

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

EVENT:	At 13:21 Hrs Dated 04th-Feb-2022,As reported multiple element tripping occurred in Rajasthan Solar complex of Northern Region at 765/400kV Fatehgarh2(PG) pooling station and led to solar generation loss of around 1882 MW .Same has been considered for FRC calculation.						
S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (13:21:30)	MW	5336	-9708	-2315	274	5981
2	Actual Net Interchange after the Event (13:22:50)	MW	6446	-9924	-3068	252.0	5380
3	Change in Net Interchange (2 - 1)	MW	1110	-216	-753	-22.5	-601
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	1882	0	0	0	0
5	Control Area Response (3 - 4)	MW	-772	-216	-753	-22	-601
6	Frequency before the Event	HZ	50.04	50.04	50.04	50.04	50.04
7	Frequency after the Event	HZ	49.92	49.92	49.92	49.92	49.92
8	Change in Frequency (7 - 6)	HZ	-0.120	-0.120	-0.120	-0.120	-0.120
9	Frequency Response Characteristic (5 / 8)	MW/Hz	6432	1797	6277	187	5012
10	Net System Demand met before the Event	MW	48775	14702	61193	1879	50268
11	Internal Generation before the Event (10 - 1)	MW	43439	24410	63508	1604	44287
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	1951	588	2448	75	2011
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	17376	9764	25403	642	17715
14	Composite ideal response (12 + 13)	MW/Hz	19327	10352	27851	717	19726
15	Percentage ideal response	%	33.3%	17.4%	22.5%	26.1%	25.4%

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

Total Change in (MW)	1882
<b>FRC for NEWS GRID (dp/df) MW/Hz</b>	<b>15683</b>
Power Number (net change in MW/maximum change in frequency )	11071