

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

EVENT:	At 12:31 Hrs on Dated 20th-May-2022, As reported Generation loss of around 3014 MW (Fatehgarh2 1578MW, Bhadla PG 1136 MW, Bhadla2 30 MW, Bikaner 270 MW) occurred due to multiple tripping in Rajasthan Solar Generation complex of Northern Region and same has been considered for FRC Calculation.						
S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (12:31:00)	MW	11152	-2561	-4896	-863	-3287
2	Actual Net Interchange after the Event (12:32:30)	MW	12837	-2752	-6256	-871	-3977
3	Change in Net Interchange (2-1)	MW	1685	-191	-1360	-8.0	-690
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	3014	0	0	0	0
5	Control Area Response (3 - 4)	MW	-1329	-191	-1360	-8	-690
6	Frequency before the Event	HZ	50.03	50.03	50.03	50.03	50.03
7	Frequency after the Event	HZ	49.91	49.91	49.91	49.91	49.91
8	Change in Frequency (7 - 6)	HZ	-0.127	-0.127	-0.127	-0.127	-0.127
9	Frequency Response Characteristic (5 / 8)	MW/Hz	10465	1504	10709	63	5433
10	Net System Demand met before the Event	MW	67224	21016	60342	1799	41866
11	Internal Generation before the Event (10 - 1)	MW	56072	23577	65238	2662	45153
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	2689	841	2414	72	1675
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	22429	9431	26095	1065	18061
14	Composite ideal response (12 + 13)	MW/Hz	25118	10272	28509	1137	19736
15	Percentage ideal response	%	41.7%	14.6%	37.6%	5.5%	27.5%

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

Total Change in (MW)	3014
FRC for NEWS GRID (dp/df) MW/Hz	23732
Power Number (net change in MW/maximum change in frequency)	9754