

Frequency Response Characteristic and Performance Computation in NorthEastern Region (Based on SCADA data)

As reported, at 17:59 hrs on 28th May 2024, due to failure of 125 MVA Transformer -2 Bay Bus-1 isolator chamber (GIS), Bus Bar Protection operated at 220kV Gorai EHV station. It led to tripping of 220kV Gorai – Versova Line, 220kV Gorai – Ghodbandar Line, 220kV Gorai – MSETCL Borivali Line 1, 220kV Gorai – MSETCL Borivali Line 2, 125 MVA Transformer-1 and 125 MVA Transformer-2. Maharashtra SLDC have mentioned a load drop of 1045 MW for Mumbai area only. Further, the load drop calculated based on the drop in ICT loadings of nearby 400kV substations in Maharashtra is 1587 MW. Therefore load loss of 1587MW has been considered for FRC computation.

S No	Particulars	Dimension	Assam GBPS	Agartala GBPS	Bongaigaon TPP	Palatana	Doyang HEP	Kameng HEP	Khandong HEP	Khandong Stg-2	Kopili HEP	Loktak HEP	Panyor HEP	Pare HEP	Arunachal Pradesh	Assam	Manipur	Meghalaya	Mizoram	Nagaland	Tripura*	NER Region*
1	Actual Net Interchange before the Event (17:59:38)	MW	-164	-47	-562	-440	-35	-458	0	-24	-200	-104	-414	-117	82	713	89	11	38	83	101	-1378
2	Actual Net Interchange after the Event (18:00:14)	MW	-165	-48	-553	-420	-35	-460	0	-24	-201	-101	-414	-117	83	712	90	8	39	84	103	-1343
3	Change in Net Interchange (2 - 1)	MW	-0.8	-0.9	8.7	19.9	0.0	-1.6	0.0	0.6	-1.0	2.9	-0.5	-0.2	0.5	-0.4	1.3	-2.5	0.6	0.9	1.5	34.8
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	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
5	Control Area Response (3 - 4)	MW	-0.8	-0.9	8.7	19.9	0.0	-1.6	0.0	0.6	-1.0	2.9	-0.5	-0.2	0.5	-0.4	1.3	-2.5	0.6	0.9	1.5	34.8
6	Frequency before the Event	HZ	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091	50.091
7	Frequency after the Event	HZ	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140	50.140
8	Change in Frequency (7 - 6)	HZ	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
9	Frequency Response Characteristic (5 / 8)	MW/Hz	-16	-17	177	406	1	-33	0	12	-20	60	-11	-3	10	-8	26	-50	11	17	30	710
10	Frequency Response Obligation (FRO) of control area	MW/Hz	0	0	22	22	2	13	0	1	4	2	11	4	5	70	0	14	4	5	19	197
11	Frequency Response Performance (FRP) (9/10)	NA	NA	7.90	18.11	0.42	-2.54	No Gen	11.60	-5.32	34.62	-1.03	0.93	2.11	0.11	NA	NA	-3.58	3.14	3.68	1.54	3.61

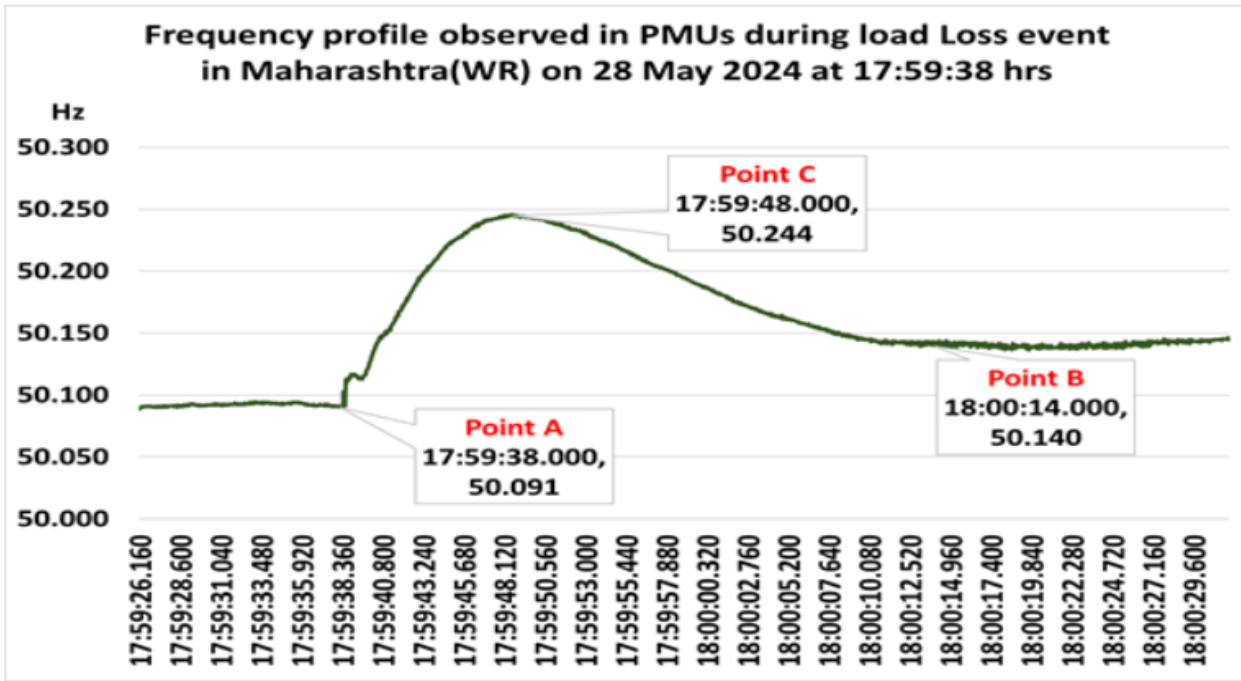


Figure 1: Load loss event in Maharashtra, western region at 17:59:38 hrs of 28th May 2024