

**Details of Grid Events during the Month of September 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 (H: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	Uttar Pradesh	03-Sep-2023 00:05	03-Sep-2023 00:25	00:20	0	750	0.000	1.021	56899	73429	i) During antecedent condition, 220kV Saranath(UP)-Gazipur(UP) Ckt was opened from Saranath(UP) end due to overloading of ICTs at Saranath(UP). ii) As reported, at 00:05 hrs, 400/220kV 500MVA ICT-1 at Rasra(UP) tripped due to overloading. iii) Since 220kV Saranath(UP)-Gazipur(UP) Ckt was already open, with the tripping of 400/220kV 500MVA ICT-1 at Rasra(UP), major load of Rasra and Gazipur complex was fed by Gorakhpur(UP). iv) Due to this, SPS operated due to overloading of 400/220kV ICTs (1*500MVA, 1*315MVA and 1*260MVA) at 400/220kV Gorakhpur-1(UP) and 132kV Gorakhpur-new(UP)-Maharajganj(CT) Ckt, 132kV Gorakhpur-new(UP)-Kasaya(CT) Ckt, 220kV Gorakhpur-1(UP)-Deoria(UP) Ckt, 132kV Gorakhpur-new(UP)-Mohadpur(UP) Ckt and 220kV Gorakhpur-1(UP)-Gorakhpur-2(UP) Ckt-2 tripped. (220kV Gorakhpur-1(UP)-Gorakhpur-2(UP) Ckt-1 should also have tripped due to SPS operation at Gorakhpur-1(UP), but it didn't trip. Exact reason need to be analysed) v) As per SCADA SOE, 220kV Rasra(UP)-Rasra-2(UP) Ckt also tripped during the same time. (Exact reason yet to be shared) vi) As per PMU at Lucknow(PG), no fault is observed in the system. vii) As per SCADA, change in demand of approx. 735MW is observed in UP control area. But, as reported by SLDC-UP, load loss of approx. 750MW occurred in UP control area. viii) As reported, at 00:07 hrs, 220kV Rasra-2(UP)-Deoria(UP) Ckt tripped due to broken jumper. ix) As per SCADA SOE, 220kV Rasra(UP)-Rasra-2(UP) Ckt also tripped during the same time. x) Complete blackout occurred at 220/132kV Rasra-2(UP) S/c.	1) 400/220kV 500MVA ICT-1 at Rasra(UP) 2) 132kV Gorakhpur-new(UP)-Maharajganj(CT) Ckt 3) 132kV Gorakhpur-new(UP)-Kasaya(CT) Ckt 4) 220kV Gorakhpur-1(UP)-Deoria(UP) Ckt 5) 132kV Gorakhpur-new(UP)-Mohadpur(UP) Ckt 6) 220kV Gorakhpur-1(UP)-Gorakhpur-2(UP) Ckt-2 7) 220kV Rasra(UP)-Deoria(UP) Ckt
2	GI-2	Uttar Pradesh	03-Sep-2023 00:12	03-Sep-2023 00:32	00:20	0	380	0.000	0.527	56588	72118	i) At 00:07 hrs, 220kV Saranath(UP)-Gazipur(UP) Ckt was again charged from Saranath(UP) end due to tripping of 400/220kV 500MVA ICT-1 at Rasra(UP). (Previously 220kV Saranath(UP)-Gazipur(UP) Ckt was opened from Saranath(UP) end due to overloading of ICTs at Saranath(UP) at 00:05 hrs) ii) Since 220kV Rasra(UP)-Deoria(UP) Ckt and 400/220kV 500MVA ICT-1 at Rasra(UP) already tripped, load of Rasra & Gazipur complex was fed by Saranath(UP). iii) Due to this, at 00:12 hrs, 400/220kV 315MVA ICT-4 at Saranath(UP) tripped due to overloading. ICT-4 tripped on O/C protection operation before SPS operation. O/C setting of ICT and settings of SPS need to be reviewed. iv) At the same time, SPS also operated due to overloading of 400/220kV ICTs (3*315MVA and 1*500MVA; among these ICT-4 tripped already) at 400/220/132kV Saranath(UP) and 132 kV Saranath(UP)-Saidpur(UP) Ckt, 220kV Saranath(UP)-Azamgarh(UP) Ckt, 220kV Saranath(UP)-Harhua(UP) Ckt and 220kV Saranath(UP)-Gazipur(UP) Ckt tripped. v) As per PMU at Lucknow(PG), no fault is observed in the system. vi) As per SCADA, change in demand of approx. 470MW is observed in UP control area. But, as reported by SLDC-UP, load loss of approx. 380MW occurred in UP control area.	1) 400/220kV 315MVA ICT-4 at Saranath(UP) 2) 132 kV Saranath(UP)-Saidpur(UP) Ckt 3) 220kV Saranath(UP)-Azamgarh(UP) Ckt 4) 220kV Saranath(UP)-Harhua(UP) Ckt 5) 220kV Saranath(UP)-Gazipur(UP) Ckt
3	GD-1	Rajasthan	04-Sep-2023 12:37	04-Sep-2023 13:13	00:36	0	585	0.000	0.732	67572	79890	i) 220/132kV Debari(RS) has connectivity from 220kV Amber(1) and 400/220kV Chittorgarh(RS). ii) During antecedent condition, 187MW was coming to 220/132kV Amber(RS) through 220kV Amber(RS)-Kankrol(PG) Ckt and 121MW was going out from 220/132kV Amber(RS) through 220kV Amber(RS)-Debari(RS) Ckt and rest of the power was flowing through 220/132kV Amber(RS) CT-1 & 2 at Amber(RS) feeding 132kV feeders. At 400/220kV Chittorgarh(RS) 400/220kV 315MVA ICT-1&2 were carrying approx. 266MW each. iii) As reported, at 12:37hrs, 220 kV Amber(RS)-Kankrol(PG) (RS) Ckt tripped due to O/C E/F relay operation at Amber(RS) end. (Exact reason and location of fault yet to be shared) iv) As per PMU at Kankrol(PG), B-N phase to earth fault is observed with delayed fault clearance time of 130ms. v) Due to loss of supply, complete blackout occurred at 220/132kV Amber(RS). vi) With this, only source left for Debari was 400/220kV Chittorgarh. Loading of 400/220kV 315 MVA ICT 1 & 2 at Chittorgarh(RS) increased further and then both the ICTs tripped due to overloading. (Exact value of increase in loading is yet to be received from Rajasthan). vii) As per SCADA, change in demand of approx. 585MW is observed in Rajasthan control area.	1) 220 kV Amber(RS)-Kankrol(PG) (RS) Ckt 2) 400/220 kV 315 MVA ICT 1 at Chittorgarh(RS) 3) 400/220 kV 315 MVA ICT 2 at Chittorgarh(RS)
4	GI-1	Uttar Pradesh	05-Sep-2023 09:56	07-Sep-2023 10:51	00:55	187	0	0.293	0.000	63839	76167	i) During antecedent condition, 210 MW Unchahar III TPS - UNIT 1 (carrying ~187MW), 210 MW Unchahar II TPS - UNIT 1 (was going under shutdown) and 220kV feeders to Kanpur (k1t & III) were connected to 220kV Bus-3. Rest of the elements were connected to other 220kV buses. ii) As reported, at 09:56hrs, while taking shutdown of 210 MW Unchahar II TPS - UNIT 1 on boiler tube leakage, when generator CB was opened, Y-ph pole of the breaker didn't open. iii) Due to this, pole discrepancy relay operated but breaker didn't not open and remained stuck in closed position. iv) Further, manual tripping command was initiated to trip the breaker but as Y-ph pole of the breaker was in stuck condition, LBB of the generator breaker operated. v) Due to LBB operation, all the elements connected at 220kV Bus-3 i.e., 210 MW Unchahar II TPS - UNIT 1 and 220kV feeders to Kanpur (k1t & III) tripped. vi) As per PMU at Kanpur(PG), no fault in system is observed. vii) As per SCADA, generation loss of approx. 187MW at Unchahar TPS occurred.	1) 220 kV Kanpur(PG)-Unchahar(NT) (PG) Ckt-1 2) 220 kV Kanpur(PG)-Unchahar(NT) (PG) Ckt-3 3) 210 MW Unchahar II TPS - UNIT 1 4) 210 MW Unchahar II TPS - UNIT 1
5	GI-2	Uttar Pradesh	05-Sep-2023 12:50	05-Sep-2023 14:30	01:40	0	0	0.000	0.000	67091	78966	i) During antecedent condition, 765 kV Obra_C_TPS-Unnao (UP) ckt and 765 kV Anpara_C(AN)-Unnao(UP) (UP) Ckt were carrying approx. 840MW & 913MW respectively. ii) As reported, at 12:50 hrs, 765 kV Obra_C_TPS-Unnao (UP) ckt tripped on B-N phase to earth fault, fault was in 2-1(148km) from Unnao end. At the same time, 765 kV Anpara_C(AN)-Unnao(UP) (UP) Ckt also tripped on Tee differential protection operation at Unnao end. iii) As per PMU at Unnao(PG), B-N phase to earth fault with no A/R operation is observed. iv) As per DR of 765 kV Obra_C_TPS-Unnao (UP) ckt at Unnao end, B-N fault in C1 with no A/R operation at Unnao end and unsuccessful A/R operation at Obra_C end is observed. v) With the tripping of aforementioned 765kV lines, MW loading of 765kV Anpara_C-Obra_B ckt increased to ~947MW. vi) As a remedial actions, units of Anpara-A,B,C&D thermal plants were back down to technical minimum. Line loading in the complex came within safe limit by 13:20hrs. vii) As reported and as per SCADA data, generation backdown of approx. 1240MW at Anpara generation complex occurred in UP control area within 45minutes.	1) 765 kV Anpara_C(AN)-Unnao(UP) (UP) Ckt-1 2) 765 kV Obra_C_TPS-Unnao (UP) ckt
6	GD-1	HP	06-Sep-2023 06:44	06-Sep-2023 06:59	00:15	40	150	0.079	0.219	50371	68491	i) As reported, at 06:44 hrs, 220 kV Kunihar-Baddi ckt-1&2 tripped on over current earth fault protection operation. (Exact reason and location of fault yet to be shared) ii) At the same time, 220 kV Jeori-Kunihar(HP) Ckt, 220 kV Kunihar-Pinjore(HP) Ckt also tripped on overvoltage. iii) With the tripping of aforementioned elements load of 220/132kV Kunihar(HP) got affected. iv) As per PMU, 8-ph fault converted into three phase fault with delayed clearance in 800ms is observed. v) As per SCADA, change in demand of approx. 150MW in HP control area and HP hydro generation loss of approx. 40MW (Bhabha HEP) is observed. vi) Further at 07:22 hrs, while restoration again multiple elements tripping occurred at Kunihar S/s and 220/132kV Kunihar S/s became dead. vii) As per PMU & DR, no fault was in system at 07:22hrs. viii) As per SCADA, change in demand of approx. 250MW in HP control area and is observed at 07:22hrs.	1) 220 kV Wangtoo-Bhabha-Kunihar(HP) ckt (Connection) 2) 220 kV Jeori-Kunihar(HP) Ckt 3) 220 kV Baddi-Kunihar(HP) Ckt-1 4) 220 kV Baddi-Kunihar(HP) Ckt-2 5) 220/132kV ICT-1 at Kunihar(HP) 6) 220/132kV ICT-2 at Kunihar(HP) 7) 220/132kV ICT-3 at Kunihar(HP)
7	GD-1	Uttar Pradesh	06-Sep-2023 01:48	06-Sep-2023 02:43	00:55	0	190	0.000	0.174	52124	74681	i) 220/132kV Nanauta(UP) S/s has double main bus scheme at both 220 & 132 kV level. There are three (03) 220kV lines connected at 220kV Nanauta(UP) i.e. 220kV lines to Shaharanpur(PG), Badhalikan(UP) & Shami(UP). ii) During antecedent condition, 220kV lines to Shaharanpur(PG), Badhalikan(UP) & Shami(UP) were carrying 100MW (towards Nanauta), 43MW (towards Nanauta) and 20MW (towards Shami) respectively. iii) As reported, at 01:48 hrs, Y-N phase to earth fault occurred on 220 kV Nanauta-Badhalikan (UP) Ckt, fault was at ~22.4km from Badhalikan end. On this fault, distance protection at Nanauta end operated however, line CB of Badhalikan line at Nanauta end didn't open and remained stuck. iv) Due to this, LBB protection of line CB at Nanauta end of Badhalikan ckt operated. All three (03) 220kV lines connected at 220kV Nanauta(UP) tripped and 220/132kV Nanauta(UP) became dead. v) As per PMU at Saharanpur(PG), Y-N phase to earth fault with fault with delayed clearance in 320ms is observed. vi) As per SCADA, change in demand of approx. 115MW is observed in UP control area. As reported by SLDC-UP, load loss of approx. 130MW occurred in UP control area.	1) 220 kV Nanauta-Badhalikan (UP) Ckt 2) 220 kV Nanauta(UP)-Saharanpur(PG) (UP) Ckt 3) 220 kV Nanauta-Shami (UP) Ckt 4) 220/132kV 200MVA ICT-1 at Nanauta(UP) 5) 220/132kV 200MVA ICT-1 at Nanauta(UP)
8	GI-2	Uttar Pradesh	07-Sep-2023 12:37	07-Sep-2023 13:35	00:58	282	0	0.453	0.000	62557	79493	i) 400/220kV Rosa(UP) S/s has double main transfer bus scheme as 400 & 220kV level. ii) During antecedent condition, 300 MW Rosa TPS - UNIT-2 (connected at 220kV side) was carrying approx. 282MW and 400/220kV 200MVA ICT-1&2 were carrying approx. 65MW each. iii) As reported, at 12:37 hrs, R-Y fault occurred on 220kV Rosa-Badaun(UP) Ckt-2. Rosa end distance protection sensed fault in 2-2 (93km). Line CB at Rosa end didn't open and LBB also failed to operate. iv) Further, adjacent 220kV feeders at Rosa and tripped from remote end and 400/220kV 200MVA ICTs at Rosa tripped on O/C E/F protection operation. v) At the same time, 300 MW Rosa TPS - UNIT 2 tripped on standby earth fault protection operation and 220kV Shahjahanpur(PG)-Shahjahanpur(UP) Ckt also tripped from Shahjahanpur(UP) end only. (as per SOE). vi) As per PMU at Bareilly(PG), R-Y phase to phase fault with delayed clearance in 120ms is observed. vii) Generation loss of approx. 300MW occurred due to tripping of 300 MW Rosa TPS - UNIT-2.	1) 400/220kV 200MVA ICT-1 at Rosa(UP) 2) 400/220kV 200MVA ICT-2 at Rosa(UP) 3) 300 MW Rosa TPS - UNIT 2 4) 220kV Shahjahanpur(UP)-Rosa TPS(UP) Ckt-1 5) 220kV Shahjahanpur(UP)-Rosa TPS(UP) Ckt-2 6) 220kV Rosa-Badaun(UP) Ckt-1 7) 220kV Rosa-Badaun(UP) Ckt-2 8) 220kV Rosa-Dohra(UP) Ckt-1 9) 220kV Shahjahanpur(PG)-Shahjahanpur(UP) Ckt

**Details of Grid Events during the Month of September 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 (H: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	GI-1	Punjab	08-Sep-2023 10:21	08-Sep-23 11:09	00:48	280	70	0.484	0.096	57809	72607	i) During antecedent condition, 210 MW Guru Gobind Singh TPS (Ropar) - UNIT 4 (carrying ~162MW) & UNIT 5 (carrying ~112MW) and 220kV feeders to Kharar & Mohali were connected to 220kV Bus-1 section-III. Rest of the elements were connected to Bus-1 section-I&II and Bus-2. ii) On 08th sept, 2023, Unit-6 at GGSSTP was in light up condition after attending boiler tube leakage. At 10:21hrs, generator breaker was closed to synchronize the unit however, R-ph pole of the breaker didn't close. iii) Due to this, pole discrepancy relay operated but this time B-ph pole of the breaker didn't open and remained stuck in closed position. iv) Further, manual tripping command was initiated to trip the breaker but as B-ph pole of the breaker was in stuck condition, I&II of the generator breaker operated. v) Due to I&II operation, all the elements connected at 220kV Bus-1 section-III i.e., 210 MW Guru Gobind Singh TPS (Ropar) - UNIT 4 & 5 and 220kV feeders to Kharar & Mohali tripped. vi) As per PMU at Jalandhar(PG), no fault in system is observed. vii) As per SCADA, generation loss of approx. 280MW at Ropar GGSSTP and load loss of approx. 70MW in Punjab control area.	1) 210 MW Guru Gobind Singh TPS (Ropar) - UNIT 4 2) 210 MW Guru Gobind Singh TPS (Ropar) - UNIT 5 3) 220kV GGSSTP-Kharar ckt 4) 220kV GGSSTP-Mohali ckt
10	GI-2	Uttar Pradesh	09-Sep-2023 15:24	09-Sep-2023 19:30	04:06	500	0	0.938	0.000	53328	66254	i) During antecedent condition, 490MW Unit-1&2 at Dadri Thermal Stage-2(NTPC) were generating approx. 256MW & 254MW respectively. Supply to FGD (Flue gas desulphurization) and PA fan was coming from common 11kV bus. ii) As reported at 15:24hrs, fault occurred in 11kV feeder to FGD (Flue gas desulphurization). This feeder tripped with the delay of approx. 350msec on O/C E/F protection operation. iii) As per communication with Dadri TPS, during the fault, voltage of 11kV bus dropped to ~20kV and as soon as fault cleared, motor of PA fan drew current in the range of ~6.5kA. Further, PA fan motor tripped on O/C which further led to the tripping of ml and then units tripped on flame failure. iv) As per PMU at Maharanihag(PG), no fault in system is observed. v) As per SCADA, change in generation of approx. 500MW at Dadri Thermal Stage-2(NTPC) is observed.	1) 490 MW Dadri Thermal stage-2 - UNIT 1 2) 490 MW Dadri Thermal stage-2 - UNIT 2
11	GD-1	Delhi	10-Sep-2023 17:08	10-Sep-2023 17:13	00:05	0	125	0.000	0.221	46035	56475	i) 220kV Badapur(DTL) has double main single breaker bus scheme. It has source from 220 kV Tuglakabad-Badapur (DTL) Ckt-1&2 and 220 kV Ballabhgarh(BB) Badapur (DTL) Ckt-1&2. ii) During antecedent condition, part load of 220kV Okhla and 220kV Sarita Vihar was fed from 220kV Badapur(DTL) via 220kV Badapur-Okhla ckt-1&2 and 220kV Badapur-Sarita Vihar ckt-1&2 respectively. iii) As reported, at 17:08hrs, R-ph conductor near wetpav of 220 kV Ballabhgarh(BB)-Badapur (DTL) Ckt-2 at Badapur end damaged and created R-N fault. iv) As per DR of Ballabhgarh(BB) end, R-N fault followed by Y-N & B-N fault with total fault clearance time of ~800msec is observed. Fault distance recorded at Ballabhgar end was ~24.7km. v) As reported, on this fault, 220 kV Ballabhgar(BB)-Badapur (DTL) Ckt-1&2 tripped from Ballabhgar(BB) end only, 220 kV Tuglakabad-Badapur (DTL) Ckt-1&2 tripped from Badapur end in 2-4 and 220kV Badapur-Okhla ckt-1&2 tripped on O/C E/F protection operation. vi) As per PMU at Ballabhgar(PG), R-N fault which later converted into three phase fault with fault clearance time of ~1240msec is observed. vii) With the tripping of aforementioned lines, 220kV Badapur S/s became dead and load feeding from Badapur to 220kV Okhla and 220kV Sarita Vihar affected. viii) As reported by SLDC Okhla, load loss of approx. 125MW occurred in Delhi control area. ix) At 17:13 hrs, 220kV bus coupler breaker at Sarita Vihar S/s and Okhla S/s was closed and load was normalized.	1) 220 kV Tuglakabad-Badapur (DTL) Ckt-1 2) 220 kV Tuglakabad-Badapur (DTL) Ckt-2 3) 220 kV Ballabhgarh(BB)-Badapur (DTL) Ckt-1 4) 220 kV Ballabhgarh(BB)-Badapur (DTL) Ckt-2 5) 220kV Badapur-Okhla ckt-1 6) 220kV Badapur-Okhla ckt-2
12	GD-1	Rajasthan	10-Sep-2023 14:28	10-Sep-2023 17:45	03:17	220	0	0.419	0.000	52504	62000	i) During antecedent condition, total MW generation of MSUPL RE station was approx. 220MW and it was evacuated through 220 kV Bhadla2(PG)-MSUPL (MSUPL) Ckt. ii) As reported, at 14:28hrs, 220 kV Bhadla2(PG)-MSUPL (MSUPL) Ckt tripped on B-N phase to earth fault. iii) As per PMU at Bhadla2(PG), B-N fault with unsuccessful A/R operation is observed. iv) As per SCADA, generation loss of approx. 220MW at MSUPL RE station is observed.	1) 220 kV Seora_SL_BHD2_PG (Mega_SuryaUrja)-Bhadla_2 (PG) (Mega_SuryaUrja) Ckt-1
13	GD-1	Uttar Pradesh	11-Sep-2023 05:36	11-Sep-2023 06:36	01:00	0	465	0.000	0.817	41261	50825	i) 220/132kV Azamgarh2(LUP) S/s has double main transfer bus scheme at both 220 & 132 kV level. ii) As reported, at 05:36 hrs, 220kV Bus-bar protection operated at Azamgarh2(LUP) which resulted into tripping of all the elements connected to 220kV Bus-1 & 2 at Azamgarh2(LUP). (Exact reason of busbar protection operation yet to be shared) iii) Due to loss of supply at 132kV level of Azamgarh2(LUP), both 132kV Bus-1 & 2 at Azamgarh2(LUP) also became dead which resulted into total blackout of 220/132kV Azamgarh2(LUP) S/s. iv) As per PMU at Varanasi(PG), Y-N phase to earth fault with fault clearance time of 80ms is observed. v) As per SCADA, change in demand of approx. 465MW is observed in UP control area.	1) 400/220 kV 500 MVA ICT-1 at Azamgarh1(LUP) 2) 400/220 kV 500 MVA ICT-2 at Azamgarh1(LUP) 3) 220/132 kV 160 MVA ICT-1 at Azamgarh2(LUP) 4) 220/132 kV 200 MVA ICT-2 at Azamgarh2(LUP) 5) 220/132 kV 160 MVA ICT-3 at Azamgarh2(LUP) 6) 220kV Azamgarh2-Haraura(LUP) Ckt 7) 220kV Azamgarh2-Jaunpur(LUP) Ckt
14	GD-1	Uttar Pradesh	12-Sep-2023 06:43	12-Sep-2023 07:15	00:32	0	125	0.000	0.207	47396	60478	i) 220/132kV Sikandra (Agra2) (UP) S/s has double main transfer bus scheme at both 220 & 132 kV level. However, during antecedent condition, all the elements were connected to 220kV Bus-1 only. 220kV Bus-2 and transfer were not in service condition. ii) As reported, at 06:43 hrs, 220kV Agra1(UP)-Agra2(UP) Ckt-2 tripped due to Y-ph and B-ph CT blast. Fault distance was 0.7 km from Sikandra (Agra2) (UP). iii) At the same time, 220kV bus-bar protection operated at Sikandra (Agra2) (UP) which resulted into tripping of all the elements connected to 220kV Bus-1 at Sikandra (Agra2) (UP). iv) As per DR of 220kV Busbar at Sikandra (Agra2) (UP), B-N phase to earth fault with fault current of ~13.87kA followed by Y-N phase to earth fault with fault current of ~13.96kA is observed. v) As per PMU at Agra(PG), B-N phase to earth fault followed by Y-N phase to earth fault with fault clearance time of 80ms is observed. vi) Due to tripping of 220kV Bus-1, supply to 132kV side of Sikandra (Agra2) (UP) also lost and 132kV Bus-1 & 2 at Sikandra (Agra2) (UP) also became dead which resulted into total blackout of 220/132kV Sikandra (Agra2) (UP) S/s. (all 132kV feeders at Agra2(UP) opened manually) vii) As per SCADA, change in demand of approx. 125MW is observed in UP control area.	1) 220 kV Auraiya(MT)-Agra2(UP) (PG) Ckt-1 2) 220 kV Auraiya(MT)-Agra2(UP) (PG) Ckt-2 3) 220kV Agra1(UP)-Agra2(UP) Ckt-1 4) 220kV Agra1(UP)-Agra2(UP) Ckt-2 5) 220kV Agra2(UP)-Kirawali Ckt 6) 220/132kV 160MVA ICT-1 at Agra2(UP) 7) 220/132kV 160MVA ICT-2 at Agra2(UP) 8) 220/132kV 200MVA ICT-3 at Agra2(UP)
15	GI-2	Uttar Pradesh	13-Sep-2023 07:50	13-Sep-2023 08:48	00:58	308	124	0.625	0.204	49310	60833	i) During antecedent condition, 200 MW Obra TPS - UNIT 12 was running through station transformer and generating approx. 124MW. ii) As reported, at 07:50 hrs, 400/220 kV 315 MVA ICT-1 at Obra-B(LUP) tripped on R-ph differential protection operation due to blast of 220kV R phase bushing of transformer. Firefighting system installed to protect ICT from fire, operated automatically and protected the complete transformer from the spreading of fire and further damage to other equipment and ICT itself. iii) At the same time, 400/220 kV 315 MVA ICT-2 and 240 MVA ICT-3 at Obra-B(LUP) also tripped on over-current earth-fault protection operation. iv) During the same time, "SPS related to overloading of remaining ICT after tripping of any ICT at Obra TPS" operated and 220kV Obra-A(LUP)-Rewa Road(UP) Ckt-1 & 2 and 220kV Obra-A(LUP)-Mirzapur(UP) Ckt tripped. v) As per PMU at Allahabad(PG), R-N phase to earth fault with fault clearance time of 80ms is observed. vi) As per SCADA, change in demand of approx. 345MW is observed in UP control area. vii) As reported by SLDC-UP, load loss of approx. 308MW is observed in UP control area and generation loss of approx. 124MW is observed at Obra-B(LUP).	1) 400/220 kV 315 MVA ICT-1 at Obra-B(LUP) 2) 400/220 kV 315 MVA ICT-2 at Obra-B(LUP) 3) 400/220 kV 240 MVA ICT-3 at Obra-B(LUP) 4) 200 MW Obra TPS - UNIT 12 5) 220kV Obra-A(LUP)-Rewa Road(UP) Ckt-1 6) 220kV Obra-A(LUP)-Rewa Road(UP) Ckt-2 7) 220kV Obra-A(LUP)-Mirzapur(UP) Ckt
16	GD-1	Uttarakhand	14-Sep-2023 17:19	14-Sep-2023 18:08	00:49	108	0	0.200	0.000	53939	67824	i) During antecedent condition, 33MW Unit-1, 2 and 3 at Singoli Bhatwari HEP were generating approx. 36MW each respectively. ii) As reported, at 12:24 hrs, 220 kV Singoli Bhatwari(Singoli(TUHP))-Srinagar(LK) (PTCU) Ckt-1 & 2 tripped on Y-B-N double phase to ground fault with fault distance of 70.81km and 71.33km from Srinagar(LK) end respectively. As per DR, fault sensed in zone-1 at both the ends for both the lines; DT received at Singoli Bhatwari end. iii) The power generated by 33MW Unit-1, 2 and 3 at Singoli Bhatwari HEP were evacuating through 220 kV Singoli Bhatwari(Singoli(TUHP))-Srinagar(LK) (PTCU) Ckt-1 & 2. Hence, due to tripping of both 220 kV Singoli Bhatwari(Singoli(TUHP))-Srinagar(LK) (PTCU) Ckt-1 & 2, 33MW Unit-1, 2 and 3 at Singoli Bhatwari HEP tripped due to loss of evacuation path and blackout occurred at 220kV Singoli Bhatwari HEP. iv) As per PMU at Musaffarnagar(UP), Y-B-N double phase to ground fault is observed with fault clearing time of 80 ms. v) As per SCADA, generation loss of approx. 108MW at Singoli Bhatwari HEP is observed.	1) 220 kV Singoli Bhatwari (Singoli(TUHP))-Srinagar(LK) (PTCU) Ckt-1 2) 220 kV Singoli Bhatwari (Singoli(TUHP))-Srinagar(LK) (PTCU) Ckt-2 3) 33MW Unit-1 at Singoli Bhatwari HEP 4) 33MW Unit-2 at Singoli Bhatwari HEP 5) 33MW Unit-3 at Singoli Bhatwari HEP

**Details of Grid Events during the Month of September 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 (H: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)		
17	GI-1	Jammu & Kashmir	14-Sep-2023 14:58	14-Sep-2023 16:27	01:29	0	145	0.000	0.198	60432	73270	i) 220/132kV Ziankote S/s have two bus at 220kV side i.e., main bus & reserve bus. ii) During antecedent condition, 220kV Ziankote was operating in bus split mode via. 220kV Amargah(INDIGRID)-Ziankote(JK) D/C (carrying 126MW each) was feeding Ziankote load. 220kV Wagora-Ziankote(JK) Ckt-2 (carrying 84MW) was connected at other bus and feeding Alusteng. 220kV Wagora-Ziankote(JK) Ckt-1 was not in service. iii) As reported, at 14:58 hrs, 220 KV Amargah(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2 tripped from Ziankote(JK) end only on B-N phase to earth fault with fault current of 1.043kA from Ziankote(JK) end. (Exact reason of fault yet to be shared) iv) As per PMU at Amargah(PG), B-N phase to earth fault is observed with delayed fault clearing time of 1200ms. v) As per SCADA, change in demand of approx. 145MW is observed in J&K control area.	1) 220 KV Amargah (INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2
18	GD-1	Uttarakhand	16-Sep-2023 18:45	16-Sep-2023 19:52	01:07	140	0	0.289	0.000	48425	61120	i) During antecedent condition, 70 MW Unit-2 & 4 at Dhauilganga(NH) and 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 were connected to 220kV Bus-2 at Dhauilganga (NH) and only 70 MW Unit-2 & 4 at Dhauilganga(NH) was running and generating approx. 70MW each and total MW generation of 140MW was evacuating through 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 only. 220kV Bus-1 at Dhauilganga (NH) was not in service. ii) As reported, at 18:45hrs, bus bar protection operated at 220kV Bus-2 at Dhauilganga(NH) during synchronization of 70 MW Unit-3 at Dhauilganga(NH) as there was fault in Y-ph or CB (SO2 found in CB chamber) and 70 MW Unit-2 & 4 at Dhauilganga(NH) and 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 tripped. iii) As per PMU at 400kV Jauljivi(PG), Y-N phase to ground fault is observed in the system with fault clearance time of 80ms. iv) As per SCADA, generation loss of approx. 140MW is observed at Dhauilganga(NH). v) 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 and 70 MW Unit-4 at Dhauilganga(NH) revived at 19:52 hrs and 20:03 hrs respectively.	1) 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 2) 70 MW Unit-2 at Dhauilganga(NH) 3) 70 MW Unit-4 at Dhauilganga(NH)
19	GD-1	Uttarakhand	16-Sep-2023 21:00	20-Sep-2023 23:06	02:06	68	0	0.140	0.000	48641	64129	i) During antecedent condition, 70 MW Unit- 2 & 4 at Dhauilganga(NH) and 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 were connected to 220kV Bus-2 at Dhauilganga (NH) and only 70 MW Unit- 4 at Dhauilganga(NH) was running and generating approx. 68MW and total MW generation of 68MW was evacuating through 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 only. 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-1 was not in service. ii) As reported, at 21:00 hrs, bus bar protection operated at 220kV Bus-2 at Dhauilganga(NH) (Exact reason of busbar protection operation yet to be shared) and 70 MW Unit- 4 at Dhauilganga(NH) and 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 tripped. iii) As per PMU at 400kV Jauljivi(PG), Y-N phase to ground fault is observed in the system with fault clearance time of 120ms. iv) As per SCADA, generation loss of approx. 68MW is observed at Dhauilganga(NH). v) 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-1 revived at 23:06 hrs on 20th September, 2023.	1) 220 KV Jauljivi (PG)-Dhauilganga(NH) (PG) Ckt-2 2) 70 MW Unit-4 at Dhauilganga(NH)
20	GI-1	Jammu & Kashmir	16-Sep-2023 17:36	16-Sep-2023 22:16	04:40	0	350	0.000	0.417	47735	57150	i) 220/132kV Ziankote S/s have two bus at 220kV side i.e., main bus & reserve bus. ii) During antecedent condition, 220kV Ziankote was operating in bus split mode via. 220kV Amargah(INDIGRID)-Ziankote(JK) D/C (carrying 117MW each) was feeding Ziankote load. 220kV Wagora-Ziankote(JK) Ckt-2 (carrying 133MW) was connected at other bus and feeding Alusteng. 220kV Wagora-Ziankote(JK) Ckt-1 was not in service. iii) As reported, at 17:36 hrs, 220 KV Amargah(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 tripped on Y-B phase to phase fault with fault current of Iy=3.714kA and Ib=3.402kA and fault distance of 17.89km from Amargah end. (Exact reason of fault yet to be shared) iv) At the same time, 220 KV Amargah(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2 also tripped on Y-B phase to phase fault with fault current of Iy=3.733kA and Ib=3.401kA and fault distance of 17.91km from Amargah end. (Exact reason of fault yet to be shared) v) As per PMU at Amargah(PG), Y-B phase to phase fault is observed with delayed fault clearing time of 120ms. vi) As per SCADA, change in demand of approx. 250MW is observed in J&K control area.	1) 220 KV Amargah(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 2) 220 KV Amargah(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2
21	GD-1	Rajasthan	17-Sep-2023 10:34	17-Sep-2023 11:32	02:58	205	0	0.448	0.000	45770	49801	i) During antecedent condition, 400/33 kV 330 MVA ICT-1 at AYANA1 SL_BKN_PG (ARPIPL) was carrying total MW generation of Ayana Solar which was approx. 205MW. ii) As reported, at 10:34hrs, 400/33 kV 330 MVA ICT-1 at AYANA1 SL_BKN_PG (ARPIPL) tripped on over current protection operation due to flashover on LV-02 isolator clamps and IPS tube connector. iii) As per PMU at Ayana(PS), R-Y phase to phase fault converted to 3-phase fault is observed with delayed fault clearance time of 600ms. iv) As per SCADA, generation loss of approx. 205MW is observed in Ayana Solar.	1) 400/33 kV 330 MVA ICT-1 at AYANA1 SL_BKN_PG (ARPIPL)
22	GD-1	Rajasthan	17-Sep-2023 00:51	17-Sep-2023 02:01	01:10	110	0	0.251	0.000	43865	60246	i) 220/132kV Dausa(RS) has double main and transfer bus scheme at both 220kV and 132kV level. ii) As reported, at 00:51hrs, R and Y phase CT blast occurred at latest end of 220 KV Labot(RS)-Dausa(RS) (PG) Ckt. iii) At the same time, bus bar protection operated at Dausa(RS) and all the elements connected to both 220kV Bus-1 and 2 at Dausa(RS) tripped. (Exact reason bus bar protection operation at Dausa(RS) yet to be shared) iv) Due to loss of supply to 132kV level also 220/132kV Dausa(RS) S/s became dead. v) As per PMU at Basal(PG), R-N phase to earth fault with delayed fault clearance time of 200ms followed by Y-N phase to earth fault with fault clearance time of 120ms are observed. vi) As per SCADA, change in demand of approx. 110MW is observed in Rajasthan control area.	1) 220 KV Labot(RS)-Dausa(RS) (PG) Ckt 2) 220 KV Basal(PG)-Dausa(RS) (PG) Ckt-1 3) 220 KV Basal(PG)-Dausa(RS) (PG) Ckt-2 4) 220 KV Sawaimahapur(RS)-Dausa(RS) (PG) Ckt
23	GD-1	Uttar Pradesh	18-Sep-2023 13:53	18-Sep-2023 14:23	00:30	0	325	0.000	0.572	49556	56847	i) During antecedent condition, 400/220 KV 315 MVA ICT-1 at Obra-B(UP), 220kV Obra-A(UP)-Rewa Road(UP) Ckt-1 & 2 and 220kV Obra-A(UP)-Mirzapur(UP) Ckt were not in service. 220kV Obra-A(UP)-Robertganj(UP) Ckt and 220kV Obra-A(UP)-Sahapur(UP) Ckt were fed radially through 400/220 KV 315 MVA ICT-2 and 240 MVA ICT-3 at Obra-B(UP). Active power loading of 400/220 KV 315 MVA ICT-2 and 240 MVA ICT-3 at Obra-B(UP) were approx. 202 MW and 157MW respectively. 200 MW Obra TPS - UNIT 12 was running through station transformer and generating approx. 120MW. ii) As reported, at 13:53 hrs, 400/220 KV 240 MVA ICT-3 at Obra-B(UP) tripped on over-current earth-fault protection operation. (Exact reason yet to be shared). iii) Due to tripping of 400/220 KV 240 MVA ICT-3 at Obra-B(UP), 400/220 KV 315 MVA ICT-2 at Obra-B(UP) got overloaded and tripped on directional over-current protection operation. iv) As 220kV Obra-A(UP)-Robertganj(UP) Ckt and 220kV Obra-A(UP)-Sahapur(UP) Ckt were fed radially through 400/220 KV 315 MVA ICT-2 and 240 MVA ICT-3 at Obra-B(UP), 220/132kV Obra-A(UP) S/s became dead due to tripping of both the ICTs and loss of supply. v) During the same time, 200 MW Obra TPS - UNIT 12 also tripped as station supply failed due to tripping of both the ICTs. vi) As per PMU at Alibahad(PG), R-N phase to earth fault with fault clearance time of 80ms is observed. vii) As per SCADA, change in demand of approx. 325MW is observed in UP control area. viii) As per SCADA, change in generation of approx. 120MW is observed at Obra-B(UP). As reported by SLDC-UP, generation loss of approx. 110MW is observed at Obra-B(UP).	1) 400/220 KV 315 MVA ICT-2 at Obra-B(UP) 2) 400/220 KV 240 MVA ICT-3 at Obra-B(UP) 3) 200 MW Obra TPS - UNIT 12
24	GD-1	Rajasthan	21-Sep-2023 21:14	21-Sep-2023 23:32	02:18	0	190	0.000	0.315	43865	60246	i) 220/132kV Khushkhera(RS) has double main bus scheme at both 220kV and 132kV level. ii) As reported, at 00:51hrs, Y phase CT blast occurred at Khushkhera(RS) end of 220 KV Khushkhera(RS)-Neemrana(PG) Ckt. iii) As per DR at Khushkhera(RS) end of 220 KV Khushkhera(RS)-Neemrana(PG) Ckt, line connected on Y-N phase to earth fault with fault current of ~11.94kA from Khushkhera(RS) end and fault clearing time of ~310ms, fault cleared at Khushkhera(RS) end. iv) At the same time, bus bar protection operated at Khushkhera(RS) and all the elements connected to both 220kV Bus-1 and 2 at Khushkhera(RS) tripped. v) Due to loss of supply to 132kV level also 220/132kV Khushkhera(RS) S/s became dead. vi) As per PMU at Bhiwad(PG), Y-N phase to earth fault converted to R-N double phase to earth fault is observed with delayed fault clearance time of 600ms. vii) As per SCADA, change in demand of approx. 190MW is observed in Rajasthan control area.	1) 220 KV Khushkhera(RS)-Neemrana(PG) Ckt 2) 220 KV Khushkhera(RS)-Bhiwad(PG) Ckt 3) 220 KV Khushkhera(RS)-Awar(RS) Ckt 4) 220 KV Khushkhera(RS)-Kishanghar-Bad(RS) Ckt 5) 220/132kV 160 MVA ICT-1 at Khushkhera(RS) 6) 220/132kV 160 MVA ICT-2 at Khushkhera(RS)
25	GI-1	Delhi	22-Sep-2023 13:38	22-Sep-2023 13:44	00:06	0	125	0.000	0.188	57561	66602	i) 220kV side of 400/220kV Mandaula(PG) has double main & transfer bus scheme and 220/66kV Narela has double main bus scheme. ii) During antecedent condition, 220 KV Mandaula(PG)-Narela(DV) (DTL) Ckt-2 was already under planned shutdown, and load of 220kV Narela S/s was connected through 220 KV Mandaula(PG)-Narela(DV) (DTL) Ckt-1. iii) As reported, at 13:38 hrs, 220 KV Mandaula(PG)-Narela(DV) (DTL) Ckt-1 tripped on R-N phase to ground fault with fault current of 8.89kA and fault distance of 13.21km from Mandaula(PG) end. (Exact reason of fault yet to be shared) iv) As per PMU at Mandaula(PG), R-N phase to earth fault is observed with delayed fault clearing time of 160ms. v) As per SCADA, change in demand of approx. 125 MW is observed in Delhi control area. vi) As reported, load of 220kV Narela S/s was restored at 13:44 hrs through 220kV OSDC Bawana-Narela ckt-1&2.	1) 220 KV Mandaula(PG)-Narela(DV) (DTL) Ckt-1

**Details of Grid Events during the Month of September 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 (H: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)		
26	GI-1	Haryana	23-Sep-2023 10:45	23-Sep-2023 12:11	01:26	0	0	0.000	0.000	55363	58056	i) During antecedent condition, 220 KV Panipat(HV)-Panipat(BB) (HVPNL) Ckt-1, 2, 3 & 4 were carrying approx. 28MW each. ii) As reported by BBMB, at 10:45hrs, 220 KV Panipat(HV)-Panipat(BB) (HVPNL) Ckt-4 tripped on B-N phase to earth fault with fault distance of 7.38 km from Panipat(HV) end. As per DR at Panipat(BB) end, fault sensed in zone-1 at Panipat(BB) end; fault current was "3.92KA from Panipat(BB) and fault clearing time was "55ms. (Exact reason of fault yet to be shared) iii) Due to delay in fault clearance from Panipat(HV) end, 220 KV Panipat(HV)-Panipat(BB) (HVPNL) Ckt-1, 2 & 3 also tripped from Panipat(BB) end only on 2-2/2-3 distance protection operation with fault distance of 56.66km, 38.41 km and 15.31km respectively from Panipat(HV) end. iv) As per DR at Panipat(BB) end, fault sensed in zone-3 for Ckt-1 & 2 and in zone-2 for Ckt-3 at Panipat(BB) end; fault current was "3.92KA, "3.80KA and "3.64KA from Panipat(BB) respectively and fault clearing time was "780ms, "780ms and "380ms respectively. No relay operated at Panipat(HV) end. v) As per PMU at Panipat(BB), Y-N phase to earth fault with delayed clearance of 760mscc is observed. (There is phase sequence issue at BBMB stations that's why Y-N fault is recorded as B-N fault at Panipat(BB)) vi) As per SCADA, no change in demand is observed in Haryana control area.	1) 220 KV Panipat(HV)-Panipat(BB) (HVPNL) Ckt-1 2) 220 KV Panipat(HV)-Panipat(BB) (HVPNL) Ckt-2 3) 220 KV Panipat(HV)-Panipat(BB) (HVPNL) Ckt-3 4) 220 KV Panipat(HV)-Panipat(BB) (HVPNL) Ckt-4
27	GI-2	Haryana	24-Sep-2023 02:21	24-Sep-2023 02:44	02:23	0	0	0.000	0.000	46977	58783	i) During antecedent condition, 800 KV HVDC Kurukshetra(PG) Pole-1, 2, 3 & 4 were carrying 725 MW, 721 MW, 470 MW and 477 MW respectively from Champa to Kurukshetra. Total power order was approx. 2500MW. ii) As reported, at 00:23hrs, 800 KV HVDC Kurukshetra(PG) Pole-01 blocked due to false latching of External Block in Lane-1 Main-1 & Main-2. iii) At the same time, 800 KV HVDC Kurukshetra(PG) Pole-03 also blocked due to protective pole isolation failure in Pole-1 and CAT-B initiation at Champa end. iv) As reported, Pole 1 Lane 1 was put into maintenance to avoid further tripping due to external block until identification of root cause for latching of protection. 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-03
28	GD-1	Delhi	25-Sep-2023 13:27	25-Sep-2023 13:30	00:03	52	275	0.099	0.464	52696	59229	i) During antecedent condition, 220 KV Preet Vihar-Harsh Vihar (DTL) Ckt-1 & 2 were feeding the load of 220kv Ddv nagar, Park Street(part load), I.P. Stn & Rajghat S/s through 220KV Harsh Vihar-Preet Vihar-Patparganj-I.P. Stn-Pragati link. STG at Pragati(DTL) was also connected to this link and was generating approx. 52MW. ii) As reported, at 13:27 hrs, bus bar protection operated at 220KV Bus-1 & 2 at Preet Vihar(DTL) which resulted into tripping of all the elements connected to both the buses and 220/33kV Preet Vihar(DTL) S/s became dead. (Exact reason of bus bar protection operation yet to be shared) iii) Due to tripping of Harsh Vihar-Preet Vihar-Patparganj link the load of 220KV 220KV Ddv nagar, Park Street(part load), I.P. Stn & Rajghat got interrupted. iv) As reported by SLDC-Delhi, generation loss of approx. 52MW occurred due to tripping of STG at Pragati(DTL) during the same time. v) As per PMU at Maharanibagh(PG), no fault is observed in the system. vi) As per SCADA, change in demand of approx. 420MW is observed in Delhi control area. vii) As reported by SLDC-Delhi, load loss of approx. 275MW is observed in Delhi control area. viii) At 13:30 hrs, 220KV Patparganj-Gazipur Ckt was charged and supply was extended to I.P. Stn, rajghat, Pragati & Park Street S/s and load normalized.	1) 220 KV Preet Vihar-Harsh Vihar (DTL) Ckt-1 2) 220 KV Preet Vihar-Harsh Vihar (DTL) Ckt-2 3) 220 KV Preet Vihar-Patparganj (DTL) Ckt-1 4) 220 KV Preet Vihar-Patparganj (DTL) Ckt-2 5) 220/33kV 160MVA ICT-1 at Preet Vihar(DTL) 6) 220/33kV 100MVA ICT-2 at Preet Vihar(DTL) 7) STG at Pragati(DTL)
29	GD-1	Uttar Pradesh	27-Sep-2023 20:09	27-Sep-2023 20:51	00:42	0	300	0.000	0.439	52451	68272	i) 220kV Allahabad Rewaroad(UP) has double main bus scheme and both the buses are connected through bus coupler. ii) During antecedent condition, 220kV Obra-A(UP)-Mirzapur Ckt was under shutdown to avoid overloading of 400/220kV ICTs at Obra-B(UP) and 220kV Mirzapur S/s was radially fed from 220kV Allahabad Rewaroad(UP). As a standby arrangement, 220kV Allahabad Rewaroad (UP)-Obra-A(UP) Ckt-1 was connected with 220kV Obra-A(UP)-Mirzapur Ckt through jumpering. iii) As reported, at 19:14 hrs, 220kV Allahabad Rewaroad (UP)-Obra-A(UP) Ckt-1 (now 220kV Allahabad Rewaroad (UP)-Mirzapur Ckt as a standby arrangement) tripped on R-N phase to earth fault with fault distance of 21.47km from Allahabad Rewaroad(UP); fault sensed in zone-1. iv) After clearance line was tried to be energized at 19:05 hrs. During charging, again R-N phase to earth fault occurred on the line. As reported by SLDC-UP, R-phase jumper was found broken at location no. 457. v) Due to delay in opening of CB at Allahabad Rewaroad(UP) end of 220kV Allahabad Rewaroad (UP)-Obra-A(UP) Ckt-1, LBB protection operated at 220kV Allahabad Rewaroad(UP). vi) Due to isolator contact issue bus tied condition was reflecting and elements connected to both the buses tripped resulting in complete blackout of 220/132/33kV Allahabad Rewaroad(UP) S/s. vii) Load of areas fed from 132kV Minto Park, 132kV Kareli, 132kV Sarai Aqal and 132kV Meja road was affected. 220kV Sirathu and 220kV Allahabad Cantt were getting supply from 220kV Fatehpur(UP). viii) As per PMU at Allahabad(PG), R-N phase to earth fault with delayed fault clearance time of 160ms is observed. ix) As per SCADA, change in demand of approx. 390MW is observed in UP control area. x) As reported by SLDC-UP, load loss of approx. 300MW is observed in UP control area.	1) 220kV Allahabad Rewaroad (UP)-Obra-A(UP) Ckt-1 2) 220kV Allahabad Rewaroad (UP)-Allahabad400(UP) Ckt-1 3) 220kV Allahabad Rewaroad (UP)-Allahabad400(UP) Ckt-2 4) 220kV Allahabad Rewaroad (UP)-Allahabad(PG) Ckt-1 5) 220kV Allahabad Rewaroad (UP)-Allahabad(PG) Ckt-2 6) 220kV Allahabad Rewaroad (UP)-Sirathu Ckt 7) 220kV Allahabad Rewaroad (UP)-Allahabad Cantt Ckt 8) 220kV Allahabad Rewaroad (UP)-Mirzapur Ckt 9) 220/132kV 160MVA ICT-1 at Allahabad Rewaroad(UP) 10) 220/132kV 200MVA ICT-2 at Allahabad Rewaroad(UP) 11) 220/132kV 200MVA ICT-3 at Allahabad Rewaroad(UP)
30	GD-1	Uttar Pradesh	27-Sep-2023 20:25	27-Sep-2023 21:05	00:40	0	570	0.000	0.840	52341	67842	i) During antecedent condition, 220/132kV Allahabad Cantt(UP) & 220/132kV Sirathu(UP) S/s were getting supplies from 220/132kV Fatehpur(UP) in radial mode. ii) As reported, at 20:25 hrs, 220 KV Fatehpur(PG)-Fatehpur(UP) (PG) Ckt-1 tripped on B-N phase to earth fault from Fatehpur(UP) end and auto-reclosed successfully from Fatehpur(PG) end. iii) Again B-N phase to earth fault occurred in 220 KV Fatehpur(PG)-Fatehpur(UP) (PG) Ckt-1 within reclaim time and line finally tripped from Fatehpur(PG) end also. iv) With the tripping of 220 KV Fatehpur(PG)-Fatehpur(UP) (PG) Ckt-1, 220kV Fatehpur(UP)-Sirathu(UP) Ckt and 220kV Fatehpur(UP)-Allahabad Cantt(UP) Ckt started taking power from 220kV Bus-1 at Fatehpur(UP) through back feeding from 220/132kV 200MVA ICT-2 at Fatehpur(UP). v) Due to this, 220/132kV 200MVA ICT-1 at Fatehpur(UP) got overloaded and finally tripped on over-current protection operation causing supply failure of 220kV Fatehpur(UP)-Sirathu(UP) Ckt and 220kV Fatehpur(UP)-Allahabad Cantt(UP) Ckt which resulted into complete blackout of 220/132kV Allahabad Cantt(UP) & 220/132kV Sirathu(UP). vi) Load of areas fed from 132kV Khaga, Malwan, Hussainganj, OPI, Kareli, Manor, Manjarpur, Benarji and Sirathu were affected. vii) As per PMU at Fatehpur(PG), two consecutive B-N phase to earth faults with fault clearance time of 80ms are observed. viii) As per SCADA, change in demand of approx. 540MW is observed in UP control area. ix) As reported by SLDC-UP, load loss of 570MW occurred in UP control area.	1) 220 KV Fatehpur(PG)-Fatehpur(UP) (PG) Ckt-1 2) 220/132kV 200MVA ICT-1 at Fatehpur(UP) 3) 220/132kV 200MVA ICT-2 at Fatehpur(UP) 4) 220kV Fatehpur(UP)-Sirathu(UP) Ckt 5) 220kV Fatehpur(UP)-Allahabad Cantt(UP) Ckt
31	GI-2	Uttar Pradesh	27-Sep-2023 12:53	27-Sep-2023 14:02	01:09	285	0	0.512	0.000	55632	65423	i) During antecedent condition, 400/220 KV 315 MVA ICT-1 at Obra-B(UP) was not in service. 400kV Obra-B(UP)-Sultanpur(UP) Ckt, 400/220 KV 240 MVA ICT-3 at Obra-B(UP), 200 MW Obra TPS - UNIT 11 and 13 were generating approx. 285MW in total. ii) As reported, at 12:53 hrs, 220kV Obra-A(UP)-Robertganj(UP) Ckt tripped on B-N phase to earth fault with fault distance of 1.4km from Obra-A(UP) end; fault sensed in zone-1. (Exact reason yet to be shared) iii) At the same time, 400/220 KV 240 MVA ICT-3 at Obra-B(UP) tripped on over-current earth-fault protection operation and bus bar protection of 400kV Bus-1 also operated. (Reason of ICT tripping and bus bar protection operation yet to be shared by UP) iv) As per PMU at Allahabad(PG), B-N phase to earth fault with fault clearance time of 80ms is observed. v) As reported by SLDC-UP, no change in demand is observed in UP control area. vi) As per SCADA and as reported by SLDC-UP, generation loss of approx. 285MW is observed at Obra-B(UP).	1) 220kV Obra-A(UP)-Robertganj(UP) Ckt 2) 400/220 KV 240 MVA ICT-3 at Obra-B(UP) 3) 400kV Obra-B(UP)-Sultanpur(UP) Ckt 4) 200 MW Obra TPS - UNIT 11 5) 200 MW Obra TPS - UNIT 13
32	GI-2	Uttarakhand	28-Sep-2023 15:45	28-Sep-2023 16:26	00:41	0	0	0.000	0.000	56005	64265	i) 765/400kV Koteswar(PG) has double main bus scheme at 400kV level. During antecedent condition, 765/400kV 800MVA ICT-2 at Koteswar(PG), 400kV Koteswar(PG)-Tehr(H) (PG) Ckt-1 & 3 and 400kV Koteswar(PG)-Koteswar (TH) (PG) Ckt-2 were connected to 400kV Bus-2 at Koteswar(PG) and rest of the elements were connected to 400kV Bus-1 at Koteswar(PG). 765/400kV 800MVA ICT-4 at Koteswar(PG) was under shutdown. Only 100MW Unit-4 at Koteswar HEP was running during antecedent condition. ii) As reported, at 15:45hrs, 400kV side bay (410) of 765/400kV 800MVA ICT-4 at Koteswar(PG) was closed for CSO adjustment. However, at the same time bus bar protection of 400kV Bus-2 operated. This resulted into tripping of all the elements connected to Bus-2 and Bus-2 became dead. (Exact reason of bus bar protection operation yet to be shared) iii) As per PMU at 400kV Koteswar(PG), B-N phase to ground fault is observed in the system with fault clearance time of 80ms. iv) As per SCADA, no load loss or generation loss is observed in Uttarakhand control area.	1) 400kV Bus-2 at Koteswar (PG) 2) 765/400kV 800MVA ICT-2 at Koteswar(PG) 3) 400kV Obra-B(UP)-Sultanpur(UP) Ckt 4) 400kV Koteswar(PG)-Tehr(H) (PG) Ckt-1 5) 400kV Koteswar(PG)-Tehr(H) (PG) Ckt-3 6) 400kV Koteswar(PG)-Koteswar (TH) (PG) Ckt-2

**Details of Grid Events during the Month of September 2023 in Western Region**



Sl No.	Category of Grid Event ( GI 1or 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid*		Brief details of the event ( pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GI-2	WR	02-Sep-23 17:18	02-Sep-23 20:30	3:12	-	-	-	-	77937	68275	At 17:15 Hrs/ 02-09-2023, 400 kV Bhilai-Bus-2 tripped on LBB operation of Main breaker of 400 kV Raita-Bhilai-1 due to R-phase stuck during auto recloser. 400 kV Bhilai-Kirnapur-1 and 400 kV Bhilai-Marwa-1 tripped on Over Voltage Stage-II protection operation. 400 kV Bhilai-Korba West Extension-1 tripped due to faulty LBB cable connection in Main and Tie bays. No load loss was occurred during the above event.	Tripping of following elements- 1. 400 kV Raita-Bhilai-1 2. 400 kV Bhilai-Kirnapur-1 3. 400 kV Bhilai-Marwa-1 4. 400 kV Bhilai-Korba West Extension-1
2	GD-1	WR	06-Sep-23 11:33	06-Sep-23 12:52	1:19	2.5	186	0.000	0.003	71024	66711	At 11:33 hrs/ 06-09-2023, B-phase tension disc insulator string of 220 kV Rajgarh-Rajgarh(MP)-1 failed and gantry to gantry conductor of bay fell on 220 kV Rajgarh(MP)-Bus-1 creating Y-B-E phase to phase to Ground fault in Bus-1. Bus bar protection didn't operate. 220 kV Rajgarh(MP)-Khiledi-1 and 220 kV Rajgarh(MP)-Rajgarh(PG)-2 tripped from remote ends on Zone-4 protection operation. 220/132 kV Rajgarh(MP)-ICT-1,2&3 were hand tripped resulting in blackout at 220 kV Rajgarh(MP). Generation loss of 2.5 MW at Ambethi and Load loss of 186 MW occurred due to the event.	Tripping of following elements- 1. 220 kV Rajgarh(MP)-Rajgarh(PG)-1 2. 220 kV Rajgarh(MP)-Rajgarh(PG)-2 3. 220 kV Rajgarh(MP)-Khiledi-1 4. 220 kV Rajgarh-Bus-1 5. 220 kV Rajgarh-Bus-2
3	GI-2	WR	13-Sep-23 13:17	13-Sep-23 14:50	1:33	-	-	-	-	69776	61240	At 13:17 hrs/ 13-09-2023, Spare ICT bus isolator came in induction zone resulting in Bus fault in 400 kV Akola-Bus-2. 400 kV Akola-Wardha-1, 400 kV Akola-Aurangabad-1&2 tripped from Akola end only. 400 kV Akola-Wardha-2 tripped and 400/220 kV Akola-ICT-1&2 also tripped. No load loss occurred during the event,	Tripping of following elements- 1. 400 kV Akola-Bus-2 2. 400 kV Akola-Wardha-1&2 3. 400 kV Akola-Aurangabad-1&2 4. 400/220 kV Akola-ICT-1&2
4	GI-2	WR	15-Sep-23 04:49	15-Sep-23 06:43	1:54	475	-	0.007	-	68884	56060	At 04:49 hrs/ 15-09-2023, Korba Unit-7 (500 MW) tripped due fault in AVR, due to non opening of B-phase breaker, LBB operated on pole discrepancy resulting in tripping of 400 kV Korba(NTPC)-Bus-3 and connected elements tripped at NTPC Korba. Generation loss of 475 MW due to tripping of Korba Unit-7 (500 MW) occurred at Korba (NTPC) thermal power plant due to the event.	Tripping of following elements- 1. 400 kV Korba(NTPC)-Bus-3 2. 400 kV Korba-Birsinghpur-2 3. 400 kV Korba-Raipur-4 4. Korba Unit-7 (500 MW)
5	GD-1	WR	17-Sep-23 12:13	17-Sep-23 22:11	9:58	65	-	0.001	-	61557	53312	At 12:13 hrs/ 17-09-2023, 220 kV Bhuj-Kotda Madh-1 tripped on B-E fault due to nuisance done by unknown person at tower location-7. Generation loss of 65 MW occurred at Kotda Madh (Alfanar) wind power plant due to loss of evacuation path.	Tripping of following elements- 1. 220 kV Bhuj-Kotda Madh-1
6	GD-1	WR	17-Sep-23 20:55	18-Sep-23 03:54	6:59	44.43	-	0.001	-	64409	52973	At 12:13 hrs/ 17-09-2023, 220 kV Bhuj-Vadva-1 tripped on R-E fault due to suspension disc insulator failure at tower location at 208. Generation loss of 44.43 MW occurred at Vadva (GIWEL-II) wind power plant due to loss of evacuation path.	Tripping of following elements- 1. 220 kV Bhuj-Vadva-1
7	GI-2	WR	18-Sep-23 03:25	18-Sep-23 04:31	1:06	-	-	-	-	61095	48989	At 03:25 hrs/ 18-09-2023, during charging of 400 kV Karad-Kolhapur(MH)-2 while closing of line side isolator heavy sparking was observed in Y-phase line side isolator. It was decided to opening bus side isolator (Bus-2), while opening of Bus side isolator heavy sparking occurred at bus isolator and 400 kV Kolhapur(MH)-Bus-2 and connected elements tripped on Bus bar protection operation . No load loss occurred during the event.	Tripping of following elements- 1. 400 kV Kolhapur(MH)-Bus-2 2. 400 kV Kolhapur(MH)-Kolhapur(PG)-1&2 3. 400 kV Kolhapur(MH)-Solapur(PG)-2 4. 400/220 kV Kolhapur(MH)-ICT-1&2
8	GD-1	WR	19-Sep-23 22:40	20-Sep-23 23:48	1:08	136	-	0.002	-	69180	54263	At 22:40 hrs/ 19-09-2023, 220 kV Bhuj-Gadhsisa-1 tripped on R-E fault. During patrolling stay wire was found broken and Y-phase insulator was faulty at tower location 48. Generation loss of 136 MW occurred at Gadhsisa (Renew Power) wind power plant due to loss of evacuation path.	Tripping of following elements- 1. 220 kV Bhuj-Gadhsisa-1

**Details of Grid Events during the Month of September 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	20-Sep-23 01:15	20-Sep-23 07:51	6:36	245	-	0.004	-	68037	52451	At 01:15 hrs/20-09-2023, 220 kV Bhuj-Naranpar-1 tripped on R-E fault due to broken R phase jumper fell over LV side of 220/33 kV Naranpar-ICT-2. Generation loss of 245 MW occurred at Naranpar (GIWEL) wind power plant due to loss of evacuation path.	Tripping of following elements- 1. 220 kV Bhuj-Naranpar-1 2. 220/33 kV Naranpar-ICT-2
10	GI-2	WR	23-Sep-23 03:12	23-Sep-23 12:11	8:59	1734	-	0.027	-	63268	51182	At 03:12 hrs/ 23-09-2023, 400 kV Wardha-Mouda-2 tripped on R-B phase to phase fault due to lightning strike which resulted in tripping of Mouda-Unit-1 (500 MW) and Mouda-Unit-3&4 (660 MW). Generation loss of 1734 MW occurred at Mouda (NTPC) thermal power plant due to units tripping.	Tripping of following elements- 1. 400 kV Wardha-Mouda-2 2. Mouda-Unit-1 (500 MW) 3. Mouda-Unit-3&4 (660 MW)
11	GI-2	WR	24-Sep-23 18:46	24-Sep-23 20:26	1:40	-	-	-	-	65880	56441	At 18:46 hrs/ 24-09-2023, 400 kV Bhopal-Itarsi-MP-2 tripped on Y-B phase to phase fault, due to delayed opening of bay 400 kV Bhopal-MP-Bus-2 tripped on LBB protection operation. No load loss occurred due to the above event	Tripping of following elements- 1. 400 kV Bhopal-MP-Bus-2 2. 400 kV Bhopal-MP-Itarsi-MP-2 3. 400 kV Bhopal-MP-BR-2
12	GD-1	WR	25-Sep-23 05:29	25-Sep-23 15:57	10:28	37	-	0.001	-	61324	51933	At 05:29 hrs/ 25-09-2023, 220 kV Nakhatrana-Dedhiya-1 tripped on Y-E fault due to Tension insulator failure. Generation loss of 37 MW occurred at Dedhiya (AWEK4L) wind power plant due to loss of evacuation path.	Tripping of following elements- 1. 220 kV Nakhatrana-Dedhiya-1
13	GD-1	WR	26-Sep-23 17:46	26-Sep-23 18:01	0:15	-	360	-	0.006	68055	58469	At 17:39 hrs/ 26-09-2023, 400/220 kV Magarwada(PG)-ICT-1 tripped due to mal operation of master trip relays due to DC earth fault. 400/220 kV Magarwada(PG)-ICT-2 was under planned shutdown prior to the tripping of 400/220 kV Magarwada(PG)-ICT-1 which caused loss of supply to 220 kV Magarwada(PG). Due to this, 220 kV Magarwada(DD) and 220 kV Ringanwada was fed through 220 kV Vapi(PG)-Magarwada(DD)-D/C. At 17:46 hrs, 220 kV Vapi(PG)-Magarwada(DD)-1 tripped on R-phase to earth fault due to conductor snapping between tower location 60 and 61. 220 kV Vapi(PG)-Magarwada(DD)-2 got overloaded and tripped at 17:46 hrs. Due to this supply got interrupted at 220kV Magarwada(DD) and Ringanwada, 220 kV Magarwada(PG)-Magarwada(DD)-D/C and 220 kV Magarwada(PG)-Ringanwada-D/C were hand tripped. Load loss of 360 MW occurred at Magarwada(DD) and Ringanwada due to the event.	Tripping of following elements- 1. 400/220 kV Magarwada(PG)-ICT-1 2. 220 kV Vapi(PG)-Magarwada-1&2

**Details of Grid Events during the Month of September 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	Andhra Pradesh	01-Sep-23 12:45	01-Sep-23 14:45	2hrs	0	558	0.00%	0.92%	54843	60389	Complete Outage of 220kV/110kV Pydibhimavaram SS, 220kV/132kV Garividi SS, 220kV/132kV Tekkali SS and 220kV/132kV Bobbili SS and Tripping of 220kV Bus-1 and Bus-2 of 400kV/220kV Maradam SS: As per the reports submitted, the triggering incident was Y-N fault in 220kV Bus-2 of 400kV/220kV Maradam SS. Immediately, 220kV Bus-2 BBP operated and all the elements connected to the Bus-2 tripped. Consequently, 400kV/220kV Maradam ICT-1 which was feeding 220kV Maradam Bus-1 tripped on overloading. This resulted in complete outage of 220kV/110kV Pydibhimavaram SS, 220kV/132kV Garividi SS, 220kV/132kV Tekkali SS and 220kV/132kV Bobbili SS as these SS were being radially fed from 220kV Maradam Bus-1 & Bus-2.	1. 400kV/220kV Maradam ICT-1&2 2. 220kV Maradam Garividi Line-1 3. 220kV Maradam Bobbili Line-2 4. 220kV Maradam Pydibhimavaram Line-1
2	GD-1	Tamil Nadu	05-Sep-23 02:56	05-Sep-23 04:45	1hr 49mins	114	0	0.27%	0.00%	42895	37358	Complete Outage of 400kV/110kV Thappugundu SS of TANTRANSO: During antecedent conditions, 400kV Palavadi Rasipalayam Line-4 and 400kV Anaikadavu Thappugundu Line-2 were under outage. As per the reports submitted, the triggering incident was RYB-N fault in 230kV Anaikadavu Othakalamandapam Line-1&2 and the lines tripped. Subsequently, over voltage protection operated in 400kV Anaikadavu Thappugundu Line-1 and 400kV Anaikadavu Rasipalayam Line-2 at Anaikadavu end and in 400kV Palavadi Rasipalayam Line-2 at Rasipalayam end and the lines tripped. Tripping of 400kV Anaikadavu Thappugundu Line- 1 resulted in loss of power supply to 400kV/110kV Thappugundu SS which led to complete outage of the SS.	1.400kV Anaikadavu Thappugundu Line-1 2. 400kV Anaikadavu Rasipalayam Line-2 3. 400kV Palavadi Rasipalayam Line-2 4. 230kV Anaikadavu Othakalamandapam Line-1&2
3	GD-1	Tamil Nadu	08-Sep-23 11:03	08-Sep-23 11:12	9mins	191	0	0.36%	0.00%	52771	50085	Complete Outage of 230kV Sprng_Pugalur Wind Generating Station: As per the reports submitted, the triggering incident was RB fault in 400kV Karaikudi Pugalur Line-2. At the same time, the 230kV Pugalur Sprng_Pugalur line tripped only at the Sprng_Pugalur end on operation of the voltage surge relay. Tripping of the only connected line resulted in a complete outage of 230kV Sprng_Pugalur wind generating station.	1. 400kV Karaikudi Pugalur Line-2 2. 230kV Pugalur Sprng_Pugalur Line
4	GD-1	Karnataka	09-Sep-23 09:10	09-Sep-23 09:59	49mins	90	0	0.18%	0.00%	49834	49871	Complete Outage of 220kV Tirumani SS-1 of KSPDCL: As per the reports submitted, the triggering incident was tripping of 220kV Pavagada Tirumani Line-1 only at Tirumani end on relay maloperation. Tripping of only connected line resulted in complete outage of 220kV Tirumani SS-1.	1. 220kV Pavagada Tirumani Line-1
5	GD-1	Tamil Nadu	13-Sep-23 18:06	13-Sep-23 19:03	57mins	1060	0	2.29%	0.00%	46388	46951	Complete Outage of 400kV CEPL Generating Station: During antecedent conditions, 400kV Tuticorin PS Coastal Line-1 was under outage. As per the reports submitted, the triggering incident was YB-N fault in 400kV Tuticorin PS Coastal Line-2 and the line tripped. Tripping of the only connected line resulted in a complete outage of the 400kV CEPL Generating station.	1. 400kV Tuticorin PS Coastal Line-2
6	GD-1	Tamil Nadu	19-Sep-23 00:12	19-Sep-23 02:18	2hrs 6mins	171	0	0.45%	0.00%	38400	42349	Complete Outage of 230kV OPG_CPP SS and Tripping of 230kV Bus-2 of 400kV/230kV Alamathy SS : During antecedent conditions, 230kV Alamathy OPG_CPP Line-1 was under LC. As per the reports submitted, the triggering incident was B-N fault in 230kV Bus-2 of 400kV/230kV Alamathy SS, BBP operated and all the elements connected to the Bus including 230kV Alamathy OPG_CPP Line-2 tripped. Tripping of the only connected line resulted in the complete outage of 230kV OPG_CPP SS.	1. 230kV Alamathy OPG_CPP Line-2 2. 230kV Alamathy Mosur 3. 230kV Alamathy Manali Line-2 4. 400kV/230kV Alamathy ICT-3
7	GI-1	Karnataka	03-Sep-23 17:39	03-Sep-23 18:29	50mins	0	0	0.00%	0.00%	41461	41304	Tripping of 220kV Bus-1 of 400kV/220kV Munirabad SS of PGCIL SR-1: During antecedent conditions, at 400kV/220kV Munirabad SS, main circuit breaker of 220kV Munirabad Lingapur line-2 was bypassed and the line was charged through Bus Coupler by connecting to 220kV Bus-1. The triggering incident was tripping of 220kV Munirabad Lingapur line-2 only at the Munirabad end due to distance protection overreach. Since this is the only line connected to Bus-1 at Munirabad, this resulted in the de-energization of 220kV Bus-1 of 400kV/220kV Munirabad SS.	1. 220kV Munirabad Lingapur line-2
8	GI-1	Karnataka	16-Sep-23 09:46	16-Sep-23 10:08	22mins	0	0	0.00%	0.00%	53349	56065	Tripping of 220kV Bus-1 of 400kV/220kV Munirabad SS of PGCIL SR-1: During antecedent conditions, at 400kV/220kV Munirabad SS, main circuit breaker of 220kV Munirabad Lingapur line-2 was bypassed and the line was charged through Bus Coupler by connecting to 220kV Bus-1. The triggering incident was tripping of 220kV Munirabad Lingapur line-2 only at Munirabad end after the hand tripping 220kV Munirabad Lingapur line-1. Since this is the only line connected to Bus-1 at Munirabad, this resulted in the de-energization of 220kV Bus-1 of 400kV/220kV Munirabad SS.	1. 220kV Munirabad Lingapur line-2
9	GI-1	Karnataka	16-Sep-23 10:08	16-Sep-23 18:46	8hr 38mins	0	0	0.00%	0.00%	53300	55248	Tripping of 220kV Bus-1 of 400kV/220kV Munirabad SS of PGCIL SR-1: 400kV/220kV Munirabad SS, main circuit breaker of 220kV Munirabad Lingapur line-2 was bypassed and the line was charged through Bus Coupler by connecting to 220kV Bus-1. The triggering incident was tripping of 220kV Munirabad Lingapur line-2 only at Munirabad end on operation of OC protection. Since this is the only line connected to Bus-1 at Munirabad, this resulted in the de-energization of 220kV Bus-1 of 400kV/220kV Munirabad SS.	1. 220kV Munirabad Lingapur line-2

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



Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid		Brief details of the event ( pre fault and post fault system conditions)	Name of Elements (Tripped/Manually opened)
	( GI for 2/ GD-1 to GD-5)					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
10	GI-1	Karnataka	19-Sep-23 17:17	19-Sep-23 20:07	2hr 53mins	0	0	0.00%	0.00%	35850	40669	Tripping of 220kV Bus-1 of 400kV/220kV Munirabad SS of PGCIL SR-1: During antecedent conditions, at 400kV/220kV Munirabad SS, main circuit breaker of 220kV Munirabad Lingapur line-2 was bypassed and the line was charged through Bus Coupler by connecting to 220kV Bus-1. The triggering incident was tripping of 220kV Munirabad Lingapur line-2 only at the Munirabad end due to distance protection overreach. Since this is the only line connected to Bus-1 at Munirabad, this resulted in the de-energization of 220kV Bus-1 of 400kV/220kV Munirabad SS.	1. 220kV Munirabad Lingapur line-2
11	GI-1	Andhra Pradesh	27-Sep-23 15:51	27-Sep-23 18:51	3hrs	0	0	0.00%	0.00%	48354	53146	Tripping of 220kV Bus-2 of 400kV/220kV/132kV Jammalamadugu SS: As per the reports submitted, the triggering incident was R-N fault in 220kV Bus-2 of 400kV/220kV Jammalamadugu SS. Immediately, BBP operated and all the elements conneted to the Bus-2 tripped. At the same time, 400kV Talaricheruvu Jammalamadugu line-1 which is on the same dia of 400kV/220kV ICT-3 got tripped due to tripping of Tie CB(Main CB of the line was under outage during antecedent conditions .	1. 400kV/220kV Jammalamadugu ICT-3 2. 400kV Talaricheruvu Jammalamadugu Line-1 3. 220kV Jammalamadugu Animala Line 4. 220kV Jammalamadugu Mylavaram Line 5. 220kV Jammalamadugu Porumamilla Line-1 6. 220kV/132kV 160MVA Transfromer-1



**Details of Grid Events during the Month of September 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
	( G1 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	Tenughat, Govindpur, Dumka, Gooda, Jasidih, Giridih, Deoghar, Pakur, Rajmahal	08.09.2023 20:33	08.09.2023 20:57	00:34	140	437	0.43%	1.72%	32618	25440	At 20:30 Hrs, 220 kV Maithon-Dumka-1 tripped due to R_N fault leading to increased loading of 220 kV Maithon-Dumka-2, which tripped at 20:33 Hrs due to R_N fault. After 12 seconds, 220 kV Tenughat-Biharsharif also tripped from Biharsharif. This led to islanding of entire Tenughat, Govindpur, Dumka, Godda, Deoghar complex with only one unit of Tenughat (140 MW generation) and 410 MW load, which didn't survive, and the island collapsed immediately.	220 kV Maithon-Dumka D/c 220 kV Biharsharif-Tenughat 210 MW U#2 at Tenughat

**Details of Grid Events during the Month of September 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	Golaghat area of Assam Power System	02-Sep-23 09:51	02-Sep-23 10:21	0:30:00	0	22	0.00%	0.83%	3075	2657	Golaghat area of Assam Power System was connected with the rest of NER grid through 132 kV Golaghat - Sarupathar line. 132 kV Mariani (AS)-Golaghat line was under planned shutdown prior to event.  At 09:51 Hrs on 02.09.2023, 132 kV Golaghat - Sarupathar line tripped. Due to tripping of this element Golaghat area of Assam Power System got separated from the rest of NER Grid and collapsed due to no source available in this area.  Power supply was extended to Golaghat area of Assam Power System by charging 132 kV Golaghat - Sarupathar line at 10:21 Hrs on 02.09.2023.	132 kV Golaghat - Sarupathar line
2	GD 1	Kakching, Elangangkopki, Chandel, Old Thoubal and 11 kV New Moreh areas of Manipur Power System along with Tamu load of Myanmar Power System	05-Sep-23 05:46	05-Sep-23 06:05	0:19:00	0	19	0.00%	0.66%	2928	2872	Kakching, Elangangkopki, Chandel, Old Thoubal and 11 kV New Moreh areas of Manipur Power System along with Tamu load of Myanmar Power System were connected with the rest of NER Grid through 132 kV Thoubal New-Thoubal Old & 132 kV Thoubal Old-Kakching lines. 132 kV Churachandpur - Kakching, 132 kV Elangangkopki - Churachandpur, 132 kV Ningthoukhong - Churachandpur 2 and 132 kV Thoubal New-Kakching lines were under forced outage prior to event.  At 05:46 Hrs on 05.09.2023, 132 kV Thoubal New-Thoubal Old & 132 kV Thoubal Old-Kakching lines tripped. Due to tripping of these elements, Kakching, Elangangkopki, Chandel, Old Thoubal and 11 kV New Moreh areas of Manipur Power System along with Tamu load of Myanmar Power System got separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Kakching, Elangangkopki, Chandel, Old Thoubal and 11 kV New Moreh areas of Manipur Power System along with Tamu load of Myanmar Power System by charging 132 kV Thoubal New-Thoubal Old line at 06:05 Hrs on 05.09.2023.	132 kV Thoubal New-Thoubal Old & 132 kV Thoubal Old-Kakching lines
3	GD 1	Leshka Generating Station of Meghalaya Power System	05-Sep-23 11:38	05-Sep-23 12:00	0:22:00	77	0	2.69%	0.00%	2861	2975	Leshka Generating Station of Meghalaya Power System was connected with the rest of NER Grid through 132 kV Myntdu Leshka - Khleihriat D/C lines.  At 11:38 Hrs on 05.09.2023, 132 kV Myntdu Leshka - Khleihriat D/C lines tripped. Due to tripping of these elements, Leshka Generating Station of Meghalaya Power System got separated from the rest of NER Grid and subsequently collapsed due to loss of evacuation path.  Power supply was extended to Leshka Generating Station of Meghalaya Power System by charging 132 kV Myntdu Leshka - khleihriat 1 line at 12:00 Hrs on 05.09.2023.	132 kV Myntdu Leshka - Khleihriat D/C lines
4	GD 1	Dhaligaon, Barpeta, Kokrajhar, Gosaigaon, Bilaspada, Gauripur and part load of Bornagar areas of Assam Power System	05-Sep-23 18:28	05-Sep-23 18:53	0:25:00	0	272	0.00%	8.03%	3168	3388	Dhaligaon, Barpeta, Kokrajhar, Gosaigaon, Bilaspada, Gauripur and part load of Bornagar areas of Assam Power System were connected with the rest of NER Grid through 160 MVA, 220/132 kV ICT 1 & 2 at BTPS. 132 kV Nalbari-Barpeta line and 132kV Gosaigaon-Gauripur lines were under shutdown prior to event.  At 18:28 Hrs on 05.09.2023, 160 MVA, 220/132 kV ICT 1 & 2 at BTPS tripped. Due to tripping of these elements, Dhaligaon, Barpeta, Kokrajhar, Gosaigaon, Bilaspada, Gauripur and part load of Bornagar areas of Assam Power System got separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Dhaligaon, Barpeta, Kokrajhar, Gosaigaon, Bilaspada, Gauripur and part load of Bornagar areas of Assam Power System by charging 160 MVA, 220/132 kV ICT 2 at BTPS at 18:53 Hrs on 05.09.2023.	160 MVA, 220/132 kV ICT 1 & 2 at BTPS
5	GD 1	Monarchak & Rabindranagar areas of Tripura Power System	07-Sep-23 14:08	07-Sep-23 14:32	0:24:00	75	11	2.43%	0.37%	3081	2998	Monarchak & Rabindranagar areas of Tripura Power System were connected with the rest of NER Grid through 132 kV Monarchak - Rokhia line. 132 kV Monarchak - Udaipur line was under planned shutdown prior to event.  At 14:08 Hrs on 07.09.2023, 132 kV Monarchak - Rokhia line tripped. Due to tripping of this element, Monarchak & Rabindranagar areas of Tripura Power System got separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Monarchak & Rabindranagar areas of Tripura Power System by charging 132 kV Monarchak - Rokhia line at 14:32 Hrs on 07.09.2023.	132 kV Monarchak - Rokhia line
6	GD 1	Kohima, Chiephobozou, Wokha and Sanis areas of Nagaland Power System	07-Sep-23 14:50	07-Sep-23 15:07	0:17	0	14	0%	0%	3117	2936	Kohima, Chiephobozou, Wokha and Sanis areas of Nagaland Power System were connected with the rest of NER Grid through 132 kV Karong - Kohima line. 132 kV Dimapur(PG)-Kohima and 132 kV Doyang-Sanis lines were under forced outage and 132 kV Kohima-Meluri line was under state approved shutdown prior to event.  At 14:50 Hrs on 07.09.2023, 132 kV Karong - Kohima line tripped. Due to tripping of this element, Kohima, Chiephobozou, Wokha and Sanis areas of Nagaland Power System got separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Kohima, Chiephobozou, Wokha and Sanis areas of Nagaland Power System by charging 132 kV Karong - Kohima line at 15:07 Hrs on 07.09.2023.	132 kV Karong - Kohima line

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



Sl No.	Category of Grid Event ( 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	220 kV Rangia, 132 kV Rangia, Nalbari, Nathkuchi, Sipajhar and Kamalpur areas of Assam Power System	07-Sep-23 21:44	07-Sep-23 22:10	0:26	0	175	0%	6%	3156	3086	220 kV Rangia, 132 kV Rangia, Nalbari, Nathkuchi, Sipajhar and Kamalpur areas of Assam Power System were connected with the rest of NER Grid through 220 kV BTPS - Rangia D/C lines. 132 kV Rangia-Motonga, 132 kV Rangia - Tanga, 132 kV Sipajhar - Rowta and 132 kV Amingaon - Kamalpur I & II lines were under shutdown prior to event.  At 21:44 Hrs on 07.09.2023, 220 kV BTPS - Rangia D/C lines tripped. Due to tripping of these elements, 220 kV Rangia, 132 kV Rangia, Nalbari, Nathkuchi, Sipajhar and Kamalpur areas of Assam Power System got separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to 220 kV Rangia, 132 kV Rangia, Nalbari, Nathkuchi, Sipajhar and Kamalpur areas of Assam Power System by charging 220 kV BTPS - Rangia 1 line at 22:10 Hrs on 07.09.2023.	220 kV BTPS - Rangia D/C lines
8	GD 1	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	09-Sep-23 09:50	09-Sep-23 10:15	0:25:00	17	24	0.64%	0.89%	2657	2691	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Balipara - Tenga line.  At 09:50 Hrs on 09.09.2023, 132 kV Balipara - Tenga line tripped. Due to tripping of this element, 132 kV Balipara - Tenga line got separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System by charging 132 kV Balipara - Tenga line at 10:15 Hrs on 09.09.2023.	132 kV Balipara - Tenga line
9	GD 1	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	11-Sep-23 11:46	11-Sep-23 13:22	1:36:00	17	23	0.64%	0.90%	2657	2543	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Balipara - Tenga line.  At 11:46 Hrs on 11.09.2023, 132 kV Balipara - Tenga line tripped. Due to tripping of this element, Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System got separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System by charging 132 kV Balipara - Tenga line at 13:22 Hrs on 11.09.2023.	132 kV Balipara - Tenga line
10	GD 1	Leshka Generating Station of Meghalaya Power System	11-Sep-23 15:08	11-Sep-23 15:15	0:07:00	77	0	2.90%	0.00%	2657	2802	Leshka Generating Station of Meghalaya Power System was connected with rest of NER grid through 132 kV Khleiriat(ME) - Leshka D/C lines.  At 15:08 Hrs on 11.09.2023, 132 kV Myntdu Leshka - Khleiriat D/C lines tripped. Due to tripping of these elements, Leshka Generating Station of Meghalaya Power System got 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 - Khleiriat (ME) 1 line at 15:15 Hrs on 11.09.2023.	132 kV Myntdu Leshka - Khleiriat D/C lines
11	GD 1	Dharmanagar area of Tripura Power System	15-Sep-23 10:40	15-Sep-23 11:06	0:26:00	0	18	0.00%	0.65%	3036	2759	Dharmanagar area of Tripura Power System was connected with rest of NER grid through 132 kV Dharmanagar - Dullavchera line. 132 kV PK Bari - Dharmanagar line was under forced outage prior to event.  At 10:40 Hrs on 15.09.2023, 132 kV Dharmanagar - Dullavchera line tripped. Due to tripping of this element, Dharmanagar area of Tripura Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in this area.  Power supply was extended to Dharmanagar area of Tripura Power System by charging 132 kV Dharmanagar - Dullavchera line at 11:06 Hrs on 15.09.2023.	132 kV Dharmanagar - Dullavchera line
12	GD 1	Dimapur(NL) area of Nagaland Power System	15-Sep-23 18:32	15-Sep-23 20:11	1:39	0	110	0%	3%	3502	3627	Dimapur(NL) area of Nagaland Power System was connected with rest of grid through 132 kV Dimapur(PG) - Dimapur(NL) D/C lines.  At 18:32 Hrs on 15.09.2023, 132 kV Dimapur(PG) - Dimapur(NL) D/C lines tripped. Due to tripping of this element, Dimapur(NL) area of Nagaland Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in this area.  132 kV Dimapur(PG) - Dimapur(NL) D/C lines were declared faulty at 20:11 Hrs on 15.09.2023. Power supply was extended to Dimapur(NL) area of Nagaland Power System by charging 132 kV Dimapur(PG) - Dimapur(NL) 2 line at 23:08 Hrs on 15.09.2023.	132 kV Dimapur(PG) - Dimapur(NL) D/C lines
13	GD 1	Churachandpur and Thanlon areas of Manipur Power System	16-Sep-23 16:43	16-Sep-23 18:48	2:05	0	16	0%	1%	2872	3102	Churachandpur and Thanlon areas of Manipur Power System were connected with rest of NER grid through 132 kV Ningthoukhong - Churachandpur 1 line. 132 kV Churachandpur - Kakching, 132 kV Elangkangpokpi - Churachandpur and 132kV Ningthoukhong - Churachandpur 2 lines were under forced outage prior to event.  At 16:43 Hrs on 16.09.2023, 132 kV Ningthoukhong - Churachandpur 1 line tripped. Due to tripping of this element, Churachandpur and Thanlon areas of Manipur Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Churachandpur and Thanlon areas of Manipur Power System by charging 132 kV Ningthoukhong - Churachandpur 1 line at 18:48 Hrs of 16.09.2023.	132 kV Ningthoukhong - Churachandpur 1 line

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



Sl No.	Category of Grid Event ( G1 Ior 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the		Antecedent Generation/Load in the Regional Grid		Brief details of the event ( pre-fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
14	GD 1	Dimapur(NL) area of Nagaland Power System	16-Sep-23 17:38	16-Sep-23 18:59	1:21	0	96	0%	3%	2947	3194	Dimapur(NL) area of Nagaland Power System was connected with rest of grid through 132 kV Dimapur(PG) - Dimapur(NL) D/C lines.  At 17:38 Hrs on 16.09.2023, 132 kV Dimapur(PG) - Dimapur(NL) D/C lines tripped. Due to tripping of this element, Dimapur(NL) area of Nagaland Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in this area.  Power supply was extended to Dimapur(NL) area of Nagaland Power System by charging 132 kV Dimapur(PG) - Dimapur(NL) 2 line at 18:59 Hrs on 16.09.2023.	132 kV Dimapur(PG) - Dimapur(NL) D/C lines
15	GD 1	Dhaligaon, Barpeta, Gosaigaon and part load of Bornaagar areas of Assam Power System	18-Sep-23 16:43	18-Sep-23 17:05	0:22	0	83	1%	1%	2783	2547	Dhaligaon, Barpeta, Gosaigaon and part load of Bornaagar areas of Assam Power System were connected with rest of NER grid through 132 kV BTPS - Dhaligaon D/C lines. 132 kV Barpeta - Nalbari line was kept opened due to overloading of 132kV Rangja - Nalbari line and 132kV Gauripur - Gosaigaon line was kept opened due to overloading of 132kV Bilasipara- Gauripur- Gosaigaon-Dhaligaon link prior to event.  At 16:43 Hrs on 18.09.2023, 132 kV BTPS - Dhaligaon D/C lines tripped. Due to tripping of these elements, Dhaligaon, Barpeta, Gosaigaon and part load of Bornaagar areas of Assam Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Dhaligaon, Barpeta, Gosaigaon and part load of Bornaagar areas of Assam Power System by charging 132kV BTPS - Dhaligaon 1 line at 17:05 Hrs on 18.09.2023.	132 kV BTPS - Dhaligaon D/C lines
16	GD 1	Monarchak Generating Station and Rabindranagar area of Tripura Power System	19-Sep-23 12:08	19-Sep-23 12:18	0:10	70	9	3%	0%	2485	2442	Monarchak Generating Station and Rabindranagar area of Tripura Power System were connected with rest of NER Grid through 132kV Monarchak - Udaipur line. 132 kV Monarchak - Rokhia was under planned shutdown prior to event.  At 12:08 Hrs on 19.09.2023, 132 kV Monarchak - Udaipur line tripped. Due to tripping of this element, Monarchak Generating Station and Rabindranagar area of Tripura Power System got separated from rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Monarchak Generating Station and Rabindranagar area of Tripura Power System by charging 132 kV Monarchak - Udaipur line at 12:18 Hrs on 19.09.2023.	132 kV Monarchak - Udaipur line
17	GD 1	Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System	19-Sep-23 17:20	19-Sep-23 17:31	0:11	0	72	0%	3%	3095	2734	Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System were connected with rest of NER Grid through 132 kV Tinsukia - Margherita line. 132kV Along - Pasighat line was under emergency shutdown, 132 kV Tinsukia - Rupai line was under forced outage prior to event.  At 17:20 Hrs on 19.09.2023, 132kV Tinsukia - Margherita line tripped. Due to tripping of this element, Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System by charging 132 kV Tinsukia - Margherita line at 17:31 Hrs on 19.09.2023.	132 kV Tinsukia - Margherita line
18	GD 1	Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System	20-Sep-23 02:11	20-Sep-23 03:40	1:29	0	12.8	0%	1%	2809	2213	Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System were connected with rest of the NER Grid through 132kV Rupai - Chapakhowa line. 132 kV Along - Pasighat was under planned shutdown prior to event.  At 02:11 Hrs on 20.09.2023, 132 kV Rupai - Chapakhowa line tripped. Due to tripping of this element, Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System by charging 132 kV Rupai - Chapakhowa line at 03:40 Hrs on 20.09.2023.	132 kV Rupai - Chapakhowa line
19	GD 2	Kameng Hydro Power Station (NEEPCO)	20-Sep-23 02:55	20-Sep-23 03:50	0:55	450	0	18%	0%	2530	2093	Kameng Hydro Power Station (NEEPCO) was connected with rest of the NER Grid through 400 kV Balipara - Kameng D/C lines.  At 02:55 Hrs on 20.09.2023, 400 kV Balipara - Kameng D/C lines tripped. Due to tripping of these lines, Kameng Hydro Power Station (NEEPCO) got separated from rest of NER Grid and subsequently collapsed due to loss of evacuation path.  Power supply was extended to Kameng Hydro Power Station (NEEPCO) by charging 400kV Kameng - Balipara 1 line at 03:50 Hrs on 20.09.2023.	400 kV Balipara - Kameng D/C lines

**Details of Grid Events during the Month of September 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)		
20	GD 1	Along, Basar and Daporizo areas of Arunachal Pradesh Power System	22-Sep-23 13:01	22-Sep-23 15:02	2:01	0	15	0%	1%	2549	2422	Along, Basar and Daporizo areas of Arunachal Pradesh Power System were connected with rest of the NER Grid through 132 kV Along - Pasighat line. 132 kV Daporizo - Ziro line was under forced outage since 00:35 Hrs on 22.09.2023.  At 13:01 Hrs on 22.09.2023, 132 kV Along - Pasighat line tripped. Due to tripping of this element, Along, Basar and Daporizo areas of Arunachal Pradesh Power System got separated from rest of NER Grid and subsequently collapsed due to no source available in these areas.  Power supply was extended to Along, Basar and Daporizo areas of Arunachal Pradesh Power System by charging 132 kV Along - Pasighat line at 15:02 Hrs on 22.09.2023.	132 kV Along - Pasighat line
21	GD 1	Karong area of Manipur Power System	25-Sep-23 17:24	25-Sep-23 17:39	0:15	0	15	0%	0%	3039	3156	Karong area of Manipur Power System was connected with rest of the NER Grid through 132 kV Imphal (MSPCL) - Karong line. 132 kV Kohima-Karong line was under forced outage prior to event.  At 17:24 Hrs on 25.09.2023, 132 kV Imphal (MSPCL) - Karong line tripped. Due to tripping of this element, Karong area of Manipur Power System got 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 Imphal (MSPCL) - Karong line at 17:39 Hrs on 25.09.2023	132 kV Imphal (MSPCL) - Karong line
22	GD 1	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	27-Sep-23 13:35	27-Sep-23 13:53	0:18	13	27	1%	1%	2529	2721	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Balipara - Tenga line.  At 13:35 Hrs on 27.09.2023, 132 kV Balipara - Tenga line tripped. Due to tripping of this element, Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System were got separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas.  Power supply was extended to Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System by charging 132 kV Balipara - Tenga line at 13:53 Hrs on 27.09.2023.	132 kV Balipara - Tenga line
23	GD 1	Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System	28-Sep-23 12:17	28-Sep-23 12:43	0:26	0	13	0%	0%	2520	2718	Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System were connected with rest of the NER Grid through 132 kV Rupai - Chapakhowa line. 132 kV Along - Pasighat was under forced outage prior to event.  At 12:17 Hrs on 28.09.2023, 132 kV Rupai - Chapakhowa line tripped. Due to tripping of this element Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System got separated due to no source available in these areas.  Power supply was extended to Chapakhowa area of Assam Power System and Roing, Tezu, Namsai and Pasighat areas of Arunachal Pradesh Power System by charging 132 kV Rupai - Chapakhowa line at 12:43 Hrs on 28.09.2023.	132 kV Rupai - Chapakhowa line
24	GD 1	Daporijo, Basar and Along areas of Arunachal Pradesh Power System	28-Sep-23 12:32	28-Sep-23 14:19	1:47	0	11	0%	0%	2561	2721	Daporijo, Basar and Along areas of Arunachal Pradesh Power System were connected with rest of the NER Grid through 132 kV Ziro-Daporijo line. 132 kV Along - Pasighat line was under forced outage prior to event.  At 12:32 Hrs on 28.09.2023, 132 kV Ziro-Daporijo line tripped. Due to tripping of this element Daporijo, Basar and Along areas of Arunachal Pradesh Power System got separated due to no source available in these areas.  Power supply was extended to Daporijo, Basar and Along areas of Arunachal Pradesh Power System by charging 132 kV Along - Pasighat line at 14:19 Hrs on 28.09.2023.	132 kV Ziro-Daporijo line
25	GI-II	Assam	06-Sep-23 10:41	06-Sep-23 12:30	1:49	230	0	8%	0%	3038	2955	BgTPP Unit 3 tripped at 10:41 Hrs on 06.09.2023 due to Turbine Shaft Vibration High. Revision done from Block No. 51 on 06.09.2023.	BgTPP Unit 3
26	GI-II	Assam	06-Sep-23 16:54	06-Sep-23 18:30	1:36	200	0	6%	0%	3122	2987	BgTPP Unit 3 tripped at 16:54 Hrs on 06.09.2023 due to Feed Water System Problem. Revision done from Block No. 75 on 06.09.2023.	BgTPP Unit 3
27	GI-I	Tripura	07-Sep-23 02:51	07-Sep-23 04:30	1:39	27	0	1%	0%	2907	2849	AGTCCPP Unit 4 & 6 tripped at 02:51 Hrs on 07.09.2023 due to Lube Oil Temperature High Trip and due to tripping of GTG - 4 respectively. Revision done from Block No. 19 on 07.09.2023.	AGTCCPP Unit 4 & 6
28	GI-II	Assam	14-Sep-23 21:20	14-Sep-23 23:00	1:40	46	0	1%	0%	3556	3545	AGBPP Unit 2 tripped at 21:20 Hrs on 14.09.2023 due to high vibration. Revision done from Block No. 93 on 14.09.2023.	AGBPP Unit 2
29	GI-II	Tripura	30-Sep-23 16:04	30-Sep-23 17:30	1:26	218	0	9%	0%	2394	2703	Palatana Module II tripped at 16:04 Hrs on 30.09.2023 due to Stator Earth Fault. Revision done from Block No. 71 on 30.09.2023	Palatana Module II