Frequency Response Characteristic Calculation for All India based on NLDC SCADA Data

EVENT:	On 03 March 2024 at 14:01hrs, 400 KV Kankani-Jaisalmer (RS) Ckt-2 trpped due to due to phase to phase fault . In the event, RE generation in Rajasthan complex was also affected. The generation loss of 2510 MW as per SCADA data has been considered for FRC computation.

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (14:01:16)	MW	-3317	-4108	-9301	303	15157
2	Actual Net Interchange after the Event (14:02:16)	MW	-2198	-4290	-9705	272	14467
3	Change in Net Interchange (2-1)	MW	1119	-182	-404	-31	-689
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	2510	0	0	0	0
5	Control Area Response (3 - 4)	MW	-1391	-182	-404	-31	-689
6	Frequency before the Event	HZ	50.30	50.30	50.30	50.30	50.30
7	Frequency after the Event	HZ	50.13	50.13	50.13	50.13	50.13
8	Change in Frequency (7 - 6)	HZ	-0.173	-0.173	-0.173	-0.173	-0.173
9	Frequency Response Characteristic (5 / 8)	MW/Hz	8038	1055	2334	178	3983
10	Net System Demand met before the Event	MW	42721	17772	55374	1774	59621
11	Internal Generation before the Event (10 - 1)	MW	46038	21879	64675	1471	44465
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	1709	711	2215	71	2385
13	Ideal generator response assuming 5% droop…….40% per Hz (40% of Row 11)	MW/Hz	18415	8752	25870	589	17786
14	Composite ideal response (12 + 13)	MW/Hz	20124	9463	28085	659	20171
15	Percentage ideal response	%	39.9%	11.1%	8.3%	27.0%	19.7%

(*) - Data may be constant/suspected during the event Note: +ve exchange=> import ; (-)ve exchange => export	# only interchange of 132kv Surjamani-comilla D/c.

Total Change in (MW)	2510
FRC for NEWS GRID (dp/df) MW/Hz	**14509**
Power Number (net change in MW/maximum change in frequency	**10329**