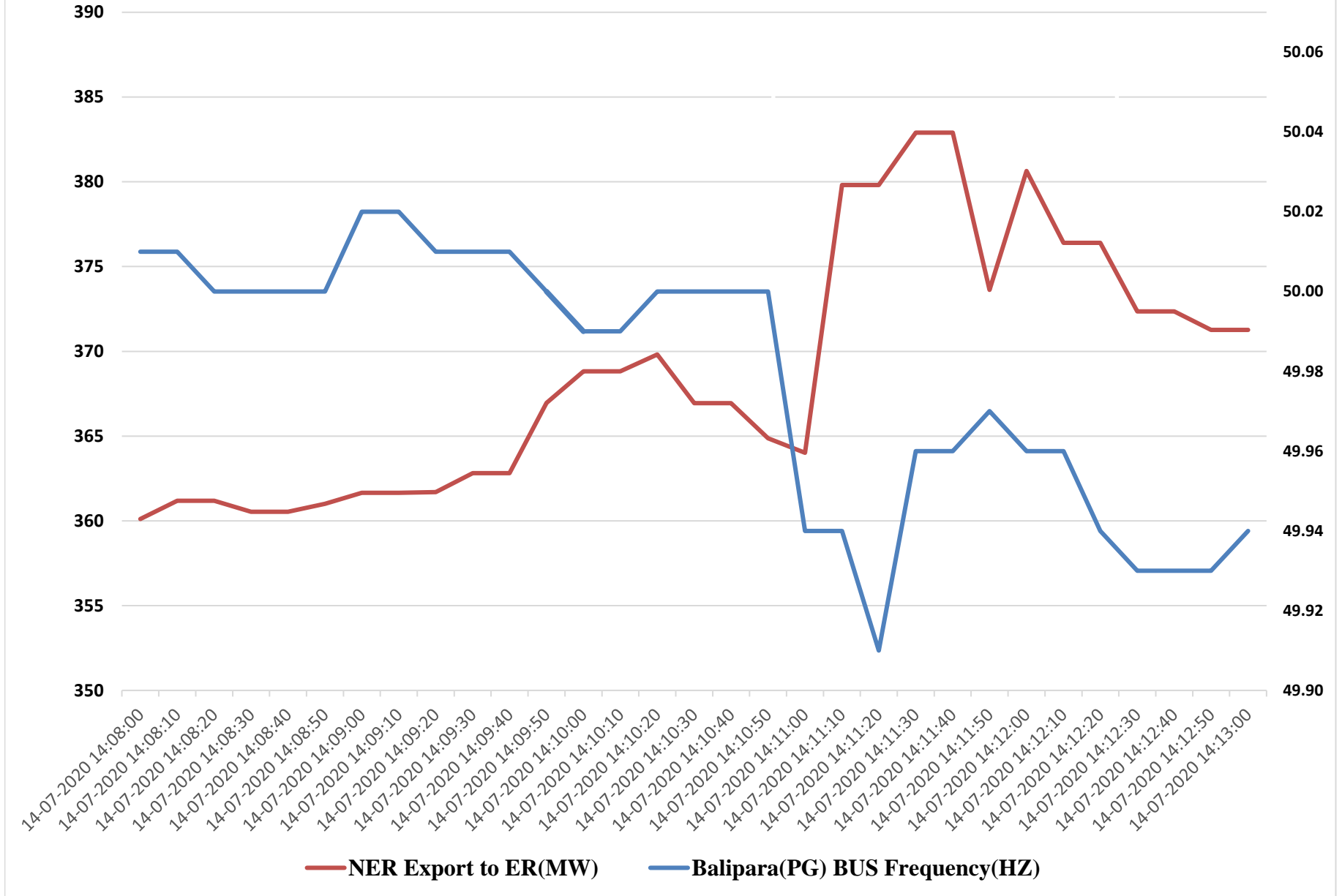


NER Export v/s Frequency



Frequency Response Characteristic in North-Eastern Region

Event	On 14th July 2020, at 14:11 Hrs Units 1,2,3 and 4 tripped at Koyna Hydro power plant due to DC supply fail resulting Generation loss of around 975MW										
Date and Time of Event	14.07.2020, 14:11:00 Hrs										
NER ISGS GENERATION											
SI No.	Particulars	Dimension	Palatana	Khandong + stg II	Kopili	Doyang	RHEP	Loktak	BgTPP	Kameng	Pare
1	Installed Capacity	MW	2 x 363.3	2 x 25 +1 x 25	4 x 50	3 x 25	3 x 135	3 x 35	3 x 250	2 x 150	2 x 55
2	No of Units on Bar	MW	2	0	0	3	3	3	2	2	2
3	Installed Capacity (MCR) of Units on Bar	MW	726.6	0.0	0.0	75.0	405.0	105.0	500.0	300.0	110.0
4	Declared capacity (DC)	MW	648.0	0	0	47.0	410.0	105	477	300	118
5	105 % of MCR	MW	762.9	0.0	0.0	78.8	425.3	110.3	525.0	315.0	115.5
6	Whether on ramping (Yes/No)		No	NA	NA	No	No	No	No	No	No
7	Margin Available	MW	115.0	0.0	0.0	31.9	27.3	5.4	277.2	6.3	-1.7
8	Actual Net Interchange before the Event (14:10:50)	MW	647.9	0.00	0.0	46.9	398.0	104.9	247.8	308.7	117.2
9	Actual Net Interchange after the Event (14:11:40)	MW	646.7	0.00	0.0	46.9	397.3	105.0	249.1	310.7	116.9
10	Change in Net Interchange (9 - 8)	MW	-1.2	0.0	0.0	0.0	-0.7	0.1	1.3	2.0	-0.4
11	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
12	Control Area Response 11-10)	MW	1.2	0.0	0.0	0.0	0.7	-0.1	-1.3	-2.0	0.4
13	Frequency before the Event	Hz	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
14	Frequency after the Event	Hz	49.96	49.96	49.96	49.96	49.96	49.96	49.96	49.96	49.96
15	Change in Frequency (14-13)	Hz	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
16	Frequency Response Characteristic (12 / 15)	MW/Hz	-30.0	0.0	0.0	0.5	-18.3	1.7	32.8	50.5	-9.0
17	Net System Demand met before the Event	MW	0	0.0	0	0	0	0	0	0	0
18	Internal Generation before the Event (8)	MW	648	0.00	0	47	398	105	247.8	308.7	117
19	Ideal load response assuming 4% per Hz (0.04*Row 17)	MW/Hz	0	0.0	0	0	0	0	0	0	0
20	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 18)	MW/Hz	259.2	0.0	0.0	18.7	159.2	42.0	99.1	123.5	46.9
21	Composite ideal response (19 + 20)	MW/Hz	259.2	0.0	0.0	18.7	159.2	42.0	99.1	123.5	46.9
22	Percentage ideal response (16/21)	%	-11.58%			2.67%	-11.46%	4.17%	33.04%	40.90%	-19.19%

NER ISGS AGBPP and AGTCCPP are not mandated for FGMO/RGMO as unit wise IC is less than 50 MW.

Frequency Response Characteristic in North-Eastern Region

Event	On 14th July 2020, at 14:11 Hrs Units 1,2,3 and 4 tripped at Koyna Hydro power plant due to DC supply fail resulting Generation loss of around 975MW
Date and Time of Event	14.07.2020, 14:11:00 Hrs

Serial No.	Particulars	Dimension	AP	Assam	Meghalaya	Manipur	Mizoram	Nagaland	Tripura*	NER*
1	Actual Net Interchange before the Event (14:10:50)	MW	73.99	1143.05	-66.85	74.52	40.48	85.10	217.03	-364.87
2	Actual Net Interchange after the Event (14:11:40)	MW	72.54	1145.83	-65.14	74.83	40.23	84.80	216.29	-382.90
3	Change in Net Interchange (2 - 1)	MW	-1.4	2.8	1.7	0.3	-0.3	-0.3	-0.7	-18.0
4	Generation Loss (+) / Load Throw off (-) during the Event	MW	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Control Area Response (3-4)	MW	-1.4	2.8	1.7	0.3	-0.3	-0.3	-0.7	-18.0
6	Frequency before the Event	HZ	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00
7	Frequency after the Event	HZ	49.96	49.96	49.96	49.96	49.96	49.96	49.96	49.96
8	Change in Frequency (7-6)	HZ	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04	-0.04
9	Frequency Response Characteristic (5 / 8)	MW/HZ	36	-70	-43	-8	6.3	7.5	19	451
10	Net System Demand met before the Event	MW	73.99	1198.05	186.96	74.52	56.48	93.10	324.07	1868.43
11	Internal Generation before the Event (10 - 1)	MW	0.0	55.0	253.8	0.0	16.0	8.0	107.0	2233.3
12	Ideal load response assuming 4% per Hz (0.04*Row 10)	MW/Hz	3.0	47.9	7.5	3.0	2.3	3.7	13.0	74.7
13	Ideal generator response assuming 5% droop.....40% per Hz (40% of Row 11)	MW/Hz	0	22.0	101.5	0.0	6	3	42.8	893.3
14	Composite ideal response (12 + 13)	MW/Hz	3	70	109	3	9	7	56	968
15	Percentage ideal response (9/14)	%	1224.83%	-99.4%	-39.2%	-260.0%	72.2%	108.3%	33.2%	46.56%

Note: +ve exchange=> import ; (-)ve exchange => export

* Tripura Demand Met also includes Bangladesh.

*NER Demand Met excludes Bangladesh