Ref: SEPL/2025-26/CERC/001

Date: 17th October 2025

To
**Shri Harpreet Singh Pruthi,**
Secretary,
Central Electricity Regulatory Commission
Tower B, World Trade Centre,
Nauroji Nagar, New Delhi- 110029

Dear Sir

We, Sprng Energy Private Limited, wish to make the following representation in relation to the 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.

A. CERC (Deviation Settlement Mechanism and Related Matters) Regulations, 2024 dated 5th August 2024, stipulates tightening of deviation bands along with change in '%' deviation calculation for RE generators effective from 01.04.2026.

B. Regulation 6 (2) of the DSM Regulations, 2024 introduces change in % deviation computation by including component of Scheduled Energy along with Available Capacity in the formula, thereby increasing the '%' deviation for same deviation. The deviations in a time block for WS sellers shall be computed as follows:

| **Till 31.03.2026** | **From 01.04.2026 onwards** |
|---|---|
| Deviation-WS seller (DWS) (in MWh) = [(Actual Injection in MWh) – (Scheduled generation in MWh)] | Deviation-WS seller (DWS) (in MWh) = [(Actual Injection in MWh) – (Scheduled generation in MWh)] |
| Deviation-WS seller (DWS) (in %) = 100 x [(Actual Injection in MWh) – (Scheduled generation in MWh)] / [[Available Capacity]] | Deviation-WS seller (DWS) (in %) = 100 x [(Actual Injection in MWh) – (Scheduled generation in MWh)] / [ ([Available Capacity] + (100-X) % of Scheduled Generation)]<br><br>*Provided 'X' shall be stipulated by the Commission through separate order(s) after public consultation.* |

C. Regulation 8 (4) of the DSM Regulations, 2024 tightens the deviation band for computation of Charges for Deviation for WS Sellers by 5% from 01.04.2026. The changes in charges for deviation are as follows:

**(a) Solar or a Hybrid of Wind-Solar Resources:**

| **Deviation by way of over injection (Receivable by Seller)** | |
|---|---|
| **Till 31.03.2026** | **From 01.04.2026** |

| **Deviation by way of under injection (Payable by Seller)** | |
|---|---|
| **Till 31.03.2026** | **From 01.04.2026** |

| | | | |
|---|---|---|---|
| <10% | Contract Rate | <5% | Contract Rate |
| 10-15% | 90% of Contract Rate | 5-10% | 90% of Contract Rate |
| >15% | Zero | >10% | Zero |

| | | | |
|---|---|---|---|
| <10% | Contract Rate | <5% | Contract Rate |
| 10-15% | 110% of Contract Rate | 5-10% | 110% of Contract Rate |
| >15% | 200% of Contract Rate | >10% | 200% of Contract Rate |

**(b) Wind Resources:**

| **Deviation by way of over injection (Receivable by Seller)** | | | |
|---|---|---|---|
| **Till 31.03.2026** | | **From 01.04.2026** | |
| <15% | Contract Rate | <10% | Contract Rate |
| 15-20% | 90% of Contract Rate | 10-15% | 90% of Contract Rate |
| >20% | Zero | >15% | Zero |

| **Deviation by way of under injection (Payable by Seller)** | | | |
|---|---|---|---|
| **Till 31.03.2026** | | **From 01.04.2026** | |
| <15% | Contract Rate | <10% | Contract Rate |
| 15-20% | 110% of Contract Rate | 10-15% | 110% of Contract Rate |
| >20% | 200% of Contract Rate | >15% | 200% of Contract Rate |

D. The reduction in deviation band coupled with new denominator factor will not support normalizing the deviations in the practical current scenario. In the current scenario, limitations in weather forecasting technologies, limited weather station available at RE site and the relatively low deployment of energy storage systems significantly constrain the ability of RE generators to mitigate intermittency-related deviations. It requires adequate time to align with RE plant and further requires detailed analysis of the data. As the Regulations demand accurate forecast, such level of accuracy can't be achieved with the current technology available across the world.

E. Under the current deviation band, which is applicable up to 31.03.2026, it has been observed that the average revenue loss for RE developers ranges between 2%-3%. However, if the proposed changes are implemented from 01.04.2026, this loss could potentially escalate multiple times. Such a huge revenue loss may adversely impact the financial viability of RE projects and could discourage further investment in renewable energy infrastructure. RE generation is inherently dependent on climatic conditions, with local weather patterns playing a more significant role in forecasting accuracy than broader regional or global trends.

F. There are several significant challenges faced by RE developers in accurate forecasting of RE generation. We have listed them below:

**(a) Solar Forecasting Challenges:**

(i) Resolution Limitations:

- Most operational weather models have grid sizes of 10 km or more, which is too coarse to capture localized weather phenomena affecting RE sites.

- Even high-resolution models (1-3 km) require massive computational resources and still struggle with real-time accuracy.

(ii) Data Deficiency:

- India lacks a dense network of atmospheric sensors and cloud profiling instruments at RE sites.
- Without granular data, models cannot be trained or validated effectively.

(iii) Al/ML Limitations:

- While machine learning can improve forecasts using historical data, it cannot overcome the unpredictability of tropical weather systems.
- ML models are only as good as the data they're trained on-and real-time, site-specific data is scarce.

(iv) No Universal Solution:

- There is no existing technology that can consistently meet the proposed 5% (solar) and 10% (wind) deviation limits.
- Even global leaders in weather modelling (e.g., ECMWF, NOAA) acknowledge the inherent uncertainty in tropical forecasts.

**(b) Wind Forecasting Challenges:**

(i) Ramp Events

- Sudden increases or drops in wind speed, called 'ramp events', can drastically affect generation.
- These events are not predictable in day-ahead forecasts, and developers have limited flexibility to revise schedules.

(ii) Boundary Layer Dynamics

- Wind speed is governed by turbulence, friction, and thermal gradients in the boundary layer (up to 1 km above ground).
- These dynamics are highly complex and poorly modelled, especially in tropical regions.

**(c) Technological Gaps in Forecasting Capabilities:**

(i) Cloud Cover Prediction:

- Weather models are able to predict large-scale cloud systems (like monsoons or cyclones). But they fail at mesoscale and microscale levels, which are crucial for solar generation.
- Low-level clouds, which have the most impact on solar irradiance, are especially hard to detect and model.
- Scattered clouds can cause minute-to-minute fluctuations in solar output. These are often localized, meaning a cloud over one substation may not affect another just 5-10 km away-yet both are penalized under DSM.

(ii) Thunderstorms and Tropical Weather:

- In tropical regions thunderstorms can develop rapidly due to complex thermodynamic interactions. These events are not captured well by current models, especially beyond 24 hours.
- Forecast skill in tropical climates is inherently lower due to high variability and poor initial condition certainty.

(iii) Fog Prediction:

- Fog acts like a low-level cloud and is common in northern India during winter.

- NWP Models Struggle to predict fog due to poor representation of boundary layer process and lack of observational data.
- This is a major issue for day ahead scheduling especially for STOA sites.

Considering the above-mentioned challenges, we respectfully submit to defer the aforesaid provisions of DSM Regulations, 2024 being implemented from 01.04.2026, as the technology to accurately forecast the generation in real time is still under development stage.

We would also like to make a few recommendations towards implementing these DSM provisions:

1. National agencies may be assigned for centralized forecasting services to ensure accuracy. The DSM Regulation should align with national weather forecasting capabilities.
2. DSM Regulation and IEGC has allowed state level aggregation of forecasting, scheduling, operation coordination and commercial settlement at state level which has helped the grid stability by controlling deviations at state levels instead for each RE generator.
3. A comprehensive review of deviation bands should be undertaken following reasonable integration of energy storage technologies (ESS).
4. In cases of sudden weather changes, generators should be allowed to revise their schedules from the 4th time block, rather than waiting until the 7th or 8th block, as currently mandated under IEGC 2023. The Centre for Energy Regulation (CER), IIT Kanpur, has also recommended allowing schedule revisions from the 4th time block, which would enhance responsiveness to weather fluctuations and minimize the lag between actual weather conditions and the implemented schedule during revision of schedule.

For and on behalf of **Sprng Energy Private Limited**




**Authorised Signatory**
**Poorva Pitke**