

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

EVENT:

At 11:45 Hrs Dated 11th-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 2286 MW .Same has been considered for FRC calculation.

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (11:45:25)	MW	6695	-8269	-4557	68	5617
2	Actual Net Interchange after the Event (11:47:30)	MW	7635	-8518	-5105	23.0	5409
3	Change in Net Interchange (2 - 1)	MW	940	-249	-548	-45.0	-208
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	2286	0	0	0	0
5	Control Area Response (3 - 4)	MW	-1346	-249	-548	-45	-208
6	Frequency before the Event	HZ	50.00	50.00	50.00	50.00	50.00
7	Frequency after the Event	HZ	49.87	49.87	49.87	49.87	49.87
8	Change in Frequency (7 - 6)	HZ	-0.130	-0.130	-0.130	-0.130	-0.130
9	Frequency Response Characteristic (5 / 8)	MW/Hz	10354	1915	4215	346	1600
10	Net System Demand met before the Event	MW	51854	17659	62774	1950	52933
11	Internal Generation before the Event (10 - 1)	MW	45159	25928	67331	1882	47316
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	2074	706	2511	78	2117
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	18063	10371	26932	753	18926
14	Composite ideal response (12 + 13)	MW/Hz	20138	11078	29443	831	21044
15	Percentage ideal response	%	51.4%	17.3%	14.3%	41.7%	7.6%

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

Total Change in (MW)	2286
FRC for NEWS GRID (dp/df) MW/Hz	17585
Power Number (net change in MW/maximum change in frequency)	11430