

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

EVENT: On 16th March 2023, As reported At 09:16 hrs, Both running units of MB Power tripped due to loss of evacuation path and resulted in generation loss of around 1105 MW. As per NLDC SCADA MB Power generation prior to event was 1161 MW and same figure has been considered in FRC Calculation.

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (09:16:12)	MW	289	-8541	-6237	-1	13615
2	Actual Net Interchange after the Event (09:17:12)	MW	83	-8742	-5394	-2	13201
3	Change in Net Interchange (2-1)	MW	-206	-201	843	-0.7	-414
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	0	0	1161	0	0
5	Control Area Response (3 - 4)	MW	-206	-201	-318	-1	-414
6	Frequency before the Event	HZ	50.03	50.03	50.03	50.03	50.03
7	Frequency after the Event	HZ	50.00	50.00	50.00	50.00	50.00
8	Change in Frequency (7 - 6)	HZ	-0.033	-0.033	-0.033	-0.033	-0.033
9	Frequency Response Characteristic (5 / 8)	MW/Hz	6236	6088	9637	20	12557
10	Net System Demand met before the Event	MW	47636	20350	60902	1806	60878
11	Internal Generation before the Event (10 - 1)	MW	47347	28891	67138	1807	47263
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	1905	814	2436	72	2435
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	18939	11556	26855	723	18905
14	Composite ideal response (12 + 13)	MW/Hz	20844	12370	29291	795	21340
15	Percentage ideal response	%	29.9%	49.2%	32.9%	2.5%	58.8%

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

Total Change in (MW)	1161
FRC for NEWS GRID (dp/df) MW/Hz	35182
Power Number (net change in MW/maximum change in frequency)	11495

Source Wise Generation (MW)	GAS	HYDRO	NUCLEAR	Thermal	WIND	SOLAR
	3140	12626	5645	152094	1420	18684