

Details of Grid Events during the Month of August 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	GI-2	Haryana	01-Aug-2023 07:51	01-Aug-2023 08:29	00:38	0	0	0.000	0.000	54742	62652	<p>i) During antecedent condition, 800 KV HVDC Kurukshetra(PG) Pole-1, 2, 3 & 4 were carrying 1187 MW, 1198 MW, 1191 MW and 1195 MW respectively from Champa to Kurukshetra. Total power order was approx. 5000MW.</p> <p>ii) As reported, at 07:51:00hrs, 800 KV HVDC Kurukshetra(PG) Pole-02 & 04 got blocked. "Pole 2 T-zone" protection latched at Kurukshetra end. Due to T-zone protection Pole 2 blocked and generated CAT B sequence as per protection philosophy to isolate Parallel Pole-04. Also, due to this, Pole 4 got blocked on CAT B protection initiated by Pole 2.</p> <p>iii) As per protection philosophy, T-zone protection in Pole 2 compare following three currents – Pole 2 Id current, Pole 2 Ih current & Parallel Pole 4 Id current. The parallel Pole 4 Id current signal is received in Pole 2 through Bipole cabinet.</p> <p>iv) As reported by POWERGRID, Pole 2 T-zone protection got latched due to faulty Pole 4 Id current measurement in Bipole 2 lane 1. The probable cause of faulty measurement was suspected to be failure of 500B card.</p> <p>v) As per PMU at Kurukshetra(PG), no fault is observed in the system, but fluctuation in voltage is observed.</p> <p>vi) As per SCADA, no load loss is observed in Haryana control area.</p>	<p>1) 800 KV HVDC Kurukshetra(PG) Pole-02</p> <p>2) 800 KV HVDC Kurukshetra(PG) Pole-04</p>
2	GI-2	Uttar Pradesh	03-Aug-2023 05:07	03-Aug-2023 08:10	03:03	0	0	0.000	0.000	48238	61353	<p>i) Both 400 & 220 KV side of 400/220KV Baghat(PG) has double main bus scheme. 220 KV Baghat(PG)-Sham(UPI) (UP) Ckt, 220 KV Baghat(PG)-Modipuram_2 (UP) (UP) Ckt-1, 220 KV Baghat(PG)-Baghat(UP) (UP) Ckt, 220 KV Baghat(PG)-Bar(UPI) (UP) Ckt-1 and 400/220 KV 500 MVA ICT 1 at Baghat(PG) are connected to 220KV Bus 1 at Baghat(PG) and 220 KV Baghat(PG)-Mandola Vihar(UP) (UP) Ckt, 220 KV Baghat(PG)-Modipuram_2 (UP) (UP) Ckt-2, 220 KV Baghat(PG)-Baghat(UP) (UP) Ckt-2, 220 KV Baghat(PG)-Bar(UPI) (UP) (UP) Ckt-2 and 400/220 KV 500 MVA ICT 2 at Baghat(PG) are connected to 220KV Bus 2 at Baghat(PG).</p> <p>ii) As reported, at 05:07 hrs., B-n phase to earth fault occurred on 220 KV Baghat(PG)-Sham(UPI) (UP) Ckt, fault distance was 9.13km & fault current was 11.6kA. From Baghat end, fault was in zone-1 from Baghat end (as per DR of Baghat end).</p> <p>iii) On this fault, distance protection at Bhaghat end initiated tripping command however, B-ph CB didn't open on time which led to the LBB protection operation after ~120ms (as per DR). This resulted into tripping of all the elements connected at 220KV Bus 1 at Baghat(PG) Bus became dead.</p> <p>iv) As per PMU at Meerut(PG), B-n phase to earth fault with delayed fault clearance time of 360 ms is observed.</p> <p>v) As per SCADA, no change in demand is observed in UP control area.</p>	<p>1) 220KV Bus 1 at Baghat(PG)</p> <p>2) 400/220 kv 500 MVA ICT 1 at Baghat(PG)</p> <p>3) 220 KV Baghat(PG)-Sham(UPI) (UP) Ckt</p> <p>4) 220 KV Baghat(PG)-Modipuram_2 (UP) (UP) Ckt-1</p> <p>5) 220 KV Baghat(PG)-Baghat(UP) (UP) Ckt-1</p> <p>6) 220 KV Baghat(PG)-Bar(UPI) (UP) Ckt-1</p>
3	GD-1	Uttar Pradesh & Uttarakhand	04-Aug-2023 03:09	04-Aug-2023 04:42	01:33	892	65	1.839	0.101	48512	64451	<p>i) Power of 82.54 MW Alaknanda HEP, 100*MMV Vishnuprayag HEP and 33*MMV Singoli Bhatwari HEP evacuates through 400 KV Alaknanda GVK(LPC) Musaffarnagar(UP) ckt and 400 KV Musaffarnagar(UP) Vishnuprayag(UP) (UP) ckt.</p> <p>ii) As reported, at 03:09 hrs., 400 KV Alaknanda GVK(LPC) Musaffarnagar (UP) (end) Ckt tripped on B-n phase to earth fault. As per PMU, fault current was approx. 2.4kA from Musaffarnagar end. As per DR, fault was sensed in zone 1 at Musaffarnagar end and in zone 2 at Alaknanda end. A/R started in B-ph at both the ends and three phase opening occurred after ~400ms.</p> <p>iii) With the tripping of 400 KV Alaknanda GVK(LPC) Musaffarnagar (UP) (end) Ckt, loading of 400 KV Alaknanda GVK(LPC) Musaffarnagar (UP) (UP) Ckt and 400 KV Alaknanda GVK(LPC) Vishnuprayag(UP) (UP) Ckt shifted to 400 KV Vishnuprayag(UP) Musaffarnagar(UP) (UP) Ckt. The load of Singari Substation (evacuating Singoli Bhatwari HEP generation), which is connected to Musaffarnagar(UP) through 400 KV Alaknanda GVK(LPC) Musaffarnagar (UP) (UP) Ckt, also shifted to 400 KV Vishnuprayag(UP) Musaffarnagar(UP) (UP) Ckt. At this time, more than 873 MW (~1260A line current) load was casted by 400 KV Vishnuprayag(UP) Musaffarnagar(UP) Ckt. Vishnuprayag HEP-441 MW, Alaknanda HEP-343 MW, Singari- 88 MW.</p> <p>iv) After further 13sec, 400 KV Vishnuprayag(UP) Musaffarnagar(UP) (UP) Ckt tripped on over current protection operation (~1260A line current).</p> <p>v) With the tripping of 400 KV Vishnuprayag(UP) Musaffarnagar(UP) (UP) Ckt, all the generation of Alaknanda HEP & Vishnuprayag HEP tripped due to unavailability of power evacuating path.</p> <p>vi) During the same time, 220 KV Singoli Bhatwari(Singoli) (UP) (end) Ckt-1 & 2 also tripped. As per DR, DT received at Singoli Bhatwari end. Unbalance in voltage is also observed.</p> <p>vii) Due to tripping of 220 KV Singoli Bhatwari(Singoli) (UP) (end) Ckt-1 & 2, 33 MW Singoli Bhatwari(Singoli) (UP) (end) Ckt-1, 2 & 3 tripped due to unavailability of power evacuating path.</p> <p>viii) At the same time, 400 KV Alaknanda GVK(LPC) Singari(UK) (end) (UK) Ckt-1 & 2 also tripped (exact reason yet to be shared). As per DR, over-voltage stage-1 operation started at Singari(UK) end, however voltage was in operational limits. As per SCADA, 500 KV Alaknanda GVK(LPC) Vishnuprayag(UP) (UP) Ckt-1 also tripped during the same time (reason yet to be shared).</p> <p>ix) Due to this event, complete blackout occurred at 400V Alaknanda HEP(UK), 400V Vishnuprayag HEP(UP), 220V Singoli Bhatwari HEP(Singoli) (UP) and 400/220/132KV Singari(UK) S/S.</p> <p>x) As per PMU at Meerut(PG), B-n phase to earth fault with fault clearance time of 120 ms is observed.</p> <p>xi) As per SCADA, no change in demand in UP control area and change in demand of approx. 65MW in Uttarakhand control area are observed. Generation loss of approx. 343MW, 443MW and 108MW are also observed at Alaknanda, Vishnuprayag and Singoli Bhatwari HEP respectively.</p>	<p>1) 400 KV Alaknanda GVK(LPC) Musaffarnagar (UP) (UP) Ckt</p> <p>2) 400 KV Vishnuprayag(UP) Musaffarnagar (UP) (UP) Ckt</p> <p>3) 400 KV Alaknanda GVK(LPC) Vishnuprayag(UP) (UP) Ckt</p> <p>4) 110 MW Vishnuprayag HPS - UNIT 1</p> <p>5) 110 MW Vishnuprayag HPS - UNIT 2</p> <p>6) 110 MW Vishnuprayag HPS - UNIT 3</p> <p>7) 110 MW Vishnuprayag HPS - UNIT 4</p> <p>8) 220 KV Singoli Bhatwari (Singoli) (UP) (end) Singari(UK) (PT) Ckt-1</p> <p>9) 220 KV Singoli Bhatwari (Singoli) (UP) (end) Singari(UK) (PT) Ckt-2</p> <p>10) 33 MW Singoli Bhatwari (Singoli) (UP) (end) HPS - UNIT 1</p> <p>11) 33 MW Singoli Bhatwari (Singoli) (UP) (end) HPS - UNIT 2</p> <p>12) 33 MW Singoli Bhatwari (Singoli) (UP) (end) HPS - UNIT 3</p> <p>13) 400 KV Alaknanda GVK(LPC) Singari(UK) (end) (UK) Ckt-1</p> <p>14) 400 KV Alaknanda GVK(LPC) Singari(UK) (end) (UK) Ckt-2</p> <p>15) 82.5 MW Alaknanda HEP - UNIT 1</p> <p>16) 82.5 MW Alaknanda HEP - UNIT 2</p> <p>17) 82.5 MW Alaknanda HEP - UNIT 3</p> <p>18) 82.5 MW Alaknanda HEP - UNIT 4</p>
4	GD-1	Punjab	05-Aug-2023 20:15	05-Aug-2023 22:13	01:58	0	125	0.000	0.176	54875	70983	<p>i) During antecedent condition, 220 KV Dhurki-Nabha(PS) Ckt-1 & 2 were already under shutdown.</p> <p>ii) As reported, at 20:15hrs, B-n phase to earth fault occurred in 220 KV Patala(PG)-Nabha(PS) (PSTCL) Ckt-1, fault sensed in zone-1 at Nabha(PS) end and in zone-2 at Patala(PG) end; flashover in insulator disc was observed. Fault distance was 42.3km from Patala(PG) end. As per DR, fault current in 220 KV Patala(PG)-Nabha(PS) (PSTCL) Ckt-1 was approx. 5.469kA from Nabha(PS) end and 6.121kA from Patala(PG) end. On this fault, A/R operation started at Nabha(PS) end and as the fault was of permanent nature A/R operation was unsuccessful and line tripped from Patala(PG) end without A/R operation. However 3-ph tripping after A/R operation was delayed by almost 225ms due to some issue in breaker.</p> <p>iii) At the same time, 220 KV Patala(PG)-Nabha(PS) (PSTCL) Ckt-2 tripped from Patala(PG) end only with fault distance of 32km from Patala(PG) end; fault was sensed in zone-2 from Patala(PG) end. Time delay setting of zone-2 at Patala(PG) end need to be reviewed.</p> <p>iv) Due to this tripping, complete blackout occurred at 220/66kV Nabha(PS) S/S.</p> <p>v) As per PMU at Patala(PG), B-n phase to earth fault with delayed clearance of 280sec and unsuccessful A/R operation is observed.</p> <p>vi) As per SCADA, change in demand of approx. 125MW is observed in Punjab control area.</p>	<p>1) 220 KV Patala(PG)-Nabha(PS) (PSTCL) Ckt-1</p> <p>2) 220 KV Patala(PG)-Nabha(PS) (PSTCL) Ckt-2</p>
5	GI-2	Haryana	05-Aug-2023 11:18	05-Aug-2023 12:45	01:27	0	290	0.000	0.428	61500	67733	<p>i) During antecedent condition, active power loading on 400/220 KV 450 MVA ICT 1 and 400/220 KV 500 MVA ICT 2 at Panipat(BB) were 282 MW and 302 MW respectively.</p> <p>ii) As reported by BMBB, at 11:18hrs, 220 KV Panipat(HV)-Panipat(BB) (HV) Ckt-3 tripped on R-n phase to earth fault with fault current of 2.341 kA and fault distance of 45.98 km from Panipat(BB) end; fault sensed in zone-3 at Panipat(BB) end. As reported by Panipat(HV), no relay operated at Panipat TPS end.</p> <p>iii) As reported by BMBB, 220 KV Panipat(HV)-Panipat(BB) (HV) Ckt-4 also tripped at the same time on R-n phase to earth fault with fault current of 2.793 kA and fault distance of 30.52 km from Panipat(BB) end; fault sensed in zone-3 at Panipat(BB) end. As reported by Panipat(HV), no relay operated at Panipat TPS end.</p> <p>iv) During the same time, 400/220 KV 450 MVA ICT 1 and 400/220 KV 500 MVA ICT 2 at Panipat(BB) also tripped from both 400 and 220 KV sides. (exact reason yet to be shared)</p> <p>v) As per PMU at Panipat(BB), B-n phase to earth fault with delayed clearance of 1720ms is observed.</p> <p>vi) As per SCADA, change in demand of approx. 290MW is observed in Haryana control area.</p>	<p>1) 400/220 KV 450 MVA ICT 1 at Panipat(BB)</p> <p>2) 400/220 KV 500 MVA ICT 2 at Panipat(BB)</p> <p>3) 220 KV Panipat(HV)-Panipat(BB) (HV) Ckt-3</p> <p>4) 220 KV Panipat(HV)-Panipat(BB) (HV) Ckt-4</p>
6	GI-1	Rajasthan	06-Aug-2023 09:48	06-Aug-2023 10:24	00:36	0	1740	0.000	2.824	55398	61622	<p>i) As reported by SLDC Rajasthan, at 09:48hrs on 06th August, 2023, Y phase Jumper of 132kV Amarsagar – Ludarva Ckt-2 snapped. (Bus bar protection is not available at 132kV side)</p> <p>ii) On this fault, 132kV Amarsagar-Isolator Ckt-2 tripped at the same time sending fault in zone-4 (B-n fault) and 220/132 KV 100 MVA ICT-1 & 3 and 220/132 KV 160 MVA ICT-2 at Amarsagar(RS) tripped from 132kV side on over-current earth fault protection operation.</p> <p>iii) At the same time, 220KV Amarsagar-Akal (RS) Ckt also tripped from Akal end only on R-Y phase to phase fault with fault distance of 216.6km from Akal end; fault sensed in zone-3 at Akal end.</p> <p>iv) During the same time, 220KV Amarsagar-Ramgarh (RS) Ckt also tripped from Ramgarh end only on R-N phase to ground fault with fault distance of 227km from Ramgarh end; fault sensed in zone-3 at Ramgarh end.</p> <p>v) As per PMU at Jodhpur(RS), R-Y phase to phase fault is observed with delayed fault clearance time of 1560 ms.</p> <p>vi) As per SCADA, change in Rajasthan wind generation of approx. 1740MW is observed.</p>	<p>1) 132 kv Ludarva-Amarsagar (RS) Ckt-2</p> <p>2) 132kv Amarsagar-Jaisalmer (RS) Ckt-2</p> <p>3) 220/132 kv 100 MVA ICT-1 at Amarsagar(RS)</p> <p>4) 220/132 kv 160 MVA ICT-2 at Amarsagar(RS)</p> <p>5) 220/132 kv 100 MVA ICT-3 at Amarsagar(RS)</p> <p>6) 220KV Amarsagar-Akal (RS) Ckt</p> <p>7) 220KV Amarsagar-Ramgarh (RS) Ckt</p>
7	GD-1	Rajasthan	07-Aug-2023 05:29	07-Aug-2023 06:20	00:51	550	0	1.162	0.000	47351	58675	<p>i) As reported by SLDC Rajasthan, at 05:29hrs on 07th August, 2023, B phase jumper of 220 KV Amarsagar-Phalodi (RS) Ckt snapped and created bus fault at 220kV level of Amarsagar(RS).</p> <p>ii) On this fault, bus bar protection operated at 220kV level of Amarsagar(RS). 220 KV Bus-1 & 2 at Amarsagar(RS) was directly coupled through isolator and bus coupler CB was not present between the buses. Hence all the elements connected to both Bus-1 & 2 tripped and both the buses became dead.</p> <p>iii) Due to loss of supply in 132kV and 220kV level, blackout occurred at 220/132/33kV Amarsagar(RS).</p> <p>iv) As per DR, B-n phase to earth fault (I_B=915A) is observed in 220 KV Amarsagar-Phalodi (RS) Ckt; fault sensed in zone-4 at Amarsagar(RS) end. Line tripped after ~350msec from Amarsagar end.</p> <p>v) As per SCADA, change in Rajasthan wind generation of approx. 550MW is observed.</p> <p>vi) As per PMU at Jodhpur(RS), Y-n phase to earth fault is observed with delayed fault clearance time of 360 ms. Phase sequence at Amarsagar(RS) and Jodhpur(RS) may be reviewed.</p>	<p>1) 220 kv Amarsagar-Phalodi (RS) Ckt</p> <p>2) 220 kv Amarsagar-Akal (RS) Ckt</p> <p>3) 220 kv Amarsagar-Dechu (RS) Ckt</p> <p>4) 220 kv Amarsagar-Mada (RS) Ckt</p> <p>5) 220 kv Amarsagar-RGTTP (RS) Ckt</p> <p>6) 220 kv Tejuva-Amarsagar (RS) Ckt-1</p> <p>7) 220 kv Tejuva-Amarsagar (RS) Ckt-2</p> <p>8) 220 kv Amarsagar-Ramgarh (RS) Ckt</p> <p>9) 220/132 kv 100 MVA ICT-1 at Amarsagar(RS)</p> <p>10) 220/132 kv 160 MVA ICT-2 at Amarsagar(RS)</p> <p>11) 220/132 kv 100 MVA ICT-3 at Amarsagar(RS)</p> <p>12) 220 kv Bus-1 at Amarsagar(RS)</p> <p>13) 220 kv Bus-2 at Amarsagar(RS)</p>

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						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
8	GD-1	Uttar Pradesh	08-Aug-2023 04:30	09-Aug-2023 04:30	07:36	580	0	1.022	0.000	56779	73852	<p>i) 220kV Dadri Gas(NTPC) has 4*130.19MW units (Gas turbine driven) and 2*154.51MW units (Steam turbine driven). During antecedent condition, GT-1, GT-2, GT-3, GT-4 and ST-2 were running. ST-1 main breaker was out of order due to oil leakage in Y phase, hence ST-1 synchronization with transfer bus breaker activities were in progress.</p> <p>ii) As reported, at 20:54hrs on 08th August, 2023, interposing relay panel control supply tripped due to earth fault in both positive and negative supply. Relay panel gives the status of all 220 KV breakers and isolators and excitation gets trip when excitation current is 0.48 pu and unit is off grid.</p> <p>iii) As supply of panel was done "ON" status of 220 KV breakers going in control circuit got "OFF" and machine came in speed control mode from load control mode and came on minimum load of 0.9 MW only. Due to this, GT-2 and GT-4 got tripped on failure of DC excitation system.</p> <p>iv) GT-1, running in speed control mode at 0.9 MW, was taken back in load control mode and loaded to 25 MW and then load was increased to 60 MW but it tripped on excitation failure due to operation of over excitation limiter.</p> <p>v) GT-3 was tripped manually as it was running at low load of 0.9 MW and ST-2 was running with GT-3 (exhaust of GT-3 and GT-4 are used to feed into the boiler to produce steam which drives the steam turbine) and steam parameters started deteriorating. With this, ST-2 also tripped and 220kV Dadri Gas(NTPC) S/s became dead.</p> <p>vi) As per SCADA, generation loss of approx. 580MW is observed at Dadri Gas (NTPC).</p> <p>vii) As per PMU at Parsipat(BB), no fault is observed in the system.</p>	<p>1) 130.19 MW Dadri GPs - UNIT 1</p> <p>2) 130.19 MW Dadri GPs - UNIT 2</p> <p>3) 130.19 MW Dadri GPs - UNIT 3</p> <p>4) 130.19 MW Dadri GPs - UNIT 4</p> <p>5) 154.51 MW Dadri GPs - UNIT 6</p>
9	GD-1	Punjab	09-Aug-2023 09:54	09-Aug-2023 10:58	01:04	77	0	0.125	0.000	61496	67911	<p>i) During antecedent condition, 28.93 MW Unit-1 at Kotla(BB) and 24.2 MW Unit-2 & 3 at Kotla(BB) were generating at their full capacity.</p> <p>ii) As reported by BMMB, at 09:54hrs, bus bar protection operated due to snapping of Y phase conductor of bus coupler at Kotla(BB). This led to tripping of both 132kV Bus 1 & 2 at Kotla(BB) along with all the lines and generating units connected at 132kV Kotla(BB) end which resulted in blackout of 132kV Kotla(BB) S/s.</p> <p>iii) As per PMU at Parsipat(BB), no fault is observed in the system.</p> <p>iv) As per SCADA, no change in demand is observed in Punjab control area.</p> <p>v) As per SCADA, generation loss of approx. 77MW is observed at Kotla(BB).</p> <p>vi) As reported, generation at Kotla(BB) revived by 12:10hrs.</p>	<p>1) 132 KV Kotla(BB)-Ropar(PS) Ckt-1</p> <p>2) 132 KV Kotla(BB)-Ropar(PS) Ckt-2</p> <p>3) 132 KV Kotla(BB)-Ropar(PS) Ckt-3</p> <p>4) 132 KV Kotla(BB)-Gangwari(PS) Ckt-1</p> <p>5) 132 KV Kotla(BB)-Gangwari(PS) Ckt-2</p> <p>6) 28.93 MW Unit-1 at Kotla(BB)</p> <p>7) 24.2 MW Unit-2 at Kotla(BB)</p> <p>8) 24.2 MW Unit-3 at Kotla(BB)</p>
10	GD-1	Uttar Pradesh & Uttarakhand	10-Aug-2023 03:50	10-Aug-2023 05:23	01:33	892	60	2.029	0.091	43955	65020	<p>i) Power of 82.5*4 MW Alaknanda HEP, 100*4MW Vishnuprayag HEP and 33*3MW Singoli Bhatwari HEP evacuates through 400 KV Alaknanda GVK (UPC)-Muzaffarnagar(UP) ckt and 400 KV Muzaffarnagar(UP)-Vishnuprayag(UP) (UP) ckt.</p> <p>ii) As reported, at 03:50 hrs, 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (end) Ckt tripped from Muzaffarnagar(UP) end only as DT received at Muzaffarnagar end. It was reported that there was problem in DT sent circuit at Alaknanda end.</p> <p>iii) With the tripping of 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (end) Ckt, 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (UP) Ckt and 400 KV Alaknanda GVK(UPC)-Vishnuprayag(UP) (UP) Ckt shifted to 400 KV Vishnuprayag(UP)-Muzaffarnagar (UP) (UP) Ckt. The load of Srinagar Substation (evacuating Singoli Bhatwari HEP generation), which is connected to Muzaffarnagar(UP) through 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (UP) Ckt, also shifted to 400 KV Vishnuprayag(UP)-Muzaffarnagar(UP) (UP) Ckt.</p> <p>iv) After this, 400 KV Vishnuprayag(UP)-Muzaffarnagar(UP) (UP) Ckt tripped on over current protection operation.</p> <p>v) With the tripping of 400 KV Vishnuprayag(UP)-Muzaffarnagar(UP) (UP) Ckt, all the generation of Alaknanda HEP & Vishnuprayag HEP tripped due to unavailability of power evacuating path.</p> <p>vi) During the same time, 220 KV Singoli Bhatwari(Singoli(TLUPH)) (end)-Srinagar(LK) (PTCL) Ckt-1 & 2 also tripped. As per DR, DT received at Singoli Bhatwari end. Unbalance in voltage is also observed.</p> <p>vii) Due to tripping of 220 KV Singoli Bhatwari(Singoli(TLUPH)) (end)-Srinagar(LK) (PTCL) Ckt-1 & 2, 33 MW Singoli Bhatwari(Singoli(TLUPH)) HPS - UNIT 1, 2 & 3 tripped due to unavailability of power evacuating path.</p> <p>viii) At the same time, 400 KV Alaknanda GVK(UPC)-Srinagar(LK) (end) (LK) Ckt-1 & 2 also tripped (exact reason yet to be shared). As per DR, over-voltage stage-1 operation started at Srinagar(LK) end, maximum transient voltage-288kV. As per SCADA S/S, 400 KV Alaknanda GVK(UPC)-Srinagar(LK) (end) (LK) Ckt-1 & 2 also tripped during the same time (reason yet to be shared).</p> <p>ix) Due to this event, complete blackout occurred at 400KV Alaknanda HEP(UP), 400KV Vishnuprayag HEP(UP), 220KV Singoli Bhatwari HEP(Singoli(TLUPH)) and 400/220/132kV Srinagar(LK) S/s.</p> <p>x) As per PMU at Muzaffarnagar(UP), no fault is observed in the system.</p> <p>xi) As per SCADA, no change in demand in UP control area and change in demand of approx. 60MW in Uttarakhand control area are observed. Generation loss of approx. 342MW, 442MW and 108MW are also observed at Alaknanda, Vishnuprayag and Singoli Bhatwari HEP respectively.</p>	<p>1) 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (UP) Ckt</p> <p>2) 400 KV Vishnuprayag(UP)-Muzaffarnagar (UP) (UP) Ckt</p> <p>3) 400 KV Alaknanda GVK(UPC)-Vishnuprayag(UP) (UP) Ckt</p> <p>4) 110 MW Vishnuprayag HPS - UNIT 1</p> <p>5) 110 MW Vishnuprayag HPS - UNIT 2</p> <p>6) 110 MW Vishnuprayag HPS - UNIT 3</p> <p>7) 110 MW Vishnuprayag HPS - UNIT 4</p> <p>8) 220 KV Singoli Bhatwari (Singoli(TLUPH)) (end)-Srinagar(LK) (PTCL) Ckt-1</p> <p>9) 220 KV Singoli Bhatwari (Singoli(TLUPH)) (end)-Srinagar(LK) (PTCL) Ckt-2</p> <p>10) 33 MW Singoli Bhatwari (Singoli(TLUPH)) HPS - UNIT 1</p> <p>11) 33 MW Singoli Bhatwari (Singoli(TLUPH)) HPS - UNIT 2</p> <p>12) 33 MW Singoli Bhatwari (Singoli(TLUPH)) HPS - UNIT 3</p> <p>13) 400 KV Alaknanda GVK(UPC)-Srinagar(LK) (end) (LK) Ckt-1</p> <p>14) 400 KV Alaknanda GVK(UPC)-Srinagar(LK) (end) (LK) Ckt-2</p> <p>15) 82.5 MW Alaknanda HEP - UNIT 1</p> <p>16) 82.5 MW Alaknanda HEP - UNIT 2</p> <p>17) 82.5 MW Alaknanda HEP - UNIT 3</p> <p>18) 82.5 MW Alaknanda HEP - UNIT 4</p>
11	GI-1	Rajasthan	13-Aug-2023 09:35	13-Aug-2023 11:08	01:33	45	0	0.072	0.000	62125	67296	<p>i) Total MW generation of ASEJOL are pooled through 220/33 KV 150 MVA ICT 1, 2 & 3 at ASEJOL_HB FTGH2 (ASEJOL) and total generation is evacuated through 220 KV ASEJOL_HB FTGH2 (ASEJOL)-Fatehgarh2(PG) Ckt 1 & 2.</p> <p>ii) As reported, at 09:35hrs, 220/33 KV 150 MVA ICT 1 at ASEJOL_HB FTGH2 (ASEJOL) tripped due to false PRV signal.</p> <p>iii) As per PMU at Fatehgarh2(PG), no fault is observed in the system.</p> <p>iv) As per SCADA, generation loss of approx. 45MW at ASEJOL is observed.</p>	<p>1) 220/33 KV 150 MVA ICT 1 at ASEJOL_HB FTGH2 (ASEJOL)</p>
12	GD-1	Rajasthan	13-Aug-2023 09:55	13-Aug-2023 11:24	01:29	195	0	0.309	0.000	63195	68977	<p>i) During antecedent condition, total MW generation of Azure Maple was approx. 200MW and it was evacuated through 220 KV Bhadla(PG)-Azure Maple (APMPL) Ckt.</p> <p>ii) As reported, at 09:55hrs, 220 KV Bhadla(PG)-Azure Maple (APMPL) Ckt tripped due to sparking at the CT terminal box of the line CRP panel.</p> <p>iii) As per PMU at Azure Maple (P), no fault is observed in the system.</p> <p>iv) As per SCADA, generation loss of approx. 195MW at Azure Maple is observed.</p>	<p>1) 220 KV Bhadla(PG)-Azure Maple (APMPL) Ckt</p>
13	GI-1	Jammu & Kashmir	14-Aug-2023 18:34	14-Aug-2023 19:51	01:17	120	0	0.212	0.000	56595	66402	<p>i) During antecedent condition, total MW generation of Salain(NH) was approx. 735MW (each of the six units was generating approx. 123 MW).</p> <p>ii) As reported, at 18:34hrs, transient Y-N phase to earth fault occurred on 220 KV Kishenpur(PG)-Salain(NH) (PG) Ckt-1. Line successfully auto-reclosed from Kishenpur(PG) end, but tripped from Salain(NH) end due to non-operation of A/R at Salain(NH) end. As per DR at Kishenpur(PG), fault current was ~2.18kA; fault sensed in zone-2.</p> <p>iii) At the same time, 115 MW Salai HPS - UNIT 1 also tripped. (exact reason yet to be shared)</p> <p>iv) As per PMU, Y-N phase to earth fault is observed with fault clearing time of 80 ms.</p> <p>v) As per SCADA, generation loss of approx. 120MW is observed at Salain(NH).</p>	<p>1) 220 KV Kishenpur(PG)-Salain(NH) (PG) Ckt-1</p> <p>2) 115 MW Salai HPS - UNIT 1</p>
14	GI-2	Himachal Pradesh	18-Aug-2023 10:59	18-Aug-2023 11:05	00:06	670	0	0.993	0.000	67496	77328	<p>i) During antecedent condition, total MW loading of 400 KV Panchkula(PG)-Gumma(HP) (PG) Ckt-1 & 2 were approx. 575MW each.</p> <p>ii) As reported, at 10:59hrs, 400 KV Panchkula(PG)-Gumma(HP) (PG) Ckt-2 tripped at DT received at Panchkula(PG) end due to mal-operation of relay. Due to tripping of 400 KV Panchkula(PG)-Gumma(HP) (PG) Ckt-2, MW loading of 400 KV Panchkula(PG)-Gumma(HP) (PG) Ckt-1 increased and eventually exceeded 850MW (max. MW loading reached was 853MW as per PMU), hence SPS operated for reliable evacuation of power.</p> <p>iii) Due to SPS operation, 250 MW Nathpa-Jharki HPS - UNIT 3, 250 MW Karcham Wangtoo HPS - UNIT 2, 68.67 MW Rampur HEP - UNIT 5 and 40MW Sawra Kuddu HPS - UNIT 1 tripped.</p> <p>iv) As per DR of 400 KV Panchkula(PG)-Gumma(HP) (PG) Ckt-2, no fault is observed at Gumma(HP) and DT received at Panchkula(PG) which clearly indicates mal-operation of relay.</p> <p>v) As per DR of 400 KV Panchkula(PG)-Gumma(HP) (PG) Ckt-1, currents in R, Y and B phase are respectively ~1222A, ~1291A and ~1228A. Current loading required for SPS operation is (850/(1.732*400))~1227A. This indicates correct operation of SPS.</p> <p>vi) As per PMU at Panchkula(PG), no fault is observed in the system.</p> <p>vii) As per SCADA, generation loss of approx. 260MW at Nathpa Jharki, 80MW at Rampur, 290MW at Karcham and 40MW at Sawra Kuddu is observed.</p>	<p>1) 400 KV Panchkula(PG)-Gumma(HP) (PG) Ckt-2</p> <p>2) 250 MW Nathpa-Jharki HPS - UNIT 3</p> <p>3) 250 MW Karcham Wangtoo HPS - UNIT 2</p> <p>4) 68.67 MW Rampur HEP - UNIT 5</p> <p>5) 40MW Sawra Kuddu HPS - UNIT 1</p>

Details of Grid Events during the Month of August 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)		
15	GD-1	Himachal Pradesh	18-Aug-2023 12:29	18-Aug-2023 14:07	01:38	364	0	0.528	0.000	68967	79716	i) During antecedent condition, all 6766MW units were running and generating approx. 364 MW in total. Unit-1, 3 & 5, 220/66kV 40MVA Transformer and 220kV feeders to Bairsul, Jalandhar ckt-1 and Dasuya ckt-1 were connected at 220kV Bus-1 and Unit-2, 4 & 6 & 220kV feeders to Jalandhar ckt-2, Jessore ckt-1 and Dasuya ckt-2 were connected at 220kV Bus 2. ii) As reported, at 12:29 hrs, 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 tripped on Y-B phase to phase fault with fault current of 5.895kA and 5.21kA in Y and B phase respectively and fault distance of 17.09 km from Dasuya(PS) end, zone-1 protection operated at Dasuya(PS) end. Line tripped from Dasuya(PS) end due to disc flashover at Dasuya(PS) end, but did not trip from Pong(BB) end as relay did not operate at Pong(BB) end (relay was not healthy). iii) As per protection logic at Pong(BB), if earth fault is picked up and CB is open (auxiliary contact of CB closed), tripping to bus bar is initiated detecting CB flashover condition. As reported, on the above fault, back up earth fault protection of 66MW Pong HPS – Unit 5, picked up and auxiliary contact of the CB got closed. However due to inherent delay in CB opening, earth fault protection did not get reset immediately and thus as per CB flashover protection logic tripping initiated to bus bar and all the elements connected to 220kV Bus-1 at Pong(BB) tripped. BBMB has already been communicated to share the exact protection logic of the tripping. iv) At the same time, all the elements connected to 220kV Bus-2 at Pong(BB) also tripped. (Exact reason of bus bar protection operation yet to be shared) v) Due to tripping of both 220kV Bus-1 & 2 at Pong(BB), 220kV Pong(BB) 5/s became dead. vi) As per PMU at Jalandhar(PG), Y-B phase to phase fault is observed with fault clearing time of 2160 ms. vii) As per SCADA, total generation loss of approx. 364MW is observed at Pong HEP(BBMB).	1) 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-1 2) 220kV Bus 1 at Pong(BB) 3) 220kV Bus 2 at Pong(BB) 4) 220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-2 5) 220 KV Jalandhar-Pong (BB) Ckt-1 6) 220 KV Jalandhar-Pong (BB) Ckt-2 7) 220 KV Jessore(HP)-Pong(BB) (PG) Ckt 8) 220 KV Bairsul(HP)-Pong(BB) (PG) Ckt 9) 66 MW Pong HPS - UNIT 1 10) 66 MW Pong HPS - UNIT 2 11) 66 MW Pong HPS - UNIT 3 12) 66 MW Pong HPS - UNIT 4 13) 66 MW Pong HPS - UNIT 5 14) 66 MW Pong HPS - UNIT 6
16	GD-1	Uttar Pradesh	18-Aug-2023 16:33	18-Aug-2023 17:53	01:20	440	0	0.907	0.000	48512	64451	i) Power of 4*110MW Vishnuprayag HEP evacuates through 400 KV Alaknanda GVK (UPC)- Vishnuprayag(UP) (UP) ckt and 400 KV Muzaffarnagar(UP)-Vishnuprayag(UP) (UP) ckt. During antecedent condition, 400 KV Muzaffarnagar(UP)-Vishnuprayag(UP) (UP) ckt was under emergency shutdown. ii) As reported, at 16:33 hrs, 400 KV Alaknanda GVK (UPC)- Vishnuprayag(UP) (UP) ckt tripped on Y-B phase to phase fault with fault distance of 56.6km from Vishnuprayag(UP) and 38.3km from Alaknanda(UP) end. As further reported, fault was sensed in zone-1 at Vishnuprayag(UP) end and fault current was 1.83kA and 1.19kA in Y and B phase respectively from Vishnuprayag(UP) end. As per DR at Alaknanda(UP) end, fault was sensed in zone-2 at Alaknanda(UP) end and fault current was 3.27kA and 3.89kA in Y and B phase respectively from Alaknanda(UP) end; fault clearing time was ~35ms. iii) With the tripping of 400 KV Alaknanda GVK (UPC)- Vishnuprayag(UP) (UP) ckt, all the generation of Vishnuprayag HEP, i.e., 110 MW Vishnuprayag HPS - UNIT 1, 2, 3 and 4 tripped due to unavailability of power evacuating path. iv) As per PMU at Muzaffarnagar(UP), Y-B phase to phase fault with fault clearance time of 80 ms is observed. v) As per SCADA, no change in demand in UP control area is observed. Generation loss of approx. 440MW is also observed at Vishnuprayag HEP.	1) 400 KV Alaknanda GVK(UPC)-Vishnuprayag(UP) (UP) Ckt 2) 110 MW Vishnuprayag HPS - UNIT 1 3) 110 MW Vishnuprayag HPS - UNIT 2 4) 110 MW Vishnuprayag HPS - UNIT 3 5) 110 MW Vishnuprayag HPS - UNIT 4
17	GI-1	Jammu & Kashmir	19-Aug-2023 11:25	19-Aug-2023 12:21	00:56	0	285	0.000	0.383	65971	74490	i) As reported, at 11:25hrs, 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 tripped on R-N phase to earth fault with fault distance of 12 km from Barn(JK) end. ii) Due to tripping of 220 KV Barn(JK)-Kishenpur(PG) Ckt-2, loading on 220 KV Barn(JK)-Kishenpur(PG) Ckt-1 increased and line CB at 220kV Barn(PDO) JK end of 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 opened due to over-loading, but line remain charged from Kishenpur(PG) end. iii) As per PMU at Kishenpur(PG), R-N phase to earth fault is observed in system with fault clearance time of 80 ms. iv) As per SCADA, load loss of approx. 285MW occurred in JK control area.	1) 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 2) 220 KV Barn(JK)-Kishenpur(PG) Ckt-1
18	GI-2	Uttar Pradesh	19-Aug-2023 09:26	19-Aug-2023 09:53	00:27	0	215	0.000	0.304	61240	70678	i) During antecedent condition, only 400/220 kV 315 MVA ICT 1 at Jaunpur (UP) was in service and MVA loading of ICT 1 was 329 MVA (MW: 317MW and MVAR: 88MVAR). It was feeding the 220kV and 132kV level of Jaunpur(UP). ii) As reported, at 09:26 hrs, 400/220 kV 315 MVA ICT 1 at Jaunpur (UP) tripped due to over-loading; over-current protection operated; currents in R, Y and B-phase are 0.462kA, 0.472kA and 0.70kA respectively. iii) Due to tripping of 400/220 kV 315 MVA ICT 1 at Jaunpur (UP), 220kV Bus 1 & 2 and 132kV Bus 1 & 2 of Jaunpur(UP) became dead due to loss of supply to 220kV and 132kV level of Jaunpur(UP). iv) As per PMU at Varanasi(PG), no fault is observed in the system. v) As per SCADA, change in demand of approx. 215 MW in UP control area is observed.	1) 400/220 kV 315 MVA ICT 1 at Jaunpur (UP)
19	GD-1	Himachal Pradesh	19-Aug-2023 08:49	19-Aug-2023 09:16	00:27	300	150	0.503	0.217	59990	69018	i) As reported, at 08:49 hrs, 220 KV Wangtoo-Bhabha-Kunihar ckt (T-connection) got tripped on R-N phase to ground fault. (Exact reason and location of fault yet to be shared) ii) At the same time, 220 KV Jeori-Kunihar(HP) Ckt, 220 KV Bhabha-Jeori(HP) Ckt, 220 KV Baddi-Kunihar(HP) Ckt and 220 KV Baddi-Pinjore Ckt also tripped due to overloading. iii) With the tripping of both 220 KV Wangtoo-Bhabha-Kunihar ckt (T-connection) and 220 KV Bhabha-Jeori(HP) Ckt, 40MW Unit-1, 2 & 3 at Bhabha(HP) tripped due to loss of evacuation path and 220KV Bhabha(HP) 5/s became dead. iv) As per SCADA SOE, 220/66kV 31.5 MVA ICT-4 at Jeori(HP) tripped during the same time. (Exact reason yet to be shared) v) As per PMU at Panchkula(PG), R-N phase to ground fault with fault clearance time of 80 ms is observed. vi) As per SCADA, change in demand of approx. 150MW in HP control area is observed (affected load areas are Kunihar, Shimla, Kotla and Solan as reported by SLDC-HP). vii) As reported by SLDC-HP, generation loss of approx. 300MW occurred (MW generation affected at Bhabha(30MW), Giri(50MW), Surya Kantal(40MW), Nant(13MW), Goodwal(27MW), Gharvi(23MW), Gharvi-2(10MW) and other (PP)(30MW)). But as per SCADA, HP hydro generation loss of approx. 140MW is observed.	1) 220 KV Wangtoo –Bhabha-Kunihar(HP) ckt (T-connection) 2) 220 KV Jeori-Kunihar(HP) Ckt 3) 220 KV Bhabha-Jeori(HP) Ckt 4) 220 KV Baddi –Pinjore(HP) Ckt 5) 220 KV Baddi-Kunihar(HP) Ckt 6) 220/66kV 31.5 MVA ICT-4 at Jeori(HP) 7) 132 KV Kunihar-Shimla(HP) Ckt 1 8) 132 KV Kunihar-Shimla(HP) Ckt 2 9) 132 KV Kunihar Barotwala Ckt-1 10) 40MW Unit-1 at Bhabha(HP) 11) 40MW Unit-2 at Bhabha(HP) 12) 40MW Unit-3 at Bhabha(HP)
20	GI-1	Jammu & Kashmir	20-Aug-2023 19:52	20-Aug-2023 21:16	01:24	0	375	0.000	0.519	55019	72313	i) As reported, at 19:52hrs, 220 KV Barn(JK)-Kishenpur(PG) Ckt-1 tripped from Barn(JK) end only due to damage of R-phase CB clamp at Barn(JK) end. ii) Due to tripping of 220 KV Barn(JK)-Kishenpur(PG) Ckt-1, loading on 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 increased and line CB at 220kV Barn(PDO) JK end of 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 opened due to over-loading, but line remain charged from Kishenpur(PG) end. iii) As per PMU at Kishenpur(PG), no fault is observed in the system. iv) As per SCADA, load loss of approx. 375MW occurred in JK control area.	1) 220 KV Barn(JK)-Kishenpur(PG) Ckt-2 2) 220 KV Barn(JK)-Kishenpur(PG) Ckt-1
21	GI-2	Rajasthan	20-Aug-2023 09:18	20-Aug-2023 09:41	00:53	0	465	0.000	0.644	52928	72256	i) During antecedent condition, MW loading on 400/220kV 315MVA ICT-1 & 2 at Bikaner(RS) were 200MW and 205MW respectively. ii) As reported, at 09:18hrs, 400/220kV 315MVA ICT-2 at Bikaner(RS) tripped due to heavy sparking of B phase isolator at 220kV side of ICT-2. As per DR, differential protection operated (Differential current in R, Y and B phase of approx. 2.67A, 2.64A and 5.31A respectively); current observed in B-phase was ~3.16kA. iii) With tripping of 400/220kV 315MVA ICT-2 at Bikaner(RS), 400/220kV 315MVA ICT-1 at Bikaner(RS) also tripped due to over-loading. As per DR, over-current earth-fault protection operated. iv) As per SCADA SOE, 220/132kV 100MVA ICT 3 at Bikaner(RS) also tripped during the same time. (Exact reason yet to be shared) v) As per PMU at Bikaner(PG), no fault is observed in the system, but fluctuation in voltage is observed. vi) As reported by SLDC-HP, generation loss of approx. 465MW occurred (MW generation affected at Bhabha(30MW), Giri(50MW), Surya Kantal(40MW), Nant(13MW), Goodwal(27MW), Gharvi(23MW), Gharvi-2(10MW) and other (PP)(30MW)). But as per SCADA, HP hydro generation loss of approx. 140MW is observed.	1) 400/220kV 315MVA ICT-1 at Bikaner(RS) 2) 400/220kV 315MVA ICT-2 at Bikaner(RS)
22	GI-1	Punjab	21-Aug-2023 22:53	22-Aug-2023 17:35	18:42	0	0	0.000	0.000	58971	72894	i) During antecedent condition, MW loading of 220 KV Baghapurana(PS)-Mogan(PS) Ckt-1 & 2 were approx. 72MW and 62MW respectively. ii) As reported, at 22:53hrs, 220 KV Baghapurana(PS)-Mogan(PS) Ckt-1 tripped due to R-phase CT damage at Moga(PS) end, fault observed in zone-1 from Moga(PS) end. Due to tripping of 220 KV Baghapurana(PS)-Mogan(PS) Ckt-1, load was shifted to 220 KV Baghapurana(PS)-Mogan(PS) Ckt-2 and no load loss occurred. iii) As per PMU at Moga(PG), R-N phase to earth fault with fault clearance time of 120ms is observed. iv) As per SCADA, change in demand of approx. 670MW is observed in Punjab control area. But as reported by SLDC Punjab no other major tripping occurred during the same time and no load loss occurred during the event.	1) 220 KV Baghapurana(PS)-Mogan(PS) Ckt-1

Details of Grid Events during the Month of August 2023 in Northern 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 (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)		
23	GD-1	Rajasthan	21-Aug-2023 12:11	21-Aug-2023 12:24	00:13	0	1750	0.000	2.376	69375	76900	i) During antecedent condition, 220 kV F-G Bus between 400 kV & 220 kV GSS Heerapura were under shutdown due to which the load of 220 kV GSS Chomu, Niwana, NPH and VKI were shifted to parallelly connected 220 kV D-A & E & C Bus between 400 kV & 220 kV GSS Heerapura. 2. The above load management was managed through 400/220 kV 250 MVA ICT 1 & 2 connected at 220 kV D-A & E & C Bus between 400 kV & 220 kV GSS Heerapura, and the load was around 210 MW on each ICT. ii) On the other hand, the 220 kV GSS Niwana is connected in ring from 400 kV GSS Heerapura and 400 kV GSS Babai. 220 kV GSS Niwana was drawing power around 130MW from 400 kV GSS Heerapura and around 30 MW power was drawing from 400 kV GSS, Babai. The load on 400/220 kV 315 MVA ICT - 1 & 2 at 400 kV GSS Babai were 270 MW. iii) As reported, the details of event is as follows: a. At 22:11hrs, 220 kV Vatika - Sangarer line which was carrying around 170 MW towards 220 kV Sangarer, tripped due to jumper snapping. As a result of this, Sangarer started drawing load from 220 kV GSS Mansarovar and Mansarovar from 400 kV GSS Heerapura. b. Due to tripping of 220 kV Vatika-Sangarer line the extra loading of around 170 MW was put on 400/220 kV 250 MVA ICT 1 & 2 at Heerapura400(RS), resulting tripping of both the ICTs on overload. c. Due to the failure of both ICTs at 400 kV GSS, Heerapura, 220 kV GSS Niwana started to draw around 130 MW power from 400 kV GSS Babai resulting in overloading of 400/220 kV 315 MVA ICT - 1 & 2 at 400 kV GSS Babai (ICT-2 was out during the event) and eventually both the ICTs also tripped on overload. iv) As per SCADA data and SOE, at the same time, 220/132kV 160MVA ICT 1, 2 & 4 and 100MVA ICT 3 at Heerapura200(RS), 220/132kV 100MVA ICT 1 & 2 at Sangarer(RS) and 220/132kV 160MVA ICT 1 & 2 at Sawai Madhopur(RS) tripped during the same time. (Exact reason yet to be shared) v) As per PMU at Basoli(PG), R-N phase to earth fault is observed with fault clearing time of 80ms. vi) As per SCADA, change in demand of approx. 1750MW is observed in Rajasthan control area.	1) 220 kV Vatika-Sangarer(RS) Ckt 2) 400/220 kV 250 MVA ICT 1 at Heerapura400(RS) 3) 400/220 kV 250 MVA ICT 2 at Heerapura400(RS) 4) 400/220 kV 315 MVA ICT 1 at Babai(RS) 5) 400/220 kV 315 MVA ICT 3 at Babai(RS) 6) 220/132kV 160MVA ICT 1 at Heerapura200(RS) 7) 220/132kV 160MVA ICT 2 at Heerapura200(RS) 8) 220/132kV 100MVA ICT 3 at Heerapura200(RS) 9) 220/132kV 160MVA ICT 4 at Heerapura200(RS) 10) 220/132kV 100MVA ICT 1 at Sangarer(RS) 11) 220/132kV 100MVA ICT 2 at Sangarer(RS) 12) 220/132kV 160MVA ICT 1 at Sawai Madhopur(RS) 13) 220/132kV 100MVA ICT 2 at Sawai Madhopur(RS)
24	GI-1	Himachal Pradesh	21-Aug-2023 11:27	21-Aug-2023 11:34	00:07	60	350	0.063	0.318	73239	78601	i) As reported, at 11:27 hrs, bus-bar protection operated at 220 kV Bus 2 at Kunihar(HP). (Exact reason yet to be shared) ii) Due to this, all the elements connected to 220 kV Bus 2 at Kunihar(HP) got tripped and Bus-2 became dead. iii) At the same time, as reported by SLDC HP, 132 kV Kunihar-Barotwala Ckt 1, 132 kV Kunihar-Solan(HP) Ckt 1 & 2, 132 kV Kunihar-Shimla(HP) Ckt 1 and 132 kV Kunihar-Malana(HP) Ckt 1 & 2 also tripped. (Exact reason yet to be shared) iv) As per SCADA SOE, 30MW Unit-1 at Gir(HP) and 132 kV Kunihar-Jutog (HP) Ckt-2 also tripped during the same time. As per communication with SLDC HP, 30MW Unit-1 & 2 at Gir(HP) (connected at 132kV level) tripped during the same time. (Exact reason yet to be shared) v) As per PMU at Panchkula(PG), no fault is observed in the system, but fluctuation in voltage is observed. vi) As per SCADA, change in demand of approx. 330MW in HP control area is observed. But as reported by SLDC-HP, load loss of approx. 250MW occurred during the event. vii) As per SCADA, generation loss of approx. 60MW is observed in HP hydro generation.	1) 220 kV Kunihar-Bhaba (HP) Ckt 2) 220 kV Baddi-Kunihar(HP) Ckt 2 3) 132 kV Kunihar-Barotwala Ckt 1 4) 132 kV Kunihar-Solan(HP) Ckt 1 5) 132 kV Kunihar-Solan(HP) Ckt 2 6) 132 kV Kunihar-Shimla(HP) Ckt 1 7) 132 kV Kunihar-Malana(HP) Ckt 2 8) 200/132kV 160/200MVA ICT-1 at Kunihar(HP) 9) 220/132kV 160/200MVA ICT-2 at Kunihar(HP)
25	GD-1	Uttar Pradesh	22-Aug-2023 13:39	22-Aug-2023 13:05	00:26	550	55	0.781	0.071	70464	77308	i) During antecedent condition, 300MW Rosa TPS(U) Unit-1 and 2 were generating 274MW and 278MW respectively. Rosa TPS is connected with 220kV Shahjhanpur through 220kV Rosa-Shahjhanpur ckt-1&2. ii) As reported, at 12:39 hrs, R-N phase to earth fault occurred in 220kV Shahjhanpur(U) Aizpur(U) Ckt; fault sensed in zone-1 at both the ends. Fault distance was 12.92km from Aizpur(U) end and 22.125km from Shahjhanpur(U) end. As per DR, fault current was approx. 6.56kA from Shahjhanpur(U) end. Line tripped only from Aizpur(U) end, line didn't trip from Shahjhanpur end. iii) As fault didn't clear from Shahjhanpur end, all other lines connected at 220kV Shahjhanpur(U) tripped from remote end on zone-3 distance protection operation. iv) Due to this tripping, 220/132/132kV Shahjhanpur(U) S/S became dead. v) During the same time, 300MW Rosa TPS(U) Unit-1 & 2 tripped on standby earth fault protection operation. As per DR of 300MW Rosa TPS(U) Unit-1, fault current was approx. 1.379kA. vi) As per SCADA SOE, 132kV Jalaabad-Aizpur (U) Ckt and 400kV Bareilly -Unnao (U) Ckt-1 tripped during the same time. (Exact reason yet to be shared) vii) As per PMU at Lucknow(PG), R-N phase to earth fault converted to R-Y phase to phase fault is observed in the system with delayed fault clearance time of 2840ms. viii) As reported by SLDC-UP, load loss of ~55MW and generation loss of approx. 550MW occurred in UP control area.	1) 220kV Shahjhanpur(U) Shahjhanpur(PG) Ckt 2) 220kV Shahjhanpur(U) Bareilly(U) Ckt 3) 220kV Shahjhanpur(U) Rosa TPS(U) Ckt-1 4) 220kV Shahjhanpur(U) Rosa TPS(U) Ckt-2 5) 220kV Shahjhanpur(U) Aizpur(U) Ckt 6) 220kV Shahjhanpur(U) Gola-Ikshampur(U) Ckt 7) 220kV Shahjhanpur(U) Hardoi(U) Ckt 8) 220/132kV 160MVA ICT-1 at Shahjhanpur(U) 9) 220/132kV 200MVA ICT-2 at Shahjhanpur(U) 10) 220/132kV 160MVA ICT-3 at Shahjhanpur(U) 11) 300MW Rosa TPS(U) Unit-1 12) 300MW Rosa TPS(U) Unit-2
26	GD-1	Punjab	22-Aug-2023 21:51	23-Aug-2023 00:20	02:29	0	590	0.000	0.835	58294	70663	i) 220/132/66kV Verpal(PS) has double main bus scheme at 220kV level. ii) As reported, at 21:51 hrs, R-N phase to earth fault occurred in 220kV Verpal(PS)-Rashiana(PS) Ckt; fault sensed in zone-1 at Rashiana(PS) end. Line tripped only from Rashiana(PS) end. iii) As CB at Verpal(PS) end of 220kV Verpal(PS)-Rashiana(PS) Ckt failed to operate, all other lines connected at 220kV Verpal(PS) tripped from remote end on zone-3 distance protection operation. iv) Due to this tripping, 220/132/66kV Verpal(PS) S/S became dead. v) As per DR at Amritsar(PG) end, 220 kV Verpal(PS) -Amritsar(PG) ckt-1&2 tripped on R-N phase to earth fault with fault current of ~3.2kA from Amritsar(PG) end with fault clearance time of ~830ms; fault was sensed in zone-3. vi) As per PMU at Lucknow(PG), R-N phase to earth fault is observed in the system with delayed fault clearance time of 880ms. vii) As per SCADA, change in demand of approx. 590 MW is observed in Punjab control area.	1) 220 kV Verpal(PS) -Amritsar(PG) ckt-1 2) 220 kV Verpal(PS) -Amritsar(PG) ckt-2 3) 220kV Verpal(PS)-Rashiana(PS) Ckt 4) 220kV Verpal(PS)-Pathi(PS) Ckt 5) 220kV Verpal(PS)-Butri(PS) Ckt
27	GI-1	Jammu & Kashmir	23-Aug-2023 14:55	23-Aug-2023 17:14	02:19	0	245	0.000	0.366	62178	66986	i) 220/132kV Barn(J&K) have feeding from 220kV Kishenpur-Barn ckt-1&2 only. There are 3*160MVA 220/132kV ICTs at Barn S/S and 132kV feeders to Kala Kotla, Jauria, Katra & Barn Canal. ii) During antecedent condition, 220kV Kishenpur-Barn ckt-1&2 were carrying 167MW & 170MW respectively. iii) As reported, at 14:55hrs, 220 kV Barn(J&K)-Kishenpur(PG) Ckt-2 tripped on B-N phase to earth fault with fault distance of ~6.9km from Kishenpur(PG) end. At the same time, 132kV feeders to Kala Kotla, Barn Canal & Jauria tripped. iv) Due to tripping of aforementioned elements, load of Kala Kotla, Barn Canal & Jauria affected. Load of Katra was remained intact through 220kV Kishenpur-Barn ckt-1. v) As per DR at Kishenpur(PG) end of 220 kV Barn(J&K)-Kishenpur(PG) Ckt-2, zone-1 distance protection operated; fault current was approx. 10.52kA from Kishenpur(PG) end. vi) As per PMU at Kishenpur(PG), B-N phase to earth fault with no A/R operation and cleared within 80msec is observed. vii) As per SCADA, load loss of approx. 245MW occurred in J&K control area.	1) 220 kV Barn(J&K)-Kishenpur(PG) Ckt-2
28	GI-1	Delhi	23-Aug-2023 17:07	23-Aug-2023 17:28	00:21	0	206	0.000	0.330	55558	63466	i) During antecedent condition, 220kV Geeta Colony-Patparganj (DTL) Ckt-1 was connected to 220kV Bus-1 at Geeta Colony(DTL) and 220kV Geeta Colony-Patparganj (DTL) Ckt-2, 220kV Geeta Colony - South wazirabad (DTL) Ckt-2 and 220/132kV 100MVA ICT 1&2 were connected to 220kV Bus-2 at Geeta Colony(DTL) and 220kV bus coupler was in closed position. 220kV Geeta Colony - South wazirabad (DTL) Ckt-1 was under shutdown and entire load of 220kV Geeta Colony and Patparganj was catered by 220kV Geeta Colony - South wazirabad (DTL) Ckt-2. ii) As reported, at 17:07 hrs, 220kV Geeta Colony - South wazirabad (DTL) ckt-2 tripped on B phase to phase fault, fault sensed in zone-1 from Wazirabad end. iii) Due to tripping of the line, load of Shakarpur, Jhilmil, Kant nagar, Akshardham, CBO-1, Dhalpuria, Geeta Colony, Gurgaon Nagar, Kallah Nagar, Khichripur, Krishna Nagar, Mayur Vihar-I & II, GH-I, Preet Vihar and Patparganj were affected. iv) As per PMU at Mandaula(PG), Y-N phase to earth fault followed by Y-B phase to phase fault is observed with fault clearing time of 80 ms. v) As per SCADA, load loss of approx. 300MW is observed in Delhi control area. But as reported by SLDC Delhi, load loss of approx. 300MW occurred in Delhi control area.	1) 220kV Geeta Colony - South wazirabad (DTL) ckt-2
29	GI-1	Jammu & Kashmir	23-Aug-2023 15:17	23-Aug-2023 17:33	02:16	0	60	0.000	0.091	61447	64251	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 Amargarh(INDIGRID) -Ziankote(J&K) O/C (carrying 95MW each) was feeding Ziankote load. 220kV Wagora-Ziankote(J&K) Ckt-2 (carrying 118MW) was connected to other bus and feeding Alusteng. 220kV Wagora-Ziankote(J&K) Ckt-1 was not in service. iii) As reported, 220 kV Wagora(PG)-Ziankote(J&K) (POD JK) Ckt-2 tripped on B-N phase to earth fault with distance of 21.32km from Wagora(PG) end. iv) As per DR, fault was sensed in zone-1. Fault current was approx. 5.16kA from Wagora(PG) end. v) As per PMU at Amargarh(PG), B-N phase to earth fault is observed with fault clearing time of 160ms. vi) As per SCADA, change in demand of approx. 100MW is observed in J&K control area. But as reported by SLDC J&K, load loss of 60MW occurred in J&K control area.	1) 220 kV Wagora(PG)-Ziankote(J&K) (POD JK) Ckt-2

Details of Grid Events during the Month of August 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)		
30	GI-1	Jammu & Kashmir	25-Aug-2023 13:19	25-Aug-2023 15:02	01:43	0	260	0.000	0.373	63215	69747	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 Amargarh(INDIGRID)-Ziankote(JK) D/C was feeding Ziankote load. 220 kV Amargarh(INDIGRID)-Ziankote(JK) (POD JK) Ckt-1 & 2 were 1454MW each. iii) As reported, 220kV Amargarh(INDIGRID)-Ziankote(JK) ckt-1 tripped on B-N phase to earth fault with distance of 11.94km from Amargarh end; fault sensed in zone-1. iv) At the same time, 220kV Amargarh(INDIGRID)-Ziankote(JK) ckt-2 also tripped due to overloading occurred. Hence, load of Ziankote affected due to tripping. v) As per PMU at Amargarh, B-N phase to earth fault is observed with fault clearing time of 80ms. vi) As per SCADA, change in demand of approx. 260MW is observed in J&K control area.	1) 220 kV Amargarh(Indigrd)-Ziankote(JK) (POD JK) Ckt-1 2) 220 kV Amargarh(Indigrd)-Ziankote(JK) (POD JK) Ckt-2
31	GD-1	Rajasthan	28-Aug-2023 05:17	28-Aug-2023 10:23	05:06	1610	0	2.948	0.000	54613	63923	i) During antecedent condition, Rajasthan state wind generation was approx. 2888MW and 220kV Akal-Mada ckt was carrying approx. 240MW wind generation. ii) As reported, at 05:17hrs, 220kV Akal-Mada ckt tripped. Y-phase jumper found broken in yard at 220 kV GSS Mada. iii) As per PMU at Jodhpur(RS), Y-B phase to phase fault with delayed clearance of ~360msec is observed. iv) With the tripping of 220kV Akal-Mada ckt, complete wind generation at Mada lost (220kV Mada S/s blackout). At the same time, wind generation at other connected wind plants (Bhu, Jaljaya, Tejwa, Mulana etc.) also dropped to zero. No line tripping except 220kV Akal-Mada ckt reported and recorded in SDE during the event. v) As per SCADA, total drop in Rajasthan wind generation was approx. 1610MW. Almost ~1200MW RE generation recovered within 5min.	1) 220 kV Akal-Mada (RS) Ckt
32	GD-1	Jammu & Kashmir	28-Aug-2023 06:09	28-Aug-2023 09:20	03:11	450	100	0.829	0.160	54261	62391	i) Baglihar HEP comprises of Baglihar Stage-1 (150MW Unit-1,2&3) and Baglihar Stage-2 (150MW Unit-4,5&6). Power of Baglihar stage-1 HEP evacuates through 400kV Baglihar-Kishenpur ckt-1 & 2 and power of Baglihar stage-2 HEP evacuates through 400kV Baglihar-Wanpoh ckt & 400kV Baglihar-Kishenpur ckt-3. ii) During antecedent condition, 400kV Baglihar-Kishenpur ckt-1,2&3 and 400kV Baglihar-Wanpoh ckt were carrying 220MW, 221MW, 235MW & 210MW respectively. iii) As reported, at 06:09hrs, 400 kV Baglihar(JK)-Kishenpur(PG) (POD JK) Ckt-2 tripped on Y-N phase to earth fault after unsuccessful A/R operation as fault was of permanent nature. iv) Fault was in Z-1(4.5km) from Kishenpur end and fault current was I _Y =17kA. v) As per PMU at Kishenpur(PG), Y-N phase to earth fault with unsuccessful A/R operation and delayed clearance of fault in 200msec is observed. At the same time, 400 kV Baglihar(JK)-Kishenpur(PG) (POD JK) Ckt-1 also tripped from Baglihar end only. vi) With the tripping of 400 kV Baglihar(JK)-Kishenpur(PG) (POD JK) Ckt-1&2, all three running unit, 150MW Unit-1,2&3 (carrying total ~450MW) tripped due to loss of evacuation path leading to complete blackout of Baglihar Stage-1(J&K). vii) As per SCADA, change in demand of approx. 100MW is observed in J&K control area and loss in generation of approx. 450MW at Baglihar HEP.	1) 400 kV Baglihar(JK)-Kishenpur(PG) (POD JK) Ckt-1 2) 400 kV Baglihar(JK)-Kishenpur(PG) (POD JK) Ckt-2
33	GI-2	Rajasthan	28-Aug-2023 11:52	01-Sep-2023 18:38	06:46	2095	0	3.294	0.000	63608	66398	i) As reported, at 11:52hrs on 28th August, 2023, 400kV Bhadra(RS)-Bikaner(RS) Ckt-1 tripped on R-Y phase to phase fault with fault distance of 157.6km from Bikaner(RS). As per information received from SLDC Rajasthan, conductor snapped in line near 400kV level of Bhadra(RS). (Exact location of conductor snapping need to be shared) ii) As per DR at Bikaner(RS) end of 400kV Bhadra(RS)-Bikaner(RS) Ckt-1, fault was sensed in zone-2, fault current was 3.299kA and 3.723kA in R and Y phase respectively from Bikaner(RS) end and fault clearing time was ~70ms. iii) As per SCADA, change in NR total solar generation of approx. 2095MW is observed at 11:52hrs. iv) As per PMU at Bhadra(PG), R-Y phase to phase fault is observed with fault clearance time of 80 ms at 11:52hrs.	1) 400kV Bhadra(RS)-Bikaner(RS) Ckt-1
34	GI-2	Rajasthan	28-Aug-2023 12:05	01-Sep-2023 18:38	06:33	1880	0	3.000	0.000	62663	66556	i) As reported, at 12:05hrs, 400kV Bhadra(RS)-Bikaner(RS) Ckt-2 tripped on Y-B phase to phase fault with fault distance of 148.9km from Bikaner(RS). As per information received from SLDC Rajasthan, conductor snapped in line near 400kV level of Bhadra(RS). (Exact location of conductor snapping need to be shared) ii) As per DR at Bikaner(RS) end of 400kV Bhadra(RS)-Bikaner(RS) Ckt-2, fault was sensed in zone-1, fault current was 3.472kA and 4.467kA in Y and B phase respectively from Bikaner(RS) end and fault clearing time was ~50ms. iii) As per SCADA SOC, 400kV Bhadra(RS)-Bikaner(RS) Ckt-1 also tripped during the same time. (Exact reason yet to be shared) iv) As per SCADA, change in NR total solar generation of approx. 1880MW is observed at 12:05hrs. v) As per PMU at Bhadra(PG), Y-B phase to phase fault is observed with fault clearance time of 80 ms at 12:05hrs.	1) 400kV Bhadra(RS)-Bikaner(RS) Ckt-2
35	GD-1	Uttarakhand	29-Aug-2023 10:44	29-Aug-2023 11:36	00:52	0	181	0.000	0.258	65994	70185	i) 220kV Roorkee(PTCUL) is connected with 400/220kV Roorkee(PG) through 220 kV Roorkee(PG)-Roorkee(UK) (PTCUL) Ckt. ii) During antecedent condition, 220 kV Roorkee(PG)-Roorkee(UK) (PTCUL) Ckt was carrying ~181MW. This was the only source available for 220kV Roorkee(PTCUL). iii) As reported, at 10:43:30hrs, 220 kV Roorkee(PG)-Roorkee(UK) (PTCUL) Ckt tripped on R-Y fault from Roorkee(PG) end only leading to complete blackout at 220kV Roorkee(PTCUL). Distance protection relay at Roorkee(PG) end sensed fault in Z-3 with distance approx. 19.3km (219.3%), fault currents were I _R =4.2kA and I _Y =3.9kA. iv) As per PMU at Roorkee(PG) and DR of the line at Roorkee(PG) end, R-N fault which late converted into R-Y-N fault with delayed clearance of ~1240msec is observed. v) With the tripping of 220 kV Roorkee(PG)-Roorkee(UK) (PTCUL) Ckt, supply to 220kV Roorkee(PTCUL) lost. vi) As per SLDC-Uttarakhand, load loss of approx. 181MW occurred in Uttarakhand control area.	1) 220 kV Roorkee(PG)-Roorkee(UK) (PTCUL) Ckt-1
36	GI-1	Delhi	30-Aug-2023 12:50	30-Aug-2023 12:53	00:03	0	160	0.000	0.218	68910	73548	i) 220kV Pappankalan(Dwarka2) have feeding from 400/220kV Bannaui(DTL) and 400/220kV Dwarka(DTL). ii) During antecedent condition, 220kV Pappankalan(Dwarka2) was running in split mode. 220 kV Bannaui-Pappankalan(Dwarka2) ckt-1 was under emergency shutdown, 220 kV Bannaui-Pappankalan(Dwarka2) ckt-2 was carrying approx. 155MW, feeding load through 220/66kV 100MVA ICT-2 & 160MVA ICT-4 and 220kV Dwarka-Pappankalan ckt-1&2 was feeding through 220/66kV 100MVA ICT-1 & 160MVA ICT-3. iii) As reported, at 12:50 hrs, 220 kV Bannaui-Pappankalan(Dwarka2) ckt-2 tripped on Y-B phase to phase fault. Line tripped on differential protection operation. iv) Approx. 160MW load affected due to tripping of 220 kV Bannaui-Pappankalan(Dwarka2) ckt-2. At 12:53hrs, load was restored by closing bus coupler at 220kV Pappankalan. v) As per PMU at Bannaui(PG), Y-B phase to phase fault is observed with fault clearing time of 120 ms. vi) As reported by SLDC-Delhi, load loss of approx. 160MW is occurred in Delhi control area.	1) 220 kV Bannaui-Pappankalan(Dwarka2) ckt-2
37	GD-1	Delhi	30-Aug-2023 11:52	30-Aug-2023 11:55	00:03	0	80	0.000	0.108	69396	74057	i) 220kV Masjid Moth(DTL) have feeding from 400/220kV Tuglakabad and 400/220kV Maharambagh and 220kV Okhla(DTL) have feeding from 400/220kV Tuglakabad and 220kV Badapur. ii) During antecedent condition, 220kV Maharambagh-Masjid Moth ckt-1&2 were not in service and 220kV Tuglakabad-Masjid Moth ckt-1 (carrying 34MW) & ckt-2 (carrying 81MW) were running in split mode. 220kV Okhla was connected to Tuglakabad and Badapur. iii) As reported, at 11:52 hrs, 220 kV Tuglakabad-Okhla ckt-1 tripped on B-N phase to earth fault, fault distance was ~3.3km from Tuglakabad end. At the same time, 220kV Tuglakabad-Masjid Moth ckt-1 also tripped leading to complete blackout of 220kV Masjid Moth(DTL) S/s. iv) Approx. 80MW load affected at 220kV Masjid Moth. At 11:55hrs, bus coupler was closed and load was restored through 220kV Tuglakabad-Masjid Moth ckt-2. Further at 12:15hrs, 220kV Tuglakabad-Masjid Moth ckt-1 also restored. No load affected at 220kV Okhla. v) As per PMU at Badabagh(PG), B-N phase to earth fault is observed with fault clearing time of 120 ms. vi) As reported by SLDC-Delhi, load loss of approx. 90MW is occurred in Delhi control area.	1) 220 kV Tuglakabad-Masjid Moth (DTL) Ckt-1 2) 220 kV Tuglakabad-Okhla (DTL) Ckt-1

Details of Grid Events during the Month of August 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-1	WR	06-Aug-23 12:11	06-Aug-23 13:34	1:23	280	-	0.005	-	59837	51273	At 12:11 Hrs/ 06-08-2023, 220/33 kV Ostro-ICT-1 tripped due to opening of LV jumper. At the same time, 220/33 kV Ostro-ICT-2 tripped on overcurrent protection operation. Generation loss of 280 MW occurred at 220 kV Ostro (Renew Power) wind power plant due to the event.	Tripping of 1. 220 kV/33 kV Ostro-ICT-1 & 2
2	GI-2	WR	06-Aug-23 21:12	06-Aug-23 22:35	1:23	-	-	-	-	68922	51686	At 21:12 Hrs/ 06-08-2023, 400 kV Korba (NTPC)-Bus-3 tripped on LBB protection during withdrawal of Korba (NTPC)-unit-7 (500 MW) on Boiler Tube Leakage. During opening of 400 kV Generator-7 breaker (GCB), R and Y phase poles opened immediately but due to B-phase pole delayed opening, LBB operated. 400 kV Korba-Rajpur-4, 400 kV Korba- Birsinghpur-2 and 400 kV Korba-Vindhyachal-2 tripped along with 400kV Korba (NTPC)-Bus-3. No generation loss occurred due to the event.	Tripping of 1. 400 kV Korba (NTPC)-Bus-3 2. 400 kV Korba-Rajpur-4 3. 400 kV Korba- Birsinghpur-2 4. 400 kV Korba-Vindhyachal-2
3	GD-1	WR	08-Aug-23 13:32	08-Aug-23 22:07	8:35	260	-	0.004	-	66815	55820	At 13:32 Hrs/ 08-08-2023, : 220 kV Naranpar-Bhuj line tripped on B-E fault. As informed by site line was tripped by miscreants due to ROW issue. Generation loss of 260 MW occurred at 220 kV Narnapar (GIWEL) wind power plant due to loss of evacuation path.	Tripping of 1. 220 kV Naranpar-Bhuj
4	GD-1	WR	11-Aug-23 20:42	11-Aug-23 21:46	1:04	-	88	-	0.001	75267	59990	At 20:42hrs/ 11-08-2023, B-phase CT of 220kV Asoj-Jambuva-1 blasted at Jhambuva substation, after 535 msec R-phase CT of 220kV Asoj-Jambuva-2 blasted at Jhambuva substation and fire erupted in switchyard leading to busbar protection operation in Bus-1 and Bus-2, leading to blackout of Jambuva substation. Load loss of around 88MW was reported due to the event.	Tripping of- 1. 220kv Asoj-Jambuva-1&2 2. 220kv Jambuva-Karamsad-1&2 3. 220kv Jambuva-Jhagadiya 4. 220kv Jambuva-Haldarwa 5. 220kv Jambuva-Achaliya-3&4 6. 220kv Jambuva-Gotri-1&2 7. 220kv Jambuva-Vadodara-1&2 8. 220/66kv Jambuva-ICT-1&2 9. 220/132kv Jambuva-ICT-1,2&3 10. 220kv Jambuva-Bus-1&2
5	GD-1	WR	13-Aug-23 13:07	13-Aug-23 18:30	5:23	250	-	0.004	-	71053	61132	At 13:07 Hrs/ 13-08-2023,220 kV Naranpar-Bhuj line tripped on B-E fault.Generation loss of 250 MW occurred at 220 kV Narnapar (GIWEL) wind power plant due to loss of evacuation path.	Tripping of 1. 220 kV Naranpar-Bhuj
6	GD-1	WR	14-Aug-23 04:09	14-Aug-23 04:31	0:22	253	-	0.004	-	68173	56215	At 04:09 Hrs/ 14-08-2023,220 kV Bhuj-Gadhsisa line tripped on Y-E fault.Generation loss of 253 MW occurred at 220 kV Gadhsisa (Renew Power) wind power plant due to loss of evacuation path.	Tripping of 1. 220 kV Bhuj-Gadhsisa
7	GD-1	WR	14-Aug-23 05:57	14-Aug-23 07:17	1:20	-	1271	-	0.022	70211	58247	At 05:56:53/ 14-08-2023, 220 kV Bhilai-Bemetra tripped on over current protection operation (maloperation), leading to overloading of 220 kV Bhatapara-Suhela and 220 kV DSPM-Suhela. At 05:57:06, 220 kV DSPM-Suhela tripped on over current protection operation. Due to delayed opening of Y-phase at Suhela, LBB protection operated and instead of only 220 kV Suhela-Bus-1, Bus-2 also tripped due to wrong isolator selector switch status of DSPM line (Both the 89A & 89B status was closed), leading to blackout of 220 kV Suhela substation. Also complete outage (blackout) occurred at Paraswani, Mungeli, Gendpur, Bemetara and 132 kV downstream substations. Load loss of 1271 MW occurred at Suhela, Paraswani, Mungeli, Gendpur, Bemetara areas due to the above tripping.	Tripping of 1. 220 kV Bhilai-Bemetra 2. 220 kV Bhatapara-Suhela-1,2&3 3. 220 kV DSPM-Suhela 4. 220 kV Suhela-Bemetra-1&2 5. 220 kV Suhela-Paraswani-1&2 6. 220 kV Suhela-Banari 7. 220 kV Suhela-Bus-1&2
8	GD-1	WR	15-Aug-23 04:35	16-Aug-23 01:26	20:51	135	-	0.002	-	69219	56625	At 04:35 Hrs/ 15-08-2023, 220 kV Bhuj-Vadva-1 tripped on R-E fault. Generation loss of 135 MW occurred at 220 kV Vadva (GIWEL) wind power plant due to loss of evacuation path.	Tripping of 1. 220 kV Bhuj-Vadva-1

Details of Grid Events during the Month of August 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	GI-1	WR	16-Aug-23 21:33	16-Aug-23 21:53	0:20	-	-	-	-	73804	65515	At 09:33 Hrs/ 16-08-2023, while first time charging of 220 kV Kalwa-Pawne-1, bus bar protection operated in 220 kV Kalwa-Bus-2 resulting in tripping of 220 kV Kalwa-Bus-2 all connected elements.No load loss occurred during the event.	Tripping of 1. 220 kV Kalwa-Bus-2 2. 220 kV Borivali-Kalwa-1 3. 400/220 kV Kalwa-ICT-1&2 4. 220 kV Kalwa-Colorchem-1 5. 220 kV Kalwa-Mulund-2
10	GD-1	WR	16-Aug-23 10:59	16-Aug-23 11:25	0:26	-	350	-	0.005	77689	66700	At 10:47 hrs/ 16-08-2023, 220 kV Sachin-Ichhapore-1 tripped on R-E fault due to R phase wave trap got damaged at Sachin end. At the same time 220 kV Sachin-GSEG-1 tripped on reflected earth fault. Prior to the event 220 kV Sachin-Vav was under planned shutdown. At 10:59 hrs, 220 kV Sachin-Navsari-1 tripped on R-Y fault and substation became dark. Load loss of 350 MW occurred due to the event.	Tripping of 1. 220 kV Sachin-Ichhapore-1 2. 220 kV Sachin-GSEG-1 3. 220 kV Sachin-Navsari-1
11	GD-1	WR	19-Aug-23 17:57	19-Aug-23 19:00	1:03	1350	-	0.018	-	74687	61077	At 17:57 Hrs/ 19-08-2023, 400 kV SSP-Bus-1&2 tripped on LBB protection operation of Bus-Coupler. Bus Coupler was in open condition and LBB operated due to maloperation of M-2 relay. Even though bus coupler was in open condition, Status of Bus coupler R phase of M-2 relay was showing "closed" and contact of timer relay of LBB was short. This led to LBB operation. Generation loss of 1350 MW occurred at SSP hydro power plant due to the above event.	Tripping of 1. 400 kV SSP-Bus-1&2 2. 400 kV SSP-Dhule-1&2 3. 400 kV SSP-Rajgarh-1&2 4. 400 kV SSP-Asoj-1 5. 400 kV SSP - Kasar 6. 400/220 kV SSP-ICT-1&2 7. SSP Unit-1,2,3,4,5&6
12	GD-1	WR	21-Aug-23 04:18	22-Aug-23 20:02	15:44	143	-	0.002	-	68699	52806	At 04:18 Hrs/ 21-08-2023,220 kV Bhuj-Vadva-1 tripped on R-E fault due to faulty insulator at Tower location 181. Generation loss of 143 MW occurred at 220 kV Vadva (GIWEL II) wind power plant due to loss of evacuation path.	Tripping of 1. 220 kV Bhuj-Vadva-1

Details of Grid Events during the Month of August 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	Pondicherry	05-Aug-23 11:57	05-Aug-23 12:58	01hr 1min	0	132	0.00%	0.24%	52061	55929	Complete Outage of 230kV/110kV Villianur SS of Pondicherry: During antecedent conditions, 230kV Neyveli TS-2 Villianur line was under idle charged condition from Neyveli TS-2. As per the reports submitted, the triggering incident was B-N fault in 230kV Pondicherry Villianur line. Tripping of the only connected line resulted in complete outage of 230kV/110kV Villianur SS.	1. 230kV Pondicherry Villianur line
2	GD-1	Pondicherry	05-Aug-23 14:10	05-Aug-23 14:41	31mins	0	138	0.00%	0.25%	50579	54229	Complete Outage of 230kV/110kV Villianur SS of Pondicherry: During antecedent conditions, 230kV Pondicherry Villianur line was under idle charged condition. As per the reports submitted, the triggering incident was B-N fault in 230kV Neyveli TS-2 Villianur line. Tripping of the only connected line resulted in complete outage of 230kV/110kV Villianur SS.	1. 230kV Neyveli TS-2 Villianur line
3	GD-1	Telangana	08-Aug-23 15:47	08-Aug-23 21:28	5hrs 41mins	0	0	0.00%	0.00%	47268	57507	Complete Outage of 765kV/400kV Warangal_WKTL SS: During antecedent conditions, 400kV Warangal Warangal_WKTL line-1 was under outage. 765kV Bus and lines were not in charged condition. As per the reports submitted, the triggering incident was RY-N fault in 400kV Warangal Warangal_WKTL Line-2. Tripping of the only connected line resulted in a complete outage of 765kV/400kV Warangal_WKTL SS.	1.400kV Warangal Warangal_WKTL line-2
4	GD-1	Karnataka	09-Aug-23 13:36	09-Aug-23 13:55	19mins	60	0	0.12%	0.00%	48891	59182	Complete Outage of 220kV Varahi PH of KPCL: 220kV Varahi PH is operating with a single bus scheme. As per the reports submitted, the triggering incident was 220kV Bus fault at Varahi PH. Due to non-operation of BBP, the fault was cleared at remote ends on operation of Zone-2 protection. Tripping of all the connected lines resulted in complete outage of 220kV Varahi PH.	1. 220kV Varahi Shimoga Line-1, 2, & 3 1. 220kV Varahi Kemar Line-1& 2
5	GD-1	Karnataka	12-Aug-23 11:38	12-Aug-23 11:59	21mins	0	42	0.00%	0.08%	49112	55203	Complete Outage of 220kV Kodalalli PH, 220kV Kadra PH of KPCL and 220kV/110kV Karwar SS of KPTCL: During antecedent conditions, 220kV Kaiga Kadra and 220kV Kaiga Kodalalli were under outage. 220kV Kodalalli PH, 220kV Kadra PH and 220kV/110kV Karwar SS were being radially fed from 220kV Nagjheri PH. As per the reports submitted, the triggering incident was the tripping of 220kV Nagjheri Kodalalli Line-1 and 220kV Nagjheri Kodalalli Line-2 on Earth fault protection at Nagjheri end. Tripping of both lines led to complete outage of 220kV Kodalalli PH, 220kV Kadra PH and 220kV/110kV Karwar SS.	1. 220kV Nagjheri Kodalalli Line-1&2
6	GD-1	Tamil Nadu	13-Aug-23 14:31	13-Aug-23 14:54	23mins	70	0	0.15%	0.00%	46998	53079	Complete Outage of 230kV JSW_Vilathikulam Wind: As per the reports submitted, the 230kV TTGS JSW_Vilathikulam_Wind line tripped only at JSW_Vilathikulam end on distance protection operation during VT fuse failure. Tripping of the only connected line resulted in complete outage of 230kV JSW_Vilathikulam Wind.	230kV TTGS JSW_Vilathikulam_Wind
7	GD-1	Karnataka	23-Aug-23 15:50	23-Aug-23 16:28	38mins	8	358	0.02%	0.60%	48306	59707	Complete Outage of 220kV/110kV Ranebennur SS, 220kV/33kV Sarjan_Suzlon Wind_Guttur, 220kV/66kV Davanagere SS, 220kV/33kV Suzlon_Wind_Honnali, and 220kV/66kV Benkikere SS of KPTCL: As per the information received, the triggering incident was failure of R-phase CT of 220kV Guttur Ranebennur line at Guttur end. This resulted in the operation of 220kV Bus-2 BBP at 400kV/220kV Guttur SS and all the elements connected to 220kV Bus-2 got tripped. This in turn resulted in the complete loss of supply to 220kV Sarjan_Suzlon Wind_Guttur and 220kV/110kV Ranebennur SS since both SS were only connected to 220kV Bus-2 at 400kV/220kV Guttur SS. After the tripping of 220kV Guttur Davanagere line-1 and 2 on 220kV Bus-2 BBP operation, 220kV Guttur Davanagere line-3 which was connected to 220kV Bus-1 also got tripped on operation of overcurrent protection. This resulted in complete outage of 220kV/66kV Davanagere SS which in turn led to the de-energization of 220kV Bus-2 at 220kV/66kV Honnali SS. Due to this, there was complete loss of supply at 220kV/66kV Benkikere SS, and 220kV/33kV Suzlon_Wind_Honnali.	1. 220kV Guttur-Guttur SAS line-2 2. 220kV Guttur-Davanagere line-1, 2, & 3 3. 400/220kV Guttur-ICT-2 4. 220kV Guttur-Ranebennur 5. 220kV Guttur-Chitradurga 6. 220kV Guttur-Haveri line-1& 2 7. 220kV Guttur-Neelagunda 8. 220kV Guttur-Sarjan Wind
8	GD-1	Karnataka	31-Aug-23 22:51	31-Aug-23 23:01	10mins	0	113	0.00%	0.25%	44658	45542	Complete Outage of 220kV/66kV Khodays SS, and 220kV/66kV Subramanyapura SS of KPTCL: During antecedent conditions, 220kV Subramanyapura - Peenya line was under outage. Triggering incident was RN fault in 220kV Somanahally - Khodays line. This resulted in complete loss of supply at 220kV/66kV Khodays SS and 220kV/66kV Subramanyapura SS since these stations were radially fed from Somanahalli Station.	1. 220kV Somanahalli-Khodays
9	GI-1	Karnataka	09-Aug-23 06:02	09-Aug-23 06:34	32mins	200	0	0.55%	0.00%	36688	48230	Tripping of 220kV Bus-1 of 220kV Alamatti Generating station of KPCL: During antecedent conditions, 220kV Alamatti Generating station was operating with split bus condition at 220kV level. 220kV Alamatti Bagewadi Line-1, 220kV Alamatti Bagalkot Line-1 and Unit-4,5 and 6 are connected to 220kV Bus-1. As per the reports submitted, the triggering incident was R-N fault in 220kV Alamatti Bagewadi Line-1. At the same time, 220kV Alamatti Bagalkot Line-1 tripped at Bagalkot end. Tripping of both lines led to loss of evacuation path for the Unit-4,5&6 and they tripped on over frequency protection. This led to de-energization of 220kV Bus-1 at Alamatti Generating station. Subsequently, Unit-1,2&3 connected to 220kV Bus-2 also tripped.	1. 220kV Alamatti Bagewadi Line-1 2. 220kV Alamatti Bagalkot Line-1 3. Alamatti Unit-1,2,3,4,5 & 6

Details of Grid Events during the Month of August 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)		
10	GI-1	Telangana	10-Aug-23 16:42	10-Aug-23 19:49	03hrs 07mins	0	0	0.00%	0.00%	46075	53408	Tripping of 220kV Bus-1 of 220kV Nagarjun Sagar Generating Station of TSGENCO: As per the reports submitted, the triggering incident was maloperation of LBB in 220kV Nagarjun Sagar Tallapalli Line-1 which was under LC at Nagarjun Sagar end during testing works. Immediately all elements connected to 220kV Nagarjun Sagar Bus-1 tripped.	1. 220kV Nagarjun Sagar Srisaillam Line-1 2. 220kV/110kV 100MVA PTR-1 at Nagarjun Sagar
11	GI-1	Karnataka	10-Aug-23 11:48	10-Aug-23 16:14	04hrs 26mins	0	0	0.00%	0.00%	49644	58898	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 R-N fault in 220kV Munirabad Lingapur line-2 and the bus coupler at Munirabad end tripped. 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
12	GI-2	Andhra Pradesh	10-Aug-23 18:46	11-Aug-23 06:45	11hrs 59mins	0	0	0.00%	0.00%	43043	48992	Tripping of 400kV Bus-1 of 400kV HNPLC SS: As per the reports submitted, the triggering incident was failure of a Y-phase Bus-1 isolator. Immediately, 400kV Bus-1 BBP operated and all the main circuit breakers connected to the Bus-1 tripped. At the same time, 400kV Maradam Kalpakk line-1 tripped only at Maradam end due to SOTF maloperation.	1. 400kV Maradam Kalpakk line-1
13	GI-2	Karnataka	11-Aug-23 05:19	11-Aug-23 07:51	02hrs 32mins	0	0	0.00%	0.00%	37699	45054	Tripping of 400kV Bus-1 of 400kV/220kV Kaiga APS of NPCIL: 400kV/220kV Kaiga APS is operating with one and half breaker scheme at 400kV level. As per the reports submitted, the triggering incident was Main CB LBB maloperation of 400kV/220kV Kaiga ICT-1 which was under LC. Immediately all the Main CBs connected to 400kV Bus-1 tripped causing the de-energisation of 400kV Bus-1 at Kaiga APS.	Nil
14	GI-2	Tamil Nadu	11-Aug-23 17:53	11-Aug-23 23:16	05hrs 23mins	0	0	0.00%	0.00%	40972	50325	Tripping of 400kV Bus-1 of 400kV/230kV NNTTP : 400kV/230kV NNTTP is operating with Double Bus with Bus Coupler scheme at 400kV level. As per the reports submitted, the triggering incident was R-N fault in 400kV Bus-1 at 400kV/220kV NNTTP. Immediately, BBP operated and all the elements connected to the 400kV Bus-1 tripped leading to the de-energisation of the Bus.	1. 400kV NNTTP Kalivendapattu Line-1 2. 400kV/230kV NNTTP ICT-1
15	GI-1	Karnataka	15-Aug-23 02:06	15-Aug-23 07:22	05hrs 16mins	0	0	0.00%	0.00%	39930	43465	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 at Munirabad end and the bus coupler at Munirabad end tripped. 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
16	GI-1	Karnataka	22-Aug-23 22:53	23-Aug-23 01:25	02 hrs 32 mins	0	0	0.00%	0.00%	43233	49169	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 B-N fault in 220kV Munirabad Lingapur line-2 and the bus coupler at Munirabad end tripped. 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
17	GI-1	Kerala	25-Aug-23 10:58	25-Aug-23 11:05	7mins	0	216	0.00%	0.31%	52758	69350	Tripping of 220kV Bus-1 of 220kV/110kV Pothencode SS of KSEB: During relay testing of 220kV/110kV 200MVA Transformer-3 at Pothencode which was under LC, BBP of Bus-1 operated resulting in the tripping of the elements connected to 220kV Bus-1 at 220kV/110kV Pothencode SS. At the same time, 220kV/110kV 200MVA Transformer-2 which was connected to 220kV Bus-2 got tripped on operation of overload protection.	1. 220kV Pothencode Edamon line-1 2. 220kV Pothencode Trivandrum line-1&3 3. 220kV Pothencode Kattakada line-1 4. 220kV/110kV 200MVA Transformer-1& 2 at Pothencode
18	GI-1	Andhra Pradesh	26-Aug-23 06:55	26-Aug-23 07:55	1 hr	0	0	0.00%	0.00%	4224	53390	Tripping of 220kV Bus-1 of 220kV Vizag Switching Station of APTRANSCO: The triggering incident was the failure of Y-ph pilot SRC insulator of jack bus dropper connecting to Bus isolators-I & II of 220kV VSS-MRS-I feeder bay at 220kV VSS end leading to the operation of BBP of Bus-1 at VSS and tripping of all the elements connected to 220kV Bus-1 at VSS. At the same time, 220kV VSS PGCIL line-2 corresponding to 400kV/220kV Gazuwaka ICT-2 which was connected to 220kV Bus-2 also got tripped during this event and the same needs review.	1. 220kV VSS-Gajuwaka 2. 220kV VSS-MRS-1 3. 220kV VSS- Kalapaka-1 4. 220kV VSS-PGCIL-2& 3 (500MVA ICT-2& 3) 5. 220kV VSS-Parawada-1 6. 220kV VSS-Pendurthy-1

Details of Grid Events during the Month of August 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)		
19	GI-1	Karnataka	30-Aug-23 03:05	30-Aug-23 04:48	01 hr 43 mins	0	0	0.00%	0.00%	39850	45168	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

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



Sl.No.	Category of Grid Event (G1 or 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Event		Antecedent Generation/Load in the Regional Grid		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD-1	Motipur	15.08.2023 14:31	15.08.2023 14:46	00:15	0	121	0.00%	0.49%	28844	24909	At 14:31 Hrs, 220 kV Motipur-MTPS-2 tripped due to B-Earth fault, however, breaker at Motipur didn't open and LBB operated. As reported, isolator status of 220 kV Darbhanga (DMTCL)-Motipur-1 at Motipur end was showing connected to both bus. Consequently, both 220 kV Bus at Motipur tripped and Motipur S/s became dead. 121 MW load loss reported at Motipur, Muzaffarpur, Chakia.	220 kV Motipur-MTPS D/c 220 kV Motipur-Darbhanga (DMTCL) D/c 220 kV Motipur-Mushari D/c 220 kV Motipur-Sitamarhi D/c
2	GI-2	Adhunik (APNRL)	17.08.2023 12:18	17.08.2023 18:43	06:25	490	0	1.70%	0.00%	28822	23932	At 12:18 Hrs on 17.08.2023, 2*270 MW U#1 & U#2 at APNRL tripped, leading to load loss of around 490 MW. As reported, GT of both units tripped on E/f. There was a resistive fault in 400 kV Chaibasa-Kharagpur line which persisted for around 2.5 seconds. Both units at APNRL tripped during this instance.	2*270 MW U#1 & U#2 at APNRL 400 kV Chaibasa-Kharagpur-1

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



Sl No.	Category of Grid Event (G1 to 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t. Antecedent Generation/Load in the		Antecedent Generation/Load in the Regional Grid		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
1	GD 1	Serchip, Lunglei, Melriat(MI) and Lungmual areas of Mizoram Power System	01-Aug-23 12:25	01-Aug-23 12:38	0:13:00	0	29	0.00%	1.07%	2689	2713	Serchip, Lunglei, Melriat(MI) and Lungmual areas of Mizoram Power System were connected with the rest of NER grid through 132 kV Zuangtui -Serchip line. 132 kV Aizawl-Lungmual line was under planned shutdown from 07:54 Hrs on 01.08.2023. At 12:25 Hrs on 01.08.2023, 132 kV Zuangtui -Serchip line tripped. Due to tripping of this element, Serchip, Lunglei, Melriat(MI) and Lungmual areas of Mizoram 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 Serchip, Lunglei, Melriat(MI) and Lungmual areas of Mizoram Power System by charging 132 kV Zuangtui-Serchip line at 12:38 Hrs on 01.08.2023.	132 kV Zuangtui -Serchip line
2	GD 1	Meluri, Kiphire areas and Likimro HEP of Nagaland Power System	01-Aug-23 19:14	01-Aug-23 19:26	0:12:00	21	8	0.60%	0.23%	3491	3447	Meluri, Kiphire areas and Likimro HEP of Nagaland Power System were connected with the rest of NER grid through 132 kV Kohima-Meluri line. At 19:14 Hrs on 01.08.2023, 132 kV Kohima-Meluri line tripped. Due to tripping of this element, Meluri, Kiphire areas and Likimro HEP of Nagaland 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 Meluri, Kiphire areas and Likimro HEP of Nagaland Power System by charging 132 kV Kohima-Meluri line at 19:26 Hrs on 01.08.2023.	132 kV Kohima-Meluri line
3	GD 1	Meluri, Kiphire areas and Likimro HEP of Nagaland Power System	02-Aug-23 12:30	02-Aug-23 12:37	0:07:00	23	5	0.91%	0.17%	2522	2861	Meluri, Kiphire areas and Likimro HEP of Nagaland Power System were connected with the rest of NER grid through 132 kV Kohima-Meluri line. At 12:30 Hrs on 02.08.2023, 132 kV Kohima-Meluri line tripped. Due to tripping of this element, Meluri, Kiphire areas and Likimro HEP of Nagaland 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 Meluri, Kiphire areas and Likimro HEP of Nagaland Power System by charging 132 kV Kohima-Meluri line at 12:37 Hrs on 02.06.2023.	132 kV Kohima-Meluri line
4	GD 1	Dimapur(NL) area of Nagaland Power System	02-Aug-23 16:35	02-Aug-23 17:02	0:27:00	0	85	0.00%	2.93%	2722	2903	Dimapur(NL) area of Nagaland Power System was connected with the rest of NER grid through 132 kV Dimapur (PG) - Dimapur (DoP, Nagaland) D/C lines. At 16:35 Hrs on 02.08.2023, 132 kV Dimapur (PG) - Dimapur (DoP, Nagaland) D/C lines tripped. Due to tripping of this element, Dimapur(NL) area of Nagaland Power System got separated from the 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 (DoP, Nagaland) 1 line at 17:02 Hrs on 02.08.2023.	132 kV Dimapur (PG) - Dimapur (DoP, Nagaland) D/C lines
5	GD 1	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	02-Aug-23 21:52	02-Aug-23 22:21	0:29:00	18	20	0.54%	0.67%	3315	2995	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 21:52 Hrs on 02.08.2023, 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 22:21 Hrs on 02.08.2023.	132 kV Balipara - Tenga line
6	GD 1	New Umtru Generating Station of Meghalaya Power System	03-Aug-23 16:47	03-Aug-23 17:32	0:45	36	0	1%	0%	2922	2934	New Umtru Generating Station of Meghalaya Power System was connected with the rest of NER grid through 132 kV EPIP II - New Umtru & 132 kV Umtru - New Umtru lines. At 16:47 Hrs on 03.08.2023, 132 kV EPIP II - New Umtru & 132 kV Umtru -New Umtru lines tripped. Due to tripping of these elements, New Umtru 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 New Umtru Generating Station of Meghalaya Power System by charging 132 kV EPIP II - New Umtru line at 17:32 Hrs on 03.08.2023.	132 kV EPIP II - New Umtru & 132 kV Umtru - New Umtru lines
7	GD 1	Daporizo, Basar & Along areas of Arunachal Pradesh Power System	04-Aug-23 23:02	05-Aug-23 00:36	1:34	0	21	0%	1%	3257	2864	Daporizo, Basar & Along areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Daporizo -Ziro and 132 kV Along - Pasighat lines. At 23:02 Hrs on 04.08.2023, 132 kV Daporizo - Ziro and 132 kV Along - Pasighat lines tripped. Due to tripping of these elements, Daporizo, Basar & Along areas of Arunachal Pradesh 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 Daporizo, Basar & Along areas of Arunachal Pradesh Power System by charging 132 kV Along - Pasighat Line at 00:36 Hrs on 05.08.2023.	132 kV Daporizo -Ziro and 132 kV Along - Pasighat lines

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



Sl No.	Category of Grid Event (G1 to G2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	Loss of generation / loss of load during the Grid Event		% Loss of generation / loss of load w.r.t. Antecedent Generation/Load in the		Antecedent Generation/Load in the Regional Grid		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
8	GD 1	Jawaharnagar area of Assam Power System	07-Aug-23 09:32	07-Aug-23 10:08	0:36:00	0	28	0.00%	0.99%	2180	2828	Jawaharnagar area of Assam Power System was connected with the rest of NER Grid through 220 kV Samaguri-Jawaharnagar line. 220 kV Sarusajal-Jawaharnagar line was under planned shutdown. At 09:32 Hrs on 07.08.2023, 220 kV Samaguri-Jawaharnagar line tripped. Due to tripping of this element, Jawaharnagar area of Assam Power System got separated from the rest of NER Grid and subsequently collapsed due to no source available in this area. Power supply was extended to the Jawaharnagar area of Assam Power System by charging 220 kV Sarusajal-Jawaharnagar line at 10:08 Hrs of 07.08.2023.	220 kV Samaguri-Jawaharnagar line
9	GD 1	Dhemaji & Silapathar areas of Assam Power System	08-Aug-23 08:39	08-Aug-23 08:56	0:17:00	0	27	0.00%	1.12%	3472	2411	Dhemaji & Silapathar areas of Assam Power System were connected with the rest of NER Grid through 132 kV North Lakhimpur - Dhemaji line. At 08:39 Hrs on 08.08.2023, 132 kV North Lakhimpur - Dhemaji line tripped. Due to tripping of this element, Dhemaji & Silapathar 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 the Dhemaji & Silapathar areas of Assam Power System by charging 132 kV North Lakhimpur - Dhemaji line at 08:56 Hrs of 08.08.2023.	132 kV North Lakhimpur - Dhemaji line
10	GD 1	Basar and Along areas of Arunachal Pradesh Power System	08-Aug-23 13:18	08-Aug-23 16:02	2:44:00	0	11	0.00%	0.37%	2604	2947	Basar and Along areas of Arunachal Pradesh Power System were connected with the rest of NER Grid through 132 kV Along-Pasighat and 132 kV Along-Daporijo lines. At 13:18 Hrs on 08.08.2023, 132 kV Along-Pasighat and 132 kV Along-Daporijo lines tripped. Due to tripping of these elements, Basar and Along areas of Arunachal Pradesh Power System were separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas. Power supply was extended to Along area of Arunachal Pradesh Power System by charging 132 kV Along - Pasighat line at 16:02 Hrs on 08.08.2023 and then power supply was extended to Basar area of Arunachal Pradesh Power System by charging 132 kV Along - Basar line at 16:30 Hrs on 08.08.2023.	132 kV Along-Pasighat and 132 kV Along-Daporijo lines
11	GD 1	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	08-Aug-23 20:59	08-Aug-23 22:03	1:04:00	24	22	0.79%	0.66%	3036	3314	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 20:59 Hrs on 08.08.2023, 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 22:03 Hrs on 08.08.2023.	132 kV Balipara - Tenga line
12	GD 1	Boko area and Boko Solar Power Plant of Assam Power System	18-Aug-23 09:32	18-Aug-23 11:25	1:53	24	20	1%	1%	3044	2606	Boko area and Boko Solar Power Plant of Assam Power System were connected with the rest of NER Grid through 220 kV Agia - Boko and 220 kV Azara - Boko lines. At 09:32 Hrs on 18.08.2023, 220 kV Agia - Boko and 220 kV Azara - Boko lines tripped. Due to tripping of these elements, Boko area and Boko Solar Power Plant of Assam Power System were separated from the rest of NER Grid and subsequently collapsed due to load generation mismatch in these areas. Power supply was extended to Boko area and Boko Solar Power Plant of Assam Power System by charging 220 kV Azara - Boko line at 11:25 Hrs on 18.08.2023.	220 kV Agia - Boko and 220 kV Azara - Boko lines
13	GD 1	Meluri, Kiphire areas and Likimro HEP of Nagaland Power System	18-Aug-23 18:51	18-Aug-23 20:00	1:09	16	12	0%	0%	3540	3391	Meluri, Kiphire areas and Likimro HEP of Nagaland Power System were connected with the rest of NER Grid through 132 kV Kohima-Meluri line. At 18:51 Hrs on 18.08.2023, 132 kV Kohima-Meluri line tripped. Due to tripping of this element, Meluri, Kiphire areas and Likimro HEP of Nagaland 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 Meluri, Kiphire areas and Likimro HEP of Nagaland Power System by charging 66 kV Kiphire-Tuensang line at 20:00 Hrs on 18.08.2023. 132 kV Kohima - Meluri line was charged at 16:13 Hrs on 22.08.2023	132 kV Kohima-Meluri line
14	GD 1	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System	21-Aug-23 19:27	21-Aug-23 19:49	0:22	22.5	25.5	1%	1%	3638	3025	Tenga, Khupi areas and Dikshi HEP of Arunachal Pradesh Power System were connected with rest of grid through 132 kV Balipara - Tenga line. At 19:27 Hrs on 21.08.2023, 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 19:49 Hrs on 21.08.2023.	132 kV Balipara - Tenga line

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



Sl No.	Category of Grid Event (G1 to 2/ GD-1 to GD-5)	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Duration (HH:MM:SS)	Loss of generation / Loss of load during the Grid Event		% Loss of generation / loss of load w.r.t. Antecedent Generation/Load in the		Antecedent Generation/Load in the Regional Grid		Brief details of the event (pre fault and post fault system conditions)	Elements Tripped
						Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)		
15	GD 1	Chapakhowa area of Assam Power System and Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System	26-Aug-23 18:03	26-Aug-23 19:00	0:57	0	19	0%	1%	3512	2985	Chapakhowa area of Assam Power System and Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System were connected with rest of grid through 132 kV Rupai - Chapakhowa line. 132 kV Along-Pasighat line was under emergency shutdown since 16:19 Hrs on 26.08.2023 due to tower collapse. At 18:03 Hrs on 26.08.2023, 132 kV Rupai - Chapakhowa line tripped. Due to tripping of this element, Chapakhowa area of Assam Power System and Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System got separated from the rest of NER Grid and subsequently collapsed due to no source available in these areas. 132 kV Rupai - Chapakhowa line was declared faulty at 19:00 Hrs on 26.08.2023. Power supply was extended to Chapakhowa area of Assam Power System by charging 132 kV Rupai - Chapakhowa line at 10:33 Hrs on 27.08.2023. Power supply was extended to Pasighat, Roing, Tezu and Namsai areas of Arunachal Pradesh Power System by charging 132 kV Roing - Chapakhowa 1 line at 11:00 Hrs on 27.08.2023.	132 kV Rupai - Chapakhowa line
16	GD 1	Chapakhowa area of Assam Power System and Basar, Along, Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System	29-Aug-23 09:14	29-Aug-23 09:59	0:45	0	22	0%	1%	3316	2355	Chapakhowa area of Assam Power System and Basar, Along, Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System were connected with rest of grid through 132 kV Rupai - Chapakhowa line. 132 kV Daporijo - Basar line was declared faulty since 05:13 Hrs on 27.08.2023. At 09:14 Hrs on 29.08.2023, 132 kV Rupai - Chapakhowa line tripped. Due to tripping of this element, Chapakhowa area of Assam Power System and Basar, Along, Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh 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 Chapakhowa area of Assam Power System and Basar, Along, Pasighat, Roing, Tezu, Namsai areas of Arunachal Pradesh Power System by charging 132 kV Rupai - Chapakhowa line at 09:59 Hrs on 29.08.2023	132 kV Rupai - Chapakhowa line
17	GD 1	Zuangtui, Saitual, Vankal, Serchhip, Lunglei and Khawzawl areas and Vankal Solar Power Plant of Mizoram Power System	29-Aug-23 11:49	29-Aug-23 13:10	1:21	18	19	1%	1%	3246	2478	Zuangtui, Saitual, Vankal, Serchhip, Lunglei and Khawzawl areas and Vankal Solar Power Plant of Mizoram Power System were connected with the rest of NER grid through 132 kV Melriat(PG) - Zuangtui line. 132 kV Melriat-Lunglei line was under shutdown to control overloading of 132kV Aizawl-Lungmual line At 11:49 Hrs on 29.08.2023, 132 kV Melriat(PG) - Zuangtui line tripped. Due to tripping of this element, Zuangtui, Saitual, Vankal, Serchhip, Lunglei and Khawzawl areas and Vankal Solar Power Plant of Mizoram 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 Zuangtui, Saitual, Vankal, Serchhip, Lunglei and Khawzawl areas and Vankal Solar Power Plant of Mizoram Power System by charging 132 kV Melriat(PG) - Zuangtui line at 13:10 Hrs on 29.08.2023.	132 kV Melriat(PG) - Zuangtui line
18	GI-II	Assam	06-Aug-23 00:42	06-Aug-23 02:30	1:48	228	0	7%	0%	3211	2763	BgTPP Unit 2 tripped at 00:42 Hrs on 06.08.2023 due to tripping of Unit Auxiliary Transformer - 2 on Buchholz protection. Revision done from Block No. 11 on 06.08.2023.	BgTPP Unit 2
19	GI-II	Assam	09-Aug-23 16:40	09-Aug-23 18:30	1:50	228	0	7%	0%	3334	2747	BgTPP Unit 2 tripped at 16:40 Hrs on 09.08.2023 due to low Primary air header pressure. Revision done from Block No. 75 on 09.08.2023.	BgTPP Unit 2
20	GI-II	Assam	19-Aug-23 12:16	19-Aug-23 14:00	1:44	228	0	9%	0%	2563	2588	BgTPP Unit 2 tripped at 12:16 Hrs on 19.08.2023 due to Flame failure. Revision done from Block No. 57 on 19.08.2023	BgTPP Unit 2
21	GI-I	Assam	20-Aug-23 01:42	20-Aug-23 03:30	1:48	49	0	2%	0%	3113	2909	Kopili Unit 4 tripped at 01:42 Hrs on 20.08.2023 due to PRV main pipeline burst. Revision done from Block No. 15 on 20.08.2024	Kopili Unit 4
22	GI-I	Assam	24-Aug-23 17:11	24-Aug-23 19:00	1:49	49	0	2%	0%	3263	2728	Kopili Unit 4 tripped at 17:11 Hrs on 24.08.2023 due to Shear Pin Broken. Revision done from Block No. 77 on 24.08.2024	Kopili Unit 4