Details of Grid Events during the Month of December 2020 in Northern Region

Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid*		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
	(GI 1or 2/ GD-1 to GD-5)					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GI-2	HARYANA	03-12-2020 16:03	03-12-2020 22:19	6:16	0	0	0.000	0.000	28329	39096	As reported, 800 KV HVDC Kurukshetra(PG) Pole-2 tripped due to HVHS reclose protection operated at Champa end that generated category B protection. At the same time, Pole-4 also tripped due to tripping of Pole-2. As per PMU, no fault is observed. In antecedent condition, 800 KV HVDC Kurukshetra(PG) Pole-2 & 4 carrying 407MW & 414MW respectively.	1) 800 KV HVDC Kurukshetra(PG) Pole-2 2) 800 KV HVDC Kurukshetra(PG) Pole-4
2	GI-2	UTTRAKHAND	05-12-2020 14:59	05-12-2020 16:01	1:02	0	0	0.000	0.000	28654	40424	As reported, 220 KV Dhauliganga(NH)-Bareilly(UP) (PG) Ckt-1 & 220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1 tripped due to mal operation of control system and also master trip relay 86C&D operated. As per PMU, no fault is observed. In antecedent condition, 220 KV Dhauliganga(NH)-Bareilly(UP) (PG) Ckt-1 & 220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1 carrying 19MW each.	1) 220 KV Dhauliganga(NH)-Bareilly(UP) (PG) Ckt-1 2)220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1
3	GD-1	HARYANA	08-12-2020 02:24	08-12-2020 04:05	1:41	0	200	0.000	0.655	22064	30512	As reported, 400 KV Jhajjar(APCL)-Daulatabad(HV) (HV) Ckt-1 & Ckt-2 tripped on B phase to earth fault. Fault distance was 75.8km from Jhajjar(APCL) end and fault current was 3.66kA. At the same time, 400 KV Dhanoda-Daulatabad (HV) Ckt-1 & Ckt-2, 400/220 kV 315 MVA ICT 1,2,3 & 4 at Daulatabad(HV) also tripped due to AC supply failure at Daultabad(HV). As per PMU, B-N phase to earth fault is observed with delayed clearance of 1240ms. As per SCADA, load loss of approx. 200MW is observed. In antecedent condition, 400 KV Jhajjar(APCL)-Daulatabad(HV) (HV) Ckt-1 & Ckt-2, 400 KV Dhanoda-Daulatabad (HV) Ckt-1 & Ckt-2, 400/220 kV 315 MVA ICT 1,2,3 & 4 at Daulatabad(HV) carrying 127MW, 127MW, 47MW, 45MW, 39MW, 33MW, 39MW & 38MW respectively.	1) 400 KV Jhajjar(APCL)-Daulatabad(HV) (HV) Ckt-2 2) 400 KV Dhanoda-Daulatabad (HV) Ckt-2 3) 400 KV Jhajjar(APCL)-Daulatabad(HV) (HV) Ckt-1 4) 400/220 kV 315 MVA ICT 2 at Daulatabad(HV) 5) 400 KV Dhanoda-Daulatabad (HV) Ckt-1 6) 400/220 kV 315 MVA ICT 4 at Daulatabad(HV) 7) 400/220 kV 315 MVA ICT 3 at Daulatabad(HV) 8) 400/220 kV 315 MVA ICT 1 at Daulatabad(HV)
4	GI-2	HARYANA	08-12-2020 05:38	08-12-2020 06:59	1:21	0	0	0.000	0.000	26524	35546	As reported, 400/220 kV 450 MVA ICT 1 at Panipat(BB), 220KV Panipat-Dhulkote (BB) Ckt-1, 220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-1 & Ckt-3 tripped due to Bus-1 Bus-bar protection operated at Panipat(BBMB). As per PMU, no fault is observed. In antecedent condition, 400/220 kV 450 MVA ICT 1 at Panipat(BB), 220KV Panipat-Dhulkote (BB) Ckt-1, 220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-1 & Ckt-3 carrying 157MW, 31MW, 1MW & 0MW respectively	1) 400/220 kV 450 MVA ICT 1 at Panipat(BB) 2) 220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-1 3) 220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-3 4) 220KV Panipat-Dhulkote (BB) Ckt-1
5	GI-2	HARYANA	13-12-2020 14:22	13-12-2020 15:21	0:59	0	0	0.000	0.000	27861	38621	As reported, 400 KV Dadri(NT)-Panipat(BB) (PG) Ckt-1 tripped on Y-N phase to earth fault, fault distance = 100.1km from Dadri end & fault current= 4.248kA. Ckt auto reclosed successful from Panipat BBMB end. At the same time, 400/220 kV 500 MVA ICT 2 at Panipat(BB) also tripped due to Differential Protection relay operation. As per PMU, R-phase to earth fault is observed. RYB phase sequence are named as YRB at BBMB. Fault occurred in Tie bay R- phase CT, Line & ICT both are tripped at same time as both are in same dia. In antecedent condition, 400 KV Dadri(NT)-Panipat(BB) (PG) Ckt-1 & 400/220 kV 500 MVA ICT 2 at Panipat(BB) carrying 213MW & 175MW respectively.	1) 400 KV Dadri(NT)-Panipat(BB) (PG) Ckt-1 2) 400/220 kV 500 MVA ICT 2 at Panipat(BB)
6	GD-1	RAJASTHAN	17-12-2020 08:50	17-12-2020 09:15	0:25	0	1400	0.000	2.884	33307	48546	As reported, 400/220kV 315 MVA ICT 1&2 at Jodhpur(RS) & 400/220kV 500 MVA ICT-2 at Kankani(RS) tripped during opening operation of 220 kV Main I Bus–Secionalizer between 220 kV & 400kV GSS Bhadla to avoid Overloading at 220 KV Bhadla- Baap & 220kV Bhadla – Badisid line. As per PMU, no fault is observed. As per SCADA, load loss of around 1400MW is observed. In antecedent condition, 400/220kV 315 MVA ICT 1&2 at Jodhpur(RS) & 400/220kV 500 MVA ICT-2 at Kankani(RS) carrying 225MW, 212MW & 616MW respectively. ICT 2&3 at Ramgarh(RS) was in ideally charged condition before the tripping.	1) 400/220 kV 500 MVA ICT 2 at Kankani(RS) 2) 400/220 kV 315 MVA ICT 1 at Jodhpur(RS) 3) 400/220 kV 315 MVA ICT 2 at Jodhpur(RS), 4) 400/220 kV 500 MVA ICT 2 at Ramgarh(RS) 5) 400/220 kV 500 MVA ICT 3 at Ramgarh(RS)
7	GD-1	HARYANA	18-12-2020 16:40	18-12-2020 17:10	0:30	0	100	0.000	0.233	31872	42841	As reported, 220 KV Ballabhgarh(BB)-Badarpur(NT) (BB) Ckt-1 & Ckt 2, 220 KV Ballabhgarh-Samaypur (BB) Ckt-1, Ckt-2 & Ckt-3, 220 KV Ballabhgarh-Charkhi Dadri (BB) Ckt-1, 220/66 kV 100MVA ICT 1, ICT 2 & ICT 3 at Ballabhgarh(BB) tripped due to Bus Bar protection operation. As per PMU, R-N phase to earth fault is observed. All the lines were connected to Bus 1 and only ICT-3 was connected to Bus 2. CB of 220kV Ballabhgarh-Samaypur Ckt-1 didn't open on R-N phase to earth fault and Bus Bar protection operated. As per SCADA, load loss of approx 100MW is observed. In antecedent condition, 220 KV Ballabhgarh(BB)-Badarpur(NT) (BB) Ckt-1 & Ckt 2, 220 KV Ballabhgarh-Samaypur (BB) Ckt-1, Ckt-2 & Ckt-3, 220 KV Ballabhgarh-Charkhi Dadri (BB) Ckt-1, 220/66 kV 100MVA ICT 1, ICT 2 & ICT 3 carrying 15MW, 14MW, 127MW, 117MW, 80MW, 66MW, 76MW, 79MW & 79MW respectively.ly.	1) 220 KV Ballabhgarh-Samaypur (BB) Ckt-2 2) 220 KV Ballabhgarh-Samaypur (BB) Ckt-3 3) 220 KV Ballabhgarh-Charkhi Dadri (BB) Ckt-1 4) 220 KV Ballabhgarh(BB)-Badarpur(NT) (BB) Ckt-2 5) 220 KV Ballabhgarh(BB)-Badarpur(NT) (BB) Ckt-1 6) 220 KV Ballabhgarh-Samaypur (BB) Ckt-1 7) 220/66 kV 100MVA ICT 1 at Ballabgarh(BB) 8) 220/66 kV 100MVA ICT 2 at Ballabgarh(BB) 9) 220/66 kV 100MVA ICT 3 at Ballabgarh(BB)
8	GI-2	NEW DELHI	22-12-2020 14:46	22-12-2020 16:09	1:23	0	0	0.000	0.000	30870	43837	As reported, 400 KV Bawana-Mundka (DV) Ckt-2 and 400/220 kV 315 MVA ICT 2 at Bawana(DV) tripped on Bus bar protection operation on 400kV Bus 1. Bus bar protection operated because Y-ph CT of 400kV Bay (400kV Bus-1) of 400kV Bawana-Mundka (DV) Ckt-2 blasted. As per PMU, Y-N phase to earth fault is observed. In antecedent condition, 400 KV Bawana-Mundka (DV) Ckt-2 and 400/220 kV 315 MVA ICT 2 at Bawana(DV) carrying 385MW & 104MW respectively.	1) 400 KV Bawana-Mundka (DV) Ckt-2 2) 400/220 kV 315 MVA ICT 2 at Bawana(DV)

Details of Grid Events during the Month of December 2020 in Northern Region

Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid*		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
	(GI 1or 2/ GD-1 to GD-5)					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
9	GD-1	UTTAR PRADESH	22-12-2020 16:20	22-12-2020 17:01	0:41	0	100	0.000	0.234	31443	42803	As reported, 400/220 kV 500 MVA ICT 1, ICT 2 & ICT 3 at Gorakhpur(UP), 220kV Gorakhpur-Gorakhpur_2 (UP)Ckt-1 & Ckt-2, 220kV Gorakhpur-Gorakhpur_New (UP)Ckt-1 & Ckt-2, 220kV Gorakhpur-HATA(UP)Ckt-1 & Ckt-2 and 220kV Gorakhpur-Deoria(UP)Ckt-1 all tripped on Bus bar protection operation due to damage of R-ph disc insulator of 220kV Bus 1. Bus 1 & Bus 2 both tripped because bus coupler was not in service and both bus were in tied condition. As per PMU, R-N phase to earth fault is observed. As per SCADA, load loss of approx. 100MW is observed. In antecedent condition, 400/220 kV 500 MVA ICT 1, ICT 2 & ICT 3 at Gorakhpur(UP), 220kV Gorakhpur-Gorakhpur_2 (UP)Ckt-1 & Ckt-2, 220kV Gorakhpur-Gorakhpur_New (UP)Ckt-1 & Ckt-2, 220kV Gorakhpur-HATA(UP)Ckt-1 & Ckt-2 and 220kV Gorakhpur-Deoria(UP)Ckt-1 carrying 58MW, 36MW, 25MW, 6MW, 7MW, 30MW, 32MW, 11MW, 10MW & 25MW respectively.	1) 400/220 kV 240 MVA ICT 3 at Gorakhpur(UP) 2) 400/220 kV 500 MVA ICT 1 at Gorakhpur(UP) 3) 400/220 kV 315 MVA ICT 2 at Gorakhpur(UP) 4) 220kV Gorakhpur-Gorakhpur_2 (UP)Ckt-1 5) 220kV Gorakhpur-Gorakhpur_2 (UP)Ckt-2 6) 220kV Gorakhpur-Gorakhpur_New (UP)Ckt-2 7) 220kV Gorakhpur-Deoria(UP)Ckt-1 8) 220kV Gorakhpur-HATA(UP)Ckt-2 9) 220kV Gorakhpur-HATA(UP)Ckt-1
10	GI-2	UTTRAKHAND	23-12-2020 01:26	23-12-2020 02:13	0:47	0	0	0.000	0.000	25034	33150	As reported, 220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1 tripped on DT received at Pithoragarh end. At the same time, 220/132 kV 100 MVA ICT 1 at Pithoragarh(PG) also tripped on high voltage. 220 KV Dhauliganga(NH)-Bareilly(UP) (UNDEF) Ckt-1 also tripped at same time. As per PMU, B-N phase to earth fault is observed. In antecedent condition, 220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1, 220/132 kV 100 MVA ICT 1 at Pithoragarh(PG) & 220 KV Dhauliganga(NH)-Bareilly(UP) (UNDEF) Ckt-1 carrying 12MW, 17MW & 12MW respectively.	1) 220 KV Dhauliganga(NH)-Pithoragarh(PG) (PG) Ckt-1 2) 220/132 kV 100 MVA ICT 1 at Pithoragarh(PG) 3) 220 KV Dhauliganga(NH)-Bareilly(UP) (UNDEF) Ckt-1
11	GD-1	RAJASTHAN	24-12-2020 23:23	25-12-2020 00:01	0:38	650	160	2.334	0.427	27846	37436	As reported, 220 kV Amarsagar-FLODI1 (RS) Ckt-1 tripped because R-Phase Jumper of 220 kV Amarsagar FLODI-1 snapped in switchyard at Amarsagar. At the same time, 220 kV Amarsagar-Akal (RS) Ckt-1, 220 kV Amarsagar-Dechu (RS) Ckt-1, 220 kV Amarsagar-Mada (RS) Ckt-1, 220 kV Amarsagar-Ramgarh (RS) Ckt-1, 220 kV Amarsagar-RGTPP (RS) Ckt-1, 220/132 kV 100 MVA ICT-1 & ICT-2 at Amarsagar(RS) also tripped. Fault distance was 172.4km from FLODI end. As per PMU, R-N phase to earth fault is observed. As per SCADA, load loss of approx. 160MW & wind generation loss of approx. 650MW is observed. In antecedent condition, 220 kV Amarsagar-FLODI1 (RS) Ckt-1, 220 kV Amarsagar-Akal (RS) Ckt-1, 220 kV Amarsagar-Mada (RS) Ckt-1, 220/132 kV 100 MVA ICT-1, ICT-2 & ICT-3 at Amarsagar(RS) carrying 153MW, 11MW, 14MW, 8MW, 11MW & 6MW respectively.	1) 220 kV Amarsagar-Akal (RS) Ckt-1 2) 220 kV Amarsagar-Dechu (RS) Ckt-1 3) 220 kV Amarsagar-FLODI1 (RS) Ckt-1 4) 220 kV Amarsagar-Mada (RS) Ckt-1 5) 220 kV Amarsagar-Ramgarh (RS) Ckt-1 6) 220 kV Amarsagar-RGTPP (RS) Ckt-1 7) 220/132 kV 100 MVA ICT-1 at Amarsagar(RS) 8) 220/132 kV 160 MVA ICT-2 at Amarsagar(RS)
12	GI-2	UTTAR PRADESH	28-12-2020 15:29	28-12-2020 17:43	2:14	0	0	0.000	0.000	31889	42381	As reported, 400 KV Gr.Noida_2(UPC)-Noida Sec 148 (UP) Ckt-1 & Ckt-2 and 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-1 & Ckt-2 all tripped due to Bus Bar protection operation at 400 KV Noida Sec 148. As per PMU, no fault is observed. There was a problem of DC Source-1 in the substation, which initiated the Bus bar protection. And due to DC supply failure of bus coupler bay it extended to both the bus.	1) 400 KV Gr.Noida_2(UPC)-Noida Sec 148 (UP) Ckt-1 2) 400 KV Gr.Noida_2(UPC)-Noida Sec 148 (UP) Ckt-2 3) 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-1 4) 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2
13	GD-1	PUNJAB	28-12-2020 23:38	29-12-2020 02:56	3:18	130	125	0.494	0.345	26312	36259	As reported, 220 KV Ganguwal-Dhulkote (BB) Ckt-1 & Ckt-2, 220 KV Dehar-Ganguwal (BB) Ckt-1 & Ckt-2, 220 KV Bhakra_R-Ganguwal (BB) Ckt-2, 220 KV Ganguwal(BB)-Mohali(PS) (PSTCL) Ckt-2, 20 KV Ganguwal(BB)-Bhari(PS) (BB) Ckt-1, 220 KV Ganguwal(BB)-Majra(PS) (PS) Ckt-1, 220 KV Ganguwal(BB) Gobindgarh(PS) (BB) Ckt-2, 220 KV Ganguwal-Jagadhari (BB) Ckt-1, 220 KV Ganguwal-Jamalpur (BB) Ckt-2, 220 KV Bhakra_L-Ganguwal (BB) Ckt-2, 220/132kV ICT 1&2 at Ganguwal(BB) and Bhakra Hydro Unit-5 all tripped due to damage of Y-ph Bus post insulator at Ganguwal(BB). As per PMU, Y-N fault is observed. As per SCADA, load loss of 130MW and generation loss of 125MW is observed. From Ganguwal end lines tripped in zone-4. In antecedent condition, 90MVA 220/132kV ICT 1&2 at Ganguwal(BB) and Bhakra Hydro Unit-5 carrying 30MW, 31MW & 125MW respectively.	1) 220 KV Bhakra_R-Ganguwal (BB) Ckt-2 2) 220 KV Ganguwal(BB)-Mohali(PS) (PSTCL) Ckt-2 3) 220 KV Dehar-Ganguwal (BB) Ckt-1 4) 220 KV Ganguwal-Dhulkote (BB) Ckt-1 5) 220 KV Ganguwal(BB)-Bhari(PS) (BB) Ckt-1 6) 220 KV Ganguwal(BB)-Gobindgarh(PS) (BB) Ckt-2 7) 220 KV Ganguwal(BB)-Majra(PS) (PS) Ckt-1 8) 220 KV Ganguwal-Jagadhari (BB) Ckt-1 9) 220 KV Ganguwal-Dhulkote (BB) Ckt-2 10) 220 KV Dehar-Ganguwal (BB) Ckt-2 11 220 KV Ganguwal-Jamalpur (BB) Ckt-2 12) 220 KV Bhakra_L-Ganguwal (BB) Ckt-2
14	GI-2	HARYANA	31-12-2020 06:32	31-12-2020 09:56	3:24	0	0	0.000	0.000	31873	40490	As reported, 220KV Bus 1, Bus 3 & Bus 4 at Samaypur(BB), 220 KV Ballabhgarh-Samaypur (BB) Ckt-1 & Ckt-3, 220 KV Samaypur(BB)-Badshahpur(HV) (HVPNL) Ckt-1 & Ckt-2, 220 kV Samaypur(BBMB)-Palli ckt-1 & Ckt-2, 220 KV Faridabad(NT)-Samaypur(BB) (PG) Ckt-1 and 400/220 kV 500 MVA ICT 1, ICT 2 & ICT3 at Ballabhgarh(PG) all tripped due to Bus Bar protection operation. Bus bar protection operated due to snapping of Yellow phase jumper of 220kV Samaypur-Palwal Ckt-2 which was connected to Bus 3. As per PMU, Y-N phase to earth fault is observed with delayed clearance of 560ms. Bus 1 & Bus 4 also tripped with the Bus 3. In antecedent condition, 400/220 kV 500 MVA ICT 1, ICT 2 & ICT3 at Ballabhgarh(PG) carrying approx 132MW each.	1) 220KV Bus 4 at Samaypur(BB) 2) 220 KV Ballabhgarh-Samaypur (BB) Ckt-3 3) 220 KV Samaypur(BB)-Badshahpur(HV) (HVPNL) Ckt-2 4) 220KV Bus 3 at Samaypur(BB) 5) 220 KV Samaypur(BB)-Badshahpur(HV) (HVPNL) Ckt-1 6) 220 KV Faridabad(NT)-Samaypur(BB) (PG) Ckt-1 7) 400/220 kV 500 MVA ICT 3 at Ballabhgarh(PG) 8) 400/220 kV 500 MVA ICT 2 at Ballabhgarh(PG) 9) 220 KV Ballabhgarh-Samaypur (BB) Ckt-1 10) 400/220 kV 500 MVA ICT 1 at Ballabhgarh(PG) 11) 220 kV Samaypur(BBMB)-Palli ckt-1 12) 220 kV Samaypur(BBMB)-Palli ckt-2 13) 220KV Bus 1 at Samaypur(BB)

Details of Grid Events during the Month of December 2020 in Western Region

Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid*		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
	(GI 1or 2/ GD-1 to GD-5)					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GI-2	WR	03-Dec-20 10:27	03-Dec-20 11:30	1:03	572	-	0.83%	-	68839	58347	At 10:27 hrs of 03rd Dec 2020 at REGL (Raigarh Energy Generation limited) S/S, Unit-1 (600 MW), 400 kV Bus-1 and Station Transformer (ICT-1) tripped due to operation of REF protection of UT-B (Unit Transformer-B) on fault in unit auxillary system.	Tripping of 1. REGL Unit-1(600MW) 2.REGL UT-B 3.400 kV REGL BUS 1
2	GD-1	WR	21-Dec-20 13:15	21-Dec-20 18:26	5:11	-	448	-	0.80%	65853	55684	At 13:10 hrs of 21st Dec 2020, 220kV Kala- New Karadpada -2 tripped on R-Y fault. At 13:15 hrs, 220kV Kala- New Karadpada -1 tripped on B phase fault. As 220kV Vapi(PG)- Karadpada line was under planned outage for diversion works, the total load of Karadpada and New Karadpada shifted on Bhilosa line at Karadpada. 220kV Bus coupler at Bhilosa substation tripped on over-current and hence infeed from 220kV Vapi was lost to Bhilosa. Load loss of 448 MW occured in the event due to the load affected at Bhilosa,Karadpada and New Karadpada.	Tripping of 1.220 kV Kala - New Karadpada- I 2.220 kV Bhilosa -Karadpada - I 3.220 kV Kala - New Karadpada - II
3	GI-2	WR	22-Dec-20 13:56	22-Dec-20 14:40	0:44	220	542	0.33%	0.96%	66500	56746	At 13:56 hrs of 22nd Dec 2020, due to LBB protection mal-operation of ICT-3 at Dhule (MH), 400 kV Bus-1 at Dhule (MH) tripped resulting in tripping of associated elements on Bus-1. As ICT-2 was under planned outage for augmentation work, ICT-1 on Bus-2 tripped on backup over-current. Total Load loss of approx. 542 MW and Generation loss(Solar & Wind) of approx. 220 MW occured in the event.	Tripping of 1.400/220 kV Dhule ICT-1 2.400/220 kV Dhule ICT-3 3.400 kV Bableshwar - Dhule - I 4.400 kV Dhule - SSP - I 5.400 kV Dhule - Khandwa - II 6.400 kV Dhule(BDTCL) - Dhule - I 7.400kV Dhule-MS Bus 1
4	GI-2	WR	26-Dec-20 10:18	26-Dec-20 12:13	1:55	1018	-	1.45%	-	70446	60800	At 10:18 hrs of 26th Dec 2020 at Wanakbori S/S, B-phase CT of Main breaker of GT-5 (210 MW) failed resulting in 400 kV Bus-2 bus bar protection. Unit-5 (210 MW), 400 kV Asoj-Wanakbori, Unit-8 (800 MW) at Wanakbori GIS S/S tripped and 220kV Wanakbori- Dehgam-2 tripped from Dehgam end only.	Tripping of 1.400 kV Dehgam-Wanakbori-II 2.400 kV Asoj - Wanakbori - I 3.Wanakbori - Unit- 5 4.400 kV Wanakbori Bus 2 5.Wanakbori GIS Unit-8

Details of Grid Events during the Month of December 2020 in Eastern Region

Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
	(GI 1 or 2/ GD-1 to GD-5)					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD-1	Dehri	21-12-2020 06:21	21-12-2020 07:04	00:43	0	184	0.00%	1.31%	18611	14032	On 21-12-2020 at 06:21 hrs, 220 KV Dehri - Gaya D/C and 220 kV Pusauli - Dehri S/C tripped from Gaya and Pusauli end respectively resulting in total power failure at Dehri end. Existence of Y phase to earth fault has been captured by PMU data as well as DR recorded at Gaya end. The fault clearing time as per Gaya PMU is around 800 ms.	220 kV Gaya Dehri D/C 220 kV Sasaram Dehri S/C

Details of Grid Events during the Month of December 2020, in Southern Region

Sl No.	Category of Grid Event (GI 1or 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent		Antecedent Generation/Load in the Regional Grid		Brief details of the event (pre fault and post fault system conditions)	Name of Elements (Tripped/Manually opened)
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD-1	KARNATAKA	02-Dec-20 14:01	02-Dec-20 14:12	0:11:00	0	39	0.00	0.11	37689	35219	Complete Outage of 220kV Kadra PH of KPCL: Zone-1 distance protection of 220kV Kadra Kaiga line operated at 220kV Kadra end and LBB got operated since the line was under NFBC during antecedent. Due to operation of LBB protection, all the elements connected to Bus-1 got tripped at 220kV Kadra. Since all the elements were connected only to Bus-1 during antecendent, there was complete loss of supply. There was no antecedent generation at Kadra during this event.	i. 220kV Kadra-Kodasalli Line ii. 220kV Kadra-Karwar line-1 and 2
2	GD-1	TAMIL NADU	05-Dec-20 2:48	05-Dec-20 7:35	4:47:00	0	1.5	0.00	0.01	27635	21785	Complete Outage of 400kV SPIC Energy Power Corporation (SEPC): As per the information received, connected 400kV lines tripped on operation of OV St-1 protection resulting in complete loss of supply at 400kV SEPC. Details are awaited.	i. 400kV SEPC Thennampatti line-1 and 2
3	GD-1	TAMIL NADU	08-Dec-20 7:52	08-Dec-20 9:31	1:39:00	190	0	0.67	0.00	28389	23501	Complete Outage of 400kV NLC2 Expansion: 400kV NLC2 Expansion NLC TS-2 line was under outage during antecedent conditions due to CT and breaker failure at NLC TS-2 end. Triggering incident was tripping of 400kV NLC2 Expansion Pugalur line at Pugalur end on DT Receive. Due to tripping of only connected 400kV line , there was complete loss of supply at 400kV NLC2 Expansion and this resulted in a generation loss of 190MW.	i. 400kV NLC2 Expansion Pugalur line
4	GD-1	PONDY	09-Dec-20 9:20	09-Dec-20 11:52	2:32:00	0	54	0.00	0.15	39775	35758	Complete Outage of 230kV/110kV Villianur SS of Pondy: Triggering incident was spurious tripping of 230kV/110kV 100MVA transformer-1 at Villianur SS on WTI (Winding Temperature Trip). At the same time 230kV Villianur connected lines and bus coupler got tripped on operation of LBB protection resulting in the complete loss of supply at 230kV Villianur SS. 230kV/110kV 100MVA transformer-2 at Villianur SS was under outage during antecedent conditions.	i. 230kV/110kV 100MVA Transformer-1 at Villianur SS ii. 230kV Villianur Pondy line iii. 230kV Villianur Neyveli line
5	GD-1	PONDY	31-Dec-20 8:23	31-Dec-20 9:23	1:00:00	0	80	0.00	0.18	37298	45122	Complete Outage of 230kV/110kV Bahour SS of Pondy: Triggering incident was ph-ph fault in 230kV Bahour Karaikal line. At the same time, 230kV Bahour Ponday line also got tripped on operation of distacne protection. Due to tripping of both incoming lines, there was complete loss of supply at 230kV Bahour SS. Details are still awaited.	i. 230kV/110kV 100MVA Transformer- 1 and 2 at Bahour SS ii. 230kV Bahour Pondy line iii. 230kV Bahour Karaikal line
6	GI-2	TAMIL NADU	07-Dec-20 18:59	08-Dec-20 13:31	18:32:00	300	0	1.01	0.00	29745	38860	Tripping of 400kV Bus-1 and Bus-2 at 400kV/230kV NLC TS-2 Generating Station: Triggering incident was Yph Bus Coupler CT failure at 400kV NLC TS-2. 400kV Bus-1 and Bus-2 BBP operated resulting in the tripping of all the connected elements. 230kV bus was intact during this event.	i. 400kV/230kV ICT#1 and 2 at NLC TS-2 ii. 400kV NNTPP iii. 400kV NLC2 Expansion iv. 400kV Pugalur v. 400kV Salem-1 and 2 vi. 400kV NLC1 Expansion vii. 400kV Nagapattinam
7	GI-1	KARNATAKA	16-Dec-20 10:17	16-Dec-20 10:30	0:13:00	0	0	0.00	0.00	37593	40699	Tripping of 220kV Bus-1 at 400kV/220kV Guttur SS of KPTCL: Triggering incident was BN fault in 220kV Guttur Jogihalli line. Due to non-opening of B pole CB at 220kV Guttur end, LBB operated resulting in the tripping of all the elements connected to Bus-1 at 220kV Guttur SS. It may be noted that all elements were connected to 220kV Bus-1 at Guttur SS during antecedent due to CB replacement works. 400kV Guttur Kaiga line-2 and 400kV/220kV ICT#1 at Kaiga also got tripped during this event.	i. 400kV/220kV ICT#1 and 2 at Guttur ii. 220kV Neelagunda iii. 220kV Davanagere -1, 2 and 3 iv. 220kV Chitradurga v. 220kV Jogihalli vi. 220kV Haveri-1 and 2 vii. 220kV Ranebennur viii. 400kV Guttur Kaiga line-2 ix. 400kV/220kV ICT#1 at Kaiga

Details of Grid Events during the Month of DECEMBER 2020, in North Eastern Region

Sl No.	Category of Grid Event (GI 1or 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the		Antecedent Generation/Load in the Regional Grid		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD 1	132 kV Buses of Tenga and Khupi Substations & Dikshi Power Station.	05-Dec-20 19:09	05-Dec-20 19:27	0:18:00	0	25	0	1.05	2112	2382	Khupi area of Arunachal Pradesh Power System was connected with the rest of NER Grid through 132 kV Balipara - Tenga line and 132 kV Tenga - Khupi Line.At 19:09 Hrs on 05.12.2020, 132 kV Balipara - Tenga line and 132 kV Tenga - Khupi Line tripped. Due to tripping of this element, Khupi area of Arunachal Pradesh Power System was separated from the rest of NER Grid and subsequently co llapsed due to no source in this area. Power was extended to Khupi Area by charging 132 kV Balipara - Tenga Line at 19:27 Hrs. of 05.12.2020.	132 kV Balipara - Tenga Line, 132 kV Tenga - Khupi Line
2	GD 1	132 kV Buses of Yiangangpokpi, Hundung, Kongba and Thoubal Substations	07-Dec-20 16:56	07-Dec-20 17:41	0:45:00	0	46	0	1.87	1683	2457	Yiangangpokpi area of Manipur Power System was connected with the rest of NER Grid through 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines. 132 kV Thoubal - Kakching line and 132 kV Kakching-Kongba line kept open to avoid overloading of 132 kV Loktak - Ningthoukhong line.At 16:56 Hrs on 07.12.2020, 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines tripped. Due to tripping of these elements, Yiangangpokpi area of Manipur Power System was separated from the rest of NER Grid and subsequently collapsed due to no source in this area. Power supply was extended to Yiangangpokpi area of Manipur Power System by charging of 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines at 17:41 Hrs on 07.12.2020	132 kV Imphal(Yurembam)-Yiangangpokpi 1 & 2 lines
3	GD 1	132 kV Buses of Yiangangpokpi, Hundung, Kongba and Thoubal Substations	08-Dec-20 19:02	08-Dec-20 19:06	0:04:00	0	50	0	2.00	2179	2506	Yiangangpokpi area of Manipur Power System was connected with the rest of NER Grid through 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines. 132 kV Thoubal - Kakching line and 132 kV Kakching-Kongba line kept open to avoid overloading of 132 kV Loktak - Ningthoukhong line. At 19:02 Hrs on 08.12.2020, 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines tripped. Due to tripping of these elements, Yiangangpokpi area of Manipur Power System was separated from the rest of NER Grid and subsequently collapsed due to no source in this area. Power supply was extended to Yiangangpokpi area of Manipur Power System by charging of 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines at 19:06 Hrs on 08.12.2020	132 kV Imphal(Yurembam)-Yiangangpokpi 1 & 2 lines
4	GD 1	132 kV Zuangtui, Saitual, Khawzal, Champai and Serchip	13-Dec-20 09:54	13-Dec-20 09:59	0:05:00	0	30	0	1.69	1392	1772	Zuangtui area of Mizoram Power System was connected with the rest of NER Grid through 132 kV Melriat - Zuangtui line. 132 kV Lunglei-Serchip line kept open due to system requirement by P&ED Mizoram. At 09:54 Hrs dtd 13.12.2020, 132 kV Melriat - Zuangtui line tripped. Due to tripping of this element, Zuangtui area of Mizoram Power System was separated from rest of NER Grid and subsequently collapsed due to no source in this area. Zuanguti Area of Mizoram Power System was restored by charging 132 kV Melriat - Zuangtui line at 09:59 Hrs on 13.12.2020	132KV MELRIAT-ZUANGTUI-1
5	GD 1	132 kV Yiangangpokpi , Kongba, Hundung, Thoubal S/S	25-Dec-20 16:28	25-Dec-20 16:40	0:12:00	0	48	0	2.40	1411	2002	Yiangangpokpi area of Manipur Power System was connected with the rest of NER Grid through 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines. (132 kV Thoubal - Kakching and 132 kV Kakching-Kongba line was under open condition to avoid overloading of 132kv Loktak-Ningthoukhong line). Also, 132 kV Yangpokpi-Hundung line was faulty from 15:20 Hrs of 25-12-2020. At 16:28 hrs, 132kV Yangpokpi-Kongba line and 132 kV Imphal(Yurembum-Yangpokpi -2 tripped while charging 132 kV Yiangangpokpi-Hundung line . Due to tripping of this element, Kongba, Thoubal & Hundung area of Manipur Power system was seperated from rest of NER grid and subsequently collapsed due to no source in this area. Power was extended to Kongba S/S from Yiangangpokpi S/S by charging 132 kV Yiangangpokpi - Kongba T/L at 16:40 hrs. 132 kV Hundung S/S is still under blackout.	132kV Yangpokpi-Kongba line and 132 kV Imphal(Yurembum-Yangpokpi -2 tripped
6	GD 1	132 kV Yiangangpokpi , Kongba & Thoubal S/S	25-Dec-20 16:58	25-Dec-20 17:12	0:14:00	0	53	0	2.176	1635	2436	Yiangangpokpi area of Manipur Power System was connected with the rest of NER Grid through 132 kV Imphal(Yurembam)- Yiangangpokpi 1 & 2 lines. (132 kV Thoubal - Kakching and 132 kV Kakching-Kongba line was under open condition to avoid overloading of 132kv Loktak-Ningthoukhong line). Also, 132 kV Yangpokpi-Hundung line was faulty from 15:20 Hrs of 25-12-2020. At 16:58 hrs, 132 kV Yiangangpokpi - Kongba line tripped along with 132 kV Imphal(Yurembum) - Yiangangpokpi II line.Due to tripping of this element, Kongba & Thoubal area of Manipur Power system was seperated from rest of NER grid and subsequently collapsed due to no source in this area. Power was extended to Kongba S/S from Yiangangpokpi S/S by charging 132 kV Yiangangpokpi - Kongba T/L at 17:12 hrs.	132 kV Yiangangpokpi - Kongba line tripped along with 132 kV Imphal(Yurembum) - Yiangangpokpi II line
7	GD 1	Churachandpur, Elangpokpi, Kakching , Moreh S/S	25-Dec-20 23:19	25-Dec-20 23:50	0:31:00	0	22	0	1.360	1286	1618	Churachandpur area of Nagaland Power System was connected with the rest of NER Grid through 132 kV Ningthoukhong-Churachandpur I & II lines (132 kV Kakching - Thoubal & 132 kV Kakching - Kongba line was in open condition due to system requirement) At around 23:19 hrs, 132 kV Ningthoukong - Churachandpur D/C tripped. Due to tripping of this element, Churachandpur area of Manipur Power System was separated from rest of NER Grid and subsequently collapsed due to no source in this area. Power was extended to Churachandpur by charging 132 kV Ningthoukhong - Churachandpur D/C at 23:27 hrs and subsequently the radially connected substations were restored by 23:50 hrs.	132 kV Ningthoukong - Churachandpur D/C
8	GI-II	Tripura	14-Dec-20 21:47	14-Dec-20 23:30	1:43:00	119	0	8.2	0.00	1455	2041	Palatana Unit 4 tripped at 21:47 Hrs on 14.12.20 due to HP/IP front general bearing vibration high . Revision done from Block No.95 on 14-12-2020.	Palatana Unit 4
9	GI-II	Assam	18-Dec-20 10:32	18-Dec-20 12:00	1:28:00	220	0	13.8	0.00	1599	1838	BgTPP Unit 3 tripped at 10:32 Hrs on 18.12.20 due to tripping of Boiler. Revision done from Block No.49 on 18-12-2020.	BgTPP unit 3
10	GI-II	Arunachal Pradesh	28-Dec-20 18:08	28-Dec-20 19:30	1:22:00	150	0	7.7	0.00	1938	2662	Kameng HEP - UNIT 1 tripped at 18:08 Hrs on 28.12.20 due toStator Earth fault. Revision done from Block No.79 on 28-12-2020.	Kameng HEP - UNIT 1