



Jindal Aluminium Ltd.

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CA/KSS/APERC/2019-20

05th March, 2020

To

The Secretary,
Andhra Pradesh Electricity Regulatory Commission
#11-4-660, 4th Floor, Singareni Bhavan
Red Hills, Hyderabad- 500 004

Dear Sir

Sub: Public Notice seeking views/objections /suggestions in the matter of Regulation No.4 of 2017, Forecasting, Scheduling & Deviation settlement of Solar and Wind Generation Regulation, 2017

At the outset we thank the Hon'ble APERC for giving us the opportunity to offer our views and suggestions on the proposed amendment by APTRANSCO, as referred above.

WE, Jindal Aluminium Limited have a wind project in Andhra Pradesh aggregating to 25.2 MW with an investment of Rs.165 Crores and the changes proposed by APTRANSCO will make our investment in AP unviable.

The proposed changes are arbitrary and one sided, the Forecasting and Scheduling Regulations have been formulated only after taking into consideration the following:

- APERC has come out with draft regulations for Forecasting and scheduling on Sep 2016 in line with the model regulations issued by CERC
- The forecasting and Scheduling Regulations were finalized after thorough review of comments and suggestions from all the developers vide APERC notification dated 19th Aug, 2017.
- All other Renewal Energy States have also followed the Model Regulation issued by CERC and have been managing the state grids effectively.

Further the changes proposed by APTRANSCO are supposedly based on a "detailed Report". However the "detailed Report" does not provide any data on the basis of which APTRANSCO has made such recommendations. Before considering such changes the Hon'ble APERC is requested to ask APTRANSCO to provide proper justification evidenced by proper data taken from the scheduling and forecasting reports of the generators. An analysis of such data will allow assessment of changes, if needed in the Regulations based on real evidence.



For JINDAL ALUMINIUM LIMITED

K.S.SURESH
(Company Secretary)

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APTRANSCO in its so called "Detailed Report" states that there is no power market mechanism available to get power at short notices. This is factually incorrect as the present utility has several tools like drawing on ancillary reserves etc, Further from 1st April, 2020 the "REAL TIME" markets will become operational which has not been considered by APTRANSCO while proposing changes to DSM regulations.


Further, the Hon'ble APERC should also assess the existing practice and accuracy of demand forecasting by DISCOMS and APTRANSCO. Only a full analysis of the accuracy of demand and supply forecasting will enable making an informed decision regarding cost of deviation from Variable Renewable Energy, and changes, if any need to be made in the Regulations.

The latest changes proposed by APTRANSCO will only be to make the project unviable and detrimental to the Renewable Energy generators. APTRANSCO has proposed a change in error calculation formula, proposed reduction in permitted deviation from 15 % to 5%, disallowing any intraday revisions which have been allowed hitherto and proposed a charge of Rs.2/unit of deviation which will result in a very significant cost increase and making the projects potentially unviable.

It is requested that the Hon'ble APERC should assess the cost impact of such changes on a per unit basis and assess viability of Renewable Energy Projects before making any changes in the DSM charges.

Recent developments in State of Andhra Pradesh:

- a) Government of Andhra Pradesh has started withdrawing incentives vide its Energy 2018, issued in Jan, 2019.
- b) Government of Andhra Pradesh has started renegotiation of wind and Solar tariffs in June, 2019 for the existing projects which has contributed significantly to the renewable energy growth in Andhra Pradesh, whose PPAs were approved by Hon'ble APERC and the tariffs were fixed as per tariff orders issued by Hon'ble APERC.
- c) Hon'ble APERC would be well aware that this tariff matter has been moved to the Hon'ble High Court of Andhra Pradesh, by the Developers and the matter is under subjudice before the Division Bench.
- d) In the mean while, AP Discoms are making all efforts to discourage the renewable energy developers by resorting to Curtailment of energy generation without any valid notice or attributing any valid reason which is also subjudice before Hon'ble High Court.
- e) The AP DISCOMS have made unjustified deductions against excess POWER LOAD FACTOR, in violation of "MUST RUN "status awarded to renewable energy projects.
- f) AP Discoms also tried to implement the new concept of Integrating Variable Renewable Energy Which has been rejected by the Hon'ble APERC vide its order dated 10th Feb, 2020, based on the existing terms and conditions of the PPAs.


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- g) Innumerable petitions have been filed with Hon'ble APERC, Hon'ble APTEL and Hon'ble High Court of Andhra challenging the arbitrary decisions taken by the Government of Andhra Pradesh.
- h) Despite instructions given by CEA and MNNRE, the "MUST RUN" obligations are not being followed; payments of renewable energy generators are not being released for months together.
- i) Investments of huge amounts in the State of Andhra Pradesh has resulted in many Renewable energy companies becoming NPAs.

AP DISCOMS have made all efforts to reduce the tariff of renewable energy projects and since their interest may not be considered by the Hon'ble High court , have now come out with the amendments to Forecasting and scheduling regulations under the guise of Grid security which is being managed effectively by other States having substantial renewable energy projects.

We submit our suggestions / objections vide **Annexure I** and also reiterate that while better forecasting would achieve grid security, the state should also focus on improvement in demand side management and forecasting consumer loads.

We are sure that based on our above suggestions /objections , Hon'ble APERC will take a pragmatic view of the situation and make no changes to existing Regulation 4 of APERC Forecasting , Scheduling and Deviation Settlement of Solar and Wind Generation Regulation , 2017 as the same is detrimental and will affect the very viability of the projects itself.

We request you to kindly intimate the date of hearing to enable us to attend the same.

Thanking You

Yours faithfully

for JINDAL ALUMINIUM LIMITED


K.S.Suresh
Company Secretary

Annexure I

Amendment 1. Clause 2.1 (a) of APERC's Regulation 4 of 2017 reads.

No	Actual Regulation	Proposed Amendments
1	<p>"Absolute Error" means the absolute value of the error in the actual injection of wind or solar generators with reference to the scheduled generation and the Available Capacity (AVC), as calculated using the following formula for each 15-minute time block.</p> <p>Absolute Error(%)=100 X (Actual Injection – Scheduled Generation) / AVC</p>	<p>The term 'Absolute Error' substituted with 'Forecast Error'. The term 'Available Capacity' substituted with 'Scheduled Generation'.</p> <p>The formula for error calculation is suggested to be changed as:</p> <p>Forecast Error (%) = 100 X (Schedule Generation - Actual Injection) / Schedule Generation.</p>

Comments:

It may be recalled that the RRF Regulations of 2013 computed error in a similar way as being proposed by APTRANSCO.

- The Honorable CERC observed the following on the error formula in the RRF regulation (which computed error on the basis of schedule as the denominator)
 - "The present error definition has been pointed out to be insufficient to handle varying seasons, especially very low or zero schedules, and not aligned with direct grid impact (MW deviations)" (Para 6.2.1 of SOR)
- The current method has also been stated as the scientific method in the Model Regulation developed by FOR. The SOR given by CERC for the Framework on Forecasting, Scheduling and Imbalance Handling of Variable RE Sources, states the following with regards to the MAE based on Available Capacity:
 - "The Commission has noted that with the current definition, instances such as low/no generation cases cannot be covered. With due regard to these constraints and with a view to ensuring optimum and genuine forecasting, the Commission has decided to define the error percentage normalized to available capacity, instead of schedule. This will ensure that the error quantity corresponds to the physical MW impact on the grid, the forecasting models are aligned to minimize the actual MW deviations, and the error definition holds valid in all seasons." (Para 6.2.2 of SOR)
- This is explained below, using the example of wind energy deviation, during the seasons. If error is based on Scheduled Generation, it would be highly unfair to the Generators but at the same time have minimal or no impact on the overall grid.

Season	Capacity (AVC)	Sch. (MW)	Act (MW)	Absolute Deviation (MW)	Error based on AVC	Error based on Sch.	Impact on Grid
High Wind	100	60	80	20	20%	33.33%	High
Low Wind	100	10	13	3	3%	30%	Low

- A similar analysis for solar, especially during the dawn and dusk period's everyday will show skewed results if the error is calculated based on scheduled generation.

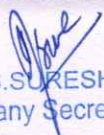
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Amendment 2. Clause 2.1 (j) of APERC's Regulation 4 of 2017 reads.

No	Actual Regulation	Proposed Amendments
2	<p>"Deviation in a time block for a seller means its total actual injection minus its total/ scheduled generation."</p> <p>15% error is allowed without any DSM charges.</p>	<p>Inclusion of 'Allowable forecasted error' in calculating the deviation wherein 'Allowable forecasted error' will be calculated as:</p> <p>'Allowable forecast error' = 100 x (diversity factor 0.7 in control area at the beginning of the financial year) x (quantum of deviation limit permitted under CERC's DSM Regulation amended from time to time) / (quantum of VRE installed capacity).</p> <p>This would be ~ 5% allowed error, beyond which, DSM charges will be applicable on the generators.</p>
	<p>Comments:</p> <ul style="list-style-type: none"> • The justification provided by APTRANSCO in this proposed change is arbitrary and illogical. • The APTRANSCO proposes to use a multiplier of 0.7 as "diversity factor" in calculation of "allowable forecast error". However, nowhere in the "detailed report" or any other place is such a "diversity factor" either defined, explained or any basis of the "0.7" multiplier elaborated upon. • Similarly, the APTRANSCO cites that 15% error will result in a deviation of 1125 MW in AP. This is an illogical argument as it assumes that all sites will have equal or similar deviation in the same direction (i.e. either all will over-inject or all will under-inject). In fact, projects spread out over a large and geographically diverse area will result in low overall error, as often errors of individual projects cancel each other out. • Since APTRANSCO will have data from July 2018 of the entire state, Honorable APERC should ask for a detailed, factual analysis to determine if deviation from VRE sources at any time was equal to or more than 1125 MW at the state level. 	


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Amendment 3. Clause 4.1 of APERC's Regulation 4 of 2017 reads.

No	Actual Regulation	Proposed Amendments
3	"The Methodology for day-ahead scheduling of wind and solar energy generating stations which are connected to the Grid and rescheduling them on one and half-hourly basis and the methodology of handling deviations of such wind and solar energy generating stations shall be as stated hereunder and accordingly forecasting tools shall be provided by the generator concerned."	It is proposed to remove the option of rescheduling of forecast on one and half-hourly basis during the day of operation and strictly adhere to schedule on a day-ahead basis over violation notices to the DISCOMS.
	Comments: <ul style="list-style-type: none">• As it is well aware that forecast would be more accurate closer to the real time than long term and accordingly, by submitting revisions renewable generators are helping the grid to maintain its discipline.• As submitted above the deviations would be much larger as many real time parameters are not captured in the day ahead schedule resulting greater instability in the grid would be suffering more.• The suggestion for removal of one and half hourly revision on the basis that the DISCOMS have to plan on a day ahead basis is not in the right spirit due the following reasons:<ul style="list-style-type: none">○ Variability of generation from VRE's can only be bridged if revisions are allowed close to real time, so that the variations can be kept at a lower level. Allowing only Day Ahead schedule for VREs may significantly escalate the deficit/surplus scenario for the DISCOM's, due to much higher variations in the Day Ahead forecast, and this has been discussed and documented in several meetings of SLDC with the stakeholders involved.○ The same has also been recognized by forecasting agencies worldwide, and also quoted in the SOR by CERC:• Further, Real Time Electricity Market in India will become a reality soon, and the utilities will then have access to real time electricity trading market options so that the deficits/surplus can be better managed on a real time basis.• "The Commission recognizes that accuracy of forecasting improves as one gets closer to time of dispatch. This is borne out by plenty of research that is available on how forecasting accuracy improves as more updates are done aligned with shorter scheduling intervals."	

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Amendment 4. Clause 6.3 of APERC's Regulation 4 of 2017 reads.

No	Actual Regulation	Proposed Amendments																								
4	<p>Error calculation table for under or over - injection for sale/supply of power within the state.</p> <table border="1"> <thead> <tr> <th>S. No</th><th>Forecast Error</th><th>Deviation Charges in Rs per Unit</th></tr> </thead> <tbody> <tr> <td>1</td><td><15%</td><td>Zero</td></tr> <tr> <td>2</td><td>15-25%</td><td>Rs. 0.5</td></tr> <tr> <td>3</td><td>25-35%</td><td>Rs. 1.0</td></tr> <tr> <td>4</td><td>>35%</td><td>Rs. 1.5</td></tr> </tbody> </table>	S. No	Forecast Error	Deviation Charges in Rs per Unit	1	<15%	Zero	2	15-25%	Rs. 0.5	3	25-35%	Rs. 1.0	4	>35%	Rs. 1.5	<p>Suggestion for removal of error bands and shifting to a single allowable forecast error as discussed above in the following manner:</p> <table border="1"> <thead> <tr> <th>No</th><th>Forecast Error in the 15 min. time block</th><th>Deviation charges payable to State Pool Account</th></tr> </thead> <tbody> <tr> <td>1.</td><td>Allowable Forecast Error (<5%)</td><td>None</td></tr> <tr> <td>2.</td><td>Non Allowable Forecast Error (>5%)</td><td>At Rs.2.00 per unit for the shortfall (or) excess injection</td></tr> </tbody> </table>	No	Forecast Error in the 15 min. time block	Deviation charges payable to State Pool Account	1.	Allowable Forecast Error (<5%)	None	2.	Non Allowable Forecast Error (>5%)	At Rs.2.00 per unit for the shortfall (or) excess injection
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Comments:

- We humbly submit that the deviation band requested buy most of the generators during draft regulations without penalties is 30%, however, it has been considered only 15% in line with the central regulations for which all the renewable generators are suffering by paying huge penalties.
- All of us should appreciate the fact that schedules are being forecasted based on tools factoring many real time parameters on which absolutely there is no control of generators and still generators are bearing penalty for the fault of developing environment friendly sustainable renewable energy projects.
- It's important to have rational penalty mechanism in place to incentivize the quality of forecast by RE generators, therefore having incremental penalty bands promotes better forecast without any harsh commercial impact.
- AP DISCOMS/ SLDC may hire independent third party to conduct analysis on our forecasting techniques adopted by QCA's and many suggest improvements to be implemented.
- The APTRANSCO has proposed a price of Rs 2/ unit above the "allowable forecast error". This is derived on the basis of - "adequacy costs of Rs 1.6/unit" and "Balancing cost of Rs 0.4/ unit". However, detailed calculations of how these costs have been arrived at are not available. Before considering these changes, the Honorable APERC should require APTRANSCO to provide justification backed by evidence.
- Furthermore, neighboring RE rich state Tamilnadu's final regulation also incentivizes the generator by capping the penalty and paying back deviation charges of the entire year are greater than 0.50 per unit. Other states have taken an opposite approach - that of reducing per unit DSM charges. In Gujarat, DSM charges are Rs 0.25/ Rs 0.5 and Rs 0.75 per unit.
- This is done in conjunction with marginal reduction in accuracy thresholds. The reduction in per unit DSM charge is in line with the recent PPA tariffs, which have been significantly lower than the Rs 5/unit benchmark used by FOR when determining the current DSM charges. Similarly, the Honorable APERC should consider reducing per unit DSM charges.
- We humbly submit that the allowable deviation without any penalties should be amended to 30% instead of 15% under the current regulations as there is no fault of generators in deviation of schedules and to encourage the renewable generation.

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Amendment 5. Clause 2.1 (aa) of APERC's Regulation 4 of 2017 reads.

S. No	Actual Regulation	Proposed Amendments
5	Virtual Pool means the virtual grouping of various pooling stations wherein the generators in such pooling stations have an option for accounting their deviational in an aggregated/combined manner through a QCA for the purpose of availing the benefit of larger geographical / area and diversity. "	The definition phrase of virtual pooling may be considered to be deleted from clause 2.1 (aa) and also be deleted at clause 6.9 of regulation 4 of 2017.
	<p>Comments:</p> <ul style="list-style-type: none"> • It is advisable and appropriate to do power forecasting at the state level as demand forecasting is also being done at state level. • As it is a well- known fact that Aggregation of power in the form of virtual pool is beneficial to the grid by lowering the uncertainty of power by reducing forecast error. A large interconnected power system is beneficial because it enables aggregation of imbalances from a large geographical area. The error is not uniformly distributed in time with in a region, therefore forecasting errors for a region are smaller than for a single site. • The document shared by APTRANSCO wrongly claims that no other state allows aggregation. This is factually incorrect. • It is submitted by international agencies in their suggestions to central commission that "If two RE generators device in the opposite direction with no net deviation from the aggregate schedule, both generators 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. Their research shows that the aggregate variation (in percentage terms) over multiple sites is typically lower than the variation in output on one site; moreover the forecasting accuracy is higher for aggregate forecast over multiple sites. Therefore, for scheduling purposes it is desirable to use the aggregate (total Balancing area) level forecasts of RE generation." • We humbly submit that there is no indiscipline in submitting the forecast and schedules as submitted by AP DISCOMS/SLDC. It is only the available capacity that generators provide to QCA's and rest is taken care by forecasting tools. • The concept of Aggregation had been proposed in the FOR Model Regulation, and in the most recently it has been proposed at the Inter-State RE DSM in the draft IEGC 2020 code. • Further, Karnataka has successfully implemented Aggregation along with Andhra Pradesh, and the result of Aggregate level schedules and revisions have resulted in much lower overall deviation at the state levels. 	

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