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REGULATORY INSIGHTS

Evolving RPO/RCO Frameworks and Market Mechanisms

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Editorial

A robust monitoring, reporting and compliance mechanism is essential to effective implementation of a renewable consumption/purchase obligation. Transparency, traceability and credibility is the hallmark of an effective framework for RPO compliance. The obligated entities/designated consumers can procure renewable energy/ RECs through a variety of arrangements, including those through the market platform. Lack of a standardized definition for measurement of RE procured poses a challenge for a robust compliance mechanism. CER has suggested adoption of REC-based Unified Compliance Mechanism (RUCM) to address gaps in the existing measurement, reporting and compliance framework. This entails issue of REC to all RE based electricity generated in the country. RECs thus become a guarantee of origin as well as a currency of compliance, ensuring traceability of electricity generation, storage and its consumption across the country. Such a centralized framework would also provide timely (automated) compliance reporting based on verified RECs submitted for compliance. This would also assist the system operator to easily identify 'vintage based contracts' for the transmission charge waiver available to renewable energy, storage and green hydrogen plants.

The Energy Conservation Act, 2002 provides for penal provisions for failure of the designated consumers to meet the RCO compliance. The proposal to bring about a buyout mechanism through a notification process, depending on the buyout price, could ensure better compliance as this would remove any subjectivity. Singh (2009) suggested adoption of a buyout price mechanism. Clarity regarding the finality of the compliance mechanism would reduce regulatory/policy risk for the designated consumers/obligated entities. The above suggested RUCM, can be used effectively with the provision of buyout price.

Behind the meter solar rooftop installations would enhance uncertainty of demand for the distribution licensees. Deployment of the Energy Storage System (ESS) by the prosumers can help address the same to some extent. Incentive for investment in ESS by prosumers would be guided by the relative difference in the prices of electricity during and charging and discharging of the ESS across peak/off-peak hours of the day. Prosumers/consumers which have installed an ESS would reduce the requirement for the grid support and hence thus be subjected to lower grid support charges. The normalization factor for banking and drawl of energy by the prosumers should also provide adequate incentive for injection of stored energy during the peak hours thus assisting the distribution licensee to meet its demand.

Virtual Power Plants (VPPs) can play an important role in aggregating excess energy injection by prosumers while also delivering flexibility services through aggregated demand response. The business case for a VPP would require lower barriers to entry while ensuring transparency in its operation. The business model for a VPP and its operational legitimacy should be rooted in the long-term policy visibility and clarity of the regulatory framework. Emergence of the VPP as well as P2P transactions would also require a dispute resolution process to ensure that consumer interests as well as Discoms are protected in a transparent and accountable framework.

Anoop Singh (Editor)
Founder & Coordinator, Centre for Energy Regulation

Keywords: Renewable Purchase Obligation, Renewable Consumption Obligation, Hydro Power Purchase Obligation, Renewable Energy Certificate, Buyout Mechanism, Virtual Power Plant, Rooftop Solar Vehicle to Grid, Energy Storage System, Energy Storage Obligation, Infirm Power, Peer to Peer, Energy Banking.

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Opinion on MoP (Gazette Notification on Renewable Consumption Obligation (RCO) notified on 20th October 2023)

Cite

The Ministry of Power issued a draft amendment to the Gazette Notification on Renewable Consumption Obligation (RCO) notified on 20th Oct 2023, issued on 27th March 2025. The key objectives of the draft are mentioned below:

Objective: The draft amendment introduces several key changes aimed at strengthening compliance and promoting renewable energy integration. It specifies the minimum share of electrical energy consumption from non-fossil sources for designated consumers, including electricity distribution licensees, open access consumers, and captive users. Other changes include:

- The amendment allows for shortfalls in wind or hydro renewable energy consumption to be offset by surplus from other renewable sources, and surplus from distributed renewable energy can also be used to meet obligations related to wind, hydro, or other renewables.
- Open access and captive users are required to meet the total renewable energy obligation from any renewable source.
- For captive users, consumption obligations include self-consumption, excluding auxiliary consumption, with specific provisions for electricity generated from waste heat recovery.
- The amendment outlines multiple methods to fulfill RCO, including consuming non-fossil electricity, purchasing Renewable Energy Certificates (RECs), or paying a buyout price, with funds from the buyout mechanism supporting non-fossil fuel capacity development.
- Penalties for non-compliance, including shortfalls or submission of incorrect information, are outlined, with provisions for adjudication under the Energy Conservation Act, 2001. The Bureau of Energy Efficiency (BEE) is tasked with monitoring compliance, issuing periodic reports, and providing implementation guidelines. Additionally, compliance for multiple designated consumers under common control may be considered at the Holding Company level.

CER Opinion

Payment of the Buyout Price specified by Central Electricity Regulatory Commission (CERC): In the proposed Clause 6 (iii) "*Payment of the buyout price specified by Central Electricity Regulatory Commission (CERC).*"

"*Provided that the sums received through the buyout mechanism shall be credited to the Central Energy Conservation Fund under a separate head. These sums shall be utilized to support the development of specified non-fossil fuel capacities, with the objective of increasing the share of non-fossil fuel energy in the overall energy mix. The Central Government shall specify the mechanism for utilizing these sums to support the development of such non-fossil fuel capacities.*"

Buyout mechanism, suggested initially by Singh (2010)[1] as well as in multiple submissions to CERC[2] and MoP[3], is a compliance mechanism for the RPO obligation. This incentivises the obligated entities to ensure compliance by either buying renewable power or the REC certificates. Buyout price also acts as a ceiling price for the REC certificates.

Suggested Citation: Singh A. (ed.). (2025), Opinion on (Gazette Notification on Renewable Consumption Obligation (RCO) notified on 20th October 2023), 2025, Regulatory Insights (Vol.08, Issue 01, pp. 2-3), Centre for Energy Regulation (CER), Indian Institue of Technology Kanpur.
https://cer.iitk.ac.in/periodicals/regulatory_insights/Volume08_Issue01.pdf

[1]Singh, A. 2010. "Economics, Regulation and Implementation Strategy for Renewable Energy Certificate in India" India infrastructure Report 2010,Oxford Univ. Press. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3440253

[2]Singh, A. 2010 "Setting a Floor price and Forbearance Price for Renewable Energy Certificate (RECs)" Submitted to Central Electricity Regulatory Commission, April 2010 https://www.iitk.ac.in/ime/anoops/policypapers/Anoop%20Singh%20-%20CERC%20-%20Comments%20on%20Floor%20and%20Forbearance%20Price%20for%20RECs%20-%202010.pdf

[3]Singh, A. 2021 Comment on MoP "Redesigning the Renewable Energy Certificate (REC) Mechanism" [Discussion Paper] Regulatory Insights, Volume 4, Issue 1 Centre for Energy Regulation (CER), IIT Kanpur.
https://cer.iitk.ac.in/newsletters/regulatory_insights/Volume04_Issue01.pdf

However, the compliance mechanism for renewable consumption obligation, as set out in section 26 of the amended Energy Conservation Act, 2001, does not provide for a buyout mechanism which effectively sets the penalty at the buyout price. The notification route may not stand the test of legal scrutiny. The Energy Conservation Act, 2001 should thus be amended to incorporate the same.

Furthermore, the draft clause refers to 'notification' of the buyout price, which should be **estimated based on a methodological approach which is discussed with the stakeholders. Such methodology should also be published beforehand.**

It also needs to be clarified if such fund could be utilized for nuclear energy, a non-fossil fuel technology. The Energy Conservation Act, 2001, in all its operative parts, refers to non-fossil fuel, whereas the MoP notification dated 20th October, 2023 limits the meaning of 'non-fossil fuel' to 'renewable energy'. To ensure clarity, the term 'fossil fuel' may be replaced with renewable energy.

CER **Jurisdictional Clarity and Coordination Among Designated Entities:** In the proposed Clause 6 (B) *"In case of a non-compliance of this notification including but not limited to shortfall in meeting Renewable Energy consumption obligations, non-submission of required information, or submission of incorrect information, the Bureau, the State Designated Agency, or any other person designated by the State Government, may file an application before the Adjudicating Officer, for imposing penalty, under the provisions of Section 26 and 27 of the Act."*

There should be a single entity empowered to file an application before the Adjudicating Officer for non-compliance of RE consumption obligation, non-submission of information or submission of incorrect information. **Multiplicity of entities, as identified in the draft, would not only create multiplicity of filings but also weaken a legal case due to lack of coordination among the entities identified in the draft clause.**

Such ambiguity could hinder the timely and effective enforcement of compliance obligation. **A single entity should be empowered to collect information and report data for RE Consumption Obligation, the same entity should also be empowered for collecting compliance data and follow the process for non-compliance.** BEE may coordinate this effort by finalizing the format and method for data collection, and the associated timelines. This will help streamline the process, ensure accountability, and strengthen the overall compliance framework.

A lack of coordination among the three entities the State Designated Agency, the Bureau, and any other person designated by the State Government may lead to procedural complexities. **This may result in multiple applications being filed before the Adjudicating Officer for the same instance of non-compliance or, conversely, no application being filed at all**, as each entity may assume that the other party would do the needful. It is strongly recommended that a **single entity** be identified and designated for compliance monitoring and for filing applications before the Adjudicating Officer.

The framework should also address a situation where an **Adjudicating Officer has not been appointed** by the designated agency. This could delay enforcement and weaken the compliance framework. The clause should include a provision for alternate enforcement mechanisms or mandate the timely appointment of Adjudicating Officers by the States to ensure effective compliance and enforcement thereof.

CER **Aggregate Compliance for Entities Under a Holding Company:** In the proposed Clause 6 (C) *"Compliance for multiple designated consumers under common control, as defined in the Companies Act, 2013, may be considered on an aggregate basis at the Holding Company level."*

The draft clause allowing aggregate compliance at the holding company level seems to assume that such entities may operate within a single state. However, in practice, entities under a holding company may be located across multiple states, falling under different regulatory jurisdictions. This could lead to complications in monitoring and enforcement, especially if compliance shortfalls in one state are to be offset by the surplus in another state. The available information may only be handy with the state level agency in the respective state. How would be state agencies coordinate for seamless exchange of compliance data? **How would one ensure that over compliance by one of the sister concerns located in one state used to offset shortfall for another sister concern located in**

another state, is extinguished from the accounts of the former and is not double counted? This provides another justification for a centralized monitoring and compliance entity. REC based RPO/RCO compliance would ensure that there is no double counting as this would apply universal accounting for the RE procurement from various sources.

Since neither the Electricity Act, 2003 nor does the Energy Conservation Act, 2001 provide for such cross-entity fungibility, the clause leaves some legal and procedural ambiguities**. Changes in holding patterns of related or subsidiary entities mid-year, and varying monthly consumption pattern and RPO compliance thereof would further complicate the matter.** To avoid regulatory loopholes and ensure accountability, **compliance should be assessed individually for each designated entity or, at most in a consolidated manner for the related entities located in a single state**.

A clear and objective definition of related entities would be crucial to avoid legal disputes. Definition of captive power generation unit and ownership and consumption thereof is a case to point.

CER **Compliance Monitoring and Data Reporting:** In the proposed Clause 7 *"The Bureau shall monitor compliance of this notification and submit periodic report(s) to the Central Government. For this compliance monitoring, all the designated consumers, designated agencies and other persons shall furnish the required information, in such form and manner and within such period, as may be specified by the Bureau."*

A central repository should be empowered to collect and monitor compliance data. This repository must cover all designated consumers and ensure data is furnished in a format, manner and timeline specified by the Bureau.

It should also clarify whether the information is to be sought from the respective adjudicating officers, and how such coordination will take place. **There should also be a clear provision for timely disclosure of the collected information through a publicly accessible web portal to ensure transparency and accountability.**

CER **Importance of Stakeholder Input to Draft Guidelines**: In the proposed Clause 7 (A) *"The Bureau shall issue detailed guidelines for the implementation of this notification."*

The detailed guidelines including data format to be published by the Bureau should be placed for public consultation and incorporate inputs to address potential challenges in its implementation. The draft guidelines and data formats for stakeholder consultation. Seeking inputs from designated consumers, regulators, and other stakeholders will help address practical concerns and ensure effective implementation of the guidelines.

Opinion on BERC (Renewable Purchase Obligation, its Compliance and REC Framework Implementation) Regulations, 2025

Cite

The BERC notified draft on Renewable Purchase Obligation, its compliance and REC Framework Implementation Regulations, 2025, issued on 21st March, 2025. The main objectives of the proposed regulations are:

Objective: The objective of the draft regulation is to consolidate and update the existing regulatory framework in line with the latest policy directives of Ministry of Power, Government of India, these regulations aim to promote the adoption of RE in Bihar by setting clear RPO targets, incorporating categories like distributed RE and ensuring robust compliance mechanisms, the framework is designed to support Bihar's transition to a cleaner energy mix. Ensure accountability of obligated entities, and align with national renewable energy goals under the Energy Conservation Act, 2001 and Electricity Act, 2003.

CER Opinion

CER **Clarification on Scope of Obligated Entities:** In the proposed Clause 3 ***"Applicability of Renewable Purchase Obligation*** *3.1 These Regulations shall be applicable to all Obligated Entity such as:*

I) Distribution licensee

*II) **Any other person consuming electricity.***

Suggested Citation: Singh A. (ed.). (2025), Opinion on BERC (Renewable Purchase Obligation, its Compliance and REC Framework Implementation) Regulations, 2025, *Regulatory Insights* (Vol.08, Issue 01, pp. 4-6), Centre for Energy Regulation (CER), Indian Institue of Technology Kanpur. https://cer.iitk.ac.in/periodicals/regulatory_insights/Volume08_Issue01.pdf

a) generated from conventional Captive Generating Plant having capacity of 1MW and above for his own use.

b) through cogeneration from sources other than renewable sources.

c) By procurement from conventional electricity generation through Open Access and for third party sale."

The current wording of draft clause may lead to ambiguity regarding the scope of obligated entities. Specifically, the phrase **"Any other person consuming electricity"** may be replaced by **"Any of the following persons consuming electricity"** to clearly connect it with sub-clauses (a), (b), and (c). This revision will help avoid misinterpretation and ensure that the categories of obligated entities are explicitly defined and consistently understood.

Ensuring Credible HPO Compliance from Free Hydropower Allocation: In the proposed Clause 4 (b) "*Hydro Power (HPO) shall be met only by energy produced from* ***Hydro Power Projects [including Pump Storage Projects (PSPs) and Small Hydro Projects (SHPs)], commissioned after the 31st March, 2024****;*

Provided that, HPO of the state/DISCOM may be met out of the free power being provided to the state of Bihar from the Hydro Power Projects commissioned after the 31st March, 2024."

While considering HPO compliance based on the free power allocated to the state of Bihar from hydropower projects, it must be ensured that such free power has not already been sold or assigned, or banked through any other mechanism including the Green Day-Ahead Market (GDAM), RECs or similar instruments. As highlighted in the recent Regulatory Conclave on *Energy Transition and Framework for RPO* organized by CER, IIT Kanpur, suggested a mechanism for REC-based RPO compliance to ensure leakage proof accounting to help address this issue. Such a mechanism would be critical in preventing double counting or leakage, thereby strengthening the credibility and accuracy of RPO fulfilment.

State Specific CUF for RPO Compliance[4] : In the proposed Clause 4(c) "*Provided further that in case the designated consumer is unable to provide generation data against distributed renewable energy installations, the reported capacity shall be transformed into distributed renewable energy generation in terms of energy by a multiplier of 3.5 units per kilowatt per day (kWh/kW/day).*

The fixed multiplier of 3.5 units/kW/day for estimating deemed generation, as per MoP guidelines[5], does not reflect Bihar's actual solar resource variability. Using a uniform factor may lead to inflated RPO compliance, especially during low solar irradiance periods, and discourage reporting of actual generation data.

It is suggested to adopt a **monthly, CUF-based multiplier** benchmarked to Bihar's solar conditions, with regional differentiation if needed. To promote data transparency, a **penalty multiplier (e.g., 0.9– 0.8 of CUF)** can be applied for non-reporting beyond three months in five years. This will improve accuracy and accountability in RPO compliance.

Improving the Scope and Accessibility of RE Reporting by Licensees: In the proposed Clause 4.*3 "The Licensee or its successor entities shall submit half yearly progress report on the capacity addition, purchase of electricity from such projects and the energy generated from renewable sources in the State which is used by generator itself or sold to third party under Open Access to the Commission and also post them on their website."*

The half-yearly progress report to be submitted by the Licensee or its successor entities should clearly comprise the following information:

I. Renewable Capacity Addition within the State:

Categorized by Project Ownership, State Generating Companies, Private Developers, Captive Generators, and Merchant Plants.

[4]Singh, A. (ed.). (2024), Opinion on "Tariff and Others Terms for Supply of Electricity from Renewable Energy Sources and non-fossil fuel based Cogenerating Stations" (First Amendment) Regulations, 2024. In Power Chronicle (Vol. 07, Issue 01, pp. 16-17), Energy Analytics Lab (EAL), Indian Institute of Technology (IIT) Kanpur. https://eal.iitk.ac.in/assets/docs/power_chronicle_vol_7_issue_1.pdf

[5]https://powermin.gov.in/sites/default/files/Notification_Regarding_Renewable_Purchase_Obligation_RPO.pdf

II. **Procurement of Electricity from Renewable Projects:**

Details of electricity procured by distribution licensees from renewable energy projects

III. **Energy Generated from Renewable Sources within the State:**

Including generation data from all RE projects, categorized by ownership and mode of use, self-consumption (captive), third-party sale, or merchant sale under Open Access.

It is further suggested that this information should not only be submitted to the Commission but also be **published on the respective websites** of the distribution licensees. The data should be **easily accessible, archived, and available in the public domain** to ensure transparency and facilitate informed stakeholder engagement.

Legal Consistency for RPO Targets and Penalty Enforcement: Draft clause no. 7.2 *"Despite availability of renewable energy sources, if distribution licensee fails to fulfill the minimum quantum of purchase from renewable energy sources, it, without prejudice to the penalty to which it may be liable under section 142 of the Act, shall be liable to pay compensation as per clause 9 of these Regulations."*

The draft Clause invokes the notification under the Energy Conservation Act, 2001, for setting RPO targets while referring to Section 142 of the Electricity Act, 2003, for the imposition of penalties in case of non-compliance. This cross-reference between two distinct legal instruments may create **legal ambiguities** and become a **potential ground for disputes**, as the targets and the penalties originate from **different legislative frameworks**.

It could be argued that penalties cannot be imposed under the Electricity Act, 2003 (Section 142) for the non-fulfilment of targets set under another (Energy Conservation Act,2001 (Section 26 (3)) thereby weakening enforceability. To ensure legal robustness and avoid such conflicts, **both the obligation (target) and the penalty for non-compliance should be grounded in the same legal framework**.

Data Archiving and Accessibility: All the RPO compliance data, including that for the captive as well as open access consumers 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.

Opinion on TNERC (Renewable Energy Purchase Obligation Amendment) Regulation, 2025

Cite

TNERC notified draft on Renewable Energy Purchase Obligation Amendment Regulation, 2025, issued on 21st May, 2025. The main objectives of the proposed regulations are:

Objective: The draft amendment on Renewable Energy Purchase Obligation Regulations, 2023, in order to align them with the updated Renewable Consumption Obligation (RCO) framework issued by the Ministry of Power, Government of India. It aims to ensure compliance through well-defined eligibility criteria, standardized methods for estimating energy generation, and data reporting requirements. The regulation also designates the Tamil Nadu Green Energy Corporation to monitor and report on RPO fulfillment. Overall, the objective is to strengthen the regulatory framework to support the state's transition to clean and sustainable energy.

Suggested Citation: Singh A. (ed.). (2025), Opinion on TNERC (Renewable Energy Purchase Obligation) (Amendment) Regulation, 2025, *Regulatory Insights* (Vol.08, Issue 01, pp. 6-7), Centre for Energy Regulation (CER), Indian Institue of Technology Kanpur.
https://cer.iitk.ac.in/periodicals/regulatory_insights/Volume08_Issue01.pdf

CER Opinion

Achieving Credible HPO Targets Using Allocated Free Hydro Power: In the proposed Annexure-I (Note 2) "*The hydro renewable energy component shall be met only by energy produced from Hydro Power Projects [including Pump Storage Projects (PSPs) and Small Hydro Projects (SHPs)], commissioned after the 31st March, 2024:*

Provided that the hydro renewable energy component may also be met out of the free power being provided to the State/DISCOM from the Hydro Power Projects commissioned after the 31st March, 2024."

What mechanism would be in place to ensure that the free hydro-power is 'consumed' within the state and has not been sold through instruments like Green Day-Ahead Market (GDAM), Renewable Energy Certificates (RECs), or sold under bilateral/banking arrangement?

This concern was also highlighted during the recent Regulatory Conclave on Energy Transition and the RPO Framework organized by the Centre for Energy Regulation (CER) at IIT Kanpur. A key takeaway from the event was the recommendation to establish a robust accounting system for REC-based RPO compliance. Such a system would help ensure transparency and prevent any instances of double counting or unintentional leakage, thereby improving the integrity and reliability of the overall RPO compliance process.

State Specific CUF for Distributed Generation[6]: In the proposed Annexure-I (Note 3) para 3 "*Provided further that in case the designated consumer (as per the Energy Conservation Act, 2001) is unable to provide generation data against distributed renewable energy installations, the reported capacity shall be transformed into distributed renewable energy generation in terms of energy by a multiplier of 3.5 units per kilowatt per day (kWh/kW/day).*

Provided further that in case of distributed renewable energy installations installed by various prosumers in the Distribution Licensee area and if the such Distribution Licensee is unable to assess the quantum of generation due to non-availability of generation data, the generated units shall be arrived in terms of energy by a multiplier of 3.5 units per day for RPO counting of the Distribution Licensee"

The fixed multiplier of 3.5 units/kW/day for estimating deemed generation, as outlined in the MoP guidelines[7], does not adequately reflect the solar energy resource potential in Tamil Nadu due to regional variations in solar irradiance. Applying a standard factor across all states can result in over-/under-estimation of actual RE consumed from such sources and hence the level of RPO compliance. This may be accentuated particularly during periods of low solar generation, and may reduce the incentive to report actual generation data.

To ensure a more accurate and regionally relevant estimation, it is recommended to replace the fixed multiplier with a monthly, CUF-based benchmark tailored to Tamil Nadu solar conditions, with scope for regional differentiation, if feasible. Further, to promote data transparency and accountability, a penalty multiplier (say., 0.9) may be imposed on the benchmark CUF, for entities failing to report generation data for more than three months in a year. RPO compliance would accordingly be adjusted post completion of a year.

Data Archiving and Accessibility: All the RPO compliance data, including that for the captive as well as open access consumers 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.

[6]Singh, A. (ed.). (2024), Opinion on "Tariff and Others Terms for Supply of Electricity from Renewable Energy Sources and non- fossil fuel based Cogenerating Stations" (First Amendment) Regulations, 2024. . In Power Chronicle (Vol. 07, Issue 01, pp. 16-17), Energy Analytics Lab (EAL), Indian Institute of Technology Kanpur https://eal.iitk.ac.in/assets/docs/power_chronicle_vol_7_issue_1.pdf

[7]https://powermin.gov.in/sites/default/files/Notification_Regarding_Renewable_Purchase_Obligation_RPO.pdf

Opinion on KSERC (Renewable Energy and Related Matters) Regulations, 2025

Cite

KSERC notified draft on Renewable Energy and Related Matters Regulations, 2025, issued on 30th May, 2025. The main objectives of the proposed regulations are:

Objective: The objective is to regulate the promotion, integration, and operation of renewable energy systems in Kerala, ensuring their safe and efficient grid connectivity. It aims to streamline processes for Net Metering, Gross Metering, Virtual Net Metering, and Open Access for various renewable energy generators. The regulations promote energy storage, grid stability, and consumer participation in renewable energy adoption through prosumer models. They also support Kerala's clean energy transition by setting guidelines for Renewable Purchase Obligations (RPO), tariff determination, and market facilitation.

CER Opinion

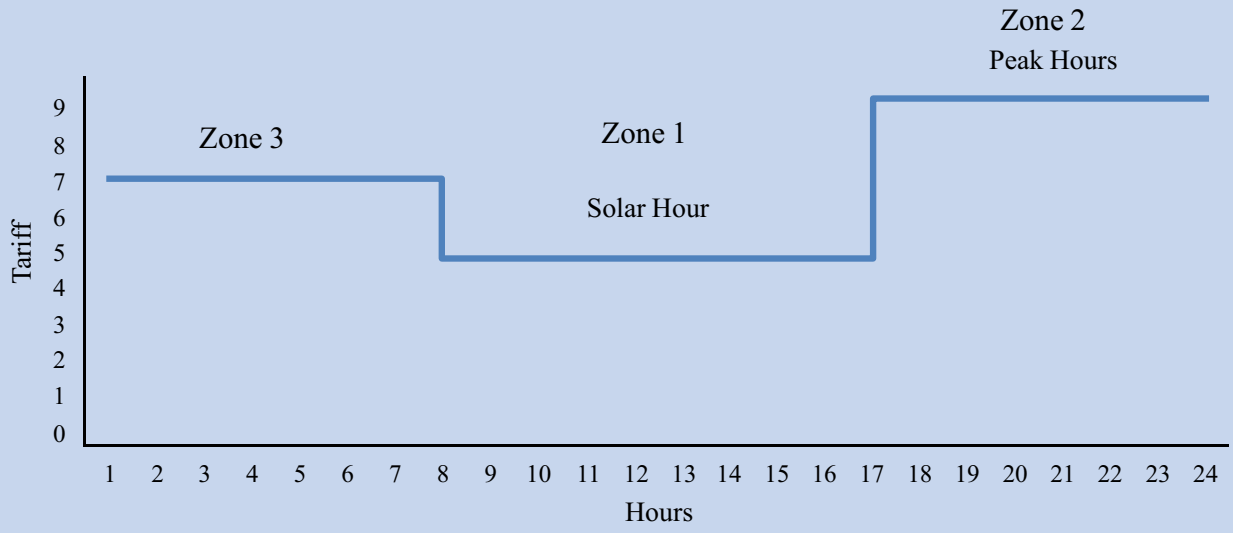
Dynamic Peak hours: As per the proposed Clause3 (68) "*Peak Hours' means the period from 18:00 hours to 23:30 hours on the same day:*

Provided that, the time period specified above shall be applicable wherever ABT meters or smart meters or ToD meters programmed for the above time zone are installed and in all other cases the 'peak hours' shall be zone 2 (18:00 hrs to 22:00 hrs)".

The electricity demand as well as market dynamics vary across seasons as well as time of the day. Peak/off-peak hours are to be guided by the relative electricity demand that may itself vary across the seasons. This would necessitate that the time zones mentioned in these regulations based on price or peak hours should be dynamic, be adjusted on a seasonal basis with observed/expected demand variation and the market prices.

Arbitrage opportunity through V2G: As per the proposed Clause 23(23.6) "*The A special Time-of-Use (ToU) tariff shall be introduced to encourage V2G participation, offering incentives for energy export during peak demand periods. Dynamic pricing mechanisms shall be explored to compensate EV owners based on real-time grid conditions.*

Provided that, as an initial measure, the ***tariff for EV Charging stations during non-solar hours*** *shall be applicable for export of energy from V2G systems during peak hours, at appropriate voltage level". (emphasis added)*



Suggested Citation: Singh A. (ed.). (2025), Opinion on KSERC (Renewable Energy and Related Matters) Regulations, 2025, *Regulatory Insights* (Vol.08, Issue 01, pp. 8-15), Centre for Energy Regulation (CER), Indian Institue of Technology Kanpur.
https://cer.iitk.ac.in/periodicals/regulatory_insights/Volume08_Issue01.pdf

Attractiveness of V2G export can only be ensured, if the vehicle owners are provided sufficient arbitrage in tariff (to be paid) for EV charging during the solar hours and price (to be received) for energy export during non-solar hours. If EVs are expected to charge during Solar hours and export electricity during peak-hours, the proposed tariff/price structure would not be attractive. Also note that such charging and export would also take a toll on the life and performance of the batteries.

Since discom's marginal cost of power procurement during peak hours is high (either due to market procurement or schedule of the most expensive PPA contract), the tariff offered for electricity export by EVs should be aligned to the same as the exported energy would replace such costly procurement. A treatment similar to the consumers with BESS system may be provided in such case as well i.e. compensation for energy injected by the EV owners is sufficiently higher than the tariff they have paid for EV charging.

Challenges in ESO Accounting and the Case for REC-Based Compliance: In the proposed Clause 3(33) "*'Energy Storage Obligation' or 'ESO' means the obligation of an obligated entity to source a* ***portion of the energy from Energy Storage Systems*** *established as standalone ESS or in combination with RE sources, which shall be calculated as a percentage of the total consumption of electricity and shall be treated as fulfilled only when at least 85% of the total energy stored in the ESS is procured from RE sources, on annual basis". (Emphasis added)*

The energy stored by an ESS should include a minimum of 85% share of renewable energy to permit this to be accounted towards Energy Storage Obligation (ESO). While the energy injected and utilized form an ESS would be accounted towards the ESO, accounting of green energy stored and its sale/utilization would present a significant challenge. For example, how would be the energy sold by ESS (against that procured from RE and non-RE sources) across DAM/GDAM be accounted for. We have earlier suggested implementation of a REC-based compliance[8] mechanism that would provide a guarantee of origin and would address the accounting challenge for green energy and RPO compliance. This is further complicated by the fact that renewable energy procured from the ESS, would also be accounted towards RPO/RCO of the obligated entity. It becomes imperative to implement a mechanism ensuring guarantee of origin.

Regulatory Conclave on Energy Transition and Framework for RPO organized in March. 2025, CER, IIT Kanpur suggested a mechanism for REC-based RPO compliance to ensure leakage proof accounting to help address such issues. Such a mechanism would be critical in preventing double counting or leakage, thereby strengthening the credibility and accuracy of RPO fulfilment

Guarantee of Origin for Non-Electrical Renewable Energy[9]: As per the proposed Clause 3(34) "*Energy Storage System' or 'ESS' means a device that stores the energy from variety of energy sources, including solar, wind and other RE sources etc., utilizing the methods and technologies like; solid state batteries, flow batteries, pumped storage,* ***compressed air, fuel cells, hydrogen storage or any other technology to store various forms of energy,*** *and to deliver the stored energy in the form of electricity to the grid or installation as and when needed". (Emphasis added)*

Production and storage of non-electrical renewable energy cannot be monitored easily in the absence of a broader framework that provides a guarantee of origin. If an energy storage system, broadly defined here to include those capable of storing non-electrical energy (especially green hydrogen or compressed air), verification of renewable nature of the energy would become challenging for the nodal entity and would leave room for incorrect classification as well as disputes. A nation-wide mechanism, in line with the RECs, should be put in place to ensure guarantee of origin for non-electrical form of energy as well. The following input submitted to JSERC on its draft regulation on green energy open access[10] is relevant in the current context as well and may be considered.

[8]Singh, A. (ed.). (2025), 6th Regulatory Conclave on "Energy Transition and Framework for Renewable Purchase Obligation (RPO)", In Regulatory Insights (Vol. 07, Issue 04, pp. 18), Centre for Energy Regulation (CER), Indian Institute of Technology Kanpur. https://cer.iitk.ac.in/newsletters/regulatory_insights/Volume07_Issue04.pdf

[9]Singh, A. (Ed.). (2024). Opinion on JERC (Terms and Conditions for Green Energy Open-Access) Regulations, 2024 [Draft], In *Regulatory Insights* (Vol. 06, Issue 04, pp. 22-24), Centre for Energy Regulation (CER), Indian Institute of Technology Kanpur.

[10]Singh A. (ed.). (2024), Opinion on JSERC (Terms and Conditions for Green Energy Open-access) Regulations, 2024, Regulatory Insights (Vol. 06, Issue 04, pp. 22-24), Centre for Energy Regulation (CER), Indian Institute of Technology Kanpur. https://cer.iitk.ac.in/periodicals/regulatory_insights/Volume06_Issue04.pdf

"*mechanism to verify the purchase and use of green hydrogen or green ammonia by the obligated entity would also be required for considering them for meeting the RPO. The existing REC registry may be empowered to certify the same. Relevant procedures, protocols and accounting framework would be required to be specified for the same under the relevant CERC regulations*".

Grid Support Charges and ESS: In the proposed Clause 3(41) "*Grid Support Charges' means the charges to be paid by the prosumers, CPPs and other users of the grid, for recovering the costs related to* ***energy storage****, grid balancing etc., for facilitating energy injection into the grid".*

Grid support charges[11] are justifiable if, among other factors, grid-level energy storage is deployed by the distribution licensee to address uncertainty associated with the demand of CPPs and other users of electricity. In case, sufficient storage has been put in place by such users and is being utilized to address the uncertainty on their behalf, the consumer/CPP should not be required to pay for the uncertainty it has addressed at its end. **Grid support charges can thus be differentiated for CPPs/consumers with storage, particularly BESS, which can quickly respond to address RE/demand uncertainty.**

Cost incurred by the discom in procuring storage services used for 'balancing' needs, excluding that on account of energy arbitrage, should only be considered for calculation of grid support charges.

The clause may be rephrased as *"Grid Support Charges' means the charges to be paid by the prosumers, CPPs and other users of the grid, for recovering the costs related to grid balancing, and the associated costs including that for energy storage system, for facilitating energy injection into the grid".*

Applicability of Tariff to Infirm Power: In the proposed Clause 3(47) "*Infirm Power means the power injected by a generation project into the grid prior to the Date of Commercial Operation (COD), for testing, trial run and commissioning of the project. Since power from renewable energy sources is non- firm in nature, the tariff fixed by the Commission post COD shall also be applicable for the power injected into the licensee system prior to COD for a maximum period of; one month for solar and wind projects, and six months for hydro projects, subject to the condition that the RE generator enters into an agreement with the licensee to supply power from the RE plant at the tariff determined by the Commission".*

The approach and applicability of tariff determination should be addressed in a dedicated section of the Tariff Regulations specific to infirm power supply. Any related stipulations or provisions should be clearly outlined there.

The infirm power from RE plants (especially solar and wind) brings greater uncertainty as this would not be scheduled, and hence should be subject to a Deviation Settlement Mechanism (DSM) as applicable, capped by the regulated applicable RE tariff for in- firm power determined by the Commission for the respective technology. To account for system wide impact of such in-firm power, the applicable tariff for the same should be lower than the regulated RE tariff determined by the Commission. This would also incentivize the developer to ensure timely commissioning of the project.

Until specific regulations for intra-state DSM are notified, the tariff for infirm power may be determined based on inter-state DSM charges with the applicable regulated tariff for in-firm power being cap on the same.

Status update via messaging: In the proposed Clause 17(17.5) "*The Distribution Licensee shall acknowledge the receipt of the application along with application reference number for tracking purpose, automatically through online mode".*

This may be amended as, "*The Distribution Licensee shall acknowledge the receipt of the application along with application reference number* ***through SMS/whatsapp message*** *for tracking purpose, automatically through online mode".*

[11]Clause 33(33.2)(iv)The grid-support charge be applicable for energy storage systems the regulation Grid support charges at Rs. 1/- per unit until the Commission determines the Grid support charges based on an application of the licensee

Duties and Obligations of a Virtual Power Plant (VPP): In the proposed Clause 21(21.2) "*The VPP shall be registered with the Distribution Licensee and shall also be allowed to provide services such as energy supply, frequency regulation, and demand response, subject to the conditions specified by the Commission*".

As per draft clause (21.1) a Virtual Power Plant (VPP) is an arrangement where distributed energy resources (DERs) such as rooftop solar, ESS, electric vehicles, and demand response systems are aggregated by a VPP operator. This aggregation would enable their collective participation in the market for electricity as well as ancillary services.

Several questions arise with respect to the duties and obligations of a VPP. Some of the key questions and their response are listed below

No.	Questions	Remarks
1	Would there be a minimum criteria for registering and functioning as a VPP?	Yes. Based on multiple criteria including – aggregated load, aggregated SPV capacity and aggregated storage capacity. Since a VPP would have 'open access' to the network, this should be related to the limit for green energy open access i.e. 100 kW load, x factor of 100 kW (x- related to the ratio between the permitted solar rooftop capacity wrt to the connected load/sanctioned demand)
2	Would the VPP have deemed 'open access' and hence the associated obligations?	Yes. Based on conditions similar to those applicable for green energy open access consumers.
3	Would there be restrictions to a VPP functioning as a load?	A VPP may transform into a 'competing retailer', if it can seamlessly access the power market, and more so if it enters into contracts for procurement of energy for 'charging of storage capacity'?
4	Would a VPP be treated like a consumer (and load during net charging mode), or generating company, or both? Would it have obligations and privileges as in the case of a captive power plant based on RE?	Both and hence respective obligations would apply.
5	Would it be obligated to ensure adherence to grid code?	Yes.
6	Would there be scheduling obligations for the VPP and hence be subjected to the applicable DSM regulations?	Yes.
7	What would be the reporting obligations?	Yes. Similar to those applicable to a generating company with additional information disclosure about operation of the aggregated storage including storage status and charging/discharging.
8	Would a VPP be allowed to supply energy to open access consumers? Would it be treated like a trader in that case with applicable obligations?	Needs regulatory clarity.

To ensure transparency and accountability in the operation of a Virtual Power Plant (VPP) to its members, a VPP shall be registered with the Distribution Licensee, and would also have disclosure requirements to the discoms as well as its members in terms of its schedule and actual transaction with the grid and within its members. Such information should be disclosed through a centralized portal/webpage with SLDC.

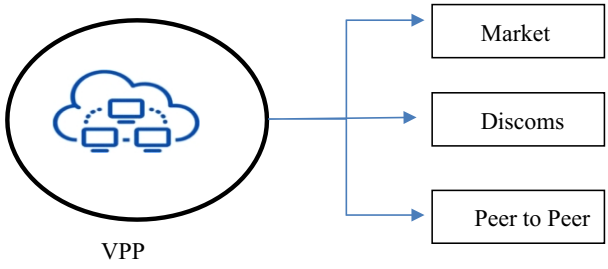


Figure 2: Role of Virtual Power Plant (VPP)

Regulation of P2P transactions by Distribution licensee: In the proposed Clause 22(22.3) "*The distribution licensee shall act as the nodal agency for monitoring, **regulating**, and facilitating P2P energy transactions within its jurisdiction. It shall ensure grid stability, maintain power quality, and address any operational challenges arising from P2P transactions. The distribution licensee shall provide technical support to prosumers and consumers for smooth integration into the grid and ensure compliance with safety standards".*

While one would agree that the distribution licensee should monitor and facilitate P2P transactions, 'regulation' of such transactions would have far reaching consequences giving unbridled power to the distribution licensee. In the absence of a clear definition of 'regulating', in this context, P2P transactions may face hurdles. This includes specifying aspects such as the permissible time periods or days when P2P trading can occur, the quantum of energy that may be traded, and the margins or fees that may be charged by P2P trading platforms.

The regulation should outline a dispute resolution framework for P2P transactions as well for the Virtual Power Plant. Can disputes between consumers be taken up by a CGRF?

Normalization factor for Energy Banking and its Drawal: As per the proposed Clause 28(28.4) *"The exported energy in each time zone remaining after settlement as per clause (ii) above, if any, shall be normalized based on the normalization factor for the three time zones as indicated in Column A in Table 3 below to arrive at the banked quantum of energy*".

Time Zone		Normalization factor to arrive at the banked quantum of energy	Normalization factor for taking back banked energy for energy offsetting
		A	**B**
Solar Hours		1.0	1.0
Non-Solar Hours	Peak Hours	1.5	0.667
	Off Peak Hours	1.15	**0.85**

Differentiation in the normalization factor for banking/drawing banked energy across different times zones is justified as it assigns differentiated value based on time of the day. The product of the normalization factor (i.e. A * B) across the solar and peak hours (non-solar) is unity, whereas this does not translate to unity in the case of Off-peak hours (See Table 2 below). **To ensure parity in the conceptual framework, normalization factor for taking back banked energy for energy offsetting during off-peak hours should be 0.87.**

Table 2 – Normalisation Factor for Banked Energy and its Drawal

Time Zone		Normalization factor to arrive at the banked quantum of energy	Normalization factor for taking back banked energy for energy offsetting	
		A	**B**	**A*B**
Solar Hours		1.0	1.0	1
Non- Solar Hours	Peak Hours	1.5	0.667	1
	Off Peak Hours	1.15	**0.85 (draft regulation)**	0.977
			0.87 (proposed)	**1**

From an investment and incentive perspective, the normalization factor applicable during peak and off-peak hours must be sufficiently high to incentivize adoption of storage technologies. The current normalization factor does not provide adequate compensation to justify investments in such storage systems. Consider two scenarios for net metering one involving only rooftop solar, and another including energy storage.

* Rooftop Solar Only: In this scenario, the consumer's load profile and solar generation are as shown in Figure 3. During solar hours, surplus energy is directly injected into the grid. During other periods, energy is imported from the grid.

* Net Metering with Storage: In the presence of energy storage, surplus energy generated during solar hours is likely to be stored in the battery and discharged during peak (less, likely during off-peak hours). In this case, the normalization factor must account for battery charging and discharging losses to adequately compensate for energy losses. (Figures 3 - 5)

For example, given a level of charging and discharging efficiencies, and loss in storage, the actual energy available for export from 1 kWh of energy charged into the battery would be as follows.

Exported energy (kWh) = 1 (energy stored) × 0.95 (inverter charging efficiency) × 0.95 (storage losses in battery) x 0.95 (inverter discharging efficiency) = 0.857 kWh (1)

If the current compensation factor for peak hours is 1.5, the compensation received would be

= 0.857 × 1.5 = 1.286 kWh (2)

In case of tariff for solar and non-solar hours is not significantly differentiated, there would be sufficient incentive for investment in storage technology. For example, tariff during solar hours is 20% lower than that applicable for other hours (including peak hours). The value of stored energy would be,

= (1.286 – 1) x P /0.8 = 0.3575 x P

where, P is the base energy charge (Rs. / kWh) and would depend on the applicable block- wise tariff.

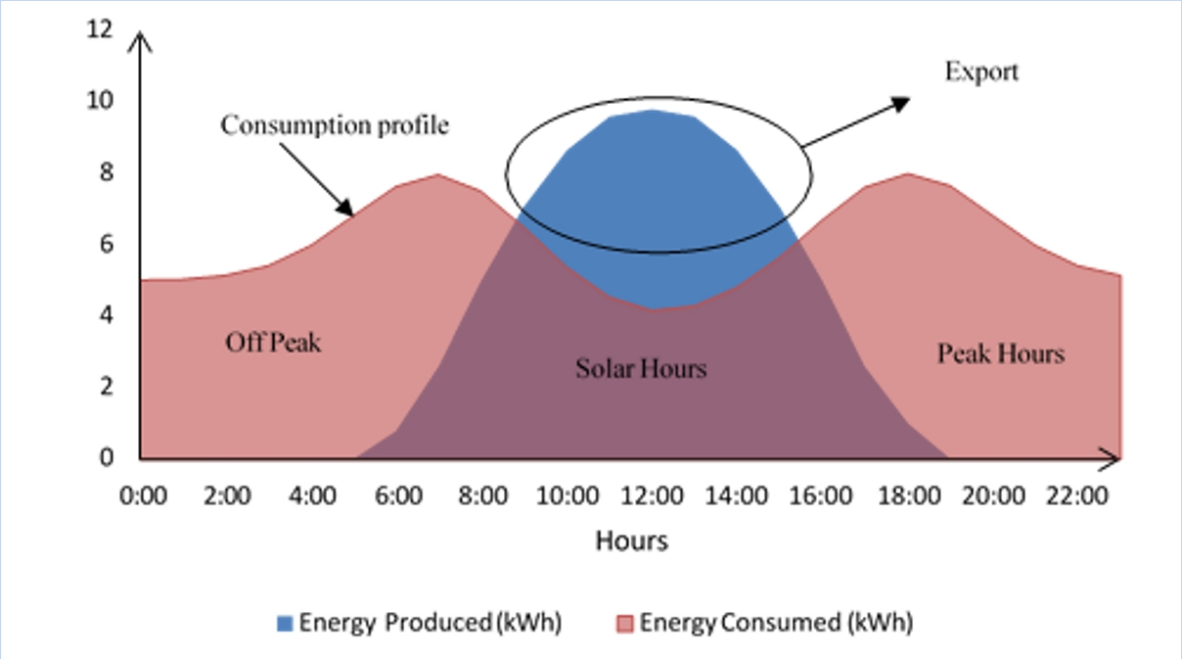


Figure 3: Scenario without ESS

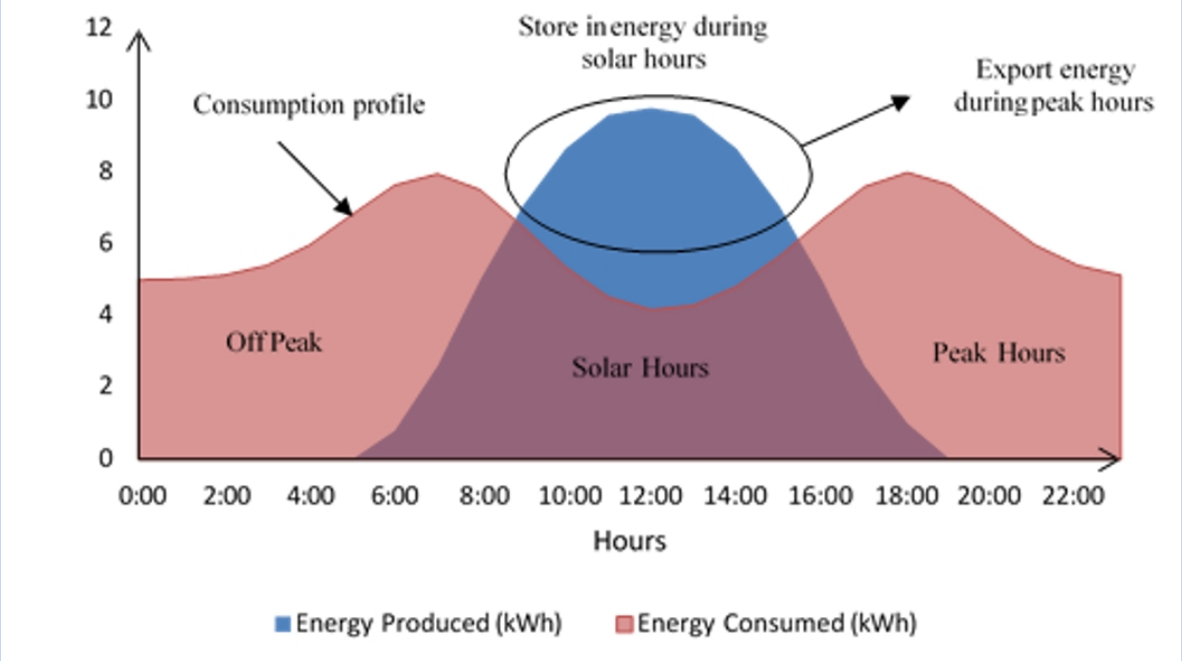


Figure 4: Scenario without ESS

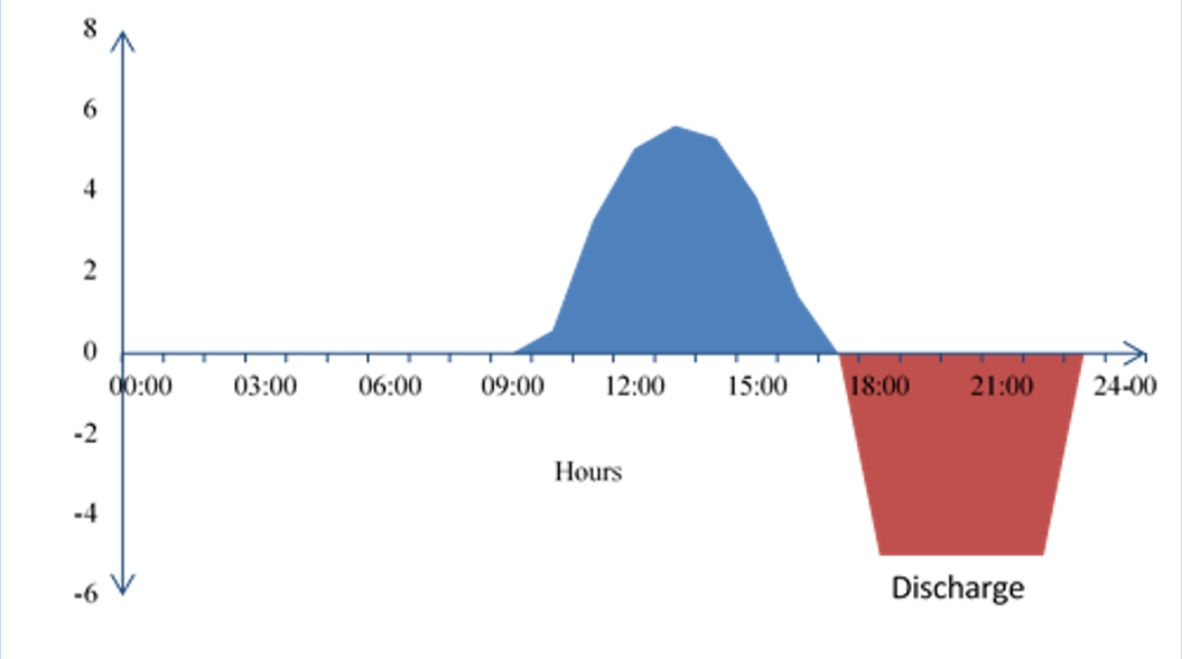


Figure 5: Charging and discharging of an ESS

The economics of storage would be based on cost of storage technology, expected utilization, consumer tariff and cost of financing. The existing normalization factor is insufficient to account for charging and discharging losses and to ensure the economic viability of installing such storage systems**. As an alternate, tariff can be differentiated across solar, peak and off-peak hours (depending on metering capability) along with corresponding tariff for injection of power to the distribution system.**

Adjustment amount of Consumer Credits Below and Above ₹500: In the Proposed Clause 28(28.4 (vi) *The amount, if any, at the credit of the prosumer at the end of the financial year shall be paid by the distribution licensee to the prosumers before 30th April of the subsequent financial year*

Adjustment of credit, in case of payment would involve administrative overheads, more specifically in terms of verification of the bank account of the consumer supported with necessary documents. Furthermore, each credit would also require multiple cross- checks/approvals. Against this adjustment against consumer's bill would have significantly lower administrative burden. **Furthermore, credit to be adjusted against future bills should earn a rate of interest equivalent to that applicable for working capital.**

The following approach may be adopted.

- Credit below Rs. 500* – to be adjusted against future bills with applicable interest rate
- Credit above Rs. 500 (after adjustment against current bill),
- - to be adjusted against future bills with applicable interest rate.
- - to be paid to the consumer immediately to consumer's bank account

*- The Commission may determine the limit based on likely size of a PV installation, expected bill etc. Consumer's consent including the choice for credit above the selected limit to be selected at the time of application for behind the meter installation.

Tariff

KERC approves and notifies the APPC at Rs. 5.54/unit for FY 2025-26, effective from 1st April 2025, under Clause 7(c) of the KERC (Procurement of Energy from Renewable Sources) Regulations, 2011, for the purpose of REC, subject to truing up based on actuals. As per the Seventh Amendment Regulations, 2019, ESCOMs shall bill RE generators under the REC mechanism at the lower of Rs. 5.54/kWh or 75% of the Generic Tariff determined by the Commission, subject to truing up of APPC for FY 2024-25. The difference arising from actual APPC of Rs. 5.54/kWh versus provisional APPC of Rs. 4.93/kWh for FY 2024-25 shall be adjusted in three equal installments for energy supplied from 1st April 2024 to 31st March 2025, in line with applicable regulations.

UERC approved an additional surcharge of Rs. 1.14/kWh for open access consumers for April to September 2025, as requested by UPCL. The surcharge addresses stranded fixed costs (Rs. 53.51 Cr) due to open access energy (71 MU) from April to September 2024. Stakeholders raised objections about delayed documentation and compliance, but the Commission upheld the surcharge, calculated after considering transmission and distribution losses. The order aligns with prior rulings and applies prospectively.

MPERC dismissed review petition filed by MPPMCL and the state's discoms. The petition sought a review of the True-Up Order of FPPAS for FY 2023-24, alleging errors in methodology and excess recovery calculations. The Commission found that the issues raised, including methodology flaws and implementation difficulties, were adequately addressed in the True-Up of ARR for FY 2023-24, and no further review was warranted. The petitioners' request to amend the FPPAS formula and provisions was deemed outside the scope of the review.

MPERC dismissed the petition filed by Orient Paper Mills u/s 142 of the EA, 2003, seeking enforcement of the Commission's order on Petition No. 69 of 2023 and the Tariff Order for FY 2023-24. The case involved the petioner request for a rebate on increased grid consumption from 15th April 2022, arguing eligibility based on the doctrine of constructive notice, while the respondent, East discom, granted the rebate only from 19th July 2023, the date of the petitioner's formal request. The Commission ruled that the Tariff Order explicitly requires a conscious request application for the rebate, and the doctrine of constructive notice cannot override this requirement, as it would misinterpret the legislative intent to incentivize deliberate grid consumption. Thus, the respondent's compliance with the Tariff Order was upheld, and no willful non-compliance was found to warrant action under Section 142.

CERC approved the trued-up tariff, including capital cost, RoE, IoL, and O&M expenses that PGCIL sought truing-up of tariff for 2019–24 and approval of tariff for 2024–29 for assets under NRSS–XXIX. No Additional Capital Expenditure (ACE) was proposed for 2024–29, and existing cost was admitted. The Commission determined tariff for the next control period per applicable regulations. RoE was grossed up using MAT rate, and interest on working capital was allowed as per norms.

UPERC approved the discovered tariff of Rs. 2.99/unit and adopted the PPAs for 34.8 MW under the KUSUM scheme, noting limited participation due to the early stage of the RESCO model in Uttar Pradesh. To support timely project implementation, the Commission allowed the mutually agreed extension of the PPA effective date to 30th October 2024, with project commissioning by 30th October 2025. UPNEDA and UPPCL were cautioned against altering approved bidding documents without due process.

APSERC directed the Transmission Planning & Monitoring Zone, Department of Power, Arunachal Pradesh, to file applications as per Clause 2.5 of the MYT Regulations, 2024, within one month. No further extension will be granted, and non-compliance may lead to suo motu proceedings under the penal provisions of the Electricity Act, 2003.

Power Procurement

WBERC approves the Power Supply Agreement dated 13th March 2025 between JSW Thermal Energy Limited and WBSEDCL for 1492 MW under a Long-Term arrangement from the upcoming 2 x 800 MW Salboni Power Station, developed under the DBFOO model. Approval is granted as per Section 63, Section 86(1)(b) of the Electricity Act, 2003, and Regulation 7.4.1 of the WBERC Tariff Regulations, 2011, as amended. The petition is disposed of. The order will be posted on the Commission's website. WBSEDCL shall act accordingly.

WBERC approves the Power Supply Agreement executed on 13th March 2025 between JSW Thermal Energy Limited and WBSEDCL for contracted capacity of 1492 MW under Long Term arrangement from the new 2 x 800 MW power station to be set up on DBFOO model, in terms of Section 63 read with Section 86(1)(b) of the Electricity Act, 2003 and Regulation 7.4.1 of the WBERC (Terms and Conditions of Tariff) Regulations, 2011, as amended from time to time. Formalities laid down in WBERC (Conduct of Business) Regulations, 2013 as amended and on submission of necessary fees.

WBERC approves the Power Purchase Agreement dated 7th February, 2025 executed by DVC with NHPC for procurement of up to 200 MW hydro power from Parbati-II HEP as per allocation by MoP, GoI, at tariff determined by CERC, for 40 years or balance normative life, whichever is earlier, to the extent utilized in West Bengal, as per Regulation 7.4.1 of the Tariff Regulations. DVC shall comply with applicable laws, intra-state ABT, and State Grid Code.The petition is disposed of. Order to be posted on the website. DVC shall download and act. Certified copy to be issued as per Conduct of Business Regulations, 2013.

UERC provided its decision on petition filed by Uttarakhand Power Corporation Limited (UPCL) and Rai Bahadur Narain Singh Sugar Mills Ltd. The Commission noted an error in the supplementary PPA dated 01st April 2015, which was set to expire on 15th September, 2025, instead of 17th December, 2029, the plant's useful life as per the CoD (18th December, 2009). UPCL is directed to modify the PPA to extend its validity and submit the amended supplementary PPA within 10 days.

UERC examined UPCL petition seeking approval for deviations in the RFQ for procuring 1320 MW of coal-based power under long-term procurement. UPCL proposed modifications to allow certificates for technical and financial capacity per ICAI guidelines and to include "total project cost" in the Statutory Auditor's certificate for PPP projects. The Commission rejected the first modification, requiring Statutory Auditor certificates as per the RFQ format, but approved the inclusion of "total project cost." UPCL must justify the power demand projection before finalizing the tender.

MPERC approved deviations in Model Bidding Documents for the procurement of 3200 MW from new-build thermal power stations in Madhya Pradesh under the DBFOO model but declined to approve deviations for 900 MW from existing thermal plants at this stage, directing further analysis by the petitioner. The case, filed by MPPMCL u/s 86(1)(b) of the EA, 2003, sought approval for long-term procurement of 4100 MW (900 MW from existing and 3200 MW from new thermal plants) through competitive bidding, based on the CEA's Resource Adequacy Plan. The Commission had previously granted in-principle approval for the 4100 MW capacity addition on 13th March 2025. The petitioner was asked to address concerns regarding the 900 MW bid, including limited competition, balance life of plants, and transmission cost savings, before re-approaching the Commission.

TGERC approved TGDISCOMs' proposal to procure power from one unit (1x800 MW) of NTPC's Telangana Super Thermal Power Station Stage-II for 25 years, against NTPC's offer of three units (3x800 MW), to meet projected energy deficits from FY 2029-30. The Commission directs TGDISCOMs to ensure connectivity to TGTRANSCO's network to avoid ISTS charges and to pursue prudent tariff determination with CERC. The approval considers rising power demand, grid reliability, and the need for base load support amidst renewable energy intermittency, while addressing stakeholder concerns on tariff clarity and competitive bidding.

MERC approved the adoption of tariffs of Rs. 5.45/kWh (JPL) and Rs. 5.47/kWh (DIL) for procurement of 70 MW and 75 MW RTC power, respectively, by TPC-D for two years. The Commission found the bidding process compliant with Section 63 guidelines and confirmed the reasonableness of tariffs. It also approved the associated PPAs and directed TPC-D to submit the executed agreements to the Commission for record purposes.

UPERC approved the bidding documents and the proposed deviation for project selection. UPERC directed UPNEDA to form a Bid Evaluation Committee, submit an analysis report, and complete the bidding process promptly. UPNEDA must also seek PPA approvals in a timely manner.

UPERC through its earlier order dated 27th February 2023, had approved the transfer of 99.82% equity and 100% preference shareholding of Lanco Anpara Power Limited to Mega Engineering & Infrastructure Ltd. or its wholly owned subsidiaries. Following this, it has now approved the SPPA dated 11th November 2024 for the 2x600 MW Anpara 'C' Thermal Power Project.

Renewable Energy, RPO and REC

BERC review the Discom's limited procurement of green power, only for 3 months in FY 2023-24 and 4 months in FY 2024-25, despite efforts to meet RPO targets. The existing 54:46 energy sharing ratio may need review to avoid year-end issues. The Commission allows carrying forward the 3% NBPDCL shortfall to FY 2025-26, urging petitioners to clear it using all available RE power and REC options.

HERC approved HPPC's petition for procuring 400 MW of Firm and Dispatchable Renewable Energy (RE) power from NHPC at Rs. 4.44/kWh, including a Rs. 0.07/kWh trading margin, for 25 years. This procurement, with a minimum 70% CUF and 90% peak-hour availability, supports Haryana's Renewable Purchase Obligation (RPO) and addresses projected power deficits. The approval includes the Power Purchase Agreement (PPA) and leverages a 50% transmission charge waiver if commissioned by 30th June, 2027.

UERC discovered the shortfall in energy generation was partly due to uncontrollable factors like grid disturbances and barrage issues, but not hydrology, as claimed by UJVN Ltd. It approved recovery of Rs. 40.4 lakhs from UPCL, based on UPCL's share of the shortfall, to be recovered starting May 2025 on a rolling basis. UJVN Ltd. filed a petition with the Commission to recover under-recovered energy charges for FY 2020-21 due to a shortfall in energy generation at Dhakrani, Dhalipur, and Kulhal Hydro Power Stations, citing reasons beyond their control. UPCL's use of Revised Design Energy for calculating the Energy Charge Rate was upheld, and UJVN Ltd. was directed to adjust any excess recovery for Dhakrani.

MPERC approved the capacity addition proposed by MPPMCL for procuring 800 MW wind power (with an additional 800 MW under Greenshoe option), 1290 MW solar power under PM KUSUM Scheme Component-A, 252 MW hydro power from Dibang Multipurpose Project, 1650 MW solar power each from SECI and SJVN, 1000 MW/2000 MWh and 250 MW/500 MWh from BESS, and 1000 MW mid-term power on a complementary basis with UPPCL. The petition was filed u/s 86(1) of the EA, 2003, to meet RPO targets and address energy deficits as per the Resource Adequacy Plan. The Commission rejected the request to carry forward RPO shortfalls from FY 2023-24 to FY 2029-30, directing MPPMCL to ensure cost-effective power procurement and quarterly RPO compliance reviews.

TGERC approved the procurement of 4000 MW (including 1000 MW for Women SHGs under INDIRA MAHILA SHAKTI SCHEME) of decentralized ground-mounted grid-connected solar power by TGDISCOMs under Component-A of the PM KUSUM Scheme for 25 years, along with the model PPA. The Commission rejected approval for the Expression of Interest and Model Lease Agreement, as they are outside its purview. TGDISCOMs must submit executed PPAs, ensure MNRE guideline compliance, and provide quarterly progress reports.

TGERC approved TGDISCOMs' proposal for procuring 200 MW of solar power from NLCIL under the CPSU Scheme Phase-II, Tranche-III at a tariff of Rs. 2.57/kWh for 25 years. The procurement aims to meet rising energy demands, comply with RPO targets, and reduce power purchase costs. The Commission directs TGDISCOMs to ensure ISTS charge waivers and seek approval for the Power Usage Agreement post-CERC tariff adoption. The decision addresses stakeholder concerns, emphasizing competitive tariffs and renewable energy integration.

Others

AERC has disposed of the petition filed by "M/s Emami Limited" regarding the issuance of draft invoices dated 26th November 2024 under the Deviation Settlement Mechanism, allegedly in violation of the Assam Electricity Regulatory Commission (Terms and Conditions of Open Access) Regulations, 2018 and the Assam Electricity Regulatory Commission (Deviation Settlement and Related Matters) Regulations, 2019, with a direction to approach the Grid Code Management Committee (GCMC). As the GCMC has already suggested that any objections to the bills, once served, may be raised before the GCMC and SLDC, the GCMC is further directed to address the grievance within one month of the petition's filing, in accordance with the AERC Open Access and DSM Regulations, and to report its analysis to the Commission.

UERC granted in-principle approval for UPCL to construct three 33/11 kV substations (2x12.5 MVA each) at Kathgodam and Jaipur Padli, with associated 33 kV lines, costing Rs. 7792.69 lakh. The projects aim to address overloading, low voltage issues, and support a 10% annual load growth due to rapid industrialization. Funding comprises 70% loan from REC and 30% equity from the state or UPCL.

UERC addressed petition filed by Galwalia Ispat Udyog Pvt. Ltd.(GIUPL) against UPCL regarding additional security deposit calculations. GIUPL contested UPCL demand for a security deposit based on 45 days (15 days × 3) instead of 30 days (15 days × 2) for its 27.5 MW connection, citing erroneous calculations and requesting bank guarantees instead of cash. The Commission upheld its earlier stance from 31st October 2023, mandating security deposits as per Regulation 4.2(1) of the UERC Supply Code 2020, equating to 15 days + 1 month (45 days) for fortnightly billing.

MPERC disposed of petition directing MP central discom to comply with its earlier order within 15 days and imposing a penalty of Rs. 1 lakh for wilful non-compliance u/s 142 of the EA, 2003. The case involved Bhaskar Industries Pvt. Ltd. seeking enforcement of the 2023 Order, which mandated revising electricity bills for September to December 2022 due to a force majeure event (flooding) and restoring contract demand from 7000 KVA to 8400 KVA. The Commission rejected the discoms request to defer proceedings pending an appeal before APTEL, citing that the absence of a stay order renders the original order binding and enforceable.

MPERC dismissed the petition filed by Lanxess India Pvt. Ltd. challenging the retrospective levy of Cross Subsidy Surcharge and Additional Surcharge by MP west discom on emergency power drawn from Grasim Industries Ltd. for FY 2011-12 to FY 2022-23. The case concerned Lanxess contention that the levies violated a 2004 MPERC order permitting emergency power drawal during grid outages, which did not involve open access or the licensee's network. The Commission ruled that the 2004 arrangement became invalid post-2005 due to MPERC Open Access Regulations, making Lanxess liable for CSS and ASC, and rejected claims of limitation and delay.

CERC approved tariff for two switchable reactor assets commissioned by PGCIL under WRES-XXIV at Raipur Pooling Station. While commercial operation dates were accepted, time overrun was partly disallowed due to insufficient justification. Tariff components, including capital cost, IEDC, and IDC, were allowed with partial reductions. Additional capitalisation for deferred works and liabilities was accepted. IDC disallowance and delay findings are subject to revision during truing-up. The petition was accordingly disposed of.

CERC adopted the transmission charges of Rs. 44,864.2 lakh per annum, discovered through a transparent e-reverse bidding process for Anantapur-II REZ Phase-I (4.5 GW) transmission project. The lowest bid was submitted by Resonia Limited, selected as the successful bidder. The bid was certified to be in accordance with Section 63 of the Electricity Act and relevant guidelines. The adopted tariff will be governed by the CERC Sharing Regulations, subject to transmission licence grant.

PSERC approved a petition filed by PSPCL seeking approval for a Voluntary Disclosure Scheme (VDS) for Agricultural Tubewell consumers under a pilot solarization initiative. The Commission approved the scheme for a limited period, allowing regularization of excess load at concessional rates. However, PSERC directed that any financial loss arising from such concessions shall not be allowed as pass-through in ARR and must be absorbed by PSPCL through its own resources.

UPERC granted in-principle approval for creating the security interest, as permitted under the Transmission Service Agreement (TSA). It clarified that any future assignment of license or asset transfer to lenders' nominees in case of default would require separate prior approval after due diligence.

APSERC granted approval to the proposed draft of the 3-Tier Consumer Grievances Redressal Forum. While acknowledging the manpower constraints and certain eligibility shortcomings, APSERC commended the Department's efforts and emphasized the importance of establishing the forum to ensure timely and effective resolution of consumer grievances.

APSERC imposed a notional penalty of Rs. 1 lakh on the Department of Power, Arunachal Pradesh for non-compliance with the Bureau of Energy Efficiency Regulations, 2021, as noted in paragraph 67 of the order. The amount is to be paid to BEE within three months, failing which 9% annual interest will apply. The petition fee was waived.

Tariff Orders

State/Union Territory (SERC)	Licensee/Utility	True-up	APR	ARR	Tariff
JSERC	Inland Power Limited (IPL)	2023-24	2024-25		
JSERC	Jharkhand Urja Utpadan Nigam Limited (JUUNL)	2021-22, 2022-23			
JSERC	Damodar Valley Corporation (DVC)	2023-24	2024-25	2025-26	2025-26
JSERC	SLDC, JUSNL (Provisional)	2023-24	2024-25	2025-26	
JSERC	SLDC, JUSNL	2020-21, 2021-22, 2022-23	2023-24	2024-25	
JSERC	Adhunik Power and Natural Resources Ltd. (APNRL)	2023-24	2024-25		
JSERC	Jharkhand Bijli Vitran Nigam Limited (JBVNL)	2023-24	2024-25	2025-26	2025-26
JSERC	Jharkhand Urja Sancharan Nigam Limited (JUSNL)	2023-24	2024-25	2025-26	2025-26
UERC	UPCL			2025-26 to 2027-28	
MPERC	MPIDC			2025-26	
MSERC	MEPDCL	2023-24		2025-26	

Regulations

Title	Date in increasing order/ Notification
CERC (Sharing of Inter-State Transmission Charges and Losses) (Fourth Amendment) Regulations, 2025.	26th June 2025
CERC (Deviation Settlement Mechanism and Related Matters) (Second Amendment) Regulations, 2025	25th June 2025
HPERC (Framework for Resource Adequacy) Regulations, 2025	28th April 2025
JSERC (Rooftop Solar PV Grid Interactive System and Net/Gross Metering) (Sixth Amendment) Regulations, 2025	14th May 2025
JSERC (Terms and Conditions for Intra-State Open Access) (Second Amendment), 2025	16th June 2025
MPERC (Terms and Conditions for Determination of Transmission tariff) (1st Amendment) Regulations, 2025	11th June 2025
SSERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2025	22nd June 2025
SSERC (Grid Interactive Solar PV Systems) (Second Amendment) Regulations, 2025	22nd June 2025

Regulatory Certification Program on "Power Sector Regulation: Theory and Practice"

CER, in collaboration with EAL, conducted the Regulatory Certification Program titled **"Power Sector Regulation: Theory and Practice"** from 6th to 22nd June 2025. This program, organized under the aegis of the Centre for Continuing Education, IIT Kanpur, aimed to provide an in-depth understanding of power sector regulation in practice, grounded in fundamental economic principles.

The inaugural session was graced by Dr. Rajesh Sharma (Chairperson, RERC), as the Chief Guest.

Key speakers for the program included Mr. Arun Goyal, Mr. S. C. Shrivastava, Mr. H. T. Gandhi, Ms. Shilpa Agarwal, Mr. Anup Dutta, Mr. Vivek Mishra, Mr. Ghanshyam Prasad, Adv. Buddy A. Ranganadhan, Mr. Bijoy Kumar Sahoo, Dr Srini Parthasarathy, Dr. Raj Addepalli, Prof. Tooraj Jamasb, and Prof. Anoop Singh.

Dr. Devaraju Nagarjun (Chairman, TGERC), graced the valedictory function as Chief Guest, presented certificates to the participants, and highlighted the importance of informed decision-making and the advancement of regulatory frameworks in the power sector.

Regulatory Certification Program

Registration is now open for the **5th RCP on "Power Market Economics and Operation"** scheduled from 30th August to 14th September, 2025. This online program provides insights to the economics, operation & regulatory aspects of power market. Key topics include Economics of Power System Operation, Power Procurement Planning, Deviation Settlement Mechanism, Power System Operation, Resource Adequacy, Derivatives and more.

For more information and registration

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.

Regulatory Insight Team- Himanshu, Aman, Mohit, Sandeep, Gaurav, Sanjit, Hardeep, Muskan

Other Initiatives

Energy Analytics Lab

eal.iitk.ac.in

Contact us (Publisher):
Centre for Energy Regulation (CER)
Department of Management Sciences
Indian Institute of Technology Kanpur, Kanpur-208016
Phone: +91 512 259 6181
Email: cer@iitk.ac.in | *Follow us on:*

cer.iitk.ac.in

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