Consolidated stakeholder comments received on draft Detailed Procedure for Evaluating Control Area-wise Performance of SRAS and TRAS Providers

❖ **Comments/Suggestions received from stakeholders by Nodal Agency**

S. No.	Stakeholder	Date of receiving comments
1.	Southern Regional Power Committee (SRPC)	08 Sep 2023
2.	Tehri Hydro Development Corporation Ltd. (THDC)	14 Sep 2023
3.	National Thermal Power Corporation Ltd. (NTPC)	----

SRPC Comments				
Para/Page No	**Existing Provision in Procedure**	**Stakeholder comment & rationale**	**Status of Incorporation (Yes/No/ Partial)**	**GRID-INDIA comments**
6.5/Page 7		The procedure of AGC Off for computing 288 data points per plant for one day may be included.	Already existing	AGC Setpoint to a provider is sent every 4 seconds based on the Area Control Error. When a provider goes out of AGC due to reasons like communication failure, planned/forced outage, etc., the AGC DeltaP for the provider automatically becomes zero through various logics configured at plant end for AGC operation. Hence, the AGC quantum for periods where AGC is Off for a provider automatically gets excluded from the 5-min average AGC DeltaP, which is the input for performance evaluation.

6.5/Page 7	If performance is more than 100%, clamp the value to 100%. More than 100% performance may also indicate poor control tuning and any other issue, Nodal Agency would keep monitoring and intimate the SRAS Provider to investigate	If performance is more than 100%, clamp the value to 100% for each 5-minute. More than 100% performance may also indicate poor control tuning and any other issue, Nodal	Partial	A SRAS provider may give under response or over response in a 5-minute block depending upon various factors such as boiler delay, ramping due to schedule changes, coal quality, etc. If a plant is giving under or over response for a sustained period, that would reflect in the overall daily performance of the provider, as a percentage <100% or >100% respectively. As CERC AS Regulations slabs of performance already cater to all the cases of daily performance <100 % or >100%, clamping of 5-minute block performance is not in line with the AS Regulation.
	the possible causes, if sustained over response is noted.	Agency would keep monitoring and intimate the SRAS Provider to investigate		
		the possible causes, if sustained over response is noted.		
		The clamped value would be furnished to RPC as Actual Response (MWh) for incentive computation. **Rationale:** The values in each 5-minute block can be clamped as unreasonable performance should not boost the overall performance.		
6.6/Page 7	The Output MW data is derived from Actual MW, RULSP and RGMO MW, which are all telemetered SCADA signals and may contain some noise. The method	The Output MW data is derived from Actual MW, RULSP and RGMO MW, which are all telemetered SCADA signals and may contain some noise. The method	Partial	15-minute average MWh and 5-minute average MWh of SRAS providers along with the day-wise performance of SRAS providers is already being shared with the respective RPCs on a weekly basis. This account and performance data shared with RPCs is calculated based on the 15-minute and 5-minute average MWh data received from power plants through e-mail every week. Additionally, the output data

	mentioned in Annexure-I would be used for filtering the Gross Output MW data while calculating the performance of the power plants under AGC. As a	mentioned in Annexure-I would be used for filtering the Gross Output MW data while calculating the performance of the power plants under AGC. As a		used for computing performance is plant telemetered data archived at NLDC. After receiving the data from power plants, validation is done at NLDC using a software, developed in-house for AGC. This procedure is in line with the CERC AS Regulations 2022 and Detailed Procedure for SRAS prepared in its compliance.
	result, there would be minimal or no manual intervention while carrying out	result, there would be minimal or no manual intervention while carrying out		
	these calculations.	these calculations. Day wise output file (288 values) would be furnished to RPCs which would include in data file of RPC being uploaded on website.

Rationale:
For transparency and to address the issues for optimising SRAS performance. | | |
| 6/Page5-8 | Methodology of evaluating performance of SRAS Providers | It may include whether the SRAS provider performance on providing response to SRAS signal within 30 seconds and providing the entire SRAS capacity obligation within fifteen (15) minutes and sustaining at least for the next thirty (30) minutes | Yes | New clause has been added in section-1 of the procedure. |
| 7.4.3/Page 9 | Output = ($Actual\ MW'_n - (RLDC\ Schedule_n - TRAS\ DeltaP_n) - AGC\ DeltaP'_n - RGMO'_n$) | It appears that it includes SRAS performance also and therefore Actual of AGC can be considered. | No | Impact of performance of a plant in SRAS on the performance of provider in TRAS has been analysed in detail and it has been found to be in the range of 1-2%. |

		Only points when TRAS (out of 96) is dispatched should be considered and other points input and output should be zero.	Yes	Suitable changes are done in clause 7.3 of the procedure
		TRAS performance can be done on weekly basis as number of points in a day may be less.	Yes	Suitable changes are done in clause 1.8 and 7.4.3 of the procedure
		Forced outage of unit during TRAS despatch may be factored	Already existing	Forced outage of a unit during TRAS despatch is already been factored as per clause 15.10 of Detailed Procedure for Tertiary Reserve Ancillary Service (TRAS)
		TRAS will be despatched in a block may be mentioned.	Yes	Suitable changes are done in the procedure
		It may include whether the TRAS provider performance on providing TRAS response within 15 minutes and sustaining the service for at least next 60 minutes	Yes	New clause has been added in section-1 of the procedure.
New clause 10		The weekly SRAS/TRAS performance report would be published on NLDC, Grid-India website. The supporting data will also be uploaded. **Rationale:** Hon'ble Commission always insist on transparency and dissemination of information on public domain.	Yes	The performance metric and the corresponding incentive of the SRAS providers is already being published through respective RPCs on a weekly basis as per AS Regulations, 2022 and detailed procedure for SRAS. For TRAS, the performance metric shall be shared with the respective RPCs on a weekly basis. The performance of Ancillary Service providers may be discussed in the RPC forums.
New Procedure		Performance analysis of Demand Response not covered **Rationale**:	Already existing	The same methodology can be applied for evaluating the performance of any new technology that may come under SRAS or TRAS.

		As per 7(1) of Ancillary Services Regulation A generating station or an entity having energy storage resource or an entity capable of providing demand response,		

THDC Comments				
6.5	1. As per Sl. No. 6.5 of the draft procedure, following has been mentioned "….Take CB Status and LR Status at the start of each 5-minutes time block….".	In this regard, it is submitted that since the AGC signals i.e. Actual MW, ULSP, RGMO etc is being updated every 4 seconds therefore the Output must be computed/ updated in every 4 secs taking into consideration CB & LR Status in addition to Actual MW, ULSP & RGMO and same may be taken into consideration for calculation of 5 minute average data. With this the SRAS provider who has provided AGC output in between of 5 minute time block will also be measured/ considered.	No	The 5 min average input and output are calculated based on the 4 second data.
6.5	1. As per Sl. No. 6.5 of the draft procedure, it has been mentioned that "….Output = $\Sigma n_i=1$ (($Actual\ MW_n - RULSP_n - RGMO_n$) * $CB_n * LR_n$) …."	In this regard, it is submitted that as per above formula Output is being computed based on the i.e. Actual MW, ULSP, RGMO etc. Since the ULSP data being sent to NLDC from Koteshwar HEP (As discussed/ finalized with NLDC) already includes RGMO contribution therefore it is requested to kindly include only ULSP in the same and RGMO must not be again deducted for computation of output.	Yes	As per the information received from Koteshwar, the ULSP being sent by Koteshwar is calculated based on the Actual MW which includes the contribution of governor MW. Hence, as an exception, the output calculation for Koteshwar shall be done without deducting the governor MW. However, in due course Koteshwar may align with the general convention.

Comments/Suggestions received from NTPC on Draft Detailed Procedure for Evaluation of control area-wise Performance of SRAS & TRAS Providers

	NTPC Comments			
Para/Page No	**Existing Provision in Procedure**	**Stakeholder comment & rationale**	**Status of Incorporation (Yes/No/Partial)**	**GRID-INDIA comments**
Clause 7.0	Clause 7.0 provides for Methodology of evaluating performance of TRAS Providers as follows: 7.1 TRAS-Up and TRAS-Down dispatch instruction shall be considered by the Nodal Agency for every 15 minutes in absolute terms using archived data at the Nodal Agency.	The Central Electricity Regulatory Commission (Ancillary Services) Regulations, 2022 provides as follows: Scheduling and Despatch of TRAS (1) Scheduling and despatch of TRAS shall be according to the provisions of the Grid Code. (2) Information in respect of the TRAS-Up and TRAS-Down cleared for the Day Ahead Ancillary Service Market and the Real Time Ancillary Service Market shall be published on the website of the Nodal Agency, and shall be simultaneously communicated to the concerned power exchanges for onward communication to the selected TRAS providers. (3) The schedule for TRAS shall become effective from the time block starting 15 minutes after issue of the despatch instruction by the Nodal Agency: Therefore, the Regulation envisages the intimation of TRAS schedule 15 minutes in advance. Further in order to provide the full response	Partial	It has been sometimes observed that the updating of schedules in WBES has an associated time-lag. Hence, in addition to WBES, a web-API has been made available to the power plants, which updates the net schedule of the power plants 17 minutes before the start of the delivery time block. This would resolve the preparation time issue to a major extent.

The information dissemination of final schedule and other timelines are part of Detailed procedure for information exchange and timelines in respect of Secondary and Tertiary reserves. |

		for ancillary services, it is essential that the final schedule is intimated well in advance. This shall help in taking the requisite steps well in advance to cater the ancillary services. However, it is observed that at times the final schedule is received only 1 minute before the start of new block which affects the performance of TRAS. IEGC 2023 envisages the following in this regard: 49 (1) (r) NLDC shall finalise schedules under RTM, SCED and Ancillary Services by 23.30 hrs. of 'D-1' day and RLDC shall publish the final schedules for dispatch by 23.35 hrs. of 'D-1'day. Accordingly, it is submitted that the Information of final schedule as per the provisions of IEGC may please be mentioned in procedure also.		
Clause 8.3	RPCs will publish weekly performance statement SRAS providers in Format SRAS-2.	Along with performance percentage value of SRAS for the day, detailed calculation of the performance using trend line and R^2 may be shared with all stakeholders. Detailed calculation data will help SRAS & TRAS providers to identify the deviations and take corrective actions to improve the performance. TRAS Provider performance Statement (Format TRAS-1) may also be published by RPCs along with	Yes (Already incorporated in clause 9.1; similar comment was received from SRPC)	The performance metric and the corresponding incentive of the SRAS providers is already being published through respective RPCs on a weekly basis as per AS Regulations, 2022 and detailed procedure for SRAS. For TRAS, the performance metric shall be shared with the respective RPCs on a weekly basis. The performance of Ancillary Service providers may be discussed in the RPC forums.

		weekly SRAS statement so that TRAS providers may take corrective actions if required.		
Clause 7.4.3	For evaluating performance, 10s SCADA data shall be converted to 15 minute average MW data. TRAS Output = (Actual MW - (RLDC Schedule-TRAS DeltaP) - AGC DeltaP - GOV). TRAS Input = TRAS DeltaP	As mentioned in above formula AGC DeltaP, which refers to AGC SP, is used for TRAS output calculation. Actual AGC output MW (i.e. 15 min average) rather than AGC DeltaP will be more appropriate term to be used for TRAS output calculation. Using AGC DeltaP for TRAS output calculation will have following impact. 1. Under performance of AGC will impact TRAS performance negatively. 2. Outperformance of AGC will impact TRAS performance positively. Consequently, performance of SRAS will influence the TRAS performance calculation	No	Impact of performance of a plant in SRAS on the performance of provider in TRAS has been analysed in detail and it has been found to be in the range of 1-2%.

| Clause 6.5 | When the power plant is in Remote, the Actual MW should follow AGC Set Point. Performance metric is measured by plotting the Output versus Input.

Output = $\Sigma ((Actual\ MWn - RULSPn - RGMOn) * CBn * LRn)$

Input = $\Sigma ((DeltaPn) * CBn * LRn)$ | In thermal power plant, effect of ULSP change takes on an average 2 minutes to reflect in generator output due to inherent boiler delay. This delay in output response will reflect in the SRAS performance calculation as well.
Current approach of measuring 5-minute average AGC input and output for performance evaluation will not present the true performance of the generator due inherent boiler delay of 2 minutes. The AGC input is directly giving to the CMC load setpoint, hence the same will be achieved further the performance of SRAS providers is already accounted through Deviation settlement mechanism. Hence, SRAS schedule may be considered as deemed delivered for performance measurement | No | 5-minute average MW of the SRAS Up/Down signals is being used for performance assessment. This inherently subsumes the time delays of boiler-turbine. Broad slabs have been provided by Hon'ble CERC for performance-based incentive calculation. The slabs mainly try to differentiate between conventional generators and fast responding inverter-based resources. Hence, all the generators between 75%-95% performance receive 40 paise/kWh as incentive. Additionally, there is only one performance percentage value for each SRAS Provider for the whole day. |