

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

EVENT:

At 13:11 Hrs Dated 15th Nov 2021, Solar Generation loss of around 1400 MW reported at 400kV Bhadla(PG). As per SCADA data generation loss of around 1787 MW is observed and same has been considered for FRC calculation.

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (13:11:45)	MW	6974	-8359	363	-226	904
2	Actual Net Interchange after the Event (13:13:20)	MW	8646	-8767	-449	-240.2	466
3	Change in Net Interchange (2 - 1)	MW	1672	-407	-812	-14.6	-437
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	1787	0	0	0	0
5	Control Area Response (3 - 4)	MW	-115	-407	-812	-15	-437
6	Frequency before the Event	HZ	50.00	50.00	50.00	50.00	50.00
7	Frequency after the Event	HZ	49.91	49.91	49.91	49.91	49.91
8	Change in Frequency (7 - 6)	HZ	-0.090	-0.090	-0.090	-0.090	-0.090
9	Frequency Response Characteristic (5 / 8)	MW/Hz	1279	4527	9020	163	4861
10	Net System Demand met before the Event	MW	42532	15897	59217	1672	35804
11	Internal Generation before the Event (10 - 1)	MW	35558	24256	58854	1897	34901
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	1701	636	2369	67	1432
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	14223	9702	23542	759	13960
14	Composite ideal response (12 + 13)	MW/Hz	15924	10338	25910	826	15392
15	Percentage ideal response	%	8.0%	43.8%	34.8%	19.7%	31.6%

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

only interchange of 132kv Surjamani-comilla D/c.

Total Change in (MW)	1787
FRC for NEWS GRID (dp/df) MW/Hz	19856
Power Number (net change in MW/maximum change in frequency)	9405