

**Date:04.03.2020**

To,

**ANDHRA PRADESH ELECTRICITY REGULATORY COMMISSION**  
11-4-660, 4th Floor, Singareni Bhavani  
Red Hills, Hyderabad – 500 004

**(Without Prejudice)**

Respected Sir,

**ACME Comments on draft amendments in APERC DSM Regulations**

Deviation Settlement Mechanism one aspect of overall Grid Operation. India has progressed from regional grids operating in silos to one integrated national grid, where inter-state and intra-state systems are required to operate in a synchronized manner.

The proposed amendments in the DSM Regulations take a divergent position when compared with CERC Regulations and also regulations which are applicable in other state. Thus, any aspect of grid operation whether intra or inter cannot be such that it stands out and violates the uniformity required in the system. A perusal of proposed amendment reflects that it intends to treat renewable energy and conventional on the same footing which amounts to equating oranges with apples.

Deviation Settlement Mechanism Regulations were introduced to strengthen the RE forecasting, scheduling and balancing framework and address the design issues affecting its implementation. If proposed amendment will be accepted by the Hon'ble Commission in the present form, these will not only act as a deterrent for future investment in RE Sector in the state of AP, however it will make all RE Projects in the state unviable. The Electricity Act 2003 provides that State Grid Code shall be consistent with the Grid Code notified by CERC. Further, Tariff Policy also requires the State Commissions to implement the ABT mechanism in line with the framework specified by CERC. First framework on Forecasting, Scheduling and Imbalance Handling for Variable Renewable Energy Sources (Wind and Solar) were published by CERC on 07.08.2015 ("CERC Order dated 07.08.2015").

CERC Order dated 07.08.2015 specifically observed that it is desirable that a framework on the same lines as formulated by CERC for grid integration of variable renewable energy sources of wind and solar, be also adopted by State Commissions. Proposed Amendments are in complete contravention of applicable CERC Regulations.

It is pertinent to point out that various renewable power generators have challenged the legality and constitutionality of Regulation 4 of 2017 of Forecasting, Scheduling & Deviation Settlement of Solar & Wind Generators ("DSM Regulations") by way of writ petitions pending before the Hon'ble High Court of Andhra Pradesh. The Hon'ble High Court has also passed an order directing maintenance of status quo in Writ Petition 15513 of 2019 along with WP Nos. 5706 of 2019 and 13860 of 2019 on 01.10.2019. Further, on 30.12.2019 the Hon'ble High Court was pleased to issue rule nisi in the aforesaid writ

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6/3/2020



petitions and directed them to be listed in due course. The Hon'ble High Court also issued direction to continue the interim. Since, the main regulations are under challenge before the Hon'ble High Court and the Hon'ble High Court has directed maintenance of status vide order dated 01.10.2019, it would be appropriate and in accordance with judicial propriety the present process of amending the DMS Regulation to be deferred till disposal of aforesaid writ petition pending before High Court.

S. No.	Proposed Amendments	ACME Comments
1	<p>Clause 2.1 a</p> <p>Substitute the term 'absolute error' with 'forecast error'</p> <p>Substitute the term 'Available Capacity' with 'Schedule Generation' for calculating Forecast error as per following formula  <math display="block">\text{Forecast Error(\%)} = 100 \times (\text{Schedule Generation} - \text{actual Injection}) / \text{Scheduled Generation}</math></p>	<p>The justification provided by AP TRANSCO is not sustainable and is against FOR guidelines and CERC regulations due to following:</p> <ol style="list-style-type: none"> <li>Available capacity ("AvC") in denominator is not unrelated parameter as it is defined as cumulative capacity of solar inverters that are capable of generating power. Solar power is infirm in nature and depends upon solar radiation. Therefore, AvC is the right parameter instead of Schedule generation</li> <li>APTRANSCO is totally wrong in making justification that RE never reaches its maximum capacity. It is submitted that solar generation during some peak hours reaches its 100% capacity as it is infirm in nature.</li> <li>AvC was introduced by Central Commission in order to determine physical MW impact on the grid. Further since Solar power is infirm in nature, therefore, during low generation period/season/zero generation hours, the formula would have shown wrong results had it been schedule generation i.e. 0/0 is not defined.</li> </ol> <p><i>"6.1.1 The Commission has reviewed the inputs of the stakeholders. 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)"</i></p> <p><i>"6.2.2 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</i></p>



		<p><i>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..."</i></p> <p>iv. APTRANSCO by proposing such formula is trying to make conventional and non-conventional at par in terms of absolute error which is unfair to RE</p> <p>Forum of Regulators (FOR) in Aug 2015 has laid down the guidelines, Forecasting, Scheduling and Deviation Settlement of Wind and Solar Generating Stations at the State level based on which all SERCs have drafted their DSM regulations. FOR guidelines also considers Available Capacity in denominator while calculating absolute error.</p>
2	<p>Clause 2.1 (j)</p> <p>The definition of phrase 'Allowable forecast error' in percentage should be considered for inclusion.</p> <p>'Allowable forecast error' = <math>100 \times (\text{diversity factor } 0.7 \text{ in control area In the beginning of financial year}) \times (\text{quantum of deviation limit permitted under CERC's DSM Regulation amended from time to time}) / (\text{quantum of VRE Installed capacity})</math></p>	<p>The justification provided by AP-TRANSCO is completely against the intent of DSM regulations, FOR guidelines and CERC regulations.</p> <p>i. The assertion of APTRANSCO that 15% of forecast error will give 1125 MW deviation when CERC allows +/- 250 MW for RE rich states is totally misplaced. APTRANSCO has hypothetically considered that all generators in the state will deviate in same direction for all the time blocks of the day which is practically not possible. On the contrary, when aggregation is done at state level, the over-injection and under-injection gets adjusted. Considering this, CERC has allowed +/- limit of 250 MW deviation</p> <p>ii. AP TRANSCO on one hand is stating that it has to back down conventional generators during over-injection but it has been observed that AP TRANSCO is scheduling short-term power through IEX on day-ahead basis and through bilateral mode to the tune of 800-1000 MW. Thus it is wrong on part of APTRANSCO to state such reasoning to hide their own non-effectiveness and bad planning</p>



		<p>iii. Both FOR guidelines and CERC regulations have provided 15% absolute error limit for RE after doing a substantial study. The relevant excerpt of CERC after a detailed study is as follows:</p> <p><i>"7.3.11 With the altered error definition, this band is now determined with respect to Available Capacity (AvC). This itself makes the band much bigger, and keeps it mostly constant through the year (except during cases of maintenance or turbine outage). Within +/-15% band, there shall be no adverse commercial impact. While beyond 15%, a gradient band is proposed as follows:</i></p> <p><i>Abs Error (% of AvC) Deviation Charge</i>  15%-25% 10% of PPA rate  &gt;35% 30% of PPA rate"</p> <p>iv. The allowable band of 4.89% proposed by APTRANSCO will make all delivered energy to fall in the penalty zone and thereby attracting huge penalty. This is nothing but reduction of fix PP tariff indirectly which is against the law.</p>
3	<p>Clause 4.1  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 ahead basis</p>	<p>The proposed amendment lacks the basic concept of RE power that it is infirm in nature and cannot be predicted on day ahead basis. With such amendments, scheduling of RE power would not be possible.</p> <p>i. FOR guidelines and CERC framework provides 16 revisions in a day in one and half hour time period so that SLDC can dispatch the power in one and half hour time. Relevant excerpt of Hon'ble CERC frameworks is as follows:</p> <p><i>"Frequency of Revisions- the Commission appreciates that increasing number of allowed revisions to the schedule will enhance forecasting accuracy. However, it would be difficult for beneficiaries to manage contracts due to too many revisions. In order to balance the</i></p>



*advantages with logistical issues, the number of revisions shall be retained at 16 per day. Similarly, the revisions may be effective from 4th time block as proposed in the draft regulations. The Commission clarifies that there may be*

ii. There is no technology available in the country which can predict with higher accuracy on day-ahead basis. As per APERC regulations, SLDC is also required to forecast. We would like to humbly submit that even SLDC would not be able to forecast with higher accuracy on day-ahead basis. The only intent behind such amendments is to levy higher penalty and reduce the tariff indirectly.

iii. All other SERCs across country provide at least 8 revisions for Solar as its generates power during 0600 to 1800 hrs and 16 revisions for wind. AP TRANSCO by way of such amendment is shirking away from its responsibility of better load despatch in current regime. State like Karnataka where RE capacity is twice of AP also allows 8 revisions for Solar and 16 revisions for wind generation. Therefore, such proposal of APTRANSCO must be rejected

iv. The forecast accuracy improves the closer it is to real time (more accurate for short term than long term). Generators should be given more flexibility of revising as many times as possible for better accuracy. Removing the schedule revision capacity will hamper the quality of forecast and lead to greater instability in the grid.

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Clause 6.3  
The levy and collection of DSM charges should be amended as shown in the table given below

S. No.	Forecast Error	Dev Charges
1	< Allowable	None

The real intent of proposing above amendments is shown here. Levying a penalty of Rs. 2 per unit for error above 4.89% and that too without allowing revisions and with changed absolute error formula would ensure closure of gates for RE.

i. FOR guidelines and CERC framework on DSM provides two types of penalties:  
a. Rs. 0.50/kWh, Rs. 1/kWh and Rs. 1.5/kWh



		forecast error			<p>b. PPA linked penalty i.e. 10%, 20% and 30% of PPA tariff</p> <p>All SERCs have either adopted FOR penalties level or lesser penalties but AP TRANSCO proposal of Rs. 2/kWh penalty is completely unfair.</p>
	2	Above allowable error	Rs. 2 per unit for shortfall of excess injection		<p>ii. The objective of DSM regulations is grid discipline and security and not commercial benefits but it seems APTRANSCO aim is to defeat the objective of DSM regulations and convert it into money making business by reducing the PPA tariff indirectly.</p> <p>iii. AP TRANSCO is making false statement that DISCOMs has to procure high tariff power from power exchange i.e. Rs. 2 per unit more than average VRE cost. It is submitted that average power price in power exchange from last five years is infact Rs. 1 per unit less than avg VRE price. The figure of Rs. 6 per unit may be applicable to one or two time blocks but on an average the price is close to Rs. 3 per unit. A detailed Annexure showing MUs purchase by AP DISCOMs from IEX for the past one year is annexed for reference.</p>
5	<p>Clause 2.1 (aa)</p> <p>The definition phrase of virtual pooling may be considered to be deleted from definition 2.1 (aa) and also be deleted at clause 6.9 of Regulation 4 of 2017</p>				<p>Virtual pool means virtual pooling/grouping of various pooling stations wherein the generators in such pooling station have an option for accounting their deviational in an aggregated/combined manner through as QCA for the purpose of availing the benefit of larger geographical/ area and diversity.. The concept of virtual pool was provided so that all Generators at the pooling station level come under a single QCA so that there shall be single schedule and actual generation basis which the same penalty can be levied which is being levied on other generators of that pooling station. Aggregation lowers the uncertainty of power by reducing the forecast error.</p> <p>i. AP TRANSCO is again making false statement that the concept of virtual pool is not available in any state. It is respectfully submitted that state like Karnataka where RE integration is double than AP, Tamil-Nadu etc are providing virtual pool concept i.e. aggregation of schedule at pooling</p>



		<p>state level</p> <p>ii. On one hand, AP TRANSCO is proposing not to allow virtual pool as the deviation will spread over all generators in the pool and on the other hand it is stating in point no. 2 that 15% allowable deviation will cause 1125 MW deviation to AP state. Both statements are contradictory in nature as if even if assuming the argument of AP TRANSCO that it in virtual pool it spreads over to other generators then it is not contradicting the other point of 1125 MW deviation and vice versa</p> <p>iii. The FOR guideline also provides aggregation at pooling station level and its benefit. The relevant excerpt is reproduced below for reference.</p> <p><i>"3. Proposed Framework</i>  <i>3.1. Introduction of Aggregators</i>  <i>The fragmented nature of the industry which is evident from the large number of owners of wind turbines poses a challenge of direct interaction of these generators with the respective SLDCs. This process can quickly become unwieldy due to the sheer number of turbine owners. Secondly, benefits of aggregation on forecasting accuracy are well documented. Keeping in view the above reasons, the Commission proposes to formalize a new aggregator entity, termed as Qualified Coordinating Agency or the QCA. This aggregator or the QCA shall coordinate all forecasting, scheduling and commercial settlement processes for all wind or solar generators connected to a pooling station. The QCA might aggregate one or more pooling stations, and several QCAs may come together to aggregate even at the State level for leveraging maximum benefit of aggregation. The QCAs shall interact with the SLDC (or RLDC, if required) on behalf of the generators. This significantly cuts down the complexity both for small generators as well as the SLDC, which now has to interact</i></p>
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		<i>with a few number of agencies instead of thousands of generators."</i>
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In view of above, it is humbly submitted that the proposed amendments are against preamble of Electricity Act which envisages promotion of RE. The proposed amendments will kill the RE industry as it would not be possible to operate under such regulations when there is no technology available in entire country. Further the proposed amendments are contrary to FOR guidelines, CERC Framework on Forecasting and Scheduling and other SERCs DSM regulation. Therefore, we request Hon'ble APERC to reject the said amendments proposed by AP TRANSCO.

Thanking you,

  
[Authorised Signatory]

M/s ACME Solar Holdings Limited



The Secretary  
Andhra Pradesh Electricity Regulatory Commission  
11-4-660, 4<sup>th</sup> Floor, Singreni Bhavan, Red Hills,  
Hyderabad- 500 004

6/3/2020  
Jaw

March 05, 2020

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CERC Order dated 07.08.2015 specifically observed that it is desirable that a framework on the same lines as formulated by CERC for grid integration of variable renewable energy sources of wind and solar, be also adopted by State Commissions. Proposed Amendments are in complete contravention of applicable CERC Regulations.

It is pertinent to point out that various renewable power generators have challenged the legality and constitutionality of Regulation 4 of 2017 of Forecasting, Scheduling & Deviation Settlement of Solar &

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Wind Generators ("DSM Regulations") by way of writ petitions pending before the Hon'ble High Court of Andhra Pradesh. The Hon'ble High Court has also passed an order directing maintenance of status quo in Writ Petition 15513 of 2019 along with WP Nos. 5706 of 2019 and 13860 of 2019 on 01.10.2019. Further, on 30.12.2019 the Hon'ble High Court was pleased to issue rule nisi in the aforesaid writ petitions and directed them to be listed in due course. The Hon'ble High Court also issued direction to continue the interim. Since, the main regulations are under challenge before the Hon'ble High Court and the Hon'ble High Court has directed maintenance of status vide order dated 01.10.2019, it would be appropriate and in accordance with judicial propriety the present process of amending the DMS Regulation to be deferred till disposal of aforesaid writ petition pending before High Court.

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<p>time) / (quantum of VRE Installed capacity)</p>	<p>Leading Through Innovation</p> <p>Contrary, when aggregation is done at state level, the over-injection and under-injection gets adjusted. Considering this, CERC has allowed +/- limit of 250 MW deviation</p> <p>ii. AP TRANSCO on one hand is stating that it has to back down conventional generators during over-injection but it has been observed that AP TRANSCO is scheduling short-term power through IEX on day-ahead basis and through bilateral mode to the tune of 800-1000 MW. Thus it is wrong on part of APTRANSCO to state such reasoning to hide their own non-effectiveness and bad planning</p> <p>iii. Both FOR guidelines and CERC regulations have provided 15% absolute error limit for RE after doing a substantial study. The relevant excerpt of CERC after a detailed study is as follows:</p> <p><i>"7.3.11 With the altered error definition, this band is now determined with respect to Available Capacity (AvC). This itself makes the band much bigger, and keeps it mostly constant through the year (except during cases of maintenance or turbine outage). Within +/-15% band, there shall be no adverse commercial impact. While beyond 15%, a gradient band is proposed as follows:</i></p> <p><i>Abs Error (% of AvC) Deviation Charge</i>  15%-25% 10% of PPA rate  &gt;35% 30% of PPA rate"</p> <p>iv. The allowable band of 4.89% proposed by APTRANSCO will make all delivered energy to fall in the penalty zone and thereby attracting huge penalty. This is nothing but reduction of fix PP tariff indirectly which is against the law.</p>
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	Leading Through Innovation	exchange from last five years is infact Rs. 1 per unit less than avg VRE price. The figure of Rs. 6 per unit may be applicable to one or two time blocks but on an average the price is close to Rs. 3 per unit. A detailed Annexure showing MUs purchase by AP DISCOMs from IEX for the past one year is annexed for reference.
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		<p>Leading Through Innovation</p> <p>iii. The FOR guideline also provides aggregation at pooling station level and its benefit. The relevant excerpt is reproduced below for reference.</p> <p><i>"3. Proposed Framework</i> <i>3.1. Introduction of Aggregators</i> <i>The fragmented nature of the industry which is evident from the large number of owners of wind turbines poses a challenge of direct interaction of these generators with the respective SLDCs. This process can quickly become unwieldy due to the sheer number of turbine owners. Secondly, benefits of aggregation on forecasting accuracy are well documented. Keeping in view the above reasons, the Commission proposes to formalize a new aggregator entity, termed as Qualified Coordinating Agency or the QCA. This aggregator or the QCA shall coordinate all forecasting, scheduling and commercial settlement processes for all wind or solar generators connected to a pooling station. The QCA might aggregate one or more pooling stations, and several QCAs may come together to aggregate even at the State level for leveraging maximum benefit of aggregation. The QCAs shall interact with the SLDC (or RLDC, if required) on behalf of the generators. This significantly cuts down the complexity both for small generators as well as the SLDC, which now has to interact with a few number of agencies instead of thousands of generators."</i></p>
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In view of above, it is humbly submitted that the proposed amendments are against preamble of Electricity Act which envisages promotion of RE. The proposed amendments will kill the RE industry as it

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would not be possible to operate under such regulations when there is no technology available in entire country. Further the proposed amendments are contrary to FOR guidelines, CERC Framework on Forecasting and Scheduling and other SERCs DSM regulation. Therefore, we request Hon'ble APERC to reject the said amendments proposed by AP TRANSCO.

Thanking you,

[Authorised Signatory]

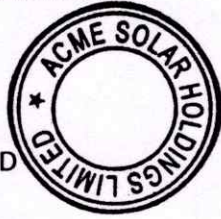
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