

CSTEP's Comments on Ancillary Services Regulations 2021				
#	Area	Section	Original Clause	Addition/Remarks
1	Estimation of Reserves by the Nodal Agency	6	"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....."	Estimate the quantum of requirement of SRAS and TRAS shall also consider the RE generation plans and EV demand penetration plans in the future. Ultimately, the grid flexibility should be assessed on the basis of future estimated ramping rate requirements.
2	Eligibility for an SRAS Provider	7	"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....."	State TRANSCOMs shall be responsible for providing proper connectivity to the available storage systems and develop infrastructure is not available in remote areas, especially for remotely located small/large PHES.
3	Payment for SRAS	10 (12)	"Average of SRAS-Up and SRAS-Down MW data shall be calculated for every 15 minutes time block in MWh for every SRAS Provider by the Nodal Agency using the archived SCADA data at the Nodal Agency and reconciled with the data received at control centre of the SRAS Provider and shall be used for payment of variable charge or compensation charge....."	There is requirement to specify the fixed cost payment methods for SRAS and TRAS. This section need to clarify upon specific mechanism to be followed for the fixed cost payment, as least with broad aspects. Additionally, it also need to clarify on the billing, payment and trasaction timlines between ancillary service provider and the DSM pool.
4	On overall regulations	-	-	The regulation specifies that, energy storage resources and demand side resources to be included as SRAS or TRAS. However, there is no clarification on the specific technologies to be included under these resources. The "energy resources" term for utility scale ancillary support can be considered that it is specifically indicating towards the large battery storage and pumped hydro energy storage (PHES) facilities. Conversely, the definition for "demand side resources" needs more clarification. These including technologies can be specified along with their qualifications and limitations.
5	Eligibility for an SRAS Provider	7	(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.."	Ancillary service markets open up provisions for large scale energy storage system and storage service providers in the Indian market. Battery storage can help reduce VRE curtailments, support national RE targets and the ancillary requirements can improve the uptake of emerging storage technologies, otherwise limited by costs. The ecosystem will need to investigate new storage technologies and suitability based on usage, like – a. Green hydrogen storage is under research, is supported by hydrogen energy mission,2021. b. Lithium ion (LiB) and Pump hydro are commercial scale, with LiB supported by support for electric vehicle ecosystem. c. Advanced cell technologies supported for battery manufacturing by government, with prosepctive target of 50Gwh.
6	Activation and Deployment of SRAS	8	"SRAS shall be activated and deployed by the Nodal Agency on account of the following events to maintain or restore grid frequency within the allowable band as specified in the Grid "	Comment: - The deployment of SRAS has two factors to discuss: 1) Role of technologies - While, various commercial and emerging technologies can be looped into the paradigm. Role of different storage technologies will vary based on Need. While, pumped hydro is large commercial scale, can be purchased earlier than emrging technologies but will take longer to respond compared to battery based technologies which can respond quickly. Higher flexibility in response means better prices at initial stages, but higher charge-discharge cycles also mean lesser life of battery. This is a trade of to be considered by the investors in storage technologies. 2) Future and Size of market: With better forecasting in the system, future grid problems will shift from frequent short breakdowns to very few but longer breakdowns. Therefore, large size battery storage technologies with long term contracts, will benefit at later stage compared to beginning. The market may saturate beyond a point for each additional battery system, as more additional large size batteries are added to the system. It is important to know the market size and time window, forecast of the opportunity.
7	Procurement of SRAS	9	"SRAS shall be procured on regional basis by the Nodal Agency through the mechanism as specified in this Regulation"	For a future developing market with more private players, the pricing will get critical and may be seen as an insurance against grid operations. The demand may decrease will more batteries added to the system. While, the existing ancillary providers will benefit for getting insurance payments for asset management, the pricing for new players will get critical.
8	Eligibility for a TRAS Provider	14	-	Primary reserves should be opened to energy storage providers to improve grid reliability and minimum block requirement for TRAS provider to be set as it is not specified.
9	Performance of SRAS Provider and incentive	12	(3) SRAS Provider shall be eligible for incentive based on the performance measured as per 11 clause (2) of this Regulation and the 5-minute MWh data calculated for SRAS-Up and SRAS-Down as per clause (11) of Regulation 10 of these regulations and aggregated over a day, as under:	incentive mechanism for SRAS providers needs to account few additional factors considering the 'energy storage resource' or demand side resource, which would improve the uptake and active participation.