Greenko Energies Private Limited
CIN: U40109TG2000FTC034990

To,

15.10.2025

The Secretary,
Central Electricity Regulatory Commission
6th, 7th & 8th Floor, Tower B, World Trade Centre,
Nauroji Nagar, New Delhi-110029

Subject: Submission of comments/suggestions/ objections on determination of value of "X" for computation of the deviation (in %) for Wind and Solar (WS) Sellers from 01.04.2026 onwards under the provisions of the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2024 on behalf of M/s Greenko Energies Private Limited.

Reference: i) Proposal dated 10.09.2025 by Hon'ble CERC in Petition No. 9/SM/2025.
ii.) Notice dated 10.09.2025 by Hon'ble CERC. (No. L-1/260/2021/CERC)
iii) Notice dated 01.10.2025 by Hon'ble CERC.

Respected Sir,

The Hon'ble Commission, vide Suo-Motu Order dated 10.09.2025 in Petition No. 9/SM/2025 (Suo-Motu), published a proposal for the *"Determination of the value of 'X' for computation of deviation (in %) for Wind and Solar (WS) Sellers from 01.04.2026 onwards under the provisions of the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2024."*

Through a notice dated 10.09.2025, the Hon'ble Commission, under sub-section (3) of Section 178 of the Electricity Act, 2003 read with the Electricity (Procedure for Previous Publication) Rules, 2005, invited comments/suggestions/objections from stakeholders and interested persons up to 05.10.2025, which was subsequently extended till 17.10.2025.

Accordingly, I am hereby submitting an extensive comment/suggestion **(Appendix-I)** on behalf of M/s Greenko Energies Private Limited on the subject matter cited above. I respectfully request the Hon'ble Commission to kindly consider these comments/suggestions before finalizing the aforementioned proposal.

Greenko Energies Pvt. Ltd.

Best Regards,

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Comments on CERC DSM Petition: No. 9/ SM/2025 (Suo-Motu) on behalf of M/s Greenko Energies Private Limited

Background:

The Central Electricity Regulatory Commission (CERC) notified the Deviation Settlement Mechanism (DSM) Regulations, 2024 on 5th August 2024. These regulations aim to improve grid discipline and forecast accuracy for renewable energy (RE) generators. Petition No. 9/SM/2025 proposes the determination of the 'X' factor for computing deviations of Wind and Solar (WS) projects effective from 1st April 2026. This document maps the comments submitted against the relevant clauses in the petition and provides suggested revisions and impact assessments.

In view of the evolving grid dynamics and the national imperative to integrate **500 GW of renewable energy capacity** in pursuit of **Net Zero by 2070**, the determination of the **'X' factor** for deviation computation applicable to **Wind and Solar (WS) projects** shall be harmonized with the operational framework prescribed under the **CERC Ancillary Services Regulations, 2022**. The deployment of **Primary Reserve Ancillary Service (PRAS)**, **Secondary Reserve Ancillary Service (SRAS)**, and **Tertiary Reserve Ancillary Service (TRAS)** is pivotal to maintaining grid frequency within the permissible band and ensuring system reliability. These services are activated based on real-time system conditions and are designed to respond to deviations in load-generation balance, with **PRAS** typically delivered through **Free Governor Mode of Operation (FGMO)**, **SRAS** through **Automatic Generation Control (AGC)**, and **TRAS** via dispatchable reserves. As per the **Electricity Act, 2003**, the responsibility for grid frequency and voltage control rests with the **System Operator**, i.e., **NLDC/RLDCs**, which shall deploy these ancillary services using mechanisms such as the **Area Control Error (ACE)**, which accounts for deviations in scheduled versus actual interchange and frequency bias.

While the **Deviation Settlement Mechanism (DSM)** plays a critical role in incentivizing accurate forecasting and scheduling, it must be emphasized that DSM is fundamentally a **commercial settlement framework**, not a tool for frequency control. Grid discipline and frequency stability are achieved through technical and operational protocols embedded within the ancillary services architecture. Accordingly, the 'X' factor shall reflect the enhanced grid support obligations and deviation sensitivities of WS generators, factoring in their participation or impact on ancillary services deployment. Furthermore, **developers may be encouraged to integrate Energy Storage Systems (ESS) within their projects to mitigate deviation penalties and contribute to grid stability. Suitable regulatory incentives should be considered to align commercial interests with national grid reliability and decarbonization objectives.**

One Nation, One Grid, One DSM:

India's power system is increasingly integrated, yet **DSM (Deviation Settlement Mechanism)** practices vary across states, especially between **ISTS (intra-State transmission system)** and **ISTS (Inter-State Transmission System)** operations. This inconsistency leads to regulatory fragmentation, operational inefficiencies, and unequal treatment of generators. A unified

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DSM framework—**One Nation, One Grid, One DSM**—is essential to ensure fairness, transparency, and grid discipline across the country. DSM should be uniformly applied irrespective of jurisdiction, enabling seamless scheduling, forecasting, and settlement. Harmonization will also support national-level balancing, reduce disputes, and strengthen India's transition to a resilient, renewable-powered grid.

Strategic Implications:

- The revised DSM structure introduces **higher volatility and financial exposure**, especially for projects with limited forecasting accuracy or constrained real-time control.
- The **AvC interpretation** is a critical variable; if not clarified or moderated, it could lead to disproportionate penalties.
- There is a growing need for **risk mitigation strategies**, including:
    - Enhanced forecasting tools
    - Integration of **Energy Storage Systems (ESS)**
    - Aggregation at RLDC level to smooth deviations

Sr No	Existing Clause:	Comment:
1.	**Over-injection Clause** no payment shall be made to the existing Wind and Solar (WS) Sellers for any over-injection during periods when the system frequency is at or above 50.05 Hz	Existing assets shall not be subjected to this clause. These projects were commissioned under earlier regulatory frameworks and should not be retroactively penalized. Suggested Revision: Exempt existing WS projects from this clause to avoid unfair financial burden and maintain investor confidence. In the context of the evolving energy transition and the strategic imperative to achieve 500 GW of renewable energy capacity by 2030 and Net Zero emissions by 2070, it is essential that the regulatory framework governing deviation settlement mechanisms (DSM) reflects the unique operational characteristics of renewable

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		energy (RE) assets, particularly wind and solar. The current draft DSM regulations propose treating wind and solar generators as **general sellers from 01.04.2031 onwards.**, thereby subjecting them to deviation penalties akin to conventional generators. However, this approach overlooks the inherent **intermittency and non-dispatchable nature** of RE generation. Unlike thermal assets, RE generators do not have direct control over output in response to grid frequency fluctuations. Therefore, it is imperative that **RE assets be decoupled from frequency-linked deviation penalties**, recognizing their limited ability to respond to real-time grid signals. The philosophy underpinning RE integration should be one of **encouragement and facilitation**, not penalization. Imposing frequency-linked DSM penalties on RE generators—especially under conditions where **Available Capacity (AvC)** is treated as zero—risks creating a **regulatory disincentive** that could dampen investor confidence and hinder progress toward national renewable energy targets. To ensure coherence between operational realities and policy objectives, it is recommended that: • RE generators be **exempted from frequency-linked DSM penalties**, or • A differentiated treatment be applied through a calibrated **'X' factor**, reflecting their grid support capabilities and forecasting limitations. Such an approach would align DSM regulations with the broader goals of **grid decarbonization**, **system reliability**, and **investment certainty**, while preserving the integrity of grid operations through

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		ancillary services and system operator interventions.
2	**DSM Band Tightening (Clause (4) of Regulation 8:** tolerance band for Solar/Hybrid reduces from ±10% to ±5%; for Wind from ±15% to ±10% from 01.04.2026	In light of the recent amendments to the **Deviation Settlement Mechanism (DSM)** regulations, it is imperative that the revised framework be formally recognized as a **"Change in Law"** under applicable power purchase agreements and regulatory instruments. This recognition is essential to ensure that **existing wind and solar power developers** are duly compensated for the **incremental financial burden** arising from the implementation of the new DSM regime. **Key Considerations for Regulatory Action** **A. Legal Recognition of DSM Revision** The revised DSM framework introduces material changes to the commercial and operational environment of renewable energy generators. These changes directly impact the cost structure and risk profile of projects commissioned under earlier regulatory norms. As such, the DSM revision qualifies as a "Change in Law" event, warranting compensatory relief. **B. Compensation Mechanism** A transparent and standardized methodology should be established to: ➢ Quantify the **per-unit financial impact** attributable to the revised DSM charges. ➢ Enable developers to submit **substantiated claims** for recovery through appropriate regulatory channels. **C. Mitigation through Energy Storage Systems (ESS)** In response to the heightened DSM exposure, developers may opt to integrate

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		Energy Storage Systems within their existing or upcoming projects. This strategic augmentation will: ➢ Enhance grid reliability and flexibility. ➢ Minimize DSM penalties through better forecast management and load balancing. ➢ Align with national objectives for **non-fossil fuel capacity expansion** and **energy transition.** **It is also requested that the commission might apply the new bands proposed to be made applicable only to the new projects.** **Recommended / Suggested Regulatory Actions:** ➢ Issue a formal clarification recognizing DSM revision as a "Change in Law". ➢ Direct State Electricity Regulatory Commissions (SERCs) to facilitate compensation claims. ➢ Encourage policy incentives for ESS deployment as a DSM mitigation strategy. A comparative analysis has been presented at annexure -1 across three generation projects—comprising wind(200MW), solar(180MW), and a wind(~50MW)-based project with power sale through exchanges—under various regulatory frameworks. The findings indicate a progressive increase in financial impact with each successive amendment to the regulations. Despite engaging multiple internationally reputed forecasting agencies and incurring significant expenditure for forecasting services, the achieved forecasting accuracy under **the 0–15% deviation band, as per the 2014 Regulations,**

		remained in the range of 92% to 94% for wind and 93 %- 95 % for solar farms. In this context, the proposed amendments introducing further narrow deviation bands would have substantial financial impact on generators, as even leading forecasters would be unable to meet the revised thresholds. It is a case of technical impossibility for which rules are being framed. It is therefore suggested that the Hon'ble CERC consider eliciting the views of global forecasters and reputed weather institutions such as the National Centre for Medium Range Weather Forecasting (NCMRWF) to ensure that the proposed regulatory changes are both scientifically viable and operationally implementable. Highlights / summary of the annexure -1 showing the financial impact of the changes in DSM bands over several amendments. The following case-based analysis illustrates the magnitude of change and its implications for project economics and risk management: ➢ **200 MW Wind Project** Under the 2014 DSM framework, the penalty rate was modest 0.02/kWh. However, the 2024 revision has increased this to ₹0.10/kWh—a fivefold escalation. More critically, if the Available Capacity (AvC) is interpreted as 0%, as per the amended provisions, the penalty exposure could surge to ₹0.99/kWh. This represents a near 50x increase, posing substantial financial risk to generators. ➢ **180 MW Solar Project** The penalty rate has risen from ₹0.01/kWh (2014) to ₹0.10/kWh (2024), marking a

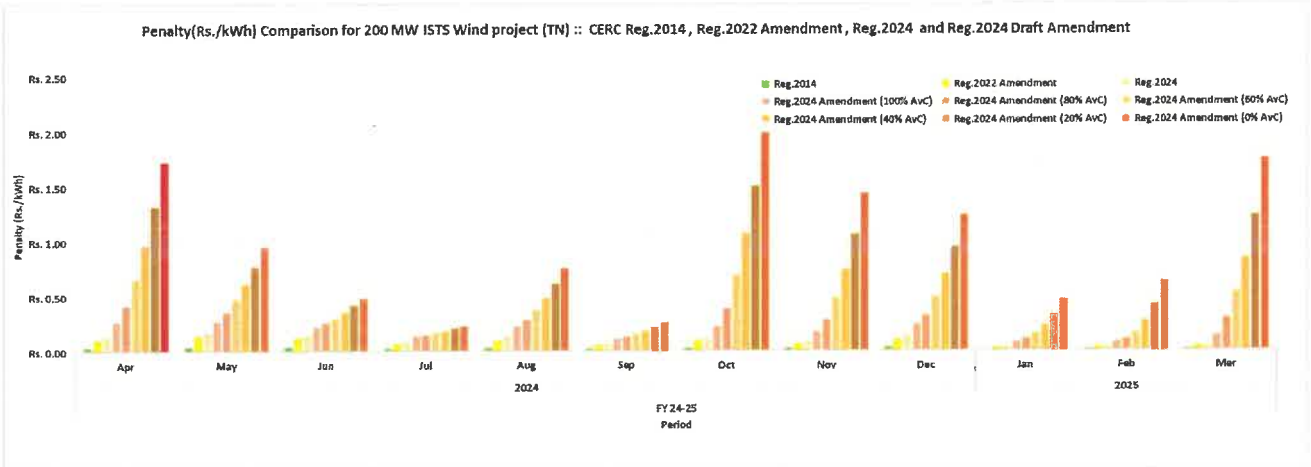
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		tenfold increase. Under the zero AvC scenario, the penalty could further escalate to ₹0.37/kWh, significantly impacting project viability and cash flow predictability. ➢ 50 MW Wind Project (Exchange-based Sale) For projects selling power through exchanges, the penalty rate has increased from ₹0.01/kWh to ₹0.28/kWh. If AvC is considered nil, the penalty could spike to ₹2.33/kWh—an exponential increase that could erode margins and deter merchant market participation.
3	**Aggregation at Pooling Stations** aggregation via QCA reduces DSM impact significantly	In alignment with contemporary grid management practices and the evolving regulatory landscape, a transition in the aggregation methodology for **Qualified Coordinating Agencies (QCAs)** is proposed—from the current **pooling station-level aggregation** to a more centralized **Regional Load Despatch Centre (RLDC)-level aggregation** framework. Under this revised construct, QCAs would be empowered to consolidate forecasts and deviations across multiple substations within their respective regional jurisdictions. This paradigm shift is expected to enhance operational efficiency by reducing the administrative complexity associated with managing disaggregated substation-level data and compliance. Moreover, RLDC-level aggregation facilitates a more holistic and system-wide perspective on renewable energy forecasting and deviation management, thereby enabling improved coordination, real-time decision-making, and enhanced grid reliability. By centralizing data streams and analytical oversight, this approach aligns with the broader objectives of integrated grid operations,

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		particularly in the context of high-penetration renewable energy scenarios. It also supports the institutional strengthening of system operators and reinforces the foundational principles of grid discipline, transparency, and accountability in deviation settlement and forecasting compliance.
4	**NIL**	Should have a provision for unlimited revisions applicable from the immediate next time block, not after 7th/8th block. Suggested Revision: Allow real-time revisions to reduce penalties and improve responsiveness to weather changes. This measure would improve responsiveness, reduce unnecessary penalties, and align with real-time grid needs.

Annexures: 1



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