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

EVENT:	At 13:42 Hrs on Dated 09th-July-2022, Solar generation loss of around 3507 MW observed in Northern region at Rajasthan solar generation complex and same figure has been considered for FRC Calculation.						

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (13:42:24)	MW	10115	-2487	-4524	20	-1464
2	Actual Net interchange after the Event (13:43:44)	MW	12558	-2856	-5856	-60	-2436
3	Change in Net Interchange (2-1)	MW	2443	-369	-1332	-80.0	-972
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	3507	0	0	0	0
5	Control Area Response (3 - 4)	MW	-1064	-369	-1332	-80	-972
6	Frequency before the Event	HZ	50.09	50.09	50.09	50.09	50.09
7	Frequency after the Event	HZ	49.95	49.95	49.95	49.95	49.95
8	Change in Frequency (7 - 6)	HZ	-0.140	-0.140	-0.140	-0.140	-0.140
9	Frequency Response Characteristic (5 / 8)	MW/Hz	7603	2635	9514	571	6944
10	Net System Demand met before the Event	MW	65076	23284	45348	2415	38164
11	Internal Generation before the Event (10 - 1)	MW	54960	25771	49872	2395	39628
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	2603	931	1814	97	1527
13	Ideal generator response assuming 5% droop……….40% per Hz (40% of Row 11)	MW/Hz	21984	10308	19949	958	15851
14	Composite ideal response (12 + 13)	MW/Hz	24587	11240	21763	1054	17378
15	Percentage ideal response	%	30.9%	23.4%	43.7%	54.2%	40.0%

(*) - Data may be constant/suspected during the event
Note: +ve exchange=> import ; (-)ve exchange => export

Total Change in (MW)	3507
FRC for NEWS GRID (dp/df) MW/Hz	**25050**
Power Number (net change in MW/maximum change in frequency)	**8812**