

Details of Grid Events during the Month of October 2023 in Northern Region



Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (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)		
						(GI for GI-2/ GD-1 to GD-5)							
1	GD-1	Jammu & Kashmir	03-Oct-2023 11:39	03-Oct-2023 14:20	02:41	0	90	0.000	0.146	54859	61505	i) 220/132kV Udhampur(JK) has double main bus scheme at 220kV level. During antecedent condition, active power flow in 220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-1 & 2 and 220 KV Sarla(PG)-Udhampur(PDD) (PDD) Ckt were 91MW, 91MW and 97MW respectively. ii) As reported, at 11:39 hrs, 220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-1 tripped on Y-B phase to phase fault with fault current of Iy=Ib=6.886kA and fault distance of 15.043km from Kishenpur(PG) end. iii) During the same time, 220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-2 also tripped on Y-B phase to phase fault with fault current of Iy=Ib=4.159kA and fault distance of 22.030km from Kishenpur(PG) end. Forest fire was observed at loc. no. 5-6. iv) Due to tripping of , 220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-1 & 2, 220 KV Sarla(PG)-Udhampur(PDD) (PDD) Ckt got overloaded and tripped. v) As per PMU at Kishenpur(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. 90MW is observed in J&K control area.	1) 220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-1 2) 220 KV Kishenpur(PG)-Udhampur(PDD) (PG) Ckt-2 3) 220 KV Sarla(PG)-Udhampur(PDD) (PDD) Ckt
2	GI-2	Himachal Pradesh	04-Oct-2023 19:30	05-Oct-2023 18:25	22:55	165	0	0.324	0.000	50874	62750	i) As reported, at 19:30 hrs, terminator of joint conductor of Red phase GT of Unit No. 1 LA got snapped due to flash on string of disc insulators. ii) During the same time, 400/220 kv 315 MVA ICT 1 at Dehar(BB) tripped due to restricted earth fault (REF) protection operation. 165MW Unit-1 at Dehar(BB) also tripped at this time. (Exact reason yet to be shared) iii) As per PMU at Dehar(BB), R-B phase to phase fault is observed with fault clearing time of 80ms. iv) As per SCADA, change in generation of approx. 165MW is observed at Dehar(BBMB).	1) 400/220 kv 315 MVA ICT 1 at Dehar(BB) 2) 165MW Unit-1 at Dehar(BB)
3	GD-1	Haryana	05-Oct-2023 09:28	05-Oct-2023 10:00	00:32	0	300	0.000	0.520	53017	57708	i) During antecedent condition, 220kV Hissar_JA(Har)-Masudpur Ckt 1 & 2 and 220/132kV 100MVA ICT-1 at Hissar_JA(Har) were already in open condition. ii) As reported, at 09:28hrs, sparking was observed on the B-phase of 220 KV Bus Isolator of 220kV Hissar_JA(Har)-Hissar(PG) ckt-1 at Hissar_JA(Har) end. iii) As per CR at Hissar_JA(Har), Bus bar differential protection operated at 220kV level of Hissar_JA(Har) which led to tripping of all the elements connected to both the buses. (Exact reason of tripping of both the buses yet to be shared) iv) Due to tripping of all the elements connected to both the buses, both 220kV Bus-1 & 2 at Hissar_JA(Har) and eventually the complete 220kV Hissar_JA(Har) S/S became dead. v) As per PMU at Hissar(PG), B-N phase to earth fault with fault clearing time of 80ms is observed. vi) As per SCADA, change in demand of approx. 90MW is observed in Haryana control area. But as reported by SLDC-Haryana, change in demand of approx. 300MW is observed in Haryana control area.	1) 220kV Hissar_JA(Har)-Narwana ckt 2) 220kV Hissar(BB)-Hissar_JA(Har) ckt-1 3) 220kV Hissar(BB)-Hissar_JA(Har) ckt-2 4) 220kV Hissar_JA(Har)-Hissar(PG) ckt-1 5) 220kV Hissar_JA(Har)-Hissar(PG) ckt-2 6) 220kV Hissar_JA(Har)-Hissar(PG) ckt-2 7) 220/132kV 100MVA ICT-1 at Hissar_JA(Har)
4	GD-1	Punjab	07-Oct-2023 08:37	07-Oct-2023 10:10	01:33	0	280	0.000	0.501	51438	55849	i) During antecedent condition, 220 kv Ludhiana(PG)-Lalton Kala(PG) (PSTCL) Ckt-2, 220 kv Humbran-Lalton Kala(PG) Ckt and 220 kv Dhandhari Kala-Lalton Kala(PG) Ckt were connected to 220kV Bus-1 at Lalton Kala(PG) and 220 kv Ludhiana(PG)-Lalton Kala(PG) (PSTCL) Ckt-1 and 220 kv Ferozepur Road-Lalton Kala(PG) Ckt were connected to 220kV Bus-2 at Lalton Kala(PG). 220 kv Jagraon-Lalton Kala(PG) Ckt was already in off condition due to overload. ii) As reported, at 08:37hrs, snapped conductor of 11kV Midland feeder comes in contact with 220kV Ferozepur Road R-Phase CVT causing damaging of bus post insulator and tripping of 220kV Bus-2 at Lalton Kala(PG). iii) Further at 09:22hrs, during isolation of Bus-2 and further switchover of load to Bus-1, flashover occurred leading to tripping of 220 kv Ludhiana(PG)-Lalton Kala(PG) (PSTCL) Ckt-2, 220 kv Humbran-Lalton Kala(PG) Ckt and 220 kv Dhandhari Kala-Lalton Kala(PG) Ckt from Lalton Kala(PG) end. iv) Due to this tripping, complete blackout occurred at 220/66kV Lalton Kala(PG) S/S. v) As per PMU at Ludhiana(PG), B-N phase to earth fault with delayed clearance of 360msec is observed. vi) As per SCADA, change in demand of approx. 155MW is observed in Punjab control area. But as reported by SLDC Punjab, change in demand of approx. 280MW is observed in Punjab control area.	1) 220 kv Ludhiana(PG)-Lalton Kala(PG) (PSTCL) Ckt-1 2) 220 kv Ferozepur Road-Lalton Kala(PG) Ckt 3) 220 kv Humbran-Lalton Kala(PG) Ckt 4) 220 kv Dhandhari Kala-Lalton Kala(PG) Ckt 5) 220 kv Dhandhari Kala-Lalton Kala(PG) Ckt
5	GI-2	Uttar Pradesh	09-Oct-2023 20:16	09-Oct-2023 21:50	01:34	0	0	0.000	0.000	51481	60698	i) As reported, at 20:16hrs, 400kV B-PH CT of main bay 410 of 400/132 kv 200 MVA ICT 3 at Nehtaur(UP) busted and caught fire and 400/132 kv 200 MVA ICT 3 at Nehtaur(UP) tripped on differential protection operation with B-phase fault current of 4.4kA. ii) At the same time, 400/132 kv 200 MVA ICT 2 at Nehtaur(UP) also tripped on differential protection operation with R-phase fault current of 7.13kA.(Exact reason yet to be shared) iii) Due to CT burst, the oil of CT got spread out on the cable trench and certain cables also got burnt and badly damaged. So in view of safety, 400/132 kv 200 MVA ICT 1 at Nehtaur(UP) was manually tripped at 20:30hrs due to fire attack on main cable trench. iv) After tripping of all three 400/132kV ICTs, all 7, 132kV lines tripped due to loss of supply. v) After fire quenching of CT & cables, ICT-1 was normalized and charged successfully at 21:50 hrs on 09/10/2023. vi) As per PMU at Roorkee(PG), B-N phase to earth fault with delayed fault clearing time of 640ms followed by R-N phase to earth fault with fault clearance time of 80ms are observed. vii) As per SCADA, no change in demand is observed in UP control area. As reported by SLDC-UP, before tripping average load on ICTs was around 240MW, after tripping it was shifted to Nehtaur 220kV.	1) 400/132 kv 200 MVA ICT 3 at Nehtaur(UP) 2) 400/132 kv 200 MVA ICT 2 at Nehtaur(UP) 3) 400/132 kv 200 MVA ICT 1 at Nehtaur(UP) 4) 132kV Nehtaur- Bijौर Ckt 5) 132kV Nehtaur- Chandpur Ckt 6) 132kV Nehtaur- Morra Ckt 7) 132kV Nehtaur- Kiratpur Ckt 8) 132kV Nehtaur- Nagina Ckt-1 9) 132kV Nehtaur- Nagina Ckt-2 10) 132kV Nehtaur- Najibabad Ckt
6	GI-1	Himachal Pradesh	10-Oct-2023 18:46	10-Oct-2023 23:11	04:25	120	0	0.234	0.000	51254	60340	i) During antecedent condition, 66MW unit-1, 2, 3, 5 & 6 were running and generating approx. 307 MW in total. Unit-1, 3 & 5, 220/66kV 40MVA Transformer and 220kV feeders to Barasul, Jalandhar ckt-1 and Dasuya ckt-1 were connected at 220kV Bus-1 and Unit-2 & 6 & 220kV feeders to Jessore, Jalandhar ckt-2 and Dasuya ckt-2 were connected at 220kV Bus-2. ii) As reported, at 18:46 hrs, bus bar protection operated at 220kV Bus-2 at Pong(BBMB) and all the elements connected to Bus-2 got tripped and Bus-2 became dead. The jumper between 220kV Bus-2 and connecting isolator of B-ph of 220 kv Pong(BB)-Dasuya(PG) (BBMB) Ckt-2 was found broken. iii) As per SCADA SOE, 220/66kV 40MVA ICT-3 at Pong(BB) also tripped during the same time. (Exact reason yet to be shared) iv) As per PMU at Pong(BBMB), B-N phase to earth fault is observed with fault clearing time of 80 ms. v) As per SCADA, total generation loss of approx. 120MW is observed at Pong(BBMB).	1) 220kV Bus 2 at Pong(BB) 2) 220 kv Pong(BB)-Dasuya(PG) (BBMB) Ckt-2 3) 220 kv Jalandhar(PG)-Pong (BB) Ckt-2 4) 220 kv Jessore(PG)-Pong(BB) (PG) Ckt 5) 66 MW Pong HPS - UNIT 2 6) 66 MW Pong HPS - UNIT 6 7) 220/66kV 40MVA ICT-3 at Pong(BB)
7	GI-2	Rajasthan	10-Oct-2023 10:21	10-Oct-2023 11:32	01:11	110	70	0.251	0.116	43865	60246	i) 400/220kV Aka(RS) has one and half breaker scheme at 400kV level and double main transfer bus scheme at 220kV level. ii) As reported, at 10:21hrs, 220 KV Aka(RS)-Jaisalmer(RS) Ckt tripped on phase to earth fault (Y-N fault as per PMU at Bhadia(PG)). iii) At the same time, 400/220 kv 500 MVA ICT 1 & 2 at Aka(RS) also tripped. (Exact reason yet to be shared, but it is suspected that there is delay in CB opening due to which ICTs also got tripped. Also OTC protection settings of ICTs need to be shared.) iv) As per SCADA SOE, 220kV Aka(RS)-Barmes(RS) Ckt also tripped during the same time. (Exact reason yet to be shared) v) As per PMU at Bhadia(PG), Y-N phase to earth fault is observed with delayed fault clearing time of 720ms. vi) As per SCADA, change in demand of approx. 70MW is observed in Rajasthan control area. vii) As per SCADA, change in Rajasthan wind generation of approx. 110MW is observed.	1) 220 kv Aka(RS)-Jaisalmer(RS) Ckt 2) 400/220 kv 500 MVA ICT 1 at Aka(RS) 3) 400/220 kv 500 MVA ICT 2 at Aka(RS)
8	GD-1	Uttarakhand	12-Oct-2023 15:36	12-Oct-2023 16:28	00:52	90	0	0.175	0.000	51528	61412	i) 765/400kV Koteshwar(PG) has one and half breaker scheme at 765kV level and double main bus scheme at 400kV level. During antecedent condition, only 100MW Unit-1 at Koteshwar HEP was in running condition and was generating approx. 90MW and active power loading on 765kV Koteshwar(PG)-Meerut(PG) Ckt-1 & 2 was approx. 45MW each. ii) As reported, at 15:36hrs, "Protection operated in FSC" signal came at Meerut(PG) end which tripped group relays and sent DT to Koteshwar(PG). 765kV Koteshwar(PG)-Meerut(PG) Ckt-1 & 2 tripped due to DT received at Koteshwar(PG) end. iii) During the same time, 100MW Unit-1 at Koteshwar(TH) tripped on over-excitation due to loss of excitation path. iv) CBs from both the ends of 400kV Koteshwar(PG)-Tehri(TH) (PG) Ckt-1 & 2 and 400kV Koteshwar(PG)-Koteshwar (TH) (PG) Ckt-1 & 2 opened due to safety purpose. v) Due to this tripping, complete blackout occurred at 765/400kV Koteshwar(PG) & 400kV Koteshwar(TH). vi) Although no generation was there at Tehri(TH) during the event time, but Tehri(TH) generation was affected from 16:00hrs to 17:14hrs. vii) As per PMU Meerut(PG), no fault is observed in the system. viii) As per SCADA, change in generation of approx. 90MW is observed at Koteshwar(TH).	1) 765kV Koteshwar(PG)-Meerut(PG) Ckt-1 2) 765kV Koteshwar(PG)-Meerut(PG) Ckt-2 3) 400kV Koteshwar(PG)-Tehri(TH) (PG) Ckt-1 4) 400kV Koteshwar(PG)-Tehri(TH) (PG) Ckt-2 5) 400kV Koteshwar(PG)-Koteshwar (TH) (PG) Ckt-1 6) 400kV Koteshwar(PG)-Koteshwar (TH) (PG) Ckt-2 7) 100 MW Unit-1 at Koteshwar(TH)

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss (MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
9	GD-1	Jammu and Kashmir	14-Oct-2023 04:23	14-Oct-2023 06:32	02:09	72	0	0.180	0.000	39982	52071	i) During antecedent condition, 60 MW Unit-2 & 3 at Uri-2(NH) were running and generating approx. 36MW each and total MW generation of 72MW was circulating through 400 KV Uri_2(NH)-Uri_1(NH) (PG) Ckt and 400 KV Uri_2(NH)-Wagooara(PG) (PG) Ckt. ii) As reported, at 04:23hrs, 400 KV Uri_2(NH)-Wagooara(PG) (PG) Ckt tripped on B-N phase to ground fault with fault current of approx. 1.89kA and fault distance of 11.87km from Wagooara(PG) end due to heavy wind and storm in the area. iii) As per DR, 400 KV Uri_2(NH)-Uri_1(NH) (PG) Ckt also tripped on B-N phase to ground fault at the same time with delayed fault clearance time of approx. 690ms and fault current of approx. 2.53kA from Uri-2(NH) end. Over-current protection operated at both Uri-1(NH) and Uri-2(NH) end as per DR. iv) Due to tripping of both the lines, 60 MW Unit-2 & 3 at Uri-2(NH) tripped on over-excitation due to loss of evacuation path. v) On this, complete blackout occurred at 400KV Uri-2(NH). vi) As per PMU at Wanpo(PG), two consecutive B-N phase to ground fault is observed in the system with delayed fault clearance time of 720ms and 440ms respectively. vii) As per SCADA, generation loss of approx. 72MW is observed at Uri-2(NH).	1) 400 KV Uri_2(NH)-Uri_1(NH) (PG) Ckt 2) 400 KV Uri_2(NH)-Wagooara(PG) (PG) Ckt 3) 60 MW Unit-2 at Uri-2(NH) 4) 60 MW Unit-3 at Uri-2(NH)
10	GI-2	Rajasthan	16-Oct-2023 02:26	16-Oct-2023 06:42	04:16	0	0	0.000	0.000	39913	49814	i) 765/400/220KV Bhadla(PG) has one and half breaker scheme at 765 & 400KV side and double main bus scheme at 220KV side. 220KV level at Bhadla(PG) S/s is hybrid (Partly AS-partly GS) in nature. ii) As reported, at 02:26 hrs, Bus Bar Protection Operated at Bhadla (PG) Substation due to suspected malfunctioning of Gas Density relay. 220KV Bus-1,2&3 along with elements connected to them tripped during the event. iii) As per PMU at Bhadla(PG), no fault in system is observed. iv) POWERGRID has been communicated to share the exact details of event along with remedial action taken.	1) 220 KV Bhadla(PG) - Bus 1 2) 220 KV Bhadla(PG) - Bus 2 3) 220 KV Bhadla(PG) - Bus 3 4) 400/220 kv 500 MVA ICT 1 at Bhadla(PG) 5) 400/220 kv 500 MVA ICT 2 at Bhadla(PG) 6) 400/220 kv 500 MVA ICT 3 at Bhadla(PG) 7) 400/220 kv 500 MVA ICT 4 at Bhadla(PG) 8) 400/220 kv 500 MVA ICT 5 at Bhadla(PG) 9) 220 KV Bhadla(PG)-Saurya Urja Solar Ckt-1 10) 220 KV Bhadla(PG)-Saurya Urja Solar Ckt-2 11) 220 KV Bhadla(PG)-AREPRL Ckt-1 12) 220 KV Bhadla(PG)-AREPRL Ckt-2 13) 220 KV Bhadla(PG)-CSPIP Ckt 14) 220 KV Bhadla(PG)-Mahabub Solar Ckt 15) 220 KV Bhadla(PG)-ACME Ckt
11	GD-1	Rajasthan	16-Oct-2023 12:32	16-Oct-2023 20:58	08:26	700	0	1.376	0.000	50859	52036	i) Total generation of 220KV TPGL & 220KV TPSEL RE stations evacuates through 220 KV TATA Noorsar SL_BKN PG (TPGEL)-Bikaner(PG) (TPGEL) Ckt. During antecedent condition, total generation evacuating through TPGEL line was 325MW (220KV TPGEL and 105MW TPSEL). ii) As reported, at 12:32hrs, 220 KV TATA Noorsar SL_BKN PG (TPGEL)-Bikaner(PG) (TPGEL) Ckt tripped on Y-B phase to phase fault. iii) As per PMU at Bikaner(PG), Y-B phase to phase fault which cleared within 80mscc is observed. iv) Due to tripping of 220KV TPGEL line, total solar generation (325MW) evacuating through the line lost. v) As per PMU plots of voltage at RE stations of 220KV lines connected at different pooling stations, it is observed that during the fault phase voltage dropped to ~0.85pu at Bikaner(PG), 0.95pu at Bhadla2(PG), 0.93pu at Fatehgarh2(PG) and 0.93pu at AFSFS. vi) Total drop in RE generation during the event was approx. 700MW (as per SCADA) including 325MW RE generation at TPGEL & TPSEL. Further, within 03 minutes of the occurrence of event, approx. 350MW RE generation recovered. vii) MVA profile of STATCOM 1&2 connected at Bhadla2(PG) changed from ~65MVA injection each to 170MVA & 230MVA injection respectively.	1) 220 KV TATA Noorsar SL_BKN PG (TPGEL)-Bikaner(PG) (TPGEL) Ckt
12	GD-1	Rajasthan	16-Oct-2023 14:54	16-Oct-2023 16:43	01:49	144	0	0.338	0.000	42560	48686	i) Generation of 220KV AHE4L PSS IV RE stations evacuates through 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHE4L PSS 4 HB_FGRAH_FBTL (AHE4L) (AREPRL) Ckt. During antecedent condition, AHE4L PSS IV RE station was generating approx. 144MW. ii) As reported, at 14:54hrs, 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHE4L PSS 4 HB_FGRAH_FBTL (AHE4L) (AREPRL) Ckt tripped on R-N phase to earth fault. iii) As per PMU & SOE data, R-N phase to earth fault with unsuccessful A/R operation at AFSFS end is observed. Line instantaneously tripped from AHE4L PSS IV end. iv) Due to tripping of 220KV AHE4L PSS IV line, RE (wind) generation (144MW) of the RE station lost due to loss of evacuation path. v) As per PMU plots of voltage at RE stations of 220KV lines connected at different pooling stations, voltage was above 0.9pu at RE station end. It was in the range of 0.95-0.98pu. No drop in solar generation connected at ISTS pooling station in Rajasthan RE complex is observed.	1) 220 KV Adani RenewPark_SL_FGARH_FBTL (AREPRL)-AHE4L PSS 4 HB_FGRAH_FBTL (AHE4L) (AREPRL) Ckt
13	GI-2	Rajasthan	21-Oct-2023 16:50	16-Oct-2023 18:45	01:55	150	0	0.347	0.000	43166	49311	i) 765/400/220KV Bhadla(PG) has double main single breaker bus scheme at 220KV level, there are total six (06) buses. Parallel buses are separated bus coupler and adjacent buses are separated by bus sectionizers. During antecedent condition, all bus coupler and sectionalizer were in closed condition. ii) As reported, at 16:50 hrs, R-N fault occurred on 220KV Bhadla(PG)-ESUCKL(SBEGPL) ckt. On this fault, line protection operated however, CB didn't open at Bhadla end. Further, as CB of ESUCKL(SBEGPL) ckt didn't open at Bhadla(PG) end, LBB of ESUCKL bay operated which resulted into tripping of all the elements connected to the 220KV Bus-4 i.e., 220KV circuits to TPREL, MRPL & ESUCKL RE station and 400/220KV 500MVA ICT-6 at Bhadla(PG). iii) Bus sectionalizer and bus coupler breaker also opened instantaneously and elements connected to other buses remained intact. iv) As per PMU at Bhadla(PG), R-N phase to earth fault with delayed clearance of approx. 280mscc is observed. v) As per SCADA, change in ISTS solar generation of approx. 150MW is observed.	1) 220KV Bhadla(PG)-ESUCKL(SBEGPL) ckt 2) 220KV Bhadla(PG)-TPREL ckt 3) 220KV Bhadla(PG)-MRPL ckt 4) 400/220KV 500MVA ICT-6 at Bhadla(PG) 5) 220KV Bhadla(PG) Bus-4
14	GD-1	Uttar Pradesh	22-Oct-2023 06:00	22-Oct-2023 08:31	02:31	0	100	0.000	0.225	35812	44496	i) 220/132KV Sikandra (Agra2) (UP) S/s has double main transfer bus connected at 220KV 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 06:00 hrs, 220 KV Aurayva(NT)-Agra2(UP) (PG) Ckt-1&2 tripped. At the same time, bus bar protection of 220KV Bus-1 at 220KV Agra2(UP) operated and as all elements at Agra2(UP) were connected to 220KV Bus-1 only, all 220KV element at Agra2(UP) tripped. Details related to exact location and nature of fault yet to be received from UP. iii) As per PMU at Agra2(PG), B-N phase to earth fault with unsuccessful A/R operation is observed. As per SCADA SOE at NRDC, it seems that A/R operation occurred in 220KV Agra1(UP)-Agra2(UP) ckt-1. UP has been communicated to share the DR/EL to ascertain the exact sequence of the event. iv) Due to tripping of 220KV Bus-1, supply to 132KV side of Sikandra (Agra2) (UP) also lost which resulted into total blackout of 220/132KV Sikandra (Agra2) (UP) S/s. v) As per SCADA, change in demand of approx. 100MW is observed in UP control area.	1) 220 KV Aurayva(NT)-Agra2(UP) (PG) Ckt-1 2) 220 KV Aurayva(NT)-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)-Kira wali Ckt 6) 220/132kv 150MVA ICT-1 at Agra2(UP) 7) 220/132kv 150MVA ICT-2 at Agra2(UP) 8) 220/132kv 100MVA ICT-3 at Agra2(UP) 9) 220/132kv 60MVA ICT-6 at Agra2(UP)
15	GD-1	Rajasthan	31-Oct-2023 15:28	31-Oct-2023 18:45	03:17	47	0	0.131	0.000	35896	51145	i) During antecedent condition, total generation of 220KV AHE3L was evacuating through 220 KV Fatehgarh_III(PG)-AHE3L PSS HB_FGRAH_PG (AHE3L) (AHE3L) Ckt which was carrying approx. 47MW. ii) As reported, at 15:28 hrs, 220 KV Fatehgarh_III(PG)-AHE3L PSS HB_FGRAH_PG (AHE3L) (AHE3L) Ckt tripped on earth fault due to high wind condition. iii) As per PMU plots of voltage at RE stations connected at 220KV or 400KV level of different pooling stations, it is observed that during the fault phase voltage dropped to ~0.95pu at Bikaner(PG), ~0.86pu at Bhadla2(PG), ~0.86pu at Bhadla(PG), ~0.59pu at Fatehgarh2(PG) and ~0.74pu at AFSFS. iv) At the same time, dip in RE generation is observed in some plants, e.g., ACME, Azure-1, TPREL, Avada RHM, Avada Sunc, RSWPL, AHE3L, Azure-1, NTPC Kalyati, NTPC Nohra etc. As per SCADA, total reduction in RE generation of approx. 160MW is observed. v) As per PMU at AHE3L(UP) (connected at 220KV level of Fatehgarh2(PG)), AHPLP(UP) (connected at 220KV level of Bhadla2(PG)) and Azure43(UP) (connected at 400KV level of Bikaner(PG)), R-Y phase to phase fault with fault clearing time of approx. 80ms is observed in the system. But as per PMU at AFSFS(UP) (connected at 220KV level of Fatehgarh1 pooling(UP)) and AREPRL(UP) (connected at 220KV level of Bhadla(PG)), R-B phase to phase fault with fault clearing time of approx. 80ms is observed in the system. (Phase sequence issue is observed) vi) As per PMU at 220KV AHE3L, MW generation loss of approx. 47MW is observed at AHE3L.	1) 220 KV Fatehgarh_III(PG)-AHE3L PSS HB_FGRAH_PG (AHE3L) (AHE3L) Ckt

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Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid*		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
	(GI for GI 2/ GD-1 to GD-5)					Generation Loss(MW)	Load Loss (MW)	% Generation Loss (MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD-1	WR	01-Oct-23 16:30	01-Oct-23 17:34	01:04	-	54	-	0.10%	61714	55518	At 16:29 hrs/ 01-10-2023, failure of R phase potential transformer of 220 kV Ratlam-Bus-2 resulted in bus bar protection operation and 220 kV Ratlam-Bus-2 and all connected elements tripped. Load loss of 54 MW occurred at 220 kV Ratlam (Madhya Pradesh) due to the event.	Tripping of following elements- 1. 220 kV Ratlam-Bus-2 2. 220/132 kV Ratlam-ICT-2&3 3. 220 kV Ratlam-Nagra-2 4. 220 kV Badnwar-Ratlam-2
2	GI-2	WR	09-Oct-23 16:15	09-Oct-23 17:15	01:00	-	-	-	-	79626	67090	At 16:15 hrs/ 09-10-2023, Blast of B phase HV side current transformer of 400/220 kV Jetpur-ICT-1 resulted in bus bar protection operation in 400 kV Jetpur-Bus-1, 400 kV Jetpur-Bus-1 and all connected elements tripped. No Load loss occurred due to the event.	Tripping of following lines- 1. 400 kV Jetpur-Bus-1 2. 400 kV CGPL-Jetpur-1 3. 400 kV Jetpur-Amreli-1 4. 400/220 kV Jetpur-ICT-1&3
3	GD-1	WR	12-Oct-23 06:49	12-Oct-23 07:15	00:26	-	314	-	0.48%	76937	65523	At 06:49 Hrs / 12-10-2023, HV side B phase CT of 220/66 kV 50MVA Navsari(GI) ICT-5 failed and resulted in tripping of 220 kV Navsari Main Bus and all the connected elements on LBB protection operation resulting in blackout at 220 kV Navsari(GI). As per PMU plot, initially fault was in B phase and converted into three phase fault due to fumes from burst CT. Load loss of 314 MW reported during the event.	Tripping of following elements- 1. 220 kV Navsari-Nasik-1&2 2. 220 kV Navsari-Dastan-1&2 3. 220 kV Navsari-Tilangpore 4. 220 kV Navsari-Podda 5. 220 kV Navsari-Atul 6. 220 kV Navsari-Ambheta 7. 220/66 kV Navsari-ICT- 1,2,5&7 8. 220/66 kV Navsari-ICT- 3,4&6
4	GD-1	WR	13-Oct-23 12:20	13-Oct-23 16:02	03:42	186	-	0.24%	-	78304	69113	At 12:20Hrs/13-10-2023, 220 kV Kanwani- Bhawasinghpura line tripped on Y-B phase to phase fault due to strike of bird (Eagle) with Line(found out after patrolling). At the same time 220 kV Khandwa-Bhawasinghpura line also tripped from Bhawasinghpura end only on Y-B phase fault (weak infeed) resulting in total blackout at 220 kV Bhawasinghpura and 220 kV Kanwani. Generation loss of 186 MW at Masaya Solar (101MW at 220 kV Bhawasinghpura and 85 MW at 220 kV Kanwani) observed due to loss of evacuation path.	Tripping of following elements- 1. 220 kV Khandwa- Bhawasinghpura 2. 220 kV Kanwani- Bhawasinghpura
5	GI-1	WR	17-Oct-23 12:47	17-Oct-23 13:29	00:42	-	286	-	0.42%	73315	68694	At 12:47 Hrs /17.10.2023, 220 kV Boisar(PG) Bus-1 tripped due to mechanical failure of Bus coupler R phase isolator(89A/204 Bay). Mechanical failure of Isolator Bus Post Insulator (BPI) led to falling of Bus coupler R phase isolator, 220 kV Boisar(PG) Bus-1 and all connected element tripped. Load loss of 286 MW reported by MSLDC due to LTS operation in 220 kV Boisar(PG)-Boisar(MH)-3	Tripping of following elements- 1. 220 kV Boisar(PG)-Boisar(MH)-1 2. 220 kV Boisar(PG)-Boisar(MH)-2, 3. 220 kV Boisar-Tarapur, 4. 400/220 kV ICT-2(315 MVA) 5. 400/220 kV ICT-4(500 MVA)
6	GI-1	WR	22-Oct-23 14:28	22-Oct-23 14:47	00:19	-	188	-	0.27%	68537	68684	At 14:28 Hrs /22.10.2023, 220 kV Boisar(PG)-Boisar(MH)-1 Tripped from Boisar(PG) end on R-E fault with A/R successful at Boisar(MH) end. 220 kV Boisar(PG)-Boisar(MH)-2 Tripped on R-N fault at both ends. 220kV Boisar(MH)-Ghodbunder Line tripped on R-N fault from Boisar end and holding from Ghodbunder end. 220kV Boisar(PG)-Boisar Line-3 and 220kV Tarapur-Boisar were already under outage. This led to 188 MW of load loss at 132kV Palghar Substation- 75.8MW and 132kV MIDC Substation-112.87 MW as reported by SLDC Maharashtra.	Tripping of following elements- 1. 220 kV Boisar(PG)-Boisar(MH)-1 2. 220 kV Boisar(PG)-Boisar(MH)-2, 3. 220kV Boisar(MS)-Ghodbunder
7	GD-1	WR	29-Oct-23 12:59	29-Oct-23 14:39	01:40	-	-	-	-	70573	66592	At 12:59 hrs /29-10-2023, 220 kV Bachau-Ostro-1&2 tripped on B-E fault and blackout occurred at 220 kV Ostro due to loss of evacuation path. No generation loss occurred due to the event.	Tripping of following elements- 1. 220 kV Bachau-Ostro-1&2
8	GI-2	WR	30-Oct-23 19:19	30-Oct-23 21:04	01:45	600	-	0.84%	-	71078	64716	At 19:19 hrs /30-10-2023, LBB protection operated and 400 kV SSP-Bus-2 and all connected elements tripped (presently SSP is being run with split bus arrangement). During inspection feeder due to which LBB operated couldn't be identified and there was no fault during the tripping. Generation loss of 600 MW occurred at 400/220 kV SSP (Sardar Sarovar Power Plant) due to the event.	Tripping of following elements- 1. 400 kV SSP-Bus-2 2. 400 kV Dhule-SSP-1&2 3. 400 kV SSP-Baghat-2 4. 400/220 kV SSP ICT-1&2 5. SSP (RBPH)-Unit-2&4 (200 MW) 6. 220 kV CHPH-RBPH-1&2 7. SSP (CHPH)-Unit-1,3,4&5 (50 MW)

Details of Grid Events during the Month of October 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 (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)		
	(GI for GI 2/ GD-1 to GD-5)												
1	GD-1	Tamil Nadu	02-Oct-23 10:40	02-Oct-23 12:09	01:29	573	0	1.20%	0.00%	47699	49492	Tripping of 230kV Bus-2 of 400kV/230kV Alamathy SS of TANTRANSO and Complete Outage of 230kV OPG_CFP SS. As per the reports submitted, the triggering incident was R-Y fault in Bus-2 at Alamathy end. Immediately, 230kV Alamathy Bus-2 BBP operated and all the elements connected to the bus tripped which included 230kV Alamathy OPG-2. With the tripping of 230kV Alamathy OPG-2, 230kV Alamathy OPG-1 got overloaded and due to which B-phase jumper failure created a B-N fault in 230kV Alamathy OPG Line-1 and the line tripped resulting in a complete outage of 230kV OPG_CFP SS. At the same time, NTECL Vallur Unit-3 tripped on Low forward power protection	1. 230kV Alamathy OPG Line-1&2 2. 400kV/230kV Alamathy ICT-3 3. 230kV Alamathy Mosur 4. 230kV Alamathy Manali Line-2 5. 230kV Alamathy Thiruverkadu line 6. NTECL Vallur Unit-3
2	GD-1	Andhra Pradesh	03-Oct-23 14:10	03-Oct-23 15:02	00:52	0	0	0.00%	0.00%	48363	54821	Complete Outage of Gautami_CCCP : During antecedent conditions, 400kV Vemagiri Gautami_CCCP line-1 was under idle charged condition. As per the reports submitted, the triggering incident was B-N fault in 400kV Vemagiri Gautami_CCCP line-2. Tripping of the only connected line resulted in complete outage of Gautami_CCCP.	1. 400kV Vemagiri Gautami_CCCP line-2
3	GD-1	Tamil Nadu	05-Oct-23 14:51	05-Oct-23 15:12	00:21	0	182	0.00%	0.31%	48447	59379	Complete Outage of 230kV/110kV Taramani SS of TANTRANSO: During antecedent conditions, 230kV Kalivendapattu Taramani, and 230kV Taramani Rapuram, 220kV Taramani Mylapuram, 220kV Taramani Taramani, New were under outage. 230kV Taramani Rapuram and 220kV Taramani Mylapuram were idle charged from Taramani end. As per the reports submitted, the triggering incident was Y-N fault in the 230kV Taramani Sripurambudur line. Tripping of the only power supply source resulted in complete outage of 230kV/110kV Taramani SS.	1. 230kV Sripurambudur Taramani Line
4	GD-1	Karnataka	06-Oct-23 11:30	06-Oct-23 12:09	00:39	0	180	0.00%	0.30%	51272	59928	Complete Outage of 220kV/66kV Koramangala SS and 220kV/66kV Ninmhas SS of KPTCL: During antecedent conditions, 220kV EDC Ninmhas was under outage. 220kV/66kV Koramangala SS and 220kV/66kV Ninmhas's SS, were being radially fed through 220kV Koramangala HSR line. As per the reports submitted, the triggering incident was a Y-N fault in the 220kV Koramangala Ninmhas line and the line tripped. At the same time, 220kV HSR Koramangala line tripped at HSR end and further details are awaited. This resulted in a complete outage of 220kV/66kV Koramangala SS and 220kV/66kV Ninmhas SS.	1. 220kV Koramangala Ninmhas 2. 220kV Koramangala HSR
5	GD-1	Karnataka	09-Oct-23 09:16	09-Oct-23 09:32	00:16	0	372	0.00%	0.63%	49644	58974	Complete Outage of 220kV/66kV A Station, 220kV/66kV Subramanyapura SS, 220kV/66kV Peenya SS, 220kV/66kV Brindavan SS, 220kV/66kV/11kV NRS station and 220kV/66kV Khodays SS of KPTCL: During antecedent conditions, 220kV Somnathally Khodays and 220kV EDC A-Station were under outage. 220kV/66kV A Station, 220kV/66kV Subramanyapura SS, 220kV/66kV Peenya SS, 220kV/66kV Brindavan SS, 220kV/66kV/11kV NRS station and 220kV/66kV Khodays SS were being radially fed through 220kV Nelamangala Peenya Line 2,3 and 220kV Nelamangala Brindavan line. As per the reports submitted, the triggering incident was 220kV Nelamangala Peenya Line-2 and the line tripped. Subsequently, 220kV Nelamangala Peenya Line-3 and 220kV Nelamangala Brindavan lines tripped on overloading at Nelamangala end. Tripping of all these lines resulted in complete outage of 220kV/66kV A Station, 220kV/66kV Subramanyapura SS, 220kV/66kV Peenya SS, 220kV/66kV Brindavan SS, 220kV/66kV/11kV NRS station and 220kV/66kV Khodays SS.	1. 220kV Nelamangala Peenya Line-2&3 2. 220kV Nelamangala Brindavan
6	GD-1	Karnataka	09-Oct-23 16:46	09-Oct-23 17:15	00:29	1085	0	2.48%	0.00%	43670	53133	Complete Outage of 400kV/22kV UPLC SS and Tripping of 220kV Bus-1 of 220kV/110kV Kemar SS of KPTCL: During antecedent conditions, 220kV/110kV Kemar SS was operating with split bus condition at 220kV level. As per the reports submitted, the triggering incident was Y-N fault in 400kV UPLC Hebbanahalli Line-2. Immediately, UPLC unit-2 tripped on SPS operation. At 16:54hrs, 400kV UPLC Hebbanahalli Line-1 tripped on R-N fault. Subsequently, UPLC Unit-1 tripped on over frequency. Tripping of units and lines resulted in complete outage of 400kV/22kV UPLC SS. Since, 220kV Kemar Bus-1 was radially fed from 400kV/220kV UPLC SS, this resulted in loss of supply to 220kV Bus-1 of 220kV/110kV Kemar SS.	1. 400kV Hebbanahalli UPLC Line-1&2 2. UPLC Unit-1&2
7	GD-1	Karnataka	10-Oct-23 12:35	10-Oct-23 15:45	03:10	16	258	0.03%	0.42%	51512	60930	Complete Outage of 220kV Nandihalli, 220kV/11kV Bijapur SS, 220kV/110kV Indri SS and 220kV/110kV Aheri SS of KPTCL and 220kV/33kV Vaishali: During antecedent conditions, all elements were connected to 220kV bus-1 at 220kV Nandihalli SS. As per the reports submitted, the triggering incident was R-N fault in 220kV Kudgi_NTPC Nandihalli line-4. At the same time, 220kV Kudgi_NTPC Nandihalli Line-3(which was under outage) sensed the fault in zone-1 for 220ms. This led to 220kV LBB operation. Immediately all the elements connected to the 220kV Bus-1 tripped resulting in complete outage of 220kV Nandihalli SS. Since, 220kV/11kV Bijapur SS, 220kV/110kV Indri SS, 220kV/110kV Aheri SS and 220kV/33kV Vaishali were being radially connected to 220kV Nandihalli, outage of Nandihalli resulted in complete outage of these stations.	1. 220kV Nandihalli Kudgi_NTPC Line-1,2 & 4 2. 220kV Nandihalli Bijapur Line-1&2 3. 220kV Nandihalli BB Wadi Line-1&2
8	GD-1	Karnataka	15-Oct-23 09:42	15-Oct-23 11:15	01:33	24	150	0.05%	0.27%	48432	55187	Complete Outage of 220kV/110kV Bagewadi SS of KPTCL, 220kV Baluthi, 220kV Fortune SS, 220kV Atria SS and 220kV RBRK SS : As per the reports submitted, the triggering incident was a failure of the 220kV Bus coupler at 220kV/110kV Bagewadi SS causing R-N fault in 220kV Bus-1 and 220kV Bus-2. Immediately, 220kV Bus-1 and Bus-2 BBP operated and all the elements connected to the buses tripped resulting in a complete outage of 220kV/110kV Bagewadi SS. Since 220kV Baluthi, 220kV Fortune SS, 220kV Atria SS and 220kV RBRK SS are radially connected with 220kV/110kV Bagewadi SS outage of 220kV/66kV Bagewadi SS resulted in complete outage of these stations.	1. 220kV Bagewadi Lingsugur Line-1&2 2. 220kV Bagewadi Almatthi Line-1&2 3. 220kV Bagewadi Nandihalli Line-1&2 4. 220kV Bagewadi Fortune Line-1&2 5. 220kV Bagewadi Atria Line-1&2 6. 220kV Bagewadi RBRK
9	GD-1	Karnataka	17-Oct-23 12:06	17-Oct-23 14:06	02:00	0	400	0.00%	0.69%	50141	58117	Tripping of 400kV Bus-2 of 400kV/220kV Guttur SS and complete outage of 220kV/110kV Ranebenur SS, 220kV/66kV Davanagere SS, 220kV/66kV Hosadurga SS, 220kV/66kV Bemkikere SS, 220kV/66kV Honnali SS, 220kV/66kV Neelagunda SS and 220kV/66kV Guttur SAS SS of KPTCL: As per the reports submitted, the triggering incident was Y-N fault in 400kV Bus-2 of 400kV/220kV Guttur SS. Immediately, Bus-2 BBP operated and all the elements connected to the bus tripped. Since, 220kV/110kV Ranebenur SS, 220kV/66kV Davanagere SS, 220kV/66kV Hosadurga SS, 220kV/66kV Bemkikere SS, 220kV/66kV Honnali SS, 220kV/66kV Neelagunda SS and 220kV/66kV Guttur SAS SS were being radially connected to 400kV Bus-2 of 400kV/220kV Guttur SS, tripping of the bus resulted in complete outage of these stations.	1. 400kV Guttur Hiriyur Line-1&2 2. 400kV Guttur Naandra Line-2 3. 400kV Guttur Dasi Line 4. 400kV Guttur BTPS Line 5. 400kV/220kV Guttur ICT-1&2
10	GD-1	Karnataka	17-Oct-23 12:10	17-Oct-23 13:43	01:33	0	160	0.00%	0.28%	49912	58158	Complete Outage of 220kV/66kV Alipura SS of KPTCL: As per the reports submitted, the triggering incident was B-N fault in 220kV Alipur BTPS line. At BTPS end, the fault was sensed in zone-1 and the line tripped. Alipur end failed to clear the fault, and the fault was cleared by 220kV Alipur Regulapadu end on operation of zone-3 at Regulapadu end with a delay of 750ms. Tripping of both connected lines resulted in complete outage of 220kV/66kV Alipura SS.	1. 220kV Alipura BTPS 2. 220kV Alipura Regulapadu
11	GD-1	Karnataka	27-Oct-23 04:05	27-Oct-23 10:00	05:55	2	30	0.01%	0.07%	37968	43970	Complete Outage of 220kV/66kV HN_Pura_SS of KPTCL and 220kV/33kV Gopalapura SS of Suzlon_KA: As per the reports submitted, due to issue in DC supply at Gopalapura end, 220kV Gopalapura Hassan and 220kV Gopalapura Tubnikere lines tripped only at Gopalapura end. Tripping of both these lines resulted in complete outage of 220kV/33kV Gopalapura SS which further resulted in complete outage of 220kV/66kV HN_Pura_SS.	1. 220kV Gopalapura Hassan 2. 220kV Gopalapura Tubnikere
12	GI-1	Telangana	15-Oct-23 00:35	15-Oct-23 02:07	01:32	250	0	0.62%	0.00%	40419	46104	Tripping of 220kV Bus-2 of 220kV/132kV Nsagar PH of TSGENCO: As per the reports submitted, the triggering incident was maloperation of 220kV Nsagar PH Bus-2. Immediately all the elements connected to the bus tripped.	1. 220kV Tallapalli Nsagar_PH Line-2&3 2. 220kV Nsagar Chalkurthy 3. Nsagar Unit-4,6 & 8 4. 220kV/132kV 100MVA PTR-2

Details of Grid Events during the Month of October 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 (HH:MM)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid*		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
	(GI for GI 2/ GD-1 to GD-5)					Generation Loss(MW)	Load Loss (MW)	% Generation Loss (MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
13	GI-1	Karnataka	18-Oct-23 15:17	18-Oct-23 17:09	01:52	0	0	0.00%	0.00%	49397	57864	Tripping of 220kV Bus-1 of 400kV/220kV Muniabad SS of PGCIL SR-1: During antecedent conditions, at 400kV/220kV Muniabad SS, main circuit breaker of 220kV Muniabad Lingapur line-2 was bypassed and the line was charged through Bus Coupler by connecting to 220kV Bus-1. The triggering incident was the tripping of 220kV Muniabad Lingapur line-2 on the R-N fault. Since this is the only line connected to Bus-1 at Muniabad, this resulted in the de-energization of 220kV Bus-1 of 400kV/220kV Muniabad SS.	1. 220kV Muniabad Lingapur line-2
14	GI-2	Telangana	26-Oct-23 05:25	26-Oct-23 10:34	05:09	460	0	1.15%	0.00%	39878	44291	Tripping of 400kV Bus-2 of 400kV Boopalpally Generating station of TSGENCO: As per the reports submitted, the triggering incident was Breaker failure in GT-2 of 400kV Boopalpally causing an R-N fault near the breaker. The fault was cleared by remote ends on DEF operation resulting in outage of 400kV Bus-2 of 400kV Boopalpally Generating station.	1. 400kV Boopalpally Warangal Line-1&2 2. 400kV Boopalpally Chandlapur Line-2
15	GI-1	Andhra Pradesh	28-Oct-23 11:15	28-Oct-23 15:47	04:32	0	0	0.00%	0.00%	56344	60366	Tripping of 220kV Bus-1 of 400kV/220kV Sattenapally SS of APTRANSCO: As per the reports submitted, the triggering incident was Y-N fault in 220kV Bus-1 of 400kV/220kV Sattenapally SS. Immediately, 220kV BBP operated and all the elements connected to the bus tripped.	1. 400kV/220kV Sattenapally ICT-1&3 2. 220kV Sattenapally Narsaraopet Line-1 3. 220kV Sattenapally Parchuru Line-1 4. 220kV Sattenapally Prathipadu Line-1

Details of Grid Events during the Month of October 2023 in Eastern Region



Sl No.	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid*		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
	(GI for GI 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	Teesta V, Teesta III, Dikchu	04-Oct-23 02:55	Still Out	-	0	0	0.00%	0.00%	27350	20289	At 00:50 hrs on 04-10-2023, due to continuous high silt and rise in inflow in the upstream area of the reservoir, all units at Teesta-III (5*200 MW) (On bar gen 1300 MW) taken out of bar. 400 kV Teesta III – Dikchu & 400 kV Teesta-III -Rangpo lines were hand tripped from Teesta III HEP at 01:08 hrs and consequently Teesta-III substation became dead. Both units at Dikchu (2*48 MW) taken out of bar at 01:49 hrs due to flash flood. All units of Teesta V (3*170 MW, generating around 504 MW) were taken out of service at 02:37 hrs due to high silt. 400 kV RANGPO-TEESTA-V- D/C tower collapsed at loc. No. 1 at 02:55 hrs and Teesta-V substation became dead. 400 kV Dikchu- Rangpo line breaker opened from Dikchu HEP at 06:15 hrs and Dikchu substation became dead.	400 kV Rangpo-Teesta V D/C Hand-tripped/De-synchronized: 400 kV Teesta 3-Rangpo 400 kV Teesta 3-Dikchu 400 kV Rangpo-Dikchu 6*200 MW Units at Teesta 3 3*168 MW Units at Teesta 5 2*48 MW Units at Dikchu HEP
2	GD-1	Rongnichu	09-Oct-23 11:13	09-Oct-23 18:17	07:04	103	0	0.39%	0.00%	26407	22285	At 11:13 Hrs, 220 kV Rangpo-Rongnichu-2 tripped on Y_B fault, leading to loss of evacuation path for two running units at Rongnichu as 220 kV Rangpo-Rongnichu-1 was already under emergency shutdown. Consequently, total power failed at Rongnichu 5/5 and around 103 MW generation loss occurred.	220 kV Rangpo-Rongnichu-2
3	GI-2	Barh	27-Oct-23 10:15	27-Oct-23 18:29	08:14	570	0	2.04%	0.00%	27960	19636	At 10:15 Hrs, A/r observed in 400 kV Barh-Mothari-2 which was successful from both ends, however, teed protection operated in its tie bay at Barh and the dia element 400 kV Kahalgaon-Barh-2 tripped. At the same time, 660 MW U#2 at Barh also tripped on GT differential protection and 570 MW generation loss occurred.	400 kV Barh-Mothari-2 (A/r successful) 400 kV Kahalgaon-Barh-2 660 MW U#2 at Barh

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



Sl No.	Category of Grid Event (GI Ior GI 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	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	03-Oct-23 03:00	03-Oct-23 03:32	00:32	14.5	17.5	0.62%	0.80%	2344	2183	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System were connected with the rest of the grid by 132 kV Balipara - Tenga line. At 03:00 Hrs of 03/10/2023, 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 rest of the grid due to load generation mismatch in these areas. Power was extended to Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System by charging 132 kV Balipara - Tenga line at 03:32 Hrs.	132 kV Balipara - Tenga line
2	GD-1	Sarupathar and Golaghat areas of Assam Power System	04-Oct-23 13:58	04-Oct-23 15:12	01:14	0	43	0.00%	1.79%	2376	2408	Sarupathar and Golaghat areas of Assam Power System were connected with the rest of the grid by 132 kV Sarupathar-Bokajan line, 132 kV Golaghat-Mariani(AS) line was under planned shutdown prior to event. At 13:58 Hrs of 04/10/2023, 132 kV Sarupathar-Bokajan line tripped. Due to tripping of this element, Sarupathar and Golaghat areas of Assam Power System got separated from rest of NER grid due to no source available in these areas. Power was extended to Sarupathar and Golaghat areas of Assam Power System by charging 132 kV Sarupathar-Bokajan line at 15:12 hrs on 04/10/2023.	132 kV Sarupathar-Bokajan line
3	GD-1	Zuangtui, and radially connected 132 kV Saitual,Vankal, Serchhip and Lunglei substations of Mizoram Power System	04-Oct-23 19:57	04-Oct-23 21:31	01:34	0	34	0.00%	1.09%	3361	3128	Zuangtui, and radially connected 132 kV Saitual,Vankal, Serchhip and Lunglei substations of Mizoram Power System were connected with the rest of the grid by 132kV Melriat(PG) - Zuangtui line. At 19:57 Hrs of 04/10/2023, 132kV Melriat(PG) - Zuangtui line tripped. Due to tripping of this element, Zuangtui, and radially connected 132 kV Saitual,Vankal, Serchhip and Lunglei substations of Mizoram Power System got separated from rest of NER grid due to no source available in these areas. Power was extended to Zuangtui, and radially connected 132 kV Saitual,Vankal, Serchhip and Lunglei substations of Mizoram Power System by charging 132kV Melriat(PG) - Zuangtui line at 21:31 hrs on 04/10/2023.	132kV Melriat(PG) - Zuangtui line
4	GD-1	Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power system and Roing, Pasighat areas of Arunachal Pradesh Power System	15-Oct-23 09:38	15-Oct-23 10:14	00:36	0	52	0.00%	2.57%	2461	2020	Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power system and Roing, Pasighat areas of Arunachal Pradesh Power System were connected with the rest of the grid by 132 kV Tinsuka-Margherita(Ledo) line. At 09:38 Hrs of 15/10/2023, 132 kV Tinsuka-Margherita(Ledo) line tripped. Due to tripping of this element, Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power system and Roing, Pasighat areas of Arunachal Pradesh Power System got separated from rest of the grid due to no source available in these areas. Power was extended to Margherita(Ledo), Rupai and Chapakhowa areas of Assam Power system and Roing, Pasighat areas of Arunachal Pradesh Power System by charging 132 kV Tinsuka-Rupai line at 10:14 Hrs.	132 kV Tinsuka-Margherita(Ledo) line
5	GD-1	Lakwa area of Assam Power System	17-Oct-23 19:32	17-Oct-23 20:55	01:23	150	0	4.13%	0.00%	3635	3029	Lakwa area of Assam Power system, LTPS & LRPP generation was connected with the rest of the grid by 132 kV LTPS-Nazira D/C, 132 kV LTPS-Moran, 132 kV LTPS-Sonari, 132 kV LTPS-NTPS and 132 kV LTPS-Mariani(AS) lines. At 19:32 Hrs of 17/10/2023, 132 kV LTPS Bus tripped. Due to this tripping, all the lines connected to LTPS i.e., 132 kV LTPS-Nazira D/C, 132 kV LTPS-Moran, 132 kV LTPS-Sonari, 132 kV LTPS-NTPS and 132 kV LTPS-Mariani(AS) lines tripped and LTPS & LRPP generation of Assam Power system got separated from rest of the grid due to load generation mismatch in this area. 132 kV LTPS Bus was charged by charging 132 kV LTPS-Mariani(AS) line at 20:55 Hrs.	132 kV LTPS Bus
6	GD-1	Dharmanagar area of Tripura Power system	19-Oct-23 01:47	19-Oct-23 02:25	00:38	0	22	0%	1%	2700	2149	Dharmanagar area of Tripura Power system was connected with the rest of the grid by 132 kV Dharmanagar-Dullavchhera and 132 kV PK Bari-Dharmanagar lines. At 01:47 Hrs of 19/10/2023, 132 kV Dharmanagar-Dullavchhera and 132 kV PK Bari-Dharmanagar lines tripped. Due to tripping of these elements, Dharmanagar area of Tripura Power system got separated from rest of the grid due to no source available in this area. Power was extended to Dharmanagar area of Tripura Power system by charging 132 kV Dharmanagar-Dullavchhera line at 02:25 Hrs.	132 kV PK Bari-Dharmanagar & 132 kV Dharmanagar-Dullavchhera
7	GD-1	Mokokchung area of Nagaland Power System	27-Oct-23 11:56	27-Oct-23 13:20	01:24	0	12	0%	1%	2170	2173	Mokokchung area of Nagaland Power system was connected with the rest of the grid by 132 kV Doyang-Mokokchung & 132 kV Mokokchung(PG)-Mokokchung(NL) D/C lines. At 11:56 Hrs of 27/10/2023, 132 kV Doyang-Mokokchung & 132 kV Mokokchung(PG)-Mokokchung(NL) D/C lines tripped. Due to this trippings, Mokokchung area of Nagaland Power system got separated from rest of the grid due to no source available in this area. Power was extended to Mokokchung area of Nagaland Power system by charging 132 kV Mokokchung(PG)-Mokokchung(NL)-I & 132 kV Doyang-Mokokchung line at 13:20 Hrs of 27/10/2023.	132 kV Doyang-Mokokchung & 132 kV Mokokchung(PG)-Mokokchung(NL) D/C
8	GD-1	Pailapool area of Assam Power system	30-Oct-23 12:47	30-Oct-23 12:53	00:06	20	23	0.92%	1.12%	2169	2045	Pailapool area of Assam Power system was connected with the rest of the grid by 132 kV Jiribam(PG)-Pailapool and 132 kV Srikona-Pailapool lines. 132 kV Srikona-Pailapool line was under planned shutdown prior to the event. At 12:47 Hrs of 30/10/2023, 132 kV Jiribam(PG)-Pailapool line tripped. Due to tripping of this element, Pailapool area of Assam Power system got separated from rest of the grid due to load generation mismatch in this area. Power was extended to Pailapool area of Assam Power system by charging 132 kV Srikona-Pailapool line at 12:53 Hrs of 30/10/2023.	132 kV Jiribam(PG)-Pailapool
9	GI-1	Tripura	08-Oct-23 06:20	08-Oct-23 08:00	01:40	26	0	1%	0%	3096	1859	AGTCCPP GT-IV & ST-VI tripped at 06:20 Hrs on 08.10.2023 due to Control MCC trouble. Revision done from Block No. 33 on 08.10.2023	AGTCCPP GT-4 & ST-6
10	GI-2	BGTPP	21-Oct-23 19:35	21-Oct-23 21:30	01:55	178	0	5%	0%	3544	2854	BGTPP Unit-3 tripped at 19:35 Hrs on 21.10.2023 due to Furnace Pressure high. Revision done from Block No. 87 on 21.10.2023	BGTPP Unit-3
11	GI-2	Kopili	22-Oct-23 03:35	22-Oct-23 06:30	02:55	50	0	2%	0%	2043	1770	Kopili Unit-3 tripped at 03:35 Hrs on 22.10.2023 due to excitation problem. Revision done from Block No. 27 on 22.10.2023	Kopili Unit-3
12	GI-1	Kopili Stg II	22-Oct-23 08:38	22-Oct-23 12:00	03:22	25	0	1%	0%	2385	1979	Kopili Stg-2 tripped at 08:38 Hrs on 22.10.2023 due to Overspeed forced trip. Revision done from Block No. 49 on 22.10.2023	Kopili Stg-II