

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

EVENT:

On dated 26th of August-2021 at 11:13 Hrs, Solar generation loss of around 1700 MW has been reported in Rajasthan solar generation complex of Northern region at 765kV Bhadla(PG) & 400kV Fatehgarh(PG) S/s.

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (11:13:10)	MW	11384	-5642	-6516	-312	891
2	Actual Net Interchange after the Event (11:14:40)	MW	13052	-5943	-7276	-328.2	290
3	Change in Net Interchange (2 - 1)	MW	1668	-300	-761	-16.2	-601
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	1700	0	0	0	0
5	Control Area Response (3 - 4)	MW	-32	-300	-761	-16	-601
6	Frequency before the Event	HZ	49.89	49.89	49.89	49.89	49.89
7	Frequency after the Event	HZ	49.75	49.75	49.75	49.75	49.75
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	229	2145	5433	116	4293
10	Net System Demand met before the Event	MW	63212	18985	56064	2158	47089
11	Internal Generation before the Event (10 - 1)	MW	51828	24628	62580	2470	46198
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	2528	759	2243	86	1884
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	20731	9851	25032	988	18479
14	Composite ideal response (12 + 13)	MW/Hz	23260	10610	27275	1074	20363
15	Percentage ideal response	%	1.0%	20.2%	19.9%	10.8%	21.1%

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

Total Change in (MW)	1700
FRC for NEWS GRID (dp/df) MW/Hz	12143
Power Number (net change in MW/maximum change in frequency)	10968