INDIAN WIND POWER ASSOCIATION

(Northern Region Council)

Dated: 21-10-2021

To,
Sanoj Kumar Jha,
Secretary,
Central Electricity Regulatory Commission
3rd & 4th Floor, Chanderlok Building,
36, Janpath, New Delhi- 110001

Subject: **Indian Wind Power Association (IWPA-NRC) submissions in the matter of CERC "draft Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2021" dated 07-09-2021.**

Dear Sir,

At the outset, we extend our gratitude to Central Electricity Regulatory Commission (CERC) for inviting the stakeholder's comments in the matter of "Draft Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2021" dated 07-09-2021.

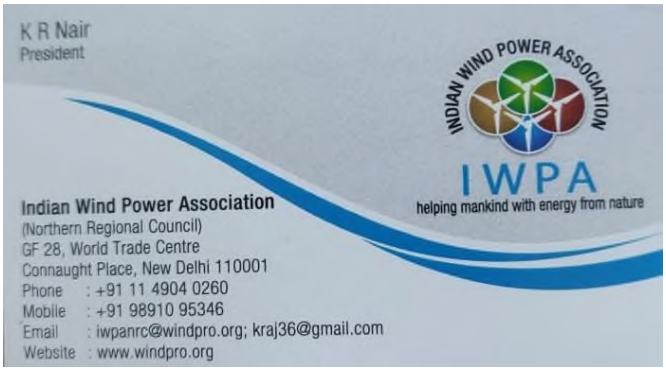
We would like to introduce ourselves as the Indian Wind Power Association (IWPA), an Association of wind power developers and investor of India and was set up in 1996. Started with 37 members, the Association is now having around 1200 members spread all over India.

We enclose herewith our considered observations/suggestions on the "Draft Central Electricity Regulatory Commission (Deviation Settlement Mechanism and Related Matters) Regulations, 2021" dated 07-09-2021. We may further be allowed to represent/submit some additional submission, if any, at the time of stakeholder's meeting/discussion.

Thanking you,

Yours faithfully,
For Indian Wind Power Association (NRC)

(K.R Nair)
President



OBSERVATIONS/SUGGESTIONS

It is noted that CERC has issued the draft DSM Regulations under section 79(1) (h) of the Electricity Act 2003. However, it is pertinent to note that any regulation or amendment made under section 79(1) (h) will have direct impact on the relevant State Regulations also. As SERCs under section 86(1)(h) are conferred with power to specify any regulation pertaining to Grid. However, the same has to be consistent with the Regulations specified by CERC under section 79(1) (h). Consequently, the impact of the proposed amendment in the DSM Regulations will not be limited to ISTS projects but will also extend to Intra State projects. Therefore, it becomes imperative that any amendment proposed by CERC keep in view all aspects pertaining to both ISTS and Intra State generation projects. The relevant extract of the sections of the Electricity Act 2003 are reproduced below for ready reference:

Section 79 (1)(h)

"79 Functions of Central Commission. (1) the Central Commission shall discharge the following functions, namely:-

……..

(h) to specify Grid Code having regard to Grid Standards;

……..."

Section 86(1)(h)

"86 Functions of State Commission. (1) The State Commission shall discharge the following functions, namely:-

……..

(h) specify Sate Grid Code consistent with the Grid Code specified under clause (h) of sub-section (1) of section 79;

……."

In our opinion some Clauses of the proposed amendment is contrary to the statutory and legal framework provided under the Electricity Act 2003. Further, it is pertinent to point out here that vide an amendment dated 07-08-2015, tolerance band of +/-15% for wind and solar was introduced by CERC. It has been more than 6 years since the introduction of above tolerance band. However, there is no evidence of any in house or sponsored study in Indian context to ascertain the efficacy of the existing DSM mechanism being practiced. The impact of tolerance band on various stakeholders during last six years needs to be evaluated. There is also no evidence of as to how the LDCs are using the schedules. Each state has its own interpretation and implementation. The root cause of why the variability is not captured properly notwithstanding very heavy investments into the IT infrastructure and software domains. Therefore, we request CERC to conduct a comprehensive and impartial study in this regard as the same will certainly help in overall development of Renewable Energy (RE) in the country and will prove crucial in achieving the ambitious target of 450 GW by 2030.

IWPA NRC's clause-wise observations/submissions are as follows:

Sr. No.	Clause	Proposed	Suggestion	Justification
1	8(1)	**……** **For WS Seller** Deviation by way of over injection: zero **Deviation by way of under injection:** **(i) Zero up to 10% Deviation-WS seller (in %);** (ii) @ 10% of the normal rate of charges for deviation beyond 10% Deviation-WS seller (in %): Provided that such seller shall pay back to the Deviation and Ancillary Service Pool Account for the total shortfall in energy against its schedule in any time block due to under injection, (a) at the contract rate at which it has been paid based on schedule, or (b) in the absence of a contract rate at the rate of the Area Clearing Price of the Day	We would like to propose that the tolerance band could be increased from +/- 15% to at least +/- 20% with zero DSM Charges uniformly across the country. In the meantime, a study needs to be conducted based on at least last 5 years of actual data of agencies engaged in wind forecasting in India to have a rational tolerance band with zero DSM Charges. The tolerance band could be revised post facto on the basis of the results of the study conducted as mentioned above.	**Reduction of tolerance band from +/-15% to -10% in case of under injection.** **In our opinion the proposed amendment in DSM Regulations is not promotional, based on conjectures and surmise that forecasting tools and technique available in India are capable to address variability. Wind power generation forecasting is highly unpredictable in nature and thus operates differently from Solar power generators whereas Solar power has comparatively lower variability. Thus, we propose that there should be different tolerance band for Wind power projects.** • CERC is well versed about the fact that wind generators are heavily dependent upon weather conditions for their plant operation & generation and accurate

		Ahead Market for the respective time block.		projection of their electricity generation and revenue cannot be ascertained. Forecasting Service providers/QCA are doing forecasting and scheduling on behalf of Wind generators by accessing real time generation data through SCADA. It has been seen that even accessing the real time data none of the existing forecasting agency is competent enough to maintain the deviations within the tolerance band of (+/- 15%). This unattainable tolerance band with zero DSM charges are affecting the top line of the generators. Under such conditions squeezing the tolerance band to 10% is not justified at all. • It has to be noted that the entire mechanism of producing forecasts and corresponding schedules, is largely based on global circulation models which produce state of the atmosphere forecasts with a granularity of 6 hours temporally and roughly on a 30 km x 30 km spatial grid. These forecasts come with their share of large inaccuracies and uncertainties due to antiquated meteorological measurements (both spatially and temporally) taken in very few locations in the country at locations that are hardly adequate enough. The weather forecast models are 'work in progress' and have a long way to go. Practically no attention is being paid to the quality of input data to the models. A

				very important point to note here is that these very approximate predictions are produced once in six hours based on WRF models. It is pertinent to point out that the model outputs will be largely dependent on the quantity and quality of the input data both of which are currently deficient in India. The data assimilation process will make far too many assumptions that may be far from reality to get reasonable results for hundreds of thousands of points from around the globe. Even our own Indian NCMRWF uses the reanalysis data to run the WRF and results are similar. • Further, when this gridded data is further stretched to areas of interest, there will be further errors introduced in the wind related information. Next transformation will be to convert the six-hour granularity data into blocks of 15-minute data series. Although much research has been done in this area, there are no known analytical solutions available. Even as we write this, this year's Nobel Prize was given to weather modelers who have made a small headway into this. But somehow wind generators are expected to get the numbers right from the Qualified Aggregating Agencies who have no financial responsibility towards the forecasts they make and submit to the concerned LDCs. It should be appreciated that the only entity suffering huge

				financial burden in this complex ecosystem that has been created is the generator. • Some of the QCAs have nearly 8 to 10 years of experience in forecasting and scheduling. For all the tall claims made by various service providers, even with ± 15% band, ability to keep the schedules with in is less than 90% taken on an annual basis. Initially it was conveniently blamed on not getting data in time. With considerable investments in hardware and software, the QCA's are getting SCADA data in near real time for many years. Contrary to the claims made by experienced forecast service providers, the schedules have large errors during high winds. This is, even after providing near real time SCADA information and automated AvC provided in advance (scheduled O & M etc.). As a matter of fact, the collective penalties (DSM charges) run into crores. Typically for an asset size of 4 GW, annual out go will be in the range of 30 to 40 crores. If the band is reduced it could run up to 50 to 60 crores. Calculations have shown that if the +/- 15% is changed to +/- 10%, the DSM charges show an increase by nearly 35 to 40%. This will put additional pecuniary burden on the wind generator and may result projects into NPA. • As mentioned above, such changes will

				certainly affect the intra state projects in future. It has been observed that the wind generators are not able to achieve the +/- 15% tolerance band. At present, 10 to 15 % of time-block goes beyond +/-15% which will turn out to be 15 to 25% if proposed amendment will come into existence. • We have to appreciate the fact that for large scale grid integration of renewable energy in order to achieve ambitious target of 175 GW by 2022 and 450 GW by 2030, it is essential to reckon the reasonable DSM charges levied upon renewable energy generators for deviation. At this juncture, it is imperative that RE should be promoted in letter and spirit and not merely making statements about support to RE. • In view of above, we would like to propose that the tolerance band could be increased from +/- 15% to at least +/- 20% with zero DSM Charge uniformly across the country. In the meantime, a study needs to be conducted based on at least 5 years of actual data of agencies engaged in wind forecasting in India to have a rational tolerance band with zero DSM Charge. The tolerance band could be revised post facto on the basis of the results of the study conducted as mentioned above. This will not only give relief from redundant financial burden on

				the generator but also encourage power developers to generate power through wind sources.
2	**8(1)**	**For WS Seller** **<u>Deviation by way of over injection: zero</u>** Deviation by way of under injection: (i) Zero up to 10% Deviation-WS seller (in %); (ii) @ **10% of the normal rate of charges** for deviation beyond 10% Deviation-WS seller (in %): Provided that such seller shall pay back to the Deviation and Ancillary Service Pool Account for the total shortfall in energy against its schedule in any time block due to under injection, (a) at the contract rate at which it has been paid based on schedule, or (b) in the absence of a contract rate at the rate of the Area Clearing Price of the Day Ahead Market for the respective time block.	As suggested above the tolerance band could be increased from +/- 15% to at least +/- 20% with zero DSM Charge uniformly across the country. In the meantime, a study needs to be conducted based on at least last 5 years of actual data of agencies engaged in wind forecasting in India to have a rational tolerance band with zero DSM Charge. The tolerance band could be revised post facto on the basis of the results of the study conducted as mentioned above. **The tolerance band shall be provided in both case of under and over injection as per prevailing Regulations.**	**<u>Reduction of tolerance band to zero (0) in case of over injection.</u>** **<u>In our opinion the proposed amendment is detrimental, irrational, prejudiced and not promotional at all.</u>** • As per the prevailing regulation over-injection up to 15% paid at contract rate to generator and gradually paid at reduced tariff. The proposed amendment provides zero tolerance band in case of over injection which is totally vague. The energy generation from wind and solar plants are dependent upon availability of wind and sun which cannot be controlled by humans. The deviation may also go upside the scheduled generation. The wind and solar generation are variable in nature and can't be predicted with 100% accuracy. The same fact (infirm nature of wind and solar) is considered under this amendment too but limited to under injection case only which is totally arbitrary and vague. • Moreover, removing tolerance band (i.e 0%) in case of over injection is not justifiable even knowing the infirm nature of wind generation. It is evident that no one can forecast wind generation with

				100% accuracy and it is impossible to predict whether the wind generation will go upside or downside the scheduled generation. Therefore, tolerance band should be given in both cases of over injection and under injection. It is prejudice, irrational and vague that special dispensation is provide to promote green energy only in case of under injection even after recognizing the inherent uncertainty of renewable energy resources. • Also, RE generation is promotional under the Electricity Act 2003, Tariff Policy, National electricity Policy and respective State Regulations. Even being promotional, zero tolerance band is given in case renewable energy generation go upside the scheduled generation. On the contrary, 2% tolerance band is provided to thermal projects under this draft DSM Regulations 2021. As mentioned above the same will also affect the Intra State projects in future. At present all energy payments are made at actual generation irrespective the actual is more or less than scheduled generation with tolerance band of +/- 15% with zero DSM Charge. If over generation are not continued to be paid in consistent with CERC proposed amendments, it has been observed that the same will result into further losses for generators. With

				continuously falling tariffs and large delays in payment schedules from DISCOMs it is a clear case of creating more and more NPAs by introducing such regulations which have a complete disconnect with the ground realities. • The recent China power crunch has proven that renewable energy is the need of the hour. India has set an ambitious target Honourable Prime Minister's vision of installation of 175 GW capacity of renewable energy projects by 2022 and 450 GW capacity of renewable Energy projects by 2030. The objective is not only to accelerate installation of renewable energy but also to integrate the same in the Grid in effective and efficient manner i.e. technical and financial both. • In view of above we request the tolerance band could be increased to +/-20% from the present level of +/-15% as suggested. Tolerance band shall be provided in both under and over injection case as per prevailing regulations to provide special dispensation to RE considering the fact of variable nature of wind generation.
3	**8(1)**	**For WS Seller** **<u>Deviation by way of over injection: zero</u>** Deviation by way of under injection:	**FOR over injection generator shall be paid as per the prevailing Regulations.**	**Under the proposed amendment for over injection, generators will neither be paid nor will they have to pay any deviation charge. In our opinion the proposed amendment is unjust and illegitimate and has the potential to create instability in the grid. The point wise**

		(i) Zero up to 10% Deviation-WS seller (in %); (ii) @ **10% of the normal rate of charges** for deviation beyond 10% Deviation-WS seller (in %): Provided that such seller shall pay back to the Deviation and Ancillary Service Pool Account for the total shortfall in energy against its schedule in any time block due to under injection, (a) at the contract rate at which it has been paid based on schedule, or (b) in the absence of a contract rate at the rate of the Area Clearing Price of the Day Ahead Market for the respective time block.		**submission is as follows:** • The non-payment of energy to generators in case of over generation is unjust and illegitimate as it violates the must run status granted under the CERC IEGC, Regulations 2010 and its amendment thereof. It goes against the very principles of having more green power on the grid. Since generation from wind and solar is uncertain and variable, must run status have been accorded to them under the IEGC Regulations 2010 and respective State Regulations. And importantly, while scheduling generating stations in a region, system operator is required to aim towards utilization of available wind and solar energy fully. The application of must run in letter and spirit shall be if generators are paid for its all-energy generated. For maintaining grid stability and security respective Forecasting and Scheduling Regulations are already in place. For any deviation from schedule generator are penalized appropriately as per the concerned Regulations but it is needed that generator shall also be paid for its generation which have been accorded must run status. • It is evident that the generation from wind and solar plants are infirm in nature and even after doing forecasting of generation through QCA, the generation deviates from its schedule. The deviation from

				schedule results into DSM Charge paid by the generators. As per the prevailing regulation over-injection up to 15% paid at contract rate and gradually paid at reduced tariff. The proposed amendment will result into significant revenue loss to generator in over injection case and obliquely force QCA to forecast in such a way to bring least instance of over generation so as to result into lesser loss to generator. This will create rival spirit among QCA to prove themselves better amongst others and tend the forecast to bring down revenue loss of generator than stability of the Grid. • As of now, around 60 GW capacity has been awarded under various competitive biddings . It is known fact that the profit margins of projects selected under the competitive bidding is very squeeze and any amendment/changes having pecuniary effect on projects could make projects unviable. This will not only affect financials of the existing and pipelines projects but deter the growth of Renewable Energy development in the country.
4	**8(1) and 7(1)**	**7. Normal Rate of Charges for Deviations** (1) The normal rate of charges for deviation for a time block shall be equal to the Weighted Average Ancillary Service Charge (in paise/kWh) computed based on the total	**The rate shall be linked to contract rate as per the prevailing Regulations.**	**DSM Charge at normal rate** • As per the proposed Regulation the payments would be made at Normal Rate which has been linked to the PX rate

		quantum of Ancillary Services deployed and the total charges payable to the Ancillary Service Providers for all the Regions for that time block: Provided that for a period of one year from the date of effect of these regulations or such further period as may be notified by the Commission, the normal rate of charges for deviation for a time block shall be equal to the highest of [the weighted average ACP of the Day Ahead Market segments of all the Power Exchanges; or the weighted average ACP of the Real Time Market segments of all the Power Exchanges; or the Weighted Average Ancillary Service Charge of all the regions] for that time block: Provided further that in case of non-availability of ACP for any time block on a given day, ACP for the corresponding time block of the last available day shall be considered:		(DAM and RTM) and Ancillary service charges of all region for every 15 min time block. The Normal Rate considered would be highest amongst above options. In our opinion this will bring uncertainty and unpredictability • Under competitive bidding scenario one has to bid tariff at competitive rate to win the bid. The generators while quoting tariff consider many factors impacting the tariff or may impact the tariff and one of the factors is DSM charges. The present amendment to DSM Regulation makes it difficult for bidders to determine the impact of DSM Regulations. Now, the DSM rate is not fixed (contract rate as earlier) for deviation it is totally market dependent (Rate discovered in DAM and RTM) which is unpredicted. This will decrease the predictability of assessment of deviation charges as Area Clearing Price in power exchanges varies significantly from around Rs 3/unit to Rs.19 /unit on time block wise. • The proposed DSM charges (10% of normal rate) vary between Rs.0.3/kWh to Rs 1.9/kWh which are amounting to 12% to 76% of the tariff (average tariff assumed Rs. 2.50/kWh) which is arbitrary and unreasonably high. • At present the maximum DSM charge is

				30/% of contract rate which tantamount to 75 paise considering average Competitive bidding price @ Rs. 2.5/kwh. The proposed amendment will increase the maximum DSM charge to Rs.1.6 or more which is almost double as compared to present DSM Charge. This will put additional financial burden on the existing projects and projects under pipeline. Since the profit margins under completive bidding projects are very susceptive to financial changes. Significant financial impact due to this amendment may result the project into NPA. • As mentioned above the same will also affect the Intra State projects in future. It has been observed that the DSM charges imposed on normal rate time-block wise will increase the DSM charges significantly from the existing level. The proposed amendment will put additional financial burden on the generator. • In view of above it is clear that the present amendment will prove to be detrimental to RE development and will impair the growth rate of RE development in the country.

ADDITIONAL COMMENTS

Sr. No	Proposal	Justification
1	**Aggregation of Schedule**	• The fundamental purpose/objective of the DSM Regulations is to maintain grid stability and security while ensuring large scale integration of renewable energy. The deviation from schedule is inevitable for RE generators as 100% accuracy is not possible to achieve, even with frequent revisions. The deviation in real time will be managed through ancillary services and spinning reserves which are already in place. It is submitted that if no aggregation is allowed RE generators deviating in the opposite direction with no net deviation from the aggregate schedule, are expected to be penalized depending on the extent of their individual deviation even though they may not impose any additional costs on the overall system. • It is humbly submitted that the aggregation of power in the form of virtual pool would be beneficial for the Grid. A large interconnected power system is beneficial because it enables aggregation of imbalances from a large geographical area and thereby ensures the grid safety. The errors are not uniformly distributed in time within a region, therefore forecasting errors for a region are smaller than for a single site. Aggregation lowers the uncertainty of power generation by reducing forecast error. GIZ's Report on Forecasting, Concept of Renewable Energy Management Centres and Grid Balancing stated that *"typical accuracies for German wind power forecasts show 10-15% normalised root mean square error of installed wind capacity for a single wind project, drop to 5-7% for day-ahead forecasts for a (regional) control area, and reduce to 4-6% for day-ahead wind forecasts for complete Germany. More importantly, with aggregation, the impact of forecast errors on individual plants is not as severe because the aggregate forecast of all plants drives the generation scheduling".* Moreover, Report of the Expert Groups: Review of Indian Electricity Grid Code dated Jan 2020, proposes NLDC to notify a procedure for aggregation of pooling stations for the wind/solar/hybrid generating stations.

		• Please note the definition of forecast error. It is the "Normalised Root Mean Square error" that German utilities and generators follow and not the block wise errors that are being used in our case. This point has been conveniently underplayed right from the beginning. RMS error is calculated for a series of forecasts and that is expected to be with in a 5 to 6% in aggregation. As a matter of fact, our error definition itself in not as understood internationally. Also, nowhere in the world have they set up such a complex system for penalising the generators who have little control over weather measurements, modelling and its applications. It has to be appreciated that only very recently met department has indirectly acknowledged that there is considerable work to be done in this direction. It is obvious that these aspects have been completely ignored. • At present in state and at central level, no aggregation of schedule is allowed which is resulting into huge financial loss which for wind generators (30% CUF) is shaving off around 3% of the top line and for solar generators (25% CUF) around 1%. The commercial impact can be a dampener to investment in Renewable Energy. There is the growing demand for power which must be catered in an environmentally and economically sustainable manner, which can only be met through RE. So, it is important to have a rational mechanism in place which encourage the power developers to generate power through RE sources. In this respect, aggregation of forecast and scheduling is required to be considered as intention is not to over penalise generators but make the system robust and stabilised. • We humbly request the commission to allow aggregation of schedule at regional level so as to maintain grid security in a better way and protecting the interest of the power developer investing in renewable energy sources.
2	**Monthly Grid monitoring report by LDCs**	• Keeping in view the ambitious target of 450 GW by 2030, grid integration is a key

		need for scaling Renewable Energy (RE) in India. The generators are paying heavy penalties even knowing that their generations are heavily dependent upon weather conditions and accurate projection of their electricity generation and revenue cannot be ascertained. It should not be a situation where due to inefficiency of LDCs the RE generators end up with paying for cost of forecasting and DSM charges due to forecasting errors. Therefore, we propose that System Operators (LDCs) are requested to publish monthly grid monitoring report on their websites consisting of benefits of forecasting and scheduling of renewable energy generation on grid security and stability. This will not only encourage DSM charge payers i.e. renewable energy generators but also help to understand how to scale up renewable energy generation into the grid while maintaining grid security and stability. • It is pertinent to mention here that there is no evidence that the schedules provided under the respective State Regulations are used by LDCs to actively balance the grid. It has become just a compliance issue. Grid management lacks required transparency. As the DSM charges are handed to the generators typically three to six months later, it is obvious that the whole scheme has been turned into a revenue tool by the concerned LDCs.
3	**Provision to reduce deviation in schedule through spot market supply**	• Due to uncertain and infirm nature of RE power and lack of 100% accuracy in weather forecasting, it is difficult for WS generators to follow injection schedule and avoid deviation. In order to accommodate these deviations, we propose that WS generators should be allowed to buy/sell power from spot markets on real time basis to settle the deviation in injection schedules at any given time and reduce the impact of deviations on grid.

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