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

| EVENT: | As reported at 16:02 Hrs on 11th June 2021, 220 kV Akal-Bhu -1&2 tripped due to snapping of B-phase jumper which resulted into 1200MW wind generation loss and 300MW solar generation loss in Northern region. At the same time, 400kV Barmer-Jaisalmer-1&2 also tripped due to over voltage after tripping of wind and solar generation.It appears that two events happen in quick successsion, total generation loss of around 1500 MW as per reported region has been considered for FRC calculation. | | | | | | |

S No	Particulars	Dimension	NR	ER	WR	NER	SR
1	Actual Net Interchange before the Event (16:02:30)	MW	11313	-5678	-8306	21.2	1850
2	Actual Net Interchange after the Event (16:03:50)	MW	12241	-6128	-9200	-21.5	1469
3	Change in Net Interchange (2 - 1)	MW	928	-451	-895	-42.7	-381
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	1500	0	0	0	0
5	Control Area Response (3 - 4)	MW	-572	-451	-895	-43	-381
6	Frequency before the Event	HZ	50.09	50.09	50.09	50.09	50.09
7	Frequency after the Event	HZ	50.00	50.00	50.00	50.00	50.00
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	6353	5007	9939	475	4233
10	Net System Demand met before the Event	MW	57737	18219	47210	2249	38974
11	Internal Generation before the Event (10 - 1)	MW	46424	23897	55516	2228	37124
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	2309	729	1888	90	1559
13	Ideal generator response assuming 5% droop……….40% per Hz (40% of Row 11)	MW/Hz	18570	9559	22206	891	14849
14	Composite ideal response (12 + 13)	MW/Hz	20879	10287	24095	981	16408
15	Percentage ideal response	%	30.4%	48.7%	41.2%	48.4%	25.8%

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

Total Change in (MW)	1500
FRC for NEWS GRID (dp/df) MW/Hz	16667
Power Number (net change in MW/maximum change in frequency)	8824