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

EVENT:	As reported at 10:25 Hrs on 20th July 2021, FRC for the event of wind generation loss of 1550MW in Akal(Rajasthan) due to multiple element tripping at 220kV Akal(Raj).

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (10:24:50)	MW	9877	-2948	-7130	-327	340
2	Actual Net Interchange after the Event (10:26:)	MW	11074	-3218	-7742	-331.0	-99
3	Change in Net Interchange (2 - 1)	MW	1196	-269	-612	-4.0	-439
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	1550	0	0	0	0
5	Control Area Response (3 - 4)	MW	-354	-269	-612	-4	-439
6	Frequency before the Event	HZ	50.08	50.08	50.08	50.08	50.08
7	Frequency after the Event	HZ	50.03	50.03	50.03	50.03	50.03
8	Change in Frequency (7 - 6)	HZ	-0.050	-0.050	-0.050	-0.050	-0.050
9	Frequency Response Characteristic (5 / 8)	MW/Hz	7073	5384	12250	79	8785
10	Net System Demand met before the Event	MW	54156	19185	49094	2250	41581
11	Internal Generation before the Event (10 - 1)	MW	44279	22133	56224	2577	41240
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	2166	767	1964	90	1663
13	Ideal generator response assuming 5% droop…….40% per Hz (40% of Row 11)	MW/Hz	17711	8853	22490	1031	16496
14	Composite ideal response (12 + 13)	MW/Hz	19878	9621	24453	1121	18159
15	Percentage ideal response	%	35.6%	56.0%	50.1%	7.1%	48.4%

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

Total Change in (MW)	1550
FRC for NEWS GRID (dp/df) MW/Hz	**31000**
Power Number (net change in MW/maximum change in frequency)	**10333**