

**Details of Grid Events during the Month of May 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	Uttar Pradesh	01-May-2023 16:59	01-May-2023 17:51	0.52	0	0	0.000	0.000	34436	37824	i) As reported, at 16:59 hrs, 400 KV Bara(UP)-Meja TPS(MUN) (UP) Ckt-1 tripped on B-N phase to earth fault, fault was in Z-1 from Bara(UP) end, distance was 0.598km from Bara(UP) end. As per DR, line tripped after unsuccessful A/R operation and fault current was approx. 17.9KA. ii) At the same time, 400 KV Bara(UP)-Meja TPS(MUN) (UP) Ckt-2 also tripped from Bara(UP) end only on B-N phase to earth fault. As per DR, fault was in Z-3 from Bara(UP) end, fault current was approx. 3.67KA. iii) As per PMU at Mainpur(PG), B-N phase to earth fault with unsuccessful A/R operation is observed. Fault clearance time was 80 ms. iv) As per SCADA, no load loss/generation loss is observed in UP control area.	1) 400 KV Bara(UP)-Meja TPS(MUN) (UP) Ckt-1 2) 400 KV Bara(UP)-Meja TPS(MUN) (UP) Ckt-2
2	GD-1	Rajasthan	01-May-2023 13:23	01-May-2023 13:41	0.18	1100	0	2.829	0.000	38877	40743	i) As per PMU at Ajmer(PG), at 13:23 hrs, B-N fault phase to ground is observed with fault clearance time of 80 msec. ii) As per SOE, no triggering incident (exact location of fault) identified. iii) After clearance of fault, a sudden rise in voltage from 796KV to 831KV was observed at 765KV Ajmer(PG). iv) As reported, during the same time, 765 KV Ajmer(PG)-Phagi(RS) (PAPTU) Ckt-1, 765 KV Fatehgarh-II (PG)-Bhadra(PG) (FBTU) Ckt-1 and 765 KV Ajmer-Bhadra_2 (PG) Ckt-1 tripped due to over-voltage. v) As per DR, 765 KV Ajmer(PG)-Phagi(RS) (PAPTU) Ckt-1 and 765 KV Fatehgarh-II (PG)-Bhadra(PG) (FBTU) Ckt-1 tripped on over-voltage stage-1 operation. 765 KV Ajmer-Bhadra_2 (PG) Ckt-1 tripped on DT received from Bhadra2(PG) end. vi) During the fault, drop in generation of almost all the RE plants pooled at 765KV Fatehgarh2(PG), Bhadra(PG), Bhadra2(PG) & Bikaner(PG) is observed. Generation at few of the RE station revised back with the clearance of fault but at some stations partial or no recovery is observed. PMU plots of the MW/MVar and phase voltages of RE plants are attached for the reference. vii) As per SCADA, total NR solar generation drop of approx. 1100MW in Rajasthan RE complex is observed. Solar generation was restored within 2 minutes. viii) As per SCADA, change of approx. 890MW is observed in NR demand.	1) 765 KV Ajmer(PG)-Phagi(RS) (PAPTU) Ckt-1 2) 765 KV Fatehgarh-II (PG)-Bhadra(PG) (FBTU) Ckt-1 3) 765 KV Ajmer-Bhadra_2 (PG) Ckt-1
3	GI-2	Rajasthan	04-May-2023 09:41	04-May-2023 12:31	2.50	0	185	0.000	0.421	41778	43943	i) 400/220KV Ratangarh(Raj) has double main & transfer bus scheme at 220KV side. ii) As reported at 09:41 hrs, R-ph bus jumper of isolator of 220 KV Ratangarh-Badnu (Raj) Ckt broke and created phase to earth bus fault. iii) On this fault, bus bar protection of 220KV Bus-B operated which led to the tripping of all the elements connected at 220KV Bus-B at Ratangarh(Raj). 400/220 KV 315 MVA ICT 2 at Ratangarh(RS) and 220KV feeders to Sikar(PG)-I & II, Ratangarh-I, Khetri-I and Badnu tripped on bus bar protection operation. iv) As per DR of tripped elements at Ratangarh end, R-N phase to earth fault with delayed clearance in ~240msec is observed, elements tripped on LBB protection operation. v) As per PMU at Sikar(PG), phase to earth fault with delayed clearance in 240msec is observed. vi) As per SCADA, change in load of approx. 185MW is observed in Rajasthan control area.	1) 400/220 KV 315 MVA ICT 2 at Ratangarh(RS) 2) 220 KV Ratangarh(RS)-Sikar(PG) (PG) Ckt-1 3) 220 KV Ratangarh(RS)-Sikar(PG) (PG) Ckt-2 4) 220 KV Ratangarh-Badnu (Raj) Ckt 5) 220 KV Ratangarh-Ratangarh220 (Raj) Ckt-1 6) 220 KV Ratangarh-Khetri (Raj) Ckt-1 7) 220 KV Ratangarh-Sridungargarh (Raj) Ckt-1
4	GI-2	Rajasthan	05-May-2023 12:26	05-May-2023 14:20	1.54	305	0	0.641	0.000	47560	49783	i) During antecedent condition, emergency shutdown of 404 main Bay of 400/220KV 500MVA ICT-7 at Bhadra2(PG) was taken for attending CT emergency alarm. During this work, bus bar protection mal-operated at 400KV Bus 1 at Bhadra2(PG) and Bus-1 became dead. ii) As per SCADA data and CB status, tie CB at 400KV side of 765/400KV 1500MVA ICT-3 and tie CB at 400KV side of 400/220KV 500MVA ICT-6 at Bhadra2(PG) were already in open condition. Hence due to bus bar protection operation as main CB connected to bus-1 opened, 765/400KV 1500MVA ICT-3 and 400/220KV 500MVA ICT-6 at Bhadra2(PG) tripped. Along with this, 400/220KV 500MVA ICT-7 at Bhadra2(PG) also tripped during the same time due to opening of Tie CB (Main CB was already open). iii) Total generation of 220KV Avada Sunrays (ASEPL) was feeding through 400/200KV 500MVA ICT-6 and 7 at Bhadra2(PG) only. Hence tripping of ICT-6 and 7 led to tripping of 220 KV Bhadra2(PG)-ASEPL (IP) ckt which eventually resulted in generation loss of 220KV Avada Sunrays (ASEPL). iv) As per PMU at 400KV Bhadra2(PG), no fault is observed in the system. v) As per SCADA, generation loss of approx. 305MW is observed in NR Solar generation.	1) 765/400KV 1500MVA ICT-3 at Bhadra2(PG) 2) 400/220KV 500MVA ICT-6 at Bhadra2(PG) 3) 400/220KV 500MVA ICT-7 at Bhadra2(PG) 4) 400KV Bus 1 at Bhadra2(PG) 5) 220 KV Bhadra2(PG) -ASEPL (IP) ckt 6) 220/33KV 150MVA ICT-1 at ASEPL (IP) 7) 220/33KV 150MVA ICT-2 at ASEPL (IP) 8) 220/33KV 150MVA ICT-3 at ASEPL (IP)
5	GI-2	Rajasthan	05-May-2023 18:13	05-May-2023 21:05	2:52	0	65	0.000	0.146	36369	44548	i) 400/220KV Heerapura(Raj) has one and half breaker bus scheme. ii) As reported at 18:13 hrs, R-ph CT at 400KV side of 400/220KV 315MVA ICT-4 at Heerapura(Raj) burst followed by damage of R-ph pole of its CB. iii) On this fault, bus bar protection of 400KV Bus-1 at Heerapura(Raj) operated led to the tripping of 400KV Bus 1 at Heerapura(RS). At the same time, 400 KV Basi(PG)-Heerapura(RS) (PG) Ckt-1 & 2, 400/220 KV 250 MVA ICT 2 & 3 and 315MVA ICT 4 at Heerapura(RS) also tripped. iv) As per communication with Heerapura S/s, 400 KV Basi(PG)-Heerapura(RS) (PG) Ckt-1 remained charged from Heerapura end via Tie CB, however, it tripped from Basi end. In case of 400 KV Basi(PG)-Heerapura(RS) (PG) Ckt-2, 400/220KV 250MVA ICT 2&3 at Heerapura, Tie CB at Heerapura end also opened. v) As per PMU at Basi(PG), multiple R-N fault, first at 18:12:58hrs which cleared within 100msec followed by another R-N fault with delayed clearance of 280msec is observed. vi) As per SCADA, change in load of approx. 65MW is observed in Rajasthan control area. vii) As informed by SLDC-Rajasthan, relays at Heerapura(Raj) are of electromagnetic nature. Hence, disturbance recorder files are not available.	1) 400KV Bus 1 at Heerapura(RS) 2) 400 KV Basi(PG)-Heerapura(RS) (PG) Ckt-1 3) 400 KV Basi(PG)-Heerapura(RS) (PG) Ckt-2 4) 400/220 KV 250 MVA ICT 2 at Heerapura(RS) 5) 400/220 KV 250 MVA ICT 3 at Heerapura(RS) 6) 400/220 KV 315 MVA ICT 4 at Heerapura(RS)
6	GI-1	Jammu & Kashmir	05-May-2023 14:58	05-May-2023 15:57	0.59	0	360	0.000	0.743	46362	48474	i) During antecedent condition, active power loading of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 & 2 were 178MW and 177MW respectively. ii) As reported, at 14:58hrs, 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 tripped on Y-B phase to phase fault with distance of 1.2 km (22.9%) from NewWanpoh(PG) end. As per telephonic conversation with Mirbazar S/S, 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 tripped as a tree was leaning on the circuit. iii) As per DR at NewWanpoh(PG) end of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1, zone-1 distance protection operated with fault current of 6.7KA and 6.3KA in Y and B-phase respectively. iv) Due to tripping of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1, loading on 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2 increased and line CB at 220KV MirBazar(PDD) end of 220 KV MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2 opened due to over-loading, but line remain charged from NewWanpoh(PG) end. v) As per PMU at Kishempur(PG), Y-B phase to phase fault is observed in system with fault clearance time of 80 ms. vi) As per SCADA, load loss of approx. 360MW occurred in J&K control area.	1) 220 KV Mir Bazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 2) 220 KV Mir Bazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2
7	GI-1	Rajasthan	08-May-2023 19:11	08-May-2023 22:32	3:21	230	220	0.519	0.409	44284	53815	i) 220/132KV Sakatpura(Raj) S/s have double main & transfer bus scheme. Station is connected with 220KV Kota TPS via 220KV KTPS-Sakatpura ckt-1, 2, 3 & 4. ii) As reported at 19:11 hrs, R & Y ph CT at Sakatpura end of 220KV Sakatpura-Mandalgarh ckt burst and bus fault occurred. iii) As per information received, bus bar protection is not healthy at 220KV Sakatpura S/s and Z-4(reverse) distance protection time delay setting is kept as 160msec. iv) On this bus fault, 220KV line from RAPP_A & Anta(NTPC) tripped in Z-4 distance protection operation at Sakatpura end and 220KV KTPS-Sakatpura ckt-1, 2, 3&4 tripped on distance protection in Z-2 from KTPS end. 220KV KTPS-Kota(PG) ckt-1 also tripped from KTPS end. v) At the same time, 210MW Unit-4 at Kota TPS tripped followed by tripping of 210MW Unit-3 & 5 at 19:15 hrs & 19:21 hrs respectively due to tripping of auxiliary components (boiler, pulveriser etc.) vi) As per PMU at Kota(PG), R-N fault converted into R-Y-N fault with delayed clearance of 240msec is observed. vii) As per SCADA, change in load of approx. 220MW in Rajasthan control area and loss in generation of approx. 320MW at 19:11hrs due to tripping of 210MW unit-4 at KTPS. Further at 19:15hrs, 210MW unit-3 at KTPS tripped followed by tripping of 210MW unit-5 at KTPS 19:21hrs is observed.	1) 220KV Sakatpura-Mandalgarh ckt 2) 220 KV Kota(PG)-KTPS(RVUN) (RS) Ckt-1 3) 220 KV Anta(NT)-Sakatpura(RS) (RS) Ckt-1 4) 220 KV RAPP_A(NP)-Sakatpura(RS) (RS) Ckt-2 5) 220KV KTPS-Sakatpura ckt-1 6) 220KV KTPS-Sakatpura ckt-2 7) 220KV KTPS-Sakatpura ckt-3 8) 220KV KTPS-Sakatpura ckt-4 9) 210MW Unit-3 at KTPS 10) 210MW Unit-4 at KTPS 11) 210MW Unit-5 at KTPS

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
8	GD-1	Rajasthan	09-May-2023 12:57	09-May-2023 13:22	0:25	1390	0	2.687	0.000	51736	56171	i) As reported, at 12:57 hrs, 220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1 tripped on R-N phase to ground fault. Fault distance was 3.3 km from Bhadla(PG) end. During panning, it was observed that a tree bush was touching R-phase of the line. ii) After clearance of fault, a sudden rise in voltage from 767kV to 823kV was observed at 765KV Fatehgarh2(PG). iii) Due to this, 765 KV Ajmer-Bhadla_2 (PG) Ckt-1, 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 and 765 KV Fatehgarh_II(PG)-Bhadla(PG) (FBTL) Ckt-1 tripped on over-voltage protection operation. iv) As reported, during the same time, 220/33 kv 150 MVA ICT 1 & 2 at AzureMaplePSS SL_BHD_PG (APMPL) and 220/33 kv 150 MVA ICT 1 & 2 at AzurePSS41 SL_BHD_PG (APFPO) also tripped due to over-voltage protection operation. v) As per DR at Bhadla(PG) end of 220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1 tripped on zone-1 distance protection operation on R-N phase to ground fault with fault current of 188A from Bhadla(PG) end. Unsuccessful A/R operation is observed. vi) As per DR, 765 KV Ajmer-Bhadla_2 (PG) Ckt-1, 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 and 765 KV Fatehgarh_II(PG)-Bhadla(PG) (FBTL) Ckt-1 tripped on over-voltage stage-1 operation. vii) During the fault, drop in generation of almost all the RE plants pooled at 765KV Fatehgarh2(PG), Bhadla(PG), Bhadla2(PG) & Bikaner(PG) is observed. Generation at few of the RE station revived back with the clearance of fault but at some stations partial or no recovery is observed. PMU plots of the MW/MVA and phase voltages of RE plants are attached for the reference. viii) As per SCADA, total NR solar generation drop of approx. 1390MW in Rajasthan RE complex is observed.	1) 765 KV Ajmer-Bhadla_2 (PG) Ckt-1 2) 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 3) 765 KV Fatehgarh_II(PG)-Bhadla(PG) (FBTL) Ckt-1 4) 220 KV Bhadla(PG)-ACME Solar(ACM) (ACME) Ckt-1 5) 220/33 kv 150 MVA ICT 1 at AzureMaplePSS SL_BHD_PG (APMPL) 6) 220/33 kv 150 MVA ICT 1 at AzurePSS41 SL_BHD_PG (APFPO) 7) 220/33 kv 150 MVA ICT 1 at AzurePSS41 SL_BHD_PG (APFPO) 8) 220/33 kv 150 MVA ICT 2 at AzurePSS41 SL_BHD_PG (APFPO)
9	GI-1	Rajasthan	09-May-2023 16:46	09-May-2023 20:22	3:36	170	0	0.359	0.000	47395	52613	i) During antecedent condition, 220 KV RAPS_A(NP)-Saktapura(RS) (RS) Ckt-1, 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1 and 200 MW RAPS-A - UNIT 2 were connected to 220KV Bus-2 at RAPS_A(NP) and rest of the elements were connected to 220KV Bus-1 at RAPS_A(NP). 200 MW RAPS-A - UNIT 2 was generating approx. 170MW. ii) As reported, at 16:46hrs, 220 KV RAPS_A(NP)-Saktapura(RS) (RS) Ckt-1 tripped on B-N phase to earth fault (Zone-1 distance protection operated at Saktapura end). Fault distance was 20.97 km and fault current 6.93 kA from Saktapura(RS). iii) However, RAPS_A(NP) end CB got stuck, hence LBB operated. Due to this, 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1 and 200 MW RAPS-A - UNIT 2 also tripped and 220KV Bus-2 at RAPS_A(NP) became dead. iv) As per PMU at RAPP-(INPC), phase to ground fault is observed in system with delayed fault clearing time of 280 ms. v) As per SCADA, change in generation of approx. 170 MW is observed at RAPP-(INPC).	1) 220 KV RAPS_A(NP)-Saktapura(RS) (RS) Ckt-1 2) 220 KV RAPS_B(NP)-RAPS_A(NP) (RS) Ckt-1 3) 200 MW RAPS-A - UNIT 2 4) 220KV Bus-2 at RAPS_A(NP)
10	GI-2	Haryana	10-May-2023 22:24	10-May-2023 23:27	1:03	0	0	0.000	0.000	46977	58783	i) During antecedent condition, 800 KV HVDC Kurukshetra(PG) Pole-1, 2, 3 & 4 were carrying 494 MW, 483 MW, 469 MW and 481 MW respectively from Champa to Kurukshetra. ii) As reported at 22:24hrs, "Pole 4 sub-rack 3 Data Invalid" alarm appeared in Pole 4 resulting in Pole 4 lane changeover from lane 2 to lane 1. 800 KV HVDC Kurukshetra(PG) Pole-2 & 4 blocked due to control maloperation of newly installed V6 software after lane changeover at Kurukshetra end. iii) As reported, sequence of events are as follows: @ 22:24:49.108 – Pole 4 Subrack 3 D/U/MR latched Kurukshetra @ 22:24:49.108 – Pole 4 lane changed from L2 to L1 due to D/U/MR in P4 Subrack 3 at Kurukshetra. @ 22:24:49.930 – EAPR Active got high in P4 & P2. ("Master Control Power Control moniEAPRActive_Powertimit" alarm appeared at both ends in Pole 2 & Pole 4) @ 22:24:50.349 – Valves of Pole 4 at Champa blocked @ 22:24:50.864- Pole 4 at Kurukshetra blocked followed by Power limit alarm in Pole 2 & Pole 4 although minimum filter required were in service. Power limit alarm led to power ramp down in Pole 4 only and Pole 4 got blocked at 22:24:50 hrs. (The reason for ramp down of Power in Pole 4 is not clear.) @ 22:24:55.909 – CAT A2 from other end received at Kurukshetra in Pole 4 which is a clear control maloperation as blocked Pole shouldn't initiate any protective sequence after blocking. @ 22:24:56.151 – Again CATB from other end received at Kurukshetra in Pole 4 which is again control maloperation as Pole shouldn't initiate any protective sequence after blocking. @ 22:24:56.165 – As CAT B sequence trip both parallel Poles, Pole 2 blocked on CAT B initiated by Pole 4 from Champa end. @ Complete power was compensated by P1 & P3. iv) As per PMU at Kurukshetra(PG), no fault is observed in the system, but fluctuation in voltage is observed. v) As per SCADA, no load loss is observed in Haryana control area.	1) 800 KV HVDC Kurukshetra(PG) Pole-02 2) 800 KV HVDC Kurukshetra(PG) Pole-04
11	GD-1	Haryana	10-May-2023 16:22	10-May-2023 18:24	2:02	0	130	0.000	0.244	48099	53343	i) As reported, at 16:22hrs, a fire incident is observed in the field near to 220/132KV Mohana(HS) S/S. B-phase of float T/F burnt and AC/DC changeover card got damaged which led to defect in 220V Main DC Charger-1. Due to this, 220 KV Mohana(HV)-Sonapat(PG) (HVPNL) Ckt-1 and 2 tripped. ii) At the same time, 220KV Mohana(HV)-Sampla(HV) Ckt-1 & 2 and 220KV Mohana(HV)-Samalkha(HV) Ckt-1 & 2 also tripped due to non-availability of the DC supply with the operation of Capacitor Trip Device (CTD) in the circuit breakers. Hence, 220/132KV Mohana(HS) S/S became dead. iii) After identifying the fault to 220V DC Charger-1, the complete DC load was put on alternate 220V DC Charger 2. iv) At 16:45 hrs, 220KV Mohana(HV)-Sampla(HV) Ckt-2 was charged and supply to 220KV Mohana was restored. v) As reported by Mohana S/S, no DR was recorded in distance protection relay at 220KV Mohana(HS) end of 220 KV Mohana(HV)-Sonapat(PG) (HVPNL) Ckt-1 and 2 due to DC supply fail. vi) As per DR at Sonapat(PG) end of 220 KV Mohana(HV)-Sonapat(PG) (HVPNL) Ckt-1 & 2, zone-2 distance protection operated at Sonapat end. Fault current was approx. 6kA and 5kA in Y and B-phase in both the circuits. vii) As per PMU at Sonapat(PG), B-N phase to ground fault converted to Y-B-N double phase to ground fault is observed in system with delayed fault clearing time of 360 ms. viii) As per SCADA, load loss of approx. 130MW occurred in Haryana control area.	1) 220 KV Mohana(HV)-Sonapat(PG) (HVPNL) Ckt-1 2) 220 KV Mohana(HV)-Sonapat(PG) (HVPNL) Ckt-2 3) 220KV Mohana(HV)-Sampla(HV) Ckt-1 4) 220KV Mohana(HV)-Sampla(HV) Ckt-2 5) 220KV Mohana(HV)-Samalkha(HV) Ckt-1 6) 220KV Mohana(HV)-Samalkha(HV) Ckt-2
12	GI-1	Rajasthan	11-May-2023 13:37	11-May-2023 13:50	0:13	940	0	1.880	0.000	50003	56300	i) Total generation of 220KV Azure Maple evacuates through 220KV Bhadla(PG)- AzureMaplePSS SL_BHD_PG (APMPL) ckt which is connected to 220/33 kv 150 MVA ICT 1 & 2 at AzureMaplePSS SL_BHD_PG (APMPL). ii) As per PMU at 400KV Bhadla(PG), R-Y phase to phase fault is observed with fault clearing time of 80 ms. Voltage dip of approx. 33.8kV(L-L) is observed at Bhadla(PG). iii) After fault clearance, voltage increased upto 441.4kV(L-L) (1.1035 p.u.). Hence, over voltage (>1.1pu at 765kV & 400kV level at RE Pooling stations) scenario occurred immediately after the fault. iv) As reported by Azure Maple solar plant, at 13:37 hrs, 220/33 kv 150 MVA ICT 1 & 2 at AzureMaplePSS SL_BHD_PG (APMPL) tripped due to over voltage protection operation. v) As per SCADA, generation drop of approx. 940MW is observed in NR Solar generation. vi) As per PMU, due to significant dip in RE generation frequency dropped by 0.17Hz (from 49.95Hz to 49.78Hz). However frequency recovered to 49.98Hz within 1 minute. vii) Almost all the generation revived within 10 minutes except Azure maple which got revived at 13:50 hrs.	1) 220/33 kv 150 MVA ICT 1 at AzureMaplePSS SL_BHD_PG (APMPL) 2) 220/33 kv 150 MVA ICT 2 at AzureMaplePSS SL_BHD_PG (APMPL)
13	GI-1	Rajasthan	13-May-2023 22:04	13-May-2023 23:12	1:08	275	0	0.546	0.000	50400	62238	i) Total generation of 220KV AHEJ4L PSS3, AHEJ3L PSS, and AHEJ0L PSS were feeding through 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHEJ4L PSS 3 HB_FGARH_FBTL (AHEJ4L) (AREPRL) Ckt, 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGARH_PG (AHEJ3L) (AHEJ3L) Ckt and 220 KV Fatehgarh_II(PG)-AHEJ0L PSS HB_FGARH_PG (AHEJ0L) (AHEJ0L) Ckt-1 & 2 respectively. ii) As reported, at 22:04 hrs, 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHEJ4L PSS 3 HB_FGARH_FBTL (AHEJ4L) (AREPRL) Ckt tripped on Y-N phase to earth fault during very high wind condition. At the same time, 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGARH_PG (AHEJ3L) (AHEJ3L) Ckt also tripped on R-N phase to earth fault (zone-1 from AHEJ3L end). iii) As reported, at 22:05 hrs, 220 KV Fatehgarh_II(PG)-AHEJ0L PSS HB_FGARH_PG (AHEJ0L) (AHEJ0L) Ckt-1 tripped on B-N phase to earth fault (zone-1 from AHEJ0L end). iv) As per PMU and SCADA SOE, the details of event is as follows: @ At 22:04:06 hrs: 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHEJ4L PSS 3 HB_FGARH_FBTL (AHEJ4L) (AREPRL) Ckt tripped. As per PMU, B-N phase to earth fault is observed with fault clearing time of 80 ms. As per PMU, generation loss of approx. 187 MW is observed at AWP53. @ At 22:04:34 hrs: 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGARH_PG (AHEJ3L) (AHEJ3L) Ckt tripped. As per PMU, R-N phase to earth fault is observed with fault clearing time of 60 ms. PMU data for generation at AHEJ3L is not available. @ At 22:05:18 hrs: 220 KV Fatehgarh_II(PG)-AHEJ0L PSS HB_FGARH_PG (AHEJ0L) (AHEJ0L) Ckt-1 tripped. As per PMU, B-N phase to earth fault is observed with fault clearing time of 120 ms. As per PMU, generation loss of approx. 30 MW is observed at AHEJ0L PSS. @ At 22:07:20 hrs: As per PMU, B-N phase to earth fault is observed with fault clearing time of 80 ms. v) As per SCADA, generation loss of approx. 275MW is observed in NR wind generation.	1) 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHEJ4L PSS 3 HB_FGARH_FBTL (AHEJ4L) (AREPRL) Ckt 2) 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGARH_PG (AHEJ3L) (AHEJ3L) Ckt 3) 220 KV Fatehgarh_II(PG)-AHEJ0L PSS HB_FGARH_PG (AHEJ0L) (AHEJ0L) Ckt-1

**Details of Grid Events during the Month of May 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)		
14	GD-2	Rajasthan	15-May-2023 11:51	15-May-2023 14:38	2:47	7120	1635	12.505	2.686	56939	60878	i) As reported, at 11:51:55 hrs, 765kV Bhadla-Bikaner ckt-1 tripped on Y-B phase to phase fault during inclement weather condition (wind/dust storm), fault distance was ~111.6km from Bikaner end (line length is ~169km). ii) On this fault during voltage dip, significant dip in RE generation observed. Voltage dipped up to 0.65pu (as per PMU at Fatehgarh2). iii) Due to significant dip in RE generation and de-loading of 765kV EHV lines (as RE generation failed to recover 90% of pre-fault active power within 1 sec and further Inverters tripping on DV, LVRT/HVRT Non-compliance), over-voltage (>1.1pu at 765kV & 400kV level at RE Pooling stations) scenario triggered immediately after the fault that led to multiple element tripping in the RE complex. iv) As per PMU & SCADA, total RE generation drop/loss was approx. 7120MW (~6410MW ISTS RE generation and ~710MW Rajasthan RE generation). Due to significant dip in RE generation frequency dropped by 0.58Hz (from 49.98Hz to 49.4Hz). v) As frequency hit 49.40Hz, total all India load relief of approx. 4016MW is observed on operation of UFR & df/dt. Load relief of approx. 1635MW observed in NR region (as per details received from states). Region wise summary of load relief along with state wise details of UFR & df/dt operation is attached in Annexure-II. vi) After the fault, following 765 & 400 kv lines in RE complex tripped on high voltage: 765kV Fatehgarh2-Bhadla ckt-1, 765kV Bhadla2-Bikaner ckt-1, 765kV Ajmer-Phagi ckt-1, 765kV Fatehgarh2-Bhadla2 ckt-1, 765kV Bhadla-Bikaner ckt-2, 400kV Fatehgarh1-Fatehgarh2 ckt-1, 400kV Bhadla-Bhadla2 ckt-1&2, 400kV Bhadla-Bhadla_Raj ckt-1&2, 400kV Bhadla_Raj-Merta ckt, 400kV Bhadla_Raj-Jodhpur ckt, 400kV Bhadla_Raj-Ramgarh ckt-1&2 vii) Multiple 220kV lines dedicated to RE stations also tripped on over voltage during same time. viii) Further at 12:08 hrs, 765kV Fatehgarh2-Bhadla2 ckt-1 was charged.	1) 765kV Bhadla-Bikaner ckt-1 2) 400kV Bikaner-Azad ckt 3) 400kV Fatehgarh1-Fatehgarh2 ckt-1 4) 400kV Bhadla-Bhadla2 ckt-1 5) 400kV Bhadla-Bhadla_Raj ckt-2 6) 765kV Fatehgarh2-Bhadla ckt-1 7) 400kV Bhadla-Bhadla2 ckt-2 8) 400kV Bhadla-Bhadla_Raj ckt-1 9) 765kV Bhadla2-Bikaner ckt-1 10) 765kV Ajmer-Phagi ckt-1 11) 765kV Fatehgarh2-Bhadla2 ckt-1 12) 765kV Bhadla-Bikaner ckt-2 13) 400kV Bhadla_Raj-Merta ckt 14) 400kV Bhadla_Raj-Jodhpur ckt 15) 400kV Bhadla_Raj-Ramgarh ckt-1 16) 400kV Bhadla_Raj-Ramgarh ckt-2
15	GD-1	Rajasthan	15-May-2023 12:16	15-May-2023 15:21	3:05	2700	0	5.321	0.000	50743	59684	i) At 12:16hrs, charging attempt of 765kV Bhadla-Bikaner ckt-2 was taken from Bhadla end however, line didn't hold and over voltage (>1.1pu at 765kV & 400kV level at RE Pooling stations) scenario occurred in RE complex. ii) On this over voltage following 765 & 400 kv lines in RE complex tripped: a. 765kV Bhadla-Fatehgarh2 ckt-2 b. 765kV Bhadla2-Fatehgarh2 ckt-1 c. 400kV Fatehgarh1-AFPS ckt-1 & 2 d. 400kV Bhadla2-Kolayat ckt iii) Multiple 220kV lines dedicated to RE stations also tripped on over voltage during same time. iv) With the tripping of 765kV Bhadla-Fatehgarh2 ckt-2 and 400kV Fatehgarh1-AFPS ckt-1 & 2, blackout of 765/400/220kV Bhadla (PG) & 400/220kV ADANI Fatehgarh Solar park occurred. v) As per PMU & SCADA, total RE generation drop/loss was approx. 2700MW. Due to dip in RE generation frequency dropped by 0.25Hz (from 49.88Hz to 49.63Hz).	1) 400kV Fatehgarh1-AFPS ckt-1 2) 400kV Fatehgarh1-AFPS ckt-2 3) 765kV Bhadla-Fatehgarh2 ckt-2 4) 400kV Bhadla2-Kolayat ckt 5) 765kV Bhadla2-Fatehgarh2 ckt-1
16	GI-1	Rajasthan	16-May-2023 15:13	16-May-2023 16:03	0:50	175	0	0.298	0.000	58682	63664	i) During antecedent condition, total generation of 220kV AHEJ3L was evacuating through 220kV Fatehgarh2(PG)-AHEJ3L ckt which was connected to 220/33/33 kv 150 MVA ICT 1 & 2 at AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) carrying approx. 156MW and 148MW respectively. ii) As reported, at 15:13 hrs, 220/33/33 kv 150 MVA ICT 1 at AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) tripped due to operation of transformer protection on LV WTI instrument failure. iii) As per DR/EL, "WTI_LV1_Alarm" is observed and cooling supply failed. iv) As per PMU at 400kV Fatehgarh2(PG), no fault is observed in the system. MW generation drop of approx. 155MW is observed as per PMU at AHEJ3L. v) As per SCADA, generation drop of approx. 175MW is observed in NR Solar generation.	1) 220/33/33 kv 150 MVA ICT 1 at AHEJ3L PSS HB_FGRAH_PG (AHEJ3L)
17	GD-1	Haryana	16-May-2023 01:52	16-May-2023 04:23	2:31	0	300	0.000	0.547	43731	54888	i) As reported, at 01:52 hrs, Y-phase PT and R and Y phase breaker poles of 220 kv Ballabgarh(BB)-Badarpur(NT) (BB) Ckt-2 burst at Ballabgarh(BB) end. ii) This resulted in LBB protection operation and all the elements connected to Bus-1 and Bus-2 tripped and 220/66/33kv Ballabgarh(BB) S/s became dead. iii) As per DR of 220 kv Ballabgarh(BB)-Badarpur(NT) Ckt-1, zone-2 distance protection operated at Badarpur(NT) end (Y-B fault, fault current of approx. 6.9kA) and zone-4 distance protection operated at Ballabgarh(BB) end (R-Y-N fault, fault current of approx. 12kA in each phase followed by R-N fault, fault current of approx. 17kA). iv) As per DR of 220kV Bus 1 at Ballabgarh(BB), LBB protection operated (Y-N fault converted to 3-phase fault followed by R-Y-N fault followed by R-N fault were observed). v) As per PMU at Ballabgarh(BB), multiple faults (Y-N fault converted to 3-phase fault followed by R-N fault followed by R-Y-N fault) were observed in system with delayed fault clearing time of 1400 ms. vi) As per SCADA, load loss of approx. 300MW is observed in Haryana control area.	1) 220 kv Ballabgarh(BB)-Badarpur(NT) (BB) Ckt-1 2) 220 kv Ballabgarh(BB)-Badarpur(NT) (BB) Ckt-2 3) 220 kv Ballabgarh-Charkhi Dabri (BB) Ckt-1 4) 220 kv Ballabgarh-Samaypur (BB) Ckt-1 5) 220 kv Ballabgarh-Samaypur (BB) Ckt-2 6) 220 kv Ballabgarh-Samaypur (BB) Ckt-3 7) 220kV Bus 1 at Ballabgarh(BB) 8) 220kV Bus 2 at Ballabgarh(BB) 9) 220/66kV 100MVA ICT1 at Ballabgarh(BB) 10) 220/66kV 100MVA ICT2 at Ballabgarh(BB) 11) 220/66kV 100MVA ICT3 at Ballabgarh(BB)
18	GD-1	Delhi	17-May-2023 12:21	17-May-2023 13:26	1:05	145	500	0.246	0.780	58926	64110	i) As reported, at 12:05 hrs, 220kV Geeta Colony - South wazirabad (DTL) ckt-1 tripped on Y-N phase to earth fault, fault distance was ~3.3km(Z-1) from Geeta Colony end. During line patrolling heavy fire was found under the between tower no 349 to 350 in Jhuggies. R phase bottom conductor found napped and Y phase middle conductor found bulged of 220kV Geeta Colony - South wazirabad (DTL) ckt-1. ii) With the tripping of 220kV Geeta Colony - South wazirabad (DTL) ckt-1, MW loading of 220kV Geeta Colony - South wazirabad (DTL) ckt-2 increased to ~400MW. iii) Further at 12:21hrs, 220kV Geeta Colony - South wazirabad (DTL) ckt-2 tripped on B-N phase to earth fault. iv) With the tripping of 220kV Geeta Colony - South wazirabad (DTL) ckt-1 & 2, GT-2 and STG at Pragati(DTL) (generating approx. 94MW and 51MW respectively during antecedent condition) became islanded and collapsed. v) Complete load of Geeta Colony, IPONVERTIN, RPN and part load of Patparganj and Park street were affected. vi) As per PMU at Mandola(PG), B-N phase to earth fault with unsuccessful A/R is observed with delayed fault clearing time of 240 ms. vii) As per SCADA, load loss of approx. 500MW is observed in Delhi control area and loss of generation of approx. 145MW is observed.	1) 220kV Geeta Colony - South wazirabad (DTL) ckt-1 2) 220kV Geeta Colony - South wazirabad (DTL) ckt-2 3) GT-2 at Pragati(DTL) 4) STG at Pragati(DTL)
19	GD-1	Uttarakhand	17-May-2023 20:25	17-May-2023 21:00	0:35	0	160	0.000	0.258	53580	62112	i) As reported by SIDC Uttarakhand, increase in demand, low generation from hydro power plants of LUVN Ltd., outage of Dhakrani, Dhalpur and Kulhal Power house at 132 kv level in Dehradun area and fluctuations of generation from MB-I & II led to import of more power from Sherpur S/S of PGCL. ii) As per Bus-wise arrangement at Jhaja(UK), 220/132kV 160MVA ICT-2 at Jhaja(UK) and 220 kv Jhaja(UK)-Dehradun(PG) ckt (load on the ckt before tripping was 993 MW) were connected to Bus-A, 220/132kV 160MVA ICT-1 at Jhaja(UK) and 220 kv Jhaja-Vyasi ckt, 220 kv Jhaja-Khodri ckt and 220 Jhaja-IP Harrawala ckt were connected to Bus-B. Both 160 MVA transformers was running in parallel. iii) At 20:25hrs, 220/132kV 160MVA ICT-2 at Jhaja(UK) tripping on over-current protection operation. iv) Due to tripping of 220/132kV 160MVA ICT-2 at Jhaja(UK), entire load shifted to 220/132kV 160MVA ICT-1 at Jhaja(UK) and loaded this transformer up to 775 A resulted into tripping of 220/132kV 160MVA ICT-1 at Jhaja(UK). v) Tripping of both 160 MVA transformers resulted into more import of power from 220/132 kv S/s which led to tripping of 132 kv Rishikesh-Lataparr ckt and 132 kv Bindal-Majra ckt. vi) These trippings further led to tripping of 132 kv Khodri-Dhakrani ckt which resulted in complete supply disturbance in Dehradun area. vii) Supply was restored within 40 minutes in whole area. viii) As per PMU at Dehradun(PG), no fault is observed in the system. ix) As per SCADA, load loss of approx. 160MW is observed in Uttarakhand control area.	1) 220/132kV 160MVA ICT-1 at Jhaja(UK) 2) 220/132kV 160MVA ICT-2 at Jhaja(UK)

**Details of Grid Events during the Month of May 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)		
20	GI-1	Delhi	17-May-2023 14:50	17-May-2023 18:49	3:59	0	110	0.000	0.167	60161	65922	i) During antecedent condition, 220kV Mandola-Narela Ckt-1 & 2 were connected to 220kV Bus-1 feeding the load of 220kV Narela S/A, whereas 220kV Panipat-Narela ckt-1, 2 & 3 were connected to 220kV Bus-2 and feeding the 220kV Narela-Delhi RR (Rohtak road) ckt-1 & 2. 220kV Bus Coupler was in off position at Narela(DV) and 220kV DSIDC - Narela ckt-1 & 2 were on no-load. ii) As reported, at 14:50 hrs, 220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-2 tripped on Y-N phase to earth fault (Zone 1 from Narela end) with fault distance of 15.63km from Delhi RR(BB) end. iii) Further at 15:02 hrs, B-phase jumper of 220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-1 snapped between wavetrap and line isolator. Due to this, 220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-1 tripped on B-N phase to earth fault (Zone 3 from Narela(DV) end) with fault distance of 15.20km from Delhi RR(BB) end. iv) As per DR of 220 KV Delhi RR(BB)-Narela(DV) end (BBMB) Ckt-2, fault current was 4.3kA from Narela(DV) end and as per DR of 220 KV Delhi RR(BB)-Narela(DV) end (BBMB) Ckt-1, fault current was 8.6kA from Narela(DV) end. v) As per PMU at Dadri Thermal (NT), Y-N phase to earth fault is observed at 14:50 hrs with fault clearing time of 80 ms and B-N phase to earth fault is observed at 15:02 hrs with fault clearing time of 80 ms. vi) As per SCADA, load loss of approx. 110MW is observed in Delhi control area.	1) 220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-2 2) 220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-1
21	GI-2	Haryana	18-May-2023 00:58	18-May-2023 07:21	6:23	0	0	0.000	0.000	46288	54707	i) During antecedent condition, 800 KV HVDC Kurukshetra(PG) Pole-1, 2, 3 & 4 were carrying ~600 MW each from Champa to Kurukshetra. ii) As reported at 00:58hrs, Pole-1 was blocked from Kurukshetra end on emergency due to smoke observed from HV smoothing reactor in DC Yard. Pole 3 at Champa blocked on CAT B protection as Pole-1 failed to isolate (isolation auto sequence failure) at Kurukshetra end. At the same time, Pole-2 & Pole-4 blocked on CAT-B protection operated at Champa end. iii) As reported, sequence of events are as follows: i) 00:58:38 hrs: Pole 1 was manually hand tripped from Kurukshetra end as smoke was observed in Pole 1 DC yard. During the event there were continuous AC side disturbances at Kurukshetra end which lead to several commutation failures and further control action at both Champa and Kurukshetra Stations. ii) 01:55 hrs: Due to failure of the parallel sequence of Pole-1 from Pole-3 at Kurukshetra, Pole-1 generated CAT B sequence that resulted in tripping of Pole-3 at both ends. iii) 00:59:56:30 hrs: After blocking of Pole 1 & Pole 3, system was running with return current through DMR 1 & DMR 2. After few seconds, DMR 2 minor fail alarm also appeared, however fault was of transient nature and got reset after protective sequence initiation. iv) 01:55:56:907 hrs: Multiple commutation failures were occurring at Kurukshetra end due to persistent heavy thunderstorm and rain (tripping / AR of AC lines). During multiple commutation failure at Kurukshetra end "instability Detection minor fail" latched in Pole-2 / Lane-1 at Champa end, resulted Pole 2 lane changeover from lane 1 to lane 2 at Champa. At Champa "HV CLD protective sequence" was latched in Pole 2 lane 2 which initiated CAT B sequence and caused the tripping of both Pole 2 & Pole 4. v) As per PMU at Kurukshetra(PG), no fault is observed in the system, but fluctuation in voltage is observed. vi) As per SCADA, no load loss is observed in Haryana control area.	1) 800 KV HVDC Kurukshetra(PG) Pole-01 2) 800 KV HVDC Kurukshetra(PG) Pole-02 3) 800 KV HVDC Kurukshetra(PG) Pole-03 4) 800 KV HVDC Kurukshetra(PG) Pole-04
22	GI-2	Uttar Pradesh	18-May-2023 11:47	18-May-2023 14:27	2:40	470	0	0.871	0.000	53946	56737	i) As reported, shifting of 400 KV Singrauli(NT)-Vindhyachal(PG) (PG) Ckt-1 from Main bus to Transfer bus was being done for relay modernization work. After shifting, LBB of Transfer bus coupler (TBC-2) mal-operated due to issue in wiring. TBC-2 tripped within 50msec and LBB reset. ii) At the same time, 500 MW Singrauli STPS - UNIT 7 also tripped due to shorting of contacts which sent general protection control signal. Both the issues has been resolved. iii) As per PMU at Singrauli(NT), no fault is observed in the system. iv) As per SCADA, no load loss is observed in Uttar Pradesh control area. Change in generation of approx. 470MW is observed at Singrauli(NTPC).	1) 400 KV Singrauli(NT)-Vindhyachal(PG) (PG) Ckt-1 2) 500 MW Singrauli STPS - UNIT 7
23	GI-1	Jammu & Kashmir	20-May-2023 12:22	20-May-2023 13:26	1:04	0	185	0.000	0.289	58638	63970	i) During antecedent condition, active power loading of 220 KV Barn(JK)-Kishenpur(PG) Ckt-1 & 2 were 99MW and 101MW respectively. ii) As reported, at 12:22hrs, 220 KV Barn(JK)-Kishenpur(PG) Ckt-1 tripped on R-B phase to phase fault. iii) As per DR of 220 KV Barn(JK)-Kishenpur(PG) Ckt-1 at Kishenpur end, fault in R & B phase was persisting and line tripped from Kishenpur end on directional earth fault protection operation (back up protection). iv) Due to tripping of 220 KV Barn(JK)-Kishenpur(PG) Ckt-1, loading on 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 increased and line CB at 220kV Barn(PDD JK) end of 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 opened due to over-loading, but line remain charged from Kishenpur(PG) end. v) As per PMU at Kishenpur(PG), R-B phase to phase fault is observed in system with delayed fault clearance time of 840 ms. vi) As per SCADA, load loss of approx. 185MW occurred in J&K control area.	1) 220 KV Barn(JK)-Kishenpur(PG) Ckt-1 2) 220 KV Barn(JK)-Kishenpur(PG) Ckt-2
24	GD-1	Uttarakhand	20-May-2023 16:18	20-May-2023 16:57	0:39	36	20	0.065	0.032	55208	61572	i) During antecedent condition, 33 MW Unit 1 at Singoli Bhatwari HEP was generating 36MW which was evacuating through 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) (PTCU) Ckt-1 & 2, carrying 18MW each. ii) As reported, at 16:18hrs, 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) (PTCU) Ckt-1 tripped on Y-B-N double phase to earth fault with fault distance of 45.11km from Srinagar(LK) end. iii) At the same time, 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) (PTCU) Ckt-2 also tripped on Y-B-N double phase to earth fault with fault distance of 52.79km from Srinagar(LK) end. iv) Due to tripping of both 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) (PTCU) Ckt-1 & 2, 33MW Unit-1 at Singoli Bhatwari HEP tripped due to loss of evacuation path. v) As per DR of 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) end (PTCU) Ckt-1, zone-1 distance protection operated at Srinagar(LK) end with fault current of approx. 2.985kA and 2.33kA in Y and B-phase respectively. vi) As per DR of 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) end (PTCU) Ckt-2, zone-1 distance protection operated at Srinagar(LK) end with fault current of approx. 1.45kA and 2.48kA in Y and B-phase respectively. vii) As per PMU, Y-B-N double phase to earth fault is observed with fault clearing time of 80ms. viii) As per SCADA, load loss of approx. 20MW is observed in Uttarakhand control area and change in generation of approx. 36MW is observed at Singoli Bhatwari HEP.	1) 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) (PTCU) Ckt-1 2) 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(LK) (PTCU) Ckt-2 3) 33 MW Unit-1 at Singoli Bhatwari HEP
25	GI-1	Jammu and Kashmir	22-May-2023 14:36	22-May-2023 15:19	0:43	0	310	0.000	0.449	62758	69083	i) As reported, at 14:36hrs, 220 KV Bishnah(JK)-Hiranagar(JK) ckt tripped on R-Y phase to phase fault with fault current of 3.92kA and 3.73kA in R and Y-phase respectively. ii) At the same time, 220 KV Samba(PG)-Bishnah(JK) ckt also tripped on R-Y phase to phase fault. iii) As per DR at Samba(PG) end of 220 KV Samba(PG) end-Bishnah(JK) (PDD JK) Ckt, zone-3 distance protection operated with fault current of 2.77kA and 2.34kA in R and Y-phase respectively at Samba(PG) end. Fault clearing time was ~840ms. iv) As per PMU at Kishenpur(PG), R-Y phase to phase fault is observed in system with fault clearance time of 840 ms. v) As per SCADA, load loss of approx. 310MW occurred in J&K control area.	1) 220 KV Bishnah(JK)-Hiranagar(JK) ckt 2) 220 KV Samba(PG)-Bishnah(JK) ckt

**Details of Grid Events during the Month of May 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)		
26	GI-2	Punjab	24-May-2023 22:12	24-May-2023 22:53	0:41	300	0	0.636	0.000	47149	55608	i) As reported, at 21:31 hrs, 400 KV Dehar(BB)-Panchkula(PG) (PG) Ckt tripped on B-N phase to earth fault [zone-1 from Dehar end]. ii) At 21:33 hrs, 400 KV Dehar(BB)-Rajpura(PS) (PG) Ckt tripped on R-N phase to earth fault [zone-2 From Rajpura end] with fault current 3.2kA and distance of 129.0km from Rajpura end. iii) Hence, during antecedent condition, both 400 KV Dehar(BB)-Panchkula(PG) (PG) Ckt and 400 KV Dehar(BB)-Rajpura(PS) (PG) Ckt were already out and total generation of 165MW Unit-4 & 5 at Dehar(BB) of approx. 300MW was evacuating through 400/220 kv 315 MVA ICT 1 at Dehar(BB). iv) Further, as reported, at 22:12 hrs, while charging 400 KV Dehar(BB)-Panchkula(PG) (PG) Ckt from Dehar end, 400/220 kv 315 MVA ICT 1 at Dehar(BB) tripped. Due to this, 165MW Unit-4 & 5 at Dehar(BB) also tripped due to loss of evacuation path. v) As per PMU at Jalandhar(PG), no fault is observed in the system at 22:12hrs. vi) As per SCADA, change in generation of approx. 300MW is observed at Dehar(BBMB) at 22:12 hrs.	1) 400 KV Dehar(BB)-Panchkula(PG) (PG) Ckt 2) 400 KV Dehar(BB)-Rajpura(PS) (PG) Ckt 3) 400/220 kv 315 MVA ICT 1 at Dehar(BB) 4) 165MW Unit-4 at Dehar(BB) 5) 165MW Unit-5 at Dehar(BB)
27	GI-2	Jammu and Kashmir	24-May-2023 15:09	24-May-2023 16:41	1:32	380	0	0.691	0.000	55009	61070	i) During the antecedent condition, 130 MW Dulhasti HPS - UNIT 1, 2 & 3 were generating approx. 380MW in total and total power of 380MW was evacuating through 400KV Dulhasti(HN)-Kishenpur(PG) ckt-1&2. ii) As reported, at 15:09 hrs, UCB (Unit control board) discordance fault QSD (Quick shutdown) operated from SCADA because of malfunctioning of surge shaft gate opening signal. Due to this, 130 MW Dulhasti HPS - UNIT 1, 2 & 3 tripped. Incorrect signal of surge shaft gate closed generated due to malfunction of contacts. iii) As per PMU at Kishenpur(PG), no fault is observed. iv) As per SCADA, generation loss of approx. 380MW is observed at Dulhasti(NH). v) During investigation, no issue in contacts found.	1) 130 MW Dulhasti HPS - UNIT 1 2) 130 MW Dulhasti HPS - UNIT 2 3) 130 MW Dulhasti HPS - UNIT 3
28	GD-1	Rajasthan	24-May-2023 20:14	24-May-2023 23:40	3:26	0	275	0.000	0.471	48757	58394	i) 400/220kv Jodhpur(RS) has one and half breaker bus scheme at 400kv side. ii) As reported at 20:10 hrs, isolator of 220 kv Jodhpur to Bilara line and the IPS tube of 400 kv main bus-A got damaged due to heavy storm at 400 kv GSS, Jodhpur. iii) On this fault, Bus bar protection operated at 400V Bus-A (as reported and as verified from DR). iv) As reported, at the same time, all the elements connected to 400V Bus-A & Bus-B tripped and substation became dead. v) As per PMU at Bhadla(PG), R-N phase to earth fault which further converted into three phase fault with delayed clearance of 2080ms is observed. vi) As per DR of 400 KV Jodhpur-Kankani (end) (RS) Ckt-1, at 20:14 hrs, line tripped on R-N phase to earth fault [zone-3 distance protection] with fault current of 1.16kA from Kankani(RS) end and fault clearance time of ~600msec. As reported, fault distance was 211km from Kankani(RS) end. vii) As per DR of 400 KV Kankani(PG) (end)-Jodhpur(RS) (PG) Ckt, at 20:14 hrs, line tripped on R-N phase to earth fault later converted into R-N fault is observed. Fault current was ~1.38kA from Kankani(PG) end. Fault clearing time was ~1560ms. As reported, fault distance was 187.5km from Kankani(PG) end. viii) As per DR of 400/220 kv 315 MVA ICT 1 & 2 at Jodhpur(RS), ICTs tripped on directional over current protection operation with the delay of approx. ~1300msec. Fault in R-phase which converted into R-B is observed. ix) As per SCADA, change in demand of approx. 275MW in Rajasthan control area x) The damaged IPS tube of 400KV main bus-A has been fixed.	1) 400KV Bus 1 at Jodhpur(RS) 2) 400KV Bus 2 at Jodhpur(RS) 3) 400 KV A&B-Jodhpur (RS) Ckt 4) 400 KV Rajwesi(RW)-Jodhpur (RS) Ckt 5) 400/220 kv 315 MVA ICT 1 at Jodhpur(RS) 6) 400/220 kv 315 MVA ICT 2 at Jodhpur(RS) 7) 400 KV Jodhpur-Kankani (RS) Ckt-1 8) 400 KV Kankani(PG)-Jodhpur(RS) (PG) Ckt
29	GI-2	Delhi	24-May-2023 17:43	24-May-2023 17:59		0	380	0.000	0.706	45210	53847	i) During antecedent condition, 400/220 kv 500 MVA ICT-4 at Mandola(PG) was already under emergency shutdown for attending hot spot on 207 Bay's CT R and Y Phase terminals. ii) The load of 220KV Gopalpur and Sabji Mandi S/s was fed from 220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-1 & 2 and the load of 220KV Narrela S/s was fed from 220 KV Mandola(PG)-Narela(DV) (DTL) Ckt-1 & 2. iii) As reported, the details of event is as follows: a. Y-Phase CT at 220KV side of ICT-4 was earthed from both sides for replacement of defective jumper. b. On connection of Tan delta kit earthing, sparking was observed in earthing lead. Discharge current from kit resulted in circulating current and eventually as spill current in Bus-1 & check zone. c. Further, low IR value of cable cores from busbar panel at Mandola(PG) to Gopalpur (ckt-1) isolator selection relays led to coupling of 220KV Bus 1 & 2 at Mandola(PG). d. This led to tripping of both 220KV Bus 1 & 2 at Mandola(PG). e. Due to tripping of 220KV Bus 1 & 2 at Mandola(PG), all the elements connected to Bus-1 & 2 also tripped and both the buses became dead. iv) As per DR of 400/220 kv 500 MVA ICT-4 at Mandola(PG), current of approx. 135A in Y-phase CT at LV side is observed. As reported, this spill current led to operation of bus bar differential protection. v) As per PMU at Mandola(PG), no fault is observed in the system. vi) As per SCADA, change in demand of approx. 380MW is observed in Delhi control area. vii) The load of 220KV Gopalpur and Sabji Mandi S/s was normalized through 220KV Wazirabad-Gopalpur ckt-1&2 at 17:46hrs and the load of 220KV Narrela S/s was normalized through 220 KV DSIOC Bawana-Narela ckt-1&2 at 17:59hrs.	1) 400/220 kv 500 MVA ICT 2 at Mandola(PG) 2) 220 KV Mandola(PG)-Narela(DV) (DTL) Ckt-1 3) 220 KV Mandola(PG)-Narela(DV) (DTL) Ckt-2 4) 220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-1 5) 220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-2 6) 220KV Bus 1 at Mandola(PG) 7) 220KV Bus 2 at Mandola(PG) 8) 25 MVAR Bus Reactor No 1 at 220 KV Mandola(PG)
30	GI-2	Haryana	25-May-2023 09:25	25-May-2023 11:22		0	0	0.000	0.000	51159	50996	i) During antecedent condition, 800 KV HVDC Kurukshetra(PG) Pole-1, 2, 3 & 4 were carrying 243MW, 240MW, 232MW & 236MW respectively from Champa to Kurukshetra. ii) As reported at 09:25hrs, Pole-4 was blocked from Kurukshetra end due to issue in measurement panel DCCT. Due to this, Pole-2 blocked on CAT-B protection from Pole-4. iii) At the same time, Pole-1 and Pole-3 also blocked due to DMR-2 transient fault. iv) As per PMU at Kurukshetra(PG), no fault is observed in the system, but fluctuation in voltage is observed. v) As per SCADA, no load loss is observed in Haryana control area.	1) 800 KV HVDC Kurukshetra(PG) Pole-01 2) 800 KV HVDC Kurukshetra(PG) Pole-02 3) 800 KV HVDC Kurukshetra(PG) Pole-03 4) 800 KV HVDC Kurukshetra(PG) Pole-04
31	GI-1	Punjab	27-May-2023 12:26	27-May-2023 15:04		0	355	0.000	0.830	43398	42786	i) As reported at 12:26 hrs, 220 kv Nallagarh(PG)-Mohali(PS) (PS) Ckt-1 and 2 tripped due to infringing of peacock which led to bus fault at 220KV Mohali S/s. Fault distance was 55km from Nallagarh(PG) end. ii) As per DR of 220 kv Nallagarh(PG) (end)-Mohali(PS) (PS) Ckt-1 and 2, both the ckt's tripped on B-N phase to earth fault sensed in zone-2. Fault current was 2.6kA from Nallagarh(PG) end. Delayed fault clearance of 540ms is observed. iii) As per PMU at Nallagarh(PG), B-N phase to earth fault with delayed fault clearance time of 560msec is observed. iv) As per SCADA, change in load of approx. 355MW is observed in Punjab control area.	1) 220 kv Nallagarh(PG)-Mohali(PS) (PS) Ckt-1 2) 220 kv Nallagarh(PG)-Mohali(PS) (PS) Ckt-2
32	GI-2	Haryana	28-May-2023 12:10	28-May-2023 16:02		0	0	0.000	0.000	43900	47516	i) During antecedent condition, 800 KV HVDC Kurukshetra(PG) Pole-1, 2, 3 & 4 were carrying 369MW, 367MW, 354MW & 364MW respectively from Champa to Kurukshetra. ii) As reported at 12:10hrs, 800 KV HVDC Kurukshetra(PG)-Champa(PG) (PG) Ckt-1 & 3 tripped as block command was received from Champa end due to DC Filter overload protection operation at Champa end. iii) As per PMU at Kurukshetra(PG), no fault is observed in the system, but fluctuation in voltage is observed.	1) 800 KV HVDC Kurukshetra(PG)-Champa(PG) (PG) Ckt-1 2) 800 KV HVDC Kurukshetra(PG)-Champa(PG) (PG) Ckt-3

**Details of Grid Events during the Month of May 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)		
33	GD-1	Rajasthan	28-May-2023 13:02 to 13:40	28-May-2023 18:59		8000	0	19.885	0.000	40231	47381	<p>a) At 13:02:58.080 hrs, 220KV Bhadla TPREL Line tripped due to R-N fault. It was reported that the fault occurred due to damage of wave trap at 220KV TPREL end. CB did not open at Bhadla end and therefore LBB operated at Bhadla end as per DR. Fault cleared with the delay of ~280msec.</p> <p>b) Due to LBB operation, element connected at 220KV Bus-4 at Bhadla(PG) i.e., 220KV Bhadla ESSB line &amp; 400/220 KV 500 MVA ICT 6 at Bhadla(PG) also tripped at the same instance.</p> <p>c) At 13:03:01.120 hrs, 220KV Bhadla CSP Jodhpur tripped due to R-N fault followed by Y-N fault during dead time of R-9H-A/R. Fault occurred due to snapping of OHW.</p> <p>d) During voltage dip of faults in lines, reduction in RE generation connected at Fatehgarh 1 &amp; 2 was observed (as per SCADA) on LVRT operation. (Generation at Bhadla(PG) &amp; Bhadla2(PG) was already near to zero before the tripping event). The total generation loss as per SCADA data was ~910 MW which recovered within ~2min.</p> <p>e) Further at 13:39 hrs, 765KV Bhadla2-Fatehgarh2 ckt 2 tripped on permanent R-N fault in line followed by tripping of 765/400KV 1500MVA ICT 1 at Bhadla2(PG) on differential protection operation on B-N fault, flashover in 400KV side jumper and gantry was observed.</p> <p>f) During voltage dip of this fault also, reduction in RE generation connected at Fatehgarh 1 &amp; 2 was observed (as per SCADA) on LVRT operation. (Generation at Bhadla(PG) &amp; Bhadla2(PG) was already almost zero before the tripping event). The total generation loss as per SCADA data was ~1500 MW out of which ~1150MW recovered within ~2min.</p> <p>g) Further at 13:35 hrs, 765KV Bhadla2-Bikaner ckt 1 tripped on permanent Y-N fault in line followed by tripping of 220KV Bhadla2-ASEFL ckt on R-N fault.</p> <p>h) Further at 13:36hrs, 765KV Bhadla2-Ajmer ckt-2 tripped on R-B-N double phase to ground fault followed by tripping of 400KV Bhadla2-Kolayat ckt on R-N fault at 13:37hrs.</p> <p>i) During voltage dip of this fault also, reduction in RE generation connected at Fatehgarh 1 &amp; 2 was observed (as per SCADA) on LVRT operation. (Generation at Bhadla(PG) &amp; Bhadla2(PG) was already almost zero before the tripping event). The total generation loss as per SCADA data was ~800 MW which recovered within ~1.5min.</p> <p>j) Further at 13:40hrs, 765KV Bhadla2-Fatehgarh2 ckt 1 &amp; 765KV Bhadla2-Ajmer ckt 1 tripped on R-N fault in respective lines during reclaim time.</p> <p>k) During voltage dip of this fault also, reduction in RE generation connected at Fatehgarh 1 &amp; 2 was observed (as per SCADA) on LVRT operation. (Generation at Bhadla(PG) &amp; Bhadla2(PG) was already almost zero before the tripping event). The total generation loss as per SCADA data was 1200 out of which ~700MW recovered within ~2min.</p> <p>l) With the tripping of these two lines, out of six 765KV lines at 765KV Bhadla2(PG), only one 765KV line i.e., 765KV Bhadla2-Bikaner ckt 2 remained intact.</p>	<p>1) 220 KV Bhadla(PG)-TPREL Solar(TP) (Tata Power) Ckt-1</p> <p>2) 220 KV Bhadla(PG)-ESUCRL SL_BHD_PG (ESUCRL) (ESUCRL) Ckt-1</p> <p>3) 400/220 KV 500 MVA ICT 6 at Bhadla(PG)</p> <p>4) 220 KV Bhadla(PG) - Bus 4</p> <p>5) 220 KV Bhadla(PG)-CSP Jodhpur SL_BHD_PG (Clearsolar_Jodhpur) (Clearsolar_Jodhpur) Ckt-1</p> <p>6) 765 KV Bhadla_2 (PG)-Fatehgarh_1(PG) (PFTL) Ckt-2</p> <p>7) 765/400 KV 1500 MVA ICT 1 at Bhadla_2 (PG)</p> <p>8) 220 KV Nokhra SL_BHD2 (NTPC-Bhadla_2 (PG) (NTPC_NOKHRA) Ckt-1</p> <p>9) 765 KV Bikaner-Bhadla_2 (PG) Ckt-1</p> <p>10) 220 KV Bhadla_2 (PG)-Avasda Sunraya SL_BHD2_PG (Avasda_Sunraya) (Avasda_Sunraya) Ckt-1</p> <p>11) 765 KV Ajmer-Bhadla_2 (PG) Ckt-2</p> <p>12) 400 KV Kolayat Solar NTPC_1 (NTPC_KOLAYAT SL)-Bhadla_2 (PG) (NTPC_KOLAYAT SL) Ckt-1</p> <p>13) 765 KV Bhadla_2 (PG)-Fatehgarh_1(PG) (PFTL) Ckt-1</p> <p>14) 765 KV Bhadla_2 -Ajmer (PG) Ckt-1</p>
34	GD-1	Punjab	31-May-2023 04:48	31-May-2023 07:08		0	90	0.000	0.200	39599	44912	<p>i) 220 KV Dasuya(PS) 5/6 has double bus scheme.</p> <p>ii) As reported, brief of the event is as follows:</p> <p>a) At 04:48hrs on 31st May'23, 220 KV Dasuya-Alawalpur (PS) Ckt tripped on R-N phase to earth fault from Alawalpur end only; fault sensed in zone-1 from Alawalpur end. This fault was not sensed from Dasuya end. Hence distance protection did not operate and line did not trip from Dasuya end on this fault.</p> <p>b) On this fault, other lines from 200KV Dasuya(PS) tripped on back-up protection (Z-2/Z-3/directional E/F) operation from remote end only.</p> <p>c) Back up over current earth fault protection of 220 KV Dasuya-Alawalpur (PS) Ckt also didn't operate.</p> <p>iii) As per DR of 220 KV Dasuya(PS)-Jalandhar(PG) (end) (PG) Ckt 1 &amp; 2, directional E/F protection operated at Jalandhar(PG) end. Fault current in R phase were 700A and 950A respectively for Ckt-1 &amp; 2 from Jalandhar(PG) end.</p> <p>iv) As per PMU at 400KV Jalandhar(PG), R-N phase to earth fault with delayed clearance of fault in 3520 ms is observed.</p> <p>v) As per SCADA change in demand of approx. 90MW is observed in Punjab control area.</p>	<p>1) 220 KV Dasuya(PS)-Jalandhar(BB) (BBMB) Ckt</p> <p>2) 220 KV Dasuya(PS)-Jalandhar(PG) (PG) Ckt-1</p> <p>3) 220 KV Dasuya(PS)-Jalandhar(PG) (PG) Ckt-2</p> <p>4) 220 KV Fong(BB)-Dasuya(PS) (BBMB) Ckt-1</p> <p>5) 220 KV Fong(BB)-Dasuya(PS) (BBMB) Ckt-2</p> <p>6) 220 KV Dasuya-Alawalpur (PS) Ckt</p> <p>7) 220 KV Sarma(PS)-Dasuya(PS) (PG) Ckt-1</p> <p>8) 220 KV Sarma(PS)-Dasuya(PS) (PG) Ckt-2</p> <p>9) 220KV Dasuya-Railway ckt</p>

**Details of Grid Events during the Month of May 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	GD-1	WR	03-May-23 16:25	04-May-23 11:48	19:23	70	-	0.001	-	57758	55041	At 16:25 Hrs/03-05-2023, 220 kV Bhuj- Dayapar-2 line tripped on Y-B phase fault due to B phase LA failure at Dayapar end. There was a generation loss of 70 MW at 220 kV Dayapar (Inox) Wind Power Plant due to loss of evacuation path.	Tripping of 1. 220 kV Bhuj- Dayapar 2
2	GD-1	WR	03-May-23 19:40	-	-	88	-	0.001	-	63132	56224	At 19:40 Hrs/03-05-2023, 220 kV Bhachau- Bhuvad 1&2 tripped on Y-E & Y-B phase fault respectively due to tower collapse. There was a generation loss of 88 MW at 220 kV Bhuvad (Renew Power) Wind Power Plant.	Tripping of 1. 220 kV Bhachau- Bhuvad 1&2
3	GI-1	WR	04-May-23 15:09	04-May-23 16:07	0:58	104	-	0.002	-	58765	56351	At 15:09 Hrs/04-05-2023, 220 kV Ratadiya-Bhuj-1 tripped on Y-E fault due to damage of insulator anchor at tower No.15. 220 kV Bus coupler was under planned outage at Ratadia & resulted in generation loss of 104 MW at 220 kV Ratadia(ADANI) Wind Power plant.	Tripping of 1. 220 kV Bhuj- Ratadiya 1
4	GI-2	WR	05-May-23 14:40	05-May-23 15:22	0:42	-	-	-	-	61687	58316	At 14:40 Hrs/05-05-2023, Y phase CT of Tie bay of 400 kV Bina(PG) 2 line blasted at 400 kV Bina(MP) substation. Due to the blast, B-phase Main bay CT of 400/220 kV Bina(MP) ICT 3 , B-phase grading capacitor of 400 kV Bina(PG) Tie CB & B-phase isolator of 400 kV Bina(MP) damaged. 400 kV Bina(MP)- Bina(PG) 1,2,3&4, 400/220 kV Bina(MP) ICT 1,2&3 and 400 kV Bina(MP) Main Bus 1 tripped due to the event. At the same time 765 kV Bina(PG)- Seoni S/C tripped on Over Voltage protection operation at Bina(PG) end. As reported by MP SLDC, no load loss occurred due to the event.	Tripping of 1. 400 kV Bina(MP)- Bina(PG) 1,2,3&4 2. 400/220 kV Bina(MP) ICTs 1,2&3 3. 400 kV Bina(MP) Main Bus 1 4. 765 kV Bina(PG)- Seoni S/C
5	GI-2	WR	11-May-23 10:24	11-May-23 11:49	1:25	-	-	-	-	69033	63398	At 10:24 Hrs/11-05-2023, 400 kV Chorania- Charal line tripped on B-E fault due to agricultural waste burning between location S2-S3. At the same time, 400 kV Chorania Bus 1 and all the connected elements tripped on Bus bar protection operation. As reported by GETCO, R Phase current observed in DR of 400 kV Charal line during B-E fault. Bus bar protection operated due to CT secondary fault of 400kV Charal line and same has been rectified. There was no load loss due to the event.	Tripping of 1. 400 kV Chorania Bus-1 2. 400 kV Chorania- Hadala 3. 400 kV Chorania- Vadavi 2 4. 400 kV Chorania- Charal 5. 400 kV Chorania- Pachham 6. 400 kV Chorania- Kasor
6	GD-1	WR	12-May-23 13:44	12-May-23 18:59	5:15	245	-	0.003	-	73415	63604	At 13:44 Hrs/12-05-2023, 220 kV Bhuj- Naranpar tripped on B-E fault. Due to loss of evacuation path, 245 MW generation loss occurred at 220 kV Naranpar(GIWEL) Wind Power Plant.	Tripping of 1. 220 kV Bhuj- Naranpar
7	GI-1	WR	12-May-23 20:28	12-May-23 23:10	2:42	-	-	-	-	76241	61690	At 20:28 Hrs/12-05-2023, 220 kV Sujalpur(PG) Bus 2 and all the connected elements tripped on R-E fault on Bus bar protection operation ( monkey climbed over the 220 kV Bus 2). 400/220 kV Sujalpur(PG) ICTs 1&2 tripped at LV side only and remained in charged condition from 400 kV side. As reported by MP SLDC, there was no load loss due to the event.	Tripping of 1. 220 kV Sujalpur(PG)- Rajgarh(MP) 2 2. 220 kV Sujalpur(PG)- Sujalpur(MP) 2 3. 400/220 kV Sujalpur(PG) ICTs 1&2
8	GD-1	WR	17-May-23 11:15	17-May-23 12:16	1:01	800	-	0.011	-	73072	64852	At 11:15 Hrs/17-05-2023, while shifting 220kV side bay (221) of 400/220kV Bhuj ICT6, from 220 kV Bhuj Bus 2 to 220 kV Bhuj Bus 1, 220kV Bhuj Bus 1 & 2 (Section-B) tripped on busbar differential protection operation due to Rph – Yph fault in isolator 89B of 221 Bay. At the same time, 220 kV Bhuj- Naranpar, 220 kV Bhuj- Gadhsisa & 220 kV Vadva lines tripped at respective RE stations end due to Over reach of Distance protection relays. At the same time, 220 kV Bhuj- Baranda A/R successfully from Baranda end due to relay over reach. Generation loss of 800 MW occurred at 220 kV Dayapar(INOX), 220 kV Gadhsisa Renew Power), 220 kV Vadva(GIWEL), 220 kV Naranpar(GIWEL) Wind Power Plants due to loss of evacuation path.	Tripping of 1. 220 kV Bhuj- Dayapar 2 2. 220 kV Bhuj- Naranpar 3. 220 kV Bhuj- Gadhsisa 4. 220 kV Bhuj- Vadva 5. 400/220 kV Bhuj ICTs 1,2&6 6. 220 kV Bhuj Bus 1&2 Section B

**Details of Grid Events during the Month of May 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)		
9	GD-1	WR	18-May-23 13:13	18-May-23 13:50	0:37	504	-	0.007	-	73550	65452	At 13:13 Hrs/18-05-2023, 400 kV ACBIL-MCCPL and 400 kV ACBIL-Bilaspur tripped on Y-B Phase fault. ACBIL Unit-1 & Unit-2 tripped due to loss of evacuation path. At the same time, MCCPL Unit-1 also tripped due to boiler trip. About 504 MW generation loss occurred due to the event.	Tripping of 1.400 kV ACBIL- MCCPL 2.400 kV ACBIL- Bilaspur 3.ACBI Units 1&2 4.MCCPL Unit 1
10	GD-1	WR	20-May-23 00:57	20-May-23 01:31	0:34	-	300	-	0.005	77324	64684	At 00:57 Hrs/20-05-2023, 220kV Satna(MP) Buses 1&2 tripped on Busbar protection operation due to CT blast of 220kV Katni line at 220kV Satna(MP). All the connected 220kV lines and 220/132kV Transformers tripped. There was a load loss of around 300 MW due to the event.	Tripping of 1. 220 kV Satna(MP)- Satna(PG) 1,2&3 2.220 kV Satna(MP)- Chhatarpur 3.220 kV Satna(MP)- Kotar 4.220 kV Satna(MP)- Rewa 5.220 kV Satna(MP)- SGTP
11	GD-1	WR	21-May-23 13:11	22-May-23 12:44	23:33	166	-	0.002	-	69061	62012	At 13:11 Hrs/21-05-2023, 220 kV Bhuj- Dayapar 2 tripped on B-E fault. Generation loss of 166 MW occurred at 220 kV Dayapar(INOX) Wind Power plant due to evacuation path loss.	Tripping of 1.220 kV Bhuj- Dayapar 2
12	GD-1	WR	26-May-23 14:19	26-May-23 15:19	1:00	280	-	0.004	-	71016	63708	At 14:19 Hrs/26-05-2023, due to heavy wind 33KV feeder-12 B-phase conductor got damaged and fell down on Feeder-1 resulting in tripping of 220/33 kV Pritamnagar-ICT-1,2&3. Generation loss of 280 MW occurred at 220 kV Pritamnagar (Adani) Wind Power plant.	Tripping of 1.220/33 kV Pritamnagar-ICT-1 2.220/33 kV Pritamnagar-ICT-2 3.220/33 kV Pritamnagar-ICT-3
13	GD-1	WR	27-May-23 16:50	27-May-23 18:02	1:12	-	12	-	0.000	73162	63457	At 16:50 Hrs/27.05.2023, 220 kV Annupur-Kotmikala-1 & 2 line tripped on Y phase to earth fault leading to the black out of Kotmikala substation, prior to the event 220kV Kotmikala-Churri-1&2 were kept out on power regulation. Load loss of 12 MW observed at 220kV Kotmikala due to the event.	Tripping of 1.220 kV Annupur-Kotmikala-1 2.220 kV Annupur-Kotmikala-2
14	GD-1	WR	29-May-23 14:30	29-May-23 17:06	2:36	250	-	0.003	-	73965	64057	At 14:30 Hrs/29-05-2023, 220 kV Bachau-Nararpar (Ostro)-1&2 tripped on single line to ground fault. Generation loss of 250 MW occurred at 220 kV Ostro (Renew Power) Wind Power plant due to loss of evacuation path.	Tripping of 1.220 kV Bachau-Nararpar (Ostro)-1 2.220 kV Bachau-Nararpar (Ostro)-2



**Details of Grid Events during the Month of May 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	01-May-23 02:45	01-May-23 03:58	1 hr 13mins	100	50	0.27%	0.15%	36881	32518	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 220kV Bus PT failure at 220kV Nagjheri PH. Immediately, BBP operated and all the elements connected to the bus tripped. 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
2	GD-1	Karnataka	03-May-23 08:10	03-May-23 08:33	23mins	320	410	0.84%	0.97%	38249	42103	Complete Outage of 220kV/110kV Shahbad SS, 220kV/110kV Humnabad SS, 220kV/110kV Halburga SS, 220kV/110kV Kapnoor SS, 220kV/110kV Shahpur and 220kV/110kV Sedam SS of KPTCL and 220kV Bus outage at 400kV/220kV RTPS Generating Station of KPCL: During antecedent conditions, 220kV Sedam Tandur line was under open condition. 220kV/110kV Shahbad SS, 220kV/110kV Kapnoor SS, 220kV/110kV Humnabad SS, 220kV/110kV Halburga SS, 220kV/110kV Shahpur and 220kV/110kV Sedam SS were being radially fed from 220kV Bus at 400kV/220kV RTPS generating station and 220kV Lingasugur Shahpur line. 400kV/220kV RTPS generating station is operating with single bus configuration at 220kV level. As per the information received, the triggering incident was B-phase PT failure in 400kV/220kV ICT-1 causing 220kV BBP to operate and all the elements connected to the 220kV bus tripped. Subsequently, it is suspected that 220kV Lingasugur Shahpur line tripped on over loading. This resulted in loss of power supply to 220kV/110kV Shahbad SS, 220kV/110kV Humnabad SS, 220kV/110kV Halburga SS, 220kV/110kV Kapnoor SS, 220kV/110kV Shahpur and 220kV/110kV Sedam SS.	1. 220kV Lingasugur Shahpur 2. 400kV/220kV RTPS ICT-1 3. 400kV Raichur Raichur_PG-2 4. 220kV Raichur Sedam 5. 220kV Raichur Malat 6. 220kV Raichur Lingasugur 7. 220kV Raichur Shahpur
3	GD-1	Tamil Nadu	07-May-23 00:33	07-May-23 02:09	1hr 36mins	15	0	0.04%	0.00%	39154	43781	Complete Outage of 230kV JSW_Vilathikulam_Wind:As per the reports submitted, the triggering incident was R-N fault in 230kV TTGS JSW_Vilathikulam_Wind line and the line tripped. Tripping of the only connected line resulted in complete outage of 230kV JSW_Vilathikulam_Wind.	1.230kV TTGS JSW_Vilathikulam_Wind
4	GD-1	Karnataka	08-May-23 05:10	08-May-23 06:11	1hr 1min	0	0	0.00%	0.00%	39154	43781	Complete Outage of 220kV Rychalu SS-2 of KSPDCL: As per the reports submitted, the triggering incident was B-N fault in 400kV Pavagada Devanahalli Line-2. At the same time, 220kV Pavagada Ryachalu SS-2 line tripped only at Ryachalu end on high set EF protection. Tripping of the only connected line resulted in complete outage of 220kV Rychalu SS-2	1. 220kV Pavagada Ryachalu SS-2 line
5	GD-1	Karnataka	10-May-23 17:29	10-May-23 18:26	57mins	150	40	0.37%	0.09%	40556	44611	Complete Outage of 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 through 220kV Kadra Kodalalli line. As per the reports submitted, the triggering incident was RYB fault in 220kV Kadra Kodalalli line. This led to complete outage of 20kV Kadra PH and 220kV/110kV Karwar SS	1. 220kV Kadra Kodalalli
6	GD-1	Karnataka	11-May-23 18:34	11-May-23 19:06	32mins	329	0	0.79%	0.00%	41445	45175	Complete Outage of 220kV Varahi PH of KPCL: During antecedent conditions, 220kV Varahi Simoga Line-1&2 were under outage. At 18:29hrs and 18:32hrs, due to heavy rain, 220kV Varahi Kemar Line-2 and 220kV Varahi Kemar Line-1 tripped on R-N fault. Subsequently, 220kV Varahi Heggunje and 220kV Varahi Shimoga Line-3 tripped on over current protection. At 18:34hrs, due to loss of evacuation path all the units tripped on over frequency at 220kV Varahi PH causing complete outage of the power house.	1. 220kV Varahi Unit-3&4 2. 220kV Varahi Shimoga Line-3 3. 220kV Varahi Heggunje 4. 220kV Varahi Kemar Line-1&2
7	GD-1	Karnataka	17-May-23 13:36	17-May-23 13:45	9mins	0	45	0.00%	0.08%	50821	57136	Complete Outage of 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 through 220kV Kadra Kodalalli line. As per the reports submitted, the triggering incident was relay maloperation of 220kV Kadra Kodalalli line at Kodalalli end. This led to a complete outage of 20kV Kadra PH and 220kV/110kV Karwar SS.	1. 220kV Kadra Kodalalli

**Details of Grid Events during the Month of May 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)		
8	GD-1	Karnataka	19-May-22 13:09	19-May-22 14:09	1hr	0	750	0.00%	1.30%	52844	57840	Tripping of 220kV Bus-2 of 400kV/220kV Hoody SS and Complete Outage of 220kV/66kV Exora SS, 220kV/66kV EDC SS, 220kV/66kV Nimans Station, 220kV/66kV ITI SS, 220kV/66kV Vikas Tech Park SS and 220kV/66kV Sarjapur SS of KPTCL. As per the reports submitted, the triggering incident was tripping of 400kV/220kV Hoody ICT-2 due to operational issue in circuit breaker. Subsequently, 400kV/220kV Hoody ICT-3 tripped on overloading. Tripping of both these ICTs resulted in loss of power supply of 220kV Bus-2 of 400kV/220kV Hoody SS which further led to Complete Outage of 220kV/66kV Exora SS, 220kV/66kV EDC SS, 220kV/66kV Nimans Station, 220kV/66kV ITI SS, 220kV/66kV Vikas Tech Park SS and 220kV/66kV Sarjapur SS.	1. 400kV/220kV Hoody ICT-2&3
9	GD-1	Karnataka	20-May-23 15:48	21-May-23 02:33	10hrs 45mins	0	130	0.00%	0.23%	50316	56687	Complete Outage of 220kV/66kV Exora SS, 220kV/66kV Sarjapur SS and 220kV/66kV Vikas Tech park SS of KPTCL. As per the reports submitted, the triggering incident was B-N fault in 220kV Somanahally Malur line. Since the line is radially feeding 220kV/66kV Exora SS, 220kV/66kV Sarjapur SS and 220kV/66kV Vikas Tech park SS, tripping of this line resulted in complete outage of 220kV/66kV Exora SS, 220kV/66kV Sarjapur SS and 220kV/66kV Vikas Tech park SS.	1. 220kV Somanahally Malur
10	GD-1	Andhra Pradesh	21-May-23 15:47	21-May-23 16:30	43mins	22	80	0.05%	0.17%	45393	48442	Complete Outage of 400kV/220kV Gani SS, 220kV Gani PS-1, 220kV Gani PS-2, 220kV Gani PS-3 and 220kV Gani PS-4, 220kV/132kV Nandyal SS and Tripping of 220kV Bus-2 of 220kV Somayajulapalli SWS of APTRANSCO and : During antecedent conditions, 220kV Bus-2 of 220kV/132kV Somayajulapalli SWS is being radially fed from 400kV/220kV Gani SS. 220kV Gani PS-1, 2,3&4 are radially connected to 400kV/220kV Gani SS. As per the reports submitted, the triggering incident was B-N fault in 400kV Ghani Narnoor Line-1&2 and the lines tripped. This resulted in Complete Outage of 400kV/220kV Gani SS leading to loss of power supply to 220kV Bus-2 of 220kV Somayajulapalli SWS and 220kV/132kV Nandyal SS. This also resulted in complete outage of 220kV Gani PS-1,2,3 &4.	1. 400kV Ghani Narnoor line-1&2
11	GD-1	Karnataka	21-May-23 01:03	21-May-23 02:12	1hr 09mins	0	0	0.00%	0.00%	43866	46981	Complete Outage of 220kV Rychalu SS-2 of KSPDCL: As per the reports submitted, the triggering incident was B-N fault in 400kV Pavagada Devanahalli Line-2. At the same time, 220kV Pavagada Rychalu SS-2 line tripped only at Rychalu end on high set EF protection. Tripping of the only connected line resulted in complete outage of 220kV Rychalu SS-2.	1. 220kV Pavagada Rychalu SS-2 line
12	GD-1	Kerala	22-May-23 16:04	22-May-23 16:13	9mins	200	0	0.43%	0.00%	46847	53215	Complete Outage of 220kV/110kV Shornur SS, 220kV/110kV Elankur SS, and Tripping of 220kV Bus-2 of 220kV/110kV Areakode SS of KSEB: During antecedent conditions, 220kV/110kV Areakode SS was operating with split bus conditions with 220kV Areakode Shornur line and 220kV Areakode Elankur line on 220kV Bus-2. As per the reports submitted, the triggering incident was Y-N fault in 220kV Madakathara Elankur line and 220kV Areakode Shornur line which are on the same tower. At Shornur, the Y-pole of the breaker failed to open causing LBB to operate and the elements connected to the 220kV Bus-2 of Shornur tripped. Tripping of 220kV Madakathara Elankur and 220kV Areakode Shornur led to the loss of supply to 220kV/110kV Elankur SS, 220kV/110kV Shornur SS and tripping of 220kV Bus-2 of 220kV/110kV Areakode SS.	1. 220kV Madakathara Elankur 2. 220kV Areakode Shoranur 3. 220kV/110kV 100MVA Shoranur Transformer-2
13	GD-1	Karnataka	23-May-23 15:39	23-May-23 16:05	26mins	350	0	0.72%	0.00%	48600	53997	Complete Outage of 220kV/110kV Mahalingapura SS, 220kV/110kV Kuduchi SS, 220kV/110kV Athani SS and 220kV/110kV Soudatti SS of KPTCL: During antecedent conditions, 220kV/110kV Soudatti radially connected to 220kV/110kV Mahalingapura SS due to outage of 220kV Soudatti Bidnal line and 220kV Mahalingapura Vajramatti Line-1&2 were under LC. As per the reports submitted, the triggering incident was Y-B fault in 220kV Mahalingapura Narendra Line-2. Subsequently, 220kV Mahalingapura Narendra Line-1 tripped on over loading and 220kV Kuduchi Chikkodi Line-1 & 2 were hand tripped. This led to complete outage of 220kV/110kV Mahalingapura SS, 220kV/110kV Kuduchi SS, 220kV/110kV Athani SS and 220kV/110kV Soudatti SS.	1. 220kV Narendra Mahalingapura Line-1&2 2. 220kV Kuduchi Chikkodi Line-1&2
14	GD-1	Kerala	23-May-23 19:03	23-May-23 19:08	5mins	100	0	0.26%	0.00%	38604	48068	Complete Outage of 220kV/110kV Mylatty SS, 220kV/110kV Ambalathara SS and 220kV/110kV/33kV Taliparamba SS of KSEB: 220kV/110kV Mylatty SS, 220kV/110kV Ambalathara SS and 220kV/110kV/33kV Taliparamba SS are radially connected to 220kV/110kV Kanhirode SS through 220kV Ambalathara Kanhirode and 220kV Taliparamba Kanhirode lines. As per the reports submitted, the triggering incident was Y-N fault in 220kV Ambalathara Kanhirode and 220kV Taliparamba Kanhirode lines. Tripping of both these lines resulted in complete Outage of 220kV/110kV Mylatty SS, 220kV/110kV Ambalathara SS and 220kV/110kV/33kV Taliparamba SS.	1. 220kV Ambalathara Kanhirode 2. 220kV Taliparamba Kanhirode
15	GD-1	Andhra Pradesh	30-May-23 09:20	30-May-23 11:12	1hr 52mins	0	0	0.00%	0.00%	44208	50203	Complete Outage of 220kV Tallapally SWS of APTRANSCO: As per the reports submitted, the triggering incident was R-N fault in 220kV Tallapally Srisaillam RB Line-2. At the Tallapally end, distance protection failed to clear the fault. Fault was cleared by tripping of 400kV/220kV Nsagar ICT-1, 2, & 3 on backup over current protection operation and connected lines tripped on Zone-2 protection at the remote ends. This resulted in the complete outage of 220kV Tallapally SWS.	1. 220kV Tallapally Srisaillam RB Line-1&2 2. 220kV Tallapally Piduguralla Line-1&2 3. 220kV Tallapally Nsagar_TS Line-1,2&3 4. 400kV/220kV Nsagar ICT-1,2&3 5. 220kV Tallapally Chlathurthy 6. 220V Tallapally VTPS
16	GD-1	Karnataka	30-May-23 18:43	30-May-23 20:51	2hr 08mins	0	0	0.00%	0.00%	38705	44887	Complete Outage of 220kV/66kV Tirumani SS-1 of KSPDCL: As per the reports submitted, the triggering incident was B-N fault in 220kV Pavagada Tirumani SS-1 line. Tripping of the only connected line resulted in a complete outage of 220kV/66kV Tirumani SS-1.	1. 220kV Pavagada Tirumani SS-1 line.

**Details of Grid Events during the Month of May 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)		
17	GI-1	Andhra Pradesh	03-May-23 20:45	03-May-23 22:05	1hr 20mins	0	0	0.00%	0.00%	39154	43781	Tripping of 220kV Bus of 220kV/132kV/33kV Gudivada SS: 220kV/132kV/33kV Gudivada SS is operating with single bus configuration at 220kV. The triggering incident was R-N fault in 220kV Gudivada Bheemavaram line. At Gudivada end, the circuit breaker failed to open causing LBB to operate and all the lines connected to the 220kV Bus tripped. 132kV was intact during the event.	1. 220kV Gudivada Bheemavaram 2. 220kV Gudivada Nunna Line-1&2 3. 220kV Gudivada Akiveedu 4. 220kV/132kV 160MVA Gudivada PTR-1&3 5. 220kV/132kV 100MVA Gudivada PTR-2
18	GI-1	Tamil Nadu	10-May-23 11:12	10-May-23 11:39	27 mins	0	0	0.00%	0.00%	47398	46696	Tripping of 230kV Bus-2 of 230kV Checkanurani SWS of TANTRANSCO: As per the reports submitted, the triggering incident was Y-N fault in 230kV Checkanurani Indubarath line (idle charged from Checkanurani end). At Checkanurani end, CB failed to open and LBB operated causing all the elements connected to the Bus-2 to trip.	1. 230kV Checkanurani Indubarath 2. 230kV Checkanurani Sembatty 3. 230kV Checkanurani Savasapuram 4. 230kV Checkanurani TTPS 5. 230kV Checkanurani Kayathar 6. 230kV Checkanurani Amuthapuram 7. 400kV/230kV Madurai ICT-3
19	GI-1	Andhra Pradesh	15-May-23 15:14	15-May-23 22:05	6 hrs 51 mins	500	0	0.97%	0.00%	51674	54532	Tripping of 220kV Bus-2 of 400kV/220kV VTPS of APGENCO: As per the reports submitted, the triggering incident was failure of Rph CT of U#3 GT at 220kV VTPS end. Overall differential protection of U#3 GT operated, but due to persistence of fault current, LBB operated resulting in the tripping of all the elements connected to 220kV Bus-2 at 400kV/220kV VTPS.	1. VTPS Unit-2, 3&6 2. 220kV VTPS Rentachinthal 3. 220kV VTPS Kondapalli Line-2 4. 220kV VTPS Narsarao Pet 5. 220kV VTPS Tadikonda Line-2 6. 220kV VTPS Chilikallu Line-2 7. 220kV VTPS Piduguralla Line-2 8. 220kV VTPS Nuzivedu line
20	GI-1	Andhra Pradesh	16-May-23 22:02	17-May-23 00:49	2 hrs 47 mins	245	0	0.59%	0.00%	41193	51332	Tripping of 220kV Bus-1 of 220kV Nagarjunsagar PH of TSGENCO: As per the reports submitted, 220kV Bus-1 of 220kV Nagarjunsagar PH got de-energised due to Bus-1 BBP operation.	1. 220kV Nagarjun Sagar Srisalam RB-1 2. Nagarjun Sagar Unit-1,3&5 3. 220kV Nagarjun Sagar Tallapally Line-1 4. 220kV/132kV 100MVA PTR-1
21	GI-1	Andhra Pradesh	17-May-23 17:57	17-May-23 18:25	28mins	900	0	2.25%	0.00%	40013	50683	Tripping of 220kV Bus-1 of 400kV/220kV VTPS of APGENCO: As per the reports submitted, the triggering incident was maloperation of LBB protection of U#1 GT at 220kV VTPS end. This resulted in the tripping of all the elements connected to 220kV Bus-1 at 400kV/220kV VTPS. Subsequently, running units#3 and 6 got tripped due to the loss of auxiliary supply.	1. VTPS Unit-1, 3, 4, 5 and 6 2. 220kV VTPS Podili 3. 220kV VTPS Tallapalli 4. 220kV VTPS Tadikonda-1 5. 220kV VTPS Kondaalli-1 6. 220kV VTPS Gunadala-1 7. 220kV VTPS Piduguralla-1
22	GI-1	Telangana	26-May-23 19:44	27-May-23 01:25	5hr 41mins	0	0	0.00%	0.00%	39585	47991	Tripping of 220kV Bus-1 of 220kV/132kV Malayalapally SS of TSTRANSCO: As per the reports submitted, the triggering incident was R-phase jumper failure in 220kV Malayalapally Mandamary line and caused a fault in 220kV Bus-1. Immediately, 220kV Bus-1 BBP operated and all the elements connected to the bus tripped including 400kV/220kV Ramagundam ICT-2&4.	1. 400kV/220kV Ramagundam ICT-2&4 2. 220kV Mamidipally Mandamary line 3. 220kV Mamidipally Jagityal Line-1& 3 4. 220kV Mamidipally Manthani 5. 220kV Mamidipally Dursheed 6. 220kV Mamidipally Medaram 7. 230kV/110kV 160MVA Mamidipally PTR-1
23	GI-1	Telangana	30-May-23 10:35	30-May-23 11:31	56 mins	0	0	0.00%	0.00%	46986	52024	Tripping of 220kV Bus-2 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-2. 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-2 at 220kV Upper Jurala PH.	1. 220kV Jurala Raichur_KA Line-2 2. 220kV Bus coupler at 220kV Jurala PH

**Details of Grid Events during the Month of May 2023 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 (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
	( 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	Jorethang	14.05.2023 16:36	14.05.2023 16:39	00:03	43	0	0.15%	0.00%	27759	24125	At 16:36 Hrs on 14.05.2023, 220 kV Jorethang-New Melli D/c tripped from Jorethang end only. Consequently, one running unit at Jorethang tripped and power supply interrupted at Jorethang. Around 43 MW generation loss occurred.	U#1 at Jorethang 220 kV Jorethang-New Melli D/c
2	GD-1	Therubali	15.05.2023 11:13	15.05.2023 11:51	00:38	20	25	0.08%	0.10%	24632	24277	At 11:13 Hrs, OPGW wire of 220 V Therubali-Lakshampur-2 snapped between location no. 1209 & 1210 and fault was not cleared from Therubali end. This led to tripping of all associated feeders at Therubali and total power failure at 220kV Therubali, 220kV Kasipur & 220kV Jaypatna sub-stations in south Odisha. There was load loss of around 25MW in Therubali area and generation loss of 20 MW at Balimela HEP following the fault.	220 kV Therubali-Lakshampur D/c 220 kV Therubali-Bhanjnar D/c 220 kV Therubali-Narendrapur-2 220 kV Therubali-Gunupur 220 kV Therubali-Indravati-1,2,3 220 kV Therubali-Kashipur 60 MW U#5 at Balimela
3	GD-1	Chatra	15.05.2023 14:22	15.05.2023 16:04	01:42	0	28	0.00%	0.12%	28932	24211	At 14:22 Hrs on 15.05.2023, 220 kV Daltonganj-Chatra-1 tripped due to Y_N fault leading to total power failure at Chatra, Latehar as 220 kV Daltonganj-Latehar-1 was under shutdown and Latehar, Chatra were radially fed through 220 kV Daltonganj-Chatra-1 only. Around 28 MW load loss reported at Latehar and Chatra by SLOC Jharkhand.	220 kV Daltonganj-Chatra-1
4	GI-2	JITPL	18.05.2023 14:07	18.05.2023 20:37	06:30	1096	0	3.96%	0.00%	27653	24688	At 14:07 Hrs on 18.05.2023, U#2 at JITPL tripped due to operation of unit differential protection. After 1.5 seconds, U#1 at JITPL also tripped due to tripping of its Station transformer leading to tripping of the unit on loss of auxiliary supply. Around 1096 MW generation loss occurred at JITPL S/s.	2*600 MW Units at JITPL
5	GD-1	Lakshmikantpur	23.05.2023 02:36	23.05.2023 03:30	00:54	0	289	0.00%	1.19%	29222	24324	At 02:36 Hrs on 23rd May 2023, 220 kV Subhashgram (WB)-Lakshmikantpur-2 tripped due to Y-Earth fault. At the same time, 220 kV Main Bus-2 at Subhshgram (WB) and 220 kV Subhashgram-Lakshmikantpur-1 also tripped leading to total power failure at Lakshmikantpur which is radially fed through 220 kV Subhshgram (WB). Around 289 MW load loss reported during the event at Lakshmikantpur, Sirakol, Kakdwip and Falta.	220 kV Subhashgram-Lakshmikantpur D/c 220 kV Subhashgram-Subhashgram (PG)-2 220 kV Subhashgram-Kasba-2 220 kV Main Bus#2 at Subhashgram

**Details of Grid Events during the Month of May 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	Daporizo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	05-May-23 20:18	05-May-23 21:39	1:21:00	0	31	0.00%	1.17%	3109	2647	Daporizo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kv Daporizo - Ziro Line. At 20:18 Hrs on 05.05.2023, 132 kv Daporizo - Ziro Line tripped. Due to tripping of this element, Daporizo, 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 Daporizo - Ziro Line was declared faulty at 21:39 Hrs on 05.05.2023. Power supply was extended to Daporizo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kv Daporizo - Ziro Line at 11:25 Hrs on 06.05.2023	132 kv Daporizo - Ziro Line
2	GD 1	Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	12-May-23 02:28	12-May-23 03:40	1:12:00	0	11	0.00%	0.52%	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 - Daporizo Line . At 02:28 Hrs on 12.05.2023,132 kv Along - Daporizo Line e 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 - Daporizo Line was declared faulty at 03:40 Hrs on 12.05.2023.Power supply was extended to Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kv Along - Daporizo Line at 07:52 Hrs on 12.05.2023.	132 kv Along - Daporizo Line
3	GD 1	Lumshnong and Amrit areas of Meghalaya Power System	14-May-23 12:46	14-May-23 12:54	0:08:00	0	33	0.00%	1.75%	1840	1883	Lumshnong and Amrit areas of Meghalaya Power System were connected with rest of NER grid through 132 kv Khleihriat-Lumshnong Line. 132 kv Lumshnong-Panchgram Line was under planned shutdown since 07:25 Hrs on 14.05.2023. At 12:46 Hrs on 14.05.2023, 132 kv Khleihriat-Lumshnong Line tripped. Due to tripping of this element, Lumshnong and Amrit areas of Meghalaya 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 Lumshnong and Amrit areas of Meghalaya Power System by charging 132 kv Khleihriat-Lumshnong Line at 12:54 Hrs on 14.05.2023	132 kv Khleihriat-Lumshnong Line
4	GD 1	Lumshnong and Amrit areas of Meghalaya Power System	16-May-23 15:57	16-May-23 16:16	0:19:00	0	36	0.00%	1.51%	1823	2379	Lumshnong and Amrit areas of Meghalaya Power System were connected with rest of NER grid through 132 kv Khleihriat-Lumshnong Line. 132 kv Lumshnong-Panchgram Line was under planned shutdown since 03:31 Hrs on 16.05.2023. At 15:57 Hrs on 16.05.2023, 132 kv Khleihriat-Lumshnong Line tripped. Due to tripping of this element, Lumshnong and Amrit areas of Meghalaya 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 Lumshnong and Amrit areas of Meghalaya Power System by charging 132 kv Khleihriat-Lumshnong Line at 16:16 Hrs on 16.05.2023.	132 kv Khleihriat-Lumshnong Line
5	GD 1	Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosaigaon areas of Assam Power System	16-May-23 19:49	16-May-23 20:08	0:19:00	0	45	0.00%	1.83%	2855	2460	Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosaigaon areas of Assam Power System were connected with rest of NER grid through 132 kv BTPS - 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 132 kv Gosaigaon - Gauripur Line was under shutdown to avoid overloading of 132 kv BTPS - Kokrajhar D/C Lines At 19:49 Hrs on 16.05.2023, 132 kv BTPS - Dhaligaon D/C Lines tripped. Due to tripping of these elements, Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosaigaon areas of Assam 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 Dhaligaon, Barpeta, Bornagar, Joghghopa and Gosaigaon areas of Assam Power System by charging 132 kv BTPS-Dhaligaon 1 Line at 20:08 Hrs on 16.05.2023.	132 kv BTPS - Dhaligaon D/C Lines
6	GD 1	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	24-May-23 08:19	24-May-23 08:49	0:30	3	25	0%	1%	2024	2035	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System were connected with rest of NER grid through 132 kv Balipara - Tenga Line. At 08:19 Hrs on 24.05.2023, 132 kv Balipara - Tenga Line tripped. Due to tripping of this element, Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh 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 Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System by charging 132 kv Balipara - Tenga Line at 08:49 Hrs on 24.05.2023.	132 kv Balipara - Tenga Line.

**Details of Grid Events during the Month of May 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	Kohima,Wokha, Chiephobozo, Meluri and Kiphire areas of Nagaland Power System	24-May-23 11:30	24-May-23 11:47	0:17	0	30	0%	1%	1878	2052	Kohima,Wokha, Chiephobozo, Meluri and Kiphire areas of Nagaland Power System were connected with rest of NER grid through 132 kv Dimapur-Kohima Line. 132 kv Sanis - Wokha tripped at 10:15 Hrs on 24.05.2023 & 132 kv Imphal (Turebam) - Karong was under emergency shutdown.  At 11:30 Hrs on 24.05.2023, 132 kv Dimapur-Kohima Line tripped. Due to tripping of this element, Kohima,Wokha, Chiephobozo, Meluri and Kiphire areas of Nagaland 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 Kohima,Wokha, Chiephobozo, Meluri and Kiphire areas of Nagaland Power System by charging 132 kv Dimapur-Kohima Line at 11:47 Hrs on 24.05.2023.	132 kv Dimapur-Kohima Line
8	GD 1	Kohima, Chiephobozo, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur Power System	25-May-23 17:43	25-May-23 18:12	0:29:00	6	47	0.28%	1.76%	2163	2663	Kohima, Chiephobozo, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur Power System with rest of NER grid through 132 kv Dimapur - Kohima & 132 kv Wokha-Chiephobozo Lines. 132 kv Karong-Gampaol line was under emergency shutdown due to hotspot found at in jumper since 05.05.2023.  At 17:43 Hrs on 25.05.2023, 132 kv Dimapur - Kohima & 132 kv Wokha-Chiephobozo Lines tripped. Due to tripping of these elements, Kohima, Chiephobozo, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur Power System were separated from rest of NER Grid and subsequently collapsed due load generation mismatch in these areas.  Power supply was extended to Kohima, Chiephobozo, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur Power System by charging 132 kv Dimapur-Kohima line at 18:12 Hrs on 25.05.2023.	132 kv Dimapur - Kohima & 132 kv Wokha-Chiephobozo Lines
	GD 1	Udaipur area of Tripura Power System	27-May-23 08:38	27-May-23 09:18	0:40:00	29.3	37	1.28%	1.90%	2286	1943	Udaipur area of Tripura Power System was connected with rest of NER grid through 132 kv Palatana - Udaipur and 132 kv Monarchak-Udaipur Lines.  At 08:38 Hrs on 27.05.2023, 132 kv Palatana - Udaipur and 132 kv Monarchak-Udaipur Lines tripped. Due to tripping of these elements, Udaipur 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 Udaipur area of Tripura Power System by charging 132 kv Palatana - Udaipur Line at 09:18 Hrs on 27.05.2023.	132 kv Palatana - Udaipur and 132 kv Monarchak-Udaipur Lines
10	GD 1	Dharmanagar area of Tripura Power System and Dullavchera area of Assam Power System	29-May-23 14:03	29-May-23 16:12	2:09:00	0	30	0.00%	1.23%	2150	2433	Dharmanagar area of Tripura Power System and Dullavchera area of Assam Power System were connected with rest of NER grid through 132 kv Dharmanagar - Dullavchera and 132 kv Dharmanagar - PK Bari Lines. 132 kv Hallakandi-Dullavchera Line was declared faulty since 13:01 Hrs on 29.05.2023.  At 14:03 Hrs on 29.05.2023, 132 kv Dharmanagar - Dullavchera and 132 kv Dharmanagar - PK Bari Lines tripped. Due to tripping of these elements, Dharmanagar area of Tripura Power System and Dullavchera area 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 Dharmanagar area of Tripura Power System and Dullavchera area of Assam Power System by charging 132 kv Hallakandi-Dullavchera Line at 16:12 Hrs on 29.05.2023.	132 kv Dharmanagar - Dullavchera and 132 kv Dharmanagar - PK Bari Lines
11	GD 1	Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	29-May-23 15:01	29-May-23 16:35	1:34:00	0	12	0.00%	0.48%	2209	2481	Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with rest of NER grid through 132 kv Along - Pasighat Line.  At 15:01 Hrs on 29.05.2023, 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.  Power supply was extended to Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kv Along - Pasighat Line at 16:35 Hrs on 29.05.2023.	132 kv Along - Pasighat Line
12	GD 1	Kohima, Chiephobozo, Wokha, Sanis, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur Power System	30-May-23 17:00	30-May-23 17:33	0:33	0	41	0%	2%	2102	2705	Kohima,Chiephobozo, Wokha, Sanis, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur Power System were connected with rest of NER grid through 132 kv Doyang-Sanis and 132 kv Imphal- Karong Lines. 132 kv Dimapur-Kohima line was under emergency shutdown for infringement clearance.  At 17:00 Hrs on 30.05.2023, 132 kv Doyang-Sanis and 132 kv Imphal- Karong Lines tripped. Due to tripping of these elements, Kohima,Chiephobozo, Wokha, Sanis, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur 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 Kohima,Chiephobozo, Wokha, Sanis, Meluri and Kiphire areas of Nagaland Power System and Karong area of Manipur Power System by charging 132 kv Doyang-Sanis Line at 17:33 Hrs on 30.05.2023	132 kv Doyang-Sanis and 132 kv Imphal- Karong Lines
13	GD 1	Karong area of Manipur Power System	31-May-23 10:33	31-May-23 10:48	0:15	0	12	0%	0%	1915	2812	Karong area of Manipur Power System was connected with the rest of NER Grid through 132 kv Karong - Kohima & 132 kv Imphal -Karong Lines.  At 10:33 Hrs on 31.05.2023, 132 kv Karong - Kohima & 132 kv Imphal -Karong Lines tripped. Due to tripping of these elements, Karong area of Manipur 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 Karong area of Manipur Power System by charging 132 kv Kohima - Karong Line at 10:48 Hrs on 31.05.2023	132 kv Karong - Kohima & 132 kv Imphal -Karong Lines
14	GH	Tripura	15-May-23 12:20	15-May-23 14:30	2:10	37	0	2%	0%	2157	2241	AGTCCPP Unit 2 tripped at 12:20 Hrs on 15.05.2023 due to Exhaust Thermocouple Failure. Revision done from Block No. 59 on 15.05.2023.	AGTCCPP Unit 2

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



Sl No.	Category of Grid Event ( GI 1or 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (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)		
15	GI-4	Tripura	15-May-23 16:40	15-May-23 18:30	1:50	12	0	1%	0%	1987	2395	AGTCCPP Unit 5 tripped at 16:40 Hrs on 15.05.2023 due to tripped on Rotor E/F Stg-I. Revision done from Block No. 75 on 15.05.2023.	AGTCCPP Unit 5
16	GI-4	Tripura	19-May-23 11:21	20-May-23 13:00	1:39	25	0	1%	0%	2158	2157	AGTCCPP Unit 1 & Unit 5 tripped at 11:21 Hrs on 19.05.2023. Unit 1 tripped due to Problem in generating transformer & Unit 5 tripped due to non availability of GTG-1. Revision done from Block No. 53 on 19.05.2023 .	AGTCCPP Unit 1 & Unit 5
17	GI-4	Tripura	20-May-23 11:12	20-May-23 13:30	2:18	15	0	1%	0%	2363	2158	AGTCCPP Unit 3 tripped at 11:12 Hrs on 20.05.2023 due to Low Gas Pressure. Revision done from Block No. 55 on 20.05.2023.	AGTCCPP Unit 3
18	GI-4	Tripura	24-May-23 18:34	24-May-23 20:30	1:56	25	0	1%	0%	2692	2781	AGTCCPP Unit 4 tripped at 18:34 Hrs on 24.05.2023 due to High Lube Oil Temperature . Revision done from Block No. 83 on 24.05.2023 .	AGTCCPP Unit 4
19	GI-4	Assam	25-May-23 14:47	25-May-23 17:00	2:13	25	0	1%	0%	1894	2522	Kopili St II Unit 1 tripped at 14:47 Hrs on 25.05.2023 due to Cooling Water System Problem . Revision done from Block No. 69 on 25.05.2023	Kopili St II Unit 1
20	GI-4	Assam	25-May-23 18:58	25-May-23 21:00	2:02	25	0	1%	0%	1944	2491	Kopili St II Unit 1 tripped at 17:00 Hrs on 25.05.2023 due to Excitation problem. Revision done from Block No. 85 on 25.05.2023	Kopili St II Unit 1