

Sembcorp's Comments/suggestions on Draft CERC (Deviation Settlement Mechanism and Related Matters) Regulations, 2024

Overall comment

At the outset we want to highlight that DSM Regulations had been modified recently in Dec'22 and further modified vide order no 01/SM/2023 on 6th Feb'23. Such modifications in DSM Regulations have made the DSM bands stricter for all sources including wind and solar. This has significantly increased the DSM penalties on the already commissioned projects by more than 3 times compared with 2014 DSM Regulations (ranging between 0.6% to 1.5% of gross annual revenue). As per proposed DSM bands these penalties again expected to increase, please refer the table below for the actual impact for 3 of our large-scale wind projects:

DSM Penalties as % of Annual Revenue

Project	2014 Regulations	2022 Regulation	Feb'23 Order	Draft Regulation 2024
Wind Project -1	0.43%	6.46%	1.52%	2.51%
Wind Project -2	0.23%	2.42%	0.96%	1.63%
Wind Project -3	0.22%	1.87%	0.57%	1.26%

The changes in DSM bands has already resulted in a substantial decline in project profitability (with a decrease in IRR ~1% which is significant). New projects can include such modifications in their tariff bids, however, the existing projects where tariff is fixed such further tightening of DSM bands would further worsen their profitability.

The only mitigation measure for fully complying with the stricter DSM framework is to improve the forecasting methodologies, which have not seen significant technological improvements in the recent past. It is also to be noted that post notification of DSM regulation 2022, a committee under the chairman, CEA has been constituted to asses the forecasting accuracy and suggest measures for improvement. The committee is still working on this aspect.

It is thus emphasized that any further tightening of deviation bands for existing projects is hampering projects returns substantially as these projects have been awarded through competitive bidding and thus does not have any margin to absorb such loss of revenue. The explanatory memorandum suggests that aggregation of schedules at the ISTS pooling substation has been allowed as per the IEGC and this would result in improvement in overall deviations and resultant DSM charges payable by generators. However, no analysis of possible impact of aggregation has been provided. The benefit of such aggregation at the ISTS pooling station is not sufficient to compensate the adverse impact of the proposed change in the deviation bands.

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Detailed clause-wise comments

Sr no.	Draft Amendment paper	Suggested change	Remarks												
1.	<p>8. Charges for Deviation</p> <p>(1) Charges for Deviation, in respect of a general seller other than an RoR generating station or a generating station based on municipal solid waste or WS seller shall be as under:</p> <table border="1" data-bbox="282 595 864 1142"> <tr> <td colspan="2" data-bbox="282 595 864 699">(III) For Deviation beyond [10% DGS or 100 MW, whichever is less] and f within and outside f band</td> </tr> <tr> <td data-bbox="282 703 562 834">Deviation by way of over injection (Receivable by the Seller)</td> <td data-bbox="568 703 864 834">Deviation by way of under injection (Payable by the Seller)</td> </tr> <tr> <td data-bbox="282 839 562 1142">i) Such seller shall be paid back @ zero when (f < 50.10 Hz): Provided that such seller shall pay @ 10% of RR when [f ≥ 50.10 Hz]</td> <td data-bbox="568 839 864 1142">(ii) Such seller shall pay @ RR when [f ≥ 50.00 Hz]; (iii) @ 150% of RR when [49.90Hz ≤ f < 50.00 Hz]; and (iv) @ 200% of RR when [f < 49.90 Hz]</td> </tr> </table>	(III) For Deviation beyond [10% DGS or 100 MW, whichever is less] and f within and outside f band		Deviation by way of over injection (Receivable by the Seller)	Deviation by way of under injection (Payable by the Seller)	i) Such seller shall be paid back @ zero when (f < 50.10 Hz): Provided that such seller shall pay @ 10% of RR when [f ≥ 50.10 Hz]	(ii) Such seller shall pay @ RR when [f ≥ 50.00 Hz]; (iii) @ 150% of RR when [49.90Hz ≤ f < 50.00 Hz]; and (iv) @ 200% of RR when [f < 49.90 Hz]	<p>8. Charges for Deviation</p> <p>(1) Charges for Deviation, in respect of a general seller other than an RoR generating station or a generating station based on municipal solid waste or WS seller shall be as under:</p> <table border="1" data-bbox="960 595 1543 1313"> <tr> <td colspan="2" data-bbox="960 595 1543 699">(III) For Deviation beyond [10% DGS or 100 MW, whichever is less] and f within and outside f band</td> </tr> <tr> <td data-bbox="960 703 1240 834">Deviation by way of over injection (Receivable by the Seller)</td> <td data-bbox="1247 703 1543 834">Deviation by way of under injection (Payable by the Seller)</td> </tr> <tr> <td data-bbox="960 839 1240 1313">i) Such seller shall be paid back @ zero when (f < 50.10 Hz): Provided such seller shall be paid back @ 115% of RR when (f < 50Hz): Provided that such seller shall pay @ 10% of RR when [f ≥ 50.10 Hz]</td> <td data-bbox="1247 839 1543 1313">(ii) Such seller shall pay @ 85% of RR when [f ≥ 50.00 Hz]; (iii) @ 150% of RR when [49.90Hz ≤ f < 50.00 Hz]; and (iv) @ 200% of RR when [f < 49.90 Hz]</td> </tr> </table>	(III) For Deviation beyond [10% DGS or 100 MW, whichever is less] and f within and outside f band		Deviation by way of over injection (Receivable by the Seller)	Deviation by way of under injection (Payable by the Seller)	i) Such seller shall be paid back @ zero when (f < 50.10 Hz): Provided such seller shall be paid back @ 115% of RR when (f < 50Hz): Provided that such seller shall pay @ 10% of RR when [f ≥ 50.10 Hz]	(ii) Such seller shall pay @ 85% of RR when [f ≥ 50.00 Hz]; (iii) @ 150% of RR when [49.90Hz ≤ f < 50.00 Hz]; and (iv) @ 200% of RR when [f < 49.90 Hz]	<p>i. In the proposed DSM Regulations, there is no receivable amount to general seller in case of over injection beyond 10% or 100 MW whichever is less when the frequency is <50.10 Hz. It is pertinent to note that, in a day there are instances wherein frequency in a time block goes below 50 Hz (in fact it goes even below 49.90 Hz), during such instances higher is the deviation in terms of over-injection sellers will provide higher support to bring the frequency back to normal range. Thus, is requested that irrespective of the deviation volume, general seller should get paid for over injection for supporting the grid when frequency is <50Hz.</p> <p>ii. Further, as per proposed DSM Regulations, the payable amount by general seller is @ 100% of RR in case of under injection beyond 10% or 100 MW whichever is less when the</p>
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			<p>frequency is above 50.05Hz. It is pertinent to note that, in a day there are instances wherein frequency in a time block goes above 50 Hz, during such instances general seller should be incentivized for under injection irrespective if volume is under injection is within or beyond 10% as the seller is supporting the grid by way of under injection.</p> <p>iii. Due to the limitations of real-time monitoring and response to small grid frequency deviations (0.1 Hz). The power plants are also not that dynamic to react based on such minor frequency changes. It is therefore requested that instead of small steps of 0.1 Hz the incentive and penalty mechanism be framed as per slabs of 0.5 Hz each. This will enable the market participants to take appropriate action based on prevailing frequency</p>
2.	<p>8. Charges for Deviation</p> <p>...</p> <p>(4) Charges for Deviation, in respect of a WS Seller being a generating station based on wind or solar</p>	<p>8. Charges for Deviation</p> <p>...</p> <p>(4) Charges for Deviation, in respect of a WS Seller being a generating station based on wind or solar</p>	<p>It is noted that the proposed DSM bands have reduced the initial band i.e. VLws (1) from earlier:</p>

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	<p>or hybrid of wind–solar resources, including such generating stations aggregated at a pooling station through QCA shall be without any linkage to grid frequency, as under:</p> <table border="1" data-bbox="280 459 902 1038"> <tr> <td data-bbox="280 459 593 614">Deviation by way of over injection (Receivable by the Seller)</td> <td data-bbox="593 459 902 614">Deviation by way of under injection (Payable by the Seller)</td> </tr> <tr> <td data-bbox="280 614 593 1038">(i) for VL_{WS} (1) @ contract rate; (ii) for VL_{WS} (2) @ 90% of contract rate (iii) for VL_{WS} (3) @ 50% of contract rate, (iv) beyond VL_{WS} (3) @ Zero;</td> <td data-bbox="593 614 902 1038">v) for VL_{WS} (1) @ contract rate; (vi) for VL_{WS} (2) @ 110% of contract rate; (vii) for VL_{WS} @ 150% of contract rate; (viii) beyond VL_{WS} (3) @ 200% of contract rate.</td> </tr> </table> <p>Note: Volume Limits for WS Seller:</p> <table border="1" data-bbox="280 1118 902 1353"> <thead> <tr> <th data-bbox="280 1118 526 1161">WS Seller</th> <th data-bbox="526 1118 902 1161">Volume Limit</th> </tr> </thead> <tbody> <tr> <td data-bbox="280 1161 526 1353">A generating station based on solar or a hybrid of wind–solar resources or</td> <td data-bbox="526 1161 902 1353">VL_{WS} (1) = Deviation up to 5% D_{WS} VL_{WS} (2) = Deviation beyond 5% D_{WS} and up to 10% D_{WS}</td> </tr> </tbody> </table>	Deviation by way of over injection (Receivable by the Seller)	Deviation by way of under injection (Payable by the Seller)	(i) for VL _{WS} (1) @ contract rate; (ii) for VL _{WS} (2) @ 90% of contract rate (iii) for VL _{WS} (3) @ 50% of contract rate, (iv) beyond VL _{WS} (3) @ Zero;	v) for VL _{WS} (1) @ contract rate; (vi) for VL _{WS} (2) @ 110% of contract rate; (vii) for VL _{WS} @ 150% of contract rate; (viii) beyond VL _{WS} (3) @ 200% of contract rate.	WS Seller	Volume Limit	A generating station based on solar or a hybrid of wind–solar resources or	VL _{WS} (1) = Deviation up to 5% D _{WS} VL _{WS} (2) = Deviation beyond 5% D _{WS} and up to 10% D _{WS}	<p>or hybrid of wind–solar resources, including such generating stations aggregated at a pooling station through QCA shall be without any linkage to grid frequency, as under:</p> <table border="1" data-bbox="952 459 1574 1007"> <tr> <td data-bbox="952 459 1265 614">Deviation by way of over injection (Receivable by the Seller)</td> <td data-bbox="1265 459 1574 614">Deviation by way of under injection (Payable by the Seller)</td> </tr> <tr> <td data-bbox="952 614 1265 1007">(i) for VL_{WS} (1) @ contract rate; (ii) for VL_{WS} (2) @ 90% of contract rate (iii) for VL_{WS} (3) @ 50% of contract rate, (iv) beyond VL_{WS} (3) @ Zero;</td> <td data-bbox="1265 614 1574 1007">v) for VL_{WS} (1) @ contract rate; (vi) for VL_{WS} (2) @ 110% of contract rate; (vii) for VL_{WS} @ 150% of contract rate; (viii) beyond VL_{WS} (3) @ 200% of contract rate.</td> </tr> </table> <p>Note: Volume Limits for WS Seller:</p> <table border="1" data-bbox="952 1086 1574 1321"> <thead> <tr> <th data-bbox="952 1086 1198 1129">WS Seller</th> <th data-bbox="1198 1086 1574 1129">Volume Limit</th> </tr> </thead> <tbody> <tr> <td data-bbox="952 1129 1198 1321">A generating station based on solar or a hybrid of wind–solar resources or</td> <td data-bbox="1198 1129 1574 1321">VL_{WS} (1) = Deviation up to 5% 10% D_{WS} VL_{WS} (2) = Deviation beyond 5% 10% D_{WS} and up to 10% 15% D_{WS}</td> </tr> </tbody> </table>	Deviation by way of over injection (Receivable by the Seller)	Deviation by way of under injection (Payable by the Seller)	(i) for VL _{WS} (1) @ contract rate; (ii) for VL _{WS} (2) @ 90% of contract rate (iii) for VL _{WS} (3) @ 50% of contract rate, (iv) beyond VL _{WS} (3) @ Zero;	v) for VL _{WS} (1) @ contract rate; (vi) for VL _{WS} (2) @ 110% of contract rate; (vii) for VL _{WS} @ 150% of contract rate; (viii) beyond VL _{WS} (3) @ 200% of contract rate.	WS Seller	Volume Limit	A generating station based on solar or a hybrid of wind–solar resources or	VL _{WS} (1) = Deviation up to 5% 10% D _{WS} VL _{WS} (2) = Deviation beyond 5% 10% D _{WS} and up to 10% 15% D _{WS}	<ul style="list-style-type: none"> • 10% to now 5% (Solar & Hybrid) • 15% to now 10% (Wind) <p>Post 2014 DSM Regulations, there has been some improvement in forecasting and scheduling. And developers have been able to reduce forecasting errors significantly. However, most of this improvement has happened in deviation range of >20% (i.e. VL_{WS} (3) and beyond). If we analyze data for the existing projects, in more than 85% of time blocks error remains within ±10% for solar and hybrid, and ±15% for wind. Increasing the accuracy of forecasting within this range would require significant technological breakthrough on forecasting tools as well as access to highly accurate weather data.</p> <p>It is therefore requested that till the time it is established that</p>
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	aggregation at a pooling station	VL _{WS} (3) = Deviation beyond 10% D _{WS} and up to 20% D _{WS}	aggregation at a pooling station	VL _{WS} (3) = Deviation beyond 10% 15% D _{WS} and up to 20% D _{WS}	such technology and access to precise weather data is available, further tightening of DSM bands may not be undertaken especially for the existing projects.
	A generating station based on wind resource	VL _{WS} (1) = Deviation up to 10% D _{WS} VL _{WS} (2) = Deviation beyond 10% D _{WS} and up to 15% D _{WS} VL _{WS} (3) = Deviation beyond 15% D _{WS} and up to 25% D _{WS}	A generating station based on wind resource	VL _{WS} (1) = Deviation up to 10% 15% D _{WS} VL _{WS} (2) = Deviation beyond 10% 15% D _{WS} and up to 15% 20% D _{WS} VL _{WS} (3) = Deviation beyond 15% 20% D _{WS} and up to 25% D _{WS}	
3.	8. Charges for Deviation ... (4) Charges for Deviation, in respect of a WS Seller ... (c) depooling of deviation charges for WS seller(s) connected to the pooling station shall be as per the methodology mutually agreed upon between the QCA and such individual WS seller(s).		8. Charges for Deviation ... (4) Charges for Deviation, in respect of a WS Seller ... (c) depooling of deviation charges for WS seller(s) connected to the pooling station shall be as per the methodology approved by the Commission mutually agreed upon between the QCA and such individual WS seller(s). NLDC shall submit the methodology within 4 weeks notification of these regulations for approval of the Commission.		It may be noted that if the mechanism for de-pooling of deviation charges is kept as per mutual agreement between individuals, it will delay the process and will result in multiple litigations in future. For streamlining the aggregation process it is important that uniform methodology should be applicable and the same should be issued by CERC or Grid-India.
4.	(j) 'Contract rate' means the tariff for sale or purchase of power, as determined under Section 62 or adopted under Section 63 or approved under Section 86(1)(b) of the Act by the Appropriate		(j) 'Contract rate' means the tariff for sale or purchase of power, as determined under Section 62 or adopted under Section 63 or approved under Section 86(1)(b) of the Act by the Appropriate		Under GEOA, substantial capacity is being planned under captive or third-party route. In these cases, tariff is not

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	Commission or the price as discovered in the Power Exchange, as the case may be; and in the absence of a tariff or price as above, contract rate shall mean the weighted average ACP of the Day Ahead Market segments of all Power Exchanges for the respective time block;	Commission or the price as discovered in the Power Exchange, or tariff agreed between the bilateral parties as the case may be; and in the absence of a tariff or price as above, contract rate shall mean the weighted average ACP of the Day Ahead Market segments of all Power Exchanges for the respective time block;	determined as per Sec 62 or 63 and is mutually agreed between the parties. Such tariff should also be considered as contract rate for the purpose of computing DSM penalties. Otherwise, such projects under GEOA will be penalized with DSM charges on the basis of exchange tariffs while the similar projects u/s 62 or 62 DSM charges are computed on contract rate.
5.	8. Charges for Deviation ... (5) Charges for Deviation, in respect of a Standalone Energy Storage System (ESS), shall be at par with the charges for Deviation for a general seller other than an RoR generating station or a generating station based on municipal solid waste or WS seller as specified in Clause (1) of this Regulation	8. Charges for Deviation ... (5) Charges for Deviation, in respect of a Standalone Energy Storage System (ESS), shall be at par with the charges for Deviation for a general seller other than an RoR generating station or a generating station based on municipal solid waste or WS seller as specified in Clause (1) of this Regulation. Provided that for drawl of power while charging the standalone ESS the applicable deviation charges shall be at par with Buyer.	Treatment of DSM on drawl should be as applicable to the Buyer.
6.	8. Charges for Deviation ...	8. Charges for Deviation ... (6) Charges for Deviation, in respect of an ESS co-located with WS Seller(s) connected at the same	The very purpose of co-located ESS with WS seller is to reduce the variability of the WS

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	<p>(6) Charges for Deviation, in respect of an ESS co-located with WS Seller(s) connected at the same interconnection point, shall be as follows:</p> <p>i) Such seller shall provide a separate schedule for WS and ESS components through the Lead generator or QCA at the interconnection point;</p> <p>ii) Deviation corresponding to WS component shall be charged at the same rates as applicable for WS Seller being a generating station based on solar or hybrid of wind-solar resource in accordance with clause (4) of this regulation; and</p> <p>iii) Deviation corresponding to the ESS component shall be charged at the same rates as applicable for a standalone ESS in accordance with clause (5) of this regulation.</p>	<p>interconnection point, shall be at par with the WS seller to which it is co-located with as follows:</p> <p>i) Such seller shall provide a separate schedule for WS and ESS components through the Lead generator or QCA at the interconnection point;</p> <p>ii) Deviation corresponding to WS component shall be charged at the same rates as applicable for WS Seller being a generating station based on solar or hybrid of wind-solar resource in accordance with clause (4) of this regulation; and</p> <p>iii) Deviation corresponding to the ESS component shall be charged at the same rates as applicable for a standalone ESS in accordance with clause (5) of this regulation.</p>	<p>component and increase the stability of the grid. Now if the ESS component will be treated like a general seller it will further increase the DSM of the project making it economically less viable to add this component.</p> <p>It will further discourage RE generators to add ESS component in a WS project for meeting the objective of minimizing the deviations.</p>
7.	<p>10. Schedule of Payment of charges for deviation</p> <p>(1) The payment of charges for deviation shall have a high priority, and the concerned regional entity shall pay the due amounts within 7 (seven) days of the issue of the statement of charges for deviation by the Regional Power Committee, failing which late payment surcharge @ 0.04% shall be payable for each day of delay.</p>	<p>10. Schedule of Payment of charges for deviation</p> <p>(1) The payment of charges for deviation shall have a high priority, and the concerned regional entity shall pay the due amounts within 7 (seven) days of the issue of the statement of charges for deviation by the Regional Power Committee, failing which late payment surcharge @ 0.04% shall be payable for each day of delay.</p>	<p>With past experience we have experienced that 7 days are not enough for making payments for DSM charges. And now with added validation of details to be complied by QCA the time provided for making the payment be increased to 10 days as against proposed 7 days.</p>
8.			<p>A significant portion of new RE projects are being planned to sell power on exchange.</p>

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			<p>Further there is a difference in scheduling flexibility between selling through the exchange and via PPAs.</p> <ul style="list-style-type: none"> • PPAs: Allow revisions of schedule 7/8 time-blocks ahead of actual delivery. • Power Exchange: Does not allow revision in Day ahead schedule. <p>To understand the issues, consider a scenario where an RE projects have scheduled 100 MW on the exchange under GDAM (with Day ahead schedule). On the other hand, a buyers have scheduled 100 MW on exchange. Now suppose RE project does not get adequate resource and generates only 80MW (i.e. actual injection) whereas buyers draw complete 100MW. In this case, only 80 MW of RE power was generated, whereas the buyer gets certified</p>

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			<p>that it has purchased 100 MW of RE power.</p> <p>To address this issue, RE power should be allowed to revise the schedule 7/8 time-blocks ahead of actual delivery. In such a case schedule of Buyers should also be revised on proportionate basis.</p> <p>Keeping the same DSM bands for exchange sale without the flexibility to revise the schedule may not be appropriate for RE projects. This will restrict the development of RE merchant capacity in the country. In order to develop a robust RE exchange market such issue needs to be addressed.</p>