Root Cause and Remedial Measures for the Date 01-January-2022 to 31-January-2022

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAYINDICATION_A	AR_A	SEND_FR	SEND_DR	SEND_EL	SEND_TRIPPINGREPORT	RENDOWNER	RELAYINDICATION_B	AR_B	REND_FR	REND_DR	REND_EL	REND_TRIPPINGREPORT	SPS_OPERATION	DR Analysis	Root Cause	Remedial Measures
1	220 kV Karbi Langpi - Sarusajai 1 Line	AEGCL	01-01-2022 10:04	07-01-2022 16:59	6.06:55:00	APGCL	DP, ZI, B-E, FD: 46.2 Kms	NA	NO	NO	NO	NO	AEGCL	DP, ZI, B-E, FD: 16.5 Kms	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Sarusajai** : Fault Initiation Time Main I : 10:04:01.462 , CB Opening Time(in msec): 54 , Fault Characteristics : Relay Indication Main1- DP, ZI, B-E, FD: 16.2 kms ,Fault Current(in kA) : B=4.89,N=4.87, Fault Voltage(in kV) : B=61,N=57 , Angle between(in degrees) : -68 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : Yes, DT Sent : No, DT Received : No Other Relevant Information : Ph to E fault. Likely solid fault	Root Cause given by NERLDC: Likely Solid Fault	Root cause and action taken may be shared by AEGCL
2	315 MVA, 400/220/33 kV ICT 2 at Azara	AEGCL	01-01-2022 10:04	05-01-2022 16:34	4.06:30:00	AEGCL	Tripped on Differential Protection	NA	YES	YES	YES	NO	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	**DR Analysis from 315 MVA, 400/220/33 kV ICT 2 at Azara:** Fault Initiation Time Main I : 10:04:13.781 , CB Opening Time(in msec): 74 , Fault Characteristics : Relay Indication Main1- Tripped on Differential Protection ,Fault Current(in kA) : B=0.791,N=0.489, Fault Voltage(in kV) : B=185,N=17 , Angle between(in degrees) : 96 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : As per FIR, B phase to earth fault (out of differential Zone) ICT tripped on differential protection as the current in B phase (HV+Tie and IV side) were not balanced due to IV B phase CT issue (conductor in close proximity with CT Body)	Root Cause given by NERLDC: Tripped on differential protection	The tripping of Azara seems to be unwanted as the fault was in 200 kV Sarusujai-Langpi-1 Line. Also , it is to be mentioned here that loading of 220 kV Balipara-Sonabil Line is very sensitive considering outage of the above ICT. Therefore, it is requested to find out the root cause of tripping of ICT-2 at Azara and rectify the same at the earliest. A copy of measures identified and taken may be shared to this end.
3	AGTCCPP Unit 3	NEEPCO	03-01-2022 06:17	03-01-2022 13:04	06:47:00	NEEPCO	Inlet Air Differential pressure high	NA	NO	YES	YES	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	**DR Analysis from AGTCCPP Unit 3**: Only Line CB Open observed from submitted from DR output	Inlet Air Differential pressure high	Root cause and action taken report may be submitted by NEEPCO
4	AGBPP Unit 2	NEEPCO	04-01-2022 12:19	04-01-2022 12:45	00:26:00	NEEPCO	Tripping of GBC	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Tripping of GBC	Root cause and action taken report may be submitted by NEEPCO
5	Doyang Unit 2	NEEPCO	05-01-2022 16:51	05-01-2022 17:13	00:22:00	NEEPCO	Excitation Failure	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Excitation Failure	Root cause and action taken report may be submitted by NEEPCO
6	132 kV Kahilipara - Umtru 2 Line	MePTCL	05-01-2022 23:49	06-01-2022 00:10	00:21:00	AEGCL	DP, ZI, B-E, FD: 3.03 kms	NA	YES	YES	YES	NO	MePGCL	No Tripping	NA	NO	NA	NA	NA	No SPS	**DR Analysis from Kahilipara:** Fault Initiation Time Main I : 23:49:26.641 , CB Opening Time(in msec): 60 , Fault Characteristics : Relay Indication Main1- DP, ZI, B-E, FD: 3.03 kms ,Fault Current(in kA) : B=8,N=8.1, Fault Voltage(in kV) : B=26,N=41 , Angle between(in degrees) : -65 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Ph to E fault. Likely Solid fault.	Root Cause given by NERLDC: Likely Solid Fault	Root cause and action taken may be shared by MePTCL
7	132 kV Agartala - Dhalabil Line	TSECL	06-01-2022 16:55	07-01-2022 15:18	22:23:00	TSECL	DP, ZII, Y-E, FD:38.68 Kms	NA	NO	YES	YES	NO	TSECL	Over Current	NA	NO	NO	NO	NO	No SPS	**DR Analysis from Agartala:** Fault Initiation Time Main I : 15:47:58.617 , CB Opening Time(in msec): 358 , Fault Characteristics : Relay Indication Main1- DP, ZII, Y-E, FD:38.68 Kms ,Fault Current(in kA) : Y=2.4,N=2.3, Fault Voltage(in kV) : Y=62,N=14 , Angle between(in degrees) : -69 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Ph to E fault. Likely Solid fault.	Root Cause given by NERLDC: Likely Solid Fault	Root cause and action taken may be shared by TSECL
8	132 kV Panchgram - Lumshnong Line	AEGCL & MePTCL	07-01-2022 07:18	07-01-2022 07:45	00:27:00	AEGCL	No Tripping	NA	YES	NU	NU	NA	MePTCL	Broken conductor tripped	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Lumshnong:** Fault Initiation Time Main I : 07:17:22.070 , CB Opening Time(in msec): 300 , Fault Characteristics : Relay Indication Main1- Broken conductor tripped ,Fault Current(in kA) : R=0,N=0.11, Fault Voltage(in kV) : R=72,N=0 , Angle between(in degrees) : 90 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Tripped due to Broken conductor. R ph jumper open at a distance of 28 Kms from Lumshnong end. Remarks : AEGCL jurisdiction: 337 to 430 (jumper snap in AEGCL jurisdiction as reported) Thorough line patrolling going on. As line is very old, reconductoring works of a portion has started. Regarding broken conductor trip setting at Lumshnong, it's under discussion with higher authority as reported. MRT MEPTCL team will visit Lumshnong side to take necessary action.	Root Cause given by NERLDC: Broken Conductor	Tripped due to broken jumper of R Phase in the Assam end of the line and at a location 28 km from Lumshnong
9	132kV Khleiriat(ME) - Lumshong Line	MePTCL	07-01-2022 07:39	07-01-2022 08:08	00:29:00	MePTCL	Broken conductor tripped	NA	YES	NA	YES	NO	MePTCL	No Tripping	NA	YES	YES	YES	NA	No SPS	**DR Analysis from Lumshong:** Fault Initiation Time Main I : 07:33:31.949 , CB Opening Time(in msec): 45 , Fault Characteristics : Relay Indication Main1- Broken Conductor Trip ,Fault Current(in kA) : R=0.188, Fault Voltage(in kV) : R=68 , Angle between(in degrees) : 163 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Tripped due to Broken conductor. R ph jumper open at a distance of 28 Kms (Location 340) from Lumshnong end in 132 kV Panchgram - Lumshnong Line. Remarks : AEGCL jurisdiction: 337 to 430 (jumper snap in AEGCL jurisdiction as reported) Thorough line patrolling going on. As line is very old, reconductoring works of a portion has started. Regarding broken conductor trip setting at Lumshnong, it's under discussion with higher authority as reported. MRT MEPTCL team will visit Lumshnong side to take necessary action.	Root Cause given by NERLDC: Fault Beyond Line/Downstream Fault	Tripped on Broken conductor at Lumshnong while attempt to charge 132 kV Lumshnong-Panchgram from Lumshnong (R-Ph jumper open at a distance 28 Km from Lumshnong)
10	400 kV Balipara - Misa 1 Line	POWERGRID	07-01-2022 13:35	07-01-2022 22:34	08:59:00	POWERGRID	DC earth fault	NA	YES	YES	NO	NO	POWERGRID	No Tripping	NA	YES	NA	NA	NA	No SPS	**DR Analysis from Balipara**: Tripped on DC earth fault. Other Relevant Information : momentary +ve signal extended to Lockout relay which resulted in the tripping	As per Outage Report Shared by POWERGRID: Tripped at Balipara end only; Misa: No tripping	
11	132 kV Dimapur (PG) - Kohima Line	POWERGRID & DoP, Nagaland	07-01-2022 18:53	07-01-2022 19:19	00:26:00	POWERGRID	Busbar Protection operated	NA	YES	YES	NA	NO	DoP, Nagaland	No Tripping	NA	YES	NA	NA	NA	No SPS	**DR Analysis from Dimapur (PG)** : Only CB Open is visible in the submitted DR Output. Other Relevant Information: All feeders connected to 132 kV Bus-1 at Dimapur PG tripped on operation of B/B protection during GIS related testing works.	As per Outage Report Shared by POWERGRID: Bus bar protection operated in 132 kV Bus - 1 during GIS testing at Dimapur end	All feeders connected to 132 kV Bus-1 at Dimapur PG tripped on operation of B/B protection during GIS related testing works.
12	132 kV Dimapur - Doyang 1 Line	POWERGRID	07-01-2022 18:53	07-01-2022 19:21	00:28:00	POWERGRID	Busbar Protection operated	NA	YES	NA	NA	NO	NEEPCO	No Tripping	NA	NO	NA	NA	NA	No SPS	No DR & EL outputs submitted	As per Outage Report Shared by POWERGRID: Bus bar protection operated in 132 kV Bus - 1 during GIS testing at Dimapur end	All feeders connected to 132 kV Bus-1 at Dimapur PG tripped on operation of B/B protection during GIS related testing works.
13	132 kV Dimapur (PG) - Dimapur (DoP, Nagaland) 2 Line	DoP, Nagaland	07-01-2022 18:53	07-01-2022 19:19	00:26:00	POWERGRID	Busbar Protection operated	NA	YES	NA	NA	NO	DoP, Nagaland	No Tripping	NA	YES	NA	NA	NA	No SPS	No DR & EL outputs submitted	As per Outage Reported Shared by POWERGRID: Bus bar protection operated in 132 kV Bus - 1 during GIS testing at Dimapur end	All feeders connected to 132 kV Bus-1 at Dimapur PG tripped on operation of B/B protection during GIS related testing works.
14	100 MVA, 220/132 kV ICT 2 at Dimapur	POWERGRID	07-01-2022 18:53	07-01-2022 19:19	00:26:00	POWERGRID	Busbar Protection operated	NA	YES	NA	NA	NO	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	As per Outage Report Shared by POWERGRID: Bus bar protection operated in 132 kV Bus - 1 during GIS testing at Dimapur end	All feeders connected to 132 kV Bus-1 at Dimapur PG tripped on operation of B/B protection during GIS related testing works.
15	Monarchak Unit GT	NEEPCO	07-01-2022 19:33	07-01-2022 20:57	01:24:00	NEEPCO	Not Furnished	NA	NO	NO	NO	NO	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by NEEPCO
16	132 kV Motonga (Bhutan) - Rangia Line	POWERGRID	08-01-2022 11:37	09-01-2022 00:23	12:46:00	BHUTAN	No Tripping	NA	NO	NA	NA	NA	POWERGRID	Tripped due to Y-ph LA Burst at Rangia end	NA	YES	NA	NA	NO	No SPS	No DR & EL outputs submitted	Root Cause given by NERLDC: Y-ph LA Burst at Rangia end	Tripped due to Y-ph LA Burst at Rangia end
17	AGTCCPP Unit 3	NEEPCO	10-01-2022 05:15	10-01-2022 06:44	01:29:00	NEEPCO	Field Fail1 Trip	NA	NO	YES	YES	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	**DR Analysis from AGTCCPP Unit 3**: Fault Initiation Time Main I : 05:15:56.309 , CB Opening Time(in msec): 130 , Fault Characteristics : Relay Indication Main1- Field Fail1 Trip ,Fault Current(in kA) : R=1.64,Y=1.71, B=1.71, Fault Voltage(in kV) : R=5.7,Y=5.7,B=5.6, Angle between(in degrees) : 47, Autorecloser Status : NA , CARRIER SENT : Not Available , Carrier Received : Not Available, DT Sent : Not Available, DT Received : Not Available Other Relevant Information : Tripped due to sudden low gas pressure alarm	Root Cause given by NERLDC: Tripped due to sudden low gas pressure alarm	Root cause and action taken report may be submitted by NEEPCO
18	132 kV Agartala - Bodhjannagar Line	TSECL	10-01-2022 05:15	10-01-2022 14:43	09:28:00	TSECL	DP, ZII, B-E, FD:7.1 Kms	NA	NO	YES	YES	NO	TSECL	DP, ZI, R-B-E	NA	NO	YES	YES	NO	No SPS	**DR Analysis from Agartala**: Fault Initiation Time Main I : 04:13:26.744 , CB Opening Time(in msec): 344 , Fault Characteristics : Relay Indication Main1- DP, ZII, B-E, FD:7.1 Kms ,Fault Current(in kA) : B=6.5,N=6.5, Fault Voltage(in kV) : B=22,N=40 , Angle between(in degrees) : -66 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Likely Solid fault. Remarks : Time drift of around 1 Hr was observed in IED relays which needs to be addressed and it is to be time sync with GPS for proper analysis. **DR Analysis from Bodhjannagar**: Fault Initiation Time Main I : 04:05:01.740 , CB Opening Time(in msec): 276 , Fault Characteristics : Relay Indication Main1- DP, ZI, R-B-E,Fault Current(in kA) : R=8,B=8, Fault Voltage(in kV) : R=48,B=49 , Angle between(in degrees) : 143 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Likely solid fault. Remarks : 1. Time drift of around 1 Hr was observed in IED relays which needs to be addressed and it is to be time sync with GPS for proper analysis. 2. Z-1 detected from Bodhjannagar at 04:05:01.748 Hrs and fault cleared delayed within 286 msec which needs to be addressed.	Root Cause given by NERLDC: Likely Solid Fault	Time drift of around 1 Hr was observed in IED relays which needs to be addressed and it is to be time sync with GPS for proper analysis.
19	132 kV Baramura - Jirania Line	TSECL	10-01-2022 05:15	10-01-2022 05:37	00:22:00	TSECL	No Tripping	NA	NO	NU	NU	NA	TSECL	Earth Fault, Y-ph	NA	NO	NU	NU	NO	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken may be shared by TSECL
20	132 kV Bodhjannagar (TSECL) - Surajmani Nagar (Sterlite Power) Line	TSECL	10-01-2022 05:15	10-01-2022 06:10	00:55:00	TSECL	DP, ZIV, Y-B-E Started, No Tripping	NA	NO	YES	YES	NO	NTL	DP, ZII, Y-B-E, FD: 21.56 Kms	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Bodhjannagar (TSECL) :** Fault Initiation Time Main I : 05:16:37.340 , CB Opening Time(in msec): 430 , Fault Characteristics : Relay Indication Main1- DP, ZIV, Y-B-E Started, No Tripping ,Fault Current(in kA) : Y=3.6,B=3.5,N=2, Fault Voltage(in kV) : Y=2,B=0,N=80 , Angle between(in degrees) : -145 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : No tripping. Seems to be solid fault. Root cause and corrections may be highlighted. **DR Analysis from Surajmani Nagar (Sterlite Power):** Fault Initiation Time Main I : 05:15:47.878 , CB Opening Time(in msec): 363 , Fault Characteristics : Relay Indication Main1- DP, ZII, Y-B-E, FD: 21.56 Kms ,Fault Current(in kA) : Y=3.6,B=3.5,N=2, Fault Voltage(in kV) : Y=37,B=40,N=0 , Angle between(in degrees) : -145 , Autorecloser Status : NA , CARRIER SENT : Yes , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Initially fault start in B phase. After 89 msec, fault shifted to Y-B-E. Likely Solid fault.	Root Cause given by NERLDC: Likely Solid Fault	Root cause and action taken may be shared by TSECL

Root Cause and Remedial Measures for the Date 01-January-2022 to 31-January-2022

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAYINDICATION_A	Alt_A	SEND_FR	SEND_DR	SEND_EL	SEND_TRIPPINGREPORT	RENDOWNER	RELAYINDICATION_B	Alt_B	REND_FR	REND_DR	REND_EL	REND_TRIPPINGREPORT	SPS_OPERATION	DR Analysis	Root Cause	Remedial Measures
21	132 kV Budhjangnagar (TSECL) - Surjamaninagar (TSECL) Line	TSECL	10-01-2022 05:15	10-01-2022 05:35	00:20:00	TSECL	No Tripping	NA	NO	YES	YES	NA	TSECL	DP, ZII, V-B-E, FD:18.92 Kms	NA	NO	YES	YES	NO	No SPS	**DR Analysis from Budhjangnagar (TSECL):** Fault Initiation Time Main I: 05:17:49.493 , CB Opening Time(in msec): 387 ,Fault Characteristics : Relay Indication Main1 - No Tripping ,Fault Current(in kA) : Y=2.828~3.3,N=1.5, Fault Voltage(in kV) : Y=2.8~4,N=80 , Angle between(in degrees) : -150 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information: Seems to be solid fault. Root cause and corrections may be highlighted. **DR Analysis from Surjamaninagar (TSECL):** Fault Initiation Time Main I: 04:07:39.478 , CB Opening Time(in msec): 337 ,Fault Characteristics : Relay Indication Main1 - DP, ZII, V-B-E, FD:18.92 Kms ,Fault Current(in kA) : Y=2.8,B=3.3,N=1.5, Fault Voltage(in kV) : Y=29.8~36.9~25 , Angle between(in degrees) : -149 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information: Seems to be solid fault. Root cause and corrections may be highlighted.	Root Cause given by NERLDC: Likely Solid Fault	Time drift of around 1 Hr was observed in RED relays at SM Nagar(TSECL),which needs to be addressed and it is to be time sync with GPS for proper analysis.
22	AGTCCPP Unit 2	NEEPCO	10-01-2022 05:15	10-01-2022 07:50	02:35:00	NEEPCO	Field Fail/ Trip	NA	NO	YES	YES	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	**DR Analysis from AGTCCPP Unit 2:** Fault Initiation Time Main I: 05:15:56.092 , CB Opening Time(in msec): 111 ,Fault Characteristics : Relay Indication Main1 - Field Fail/1 Trip ,Fault Current(in kA) : R=1.59,Y=1.66, B=1.65, Fault Voltage(in kV) : R=5.6,Y=5.6,B=5.5, Angle between(in degrees) : 47, Autorecloser Status : NA , CARRIER SENT : Not Available , Carrier Received : Not Available, DT Sent : Not Available, DT Received : Not Available Other Relevant Information : Tripped due to sudden low gas pressure alarm	Root Cause given by NERLDC: Tripped due to sudden low gas pressure alarm	Root cause and action taken report may be submitted by NEEPCO
23	AGTCCPP Unit 4	NEEPCO	10-01-2022 05:15	10-01-2022 11:54	06:39:00	NEEPCO	Field Fail/ Trip	NA	NO	YES	YES	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	**DR Analysis from AGTCCPP Unit 4:** Fault Initiation Time Main I: 05:15:55.031 , CB Opening Time(in msec): 118 ,Fault Characteristics : Relay Indication Main1 - Field Fail/1 Trip ,Fault Current(in kA) : R=1.65,Y=1.71, B=1.70, Fault Voltage(in kV) : R=5.5,Y=5.6,B=5.5, Angle between(in degrees) : 46, Autorecloser Status : NA , CARRIER SENT : Not Available , Carrier Received : Not Available, DT Sent : Not Available, DT Received : Not Available Other Relevant Information : Tripped due to sudden low gas pressure alarm	Root Cause given by NERLDC: Tripped due to sudden low gas pressure alarm	Root cause and action taken report may be submitted by NEEPCO
24	AGTCCPP Unit 1	NEEPCO	10-01-2022 05:15	10-01-2022 11:18	06:03:00	NEEPCO	Field Fail/ Trip	NA	NO	YES	YES	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	**DR Analysis from AGTCCPP Unit 1:** Fault Initiation Time Main I: 05:15:55.954 , CB Opening Time(in msec): 123 ,Fault Characteristics : Relay Indication Main1 - Field Fail/1 Trip ,Fault Current(in kA) : R=1.64,Y=1.71, B=1.71, Fault Voltage(in kV) : R=5.7,Y=5.7,B=5.6, Angle between(in degrees) : 47, Autorecloser Status : NA , CARRIER SENT : Not Available , Carrier Received : Not Available, DT Sent : Not Available, DT Received : Not Available Other Relevant Information : Tripped due to sudden low gas pressure alarm	Root Cause given by NERLDC: Tripped due to sudden low gas pressure alarm	Root cause and action taken report may be submitted by NEEPCO
25	Mouarchak Unit ST	NEEPCO	10-01-2022 05:16	10-01-2022 07:15	01:59:00	NEEPCO	Tripped due to Feild Failure	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Tripped due to Feild Failure	Root cause and action taken report may be submitted by NEEPCO
26	AGTCCPP Unit 6	NEEPCO	10-01-2022 05:16	13-01-2022 19:24	3.1+108:00	NEEPCO	Tripped due to non availability of GTG-3 & 4	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Loss of evacuation path	-
27	AGTCCPP Unit 5	NEEPCO	10-01-2022 05:16	10-01-2022 15:43	10:27:00	NEEPCO	Tripped due to non availability of GTG-1 & 2	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Loss of evacuation path	-
28	400 kV Alipurduar - Bongaigaon 1 Line	ENICL	12-01-2022 05:10	12-01-2022 09:23	04:13:00	ERTS	Over Voltage, R-Phase	NA	NO	NO	NO	NO	POWERGRID	DT received	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Bongaigaon:** Only CB Open was observed in the DR Output	Root Cause given by NERLDC: DT Received	DT Recieved
29	220 kV Agia - Azara Line	AEGCL	12-01-2022 12:07	12-01-2022 12:24	00:17:00	AEGCL	Not Furnished	NA	NO	NU	NU	NO	AEGCL	No Tripping	NA	YES	NA	NA	NA	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by AEGCL
30	132 kV Namsai - Teru Line	POWERGRID	13-01-2022 00:25	13-01-2022 00:30	00:05:00	POWERGRID	No Tripping	NA	NO	NA	NA	NA	POWERGRID	DP, ZI, Y-E	Operated Unsuccesfully	YES	YES	YES	NO	No SPS	**DR Analysis from Teru:** Fault Initiation Time Main I: 00:25:44.329 , CB Opening Time(in msec): 61, Fault Characteristics : Relay Indication Main1 - DP, ZI, Y-E, Fault Current(in kA) : Y=0.26,N=0.288, Fault Voltage(in kV) : Y=36,N=122 , Angle between(in degrees) : -44 , Autorecloser Status : Operated Unsuccesfully, CARRIER SENT : Yes , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Phys E fault. Tripped during inclement weather	As per Outage Report Shared by POWERGRID: Tripped during inclement weather over the region	It is requested to ensure that patrolling related activities are undertaken in Line with Clause no 23(2), 23(3) and 23(4) of CEA (Grid Standard) Regulation, 2010 on regular basis and also request that the patrolling report and remedial measures taken may be shared with NERPC & NERLDC
31	AGTCCPP Unit 6	NEEPCO	13-01-2022 19:26	13-01-2022 20:42	01:16:00	NEEPCO	AVR Faulty	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	AVR Faulty	Root cause and action taken report may be submitted by NEEPCO
32	132 kV South Comilla (Bangladesh) - Surajmani Nagar 1 Line	POWERGRID & PGCB	14-01-2022 22:05	14-01-2022 22:40	00:35:00	BANGLADESH	SPS-2 for Bangladesh operated	NA	NO	NO	NO	NO	POWERGRID	SPS carrier received	NA	YES	YES	YES	NO	SPS-2 operated	**DR Analysis from Surajmani Nagar:** SPS carrier received at 22:04:28.238 Hrs. Other Relevant Information: SPS-2 Operated at S.M.Nagar after tripping of 132 KV Palatana - S.M.Nagar	As per Outage Report Shared by POWERGRID: SPS-2 Operated at S.M.Nagar after tripping of 132 kV Palatana-Surajmaninagar Line	SPS-2 operation
33	132 kV South Comilla (Bangladesh) - Surajmani Nagar 2 Line	POWERGRID & PGCB	14-01-2022 22:05	14-01-2022 23:03	00:58:00	BANGLADESH	SPS-2 for Bangladesh operated	NA	NO	NO	NO	NO	POWERGRID	SPS carrier received	NA	YES	YES	YES	NO	SPS-2 operated	**DR Analysis from Surajmani Nagar:** SPS carrier received at 22:03:59.925 Hrs. Other Relevant Information: SPS-2 Operated at S.M.Nagar after tripping of 132 KV Palatana - S.M.Nagar	As per Outage Report Shared by POWERGRID: SPS-2 Operated at S.M.Nagar after tripping of 132 kV Palatana-Surajmaninagar Line	SPS-2 operated due to tripping of 132 kV Palatana-Surajmaninagar Line
34	132 kV Palatana- Surajmaninagar Line	POWERGRID	14-01-2022 22:05	14-01-2022 22:50	00:45:00	OTPC	DP, ZI, Y-E, FD: 24.26 Kms	Not Operated	YES	YES	NO	NO	POWERGRID	DP, ZI, Y-E, FD:3.7 Kms	Not Operated	YES	YES	YES	NO	SPS-2 operated	**DR Analysis from Palatana:** Fault Initiation Time Main I: 21:03:11.184 , CB Opening Time(in msec): 108 , Fault Characteristics : Relay Indication Main1 - DP, ZI, Y-E, FD: 24.26 Kms ,Fault Current(in kA) : Y=2.9,N=2, Fault Voltage(in kV) : Y=69.9~5 , Angle between(in degrees) : -37 , Autorecloser Status : Not Operated , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Phys E fault. Likely High resistive fault. **DR Analysis from Surajmaninagar :** Fault Initiation Time Main I : 22:04:33.820 , CB Opening Time(in msec): 75 , Fault Characteristics : Relay Indication Main1 - DP, ZI, Y-E, FD:3.7 Kms ,Fault Current(in kA) : Y=2.8,N=2.8, Fault Voltage(in kV) : Y=66.3~58 , Angle between(in degrees) : -6 , Autorecloser Status : Not Operated , CARRIER SENT : Yes , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Phys E fault. Likely High resistive fault.	Root Cause given by NERLDC: Likely High resistive fault.	It is requested to ensure that patrolling related activities are undertaken in Line with Clause no 23(2), 23(3) and 23(4) of CEA (Grid Standard) Regulation, 2010 on regular basis and also request that the patrolling report and remedial measures taken may be shared with NERPC & NERLDC
35	AGBPP Unit 2	NEEPCO	15-01-2022 16:04	15-01-2022 16:18	00:14:00	NEEPCO	Due to GCB trip	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Due to GCB trip	Root cause and action taken report may be submitted by NEEPCO
36	AGTCCPP Unit 5	NEEPCO	17-01-2022 11:16	17-01-2022 13:40	02:24:00	NEEPCO	Main stream pressure low low trip	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Main stream pressure low low trip	Root cause and action taken report may be submitted by NEEPCO
37	132 kV Aizawl - Kumarghat Line	POWERGRID	17-01-2022 12:40	18-01-2022 11:00	22:20:00	POWERGRID	DP, ZII R-E, FD: 76.3.3 m	Operated Unsuccesfully	YES	YES	YES	NO	POWERGRID	DP, ZII Started, carrier aided trip, Y-B, FD:135 kms	Operated Unsuccesfully	YES	YES	YES	NO	No SPS	**DR Analysis from Aizawl :** Fault Initiation Time Main I: 12:40:51.161 , CB Opening Time(in msec): 63 , Fault Characteristics : Relay Indication Main1 - DP, ZI, R-E, FD:764 Meters ,Fault Current(in kA) : B=3.5,N=3.1, Fault Voltage(in kV) : B=134.9 , Angle between(in degrees) : -52 , Autorecloser Status : Operated Unsuccesfully , CARRIER SENT : Yes , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Phys E Fault. Likely Vegetation fault. Remarks : As per FIR tripped due to felling of tree in between Loc No. 3~4 **DR Analysis from Kumarghat :** Fault Initiation Time Main I: 12:40:51.192 , CB Opening Time(in msec): 100 , Fault Characteristics : Relay Indication Main1 - DP, ZII, R-E, FD:107 Kms ,Fault Current(in kA) : B=0.776,N=0.804, Fault Voltage(in kV) : B=68.9~9 , Angle between(in degrees) : -71 , Autorecloser Status : Operated Unsuccesfully , CARRIER SENT : Yes , Carrier Received : Yes, DT Sent : No, DT Received : No Other Relevant Information : Phys E fault. Likley Vegetation fault.	As per Outage Report Shared by POWERGRID: Tree fell by miscreants in between LOC:03 - 04	Ala per DR analysis and FIR report submitted, fault was in 132 kV Aizwal-Kumarghat Line due to fallen of trees in between loc no. 03-04. ii.The tripping of healthy 132 kV Jiribam-Tipaimukh Line (Tipaimukh protection bypass due to non-availability of Transformer at Tipaimukh and now connection setting set at 132 kV Jiribam-Aizwal Line) at Jiribam on Carrier aided operation inferred to be mis-operation. iii.Continuous carrier signal received was observed from Jiribam end DR outputs. The PLCC protection channel needs to be checked thoroughly at Tipaimukh by MSPCL and Jiribam (PG) by NERTS and it is to be corrected earliest to avoid UNWANTED tripping in future. Therefore, it is requested to check the above points and corrective measures taken may be shared to NERPC & NERLDC.
38	132 kV Jiribam - Tipaimukh Line	POWERGRID & MSPCL	17-01-2022 12:40	17-01-2022 13:41	01:01:00	POWERGRID	DP, ZII Started, V-B, carrier aided trip, FD:173 kms	NA	YES	YES	YES	NO	MSPCL	No Tripping	NA	YES	NA	NA	NA	No SPS	**DR Analysis from Jiribam:** Fault Initiation Time Main I: 12:40:49.482 CB Opening Time(in msec): 90, Fault Characteristics : Relay Indication Main1 - DP, ZII Started, V-B, carrier aided trip, FD:173 kms , Fault Current(in kA) : Y=0.584,B=0.560, Fault Voltage(in kV) : Y=62,B=62, Angle between(in degrees) : -179, Autorecloser Status : NA, CARRIER SENT : No, Carrier Received : Yes, DT Sent : No, DT Received : No Other Relevant Information : Protection at Tipaimukh SS is out of service as per NERPC instruction. Line is connected directly between Jiribam & Aizwal	As per Outage Report Shared by POWERGRID: Tipaimukh SS is out of service as per NERPC instruction. Line is connected directly between Jiribam & Aizwal	
39	132 kV Panchgram - Lumshnong Line	AEGCL & MePTCL	18-01-2022 07:09	18-01-2022 12:54	05:45:00	AEGCL	No Tripping	NA	YES	NA	NA	NA	MePTCL	Broken Conductor Trip	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Lumshnong:** Broken Conductor Trip at 07:07:08.720 Hrs. Other Relevant Information: The line tripped due to broken Y Phase jumper at 31.5 Kms from Lumshnong in the Assam end of the line.	Root Cause given by NERLDC: Broken Conductor	Y Phase jumper at 31.5 Kms from Lumshnong in the Assam end of the line.
40	132kV Khleriat(ME) - Lumshnong Line	MePTCL	18-01-2022 07:09	18-01-2022 07:24	00:15:00	MePTCL	Broken Conductor Trip	NA	YES	YES	YES	NO	MePTCL	Broken Conductor Trip	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Khleriat(ME):** Broken Conductor Trip at 07:00:44.304 Hrs. Other Relevant Information: The line tripped with broken conductor indication. The real fault was on 132 kV Panchgram - Lumshnong Line **DR Analysis from Lumshnong:** Broken Conductor Trip at 07:02:45.800 Hrs. Other Relevant Information: The line tripped with broken conductor indication. The real fault was on 132 kV Panchgram - Lumshnong Line	Root Cause given by NERLDC: Broken Conductor	Y Phase jumper at 31.5 Kms from Lumshnong in the Assam end of the line. in 132 kV Panchgram - Lumshnong Line Remarks : AEGCL jurisdiction 337 to 430 (jumper snap in AEGCL jurisdiction as reported) Thorough line patrolling going on. As line is very old, reconductoring works of a portion has started. Regarding broken conductor trip setting at Lumshnong, it's under discussion with higher authority as reported. MRT MEPTCL team will visit Lumshnong side to take necessary action.
41	132kV Khleriat(ME) - Lumshnong Line	MePTCL	18-01-2022 08:03	18-01-2022 08:16	00:13:00	MePTCL	Broken Conductor Trip	NA	YES	NA	YES	NO	MePTCL	Broken Conductor Trip	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Lumshnong:** Broken Conductor Trip at 07:57:17.139 Hrs. Other Relevant Information: On test charged of the 132 kV Panchgram - Lumshnong Line at 8:03 hrs, the line tripped with broken conductor trip indication.	Root Cause given by NERLDC: Broken Conductor	Regarding broken conductor trip setting at Lumshnong, it's under discussion with higher authority as reported. MRT MEPTCL team will visit Lumshnong side to take necessary action.
42	132 kV Jiribam(PG) - Reoguang Line	MSPCL	18-01-2022 15:18	18-01-2022 16:07	00:49:00	MSPCL	No Tripping	NA	NO	NA	NA	NA	MSPCL	Earth Fault	NA	YES	NU	NO	NO	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by MSPCL
43	132 kV Loktak - Ningtang Line	MSPCL	18-01-2022 15:18	18-01-2022 15:20	00:11:00	NHPC	No Tripping	NA	YES	NA	NA	NA	MSPCL	CB Tripped but no indication	NA	YES	NU	NO	NO	No SPS	No DR & EL outputs submitted	Root cause not concluded	As per FIR from Loktak end, Other end broker tripped
44	20 MVA, 132/33 kV ICT at Jiribam (MSPCL)	MSPCL	19-01-2022 04:33	19-01-2022 07:04	02:31:00	MSPCL	Overcurrent, Y-ph	NA	YES	NU	NO	NO	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by NEEPCO

Root Cause and Remedial Measures for the Date 01-January-2022 to 31-January-2022

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAYINDICATION_A	AR_A	SEND_FR	SEND_DR	SEND_EL	SEND_TRIPPINGREPORT	RENDOWNER	RELAYINDICATION_B	AR_B	REND_FR	REND_DR	REND_EL	REND_TRIPPINGREPORT	SPS_OPERATION	DR Analysis	Root Cause	Remedial Measures
45	132 kV Panchgram - Lumshnong Line	AEGCL & MePTCL	20-01-2022 16:07	20-01-2022 22:26	06:19:00	AEGCL	DP, ZI Y-B, FD: 14 km	NA	YES	YES	YES	NO	MePTCL	DP, ZI Y-B, FD: 36.98 km	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Panchgram:** Fault Initiation Time Main I : 16:07:30.175 , CB Opening Time(in msec): 62 , Fault Characteristics : Relay Indication Main1- DP, ZI Y-B, FD: 14 km ,Fault Current(in kA) : Y=5.07,B=4.88, Fault Voltage(in kV) : Y=49,B=47 , Angle between(in degrees) : -179 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Bph jumper snap at Location 380 and Yph jumper snap at Location 405 **DR Analysis from Lumshnong:** Fault Initiation Time Main I : 16:06:05.066 , CB Opening Time(in msec): 66 , Fault Characteristics : Relay Indication Main1- DP, ZI Y-B, FD: 36.98 km ,Fault Current(in kA) : Y=1.39,B=1.57, Fault Voltage(in kV) : Y=46,B=40 , Angle between(in degrees) : -179 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Bph jumper snap at Location 380 and Yph jumper snap at Location 405 in 132 kV Panchgram - Lumshnong Line	Root Cause given by NERLDC: Broken Conductor	Bph jumper snap at Location 380 and Yph jumper snap at Location 405 in 132 kV Panchgram - Lumshnong Line Remarks : AEGCL jurisdiction: 337 to 430 (jumper snap in AEGCL jurisdiction as reported) Thorough line patrolling going on. As line is very old, reconductoring works of a portion has started. Regarding broken conductor trip setting at Lumshnong, it's under discussion with higher authority as reported. MRT MEPTCL team will visit Lumshnong side to take necessary action.
46	132kV Khleiriat(ME) - Lumshong Line	MePTCL	20-01-2022 16:30	20-01-2022 16:38	00:08:00	MePTCL	Broken Conductor Trip	NA	YES	YES	YES	NO	MePTCL	Broken Conductor Trip	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Khleiriat(ME):** Fault Initiation Time Main I : 15:27:31.870 , CB Opening Time(in msec): 48 , Fault Characteristics : Relay Indication Main1- Broken Conductor Trip ,Fault Current(in kA) : Y=0.025,B=0.098, Fault Voltage(in kV) : Y=73,B=74 , Angle between(in degrees) : -42 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Due to Bph jumper snap at Location 380 and Yph jumper snap at Location 405 in 132 kV Panchgram - Lumshnong Line **DR Analysis from Lumshong**: Fault Initiation Time Main I : 16:24:02.871 , CB Opening Time(in msec): 38 , Fault Characteristics : Relay Indication Main1- Broken Conductor Trip ,Fault Current(in kA) : R=0.064,Y=0.025,B=0.099, Fault Voltage(in kV) : R=73,Y=74,B=73 , Angle between(in degrees) : -24 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Due to Bph jumper snap at Location 380 and Yph jumper snap at Location 405 in 132 kV Panchgram - Lumshnong Line	Root Cause given by NERLDC: Conductor Snapping	Bph jumper snap at Location 380 and Yph jumper snap at Location 405 in 132 kV Panchgram - Lumshnong Line Remarks : AEGCL jurisdiction: 337 to 430 (jumper snap in AEGCL jurisdiction as reported) Thorough line patrolling going on. As line is very old, reconductoring works of a portion has started. Regarding broken conductor trip setting at Lumshnong, it's under discussion with higher authority as reported. MRT MEPTCL team will visit Lumshnong side to take necessary action.
47	132 kV Silchar - Srikona 2 Line	POWERGRID	20-01-2022 16:58	20-01-2022 17:20	00:22:00	POWERGRID	No Tripping	NA	YES	NA	NA	NA	AEGCL	Over Current	NA	YES	NO	NO	NO	No SPS	**DR Analysis from Silchar:** No tripping **DR Analysis from Srikona:** Fault Initiation : could not be identified, CB Opening Time(in msec): could not be identified , Fault Characteristics :Master trip operated ,Fault Current(in kA) : R=1.5,Y=1.4, Fault Voltage(in kV) : R=66,Y=74,B=64 , Angle between(in degrees) : NA , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : There was never any DC earth fault persisting at Srikona GSS as reported by AEGCL. The relay issued a trip on R-Y phase overcurrent.	As per Outage Report Shared by POWERGRID: Tripped due to suspected persisting DC earth fault at Srikona (AEGCL) end.	
48	132 kV Jiribam - Pailapool Line	AEGCL	20-01-2022 16:58	20-01-2022 17:31	00:33:00	POWERGRID	DP, ZI, R-Y, FD: 2.5 kms	NA	YES	YES	YES	NO	AEGCL	DP, ZI, R-Y, FD: 11.4 kms	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Jiribam**: Fault Initiation Time Main I : 16:57:33.440, CB Opening Time(in msec): 70, Fault Characteristics : Relay Indication Main1- DP, ZI, R-Y, FD: 2.5 kms , Fault Current(in kA) :R=4.05,Y=4.06, Fault Voltage(in kV) : Y=43,B=32, Angle between(in degrees) : -179, Autorecloser Status : NA, CARRIER SENT : No, Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information :Ph to Ph fault. Likely lightning fault. **DR Analysis from Pailapool:** Fault Initiation Time Main I : 16:57:33.473, CB Opening Time(in msec): 111, Fault Characteristics : Relay Indication Main1- DP, ZI, R-Y, FD: 11.4 kms , Fault Current(in kA) :R=2.74,Y=2.69, Fault Voltage(in kV) : Y=43,B=35, Angle between(in degrees) : -179, Autorecloser Status : NA, CARRIER SENT : No, Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information :Ph to Ph fault. Likely lightning fault.	Root Cause given by NERLDC: Likely Lightning fault	It is requested to ensure that patrolling related activities are undertaken in Line with Clause no 23(2), 23(3) and 23(4) of CEA (Grid Standard) Regulation, 2010 on regular basis and also request that the patrolling report and remedial measures taken may be shared with NERPC & NERLDC
49	132 kV Imphal (MSPCL) - Karong Line	MSPCL	20-01-2022 20:07	20-01-2022 20:31	00:24:00	MSPCL	No Tripping	NA	YES	NU	NA	NA	MSPCL	CB Tripped but no indication	NA	YES	NU	NO	NO	No SPS	No DR & EL outputs submitted	Root Cause given by NERLDC: Relay Maloperation	i)The Ph to E fault was in 132 kV Kohima - Meluri Line and fault was cleared delayed on operation of B/U EF protection at Kohima within 480 msec Distance protection failed to operate from Kohima end for Meluri line which needs to be checked for healthiness by DoP Nagaland. ii)Same fault was also sense by the B/U relay at Karong for Kohima Line and clears within 364 msec as per setting at Kohima for Melurie Line. The B/U setting at Kohima for Melurie seems to be high. The B/U setting is reviewed by NERLDC team and proposed herewith for further incorporation after necessary approval from NERPC by DoP Nagaland to prevent delayed clearance issue. iii)The tripping of 132 kV Yurembum line at Karong on B/U protection for REVERSE fault inferred to be mis-operation. Therefore, it is requested to check/test the B/U relay at Karong immediately by MSPCL team to prevent unwanted blackout at Karong area of Manipur Power System. iv)Also, as per DR of Karong for Kohima, B-Ph fault as per current magnitude whereas voltage dips in R-Ph instead B-Ph. Same needs to be attended by MSPCL team.
50	132 kV Karong - Kohima Line	MSPCL & DoP, Nagaland	20-01-2022 20:07	20-01-2022 21:32	01:25:00	MSPCL	Earth Fault	NA	YES	YES	YES	NO	DoP, Nagaland	No Tripping	NA	YES	NU	NA	NA	No SPS	**DR Analysis from Karong:** Fault Initiation Time Main I : 20:07:17.253, CB Opening Time(in msec): 458, Fault Characteristics : Relay Indication Main1- Earth Fault , Fault Current(in kA) :R= 0.100 ,B=0.637,N=0.581, Fault Voltage(in kV) : R=49,B=78,N=51, Angle between(in degrees) : -65, Autorecloser Status : NA, CARRIER SENT : No, Carrier Received : No, DT Sent : No, DT Received : No	Root Cause given by NERLDC: Fault Beyond Line/Downstream Fault	
51	132 kV Kohima - Meluri Line	DoP, Nagaland	20-01-2022 20:07	20-01-2022 20:42	00:35:00	DoP, Nagaland	Earth Fault	NA	YES	NU	NO	NO	DoP, Nagaland	Earth Fault	NA	YES	NU	NO	NO	No SPS	No DR & EL outputs submitted	Root Cause given by NERLDC: Earth Fault	
52	132kV Khleiriat(ME) - Lumshong Line	MePTCL	20-01-2022 23:47	21-01-2022 01:03	01:16:00	MePTCL	Overcurrent	NA	NO	YES	YES	NO	MePTCL	Earth Fault	NA	NO	YES	YES	NO	No SPS	**DR Analysis from Khleiriat(ME):** Fault Initiation Time Main I :22:59:02.345, CB Opening Time(in msec): 116, Fault Characteristics : Relay Indication Main1- Overcurrent , Fault Current(in kA) :Y=2.05,N=1.63, Fault Voltage(in kV) : Y=52,N=0.993 Angle between(in degrees) : -71, Autorecloser Status : NA, CARRIER SENT : No, Carrier Received : No, DT Sent : No, DT Received : No **DR Analysis from Lumshong:** Only VT Fail Alarm observed in submitted DR output	Root Cause given by NERLDC: Earth Fault	
53	132 kV Jiribam(MSPCL) - Rengpang Line	MSPCL	21-01-2022 12:14	21-01-2022 13:50	01:36:00	MSPCL	Earth Fault	NA	YES	NO	NO	NO	MSPCL	Overcurrent	NA	YES	NO	NO	NO	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by MSPCL
54	132 kV Jiribam(PG) - Jiribam(MSPCL) Line	MSPCL	21-01-2022 12:14	21-01-2022 13:37	01:23:00	POWERGRID	No Tripping	NA	YES	NA	NA	NA	MSPCL	Over Current	NA	YES	NO	NO	NO	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by MSPCL
55	132 kV Ambassa (TSECL) - P K Bari (Sterlite Power) Line	TSECL	22-01-2022 14:12	22-01-2022 14:53	00:41:00	TSECL	DP, ZI, R-B-E, FD:27.28KM	NA	NO	NO	NO	NO	NTL	DP, ZII, R-B, FD:27.28 Kms	NA	YES	YES	YES	NO	No SPS	**DR Analysis from P K Bari (Sterlite Power):** Fault Initiation Time Main I : 14:12:39.949 , CB Opening Time(in msec): 70 , Fault Characteristics : Relay Indication Main1- DP, ZII, R-B, FD:27.28 Kms ,Fault Current(in kA) : R=3.8,B=3.8, Fault Voltage(in kV) : R=52,B=52 , Angle between(in degrees) : 180 , Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Ph to Ph fault. Solid fault. Remarks : No involvement of ground current. There may be conductor clearance issues.	Root Cause given by NERLDC: Likely Solid Fault	There may be conductor clearance issues.
56	Loktak Unit 2	NHPC	23-01-2022 06:15	23-01-2022 08:11	01:56:00	NHPC	Electric Lock Out Trip	NA	YES	YES	NO	NO	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	**DR Analysis from Loktak Unit 2:** Fault Initiation Time Main I : 06:15:41.670 , CB Opening Time(in msec): 3000 , Fault Characteristics : Relay Indication Main1- Over Current ,Fault Current(in kA) : R=2.36,Y=2.36,B=2.36, Fault Voltage(in kV) : R=5.5,Y=5.5,B=5.5 , Angle between(in degrees) : 31 , Autorecloser Status : NA , CARRIER SENT : Not Available , Carrier Received : Not Available, DT Sent : Not Available, DT Received : Not Available Other Relevant Information : Tripped on Overcurrent stage-1. Terminal voltage seems low.	Root Cause given by NERLDC: Over Current	Tripped on Overcurrent with current magnitude of 2357A. As per setting stage-1 2350A
57	132 kV Imphal (MSPCL) - Imphal (PG) 1 Line	POWERGRID	24-01-2022 06:55	24-01-2022 07:23	00:28:00	MSPCL	No Tripping	NA	YES	NU	NU	NA	POWERGRID	Earth Fault	NA	YES	YES	YES	NO	No SPS	**DR Analysis from Imphal (PG):** Fault Initiation Time Main I : 06:55:46.863 , CB Opening Time(in msec): 191 , Fault Characteristics : Relay Indication Main1- Earth Fault ,Fault Current(in kA) : B=1.25,N=1.32, Fault Voltage(in kV) : B=55, Angle between(in degrees) : -67, Autorecloser Status : NA , CARRIER SENT : No , Carrier Received : Not Available, DT Sent : No, DT Received : No Other Relevant Information : Tripped due to downstream fault.	As per Outage Report Shared by POWERGRID: Line tripped due to downstream fault in 132 kV Imphal (MSPCL) - Yaingangpokpi 2 Line	Tripped due to downstream fault.
58	132 kV Imphal (MSPCL) - Yaingangpokpi 2 Line	MSPCL	24-01-2022 06:55	24-01-2022 07:30	00:35:00	MSPCL	DP, ZII, B-E, FD:46.99	Not Operated	YES	YES	YES	NO	MSPCL	Overcurrent	NA	YES	NU	NU	NO	No SPS	**DR Analysis from Imphal (MSPCL) :** Fault Initiation Time Main I : 06:41:46.731 , CB Opening Time(in msec): 200 , Fault Characteristics : Relay Indication Main1- DP, ZII, B-E, FD:46.99 ,Fault Current(in kA) : B=3.1,N=3.3, Fault Voltage(in kV) : B=53,N=20 , Angle between(in degrees) : -70 , Autorecloser Status : Not Operated , CARRIER SENT : No , Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information : Ph to E fault. Likely Solid fault near Yangangpokpi SS	Root Cause given by NERLDC: Likely Solid Fault	Root cause and action taken may be shared by MSPCL
59	132 kV Jiribam(MSPCL) - Rengpang Line	MSPCL	24-01-2022 14:26	02-02-2022 08:15	8.17:49:00	MSPCL	No Tripping	NA	NO	NA	NA	NA	MSPCL	Earth Fault	NA	NO	NO	NO	NO	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by MSPCL
60	220 kV Samaguri - Sonapur Line	AEGCL	25-01-2022 06:15	25-01-2022 06:22	00:07:00	AEGCL	DP, ZI, R-E, FD: 46.2 kms	Not Operated	YES	YES	YES	NO	AEGCL	DP, ZI, R-E, FD: 43.3 kms	Not Operated	YES	YES	YES	NO	No SPS	**DR Analysis from Samaguri :** Fault Initiation Time Main I :06:15:34.718, CB Opening Time(in msec): 64, Fault Characteristics : Relay Indication Main1- DP, ZI, R-E, FD: 46.2 kmst , Fault Current(in kA) :R=2.73,N=2.56, Fault Voltage(in kV) : Y=87,N=35, Angle between(in degrees) : -73, Autorecloser Status : Not Operated, CARRIER SENT : Yes, Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information :Ph to E fault. AR Not Operated **DR Analysis from Sonapur:** Fault Initiation Time Main I :06:15:34.729, CB Opening Time(in msec): 49, Fault Characteristics : Relay Indication Main1- DP, ZI, R-E, FD: 43.3 kms, Fault Current(in kA) :R=1.91, Fault Voltage(in kV) : R=61,Angle between(in degrees) : -75, Autorecloser Status : Not Operated, CARRIER SENT : No, Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information :Ph to E fault. AR Not Operated	Root Cause given by NERLDC: Likely Solid Fault	AR needs to be checked
61	132 kV Along - Pasighat Line	DoP, Arunachal Pradesh	25-01-2022 18:10	25-01-2022 19:32	01:22:00	DoP, Arunachal Pradesh	CB Tripped but no indication	NA	NO	NO	NO	NO	DoP, Arunachal Pradesh	Loss of Voltage	NA	NO	NA	NA	NA	No SPS	No DR & EL outputs submitted	Root cause not concluded	Root cause and action taken report may be submitted by DoP, Arunachal Pradesh
62	AGBPP Unit 6	NEEPCO	26-01-2022 02:28	26-01-2022 02:42	00:14:00	NEEPCO	Steam Pressure Low	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Steam Pressure Low	Root cause and action taken report may be submitted by NEEPCO
63	AGBPP Unit 2	NEEPCO	26-01-2022 03:39	26-01-2022 05:17	01:38:00	NEEPCO	Gas Compressor 1 tripped	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Gas Compressor 1 tripped	Root cause and action taken report may be submitted by NEEPCO
64	AGBPP Unit 2	NEEPCO	26-01-2022 14:49	26-01-2022 15:53	01:04:00	NEEPCO	Gas Compressor 1 tripped	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Gas Compressor 1 tripped	Root cause and action taken report may be submitted by NEEPCO
65	132 kV Roing - Pasighat Line	POWERGRID	27-01-2022 03:01	27-01-2022 03:46	00:45:00	POWERGRID	No Tripping	NA	YES	YES	YES	NA	POWERGRID	DP, ZI, R-B	NA	NO	YES	NO	NO	No SPS	**DR Analysis from Pasighat:** Only SOTF Main TBC CB at 03:34:58.192 hrs observed in the submitted DR output	As per Outage Report Shared by POWERGRID: Inclement weather condition at the time of tripping.	It is requested to ensure that patrolling related activities are undertaken in Line with Clause no 23(2), 23(3) and 23(4) of CEA (Grid Standard) Regulation, 2010 on regular basis and also request that the patrolling report and remedial measures taken may be shared with NERPC & NERLDC

Root Cause and Remedial Measures for the Date 01-January-2022 to 31-January-2022

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAYINDICATION_A	AR_A	SEND_FR	SEND_DR	SEND_EL	SEND_TRIPPINGREPORT	RENDOWNER	RELAYINDICATION_B	AR_B	REND_FR	REND_DR	REND_EL	REND_TRIPPINGREPORT	SPS_OPERATION	DR Analysis	Root Cause	Remedial Measures
66	132 kV Dimapur (PG) - Kohima Line	POWERGRID & DoP, Nagaland	27-01-2022 17:46	27-01-2022 18:17	00:31:00	POWERGRID	DP, ZI, B-E, FD: 35.29 kms	Not Operated	YES	YES	YES	NO	DoP, Nagaland	DP, ZI, B-E, FD: 21.59 kms	Not Operated	YES	YES	YES	NO	No SPS	**DR Analysis from Dimapur (PG) :** Fault Initiation Time Main I: 17:44:01.753, CB Opening Time(in msec): 73, Fault Characteristics : Relay Indication Main1-DP, ZI, B-E, FD: 35.29 kms, , Fault Current(in kA): IR=1.83, Fault Voltage(in kV): IR=55, Angle between(in degrees) : -88, Autorecloser Status : Not Operated, CARRIER SENT: No, Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information :Pb to E fault. AR Not Operated. Likely Vegetation fault **DR Analysis from Kohima :** Fault Initiation Time Main I: 17:39:58.774, CB Opening Time(in msec): 71, Fault Characteristics : Relay Indication Main1-DP, ZI, B-E, FD: 21.59 kms, Fault Current(in kA): IR=1.14,N=1.12, Fault Voltage(in kV) : IR=34, N=55, Angle between(in degrees) : -33, Autorecloser Status : Not Operated, CARRIER SENT: Yes, Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information :Pb to E fault. AR Not Operated. Likely Vegetation fault	Root Cause given by POWERGRID: Line jurisdiction of POWERGRID on 132 KV Dimapur-Kohima TL is 0.347 KM. As fault occurred at a distance of 35.29 Km, so it is outside POWERGRID jurisdiction.	It is requested to ensure that patrolling related activities are undertaken in Line with Clause no- 23(2), 23(3) and 23(4) of CEA (Grid Standard) Regulation, 2010 on regular basis and also request that the patrolling report and remedial measures taken may be shared with NERPC & NERLDC
67	AGBPP Unit 2	NEEPCO	28-01-2022 06:47	28-01-2022 08:13	01:26:00	NEEPCO	Gas Compressor 1 tripped	NA	NO	NA	NA	NA	NIL	Not Applicable	NA	NA	NA	NA	NA	No SPS	No DR & EL outputs submitted	Gas Compressor 1 tripped	Root cause and action taken report may be submitted by NEEPCO
68	220 kV Agia - BTPS 1 Line	AEGCL	29-01-2022 13:18	29-01-2022 13:30	00:12:00	AEGCL	DP, ZI, B-E,FD: 38.3 kms	Not Operated	YES	NU	NU	NO	AEGCL	DP, ZI, B-E,FD: 69 kms	Not Operated	YES	YES	YES	NO	No SPS	**DR Analysis from BTPS :** Fault Initiation Time Main I :13:18:00.225, CB Opening Time(in msec): 196, Fault Characteristics : Relay Indication Main1-DP, ZI, B-E,FD: 69 kms , Fault Current(in kA): IR=1.87, Fault Voltage(in kV) :IR=122, Angle between(in degrees) : -24, Autorecloser Status : Not Operated, CARRIER SENT : No, Carrier Received : No, DT Sent : No, DT Received : No Other Relevant Information :Pb to E fault. AR Not Operated. Likely Vegetation fault	Root Cause given by NERLDC: Likely Vegetation Fault	AR needs to be checked
69	132 kV Melriat(PG) - Zuangtui Line	POWERGRID	31-01-2022 07:32	31-01-2022 13:47	06:15:00	POWERGRID	DP, ZI, B-E, FD: 8.934 Kms	Operated Unsuccessfully	YES	YES	YES	NO	P&ED, Mizoram	132kV incoming CB burnt at Zuantui	NA	NO	NO	NO	NO	No SPS	**DR Analysis from Melriat(PG):** Fault Initiation Time Main I : 07:32:51.965, CB Opening Time(in msec): 71, Fault Characteristics : Relay Indication Main1- DP, ZI, B-E, FD: 8.934 Kms , Fault Current(in kA) : IR=2.076,N=2.078, Fault Voltage(in kV) : Y=31,N=75, Angle between(in degrees) : -61, Autorecloser Status : Operated Unsuccessfully, CARRIER SENT: Yes, Carrier Received : No, DT Sent : Yes, DT Received : No Other Relevant Information : As per FIR, Tripped due to burning of B-Ph CB at state end	As per Outage Report Shared by POWERGRID: Line tripped due to failure of B- Ph CB at Zemabawk state end.	132 kV Melriat (PG)- Zuangtui Line tripped at 07:32 Hrs on dated 31st Jan'22 due to bursting of B-Pole Circuit Breaker at Zuantui Substation. As the switching scheme of 132 kV Zuangtui Sub Station is Main and Transfer Scheme, therefore the said line was charged through Transfer Bus at 13:47 Hrs of 31-01-2022 and smoothly carrying power from Melriat (PG) till date. Early restoration of Main Bay Circuit Breaker would ensure the safe and secure operation of Zuangtui area of Mizoram Power System in case of contingency arises in another bay. Therefore, it is requested to kindly expedite the restoration of damaged B-Pole CB at the earliest.