



31st August 2018

Secretary

Central Electricity Regulatory Commission (CERC),

3rd & 4th Floor, Chanderlok Building,

36, Janpath, New Delhi- 110001

Subject: Comments, Suggestion and Objections on “CERC (Grant of Connectivity, Long-term Access and Medium-term Open Access in Inter-State Transmission and related matters) (Seventh Amendment) Regulations, 2018“.

Dear Sir,

Indian Wind Turbine Manufacturers Association (IWTMA) is a registered association and strives towards high efficiency in energy generation through the best technologies and cost efficiency through large volume in the wind sector.

IWTMA is in existence over 17 years and has played a role of an important stakeholder in wind power industry development. Our members offer turnkey solutions to the investors and take an active role in policy and regulatory intervention both at Centre and State and look at challenges as an opportunity to move this sector as we believe the wind power is "The Power of now and Future".

This is with reference to the notification published by CERC on Draft CERC (Grant of Connectivity, Long-term Access and Medium-term Open Access in Inter-State Transmission and related matters) (Seventh Amendment) Regulations, 2018 inviting comments/suggestions on the same. Our comments to the said publication are elaborated as under.

I, O.P. Taneja, am duly authorized by Indian Wind Turbine Manufacturers Association to file these comments/suggestions on its behalf. I would also request you to allow us to present our views to commission in person in the hearing on this matter.

Thanking you,
Yours truly,

A handwritten signature in black ink, appearing to read 'O.P. Taneja', is written over a horizontal line.

O.P. Taneja
Associate Director, IWTMA

1. As per para 8(2)(2B) of the proposed amendment

“Grant of Stage-I and Stage-II Connectivity shall be as per the Detailed Procedure issued from time to time.

Provided that the Detailed Procedure for grant of Connectivity to Projects based on Renewable Sources to inter-State transmission system issued vide order dated 15.5.2018 in File No. L-1/(3)/2009-CERC shall be deemed to have been issued under these Regulations”

2. In the Detailed Procedure, following is stipulated at 12.2.2 (vi)

“The developer of renewable generation project shall comply with requirements specified at Clause 16.4 of CEA Manual on Transmission Planning Criteria 2013, with regard to requirement of reactive compensation at the pooling station”

3. In view of this, CTU, while conveying the grant of connectivity/LTA is stipulating the following:

“Further, the wind developers shall provide adequate reactive power compensation so that under all dispatch scenarios power factor of 0.98 shall be maintained at injection point” and also mentions that “The applicant shall abide by all provisions of the Electricity Act ,2003, the CERC(Grant of connectivity, long term Access and Medium term open access in Inter-state Transmission and related matters) Regulations,2009&detailed procedure, Central electricity Authority (Technical standards for connectivity to the grid) and Indian Electricity Grid Code regulations as amended from time to time”

4. The detailed procedure stipulates complying with 16.4 of transmission planning criteria which states that

“16.4 The wind and solar farms shall maintain a power factor of 0.98 (absorbing) at their grid inter-connection point for all dispatch scenarios by providing adequate reactive compensation and the same shall be assumed for system studies.



5. In this regard, we would like to submit the following:

- 5.1. The stipulations regarding maintaining power factor of 0.98 absorbing at injection point under all dispatch scenarios is for Planning Purpose. The dispatch scenarios in the planning criteria are with reference to light load conditions and peak load conditions of the system and relatable dispatches of the generating stations.
- 5.2. It is technically not feasible to maintain power factor of 0.98 absorbing under insignificantly very low generation despatches, below a generation dispatch of say 20% of the connected capacity of the generating station.
- 5.3. When the generation level is low, even a small change in MVAR due to small change in grid voltages will lead to substantial change in power factor of wind injection even without much change in operating conditions at wind generating station.
- 5.4. Further, in respect of the power factor of the wind generating station, the Central Electricity Authority (Technical Standards for connectivity to the Grid)Regulation (amendment of October 2013), which is also quoted by CTU, has following provision

QUOTE

“B2. For generating station getting connected on or after completion of 6 months from date of publication of these Regulations in the Official Gazette.

- (1) The generating station shall be capable of supplying dynamically varying reactive power support so as to maintain power factor within the limits of 0.95 lagging to 0.95 leading.*
- (2) The generating units shall be capable of operating in the frequency range of 47.5 Hz to 52 Hz and shall be able to deliver rated output in the frequency range of 49.5 Hz to 50.5 Hz.*

Provided that above performance shall be achieved with voltage variation of up to $\pm 5\%$ subject to availability of commensurate wind speed in case of wind generating stations and solar insolation in case of solar generating stations.”

UNQUOTE

- 5.5. Thus, the regulation stipulates that the power factor of the generating station should lie between the limits of 0.95 lag (export) and 0.95 lead(absorbing),
- 5.6. which is a flexibility essential to meet the dynamic requirements of the power system viz. If the voltages are higher than the IEGC limits in the EHV system, the generating station has to draw reactive power to support the voltage reduction and when the voltages are lower than the IEGC limits, the generating station has to supply reactive power to improve the voltage profile of the grid. These are required to support the system voltage profile to be in the IEGC limits Therefore, maintaining of 0.98 PF absorbing in all scenarios may not be in the best interests of grid operation. It is also noteworthy that the control is expected to be at the generating station itself and there is no reference to the point of injection or point of interconnection.
- 5.7. As can be seen, the clause pertaining to power factor at wind generating stations (16.4) in CEA Transmission Planning Criteria and CEA regulation for grid connectivity, relate to different contexts and the WPPDs, and IPPS draw different conclusions leading to conflicting requirements.
6. **In view of the above, it is suggested that the following amendment be carried in para 12.2.2 (vi) of the Detailed Procedure:**

“The developer of renewable generation project shall comply with requirements specified at Regulation B2 of the Central Electricity Authority (Technical Standards for connectivity to the Grid) Regulation at the EHV bus of the wind farm pooling substation of the wind generating station at Clause 16.4 of CEA Manual on Transmission Planning Criteria 2013, with regard to requirement of reactive compensation at the pooling station”



Rationale for seeking change

- a. Any control of power factor or reactive power is technically achievable at the generating (Unit) station level, irrespective of the location of the injection point, and the control equipment is located at the generating station itself. This is the practice in conventional generating stations and the same applies to wind generating station too.

- b. Locating the control equipment at PGCIL end, which is the injection point, (to control the reactive power /power factor at the injection point by controlling the generating station) is not a sustainable technical practice as the related equipment also has to be kept in CTU's premises and need to be maintained by the wind generator

Or alternatively, the following amendment may be carried out in para 12.2.2. (vi)

“The developer of renewable generation project shall comply with requirements specified at Clause 16.4 of CEA Manual on Transmission Planning Criteria 2013, with regard to requirement of reactive compensation at the pooling station, except for low generation from the station. The measurement and control of power factor shall be at the wind farm pooling substation of the wind generating station.”

