Details of Grid Events during the Month of January 2021 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	01-Jan-2021 06:50	01-Jan-2021 17:50	11:00	0	0	0.000	0.000	32890	42325	400 KV Ballabhgarh(PG)-Nawada(HR) (PG) Ckt-1 and 400/220 kV 250 MVA ICT 2 at Nawada(HR) tripped on LBB operation at Nawada(HR) on B-N phase to earth fault. Fault occured due to polymer disc insulator failure at Nawada(HR). Fault current was 12.91kA and fault distance was 200m from Nawada end. As per PMU, B-N phase to earth fault with delayed clearance of 400ms is observed. In antecedent condition, 400 KV Ballabhgarh(PG)-Nawada(HR) (PG) Ckt-1 carrying 92MW.	1) 400/220 kV 250 MVA ICT 2 at Nawada(HV) 2) 400 KV Ballabhgarh(PG)-Nawada(HV) (PG) Ckt-1
2	GI-2	UTTAR PRADESH	03-Jan-2021 16:47	03-Jan-2021 19:59	3:12	0	0	0.000	0.000	28884	37164	400KV Bus 1, 400/220 kV 500 MVA ICT 1 at Moradabad(UP), 400kV Moradabad(UP)-Kashipur(UK) (UK) Ckt-1 & 400 KV Bareilly(PG)-Moradabad(UP) (PG) Ckt-2 all tripped on Bus Bar protection operation on Bus 1. As per PMU, no fault is observed. In antecdent condition, 400/220 kV 500 MVA ICT 1 at Moradabad(UP), 400kV Moradabad(UP)-Kashipur(UK) (UK) Ckt-1 & 400 KV Bareilly(PG)-Moradabad(UP) (PG) Ckt-2 carrying 99MW, 181MW & 38MW respectively.	1) 400 KV Moradabad(UP)-Kashipur(UK) (UK) Ckt-1 2) 400/220 kV 500 MVA ICT 1 at Moradabad(UP) 3) 400 KV Bareilly(PG)-Moradabad(UP) (PG) Ckt-2 4) 400KV Bus 1 at Moradabad(UP)
3	GI-1	J & K	05-Jan-2021 09:12	05-Jan-2021 11:04	1:52	0	0	0.000	0.000	33884	45273	220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-1 tripped on B-N phase to earth fault. At the same time 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-2 also tripped on Y-N phase to earth fault. As per PMU, Y-B phase to phase fault is observed. In antecedent condition, 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-1 & Ckt-2 carrying 34MW each.	1) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-1 2) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-2
4	GI-1	J & K	05-Jan-2021 11:29	05-Jan-2021 12:28	0:59	0	0	0.000	0.000	31633	45466	220 KV Kishenganga(NH)-Wagoora(PG) (PG) Ckt-1 tripped on B-N phase to earth fault. At the same time, 220 KV Kishenganga(NH)-Wagoora(PG) (PG) Ckt-2 also tripped on R-N phase to earth fault. As per PMU, B-N phase to earth fault followed by R-N phase to earth fault is observed. In antecedent condition, 220 KV Kishenganga(NH)-Wagoora(PG) (PG) Ckt-1 & Ckt-2 carrying 6MW & 7MW respectively.	1) 220 KV Kishenganga(NH)-Wagoora(PG) (PG) Ckt-2 2) 220 KV Kishenganga(NH)-Wagoora(PG) (PG) Ckt-1
5	GD-1	RAJASTHAN	07-Jan-2021 07:58	07-Jan-2021 11:11	3:13	780	0	2.255	0.000	34597	41735	400 KV Barmer(RS)-Rajwest(RW) (RS) Ckt-1 tripped at 07:48hrs on B-N phase to earth fault followed by tripping of 400 KV Rajwest(RW)-Jodhpur (RS) Ckt-1 at 07:58hrs on B-N phase to earth fault and 400 KV Rajwest(RW)-Kankani (RS) Ckt-1 on R-N phase to earth fault at 08:02hrs. Following this 135MW Rajwest(IPP) LTPS unit 2,3,4,5,6 & 7 all tripped at 08:02 due to tripping of all 400kV lines. As per PMU, R-N phase to earth fault is observed at 08:02hrs. As per SCADA, loss of generation of approx. 780MW is observed.	1) 400 KV Rajwest(RW)-Jodhpur (RS) Ckt-1 2) 400 KV Barmer(RS)-Rajwest(RW) (RS) Ckt-1 3) 135 MW Rajwest (IPP) LTPS - UNIT 3 4) 135 MW Rajwest (IPP) LTPS - UNIT 6 5) 135 MW Rajwest (IPP) LTPS - UNIT 2 6) 135 MW Rajwest (IPP) LTPS - UNIT 4 7) 400 KV Rajwest(RW)-Kankani (RS) Ckt-1 8) 135 MW Rajwest (IPP) LTPS - UNIT 5 9) 135 MW Rajwest (IPP) LTPS - UNIT 7
6	GD-1	UTTAR PRADESH	08-Jan-2021 04:30	08-Jan-2021 06:45	2:15	0	90	0.000	0.298	23504	30221	400 KV Rewa Road-Panki (UP) Ckt-1 & 400 KV Obra_B-Rewa Road (UP) Ckt-1 tripped on R-N phase to earth fault. As per PMU, R-N phase to earth fault with delayed clearance of 520ms is observed. In antecedent condition, 400 KV Rewa Road-Panki (UP) Ckt-1 & 400 KV Obra_B-Rewa Road (UP) Ckt-1 carrying 173MW & 109MW RESPECTIVELY.	1) 400 KV Rewa Road-Panki (UP) Ckt-1 2) 400 KV Obra_B-Rewa Road (UP) Ckt-1
7	GD-1	J & K	08-Jan-2021 15:20	08-Jan-2021 16:07	0:47	0	480	0.000	1.221	29373	39328	220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-1 & Ckt-2 tripped on over current protection operation. Over current protection operated due to overloading of line. As per PMU, no fault is observed. As per SCADA, load loss of approx. 480MW is observed. In antecedent condition, 220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-1 & Ckt-2 carrying 251MW & 271MW respectively.	1) 220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-2 2) 220 KV Wagoora(PG)-Pampore(PDD) (PG) Ckt-1
8	GI-1	PUNJAB	16-Jan-2021 02:06	16-Jan-2021 04:43	2:37	0	0	0.000	0.000	24820	30870	220 KV Bhakra_R-Jamalpur (BB) Ckt-2 tripped on R-N phase to earth fault. Fault distance was 100.5km from Bhakra end and fault current was 1.374kA. At the same time, 220 KV Jamalpur(BB)-Sangrur(PS) (BB) Ckt-2, 220 KV Ganguwal-Jamalpur (BB) Ckt-2 & 220 KV Jamalpur(BB)-DandhariKalani(PS) (PSTCL) Ckt-2 all tripped on Bus Bar protection operation at 220kV Jamalpur(BB). As per PMU, R-N phase to earth fault is observed. In antecedent condition, 220 KV Bhakra_R-Jamalpur (BB) Ckt-2, 220 KV Jamalpur(BB)-Sangrur(PS) (BB) Ckt-2, 220 KV Ganguwal-Jamalpur (BB) Ckt-2 & 220 KV Jamalpur(BB)-DandhariKalani(PS) (PSTCL) Ckt-2 carrying 31MW, 35MW, 35MW & 64MW respectively.	1) 220 KV Bhakra_R-Jamalpur (BB) Ckt-2 2) 220 KV Jamalpur(BB)-Sangrur(PS) (BB) Ckt-2 3) 220 KV Ganguwal-Jamalpur (BB) Ckt-2 4) 220 KV Jamalpur(BB)-DandhariKalani(PS) (PSTCL) Ckt-2
9	GD-1	HIMACHAL PRADESH	16-Jan-2021 17:53	16-Jan-2021 18:21	0:28	295	0	0.785	0.000	37563	48199	400 KV Chamera_2(NH)-Kishenpur(PG) (PG) Ckt-1 tripped on DT received from Kishenpur end and 400 KV Chamera_2(NH)-Chamera_1(NH) (PG) Ckt-1 tripped on DT received from Chamera_1 end. At the same time, 100 MW Chamera II HPS - UNIT 1, UNIT 2 & UNIT 3 and 400 KV Chamera_2(NH)-Chamba(PG) (UNDEF) Ckt-1 also tripped. As per PMU, no fault is observed. As per SCADA, generation loss of approx. 295MW is observed. In antecedent condition, 400 KV Chamera_2(NH)-Kishenpur(PG) (PG) Ckt-1, 400 KV Chamera_2(NH)-Chamera_1(NH) (PG) Ckt-1 & 400 KV Chamera_2(NH)-Chamba(PG) (UNDEF) Ckt-1 carrying 344MW, 15MW & 36MW respectively and 100 MW Chamera II HPS - UNIT 1, UNIT 2 & UNIT 3 carrying around 98MW each.	1) 400 KV Chamera_2(NH)-Kishenpur(PG) (PG) Ckt-1 2) 400 KV Chamera_2(NH)-Chamera_1(NH) (PG) Ckt-1 3) 100 MW Chamera II HPS - UNIT 1 4) 100 MW Chamera II HPS - UNIT 2 5) 100 MW Chamera II HPS - UNIT 3 6) 400 KV Chamera_2(NH)-Chamba(PG) (UNDEF) Ckt-1
10	GD-1	RAJASTHAN	18-Jan-2021 12:34	18-Jan-2021 18:47	6:13	1130	230	3.097	0.453	36485	50732	400 KV Anta-Kalisindh (RS) Ckt-2 tripped on B-N line to line fault due to snapping of conductor at a distance of 50km from Kalisindh end. At the same time, 600 MW Kalisindh TPS - UNIT 1 & UNIT 2 also tripped on over frequency protection operation due to tripping of 400 KV Anta-Kalisindh (RS) Ckt-2 as 400kV Anta-Kalisindh ckt-1 was already taken under planned S/D at 12:28 hrs. As per PMU, B-N line to line fault is observed. As per SCADA, load loss of approc 230MW & generation loss of approx 1130MW is observed. In antecedent condition, 400 KV Anta-Kalisindh (RS) Ckt-2, 600 MW Kalisindh TPS - UNIT 1 & UNIT 2 carrying 936MW, 558MW & 566MW respectively.	1) 600 MW Kalisindh TPS - UNIT 1 2) 400 KV Anta-Kalisindh (RS) Ckt-2 3) 600 MW Kalisindh TPS - UNIT 2
11	GD-1	RAJASTHAN	19-Jan-2021 06:37	19-Jan-2021 14:57	8:20	550	500	1.503	1.129	36591	44290	Rajwest(RW)-Jodhpur (RS) Ckt-1 tripped at 6:37hrs on B-N phase to earth fault at 156.6km from Jodhpur end followed by trippings of 135 MW Rajwest (IPP) LTPS - UNIT 1 at 6:40hrs on generator failure, 400KV Rajwest(RW)-Kankani (RS) Ckt-1 tripped at 6:52hrs on B-N phase to earth fault at 184.34km from Kankani end & 400 KV Barmer(RS)-Rajwest(RW) (RS) Ckt-1 at 7:28hrs on B-N phase to earth fault at 1.9km from Rajwest end. Following the tripping of all lines 135 MW Rajwest (IPP) LTPS - UNIT 2, UNIT 3, UNIT 5 & UNIT 6 all tripped due to tripping of all evacuating lines. As per PMU, no fault is observed at 7:28hrs. As per SCADA, load loss of approx 500MW & generation loss of approx 550MW is observed. In antecedent condition, generation of Rajwest TPS was 557MW(as per SCADA).	1) 400 KV Rajwest(RW)-Jodhpur (RS) Ckt-1 2) 135 MW Rajwest (IPP) LTPS - UNIT 1 3) 400 KV Rajwest(RW)-Kankani (RS) Ckt-1 4) 135 MW Rajwest (IPP) LTPS - UNIT 2 5) 400 KV Barmer(RS)-Rajwest(RW) (RS) Ckt-1 6) 135 MW Rajwest (IPP) LTPS - UNIT 6 7) 135 MW Rajwest (IPP) LTPS - UNIT 5 8) 135 MW Rajwest (IPP) LTPS - UNIT 3

Details of Grid Events during the Month of January 2021 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)		
12	GI-1	UTTAR PRADESH	21-Jan-2021 15:02	21-Jan-2021 16:35	1:33	0	0	0.000	0.000	33744	42350	220 KV Unchahar(NT)-Raebareilly(PG) (UP) Ckt-2 tripped on Y-B line to line fault. Fault distance was 7.9kM from Raebareilly(PG) end. Fault current was Iy=9.2kA & Ib=8.6kA. At the same time, 220 KV Unchahar(NT)-Raebareilly(PG) (UP) Ckt-2 also tripped as fault was in its Z-2. As per PMU, Y-B line to line fault is observed. In antecedent condition, 220 KV Unchahar(NT)-Raebareilly(PG) (UP) Ckt-2 & 220 KV Unchahar(NT)-Raebareilly(PG) (UP) Ckt-2 carrying 49MW & 85MW respectively.	1) 220 KV Unchahar(NT)-Raebareilly(PG) (UP) Ckt-2 2) 220 KV Raebareilly(PG)-Bachravan(UP) (UP) Ckt-1
13	GD-1	UTTAR PRADESH	22-Jan-2021 07:24	22-Jan-2021 09:08	1:44	900	0	2.304	0.000	39057	45484	At 07:20hrs, 132 kV Auxiliary supply failed at 400/132 kV Rihand stage-1&2. It further resulted into tripping of HVDC Pole-2 followed by Pole-1. At 7:27hrs 500 MW Rihand-II STPS - UNIT 1 tripped on Low forward Power due to Generator Cold Gas temp High(TG Protection)and 500 MW Rihand-I STPS - UNIT 2 was hand tripped at 7:30hrs. As per PMU, no fault is observed. As per SCADA generation loss of approx 900MW was observed. In antecedent condition, 500 MW Rihand-I STPS - UNIT 2 & 500 MW Rihand-II STPS - UNIT 1 carriyng 464MW & 420MW respectively and 500kV HVDC Rihnad Pole 1&2 both carrying total 1100MW.	1) 500 kV HVDC Rihand-Dadri (PG) Ckt-1 2) 500 kV HVDC Rihand-Dadri (PG) Ckt-2 3) 500 MW Rihand-II STPS - UNIT 1 4) 500 MW Rihand-I STPS - UNIT 2
14	GD-1	RAJASTHAN	22-Jan-2021 07:53	22-Jan-2021 12:00	4:07	730	600	1.773	1.167	41172	51395	400 kV Barmer(RS)-Rajwest(RW) (RS) Ckt-1 tripped on B-N phase to earth fault at 07:57hrs followed by tripping of 400 KV Rajwest(RW)-Kankani (RS) Ckt-1 at 08:05hrs on B-N phase to earth fault. Following this, 135 MW Rajwest (IPP) LTPS - UNIT 2, UNIT 3, UNIT 5 & UNIT 6 all tripped due to tripping of above lines. As per PMU, B-N phase to earth fault observed at 7:57hrs and 8:05hrs. As per SCADA, generation loss of approx. 700MW is observed. In antecedent condition, Rajwest generation was approx. 730MW.	1) 400 KV Barmer(RS)-Rajwest(RW) (RS) Ckt-1 2) 400 KV Rajwest(RW)-Kankani (RS) Ckt-1 3) 135 MW Rajwest (IPP) LTPS - UNIT 3 4) 135 MW Rajwest (IPP) LTPS - UNIT 5 5) 135 MW Rajwest (IPP) LTPS - UNIT 6 6) 135 MW Rajwest (IPP) LTPS - UNIT 2
15	GI-1	J & K	23-Jan-2021 16:16	23-Jan-2021 16:33	0:17	0	0	0.000	0.000	35511	43132	220 KV Kishenpur(PG)-Sarna(PS) (PG) Ckt-1 tripped on B-R to Ground fault due to bad weather and lightning. Fault distance was 101km from Kishenpur end. At the same time, 220 KV Kishenpur(PG)-Sarna(PS) (PG) Ckt-2 also tripped on B-R line to line fault at 123km from Kishenpur end. As per PMU, B-N line to line fault is observed. In antecedent condition, 220 KV Kishenpur(PG)-Sarna(PS) (PG) Ckt-1 & Ckt-2 carrying 23MW each.	1) 220 KV Kishenpur(PG)-Sarna(PS) (PG) Ckt-1 2) 220 KV Kishenpur(PG)-Sarna(PS) (PG) Ckt-2
16	GD-1	HARYANA	24-Jan-2021 02:46	24-Jan-2021 04:00	1:14	0	70	0.000	0.222	25169	31521	220 KV Hissar(BB)-Chirawa(RS) (BB) Ckt-1 & 220 KV Hissar(BB)-Hissar IA(HV) (BBMB) Ckt-2 both tripped due to damage of R-phase LA of 220 KV Hissar(BB)-Chirawa(RS) (BB) Ckt-1 at Hissar end. As per PMU, R-N phase to earth fault is observed. As per SCADA, load loss of approx 70MW is observed. In antecedent condition, 220 KV Hissar(BB)-Chirawa(RS) (BB) Ckt-1 & 220 KV Hissar(BB)-Hissar IA(HV) (BBMB) Ckt-2 carrying 8MW & 86MW respectively.	1) 220 KV Hissar(BB)-Hissar IA(HV) (BBMB) Ckt-2 2) 220 KV Hissar(BB)-Chirawa(RS) (BB) Ckt-1
17	GD-1	J & K	24-Jan-2021 15:19	24-Jan-2021 16:20	1:01	0	115	0.000	0.274	32522	42005	220 kV Amargarh(NRSS XXIX)-Ziankote(JK) (PDD JK) Ckt-1 tripped on B-N phase to earth fault. At the same time, 220 KV Amargarh(NRSS XXIX)-Ziankote(JK) (PDD JK) Ckt-2 also tripped on Y-N phase to earth fault due to Y-phase jumper snapped. As per PMU, no fault is observed. As per SCADA, load loss of approx. 115MW is observed. In antecedent condition, 220 kV Amargarh - Ziankote Ckt-1 & Ckt-2 carrying 213MW each.	1) 220 KV Amargarh(NRSS XXIX)-Ziankote(JK) (PDD JK) Ckt-2 2) 220 KV Amargarh(NRSS XXIX)-Ziankote(JK) (PDD JK) Ckt-1
18	GI-2	UTTAR PRADESH	26-Jan-2021 06:10	26-Jan-2021 08:24	2:14	0	0	0.000	0.000	31229	39887	400 KV Bareilly-Unnao (UP) Ckt-1 tripped on B-N phase to earth fault. Fault occurred due to failure of ground wire of 400kV Unnao Bareilly(UP) double circuit. This broken ground wire fell on 220 kV Double circuit line resulted in tripping of 220kV Unnao Kanpur Rd line and 220kV Unnao Luckhnow21 line. At the same time, 400 KV Unnao-Panki (UP) Ckt-1 & 400 KV Agra-Unnao (UP) Ckt-1 also tripped from remote end due to wrong operation of protection at respective ends. At 7:20hrs, during charging of 220kV Unnao Kanpur Rd ckt, Line side jumper of R phase CT of the line snapped from the connector due to persisting fault on R phase of the line and resulted into damaging of CT and creating E/F. Line failed to trip on CT failure and therefore, all 03 no. 315 MVA transformers tripped on Backup E/F. As per PMU, B-N phase to earth fault is observed at 6:10hrs. In antecedent condition all three ICTs carrying approx. 95MW.	1) 400 KV Bareilly-Unnao (UP) Ckt-1 2) 400 KV Unnao-Panki (UP) Ckt-1 3) 400 KV Agra-Unnao (UP) Ckt-1 4) 400/220 kV 315 MVA ICT 3 at Unnao(UP) 5) 400/220 kV 315 MVA ICT 1 at Unnao(UP) 6) 400/220 kV 315 MVA ICT 2 at Unnao(UP)
19	GI-2	NEW DELHI	29-Jan-2021 03:19	29-Jan-2021 15:11	11:52	0	0	0.000	0.000	25201	32855	R-Pole of main HVCB of stage -1 Bawana CCGT Bay 404 exploded lead to dead Machine Protection operated on stage 1 Bawana CCGT which initiated LBB protection at 404 bay and 420 bay lead to tripping of 400/220 kV 315 MVA ICT 1 & ICT 6 at Bawana(DV). As per PMU, no fault was observed. In antecedent condition, 400/220 kV 315 MVA ICT 1 & ICT 6 carrying 60MW each.	1) 400/220 kV 315 MVA ICT 1 at Bawana(DV) 2) 400/220 kV 315 MVA ICT 6 at Bawana(DV)
20	GI-2	HARYANA	30-Jan-2021 08:17	30-Jan-2021 11:06	2:49	0	0	0.000	0.000	39890	49816	800 KV HVDC Champa(PG) Pole-1 & pole 2 tripped on mal-operation of CNAP protection at Champa end while de-blocking pole 3&4. As per PMU, no fault is observed. In antecedent condition, 800 KV HVDC Champa-kurukshetra pole 1&2 carrying 1000MW total.	1) 800 KV HVDC Champa(PG) Pole-2 2) 800 KV HVDC Champa(PG) Pole-1

Details of Grid Events during the Month of January 2021 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	GD-1	WR	04-Jan-21 10:54	04-Jan-21 11:18	0:24	36.79	900.11	0.05%	1.51%	67738	59669	At 10:54 Hrs, LTS of 400/220 kV Dhule(MH) ICTs 1 and 3 operated and resulted in tripping of 220 kV Dhule(MH)-Dondaicha and 220 kV Dhule(MH)-Amalner. ICT-2 was under planned outage for augmentation work. Due to these tripping, load of 220/132 kV Dondaicha shifted to 220 kV/132 kV Dhule substation and led to the overloading of 220/132 kV Dhule ICTs followed by its LTS operation. 132 kV Dhule-Dondaicha 1&2 and 132 kV Dhule-Dhule 1&2 tripped on LTS operation of 220/132 kV Dhule ICTs. Due to this operation, load shifted to 220kV Bhusawal, Deepnagar & Gangapur which thereby resulted in LTS operation of 400/220kV ICT at Bhusawal and tripping of 220kV Deepnagar- Viroda, 220kV Deepnagar- Bambhori and 220kV Gangapur- Valve on overcurrent protection. Dhule (MH) LTS scheme was revised and implemented on 10.01.2021 by MSTECL.	Tripping of 1. 220 kV Dhule-Amalner 2.220 kV Dhule-Dondaicha 3.220 kV Deepnagar-Bhambari 4. 220 kV Deepnagar-Viroda 5. 220 kV Gangapur-Valve 6. 132 kV Dhule-Sivaji nagar
2	GD-1	WR	11-Jan-21 20:40	11-Jan-21 21:30	0:50	-	25.77	-	0.05%	60400	48065	At 20:40 hrs, Y phase Metering PT of 220kV Wardha (MH)- TSS-2 line failed at Wardha(MH) substation, which resulted in operation of 220kV Bus bar protection.	Tripping of 1. 220 kV Wardha - Yavatmal- I 2. 220 kV Wardha MH - Abhijeet 1 3. 220 kV Wardha MH - Abhijeet 2 4. 220 kV Wardha MH - Bhugaon 5. 220 kV Wardha MH - Butibori 3 6. 220 kV Wardha MH - Dhamangaon 7. 220 kV Wardha MH - TSS 1 8. 220 kV Wardha MH - TSS 2 9. 220 kV Wardha MH - Wardha PG 10. 220 kV Wardha MH - Warora
3	GD-1	WR	21-Jan-21 10:59	21-Jan-21 11:25	0:26	-	110	-	0.18%	70113	61469	At 10:59 hrs, 220kV Bachau- Lalpar line tripped on B- E fault due to conductor snapping at location no. 388. As 220kV Bus-1 at Lalpar substation was under planned shutdown along with 220kV Lalpar- Morbi line and 220/66 kV 160 MVA ICT-2. It resulted in tripping of 220/66kV ICT-1 and 220/132 kV ICT at Lalpar substation.	Tripping of 1. 220 kV Bachhau - Lalpar - I 2. 220/66 kV 160 MVA ICT-I 3. 220/132 kV 100 MVA ICT
4	GI-2	WR	30-Jan-21 14:33	30-Jan-21 15:26	0:53	-	-	-	-	66888	58300	At 14:33 hrs, 400kV Korba-Bhilai-1 & 2 line tripped on R- E fault and B-E fault due to earth wire broken at Location No.324 during OPGW installation works near to Korba substation. At the same time, 400kV Korba- Raipur-3 &4 tripped on DT receipt at Raipur end. Also, 400kV Korba-Korba(W)-1 tripped on B-E fault from Korba(W) end only and 400 kV Korba- Bhatapara line tripped from Korba end only.	Tripping of 1. 400 kV Korba - Korba(W) - I 2. 400 kV Korba - Bhatapara - I 3. 400 kV Korba - Bhillai - I 4. 400 kV Korba - Bhillai - II 5. 400 kV Korba - Raipur - III 6. 400 kV Korba - Raipur - IV

Details of Grid Events during the Month of January 2021 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	HEL	05-01-2021 13:37	05-01-2021 14:12	00:35	280	0	1.27%	0.00%	22011	14320	400 kV HEL - Subhasgram - 1 was under shutdown since 04-01-2021 for rectification of damaged OPGW. HEL unit 2 was also not in service due to annual overhauling. HEL was connected to rest of the grid through 400 kV HEL - Subhasgram - 2 with only unit 1 in service at HEL. During relay testing of 400 kV HEL Subhasgram -1 at HEL, CT Switching relay malfunctioned and bus bar protection operated at HEL end. As a result, 400 kV HEL - Subhasgram - 2 tripped and total power failure occurred at HEL. DT signal was also sent to Subhasgram. No fault was observed in PMU data at the time of the fault.	i)400 kV HEL - Subhasgram - 2
2	GD-1	Motihari	15-01-2021 05:36	15-01-2021 06:05	00:29	0	187	0.00%	1.38%	17517	13567	400 kV Motihari-Gorakhpur D/C and 400 kV Motihari Barh 1 were out of service due to tower collapse. Motihari was connected to rest of the grid through 400 kV Barh Motihari - 2. On 15-01-2021 at 05:36 hrs 400 kV Barh Motihari - 2 tripped due to R and B phase to earth fault resulting in total power failure at Motihari S/S and loss of power supply to nearby areas such as Motihari, Bettiah, Raxaul, Ramnagar, Narkatiaganj, Dhaka and Areraj. All affected loads were shifted to alternate sources of Motipur and Gopalganj by 06:05 Hrs	i)400 kV Barh Motihari - 2
3	GD-1	Motihari	21-01-2021 11:20	21-01-2021 11:46	00:26	0	215	0.00%	1.34%	23698	16023	400 kV Motihari-Gorakhpur D/C and 400 kV Motihari Barh 1 were out of service due to tower collapse. Motihari was connected to rest of the grid through 400 kV Barh Motihari - 2. On 21-01-2021 at 11:20 hrs transient Y phase to earth fault occurred at 400 kV Barh Motihari - 2. Successful auto reclose operation occurred at Motihari end. At Barh end, tie breaker was successfully auto reclosed. But main breaker at Barh tripped again after auto-reclose operation. Then 400 kV Barh Motihari - 2 tripped from Motihari end on receipt of DT signal from Barh end. As a result total power failure occurred at Motihari S/S and loss of power supply occurred at nearby areas such as Motihari, Bettiah, Raxaul, Ramnagar, Narkatiaganj, Dhaka and Areraj.	i)400 kV Barh Motihari - 2
4	GD-1	Hatia	29-01-2021 10:44	29-01-2021 11:29	00:45	54	195	0.22%	1.16%	24169	16759	220 kV Ranchi - Hatia - 1 and 220 kV Hatia - Patratu - 2 were under shutdown. 220 kV Ranchi - Hatia - 3 was being shifted from 220 kV bus 1 to 220 kV bus 2 at Hatia. During changeover, sparking was observed in 220 kV bus 2 isolator at Hatia of Ranchi 3 feeder. Bus bar protection was not in service at Hatia at 220 kV voltage level. All 220 kV feeders tripped from remote ends.	i)220 kV Ranchi Hatia 2 & 3 ii)220 kV Hatia Patratu 1 iii)132 kV Hatia Patratu 1

Details of Grid Events during the Month of January 2021 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	KERALA	09-Jan-21 17:36	09-Jan-21 18:11	35min	102	350	0.32	0.93	31721	37439	Complete outage of 220kV Kanhirode SS , 220kV Mylatty SS, 220kV Thaliparamba SS and 220kV Ambalathara SS of KSEB: During antecedent conditions, 220kV Thaliparamba SS, 220kV Ambalathara SS and 220kV Mylatty SS were fed from 220kV Kanhirode SS. Triggering incident was tripping of 220kV Orkattery Kanhirode line and 220kV Areakode Kanhirode line due to fault during lightening. Due to tripping of both incoming lines, there was complete loss of supply at 220kV Kanhirode SS. Since 220kV Thaliparamba, 220kV Mylatty and 220kV Ambalathara were fed from 220kV Kanhirode only. This further resulted in complete loss of supply at 220kV Thaliparamba SS, 220kV Mylatty SS and 220kV Ambalathara SS.	i. 220kV Orkattery Kanhirode line ii. 220kV Areakode Kanhirode line
2	GD-1	ANDHRA PRADESH	10-Jan-21 14:31	10-Jan-21 14:42	11min	0	70	0.00	0.19	34499	36445	Complete Outage of 400kV/220kV Podili SS of APTRANSCO: During antecedent conditions, 400kV Sattenpalli Podili line-2 was under outage for OV regulation. Triggering incident was Y-B fault in 400kV Sattenpalli Podili line-1. Due to outage of both incoming 400kV lines, there was complete loss of supply at 400kV/220kV Podili SS.	i. 400kV Sattenpalli Podili line-1 ii. 400kV Sattenpalli Podili line-2
3	GD-1	TELANGANA	12-Jan-21 13:23	12-Jan-21 13:29	6min	450	0	1.03	0.00	43533	43571	Complete outage of 400kV Manuguru GS of TSGENCO: As per the report submitted, at 12:49hrs, 400kV Julrpadu Manuguru line-2 got tripped on B-N fault. Subsequently at 13:23hrs, 400kV Julurpadu Manuguru line-1 tripped on R-N fault. Tripping of both the lines resulted in loss of evacuating path which further resulted in tripping of both the generating units of Manuguru SS.	i. 400kV Julurpadu Manuguru line-1 and 2 ii. Manuguru U#1 and 2
4	GD-1	ANDHRA PRADESH	21-Jan-21 14:24	21-Jan-21 16:01	1hr 37min	0	0	0.00	0.00	43663	48192	Complete outage of 220kV Gooty Receiving Station of APTRANSCO: As per the report submitted, triggering incident was falling of Y-Phase jumper of 220kV Gooty Receiving Station-Boyareddypally feeder on Bus-I at 220kV Gooty Receiving Station. Bus-1 and Bus-2 BBP operated resulting in complete outage of 220kV Gooty Receiving Station.	i. 400kV/220kV Gooty ICT-1, 2 & 3 ii. 220kV Gooty Boyareddypalli iii. 220kV Gooty Ultratech iv. 220kV Gooty Shapuram v. 220kV Gooty Anatpur vi. 220kV Gooty Doni-1 and 2 vii. 220kV Gooty Gooty_PG-1 and 2 viii. 220kV Gooty RTSS-2
5	GD-1	KERALA	29-Jan-21 11:42	29-Jan-21 12:30	48min	165	60	0.33	0.11	50120	53197	Complete outage of 220kV Edamon SS and 220kV Sabarigiri GS of KSEB: As per the report submitted, triggering incident was operation of 220kV BBP of Bus-1 and Bus-2 at Edamon end during relay testing and all the elements connected to 220kV Edamon SS got tripped. At the same time, 220kV Sabarigiri GS connected lines also got tripped resulting in loss of evacuvation at 220kV Sabarigiri GS. Details are awaited.	i. 220kV Edamon Tirunelveli-1 and 2 ii. 220kV Edamon Sabarigiri-1, 2 & 3 iii. 220kV Edamon Kundara iv. 220kV Sabarigiri Theni v. 220kV Sabarigiri Pallom vi. 220kV Edamon Eddappon vii. 220kV Sabarigiri Ambalamugal viii. Sabarigiri U#2 ,3 and 5
6	GI-1	TAMIL NADU	02-Jan-21 13:19	02-Jan-21 13:49	30 min	0	11	0.00	0.03	36655	42024	230kV Bus-1 Outage at 400kV/230kV Salem SS of TANTRANSCO: Triggering incident was R-Y fault in the 230kV Salem Bus-1 .In 230kV Bus coupler bay, the clamp of the R-phase dropper conductor at Bus-1 switch end got cut and caused R-Y bus fault. BBP operated and all the lines connected to Bus-1 at 230kV Salem SS got tripped.	i. 400/230 kV ICT-1 at Salem ii. 400/230 kV ICT-2 at Salem iii. 230kV Link-1 iv. 230kV Link-2 v. 230kV Salem Steel plant -1 vi. 230kV Salem Steel plant-2 vii. 230kVSingapur Line
7	GI-1	KARNATAKA	05-Jan-21 11:42	05-Jan-21 13:52	2 hr 10 min	453	0	1.15	0.00	39548	42840	220kV Bus-2 Outage at 220kV Sharavathy GS of KPCL: Triggering incident was RN fault in Bus-2 of 220kV Sharavathi GS due to failure of string insulator. Bus-2 BBP operated resulting in the tripping of all elements connected at Bus-2 of 220kV Sharavathy GS.	i. Gen Unit 1,2,3,4,5 ii. 230kV Sharavathy Shimoga-1 iii. 230KV Sharavathy talaguppa-1 iv. 230KV Sharavathy talaguppa-3 V. 230KV Sharavathy Balligavi
8	GI-1	TAMIL NADU	13-Jan-21 09:48	13-Jan-21 12:43	2hr 55min	380	0	0.87	0.00	43606	46062	230kV Bus-2 Outage at 400kV/230kV NLC TS-2 of NLCIL: Triggering incident was failure of Bus-2 isolator of 230kV Kadalangudi NLC TS-2 line at NLC TS-2 end. Bus-2 BBP operated resulting in the tripping of all the elements connected at Bus-2 of 230kV NLC TS-2.	i. 400kV/230kV Neyveli TS_II-ICT - 2 ii. 230/6.6kV ST-2 iii. 230/6.6kV ST-4 iv. Gen Unit-2 and 3 v. TANTRANSCO-2 vi.230kV Neyveli_TS_II -NNTP-1 vii.230kV Neyveli_TS_II -MF-4 viii. 230kV Neyveli TS_II -Karaikal ix. 230kV Neyveli_TS_II -Kadalagudi
9	GI-2	TAMIL NADU	13-Jan-21 13:57	13-Jan-21 17:05	3hr 8min	0	0	0.00	0.00	38780	42496	400kV Bus-1 Outage at 400kV/230kV/110kV Thennampatti SS of TANTRANSCO : Triggering incident was R phase breaker failure of 400kV SEPC Thennampatti line-1 at Thennampatti end. LBB of Bus-1 operated resulting in the tripping of all elements connected to 400kV Bus-1 at Thennampatti SS.	i. 400kV SEPC Thennampatty Line-1 ii.400kV/230kV Thennampatty -ICT-2 iii.400kV/110kV Thennampatty-ICT-4

Details of Grid Events during the Month of January 2021 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)		
10	GI-1	TAMIL NADU	13-Jan-21 14:50	13-Jan-21 15:17	27min	340	0	0.88	0.00	38839	42780	230kV Bus-1 Outage at 400kV/230kV NLC TS-2 of NLCIL: As per the report submitted LBB of U#2 operated resulting in the tripping of all the elements connected at Bus-1 of 230kV NLC TS-2. Details are awaited.	i. 400/230kV Neyveli TS_II-ICT -1 & 2 ii. 230kV NLC TS-2 -Villianur iii.230/6.6kV ST-1 iv. 230/6.6kV ST-3 v. Gen Unit1,3 vi.230kV NLC TS-2 -TAQA vii.230kV NLC TS-2 -Ulunudurper viii.230kV Neyveli_TS_II -NNTP-1 ix.230kV Neyveli_TS_II -NNTP-2 xi.230kV Neyveli_TS_II -MF-3 xii.230/6.6kV ST-2 xiii.230kV Neyveli_TS_II -MF-4 xiv.230kV Neyveli_TS_II -Karaikal
11	GI-2	TELANGANA	20-Jan-21 20:57	20-Jan-21 23:15	2hr 18min	0	0	0.00	0.00	33362	37035	400kV Bus-1 Outage at 400kV/220kV Suryapet SS of TSTRANSCO: Triggering incident was tripping of 400kV Suryapet VTPS line-1 and 2 at Suryapet end due to suspected relay maloperation. Subsequently 400kV Suryapet Kethyreddypalli-2, 400kV Suryapet Malkaram and 400kV Suryapet KV Kota end tripped on operation of OV St-1 protection. Due to tripping of 400kV connected lines at Bus-1 of 400kV Suryapet SS, there was de-energization of 400kV Bus-1.	i. 400KV Suryapet- Kethyreddipalli-2 ii.400KV VTPS-Suryapet iii.400KV-Suryapet-KV Kota-1 iv.400kV Malkaram Suryapet-1 v.400kV VTPS-Suryapet-2
12	GI-1	KARNATAKA	25-Jan-21 00:42	25-Jan-21 03:13	3hrs 55 mins	0	265	0.00	0.73	29508	36258	220kV Bus-1 Outage at 400kV/220kV Hoody SS of KPTCL: Triggering incident was R phase PT failure of Bus-1 at 220kV Hoody SS. All the elements connected to Bus-1 got tripped at 220kV Hoody Bus-1. 400kV Hoody Devanahalli line-1 also got tripped during this event. Details are awaited.	i. 400 kV Hoody Devanahalli-2 ii. 400/220 kV ICT-2 AT Hoody iii. 220kV Hoody ITPL

Details of Grid Events during the Month of January 2021 in North 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		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	GD 1	Karong area of Manipur Power System	05-Jan-21 15:01	05-Jan-21 15:14	0:13:00	0	10	0	0.60	1404	1677	Karong area of Manipur Power System was connected with the rest of NER Grid through 132 kV Imphal(MA) - Karong line and 132 kV Karong-Kohima line.At 15:01 Hrs on 05.01.2021, 132 kV Imphal(MA) - Karong line and 132 kV Karong-Kohima line tripped. Due to tripping of these elements, Karong area of Manipur Power System was separated from the rest of NER Grid and subsequently collapsed due to no source in this area. Power was extended to Karong SS by charging 132kV Imphal(MA) - Karong line at 15:14 hrs on 05.01.21	132 kV Imphal(MA) - Karong line and 132 kV Karong-Kohima line
2	GD 1	Pasighat, Roing, Tezu & Namsai area of Arunachal Pradesh Power System	09-Jan-21 19:20	09-Jan-21 20:08	0:48:00	0	20	0	0.77	1983	2610	Pasighat area of Arunachal Pradesh Power System was connected with the rest of NER Grid through 132 kV Along - Pasighat line.At 19:20 Hrs on 09.01.2021, 132 kV Along - Pasighat line tripped. Due to tripping of this element, Pasighat area of Arunachal Pradesh Power System was separated from rest of NER Grid and subsequently collapsed due to no source in this area. 132 kV Along - Pasighat line was declared faulty.at 20:08 Hrs on 09.01.2021.	132 kV Along - Pasighat line
3	GD 1	Kameng area of Arunachal Pradesh Power System	16-Jan-21 13:05	16-Jan-21 13:31	0:26:00	155	0	11.30561634	0.00	1371	1852	Kameng area of Arunachal Pradesh Power System was connected with the rest of NER Grid through 400 kV Balipara - Kameng line I & II. At 13:05 Hrs on 16.01.2021, 400 kV Balipara - Kameng line I & II tripped. Due to tripping of these elements, Kameng area of Arunachal Pradesh Power System was separated from rest of NER Grid and subsequently collapsed due to load generation mismatch. Power was extended to Kameng by charging 400 kV Balipara - Kameng line I line at 13:31 Hrs on 16.01.2021	400 kV Balipara - Kameng line I & II
4	GD 1	Kongba & Thoubal area of Manipur Power System	22-Jan-21 09:36	22-Jan-21 09:47	0:11:00	0	40	0	2.04	1543	1957	Kongba & Thoubal area of Manipur Power System was connected with the rest of NER Grid through 132 kV Yiangangpokpi -Kongba line. 132 kV Thoubal-Kakching line is under planned outage.At 09:36 Hrs on 22.01.2021, 132 kV Yiangangpokpi -Kongba line tripped. Due to tripping of this element, Kongba & Thoubal area of Manipur Power System were separated from rest of NER Grid and subsequently collapsed due to no source in this area. Power was extended to Kongba & Thoubal area by charging 132 kV Yiangangpokpi -Kongba line at 09:37 hrs on 22-01-21	132 kV Yiangangpokpi -Kongba line
5	GD 1	Yiangangpokpi, Hundung,Kongba & Thoubal area of Manipur Power System	27-Jan-21 18:52	27-Jan-21 19:01	0:09:00	0	56	0	2.14	2191	2615	Yiangangpokpi,Hundung,Kongba & Thoubal area of Manipur Power System was connected with the rest of NER Grid through 132 kV Yurembam -Yiangangpokpi D/C line. 132 kV Thoubal-Kakching line is kept opened in order to avoid the overloading of Loktak-Ningthoukhong line.At 18:52 Hrs on 27.01.2021, 132 kV Yurembam-Yiangangpokpi D/C line tripped. Due to tripping of this element, Yiangangpokpi,Hundung,Kongba & Thoubal 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 Yiangangpokpi area by restoring 132 kV Yurembam-Yiangangpokpi D/C line at 19:01 hrs on 27-01-21	132 kV Imphal (Yurembam)-Yiangangpokpi 1 & 2 lines
6	GD 1	Yiangangpokpi, Hundung, Kongba, Thoubal area of Manipur Power System	30-Jan-21 07:07	30-Jan-21 07:36	0:29:00	0	56	0	2.529	1397	2214	Yiangangpokpi, Hundung, Kongba & Thoubal area of Manipur Power System was connected with the rest of NER Grid through 132 kV Imphal(Yurembam)- Yiangangpokpi D/C lines. (132 kV Thoubal - Kakching is kept open to avoid overloading of 132kv Loktak-Ningthoukhong line). At 07:07 hrs on 30.01.2021,132 kV Imphal(Yurembam)- Yiangangpokpi D/C lines tripped. Due to tripping of this element Yiangangpokpi, Hundung, 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 Yiangangpokpi area by restoring 132 kV Imphal(Yurembam)- Yiangangpokpi D/C line at 07:36 Hrs on 30-01-21	132 kV Imphal(Yurembam)-Yiangangpokpi 1 & 2 lines
7	GI 2	Assam	18-Jan-21 06:05	18-Jan-21 07:30	1:25:00	30	0	2.196193265	0.000	1366	1682	AGBPP Unit 2 tripped at 06:05 Hrs on 18.01.21 due to Desyn due to tripping of Gas compressor. Revision done from Block No.31 on 18-01-2021.	AGBPP unit 2
8	GI 2	Assam	21-Jan-21 06:05	21-Jan-21 08:30	2:25:00	30	0	2.207505519	0.000	1359	1409	AGBPP Unit 3 tripped at 06:05 Hrs on 21.01.21 due to Desyn due toDue to control system problem. Revision done from Block No.35 on 21-01-2021.	AGBPP unit 3
9	GI 1	Assam	26-Jan-21 16:44	26-Jan-21 19:00	2:16:00	2.7	0	0.173076923	0.000	1560	1956	Khandong Unit 1 tripped at 16:44 Hrs on 26.01.21 due to the problem in Generator CB. Revision done from Block No.77 on 26-01-2021.	Khandong unit 1