# Comments on Draft CERC DSM Regulations, 2024

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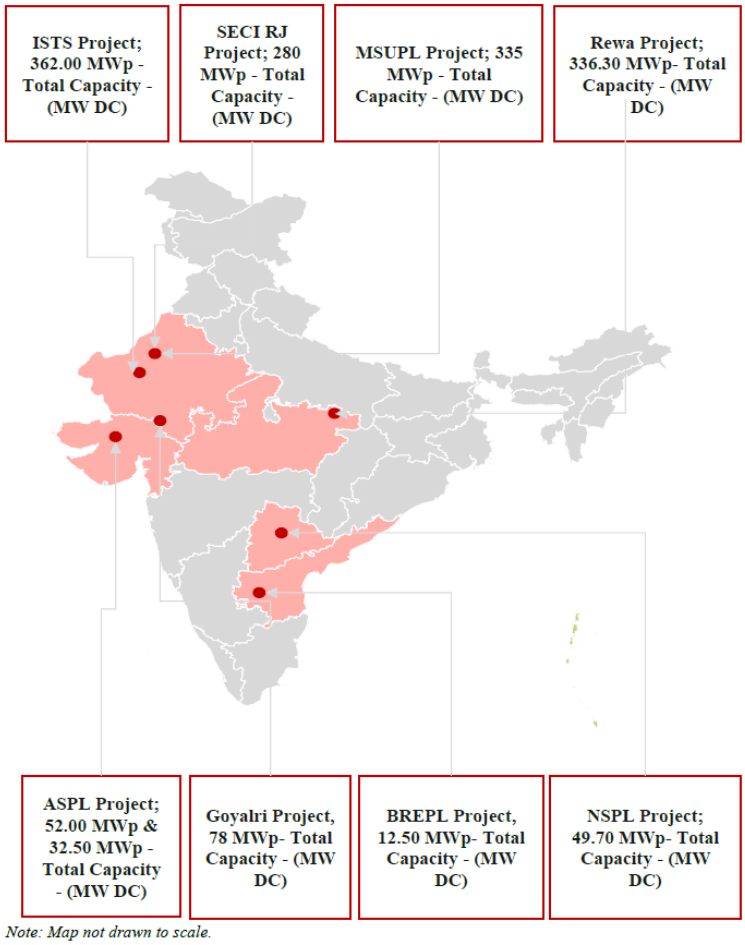
Sustainable Energy Infra Trust ("SEIT" or "Trust") is an Indian Infrastructure Investment Trust (InvIT), sponsored by Ontario Teachers' Pension Plan Board and Mahindra Group entities, with investments additionally from Asian Infrastructure Investment Bank, domestic insurance companies and other DIIs. SEIT, India's largest Renewable Energy InvIT, has been listed on the National Stock Exchange (NSE) with an opening installed capacity base of 1500MWp. Further, Sustainable Energy Infra Investment Managers Private Limited has been appointed as the Investment Manager to the Trust. For more details on SEIT, please refer to www.seit.co.in.

The Trust currently holds six Initial Portfolio Assets which collectively hold eight solar PV power projects. The Initial Portfolio Assets have an aggregate installed capacity of 1.54 GWp and are geographically located across five States in India. A map illustrating the location of the projects have been shown below:




*Note: Map not drawn to scale.*

*ASPL: Astra Solren Pvt. Ltd.; ISTS: Inster-State Transmission System; SECI: Solar Energy Corporation of India Ltd.; MSUPL: Mega Suryaurja Pvt. Ltd.; BREPL: Bright Solar Renewable Energy Pvt. Ltd.; NSPL: Neo Solren Pvt. Ltd.*

In exercise of powers conferred under Section 178 read with clauses (c) and (h) of sub-section (1) of Section 79 of the Electricity Act, 2003 (36 of 2003), and all other powers enabling it in this behalf, the Hon'ble Commission has prepared the Draft Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2024 and has invited the comments/suggestions/objections from the stakeholders and interested persons on the provisions of above draft Regulation on or before 03.06.2024. In this regard, the comments/suggestions/objections on the draft Regulations are detailed hereunder. We humbly request the Hon'ble Commission to take into consideration the below comments/suggestions/objections in the finalisation of the Regulations.

The comments have been detailed hereunder:

**Comments on Draft Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2024**

| S. No. | Draft Reg. Ref. (DSM Reg., 2024) | DSM Regulations, 2022 | Draft DSM Regulations, 2024 | Proposed change / Consideration | Rationale |
|---|---|---|---|---|---|
| 1 | **8**<br>(4) | **Charges for Deviation**<br>Charges for Deviation, in respect of a WS Seller being a generating station based on wind or solar or hybrid of wind–solar resources, including such generating stations aggregated at a pooling station through QCA shall be without any linkage to grid frequency, as under: | | | |
| 1 (a) | | **Deviation by way of over injection** | | | |
| | For WS seller being a generating station based on solar or hybrid of wind –solar resources | Zero:<br>Provided that such seller shall be paid back for over injection as under:<br>(i) @ contract rate, or in the absence of a contract rate, @ the weighted average ACP of the Day Ahead Market segments of all Power Exchanges for the respective time block, up to [*10% $D_{WS}$*];<br>and<br>(ii) @ 90% of the contract rate, or in the absence of a contract rate, @ 90% of the weighted average ACP of the Day Ahead Market segments of all Power Exchanges for the respective time block for deviation beyond [*10% $D_{WS}$* ] and up to [*15% $D_{WS}$*]<br><br>Note: *$D_{GS}$ means Deviation-general seller (in %); $D_{WS}$* | **(Receivable by the Seller)**<br><br>(i) for VL*$w_S$* (1) @ contract rate;<br><br>(ii) for VL*$w_S$* (2) @ 90% of contract rate<br><br>(iii) for VL*$w_S$* (3) @ 50% of contract rate,<br><br>(iv) beyond VL*$w_S$* (3) @ Zero;<br><br>Note: Volume Limits for WS Seller :<br><br><u>A generating station based on solar or a hybrid of wind –solar resources or aggregation at a pooling station</u><br><br>VL*$w_S$* (1) = Deviation up to 5% $D_{WS}$<br><br>VL*$w_S$* (2) = Deviation beyond 5% $D_{WS}$ and up to 10% $D_{WS}$ | It is requested to keep the Deviation bands as follows:<br><br>VL*$w_S$* (1) = Deviation up to 10% $D_{WS}$<br><br>VL*$w_S$* (2) = Deviation beyond 10% $D_{WS}$ and up to 15% $D_{WS}$<br><br>VL*$w_S$* (3) = Deviation beyond 15% D*ws* and up to 20% $D_{WS}$<br><br>Receivable by the Seller:<br><br>(i) for VL*$w_S$* (1) @ contract rate;<br><br>(ii) for VL*$w_S$* (2) @ 90% of contract rate<br><br>(iii) for VL*$w_S$* (3) @ 75% of contract rate,<br>(iv) beyond VL*$w_S$* (3) @ 50% of contract rate; | We recently attended a workshop organized by Grid India. There was a session from Dr. Raghavendra Ashrit from NCMRWF.<br>The Numerical Weather Prediction system in India is heavily dependent on the Global Satellite data, with very few / none ground stations in the RE-rich area.<br>The existing Forecast inputs provide a capability to Assimilate and process data for only 4 times in a day. This data is available over low / medium spatial resolution.<br>One of the limitations sited for lower resolution was very few/none ground stations near the Solar/Windfarms, which could provide more granular data.<br>It was suggested that for shorter intervals like 1 hour – 2 hours, it is very difficult to forecast the weather accurately and hence the augmentation to the forecast should be based on manual inputs i.e. visible atmospheric changes.<br>This methodology has the following limitations"<br>1) It is impossible to visualize cloud |

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| | | *means Deviation-WS seller (in %)* | VL$w_s$ (3) = Deviation beyond 10% D$ws$ and up to 20% $D_{WS}$<br><br><u>A generating station based on wind Resource</u><br><br>VL$w_s$ (1) = Deviation up to 10% D$ws$<br><br>VL$w_s$ (2) = Deviation beyond 10% D$ws$ and up to 15% $D_{WS}$<br><br>VL$w_s$ (3) = Deviation beyond 15% D$ws$ and up to 25% $D_{WS}$<br><br>Note: In case of aggregation of WS sellers at a pooling station through QCA,<br><br>(a) the contract rate for the purpose of deviation shall be equal to the weighted average of the contract rates of all individual WS seller(s) opting for aggregation at the pooling station;<br>(b) Available Capacity shall be equal to the cumulative capacity rating of wind turbines or solar inverters that are capable of generating power in a given time block;<br>(c) de-pooling of deviation | | movements and local disturbances and affect the changes before 8-time blocks manually. Hence would request to reconsider this interval to 3 time blocks for Solar<br>2) The existing output of Numerical Weather Prediction model has limitations of resolution and hence the accuracy of 5% expected by DSM regulations is not systemically possible to achieve. |

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| | | | charges for WS seller(s) connected to the pooling station shall be as per the methodology mutually agreed upon between the QCA and such individual WS seller(s). | | |
| 1 (b) | | **Deviation by way of under injection** | | | |
| | For WS seller being a generating station based on solar or hybrid of wind –solar resources | i) Zero up to [*10% $D_{WS}$*] and<br>(ii) @ 10% of contract rate or in the absence of a contract rate, @ the weighted average ACP of the Day Ahead Market segments of all Power Exchanges for the respective time block for deviation beyond [*10% $D_{WS}$*] and up to [*15% $D_{WS}$*] and<br>(iii) @ 50% of contract rate or in the absence of a contract rate, @ the weighted average ACP of the Day Ahead Market segments of all Power Exchanges for the respective time block for deviation beyond [*15% $D_{WS}$*]: | **(Payable by the Seller)**<br><br>(i) for $VLw_S$ (1) @ contract rate;<br><br>(ii) for $VLw_S$ (2) @ 110% of contract rate<br><br>(iii) for $VLw_S$ (3) @ 150% of contract rate,<br><br>(iv) beyond $VLw_S$ (3) @ 200% of contract rate;<br><br>Note: Volume Limits for WS Seller :<br><br><u>A generating station based on solar or a hybrid of wind – solar resources or aggregation at a pooling station</u><br><br>$VLw_S$ (1) = Deviation up to 5% $D_{WS}$<br><br>$VLw_S$ (2) = Deviation beyond 5% $D_{WS}$ and up to 10% $D_{WS}$<br><br>$VLw_S$ (3) = Deviation beyond 10% | It is requested to keep the Deviation bands as follows:<br><br>$VLw_S$ (1) = Deviation up to 10% DWS<br><br>$VLw_S$ (2) = Deviation beyond 10% DWS and up to 15% DWS<br><br>$VLw_S$ (3) = Deviation beyond 15% Dws and up to 20% DWS<br><br>Payable by the Seller:<br><br>(i) for $VLw_S$ (1) @ contract rate;<br><br>(ii) for $VLw_S$ (2) @ 110% of contract rate<br><br>(iii) for $VLw_S$ (3) @ 120% of contract rate,<br><br>(iv) beyond $VLw_S$ (3) @ 130% of contract rate; | We recently attended a workshop organized by Grid India. There was a session from Dr. Raghavendra Ashrit from NCMRWF.<br>The Numerical Weather Prediction system in India is heavily dependent on the Global Satellite data, with very few / none ground stations in the RE-rich area.<br>The existing Forecast inputs provide a capability to Assimilate and process data for only 4 times in a day. This data is available over low / medium spatial resolution.<br>One of the limitations sited for lower resolution was very few/none ground stations near the Solar/Windfarms, which could provide more granular data.<br>It was suggested that for shorter intervals like 1 hour – 2 hours, it is very difficult to forecast the weather accurately and hence the augmentation to the forecast should be based on manual inputs i.e. visible atmospheric changes.<br>This methodology has the following limitations"<br>1) It is impossible to visualize cloud movements and affect the changes before 8-time blocks manually. Hence would |

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| | | Provided that such seller shall pay back for the total shortfall in energy against its schedule in any time block due to under injection, @ the contract rate, or in the absence of a contract rate, @ the weighted average ACP of the Day Ahead Market segments of all Power Exchanges, for the respective time block.<br><br>Note: *$D_{GS}$ means Deviation-general seller (in %); $D_{WS}$ means Deviation-WS seller (in %)* | $D_{WS}$ and up to 20% $D_{WS}$<br><br><u>A generating station based on wind Resource</u><br><br>$VLw_S$ (1) = Deviation up to 10% $D_{WS}$<br><br>$VLw_S$ (2) = Deviation beyond 10% $D_{WS}$ and up to 15% $D_{WS}$<br><br>$VLw_S$ (3) = Deviation beyond 15% $D_{WS}$ and up to 25% $D_{WS}$<br><br>Note: In case of aggregation of WS sellers at a pooling station through QCA,<br><br>(a) the contract rate for the purpose of deviation shall be equal to the weighted average of the contract rates of all individual WS seller(s) opting for aggregation at the pooling station;<br>(b) Available Capacity shall be equal to the cumulative capacity rating of wind turbines or solar inverters that are capable of generating power in a given time block;<br>(c) depooling of deviation charges for WS seller(s) connected to the pooling station shall be as per the | | request to reconsider this interval to 3 time blocks for Solar<br>2) The existing output of Numerical Weather Prediction model has limitations of resolution and hence the accuracy of 5% expected by DSM regulations is not systemically possible to achieve. |

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| | | | methodology mutually agreed upon between the QCA and such individual WS seller(s). | | |
| 2 | General | - | - | Deviation bands would need to be reviewed in consideration with the limitations of the accuracy available in the Forecasting of weather.<br><br>The ability of the Operator is constrained by the accuracy limitations of the Eco-system for Forecasting.<br><br>The meteoric penalties will encourage operators to schedule their generation in a way to restrict their resultant commercial losses. Thereby it will defeat the purpose encouraging discipline on the grid. | - Given the challenges associated with the forecasting of cloud movement intra-day of the scheduling (which is normally done on day ahead based on the best weather forecast), any further tightening of the deviation band will have significant impact on the revenues and in turn the projects viability.<br><br>- This may also impact investment sentiments and will hamper overall ambition of 500GW Renewable energy capacity for the country<br><br>- Over injection should not be curtailed further to reduction applied on account of cloud cover to restore back on movement of could. Actions within the timeline specified in IEGC will not be possible for reducing power injected in grid without any revenue realizations beyond higher band. |

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