

To,

31-10-2022

**The Secretary,
Central Electricity Regulatory Commission,
Chandralok Building, Janpath, New Delhi.**

Subject: Comments on the Central Electricity Regulatory Commission (Indian Electricity Grid code) Regulations, 2022.

Respected Sir,

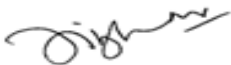
At the outset, we would like to congratulate CERC for notifying the draft Indian Electricity Grid code) Regulations, 2022. The regulations serve as the guiding book for efficient grid management operations. Also, with a regular increase in the renewable capacity in the grid and additional ways of power generation such as storage systems, it is expected that these regulations shall guide all concerned stakeholders at national, regional, state and generators in optimizing their generation and demand, thereby contributing in better grid management.

REConnect Energy, over the years, has been contributing to the best of its abilities as the largest Forecasting and Scheduling agency in the country with more than **14,000 MW** capacity of wind and **8,000 MW** capacity of solar farms across **10 States** in India under its portfolio. Additionally, we are also involved in RE forecasting of 66 GW at national, regional and state level through Renewable Energy Management Centres. We are the largest Qualified Coordinating Agency (QCA) in the states of Karnataka, Rajasthan, Andhra Pradesh, Madhya Pradesh, Uttar Pradesh and Punjab. We have been successfully delivering our Forecasting services to all major private IPPs and PSUs having renewable energy assets. Many of these IPPs also have assets connected to the ISTS network and shall fall under the proposed regulation.

We are also working for various utilities on Demand Forecasting wherein we are helping them predict their demand accurately, thereby helping them manage the difference in supply and demand in a much coordinated manner.

We hereby submit our detailed comments [covered in Annexure-1] on the draft regulation. We are hopeful that our inputs shall be considered while finalizing the regulation.

With Regards,



Vibhav Nuwal
Director



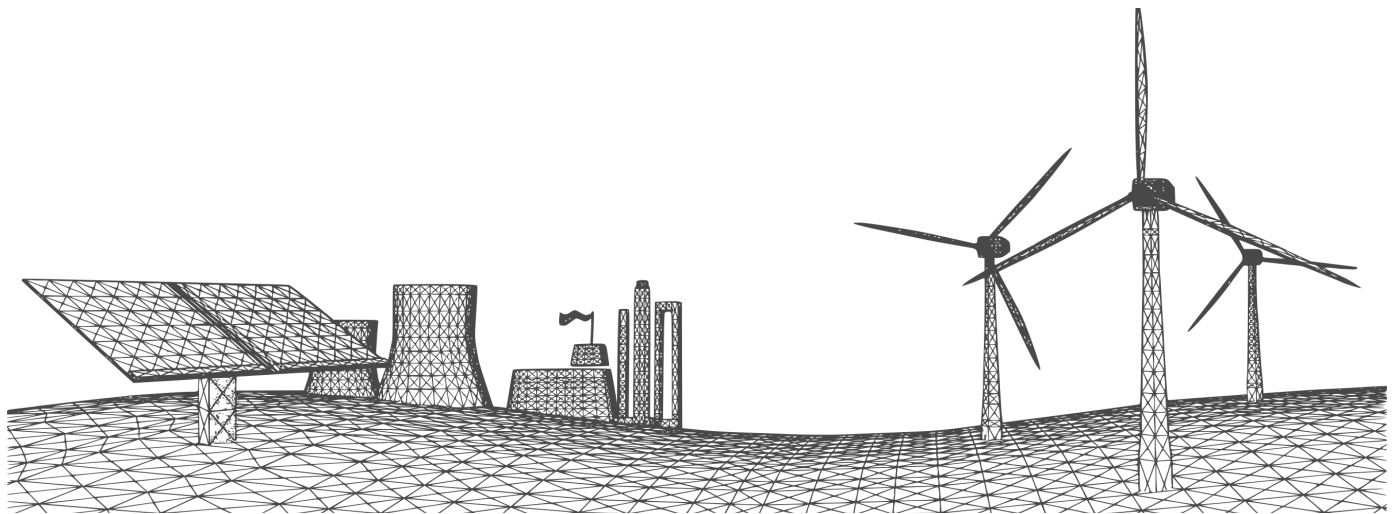
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REConnect Energy Solutions Ltd.
(formerly known as, REConnect Energy Pvt, Ltd.)
CIN : U72100MP2010PLC024384
✉ : info@reconnectenergy.com

Registered Office
15, Krishik Sarvodaya Foundation, Golf,
Avenue Road, Kodihalli, Bangalore-560008
🌐 : www.reconnectenergy.com

REConnect Energy Comments on Central Electricity Regulatory Commission (Indian Electricity Grid code) Regulations, 2022

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Prepared by: REConnect Energy Solutions Ltd.



GRIDConnect

Headquarter :
15, Krishik Sarvodaya Foundation
Golf Avenue Road, Off Old Airport Road
Kodihalli, Bangalore – 560008, Karnataka, INDIA

Other Locations :
Gurgaon, Mumbai, Chennai, London



Annexure A

Sr. No	Description	Details
1	Chapter-2 Clause(2): Demand Forecasting	<p>Each distribution licensee within a State shall estimate the demand in its control area including the demand of open access consumers and factoring in captive generating plants, energy efficiency measures, distributed generation, demand 25 response, for the next five (5) years starting from 1st April of the next year and submit the same to the STU by 31st July every year. The demand estimation shall be done using trend method, time series, econometric methods or any state of the art methods and shall include daily load curve (hourly basis) for a typical day of each month.</p> <p>STU, based on the demand estimates furnished by the distribution licensees of the concerned State as per clause (i) of this sub-Regulation and in co-ordination with all the distribution licensees, shall estimate by 30th August every year, the demand for the entire State duly considering the diversity for the next five (5) years starting from 1st April of the next year.</p>
	Comment	<p>Demand Forecasting (DF) is an important parameter for efficient grid management. It is requested that it should be made mandatory for grid operators at national and regional level as well as STU and distribution licensees.</p> <p>All STU and distribution licensees should be asked to mandatorily submit the projections for the 5 year period by the due date(s). A penalty mechanism depending on the system size of the utility/STU/licensee should also be formulated so that the activity remains relevant.</p> <p>With a huge amount of renewable energy now being integrated in the grid on a year-on-year basis, mandatory Demand Forecasting would help in effective load management and thus reduce DSM charges at utility level.</p>
2	Chapter-2 Clause(2): Demand Forecasting	<p>Forum of Regulators may develop guidelines for demand estimation by the distribution licensees for achieving consistency and statistical accuracy by taking into consideration the factors such as economic parameters, historical data and sensitivity and probability analysis.</p>





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Registered Office
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🌐 : www.reconnectenergy.com

	Comment	It is requested that a firm timeline not exceeding 3 months be included in the clause by which Forum of Regulators (FoR) will formulate the regulations for demand forecast that can guide the utilities further. This shall ensure that the activity is taken up by the licensees as a mandatory activity.
3	Chapter-2 Clause 3 (g): Demand Forecasting	For the sake of uniformity in approach and in the interest of optimality in generation resource adequacy in the States, FOR may develop a model Regulation stipulating inter alia the methodology for generation resource adequacy assessment, generation resource procurement planning and compliance of resource adequacy target by the distribution licensees.
	Comment	<p>Please consider to add the following to the clause:</p> <p>Since QCAs have been working on a large part of renewable capacity that has been added in recent years, it is requested that the role of QCAs/forecasters should also be included in the model regulation.</p> <p>QCAs have been an integral contributor in the grid management since the inception of RRF regulations in 2013. With ample data from the sites across the country for almost a decade, the QCAs can use and help with their expertise in generation forecasts to build renewable energy projections, procurement planning and compliance.</p> <p>Hence, it is requested that the clause be modified to:</p> <p><i>“For the sake of uniformity in approach and in the interest of optimality in generation resource adequacy in the States, FOR in coordination with the QCAs may develop a model Regulation stipulating inter alia the methodology for generation resource adequacy assessment, generation resource procurement planning and compliance of resource adequacy target by the distribution licensees”.</i></p>
4	Chapter-3 Clause 11	The associated communication system to facilitate data flow up to appropriate data collection point on CTU system including inter-operability requirements shall also be established by the concerned user as specified by CTU in the Connectivity Agreement.
	Comment	Since real-time generation data from wind and solar sites is an important input to generate efficient forecast, it is requested that the telemetry data can also be simultaneously made available on the scheduling portals of



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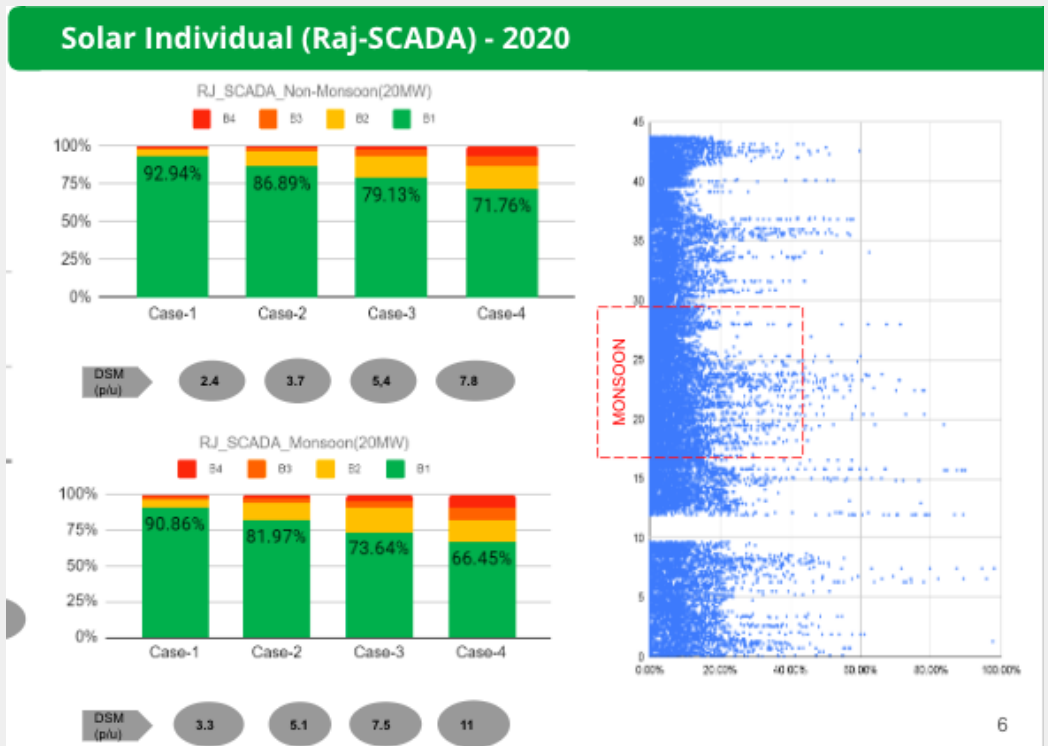
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Kodihalli, Bangalore – 560008, Karnataka, INDIA

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respective RLDCs/SLDCs so that the QCA/forecaster or the RE generators can fetch the same using API for the purpose of efficient forecasting.

With real-time data communication now being made mandatory by most of the states, the request has been simultaneously put to SLDCs in the past and an additional and redundant data set can play a critical role in reducing the DSM nos thereby having lesser economical impact on the generators.

An example depicting the importance of real-time data on the forecast accuracy for a 20 MW solar project in Rajasthan is stated below:



It is observed that if the availability of real-time data is more, the accuracy of the forecast is better.

While over the years it has also been observed that the OEMs/developers have worked towards ensuring that real-time SCADA data is made available to the



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✉ : info@reconnectenergy.com

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15, Krishik Sarvodaya Foundation, Golf,
Avenue Road, Kodihalli, Bangalore-560008
🌐 : www.reconnectenergy.com

		QCAs for better forecasting, there are still some unaddressed areas which need to be addressed. As QCA, we have put significant efforts from our end also by putting meters and modems at our own cost for data redundancy, an additional point-to-point data source from the plants being received by RLDCs/SLDCs will further help the QCAs in better forecasting and thereby reduced DSM charges for the RE generators.
5	Chapter-5 Clause 22	Trial run of generating plant
	Comment	It is proposed to add an additional Point (g) as: The solar/wind/storage/hybrid generating station has to mandatorily register in the REMC/scheduling portal with the respective RLDC simultaneously as a prerequisite to complete the trial run.
6	Chapter-7 Clause 11 (a)	Scheduling of renewable energy generating station by a QCA The regional entity renewable energy generating station(s) or Projects based on energy storage system(s) connected at a particular ISTS substation or at multiple ISTS substations may appoint a QCA on their behalf to coordinate and facilitate scheduling for such generating stations or energy storage system(s).
	Comment	Please consider to revise the following clause to: The regional entity renewable energy generating station(s) or Projects based on energy storage system(s) connected at a particular ISTS substation or at multiple ISTS substations may appoint a QCA or Forecasting Agency on their behalf to coordinate and facilitate scheduling for such generating stations or energy storage system(s).
7	Chapter-7 Clause 11 (b)	NLDC shall notify a procedure for aggregation of pooling stations for the purpose of combined scheduling and deviation settlement for wind or solar or renewable hybrid generating stations within six (6) months of notification of these regulations
	Comment	Aggregation plays an important role in minimizing project level deviations and helps in controlling deviation over a larger geographical area. As more



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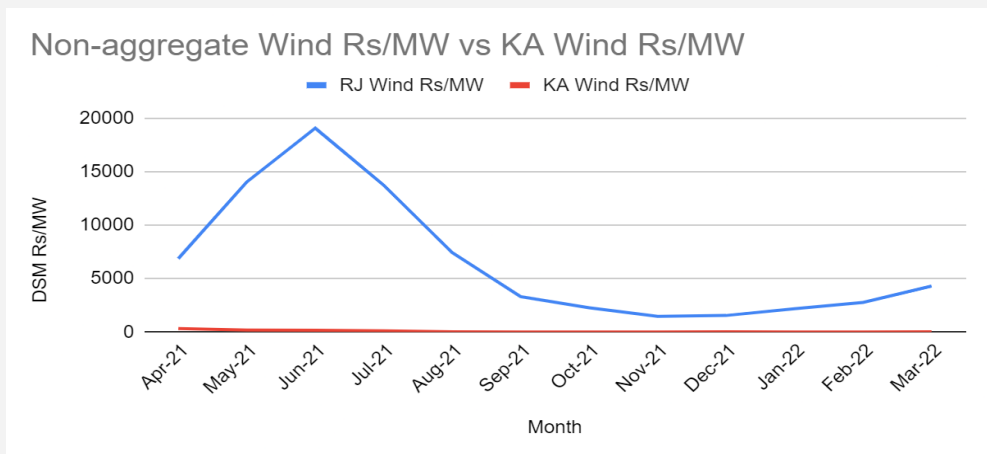
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and more renewable capacity is getting added into the grid primarily due to Inter State Transmission System (ISTS) projects where the usual project size ranges from > 50 MW to a few hundreds of MW, aggregation can play a crucial role in minimizing the deviation charges for individual projects. Also, considering most of these projects have been awarded under SECI bids at extremely low tariffs, this can safeguard the interest of the generators. Thus the QCAs/forecasters should be allowed to combine and create a virtual pool for wind or solar or renewable hybrid generating stations.

If we take the example of a state like Karnataka which allows aggregation of RE pooling stations/forecast by creating a virtual pool, we have observed that while it becomes much easier for the SLDC to compute DSM at DISCOMs/state level, but also essentially results in very low DSM charges resulting in benefit of the RE generators which are already affected by extremely low PPA rates being discovered in the reverse bidding auctions. A comparative example of average DSM charges for wind and solar compared for a period of one year is as depicted below:



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Headquarter :
15, Krishik Sarvodaya Foundation
Golf Avenue Road, Off Old Airport Road
Kodihalli, Bangalore – 560008, Karnataka, INDIA

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		<table border="1"> <caption>Non-aggregate Solar Rs/MW vs KA Wind-Solar Rs/MW</caption> <thead> <tr> <th>Month</th> <th>RJ Solar Rs/MW</th> <th>KA Wind-Solar Rs/MW</th> </tr> </thead> <tbody> <tr><td>Apr-21</td><td>2000</td><td>0</td></tr> <tr><td>May-21</td><td>3000</td><td>0</td></tr> <tr><td>Jun-21</td><td>2000</td><td>0</td></tr> <tr><td>Jul-21</td><td>3000</td><td>0</td></tr> <tr><td>Aug-21</td><td>2000</td><td>0</td></tr> <tr><td>Sep-21</td><td>6000</td><td>0</td></tr> <tr><td>Oct-21</td><td>1000</td><td>0</td></tr> <tr><td>Nov-21</td><td>500</td><td>0</td></tr> <tr><td>Dec-21</td><td>2000</td><td>0</td></tr> <tr><td>Jan-22</td><td>1500</td><td>0</td></tr> <tr><td>Feb-22</td><td>1000</td><td>0</td></tr> <tr><td>Mar-22</td><td>800</td><td>0</td></tr> </tbody> </table>	Month	RJ Solar Rs/MW	KA Wind-Solar Rs/MW	Apr-21	2000	0	May-21	3000	0	Jun-21	2000	0	Jul-21	3000	0	Aug-21	2000	0	Sep-21	6000	0	Oct-21	1000	0	Nov-21	500	0	Dec-21	2000	0	Jan-22	1500	0	Feb-22	1000	0	Mar-22	800	0
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8	Annexure-5 Clause 2 (ii)	Provide to concerned RLDC, Available Capacity, Day ahead forecast (based on their own forecast or on the forecast done by RLDC) and Schedule as per Appendix-II through web-based application maintained by RLDCs.																																							
	Comment	<p>As per the provisions of the existing CERC regulations, the QCAs/REGS can also submit upto 16 intra-day revisions of the schedules, hence it is proposed to amend the clause to:</p> <p>Provide to concerned RLDC, Available Capacity, Day ahead forecast and subsequent intra-day revisions (based on their own forecast or on the forecast done by RLDC) and Schedule as per Appendix-II through web-based application maintained by RLDCs.</p>																																							
9	Annexure-5 Clause 2 (vii)	Submit a copy of the agreement entered between QCA and generating stations authorizing QCA specific responsibilities on behalf of generating stations, to the concerned RLDC																																							
	Comment	<p>As the scope of work carried out by the QCAs is similar for all the RE generating plants served by it, it is proposed to amend the following clause to:</p> <p>Submit a copy of the consent letter issued by the renewable energy generator authorizing QCA to carry out specific responsibilities on behalf of generating stations, to the concerned RLDC.</p>																																							





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		Also, an agreement shall contain many other business sensitive information in terms of price agreed between the QCA and the generator and is binding on both the parties involved, the consent letter shall suffice the requirement and can be submitted to RLDC by the QCA.
10	Annexure-5 Clause 2 (ix)	Shall furnish the contract rate(s) along with a copy of the contract(s), for the purpose of Deviation charge account preparation, to respective RPC.
	Comment	It is proposed to amend the following clause to: Shall arrange from the renewable generator the details of the contract rate(s) on an affidavit along with a copy of the contract(s), for the purpose of Deviation charge account preparation, to respective RPCs. The submission shall be made during registration of the project with respective RLDC, barring which the project shall not be registered and hence can not submit schedules.
11	Annexure-5 Clause 2 (xiii)	Shall ensure availability of data telemetry at the turbine/inverter level to the concerned RLDC and shall ensure the correctness of the real-time data and undertake the corrective actions, if required. The suggested data telemetry requirement is enclosed at Appendix-III.
	Comment	As the QCA is only a service provider and does not own the renewable project, It is proposed to amend the following clause to: Shall facilitate availability of data telemetry at the turbine/inverter level to the concerned RLDC. The REGS which had appointed the QCA shall ensure the correctness of the real-time data and undertake the corrective actions, if required. The suggested data telemetry requirement is enclosed at Appendix-III. While states have already made it mandatory and a prerequisite for all RE plants to communicate real-time tubind/inverter level data to respective SLDCs, the same shall also be replicated at the regional level where the average size of the projects is much larger and hence more important to get the data for better generation planning.



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Headquarter :
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12	Annexure-5 Clause 2.2 (b)	The concerned RLDC will be responsible for processing the interface meter data and computing the net injections at pooling station represented by each QCA or REGS or Lead Generator, as the case may be, as specified in Annexure- V.
	Comment	<p>Considering synchronized interface meter data is important for computation of correct DSM charges, it is proposed to add the following to the existing clause:</p> <p>The concerned RLDC shall also be responsible for addressing all issues related to interface meters and ensure that the correct data is used for notification of weekly DSM charges. Issues related to incorrect meter data due to non-synchronization should be addressed and revised DSM be notified within 7 days.</p>
13	Annexure-5 Clause 4.1	Case-B: Lead generator shall be responsible for the coordination and communication with RLDC, SLDC, RPC and other agencies for scheduling of REGSs individually having less than 50 MW, but collectively having an aggregate installed capacity of 50 MW and above and connected within the solar park. Block diagram for Case-1, Case-2, Case-3 shall be as per Appendix-IV.
	Comment	<p>It is proposed to amend the clause to:</p> <p>Case-B: Lead generator/QCA shall be responsible for the coordination and communication with RLDC, SLDC, RPC and other agencies for scheduling of REGSs individually having less than 50 MW, but collectively having an aggregate installed capacity of 50 MW and above and connected within the solar park. Block diagram for Case-1, Case-2, Case-3 shall be as per Appendix-IV.</p> <p>It is requested that for all projects above 50 MW, appointment of QCA/Forecaster shall be made mandatory for all ISTS projects. This will ensure that the respective RLDCs communicate with only the QCAs for scheduling purposes. The model has been successfully implemented by all the states which are now preparing DSM charges regularly such as Karnataka, Andhra Pradesh, Gujarat, Rajasthan, Madhya Pradesh, Maharashtra etc to name a few.</p>
14	Annexure-5	In case of any payment default by the QCA, the generating stations shall be liable to pay the DSM charges in proportion to their MW capacity.



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Clause 4. 5	
Comment	<p>The DSM charges for the projects served by the QCA are usually in the scope of the renewable generator. Hence, penalizing the QCA for the same shall not be considered. The RE generator which owns the plant is also responsible for paying timely DSM charges for the plant. Hence, it is proposed to amend the clause to:</p> <p>In case of any payment default by the QCA or REGS, the generating stations shall be liable to pay the DSM charges in proportion to their MW capacity.</p>

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