

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Outage		Revival		Duration	Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unservd (in MU)
				Date	Time	Date	Time						
1	NR	1) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-1 2) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-2	Haryana	1-Sep-18	17:49	1-Sep-18	18:23	00:34	± 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 tripped due to commutation fail at Kurukshetra and DC line pickup at Champa(PG); in antecedent condition, 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 carrying 1200 MW each. As per PMU, fluctuations observed in the phase voltages.			GI-2	
2	NR	1) 500 MVA 400/220kV ICT 1 at Gorakhpur(UP) 2) 315 MVA 400/220kV ICT 2 at Gorakhpur(UP) 3) 220kV Gorakhpur(UP)-Doria(UP) 4) 220kV Gorakhpur(UP)-Gorakhpur2(UP) ckt-1 5) 220kV Gorakhpur(UP)-Gorakhpur2(UP) ckt-2	Uttar Pradesh	5-Sep-18	14:01	5-Sep-18	14:58	00:57	Bus bar protection operated on 220kV side of 400/220kV Gorakhpur(UP) resulting in tripping of 500 MVA 400/220kV ICT 1, 315 MVA 400/220kV ICT 2, 220kV Gorakhpur(UP)-Doria(UP), 220kV Gorakhpur(UP)-Gorakhpur2(UP) ckt-1 & 2. In antecedent condition, 500 MVA ICT 1, 315 MVA ICT 2 carrying 221 MW & 139 MW respectively. As per PMU, B-N fault followed by R-Y fault with delayed clearance is observed.	300		GD-1	0.28
3	NR	1) 1500 MVA 765/400kV ICT 1 at 765kV Ajmer(PG). 2) 400kV Ajmer(765kV)(PG)-AjmerII(RVPLN) ckt-1	Rajasthan	6-Sep-18	8:03	6-Sep-18	10:38	02:35	R phase CT of 402 Tie bay blasted at 765kV Ajmer(PG) leads to tripping of 1500 MVA ICT 1 & 400kV Ajmer(765kV)(PG)-AjmerII(RVPLN) ckt-1. In antecedent condition, 1500 MVA ICT 1 & 400kV Ajmer(765kV)(PG)-AjmerII(RVPLN) ckt-1 carrying 26 MW & 27 MW respectively. As per PMU, R-N fault is observed with delayed clearance.			GI-2	
4	NR	1) 220kV Bus 2 at Cbganj(UP) 2) 220kV Cbganj(UP)-Sitarganj(PG) 3) 220kV Cbganj(UP)-Badun(UP) 4) 220kV Cbganj(UP)-Moradabad(UP) 5) 220kV Cbganj(UP)-Bareilly(UP) 6) 220kV Tanakpur(NHPC)-Sitarganj(PG)	Uttar Pradesh	6-Sep-18	15:33	6-Sep-18	16:28	00:55	Bus fault occurred at 220kV CB Ganj(UP) leading to bus bar protection operation of 220kV Bus 2 at Cbganj(UP). At the same time, 220kV Tanakpur(NHPC)-Sitarganj(PG) also tripped on phase to earth fault. As per PMU, R-N fault observed. Also voltage dip in all the three phases is observed for about 1400ms.			GI-2	
5	NR	1) 400 kV G. Noida(400kV)-Dadri (NTPC) 2) 400 kV G. Noida(400kV)-Nawada(Haryana) 3) 400 kV G. Noida(400kV)-G. Noida 765 ckt-1 4) 400 kV G. Noida(400kV)-G. Noida 765 ckt-2 5) 400 kV Bus 1 at G. Noida(400 kV) 6) 400 kV Bus 2 at G. Noida(400 kV) 7) 1500 MVA 765/400 kV G.Noida(765 kV) ICT1	Uttar Pradesh	6-Sep-18	22:40	6-Sep-18	23:42	01:02	Conductor of R phase 400 kV Bus-A at 400/220 kV G. Noida broke down but 400 kV bus-bar protection did not operate at the substation. It was found that none of the breaker opened from 400 kV G. Noida end. All the 400 kV connected lines from 400/220 kV G. Noida (UP) lines tripped from remote end. This resulted in loss of approx. 800-900 MW and frequency increasing from approx. 49.91 Hz to 50.12 Hz (thus a jump of approx. 0.11 Hz).	830		GD-1	
6	NR	1) 315 MVA 400/220kV Ajmer ICT 1 2) 315 MVA 400/220kV Ajmer ICT 3 3) 220kV Ajmer(RRVPLN)-Ajmer(RRVPLN) 4) 220kV Ajmer(RRVPLN)-Beawar(RRVPLN) 5) 220 kV Ajmer(RRVPLN)-Jethana(RRVPLN) ckt-1 6) 220 kV Ajmer(RRVPLN)-Jethana(RRVPLN) ckt-2	Rajasthan	6-Sep-18	23:07	7-Sep-18	00:28	01:21	R-N fault occurred in 220 kV Ajmer Jethana ckt-1 resulting in LBB operation due to breaker struck of 220 kV Ajmer Jethana ckt-1. In antecedent condition, 315 MVA ICT 1 & ICT 3 carrying 112 MW & 113 MW respectively. As per PMU, Y-N fault observed.			GI-2	
7	NR	1) 200 MVA 400/132 kV ICT 1 at Agra South(UP). 2) 200 MVA 400/132 kV ICT 2 at Agra South(UP). 3) 200 MVA 400/132 kV ICT 3 at Agra South(UP). 4) 132kV Agra-Agra Cantt	Uttar Pradesh	7-Sep-18	4:50	7-Sep-18	05:49	00:59	200MVA ICT 1, 2 & 3 at 400kV Agra South(UP) tripped with a load loss of ~200MW, due to tripping of 132kV Agra-Agra Cantt line. The ICT's tripped due to IDMT DIR O/C and E/F protection operated. As per PMU, B-N fault observed.	100		GD-1	0.10
8	NR	1) 400 kV Rampur(NJPC)-Nallagarh(PG) ckt-2 2) Unit#3 at 400kV Nathpa-Jhakri(NJPC) 3) Unit#5 at 400kV Rampur(NJPC) 4) Unit#2 at 400kV Karcham Wangtoo	Himachal Pradesh	7-Sep-18	16:20	7-Sep-18	16:36	00:16	400kV Rampur(NJPC)-Nallagarh(PG) ckt-2 tripped at 1620 hrs due to B-N Fault (71 kms from Rampur).Circuit-2 Auto-Recluser(AR) operated successfully but due to RPH maloperation breaker failed to closed. As reported by stations, due to the above incident, SPS operated at NJPC and Rampur causing tripping of unit#3 at Nathpa-Jhakri(NJPC)(generating 270MW), Unit#5 at 400kV Rampur(NJPC)(generating 76MW) & Unit#2 at 400kV Karcham Wangtoo(generating 248MW). As per PMU, B-N fault is observed.	594		GD-1	
9	NR	1. 220 kV Delina (J&K)-Zainakote (J&K) ckt 2. 220 kV Delina (J&K)-Amargarh (NRSS-29) ckt 3. 220 kV Delina (J&K)-Kishanganga (NHPC) ckt-1 4. 220 kV Delina (J&K)-Kishanganga (NHPC) ckt-2 5. 220/132 kV 160MVA ICT at Delina (J&K) 6. 3*110 MW units at Kishanganga HEP (NHPC)	Jammu & Kashmir	13-Sep-18	18:10	14-Sep-18	10:03	15:53	220 kV Delina (J&K)-Amargarh (NRSS-29) ckt tripped on Y-B fault, 3.12Km from Amargarh station leading to tripping of generation at Kishanganga HEP (NHPC) due to loss of evacuation path. It seems from SCADA data that 220 kV Delina Bus-1 was already under outage and all the elements at 220/132 kV Delina (J&K) tripped. As per PMU, Y-B fault observed.	130		GD-1	

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				Date	Time	Date	Time						
10	NR	1) 400kV Bus 2 at Bawana CCGT 2) 400kV Bahadurgarh(PG)-Bawana(GT) 3) STG1 at 400kV Bawana CCGT	Delhi	14-Sep-18	17:08	14-Sep-18	17:20	00:12	Bus bar protection operated at Bawana CCGT leading to tripping of 400kV Bus 2 at Bawana CCGT & 400kV Bahadurgarh(PG)-Bawana(GT). STG1 also tripped with heavy jerk. In antecedent condition, 400kV Bahadurgarh-Bawana(GT) carrying 13 MW and STG 1 generating 180 MW. As per PMU, No fault observed.	180		GD-1	
11	NR	1) 400kV Parbati(2) HEP(NHPC) - Sainj HEP(HPPCL) -1 2) 400 kV Bus 1 at Parbati(2) HEP(NHPC) 3) Unit#1 at 400kV Parbati(2) HEP(NHPC)	Himachal Pradesh	16-Sep-18	19:10	16-Sep-18	21:11	02:01	400kV Parbati(2) HEP(NHPC) - Sainj HEP(HPPCL) -1 & 400 kV Bus 1 at Parbati(2) HEP(NHPC) tripped as LBB Operated due to High vibrations of Unit-1. In antecedent condition,400kV Parbati(2) HEP(NHPC) - Sainj HEP(HPPCL) -1 carrying 100 MW & Unit#1 generating 50 MW. As per PMU, voltage dip in all three phases is observed.	50		GD-1	
12	NR	1) 400 kV Bus 1 at 400kV Oraai(UP) 2) 400kV Mainpuri 765(UP)-Oraai(UP) ckt-1	Uttar Pradesh	16-Sep-18	20:07	16-Sep-18	21:02	00:55	400kV Mainpuri 765(UP)-Oraai(UP) ckt-1 tripped on Y-N fault, 34.9km from Mainpuri 765(UP) end. At the same time, 400 kV Bus 1 at 400kV Oraai(UP) also tripped. In antecedent condition, 400kV Mainpuri 765(UP)-Oraai(UP) ckt-1 carrying 258 MW. As per PMU, Y-N fault observed.			GI-2	
13	NR	1) 315 MVA ICT 3 at 400kV Sarnath(UP) 2) 400kV Sarnath(UP)-Varanasi(PG) ckt-2 3) 220kV Sarnath(UP)-Sahapur(UP) 4) 220kV Sarnath(UP)-Gajokhar(UP) 5) 220kV Sarnath(UP)-Gajipur(UP) 6) 220kV Sarnath(UP)-Azamgarh(UP)	Uttar Pradesh	17-Sep-18	11:30	17-Sep-18	11:40	00:10	Due to flashover at Ghazipur end of 220kV Sarnath(UP)-Gajipur(UP), 315 MVA ICT 3 at 400kV Sarnath(UP) & 400kV Sarnath(UP)-Varanasi(PG) ckt-2 tripped along with 220kV elements. As per PMU, delayed clearance of around 2.5s is observed. In antecedent conditions, 315 MVA ICT 3 at 400kV Sarnath(UP) & 400kV Sarnath(UP)-Varanasi(PG) ckt-2 carrying 222 MW & 12 MW respectively.		650	GD-1	0.11
14	NR	1) 315 MVA ICT 2 at 400kV Gorakhpur(UP) 2) 500 MVA ICT 1 at 400kV Gorakhpur(UP) 3) 400kV Gorakhpur(PG)-Gorakhpur(UP) ckt-1 4) 400kV Gorakhpur(PG)-Gorakhpur(UP) ckt-2 5) 400kV Azamgar(UP)-Gorakhpur(UP)	Uttar Pradesh	17-Sep-18	16:57	17-Sep-18	18:33	01:36	Bus fault occurred due to snapping of R phase insulator string of Transfer Bus Coupler during shifting of 400 kV Gorakhpur(PG)-Gorakhpur(UP) ckt-2 on Transfer Bus at Gorakhpur(UP) leading to tripping of all ICTs and 400kV transmission line connected with 400kV Gorakhpur(UP). As per PMU, R-N fault observed with delayed clearance. In antecedent condition, 500 MVA ICT 1 & 315 MVA ICT 2 carrying 263 MW & 165 MW respectively.		225	GD-1	0.36
15	NR	1) 400 kV Patiala(PG)-Patran(PTCL) ckt-1 2) 400 kV Patiala(PG)-Patran(PTCL) ckt-2 3) 400 kV Kaithal(PG)-Patran(PTCL) ckt-1 4) 400 kV Kaithal(PG)-Patran(PTCL) ckt-2 5) 500 MVA ICT 1 at 400 kV Patran(PTCL) 6) 500 MVA ICT 2 at 400 kV Patran(PTCL)	Punjab	18-Sep-18	11:12	18-Sep-18	12:00	24.32	Due to DC Failure at 400 kV Patran(PTCL); 400 kV Patiala(PG)-Patran(PTCL) 1 & 2, 400 kV Kaithal(PG)-Patran(PTCL) 1 & 2 tripped & 500 MVA ICT 1 & ICT 2 tripped; As per PMU, No fault observed. In antecedent conditions, 500 MVA ICT 1 & ICT 2 carrying 68 MW each.			GI-2	
16	NR	1) 220kV Kishenpur(PG)-Ramban(JK) 2) 220kV Mirbazar(JK)-Ramban(JK)	Jammu & Kashmir	21-Sep-18	15:15	21-Sep-18	17:16	02:01	220kV Kishenpur(PG)-Ramban(JK) & 220kV Mirbazar(JK)-Ramban(JK) tripped on B-N fault at a distance of 12.46km from Ramban towards Kishenpur. As per PMU, Y-N fault followed by B-N fault is observed. In antecedent condition, 220kV Kishenpur(PG)-Ramban(JK) carrying 82 MW.			GI-2	
17	NR	1) 400kV Bus 2 at Dadri(Th),2 2) 400kV Dadri(NTPC)-Kaithal(PG)	Uttar Pradesh	23-Sep-18	19:54	24-Sep-18	09:57	14:03	400kV Bus-bar-2 protection operated at Dadri Thermal leading to tripping of 400kV Bus 2 & 400kV Dadri(NTPC)-Kaithal(PG). As per PMU, R-N fault observed. In antecedent condition, 400kV Dadri(NTPC)-Kaithal(PG) carrying 43 MW.			GI-2	
18	NR	1) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-1 2) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-2	Haryana	24-Sep-18	16:51	24-Sep-18	17:42	00:51	800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 tripped due to DC Earth fault in auxiliary DC panel at Champa(PG) end; In antecedent condition, 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 carrying 650 MW each. As per PMU, fluctuations observed in the phase voltages. Both circuits again tripped at 1816 Hrs due to same reason.			GI-2	
19	NR	1) 400kV RosaTPS (UP)-Shajahanpur(PG) ckt-2 2) 200 MVA ICT1 at 400/220kV Rosa(UP) 3) 200 MVA ICT2 at 400/220kV Rosa(UP)	Uttar Pradesh	24-Sep-18	20:37	24-Sep-18	21:36	00:59	400kV RosaTPS (UP)-Shajahanpur(PG) ckt-2 tripped on phase to earth fault. At the same time, 200 MVA ICT1 & ICT2 at 400/220kV Rosa(UP) tripped due to operation of Differential protection. In antecedent condition, both ICTs carrying 64MW each. As per PMU, Y-N fault is observed.			GI-2	
20	NR	1) 220kV Bus 3 at 400/220kV Mandola(PG) 2) 220kV Bus 4 at 400/220kV Mandola(PG) 3) 500 MVA ICT 1 at 400/220kV Mandola(PG) 4) 500 MVA ICT 3 at 400/220kV Mandola(PG) 5) 220kV Mandola(PG)-Wazirabad(DTL) ckt-1 6) 220kV Mandola(PG)-Wazirabad(DTL) ckt-2 7) 220kV Mandola(PG)-Wazirabad(DTL) ckt-4	Delhi	25-Sep-18	10:54	25-Sep-18	17:44	06:50	220kV Mandola(PG)-Wazirabad(DTL) ckt-1 tripped on R-N fault. 220kV Mandola(PG)-Wazirabad(DTL) ckt-3 was under shutdown and line was earthed at both ends, due to which current through line CT which was earthed from both sides flowed. This current flow in 220kV Mandola(PG)-Wazirabad(DTL) ckt-3 caused SOTF optd in this line. As CB was already open and current was continuous through CT, LBB operated. 220kV Bus 4 tripped on LBB protection. Due to CT selection relay contacts malfunction trips of bus 4 and 3 got coupled resulting in bus 3 tripping. 220kV Mandola(PG)-Wazirabad(DTL) ckt-1 tripped on R-N fault. As per PMU, R-N fault is observed. In antecedent condition, 500 MVA ICT 1 & ICT 3 carrying 157 MW & 154 MW respectively.		139	GD-1	

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				Date	Time	Date	Time						
21	NR	1) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-1 2) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-2	Haryana	25-Sep-18	11:54	25-Sep-18	12:29	00:35	800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 tripped due to Filter Control block due to filter power limit alarm because of malfunction of RPC; In antecedent condition, 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 carrying 150 MW each. As per PMU, fluctuations observed in the phase voltages.			GI-2	
22	NR	1) 220kV Bus 2 at 400/220kV Jalandhar(PG) 2) 315 MVA ICT 2 at 400/220kV Jalandhar(PG) 3) 220kV Dasuya(PSTCL)-Jalandhar(PG) ckt-2 4) 220kV Hamirpur(PG)-Jalandhar (PG) ckt-2 5) 220kV Jalandhar(PG)-Kartarpur(PSTCL)	Punjab	25-Sep-18	13:32	25-Sep-18	14:19	00:47	Bus bar protection of 220kV Bus 2 operated due to mal operation during S/D of 500 MVA ICT-3 at Jalandhar leading to tripping of 315 MVA ICT 2 and 220kV lines. As per PMU, No fault is observed. In antecedent condition, 315 MVA ICT 2 at 400/220kV Jalandhar(PG) carrying 84 MW.		50	GD-1	0.04
23	NR	1) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-1 2) 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt-2	Haryana	26-Sep-18	16:37	26-Sep-18	17:53	01:16	800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 tripped during testing; In antecedent condition, 800kV HVDC Champa(PG)-Kurukshetra(PG) ckt 1 & 2 carrying 150 MW each. As per PMU, fluctuations observed in the phase voltages.			GI-2	
24	NR	1) 220kV Bairasuli(NHPC)-Pong(BBMB) 2) 220kV Bairasuli(NHPC)-Jasor(HP) 3) Unit#1(60MW) at 220kV Bairasuli(NHPC) 4) Unit#3(60MW) at 220kV Bairasuli(NHPC)	Himachal Pradesh	27-Sep-18	18:17	27-Sep-18	18:58	00:41	LBB operated while synchronizing Unit#1(60MW) at 220kV Bairasuli(NHPC) due to problem in breaker leading to tripping of 220kV Bairasuli(NHPC)-Pong(BBMB), 220kV Bairasuli(NHPC)-Jasor(HP), Unit#1 & Unit#3. In antecedent condition, Unit#1 & #3 generating 59 MW & 57 MW respectively. As per PMU, No fault is observed.	117		GD-1	
25	NR	1) 220kV Parichha(UP)-Orail(UP) ckt-1 2) 220kV Parichha(UP)-Orail(UP) ckt-2 3) 220kV Parichha(UP)-Orail(UP) ckt-3 4) 220kV Parichha(UP)-Jhansi(UP) ckt-1 5) 220kV Parichha(UP)-Jhansi(UP) ckt-2 6) 220kV Parichha(UP)-Bharthana(UP) 7) 220kV Parichha(UP)-Mahoba(UP) 8) Unit#3 & #4(210MW) at 220kV Parichha(UP) 9) Unit#6(250MW) at 220kV Parichha(UP)	Uttar Pradesh	28-Sep-18	10:58	28-Sep-18	12:52	01:54	B-N fault occurred on 220kV Parichha(UP)-Jhansi(UP) ckt-2 due to which trip coil of this circuit at 220kV Parichha(UP) burnt causing bus fault at 220kV Parichha(UP) resulting into tripping of all 220kV lines and generating units. As per PMU, Voltage dip in all the three phases in observed. In antecedent conditions, Unit#3 & #4 generating 113 MW & 109 MW respectively.	530		GD-1	
26	NR	1) 220kV Hisar(PG)-Hisar-IA(HVPL) ckt-1 2) 220kV Hisar(PG)-Hisar-IA(HVPL) ckt-2 3) 220kV Hisar(BBMB)-Hisar-IA(HVPL) ckt-1 4) 220kV Hisar(BBMB)-Hisar-IA(HVPL) ckt-2	Haryana	28-Sep-18	11:45	28-Sep-18	13:15	01:30	220kV Bus-bar protection operated at Hisar(IA) due to blasting of Y-ph CT of 220kV Hisar(IA)-Masudpur ckt-2 leading to tripping of 220kV Hisar(PG)-Hisar-IA(HVPL) ckt-1 & 2, 220kV Hisar(BBMB)-Hisar-IA(HVPL) ckt-1 & 2. As per PMU, Y-N fault is observed. In antecedent condition, 220kV Hisar(PG)-Hisar-IA(HVPL) ckt-1 & 2 carrying 111 MW & 113 MW respectively.			GI-2	
27	NR	1) 400kV Akal(Raj)-Jodhpur(Raj) 2) 400kV Jodhpur(Raj)-Merta(Raj) ckt-1 3) 400kV Bus 1 at 400kV Jodhpur(Raj)	Rajasthan	29-Sep-18	04:07	29-Sep-18	06:25	02:18	Differential Protection of Busbar-1 operated at 400kV Jodhpur(Raj) leading to tripping of 400kV Akal(Raj)-Jodhpur(Raj) & 400kV Jodhpur(Raj)-Merta(Raj) ckt-1. As per PMU, No fault is observed. In antecedent conditions, 400kV Jodhpur(Raj)-Merta(Raj) ckt-1 carrying 84 MW.			GI-2	
28	NR	1) 400kV Allahabad(PG)-Fatehpur(PG) ckt-1 2) 400kV Allahabad(PG)-Fatehpur(PG) ckt-2 3) 400kV Allahabad(PG)-Fatehpur(PG) ckt-3 4) 400kV Allahabad(PG)-Mainpuri(PG) ckt-1 5) 400kV Allahabad(PG)-Singrauli(PG) 6) 315 MVA ICT 1 & ICT 2 at 765kV/400kV Fatehpur(PG) 7) 1500 MVA ICT 3 & ICT 4 at 765kV/400kV Fatehpur(PG) 8) 220kV Fatehpur(PG)-Fatehpur(UP) ckt-1	Uttar Pradesh	29-Sep-18	12:18	29-Sep-18	12:39	00:21	315 MVA ICT 1 & ICT 2 at 765kV/400kV Fatehpur(PG) tripped due to operation of directional earth fault. At the same time other 400kV lines and 1500 MVA ICT3 & ICT 4 also tripped. As per PMU, Y-N fault is observed. In antecedent conditions, 1500 MVA ICT 3 & ICT 4 carrying 141 MW & 139 MW respectively.		220	GD-1	0.08
29	NR	1) 200 MVA ICT 1 at 400/132kV Mau(UP) 2) 200 MVA ICT 2 at 400/132kV Mau(UP)	Uttar Pradesh	29-Sep-18	20:37	29-Sep-18	21:18	00:41	200 MVA ICT 1 & ICT 2 at 400/132kV Mau(UP) tripped due to overloading. As per PMU, Fluctuations observed in the phase voltages. In antecedent conditions, 200 MVA ICT 1 & ICT 2 carrying 155 MW & 169 MW respectively.		250	GD-1	0.17

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				Date	Time	Date	Time						
1	NR	1) 450 MVA ICT 1 at 400/220kV Panipat(BBMB) 2) 450 MVA ICT 2 at 400/220kV Panipat(BBMB) 3) 220kV Panipat(BBMB)-Kurukshetra(HVFNL) 4) 220kV Chhajpur(HVFNL) - Panipat(BBMB) ckt-1 5) 220kV Panipat(BBMB)-Dhulkote(BBMB) ckt-1 6) 220kV Panipat(BBMB)-Dhulkote(BBMB) ckt-2 7) 220kV Panipat(BBMB)-Narela(DTL) ckt-1, ckt-2 & ckt-3 8) 220kV Chhajpur(HVFNL) - Panipat(BBMB) ckt-2 9) 220kV Panipat(BBMB)-Charkhi Dadri 10) 220kV Panipat TPS(HVFNL)-Panipat(BBMB) ckt-2, ckt-3, ckt-4 11) 220kV Panipat TPS(HVFNL)-Pipli	Delhi & Haryana	1-Oct-18	10:34	1-Oct-18	12:13	01:39	Bus bar protection of 220 kV Bus-1 & 2 operated at 400/220kV Panipat(BBMB) due to broken conductor of 220kV Panipat- Kurukshetra fall down on 220 kV BUS-2 at 400/220kV Panipat(BBMB). As per PMU, R-B fault is observed and Rise in frequency of around 0.03Hz is observed. In antecedent conditions, 450 MVA ICT 1 & ICT 2 carrying 210 MW each.		290	GD-1	0.48
2	NR	1) 220kV Amargarh(NRSS29)-Delina(JK) ckt-1 2) 220kV Amargarh(NRSS29)-Zainkot(JK) ckt-1	Jammu & Kashmir	1-Oct-18	18:53	1-Oct-18	22:22	03:29	220kV Amargarh(NRSS29)-Delina(JK) ckt-1 & 220kV Amargarh(NRSS29)-Zainkot(JK) ckt-1 tripped on Phase to earth fault. As per PMU, R-N fault is observed. In antecedent conditions, 220kV Amargarh(NRSS29)-Delina(JK) ckt-1 carrying 43 MW.			GI-2	
3	NR	1) 400kV Bus 1 at 400kV Chamera I(NHPC) 2) 400kV Chamera I(NHPC)-Jalandhar(PG) ckt-1 3) Bus reactor 1 at 400kV Chamera I(NHPC).	Himachal Pradesh & Punjab	6-Oct-18	02:29	6-Oct-18	11:39	09:10	400kV Bus 1 at 400kV Chamera I(NHPC) tripped due to operation of Bus Bar Differential relay. At the same time, 400kV Chamera I(NHPC)-Jalandhar(PG) ckt-1 also tripped. In antecedent conditions, 400kV Chamera I(NHPC)-Jalandhar(PG) ckt-1 carrying 80 MW. As per PMU, R-N fault is observed with no autoreclosing attempt.			GI-2	
4	NR	1) 450 MVA ICT 1 at 400/220kV Panipat(BBMB) 2) 220kV Panipat(BBMB)-Kurukshetra(HVFNL) 3) 220kV Chhajpur(HVFNL) - Panipat(BBMB) ckt-1 4) 220kV Panipat(BBMB)-Narela(DTL) ckt-1 5) 220kV Panipat(BBMB)-Narela(DTL) ckt-3 6) 220kV Panipat TPS(HVFNL)-Panipat(BBMB) ckt-1 7) 220kV Panipat TPS(HVFNL)-Panipat(BBMB) ckt-3 8) 220kV Panipat(BBMB)-Dhulkote(BBMB) ckt-1	Delhi & Haryana	8-Oct-18	11:50	8-Oct-18	12:12	00:22	Bus bar protection of 220 kV Bus-1 operated at 400/220kV Panipat(BBMB) leading to tripping of 450 MVA ICT 1 at 400/220kV Panipat(BBMB) and connected 220kV lines to 220kV Bus 1. As per PMU, Y-N fault is observed and Rise in frequency of around 0.023Hz is observed. In antecedent conditions, 450 MVA ICT 1 carrying 245 MW.		160	GD-1	0.06
5	NR	1) 315 MVA ICT 1 at 400/220kV Bawana(DTL) 2) 315 MVA ICT 2 at 400/220kV Bawana(DTL)	Delhi	8-Oct-18	19:43	8-Oct-18	22:28	02:45	315 MVA ICT 1 & ICT 2 at 400/220kV Bawana(DTL) tripped on auxiliary Buchholz relay. As per PMU, Y-N fault is observed. In antecedent conditions, 315 MVA ICT 1 & ICT 2 carrying 144 MW & 141 MW respectively.			GI-2	
6	NR	1) 220kV Sala(NHPC)-Kishenpur(PG) ckt-1 2) 220kV Sala(NHPC)-Kishenpur(PG) ckt-2	Jammu & Kashmir	9-Oct-18	03:15	9-Oct-18	03:59	00:56	220kV Sala(NHPC)-Kishenpur(PG) ckt-2 tripped on Phase to earth fault(B-N fault), 8.03 kms from Sala(NHPC) end. At the same time, 220kV Sala(NHPC)-Kishenpur(PG) ckt-1 also tripped only at Kishenpur(PG) end. As per PMU, R-B fault is observed. In antecedent conditions, 220kV Sala(NHPC)-Kishenpur(PG) ckt-1 & ckt-2 carrying 36 MW & 39 MW respectively.			GI-2	
7	NR	1) 315 MVA ICT 1 at 400/220kV Jalandhar(PG) 2) 315 MVA ICT 2 at 400/220kV Jalandhar(PG)	Punjab	9-Oct-18	05:17	9-Oct-18	06:13	00:44	315 MVA ICT 1 & ICT 2 at 400/220kV Jalandhar(PG) tripped due to operation of Back up earth fault protection at 220 kV side as there was Fire at 220kV Kanjali station of Punjab. As per PMU, Voltage dip in three phases is observed. In antecedent conditions, 315 MVA ICT 1 & ICT 2 at 400/220kV Jalandhar(PG) carrying 22 MW & 24 MW respectively.			GI-2	
8	NR	1) 400 kV Obra-B(UP)-Rewa road(UP) 2) 400 kV Obra-B(UP)-Sultanpur(UP) 3) 315 MVA ICT-1 at 400/220kV Obra-B(UP) 4) 315 MVA ICT-2 at 400/220kV Obra-B(UP) 5) Unit -9 (200 MW) at 400/220kV Obra-B(UP) 6) Unit -10 (200 MW) at 400/220kV Obra-B(UP) 7) Unit -11 (200 MW) at 400/220kV Obra-B(UP) 8) 220 kV/6.6 kV, 30 MVA Station transformer at 400/220kV Obra-B(UP)	Uttar Pradesh	14-Oct-18	04:37	27-Oct-18	10:36	317:59:00	Fire was observed around 04.30 hrs in cable gallery at 400/220kV Obra-B(UP). 220 kV/6.6 kV, 30 MVA Station transformers was tripped at 04.37 hrs, results in failure of station supply. Consecutively unit no 9, 10 & 11 each of 200 MW of capacity tripped at 04.37 hrs and total generation loss was of 460 MW. At the same time 04.37 hrs. 400 kV Obra (B) - Rewa road and 400 kV Obra (B) - Sultanpur lines also tripped. At 04.43 hrs 400 kV Obra (B) - Angara line was manually opened from both ends. As per PMU, no fault is observed.	460	160	GD-1	
9	NR	1) 200 MVA ICT1 at 400/220kV Rosa(UP) 2) 200 MVA ICT2 at 400/220kV Rosa(UP)	Uttar Pradesh	14-Oct-18	13:20	14-Oct-18	14:21	01:01	200 MVA ICT1 & ICT2 at 400/220kV Rosa(UP) tripped on earth fault. In antecedent condition, both ICTs carrying 64MW each. As per PMU, B-N fault followed by R-N fault is observed.			GI-2	
10	NR	1) 400 kV Bus 1 at Jhakri(SIVNL) 2) 400 kV Jhakri(SIVNL)-Rampur(SIVNL) ckt-1 3) 400 kV Jhakri(SIVNL)-Panchkula(PG) ckt-1 4) 400 kV Jhakri(SIVNL)-Karchamwangtoo(IP)	Himachal Pradesh	16-Oct-18	03:48	16-Oct-18	06:40	02:52	Flash over occurred in R-phase circuit breaker pole of 400 kV NJPC-Rampur ckt-1 in 400 kV GIS of NJPC due to which Bus bar protection operated at NJPC. This line was already opened on HV. Only CB was opened and isolator was connected to Bus-1 at NJPC end as reported. Due to this BUS-1 bus bar protection operation 400kV Jhakri-Panchkula-1 and 400 kV Jhakri-Karchamwangtoo(IP) tripped. As per PMU, R-N fault is observed. In antecedent conditions, 400 kV Jhakri(SIVNL)-Karchamwangtoo(IP) & 400 kV Jhakri(SIVNL)-Panchkula(PG) ckt-1 carrying 103 MW & 32 MW respectively.			GI-2	
11	NR	1) 220kV Kanpur(PG)-Naubasta(UP) 2) 220kV Fatehpur(PG)-Naubasta(UP)	Uttar Pradesh	17-Oct-18	11:16	17-Oct-18	12:03	00:47	220kV Fatehpur(PG)-Naubasta(UP) tripped on B-N fault. At the same time, 220kV Kanpur(PG)-Naubasta(UP) also tripped on Y-N fault. As per PMU, B-N fault is observed. In antecedent conditions, 220kV Kanpur(PG)-Naubasta(UP) & 220kV Fatehpur(PG)-Naubasta(UP) carrying 119 MW & 49 MW respectively.		130	GD-1	0.10

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Outage		Revival		Duration	Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unservd (in MU)
				Date	Time	Date	Time						
12	NR	1) 220kV Kota Th(Raj) –Sakatpura(Raj) ckt 1,2,3,4 2) 220kV Kota Th(Raj)- Modak(Raj) 3) 220kV Kota Th(Raj)-Kota(PG) D/c 4) 220kV Kota Th(Raj)-vatika(Raj) 5) 220kV Kota Th(Raj)-Beewar(Raj) 6) 220kV Kota Th(Raj)-Heerapura(Raj) 7) 220kV Kota Th(Raj)-Silor(Raj) 8) 220kV Kota Th(Raj) Unit#1,2, 4, 5, 6,7 9) 220kV Sakatpura(Raj)- RAPP A ckt 1,3 10) 220kV Sakatpura(Raj)- RAPP B ckt 2 11) 100MVA ICT 2 & 3, 160MVA ICT 1 & 4 at 220kV Sakatpura(Raj)	Rajasthan	20-Oct-18	21:00	20-Oct-18	22:47	01:47	At 220kV KTPS (Raj) switchyard heavy arcing occurred at 220kV Kota Th(Raj)-Morak(Raj) feeder during restoration activity of 220kV Bus 3 & 5, due to this Bus coupler 1 tripped on earth fault and various emanating feeders tripped resulting in tripping of all the running units. As per PMU, Voltage dip in all the three phases is observed and dip in frequency of around 0.052Hz is observed.	850	150	GD-1	0.27
13	NR	1) 315 MVA ICT 2 at 400kV Gorakhpur(UP) 2) 500 MVA ICT 1 at 400kV Gorakhpur(UP) 3) 220kV Gorakhpur(UP)-Gorakhpur(UP) II ckt-1 4) 220kV Gorakhpur(UP)-Gorakhpur(UP) II ckt-2 5) 220kV Deoria(UP)-Gorakhpur(UP) 6) 220kV Gorakhpur(UP)-Gorakhpur New(UP) ckt-1 7) 220kV Gorakhpur(UP)-Gorakhpur New(UP) ckt-2	Uttar Pradesh	22-Oct-18	10:03	22-Oct-18	10:48	00:45	Bus bar protection operated at 220kV side of 400/220kV Gorakhpur(UP) leading to tripping of all ICTs and 220kV transmission line connected with 400/220kV Gorakhpur(UP). As per PMU, R-N fault observed with delayed clearance. In antecedent condition, 500 MVA ICT 1 & 315 MVA ICT 2 carrying 130 MW & 81 MW respectively.		210	GD-1	0.15
14	NR	1) 400kV Kashipur (UTT)-Nehtaur 400 (UP) 2) 400kV Kashipur(UTT)-Moradabad(UP) 3) 315 MVA ICT 1 at 400/220kV Kashipur(UTT) 4) 315 MVA ICT 2 at 400/220kV Kashipur(UTT) 5) 160 MVA ICT 2 at 220/132kV Kashipur(UTT) 6) 400kV Kashipur (UTT)-Pantnagar(UTT) ckt-1 7) 400kV Kashipur (UTT)-Pantnagar(UTT) ckt-2	Uttarakhand	25-Oct-18	13:28	25-Oct-18	14:27	00:59	200kV Main Bus 1 and 160 MVA ICT 1 was under shutdown for maintenance. At 14:28 Hrs, Y and B phases of isolator 201-89B(160 MVA ICT 1 main Bus 2 isolator) got stuck mechanically while closing and created a spark resulting into complete burnout of mentioned isolator phases leading to a Bus fault on 220kV Bus 2. This resulted into tripping of 315 MVA ICTs, 160 MVA ICTs, all 220kV feeders and 400kV Kashipur (UTT)-Nehtaur 400 (UP) & 400kV Kashipur(UTT)-Moradabad(UP). As per PMU, Y-B fault is observed with delayed clearance of 1640ms.	182	225	GD-1	0.22

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Outage		Revival		Duration	Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unserved (in MU)
				Date	Time	Date	Time						
1	NR	1) 220kV Chamera III(NHPC)-Chamera pool(PG) ckt-2 2) 220kV Budhil(Lanco)-Chamera III(NHPC)	Himachal Pradesh	2-Nov-18	16:10	2-Nov-18	19:35	03:25	A problem occurred in U#1 GIS breaker compartment caused Bus bar protection operation at 220kV Chamera III(NHPC) leading to tripping of 220kV Chamera III(NHPC)-Chamera pool(PG) ckt-2 & 220kV Budhil(Lanco)-Chamera III(NHPC) ckt-1. As per PMU, B-N fault is observed. SCADA data at 220kV Chamera III(NHPC) was suspected during the incident.			GI-2	
2	NR	1) 220kV Salal(NHPC)-Kishenpur(PG) ckt-3 2) 220kV Salal(NHPC)-Kishenpur(PG) ckt-4 3) 400kV Kishenpur(PG)-New Wanpoh(PG) ckt-4	Jammu & Kashmir	3-Nov-18	15:24	3-Nov-18	15:48	00:24	400kV Kishenpur(PG)-New Wanpoh(PG) ckt-4 tripped on Phase to earth fault(B-N fault), 111 kms from Kishenpur(PG) end. At the same time, 220kV Salal(NHPC)-Kishenpur(PG) ckt-3 & ckt-4 also tripped. As per PMU, B-N fault is observed. Another B-N fault observed after 1 sec with Delayed clearance of 680ms.			GI-2	
3	NR	1) 400kV New Wanpoh(PG)-Kishenpur(PG)-ckt-1 2) 400kV New Wanpoh(PG)-Kishenpur(PG)-ckt-2 3) 400kV New Wanpoh(PG)-Wagoora(PG)-ckt-1 4) 400kV New Wanpoh(PG)-Wagoora(PG)-ckt-2	Jammu & Kashmir	4-Nov-18	09:45	4-Nov-18	10:06	00:21	400kV New Wanpoh(PG)-Kishenpur(PG)-ckt-1 & 2, 400kV New Wanpoh(PG)-Wagoora(PG)-ckt-1 & 2 tripped on R-B Fault ,132km from Kisenpur(PG) end. As per PMU, multiple R-B fault observed in the system. In antecedent conditions, 400kV New Wanpoh(PG)-Wagoora(PG)-ckt-1 & 2 carrying 135MW each and 400kV Kishenpur(PG)-New Wanpoh(PG) ckt-1 & 2 carrying 135 MW each.			GI-2	
4	NR	1) 400kV Aligarh(UP)-Sikandrabad(UP)-1 2) 400kV Aligarh(UP)-Sikandrabad(UP)-2 3) 400kV Aligarh(UP)-Mainpuri(UP)-1 4) 400kV Aligarh(UP)-Mainpuri(UP)-2 5) 400kV Aligarh(UP)-Pank(UP) 6) 400kV Aligarh(UP)-Muradnagar(UP)-1 7) 400/220kV 500 MVA ICT #1 at Aligarh(UP) 8) 400/220kV 500 MVA ICT #2 at Aligarh(UP) 9) 400kV Sikandrabad(UP)-G.Noida(UP)-1 10) 400kV Sikandrabad(UP)-G.Noida(UP)-2 11) 400kV Muradnagar(UP)-Aaur(UP) 12) 765/400kV 1000 MVA ICT #1 at Mainpuri(UP)	Uttar Pradesh	6-Nov-18	18:13	6-Nov-18	19:04	00:51	B-N fault occurred resulted in tripping of all 400kV cts from Aligarh(UP) along with both 400/220kV ICTs. 400kV Muradnagar-Ataur, 765/400kV ICT #1 at Mainpuri(UP) and 400kV Sikandrabad-G.Noida also tripped. 400kV Sikandrabad-Aligarh hand tripped.	200		GD-1	0.16
5	NR	1) 400kV Ballabgarh(PG)-Tughlakabad(PG)-2 2) 400kV Ballabgarh(PG)-Nawada(HVPL)	Haryana	7-Nov-18	04:01	7-Nov-18	05:45	01:44	400kV Ballabgarh(PG)-Tughlakabad(PG)-2 and Ballabgarh(PG)-Nawada(HVPL) tripped on over voltage. As per PMU, no fault observed.			GI-2	
6	NR	1) 220kV Sakatpura(RVPL)-Dyra(RVPL) 2) 220kV Sakatpura(RVPL)-Anta(NTPC) 3) 220kV Sakatpura(RVPL)-RAPS-1 4) 220kV Sakatpura(RVPL)-RAPS-2 5) 220kV Sakatpura(RVPL)-RAPS-3 6) 220kV Sakatpura(RVPL)-Bhanpura(MPTCL) 7) 220kV Sakatpura(RVPL)-KTPS(RRVUNL)-1 8) 220kV Sakatpura(RVPL)-KTPS(RRVUNL)-3 9) 220kV Sakatpura(RVPL)-KTPS(RRVUNL)-4 10) 220kV KTPS(RRVUNL)-KOTA(PG)-1 11) 220kV KTPS(RRVUNL)-Modak 12) 220kV KTPS(RRVUNL)-Heerapura(RVPL) 13) 220kV KTPS(RRVUNL)-Bundi(RVPL) 14) Unit #2 at KTPS 15) Unit #3 at KTPS 16) Unit #4 at KTPS 17) Unit #5 at KTPS 18) Unit #6 at KTPS 19) Unit #7 at KTPS	Rajasthan	13-Nov-18	14:26	13-Nov-18	14:40	00:14	Due to fault and subsequent bus bar protection operation at 220kV Sakatpura, cascade tripping occurred at 220kV KTPS and 220kV Dyra and Rana Pratap Sagar. All running units viz. Unit #2, #3, #4, #5, #6 & #7 also tripped at KTPS.	700	250	GD-1	0.06
7	NR	1) 315 MVA ICT 1 at 400/220kV Nalagarh(PG). 2) 220kV Mohali(Pun)-Nalagarh(PG) ckt-2 3) 220kV Nalagarh(PG)-Uppanangala(HP) ckt-2 4) 220kV Kish_cha(CHD)-Nalagarh(PG) ckt-1	Punjab	19-Nov-18	13:44	19-Nov-18	14:26	00:42	315 MVA ICT 1 at 400/220kV Nalagarh(PG) tripped due to LBB protection operation of 220kV Mohali(Pun)-Nalagarh(PG) ckt-2. As per PMU, R-N fault is observed. In antecedent condition, 315 MVA ICT 1 & 220kV Mohali(Pun)-Nalagarh(PG) carrying 119 MW & 45 MW respectively.			GI-2	
8	NR	1) 220kV Sarsawa(UPPTCL)-Khodri (UPCL) 2) 220kV Khodri(UTT)-Saharanpur(UP) ckt-2 3) 220kV Khodri(UTT)-Chibro(UTT) ckt-1 4) 220kV Khodri(UTT)-Chibro(UTT) ckt-2	Uttarakhand & Uttar Pradesh	21-Nov-18	08:43	21-Nov-18	09:48	01:05	Bus bar protection operated at 220kV Khodri(UTT) due to snake climbed on 220kV R-Ph CT resulting in tripping of 220kV Sarsawa(UPPTCL)-Khodri (UPCL) & 220kV Khodri(UTT)-Saharanpur(UP) ckt-2. As per PMU, R-N fault with delayed clearance is observed. In antecedent conditions, 220kV Khodri(UTT)-Saharanpur(UP) ckt-2 carrying 135 MW.	162		GD-1	
9	NR	1) 220kV Bhiwadi(PG)-Kushkhera(RVPL) ckt-2 2) 220kV Bhiwadi(PG)-Bhiwadi(RVPL) ckt-2 3) 220kV Bhiwadi(PG)-Mau(HVPL) 4) 315 MVA ICT 1 at 400/220kV Bhiwadi(PG) 5) 315 MVA ICT 3 at 400/220kV Bhiwadi(PG) 6) 220kV Bhiwadi(PG)-Rewari(HVPL) ckt-1 7) 220kV Bhiwadi(PG)-Rewari(HVPL) ckt-2 8) 220kV Bus 2 at 400/220kV Bhiwadi(PG)	Rajasthan	24-Nov-18	08:14	24-Nov-18	09:18	01:04	220kV Bhiwadi(PG)-Kushkhera(RVPL) ckt-2 tripped due to broken Jumper at Tower No. 20. At the same time, 220kV Bhiwadi(PG)-Bhiwadi(RVPL) ckt-2, 220kV Bhiwadi(PG)-Mau(HVPL) and 315 MVA ICT 1 & ICT 3 also tripped. As per PMU, B-N fault is observed. Voltage drop also observed in R & Y phase. In antecedent conditions, 315 MVA ICT 1 & ICT 3 carrying 150 MW & 140 MW respectively.			GI-2	
10	NR	1) 220kV Napp(NPC)-Simbholi(UP) 2) 220kV Meerut(PG)-Simbholi(UP)	Uttar Pradesh	25-Nov-18	11:23	25-Nov-18	13:40	02:17	220kV Napp(NPC)-Simbholi(UP) and 220kV Meerut(PG)-Simbholi(UP) tripped at 11:23Hrs. As per PMU, B-N fault with delayed clearance is observed. In antecedent conditions, 220kV Napp(NPC)-Simbholi(UP) carrying 101 MW.			GI-2	

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Outage		Revival		Duration	Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unservd (in MU)
				Date	Time	Date	Time						
11	NR	1) 400kV Dadri(NTPC)-G.Noida(UP) 2) 400kV G.Noida(765)-G.Noida(400) ckt-2 3) 400kV Dadri(NTPC)-Panipati(BBMB) ckt-2 4) 500MVA 400/220kV ICT 5 at 400kV Greater Noida(UP) 5) 315MVA 400/220kV ICT 1 at 400kV Greater Noida(UP) 6) 315MVA 400/220kV ICT 2 at 400kV Greater Noida(UP)	Uttar Pradesh	26-Nov-18	01:56	26-Nov-18	02:31	00:35	Due to Y-phase CT blast of Dadri (NTPC) line at 400 kV Greater Noida (UP), 400kV Dadri(NTPC)-400kV Greater Noida(UP) & 400kV Greater Noida(UP)-765kV Greater Noida(UP) ckt-2 tripped along with 500 MVA ICT-5, 315 MVA ICT-1 & 2. At the same time, 400 kV Dadri(NTPC)-Panipati(BBMB) ckt-2 also tripped from Dadri(NTPC) end. As per PMU, R-N fault is observed. In antecedent conditions, 500MVA ICT5, 315 MVA ICT1 & 315 MVA ICT2 carrying 101MW, 62MW & 67MW respectively.			GI-2	
12	NR	1) 500MVA 400/220kV ICT1 at 400kV Ataur(UP) 2) 500MVA 400/220kV ICT2 at 400kV Ataur(UP) 3) 220kV Ataur(UP)-Morti(UP) ckt-2 4) 220kV Ataur(UP)-Mandola(UP) ckt-1	Uttar Pradesh	26-Nov-18	15:32	26-Nov-18	16:34	01:02	500MVA 400/220kV ICT 1 & ICT 2 at 400kV Ataur(UP) tripped due to Bus bar protection maloperation. As per PMU, No fault is observed in the system. In antecedent conditions, 500MVA ICT 2 carrying 72 MW.			GI-2	
13	NR	1) 400kV Rajpura(Pun)-Rajpura(TH)(Pun) ckt-2 2) 400kV Rajpura(Pun)-Dhuri(Pun) ckt-1	Punjab	26-Nov-18	15:49	26-Nov-18	16:57	01:08	400kV Rajpura(Pun)-Rajpura(TH)(Pun) ckt-2 and 400kV Rajpura(Pun)-Dhuri(Pun) ckt-1 tripped while doing testing work. As per PMU, No fault observed in the system. In antecedent condition, 400kV Rajpura(Pun)-Rajpura(TH)(Pun) ckt-2 & 400kV Rajpura(Pun)-Dhuri(Pun) ckt-2 carrying 274 MW & 86 MW respectively.			GI-2	
14	NR	1) 400kV Banda(UP)-Orail(UP) ckt-1 2) 315 MVA 400/220kV ICT 1 at Orail(UP) 3) 400 kV Bus 2 at 400/220kV Orail(UP)	Uttar Pradesh	29-Nov-18	02:25	29-Nov-18	04:26	02:01	400kV Banda(UP)-Orail(UP) ckt-1 tripped on R-N fault. At the same time, 400 kV Bus 2 and 315 MVA ICT 1 at 400/220kV Orail(UP) also tripped. As per PMU, Y-N fault is observed. In antecedent condition, 315 MVA ICT 1 carrying 123 MW and 400kV Banda(UP)-Orail(UP) ckt-1 carrying 75 MW.			GI-2	

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Outage		Revival		Duration	Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unserved (in MU)
				Date	Time	Date	Time						
1	NR	1) 400kV Mainpuri 765(U)-Orai(UP) ckt-2 2) 400 kV Bus 1 at 400/220kV Orai(UP)	Uttar Pradesh	3-Dec-18	2:18	3-Dec-18	05:51	03:33	400kV Mainpuri 765(UP)-Orai(UP) ckt-2 & 400 kV Bus 1 at 400/220kV Orai(UP) tripped on R-N fault. As per PMU, R-N fault is observed with unsuccessful autoreclosing attempt. In antecedent condition, 400kV Mainpuri 765(U)-Orai(UP) ckt-2 carrying 76 MW.			GI-2	
2	NR	1) 400kV Dadri(NTPC)-Panipat(BBMB) ckt-1 2) 400kV Dadri(NTPC)-Panipat(BBMB) ckt-2	Uttar Pradesh & Haryana	4-Dec-18	3:07	4-Dec-18	09:54	06:47	400kV Dadri(NTPC)-Panipat(BBMB) ckt-1 tripped on R-N fault. At the same time, 400kV Dadri(NTPC)-Panipat(BBMB) ckt-2 tripped on overvoltage at Dadri(NTPC) end. As per PMU, B-N fault is observed. In antecedent conditions, 400kV Dadri(NTPC)-Panipat(BBMB) ckt-1 & 2 carrying 243 MW & 233 MW respectively.			GI-2	
3	NR	1) 220kV Tanakpur(NHPC)-Sitarganj(PG) 2) 220kV Cbganj(UP)-Sitarganj(PG)	Uttar Pradesh & Uttarakhand	4-Dec-18	15:28	4-Dec-18	15:58	00:30	220kV Tanakpur(NHPC)-Sitarganj(PG) & 220kV Cbganj(UP)-Sitarganj(PG) tripped due to internal temporary problem in RTU. As per PMU, no fault is observed in the system. In antecedent conditions, 220kV Tanakpur(NHPC)-Sitarganj(PG) & 220kV Cbganj(UP)-Sitarganj(PG) carrying 50 MW.			GI-2	
4	NR	1) 800kV HVDC (Agra-BNC) Pole-1 at Agra HVDC 2) 800kV HVDC (Agra-BNC) Pole-2 at Agra HVDC 3) 800kV HVDC (Agra-Allpurdwar ER) Pole-3 at Agra HVDC	Uttar Pradesh	5-Dec-18	10:19	5-Dec-18	14:27	04:08	800kV HVDC (Agra-BNC) Pole-1, Pole-2 & 800kV HVDC (Agra-Allpurdwar ER) Pole-3 at Agra HVDC tripped due to Bus fault at BNC and Allpurdwar end. HVDC Pole-4(Agra-Allpurdwar ER) was already out for control the loading of 400 kV Purnia-Malda. As per PMU, Variation observed in the phase voltages. In antecedent conditions, Pole-1, 2 & 3 carrying 245 MW, 340 MW & 245 MW respectively.			GI-2	
5	NR	1) 400 kV Dadri-G. Noia(UP) ckt 2) 400 kV Dadri-Maharani Bah(PG) ckt 3) 400 kV Rihad-Dadri Pole-2 4) 400 kV Dari-Mandaula(PG) ckt-1 & 2 5) Feeders under C&D load group of Rihand-Dadri SPS	Delhi	8-Dec-18	17:41	8-Dec-18	18:16	00:35	Snapping of OPGW wire created blue phase to earth fault in the system. It resulted into tripping of both 400 kV Dadri-G. Noida (UP) and Dadri-Maharani Bagh (PG) ckt (As 400 kV Dadri-G. Noida and Dadri-Maharani Bagh ckt was on same tower for some distance). As 400 kV Maharani Bagh-Balabgarh was already under planned outage, Tripping of 400 kV Dadri-Maharani Bagh (PG) ckt resulted into complete outage of 400 kV Maharani Bagh (PG). Rihand-Dadri Pole-2 also tripped reportedly on commutation failure at Rihand end. Case-2 of Rihand-Dadri SPS also operated and it resulted into tripping of feeders in C&D load group (planned load shedding quantum: 520 MW). After 5 second of the incident 400 kV Dadri-Mandault ckt-1 & 2 also tripped. This time fault was in R & Y phase.		960	GD-1	0.56
6	NR	1) 400kV Mainpuri 765(U)-Orai(UP) ckt-2 2) 400 kV Bus 1 at 400/220kV Orai(UP)	Uttar Pradesh	9-Dec-18	4:25	9-Dec-18	06:05	01:40	400kV Mainpuri 765(UP)-Orai(UP) ckt-2 & 400 kV Bus 1 at 400/220kV Orai(UP) tripped on R-N fault. As per PMU, R-N fault is observed. In antecedent condition, 400kV Mainpuri 765(U)-Orai(UP) ckt-2 carrying 96 MW.			GI-2	
7	NR	1) 400kV Mainpuri 765(U)-Orai(UP) ckt-2 2) 400 kV Bus 1 at 400/220kV Orai(UP)	Uttar Pradesh	10-Dec-18	20:35	10-Dec-18	22:46	02:11	As reported, 400kV Mainpuri 765(UP)-Orai(UP) ckt-2 & 400 kV Bus 1 at 400/220kV Orai(UP) tripped on R-N fault. As per PMU, R-N fault is observed. In antecedent condition, 400kV Mainpuri 765(U)-Orai(UP) ckt-2 carrying 135 MW.			GI-2	
8	NR	1) 220kV Bus Coupler at 220kV Sarojini Nagar(UP) 2) 315MVA 400/220kV ICT II (220kV side) 3) 160MVA 220/132kV ICT I 4) 100MVA 220/132kV ICT III 5) 220kV Sarojini Nagar(UP)-Hardoi Road line 6) 220kV Sarojini Nagar(UP)-Kanpur Road line 7) 220kV Sarojini Nagar(UP)-Bachrawan line Elements tripped due to operation of SPS (In order of priority): 1) 33 KV LESA& II 2) 33 KV Ultratrya, 33 KV Gehru 3) 132 KV Kundan road 4) 132 KV TRT-1 & II (Same priority)	Uttar Pradesh	10-Dec-18	18:57	10-Dec-18	19:07	00:10	220kV Bus Bar protection installed at 220 kV Substation Sarojini Nagar(UP) operated on LBB protection at the time of testing of newly commissioned CTs on 220kV Sarojini Nagar(UP)-Unnao(UP) line. As a result of this, all 220kV elements running on B bus got tripped. Also, only one 160 MVA transformer survived in this case which resulted operation of SPS which further tripped 03 nos 132kV lines and 04 nos 33kV lines. As per PMU, No fault is observed. In antecedent conditions, ICT 1 & 3 carrying 70 MW & 76 MW respectively.		250	GD-1	0.04
9	NR	1) 200 MVA ICT1 at 400/220kV Rosa(UP) 2) 200 MVA ICT2 at 400/220kV Rosa(UP)	Uttar Pradesh	18-Dec-18	8:42	18-Dec-18	10:04	01:22	200 MVA ICT1 & ICT2 at 400/220kV Rosa(UP) tripped on phase to earth fault. As per PMU, B-N fault with delayed clearance is observed. In antecedent condition, 200 MVA ICT 1 & ICT 2 carrying 91 MW & 93 MW respectively..		85	GD-1	0.12
10	NR	1) 200 MVA ICT1 at 400/220kV Rosa(UP) 2) 200 MVA ICT2 at 400/220kV Rosa(UP)	Uttar Pradesh	19-Dec-18	2:10	19-Dec-18	03:01	00:51	200 MVA ICT1 & ICT2 at 400/220kV Rosa(UP) tripped due to operation of differential protection on HV side and overcurrent relay operation on LV side. As per PMU, B-N fault is observed. In antecedent condition, 200 MVA ICT 1 & ICT 2 carrying 76 MW & 75 MW respectively.		290	GD-1	0.25
11	NR	1) 400kV Dhanonda(HVPLN)-Mohindergarh(Adani) ckt-1 2) 400kV Dhanonda(HVPLN)-Mohindergarh(Adani) ckt-2 3) 315MVA ICT 2 at 400/220kV Dhanonda(HVPLN) 4) 315MVA ICT 3 at 400/220kV Dhanonda(HVPLN)	Haryana	20-Dec-18	6:37	20-Dec-18	09:35	02:58	400kV Dhanonda(HVPLN)-Mohindergarh(Adani) ckt-1 & 2 tripped due to DT received at Mohindergarh(Adani) end. At the same time, 315MVA ICT 2 & ICT 3 at 400/220kV Dhanonda(HVPLN) also tripped. As per PMU, No fault observed in the system. In antecedent conditions, 400kV Dhanonda(HVPLN)-Mohindergarh(Adani) ckt-2 carrying 255 MW each & 315MVA ICT 2 & ICT 3 carrying 153 MW & 152 MW respectively. At 0743 Hrs, 315MVA ICT 1 also tripped on LV instantaneous O/C due to overloading.			GI-2	

S.No.	Region	Name of Elements (Tripped/Manually opened)	Affected Area	Outage		Revival		Duration	Event (As reported)	Generation Loss(MW)	Load Loss(MW)	Category as per CEA Grid Standards	Energy Unservd (in MU)
				Date	Time	Date	Time						
12	NR	1) 220kV Mainoolap(PG)-Wazirabad(DTL) ckt-1 2) 220kV Mandola(PG)-Wazirabad(DTL) ckt-2 3) 220kV Mandola(PG)-Wazirabad(DTL) ckt-3 4) 220kV Mandola(PG)-Wazirabad(DTL) ckt-4 5) 220kV Wazirabad(DTL)-Kashmere Gate(DTL) ckt-1 & ckt-2 6) 220kV Wazirabad(DTL)-Geeta Colony(DTL) ckt-1 & ckt-2 7) 220kV Geeta Colony(DTL)-Patparganj(DTL) ckt-1 & ckt-2 8) 100 MVA ICT 3 at 220kV Wazirabad(DTL) 9) 150 MVA ICT 4 at 220kV Wazirabad(DTL)	Delhi	20-Dec-18	9:16	20-Dec-18	10:42	01:26	Multiple element tripping at 220kV Wazirabad(DTL) occurred due to R-Y fault. Later, Birdage/wire found near Y phase 220kV Bus-II and dropper jumper of 100 MVA ICT 3 at 220kV Wazirabad(DTL). As per PMU, Y-N fault followed by three phase fault is observed. In antecedent conditions, 220kV Mandola(PG)-Wazirabad(DTL) ckt-1,2,3 & 4 carrying 68 MW each. At Wazirabad(DTL) bus bar protection was out of service.		300	GD-1	0.43
13	NR	1) 400kV Ballabgarh(PG)-Nawada(HVPNL)	Haryana	20-Dec-18	19:14	20-Dec-18	19:56	00:42	400kV Ballabgarh(PG)-Nawada(HVPNL) tripped due to DT received at Nawada(HVPNL) end. 400kV Nawada(HVPNL)-Greater Noida(UP) line was under shutdown for diversion work of line due to DFCC, DFCCIL work by POWERGRID. As per PMU, slight voltage rise is observed. Load loss as Nwada load was radially fed from from Ballabgarh (PG).		250	GD-1	0.16
14	NR	1) 400kV Khedar(HVPNL)-Kirori(HVPNL) ckt-1 2) 400kV Khedar(HVPNL)-Kirori(HVPNL) ckt-2 3) 220 kV Kirori(HVPNL)-Smain ckt-1 4) 220 kV Kirori(HVPNL)-Smain ckt-2 5) 220 kV Kirori(HVPNL)-Masudpur ckt	Haryana	20-Dec-18	1:22	20-Dec-18	02:28	01:06	400kV Khedar(HVPNL)-Kirori(HVPNL) ckt-1 & 2 tripped during R-N fault in 220 kV Kirori-Smain cts. As per PMU, R-N fault followed by Y-N fault is observed. In antecedent conditions, 400kV Khedar(HVPNL)-Kirori(HVPNL) ckt-1 & 2 carrying 54 MW & 56 MW respectively.			GI-2	
15	NR	1) 400 kV Bus 2 at 400/220kV Panipat(BBMB) 2) 450 MVA ICT 1 at 400/220kV Panipat(BBMB) 3) 400 kV Main BAY/CB (4-352) of Panipat ckt-2 at Dadri TH	Haryana	22-Dec-18	10:46	22-Dec-18	11:37	00:51	During hot water washing a flash occurred on ICT Blue phase CT of X-5 Circuit breaker resulting in tripping of ICT-1 along with operation of Bus bar of 400kV Bus- II at 400/220kV Panipat(BBMB). At the same time, 400 kV Main BAY/CB (4-352) of Panipat ckt-2 at Dadri TH also tripped due to pole discrepancy at Dadri end. As per PMU, B-N fault is observed. In antecedent conditions, 450 MVA ICT 1 carrying 207 MW.			GI-2	
16	NR	1) 220kV Ganguwal(BBMB)-Jalalpur(BBMB) ckt-1 2) 220kV Ganguwal(BBMB)-Jalalpur(BBMB) ckt-2 3) 220kV Jamalpur(BBMB)-Sangrur(BBMB) ckt-1 4) 220kV Bhakra-R HPS(BBMB)-Jalalpur (BBMB) ckt-2 5) 220kV Jalandhar(BBMB)-Jalalpur(BBMB) ckt-1 6) 220kV Dandhari Kalan (PSEB)-Jalalpur(BBMB) ckt-1	Punjab & HP	22-Dec-18	23:50	23-Dec-18	02:22	02:32	220 kV Bus bar 1 protection operated caused tripping of multiple feeder of 220 kV at BBMB Jalalpur. As per PMU, R-N fault is observed. In antecedent conditions, 220kV Ganguwal(BBMB)-Jalalpur(BBMB) ckt-1 & 2, 220kV Jamalpur(BBMB)-Sangrur(BBMB) ckt-1, 220kV Bhakra-R HPS(BBMB)-Jalalpur (BBMB) ckt-2, 220kV Jalandhar(BBMB)-Jalalpur(BBMB) ckt-1 & 220kV Dandhari Kalan (PSEB)-Jalalpur(BBMB) ckt-1 carrying 46MW, 45MW, 21MW, 42 MW, 14MW & 51 MW respectively.		60	GD-1	0.15
17	NR	1) 400kV Amritsar(PG)-Makhu(PSTCL) ckt-2 2) 400kV Makhu(PSTCL) -Mukatsar(PSTCL) ckt-1	Punjab	23-Dec-18	4:29	23-Dec-18	17:56	13:27	400kV Amritsar(PG)-Makhu(PSTCL) ckt-2 tripped on Y-N fault. At the same time, 400kV Makhu(PSTCL) -Mukatsar(PSTCL) ckt-1 tripped on B-N fault. As per PMU, B-N fault is observed with unsuccessful autoreclosing. In antecedent conditions, 400kV Amritsar(PG)-Makhu(PSTCL) ckt-2 & 400kV Makhu(PSTCL) -Mukatsar(PSTCL) ckt-1 carrying 87 MW & 96 MW respectively.			GI-2	
18	NR	1) 400kV Makhu(PSTCL)-Mukhtsar(PSTCL)-1 2) 400kV Makhu(PSTCL)-Nakodar(PSTCL)-1 3) 400kV Makhu(PSTCL)-Nakodar(PSTCL)-2 4) 400/220kV ICT #1 at Makhu(PSTCL) 5) 400/220kV ICT #2 at Makhu(PSTCL) 6) 400kV Nakodar(PSTCL)-Jalandhar(PG)	Punjab	24-Dec-18	17:58	24-Dec-18	19:31	01:33	During charging of 400kV Makhu-Mukhtsar ckt-2, R-B fault occurred. All elements at Makhu tripped/manually opened. 400kV Nakodar(PSTCL)-Jalandhar(PG) ckt also tripped simultaneously. 400kV Amritsar D/C and Mukhtsar-1 already out on fault since 23-Dec-18. As per PMU data, R-B fault occurred.			GI-2	
19	NR	1) 400kV Oraí(UP)-Paricha(UP)-2 2) 400kV Bus-1 at Oraí(UP)	Uttar Pradesh	25-Dec-18	2:34	25-Dec-18	04:30	01:56	R-N fault occurred in 400kV Oraí(UP)-Paricha(UP)-2, 69km from Oraí(UP). At Oraí(UP), due to bus bar protection operation bus1 tripped. As per PMU data, R-N fault observed with unsuccessful auto-reclosing.			GI-2	
20	NR	1) 400kV Dhuri-Rajpura ckt-1 2) 400kV Dhuri-Talwandi Sabo ckt-1	Punjab	25-Dec-18	7:10	25-Dec-18	08:54	01:44	400kV Dhuri-Rajpura ckt-1 and 400kV Dhuri-Talwandi Sabo ckt-1 tripped. Two successive B-N faults observed. As per PMU, two B-N fault observed.			GI-2	
21	NR	1) 220kV Debari(RVPLN)-RAPS A(NPC) 2) 220kV RAPS A(NPC)-Sakatpura(RVPLN) ckt-1	Rajasthan	28-Dec-18	6:15	28-Dec-18	06:34	00:19	220kV Debari(RVPLN)-RAPS A(NPC) tripped on R-N fault. At the same time, 220kV RAPS A(NPC)-Sakatpura(RVPLN) ckt-1 also tripped on R-N fault. As per PMU, R-N fault with no autoreclosing is observed. In antecedent conditions, 220kV Debari(RVPLN)-RAPS A(NPC) & 220kV RAPS A(NPC)-Sakatpura(RVPLN) ckt-1 carrying 55 MW & 26 MW respectively.			GI-2	