

**Details of Grid Events during the Month of April 2023 in Northern Region**



Sl No.	Category of Grid Event (GI for 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HEMM)	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
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GI-2	Haryana	01-Apr-2023 17:53	01-Apr-2023 22:55	5:02	0	130	0.000	0.343	34226	37899	i) 400/220kV Daulatabad(Har) S/s has one and half breaker bus scheme. ii) As reported, at 17:53hrs, B-N phase to earth fault occurred on 400 KV Dhanonda-Daulatabad (HV) Ckt-1 due to LA blast at Daulatabad end. At the same time, all the Main CBs in other disas which were connected at 400kV Bus-1 also opened. iii) As per PMU, Y-B phase to phase fault with the delayed clearance of 360msec is observed. iv) As per SCADA SOE, 400/220kV ICT-4 at Daulatabad and Tie CB at Daulatabad end of 400 KV Dhanonda-Daulatabad (HV) Ckt-1 opened at around 17:53:52.075 hrs followed by opening of all the main breakers in other disa further after approx. ~200msec. v) It seems that either bus bar protection or LBB of main CB of 400 KV Dhanonda-Daulatabad (HV) Ckt-1 operated. However, reason of opening of LV side CB of 400/220kV ICT-4 at Daulatabad is not clear. vi) As per SCADA, change in demand of approx. 130MW in Haryana control area is observed.	1) 400/220 kv 315 MVA ICT-4 at Daulatabad(HV) 2) 400 kv Dhanonda-Daulatabad (HV) Ckt-1
2	GI-2	Rajasthan	01-Apr-2023 21:41	02-Apr-2023 00:06	2:25	0	125	0.000	0.313	32056	39892	i) 220 kv Kota(PG) has double main transfer bus scheme. During antecedent condition, 400/220 kv 315 MVA ICT-1, 220 kv Dum(RS)-Kota(PG) Ckt and 220 kv Kota(PG)-KTPS Ckt-1 were connected at 220 kv Bus-1 at Kota(PG). ii) As reported, Y-ph jumper of 400/220 kv ICT-01 (bushing) to 220 kv CT terminal connector snapped and terminal connector of CT at 220kv side for 400/220 kv ICT-01 melted. On this fault, bus bar protection of 220kV Bus-1 at Kota(PG) operated and all the elements connected to Bus-1 tripped. 220 kv Kota(PG)-KTPS Ckt-1 tripped only from Kota(PG) end. iii) As per DR, 400/220kv 315MVA ICT-1 tripped due to differential protection operation and other elements tripped due to bus bar protection of 220kV Bus-1 at Kota(PG). In addition, 220 kv Kota(PG)-KTPS Ckt-1 tripped only from Kota(PG) end, no DT command was sent from Kota(PG) end. iv) As per SOE, 220/77kV 50 MVA Station Transformer-1 at KTPS(RS) also tripped at the same time. Bus coupler at 220kv Kota(PG) also got opened hence Bus-2 at 220kv Kota(PG) did not trip. v) As per PMU at 400kv Kota(PG), Y-N phase to ground fault is observed with fault clearance time of 80 ms. vi) As per SCADA, change in demand of approx. 125MW is observed in Rajasthan control area.	1) 400/220 kv 315 MVA ICT-1 at Kota(PG) 2) 220kv Bus 1 at Kota(PG) 3) 220 kv Dum(RS)-Kota(PG) (RS) Ckt-1 4) 220 kv Kota(PG)-KTPS(RVUN) (RS) Ckt-1 5) 220/77 kv 50 MVA ST-1 at KTPS(RS)
3	GI-2	Rajasthan	01-Apr-2023 12:52	01-Apr-2023 15:39	2:47	0	0	0.000	0.000	42863	38557	i) 400kV Suratgarh SCTPS had one and half breaker bus scheme. 400kV Suratgarh SCTPS-Suratgarh ckt-1&2 acts as interconnector between Suratgarh SCTPS and Suratgarh S/s, having tie CB only. 400kV Suratgarh SCTPS-Babai ckt-1&2 are not charged yet. Lines are under commissioning stage. ii) During antecedent condition, 660MW Suratgarh SCTPS Unit-1&2 were carrying approx. 432MW & 397MW respectively and 400kV Suratgarh SCTPS-Suratgarh ckt-1&2 were carrying approx. 482MW & 485MW respectively. iii) As reported, at 12:52hrs, malfunction of LBB of 400kV Suratgarh SCTPS-Babai ckt-2 occurred at Suratgarh SCTPS end which led to the tripping of all the CBs connected to 400kV Bus-2. It resulted into tripping of 400kV Suratgarh SCTPS-Suratgarh ckt-2 and 125MW & R reactor at Suratgarh SCTPS (The CB of bus reactor was already in open condition). iv) Further after approx. 1.5sec (as per SOE), 400kV Suratgarh SCTPS-Suratgarh ckt-1 also tripped due to overloading. v) As per telephonic communication with Suratgarh SCTPS, malfunction of LBB of 400kV Suratgarh SCTPS-Babai ckt-2 occurred during panel cleaning work. vi) Due to tripping of 400kV Suratgarh SCTPS-Suratgarh ckt-1&2, loading of 400kV Suratgarh SCTPS-Bikaner D/C changed from -70MW each to 415MW each. vii) As per PMU, no fault in system is observed. viii) As per SCADA, no change in demand of Rajasthan control area observed.	1) 400kV Bus 2 at Suratgarh SCTPS(RVUN) 2) 400 kv Suratgarh SCTPS(RVUN) Suratgarh(RS) (RS) Ckt-1 3) 400 kv Suratgarh SCTPS(RVUN) Suratgarh(RS) (RS) Ckt-2 4) 4. 125 MVAR Bus Reactor No 2 at 400 kv Suratgarh SCTPS(RVUN)
4	GD-1	Punjab	03-Apr-2023 02:28	03-Apr-2023 06:32	4:04	0	30	0.000	0.092	29217	32664	i) 220 kv Ajitwal(PS) has double main bus scheme. ii) As reported, at 02:28 hrs, bus bar protection operated at 220kv Ajitwal(PS) due to which all the 220kV lines connected to Bus-1&2 and 220/66kv 100MVA ICT-3&4 tripped. As a result, 220/66kv Ajitwal(PS) substation became dead. iii) As per SOE, at first, bus coupler at 220kv Ajitwal(PS) opened. After that, 220/66kv 100MVA ICT-4, 220kv Moga(PG)-Ajitwal(PS) (PSTCL) ckt, 220kv Himmatpura(PS)-Ajitwal(PS) ckt and 220kv Jagraon(PS)-Ajitwal(PS) ckt-2 tripped. iv) As per PMU at 400kV Moga(PG), R-N phase to ground fault is observed with fault clearance time of 80 ms. v) As per SCADA, change in demand of approx. 30MW is observed in Punjab control area.	1) 220 kv Moga(PG)-Ajitwal(PS) (PSTCL) Ckt-1 2) 220kv Bus 1 at Ajitwal(PS) 3) 220KV Bus 2 at Ajitwal(PS) 4) 220kv Himmatpura(PS)-Ajitwal(PS) ckt 5) 220kv Jagraon(PS)-Ajitwal(PS) ckt-1 6) 220kv Jagraon(PS)-Ajitwal(PS) ckt-2 7) 220/66kv 100MVA ICT-3 at Ajitwal(PS) 8) 220/66kv 100MVA ICT-4 at Ajitwal(PS)
5	GI-1	Rajasthan	08-Apr-2023 16:32	08-Apr-2023 19:25	2:53	0	350	0.000	0.858	43022	40813	i) As reported, at 16:32 hrs, B phase jumper of Wave trap of 220 kv Bhiwadi(PG)-Bhiwadi(RS) (RS) Ckt-1 snapped out at yard of 220kv Bhiwadi(RS) CSS. Due to this, 220 kv Bhiwadi(PG)-Bhiwadi(RS) (RS) Ckt-2 tripped on directional earth-fault protection after experiencing unbalance in current for a certain time (as per IDMT settings) from POWERGRID end only. Further, loading of 220 kv Bhiwadi(PG)-Bhiwadi(RS) (RS) Ckt-1 increased and thus, it was manually opened from POWERGRID end. ii) As per SOE, 220/132kv 150 MVA ICT-2, 2 & 3 and 132/33kv 40/50 MVA ICT-2 at Bhiwadi(RS) also tripped at the same time. iii) As per PMU at 400kv Bhiwadi(PS), no fault is observed in the system. iv) As per DR of Bhiwadi(RS) end of 220kv Bhiwadi(PG)-Bhiwadi(RS) Ckt-1, broken conductor alarm is observed. v) As per SCADA, change in demand of approx. 350MW is observed in Rajasthan control area.	1) 220 kv Bhiwadi(PG)-Bhiwadi(RS) (RS) Ckt-1 2) 220 kv Bhiwadi(PG)-Bhiwadi(RS) (RS) Ckt-2
6	GI-2	Rajasthan	11-Apr-2023 17:20	11-Apr-2023 18:40	1:20	45	0	0.105	0.000	42724	42635	i) During antecedent condition, total generation of 220kV Avada Sunrays (ASEPL) was feeding through 400/220kV 500MVA ICT-6 at Bhadia2(PG) only. ii) As reported, at 17:20 hrs, 400/220 kv 500 MVA ICT-6 at Bhadia2(PG) tripped due to mal-operation of differential relay. Hence tripping of ICT-6 resulted in generation loss of 220kV Avada Sunrays (ASEPL) through 220 kv Bhadia2(PG)-ASEPL(IP) ckt. iii) As per PMU at 400kV Bhadia2(PG), no fault is observed in the system. iv) As per SCADA, no change in demand is observed in Rajasthan control area. Generation loss of approx. 45MW is observed at 220kV Avada Sunrays.	1) 400/220 kv 500MVA ICT-6 at Bhadia2(PG)
7	GD-1	Haryana	11-Apr-2023 18:32	11-Apr-2023 20:25	1:53	0	610	0.000	1.274	43762	47874	i) As reported, at 18:32 hrs, CTs of 220/132kV ICT-1 & 2 blasted at 220kv Safidon(HS) which resulted in busbar protection operation. Hence, all elements connected to bus-1 & 2 at 220kv Safidon(HS) tripped and S/s became dead. ii) Due to tripping of 220kV Panipat TPS(HS)-Safidon(HS) ckt-1, 2 & 3 fault transferred to 220kv Panipat TPS(HS) which resulted in tripping of 250MW unit-6, 7 & 8 at Panipat TPS(HS) due to heavy jerk. iii) As per DR, 220/132kV ICT-1 at Safidon(HS) tripped on differential protection operation with differential current of approx. 25A in R & Y phase and 50A in B-phase. 220kv Safidon(HS)-Mund(HS) ckt-2 tripped on zone-1 distance protection operation. iv) As per PMU at 400kV Panipat(HS), multiple faults are observed in the system (R-N fault followed by R-Y-B 3-phase fault followed by delayed fault clearance time of 440 ms). v) As per SCADA, generation loss of approx. 610MW is observed in Haryana control area.	1) 220kv Bus-1 at Safidon(HS) 2) 220kv Bus-2 at Safidon(HS) 3) 220/132kv ICT-1 at Safidon(HS) 4) 220/132kv ICT-2 at Safidon(HS) 5) 220kv Panipat TPS(HS)-Safidon(HS) ckt-1 6) 220kv Panipat TPS(HS)-Safidon(HS) ckt-2 7) 220kv Panipat TPS(HS)-Safidon(HS) ckt-3 8) 250 MW Unit-6 at Panipat TPS(HS) 9) 250 MW Unit-7 at Panipat TPS(HS) 10) 250 MW Unit-8 at Panipat TPS(HS)
8	GI-1	Rajasthan	12-Apr-2023 13:43	13-Apr-2023 05:05	15:22	190	0	0.412	0.000	46115	41888	i) During antecedent condition, active power flow of 220/33 kv 180MVA ICT-1 at AREPR(LIP) was 118 MW. All 33kv feeders-1 of Renew Power, Azure Plot 6, 7, 8 and 9 and Auxiliary T/F-1 were connected to 33kv side of 220/33 kv 180MVA ICT-1 at AREPR(LIP) and all 33kv feeders-2 of Renew Power, Azure Plot 6, 7, 8 and 9 and Auxiliary T/F-2 were connected to 33kv side of 220/33 kv 180MVA ICT-2 at AREPR(LIP). ii) As reported, at 13:43hrs, 33kv AREPR(LIP)-Azure Plot 8 (50 MW) ckt-1 tripped due to cable fault. This led to tripping of 220/33 kv 180MVA ICT-1 at AREPR(LIP) on Oil Surge Relay (OSR) protection operation. Hence power flow through all 33kv feeders connected at ICT-1 became zero. iii) As per PMU at 400kV Bhadia2(PG), no fault is observed in the system. iv) As per SCADA, NR Solar generation loss of approx. 190MW is observed.	1) 220/33 kv 180MVA ICT-1 at AREPR(LIP)

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
9	GD-1	Uttarakhand	12-Apr-2023 18:53	12-Apr-2023 19:30	0:37	67	0	0.149	0.000	45076	52193	i) During antecedent condition, only 70 MW Unit-1 at Dhauliganga(NH) was running and generating approx. 67MW (as reported, SCADA data not available). Unit-2, 3 & 4 were under shutdown. ii) As reported, at 18:53hrs, DC supply to protection circuit of 220 KV Jauljvi (PG)-Dhauliganga(NH) (PG) Ckt-1 & 2 lost due to fault in inverter-1. This led to tripping of 220 KV Jauljvi (PG)-Dhauliganga(NH) (PG) Ckt-1 & 2. iii) Along with the same, 70 MW Unit-1 at Dhauliganga(NH) also tripped due to loss of evacuation path. Hence 220KV Dhauliganga(NH) S/S became dead. iv) As per PMU at 400KV Bareilly(PG), Y-N phase to ground fault is observed in the system with fault clearance time of 120ms. v) As per SCADA, no change in NR hydro generation is observed. vi) As reported by Dhauliganga, SCADA system was not available at the time of event. Generation loss of 67MW was reported at Dhauliganga(NH).	1) 220 KV Jauljvi (PG)-Dhauliganga(NH) (PG) Ckt-1 2) 220 KV Jauljvi (PG)-Dhauliganga(NH) (PG) Ckt-2 3) 70 MW Unit-1 at Dhauliganga(NH)
10	GD-1	Haryana	14-Apr-2023 01:43	14-Apr-2023 03:24	1:41	0	128	0.000	0.267	39373	48022	i) As reported, at 01:43 hrs, B-phase CT of 220 KV Bhiwadi(PG)-Mau(HV) (HVPNL) Ckt blasted at Mau end. 220 KV Bhiwadi(PG)-Mau(HV) (HVPNL) Ckt tripped on B-N fault, (Zone-2 distance protection operated) with fault current of 11.5kA and fault distance of 13.69km from Bhiwadi(end). ii) Rest of the 220KV lines connected at Mau S/S tripped on Zone-2 from remote end only. Hence, Mau S/S became dead. iii) As per DR at Bhiwadi(PG) end of 220KV Bhiwadi(PG)-Mau(HS) Ckt, earth fault protection relay operated. iv) As per DR at Manesar(PG) end of 220 KV Manesar(PG)-Mau(HS) Ckt-2, line tripped on zone-3 from Manesar(PG) end only. v) As per PMU at 400KV Bhiwadi(PG), B-N phase to ground fault converted to 3-phase fault is observed in the system with delayed fault clearance time of 120ms. vi) As per SCADA, No change in demand is observed in Haryana control area (as per SCADA). Approx. 128 MW load loss occurred as per communication with SLDC-Haryana.	1) 220 KV Manesar(PG)-Mau(HV) (HVPNL) Ckt-1 2) 220 KV Manesar(PG)-Mau(HV) (HVPNL) Ckt-2 3) 220 KV Bhiwadi(PG)-Mau(HV) (HVPNL) Ckt 4) 220 KV Bus-1 at Mau(HS) 5) 220 KV Bus-2 at Mau(HS) 6) 220 KV Daulatabad-Mau(HS) Ckt 7) 220 KV HS Bawal-Mau(HS) Ckt
11	GI-1	J&K	14-Apr-2023 13:19	14-Apr-2023 16:39	3:20	0	325	0.000	0.718	48820	45267	i) During antecedent condition, active power loading of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 & 2 were 183MW and 181MW respectively. ii) As reported, at 13:19hrs, 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2 tripped on R-N phase to ground fault with distance of 2.6 km and fault current 1.7kA from MirBazar(J&K) end. Line clearance was less between the bottom conductor of the line and OPGW of 132kV MirBazar(PDD)-Tethar ckt. iii) Due to tripping of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2, loading on 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 increased and line CB at 220KV MirBazar(PDD) end of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 opened due to over-loading, but line remain charged from NewWanpoh(PG) end. iv) As per PMU at Kishenpur(PG), R-N phase to ground fault is observed in system with fault clearance time of 120 ms. v) As per SCADA, load loss of approx. 325MW occurred in J&K control area.	1) 220 KV Mir Bazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2
12	GI-1	Rajasthan	15-Apr-2023 16:41	15-Apr-2023 17:25	0:44	130	0	0.271	0.000	47917	46974	i) During antecedent condition, total generation of 220KV Clean Solar Power Jodhpur (CSPP) (IP) was feeding through 220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) Ckt-1 at Bhadla(PG). ii) As reported, at 16:41 hrs, 220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) Ckt-1 tripped due to mal-operation of PLCC at 220KV Clean Solar Power Jodhpur (CSPP) (IP). This resulted in generation loss of 220KV Clean Solar Power Jodhpur (CSPP) (IP) due to loss of evacuation path. iii) As per DR at Bhadla(PG) end of 220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) Ckt-1, DT was received at Bhadla(PG) end, but no relay indication is observed. Hence, this seems to be a mal-operation of PLCC at 220KV Clean Solar Power Jodhpur (CSPP) (IP). iv) As per PMU at 400KV Bhadla(PG), no fault is observed in the system. v) As per SCADA, no change in demand is observed in Rajasthan control area. Generation loss of approx. 130MW is observed at 220KV Clean Solar Power Jodhpur (CSPP) (IP).	1) 220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) Ckt-1
13	GD-1	Punjab	15-Apr-2023 17:15	15-Apr-2023 18:57	1:42	0	60	0.000	0.129	46678	46534	i) As per the information received and communication with 220KV Dasuya S/S, brief of the event are as follows: a) 220 KV Dasuya(PS) S/S has double bus scheme. b) At 17:15hrs on 15th April'23, Y-ph CVT at Railway end of 220KV Dasuya-Railwat ckt (~2km) damaged. c) On this fault, Railway ckt didn't trip from Dasuya end and thus adjacent feeders tripped on back up protection. d) 220 KV Dasuya(PS)-Jalandhar(PG) (PG) Ckt-1 & 2 tripped from Jalandhar(PG) end only, fault was in 2-2 (64.25km) from Jalandhar(PG) end. e) 220 KV Dasuya(PS)-Jalandhar(BB) (BBMB) Ckt tripped from Jalandhar(BB) end only in 2-2 (76.8km). f) 220 KV Dasuya-Alawalpur (PS) Ckt and 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 tripped from Dasuya end only and 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-2 tripped from Pong end in 2-3 (~70km). ii) As per PMU at 400V Jalandhar(PG), B-N double phase to ground fault with delayed clearance of fault in 680 ms is observed. iii) As reported by SLDC-Punjab, load loss of approx. 60MW occurred in Punjab control area.	1) 220 KV Dasuya(PS)-Jalandhar(BB) (BBMB) Ckt 2) 220 KV Dasuya(PS)-Jalandhar(PG) (PG) Ckt-1 3) 220 KV Dasuya(PS)-Jalandhar(PG) (PG) Ckt-2 4) 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 5) 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-2 6) 220 KV Dasuya-Alawalpur (PS) Ckt
14	GI-1	J&K	15-Apr-2023 13:11	15-Apr-2023 15:40	2:29	0	325	0.000	0.721	49395	45081	i) During antecedent condition, active power loading of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 & 2 were 157MW and 156MW respectively. ii) As reported, at 13:11hrs, 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2 tripped on R-N phase to ground fault with distance of 2.5 km and fault current 1kA from MirBazar(J&K) end. Line clearance was less between the bottom conductor of the line and OPGW of another 132kV MirBazar(PDD)-Tethar ckt. iii) Due to tripping of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2, loading on 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 increased and line CB at 220KV MirBazar(PDD) end of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 opened due to over-loading, but line remain charged from NewWanpoh(PG) end and was eventually restored within 3 mins. iv) As per PMU at Kishenpur(PG), R-N phase to ground fault is observed in system with fault clearance time of 120 ms. v) As per SCADA, load loss of approx. 325MW occurred in J&K control area. vi) As informed by SLDC J&K, the problem has been rectified by lowering the OPGW of 132kV line.	1) 220 KV Mir Bazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2
15	GI-1	Delhi	15-Apr-2023 11:14	15-Apr-2023 14:30	3:16	0	245	0.000	0.495	53158	49453	i) During antecedent condition, active power loading of 220KV Bannaui-Najafgarh Ckt-1 & 2 were 124MW and 122MW respectively. ii) As reported, at 11:14 Hrs, 220 KV Bannaui Najafgarh Ckt-2 tripped due to jumper flashover near Najafgarh Gantry followed by tripping of Ckt-1 due to overloading. This resulted in load loss of approx. 245 MW at Najafgarh & Kanjawala. iii) Load at both the stations was restored by charging 220 KV Munika Najafgarh Ckt-1 at 11:23 Hrs. iv) As per PMU at Bannaui(DVI), R-N phase to ground fault with unsuccessful A/R operation followed by R-Y phase to phase fault is observed in system with fault clearance time of 80 ms. v) As per SCADA, load loss of approx. 245MW occurred in Delhi control area.	1) 220KV Bannaui-Najafgarh Ckt-2 2) 220KV Bannaui-Najafgarh Ckt-1
16	GI-1	Delhi	15-Apr-2023 12:12	15-Apr-2023 17:44	5:32	0	100	0.000	0.210	51151	47717	i) During antecedent condition, Bus-1 & 2 at 220 KV Pappankala were kept in split condition (bus coupler was open). Active power loading of 220KV Dwarka-Pappankala Ckt-2 was 82MW. ii) As reported, at 12:11 Hrs, 220 KV Dwarka Pappankala Ckt-2 tripped due to B-N phase to ground fault near Dwarka station resulting in load loss of approx. 100 MW at 220 KV Pappankala. iii) After tripping, load was restored by charging bus coupler & later by charging 220 KV Bannaui-Pappankala Ckt-2. iv) As per PMU at Bannaui(DVI), B-N phase to ground fault with unsuccessful A/R operation is observed in system with fault clearance time of 80 ms. v) As per SCADA, load loss of approx. 100MW occurred in Delhi control area.	1) 220KV Dwarka-Pappankala Ckt-2

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
17	GI-2	Rajasthan	16-Apr-2023 09:06	16-Apr-2023 12:44	3:38	0	0	0.000	0.000	50291	48457	i) 400KV Barmer(Raj) has one and half breaker bus scheme. During antecedent condition, 125MVA Bus reactor at Barmer(Raj) was connected at 400KV Bus-2. ii) As reported, at 09:06hrs, while opening of 125MVA Bus reactor at Barmer(Raj) on voltage regulation, Y-ph pole of Main CB of Bus reactor damaged and created bus fault. iii) On this fault, bus bar protection of 400kv bus-2 operated and all the CB connected at 400KV Bus-2 opened. iv) Other bay (connected at bus-1) of 400 KV Jaisalmer-Barmer (RS) Ckt-1 was already in out condition, thus line tripped with the opening of CB connected at Bus-2. v) 400 KV Barmer(RS)-Rajwast(RW) (RS) Ckt remained charged from Barmer(Raj) end via tie bay. However, line tripped from Rajwast end. As per the verbal communication with Rajwast S/A, distance protection sensed the fault in Z-1 and both main and tie CB at Rajwast end tripped. It seems that due to small length (~15km) of the line, Z-1 over reach occurred. vi) As per PMU at 400KV Bhisra(PG), Y-N phase to earth fault which cleared within 100msec is observed. vii) Presently, main CB of 125MVA bus reactor is out and reactor is charged via tie CB.	1) 400KV Bus 2 at Barmer(RS) 2) 400 KV Jaisalmer-Barmer (RS) Ckt-1 3) 220400 KV Barmer(RS)-Rajwast(RW) (RS) Ckt
18	GI-2	Uttar Pradesh	18-Apr-2023 08:56	18-Apr-2023 10:36	1:40	155	0	0.301	0.000	51448	51333	i) During antecedent condition, 400 KV Anpara-Sarnath (UP) Ckt-1, 400 KV Singrauli(NT)-Anpara(UP) (PG) Ckt-1, 210MW Unit-1 at Anpara TPS & 400/132KV 100 MVA ICT 2 at Anpara(UP) were connected at 400KV Bus-2 at Anpara (UP) and rest of the elements were connected at 400KV Bus-1. ii) As reported at 08:49hrs, 210 MW Anpara TPS - UNIT 1 tripped due to damage of bushing of GTI. Further at 08:56hrs, busbar protection operated at 400KV Bus-2 at Anpara(UP) and all the elements connected at 400KV Bus-2 tripped and bus-2 became dead. DT received at Sarnath end. iii) As per PMU at Allahabad(UP), B-N phase to ground fault with fault clearance time of 80msec is observed at 08:49hrs and no fault in system observed at 08:56hrs. iv) As per SCADA SOE, 132 KV Rihand(NT)-Anpara(UP) Ckt-1 & 2 tripped at 08:56hrs. v) As per SCADA, generation loss of approx. 155MW in UP control area is observed (210MW Unit-1 at Anpara TPS tripped).	1) 210 MW Anpara TPS - UNIT 1 2) 400KV Bus 2 at Anpara(UP) 3) 400 KV Singrauli(NT)-Anpara(UP) (PG) Ckt-1 4) 400/132KV 100 MVA ICT 2 at Anpara(UP) 5) 400 KV Anpara-Sarnath (UP) Ckt-1 6) 132 KV Rihand(NT)-Anpara(UP) Ckt-1 7) 132 KV Rihand(NT)-Anpara(UP) Ckt-2
19	GD-1	Uttar Pradesh	18-Apr-2023 13:24	18-Apr-2023 14:22	0:58	0	140	0.000	0.280	53288	49996	i) 400/220/33KV Noida Sec148 GIS has double main single breaker bus scheme. Power comes from 400 KV Gr.Noida_2(UPC)-Noida Sec 148 (UP) D/C and feeds Noida Sec 123 via 400 KV Noida Sec 148-Noida Sec 123 (UP) D/C and feeders connected at 220KV level at Noida Sec 148. There are 2*500MVA ICT at Noida Sec148, during antecedent condition, both were in service. There is 1*160MVA 220/132KV ICT and 2*100MVA 220/33KV transformer. ii) As reported, brief detail of the event are as follows: iii) There are two (no.) DC source i.e., I & II with automatic changeover mechanism via mechanical changeover relay which takes more than 100msec to changeover the DC source. iv) There is a logic for initiation of bus bar protection with the delay of 100msec in the case of gas detector stage-3 (GD-3). v) In addition, there is an issue related to arrangements of contacts of DC source that whenever DC source is not available then it raises flag as gas detector stage-3 (GD-3) which further initiates bus bar tripping as DC source changeover takes more than 100msec. vi) There is also a preexisting issue related to cards of battery charger which lead to DC source failure during any fluctuation in AC supply. vii) So, at 13:24hrs on 18th Apr 23, DC source voltage dropped as two battery cells became dead and battery charger was also not catering load. viii) Before DC source changeover could have occurred, bus bar tripping initiated with the flag of GD-3. ix) Due to bus bar protection operation, all the feeders and elements connected at both the 400KV bus tripped. x) Issue related to logic of bus bar protection is yet to be resolved, follow up has been taken up to resolve the same. xi) As per PMU at 400KV Agra(PG), no fault is observed in the system. xii) As per SCADA, load loss of approx. 140MW occurred in UP control area.	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) 400KV Bus 1 at Noida Sec 148(UP) 4) 400/220 KV 500 MVA ICT 1 at Noida Sec 148(UP) 5) 400/220 KV 500 MVA ICT 2 at Noida Sec 148(UP) 6) 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-1
20	GI-2	Rajasthan	19-Apr-2023 12:13	19-Apr-2023 14:14	2:01	950	0	1.758	0.000	54048	51609	i) During antecedent condition, loading of 400KV Bikaner(PG) end of 400KV Bikaner(PG)-Bikaner(RS) ckt-1 & 2 were 1010MW and 1013MW respectively (current of approx. 1430A in each circuit). ii) As reported, at 12:13 hrs, 400KV Bikaner(PG)-Bikaner(RS) ckt-2 tripped from POWERGRID end only on zone-4 distance protection operation. Fire is observed in one of the core in main bay R-ph current transformer junction box. It led to the false current measurement by the CT of the tune of 5KA and initiated tripping in Z-4. iii) As per PMU, no fault in system is observed. iv) As no fault is observed in system as per PMU, it seems mal-operation of protection system due to false measurement by R-ph CT of 400KV Bikaner(PG)-Bikaner(RS) ckt-2 at Bikaner(PG) end. v) With the tripping of 400KV Bikaner(PG)-Bikaner(RS) ckt-2, loading of 400KV Bikaner (PG)-Bikaner (RS) ckt-1 increased and SPS operated (condition for SPS operation: current on any circuit of 400KV Bikaner (PG)-Bikaner (RVN) D/C line exceeds 2100A). vi) As per SOE, the following details are observed: vii) At 12:13:08hrs, 400KV Bikaner(PG) end of 400KV Bikaner(PG)-Bikaner(RS) ckt-2 tripped. viii) After 2 sec, at 12:13:10hrs, 220KV Bikaner(PG)-Thar Surya ckt and 220KV Bikaner(PG)-TPGEL ckt tripped (SPS Stage-I operated). ix) After 4 sec, at 12:13:12hrs, 400KV Bikaner(PG)-Bikaner(Renew) ckt tripped (SPS Stage-II operated). At the same time, 400KV Bikaner(Renew)-Renew Surya Ravi(IP) ckt also tripped (as reported line tripped on over voltage). x) After 6 sec, at 12:13:14hrs, 400KV Bikaner(RS)-Sikar(PG) ckt-2 tripped (SPS Stage-III operated). xi) As per SCADA, change in RE generation (connected at Bikaner (PG)) of approx. 950MW is observed. xii) As per PMU, loss of RE generation of approx. 240MW in TPGEL, 295MW in TSPPL and 400MW in Bikaner Renew is observed.	1) 400KV Bikaner(PG)-Bikaner(RS) ckt-2 2) 220KV Bikaner(PG)-Thar Surya ckt 3) 220KV Bikaner(PG)-TPGEL ckt 4) 400KV Bikaner(PG)-Bikaner(Renew) ckt 5) 400KV Bikaner(Renew)-Renew Surya Ravi(IP) ckt 6) 400KV Bikaner(RS)-Sikar(PG) ckt-2
21	GI-2	Punjab	19-Apr-2023 01:17	19-Apr-2023 03:31	2:14	0	0	0.000	0.000	46191	54168	i) During the antecedent condition, 220 KV Moga(PG)-MEHAL- KALAN(PS) (PSTCL) Ckt-1, 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-1&3, 220 KV Moga(PG)-Ajitwal(PS) (PSTCL) Ckt and 400/220 KV 500 MVA ICT 3 at Moga(PG) were connected to 220KV Bus-2 at Moga(PG) and 220 KV Moga(PG)-MEHAL- KALAN(PS) (PSTCL) Ckt-2, 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-2&4, 220 KV Moga(PG)-Badhi Kalan(PS) (PSTCL) Ckt were connected to 220KV Bus-1 at Moga(PG). ii) As reported, at 01:17hrs, 220 KV Moga(PG)-MEHAL- KALAN(PS) (PSTCL) Ckt-1 tripped on R-N phase to ground fault. Distance was 160m and fault current was 280A from Moga(PG) end. iii) Due to this through fault, bus bar protection mal-operated at 220KV Bus-2 at Moga(PG) and all the elements connected to Bus-2 got tripped and 220KV Bus-2 at Moga(PG) became dead. iv) As per DR at 220KV Moga(PG) end of 220 KV Moga(PG)-MEHAL- KALAN(PS) (PSTCL) Ckt-1, R-N phase to ground fault is observed; zone-1 distance protection operated with fault current in R-phase of 280A. Followed by Z-2, busbar protection operated which seems to be a mal-operation of relay. v) As per PMU at Moga(PG), R-N phase to ground fault with fault clearance time of 80msec is observed. vi) As per SCADA, no load loss has been observed in Punjab control area as Moga(PS) has alternate connectivity from 220KV Firoz & Botia feeders.	1) 220 KV Moga(PG)-MEHAL- KALAN(PS) (PSTCL) Ckt-1 2) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-1 3) 220 KV Moga(PG)-MOGAN(PS) (PSTCL) Ckt-3 4) 220 KV Moga(PG)-Ajitwal(PS) (PSTCL) Ckt 5) 400/220 KV 500 MVA ICT 3 at Moga(PG) 6) 220KV Bus 2 at Moga(PG)

**Details of Grid Events during the Month of April 2023 in Northern Region**



Sl No.	Category of Grid Event (GI for 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HEMM)	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
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
22	GI-2	Jammu & Kashmir	20-Apr-2023 13:57	20-Apr-2023 14:24	0.27	0.175	0	0.000	0.000	53337	49802	i) During the antecedent condition, 130 MW Dulhasti HPS - UNIT 1, 2 & 3 were generating approx. 130MW each and total power of 390MW was evacuating through 400KV Dulhasti(NH)-Kishenpur(PG) ckt-1 as 400KV Dulhasti(NH)-Kishenpur(PG) ckt-2 was under shutdown. ii) As reported, details of the event are as follows: # At 13:57hrs, 400KV Dulhasti(NH)-Kishenpur(PG) ckt-1 tripped on R-N phase to ground fault and successfully auto redosed from Dulhasti(NH) end. # However due to single pole opening in 400KV Dulhasti(NH)-Kishenpur(PG) ckt-1 while 400KV Dulhasti(NH)-Kishenpur(PG) ckt-2 was under shutdown, residual current was flowing through GT neutral resulting operation of GT neutral over current Protection & tripped all the three running units. iii) As per DR of 400KV Dulhasti(NH)-Kishenpur(PG) ckt-1 installed at Dulhasti(NH) end, it is observed that R-Phase voltage reduced to 89.23 KV and R-Phase current increased to 1937 A. Accordingly relay sensed the fault in Z1 in R-N Phase fault at 13:57:57.016 Hrs and auto redosed operation started in R-Phase at 13:57:57.021 Hrs. Finally successfully auto redosed after dead time at 13:57:58.015 Hrs from Dulhasti end. iv) As per DR of 130 MW Dulhasti HPS - UNIT 2, it is observed that unit tripped on neutral over-current protection (S0/S1N). GT neutral over current protection started at 13:57:57.04hrs & tripped after time delay of 1.0 sec i.e. 13:57:58.038 Hrs. v) As remedial action taken, the GT neutral over current setting time delay has been changed to 1.2 Sec from 1.0 Sec as reported by Dulhasti(NH). vi) As per PMU at Kishenpur(PG), R-N phase to ground fault with successful A/R operation is observed. vii) As per SCADA, generation loss of approx. 390MW is observed at Dulhasti(NH).	1) 130 MW Dulhasti HPS - UNIT 1 2) 130 MW Dulhasti HPS - UNIT 2 3) 130 MW Dulhasti HPS - UNIT 3
23	GD-1	Punjab	23-Apr-2023 05:41	23-Apr-2023 12:30	6.49	0	0	0.000	0.000	39735	46538	i) As per the information received and communication with 400KV Rajpura TPS, brief of the event are as follows: a) 400 KV Rajpura TPS(NPL) has one and half breaker bus scheme. b) At 05:40:59hrs, 400 KV Rajpura TPS(PG)-Nakodar(PG) (PS) Ckt-2 tripped on R-N phase to earth fault, fault distance was ~290meter (Z-1) and fault current was ~300A from Rajpura TPS end. c) At the same instant, B-N phase to earth bus fault also occurred on 400KV Bus-2 at Rajpura TPS(NPL), which led the opening of all the Main Cbs connected at 400KV Bus-2. d) Further after 3sec at 05:41:02 hrs, 700MW Unit-1 at Rajpura TPS tripped on back-up directional overcurrent protection (reverse) operation. Tripping of Unit after clearance of line B bus fault need to be looked into. e) With the tripping of Unit-1, 400 KV Rajpura TPS(PG)-Nakodar(PG) (PS) Ckt-1 also tripped as it was on the same dia with Unit-1. f) Further after approx. 20min, at 06:00:49hrs, 700MW Unit-2 at Rajpura TPS also tripped on directional overcurrent protection (reverse) operation. g) With the tripping of Unit-2, 400 KV Rajpura TPS(PG)-Rajpura(PS) (PS) Ckt-2 also tripped as it was on the same dia with Unit-2 h) As per PMU at 400KV Bhawan(PG), R-N phase to earth fault which cleared within 80 msec is observed. iii) Generation loss of approx. 670MW at 05:41hrs and approx. 660MW at 06:00 hrs due to tripping of 700MW Unit-1 & Unit-2 at Rajpura TPS (NPL) respectively.	1) 400 KV Rajpura TPS(PG)-Nakodar(PG) (PS) Ckt-2 2) 400KV Bus 2 at Rajpura TPS(PG) 3) 700 MW Rajpura(NPL) TPS - UNIT 1 4) 400 KV Rajpura TPS(PG)-Nakodar(PG) (PS) Ckt-1 5) 700 MW Rajpura(NPL) TPS - UNIT 2 6) 400 KV Rajpura TPS(PG)-Rajpura(PS) (PS) Ckt-2
24	GI-1	Jammu & Kashmir	24-Apr-2023 17:00	24-Apr-2023 23:28	6.28	0	45	0.000	0.103	43901	43891	i) 220/132KV Ziankote S/s has two bus at 220KV side i.e., main bus & reserve bus. ii) During antecedent condition, 220KV Ziankote was operating in bus split mode viz. 220KV Amargarh(INDIGRID) -Ziankote(JK) D/C (carrying 126MW each) was feeding Ziankote load. 120KV Wagoora-Ziankote(JK) D/C (carrying 140MW & 114MW) was connected at other bus and feeding Alusteng. 220KV Wagoora-Ziankote ckt-1 is tapped in between and feeds Qazibagh Budgam ckt also. iii) As reported by J&K, R-N phase to earth fault occurred at Qazibagh Budgam ckt due to insulator disc rupture at location ~6.8km from Ziankote end. On this fault, 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-1 tripped, fault was in Z-1 (6.8km) from Ziankote end, fault current was approx. 3.06kA. iv) As per PMU at Kishenpur(PG), R-N phase to earth fault which cleared within 100msec is observed. v) Due to tripping of 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-1, load of Qazibagh Budgam ckt got affected. vi) As per SCADA, load loss of approx. 45MW occurred in J&K control area. vii) 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-1 was charged at 23:28hrs and load of Qazibagh Budgam also restored.	1) 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-1
25	GI-1	Jammu & Kashmir	25-Apr-2023 10:33	25-Apr-2023 12:34	2.01	115	0	0.218	0.000	50503	50018	i) During antecedent condition, 115 MW Salal HPS - UNIT 6, 220 KV Salal(NH)-Jammu(PDD) (PG) Ckt-2, 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-1 & 3 were connected to 220KV Bus 1 at Salal(NH) and rest of the elements were connected to 220KV Bus 2 at Salal(NH). ii) As reported, at 10:33hrs, during time of synchronization of 115 MW Salal HPS - UNIT 5, instantaneous generator over-current protection operated and due to stalling of R-Phase CB of Unit-5, LBB protection operated in 220KV Bus-1 leading to the tripping of all the connected elements to Bus-1. iii) As per DR of generator protection relay of Unit-5 installed at Salal(NH) end. # The R-Phase & B-Phase current increased to 27.8 kA and 27.7 kA respectively at the time of synchronization of unit. # The instantaneous over current protection function of generator protection relay operated which led to operation of master trip relay 86Y. # However due to stalling of R-Phase CB and operation of master trip relay 86Y, LBB tripping initiated from Unit-5 after time delay of 200 msec. # This resulted in tripping of all the connected elements to Bus-1 i.e. 115 MW Salal HPS - UNIT 6, 220 KV Salal(NH)-Jammu(PDD) (PG) Ckt-2, 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-1 & 3 and Bus coupler CB. iv) As per PMU at 400KV Kishenpur(PG), R-N phase to ground fault is observed in the system with delayed fault clearing time of 320ms. v) As per SCADA, generation loss of approx. 115MW is observed at Salal(NH).	1) 115 MW Salal HPS - UNIT 6 2) 115 MW Salal HPS - UNIT 5 3) 220 KV Salal(NH)-Jammu(PDD) (PG) Ckt-2 4) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-1 5) 220 KV Kishenpur(PG)-Salal(NH) (PG) Ckt-3 6) 220KV Bus 1 at Salal(NH)
26	GI-1	Rajasthan	26-Apr-2023 16:26	27-Apr-2023 09:08	16.42	270	0	0.584	0.000	46232	49255	i) During the antecedent condition, AHEJAL PSS3 and PSS4 was feeding 60MW and 137MW respectively to 220 KV Adani Fatehgarh Solar park. ii) As reported, at 12:39 hrs, due to stormy weather condition, Sulcon tower at location no. 127 and 128 collapsed and its conductor touched line conductors of 220 KV Adani Fatehgarh Solar park-AHEJAL PSS3 and PSS4 cts. Hence both the ccts tripped. iii) As per DR at Adani Fatehgarh Solar park, 220 KV Adani Fatehgarh Solar park-AHEJAL PSS3 ckt tripped on R-Y-B 3-phase fault (zone-1 distance protection operated) with fault distance of 20km from Adani Fatehgarh Solar park end and fault current of approx. 6.5kA in R-phase, 6.9kA in Y-phase and 6.4kA in B-phase. iv) As per DR at Adani Fatehgarh Solar park, 220 KV Adani Fatehgarh Solar park-AHEJAL PSS4 ckt tripped on R-Y-B 3-phase fault (zone-1 distance protection operated) with fault distance of 22.5km from Adani Fatehgarh Solar park end and fault current of approx. 5.4kA in R-phase, 0 in Y-phase(already tripped) and 5.7kA in B-phase. v) As per PMU at 400KV AFSP(S/P), R-Y-B 3-phase fault is observed with fault clearing time of 120ms. vi) As per SCADA, change in NR Wind generation of approx. 270 MW is observed.	1) 220 KV Adani Fatehgarh Solar park-AHEJAL PSS3 ckt 2) 220 KV Adani Fatehgarh Solar park-AHEJAL PSS4 ckt

**Details of Grid Events during the Month of April 2023 in Northern Region**



Sl No.	Category of Grid Event (GI for 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HEMM)	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
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
27	GD-1	Himachal Pradesh	26-Apr-2023 05:08	26-Apr-2023 11:05	5:57	0	0	0.000	0.000	38826	47053	i) During antecedent condition, no Generating Unit of NIPCI(SI) was under operation. 250 MW Nathpa-Jhakri HPS - UNIT 1, 3 & 5, 400 KV Nathpa Jhakri(SI)-Rampur HEP(SI) (PG) Ckt-1, 400 KV Nathpa Jhakri(SI)-Gumma (HP) (PG) Ckt-1, 400 KV Nathpa Jhakri(SI)-Karcham Wangtoo(JSW) (HBPCL) Ckt-1 and 400/22 KV 25 MVA ST 1 at Nathpa Jhakri(SI) were connected to 400KV Bus 1 at Nathpa Jhakri(SI) and 250 MW Nathpa-Jhakri HPS - UNIT 2, 4 & 6, 400 KV Nathpa Jhakri(SI)-Rampur HEP(SI) (PG) Ckt-2, 400 KV Nathpa Jhakri(SI)-Gumma (HP) (PG) Ckt-2, 400 KV Nathpa Jhakri(SI)-Karcham Wangtoo(JSW) (HBPCL) Ckt-2 and 80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SI) were connected to 400KV Bus 2 at Nathpa Jhakri(SI). ii) As reported, at 05:08hrs, during time of synchronisation of 250 MW Nathpa-Jhakri HPS - UNIT 1 as per generation schedule, a flashover occurred in R phase Generator Circuit breaker that is cleared by Bus Bar Protection. iii) As per DR installed at Nathpa Jhakri(SI) end, ☒ As the maximum fault current observed by Bus Bar protection relay (low impedance) is of approx. 10.4kA magnitude in R phase to Ground at 05:08:41 hrs, the Bus Bar-1 protection operated and tripped all the element connected on Bus-1 ☒ Consequently, high impedance relay also detects differential current of magnitude of 6.7 kA in Bus-2 and initiated Bus-Bar -2 protection and tripped all the elements connected on Bus 2. ☒ However no flashover/fault observed with electrical equipment's associated with Bus Bar-2. iv) As per PMU at 400KV Panchkula(PG), voltage dip of approx. 10kV (phase to phase) followed by R-N phase to ground fault is observed in the system with fault clearance time of 80ms. v) As per SCADA, no generation loss is observed at NIPCI(SI) (machine was about to sync).	1) 400 KV Nathpa Jhakri(SI)-Karcham Wangtoo(JSW) (HBPCL) Ckt-1 2) 400 KV Nathpa Jhakri(SI)-Karcham Wangtoo(JSW) (HBPCL) Ckt-2 3) 400 KV Nathpa Jhakri(SI)-Rampur HEP(SI) (PG) Ckt-1 4) 400 KV Nathpa Jhakri(SI)-Rampur HEP(SI) (PG) Ckt-2 5) 400 KV Nathpa Jhakri(SI)-Gumma (HP) (PG) Ckt-1 6) 400 KV Nathpa Jhakri(SI)-Gumma (HP) (PG) Ckt-2 7) 400KV Bus 1 at Nathpa Jhakri(SI) 8) 400KV Bus 2 at Nathpa Jhakri(SI) 9) 400/22 kv 25 MVA ST 1 at Nathpa Jhakri(SI) 10) 80 MVAR Bus Reactor No 1 at 400KV Nathpa Jhakri(SI)
28	GD-1	Uttar Pradesh	26-Apr-2023 08:56	26-Apr-2023 10:36	1:40	0	280	0.000	0.542	48992	51620	j) As per the information received and communication with 400/220KV Sultanpur(UP), brief of the event are as follows: a) As reported, switching operations was being done to shift all the elements to 220KV Bus-1 at Sultanpur to avail the shutdown of 220KV bus-2 at Sultanpur. b) At 08:56hrs, Y-ph bus isolator of 220KV Sultanpur-Tanda New ckt damaged during switching operation and created Y-N bus fault. c) As bus bar protection at 220KV side of 400/220KV Sultanpur(UP) is not healthy, 220KV lines to Tanda, New Tanda, Sohawal & Pratagarh tripped on Z-4 distance protection operation with 160msec time delay. 220KV lines to Amethi and Sangpur tripped from remote end in Z-2/Z-3 distance protection operation. d) Further after 600msec, 400/220KV 315MVA ICT-3 at Sultanpur tripped on over current earth fault protection operation. e) As remaining KTs didn't trip yet, fault was still persisting which led to the tripping of 400KV lines to Tanda, Lucknow and Obra_B from remote end in Z-3 (=1sec time delay) distance protection operation further after 200msec of ICT-3 tripping. f) With the tripping of 400KV lines, fault got cleared. g) Thereafter, 400/220KV 315MVA ICT-3 at Sultanpur was hand tripped. h) As per PMU, Y-N fault which further converted into R-Y and then R-Y-B fault with delayed clearance of 1560msec is observed. iii) As per SOE, tripping of 400/220KV 315MVA ICT-2 not recorded. iv) As per SCADA, change in load loss of approx. 280MW occurred in Uttar Pradesh control area.	1) 400 KV Sultanpur(UP)-Lucknow_1(PG) (PG) ckt 2) 400 KV Obra_B-Sultanpur (UP) Ckt 3) 400 KV Tanda(NT)-Sultanpur(UP) (UP) Ckt 4) 400/220 kv 315 MVA ICT 1 at Sultanpur(UP) 5) 400/220 kv 315 MVA ICT 2 at Sultanpur(UP) 6) 400/220 kv 315 MVA ICT 3 at Sultanpur(UP) 7) 220/132KV 160MVA ICT-1 at Sultanpur(UP) 8) 220KV Sultanpur-Pratagarh ckt 9) 220KV Sultanpur-Tanda New ckt 10) 220KV Sultanpur-Tanda ckt 11) 220KV Sultanpur-Sohawal ckt 12) 220KV Sultanpur-Sangpur ckt 13) 220KV Sultanpur-Amethi ckt

**Details of Grid Events during the Month of April 2023 in Western 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 (HH:MM)	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
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GI-2	WR	05-Apr-23 06:36	05-Apr-23 07:42	1:06	180	-	0.003	-	66742	60725	At 06:36 Hrs/05-04-2023, MSLDC Kalwa issued code to diable A/R of 400 kv Koradi-Khaparkhedha 1. During execution of code, LBB mal-operated and resulted in tripping of all the elements connected to 400 kv Koradi Bus 1. Koradi Unit 6 (210 MW), 400/220 kv Koradi ICT-1, 400 kv Koradi- Bhusawal, 400 kv Koradi- Bhilai, 400 kv Koradi- Satpura and 400 kv Koradi Khaparkhedha Ckt 1 tripped along with 400 kv Koradi Bus 1. As intimated by MSLDC Kalwa, Generation loss of 180 MW occurred at 400 kv Koradi due to the event.	Tripping of 1. 400 kv Koradi- Bhusawal 2. 400 kv Koradi- Bhilai 3. 400 kv Koradi- Satpura 4. 400 kv Koradi- Khaparkhedha 1 5. 400/220 kv Koradi ICT 1 6. 210 MW koradi Unit 6
2	GI-2	WR	06-Apr-23 17:40	06-Apr-23 20:02	2:22	393	-	0.006	-	66412	61334	At 17:40 Hrs/06-04-2023, R-phase CT of 402 Bay failed at 400 kv MCCPL station. This failure resulted in tripping of 400kv MCCPL-Bilaspur line on Zone-IV (reverse) protection operation and MCCPL Unit-1 (300MW) generating 268MW on Teed differential protection operation. At the same time, ACBIL Unit-1 (135MW) generating 125MW also tripped on excitation loss. Generation loss of 393 MW occurred at MCCPL and ACBIL due to the event.	Tripping of 1. 400 kv MCCPL- Bilaspur 2. 300 MW MCCPL Unit 1 3. 135 MW ACBIL Unit 1
3	GI-1	WR	14-Apr-23 00:38	14-Apr-23 00:46	0:08	-	106	-	0.002	73160	63502	At 00:38 Hrs/14-04-2023, 220 kv Amona- Ponda 1 & 220 kv Mapusa- Amona tripped on B-E fault (both circuit in same tower) due to earth wire snapping at location no. 94. Due to the delayed clearance of fault from Ponda end, 220/110 kv Ponda ICTs 2&3 tripped on B/U E/F protection operation. There was a load loss of 106 MW due to the event.	Tripping of 1. 220 kv Amona- Ponda 1 2. 220 kv Mapusa- Amona 3. 220/110 kv Ponda ICTs 2&3
4	GI-2	WR	15-Apr-23 13:34	15-Apr-23 14:43	1:09	-	-	-	-	67899	63709	At 13:34 Hrs/15-04-2023, R phase CB pole of 400 kv Pachchham line blasted at 400 kv Chorania substation and resulted in tripping of all the elements connected to 400 kv Chorania Bus 2. There was no load loss due to the event.	Tripping of 1. 400 kv Chorania- Amrelli 2. 400 kv Chorania- Asoj 2 3. 400 kv Chorania- Charal 4. 400 kv Chorania- Mansar 5. 400 kv Chorania- Vadavi 1 7. 400 kv Chorania- Pachchham 6. 400/220 kv Chorania ICTs 1,2&3
5	GD-1	WR	15-Apr-23 15:56	15-Apr-23 18:41	2:45	20	-	0.000	-	73884	66997	At 15:56 Hrs/15-04-2023, 220 kv Bhuj- Kota Madh line tripped at Kota Madh end on O/C&E/F protection operation. As reported by site, Y-Phase CT Secondary connection found loose and the same was tightened. There was a generation loss of around 20 MW at 220 kv Kotda Madh (Alfanar) Wind Power Plant.	Tripping of 1. 220 kv Bhuj- Kotda Madh
6	GD-1	WR	17-Apr-23 17:24	17-Apr-23 19:50	2:26	100	-	0.001	-	74592	66077	At 17:24 Hrs/17-04-2023, 220 kv Bhuj-Dayapar-2 line tripped on B phase to earth fault. There was a generation loss of around 100 MW at 220 kv Dayapar (Inox) Wind Power Plant.	Tripping of 1. 220 kv Bhuj-Dayapar-2
7	GI-1	WR	22-Apr-23 15:12	22-Apr-23 16:34	1:22	125	-	0.002	-	68858	63771	At 15:12 Hrs/22-04-2023,400 kv Chandrapur-Bus-2 and all connected elements tripped on bus bar protection operation due to flash over in Y phase CT of 400 kv Chandrapur-Bhadrawati-2. There was a generation loss of around 125 MW at 400 kv Chandrapur due to the event.	Tripping of 1. 400 kv Chandrapur-Bus-2 2. 400 kv Chandrapur-Bhadrawati-1 & 2 3. 400 kv Chandrapur-Chandrapur(HVDC)-1 4. Chandrapur Unit-4 (210 MW)
8	GD-1	WR	22-Apr-23 21:32	22-Apr-23 22:58	1:26	-	96	-	0.002	69822	59253	At 21:32 Hrs/22-04-2023,220 kv Doma-Bus-1 & 2 and all connected elements tripped due to blasting of Y phase CT of bus coupler at Doma. 220 kv Raipur-Doma-1 & 2 tripped from Doma end only. There was a load loss of around 96 MW due to the event.	Tripping of 1. 220 kv Doma-Bus-1 & 2 2. 220 kv Raipur-Doma-1 & 2 3. 220/132 kv Doma-ICT-1 & 2
9	GI-1	WR	24-Apr-23 19:50	24-Apr-23 21:26	1:36	175	-	0.002	-	70069	60793	At 19:50 Hrs / 24-04-2023,132 kv ACBIL-Renki-1 tripped on R phase to earth fault. Due to delayed clearance of fault, 400/132 kv ACBIL-ICT-1 & 2 tripped on Back up Earth fault protection operation. Heavy thunderstorm reported during the event by ACBIL. There was a generation loss of around 175 MW at 132 kv ACBIL due to loss of evacuation path.	Tripping of 1. 132 kv ACBIL-Renki-1 2. 400/132 kv ACBIL-ICT-1 & 2

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
10	GD-1	WR	25-Apr-23 19:54	26-Apr-23 02:38	6:44	117	-	0.002	-	70376	60415	At 19:54 Hrs/25-04-2023, 220 kV Bhuj- Dayapar-2 line tripped at Bhuj end only on B phase to earth fault . As reported by site, Rope found hanging at tower location 111. There was a generation loss of around 117 MW 220 kV Dayapar (Inox) Wind Power Plant.	Tripping of 1. 220 kV Bhuj- Dayapar-2
11	GD-1	WR	26-Apr-23 11:40	26-Apr-23 20:21	8:41	86	-	0.001	-	67822	64478	At 11:40 Hrs/26-04-2023, 220 kV Bhuj- Dayapar-2 line tripped at Bhuj end only on B phase to earth fault . As reported by site, rope found hanging at tower location 111 . There was a generation loss of around 86 MW 220 kV Dayapar (Inox) Wind Power Plant.	Tripping of 1. 220 kV Bhuj- Dayapar-2
12	GD-1	WR	28-Apr-23 15:58	28-Apr-23 17:51	1:53	149	-	0.002	-	65622	59495	At 15:58 Hrs/28-04-2023, 220 kV Indore(PG)-Pritamagar(AWEMP1PL) line tripped on R phase to ground fault. There was a generation loss of around 149 MW at Pritamagar (SBESS) Wind Power Plant.	Tripping of 1. Indore(PG)-Pritamagar(AWEMP1PL)

**Details of Grid Events during the Month of April 2023 in Southern Region**



Sl No.	Category of Grid Event ( GI for 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 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)	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	04-Apr-23 10:58	04-Apr-23 11:40	42mins	0	400	0.00%	0.68%	50576	59229	Complete Outage of 220kV/66kV Begur SS, 220kV/66kV KHWPK SS, 220kV/66kV Hosakote SS, Tripping of 220kV Bus-1 of 220kV/66kV DB Pura SS and Multiple trippings at 400kV/220kV Devanahalli SS of KPTCL: During antecedent conditions, 220kV/66kV DB Pura was operating under split bus condition with 220kV Begur DB Pura line feeding 220kV DB Pura Bus-1. 220kV/66kV Begur SS, 220kV/66kV KHWPK SS, 220kV/66kV Hosakote SS were being radially fed from 220kV Devanahalli KHWPK line-1&2 and 220kV Begur Hoody line. As per the reports submitted, the triggering incident was suspected 220kV Bus-1 and Bus-2 fault at Devanahalli SS during bus changeover activity. Fault was cleared by tripping of 400kV/220kV Devanahalli ICT-1&2 on backup Earth Fault protection. This led to loss of supply at 220kV Devanahalli Bus. Subsequently, 220kV Hoody Begur line tripped on RY fault. This led to complete outage of 220kV/66kV Begur SS, 220kV/66kV KHWPK SS, 220kV/66kV Hosakote SS and loss of supply to 220kV Bus-1 of 220kV/66kV DB Pura SS.	1. 400kV/220kV Devanahalli ICT-1,2 2. 220kV Begur KHWPK Line-1 3. 220kV Hoody Begur Line
2	GD-1	Kerala	04-Apr-23 16:24	04-Apr-23 17:08	44mins	0	86	0.00%	0.15%	46605	57669	Complete Outage of 220kV/66kV Kaniyampetta SS of KSEB and Tripping of 220kV Bus-2 of 220kV/66kV Hootagalli SS and 220kV Bus-2 of 220kV/66kV Kadakola SS of KPTCL: 220kV/33kV Kaniyampetta SS was operating with single bus at 220kV level. 220kV/66kV Hootagalli SS and 220kV/66kV Kadakola SS were operating under split bus conditions at 220kV level. 220kV Bus-2 of 220kV/66kV Kadakola SS was being radially fed from 220kV Kaniyampetta Kadakola line and 220kV Bus-2 of 220kV/66kV Hootagalli SS was being radially fed from 220kV Kadakola Hootagalli line. As per the reports submitted, the triggering incident was 220kV Bus BPP operation at Kaniyampetta SS during charging of 220kV/66kV 50MVA Transformer-1 at Kaniyampetta end. This led to complete outage of 220kV/33kV Kaniyampetta SS which further led to supply failure to 220kV Bus-2 at 220kV/66kV Kadakola SS and 220kV/66kV Hootagalli SS.	1. 220kV Kadakola Kaniyampetta 2. 220kV Kaniyampetta Kunnangalam
3	GD-1	Karnataka	06-Apr-23 13:25	06-Apr-23 13:56	31mins	300	40	0.60%	0.07%	50155	59770	Complete Outage of 220kV Nagjheri PH, 220kV Kodalalli PH, 220kV Kadra PH of KPCL and 220kV/110kV Karwar SS of KPTCL: During antecedent conditions, 220kV Nagjheri PH was operating with single bus configuration at 220kV level. 220kV Kaiga Kadra and 220kV Kaiga Kodalalli were under outage. 220kV Kodalalli PH, 220kV Kadra PH and 220kV/110kV Karwar SS were being radially fed from 220kV Nagjheri PH. As per the reports submitted, the triggering incident was B-N fault in 220kV Bus at Nagjheri PH. The fault was cleared by tripping 220kV lines on remote ends on zone-2 protection and Units on Backup Earth fault protection. This led to complete outage of 220kV Nagjheri PH, 220kV Kodalalli PH, 220kV Kadra PH and 220kV/110kV Karwar SS.	1. 220kV Nagjheri Ambewadi line-1&2 2. 220kV Nagjheri Hubli Line-1,2&3 3. 220kV Nagjheri Bidnal 4. 220kV Nagjheri Kodalalli Line-1&2
4	GD-1	Karnataka	09-Apr-23 12:03	09-Apr-23 12:30	27mins	0	245	0.00%	0.44%	48073	55134	Complete Outage of 220kV/66kV Hebbal SS, 220kV/66kV HBR Layout SS and Multiple trippings at 220kV/66kV Manyatha Tech Park SS and 220kV/66kV Hoody SS of KPTCL: During antecedent conditions, 220kV Hebbal Sahakar Nagar and 220kV Manyatha Yelahanka line were under LC and there was bus split operation at 220kV Manyatha Tech Park SS. 220kV Hebbal SS was fed from 220kV Bus-1 of 220kV/66kV Manyatha Tech Park SS which was being fed from 220kV HBR Layout Manyatha Tech park line. 220kV/66kV HBR Layout SS was radially fed from 220kV/66kV Hoody SS. As per the reports submitted, the triggering incident was R-N fault in 220kV Hoody Begur line and the line tripped only at Begur end on DEF protection. At Hoody end, breaker failed to open and 220kV Bus sectionaliser of Bus-1 tripped. This led to complete outage of 220kV/66kV Hebbal SS, 220kV/66kV HBR Layout SS and Multiple trippings at 220kV/66kV Manyatha Tech Park SS and 220kV/66kV Hoody SS.	1. 220kV Hoody Begur
5	GD-1	Karnataka	13-Apr-23 10:15	13-Apr-23 10:30	15mins	0	30	0.00%	0.05%	52501	62126	Complete Outage of 220kV Kodalalli PH, 220kV Kadra PH of KPCL and 220kV/110kV Karwar SS of KPTCL: During antecedent conditions, 220kV Kaiga Kadra and 220kV Kaiga Kodalalli were under outage. 220kV Kadra PH and 220kV/110kV Karwar SS were being radially fed from 220kV Kodalalli PH. As per the reports submitted, the triggering incident was tripping of all connected lines at 220kV Kodalalli PH on operation of CTD due to loss of DC supply. This resulted in complete outage of 220kV Kodalalli PH, 220kV Kadra PH and 220kV/110kV Karwar SS.	1. 220kV Nagjheri Kodalalli Line-1&2 2. 220kV Kadra Kodalalli
6	GD-1	Karnataka	15-Apr-23 18:01	15-Apr-23 19:09	1hr 8mins	19	0	0.05%	0.00%	40682	51170	Complete Outage of 220kV/66kV Tirumani SS-1, 220kV/66kV Tirumani SS-2 and 220kV/66kV Rychalu_1 SS of KSPDCL: As per the reports submitted, the triggering incident was the operation of over voltage protection of 220kV Pavagada Tirumani Line-1&2, 220kV Pavagada Rychalu line at Tirumani and Rychalu ends respectively. Since 220kV/66kV Tirumani SS-1, 220kV/66kV Tirumani SS-2 and 220kV/66kV Rychalu_1 SS are radially connected to Pavagada, tripping of these lines resulted in a complete outage of 220kV/66kV Tirumani SS-1, 220kV/66kV Tirumani SS-2 and 220kV/66kV Rychalu_1 SS. At the same time, 400kV Pavagada Mysore Line-1 and 400kV Nelamangala Hassan Lines tripped on over voltage protection at Pavagada and Hassan end	1. 400kV Pavagada Mysore-1 2. 220kV Pavagada Tirumani-1,2 3. 220kV Pavagada Rychalu_1 4. 400kV Nelamangala Hassan
7	GD-1	Karnataka	20-Apr-23 09:49	20-Apr-23 09:56	7mins	0	40	0.00%	0.06%	52446	61983	Complete Outage of 220kV Kodalalli PH, 220kV Kadra PH of KPCL and 220kV/110kV Karwar SS of KPTCL: During antecedent conditions, 220kV Kaiga Kadra and 220kV Kaiga Kodalalli were under outage. 220kV Kadra PH and 220kV/110kV Karwar SS were being radially fed from 220kV Kodalalli PH. As per the reports submitted, the triggering incident was tripping of all connected lines at 220kV Kodalalli PH on operation of CTD due to loss of DC supply. This resulted in complete outage of 220kV Kodalalli PH, 220kV Kadra PH and 220kV/110kV Karwar SS.	1. 220kV Nagjheri Kodalalli Line-1&2 2. 220kV Kadra Kodalalli
8	GD-1	Tamil Nadu	22-Apr-23 14:27	22-Apr-23 15:26	59mins	160	230	0.34%	0.41%	47338	56401	Complete Outage of 230kV OPGC Alamathy and Tripping of 230kV Bus-1 & 2 at 400kV/230kV/110kV Alamathy SS of TANTRANSOCO: 230kV OPGC Alamathy is radially connected to 400kV/230kV/110kV Alamathy SS. As per the reports submitted, due to heavy wind and rain, all the 230kV lines connected to 230kV Bus-1 tripped on different faults from 13:55hrs to 14:37hrs. At 14:27hrs, an insulator connected to 230kV Alamathy OPGC Line-1 failed and fell on 230kV Bus-2 at 400kV/230kV/110kV Alamathy SS causing a bus fault. Immediately, the BPP of the 230kV Bus-2 operated and all the elements connected to the bus tripped. Subsequently, 400kV/230kV Alamathy ICT-5 tripped on over current protection leading to the outage of 230kV Bus-1 & 2 at 400kV/230kV/110kV Alamathy SS. This resulted in complete outage of 230kV Alamathy OPGC.	1. 400kV/230kV Alamathy ICT-3 & 5 2. 230kV Alamathy OPG Line-1&2 3. 230kV Manali Alamathy Line-1 & 2 4. 400kV Manali Alamathy 5. 230kV NCTPS Alamathy 6. 230kV Alamathy Kyambedu 7. 230kV Alamathy Thiruverkadu 7. 230kV Alamathy Mosur



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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
9	GD-1	Karnataka	22-Apr-23 15:46	22-Apr-23 16:10	24mins	0	170	0.00%	0.30%	45266	55773	Complete Outage of 220kV/66kV KIADB Harohalli SS and 220kV/66kV Kanakpura SS of KPTCL: During antecedent conditions, 220kV Kanakpura TK Halli Line was under shutdown. 220kV/66kV KIADB Harohalli SS and 220kV/66kV Kanakpura SS were being radially fed through 220kV Somanahalli Harohalli line. As per the reports submitted, the triggering incident was R-N fault in 220kV Somanahalli Harohalli line and the line tripped at both ends. Tripping of this line resulted in complete outage of Complete Outage of 220kV/66kV KIADB Harohalli SS and 220kV/66kV Kanakpura SS.	1. 220kV Somanahalli Harohalli
10	GD-1	Andhra Pradesh	23-Apr-23 06:35	23-Apr-23 10:22	3hr 47mins	0	0	0.00%	0.00%	38295	46307	Complete Outage of 400kV Gautami CCPP: During antecedent conditions, 400kV Vemagiri Gautami Line-2 was under idle charged condition from Vemagiri end. As per the reports submitted, the triggering incident was R-N fault in 400kV Vemagiri Gautami Line-1 and the line tripped. Tripping of the only connected line resulted in complete outage of 400kV Gautami CCPP.	1. 400kV Vemagiri Gautami Line-1
11	GD-1	Tamil Nadu	26-Apr-23 04:50	26-Apr-23 05:41	51mins	0	0	0.00%	0.00%	36240	41996	Complete Outage of 230kV/110kV Kadalangudi SS of TANTRANSO: As per the reports submitted, the triggering incident was line to ground fault in 230kV Kadalangudi PP Nallur line. At Kadalangudi end, breaker failed to open causing 230kV LBB to operate and all the elements connected to the bus got tripped. This led to complete outage of 230kV/110kV Kadalangudi SS. 230kV Kadalangudi is under single bus operation.	1. 230kV Kadalangudi PP Nallur-1&2 2. 230kV Kadalangudi Neyveli TS-II 3. 230kV Kadalangudi Neyveli 4. 230kV/110kV Kadalangudi Transformer-1&2
12	GD-1	Karnataka	27-Apr-23 16:34	27-Apr-23 18:08	1hr 34mins	963	0	2.18%	0.00%	44173	52305	Complete Outage of 400kV YTPS of KPCL: As per the reports submitted, the triggering incident was R-N fault in 400kV YTPS BPS line-1 and the line tripped. At the same time, 400kV YTPS BPS Line-2 also tripped. Tripping of both lines resulted in complete outage of 400kV YTPS.	1. 400kV YTPS BPS Line-1&2
13	GD-1	Karnataka	30-Apr-23 10:11	30-Apr-23 11:11	1hr	0	19	0.00%	0.04%	40489	45853	Complete outage of 220kV/66kV Guttur SAS SS and Tripping of 220kV Bus-1 of 400kV/220kV Guttur SS of KPTCL: As per the reports submitted, the triggering incident was the LBB maloperation of 220kV Guttur Guttur SASLine -1. Immediately, all the elements connected to 220kV Bus-1 tripped. Since 220kV/66kV Guttur SAS was being radially fed from 400kV/220kV Guttur SS, this resulted in complete outage of 220kV/66kV Guttur SAS SS.	1. 400kV/220kV Guttur ICT-2 2. 220kV Guttur Guttur SAS Line-1&2 3. 220kV Guttur Neelagunda 4. 220kV Guttur Davanagere Line-1&2
14	GI-2	Andhra Pradesh	01-Apr-23 15:32	01-Apr-23 23:47	8 hrs 15 mins	0	0	0.00%	0.00%	47186	58860	Tripping of 400kV Bus-1 of 400kV/220kV/11kV Guddigudem SS of APTRANSO: As per the reports submitted, the triggering incident was 400kV Bus-1 BBP maloperation at 400kV/220kV/11kV Guddigudem SS resulting in the tripping of all the elements connected to Bus-1.	1. 400kV Guddigudem KV Kota Line-1&2 2. 400kV Guddigudem KV Hiduga Line-2
15	GI-1	Andhra Pradesh	29-Apr-23 14:24	29-Apr-23 14:59	25mins	400	0	0.87%	0.00%	46211	50290	Tripping of 220kV Bus-2 of 220kV VTPS Generating station of APGENCO: As per the reports submitted, the triggering incident was R-Y fault in 220kV VTPS Nuziveedu line-2. AT VTPS end, Y-pole of breaker failed to open causing LBB to operate and all the elements connected to the 220kV Bus-2 tripped.	1. 220kV VTPS Nuziveedu Line-2 2. 220kV VTPS Gunadala Line-2 3. 220kV VTPS Kondapalli Line-2 4. 220kV VTPS Tadikonda Line-2 5. 220kV VTPS Narsaraopet 6. 220kV VTPS Chillakalu Line-2 7. 220kV VTPS Rentachinthal 8. 220kV VTPS Pidugurala Line-2 9. VTPS Unit-2,3&6
16	GI-1	Tamil Nadu	30-Apr-23 16:53	30-Apr-23 17:45	52mins	0	50	0.00%	0.12%	35015	42436	Tripping of 230kV Bus at 230kV/110kV Acharapakkam SS of TANTRANSO: 230kV/110kV Acharapakkam SS was operating with single bus configuration. As per the reports submitted, the triggering incident was Y-N fault in 230kV Kalpakkam Acharapakkam line. At Acharapakkam end, due to a discrepancy in breaker opening, LBB operated and all the elements connected to the bus tripped. 110kV level was intact during the event.	1. 230kV Acharapakkam Kalpakkam 2. 230kV Acharapakkam Villupuram 3. 230kV/110kV Acharapakkam Auto Transformer Line-2&3
17	GI-1	Telangana	30-Apr-23 21:55	01-May-23 00:16	2hrs 21mins	0	0	0.00%	0.00%	34779	41742	Tripping of 220kV Bus-1 of 220kV Upper Jurala PH of TSGENCO: During antecedent conditions, there was no generation at 220kV Upper Jurala PH. As per the reports submitted, the triggering incident was R-N fault in 220kV Jurala Raichur_KA Line-1. At the same time, the Bus Coupler tripped on over current protection. Tripping of only connected line and bus coupler resulted in de-energization of 220kV Bus-1 at 220kV Upper Jurala PH.	1. 220kV Jurala Raichur_KA Line-1 2. 220kV Bus coupler at 220kV Jurala PH

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD-1	Teesta-3, Dikchu	17.04.2023 21:33	17.04.2023 22:08	00:35	1234	0	3.85%	0.00%	32035	27275	At 21:33 Hrs, 400 kV Rangpo-Dikchu tripped due to B_N Fault leading to tripping of all running units at Teesta 3 and Dikchu due to loss of evacuation path as 400 kV Teesta 3-Rangpo already tripped at 20:53 Hrs due to Y_B_N fault. Around 1234 MW generation loss occurred (Teesta 3:1187 MW, Dikchu: 47 MW)	400 kV Teesta 3-Dikchu 400 kV Rangpo-Dikchu
2	GD-1	Teesta-3, Dikchu	17.04.2023 22:53	17.04.2023 23:21	00:28	1237	0	3.81%	0.00%	32446	27744	At 22:53 Hrs, 400 kV Rangpo-Dikchu tripped again due to B_N Fault leading to tripping of all running units at Teesta 3 and Dikchu due to loss of evacuation path as 400 kV Teesta 3-Rangpo was already under breakdown. Around 1237 MW generation loss occurred (Teesta 3:1188 MW, Dikchu: 49 MW)	400 kV Teesta 3-Dikchu 400 kV Rangpo-Dikchu
3	GD-1	Teesta-3, Dikchu	18.04.2023 03:27	18.04.2023 04:03	00:36	1096	0	3.58%	0.00%	30610	26595	At 03:27 Hrs, 400 kV Rangpo-Dikchu tripped again due to B_N Fault leading to tripping of all running units at Teesta 3 and Dikchu due to loss of evacuation path as 400 kV Teesta 3-Rangpo was already under breakdown. Around 1096 MW generation loss occurred (Teesta 3:1000 MW, Dikchu: 96 MW)	400 kV Teesta 3-Dikchu 400 kV Rangpo-Dikchu
4	GI-1	Tenughat	18.04.2023 13:19	18.04.2023 14:15	00:56	305	0	1.10%	0.00%	27802	29055	At 13:19 Hrs, B_ph CT of 220 kV Tenughat-Govindpur-2 burst at Tenughat. At the same time, both running units at Tenughat also tripped. Around 305 MW generation loss occurred at Tenughat.	U#1 and U#2 (210 MW each) at Tenughat 220 kV Tenughat-Govindpur-2
5	GD-1	Chandil	27.04.2023 07:12	27.04.2023 07:33	00:21	0	250	0.00%	1.15%	28581	21773	At 07:12 Hrs, 220 kV Bus PT at Chandil burst leading to tripping of all elements connected to 220 kV Bus at Chandil as bus bar protection is not available. This led to complete power failure at Chandil S/s and load loss of around 250 MW occurred at Rajkhasrawan, Chakradharpur, Jadugoda, Dalbhumgarh, Golmuri, Kendposi, Tamar, Khunti, Adityapur.	220 kV Ranchi-Chandil 220 kV Ramchandrapur-Chandil 220 kV Chandil-Santalidih

**Details of Grid Events during the Month of April 2023 in North Eastern Region**



Sl No.	Category of Grid Event ( G1 for 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	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	Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	01-Apr-23 17:45	01-Apr-23 18:28	0:43:00	0	14	0.00%	0.58%	2278	2429	Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Along - Daporijo Line.  At 17:45 Hrs on 01.04.2023, 132 kV Along - Daporijo Line tripped. Due to tripping of this element, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  132 kV Along - Daporijo Line was declared faulty at 18:28 Hrs on 01.04.2023. Power supply was extended to Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kV Along - Daporijo Line at 10:23 Hrs on 02.04.2023	132 kV Along - Daporijo Line
2	GD 1	Lumshnong area of Meghalaya Power System	02-Apr-23 04:55	03-Apr-23 05:20	0:25:00	0	20	0.00%	1.52%	2077	1312	Lumshnong area of Meghalaya Power System were connected with the rest of NER Grid through 132 kV Panchgram-Lumshnong Line. 132 kV Khleihriat-Lumshnong Line was already under tripped condition since 04:36 Hrs on 02.04.2023.  At 04:55 Hrs on 02.04.2023, 132 kV Panchgram-Lumshnong Line tripped. Due to tripping of this element, Lumshnong area of Meghalaya Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in this area.  Power supply was extended to Lumshnong area of Meghalaya Power System by charging 132 kV Khleihriat-Lumshnong Line at 05:20 Hrs on 02.04.2023.	132 kV Panchgram-Lumshnong Line
3	GD 1	Kohima, Meluri and Kiphire areas of Nagaland Power System	02-Apr-23 12:35	02-Apr-23 13:19	0:44:00	6	17	0.28%	0.98%	2133	1731	Kohima, Meluri and Kiphire areas of Nagaland Power System were connected with the rest of NER Grid through 132 kV Karong-Kohima & 132 kV Dimapur (PG) - Kohima Lines. 132 kV Kohima - Chephobozou Line was under state approved shutdown.  At 12:35 Hrs on 02.04.2023, 132 kV Karong-Kohima and 132 kV Dimapur (PG) - Kohima Lines tripped. Due to tripping of these elements, Kohima, Meluri and Kiphire areas of Nagaland Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Kohima, Meluri & Kiphire areas of Nagaland Power System by charging 132 kV Dimapur(PG)-Kohima Line at 13:19 Hrs on 02.04.2023.	132 kV Karong-Kohima & 132 kV Dimapur (PG) - Kohima Lines
4	GD 1	Kohima, Meluri and Kiphire areas of Nagaland Power System	02-Apr-23 16:28	02-Apr-23 16:42	0:14:00	0	24	0.00%	1.37%	2060	1747	Kohima, Meluri and Kiphire areas of Nagaland Power System were connected with the rest of NER Grid through 132 kV Karong-Kohim Line. 132 kV Kohima - Chephobozou Line was under planned shutdown and 132 kV Dimapur(PG)-Kohima Line was already under tripped condition since 15:59 Hrs on 02.04.2023.  At 16:28 Hrs on 02.04.2023, 132 kV Karong-Kohima Line was hand tripped on emergency basis as fire detected in isolator. Due to tripping of this element, Kohima, Meluri and Kiphire areas of Nagaland Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Kohima, Meluri & Kiphire areas of Nagaland Power System by charging 132 kV Dimapur(PG)-Kohima at 16:42 Hrs on 02.04.2023.	132 kV Karong-Kohim Line
5	GD 1	Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	02-Apr-23 17:35	02-Apr-23 17:45	0:10:00	0	14	0.00%	0.70%	2333	2012	Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Along - Pasighat Line.  At 17:35 Hrs on 02.04.2023, 132 kV Along - Pasighat Line tripped. Due to tripping of this element, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  132 kV Along - Pasighat Line was declared faulty at 17:45 Hrs on 02.04.2023. Power supply was extended to Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kV Along - Pasighat Line at 14:45 Hrs on 03.04.2023	132 kV Along - Pasighat Line.
6	GD 1	Along, Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System	14-Apr-23 10:10	14-Apr-23 11:15	1:05	0	17	0%	1%	2187	2120	Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Along - Daporijo Line.  At 10:10 Hrs on 14.04.2023, 132 kV Along - Daporijo Line tripped. Due to tripping of this element, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  132 kV Along - Daporijo Line was declared faulty at 11:15 Hrs on 14.04.2023. Power supply was extended to Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kV Along - Daporijo Line at 20:02 Hrs on 14.04.2023.	132 kV Along - Daporijo Line

**Details of Grid Events during the Month of April 2023 in North Eastern Region**



Sl No.	Category of Grid Event ( G1 to G2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	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)		
7	GD 1	Daporijo, Along, Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System	16-Apr-23 15:40	16-Apr-23 16:34	0:54	0	18	0%	1%	2062	2544	Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Ziro- Daporijo Line.  At 15:40 Hrs on 16.04.2023, 132 kv Ziro- Daporijo Line tripped. Due to tripping of this element, Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kv Ziro- Daporijo Line at 16:34 Hrs on 16.04.2023.	132 kv Ziro- Daporijo Line
8	GD 1	Depota, Ghoramari, Dhekiajuli and Rowta areas of Assam Power System	18-Apr-23 19:36	18-Apr-23 19:46	0:10:00	0	120	0.00%	3.85%	2960	3114	Depota, Ghoramari, Dhekiajuli and Rowta areas of Assam Power System were connected with the rest of NER Grid through 132 kv Sonabil - Depota and 132 kv Sonabil - Ghoramari Line. 132 kv Sipahar - Rowta & 132kv Tangla - Rowta Lines were under shutdown to control overloading of 220 kv Balipara-Sonabil Line.  At 19:36 Hrs on 18.04.2023, 132 kv Sonabil - Depota and 132 kv Sonabil - Ghoramari Lines tripped. Due to tripping of these elements, Depota, Ghoramari, Dhekiajuli and Rowta areas of Assam Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Depota, Ghoramari, Dhekiajuli and Rowta areas of Assam Power System by charging 132 kv Sonabil - Depota Line at 19:46 Hrs on 18.04.2023.	132 kv Sonabil - Depota and 132 kv Sonabil - Ghoramari Lines
	GD 1	Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosalgao areas of Assam Power System	19-Apr-23 01:50	19-Apr-23 01:59	0:09:00	0	122	0.00%	5.74%	2214	2127	Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosalgao areas of Assam Power System were connected with the rest of NER Grid through 132 kv BTPS(AS) - Dhaligaon D/C Lines. 132 kv Nalbari-Barpeta Line was under shutdown to avoid overloading of 132 kv BTPS-Dhaligaon D/C Lines, 132 kv Bornagar - Rangia Line was under shutdown to avoid overloading of Rangia ICTS and 132kv Gosalgao -Gauripur Line was under shutdown to avoid overloading of 132 kv BTPS - Kokrajhar D/C Lines.  At 01:50 Hrs on 19.04.2023, 132 kv BTPS(AS) - Dhaligaon D/C Lines tripped. Due to tripping of these elements, Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosalgao areas of Assam Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosalgao areas of Assam Power System by charging 132 kv BTPS(AS) -Dhaligaon 1 Line at 01:59 Hrs on 19.04.2023.	132 kv BTPS(AS) - Dhaligaon D/C Lines
10	GD 1	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System	19-Apr-23 18:17	19-Apr-23 18:41	0:24:00	3	25	0.12%	0.85%	2603	2929	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Balipara - Tenga Line.  At 18:17 Hrs on 19.04.2023, 132 kv 132 kv Balipara - Tenga Line tripped. Due to tripping of this element Tenga, Khupi areas & Dikshi HEP areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System by charging 132 kv Balipara - Tenga Line at 18:41 Hrs on 19.04.2023.	132 kv Balipara - Tenga Line
11	GD 1	Ziro, Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	21-Apr-23 03:27	21-Apr-23 03:58	0:31:00	0	15	0.00%	0.99%	1983	1516	Ziro, Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Ranganadi - Ziro Line.  At 03:27 Hrs on 21.04.2023, 132 kv Ranganadi - Ziro Line tripped. Due to tripping of this element, Ziro, Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Ziro, Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kv Ranganadi - Ziro Line at 03:58 Hrs on 21.04.2023.	132 kv Ranganadi - Ziro Line.
12	GD 1	Rokhia area of Tripura Power System	21-Apr-23 18:17	21-Apr-23 19:08	0:51	20	2	1%	0%	3050	2548	Rokhia area of Tripura Power System was connected with rest of NER grid through 132 kv Monarchak - Rokhia Line. 132 kv Rokhia -Agartala D/C Lines were already under tripped condition since 18:15 Hrs on 21.04.2023.  At 18:17 Hrs on 21.04.2023, 132 kv Monarchak - Rokhia Line tripped. Due to tripping of this element, Rokhia area of Tripura Power System was separated from rest of NER Grid and subsequently collapsed due to load generation mismatch in this area.  Power supply was extended to Rokhia area of Tripura Power System by charging 132 kv Rokhia -Agartala 1 Line at 19:08 Hrs on 21.04.2023.	132 kv Monarchak - Rokhia Line
13	GD 1	Kolasib, Bairabi areas and Tural HEP of Mizoram Power System	22-Apr-23 18:24	22-Apr-23 18:35	0:11	36	4	1%	0%	2793	2572	Kolasib, Bairabi areas of Mizoram Power System and Tural HEP were connected with rest of NER grid through 132 kv Badarpur-Kolasib and 132 kv Kolasib-Aizawl Lines.  At 18:24 Hrs on 22.04.2023, 132 kv Badarpur-Kolasib, 132 kv Kolasib-Aizawl Lines tripped. Due to tripping of these elements, Kolasib, Bairabi areas and Tural HEP of Mizoram Power System were separated from rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Kolasib, Bairabi areas and Tural HEP of Mizoram Power System by charging 132 kv Kolasib-Aizawl Line at 18:35 Hrs on 22.04.2023.	132 kv Badarpur-Kolasib, 132 kv Kolasib-Aizawl and 132 kv Kolasib - Tural Lines

**Details of Grid Events during the Month of April 2023 in North Eastern Region**



Sl No.	Category of Grid Event ( G1 to 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	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)		
14	GD 1	Leshka Generating Stations of Meghalaya Power System	23-Apr-23 10:58	23-Apr-23 12:00	1:02	35	0	2%	0%	1788	1703	Leshka Generating Stations of Meghalaya Power System was connected with rest of NER grid through 132 kv Myntdu Leshka - Khleihriat D/C Lines. At 10:58 Hrs on 23.04.2023, 132 kv Myntdu Leshka - Khleihriat D/C Lines tripped. Due to tripping of these elements, Leshka Generating Station of Meghalaya Power System was separated from rest of NER Grid and subsequently collapsed due to loss of evacuation path. Power supply was extended to Leshka Generating Station of Meghalaya Power System by charging 132 kv Myntdu Leshka - Khleihriat 1 Line at 12:00 Hrs on 23.04.2023	132 kv Myntdu Leshka - Khleihriat D/C Lines
15	GD 1	Lumshnong area of Meghalaya Power System	23-Apr-23 11:25	23-Apr-23 11:36	0:11	0	20	0%	1%	2000	1856	Lumshnong area of Meghalaya Power System was connected with rest of NER grid through 132 kv Khleihriat-Lumshnong Line. 132 kv Lumshnong-Panchgram Line was under Post OCC approved shutdown due to reconductoring with HTLS since 07:34 Hrs on 23.04.2023. At 11:25 Hrs on 23.04.2023, 132 kv Khleihriat-Lumshnong Line tripped. Due to tripping of this element, Lumshnong area of Meghalaya Power System was separated from rest of NER Grid and subsequently collapsed due to no source available in this area. Power supply was extended to Lumshnong area of Meghalaya Power System by charging 132 kv Khleihriat-Lumshnong Line at 11:36 Hrs on 23.04.2023.	132 kv Khleihriat-Lumshnong Line
16	GD 1	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System	24-Apr-23 10:04	24-Apr-23 11:00	0:56	4	27	0%	2%	1831	1781	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Balipara - Tenga Line. At 10:04 Hrs on 24.04.2023, 132 kv Balipara - Tenga Line tripped. Due to tripping of this element Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas. Power supply was extended to Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System by charging 132 kv Balipara - Tenga Line at 11:00 Hrs on 24.04.2023.	132 kv Balipara - Tenga Line
17	GD 1	Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	24-Apr-23 19:14	24-Apr-23 20:53	1:39	0	17	0%	1%	3066	2809	Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Ziro - Daporijo Line. At 19:14 Hrs on 24.04.23, 132 kv Ziro - Daporijo Line tripped. Due to tripping of this element, Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas. 132 kv Ziro - Daporijo Line was declared faulty at 20:52 Hrs on 24.04.2023. Power supply was extended to Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kv Ziro - Daporijo Line at 18:48 Hrs on 26.04.2023.	132 kv Ziro - Daporijo Line
18	GD 1	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System	27-Apr-23 21:17	27-Apr-23 21:49	0:32	4	29	0%	1%	2499	2453	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Balipara - Tenga Line. At 21:17 Hrs on 27.04.2023, 132 kv Balipara - Tenga Line tripped. Due to tripping of this element Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas. Power supply was extended to Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System by charging 132 kv Balipara - Tenga Line at 21:49 Hrs on 27.04.2023.	132 kv Balipara - Tenga Line
19	GD 1	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System	28-Apr-23 17:40	28-Apr-23 18:07	0:27	4	27	0%	1%	2467	2538	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Balipara - Tenga Line. At 17:40 Hrs on 28.04.2023, 132 kv Balipara - Tenga Line tripped. Due to tripping of this element Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas. Power supply was extended to Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System by charging 132 kv Balipara - Tenga Line at 18:07 Hrs on 28.04.2023.	132 kv Balipara - Tenga Line