



INDIAN WIND POWER ASSOCIATION

(Northern Region Council)

Date 12.07.2019

To,
The Chief (Engg), CERC
3rd & 4th Floor, Chandernagore Building, 36 Janpath,
New Delhi- 110001

Subject: IWPA-NRC comments on Constitution of Expert Group to review " Indian Electricity Grid Code and other related issues".

Dear Sir,

At the outset, we extend our gratitude to this Hon'ble Commission for inviting the stakeholder's comments/objections in the matter of aforesaid Constitution of Expert Group to review " Indian Electricity Grid Code and other related issues".


We would like to introduce our self as the Indian Wind Power Association (IWPA), an Association of wind power developers and investor of India and was set up in 1996 as a non-profit organization under the Tamil Nadu Societies Registration Act, 1975. Started with 37 members, the Association is now having 1100 members spread all over India. Since its inception, IWPA has been working towards removing barriers to wind power development and creation of an enabling regulatory and policy environment for better investments in the sector.

The Association is working closely with several national industry bodies such as the Indian Renewable Energy Development Agency, Ministry of New and Renewable Energy, Ministry of Power, Ministry of Environment, Confederation of Indian Industry, State Utilities, State Electricity Regulatory Commissions etc.

IWPA (Northern Region Council) hereby enclosing its comment/objections on Constitution of Expert Group to review " Indian Electricity Grid Code and other related issues and request this Hon'ble Commission to kindly consider the same before finalising anything.

Also, we request this Hon'ble Commission to represent/submit some additional submission at the time of public hearing.

Thanking You


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Points for consideration of Expert Group appointed by CERC to review Indian Electricity Grid Code and other related issues

1. RE Generators have concern regarding curtailment of RE by the SLDCs because of inability to absorb large quantities of RE, evacuation issues and the challenges they envisage towards forecasting and scheduling of their generation.
2. For a large state having large quantum of renewables, at times the value of deviations could be high. Hence there should be formulation of different bands of deviation volume in which states may be placed according to size of the state and level of penetration of RE in the state.
Also, there is a need for study of the reasons for deviation in all the states with regard to variation in actual demand, variation in Conventional Generation availability and variability of RE Generation. Accordingly the commercial implication of DSM on the RE generators need to be evaluated.
3. The Indian Electricity Grid Code (IEGC), 2010 provides the definition of spinning reserves but not the primary reserves. Therefore suitable amendment in IEGC, 2010 is required modifying the definition of spinning reserve and providing definition of primary reserve separately.
Also, Spinning reserves are required to be maintained of requisite condition depending upon the grid conditions.
4. Renewable energy generation is variable in nature (diurnal & seasonal) and implementation of Ancillary Services would facilitate integration of renewable energy generation in the country. Ancillary Services will certainly help in controlling the variability of renewable generation, presently concentrated in certain parts of the country. Ancillary services are being implemented at the inter-state level and a similar framework needs to be implemented in the States. Also, Grid scale Storage system e.g. Pumped Storage Plants can be one of the alternative ancillary service handling grid integration issues associated with renewable sources of energy.

1. IEGC Regulation 2010

Regulation 5.2 (u) Special requirements for Solar/ wind generators

*“System operator (SLDC/ RLDC) shall make all efforts to evacuate the available solar and wind power and treat as a must-run station. However, **System operator may instruct the solar /wind generator to back down generation on consideration of grid security or safety of any equipment or personnel is endangered and Solar/wind generator shall comply with the same. For this,***

Data Acquisition System facility shall be provided for transfer of information to concerned SLDC and RLDC:

(i) SLDC/RLDC may direct a wind farm to curtail its VAR drawl/injection in case the security of grid or safety of any equipment or personnel is endangered.

(ii) During the wind generator start-up, the wind generator shall ensure that the reactive power drawl (inrush currents in case of induction generators) shall not affect the grid performance.”

Suggestion: As per Regulations 5.2 (u) the SLDC/RLDC can instruct the solar/wind generator to back down only in cases of grid security or safety of any equipment or personnel is endangered. Many SLDCs are asking wind and solar generators to back down in cases other than event of grid security or safety of any equipment or personnel is endangered, like low demand in the system. Therefore, it is suggested that any backing down in cases other than grid security or safety of any equipment or personnel is endangered, a provision of deemed generation should be provided and its compensation from the State or regional UI Pool by SLDC /RLDC needs to be mandated.

It is suggested that the term “**Grid Security**” needs to be specifically defined as the low demand in system cannot be considered as a grid security event. SLDCs in the name of low demand are asking high cost wind and solar generators to back down throughout the day, without asking State thermal generator to back down up to its technical limit or without reducing central sector share.

2. IEGC 3rd Amendment Regulation 2015

6.4 Demarcation of responsibility

Regulation 6.4(2) (b) read as under:

“2. The following generating stations shall come under the respective Regional ISTS control area and hence the respective RLDC shall coordinate the scheduling of the following generation stations:

“(b) Ultra Mega Power Projects including projects based on wind and solar resources and having capacity of 500 MW and above”.

Suggestion: Accordingly, in a STU substation where 500 MW and more wind and solar generators are connected, its scheduling jurisdiction lies with the RLDC. But RLDC and RPCs are reluctant to implement the same on account of the opposition from the SLDCs. The intent

underlying the proposed regulation was to integrate large scale wind/solar generation in the larger grid, where it can be absorbed easily. Therefore, the **Regulation 6.4 (2) (b) needs to specifically mandate RLDC/SLDC** for implementation of the same.

3. IEGC Regulation 2010 Part 5 – Operating Code

“3.3 Demand Estimation for Operational Purpose

(a) This section describes the procedures/responsibilities of the SLDCs for demand estimation for both Active Power and Reactive Power.

(g) The SLDC shall take into account the Wind Energy forecasting to meet the active and reactive power requirement.”

Suggestion: Each Regional Entity, SLDC and Intrastate DISCOM develop and implement Statistical based scientific Demand forecasting system which considers historical demand data , weather data and other parameters for effective operational planning and operations of the Grid. This will ensure Load Generation Balance as well as effective contingency planning.

Above provisions are already part of existing IEGC, however as can be seen **demand estimation is not very scientific** at all levels and there is need for adopting a robust statistical system for demand estimation which will help in operational planning. These provisions need to be implemented in timely manner and NLDC / central agency may be given a task to review the implementation progress. This is also the need of the hour in line with the operating frequency band tightening being undertaken through DSM Regulations.

4. IEGC Regulation 5.1 Operating Philosophy

IEGC 2nd Amendment Regulations

It is submitted that **CEA through its Technical Standards for connectivity to the Grid (Second Amendment 2019) mandates participation in frequency response as under:**

“Clause 4(C)(4) The generating stations with installed capacity of more than 10 MW connected at voltage level of 33 kV and above –

*(ii) shall have governors or frequency controllers of the units at a droop of 3 to 6% and a dead band not exceeding ± 0.03 Hz:
Provided that for frequency deviations in excess of 0.3 Hz, the Generating Station shall have the facility to provide an immediate*

(within 1 second) real power primary frequency response of at least 10% of the maximum Alternating Current active power capacity;

(iii) shall have the operating range of the frequency response and regulation system from 10% to 100% of the maximum Alternating Current active power capacity, corresponding to solar insolation or wind speed, as the case may be; “

It is understood that frequency response from RE Power Plants is expected when plant is generating between 10% to 100% of its capacity depending upon solar insolation or wind speed. In Renewable Energy (RE) Power plants (Solar/Wind), it is only possible to curtail active power injection in to the grid based on frequency response requirement, as they are fueled by natural resource i.e., Solar irradiation and Wind speed. Enhancement of power by installing surplus capacity is not a viable solution. Unlike thermal power plants, RE power plants are not capable of delivering frequency response through any governor system. Since the generation of RE plants varies throughout the day and depends on natural resources, ramping up of generation by 10% when frequency deviation is in excess of 0.3Hz is unrealistic. Hence expectation of frequency response from RE Power Plant is unlikely and impractical. For wind/solar generators, broad/comprehensive principles on above lines need to be incorporated under the Operating Philosophy as a part of IEGC

5. IEGC Part 6 – Scheduling & Despatch Code

IEGC 3rd Amendment Regulations 2015: (Revision request)

“(iii) The schedule by wind and solar generators which are regional entities (excluding collective transactions) may be revised by giving advance notice to the concerned RLDC, as the case may be. Such revisions shall be effective from 4th time block, the first being the time-block in which notice was given. There may be one revision for each time slot of one and half hours starting from 00:00 hours of a particular day subject to maximum of 16 revisions during the day.”

Comment: Large scale RE integration requires the facility for schedule revisions at the shorter advance notice. Revision request submitted for revision of Generation schedule or Drawal schedule should be made effective from 2nd time block, counting the block in which revision was requested to be the first one. Considering the fact that RE generation is intermittent and

variable in nature and also factoring in the forecast errors, **the RE generator may be allowed more opportunities to revise its schedule. Hence one revision for each time slot of one and half hours is not enough and should be increased to two revisions in each time slot of one and a half hours. Maximum of 16 revisions during the day should be accordingly changed to 32 revisions during the day.**

The revisions are allowed for bilateral transactions but no revision of trades discovered through collective transactions in the Power Exchange(s) is possible. Hence, the preferable mode in the short term would be bilateral transactions and they may be discouraged to go through the collective route. Hence **provision for collective transaction should also be made.** Some of the RE generators may also transact power through short term trades. Further, **special provisions regarding revision of bilateral transactions by RE generators would need to be considered & necessary provisions be made to facilitate revisions in short time frame.**