

Ref: GEPL/Regulatory/2021/28062021

June 28th, 2021

To,

The Secretary,

Central Electricity Regulatory Commission

3rd & 4th Floor, Chanderlok Building,

36, Janpath, New Delhi- 110001

Dear Sir / Madam,

Sub: Comments and Suggestions on **Draft Central Electricity Regulatory Commission (Ancillary Services) Regulations, 2021**

Ref:

1. *CERC public notice dated. 29th May 2021 issuing Draft Central Electricity Regulatory Commission (Ancillary Services) Regulations, 2021 for comments*

We, Greenko Group, introduce ourselves as India's leading integrated renewable energy player with over 12+ years of operational expertise. We currently own and operate projects across all major renewable technologies viz. Solar, Wind and Hydro with a total operating capacity of ~6.2 GW spread across ~45 projects in 15 states. We are committed to transforming the energy landscape of India from unpredictable generation to schedulable, flexible demand-based generation systems through large scale storage solutions developed with cutting edge technology platforms for effective prediction and management of high voltage energy systems.

We hereby submit our comments and suggestions on the above referred Draft Regulation for your kind consideration. We hope for a positive response.

Thanking You

Yours Sincerely,

For Greenko Energies Private Ltd



Authorized Signatory



Comments and Suggestions on CERC Draft Ancillary Services Regulations 2021.

S No	Reference Clause	Existing Clause	Modification Required	Rationale/Comments
1.	2	<p>2. Objective These regulations aim to provide mechanisms for procurement, through administered as well as market-based mechanisms, deployment and payment of Ancillary Services for maintaining the grid frequency close to 50 Hz, and restoring the grid frequency within the allowable band as specified in the Grid Code and for relieving congestion in the transmission network, to ensure smooth operation of the power system, and safety and security of the grid.</p>		The Draft regulation provides for procurement of Ancillary Services on Day-ahead and real time basis. This will not provide visibility on cash flows for the AS provider. However, setting up a new ancillary services resource requires lot of investment. For investment to flow in, sufficient confidence, in terms assured cash flow, is required for lenders and developers. Therefore, we request Hon'ble Commission to explore how new investments can come into this niche segment including considering procuring ancillary services for longer time horizons.
2.	6 (1)	<p>6. Estimation of Reserves by the Nodal Agency (1) The Nodal Agency shall, in coordination with RLDCs and SLDCs, estimate the quantum of requirement of SRAS and TRAS for such period and based on such methodology as specified in the Grid Code.</p>	<p>6. Estimation of Reserves by the Nodal Agency (1) The Nodal Agency shall, in coordination with RLDCs and SLDCs, estimate the quantum of requirement of SRAS and TRAS for such period and based on such methodology as specified in the Grid Code. Such estimation will be made public on advance.</p>	The reserves requirement as assessed by the NA should be made public upfront, so that AS provider can plan and cater its resource efficiently
3.	5 (2) & (3)	<p>5. Types of Ancillary Services</p>		It is stated that as of now, mechanism of procurement, deployment and payment of SRAS

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				<p>and TRAS shall be as specified in these regulations and PRAS and other AS shall be specified separately. PRAS is currently a mandatory requirement for all generating units and without remuneration.</p> <p>PRAS has been traditionally provided by synchronous generators; nevertheless, they have the following limitations:</p> <ul style="list-style-type: none"> (1) A percentage of the available generator power must be reserved, diminishing the energy that can be sold; (2) Response speed to inject power can be slow; and (3) Frequency regulation is indirectly performed through the generator speed regulation system and it may cause power system frequency oscillations.

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				<p>Therefore, use of BESS as an alternative to solve the limitations of performing PRAS with synchronous generators, extremely fast response under load variations.</p> <p>Market based procurement of such services should be implemented, and storage would have revenue support.</p> <p>We suggest that among the PRAS, a new product Fast frequency response should be designed with remuneration for the provision of fast response</p> <ol style="list-style-type: none"> 1. Batteries are great providers of such services, creating the possibility of additional revenue streams for battery operators/owners. 2. Wind turbines can provide inertial response through power electronic converters. 3. Photovoltaic (PV) installations, direct current

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				systems and batteries can also provide synthetic inertial response if the inverter is programmed to do so.
4.	7 (1) (b)	<p>7 Eligibility for an SRAS Provider (1) A generating station or an entity having energy storage resource or demand side resource, connected to inter-State transmission system or intra-State transmission system, shall be eligible to provide Secondary Reserve Ancillary Service, as an SRAS Provider, if it (a); (b) is AGC-enabled, in case of a generating station;</p>	<p>7 Eligibility for an SRAS Provider (1) A generating station or an entity having energy storage resource or demand side resource, connected to inter-State transmission system or intra-State transmission system, shall be eligible to provide Secondary Reserve Ancillary Service, as an SRAS Provider, if it (a); (b) is AGC-enabled, in case of a generating station. In case of an entity having energy storage resource or demand side resource, they should be similarly equipped, as stipulated in the Detailed Procedure by the Nodal Agency to respond to automatic control signals;</p>	Since Secondary control involves automatic control signals, all the entities should be prescribed to be equipped with devices which can respond to such signals automatically
5.	9 (2) Proviso	<p>9. Procurement of SRAS (1) (2) An SRAS Provider willing to participate in SRAS shall be required to provide standing consent to the Nodal Agency for</p>	<p>9. Procurement of SRAS (1) (2) An SRAS Provider willing to participate in SRAS shall be required to provide standing consent to the Nodal Agency for participation in SRAS-UP or</p>	Option should be given to the service provider to participate in either UP or DOWN or both the services.

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		<p>participation, which shall remain valid till it is modified or withdrawn:</p> <p>Provided that standing consent cannot be modified or withdrawn without giving notice of at least forty-eight hours.</p>	<p>SRAS-DOWN or both, which shall remain valid till it is modified or withdrawn:</p> <p>Provided that standing consent cannot be modified or withdrawn without giving notice of at least twelve hours.</p>	<p>Since SRAS is deployed closer to real-time, longer notice period may not be necessary. Shorter notice period will help the SRAS provider to assess the reserve availability and other technical parameters, which in turn depend on other parameters like load factor, with more accuracy.</p> <p>Moreover, the draft regulations allow the Nodal Agency to identify the SRAS capacity on Day-Ahead and Real time basis for Section 62 generators.</p>
6.	9 (5) & (6)	<p>9 Procurement of SRAS</p> <p>(1)</p> <p>(5) The SRAS Providers that are generating stations, shall declare their variable charge upfront on monthly basis in the manner as stipulated in the Detailed Procedure.</p>	<p>9 Procurement of SRAS</p> <p>(1)</p> <p>(5) The SRAS Providers that are generating stations, shall declare their variable charge upfront on monthly basis in the manner as stipulated in the Detailed Procedure. Variable charge can be different for UP and DOWN service and can be on different for different TOD time slots</p>	<p>Capability of providing SRAS-UP service and SRAS-DOWN service differs for various technologies, hence they cost differently.</p> <p>Similarly, all the providers value the secondary reserve differently in various time slots. The same needs to be allowed in the Regulations while declaring variable/compensation charges</p> <p>Moreover, the draft regulations provide such flexibility under TRAS procurement</p>

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		<p>(6) The SRAS Provider other than the generating stations, shall be required to declare the compensation charges upfront on monthly basis in the manner as stipulated in the Detailed Procedure.</p>	<p>(6) The SRAS Provider other than the generating stations, shall be required to declare the compensation charges upfront on monthly basis in the manner as stipulated in the Detailed Procedure. Compensation charge can be different for UP and DOWN regulations and TOD time slot wise</p>	<p>Conventional synchronous generators providing SRAS are typically very low cost when the power system is at minimum load since there are numerous generators operating below full load that have the ability to rapidly increase output.</p> <p>There is no opportunity cost for these generators. SRAS prices for such generators do not reflect opportunity costs at system minimum load.</p> <p>However, upfront compensation charge for storage may include following three type of cost associated with Storage unlike conventional generating sources:</p> <p>Energy cost: which represents the cost to buy energy from the grid, as well as roundtrip efficiencies that prevent the resource from discharging the full amount of energy consumed.</p>

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				<p>Opportunity costs: Because energy storage resources are energy-limited, there are opportunity costs associated with failing to charge during the lowest priced hours or failing to discharge during the highest priced hours.</p> <p>Cycling costs in case of BESS. These costs are a function of depth of discharge, ambient temperature, current rate, and average state of charge.</p> <p>Energy Storage Resources are capable of providing faster and more accurate response than conventional synchronous generators. In order to be competitive with conventional generating sources, Energy storage needs to be incentivized as being a new and emerging technology.</p>
7.	9 (8)			Wind-solar and storage located behind single point injection

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				<p>having PPA with buying entities should also be allowed to participate in SRAS and TRAS Ancillary Services. Additional revenue from SRAS and TRAS can be shared with buying entities.</p> <p>Above will support Nodal Agencies in enhancing flexibility in system operations.</p>
8.	11 (3A) – New clause proposed	<p>11. Payment for SRAS (1) (3) SRAS Provider shall be eligible for incentive based on performance as per Regulation 12 of these regulations.</p>	<p>11. Payment for SRAS (1) (3) SRAS Provider shall be eligible for incentive based on performance as per Regulation 12 of these regulations. (3A) SRAS Provider based on entity having energy storage resource shall be paid a Mark-up charge of Rs. 1.00/kWh in addition to other applicable charges</p>	<p>Energy storage needs to be incentivized to make them economically competitive with the well-established Generating sources, as it is a new and emerging technology. Also, they are capable of providing faster and more accurate response</p>
9.	19 (4) New clause proposed	<p>19. Payment for TRAS (1) TRAS-Up Provider shall receive MCP-Energy-Up, as discovered in the Day Ahead Market or the Real Time Market, as the case may be, for the quantum of energy instructed to be despatched by the Nodal Agency.</p>	<p>19. Payment for TRAS (1) TRAS-Up Provider shall receive MCP-Energy-Up, as discovered in the Day Ahead Market or the Real Time Market, as the case may be, for the quantum of energy instructed to be despatched by the Nodal Agency. (4) TRAS Provider based on entity having energy storage resource</p>	

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			shall be paid a Mark-up charge of Rs. 1.00/kWh in addition to other applicable charges	
10.	11 (3B) – New clause proposed	11. Payment for SRAS (1) (3) SRAS Provider shall be eligible for incentive based on performance as per Regulation 12 of these regulations.	11. Payment for SRAS (1) (3) SRAS Provider shall be eligible for incentive based on performance as per Regulation 12 of these regulations. (3B) SRAS Provider based Renewable Energy sources shall be paid a Mark-up charge of Rs. 1.00/kWh in addition to other applicable charges. For the purpose of this clause Renewable Energy sources include Large Hydro (incl. Pumped Storage projects) commissioned on or after 08th March 2019 as well as untied capacity (i.e., without PPA) of the commissioned projects. Alternatively, the Commission may, if considered necessary, provide RECs or HECs, as applicable, for such RE based SRAS Providers.	<p>Electricity Act mandates promotion of Renewable energy sources by requiring various policy and regulatory bodies to provide them with suitable measures. As per which we request Hon'ble Commission to provide incentives in the form of Mark-up charges for providing Ancillary Services from Renewable Energy.</p> <p>Hon'ble Commission may include Large Hydro projects (incl. Pumped Storage projects) commissioned on or after 08th March 2019 as well as untied capacity (i.e., without PPA) of the commissioned projects in line with Ministry of Power's Office Memorandum dt. 08th March 2019</p>
11.	19 (5) New clause proposed	19. Payment for TRAS (1) TRAS-Up Provider shall receive MCP-Energy-Up, as discovered in the Day Ahead Market or the Real Time Market,	19. Payment for TRAS (1) TRAS-Up Provider shall receive MCP-Energy-Up, as discovered in the Day Ahead Market or the Real Time Market, as the case may be, for the quantum of	<p>Alternatively, we request to provide RECs or HECs, as applicable, to such RE based AS providers</p>

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		as the case may be, for the quantum of energy instructed to be despatched by the Nodal Agency.	energy instructed to be despatched by the Nodal Agency. ... (5) TRAS Provider based Renewable Energy sources shall be paid a Mark-up charge of Rs. 1.00/kWh in addition to other applicable charges. For the purpose of this clause Renewable Energy sources include Large Hydro (incl. Pumped Storage projects) commissioned on or after 08th March 2019 as well as untied capacity (i.e., without PPA) of the commissioned projects. Alternatively, the Commission may, if considered necessary, provide RECs or HECs, as applicable, for such RE based SRAS Providers.	
12.	12 (2)	12. Performance of SRAS Provider and incentive (2)The methodology for measurement of performance of SRAS Provider shall be as specified in Appendix-II of these regulations.		While we appreciate the methodology, illustration provided in Appendix-II to assess the performance, we request Hon'ble Commission to provide a sample calculation with real data for a day (downloadable) deriving the performance and incentives payable Proposed incentive clause is fail to ensure just and reasonable

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				<p>treatment to faster-ramping resources, and do not provide the proper economic incentive for efficient market participation.</p> <p>We suggest that the fast-moving resources like energy storage including PSH should be paid at higher rate compared to the slow-moving resources. By paying for such performance, SRAS providers like energy storage including PSH can earn additional revenues</p> <p>Federal Energy Regulatory Commission, after stakeholder consultation, in its Order 755 stated that: <i>a mileage-based performance payment component, as required in this Final Rule, will provide compensation that appropriately recognizes a resource's actual ramp rate capability.</i></p>
13.	17 (5)	<p>17. Price Discovery of TRAS (5) The Commission may, if considered necessary, provide for a price cap for TRAS.</p>	<p>17. Price Discovery of TRAS (5) The Commission may, if considered necessary, provide for a price cap for TRAS.</p>	<p>Ancillary services are directly helping the system to operate within the secure limits prescribed by IEGC. Any deviation could cause grid security issues and</p>

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				system blackout. Therefore, economics should take a back seat while procuring Ancillary services, which mostly is deployed during contingent events.
14.	19 (2)	<p>19. Payment for TRAS (1)</p> <p>(2) TRAS-Up Provider shall receive commitment charges at the rate of ten percent of the MCP-Energy-Up-DAM or the MCP-Energy-Up-RTM, as the case may be, subject to the ceiling of 20 paise/kWh for the quantum of TRAS-Up cleared in the Day Ahead Market or the Real Time Market as the case may be, but not instructed to be despatched by the Nodal Agency.</p>	<p>19. Payment for TRAS (1)</p> <p>(2) TRAS-Up Provider shall receive commitment charges at the rate of fifty percent of the MCP-Energy-Up-DAM or the MCP-Energy-Up-RTM, as the case may be, subject to the ceiling of 200 paise/kWh for the quantum of TRAS-Up cleared in the Day Ahead Market or the Real Time Market as the case may be, but not instructed to be despatched by the Nodal Agency.</p>	<p>In the developed power market, generally, there are assured commitment charges payable to the Ancillary Service providers as they are committing their capacity for such services, in the form of capacity charge.</p> <p>In the prevailing RRAS Regulations there is no commitment charges payable to Ancillary Services provider for making themselves available for the Ancillary Services. It is quite understood that the RRAS Ancillary services Provider(s) are adjusting the fixed charges to the original beneficiaries for the quantum of un-requisitioned surplus scheduled under Regulation Up service. That is not the case for Ancillary services Provider(s) other than NTPC stations. For generation projects providing RRAS, proposed</p>

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				<p>commitment charges could be act as an incentive. However, setting up a new ancillary services resource including energy storage resource requires lot of investment. For investment to come in, sufficient confidence, in terms assured cash flow, is required for lenders and developers. Therefore, commitment charges need to sufficiently cover the cost of setting-up and operating the resource and provide reasonable return on investment.</p> <p>In some countries the system operator anticipates Ancillary Services in advance, and factors in the commitment charges towards Ancillary Services in their Annual Revenue Requirement (ARR) / Rate Base.</p> <p>Whatever liability towards the commitment charges is going to be socialized in the DSM pool account else it should be passed on to the specific entities</p>

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				responsible for causing the requisition of Ancillary Services.
15.	11 & 19	11 Payment for SRAS 19 Payment for TRAS		<p>Ideally deviation charges should be levied based on the causer-pay principle. However, as a result of special dispensation for deviation by RE generators, deficit may arise in the DSM Pool at the end of the year. Additionally, when the Ancillary Services Operations would restore the Frequency Level at desired level by providing such Services for 30 to 60 minutes, there may not be any/appreciable deviation to the schedule vis-a-vis drawl quantum of energy, for which there may be reduction in flow of fund to the Regional Deviation Pool Account Fund.</p> <p>The Ancillary Services Operations Regulations 2015 state that if there is a deficit in a regional pool account due to implementation of Ancillary Services, it could be covered by other regional deviation pool accounts.</p> <p>Apart from the above, there is no alternate mechanism of payment</p>

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				<p>to the Ancillary Services Providers has been prescribed in the Draft Regulations in case there is insufficient fund in the Regional Deviation Pool Account Fund.</p> <p>Therefore, either an alternate source of funding to the AS Providers in case of insufficient fund in the Regional Deviation Pool Account Fund may be prescribed in the above Regulations Or 'Causers Pay' approach may be considered as is the case with many international AS operators like AEMO (Australian Energy Market Operator).</p>
16.	22	<p>Transmission charges and losses for SRAS Provider and TRAS Provider</p> <p>No transmission charges or transmission losses or transmission deviation charges shall be payable for SRAS and TRAS</p>		<p>Energy Storage resources that provide SARS and TARS services may have a schedule to inject energy to or withdraw energy from the grid.</p> <p>Such resources should be treated more similar to generation resources providing SARS and TARS services, for which it is to be clarified that Storage resources</p>

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				<p>should not be subjected to the Transmission Charges and losses.</p> <p>Further, storage resources would not be subject to any additional fees if they submit schedules to withdraw energy from the grid during charging schedules for the storage resource.</p>