & Coordinator, Centre for Energy Regulation

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UK Government

Opinion on UERC (Terms and Conditions for Determination of Multi Year Tariff) Regulations, 2024 [Draft]



The UERC notified draft on “Terms and Conditions for Determination of Multi Year Tariff” Regulations, 2024. The control period of this regulation is for five years i.e. FY 2025-26 to 2029-30. The key highlights of the draft are mentioned below:

Objective: The Commission circulated the Multi Year Tariff (MYT) determination process to initiate discussion and solicit feedback from stakeholders. These regulation will cover the entire state of Uttarakhand and applicable to all new and existing generation companies, transmission licensees and distribution licensees. The document features new methodology for calculation of O&M expenses for all power entities involved in generation, transmission and distribution. A new regulation allows individual to claim insurance of the hydro power plant to be trued up based on past trends of expenses incurred due to events mentioned in terms and conditions of insurance contract.

CER Opinion

CER Regulatory Framework to Emphasise Efficiency linked Normative Cost Recovery: The regulatory approach for tariff determination for generation and transmission can generally be classified as normative cost of service approach as tariff depends on UERC norms for most of the operational and financial parameters. In the spirit of the EA, 2003, and Tariff Policy, the regulatory approach, while approving normative costs, should emphasize on **efficiency improvement** by the regulated entities both in terms of operational parameters as well as financial costs. **While the adopted approach allows for cost recovery based on norms, the norms themselves are based on actuals of the immediate preceding control period with an escalation rate¹.** The regulatory framework should also provide for continuous improvement in efficiency through better norms by **introducing an efficiency factor**. Operational efficiency norms must provide incentive for improvement for the generation companies as well as the transmission licensees.

CER Introducing Efficiency Factor for O&M expenses²: The prevailing approach for determination of norms for O&M expenses is essentially a 'lagged' approach to set the O&M cost benchmarks allowing for recovery of 'the actual' O&M expenditure after inflationary adjustment for the control period. In the spirit of encouraging efficient operation, it is suggested that an efficiency factor may be incorporated for arriving at the normative O&M cost for the subsequent year and so on. For the above purpose, a framework similar to RPI-X regulation is suggested to be implemented for treatment of O&M expenses as illustrated in the following Figure 1 to encourage efficient performance.

Thus, the O&M expenses for a project can be expressed as per the following equation

$$O\&M_t = O\&M_{t-1} * \left(1 + \frac{Price\ Index_t}{Price\ Index_{t-1}} - X_t^{O\&M}\right) \dots\dots\dots (1)$$

Where,

O&M: Normative Operation & Maintenance expenditure as approved by the Commission;

Price Index: Consumer Price Index for Industrial Workers;

X^{O&M}: Factor representing an annual target for efficiency improvement in O&M;

The choice of the price index may be based on a single index or a weighted composite index calculated on the basis of proportion of different cost sub-components of the O&M cost i.e. wages & salary (W&S), repair & maintenance (R&M) and administrative & general (A&G) expenses. The W&S component may be linked to the CPI (industrial worker), R&M to the WPI of electrical equipment or weighted sum of electrical equipment and machinery & equipment with the A&G expenses to be linked to the CPI applicable to white collar workers (CPI_{urban} & clerical workers).

To cite this article, please click  [Cite](#)

¹ Singh (2024) Comments on CERC's (Terms & Conditions for tariff),Regulations, 2024 [Draft] Regulatory Insights, Volume 6, Issue 4, Centre for Energy Regulation (CER), IIT Kanpur. https://cer.iitk.ac.in/newsletters/regulatory_insights/Volume06_Issue04.pdf

² CER's opinion on “Developing MYT Framework: Insights and Discussion on the Draft Regulations of Gujarat and Chhattisgarh” at 1st Regulatory Manthan. <https://cer.iitk.ac.in/RM/rm1>

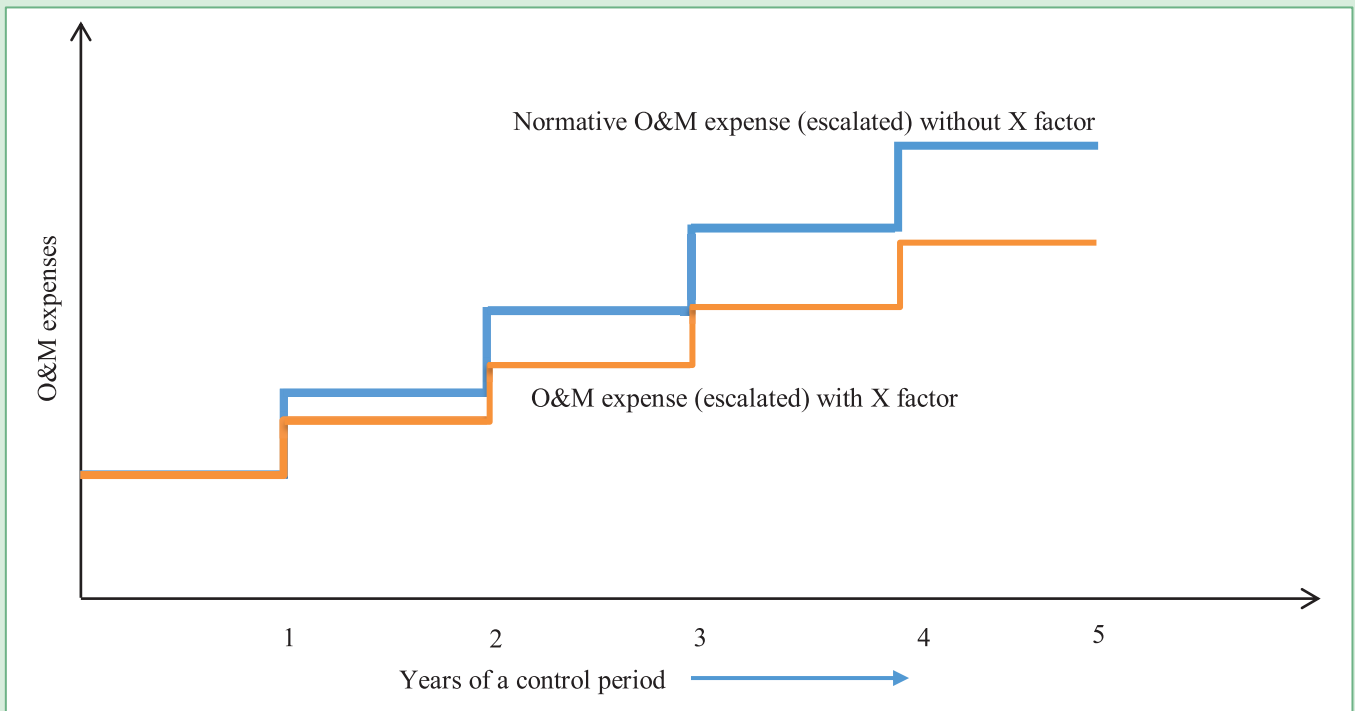


Figure 1: Representation of O&M expenses with efficiency factor "X"

Such a sub-component based application of price index could be feasible if costs under the respective heads can be apportioned reliably. This approach was earlier suggested by CER, IIT Kanpur and has been adopted by Gujarat Electricity Regulatory Commission in the draft GERC (Multi-Year Tariff) Regulations, 2023.

CER Determining the Efficiency “X” factor: Efficiency factor should be an integral part of the O&M cost approval process as the organisation is expected to optimise its cost of operation over time, while still providing for reasonable hedge from general price rise. Appropriate benchmarking studies such as Data Envelopment Analysis³, etc. may be conducted to set benchmark for efficiency improvement across individual 'controllable' cost parameters across the MYT control period.

CER Reduction of Equity Base Post Repayment of Loan: Return on any component of capital base, for example debt or equity is due only till the same hasn't been repaid for. For e.g., interest on debt is payable only on the amount of debt outstanding, which is reduced by the amount of depreciation year-on-year basis. Post repayment of debt, the depreciation amount is essentially 'returning' the equity capital. This amount is available for the equity holders at their disposal.

It is suggested that accumulated depreciation, over and above the accumulated debt repayment (including repayment towards normative loan), should be used to reduce the equity base for allowable RoE as a portion of the risk capital of the investor is available as free cash flow and is no longer deployed in normal business operations. In its absence, the consumer is charged RoE for a capital that has already been recouped through depreciation (beyond debt repayment). In case, such 'excess depreciation' is reinvested in the business, for example to finance working capital, this should attract the appropriate cost of funds as approved for such same.

The Figure 2 below illustrates the comparison between the prevailing modified GFA approach where only loan is reduced over time while, equity component, hence RoE remains constant throughout the life of the project vs the net fixed asset (NFA) approach where the depreciation beyond the repayment of loan reduces the equity base. The proposed regulatory approach for reduction of equity base should be integral part of the regulatory framework in the power sector, thus mitigating additional burden of tariff paid by the consumers.

³Singh, A., B Sharma, “DEA based approach to set energy efficiency target under PAT Framework: A case of Indian cement industry”, The Central European Review of Economics and Management 2 (1), 103-132.

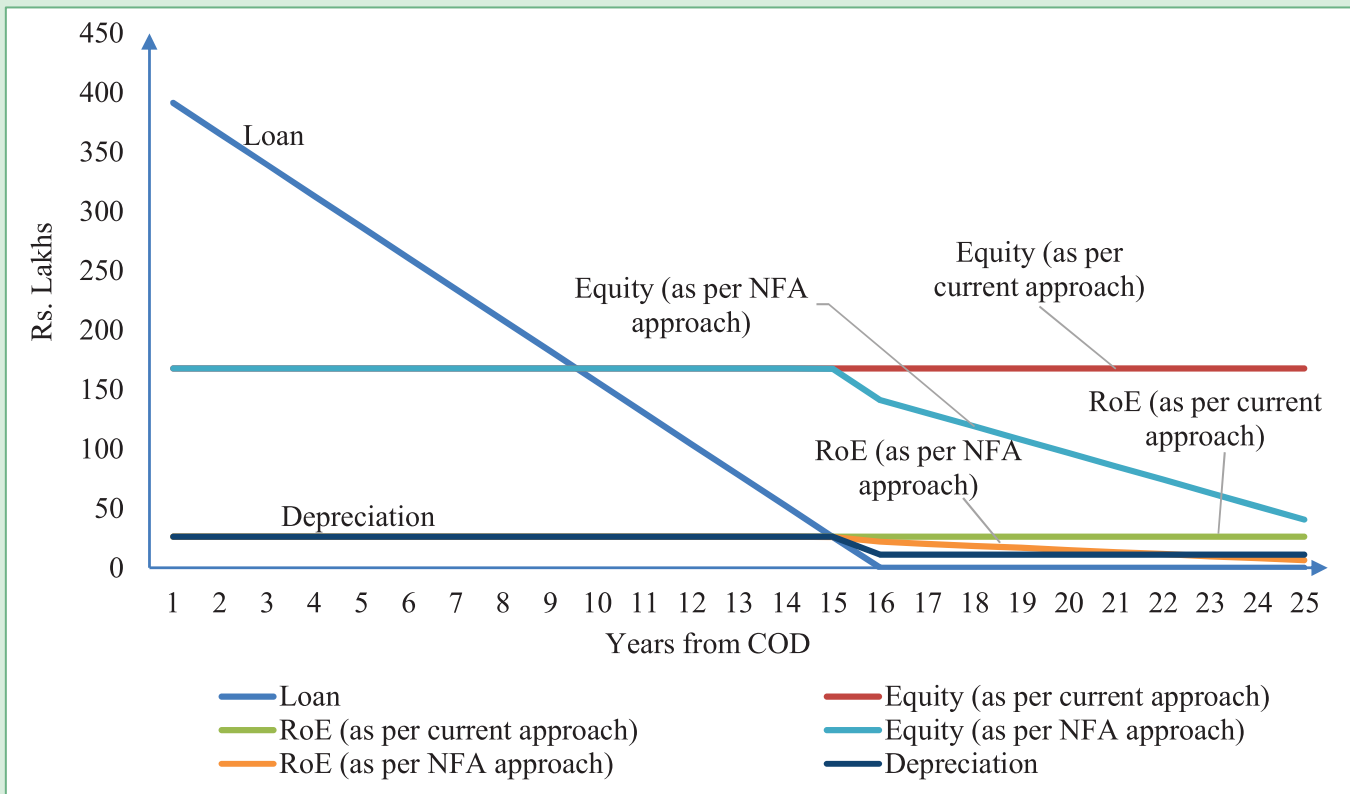


Figure 2: Modified GFA approach vs NFA approach

CER Payment in Capitalisation and Decapitalisation: In the proposed clause 22 (4) “Any addition/modification to the existing assets exceeding Rs. 2.50 Crore in case of distribution licensees, Rs. 5 Crore in case of generating companies and Rs. 10 Crore in case of transmission licensees shall be taken up only after prior approval of the Commission.”

Further clarification must be provided on above mentioned limit that it is mandatory for the entities to submit investment plan for approval along with true-up petition of relevant financial year, if such investment did not have prior approval (from Commission).

CER Fixing Return on Equity (RoE) for Generating Stations: Clause 26 (2) “Return on equity shall be computed on at the base rate of 15.5% for thermal generating stations, transmission licensee, SLDC and run of the river hydro generating station and at the base rate of 16.50% for the storage type hydro generating stations and run of river generating station with pondage and distribution licensee on a post-tax basis” (emphasis added).

Further the first proviso of 26 (2) states that “Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope excluding additional capitalization due to Change in Law, shall be computed at the base rate of one-year marginal cost of lending rate (MCLR) of the State Bank of India plus 350 basis points as on 1st April of the year, subject to a ceiling of 14%.” (emphasis added)

The Capital Asset Price Model (CAPM) approach used for calculation of cost of equity is a post-tax estimate. A study at CER, IIT Kanpur⁴ using CAPM and multifactor models using a comprehensive data for over 125 infrastructure companies estimates the cost of equity to be around 10% - 12.5% as shown in Figure 3 below which is lower than the regulated return of the sector.

⁴ Kewal Singh, Anoop Singh, Puneet Prakash, 2022, "Estimating the cost of equity for the regulated energy and infrastructure sectors in India" Utilities Policy, <http://dx.doi.org/10.1016/j.jup.2021.101327>

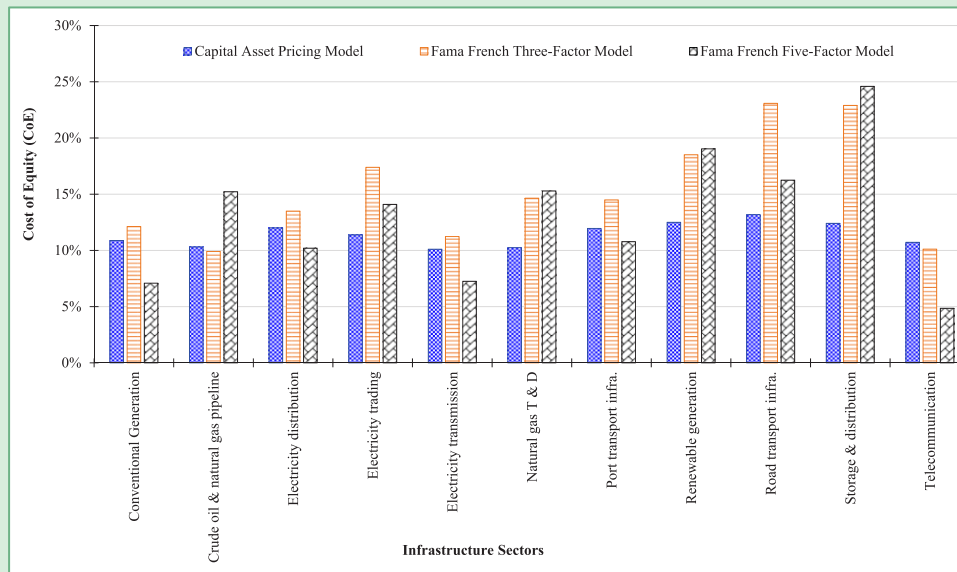


Figure 3: Cost of equity for different infrastructure sectors

The following Figure 4 shows the G-Sec 10-year bond yield over one-year horizon which averages around **7.14%** since July, 2023. The proposed RoE thus has a markup of 700-800 basis points above the yield on debt. Against the backdrop of the above discussion, the suggested RoE seems higher than expected by the market. Additional return for hydro may be justified due to additional risks faced by such projects. Due to significantly lower risk for transmission projects, RoE for transmission should be lower than that for generation. Reported RoE of major transmission companies in regulated business has hovered around 17.15% - 22.4% over the past three reported years. In comparison, reported RoE of regulated generation business hovers around 11.57% - 12.58% over the past three reported years⁵ (So: Standalone Annual Statements of the respective companies). The regulation should consider market signals and economic arguments while fixing RoE.

The Commission may consider lower rate of RoE for old plants across thermal as well as hydro sector, as well as for the transmission sector. However, given the extended construction period for hydro-electric plants, which does not provide 'return' on the invested equity during construction, the Commission may justify higher RoE for such plants including those with PSP. This would encourage new investment during the upcoming control period.

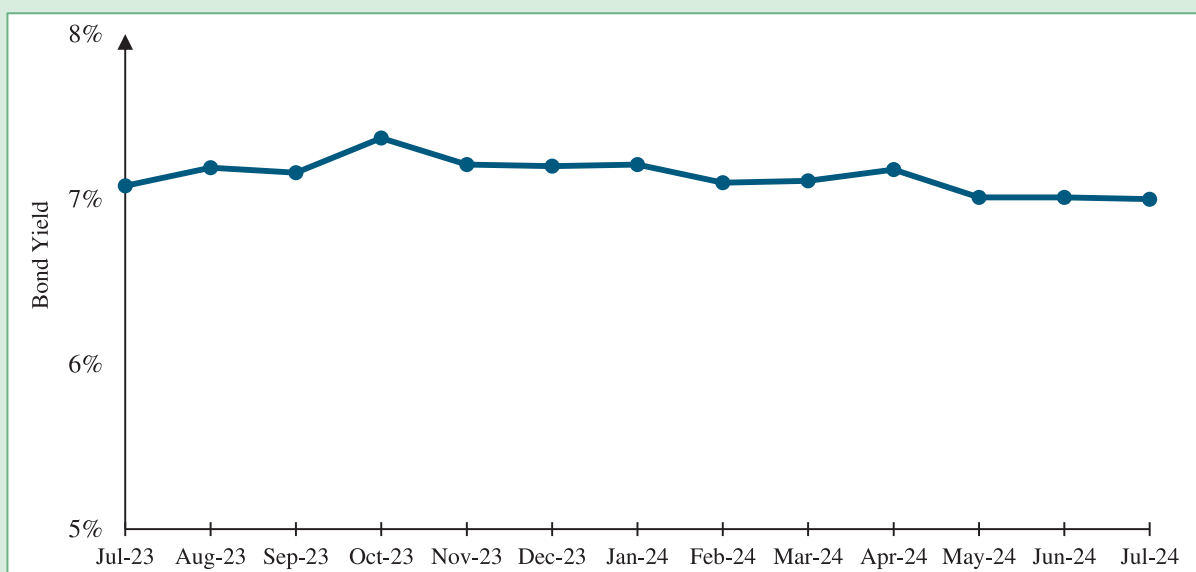


Figure 4: G-Sec 10-year Bond Yield over One year horizon

⁵ Singh, A., Comments on CERC's (Terms & Conditions for tariff) Regulations, 2024 [Draft] Regulatory Insights, Volume 6, Issue 4, Centre for Energy Regulation (CER), IIT Kanpur. https://cer.iitk.ac.in/newsletters/regulatory_insights/Volume06_Issue04.pdf

Methodology for Calculation of Escalation Rates: In the proposed clause 48 (1) methodology used for escalation of O&M cost for all the entities mentioned for tariff determination is shown in Figure 5 and the clause states that “O&M expenses determined shall be escalated for subsequent years to arrive at the O&M expenses for the Control Period by applying the Escalation factor (EF_k) for a particular year (K^{th} year) which shall be calculated using the following formula”

$$EF_k = 0.55 \times WPI_{inflation} + 0.45 \times CPI_{inflation}$$

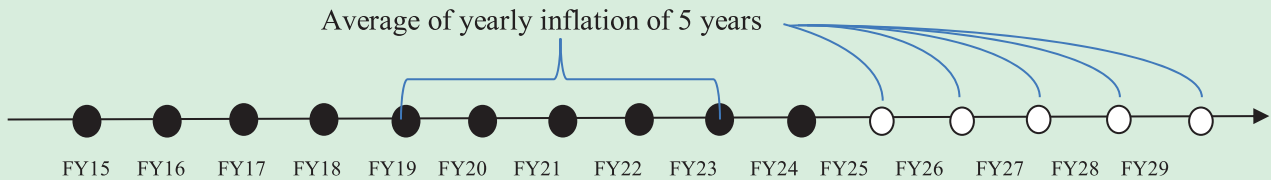


Figure 5: Calculation of escalation rate as per prevailing approach

The prevailing approach for the estimation of the escalation rate for each year of the control period 2025-30 is as shown in the Figure 5 below. It is suggested that instead of taking the average of the escalation rates for the last 3 years for CPI and WPI respectively as per the existing approach, **the Compound Annual Growth Rate (CAGR) of the indices** may be used as it is a mathematically correct representation of the same, as illustrated in the example in Table 1 below.

Table 1: Index Calculation – Normal Average vs CAGR

Index	Growth Rate	CAGR	Recalculated values using	
			Average Gr.	CAGR
100		7.71%	100	100
105	5.00%		107.74	107.71
116	10.48%		113.12	113.10
125	7.76%		124.97	124.94
Average/CAGR	7.74%	7.71%		

CER's Approach: To address the same, it is recommended to use the **3-year moving average escalation rate with the latest year having a weightage of 50%, mid-year having the weightage of 30% and oldest year having the weightage of 20%**. The same has been demonstrated in the Figure 6 below.

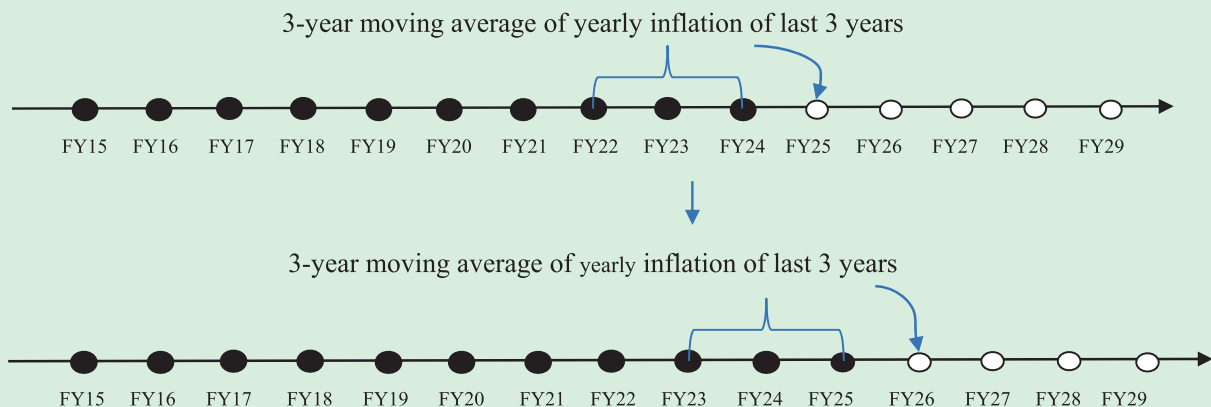


Figure 6: CER's approach for calculation of escalation rate- 3-year rolling average method

For calculation of the escalation rate for $(n+1)^{th}$ year, the weights given to escalation rates of CPI and WPI for n^{th} year, $(n-1)^{th}$ year, and $(n-2)^{th}$ year may be used in proportion of 50%, 30% and 20% respectively. These indices are to be calculated on rolling basis for each year (see Figure 6). Further, the CPI and WPI can be used in the ratio of 60:40 for escalating the O&M expenses as per the following formula:

$$ESC_t = (0.6 * ((0.5 * ESC_{(CPI)t-1} + (0.3 * ESC_{(CPI)t-2}) + (0.2 * ESC_{(CPI)t-3}))) + (0.4 * ((0.5 * ESC_{(WPI)t-1} + (0.3 * ESC_{(WPI)t-2}) + (0.2 * ESC_{(WPI)t-3}))) \dots\dots\dots (2)$$

Where,

ESC_t = Escalation rate for t^{th} year ;

$ESC_{(CPI)t-1}$ = Escalation rate of CPI for $(t-1)^{\text{th}}$ year ;

$ESC_{(WPI)t-1}$ = Escalation rate of WPI for $(t-1)^{\text{th}}$ year ;

CER Implication of Force Majeure on Insurance: In the proposed clause 48 (2) (f) *“In case of multi-purpose hydroelectric stations, with irrigation, flood control and power components, the O&M expenses chargeable to power component of the station only shall be considered for determination of tariff.”*

Provided that in case of hydro generating stations the generating station shall submit the assessment of the security requirement and insurance expenses along with its estimated expenses, which shall be tried up in the respective tariff Orders based on the past trends of year-wise actual insurance and security expenses incurred with appropriate justification or in the manner the Commission finds the same fit.”

The insurance cost may not follow a trend as it may depend on various factors including the risk perception, reinsurance cost etc. The regulation may provide for use of best available market rate as a benchmark for insurance cost. This would motivate the entities to engage in meaningful bargain to arrive at a least cost insurance option for the identified risk coverage. Furthermore, these costs are to subject to true-up later. In case of private security hire, competitive tendering should be mandated to ensure competitive cost.

In case of any Force Majeure event or an event covered under prevailing insurance policy of the identified assets, the expenditure/ investment required to make good of that asset must first be recovered through such insurance payment. Any expense/investment over and above the insurance cover should be subject to Commission's approval.

CER Energy Charge Rate (ECR) for Excess Energy: In the proposed clause 50 (7) *“In case the Energy Charge Rate (ECR) for a hydro generating station, as computed above, exceeds **ninety paise** per kWh, and the actual saleable energy in a year exceeds $\{ DE \times (100 - AUX) \times (100 - FEHS) / 10000 \}$ MWh, the Energy Charge for the energy in excess of the above shall be billed at **one hundred thirty paise** per kWh only:” (emphasis added).*

Based on the observation made from above regulation, it can be inferred that the excess energy produced will be paid at Rs. 1.3/ kWh in case of the original ECR being higher than Rs. 0.9/ kWh. It is important to note that 'all' of the approved cost of the hydro power plant is fully recoverable through fixed charges and ECR for the available (design) energy. The excess energy generated is a bonus as any amount payable for the same would lead to over recovery beyond the approved costs. The regulation seems to go beyond that and suggest higher price for excess energy than that approved as ECR. It is notable that in case of variable renewable energy plants, energy produced beyond the CUF is generally paid at the half of the approved levelised tariff. The identified anomaly needs to be addressed. The above clause also does not provide for cases with ECR is up to ninety paise per kWh. Furthermore, the following proviso also lacks clarity about its applicability.

Modified clause 50 (7) is suggested below,

*“In case the Energy Charge Rate (ECR) for a hydro generating station, as computed above, exceeds **ninety paise** per kWh, and the actual saleable energy in a year exceeds $\{ DE \times (100 - AUX) \times (100 - FEHS) / 10000 \}$ MWh, the Energy Charge for the energy in excess of the above shall be billed at **ninety paise** per kWh only:” (change suggested).*

*“Provided that in a year following a year in which total energy generated was less than the design energy for reasons beyond the control of the Generating Company, the Energy Charge Rate shall be reduced to ninety paise per kWh for **any excess energy** after the energy charge shortfall of the previous year has been made up.” (addition suggested)*

CER Resource Adequacy Planning: Clause 8 (c) (iii) *“Power procurement plan in case of long term, medium term and short term based on the sales forecast and distribution loss trajectory for each year of the business plan period;”.*

After issuance of guidelines by CEA Guidelines on Resource Adequacy Planning (RAP) framework for India, many SERCs have either issued the RAP regulations or published draft regulation for stakeholders to provide suggestions. Based on experience of CER and EAL in carrying out Long-term Demand Forecasting and Power Procurement Planning for the states of Uttar Pradesh and Chhattisgarh, we reinforce the need for a robust regulatory framework for the same. From these studies, it was inferred that significant economic benefits in terms of reduced private and social costs are possible through RAP⁶.

⁶ Singh et al. (2019), Regulatory Framework for Long-Term Demand Forecasting and Power Procurement Planning, Centre for Energy Regulation (CER), IIT Kanpur, (Book ISBN:978-93-5321-969-7); https://cer.iitk.ac.in/assets/downloads/CER_Monograph.pdf

CER Smart meters Based Monitoring of RTS through Stratified Sampling: Increasing behind-the-meter installations presents a significant challenge for demand forecasting by Discoms. In the absence of data on electricity generation from the behind-the-meter Rooftop solar (RTS) installation and consumption thereof, the forecasting models would face very serious challenge to forecast both short-term as well as long-term electricity demand. Apart from this, it would also be challenging to estimate green energy generation and consumption for accounting towards Renewable Purchase Obligation (RPO) of the distribution licensees as well as estimation of contribution to India's climate policy commitments of reducing emission intensity.

It is suggested that **stratified sampling** based remote metering of RTS to monitor generation and consumption thereof on real-time basis be implemented across the state. Adding a sampling-based monitoring system (through smart meters) would enhance the visibility to the distribution licensees, the system operation as well as regulators and policy makers. Use of stratified sampling across feeders/ DTs geographically spread across different agro-climatic areas would enhance reliability of data.

The stratified sampling-based data collection rate may be set, say, at least 1-2% of small-scale projects ranging from 1 kW to 3 kW, 2-3 % for 3-5 kW and 5% for 5 kW and above. It is also important to ensure that such data is archived and be accessible to the Discoms and SLDCs. Such data should also be access to academic/research institutions to enable research assisting better forecast of solar generation as well as electricity demand. Appropriate forecasting tools would be able to incorporate the available data in ST as well as LT demand forecasting for the distribution licensee.

CER Accounting of RE Procurement from RTS Installations: The proposed clause 72 of the draft regulations provides guidelines for distribution licensee to procure power in long-term, medium-term and short-term durations. The power procurement details of such transactions are provided in tariff filing. Data on power procured/ received from net metering/gross metering/ net billing/ government schemes remains elusive and be included in the reported power procurement. This would also provide for transparent accounting and compliance of RPO.

CER Additional Short-term Power Procurement: In the clause 75 (2) *“Provided that if the total power purchase cost or quantum for any block of six months including such short-term power procurement exceeds 105% of the power purchase cost or quantum as approved by the Commission for the respective block of six months, the Distribution Licensee shall have to obtain prior approval of the Commission;*

The proviso can be changed to provide better clarification *“Provided that if the **projected** power purchase cost or quantum for any block of six months **on rolling basis** including such short-term power procurement exceeds 105% of the power purchase cost or quantum, **respectively**, as approved by the Commission for the respective block of six months, the Distribution Licensee shall have to obtain prior approval of the Commission;*

CER Optimisation of Short-term Power Purchase: As per draft clause 75 (3), the distribution licensee is permitted to procure short-term power at a price lower than the **Commission approved cost of electricity. It is recommended that the Commission obligates the distribution licensee to demonstrate cost reduction achieved through such optimisation of short-term power procurement.** This would enhance transparency and accountability of distribution licensee.

CER RPO Compliance and Power Procurement: The power procurement plan of the distribution licensee should account for the RPO target trajectory. To enable the Commission to incorporate the impact of RE procurement on power purchase cost, it is suggested that the Commission should direct the distribution licensee and other obligated entities to provide following annual data for the same. This would also ensure effective monitoring of RPO compliance by the distribution licensee.

Table 3: RPO compliance format (Year - _____)

Sr. No.	Name of Obligated Entities			
1	Source/ Category-wise			
2	Total Energy Consumption (MU)			
3	Total RPO Target (%)			
4	Previous year RPO (Total Shortfall/ Surplus) (%)			

5	Source of RE Energy	Electricity Generation/ Procurement (MU)	Target Achieved (%)	Shortfall/ Surplus (%)
6	RE Power (PPA)			
7	PXs (GTAM, GDAM)			
8	REC			
9	RTS on-grid/ off-grid			
10	Accounting for excess RE energy consumed by the Obligated entities#			
11	Others (if any)			

Note: # - beyond the applicable RPO

Opinion on DERC (Renewable Purchase Obligation and Renewable Energy Certificate Framework Implementation) Regulations, 2024 [Draft]



DERC notified draft on “Renewable Purchase Obligation and Renewable Energy Certificate Framework Implementation” Regulations, 2024 on 10th June, 2024. The key highlights of the draft are mentioned below:

Objective: The draft Regulation for implementing RPO and Renewable Energy Certificate (REC) frameworks in the National Capital Territory of Delhi. It mandates that dicoms, captive & open access consumers meet specific RPO obligations, with targets varying yearly for different RE sources, including wind and hydro power. The draft defines key terms such as, set compliance mechanisms and outline penalties for non-compliance. The framework aims to ensure that a portion of electricity consumption in Delhi is met through RE sources, promoting sustainability and energy diversification in the region.

CER Opinion


CER Capacity Constraints for Increased Consumer Load: Clause 5 (2) (a) – “Own Generation from renewable energy sources. –There shall not be any capacity limit for installation of power plants from renewable energy sources, by entities for their **own** consumption and such plants may be set up at any location in India and power shall be transmitted by using open access: Provided that the generating plant may be set up by the entity itself or by a developer with which the entity enters into a power purchase agreement.” (emphasis added)

The proposed clause does not account for potential capacity constraints of the supporting infrastructure. A consumer who intends to consume higher than the Sanction load, the feeder or the distribution transformer may have a capacity limitation to handle this additional energy procured. A proviso may be added to subject the same to the limit due to system constraints, particularly those at the distribution network level.

While the above clause specifies no capacity limit for installation of RE power plants for own consumption, clarity with respect to plants with shared capacity by consumers within the area of a distribution licensee or multiple distribution licensees in the state. A consumer may have multiple locations across different license areas in the state of Delhi, and thus should have flexibility of setting up a shared generation capacity or enter into a PPA for the same.

The above clause should also permit setting up of a generating unit owned by a group of consumers within or across different distribution licensees within the state.

CER Green Energy Supply to Consumers: Clause 5 (2) (c) (i) – “Any consumer may elect to purchase green energy either up to a certain percentage of the consumption or its entire consumption and they may place a requisition for this with their distribution licensee, which shall procure such quantity of green energy and supply it and the consumer shall have the flexibility to give separate requisition for **solar and non-solar;**” (emphasis added)

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The percentage of green energy desired by a consumer should be beyond the RPO target for the distribution licensees. Any premium payable, if any, for such green energy supplied to the consumers should be applicable only on the energy supplied over and above the RPO equivalent energy consumed by the consumer.

How would the licensee provide proof of incremental green energy procurement to meet this requirement by consumers? The licenses may, without any additional green energy procurement, may deem the green energy to be supplied to the consumer from its obligated green energy procurement. Such a mechanism would lack accountability and would make consumer pay a premium for green energy procurement beyond the RPO of the state.

The non-solar and solar classifications are no longer applicable in the context of RPO. Either the RE energy supply can be irrespective of the RE source or it should be mapped to the applicable RPO categorization (Wind, Others, DER etc.).

CER Consumers' Right to Green Attributes for Voluntary/Excess Green Energy Purchase: Clause 5 (2) (c) (vi) – *“The green energy purchased from distribution licensee or from Renewable Energy sources other than distribution licensee in excess of Renewable Purchase Obligation of obligated entity shall be counted towards Renewable Purchase Obligation compliance of the distribution licensee.”*

The voluntary purchase of green energy by a consumer gives right to that consumer to the green attributes associated with such excess green energy consumed. The consumer bears the cost of this additional green attributes by payment of a premium. The consumer may need this right to demonstrate greenness of its production process (for example for export purposes). **The property rights associated with such additional green energy purchase should lie with the consumers paying for it. This should thus not be accounted towards the RPO of the distribution licensee.**

CER Green Energy Rating for Consumers: Clause 7 (Vii) – *“the Distribution Licensee shall categories consumers on different rating, based on the percent of green energy purchased by such consumers.”*

The categorization should be based on the proportion of green energy in the consumer's overall **green energy mix (including both that on account of RPO and voluntary purchase of green energy)**, rather than the voluntary purchase of green energy purchased. Such a standardised approach across the country would provide a uniform index to classify consumers based on overall share of green energy procured. **Any premium applicable would be applicable for the voluntary green energy purchase beyond the RPO.**

The above suggested approach would ensure that all consumers would be rated for the green energy purchase on account of RPO compliance, with each consumer having a minimum green rating. This would also enhance transparency for RPO compliance for the distribution utilities.

CER RPO Compliance Rating for Obligated Entities: A rating/grading mechanism to highlight the degree of compliance with of RPO by the obligated entities should be introduced. This rating would account for degree of compliance vis a vis the RPO target for the respective year as suggested below,

Table 3: Compliance Rating

Rating	A+	A -	B+	B -	C+	C -	D+	D -	
Level of RPO compliance	More than 98%	95-98%	90-95%	85-90%	80-85%	75-80%	70-75%	65-70%	Below 65%

The obligated entities should be required to furnish RPO compliance data on a quarterly basis to the Commission along with a plan to achieve the target and address any shortfall from previous quarters. Following data format is suggested for the same.

Table 4: RPO Compliance Data format

S No.	Obligated Entity	Total energy consumption	Total RPO target	RE Power (PPA)	PXs (GTAM, GDAM)	REC	DER/ Rooftop/ off-grid	Target Achieved (%)	Shortfall/ Surplus (%)	Shortfall/ surplus (MUs)
Q1										
Q2										

CER RPO Compliance Portal: To facilitate collection of information for RPO compliance, we recommend creation of a login-based portal where all obligated entities can report RPO achievements on a monthly/quarterly basis. Supporting data/document can also be uploaded on the portal. The data reported by the SLDC and the Distribution licensee for the other obligated entities can be used for cross verification purpose.

Post verification, the portal should publicly share the quarterly RPO compliance as well as the assigned compliance rating (suggested above) on the portal for public information and dissemination.

CER SNA Charges: Clause 8 (iv) *The Commission may fix the remuneration and charges payable to the State Nodal Agency for discharge of its functions and the same shall be recovered from the accredited entities and the Obligated Entities other than Distribution Licensees.*

Applicability of these regulations are in the context of RPO and RE framework. The above clause can this be modified as *“The Commission may fix the remuneration and charges payable to the State Nodal Agency for discharge of its functions **specified herein** and the same shall be recovered from the accredited entities and the Obligated Entities other than Distribution Licensees.”(emphasis added)*

CER Handover Process and Data Transfer for New State Nodal Agency: Clause 8 (v) – *“If the Commission is satisfied that the State Nodal Agency is not able to discharge its functions satisfactorily, it may by an Order, and after recording reasons in writing, designate another agency to function as State Nodal Agency, as it considers appropriate.”*

If there is any case where the Commission designates a new agency to function as the State Nodal Agency due to the unsatisfactory performance of the previous agency, the process of handing should be clearly laid out. This should include transferring all relevant data and documents to the new agency to ensure a smooth transition.

CER REC-Based Penalty for RPO Shortfall: Clause 13 – *“Provided that Distribution Licensee shall be subjected to reduction in Annual Revenue Requirement at a rate of Rs 0.10 per kWh for cumulative shortfall in total RE procurement target for each year; Provided further that other Obligated Entities shall be subjected to penalty of Rs. 0.10 per kWh for cumulative shortfall in total RE procurement target for each year.”*

To ensure that appropriate economic signals are passed on to the obligated entities, penalty for RPO shortfall should be linked to price of REC. This would ensure that the obligated entities are incentivized to purchase RECs. The penalty rate should be set little higher than the prevailing REC prices to effectively encourage RPO compliance with.

CER Guarantee of Origin for Energy used in Green Hydrogen and Ammonia Production: Clause 5 (2) (F) – *“Purchase of green hydrogen or green ammonia; -the obligated entity can also meet their Renewable Purchase Obligation by **purchasing** green hydrogen or green ammonia and the quantum of such green hydrogen or green ammonia would be computed by considering the equivalence to the green hydrogen or green ammonia produced from one MWh of electricity from the renewable sources or its multiples and norms in this regard shall be notified by the Central Commission.”*

Ensure the authenticity of the energy source used for the green hydrogen or green ammonia, a mechanism to verify guarantee of origin must be established. Such credit should be for utilization of green hydrogen or green ammonia rather than its purchase. The mechanism should also verify the production, purchase and utilization of green hydrogen or green ammonia by obligated entities for them to be eligible for RPO compliance. The current REC mechanism⁷ could be utilized to certify these processes. Relevant procedures, protocols, and an accounting framework need to be outlined for the same under the appropriate Central Electricity Regulatory Commission (CERC) regulations.

Opinion on DERC (Terms and Conditions for Green Energy Open Access) Regulations, 2024 [Draft]



DERC notified draft on “Terms and Conditions for Green Energy Open Access” Regulations, 2024 [Draft] on 10th June, 2024. The key highlights of the draft are mentioned below,

Objective: The objective of these Regulations is to provide non-discriminatory Open Access for Green Energy (Renewable Energy) for use of Intra-State Transmission System(s) (InSTS) and/or Distribution System(s) of licensee(s) in

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⁷ Anoop Singh (2009), “A market for renewable energy credits in the Indian power sector”, Renewable and Sustainable Energy Reviews 13 (3), 643-652. <https://www.researchgate.net/profile/AnoopSingh-28>

Anoop Singh (2011), “Directions for Effective Regulation for Renewable Energy: An Analysis of Renewable Energy Certificates”, India Energy Security Summit: Energy Security for a sustainable future, IPPAI. <http://dx.doi.org/10.2139/ssrn.3440341>

Anoop Singh (2010), “Economics, Regulation, and Implementation Strategy for Renewable Energy Certificates in India”, India Infrastructure Report 2010, Oxford Univ. Press. <https://ssrn.com/abstract=3440253>

State including Intra-State Transmission or Distribution System(s), which are incidental to Inter-State Transmission of electricity, for grant of open access, methodology for the determination of Open Access Charges and Banking Charges etc. for Green Energy Open Access consumers.

CER Opinion

CER Green Energy Open Access (GEOA): GEOA is aimed at enhancing share of green energy in the power sector for the obligated entities as well for the final consumers. Our comments on “MoP Draft Electricity (Promoting Renewable Energy through Green Energy Open Access) Rules, 2021”⁸ provides insights to improving efficacy of the same. In the submitted comments, we emphasized on promotion of Green Energy via banking of green energy, cross subsidy surcharges and green Certificates⁹.

CER Treatment of Shortfalls in Energy Banking: The draft clause 9 (iii) states, “*the permitted quantum of banked energy by the green energy open access consumers shall be at least 30% of total consumption of electricity from the distribution licensee by the consumers during the billing period*”.

GEOA consumers may encounter shortfall in banked energy (up to 30% of consumption) due to disruptions at generation side and constraint/ limit on load end by DISCOM. Some of these causes may be beyond the control of the GEOA consumers. This provision would have difficulty in implementation and may lead to disputes thereof. Let us consider a scenario wherein a consumer may be able to 'bank' only 28% of its consumption during a billing cycle thus falling short of the eligibility criteria. What would be the treatment of 28% 'unbanked' energy fed into the intra-state grid as this is not going to qualify banking criteria? Will be considered as deviation from schedule? Since energy accounting and settlement is undertaken on a weekly basis, how would the energy accounting and settlement be reworked once the month has passed and the 'excess' energy injected is not considered as banked energy.

Will there be a mechanism to compensate or return this 'unbanked' energy? We suggest a solution wherein the energy injected, with a priori approval/agreement for banking, would be treated as banked energy if it is at least 5-10% of the energy consumption from the distribution licensee. Based on the 'percentage compliance' with reference to the eligibility target, banking charges may be differentiated. For e.g., in case of banked energy reaching 25-30% the usual banking charges may apply. In case of banking being within a range of 20-25%, 10% higher banking charges may apply and so on.

Additionally, clarification is required as to the basis of calculation of the above percentage. Will it be based on the scheduled injection (for banking) or the actual injection?

CER Digitalisation and Green Energy Open Access Status and Web Portal for the Surplus Availability: It is suggested that Nodal Agency shall develop a web portal providing details of the application process as well as the status of the grant of GEOA and quantum thereof for easy access. This info should be archive and accessible in public domain for greater transparency.

Furthermore, availability of the surplus capacity (across time blocks) should be made available in advance at least on a day ahead basis as well as on a real time basis at scheduling webpage of the SLDC.

Furthermore, to better manage and monitor power usage, it is advisable share information on utilization of GEOA to avoid any hoarding of the access rights.

a. Definition of Peak, Off-Peak and Normal Hour: As per the draft clause 15 (6) (d), “*The withdrawal of banked energy shall be allowed on a slot to slot basis during the financial year only as per the following system,*

- a) *Peak hour banking with peak hour withdrawal;*
- b) *Peak hour banking with Off peak hour withdrawal; and*
- c) *Off peak hour banking with Off peak hour withdrawal;*

Provided that the withdrawal of power in peak hours shall not be allowed against power banked in Off peak hours.”

Neither the draft document nor does state grid code define the peak and off-peak hours. However, peak, off-peak and normal hour are defined in the Tariff Order in the context of the ToD tariff. The definition of the above-mentioned hours should be clarified upfront. Apart from peak and off-peak hours, treatment of banked energy during the normal hours remains undefined in the clause.

⁸ CER comments on “MOP Draft Electricity (Promoting Renewable Energy through Green Energy Open Access) Rules, 2021.”
https://cer.iitk.ac.in/blog/new_blog/?id=ODgx

⁹ Singh A. 2009. A market for renewable energy credits in the Indian power sector, *Renewable and Sustainable Energy Reviews*; 13(3): 643-652.
<https://doi.org/10.1016/j.rser.2007.10.011>

CER Mechanism for Guarantee of Origin: GEOA needs a robust mechanism to ensure the origin of the energy used for the generation of green hydrogen or green ammonia is verifiable unambiguously. We have suggested use of the REC mechanism for the same in similar context earlier as well.

The existing REC registry could be empowered to certify the origin of the energy used and the purchase and use of green hydrogen or green ammonia. This approach leverages the existing institutional structure and processes of the REC registry, making the process more efficient.

- a. **Verification of Purchase and Use:** A reliable mechanism is required to verify the purchase and use of green hydrogen or green ammonia by the obligated entity. This verification is crucial for accurately accounting these purchases towards meeting the RPO.
- b. **Variation in Renewable Energy Generation:** Considering the variability of renewable energy sources like solar and wind, it may not be feasible for the green energy purchases to pre-specify a quantum of green energy that would be procured during the upcoming year. Therefore, appropriate provisions to address variations in generation should be included. It is recommended to allow a 10-15% variation (or a suitable percentage as deemed fit by the Commission) in the quantum of green energy procurement.
- c. **Exceptions for Force Majeure and Transmission Curtailments:** Beyond the suggested variation, exceptions should be included for force majeure conditions and curtailment of transmission capacity at both inter-state and intra-state levels. These exceptions will provide necessary flexibility and security for consumers and suppliers alike.
- d. **Provision for Part Surrender of Load and Reduction in the Need for Green Energy:** The regulation may allow consumers to partially or fully surrender their load. Such a reduction in load should correspondingly translate into a proportionate reduction in both the quantum of energy to be procured from RE and the duration of GEOA. This flexibility will accommodate changes in consumer's demand.

Opinion on OERC (Procurement of Energy from Renewable Sources and its Compliance) Regulations, 2024 [Draft]



OERC notified draft on “Procurement of Energy from Renewable Sources and its Compliance” Regulations, 2024 on 13th August 2024. The key highlights of the draft are mentioned below,

Objective: The draft regulation provides a framework for renewable energy procurement in Odisha. These regulations apply to all “**Obligated Entities**,” including distribution licensees and consumers with captive generating plants of 1 MW or more. Obligated Entities must meet their RPO through methods such as self-generation, open access procurement, and acquiring RECs. A specified percentage of total electricity consumption must come from renewable sources, increasing from 29.91% in 2024-25 to 43.33% by 2029-30. Compliance will be monitored by a designated State Nodal Agency, which will oversee reporting and publish compliance status.

CER Opinion

CER Definition of any other entity: Clause 3 (1) (a) – “*Distribution licensee or any other entity procuring power on their behalf.*” (emphasis added)

Section 86 (1) (e) of the Electricity Act, 2003 obligates that certain percentage of the consumption of electricity should be met from renewable energy sources. This includes the distribution licensees, the captive consumers and the open access consumers. An entity procuring power on behalf of a distribution licensee, e.g., a trader or a holding company or a nodal agency, cannot be obligated under the same. This would also raise an accounting issue for RPO compliance as the power supplied by a 'trading licensee' as well as that consumed by a distribution licensee would lead to double counting of consumption and hence the RPO.

Furthermore, in case of non-compliance of RPO by a distribution licensee or its procuring agency, who would be responsible for compliance and could be penalised for non-compliance?

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CER **Need to Separate RPO and RGO:** Clause (3) (1) (c) – “Coal / lignite – based thermal generating station and having the Commercial Operating Date (COD) on or after 1st April 2023.”

The Draft regulation includes coal and lignite-based thermal generating stations in the definition of obligated entity. However, it is recommended that these entities should not encompass such generators.

To enhance clarity and regulatory efficiency, it is advisable to create two distinct obligations: the RPO and the Renewable Generation Obligations (RGO). This separation would help streamline compliance and reporting processes for the obligated entities. By delineating these obligations, stakeholders can better understand their specific requirements and facilitate a smoother transition towards renewable energy targets.

Specification of RPO as well as RGO (for thermal generators) may also lead to double counting as the renewable power generated by a thermal generator would help it meet its obligation, and the same renewable power is also accounted towards the obligation of the distribution licensee.

CER **GRIDCO as a Distribution Licensee?:** The draft regulation clause 4, suggests that green energy can be procured by a consumer either from a distribution licensee or GRIDCO. This essentially bestows electricity distribution rights to GRIDCO, whereas its license conditions do not specify so and would not be in accordance with the provisions of the Electricity Act, 2003 as well as the license conditions laid down by OERC.

It appears from the figure that, if GRIDCO is deemed the obligated entity, any penalties arising from RPO shortfalls by DISCOMs would be applied to GRIDCO. This creates a significant area of uncertainty, as it raises the possibility of GRIDCO being held accountable for the same shortfall that DISCOMs are responsible for. As a result, this could lead to the risk of double counting when it comes to RPO compliance.

Furthermore, this lack of clarity in the allocation of responsibility between GRIDCO and DISCOMs not only complicates compliance tracking but may also distort the overall accountability framework for renewable energy obligations. It is crucial to address this issue to ensure that there is no overlap or misinterpretation in the enforcement of RPO penalties, and that each entity is held responsible for its respective obligation.

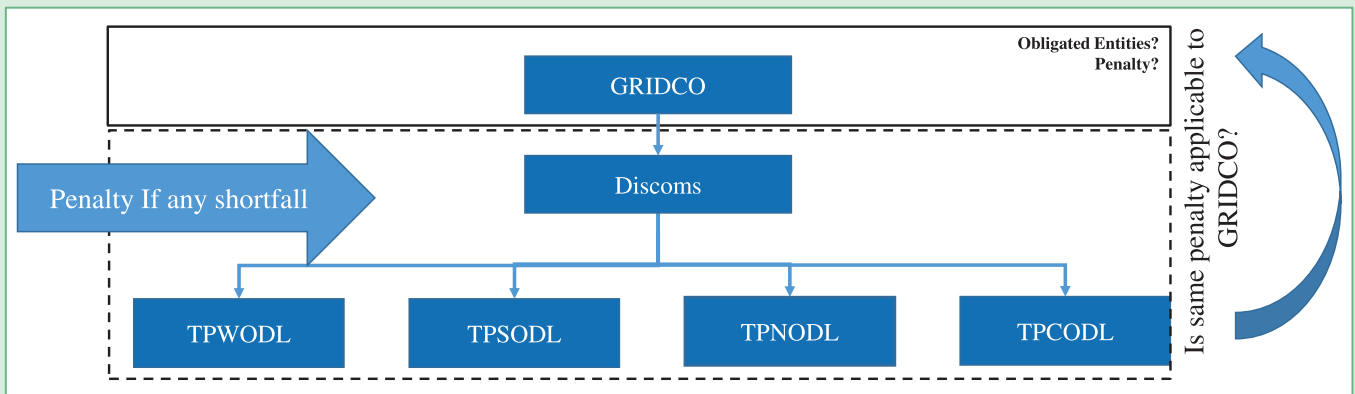


Figure 7: Representation of Obligated entities and their compliance?

CER **Shared RE Capacity, and RE Capacity Owned by a Group of Obligated Entities:** Clause 4 (1) (a) – “Own Generation set up at any location in India from Renewable Energy Sources for **own** consumption. Provided that the generating plant may be set up by the entity itself or by a developer with which the entity enters into a Power Purchase Agreement (PPA).” (emphasis added)

While the current clause does not specify a capacity limit for self-consumption renewable energy plants, there is a need for clarity regarding plants with shared capacity among consumers within the same distribution licensee or across multiple licensees. Such generating assets may be owned by consumers belonging to the same business group but located in different license areas of the state. A generating unit may be owned by a group of (different) consumers, either within or across different distribution licensees within the state.

CER **Definition of Consumers:** Clause 4 (1) (c) (i) – “**Any consumer** may elect to purchase Renewable Energy either upto a consumption or its entire consumption and may place requisition for this with their Distribution licensee/GRIDCO, which will procure such quantum of Renewable Energy over and above **their** obligation and supply it.” (emphasis added)

According to the Electricity Act, 2003 the obligated entities include distribution licensees, open access consumers, and captive consumers. The draft seems to imply that all consumers are obligated entities, which is misleading.

To ensure clarity, it is important to explicitly state that the obligations lie with specific categories of consumers, particularly open access and captive consumers, rather than with all consumers broadly. This distinction is vital for defining accountability and compliance within the regulatory framework, helping to prevent misunderstandings regarding who bears the responsibility for meeting RPO targets.

CER Quantum of Green Energy: Clause 4 (1) (c) (iv) and (v) – “*Any requisition for procurement of Green Energy from a distribution licensee / GRIDCO shall be for a **minimum period of one year.***” (emphasis added)

“The quantum of Green Energy shall be pre-specified for at least one year.”

The provision outlined above may discourage green energy open access consumers from pursuing this option. Allowing consumers to obtain green energy from a distribution licensee should align with their ability to access non-green electricity, which typically does not come with such restrictions. To promote greater acceptance of green energy among end consumers, it is essential to avoid imposing these limitations from the outset, with the possibility of revisiting them later if necessary.

A consumer of electricity does not currently specify a quantum of electricity that it would consume in a year. Behavioral and lifestyle changes, in case of domestic consumers, and change in level of activity (say, factory production) would affect the total quantum of electricity to be consumed by the consumers. Given the uncertainties associated with consumption pattern, **it is recommended that the consumers are required to specify a percentage of green energy that they wish to consume (over and above the RPO applicable for the respective distribution licensee) rather than quantum of green energy.** Pre-specification of quantum of green energy may lead to over- or under- achievement of the 'RPO' target of the consumer. For e.g. in case of increase in overall electricity consumption the consumer may face a shortfall that it may otherwise have targeted, say on account of a buyer's need to embed green energy it sells to its consumers.

It is also possible that the discom is not able to provide 24-hour electricity supply to a consumer, thus influencing its overall 'RPO' target, while the consumer is going to pay a premium for green energy for the pre-decided quantum. Another scenario where the obligated quantum may not be procured by the consumer is when it surrenders its load or the factory is shutdown due to operational or other reasons.

Furthermore, the framework should allow consumers the option to partially or fully surrender their 'green purchase' obligation with a notice of say 2-3 months.

CER Consumers' Right to Green Attributes for Voluntary/ Excess Green Energy Purchase: Clause 4 (1) (c) (vi) – “*The Green Energy purchased from distribution licensee/GRIDCO or from any other Renewable Energy sources in excess of its Renewable Purchase Obligation (RPO) of obligated entity shall be accounted for RPO compliance of the GRIDCO.*”

A consumer's voluntary purchase of green energy gives them the right to claim the green attributes associated with any excess green energy consumed. This additional green energy comes at a premium paid by the consumer. This right is valuable for consumers seeking to demonstrate the greenness of their production processes, particularly for export purposes. **The property rights associated with this additional green energy purchase should belong to the consumer who pays for it. Consequently, it should not be counted towards the RPO of the GRIDCO.**

A number of circumstances may arise wherein the consumer may wish to own the property right to all the green attributes. For example, a hotel chain wishing to obtain LEAD Star Rating or an exporter wishing to turn its product greener by procuring green power. The latter one especially becomes relevant with the impending imposition of Clean Border Adjustment Mechanism (CBAM) that aims to place restriction on 'dirty' imports into Europe.

CER Guarantee of origin for Energy used in Green Hydrogen and Ammonia production: Clause 4 (1) (e) – “*Purchase of Green Hydrogen (GH) or Green Ammonia (GA) or their derivatives: The obligated entity can also meet their RPO by **purchasing** GH or GA or their derivatives and the quantum of such GH or GA or their derivatives would be computed by considering the equivalence to the GH or GA or their derivatives produced from one MWh of electricity from the renewable energy sources or its multiple and norms in this regard as notified by the Central Commission.*” (emphasis added)

The provisions of the Electricity Act, 2003 are applicable in the context of generation, transmission, distribution, supply and consumption of electricity. Consumption of green energy forms other than electricity does not fall within its purview. While philosophically, promotion of green energy in all forms is advisable, the above provision broadens the applicability of the Act to energy forms other than electricity. This may well be addressed through other framework like the PAT mechanism or the proposed carbon market.

Furthermore, in the absence of a framework for ensuring guarantee of origin, it is operationally difficult to ensure its compliance. To ensure the authenticity of the energy source used for green hydrogen or green ammonia production, a mechanism for verifying the Guarantee of Origin must be established. This verification should focus on the **utilization** of green hydrogen or green ammonia, rather than merely its **purchase**. The mechanism should also verify the production, purchase, and utilization of green hydrogen or green ammonia by obligated entities to ensure their eligibility for RPO compliance. As suggested earlier, the existing RECs mechanism could be adapted to certify these processes. Appropriate procedures, protocols, and an accounting framework should be outlined for this purpose under the relevant CERC regulations.

CER Establishing a Power Plant Requires Extensive Planning: Clause 4 (5) *“In case of Hybrid Sources, the power procured from the hybrid project may be used.... (COD) of the project after 1st April 2025 shall be required to comply with RGO of 40% by the COD.”*

Applicability of the 'RGO' beginning 1st April, 2025 may face difficulty in compliance. The thermal power plants already under construction and which have already entered into a PPA, would have limited room now to tie up sale of RE/ 'bundled' power without modification of the PPA. Furthermore, RE projects have a minimum construction period of 18 months (over and above the development phase). This leaves limited room for planning and construction of a RE project by April 2025. Establishing a thermal generating plant involves extensive planning and development processes that can span several years. If a project is set to come within the stipulated COD timeframe, it likely began its planning and development stages well before the current regulations were proposed. Thus, expecting such projects to rapidly incorporate significant renewable energy capacity or procurement obligations may be unrealistic. It is suggested to implement the said provision with a transition plan allowing sufficient time for planning and setting up the RE capacity and modifying the existing PPA to incorporate sale of 'additional' RE power.

CER Handover Process and Data Transfer for New State Nodal Agency: Clause 6 (7) – *“If it is observed that the State Nodal Agency is not able to discharge its functions satisfactorily, the Commission, by general or special Order recording reasons in writing, may designate any other agency to function as State Nodal Agency as it considers appropriate.”*

If the Commission deems it necessary to replace the existing State Nodal Agency due to unsatisfactory performance, a clear process for transitioning responsibilities should be established. This includes the transfer of all relevant data and documents to the new agency to ensure a seamless handover.

CER REC-Based Penalty for RPO Shortfall: Clause 10 (1) – *“Any shortfall in Renewable Energy Consumption targets shall be treated as non-compliance and State Nodal Agency shall recommend the Commission to initiate action against such Entity under Section 142 of the Act. Provided that penalty payable by Obligated Entity shall be levied by the State Nodal Agency within 30 days from the date on which bill is raised.”*

To incentivize obligated entities to meet their RPO requirements, the penalty for RPO shortfall should be linked to the price of Renewable Energy Certificates (RECs). This would provide correct economic signal as the obligated entity would have had the alternative of buying REC to meet its RPO. The penalty rate should be set slightly higher than the prevailing REC prices to effectively encourage RPO compliance.

CER Compliance Framework and RPO Compliance Rating for Obligated Entities: To ensure that the obligated entities achieve the set RPO/RGO target, the Commission should put in place a credible, transparent, and effective framework for compliance. A rating/grading mechanism to highlight the degree of compliance with of RPO by the obligated entities should be introduced. This rating would account for degree of compliance vis a vis the RPO target for the respective year as suggested below,

Rating	A+	A -	B+	B -	C+	C -	D+	D -	
Level of RPO compliance	More than 98%	95-98%	90-95%	85-90%	80-85%	75-80%	70-75%	65-70%	Below 65%

The Commission should publish list of all obligated entities along with their RPO compliance rating, thus improving the compliance mechanism for RPO.

CER RPO Compliance data reporting: The obligated entities should be required to furnish RPO compliance data on a quarterly basis to the Commission along with a plan to achieve the target and address any shortfall from previous quarters. Following data format is suggested for the same.

S No.	Obligated Entity	Total energy consumption	Total RPO target	RE Power (PPA)	PXs (GTAM, GDAM)	REC	DER/ Rooftop/ off-grid	Target Achieved (%)	Shortfall/ Surplus (%)	Shortfall/ surplus (MUs)
Q1										
Q2										

The above data should also include information on banking and rollover of RPO, if and when permitted under the regulation. The above data on RPO compliance should be archived and uploaded on machine readable format at the Commission's as well as nodal agency's website. A similar format should be utilised for RGO compliance monitoring.

CER Details of Obligated Entities: In order to assist the nodal agency to monitor RPO/RGO compliance, a list of obligated entities must be compiled and shared by the distribution licensee or the State Load Dispatch Centre. Obligated entities will be required to report their RPO compliance against the (suggested) format.

CER Data Archiving and Accessibility: All the RPO compliance data submitted through the RPO Web Portal should be archived and be publicly accessible in a machine-readable format. This would ensure transparency and effectiveness of the compliance framework.



Regulatory Updates

Tariff



HERC, reviewed the APR (FY 2023-24) and retail supply tariff of UHBVNL and DHBVNL for their Distribution and Retail Supply Business under MYT framework for the FY 2024-25 and recalculated the “Revenue Gap” for the FY 2022- 23 to arrive at a figure of gap of Rs. 212.46 crores instead of Rs. 1061.57 crore surplus. Commission clarified that the embedded open access consumers of the Discoms drawing power at 66kV or above, shall also be liable to pay the distribution system network cost of Rs. 0.39/unit, as determined in the impugned tariff order and will be considered as consumers of the distribution licensee and that the fish farming units connected on AP feeder shall continue to be billed on AP subsidized tariff while on other than AP feeder shall be included in the new Tariff Category i.e. Agro Industries/FPO. Further, a 5% rebate for consumers availing supply through prepaid smart meters.

HERC decided that the Additional Surcharge for 2nd Half of FY 2023-24 as requested by the UHBVNL and DHBVNL to be applied as Rs. 1.15/kWh (i.e. lowest of rates calculated above viz. Rs. 1.17/kWh & Rs. 1.15/kWh) applicable w.e.f. 22nd October, 2019 i.e. the date w.e.f. as an Interim measure.



RERC on 1st July, 2024 allowed recovery of Rs. 7438 Cr. on account of Fuel surcharge adjustment at the rate of Rs. 0.142/ kWh and Rs. 0.071/ kWh for customer billed bi-monthly and monthly respectively. Commission directed JVVNL, AVVNL and JdVVNL to create a separate account head for this purpose and report status of amount recovered in each true-up petition.

RERC dismissed the petition filed by RRVUNL for recovery of Energy Charge Rate. Discoms have shown disapproval of variable charge from DCCPP gas plant are higher and no proper methodology is stated in the petition. Commission remarked that it cannot determine the tariff as RRVUNL did not file tariff petition.



BERC is authorized to determine the tariff for the SBPDCL and NBPDC's bagasse-based co-generation project for the remaining period of the existing PPA, even beyond the initial 13-year tariff period. This decision focuses on the fixed cost component of the tariff beyond FY 2023-24. The Commission notes that the petitioner has already recovered 76% of depreciation, with 14% remaining, to be

recovered over the next 7 years at a rate of 2% per year. For interest on working capital, the Commission uses fuel rates from FY 2023-24, applying a 5% increase for FY 2024-25. Additionally, it sets the O&M expenses at 3% of the initial capital cost, with a 5% year-over-year increase. The return on equity is set at 14% per annum, and the interest on working capital is fixed at 12.20%, based on a rate 350 basis points above the average SBI MCLR.



JSERC approved several key terms for adhunik Power and Natural Resources limited. The commission accepted the adjustment of the debt-equity ratio 70:30, effective from 4th September, 2024. Based on this revised ratio, the IOL and RoE, calculated at 15.50%, were recalculated for FY 2017-18 to FY 2025-26. Additionally, the Annual fixed Charges (AFC) were revised for the same period, reflecting the impact of these financial adjustments. The commission also approved the true-up adjustments for FY2017-18 onward, incorporating the new financial values.



MERC approved the Under Section 63 of the Electricity Act, 2003, the Commission adopts Short Term Power Procurement for the period of 1st August, 2024 to 30th November, 2024 by Nidar Utilities Panvel LLP as stated in order. Accordingly, PPA initiated with successful bidder is approved with the tariff of Rs. 6.15/kWh at Maharashtra State Periphery. Nidar Utilities Panvel LLP, to submit copies of Final PPA to office of the Commission for records.

Power Procurement



APERC reviewed the petition and noted that the addition of two units will enhance power availability to meet morning and evening peak demands, benefiting DISCOMS; however, there are concerns about the slow progress of power evacuation facilities due to forest clearance issues, prompting APERC to request that the petitioners should re-approach the commission within three months of the new units' COD for PPA approval and tariff determination.



RERC has discovered tariff through competitive bidding and approved procurement of 1000 MW STU connected solar power. The capacity and price for the service is given below:

Regulatory Updates

Entity	Capacity (MW)	Tariff (Rs. /kWh)
Avaada Solar Power Pvt. Ltd.	200	2.62
JGRJ Solar Pvt. Ltd.	100	2.61
MRS Green Energy Rajasthan Pvt. Ltd.	50	2.61
Solarcraft Power India 15 Pvt. Ltd.	150	2.61
Martial Solren Pvt. Ltd.	200	2.61
SJVN Green Energy Ltd.	100	2.62
Sunfree Energy RJP1 Pvt. Ltd.	200	2.61

Renewable Energy, RPO and REC

APERC denied the petition, stating that there is no clause in the Power Purchase Agreement (PPA) stipulating compensation if the Petitioner's plant achieves less than 23.5 Capacity Utilisation Factor (CUF) for any reason. Therefore, seeking compensation for deemed generation loss due to inadequacy of the Transmission System is not within the scope of the PPA.

BERC allows the SBPDCL and NBPDCCL to carry forward the RPO shortfall from FY 2022-23 and FY 2023-24 into FY 2024-25. The petitioners are permitted to meet the aggregated RPO quantum for FY 2024-25, including the shortfalls, through available means such as purchasing renewable energy or Renewable Energy Certificates (RECs). Additionally, the petitioners do not require separate permission from the commission to participate in future REC trading sessions to address the backlog shortfall.

CSERC granted permission to M/s Protech Max Pvt. Ltd. to draw solar power from M/s Nutech Pipes World for its plant without the requirement of constructing a dedicated feeder at the drawal point, provided that M/s Protech Max Pvt. Ltd. agrees to develop data communication facilities to the SLDC and install the necessary metering and other equipment, including an ABT meter with AMR and RTU for online data communication, at the point of power drawal in accordance with prevailing metering regulations.

MERC approved the MITL's 20 MW Solar Power Procurement at tariff of Rs. 3.42/kWh for 3 years from M/s NTPC Vidyut Vyapar Nigam Limited. MITL to submit copies of Final EPA/PPA to the Commission for records.

MPERC declined Discoms request to remove net metering arrangements. Discoms submitted under net metering, power generated in solar hour is compensated in non-solar hour. Distinguishing between brown/green energy consumed by prosumer during non-solar hour is impossible. Discoms provided alternative approach of net-billing or gross metering to be used instead of net metering.

OERC denied M/s Vedanta Ltd.'s request to continue a Special Green Tariff of 20 paise per unit for FY 2024-25, stating that industries with Captive Generating Plants (CGPs) are not eligible. CGPs can purchase renewable energy for their RPO but cannot access the green tariff premium.

RERC reviewing RUVITL shortfall in its RPO compliance authorised purchase of wind power. RERC



HERC approved HPPC draft PPA of procurement of 527 MW RTC power at a tariff of Rs. 5.78/kWh at generator bus bar discovered through tariff based competitive bidding process on a medium-term basis for a period of five years starting w.e.f. 1st August, 2024 floated through NIT No. 114/HPPC/MTT/2024 dated 15th March, 2024.

HERC approved the HPPC request to grant source approval for procurement of upto 138.04 MW power allocated by Ministry of Power (MoP) from pool of Central Generating Stations (CGS) of Northern Region, during summer season, in view of revised NRPC Allocation memo dated 26th March, 2024.



WBERC in order to promote Cogeneration and Renewable source of energy under clause (e) of sub-section (1) of section 86 of the Act approved the Fourth Supplementary Agreement (PPA) dated 15th March, 2024 executed by and between the WBSEDCL and M/S Bengal

Energy Ltd. for purchase of entire 40 MW/ power from waste gas-based power plant of BEL on mutually agreed basis in terms of regulation 7.54 of the Tariff Regulations.



DERC approved prudent and accords approval to continue the existing PPAC i.e., 30.00% for the next three months i.e., 1st October to 31st December, 2024. Further, the differential PPAC for Q3 FY 2023-24 will be subsumed in its True-up.

The Surplus/deficit, if any, will be allowed with carrying cost, on verification of Power Purchase and Transmission Bills, in True-up of relevant Financial Year. Summary of PPAC claimed, PPAC levied and actual PPAC is as under:

Quarter	PPAC claimed by NDMC	PPAC self-levied by NDMC	Differential PPAC as claimed by NDMC	Actual PPAC	Balance PPAC (%)
	A	B	C=A-B	D	E=D-B
Q3 FY 2023-24	62.76%	8.75%	54.01%	65.27%	56.52%

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allowed RUVITL instant purchase of power from Suzlon's power purchase agreement with Shri Om Agro Products Ltd.

Existing Agreement	Approved Agreement
50% monthly generation sale to Discom at Rs. 4.89/kWh	50% monthly generation sale to Discom at Rs. 4.89/kWh
50% monthly generation utilised by own unit i.e Om Agro Products Ltd.	50% monthly generation sale to Discom at Rs. 2.44/kWh

UPERC has approved a power procurement agreement for 100 MW of renewable energy at a tariff of Rs. 4.38/kWh with a trading margin of Rs. 0.07/kWh. However, if SJVNL (the power supplier) fails to provide an escrow arrangement or an irrevocable, unconditional revolving letter of credit, the trading margin will be reduced to Rs. 0.02/kWh as per the specified regulations. The Commission also approved the Power Sale Agreement (PSA) dated 15 th March 2024 between NPCL and SJVNL and advised NPCL to consider the Commission's previous observations in future power procurement arrangements to safeguard consumer interests.

MPERC in its Suo-moto petition registered against Indian Railways (WCR) for failure to comply with order to fulfil RPO compliance. Commission imposed Rs. 8 lakh penalty for default to achieve RPO targets and directed Railways to procure RECs to fulfil its RPO default within 3 months from date of order passed.

MPERC allowed purchase of Renewable Energy Certificates and Open market energy for Grasim Industries to fulfil its RPO targets backlog till FY 2023-24. Grasim had a backlog of 12.72 MU to be procured from different sources. Commission directed petitioner to purchase REC and submit proof to nodal agency within 3 months from date of order passed.

GERC approves the tariff of Rs. 3.65/unit for 450 MW discovered through the competitive bidding process (RfS No. TPL/Hybrid/01/2024) conducted by Torrent Power Limited (TPL) for 300 MW with an additional 150 MW under the Green Shoe option from grid connected RE Hybrid Projects. The Petitioner is directed to sign Power Purchase Agreements (PPAs) with the successful bidder and submit copies to the Commission, ensuring compliance with applicable rules, guidelines, and approved deviations.

Others

APERC ordered in favor of M/s Sarda Metals & Alloys Ltd and APTRANSCO directed the respondents to refund the amount collected from the petitioner as the line and bay maintenance charges, within one month. It

stated that such a condition is neither a contract nor an article in a proforma Power Purchase Agreement that was entered into between the parties, and therefore cannot impose any such liability.

APERC approved a late payment surcharge of Rs.12297121/- from the APPCC (Respondent No. 1) and granted two months for payment, with the stipulation that no further extensions will be allowed for any reason.

APERC closed the OP without adjudication to avoid conflicting decisions, as the petitioner had already filed a writ petition with the Hon'ble High Court of Andhra Pradesh (A.P.) for the previous years, which is currently pending. The petitioner is given the liberty to pursue the writ petition for the current year's issues, as they have done for previous years.

APERC reviewed the petition from Hindustan Petroleum Corporation Limited seeking a relaxation from paying Grid Support Charges (GSC) for FY 2002-03 to FY 2008-09, stating that their 86 MW Gas Turbine Generator, which is a Captive Power Plant, does not run in parallel with the Grid; however, the Commission disagrees, noting that the Petitioner relies on the Grid in case of a failure of its Gas Turbine Generator.

OERC approved the Tri-party Agreement dated 30th May, 2024, between M/s. TPNODL, M/s OMC Ltd., and the Odisha State Pollution Control Board (OSPCB) for power supply to a Continuous Ambient Air Quality Monitoring System (CAAQMS) located at OMC's premises. The agreement allows OSPCB to receive 15 kW of power from TPNODL with specified metering and billing arrangements, confirming that the power supply will be under OMC Ltd.'s name for a contract demand of 600 KVA at 33 kV.

RERC granted the request of Discoms for more time to submit Resource Adequacy Planning (RAP). RERC also reiterated that the inability to pass judgement due to absence of state level RAP and storage policy. Discoms approached the Commission for tie up of 1000 MW/6000MWh per day on long term basis from pump storage-based energy solution.

MPERC has considered after hearing both the parties on re-powering of solar power plant. ACME proposed to add PV panels of 6.03 MW DC capacity to existing power plant. This upgradation will help ACME maintain power supply under current signed PPA with MPPCL. MPERC disposed off the petition citing PPA between ACME and MPPCL confers right and liabilities upon both parties.

WBERC after considering all the facts and the project reports submitted by WBSETCL, accords approval of the investment proposal amounting to Rs. 34289.93

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lakh. The commission also directed WBSETCL to provide the cost break-up of each scheme showing the actual vis-à-vis estimation included in the total project cost and ensure proper metering arrangement in line with Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006.

WBERC directed WBSEDCL to use the value of parameter "C" for computing the additional surcharge as per the formula in clause 18.25 (b) (i) of the Open Access Regulations, 2022. The value of parameter "C", in the formula for determination of Additional Surcharge specified under regulation 15.2.5(b)(i), shall be Rs. 2,58,265.00 Lakh and Rs. 2,68,663 Lakh for the FY 2023-24 and FY 2024-25 respectively.

HERC clarified DHBVN (dated 1st Jun, 2020 (HERC/PRO 59 of 2019 and HERC/PRO 60 of 2019), acceding to the declaration of the State Government, had already introduced a separate tariff category for such consumers as "Agro-Industries" which includes Mushroom Farming up to 20 kW load and determined their single part tariff of Rs. 4.75 / kWh.

UERC stated the Austin's law for indifference in payment settlement between Sravanthi Energy Pvt. Ltd. and UPCL and provided a methodology for calculation of Late Payment surcharge (LPS). SEPL prayed that the UPCL have delayed the payment and must be liable to pay late payment LPS or allowed to claim under Interest on Working Capital. UPCL submitted that a PPA signed does not mention the payment deadline and SEPL claim on compensation in lieu of IoWC is not admissible.

UERC Coram have approved investment for construction of 220/132/33 kV GIS substation Banbasa,

Tanakpur, LILO of 220 kV Tanakpur-CB Ganj Line at proposed 220 kV Substation Banbasa, 132 kV D/C transmission line from 132 kV S/s KhatimaII to proposed 220 kV S/s Banbasa and 132 kV D/C line from proposed 220 kV S/s Banbasa, Tanakpur to proposed 132 kV S/s Lohaghat. The committee have laid down conditions and non-compliance will attract cancellation and refusal of expenses recovery in ARR.

UERC have approved Uttarakhand Power Corporation Ltd. proposal for investment on 'Installation of Automatic Reactive Power Solution (Capacitor Bank)'. UERC have limited the project cost to Rs. 84.30 Cr. and approval for cost above the limit.

Power Department, Government of Sikkim is directed to strictly comply with the Energy Conservation Regulations, 2021 and is penalized with a notional fine of Rs. 1,00,000 under Section 26(1) of the EC Act, 2001. The penalty is imposed due to delayed submission of mandated reports and non-compliance with regulatory timelines, despite being a public authority managing a critical resource like electricity. The penalty must be paid to the Bureau of Energy Efficiency (BEE) within three months, failing which an interest of 9% per annum will be applicable until payment is made.

DERC reviewed BYPL's PPAC petition for Q1 FY 2024-25, approving a rate of 30.34% due to arrears from CERC orders, mainly from BTPS. This rate is lower than the ongoing 31.60% and will be effective from 21st September to 20th December, 2024. Any surplus or deficit will be adjusted in future True-up orders.

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Tariff Orders

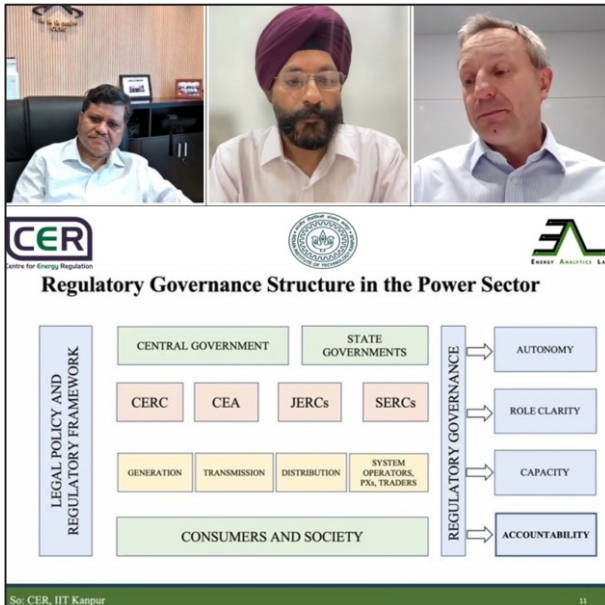
State/ Union Territory (SERC)	Licensee/ Utility	True-up	APR	ARR	Tariff
AERC	APDCL	2022-23	2023-24	2024-25	2024-25
CSERC	CSPDCL	2022-23	2023-24	2024-25	2024-25
JSERC	Tata Power Company Limited (TPCL)	2022-23	2023-24	2024-25	2024-25
PSERC	PSPCL	2022-23	2022-24	2024-25	2024-25
RERC	RRVUNL, RVPN, JVVNL AVVNL, JdVVNL	2022-23	-	2024-25	-
TERC	Tripura State Electricity Corporation Limited	2022-23	2023-24	2024-25	2024-25

Regulations

Title	Date of Approval/Notification
APSERC (Demand Side Management) Regulations, 2024	3 rd July, 2024
APSERC (Procedure, Terms and Conditions for Grant of Distribution Licence and other Related Matters) Regulations, 2024	3 rd July, 2024
DERC (Guidelines for establishment of the Forum and the Ombudsman for redressal of grievances of Electricity Consumers) Regulations, 2024	22 nd July, 2024
DERC (Net Metering for Renewable Energy) (First Amendment) Regulations, 2024	26 th July, 2024
DERC (Supply Code and Performance Standards) (Fifth Amendment) Regulations, 2024	16 th July, 2024
GERC (MYT) Regulations, 2024	6 th August, 2024
JERC Goa & UTs (Solar PV Grid Interactive Systems based Net metering & Gross Metering) (First Amendment) Regulations, 2024	17 th September, 2024
JERC Goa & UTs (Electricity Supply Code) (Third Amendment) Regulations, 2024	17 th September, 2024
JERC Goa & UTs (Consumer Grievances Redressal Forum) Regulations, 2024	2 nd September, 2024
JERC JK & L (Electricity Supply Code) (First Amendment) Regulations, 2024	24 th July, 2024
JERC JK & L (Grid Interactive Renewable Energy system and its related matters) (First Amendment) Regulations, 2024	11 th July, 2024
JERC M&M (Electricity Supply code) (Eighteenth Amendment) Regulation, 2024	8 th July, 2024
KERC (Implementation of Peer to Peer Solar Energy Transaction) Regulations, 2024	6 th September, 2024
KERC (Terms and Conditions for Determination of Generation Tariff) Regulations, 2024	9 th September, 2024
MERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) (First Amendment) Regulations, 2024	4 th July, 2024
MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) (Second Amendment) Regulations, 2024	21 st August, 2024
MERC (Multi Year Tariff) Regulations, 2024	19 th August, 2024
MERC Commission (Framework for Resource Adequacy) Regulations, 2024	21 st July, 2024
PSERC (Appointment & Service Conditions of Employees) (Third Amendment) Regulations, 2024	11 th July, 2024
RERC (Grid Interactive Distributed Renewable Energy Generating Systems) (Second Amendment) Regulations, 2024	25 th July, 2024
TERC (The Grid interactive Solar rooftop photovoltaic system under gross/ net metering) Regulation, 2024	3 rd July, 2024
TNERC (State Advisory Committee) Regulations, 2024	10 th July, 2024



3rd Regulatory Conclave on “Regulatory Governance in the Indian Power Sector: Reporting and Accounting Framework for ERCs”



CER organized the 3rd Regulatory Conclave on 17th July, 2024 to discuss “**Regulatory Governance in the Indian Power Sector: Reporting and Accounting Framework for ERCs**”. The conclave began with a warm welcome and an insightful presentation by Prof. Anoop Singh (Founder and Coordinator, CER and EAL), who highlighted the extensive research undertaken by CER on the subject. The panel of esteemed speakers included Mr. Jishnu Barua (Chairperson, CERC), Mr. Arvind Kumar (Chairman, UPERC), Dr. R. S. Sharma (Ex-Chairman, TRAI), and Mr. Jonathan Brearley (CEO, Ofgem). Key issues discussed during the conclave centered around regulatory developments in the power sector, the importance of data availability in the public domain, and the adoption of best practices within government bodies, in India and worldwide. A strong emphasis on the role of internal audits in enhancing accountability within organizations. The panelists from TRAI and Ofgem shared in-depth presentations detailing their respective organizations' experiences in improving accountability and transparency in day-to-day operations. Their insights provided valuable lessons for Indian regulators on enhancing governance in

the power sector. The event saw active participation from over 60 individuals, including representatives from various SERCs across India, making it a significant platform for dialogue and exchange of ideas on regulatory governance.

4th Regulatory Conclave on “Role of Women in Power Sector Regulation”



The CER hosted a virtual mode 4th Regulatory Conclave titled “**Role of Women in Power Sector Regulation**” on 07th September, 2024. The event brought together key stakeholders across power sector covering electricity regulatory commissions, Discoms, Gencos, NGOs, as well as academic institutions. The conclave hosted a panel discussion with leading national and international experts, Ms. Parminder Chopra (Chairman & MD, PFC), Ms. Audrey Zibelman (Ex-Chairperson, NYPUC and Ex-CEO, AEMO), Mr. V.P. Raja (Ex-Chairman, MERC) and Ms. Anjali Chandra (Ex-Member, PSERC). Dr. Aprajita Salgotra and Prof. Anoop Singh (Founder and Coordinator, CER and EAL) presented the study which focussed on highlighting the role of women in society and the regulatory governance of the power

sector. The study involved a detailed analysis of the regulatory commissions working in India and nine other countries, including a comprehensive online survey. The analysis revealed that the cultural and social norms are the most common barrier to women’s participation in the sector. The conclusive recommendations lean towards providing women equal access to capacity building programs, adoption of equal opportunities in workplace, a doctrine of preference in recruitment, mentoring/male sensitization of colleagues and introducing new gender specific policies.

Prof. Singh announced the CER would offer **an additional discount for the individual female participants** for its upcoming Regulatory Certification Programs (RCPs). These online programs offer greater flexibility to the participants offering greater opportunities for expanding their knowledge base. For more information please click [here](#).

Registration for eMasters on “Power Sector Regulation, Economics and Finance”

The classes for **Cohort IV of eMasters Degree Program on “Power Sector Regulation, Economics and Finance”** will be open for registration. It is a multidisciplinary online program, approved by Senate, IIT Kanpur. It focuses on developing insights into the development of electricity markets in India and discussing the challenges and way ahead. The program content explains the Regulatory process considering the applicable engineering, economics, legal and environmental viewpoints. Apart from faculty from relevant departments of IIT Kanpur, the sessions for the program would be contributed by leading national and international experts. The program is suited for officials/employees of Regulatory Commissions, Government, Generation Companies (Thermal, Hydro and RE), Licensees (Transmission, Distribution and Trading), Equipment Manufacturers, Consultants, Academicians, Pension & Investment funds and other energy sector stakeholders including Green Hydrogen, Storage, EV, Coal, Oil & Gas etc. The Regulatory Capstone Projects will help the students to apply the concepts and devise solutions for real-life challenges. To know about the program, click [here](#).

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The industrial visit was organized for the participants of Cohort III of eMasters batch on 14th and 15th June, 2024 at Grid India Ltd. New Delhi, IEX - Noida, NPCL - Noida for enhancing the learning experience as part of the course.



Regulatory Certification Program

The registration for the 3rd RCP on “**Power Market Economics and Operation**” is open for individuals. The program was designed to understand the evolution, economic operation, regulatory structure of power market and its role in the Indian power sector. This program is conducted under the aegis of the Centre for Continuing Education, IIT Kanpur. For more information please click [here](#).



The editor thanks Regulatory Insights team for their contribution in supporting the analysis, copy editing, compiling snippets of tariff orders, regulatory updates, and coordinating final production of this Issue.

Himanshu, Sandeep, Hardeep, Diksha, Keshav, Gaurav, Garima, and Muskan

Disclaimer: The information contained herein is of a general nature and is not intended to address the circumstances of any particular individual or entity. Although we endeavour to provide accurate and timely information, there can be no guarantee that such information is accurate as of the date it is received or that it will continue to be accurate in the future. No one should act on such information without appropriate professional advice after a thorough examination of the particular situation.

Other Initiatives



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Note: Additional information can be accessed through the hyperlinks provided in the online version of this periodical.