Reference: Apraava/Reg24-25/002
Date: 3 June 2024

To,
Shri Harpreet Singh Purthi,
The Secretary,
Central Electricity Regulatory Commission,
8th Floor, Tower B, World Trade Centre,
Nauroji Nagar, New Delhi, 110029

Subject: Comments on the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2024 (hereinafter referred to as "**Draft Regulations**").

Reference: Public notice - L-1/260/2021/CERC, dated 30/04/2024

Respected Sir,

By way of an introduction, Apraava Energy Private Limited (**Apraava**) is a diversified power company in India, owning and operating multiple renewable energy project, transmission assets and Advanced Metering Infrastructure projects.

Founded in 2002, the company's portfolio comprises 3,150 MW of installed capacity which includes one inter-state 1320 MW coal-fired super critical power plant in Haryana, and a 222.6 MW of wind power project (out of 250.8MW) in the State of Gujarat.

In response to the Draft Procedure, please find our response and representations, annexed herewith and marked as **Annexure A**, for your kind review and perusal.

We kindly request you to consider above comments while finalizing the detailed procedure.

We would be happy to provide any additional information in this regard, as required.

Thanking You,

Yours faithfully,

For Apraava Energy Private Limited

Authorised Signatory

Apraava Energy Private Limited

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ANNEXURE A

Comments and suggestions on the Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2024:

1) In relation to Regulation 8 (1) of the Draft Regulations

(A). Draft Regulation

*(1) Charges for Deviation, in respect of a **general seller other than an RoR generating station or a generating station based on municipal solid waste or WS seller** shall be as under:*

Deviation by way of over injection (receivable by Seller)	***Deviation by way of under injection (Payable by Seller)***
(I) For Deviation up to [10% DGS or 100 MW, whichever is less] and f within f band	
(i) @ Reference Charge Rate (RR) when f =50.00 Hz	*(iv). @ RR when f =50.00 Hz*
(ii) When [50.00 Hz < f ≤50.05 Hz], for every increase in f by 0.01 Hz, charges for deviation for such seller shall be reduced by 10% of RR so that charges for deviation become 50% of RR when f = 50.05Hz	*(v) When [50.00 Hz < f ≤50.05 Hz], for every increase in f by 0.01 Hz, charges for deviation for such seller shall be reduced by 3% of RR so that charges for deviation become 85% of RR when f = 50.05Hz*
(iii) When [49.90 ≤ f < 50.00 Hz], for every decrease in f by 0.01 Hz, charges for deviation for such seller shall be increased by 1.5% of RR so that charges for deviation become 115% of RR when f = 49.90Hz	*(vi) When [49.90 ≤ f < 50.00 Hz], for every decrease in f by 0.01 Hz, charges for deviation for such seller shall be increased by 5% of RR so that charges for deviation becomes 150% of RR when f = 49.90Hz*
For Deviation up to [10% DGS or 100 MW, whichever is less] and f outside f band	
(i). @ zero when [50.05 Hz < f < 50.10 Hz]: Provided that such seller shall pay @ 10% of RR when [f ≥ 50.10 Hz]	*(iii). @ 85 % of RR when [f > 50.05 Hz]*
(ii). @ 115 % of RR when [f < 49.90 Hz]	*(iv). @ 150 % of RR when [f < 49.90 Hz]*
For Deviation beyond [10% DGS or 100 MW, whichever is less] and f within and outside f band	
(i). Such seller shall be paid back @ zero when (f < 50.10 Hz): Provided that such seller shall pay @ 10% of RR when [f ≥ 50.10 Hz]	*(ii). Such seller shall pay @ RR when [f ≥ 50.00 Hz];* *(iii). @ 150% of RR when [49.90Hz ≤ f < 50.00 Hz]; and* *(iv). @ 200% of RR when [f < 49.90 Hz*

(B). Our suggestions:

(a) For Deviation up to [10% DGS or 100 MW, whichever is less] and f within f band

1. It is suggested that reference charge rate shall be constant during frequency between 49.95 to 50.03 Hz. Should CERC consider it necessary, this band can be reviewed but there shall be constant reference charge rate for a band of frequency near to 50 Hz (like 49.98 to 50.02).

(b) For Deviation beyond [10% DGS or 100 MW, whichever is less] and f within and outside f band

1. As per Draft DSM Regulation 2024, the seller shall pay @ 200% of reference charge rate during under injection in case of frequency less than 49.90.
2. It is suggested that reference charge rate shall be lower than the 200% of reference charge rate in case of above-mentioned condition, because the condition of deviation beyond [10% DGS or 100 MW, whichever is less] is abnormal which comes during the equipment failure or force outages.

(C). Rationale:

(a) For Deviation up to [10% DGS or 100 MW, whichever is less] and f within f band

As per Draft Regulations, during frequency within f_{band} (between 49.90 to 50.05), the reference charge rate is varying from 50% to 150% in different ways of deviation (Over injection or Under injection) and rate is changing for every variation in frequency by 0.01 Hz. However, the reference charge rate was constant during frequency between 49.95 to 50.03 as per CERC (Deviation Settlement Mechanism and Related Matters) Regulations 2022 (**2022 Regulations**).

(b) For Deviation beyond [10% DGS or 100 MW, whichever is less] and f within and outside f band

CERC has considered the forced outage condition and allowed the charges for deviation @ the reference charge rate for a maximum duration of eight-time blocks or until the revision of its schedule. But in case of major equipment fail, when unit does not get trip, load get reduced by 50%, for this condition there is no consideration.

Therefore, it is suggested to allow the partial forced outage condition also charges for deviation @ the reference charge rate for a maximum duration of eight-time blocks or until the revision of its schedule.

2) In relation to Regulation 8(4) of the Draft Regulations

(A). Draft Regulation:

(4) Charges of 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:*

Deviation by way of over injection (Receivable by the Seller)		*Deviation by way of under injection (Payable by the Seller)*	
i)	*for VL_{WS} (1) @ contract rate;*	*v)*	*for VL_{WS} (1) @ contract rate;*
ii)	*for VL_{WS} (2) @ 90% of contract rate*	*vi)*	*for VL_{WS} (2) @ 110% of contract rate;*
iii)	*for VL_{WS} (3) @ 50% of contract rate,*	*vii)*	*for VL_{WS} @ 150% of contract rate;*
iv)	*beyond VL_{WS} (3) @ Zero;*	*viii)*	*beyond VL_{WS} (3) @ 200% of contract rate.*

Note: Volume Limits for WS Seller:

WS Seller	***Volume Limit***
A generating station based on solar or a hybrid of wind –solar resources or aggregation at a pooling station	*VL_{WS} (1) = Deviation up to 5% D_{WS}* *VL_{WS} (2) = Deviation beyond 5% D_{WS} and up to 10% D_{WS}* *VL_{WS} (3) = Deviation beyond 10% D_{WS} and up to 20% D_{WS}*
A generating station based on wind resource	*VL_{WS} (1) = Deviation up to 10% D_{WS}* *VL_{WS} (2) = Deviation beyond 10% D_{WS} and up to 15% D_{WS}* *VL_{WS} (3) = Deviation beyond 15% D_{WS} and up to 25% D_{WS}*

(B). Our suggestions:

1. It is suggested that the Deviation rates as per the 2022 Regulations to continue for a year to understand the impact of aggregation at pooling station level and then bring changes if necessary. The aggregation at pooling sub station level in existing band, is resulting into higher energy accuracy. Please find comparison of energy accuracy of 3 months actual data in table below for respective solar & wind plant :

Bhadla PG, Rajasthan	Aggregated capacity: 3083MW	Capacity: 250MW	Aggregated capacity: 3083MW	Capacity: 250MW
Solar resources	DSM2024(±5%, ±10%, ±20%, beyond ±20%)		DSM2022 (±10%, ±15%, beyond ±15%)	
Period	Energy accuracy (%)	Energy accuracy (%)	Energy accuracy (%)	Energy accuracy (%)
1st Jan'24 to 31st Mar'24 (3 months)	**95.98%**	**92.72%**	**98.05%**	**96.11%**

Adani - Jam Khambhaliya PG, Gujarat	Aggregated capacity: 389.3MW	Capacity: 222.6MW	Aggregated capacity: 389.3MW	Capacity: 222.6MW

Wind resources	DSM2024 (±10%, ±15%, ±25%, beyond ±25%)		DSM2022 (±15%, ±20%, beyond ±20%)	
Period	Energy accuracy (%)	Energy accuracy (%)	Energy accuracy (%)	Energy accuracy (%)
1st Jan'24 to 31st Mar'24 (3 months)	**95.39%**	**95.64%**	**98.36%**	**93.42%**

2. As per the above-mentioned data it is clear that there is reduction of accuracy in forecast and lack of aggregation throughout all Pooling Sub-Stations. Accordingly it is suggested to not reduce the deviation band i,e., from 10% to 5% for solar and from 15% to 10% for wind on an immediate basis. The CERC may review the progress of improvement in forecasting techniques as well as implementation of aggregation through QCA and may like to decide in due course.

3. **Alternative Suggestion:** one of the primary objectives to reduce the deviation band (from 10% to 5% for solar and from 15% to 10% for wind) is to minimize the grid disturbance created through Over/Under Injection. Grid disturbance is proportional to quantum of energy Over injected or Under Injected. CERC has made uniform penalty for a particular band (example: for wind, 50 % penalty has been proposed in the DSM band of 15% to 25 %, so, any wind developer is deviating 16% from its schedule is penalised at the same rate as some other developer is getting penalised for deviating 24%). In terms of above, we suggest that CERC should consider increase in penalty rate in a graded manner for instance 4% for 1% increase in deviation from 15%. (Illustration: for 16% deviation, penalty rate should be 14%, for 17% deviation, penalty rate should be 18%, similarly, for 24% deviation, penalty rate should be 46% and for 25% deviation, penalty rate should be 5%). In nutshell, for penalty band 10-15% and 15-25% there should be graded increase in Penalty for each 1% increase in penalty rather than step up increase for 5% band range or 10% band range for RE projects. This is in sync with DSM considered by CERC for Thermal Generator in the Draft DSM Regulations, in proportion to the quantum of deviation which may impact the grid and at the same time it will reduce the burden of proposed higher penalty up to some extent on the RE developers.

4. In case of sudden changes in weather condition, generators should be allowed to revise schedule immediately after 2nd or 3rd time block, instead restricting revision become effective from 7th or 8th time blocks as mentioned in Indian Electricity Grid Code (IEGC) 2023. This will help to improve the grid stability in adverse weather conditions & reliable power supply.

5. WS seller should receive payments for over-injection, as they did under the CERC DSM Regulations, 2015. The proposed draft regulation fails to acknowledge that while power would be supplied by the WS seller, the WS seller would not receive any payments for over injected power. This oversight contradicts the recognized unpredictable and variable nature of renewable power, unfairly penalizing WS sellers through no fault of their own. Consequently, Regulation 8(4) is expropriatory and infringes upon the rights of WS sellers as protected under Article 300A of the Constitution.

6. The deviation of wind-solar hybrid projects be treated according to the deviation band for wind generation rather than solar generation. In wind-solar hybrid projects, the deviation of the wind component is typically higher, making it more appropriate to align with the wind generation deviation standards. Solar is available during daytime (~8 hrs) whereas wind is available for entire 24 hours mostly during morning and night hours when solar radiation is not available. Further, the industry has achieved higher accuracy level of forecasting for solar as compared to wind energy.

Therefore, in order to incentivize the RE generators CERC may consider applicability of deviation mentioned for wind project to the wind solar hybrid project.

7. Given the facts that existing projects were conceptualized and commissioned based on the applicable and prevalent technical norms and parameters at the time of bidding for the project. Further, the tariff has been fixed for a term from the date of execution of the Power Purchase Agreement (PPA), altering penalties and standards for imposition of penalties for deviation will adversely impact existing projects, with no consequential relief available. Further, CERC is repeatedly revising the regulations and making it more stringent which is directly impacting the revenues from the project. In view of this request to consider these charges as pass through & not be burdened upon the generators.

(C). Rationale:

1. The proposed draft Regulation violates the 'Principle of Regulatory Certainty' under Articles 14 and 19(1)(g) of the Constitution, as the existing projects were conceptualized and commissioned based on the applicable and prevalent technical norms and parameters at the time of bidding for the project. Since the tariff has been fixed for a term from the date of execution of the Power Purchase Agreement (PPA), altering penalties and standards for imposition of penalties for deviation will adversely impact existing projects, with no consequential relief available.

2. The CERC has reduced the deviation band to 5% for solar generation and 10% for wind generation, which is quite stringent considering the average deviations during the monsoon or high wind season. Despite continuous improvements in forecasting and scheduling techniques, it remains an inexact science, as no one can ultimately control the will of nature. Additionally, the penalty for under-injection by wind and solar generators has doubled, meaning that generators will end up paying twice their contract rate. This is detrimental to the addition of renewable energy (RE) capacity and is contrary to the goals of the Ministry of New and Renewable Energy and the vision of our Hon'ble Prime Minister of India for achieving the target of 500 GW of renewable energy by the year 2030.

3. Our ongoing conversations center on advancing forecasting and scheduling methodologies to meet the stringent requirements of State and Central Grid codes, as well as Renewable Energy Forecasting & Scheduling Demand Side Management (F&S DSM) Regulations. While our aim is to refine tolerance bands for optimal performance, it's essential to acknowledge the achievements in renewable energy forecasting and scheduling DSM across diverse states since 2018, including projects interconnected through the Inter-State Transmission System (ISTS). Despite existing tolerance bands set at ±10% for solar and ±15% for wind sellers, the annual energy accuracy has stagnated around 97%. The role of the Qualified Coordinating Agency (QCA) is pivotal, leveraging data from renowned global forecasters to fine-tune power forecasting tools for precise scheduling. However, despite earnest endeavours, inherent challenges in renewable energy resources and the regulatory framework persist. The stringent demands and revisions in tolerance bands pose significant hurdles, rendering renewable energy projects financially unviable.

4. We would like to apprise the CERC that energy generated via wind and solar sources is granted must-run status due to the intermittent nature of these projects. However, the exemption from claiming additional amounts for the over-injected quantum of electricity by generators is in defiance of the must-run status rule. This exemption creates a quandary for the generators and other stakeholders involved in the generation of electricity via renewable energy. Considering the intermittent and variable nature of energy generation by wind and solar sources, not compensating

generators for the energy produced above the scheduled amount will demotivate them and dissuade investors from engaging in renewable energy sector projects.

5. In the explanatory memorandum published by the CERC, it is explained that the introduction of aggregation will reduce the PSS-wise deviation percentage, which is the primary reason for shrinking the deviation bands. However, we would like to apprise the Commission that aggregation of PSS has not yet been implemented across all the PSS as some of the PSS are yet to get connected with generator upto their full capacity. The aggregated capacity of PSS will significantly influence the deviation impact: lower capacity will amplify the commercial repercussions, while higher capacity will mitigate them accordingly.

6. As mentioned, the charges for deviations concerning WS sellers or hybrid wind-solar resources will be settled through a Qualified Coordinating Agency (QCA). However, at the regional level, the registration procedure for QCAs or the procedure for aggregation has not been established yet. Therefore, we request the CERC to implement the aggregation at the ISTS level only after the procedure is finalized.

3) In relation Regulation 8(6) (charges for deviation) of Draft Regulations:

(A). Draft Regulation:

(6) Charges for Deviation, in respect of an ESS co-located with WS Seller(s) connected at the same interconnection point, shall be as follows:

(i). Such seller shall provide a separate schedule for WS and ESS components through the Lead generator or QCA at the interconnection point;

(ii). Deviation corresponding to WS component shall be charged at the same rates as applicable for WS Seller being a generating station based on solar or hybrid of wind-solar resource in accordance with clause (4) of this regulation; and

(iii). Deviation corresponding to the ESS component shall be charged at the same rates as applicable for a standalone ESS in accordance with clause (5) of this regulation.

(B). Our suggestions:

energy storage system (**ESS**) co-located with WS sellers should be treated as single entity and the deviation should be considered collectively as per the deviation mechanism proposed for WS seller.

(C). Rationale

A. As an industry practice, ESS is co-located with wind-solar (WS) sellers is to mitigate the variability inherent in wind and solar technologies, thereby enhancing grid stability. ESS will enable the WS seller to meet their obligation/minimize their deviations on real time basis, which also beneficial to the grid. If the deviations of ESS are treated separately and aligned with the general seller's deviations, it will not only reduce the flexibility of WS seller but also will require a higher Ancillary reserve. This will also lead to higher deviation charges for WS seller. Given that ESS represents a significant financial investment, the substantial impact of these deviation charges will undoubtedly discourage renewable energy (RE) developers from integrating ESS into their systems.

4) In reference to the Regulation 10 (1)

(A). Draft Regulation:

10. Schedule of Payment of charges for Deviation

(1) The payment of charges for deviation shall have a high priority, and the concerned regional entity shall pay the due amounts within 7 (seven) days of the issue of the statement of charges for deviation by the Regional Power Committee, failing which late payment surcharge @ 0.04% shall be payable for each day of delay.

(B). Our suggestion:

7 working days should be specified for payment of deviation instead of simple 7 days.

(C). Rationale:

7 working days could be anywhere from a minimum of 10 days, and a maximum of 13 days (almost a week). As rightly noted by CERC, payment of Deviation Charges is a high priority transaction, the requirement maybe maintained at 7 days.