

**Details of Grid Events during the Month of September 2022 in Northern Region**



Sl No.	Category of Grid Event (G1 for Z/ 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	J & K	01-Sep-2022 17:12	01-Sep-2022 20:44	3:32	116	475	0.214	0.736	54324	64567	1. In antecedent condition, 220kV Sambha-Hiranagar ckt-1 & Ckt-2 were carrying 103 MW & 97MW respectively and 40MW Unit-1, 2 & 3 at Sewa-2 HEP were carrying 37MW, 38MW & 41MW respectively. 2. As reported at 17:12hrs, 8-ph PT of 132 KV main Bus at Hiranagar blast and bus bar protection operated. As per PMU at Sambha(PG), R-N fault with delayed clearance in ms is observed, phase to earth fault with delayed clearance in 760ms is observed. 3. All 220kV & 132kV elements tripped at Hiranagar S/s. 4. Due to loss of evacuation path, all three(12) 40MW units of Sewa-2(NHPC) also tripped. 5. As per SCADA, load loss of approx. 4758MW observed in JBK control area & generation loss of approx. 116MW is observed at Sewa-2(NHPC) HEP.	1) 40 MW Sewa-II HPS - UNIT 1 2) 40 MW Sewa-II HPS - UNIT 2 3) 220 KV Hiranagar(PGD)-Sarni(PS) (PG) Ckt-1 4) 40 MW Sewa-II HPS - UNIT 3 5) 220 KV Sambha(PG)-Hiranagar(PGD) (PG) Ckt-2 6) 220 KV Sambha(PG)-Hiranagar(PGD) (PG) Ckt-1 7) 132 KV Hiranagar(PGD)-Sewa_2(NH) (PG) Ckt-2 8) 132 KV Hiranagar(PGD)-Sewa_2(NH) (PG) Ckt-1
2	GD-1	HARYANA	03-Sep-2022 19:26	03-Sep-2022 22:37	3:11	0	380	0.000	0.561	61201	67717	1. 220/132kV Fatehabad(Har) substation have double main single breaker bus scheme. 2. During antecedent condition, 220/132kV 100MVA Transformer-4, 220kV lines to Fatehabad(PG)Ckt-2, Hissar(Har)Ckt-2 & Mehna Khera ckt-2 were connected to 220kV Bus-1 and 220/132kV 100MVA Transformer-1&2, 220kV lines to Fatehabad(PG)Ckt-1 & Mehna Khera ckt-1 were connected to 220kV Bus-2. 3. As reported, Bus bar protection was not in service at 220kV Fatehabad(Har) since 15.07.2021 due to defective I/P & O/P extension device (P849). The relay was got repaired & configuration of same is pending from firm. 4. At 19:26hrs, 220kV B-ph CT of 220/132kV 100MVA Transformer-1 damaged and blast. The transformer tripped on differential protection operation and fault cleared. 5. Further after ~500ms, 220 KV B phase LA also damaged due to fire. 220kV B-ph Jack Bus also damaged and fell on 220kV Bus Bar-1 at Fatehabad(Har) which created bus fault. 6. As per PMU, B-N fault followed by B-B ph-ph fault with delayed clearance in 400ms is observed. 7. As bus bar protection was not in service, all the 220kV lines except Mehna Khera ckt-2 tripped from Fatehabad(Har) end in 2-4. 220kV Fatehabad-Mehna Khera ckt-2 tripped from remote end in 2-2. 8. As per SCADA, change in demand of approx. 380MW is observed in Haryana control area	1) 220 KV Hissar(PG)-Fatehabad(HV) (HVPNL) Ckt-2 2) 220 KV Fatehabad(PG)-Fatehabad(HV) (HVPNL) Ckt-2 3) 220 KV Fatehabad(PG)-Fatehabad(HV) (HVPNL) Ckt-1 4) 220 KV Hissar(PG)-Fatehabad(HV) (HVPNL) Ckt-1
3	GD-1	UTTRAKHAND	04-Sep-2022 17:38	04-Sep-2022 20:57	3:19	100	0	0.190	0.000	52511	62531	1. 400kV Koteshwar(THDC) & 400kV Koteshwar(PG) have double main transfer bus scheme. 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-1 & Ckt-2 are on same tower and line length are ~2km. 2. During antecedent condition, 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-2 was connected at 400kV Bus-2 and 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-1, 100 MW Koteshwar HPS - UNIT 4 & 125 MVAR Bus Reactor No 1 were connected at 400kV Bus-1. 3. As reported at 17:37hrs, B-ph LA at Koteshwar(THDC) end of 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-2 burst and line tripped. As per PMU at Koteshwar(PG), line tripped from Koteshwar(THDC) end after unsuccessful A/R operation. However, B-ph tripped at Koteshwar(PG) end with 440ms delay after A/R operation. 4. At the same time, 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-1 tripped on pole discrepancy relay operation at Koteshwar(THDC) end. As per PMU at Koteshwar(PG), line successfully autoreclosed from both end and then R-ph tripped from Koteshwar(THDC) end. Further after 2sec, pole discrepancy relay operated at Koteshwar(THDC) end and line tripped. 5. Due to tripping of both the evacuating lines, 100 MW Koteshwar HPS - UNIT 4 also tripped. 6. As per SCADA, change in generation of approx. 100MW at Koteshwar HEP is observed.	1) 125 MVAR Bus Reactor No 1 at 400KV Koteshwar(TH) 2) 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-1 3) 400 KV Koteshwar(TH)-Koteshwar(PG) (PG) Ckt-2 4) 100 MW Koteshwar HPS - UNIT 4
4	GD-1	NEW DELHI	05-Sep-2022 19:16	05-Sep-2022 21:13	1:57	0	200	0.000	0.296	53788	67513	1. During antecedent condition, 400/220kV 315MVA ICT-1, 2 & 3 were running in parallel and feeding the load of 220kV Mundka (through 220/66 150MVA Transformer-1&2), 220kV Peeragarhi, 220kV Wazirpur and part load of 220kV Najafgarh. 2. As reported, at 19:16hrs, while doing piling work by DMRC near Peeragarhi chowk, Y-B phase to phase fault occurred on 220kV Mundka-Peeragarhi ckt-1. 3. At the same time, 400 & 220 kv site bushing of 400/220kV 315MVA ICT-3 at Mundka also got fire and damaged. 4. As reported, on this fault, 220kV Mundka-Peeragarhi ckt-1 tripped on distance protection operation and 400/220kV 315MVA ICT-3 tripped on differential protection operation. 5. As per PMU, R-Y phase to phase fault which cleared within 120ms is observed. 6. At the same time, 220/66kV 150MVA Transformer-2 at Mundka also tripped, 400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-1 & 2 tripped from Jhatkara end only due to protection coordination issue and 220kV Peeragarhi-Wazirpur ckt-1&2 also tripped on distance protection operation at Wazirpur end. 7. As per SCADA, load loss of approx. 200MW observed in Delhi control area. 8. At 19:24 hrs, 220kV Wazirpur S/s normalized through 220kV Shalimar Bagh-Wazirpur ckt-1&2.	1) 400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-1 2) 400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-2 3) 400/220 KV 315 MVA ICT 3 at Mundka(CT)
5	GD-1	NEW DELHI	06-Sep-2022 12:09	06-Sep-2022 13:28	1:19	0	315	0.000	0.436	59406	72329	1. 220/66kV Narela(DTL) S/s have double main single breaker bus scheme. During antecedent condition, 220kV Mandaula-Narela ckt-1&2 were connected to 220kV Bus-1 and was feeding the load of 220kV Narela through 220/66kV 100MVA Transformer-1,2&3 & load of DSIDC. Whereas 220kV Panipat-Narela ckt-1,2&3 were connected to 220kV Bus-2 and was feeding the 220kV Narela-Rohatak Road ckt-1&2. Bus coupler was in off position. 2. At 12:09 hrs, 220kV Mandaula-Narela ckt-1 tripped from both end on distance protection operation on R-N phase to earth fault. At the same time, 220kV Mandaula-Narela ckt-2 also tripped on over current earth fault protection operation at Narela end. 3. As per PMU at Bawana(DTL), R-N phase to earth fault with delayed clearance in 240ms is observed. 4. With the tripping of 220kV Mandaula-Narela ckt-1&2, load of 220kV Narela and DSIDC got affected. 5. As per SCADA, change in load of approx. 315MW is observed in Delhi control area. 6. At 12:14hrs, load of DSIDC was normalized through 220kV Bawana-DSIDC Ckt-1&2 and at 12:33hrs, load of 220kV Narela S/s was normalized by closing bus coupler at 220kV Narela S/s.	1) 220 KV Mandola(PG)-Narela(DV) (DTL) Ckt-1 2) 220 KV Mandola(PG)-Narela(DV) (DTL) Ckt-2
6	GD-1	HARYANA	07-Sep-2022 00:05	07-Sep-2022 01:26	1:21	0	170	0.000	0.233	52374	72965	1. 220/132kV Sagwan S/s have double main single breaker bus scheme. It has power source through 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-1&2. 2. During antecedent condition, 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-1 was already out as it tripped on R-N fault at 08:30hrs on 06th Sept'22. 3. As reported at 00:05hrs on 07th Sept'22, Y-B phase to phase fault occurred on 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-2, fault distance & fault current was 14.5km & 11.2KA respectively from Sagwan end. 4. With the tripping of 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-2, 220/132kV Sagwan became dead. 5. As per SCADA, change in demand of approx. 170MW in Haryana control area is observed. 6. At 01:26hrs, supply to 220/132kV Sagwan was normalized with the charging of 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-1.	1) 220 KV Hissar(PG)-Sagwan(HV) (HVPNL) Ckt-2
7	GD-1	UTTAR PRADESH	07-Sep-2022 00:44	07-Sep-2022 02:12	1:28	0	100	0.000	0.138	51750	72385	1. 220kV Bahraich is connected to Sohawal(PG) & Balrampur(UP) S/s at 220kV level. 220kV Balrampur is further connected to 400/220kV Gonda(UP) at 220kV level which is further connected to 220kV Gonda S/s. 2. During antecedent condition, 220kV Gonda_400 -Balrampur ckt & 220kV Gonda_400-Gonda220 ckt was already out, these both lines tripped at 00:08hrs. 3. As reported, at 00:44hrs, 220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt tripped on R-N phase to earth fault, fault occurred due to snapping of jumper, fault distance was 72.4km (66%) from Bahraich end. As per PMU, R-N phase to earth fault with unsuccessful A/R operation is observed. 4. At the same time, 220kV Bahraich-Balrampur (UP) Ckt also tripped. 5. Due to tripping of both the lines, 220/132/138kV S/s became dead. 6. As per SCADA, change in demand of approx. 100MW in UP control area is observed. 7. Restoration was done after approx. 88min via path Gonda220-Gonda400-Balrampur-Bahraich.	1) 220 KV Sohawal(PG)-Bahraich(UP) (UP) Ckt-1

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						Generation Loss(MW)	Load Loss (MW)	% Generation Lost(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
8	GI-2	UTTAR PRADESH	07-Sep-2022 21:25	07-Sep-2022 22:58	1:33	0	0	0.000	0.000	54171	72226	1. 400/220kV Muradnagar_2(U)P have one & half breaker bus scheme at 400kV side. During antecedent condition, 400kV line to Mathura & Dadri(NTC) were connected to 400kV Bus-1 and 400/220kV 240MVA ICT-1 & 3, 400/220kV 315MVA ICT-2 and 63MVA bus reactor were connected at 400kV bus-2. 2. At 21:25:51hrs, B-N phase to earth fault occurred on 400 KV Muradnagar_2-Mathura (UP) Ckt, fault distance & fault current were ~60km & ~3.9KA from Muradnagar_2(U)P end and ~79km & ~3.2KA from Mathura end. As per PMU at Dadri Thermal(NTC), B-N phase to earth fault with delayed clearance in 320ms is observed. 3. On this fault, line CB from Mathura end and Tie CB at Muradnagar_2 end opened but Main CB at Muradnagar_2 end didn't open. 4. As Main CB at Muradnagar_2 end of 400 KV Muradnagar_2-Mathura (UP) Ckt didn't open, its LBB operated and all the Main Cbs connected at 400kV Bus-1 opened. 5. At the same time, Bus bar protection of 400kV Bus-2 at Muradnagar_2(U)P also operated. As reported, current in PU1 & PU2 of both the 400/220kV 240MVA ICT-3 increased which led to the operation of bus bar-2 protection. 6. As both the 400kV Bus tripped, 400kV Muradnagar_2(U)P became dead. 7. As per SCADA, no change in demand of UP is observed.	1) 400/220 kV 240 MVA ICT 3 at Muradnagar_2(U)P 2) 400 KV Muradnagar_2-Mathura (UP) Ckt-1 3) 400 KV Dadri(NTC)-Muradnagar_2(U)P (PG) Ckt-1 4) 400KV Bus 2 at Muradnagar_2(U)P 5) 400/220 kV 240 MVA ICT 1 at Muradnagar_2(U)P 6) 400/220 kV 315 MVA ICT 2 at Muradnagar_2(U)P 7) 400KV Bus 3 at Muradnagar_2(U)P
9	GD-1	HARYANA	09-Sep-2022 00:16	09-Sep-2022 01:50	1:34	0	135	0.000	0.185	50306	72792	1. As reported, at 00:16 hrs, R phase PT of 220 kv bus no 1 was damaged at 220 kv Palla substation, which led to operation of bus bar protection. However, 220kV lines connected to both the buses tripped. 2. As per PMU at Ballabhgarh (PG), R-N phase to earth fault which cleared within 120ms is observed. 3. As per SCADA, load loss of ~135MW occurred in Haryana control area.	1) 220 KV FARIDABAD(NT)-PALLA(HV) (PG) Ckt-1 2) 220 KV FARIDABAD(NT)-PALLA(HV) (PG) Ckt-2 3) 220 kv Palla - PALLU Ckt-1 4) 220 kv Palla - PALLU Ckt-2
10	GD-1	UTTAR PRADESH	10-Sep-2022 12:47	10-Sep-2022 13:22	0:35	390	0	0.660	0.000	59062	73882	1. In antecedent condition, 130MW Unit-1, 2 & 3 were generating total ~390MW. 2. As reported, at 12:47 hrs, due to missing of feedback signal of water intake system, all the three running units tripped on operation of quick shutdown relay. 3. Accordingly, the event "UCB Discordance fault QSD operated" has been registered in SCADA event logger. 4. As per PMU, no fault is observed. 5. As per SCADA, generation loss of approx. 390MW occurred at Duihasti HEP.	1. 130 MW UNIT 1 at Duihasti(NHPC) 2. 130 MW UNIT 2 at Duihasti(NHPC) 3. 130 MW UNIT 3 at Duihasti(NHPC)
11	GD-1	RAJASTHAN	11-Sep-2022 12:22	12-Sep-2022 12:42	0:20	3800	0	6.583	0.000	57728	70265	1. At 12:22:02hrs, Y-B phase to phase fault occurred on 220kV Bhadla- Clean Solar Jodhpur ckt due to vegetation issue (a tree branch near to the line got fire and due to its flame Y-B fault occurred). As per DR received from POWERGRID end, fault current was ~17KA. As per PMU, Y-B phase to phase voltage which cleared within 120ms is observed. 2. During the fault, phase voltage at other RE stations went below 0.85pu. As voltage dropped below 0.85pu, almost all the RE stations dropped their MW on LVRT operation. 3. As per PMU plots of MVAR of RE station, MVAR support is also not observed from most of the RE inverters during voltage dip on fault. 4. It is observed that voltage recovered to its normal value after clearing of fault within 120ms but MW of most of the RE stations didn't recover to its 90% of antecedent value in defined time (as per LVRT operation). 5. Due to significant drop in MW and inadequate MVAR support from RE stations, rise in voltage is observed at ISTS RE pooling stations. Over voltage in the line of the order of 1.07-1.09pu is observed. 6. Further after approx. 16-22secs, four 048 765kV lines i.e., 765 KV Bhadla_2 (PG)-Fatehgarh_1(PG) (PFTL) Ckt-2, 765 KV Bhadla_1(PG)-Bhadla(PG) (FBTL) Ckt-1, 765 KV Bikaner-Bhadla_2 (PG) Ckt-1 & 765 KV Ajmer-Bhadla_2 (PG) Ckt-1 tripped on over voltage stage-1 protection operation. 7. As per SCADA, drop of approx. 3800MW solar generation connected at Bhadla(PG), Bhadla2(PG), Bikaner(PG), Fatehgarh2(PG) & Fatehgarh1 observed.	1) 220 KV Bhadla(PG)-CS_Jodhpur SL_BHD_PG (Cleansolar_Jodhpur) (Cleansolar_Jodhpur) Ckt-1 2) 765 KV Ajmer-Bhadla_2 (PG) Ckt-1 3) 765 KV Bhadla_2 (PG)-Fatehgarh_1(PG) (PFTL) Ckt-2 4) 765 KV Fatehgarh_1(PG)-Bhadla(PG) (FBTL) Ckt-1 5) 765 KV Bikaner-Bhadla_2 (PG) Ckt-1
12	GD-1	UTTARAKHAND	11-Sep-2022 17:53	11-Sep-2022 19:14	1:21	215	130	0.455	0.215	47288	60333	1. During antecedent condition, 60MW Unit-1, 2 & 3 at Chibro HEP and 30MW Unit-1, 2 & 3 at Khodri HEP were running. 2. As reported, at 17:53:35hrs, 220 KV Sarawan(UP)-Khodri(U)P Ckt-1 tripped from Sarawan end only, on R-N phase to earth fault. As per PMU, R-N fault with delayed clearance in 440ms is observed. 3. Further after approx. 30sec, while charging 30MW Unit-3 at Khodri HEP, its CB got blasted. 4. At the same time, 220 KV Khodri-Chibro(U)P ckt-1 & ckt-2 and 220kV Khodri-Jhakra ckt tripped from Chibro & Jhakra end respectively. 5. Due to tripping of 220 KV Khodri-Chibro(U)P ckt-1 & ckt-2, 60MW Unit-1, 2 & 3 at Chibro HEP tripped due to loss of evacuation path. At the same time, 30MW Unit-1, 2 & 4 at Khodri HEP also tripped as it operates in tandem with Chibro HEP. 6. With the loss of generation at Chibro HEP & Khodri HEP, 220kV Khodri 5/6 became dead which further resulted in loss of supply to 220/132kV Giri 5/6 via 220kV Khodri-Giri Ckt-1 & 2. 7. As per SCADA, change in generation of approx. 215MW in Uttarakhand and change in demand of approx. 130MW of HP control area is observed.	1) 220 KV Sarawan(UP)-Khodri(U)P Ckt-1 2) 30 MW Khodri - UNIT 1 3) 30 MW Khodri - UNIT 2 4) 30 MW Khodri - UNIT 4 5) 60 MW Chibro - UNIT 1 6) 60 MW Chibro - UNIT 2 7) 60 MW Chibro - UNIT 3 8) 220 KV Khodri-Chibro(U)P ckt-1 9) 220 KV Khodri-Chibro(U)P ckt-2
13	GD-1	Uttar Pradesh, Uttarakhand	13-Sep-2022 19:43	13-Sep-2022 20:05	0:22	367	950	0.678	1.375	54131	69100	1. As reported, at 19:43hrs during charging of 400kV CB Ganj-Unnao ckt-2 (line was earlier under shutdown), heavy sparking occurred. In view of precaution, 400kV CB Ganj (UP)-Bareilly (PG) ckt-1 and 315 MVA ICT 1, 2 & 3 at CB Ganj (UP) was hand tripped. 2. At the same time, 220kV CB Ganj-Shahjhpur ckt tripped due to snapping of jumper between tower location no 236-237 and 220kV CB Ganj-Dhauliganga ckt tripped on DT received from Dhauliganga end on Under voltage. 220kV CB Ganj-Dohna ckt also tripped from Dohna end only in 2-3. 3. During same time, 70MW Unit-1, 2 & 3 & 4 at Dhauliganga (NHPC) and 40MW Unit-1, 2 & 3 at Tanakpur (NHPC) tripped on under voltage. 4. 220kV Fontanagar usually draw power from 400/220kV CB Ganj(UP) and part load from 400kV Kashipur. After outage of 400/220kV ICTs at CB Ganj(UP), 220kV Dhauliganga HEP & 220kV Tanakpur HEP, it started drawing power from 400/220kV Kashipur(UP) which resulted in over loading of 400/220kV ICT-1&2 at Kashipur(UP) and subsequently both the ICTs tripped on O/C protection operation. 5. As per PMU, no fault observed in system. 6. As per SCADA, load loss of approx. 500MW occurred in UP control area and generation loss of approx. 275MW at Dhauliganga HEP & 100MW at Tanakpur HEP occurred.	1) 70 MW Dhauliganga U-1 2) 70 MW Dhauliganga U-2 3) 70 MW Dhauliganga U-3 4) 70 MW Dhauliganga U-4 5) 40 MW Tanakpur U-1 6) 40 MW Tanakpur U-2 7) 40 MW Tanakpur U-3 8) 220 kV Dhauliganga - CB Ganj(UP) 9) 400kV CB Ganj(UP)-Bareilly(PG) ckt-1 10) 315 MVA ICT 1 at CB Ganj(UP) 11) 315 MVA ICT 2 at CB Ganj(UP) 12) 315 MVA ICT 3 at CB Ganj(UP) 13) 400/220kV 315MVA ICT-1 at Kashipur(Utt) 14) 400/220kV 315MVA ICT-2 at Kashipur(Utt)
14	GD-1	Punjab	14-Sep-2022 16:06	14-Sep-2022 16:33	0:27	375	120	0.760	0.202	49347	59422	1. 220/132kV Bhakra Left (BBMB) 5/6 have double main bus scheme. However, during antecedent condition, all the elements were connected at 220kV Bus-1 and 220kV Bus-2 was not in service. As reported by Bhakra (BBMB) Power House, they keep only one bus in service at a time. Exact reason of the same is not reported. 2. At 16:06 hrs on 14th Sept22, during attending DC leakage fault in Unit-2, bus bar protection of bus-1 operated which further led to the tripping of all connected elements. 3. As per SCADA, generation loss of approx. 375MW occurred at Bhakra Left Power House due to tripping of 126MW Unit-1, 2 & 3 and load loss of approx. 120MW occurred in Punjab control area.	1) 220kV Bhakra - Ganguwal-1 2) 220kV Bhakra - Ganguwal-2 3) 220kV Bhakra - Ganguwal-3 4) 220/66kV 150MVA ICT at Bhakra Left 5) 126 MW Bhakra Left Unit 5 6) 126 MW Bhakra Left Unit 4 7) 126 MW Bhakra Left Unit 3

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
15	GD-1	Rajasthan	17-Sep-2022 10:14	17-Sep-2022 10:58	0:44	1566	0	3.119	0.000	50210	55069	1. At 10:14:29:840hrs, R-N phase to phase fault occurred on 220kV Fatehgarh2- AHEJ2L ckt due to blast of R-ph CT at Fatehgarh2 end. As per PMU, R-N phase to earth fault which cleared within 220ms is observed. 2. On this fault, 220 KV Fatehgarh_II(PG)-AHEJ2L PSS HB_FGRAH_PG (AHEJ2L) (AHEJ2L) Ckt-1 tripped. At the same time, 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1 tripped from AHEJ3L end only. 3. Due to tripping of aforementioned lines, RE generation of AHEJ2L & AHEJ3L total 500MW lost. 4. During the fault, phase voltage at other RE stations went below 0.85pu. As voltage dropped below 0.85pu, almost all the RE stations dropped their MW on LVRT operation. However, active power (MW) of few of the RE stations didn't recover after clearance of fault within defined times per LVRT. 5. As per SCADA, total drop in solar generation of approx. 1566MW (including AHEJ2L & AHEJ3L generation) is observed during the event. 6. Due to significant drop in MW, rise in voltage is observed at STS RE pooling stations and further after 5sec, 755kV Fatehgarh_II(PG)-Bhadra(PG) (FBTL) Ckt-1 tripped from Bhadla end on over voltage stage-1 protection.	1) 755 KV Fatehgarh_II(PG)-Bhadra(PG) (FBTL) Ckt-1 2) 220 KV Fatehgarh_II(PG)-AHEJ2L PSS HB_FGRAH_PG (AHEJ2L) (AHEJ2L) Ckt-1 3) 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1
16	GI-2	UTTAR PRADESH	18-Sep-2022 11:19	18-Sep-2022 15:37	4:18	0	0	0.000	0.000	52512	55942	1. As reported by CPCC NR-1, Meerut- Baghat ckt2 tripped at 11:19 hrs on R-N fault and all elements connected to Bus-1 tripped along with it. 2. However, as per observation from PMU of 400KV Baghat: Meerut ckt 2, R-N fault has taken place and it got tripped at 11:19:14.160 hrs after auto-reclose operation. Again at 11:19:15.580 hrs, R-N fault occurred in system with fault current of approx. 4kA (as per PMU). 3. On R-N fault at 11:19:15:580 hrs, all the elements connected at 400KV Bus-1 (400KV Baghat- Kathal ckt 1, 500 MVA ICT-II at Baghat & 400KV Baghat- Saharanpur ckt) tripped.	1) 400KV Baghat- Saharanpur (PG) ckt 2) 400KV Baghat- Kathal (PG) ckt 1 3) 400KV Baghat-Meerut (PG) ckt 2 4) 400KV Bus-1 at Baghat(PG) 5) 500 MVA ICT-II at Baghat(PG)
17	GD-1	Punjab	18-Sep-2022 12:15	18-Sep-2022 13:45	1:30	0	150	0.000	0.268	44694	56042	1. As reported, at 12:15hrs, R-N phase to earth fault occurred due to snapping of R-ph jumper of 220KV Bus-2 at Verpal S/s. 2. On this bus fault, bus bar protection operated at Verpal S/s. However, all the elements connected at 220KV Bus 1 & 2 tripped during the event and 220/132kV Verpal S/s became dead. 3. As per PMU, R-N phase to earth fault which cleared within 100ms is observed. 4. As per SCADA, load loss of approx. 150MW occurred in Punjab Control area.	1) 220 KV Amritsar (PG)-Verpal (PS) (PSTCL) Ckt-1 2) 220 KV Amritsar (PG)-Verpal (PS) (PSTCL) Ckt-2 3) 220KV Bus-1 at Verpal(PS) 4) 220KV Bus-2 at Verpal(PS) 5) Verpal-Wadala (PS) Ckt 1 6) Verpal-Wadala (PS) Ckt 2 7) Verpal-Patti (PS) Ckt 1 8) Verpal-Patti (PS) Ckt 2
18	GD-1	Uttar Pradesh	19-Sep-2022 18:50	19-Sep-2022 19:07	0:17	0	550	0.000	0.890	49628	61765	1. 400/220KV Gorakhpur (UP) have double main transfer bus scheme. During antecedent condition, 400 KV Gorakhpur(PG)- Gorakhpur(UP) (PG) Ckt-2, 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 & 400/220 kv 500 MVA ICT 1 were connected at 400KV Bus-2 and 400 KV Gorakhpur(PG)- Gorakhpur(UP) (PG) Ckt-1 & 400/220 kv 315 MVA ICT 2 were connected at 400KV Bus-1. 400/220kv 240MVA ICT-3 was under shutdown and 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 tripped at 17:10 hrs on phase to earth fault. 2. As reported, at 18:50hrs, while charging 400 KV Azamgarh-Gorakhpur (UP) Ckt-1, Y-N phase to earth fault occurred. On this fault, line tripped from Gorakhpur (PG) end and distance protection at Gorakhpur (UP) also initiated tripping command but CB didn't open. 3. As CB of 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 didn't open, LBB of its CB operated which led to tripping of 400 KV Gorakhpur(PG)- Gorakhpur(UP) (PG) Ckt-2 & 400/220 kv 500 MVA ICT 1 and bus coupler opened. 4. With the tripping of aforementioned elements, loading of 400/220 kv 315 MVA ICT 2 at Gorakhpur (UP) increased. At the same time, 220KV Gorakhpur-Deoria ckt along with 132kV feeders at 220/132kV Gorakhpur (UP) tripped on SPS operation. 5. Further after approx. 5sec, 400/220 kv 315 MVA ICT 2 at Gorakhpur (UP) tripped on over current protection operation. 6. Further after~ 600ms (as per SCADA SOE), 220KV Gorakhpur-Hata ckt-1&2 also tripped (as reported by SLOC-UP, these both line tripped on SPS operation).	1) 400 KV Azamgarh-Gorakhpur (UP) Ckt-1 2) 400 KV Gorakhpur(PG)- Gorakhpur(UP) (PG) Ckt-2 3) 400 kv Bus-2 at Gorakhpur(UP) 4) 400/220 kv 500 MVA ICT 1 at Gorakhpur(UP) 5) 400/220 kv 315 MVA ICT 2 at Gorakhpur(UP) 6) Gorakhpur(UP) 7) Gorakhpur(UP) 8) 220KV Gorakhpur-Deoria ckt 9) 220KV Gorakhpur-Hata ckt-1 10) 220KV Gorakhpur-Hata ckt-2
19	GD-1	Rajasthan	21-Sep-2022 09:00	21-Sep-2022 10:15	1:15	309	0	0.606	0.000	50960	56782	1. As reported at 09:00 hrs, while doing relay setting modification work at AHEJ4L PSS-2 S/s, 220 kv AHEJ4L PSS 2 - Adani Renewable Solar Park (AREJ4L) Ckt tripped due to relay mis-operation. 2. As per PMU, no fault is observed. 3. As per SCADA, generation loss of approx. 309MW occurred at AHEJ4L PSS-2.	1) 220 KV AHEJ4L PSS 2 - Adani Renewable Solar park (AHEJ4L) ckt
20	GI-2	Rajasthan	22-Sep-2022 00:48	22-Sep-2022 02:29	1:41	0	0	0.000	0.000	49913	53343	1. During antecedent condition, 400KV Sikar-Bikaner ckt-1&2 were charged from Bikaner end only. 2. At 00:48, as reported 400KV Sikar-Agra-1 was opened from Agra end on voltage regulation. DT received at Sikar end after hand tripping of line from Agra end. However, Main CB didn't open at Sikar end which led to the LBB protection operation of Main CB of 400KV Sikar-Agra-1 at Sikar end. 3. Due to LBB protection operation, all the Main CBs connected at 400KV Bus-1 at Sikar opened. 4. As per PMU, no fault observed during the event	1) 400KV Sikar-Bikaner-1 2) 400KV Sikar-Bikaner-2 3) 400 KV Bus-1 at Sikar 4) 400KV Sikar-Agra-1
21	GD-1	Himachal Pradesh	25-Sep-2022 12:15	25-Sep-2022 13:25	1:10	425	0	0.832	0.000	51056	45888	1. 220kV Chamba-Chamera_3 ckt-1 & 2 are on the same tower. In antecedent condition, both the circuits were carrying ~220MW each. 2. As reported at 12:15 hrs, Y-N phase to earth fault occurred on both the lines due to lightning at distance ~4.5km from Chamba (PG) end. On this fault, 220kV Chamba-Chamera_3 ckt-1 tripped from both end and 220kV Chamba-Chamera_3 ckt-2 tripped from Chamera_3 end only (220kV Chamba-Chamera_3 ckt-2 successfully autoreclosed from Chamba end). 3. As per PMU, Y-N phase to earth fault which cleared within 120ms is observed. 4. Due to tripping of both the lines, 77MW Unit-1, 2 & 3 at Chamera_3 HEP (carrying total ~230MW) and 35MW Unit-1 & 2 at Budhil HEP (carrying total ~75MW) tripped due to loss of evacuation path. Generation loss of ~120MW at Lahal HEP also observed due to loss of evacuation path. 5. As per SCADA, total generation loss of ~425MW ( ~230MW at Chamera-III, ~75MW at Budhil HEP & ~120MW at Lahal HEP) is observed	1) 220 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-1 2) 220 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-2 3) 77MW Chamera_3 Unit-1 4) 77MW Chamera-3 Unit-2 5) 77MW Chamera-3 Unit-3 6) 35MW Budhil Unit-1 7) 35MW Budhil Unit-2

**Details of Grid Events during the Month of September 2022 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	08-Sep-22 23:25	09-Sep-22 01:13	1:48	12.3	-	0.000	-	61272	51983	At 23:25 Hrs/08-09-2022, 220 kV Manja-Jam Khambaliya tripped on Instantaneous phase over current protection operation at Manja(Powerica) end only. There was a generation loss of 12 MW at 220 kV Manja(Powerica) Wind power station due to loss of evacuation path.	Tripping of 1. 220 kV Manja-Jam Khambaliya
2	GD-1	WR	13-Sep-22 13:05	13-Sep-22 15:28	2:23	31.4	-	0.001	-	48115	46142	At 13:05 Hrs/13-09-2022, LV side B phase LA of 220/33 kV Ostro ICT failed and it ICT tripped on Differential protection operation. At the same time 220 kV Ostro- Bhachau 1&2 also tripped. Due to loss of evacuation path, there was a generation loss of 31 MW at 220/33 kV Ostro (Renew Power) Wind power station.	Tripping of 1. 220 kV Bhachau- Ostro 1&2 2. 220/33 kV Ostro ICT 2
3	GD-1	WR	13-Sep-22 14:41	13-Sep-22 15:02	0:21	-	200	-	0.004	49948	47177	At 14:41 Hrs/13-09-2022, 220 kV Amona- Ponda-3 tripped due to failure of R-Ph CT at Ponda substation. 220 kV Amona- Ponda -1&2 and 220 kV Mapusa-Ponda also tripped at the same time. With these tripping, 220 kV Ponda station went dark and 200 MW load loss occurred due to the event.	Tripping of 1. 220 kV Amona- Ponda 1,2&3 2. 220 kV Mapusa- Ponda
4	GI-2	WR	14-Sep-22 16:36	14-Sep-22 18:32	1:56	239	-	0.005	-	51299	46587	At 16:36 Hrs/14-09-2022, 400 kV Satpura Bus 1 and all the connected elements tripped on Bus bar protection operation.No fault signature was observed at Itarsi end PMUs. Generation loss of 239 MW occurred due to the event.	Tripping of 1. 400 kV Koradi- Satpura 2. 400 kV Itarsi- Satpura 1 3. 400 kV Astha- Satpura 1 4. 400/220 kV Satpura ICT 1 5. Satpura Unit-11 (250 MW)
5	GD-1	WR	15-Sep-22 09:17	15-Sep-22 11:02	1:45	343	-	0.007	-	51800	47965	At 09:17 Hrs/15-09-2022, 400 kV Jabalpur(PS) Bus 2 tripped on Bus bar protection due to failure of B-phase CT of Main bay of 400 kV Jhabua 1 line at Jabalpur(PS) end. At the same time, 400 kV Jhabua – Jabalpur(PS) 2 also tripped leading to loss of evacuation path for generation at Jhabua. At 09:18 Hrs, 400 kV Jabalpur(PS) - MB Power 2 tripped at MB Power end on Zone 1 Distance protection operation. At 09:39 Hrs, 400 kV Jabalpur – Jabalpur(PS) 2 hand tripped as a safety measure while extinguishing fire & to avoid other equipment damage due to fire at Jabalpur(PS) end. Generation loss of 343 MW occurred at Jhabua due to loss of evacuation path.	Tripping of 1. 400 kV Jabalpur(PS)- Jhabua 1&2 2. 400 kV Jabalpur(PS)- MB Power 2 3. 600 MW Jhabua Unit 1
6	GI-2	WR	15-Sep-22 10:57	15-Sep-22 14:16	3:19	239	-	0.005	-	49653	47198	At 10:57 Hrs/15-09-2022, 400 kV Khargone Bus 2 tripped due to operation of bus bar protection. 660MW Khargone unit-2 which was generating around 300 MW also tripped along with 400 kV Khargone Bus 2.	Tripping of 1. 400 kV Khargone Bus 2 2. 660 MW Khargone Unit 2
7	GI-1	WR	18-Sep-22 10:07	18-Sep-22 10:59	0:52	-	-	-	-	50122	46916	At 09:43 Hrs/18-09-2022, 220 kV Morena Bus 2 was under Shutdown for stringing work from existing main bus gantry to new main bus gantry under PBGTL project. While applying Local earthing, discharge rod accidentally fell on 220 kV Morena Bus 1, which resulted in Bus bar protection operation and tripping of 220 kV Morena Bus 1 and all the connected elements.	Tripping of 1. 220 kV Morena- Morena(MP) 2. 220 kV Morena- Mehgaon 3. 220 kV Morena- Sabalgarh 4. 220 kV Morena- Malanpur 2 5. 400/220 kV Morena ICTs 1,2&3
8	GD-1	WR	19-Sep-22 04:12	19-Sep-22 04:56	0:44	95	-	0.002	-	49755	43170	At 04:12 Hrs/19-09-2022, 220 kV WPCL Bus section at Warora(MH) bus bar protection operated and resulted in tripping of all the connected elements. 220 kV Warora(MH)- WPCL 1&2 tripped during the event and resulted in loss of evacuation path at WPCL. Generation loss of around 95 MW occurred at WPCL due to the event. There was no actual fault and the tripping was mal-operation. As reported by MSETCL, both the wires from LBB trip output contacts of REC 670 relay at 220 WPCL 1 bay found oily & sticky & the same were replaced with new wires.	Tripping of 1. 220 kV Warora(MH)- Bhugaon 1&2 2. 220 kV Warora(MH)- WPCL 1&2 3. 135 MW SWPGL Unit 1
9	GI-1	WR	19-Sep-22 15:18	19-Sep-22 16:02	0:44	450	-	0.009	-	52616	49020	At 15:18 Hrs/19-09-2022, 220 kV Korba(W)- Korba (E) 2 tripped on three phase fault. At the same time, 220 kV Korba(W)- DSPM tripped on Y-B phase fault. 220 kV Korba(E)- DSPM tripped at Korba ( E) end only. 250 MW DSPM Units 1&2 tripped during the event and resulted in generation loss of 450 MW.	Tripping of 1. 220 kV Korba(W)- Korba (E) 2 2. 220 kV Korba(W)- DSPM 3. 220 kV Korba(E)- DSPM 2 4. 220 kV DSPM- Banar 5. 250 MW DSPM Units 1&2

**Details of Grid Events during the Month of September 2022 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	Andhra Pradesh	05-Sep-22 12:48	05-Sep-22 13:22	34mins	160	1	0.35%	0.00%	45801	45388	Complete Outage of 220kV/33kV Chinturu SS of APTRANSCO and Tripping of 220kV Bus-2 at 220kV Lower Sileru PH of APGENCO: During antecedent conditions, 220kV Lower Sileru PH was operating with split bus condition. 220kV Asupaka Lower Sileru line, 220kV Chintoor Lower Sileru line, Generating Unit-2 & 4 were connected to 220kV Bus-2 at 220kV Lower Sileru PH. As per the reports submitted, the triggering incident was a B-N fault in 220kV Asupaka Lower Sileru line and the line tripped. Since, most of the power from 220kV Bus-2 at 220kV Lower Sileru PH was being evacuated through 220kV Asupaka Lower Sileru line, tripping of this line led to tripping of Unit-2&4 at 220kV Lower Sileru PH on loss of evacuation. Since 220kV/33kV Chintoor SS was radially fed from 220kV Lower Sileru PH, this resulted in complete outage of 220kV/33kV Chintoor SS.	1. 220kV Asupaka Lower Sileru 2. Unit-2&4 at Lower Sileru
2	GD-1	Kerala	06-Sep-22 18:55	06-Sep-22 19:41	46mins	0	360	0.00%	0.85%	43565	42251	Complete Outage of 220kV/110kV/11kV Orkattery SS, 220kV/110kV/11kV Kanihirode SS, 220kV/110kV/33kV Taliparamba SS, 220kV/110kV Ambalathara SS, 220kV/110kV/11kV Mylatty SS of KSEB: As per the reports submitted, the triggering incident was Y-N fault in 220kV Areakode Kanihirode line. Subsequently, 220kV Areakode Orkattery line tripped on over loading. Tripping of both these lines resulted in loss of supply to 220kV/110kV/11kV Orkattery SS, 220kV/110kV/11kV Kanihirode SS, 220kV/110kV/33kV Taliparamba SS, 220kV/110kV Ambalathara SS, and 220kV/110kV/11kV Mylatty SS as these stations are being radially fed through 220kV Areakode Orkattery and 220kV Areakode Kanihirode lines.	1. 220kV Areakode Orkattery 2. 220kV Areakode Kanihirode
3	GD-1	Andhra Pradesh	08-Sep-22 02:35	08-Sep-22 02:56	21mins	100	1	0.26%	0.00%	38514	31229	Complete Outage of 220kV/33kV Chinturu SS of APTRANSCO and Tripping of 220kV Bus-2 at 220kV Lower Sileru PH of APGENCO: During antecedent conditions, 220kV Lower Sileru PH was operating with split bus condition. As per the reports submitted, while deparalleling Unit-2 from 220kV Bus-2 at 220kV Lower Sileru PH, CB failed to open leading to operation of 220kV Bus-2 LBB. Immediately, all the elements connected to 220kV Bus-2 tripped. Since 220kV/33kV Chinturu SS was being radially fed through 220kV Lower Sileru Chinturu line, this resulted in complete outage of 220kV/33kV Chinturu SS.	1. 220kV Asupaka Lower Sileru 2. 220kV Lower Sileru Chintur 3. Unit-2&4 at Lower Sileru
4	GD-1	Telangana, Andhra Pradesh	11-Sep-22 03:04	11-Sep-22 03:15	11mins	810	161	2.16%	0.55%	37559	29468	Complete Outage of 220kV Tallapalli SWS of APTRANSCO, 220kV Nsagar PH of TSGENCO, 220kV Chalakurthy SWS, 220kV/132kV KM Pally SS, 220kV/11kV Puttamangandi US and 220kV/11kV Pulyatanda US of TSTRANSCO and Multiple trippings at 400kV/220kV Nsagar SS of PGCL SR-2: As per the reports submitted, the triggering incident was R-phase CT failure in 220kV Tallapalli Nsagar Line-3 at 220kV Tallapalli SWS. Immediately, 220kV Bus-1 and Bus-2 BBP operated and all the elements connected to the buses tripped leading to complete outage of 220kV Tallapalli SWS. Since VV side of 400kV/220kV Nsagar_PG ICT-1,2&3 are fed from 220kV Tallapalli SWS, BBP operation at 220kV Tallapalli SWS also resulted in tripping of the ICTs. Since most of the power generating at 220kV Nsagar PH is evacuating through 220kV Nsagar Tallapalli Line-1,2&3, tripping of these lines resulted in overloading of 220kV Srisalam Nsagar and Nsagar Chalakurthy lines and the lines tripped. Subsequently, all the generator units tripped at 220kV Nsagar PH on loss of evacuation which resulted in complete outage of 220kV Nsagar PH. During antecedent conditions, 220kV KM Pally Dindi, 220kV Chalakurthy Miryalaguda lines were under outage. Because of this, 220kV Chalakurthy SWS, 220kV/132kV KM Pally SS, 220kV/11kV Puttamangandi US and 220kV/11kV Pulyatanda US were being radially fed through 220kV Talapalli Chalakurthy and 220kV Nsagar Chalakurthy lines. Tripping of these two lines resulted in complete outage of 220kV Chalakurthy SWS, 220kV/132kV KM Pally SS, 220kV/11kV Puttamangandi US and 220kV/11kV Pulyatanda US of TSTRANSCO.	1. 400/220 kv ICT-1,2&3 at Nsagar PG 2. 220kV Nsagar Tallapalli Line-1,2&3 3. 220kV Nsagar Srisalam_RB 4. 220kV Nsagar Chalakurthy 5. 220kV Tallapalli VTPS Line-1,2&3 6. 220kV Tallapalli Rentachinhal 7. 220kV Tallapalli Srisalam RB-1&2 8. 220kV Talapalli Chalakurthy
5	GD-1	Kerala	11-Sep-22 08:30	11-Sep-22 12:36	4 hrs 6 mins	6	126	0.02%	0.37%	39461	34473	Complete Outage of 220kV/110kV/33kV Taliparamba SS, 220kV/110kV Ambalathara SS, and 220kV/110kV/11kV Mylatty SS of KSEB: 220kV/110kV/33kV Taliparamba SS, 220kV/110kV Ambalathara SS, and 220kV/110kV/11kV Mylatty SS are being radially fed through 220kV Kanihirode Ambalathara line and 220kV Kanihirode Taliparamba line. As per the reports submitted, 220kV Kanihirode Ambalathara and 220kV Kanihirode Taliparamba were taken under shutdown at 11-09-2022 08:30:00hrs to connect 220kV Thalassery GIS to the grid. This led to loss of supply to 220kV/110kV/33kV Taliparamba SS, 220kV/110kV Ambalathara SS, and 220kV/110kV/11kV Mylatty SS.	1. 220kV Kanihirode Ambalathara 2. 220kV Kanihirode Taliparamba
6	GD-1	Andhra Pradesh	14-Sep-22 12:38	14-Sep-22 13:01	23 mins	160	1	0.35%	0.00%	45858	43532	Complete Outage of 220kV/33kV Chinturu SS of APTRANSCO and Tripping of 220kV Bus-2 at 220kV Lower Sileru PH of APGENCO: During antecedent conditions, 220kV Lower Sileru PH was operating with split bus condition. 220kV Asupaka Lower Sileru line, 220kV Chintoor Lower Sileru line, Generating Unit-2 & 4 were connected to 220kV Bus-2 at 220kV Lower Sileru PH. As per the reports submitted, the triggering incident was a R-N fault in 220kV Asupaka Lower Sileru line and the line tripped. Since, most of the power from 220kV Bus-2 at 220kV Lower Sileru PH was being evacuated through 220kV Asupaka Lower Sileru line, tripping of this line led to tripping of Unit-2&4 at 220kV Lower Sileru PH on loss of evacuation. Since 220kV/33kV Chintoor SS was radially fed from 220kV Lower Sileru PH, this resulted in complete outage of 220kV/33kV Chintoor SS.	1. 220kV Asupaka Lower Sileru 2. Unit-2&4 at Lower Sileru
7	GD-1	Andhra Pradesh	15-Sep-22 11:20	15-Sep-22 11:52	32mins	0	137	0.00%	0.30%	47326	45650	Complete Outage of 220kV/132kV/33kV Gunadala SS of APTRANSCO: During antecedent conditions, 220kV VTPS Gunadala Line-2 was under shutdown. As per the reports submitted, the triggering incident was tripping of 220kV VTPS Gunadala Line-1 due to 1N fault. Tripping of the only connected line resulted in complete outage of 220kV/132kV/33kV Gunadala SS.	1. 220kV VTPS Gunadala Line-1
8	GD-1	Andhra Pradesh	15-Sep-22 11:34	15-Sep-22 12:06	32 mins	160	1	0.34%	0.00%	47711	45436	Complete Outage of 220kV/33kV Chinturu SS of APTRANSCO and Tripping of 220kV Bus-2 at 220kV Lower Sileru PH of APGENCO: During antecedent conditions, 220kV Lower Sileru PH was operating with split bus condition. 220kV Asupaka Lower Sileru line, 220kV Chintoor Lower Sileru line, Generating Unit-2 & 4 were connected to 220kV Bus-2 at 220kV Lower Sileru PH. As per the reports submitted, the triggering incident was a R-N fault in 220kV Asupaka Lower Sileru line and the line tripped. Since, most of the power from 220kV Bus-2 at 220kV Lower Sileru PH was being evacuated through 220kV Asupaka Lower Sileru line, tripping of this line led to tripping of Unit-2&4 at 220kV Lower Sileru PH on loss of evacuation. Since 220kV/33kV Chintoor SS was radially fed from 220kV Lower Sileru PH, this resulted in complete outage of 220kV/33kV Chintoor SS.	1. 220kV Asupaka Lower Sileru 2. Unit-2&4 at Lower Sileru
9	GD-1	Andhra Pradesh	17-Sep-22 03:10	17-Sep-22 10:37	7 hrs 27 mins	0	0	0.00%	0.00%	34702	34701	Complete Outage of 400kV RYTPP Generating Station of APGENCO: During antecedent conditions, 400kV Kalkiri RYTPP Line -2 was under outage. Triggering incident was tripping of 400kV Kalkiri RYTPP Line -1 on over voltage stage-1 protection at RYTPP end and DT was received at Kalkiri end. Since both lines connected to RYTPP got tripped, this resulted in complete outage of 400kV RYTPP generating station. There was no generation in RYTPP during this event.	1. 400kV Kalkiri RYTPP Line-1

**Details of Grid Events during the Month of September 2022 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)		
10	GD-1	Andhra Pradesh	18-Sep-22 21:29	18-Sep-22 21:53	24 mins	100	1	0.25%	0.00%	39245	38727	Complete Outage of 220kV/33kV Chinturu SS of APTRANSCO and Tripping of 220kV Bus-2 at 220kV Lower Sileru PH of APGENCO. During antecedent conditions, 220kV Lower Sileru PH was operating with split bus condition. 220kV Asupaka Lower Sileru line, 220kV Chintoor Lower Sileru line, Generating Unit-2 & 4 were connected to 220kV Bus-2 at 220kV Lower Sileru PH. As per the reports submitted, the triggering incident was a R-N fault in 220kV Asupaka Lower Sileru line and the line tripped. Since, most of the power from 220kV Bus-2 at 220kV Lower Sileru PH was being evacuated through 220kV Asupaka Lower Sileru line, tripping of this line led to tripping of Unit-2&4 at 220kV Lower Sileru PH on loss of evacuation. Since 220kV/33kV Chintoor SS was radially fed from 220kV Lower Sileru PH, this resulted in complete outage of 220kV/33kV Chintoor SS.	1. 220kV Asupaka Lower Sileru 2. Unit-2&4 at Lower Sileru
11	GD-1	Andhra Pradesh	19-Sep-22 02:55	20-Sep-22 06:38	27 hrs 47 mins	0	0	0.00%	0.00%	34559	33537	Complete Outage of 400kV RYTPP Generating Station of APGENCO. During antecedent conditions, 400kV Kalkiri RYTPP Line -1 was under outage. Triggering incident was tripping of 400kV Kalkiri RYTPP Line -2 on over voltage stage-1 protection at RYTPP end and DT was received at Kalkiri end. Since both lines connected to RYTPP got tripped, this resulted in complete outage of 400kV RYTPP generating station. There was no generation in RYTPP during this event.	1. 400kV Kalkiri RYTPP Line-2
12	GD-1	Andhra Pradesh	22-Sep-22 00:54	22-Sep-22 16:32	15 hrs 38 mins	0	0	0.00%	0.00%	39162	38096	Complete Outage of 400kV RYTPP Generating Station of APGENCO. During antecedent conditions, 400kV Kalkiri RYTPP Line -2 was under outage. Triggering incident was tripping of 400kV Kalkiri RYTPP Line -1 on over voltage stage-1 protection at RYTPP end and DT was received at Kalkiri end. Since both lines connected to RYTPP got tripped, this resulted in complete outage of 400kV RYTPP generating station. There was no generation in RYTPP during this event.	1. 400kV Kalkiri RYTPP Line-1
13	GI-1	Telangana	01-Sep-22 23:25	02-Sep-22 00:13	48mins	100	0	0.27%	0.00%	37702	35318	Tripping of 220kV Bus-1 at 220kV Upper Jurala of TSGENCO. During antecedent conditions, 220kV Upper Jurala Jurala Line-1 & 2 were under idle charged condition. 220kV Upper Jurala Raichur Line-1, Unit-1,3 & 5 were connected to 220kV Bus-1 at 220kV Upper Jurala. The triggering incident was R-N fault in 220kV Upper Jurala Raichur Line-1 and the line tripped at both ends. At the same time, the bus coupler got tripped on suspected over current protection which led to loss of evacuation path for generator units connected to 220kV Bus-1 leading to tripping of the units. This led to the de energisation of 220kV Bus-1 at Upper Jurala.	1. 220kV Upper Jurala Raichur-1 2. Unit-1,3 & 5 at Upper Jurala

**Details of Grid Events during the Month of September 2022 in Eastern Region**



Sl No.	Category of Grid Event ( GI 1 or 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	Malda	04-Sep-2022 05:57	04-Sep-2022 10:07	04:10	0	0	0.00%	0.00%	28900	20999	At 05:57, 400 kv bus 1 & 2 at Malda (Having Double Main Transfer i.e. DMT switching scheme) tripped due to bus bar protection operation resulting in outage of all 400 kv feeders connected to Malda S/S.	400 kv Bus-1 & 2 at Malda 400 kv Farakka-Malda D/c 400 kv Malda-New Purnea D/c 400/220 kv 315 MVA ICT-3 & 5 at Malda
2	GI-1	Tenughat	09-Sep-2022 12:55	09-Sep-2022 18:57	06:02	150	0	0.50%	0.00%	29841	22998	At 12:55 Hrs, R_B_N fault struck 220 kv Tenughat-Govindpur D/c. 220 kv Govindpur-Dumka-1 and 210 MW U#2 at Tenughat also tripped at the same time. 150 MW generation loss occurred at Tenughat.	210 MW U#2 at Tenughat 220 kv Tenughat-Govindpur D/c 220 kv Govindpur-Dumka-1
3	GD-1	Ratu (Burmu)	12-Sep-2022 18:54	13-Sep-2022 01:27	06:33	0	90	0.00%	0.39%	30201	23206	At 18:54 Hrs, 400/220 kv ICT-2 at Patratu tripped due to operation of WTI and OSR relay. Consequently, power supply to radially fed 220 kv Ratu (Burmu) S/s interrupted and around 90 MW load loss occurred at Burmu and Kanke.	400/220 kv ICT-2 at Patratu
4	GD-1	Ratu (Burmu)	13-Sep-2022 10:03	13-Sep-2022 20:56	10:53	0	65	0.00%	0.32%	25254	20376	At 10:03 Hrs, 400/220 kv ICT-2 at Patratu tripped due to operation of WTI and OSR relay. Consequently, power supply to radially fed 220 kv Ratu (Burmu) S/s interrupted and around 65 MW load loss occurred at Burmu and Kanke. At 18:21 Hrs, supply restored to Kanke and Burmu through LIFO of 132 kv Patratu(old)-Hatia at Kanke.	400/220 kv ICT-2 at Patratu
5	GD-1	Chandwa	20-Sep-2022 16:50	20-Sep-2022 19:40	02:50	0	0	0.00%	0.00%	28988	19762	At 16:50 Hrs, 400 kv Bus-2 at Chandwa tripped during testing work on 400 kv Bus-1 at Chandwa(under shutdown) for interconnection of existing bus with new bus. Total power failure occurred at 400 kv Chandwa S/s (having DMT scheme). No load loss or generation loss occurred.	400 kv Bus-2 at Chandwa 400 kv Gaya-Chandwa D/c 400 kv New Ranchi-Chandwa D/c 125 MVA/ Bus Reactor-1&2 at Chandwa
6	GD-1	CTPS A, CTPS B	24-Sep-2022 10:55	24-Sep-2022 11:05	00:10	393	400	1.62%	1.70%	24264	23582	At 10:50 Hrs, 220 kv CTPS B-BTPS (Bokaro B)-2 was handtripped to control loading of 2* 315 MVA 400/220 kv ICTs at Bokaro. At 10:55 Hrs, 220 kv CTPS B-BTPS (Bokaro)-1 was also handtripped to further reduce loading of those ICTs. However, Y_ph CB of this line got stuck at CTPS B end, LBB operated and this gave tripping command to all elements in both buses. At 11:03 Hrs, 220 kv CTPS A-Kalyaneshwari also got tripped which led to total power failure at 220 kv CTPS A S/s also. Both running units at CTPS B tripped leading to 360 MW generation loss. Around 400 MW load loss also reported.	220 kv Bus-1 & 2 at CTPS A 220 kv Bus-1 & 2 at CTPS B 220 kv CTPS B – BTPS B D/c 220 kv CTPS B – Dhanbad D/c 220 kv CTPS A – CTPS B D/c 220 kv CTPS A – Kalyaneshwari D/c 220 kv CTPS A- BSL D/c 220/132 kv 100 MVA ATR#1,2,3 at CTPS A 210 MW U#7 & U#8 at CTPS B
7	GD-1	Chandwa	28-Sep-2022 15:04	20-Sep-2022 17:29	02:25	0	0	0.00%	0.00%	28822	23228	At 16:50 Hrs, 400 kv Bus-1 at Chandwa tripped during testing work on 400 kv Bus-2 at Chandwa(under shutdown) for interconnection of existing bus with new bus. Total power failure occurred at 400 kv Chandwa S/s (having DMT scheme). No load loss or generation loss occurred.	400 kv Bus-1 at Chandwa 400 kv Gaya-Chandwa D/c 400 kv New Ranchi-Chandwa D/c 125 MVA/ Bus Reactor-1&2 at Chandwa

**Details of Grid Events during the Month of September 2022 in North Eastern Region**



Sl No.	Category of Grid Event ( G1 to 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t. Antecedent Generation/Load in the		Antecedent Generation/Load in the Regional Grid		Brief details of the event ( pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD-I	Gohpur, North Lakhimpur, Dhemaji and Majuli areas of Assam Power System	03-Sep-22 16:37	03-Sep-22 16:51	0:14:00	0	44	0.00%	1.77%	3069	2486	Gohpur, North Lakhimpur, Dhemaji and Majuli areas of Assam Power System were connected with the rest of NER Grid through 132 kV Gohpur-BNC(Pavoi) D/C lines. 132kV-Gohpur-Nirjuli line was under shutdown to avoid overloading of 132kV Pare-Lekhi line. At 16:37 Hrs on 03.09.22, 132 kV Gohpur-BNC(Pavoi) D/C lines tripped. Due to tripping of these elements, Gohpur, North Lakhimpur, Dhemaji and Majuli 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 Gohpur, North Lakhimpur, Dhemaji and Majuli areas of Assam Power System by charging 132 kV GohpurBNC(Pavoi) 2 line at 16:51 Hrs. on 03.09.22.	132 kV Gohpur-BNC(Pavoi) D/C lines
2	GD-I	Leshka Generating station of Meghalaya Power System	04-Sep-22 03:12	04-Sep-22 03:35	0:23:00	84	0	2.56%	0.00%	3279	2284	Leshka Generating station of Meghalaya Power System was connected with rest of NER grid through 132 kV Myntdu Leshka - Khleihriat D/C lines . At 03:12 Hrs on 04.09.22, 132 kV Myntdu Leshka - Khleihriat D/C lines tripped. Due to tripping of these elements, Leshka Generating station of Meghalaya Power System was separated from rest of NER Grid and subsequently collapsed due to loss of evacuation path. Power supply was extended to Leshka Generating station of Meghalaya Power System by charging 132 kV Khleihriat(ME) - Leshka 1 line at 03:35 Hrs on 04.09.22	132 kV Myntdu Leshka - Khleihriat D/C lines
3	GD-I	Monarchak, Rokhia and Rabindranagar areas of Tripura Power System	05-Sep-22 14:53	05-Sep-22 15:01	0:08:00	90	21	2.76%	0.85%	3257	2471	Monarchak, Rokhia and Rabindranagar areas of Tripura Power System were connected with rest of NER grid through 132 kV Monarchak - Rokhia and 132 kV Rokhia - Agartala D/C lines. 132 kV Monarchak - Udaipur line was under planned shutdown since 09:32 Hrs on 05.09.22. At 14:53 Hrs on 05.09.22, 132 kV Monarchak - Rokhia and 132 kV Rokhia - Agartala D/C lines tripped. Due to tripping of these element, Monarchak, Rokhia and Rabindranagar areas of Tripura 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 Monarchak, Rokhia and Rabindranagar areas of Tripura Power System by charging 132 kV Rokhia - Agartala 1 line at 15:01 Hrs on 05.09.22.	132 kV Monarchak - Rokhia and 132 kV Rokhia - Agartala D/C lines
4	GD-I	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System	07-Sep-22 11:08	07-Sep-22 11:15	0:07:00	18	23	0.59%	0.93%	3069	2486	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Ballpara-Tenga line. At 11:08 Hrs on 07.09.22, 132 kV Ballpara-Tenga line tripped. Due to tripping of this element, Tenga, Khupi areas & 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. 132 kV Ballpara -Tenga line was declared faulty at 11:15 Hrs on 07.09.22. Power supply was extended to Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System by charging 132 kV Ballpara-Tenga line at 13:14 Hrs on 15.09.22.	132 kV Ballpara-Tenga line
5	GD-I	Monarchak and Rabindranagar areas of Tripura Power System	08-Sep-22 10:39	08-Sep-22 11:18	0:39:00	72	11	2.35%	0.49%	3068	2262	Monarchak and Rabindranagar areas of Tripura Power System were connected with rest of NER grid through 132 kV Monarchak - Rokhia line. 132 kV Monarchak - Udaipur line was under planned shutdown since 09:33 Hrs on 08.09.22. At 10:39 Hrs on 08.09.22, 132 kV Monarchak - Rokhia line tripped. Due to tripping of this element, Monarchak and Rabindranagar areas of Tripura 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 Monarchak and Rabindranagar areas of Tripura Power System by charging 132 kV Monarchak - Rokhia line at 11:18 Hrs on 08.09.22.	132 kV Monarchak - Rokhia line
6	GD-I	Leshka Generating station of Meghalaya Power System	09-Sep-22 20:42	09-Sep-22 20:48	0:06	84	0	2%	0%	3471	3225	Leshka Generating station of Meghalaya Power System was connected with rest of NER grid through 132 kV Myntdu Leshka - Khleihriat D/C lines. At 20:42 Hrs on 09.09.22, 132 kV Myntdu Leshka - Khleihriat D/C lines tripped. Due to tripping of these elements, Leshka Generating station of Meghalaya Power System was separated from rest of NER Grid and subsequently collapsed due to loss of evacuation path. Power supply was extended to Leshka Generating station of Meghalaya Power System by charging 132 kV Myntdu Leshka - Khleihriat 1 line at 20:48 Hrs on 09.09.22.	132 kV Myntdu Leshka - Khleihriat D/C lines
7	GD-I	Zuangtui, Saitual, Serchip, Lunglei and Melriat areas of Mizoram Power System	10-Sep-22 14:14	10-Sep-22 14:43	0:29	0	50	0%	2%	3076	2432	Zuangtui, Saitual, Serchip, Lunglei and Melriat areas of Mizoram Power System were connected with rest of NER grid through 132 kV Aizawl(PG) - Melriat(PG) and 132 kV Melriat(PG) -Zuangtui lines. At 14:14 Hrs on 10.09.22, 132 kV Aizawl(PG) - Melriat(PG) and 132 kV Melriat(PG) -Zuangtui lines tripped. Due to tripping of these elements, Zuangtui, Saitual, Serchip, Lunglei and Melriat areas of Mizoram 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 Zuangtui, Saitual, Serchip, Lunglei and Melriat areas of Mizoram Power System by charging 132 kV Melriat-Zuangtui line at 14:43 Hrs on 10.09.22	132 kV Aizawl(PG) - Melriat(PG) and 132 kV Melriat(PG) -Zuangtui lines





**Details of Grid Events during the Month of September 2022 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)		
8	GD-I	Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	10-Sep-22 15:45	10-Sep-22 16:28	0:43:00	0	11	0.00%	0.43%	3151	2553	<p>Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Along - Pasighat line.</p> <p>At 15:45 Hrs on 10.09.22, 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.</p> <p>Power was extended to Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kV Along - Pasighat line at 16:28 Hrs on 10.09.22.</p>	132 kV Along-Pasighat line
9	GD-I	LTPS & LRPP Generating station and Nazira and Sibsagar areas of Assam Power System	14-Sep-22 09:50	14-Sep-22 10:08	0:18:00	122	24	4.69%	1.07%	2602	2238	<p>LTPS &amp; LRPP Generating station and Nazira and Sibsagar areas of Assam Power System were connected with rest of NER grid through 132 kV LTPS-NTPS, 132 kV LTPS - Sonari, 132 kV LTPS - Moran, 132 kV LTPS - Nazira D/C and 132 kV Nazira - Teok lines. 132 kV LTPS - Mariani and 132 kV Golaghat - Mariani lines were under OCC approved and State approved shutdown respectively.</p> <p>At 09:50 Hrs on 14.09.22, 132 kV LTPS-NTPS, 132 kV LTPS - Sonari, 132 kV LTPS - Moran, 132 kV LTPS - Nazira D/C and 132 kV Nazira - Teok lines tripped. Due to tripping of these elements, LTPS &amp; LRPP Generating station and Nazira and Sibsagar areas of Assam Power System were separated from rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.</p> <p>Power supply was extended to LTPS &amp; LRPP Generating station and Nazira and Sibsagar areas of Assam Power System by charging 132kV Nazira - Teok line at 10:08 Hrs on 14.09.22.</p>	132 kV LTPS-NTPS, 132 kV LTPS - Sonari, 132 kV LTPS - Moran, 132 kV LTPS - Nazira D/C and 132 kV Nazira - Teok lines
10	GD-I	Ambassa area of Tripura Power System	15-Sep-22 17:53	15-Sep-22 18:15	0:22:00	0	17	0.00%	0.56%	3522	3041	<p>Ambassa area of Tripura Power System was connected with rest of NER grid through 132 kV PK Bari (ST) -Ambassa, 132 kV Ambassa -Kamalpur and 132 kV Ambassa - Gamatilla lines.</p> <p>At 17:53 Hrs on 15.09.22, 132 kV PK Bari (ST) -Ambassa, 132 kV Ambassa -Kamalpur and 132 kV Ambassa - Gamatilla lines tripped. Due to tripping of these elements Ambassa area of Tripura Power System was separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.</p> <p>Power supply was extended to Ambassa area of Tripura Power System by charging 132kV PK Bari (ST) - Amba at 18:15 Hrs on 15.09.22.</p>	132 kV PK Bari (ST) -Ambassa, 132 kV Ambassa -Kamalpur and 132 kV Ambassa - Gamatilla lines
11	GD-I	Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	21-Sep-22 14:01	21-Sep-22 14:28	0:27:00	0	11	0.00%	0.43%	2550	2583	<p>Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Daporijo - Along line.</p> <p>At 14:01 Hrs on 21.09.22, 132 kV Daporijo - Along line tripped. Due to tripping of this element, Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.</p> <p>Power supply was extended to Daporijo, Along, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kV Daporijo - Along Line at 14:28 Hrs on 21.09.22.</p>	132 kV Daporijo - Along line.
12	GD-I	Umiyam, NEHU, Mawlyndep, Mustem and NEIGRIHMS areas of Meghalaya Power System	21-Sep-22 15:17	21-Sep-22 15:23	0:06:00	12	50	0.44%	1.86%	2729	2688	<p>Umiyam, NEHU, Mawlyndep, Mustem and NEIGRIHMS areas of Meghalaya Power System were connected with the rest of NER Grid through 132kV Umiyam Stage I - Umiyam Stage II line 2, 132kV Umiyam Stage I - Umiyam Stage II, 132kV Umiyam Stage I - Mawphlang D/C, 132kV Umiyam Stage I - Mawlai, 132kV Umiyam Stage I - Umiyam, 132kV Umiyam-NEHU, 132kV NEHU-NEIGRIHMS, 132kV NEHU-Mawlai, 132kV Khliehriat-Mustem 132kV Khliehriat-NEIGRIHMS lines. 132kV Umiyam Stage I - Umiyam Stage III line 1 was under planned shutdown since 08:25 Hrs on 21.09.22.</p> <p>At 15:17 Hrs on 21.09.22, 132kV Umiyam Stage I - Umiyam Stage III line 2, 132kV Umiyam Stage I - Umiyam Stage II, 132kV Umiyam Stage I - Mawphlang D/C, 132kV Umiyam Stage I - Mawlai, 132kV Umiyam Stage I - Umiyam, 132kV Umiyam-NEHU, 132kV NEHU-NEIGRIHMS, 132kV NEHU-Mawlai, 132kV Khliehriat-Mustem 132kV Khliehriat-NEIGRIHMS lines tripped. Due to tripping of these elements, Umiyam, NEHU, Mawlyndep, Mustem and NEIGRIHMS areas of Meghalaya Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.</p> <p>Power supply was extended to Umiyam, NEHU, Mawlyndep, Mustem and NEIGRIHMS areas of Meghalaya Power System by charging 132kV Khliehriat - NEIGRIHMS line at 15:23 Hrs on 21.09.22.</p>	132kV Umiyam Stage I - Umiyam Stage III line 2, 132kV Umiyam Stage I - Umiyam Stage II, 132kV Umiyam Stage I - Mawphlang D/C, 132kV Umiyam Stage I - Mawlai, 132kV Umiyam Stage I - Umiyam, 132kV Umiyam-NEHU, 132kV NEHU-NEIGRIHMS, 132kV NEHU-Mawlai, 132kV Khliehriat-Mustem 132kV Khliehriat-NEIGRIHMS lines
13	GD-I	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System	22-Sep-22 12:21	22-Sep-22 13:02	0:41	11	14	0%	1%	2570	2495	<p>Tenga, Khupi areas &amp; Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Balipara -Tenga line.</p> <p>At 12:21 Hrs on 22.09.22, 132 kV Balipara -Tenga line tripped. Due to tripping of this element Tenga, Khupi areas &amp; Dikshi HEP of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.</p> <p>Power supply was extended to Tenga, Khupi areas &amp; Dikshi HEP of Arunachal Pradesh Power System by charging 132 kV Balipara - Tenga line at 13:02 Hrs on 22.09.22.</p>	132 kV Balipara -Tenga line
14	GD-I	Dimapur(DoP, Nagaland) area of Nagaland Power System	22-Sep-22 13:22	22-Sep-22 13:55	0:33	0	66	0%	2%	2718	2718	<p>Dimapur(DoP, Nagaland) area of Nagaland Power System was connected with the rest of NER Grid through 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 1 line. 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 2 line was under outage due to bus bar protection operated at Dimapur(PG) end at 11:44 Hrs on 22.09.22.</p> <p>At 13:22 Hrs on 22.09.22, 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 1 line tripped. Due to tripping of this element Dimapur(DoP, Nagaland) area of Nagaland Power System was separated from the rest of NER Grid and subsequently collapsed due to no source available in this area.</p> <p>Power supply was extended to Dimapur(DoP, Nagaland) area of Nagaland Power System by charging 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 1 line at 13:55 Hrs on 22.09.2022.</p>	132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 1 line

**Details of Grid Events during the Month of September 2022 in North Eastern Region**



Sl No.	Category of Grid Event ( G1 to 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the		Antecedent Generation/Load in the Regional Grid		Brief details of the event ( pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
15	GD-I	Dimapur(DoP, Nagaland) area of Nagaland Power System	22-Sep-22 14:02	22-Sep-22 14:37	0:35	0	73	0%	3%	2802	2568	Dimapur(DoP, Nagaland) area of Nagaland Power System was connected with the rest of NER Grid through 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 1 line. 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 2 line was under outage due to bus bar protection operated at Dimapur(PG) end at 11:44 Hrs on 22.09.22.  At 14:02 Hrs on 22.09.22, 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 1 line tripped. Due to tripping of this element Dimapur(DoP, Nagaland) area of Nagaland Power System was separated from the rest of NER Grid and subsequently collapsed due to no source available in this area.  Power supply was extended to Dimapur(DoP, Nagaland) area of Nagaland Power System by charging 132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 2 line at 14:37 Hrs on 22.09.22.	132 kV Dimapur(PG) - Dimapur(DoP, Nagaland) 1 line
16	GD-I	Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System	22-Sep-22 22:27	22-Sep-22 22:41	0:14	0	129	0%	4%	3324	2948	Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System were connected with the rest of NER Grid through 132 kV Sonabil - Depota and 132 kV Sonabil - Ghoramari lines. 132 kV Sipajhar - Rangia, 132kV Tangla - Rowta and 220kV BTPS (AS) - Rangia-1 lines were under shutdown.  At 22:27 Hrs on 22.09.22, 132 kV Sonabil - Depota and 132 kV Sonabil - Ghoramari lines tripped. Due to tripping of these elements, Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System by charging 132 kV Sonabil - Depota line at 22:41 Hrs on 22.09.22.	132 kV Sonabil - Depota and 132 kV Sonabil - Ghoramari lines
17	GD-I	Kahelipara, Kamalpur and part load of Sishugram areas of Assam Power System	23-Sep-22 08:40	23-Sep-22 08:51	0:11	0	120	0%	6%	2817	2177	Kahelipara, Kamalpur and part load of Sishugram areas of Assam Power System were connected with the rest of NER Grid through 132 kV Kahelipara - Sarusajal 2 & 4 lines. 132 kV Kamalpur - Rangia D/C, 132 kV Narengi - Kahelipara and 132 kV Kahelipara - Sarusajal 3 lines were under shutdown.  At 08:40 Hrs on 23.09.22, 132 kV Kahelipara - Sarusajal 2 & 4 lines tripped. Due to tripping of these elements, Kahelipara, Kamalpur and part load of Sishugram areas of Assam Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Kahelipara, Kamalpur and part load of Sishugram areas of Assam Power System by charging 132 kV Kahelipara - Sarusajal 2 & 4 lines at 08:51 Hrs on 23.09.22.	132 kV Kahelipara - Sarusajal 2 & 4 lines
18	GD-I	Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System	23-Sep-22 10:26	23-Sep-22 10:42	0:16	0	64	0%	3%	2613	2151	Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System were connected with the rest of NER Grid through 132 kV Sonabil - Depota and 132 kV Sonabil - Ghoramari lines. 132 kV Sipajhar - Rangia, 132kV Tangla - Rowta and 220kV BTPS (AS) - Rangia-1 lines were under shutdown.  At 10:26 Hrs on 23.09.22, 132 kV Sonabil - Depota and 132 kV Sonabil - Ghoramari lines tripped. Due to tripping of these elements, Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Depota, Ghoramari, Dhekiajuli, Rowta and Sipajhar areas of Assam Power System by charging 132 kV Sonabil - Depota line at 10:42 Hrs on 23.09.22.	132 kV Sonabil - Depota and 132 kV Sonabil - Ghoramari lines
19	GD-I	Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System	24-Sep-22 00:04	24-Sep-22 01:20	1:16	0	12	0%	0%	3018	2720	Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were connected with rest of NER Grid through 132 kVAlong-Pasighat line.  At 00:04 Hrs on 24.09.22, 132 kVAlong- Pasighat line tripped. Due to tripping of this element, Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System were separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.  132 kVAlong- Pasighat line was declared faulty at 01:20 Hrs on 24.09.2022. Power supply was extended to Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kVAlong- Pasighat line at 14:55 Hrs on 25.09.22.	132 kVAlong- Pasighat line
20	GD-I	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System	24-Sep-22 16:34	24-Sep-22 17:12	0:38	11	15	0%	1%	2903	2578	Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Balipara-Tenga line.  At 16:34 Hrs on 24.09.22, 132 kV Balipara-Tenga line tripped. Due to tripping of this element, Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System were separated from rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Tenga, Khupi areas & Dikshi HEP of Arunachal Pradesh Power System by charging 132 kV Balipara - Tenga line at 17:12 Hrs. of 24.09.22.	132 kV Balipara-Tenga line
21	GD-I	Leshka Generating station of Meghalaya Power System	25-Sep-22 14:20	25-Sep-22 14:31	0:11	70	0	3%	0%	2775	2179	Leshka Generating station of Meghalaya Power System was connected with rest of NER grid through 132 kV Leska-Khlehriat(ME) D/C lines.  At 14:20 Hrs on 25.09.22, 132 kV Leska-Khlehriat(ME) D/C lines tripped. Due to tripping of these elements, Leshka Generating station of Meghalaya Power System was separated from rest of NER Grid and subsequently collapsed due to loss of evacuation path.  Power supply was extended to Leshka Generating station of Meghalaya Power System by charging 132 kV Leska-Khlehriat(ME) 2 line at 14:31 Hrs on 25.09.22.	132 kV Leska-Khlehriat(ME) D/C lines
22	GD-I	Monarchak and Rabindranagar areas of Tripura Power System	27-Sep-22 02:47	27-Sep-22 03:35	0:48	93	5	3%	0%	3068	2262	Monarchak and Rabindranagar areas of Tripura Power System were connected with rest of NER grid through 132 kV Monarchak - Udaipur and 132 kV Monarchak - Rokhia lines.  At 02:47 Hrs on 27.09.22, 132 kV Monarchak - Udaipur and 132 kV Monarchak - Rokhia lines tripped. Due to tripping of these elements, Monarchak and Rabindranagar areas of Tripura 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 Monarchak and Rabindranagar areas of Tripura Power System by charging 132 kV Monarchak - Udaipur line at 03:35 Hrs on 27.09.22.	132 kV Monarchak - Udaipur and 132 kV Monarchak - Rokhia lines

**Details of Grid Events during the Month of September 2022 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)		
23	GD-1	Narengi area of Assam Power System	27-Sep-22 17:48	27-Sep-22 18:16	0:28	0	49	0%	2%	3287	3232	Narengi area of Assam Power System was connected with rest of NER grid through 132 kV Narengi-Sonapur line. 132kV Narengi-Kahelipara line was under planned shutdown since 15:59 Hrs on 27.09.22 At 17:48 Hrs on 27.09.22, 132 kV Narengi-Sonapur line tripped. Due to tripping of this element, Narengi area of Assam 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 Narengi area of Assam Power System by charging 132kV Narengi-Kahelipara line at 18:16 Hrs on 27.09.22	132 kV Narengi-Sonapur line
24	GD-1	Kamakhya and Sishugram areas of Assam Power System	28-Sep-22 11:42	28-Sep-22 12:10	0:28	0	63	0%	3%	2425	2470	Kamakhya and Sishugram areas of Assam Power System were connected with rest of NER grid through 132 kV Sarusajai-Kamakhya line. 132 kV Sishugram - Kamakhya line was under outage. At 11:42 Hrs on 28.09.22, 132 kV Sarusajai-Kamakhya line tripped. Due to tripping of this element, Kamakhya and Sishugram 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 Kamakhya and Sishugram areas of Assam Power System by charging 132 kV Sishugram - Kamakhya line at 12:10 Hrs on 28.09.22	132 kV Sarusajai-Kamakhya line
25	GD-1	Kohima, Meluri and Kiphire areas of Nagaland Power System	28-Sep-22 12:36	28-Sep-22 12:50	0:14	24	15	1%	1%	2429	2594	Kohima, Meluri and Kiphire areas of Nagaland Power System were connected with rest of NER grid through 132 kV Kohima-Chiephobozou, 132 kV Kohima-Meluri and 132kV Karong-Kohima lines. 132 kV Dimapur-Kohima was under ESD for Shifting of tower at loc 116 near pherima which is on the verge of collapsing due to landslide At 12:36 Hrs on 28.09.22, 132 kV Kohima-Chiephobozou, 132 kV Kohima-Meluri and 132kV Karong-Kohima lines tripped. Due to tripping of these elements, Kohima, Meluri and Kiphire areas of Nagaland 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 Kohima, Meluri and Kiphire areas of Nagaland Power System by charging 132 kV Kohima-Chiephobozou line at 12:50 Hrs on 28.09.22	132 kV Kohima-Chiephobozou, 132 kV Kohima-Meluri and 132kV Karong-Kohima lines
26	GD-1	Pailapool area of Assam Power System	29-Sep-22 21:03	29-Sep-22 21:32	0:29	0	37	0%	1%	3511	3171	Pailapool area of Assam Power System was connected with rest of NER grid through 132 kV Jiribam-Pailapool and 132 kV Srikona Pailapool lines. At 21:03 Hrs on 29.09.22, 132 kV Jiribam-Pailapool and 132 kV Srikona Pailapool lines tripped. Due to tripping of these elements, Pailapool area of Assam Power System was separated from rest of NER Grid and subsequently collapsed due to no source available in these areas. Power supply was extended to Pailapool area of Assam Power System by charging 132 kV Jiribam-Pailapool line at 21:32 Hrs on 29.09.22	132 kV Jiribam-Pailapool and 132 kV Srikona Pailapool lines
	GI-2	Arunachal Pradesh	06-Sep-22 13:00	06-Sep-22 14:30	1:30	227.5	0	7%	0%	3147	2589	Kameng Unit 1 tripped at 13:00 Hrs on 06-09-22 due to mal-operation of Generator Relay. Revision done from Block No.59 on 06-09-22.	Kameng Unit 1
	GI-2	Assam	07-Sep-22 10:20	07-Sep-22 12:00	1:40	37.62	0	1%	0%	2905	2447	AGBPP Unit 3 tripped at 10:20 Hrs on 07-09-22 due to turbine over speed trip. Revision done from Block No.49 on 07-09-22.	AGBPP Unit 3
	GI-2	Assam	21-Sep-22 04:16	21-Sep-22 06:15	1:59	40	0	2%	0%	2537	2575	AGBPP Unit 6 tripped at 04:16 Hrs on 21-09-22 due to IGV trouble. Revision done from Block No.26 on 21-09-22.	AGBPP Unit 6
	GI-1	Nagaland	23-Sep-22 03:14	23-Sep-22 05:30	2:16	19	0	1%	0%	2579	2598	Doyang Unit 2 tripped at 03:14 Hrs. on 23-09-22 due to issue in OPU. Revision done from Block No.23 on 23-09-22.	Doyang Unit 2
	GI-2	Assam	29-Sep-22 10:37	29-Sep-22 12:30	1:53	10	0	0%	0%	2451	2528	AGBPP Unit 5 tripped at 10:37 Hrs on 29-09-22 due to console tripped. Revision done from Block No.51 on 29-09-22.	AGBPP Unit 5
	GI-2	Assam	29-Sep-22 14:24	29-Sep-22 16:00	1:36	15	0	1%	0%	2548	2756	AGBPP Unit 5 tripped at 14:24 Hrs on 29-09-22 due to exhaust temperature high. Revision done from Block No.65 on 29-09-22.	AGBPP Unit 5
	GI-2	Assam	30-Sep-22 06:53	30-Sep-22 08:30	1:37	237	0	8%	0%	2954	2389	BgTPP Unit 3 tripped at 06:53 Hrs. on 30-09-22 due to flame failure. Revision done from Block No.35 on 30-09-22.	BgTPP Unit 3