Tata Power Comments on the Proposal for Determination of value of "X" for computation of the deviation (in %) for Wind and Solar (WS) Sellers from 01.04.2026 onwards under the DSM Regulations

S.No	Proposal	Comments
1.	Further, Grid-India was also directed to carry out the analysis by assuming aggregation of WS sellers at a pooling station through the Qualified Co-ordination Agency (QCA) with different values of X%. It is observed that with aggregation of the WS sellers at a pooling station, the impact of DSM charges reduces significantly. The following table shows the reduction in DSM payable for different WS sellers if they opt for aggregation at a pooling station.	Aggregation of renewable energy (RE) generators should not be restricted to the pooling station level but rather implemented at the RLDC (Regional Load Despatch Centre) level to encompass a wider geographical area. Aggregation at the RLDC level would ensure equitable distribution of the benefits from reduced DSM (Deviation Settlement Mechanism) charges among all generators, regardless of the number of generators connected to a particular pooling station. To illustrate, a pooling station with a larger number of connected generators would otherwise realize greater DSM benefits compared to one with fewer generators. Aggregation at the RLDC level would eliminate this imbalance and ensure fairness across all participating generators.
2.	In view of the above, the Commission acknowledges the importance of shifting from a deviation formula based on available capacity to one based on scheduled generation. This change is necessary to	Shifting from a deviation framework based on available capacity to one based on scheduled generation presents significant challenges for RE generators, primarily due to the risk of

	encourage more accurate forecasting and scheduling by RE generators. The Commission also notes the efforts being made by various institutions and agencies for the advancements in technology and the availability of real-time data on wind speeds and cloud coverage. With improvement in the ability to predict generation levels, the margin for error between actual and scheduled generation will also be reduced further. India's ambitious goal of achieving 500 GW of renewable energy installed capacity by 2030 underscores the need for stricter deviation criteria to ensure grid stability. As renewable energy plays a larger role in the energy mix, grid security becomes increasingly critical. Deviations in renewable energy generation can pose significant challenges to grid stability, and transitioning to a schedule-based deviation mechanism is essential for mitigating these risks.	substantial revenue losses. The following key concerns highlight the need for careful consideration before implementing such a shift: 1. **Limitations in Weather Forecasting Capabilities**: Indian RE forecasting agencies are currently required to adopt hybrid approaches combining public and private weather data, local site measurements, and AI/ML models as a best practice to achieve acceptable forecasting accuracy. However, several issues persist, particularly with national-level weather forecasts, which impact the reliability of generation scheduling. These include: i) Indian weather agencies have limitations when it comes to precision, granularity, and lead time especially for operational (short-term) forecasting. ii) Cloud cover and irradiance forecasts still face challenges in high-temporal accuracy (especially intra-hour forecasting), which is crucial for solar PV variability. iii) These are still in development or pilot stages; real-time updates and

		nowcasting (0–2hour forecast) for solar/wind parameters aren't yet consistently reliable. iv) High-resolution local weather phenomena (e.g., convective storms, sudden wind gusts) are hard to predict accurately. v) Compared to agencies in countries like Germany or the U.S., forecast errors in India are generally higher, especially during monsoon and transition seasons. vi) Precision at high temporal and spatial resolution, especially for real-time operations, remains an area needing further development. For instance, wind generation can vary significantly due to sudden changes in wind speed caused by gusts, while solar output fluctuates sharply with varying cloud cover at different altitudes and the movement of scattered clouds. Currently, there is no robust mechanism available to accurately measure parameters such as wind gust intensity or the precise height and density of cloud cover. Despite advancements in forecasting techniques, the accuracy of forecasts remains heavily dependent on future weather

		conditions. Weather variables likely to affect generation within a 15-minute time block cannot be predicted with high precision, often resulting in deviations beyond the permissible tolerance band. Until these shortcomings are addressed, transitioning to a deviation model based on scheduled generation would unfairly penalize RE generators for forecast errors that are often beyond their control. 2. **Operational Constraints in Schedule Revisions**: Under current DSM regulations, revisions in generation schedules take effect **only from the 7th or 8th time block** after submission. This delay makes it difficult for generators to respond swiftly to sudden changes in weather conditions, often leading to deviations beyond the permissible tolerance limits. Given the inherent variability of renewable generation and the current forecasting limitations, there is a strong case to advance the implementation of schedule revisions to the 4th time block. This would provide generators with a more responsive framework to mitigate

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<tr><td></td><td></td><td>deviations and reduce financial exposure under the DSM mechanism.</td></tr>
<tr><td>3</td><td>Therefore, it is proposed that for the Existing Projects (WS Sellers), the trajectory for reduction of “X” shall be as follows:

<table><tr><td>With Effect From (w.e.f.)</td><td>Value of “X”</td></tr><tr><td>01.04.2026 to 31.03.2027</td><td>100%</td></tr><tr><td>01.04.2027 to 31.03.2028</td><td>80%</td></tr><tr><td>01.04.2028 to 31.03.2029</td><td>60%</td></tr><tr><td>01.04.2029 to 31.03.2030</td><td>40%</td></tr><tr><td>01.04.2030 to 31.03.2031</td><td>20%</td></tr><tr><td>01.04.2031 onwards</td><td>0%</td></tr></table>
Dws% = 100 x [(Actual Injection in MWh) – (Scheduled generation in MWh)] / [(X% of Available Capacity) + (100-X) % of Scheduled Generation)

Accordingly, in terms of clause (2)(b) of Regulation 6 of the DSM Regulations, 2024, and in view of the above, the Commission invites comments from stakeholders on the determination of the value of “X” for computation of the deviation (in %) for Wind and Solar (WS) Sellers applicable from 01.04.2026 onwards. The comments may be sent by 05.10.2025.</td><td>While we principally oppose the concept of ‘X’, till the aforementioned forecasting challenges are addressed, if it must be imposed, we have the following suggestion:

The proposed trajectory for reducing the value of “X” to zero percent (0%) is too aggressive and not supported by any data representation or justification.

However, the value of “X” could be more appropriately linked to the metric of ‘percentage of time within the permissible band’. Explanation- As per table in para 11 of the proposal, the percentage of time RE Generators remained within the revenue neutral deviation bands to be applicable from 1.04.2026 (which is stricter than that which is applicable currently) is as follows:
<table><tr><th>RE Generating Stations</th><th>Tolerance Band</th><th>%Time Within Band</th></tr><tr><td>Solar</td><td>+/-5%</td><td>45% – 58%</td></tr><tr><td>Wind</td><td>+/-10%</td><td>32% – 73%</td></tr><tr><td>Hybrid</td><td>+/-5%</td><td>38% – 47%</td></tr></table>
The above table indicates that even with</td></tr>
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		the stricter bands, generators remain within the revenue neutral bands for % time which varies depending upon the source of energy. This means that with the existing value of X at 100% and the stricter band, the deviations beyond the revenue neutral band was as follows: **RE Generating Stations** / **Tolerance Band** / **%Time Outside Band** Solar / +/-5% / 42%- 55% Wind / +/-10% / 27%- 68% Hybrid / +/-5% / 53%-62% Therefore, the value of X needs to be reduced progressively only to the extent of % time outside the band indicated above. Further, with aggregation at RLDC levels as suggested above, the % of time outside the band would decrease. Our suggestion on X, taking into consideration the value addition due to aggregation is as follows. These values of X must be different for different sources of energy as explained above and should be achieved progressively **over a period of next 5 years**.

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<tr><th>RE Generating Stations</th><th>Value of X</th></tr>
<tr><td>Solar</td><td>100%-65%</td></tr>
<tr><td>Wind</td><td>100%-65%</td></tr>
<tr><td>Hybrid</td><td>100%-70%</td></tr>
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This will provide renewable energy (RE) generators an incentive to improve scheduling accuracy over time. An annual review mechanism should also be introduced to reassess the value of “X” based on this performance metric.
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<td>Further, the Commission is of the view that the green transition needs to align with the principle of equitable treatment of all grid-connected generators and should reflect the increasing maturity of the renewable energy sector. The Commission also believes that in the future, the intermittency of wind and solar needs to be addressed by way of improved forecasting, scheduling, and operational experience. The new WS projects are now expected to demonstrate the same level of discipline and compliance as conventional generators. This step marks a shift towards a more grid-supportive framework for renewable energy integration, which is crucial for ensuring long-term grid reliability amidst the rising share of RE in the generation mix.</td>
<td>Renewable Energy (RE) generators should not be treated at par with conventional generators under the Deviation Settlement Mechanism (DSM) due to the inherent differences in the nature, predictability, and controllability of their generation. Following are the key reasons, backed by technical, operational, and regulatory perspectives:

i) Inherent Variability and Uncertainty of RE Generation:
RE sources like wind and solar are weather-dependent and cannot be dispatched on demand. Their output fluctuates with cloud cover, wind speed, solar irradiance, etc., which are not entirely within the generator’s control.</td>
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		In contrast, conventional generators (coal, gas, hydro) are fully controllable and can adjust generation based on grid requirements or economic signals. **Equating variable and uncontrollable generation with controllable generation for DSM treatment leads to unfair financial penalties for RE developers**. ii) **Forecasting Limitations:** While forecasting tools are improving, weather forecasting in India still lacks the accuracy, granularity, and real-time reliability required for precise RE scheduling (especially intra-day and intra-hour). Forecast errors due to unpredictable local weather phenomena (e.g., sudden cloud formation, wind gusts) are systemic limitations, not generator faults. **Penalizing RE generators for forecasting errors beyond their control undermines the principle of fair treatment under DSM.** iii) **Lack of Flexibility in Scheduling Revisions:** Current regulations allow schedule revisions to be implemented only from the 7th/8th time block (i.e., with a 1.5–2 hour delay).

		RE generators face real-time variability, but cannot revise their schedules quickly enough to reflect sudden changes, leading to deviations. iv) **System-Wide Benefits of RE Not Accounted for in DSM** RE generators contribute to reduced carbon emissions, fuel savings, and energy security. However, the DSM framework focuses only on deviation penalties, without recognizing the broader environmental and economic benefits that RE brings to the grid. **A differentiated approach is needed to acknowledge the public-good dimension of RE generation.** i) **Global Best Practices Support Differential Treatment:** Countries with high RE penetration like Germany, UK, and Australia adopt differentiated or relaxed deviation frameworks for RE generators, especially for smaller or variable producers. These frameworks often include tolerance bands, incentivized forecasting improvements, or exemptions from penalties for uncontrollable deviations.

		India's DSM policy should align with international best practices to foster a RE- friendly regulatory environment.
5	All new Wind & Solar projects with bid submission date on or after 01.04.2026, shall be treated at par with General Sellers. 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.	Treating RE generators at par with conventional generators under DSM is technically inappropriate and economically inequitable, given the uncontrollable nature of their output and existing forecasting limitations. A differentiated DSM framework, with performance-linked incentives and realistic deviation bands, is essential to ensure fair treatment of RE generators, alignment with India's RE targets and Grid stability without discouraging clean energy investments. It is respectfully submitted that the Commission may consider extending compensation to Wind and Solar (WS) sellers for under-injection at frequencies above 50.05 Hz, in parity with the provisions applicable to general sellers — i.e., at 85% of the contracted rate for energy within the prescribed volume limits and 100% of the contracted rate for energy beyond the specified volume limits. In conclusion, until weather forecasting capabilities in India improve significantly, particularly in terms of real-time accuracy and resolution, RE generators should not be burdened with deviation charges based on scheduled generation. A phased approach, supported by regulatory adjustments such as earlier

		schedule revision windows, would ensure a more equitable and technically sound transition.
6	Additional comment	Incremental loss due to the proposed regulatory changes to be allowed under **Change in Law** for existing Wind and Solar projects It was proposed that all New Wind and Solar projects, with tendering or bid submission dates on or after 01.04.2026, shall be treated at par with GS sellers, hence the IPPs will be considering the same in the bid. However, the for the bid out projects and operational wind and solar project have not considered these changes in the tariff. The impact is as high as 10% of the revenue, hence the commission is request to allow the incremental loss to be considered under change in law.
7	Aggregation/QCA appointment at State level	Clause 45 (11) of IEGC mentions about scheduling of WS seller and ESS by QCA: (a) The regional entity renewable energy generating station(s) or Projects based on energy storage system(s) connected at a particular ISTS substation or at multiple ISTS substations located in a State may appoint a QCA on their behalf to coordinate and facilitate scheduling for such generating stations or energy storage system(s). The responsibility of QCA is listed at Annexure-6 to these regulations.

		(b) NLDC shall submit a procedure for aggregation of pooling stations for the purpose of combined scheduling and deviation settlement for wind or solar or renewable hybrid generating stations that are regional entities, within six (6) months of notification of these regulations for approval of the Commission. Currently, the QCA appointment is happening at PSS level which is resulting in reducing the revenue loss by 30% to 50%; by allowing the aggregation at state level this loss is further expected to reduce by 30% to 50%. Hence, we request the commission to operationalize the proposed X factor after the issuance of procedure for aggregation of pooling stations at state level by NLDC.
8	Payment 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	It was proposed in the draft that **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. And the New WS sellers shall be treated at par with General sellers. We request the commission to compensate the** WS sellers those who are under-injection at frequency above 50.05 Hz in line with General sellers that is - i.e. at 85% of contract rate payable within volume limits and 100% payable outside volume limits.