

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

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAINDICATION_A	AL_A	SENSE_A	SENSE_B	SENSE_C	SENSE_DIRECTION	SENDOWNER	RELAINDICATION_B	AL_B	SENSE_B	SENSE_C	SENSE_DIRECTION	STATUS	DB Analysis	Root Cause	Remedial Measures
1	132 kV Charging, Maharashtra (DrP) Nagpada Line	DrP, Nagpada	01-05-2022 01:13	01-05-2022 01:30	01:17:00	NERPCO	No Tripping	NA	YES	NA	NA	YES	DrP, Nagpada	Earth Fault	NA	YES	YES	YES	NO	DB Analysis from Maharashtra (DrP, Nagpada): Fault Initiation Time Main 1: 01:13:18.03; CR Opening Time msec: 126; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Likely lightning fault.	Root Cause given by NERDC: Likely Lightning Fault	It is requested to ensure that pending related activities are undertaken in line with Clause 4 (2)(f), 2002 and 2002 of CIA-S&P (Spinning Regulation, 2002 on right hand side and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC.
2	132 kV Panchgani - Lumbhong Line	ASGL & MAPCL	01-05-2022 03:51	01-05-2022 04:28	00:37:00	ASGL	DP, 2, 4, 6, FO: 4.7 kms	NA	NO	YES	YES	NO	MAPCL	DP, 2, 4, 6, FO: 46.1 kms	NA	YES	YES	YES	NO	DB Analysis from Panchgani: Fault Initiation Time Main 1: 03:51:27.07; CR Opening Time msec: 230; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Likely lightning fault.	Root Cause given by NERDC: Likely Lightning Fault	It is requested to ensure that pending related activities are undertaken in line with Clause 4 (2)(f), 2002 and 2002 of CIA-S&P (Spinning Regulation, 2002 on right hand side and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC.
3	132 kV Pellagpur - Sirsola Line	ASGL	01-05-2022 06:37	01-05-2022 14:05	07:28:00	ASGL	DP, 2, 4, 6	NA	NO	YES	YES	NO	ASGL	DP, 2, 4, 6, FO: 13.1 kms	NA	NO	YES	NO	NO	DB Analysis from Pellagpur: Fault Initiation Time Main 1: 06:37:00.72; CR Opening Time msec: 58; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Likely solid fault.	Root cause and action taken report may be submitted by ASGL.	
4	132 kV Waring - Mohina Line	MSPL & DrP, Nagpada	01-05-2022 00:33	01-05-2022 01:05	00:32:00	MSPL	Over Current	NA	YES	YES	YES	NO	DrP, Nagpada	DP, 2, 4, 6, FO: 28.15 kms	NA	YES	YES	YES	NO	DB Analysis from Waring: Fault Initiation Time Main 1: 00:33:08.28; CR Opening Time msec: 80; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Fault Beyond Line/Downstream Fault.	Root Cause given by NERDC: Fault Beyond Line/Downstream Fault	It is requested to ensure that pending related activities are undertaken in line with Clause 4 (2)(f), 2002 and 2002 of CIA-S&P (Spinning Regulation, 2002 on right hand side and also request that the pending report and remedial measures taken may be shared with MSPL & NERDC.
5	132 kV Imphar (MSPL) - Kestang Line	MSPL	02-05-2022 00:33	01-05-2022 00:44	00:11:00	MSPL	Over Current	NA	YES	YES	YES	NO	MSPL	Earth Fault	NA	YES	NO	NO	NO	DB Analysis from Imphar (MSPL): Fault Initiation Time Main 1: 02:00:49.75; CR Opening Time msec: 112; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Fault Beyond Line/Downstream Fault.	Root Cause given by NERDC: Fault Beyond Line/Downstream Fault	It is requested to ensure that pending related activities are undertaken in line with Clause 4 (2)(f), 2002 and 2002 of CIA-S&P (Spinning Regulation, 2002 on right hand side and also request that the pending report and remedial measures taken may be shared with MSPL & NERDC.
6	132 kV Nighatkhond - Churghander 4 Line	MSPL	02-05-2022 01:38	02-05-2022 01:26	02:47:30	MSPL	DP, 2, 1, 4	NA	YES	YES	YES	NO	MSPL	Earth Fault	NA	YES	NO	NO	NO	DB Analysis from Nighatkhond: Fault Initiation Time Main 1: 02:40:12.20; CR Opening Time msec: 77; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Likely solid fault.	Root Cause given by NERDC: Likely Solid Fault	Root cause and action taken report may be submitted by MSPL.
7	132 kV Pellagpur - Sirsola Line	ASGL	02-05-2022 04:31	01-05-2022 01:38	11:07:00	ASGL	DP, 2, 4, 6, FO: 18.8 kms	NA	NO	YES	YES	NO	ASGL	DP, 2, 4, 6, FO: 13.2 kms	NA	NO	YES	NO	NO	DB Analysis from Pellagpur: Fault Initiation Time Main 1: 04:31:31.81; CR Opening Time msec: 68; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Likely solid fault.	Root Cause given by NERDC: Likely Solid Fault	Root cause and action taken report may be submitted by ASGL.
8	132 kV Badapur - Jimbina Line	POWERGRID	02-05-2022 04:12	01-05-2022 01:31	00:00:00	POWERGRID	DP, 2, 4, 6	Operated Successfully	YES	YES	YES	NO	POWERGRID	DP, 2, 4, 6	Operated Successfully	YES	YES	NO	NO	All Operated successfully from both ends.	Tripping Fault	All successful
9	Kestang Line 4	NERPCO	02-05-2022 04:41	02-05-2022 05:20	01:39:00	NERPCO	Tripped due to rotor winding temperature NPL Relay Malfunction	NA	NO	NA	NO	YES	NA	Not Applicable	NA	NA	NA	NA	NA	No DB & 4 output submitted.	Root Cause given by NERDC: Relay Malfunction	Root cause and action taken report may be submitted by NERPCO.
10	132 kV Panchgani - Lumbhong Line	ASGL & MAPCL	02-05-2022 05:29	01-05-2022 05:45	00:16:00	ASGL	DP, 2, 4, 6, FO: 38.1 kms	NA	NO	YES	YES	NO	MAPCL	DP, 2, 4, 6, FO: 13.2 kms	NA	YES	YES	YES	NO	DB Analysis from Panchgani: Fault Initiation Time Main 1: 02:39:38.57; CR Opening Time msec: 60; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Likely solid fault.	Root Cause given by NERDC: Likely Solid Fault	Root cause and action taken report may be submitted by ASGL & MAPCL.
11	400 kV P & B Bus - Siltar 1 Line	POWERGRID	02-05-2022 05:33	02-05-2022 05:33	00:00:00	NPL	DP, 2, 4, 6	Operated Successfully	YES	YES	YES	YES	POWERGRID	DP, 2, 1, 4	Operated Successfully	YES	YES	YES	NO	All Operated successfully from both ends.	Tripping Fault	All successful
12	400 kV Bymahal - Siltar Line	NPLC & MAPCL	02-05-2022 05:35	01-05-2022 05:35	00:00:00	MAPCL	DP, 2, 1, 4	Operated Successfully	YES	YES	YES	NO	POWERGRID	DP, 2, 1, 4	Operated Successfully	YES	YES	NO	NO	All Operated successfully from both ends.	Tripping Fault	All successful
13	132 kV Aswar - Kumbhong Line	POWERGRID	02-05-2022 06:33	02-05-2022 06:30	00:00:00	POWERGRID	DP, 2, 4, 6	Operated Successfully	YES	YES	NO	NO	POWERGRID	DP, 2, 1, 4	Operated Successfully	YES	YES	NO	NO	All Operated successfully from both ends.	Tripping Fault	All successful
14	400 kV P & B Bus - Siltar 2 Line	POWERGRID	02-05-2022 07:13	02-05-2022 07:13	00:00:00	NPL	DP, 2, 1, 4	Operated Successfully	YES	YES	YES	YES	POWERGRID	DP, 2, 1, 4	Operated Successfully	YES	YES	YES	NO	All Operated successfully from both ends.	Tripping Fault	All successful
15	132 kV Hatling - Umranola Line	POWERGRID	02-05-2022 08:40	01-05-2022 09:08	00:28:00	POWERGRID	No Tripping	NA	YES	NA	NA	NA	ASGL	DP, 2, 1, 4	NA	YES	NO	NO	NO	DB Analysis from Umranola: Fault Initiation Time Main 1: 08:25:07.78; CR Opening Time msec: 42; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Fault Beyond Line/Downstream Fault.	Root Cause given by NERDC: Fault Beyond Line/Downstream Fault	As per Change Report shared by POWERGRID, Tripping beyond program of the protection.
16	220 kV Agri - BTP 2 Line	ASGL	02-05-2022 08:54	02-05-2022 09:07	00:13:00	ASGL	DP, 2, 1, 4	NA	NO	YES	NO	NO	ASGL	DP, 2, 1, 4, FO: 09 kms	NA	NO	YES	YES	NO	DB Analysis from Agri: Fault Initiation Time Main 1: 08:54:50.92; CR Opening Time msec: 60; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Likely solid fault. Remarks: seems Ph to Ph Clearance issue. ASGL to find out root cause and take corrective.	Root Cause given by NERDC: Likely Solid Fault	seems Ph to Ph Clearance issue. ASGL to find out root cause and take corrective.
17	ADTEEP Unit 6	NERPCO	02-05-2022 09:29	02-05-2022 09:49	00:20:00	NERPCO	High draw shaft vibration	NA	NO	NA	NA	NA	NPL	Not Applicable	NA	NA	NA	NA	NA	No DB & 4 output submitted.	High draw shaft vibration	Root cause and action taken report may be submitted by NERPCO.
18	AGBP Line 6	NERPCO	02-05-2022 09:38	02-05-2022 01:48	01:10:00	NERPCO	OT in side winding temp high	NA	YES	YES	NO	NO	NPL	Not Applicable	NA	NA	NA	NA	NA	Only report on file submitted.	Root Cause not concluded	Root cause and action taken report may be submitted by NERPCO.
19	220 kV Damarg - Sonapur Line	ASGL	02-05-2022 10:39	02-05-2022 10:45	00:06:00	ASGL	DP, 2, 1, 4, FO: 100km	Not Operated	NO	YES	YES	NO	ASGL	DP, 2, 1, 4	Not Operated	NO	YES	YES	NO	DB Analysis from Sonapur: Fault Initiation Time Main 1: 10:39:34.75; CR Opening Time msec: 63; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Likely solid fault. Remarks: NPLA Fault.	Root Cause given by NERDC: B Ph NPLA	B Ph NPLA. Root cause and action taken report may be submitted by ASGL.
20	132 kV Panchgani - Lumbhong Line	ASGL & MAPCL	03-05-2022 13:07	03-05-2022 13:30	00:23:00	ASGL	DP, 2, 4, 6, FO: 30.22 kms	NA	NO	YES	YES	NO	MAPCL	DP, 2, 4, 6, FO: 21.3 kms	NA	YES	YES	YES	NO	DB Analysis from Panchgani: Fault Initiation Time Main 1: 13:08:30.54; CR Opening Time msec: 71; Fault Characteristics: Relay Induction Status: NA, CARRIER SENT: No, Carrier Received: NA, CARRIER SENT: No, Carrier Received: No, DT Sent: No, DT Received: No, Other Relevant Information: Ph to 6 Fault. Likely solid fault. Remarks: ASGL may share the root cause and corrective actions.	Root Cause given by NERDC: Likely Solid Fault	Root Cause given by NERDC: Likely Solid Fault. Root cause and action taken report may be submitted by NERDC & NERDC.



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

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	REINVESTIGATION_A	AL_A	SENS_R	SENS_A	SENS_V	SENS_P	RENDERING	REINVESTIGATION_B	AL_B	SENS_R	SENS_A	SENS_V	SENS_P	STATUS	DR Analysis	Root Cause	Remedial Measures			
42	133 KV Dimplep (PC) - Kothakota Line	POWERGRID & DP, Nagaland	08-05-2022 18:27	08-05-2022 18:05	00:34:00	POWERGRID	DP_2, R, E, FD: 44.38 Km	Not Operated	YES	NO	NO	NO	Def. Neglected	DP_2, R, E, FD: 44.04 Km	Not Operated	YES	YES	YES	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 1:32:23.418, CB Opening Time: min: 71, Fault Characteristics - Relay Indication Min: DP_2, R, E, FD: 44.24 Km, Fault Current(kA): 810.86, I <sub>0</sub> : 0.77, Fault Voltage(kV): 10.36, M <sub>0</sub> :21, Angle between(p degrees) = -14, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Solid Fault	Root Cause given by NERDC: Likely Solid Fault As per Charge Report shared by POWERGRID Tripped beyond power grid jurisdiction.	It is requested to ensure that pending/warning activities are undertaken by NERDC in line with Clause no 2.02, 2.02D, 2.02D and 2.02F of CIA and Standard Regulations, 2020 to regular basis and also request that the pending report and remedial measure taken may be shared with NERDC & NERLCO.		
43	132 KV Bedapour - Kothakota Line	POWERGRID	08-05-2022 21:02	08-05-2022 21:36	00:34:00	POWERGRID	DP_2(R), R, E, FD: 163.3 Km	NA	YES	YES	NO	NO	POWERGRID	No Tripping	NA	YES	NA	NA	NA	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 1:01:30.689, CB Opening Time: min: 889, Fault Characteristics - Relay Indication Min: DP_2, R, E, FD: 163.3 Km, Fault Current(kA): 616.2, I <sub>0</sub> : 0.37, Fault Voltage(kV): 819.19, Angle between(p degrees) = -43, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Fault Beyond Line/Denominator Fault	Root Cause given by NERDC: Fault Beyond Line/Denominator Fault As per Charge Report shared by POWERGRID Tripped due to abnormal clearance of fault in 120KV Insulator-Turret Header at Kothakota end.	FREED Measure is requested to find out the root cause of non-operation of protection system of downstream faulty line for the all time tripping and take necessary action immediately to prevent tripping of healthy line on 240 for downstream fault. A copy of corrective measure taken may be shared to NERDC & NERLCO.	
44	132 KV Assari - Kothakota Line	POWERGRID	08-05-2022 21:02	08-05-2022 21:40	00:40:00	POWERGRID	DP_2(R), R, E, FD: 67 Km	NA	YES	YES	YES	NO	POWERGRID	No Tripping	NA	YES	NA	NA	NA	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 1:02:36.959, CB Opening Time: min: 884, Fault Characteristics - Relay Indication Min: DP_2, R, E, FD: 67 Km, Fault Current(kA): 810.74, I <sub>0</sub> : 0.47, Fault Voltage(kV): 819.8, Angle between(p degrees) = -46, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Fault Beyond Line/Denominator Fault	Root Cause given by NERDC: Fault Beyond Line/Denominator Fault As per Charge Report shared by POWERGRID Tripped due to abnormal clearance of fault in 120KV Insulator-Turret Header at Kothakota end.	FREED Measure is requested to find out the root cause of non-operation of protection system of downstream faulty line for the all time tripping and take necessary action immediately to prevent tripping of healthy line on 240 for downstream fault. A copy of corrective measure taken may be shared to NERDC & NERLCO.	
45	132 KV Bedapour - Kothakota Line	POWERGRID	08-05-2022 00:14	08-05-2022 00:34	00:30:00	POWERGRID	DP_2(R), R, E, FD: 143 Km	NA	YES	YES	NO	NO	POWERGRID	No Tripping	NA	NO	NA	NA	NA	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 1:03:43.932, CB Opening Time: min: 893, Fault Characteristics - Relay Indication Min: DP_2, R, E, FD: 143 Km, Fault Current(kA): 810.72, I <sub>0</sub> : 0.52, Fault Voltage(kV): 819.75, Angle between(p degrees) = -46, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Fault Beyond Line/Denominator Fault	Root Cause given by NERDC: Fault Beyond Line/Denominator Fault As per Charge Report shared by POWERGRID Tripped due to abnormal clearance of fault in 120KV Insulator-Turret Header at Kothakota end.	FREED Measure is requested to find out the root cause of non-operation of protection system of downstream faulty line for the all time tripping and take necessary action immediately to prevent tripping of healthy line on 240 for downstream fault. A copy of corrective measure taken may be shared to NERDC & NERLCO.	
46	132 KV Assari - Kothakota Line	POWERGRID	08-05-2022 00:14	08-05-2022 00:39	00:25:00	POWERGRID	DP_2(R), R, E, FD: 115 Km	NA	YES	YES	NO	NO	POWERGRID	No Tripping	NA	YES	NA	NA	NA	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 1:02:14.905, CB Opening Time: min: 889, Fault Characteristics - Relay Indication Min: DP_2, R, E, FD: 115 Km, Fault Current(kA): 810.72, I <sub>0</sub> : 0.52, Fault Voltage(kV): 819.75, Angle between(p degrees) = -46, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Fault Beyond Line/Denominator Fault	Root Cause given by NERDC: Fault Beyond Line/Denominator Fault As per Charge Report shared by POWERGRID Tripped due to abnormal clearance of fault in 120KV Insulator-Turret Header at Kothakota end.	FREED Measure is requested to find out the root cause of non-operation of protection system of downstream faulty line for the all time tripping and take necessary action immediately to prevent tripping of healthy line on 240 for downstream fault. A copy of corrective measure taken may be shared to NERDC & NERLCO.	
47	AGBP Line 8	NERPCO	08-05-2022 13:04	08-05-2022 21:06	08:02:00	NERPCO	Tripping of cooling fan. Windmg tmg high alarm	NA	NO	YES	YES	NO	NA	Not Applicable	NA	NA	NA	NA	NA	NO	NO	NO	This /rly file submitted. Fault could not be analyzed.	Root Cause not concluded.	Root cause and action taken report may be submitted by NERPCO	
48	720 KV Agri - Baha Line	AGSEL	08-05-2022 14:26	08-05-2022 14:26	00:00:00	AGSEL	DP_2, R, V	NA	NO	YES	NO	NO	AGSEL	DP_2, R, V	NA	YES	NO	NO	NO	NO	NO	NO	<b>DR Analysis from Agri:</b> Fault Initiation Time Min: 14:26:13.783, CB Opening Time: min: 63, Fault Characteristics - Relay Indication Min: DP_2, R, V, FD: 0.00 Km, Fault Current(kA): 0, I <sub>0</sub> : 0.0, Fault Voltage(kV): 0, Angle between(p degrees) = -19, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Solid Fault. Remarks: AGSEL may share the root cause and circumstances.	Root Cause given by NERDC: Likely Solid Fault	Root cause and action taken report may be submitted by AGSEL.	
49	400 KV Badapan - Misa 1 Line	POWERGRID	10-05-2022 09:20	10-05-2022 10:08	00:48:00	POWERGRID	DP_2, Y, R, E, FD: 1.56 Km	Operated Unsuccessfully	YES	YES	NO	NO	POWERGRID	No Tripping	NA	NO	NA	NA	NA	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 10:20:06.302, CB Opening Time: min: 63, Fault Characteristics - Relay Indication Min: DP_2, Y, R, E, FD: 22.83 Km, Fault Current(kA): 118.6, I <sub>0</sub> : 0.11, Fault Voltage(kV): 113.28, Angle between(p degrees) = -84, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Solid Fault.	Root Cause given by NERDC: Likely Solid Fault As per Charge Report shared by POWERGRID Tripped due to tripping of O/COR during stringing work by Assam 1120V Switch-Trip.		
50	400 KV Badapan - Misa 2 Line	POWERGRID	10-05-2022 09:20	10-05-2022 09:34	00:14:00	POWERGRID	DP_2, R, E, FD: 10.81 Km	Not Operated	YES	YES	NO	NO	POWERGRID	DP_2(R), R, E, FD: 00 Km	Not Operated	YES	YES	NO	NO	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 10:20:06.302, CB Opening Time: min: 63, Fault Characteristics - Relay Indication Min: DP_2, R, E, FD: 10.81 Km, Fault Current(kA): 810.5, I <sub>0</sub> : 0.1, Fault Voltage(kV): 113.28, Angle between(p degrees) = -84, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Solid Fault. <b>DR Analysis from Misa:</b> Fault Initiation Time Min: 08:11:39.779, CB Opening Time: min: 71, Fault Characteristics - Relay Indication Min: DP_2, Y, R, E, FD: 0.00 Km, Fault Current(kA): 810.8, I <sub>0</sub> : 0.12, Fault Voltage(kV): 81.98, Angle between(p degrees) = -44, Auto-reclose Status: Not Operated, CARBIE SENT: Yes, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, 30kV Busbar Fault during stringing work by Assam 1120V Switch-Trip.	Root Cause given by NERDC: Likely Solid Fault As per Charge Report shared by POWERGRID Tripped due to tripping of O/COR during stringing work by Assam 1120V Switch-Trip.		
51	400 KV Badapan - Braasrah Charnal 3 Line	POWERGRID	10-05-2022 09:20	10-05-2022 10:27	00:57:00	POWERGRID	Abn function due to faulty wiring in relay panel	NA	NO	NO	NO	NO	POWERGRID	No Tripping	NA	YES	NA	NA	NA	NO	NO	NO	No DR & EL output submitted.	Root Cause given by NERDC: Relay Misoperation As per Charge Report shared by POWERGRID Tripped due to busbar fault.	No tripping at BNC. Only tripped from Badapan due to faulty wiring at RP	
52	132 KV Agri - Sanghalakota Line	MPFCL	10-05-2022 09:05	10-05-2022 09:36	00:31:00	MPFCL	Not terminated	NA	NO	NO	NO	NO	MPFCL	No Tripping	NA	YES	NA	YES	NA	NO	NO	NO	No DR & EL output submitted.	Root Cause not concluded.	Root cause and action taken report may be submitted by MPFCL.	
53	400 KV Badapan - Kamling Line	POWERGRID	10-05-2022 21:34	10-05-2022 22:34	01:00:00	POWERGRID	DP_2, Y, R, E, FD: 10.83 Km	NA	YES	YES	YES	NO	NERPCO	DP_2, Y, R, E, FD: 0.00 Km	NA	YES	YES	YES	NO	NO	NO	NO	<b>DR Analysis from Substation:</b> Fault Initiation Time Min: 21:34:30.302, CB Opening Time: min: 63, Fault Characteristics - Relay Indication Min: DP_2, Y, R, E, FD: 10.83 Km, Fault Current(kA): 118.3, I <sub>0</sub> : 0.11, Fault Voltage(kV): 113.28, Angle between(p degrees) = -80, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Solid Fault. There may be Ph to Ph clearance issues due to jumper, sag issues etc. Remarks: NERTS may share the root cause and action taken report. <b>DR Analysis from Misa:</b> Fault Initiation Time Min: 21:34:30.302, CB Opening Time: min: 63, Fault Characteristics - Relay Indication Min: DP_2, Y, R, E, FD: 10.83 Km, Fault Current(kA): 118.6, I <sub>0</sub> : 0.11, Fault Voltage(kV): 113.28, Angle between(p degrees) = -80, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault near to Kamling, Likely Solid Fault due to clearance issue.	Root Cause given by NERDC: Likely Solid Fault As per Charge Report shared by POWERGRID Tripped due to busbar fault.	There may be Ph to Ph clearance issues due to jumper, sag issues etc. NERTS may share the root cause and action taken report.	
54	Kamling Line 3	NERPCO	10-05-2022 21:34	11-05-2022 17:28	19:55:00	NERPCO	Underreclosure O/C stage 3	NA	YES	YES	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	NO	NO	NO	<b>DR Analysis from Kamling Sub:</b> Fault Initiation Time Min: 21:34:30.302, CB Opening Time: min: 63, Fault Characteristics - Relay Indication Min: Underreclosure O/C stage 3, Fault Current(kA): 118.3, I <sub>0</sub> : 0.11, Fault Voltage(kV): 113.28, Angle between(p degrees) = -175, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: As per DR submitted, at 21:34:30.306, I <sub>0</sub> may start decreased with type 3.0 KV, 11.15 KV, 11.21 KV and V	Root Cause given by NERDC: Over Current As per DR submitted.	Root cause and action taken report may be submitted by NERPCO	
55	132 KV Palitana - Sanghalakota Line	POWERGRID	11-05-2022 14:22	11-05-2022 14:22	00:00:00	OTPC	DP_2, R, E, FD: 28.27 Km	Operated Successfully	YES	YES	NO	NO	POWERGRID	DP_2, R, E, FD: 8.8 Km	Operated Successfully	YES	NO	NO	NO	NO	NO	NO	NO	AS Operated successfully from both ends.	Treatment Fault	All successful
56	Doyang Line 2	NERPCO	11-05-2022 19:27	11-05-2022 20:26	00:59:00	NERPCO	OVER FREQ 17	NA	YES	YES	YES	YES	NA	Not Applicable	NA	NA	NA	NA	NA	NO	NO	NO	<b>DR Analysis from Doayang Sub:</b> OVER FREQ 17 operated at 16:15:34.637 Km	Line of excitation	Line of excitation	
57	400 KV Palitana - Siltker 1 Line	NETC	12-05-2022 16:15	12-05-2022 20:13	03:58:00	OTPC	DP_2, Y, R, E, FD: 103.3 Km	NA	YES	YES	YES	YES	POWERGRID	DP_2, Y, R, E, FD: 143 Km	NA	YES	YES	NO	NO	NO	NO	NO	<b>DR Analysis from Palitana:</b> Fault Initiation Time Min: 16:15:13.770, CB Opening Time: min: 53, Fault Characteristics - Relay Indication Min: DP_2, Y, R, E, FD: 103.3 Km, Fault Current(kA): 118.3, I <sub>0</sub> : 0.11, Fault Voltage(kV): 113.28, Angle between(p degrees) = -175, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Solid Fault. <b>DR Analysis from Siltker:</b> Fault Initiation Time Min: 16:15:11.823, CB Opening Time: min: 53, Fault Characteristics - Relay Indication Min: DP_2, Y, R, E, FD: 143 Km, Fault Current(kA): 118.3, I <sub>0</sub> : 0.11, Fault Voltage(kV): 113.28, Angle between(p degrees) = -180, Auto-reclose Status: NA, CARBIE SENT: NA, Carver Received: No, CF Sent: No, CF Received: No Other Relevant Information: Ph to A Fault, Likely Solid Fault. There may be Ph to Ph clearance issues. Remarks: NERTS may share the root cause and circumstances.	As per Charge Report submitted by NETC due to the broken 17 tower during the O/COR stringing work between location 179-273-274.	Ph to Ph Fault, Likely Solid Fault. There may be Ph to Ph clearance issues. NERTS may share the root cause and circumstances.	
58	AGBP Line 6	NERPCO	12-05-2022 23:19	13-05-2022 17:14	17:55:00	NERPCO	Excuse Temperature High spread trip	NA	YES	NA	NA	NA	NA	Not Applicable	NA	NA	NA	NA	NA	NO	NO	NO	No DR & EL output submitted.	Excuse Temperature High spread trip	Root cause and action taken report may be submitted by NERPCO	



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

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAYINDICATION_A	AIR_A	SENS_F_R	SENS_D_R	SENS_V_R	SENS_I_R	SENS_T_R	SENDOWNER	RELAYINDICATION_B	AIR_B	SENS_F_R	SENS_D_R	SENS_V_R	SENS_I_R	SENS_T_R	SPS_OKRAT	DB Analysis	Root Cause	Remedial Measures		
84	122V VIKRAMA(ME) -Lumchhing Line	MAFTEL	16-05-2022 23:48	16-05-2022 00:24	00:36:00	MAFTEL	DP_3, B 4, F.D: 30.87 km	NA	YES	YES	YES	NO	MAFTEL	DP_3, B 4, F.D: 30.80 km	NA	YES	YES	YES	NO	NO	NO	NO	NO	<p><b>DB Analysis from DRPTI:</b> Fault Initiation Time Min: 13:46:11.03, CR Opening Time Min: 75, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 30.87 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=46, W=Angle between(degree)- 12, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p> <p><b>DB Analysis from MafTel:</b> Fault Initiation Time Min: 13:46:11.07, CR Opening Time Min: 105, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 30.80 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=32, W=Angle between(degree)- 16, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Lighting Fault	It is requested to ensure that protective related activities are undertaken in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.	
85	122 V Laksh - Hinguchhaling Line	MSCL	15-05-2022 04:02	15-05-2022 04:20	00:46:00	MSCL	DP_3, B 4, F.D: 8.13 km	NA	NO	YES	YES	NO	MSCL	DP_3, B 4, F.D: 8.14 km	NA	NO	NO	NO	NO	NO	NO	NO	NO	<p><b>DB Analysis from MSCL:</b> Fault Initiation Time Min: 10:42:00.99, CR Opening Time Min: 105, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 8.14 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=13.23, W=Angle between(degree)- 45, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Like High Resistance Fault	It is requested to ensure that protective related activities are undertaken by MSCL in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.	
86	132 KV Balesang - Dampur Line	AGCL	15-05-2022 12:58	15-05-2022 17:56	04:58:00	AGCL	DP_3, B 4, F.D: 11.3 km	Not Operated	NO	NO	NO	NO	POWERGRID	DP_3, B 4, F.D:	Operated Successfully	NO	NO	NO	NO	NO	NO	NO	NO	No DR & CL output submitted	Root Cause and action taken report may be submitted by AGCL.		
87	132 KV Jabbar(MSCL) - Bangang Line	MSCL	15-05-2022 14:17	15-05-2022 16:28	02:05:00	MSCL	Over Current	NA	YES	YES	YES	NO	MSCL	No Tripping	NA	NO	NA	NA	NA	NA	NA	NA	NO	NO	<p><b>DB Analysis from MSCL:</b> Fault Initiation Time Min: 10:23:25.03, CR Opening Time Min: 105, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 8.84 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=10.82, W=Angle between(degree)- 12, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Ingression Fault	It is requested to ensure that protective related activities are undertaken by MSCL in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.
88	132 KV Akram-Tipamulh Line	POWERGRID & MSCL	15-05-2022 14:13	15-05-2022 15:26	01:43:00	POWERGRID	DP_3L B-4	NA	NO	NO	NO	NO	MSCL	No Tripping	NA	NO	NA	NA	NA	NA	NA	NA	NO	NO	As per Change Report shared by POWERGRID	It is requested to ensure that protective related activities are undertaken by MSCL in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.	
89	132 KV Jabbar - Laksh Line	POWERGRID	15-05-2022 14:54	15-05-2022 15:28	00:34:00	POWERGRID	DP_3, B 4, F.D: 12.88 km	Not Operated	YES	YES	NO	NO	MSCL	DP_3, B 4, F.D: 12 km	Operated Unsuccessfully	NO	YES	YES	NO	NO	NO	NO	NO	NO	NO	As per Change Report shared by POWERGRID	It is requested to ensure that protective related activities are undertaken by MSCL in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.
90	122 KV Pathrang - Lumchhing Line	AGCL & MAFTEL	15-05-2022 20:17	15-05-2022 21:00	00:52:00	AGCL	DP_3, B 4, F.D: 00.88 km	NA	YES	YES	YES	NO	MAFTEL	DP_3, B 4, F.D: 22.2 km	NA	YES	YES	YES	NO	NO	NO	NO	NO	NO	<p><b>DB Analysis from Pathrang:</b> Fault Initiation Time Min: 20:27:35.95, CR Opening Time Min: 09, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 00.88 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=5.23, W=Angle between(degree)- 15, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p> <p><b>DB Analysis from MafTel:</b> Fault Initiation Time Min: 20:27:35.95, CR Opening Time Min: 59, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 22 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=4.98, W=Angle between(degree)- 15, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Lighting Fault	It is requested to ensure that protective related activities are undertaken in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.
91	132 KV Khatwa - Mutlak Line	MAFTEL	15-05-2022 23:09	16-05-2022 00:40	01:31:00	MAFTEL	DP_3, B 4, F.D: 1.88 km	NA	YES	YES	YES	NO	MAFTEL	DP_3, B 4, F.D:	NA	NO	NO	NO	NO	NO	NO	NO	NO	NO	<p><b>DB Analysis from MafTel:</b> Fault Initiation Time Min: 23:09:51.55, CR Opening Time Min: 59, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 2.88 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=4.79, W=Angle between(degree)- 12, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Lighting Fault	It is requested to ensure that protective related activities are undertaken in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.
92	132 KV Jabbar - MSCL(Laksh) Line	MAFTEL	15-05-2022 23:11	16-05-2022 00:38	01:27:00	MAFTEL	DP_3, B 4, F.D: 8.44 km	NA	YES	YES	YES	NO	MAFTEL	DP_3, B 4, F.D: 51.76 km	NA	YES	YES	YES	NO	NO	NO	NO	NO	NO	<p><b>DB Analysis from MafTel:</b> Fault Initiation Time Min: 23:18:32.676, CR Opening Time Min: 72, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 8.44 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=23.31, W=Angle between(degree)- 12, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p> <p><b>DB Analysis from MSCL:</b> Submitted DR file does not open</p>	Root Cause given by NERLDC: Likely Solid Fault	It is requested to ensure that protective related activities are undertaken in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.
93	400 KV Balesang - Bangang 2 Line	POWERGRID	15-05-2022 23:25	15-05-2022 23:46	00:21:00	POWERGRID	DP_2L B 4, F.D: 222 km	Not Operated	YES	YES	YES	NO	POWERGRID	DP_3, B 4, F.D: 0 km	Operated Successfully	YES	YES	YES	NO	NO	NO	NO	NO	NO	NO	As per Change Report shared by POWERGRID	Carrier scheme may be checked by NERLDC and after the root cause and reason for fault may be submitted.
94	122V VIKRAMA(ME) -Lumchhing Line	MAFTEL	15-05-2022 23:36	16-05-2022 01:08	01:27:00	MAFTEL	DP_3, B 4, F.D: 4 km	NA	YES	YES	YES	NO	MAFTEL	DP_3L B 4, F.D: 29 km	NA	YES	YES	YES	NO	NO	NO	NO	NO	NO	<p><b>DB Analysis from MafTel:</b> Fault Initiation Time Min: 23:36:28.102, CR Opening Time Min: 75, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 4 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=21.47, W=Angle between(degree)- 15, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p> <p><b>DB Analysis from MafTel:</b> Fault Initiation Time Min: 23:36:28.102, CR Opening Time Min: 72, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 33 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=17.87, W=Angle between(degree)- 12, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Solid Fault	It is requested to ensure that protective related activities are undertaken in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.
95	122 V Khatwa(MAFTEL) -Khatwa (PD) 2 Line	MAFTEL	15-05-2022 23:36	16-05-2022 00:20	00:54:00	MAFTEL	No Tripping	NA	YES	NA	YES	NA	MAFTEL	DP_3, B 4, F.D: 4.22 km	NA	YES	YES	YES	NO	NO	NO	NO	NO	NO	<p><b>DB Analysis from MafTel:</b> Fault Initiation Time Min: 23:36:11.647, CR Opening Time Min: 70, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 4.22 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=15.97, W=Angle between(degree)- 12, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Solid Fault	It is requested to ensure that protective related activities are undertaken in line with Clause no:292, 293 and 294 of CEA Grid Standby Regulation, 2010 in regular basis and also request that the tripping report and remedial measures taken may be shared with NERC & NERLDC.
96	132 KV B7R - Dhanraj 1 Line	AGCL	16-05-2022 01:24	16-05-2022 01:42	00:18:00	AGCL	DP_3, B 4, F.D: 21.53 km	NA	NO	YES	YES	NO	AGCL	No Tripping	NA	NO	NA	NA	NA	NA	NA	NO	NO	NO	<p><b>DB Analysis from AGCL:</b> Fault Initiation Time Min: 01:25:01.993, CR Opening Time Min: 78, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 21.53 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=4.65, W=Angle between(degree)- 15, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Lighting Fault	As per the DB analysis, two triggered likely due to the following reasons: B & W did not trip when lightning. This type of tripping tripping generally occur due to poor earthing connections and poor tower footing impedance value. Therefore, as a precautionary measure, it is being requested to carry out checking of earthing connections, improvement of tower footing impedance at all towers of this line and also carrying out measurements may to take in prevent tripping of non-affected lines on occurrence of lightning.
97	132 KV B7R - Dhanraj 2 Line	AGCL	16-05-2022 01:24	16-05-2022 01:41	00:17:00	AGCL	DP_3, B 4, F.D: 10.81 km	NA	NO	YES	YES	NO	AGCL	No Tripping	NA	NO	NA	NA	NA	NA	NA	NO	NO	NO	<p><b>DB Analysis from AGCL:</b> Fault Initiation Time Min: 01:25:01.993, CR Opening Time Min: 78, Fault Characteristics: Relay Indication Min: DP_3, B 4, F.D: 21.53 km, Fault Correlation: B- 0:12, B-1:46, Fault Voltage(kV): B=4.65, W=Angle between(degree)- 15, Auto-recloser Status: NA, CARBIS SENT: No, Carrier Received: No, DT Sent: No, DT Received: No</p>	Root Cause given by NERLDC: Likely Lighting Fault	As per the DB analysis, two triggered likely due to the following reasons: B & W did not trip when lightning. This type of tripping tripping generally occur due to poor earthing connections and poor tower footing impedance value. Therefore, as a precautionary measure, it is being requested to carry out checking of earthing connections, improvement of tower footing impedance at all towers of this line and also carrying out measurements may to take in prevent tripping of non-affected lines on occurrence of lightning.



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

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAYINDICATION_A	AL_A	SNL_F_R	SNL_D_R	SNL_V_L	INDICATOR FOR I	SENDOWNER	RELAYINDICATION_B	AL_B	RNDL_F_R	RNDL_D_R	RNDL_V_L	INDICATOR FOR I	SFS_CHECK	DR Analysis	Root Cause	Remedial Measures			
115	132 KV Wilhams(MRCL)- Rengaling Line	MRCL	18-05-2022 07:13	18-05-2022 13:38	05:25:00	MRCL	Earth Fault	NA	YES	YES	YES	NO	MRCL	No Tripping	NA	NO	NA	NA	NA	NA	No SFS	<b>DR Analysis from Substation(MRCL):</b> Fault Indication Time Min: 07:13:37.813, Z/B Opening Time: min: 1:28, Fault Characteristics: Relay Indication Min: Earth Fault, Fault Current(MA): 71948.42(=719, Fault Voltage(kV)): 110kV(=1), Angle between(°): -21, Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Ph A to B Fault. Likely fault is reclose vegetation fault. Remote: Root cause and tripping may be shared by MRCL, B/G setting TAG of S/L switches with LARSA in place. The same needs to be coordinated to prevent re-occurrence	Root Cause given by NERDC. Likely vegetation fault. Root Cause given by LARSA. Root cause and action taken report may be submitted by MRCL	Root cause and tripping may be shared by MRCL, B/G setting TAG of S/L switches with LARSA in place. The same needs to be coordinated to prevent re-occurrence		
116	Palnara Unit 07-1	DPFC	18-05-2022 22:28	18-05-2022 02:27	05:58:00	DPFC	Low Start Level	NA	NO	NA	NA	NA	NA	Not Applicable	NA	NA	NA	NA	NA	NA	NA	Not DR & D.L output submitted	Low Start Level	Root cause and action taken report may be submitted by DPFC		
117	Palnara Unit 07-1	DPFC	18-05-2022 20:29	18-05-2022 09:12	12:43:00	DPFC	Due to tripping of DTG-1	NA	NO	NA	NA	NA	NA	Not Applicable	NA	NA	NA	NA	NA	NA	NA	Not DR & D.L output submitted	Due to tripping of DTG-1	Root cause and action taken report may be submitted by DPFC		
118	132 KV Vedra(BNCC)- Rengali Line	POWERGRID	18-05-2022 21:17	18-05-2022 21:51	03:34:00	MELTON	Over Current	NA	YES	NO	NO	NO	POWERGRID	No Tripping	NA	YES	NA	NA	NA	NA	NA	Not DR & D.L output submitted	Root Cause not concluded			
119	132 KV Dharmadurg- Outbackers Line	MSGL	19-05-2022 09:28	19-05-2022 19:20	09:52:00	TSEI	DP_2, B, 4; FD: 4.08 km	NA	NO	YES	YES	NO	MSGL	DP_2, B, 4; FD: 33 km	NA	YES	YES	NA	NO	NA	NO	No SFS	<b>DR Analysis from Substation:</b> Fault Indication Time Min: 09:28:36.702, Z/B Opening Time: min: 74, Fault Characteristics: Relay Indication Min: DP_2, B, 4; FD: 4.08 km, Fault Current(MA): 19022.27(=19, Fault Voltage(kV)): 110kV(=107, Angle between(°): 13, Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Ph A to B Fault. Likely fault is reclose	Root Cause given by NERDC. Likely Solid Fault	Root cause and action taken report may be submitted by MSGL	
120	132 KV Mysore Lankha - Khenker 1 Line	MRCL	19-05-2022 09:51	19-05-2022 11:02	07:11:00	MRCL	DP_2, B, 4	NA	NO	YES	NO	NO	MRCL	Earth Fault	NA	YES	YES	YES	NO	NA	NO	No SFS	<b>DR Analysis from Substation:</b> Fault Indication Time Min: 09:50:36.855, Z/B Opening Time: min: 62, Fault Characteristics: Relay Indication Min: DP_2, B, 4; Fault Current(MA): 84, 52kV, Fault Voltage(kV): 81-107kV, Angle between(°): 58, Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Ph to B Fault. B-Ph conductor sagged and touched to earth resulting Ph to B Fault. Larkha Switchyard.	Root Cause given by NERDC. Conductor Sagging	HAPPY'S WAGS SAGGING AT LARKHA SWITCHYARD.	
121	Mysore Lankha Line 2	MRCL	19-05-2022 09:52	19-05-2022 09:55	03:03:00	MRCL	Over Frequency	NA	NO	YES	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	NA	NA	No SFS	Loss of Excitation path	Loss of Excitation path		
122	132 KV Mysore Lankha - Khenker 3 Line	MRCL	19-05-2022 09:55	19-05-2022 09:58	03:11:00	MRCL	No Tripping	NA	NO	YES	NA	NA	MRCL	Earth Fault	NA	YES	YES	YES	NO	NA	NO	No SFS	<b>DR Analysis from Substation:</b> Fault Indication Time Min: 09:55:26.358, Z/B Opening Time: min: 61, Fault Characteristics: Relay Indication Min: DP_2, B, 4; Fault Current(MA): 81, 52kV, Fault Voltage(kV): 81-107kV, Angle between(°): 58, Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Ph to B Fault. B-Ph conductor sagged and touched to earth resulting Ph to B Fault. Larkha Switchyard.	Root Cause given by NERDC. Earth Fault	Root cause and action taken report may be submitted by MRCL	
123	Mysore Lankha Line 3	MRCL	19-05-2022 09:55	19-05-2022 09:55	03:00:00	MRCL	Over Frequency	NA	NO	YES	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	NA	NA	No SFS	Loss of Excitation path	Loss of Excitation path		
124	Mysore Lankha Line 1	MRCL	19-05-2022 09:55	19-05-2022 09:58	03:46:00	MRCL	Over Frequency	NA	NO	YES	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	NA	NA	No SFS	Loss of Excitation path	Loss of Excitation path		
125	Dangang Line 1	NERDC	19-05-2022 04:30	19-05-2022 17:20	13:50:00	NERDC	Over Voltage	NA	NO	YES	YES	YES	NA	Not Applicable	NA	NA	NA	NA	NA	NA	NA	No SFS	<b>DR Analysis from Substation:</b> CV 171 ST Topped at 04:30:25.260 hrs	Root Cause not concluded	Root cause and action taken report may be shared with NERDC	
126	132 KV Wilhams(MRCL)- Rengaling Line	MRCL	19-05-2022 04:39	19-05-2022 10:58	06:20:00	MRCL	Over Current	NA	YES	YES	YES	NO	MRCL	No Tripping	NA	NO	NA	NA	NA	NA	NA	No SFS	<b>DR Analysis from Substation(MRCL):</b> Fault Indication Time Min: 04:39:05.877, Z/B Opening Time: min: 70, Fault Characteristics: Relay Indication Min: Earth Fault, Fault Current(MA): 19, 213kV(=2), Fault Voltage(kV)): 110kV(=107, Angle between(°): 7), Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Ph to B Fault. Autoreclosure failed. Both back-up and distance protection relay operated including both OC & SF Fault at zone 2, location 8.880KM	Root Cause given by NERDC. Likely vegetation fault	It is required to ensure that pending related activities are undertaken by NERDC in line with Clause no 2.3(2), 2.3(3) and 2.19(4) of CIA and Standard 004. 2.3(2) to 2.3(3) may be shared with NERDC and also report that the pending report and remedial measures taken may be shared with NERDC & NERDC.	
127	400 KV Highal- Sakher 1 Line	POWERGRID	19-05-2022 04:50	19-05-2022 05:14	00:24:00	POWERGRID	DP_3, Y, 4; FD: 59.50 km	Not Operated	YES	YES	YES	NO	POWERGRID	DP_3, Y, 4; FD: 74.49 km	Operated Successfully	YES	YES	YES	YES	NO	NA	No SFS	<b>DR Analysis from Substation:</b> Two alert files submitted	As per Change Report shared by POWERGRID. Change from outside line was done by the jumbo at LOC 215 during stormy weather		
128	132 KV Dampar (PG)- Kothna Line	POWERGRID & DCP, Nagard	19-05-2022 06:17	19-05-2022 12:33	06:16:00	POWERGRID	DP_2, B, 4; FD: 21.16 km	Not Operated	YES	NO	NO	NO	DCP, Nagard	DP_2, B, 4; FD: 21.16 km	Not Operated	YES	YES	YES	NO	NA	NO	No SFS	<b>DR Analysis from Substation:</b> Fault Indication Time Min: 06:16:14.155, Z/B Opening Time: min: 63, Fault Characteristics: Relay Indication Min: DP_2, B, 4; FD: 21.16 km, Fault Current(MA): 81-120kV(=8, Fault Voltage(kV): 81-107kV, Angle between(°): 58, Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Ph to B Fault. Solid fault likely due to ph clearance issue. A/R attempted however 2nd fault appears within reclose time which results tripping of OC	Root Cause given by NERDC. Likely vegetation fault	It is required to ensure that pending related activities are undertaken by NERDC in line with Clause no 2.3(2), 2.3(3) and 2.19(4) of CIA and Standard 004. 2.3(2) to 2.3(3) may be shared with NERDC and also report that the pending report and remedial measures taken may be shared with NERDC & NERDC.	
129	Mysore Lankha Line 3	MRCL	19-05-2022 08:46	19-05-2022 11:28	08:42:00	MRCL	Primary Cooling Water system trip	NA	NO	NA	NA	NA	NA	Not Applicable	NA	NA	NA	NA	NA	NA	NA	Not DR & D.L output submitted	Primary Cooling Water system trip	Root cause and action taken report may be submitted by MRCL		
130	132 KV Laksh - Rengaling Line	MRCL	19-05-2022 12:46	19-05-2022 13:46	00:55:00	MRCL	Earth Fault	NA	NO	YES	YES	NO	MRCL	No Tripping	NA	YES	NO	YES	NA	NA	NA	No SFS	Submitted DR file details given due to invalid sampling frequency of the samples in the .rlg file	Root Cause not concluded	Root cause and action taken report may be submitted by MRCL	
131	132 KV Wilhams(MRCL)- Rengaling Line	MRCL	19-05-2022 13:46	19-05-2022 14:40	05:54:00	MRCL	Earth Fault, Y-ph	NA	YES	YES	YES	NO	MRCL	Missing Trip	NA	YES	YES	YES	NA	NA	NA	No SFS	<b>DR Analysis from Substation(MRCL):</b> Fault Indication Time Min: 04:39:21.959, Z/B Opening Time: min: 300, Fault Characteristics: Relay Indication Min: Earth Fault, Trip, Fault Current(MA): 416, 65kV(=6, Fault Voltage(kV)): 110kV(=107, Angle between(°): 78, Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Y phase conductor open from starting of DR. Line tripped at CT on setting for fault in 132 KV Rengaling Laksh.	Root Cause given by NERDC. Fault Beyond Line/Disruption Fault	Both OC & SF tripped. After contact with Rengaling YL the fault was identified in Laksh Rengaling Line. Laksh Rengaling was tripped & Rengaling was re-tripped & 2nd fault was cleared	
132	132 KV Alwar - Kumbhlang Line	POWERGRID	19-05-2022 14:09	19-05-2022 14:23	00:14:00	POWERGRID	DP_2, B, 4; FD: 69.54 km	Operated Unsuccessfully	YES	YES	YES	NO	POWERGRID	DP_2, B, 4; FD: 89.54 km	Operated Unsuccessfully	YES	YES	YES	NO	NA	NO	NA	No SFS	<b>DR Analysis from Substation:</b> Fault Indication Time Min: 14:09:43.214, Z/B Opening Time: min: 60, Fault Characteristics: Relay Indication Min: DP_2, B, 4; FD: 69.54 km, Fault Current(MA): 114, 60kV(=6, Fault Voltage(kV)): 110kV(=107, Angle between(°): 14, Autoreclosure Status: NA, CARRIES SENT: No, Carrier Received: No, CT Sat: No, CT Received: No, Other Relevant Information: Ph to B Fault. Solid fault likely due to ph clearance issue. A/R attempted however 2nd fault appears within reclose time which results tripping of OC	Root Cause given by NERDC. Fault Beyond Line/Disruption Fault	Fault from outside line on 09:43.333 on 09:43.333
133	132 KV Alwar - Dangrigi Line	DCP, Anushal Pradesh	19-05-2022 14:50	20-05-2022 17:33	21:43:00	DCP, Anushal Pradesh	No Tripping	NA	YES	YES	YES	NA	DCP, Anushal Pradesh	Earth Fault	NA	YES	YES	YES	NO	NA	NO	No SFS	Only .rlg files submitted from both ends	Root Cause given by NERDC. Likely vegetation fault. Root Cause given by LARSA. Root cause and action taken report may be shared with NERDC & NERDC.	Fault cleared due branch of a tree found resting on one of the conductor (F Phase) through inspection revealed that the branch came down after a long distance side from the tower. Branch started on the tower height. It was investigated being "ACT OF GOD" since no vegetation present on the conductor has been properly checked earlier.	

Root Cause and Remedial Measures for the Date 01-May-2023 to 31-May-2023

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAYINDICATION_A	AA_A	SENSE_A	SENSE_B	SENSE_C	SENSING THROUGHPUT	SENDOWNER	RELAYINDICATION_B	AA_B	SENSE_B	SENSE_C	SENSING THROUGHPUT	SFS_ONSLAT	DR Analysis	Root Cause	Remedial Measures		
134	132 KV Agrelita - Balaha 1 Line	TSECL	19-05-2023 13:34	19-05-2023 15:51	00:17:00	TSECL	OP_3_1_4_F0_3_16 km	NA	NO	YES	YES	NO	TSECL	OP_3_1_4_F0_25.48 km	NA	NO	YES	YES	NO	NO SFS	<b>DR Analysis from Agrelita:</b> Fault Induction Time Mean : 10.39.25.782, CB Opening Time(msec) : 64, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_3_16 km - Fault Current(MA)) : 15.14, 16.33, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Balaha:</b> Fault Induction Time Mean : 11:25:18.374, CB Opening Time(msec) : 64, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_25.48 km - Fault Current(MA)) : 10.85, 10.13, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Likely Solid Fault	Root Cause given by NERDC - Likely Solid Fault	As per DR analysis most of the trip(s) were single phase to Earth fault likely due to isolation of fault. The study plans to Agrelita and Balaha end do not exist for any of the trip(s). This phase sequence has been checked and rectified by TSECL. Also, the DR inputs submitted from Agrelita end form as a result of their observed at the DRs. The same may be checked and rectified by TSECL for proper analysis purposes. It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC	
135	132 KV Agrelita - Balaha 1 Line	TSECL	19-05-2023 15:55	19-05-2023 16:04	00:09:00	TSECL	OP_3_1_4_F0 3.4 km	NA	NO	YES	YES	NO	TSECL	OP_3_1_4_F0 24.11 km	NA	NO	YES	YES	NO	NO SFS	<b>DR Analysis from Agrelita:</b> Fault Induction Time Mean : 10:45:39.186, CB Opening Time(msec) : 74, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_3.4 km - Fault Current(MA)) : 16.4, 16.33, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Balaha:</b> Fault Induction Time Mean : 11:25:18.374, CB Opening Time(msec) : 64, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 24.11 km - Fault Current(MA)) : 10.86, 10.2, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Likely Solid Fault	Root Cause given by NERDC - Likely Solid Fault	As per DR analysis most of the trip(s) were single phase to Earth fault likely due to isolation of fault. The study plans to Agrelita and Balaha end do not exist for any of the trip(s). This phase sequence has been checked and rectified by TSECL. Also, the DR inputs submitted from Agrelita end form as a result of their observed at the DRs. The same may be checked and rectified by TSECL for proper analysis purposes. It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC	
136	132 KV Agrelita - Balaha 1 Line	TSECL	20-05-2023 09:17	20-05-2023 09:19	00:03:00	TSECL	OP_3_1_4_F0 18.39 km	NA	NO	YES	YES	NO	TSECL	OP_3_1_4_F0	NA	NO	YES	YES	NO	NO SFS	<b>DR Analysis from Agrelita:</b> Fault Induction Time Mean : 10:16:40.450, CB Opening Time(msec) : 63, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_18.39 km - Fault Current(MA)) : 10.2, 11.1, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Balaha:</b> Fault Induction Time Mean : 10:16:40.450, CB Opening Time(msec) : 63, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 18.39 km - Fault Current(MA)) : 10.2, 11.1, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Likely Solid Fault	Root Cause given by NERDC - Likely Solid Fault	As per DR analysis most of the trip(s) were single phase to Earth fault likely due to isolation of fault. The study plans to Agrelita and Balaha end do not exist for any of the trip(s). This phase sequence has been checked and rectified by TSECL for proper analysis purposes. It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC	
137	132 KV Alstair - Kumarighat Line	POWERGRID	20-05-2023 03:36	20-05-2023 04:05	00:29:00	POWERGRID	OP_3_1_4_F0 84.68 km	Operated Unsuccessfully	YES	YES	YES	NO	POWERGRID	OP_3_1_4_F0 84.68 km	Operated Unsuccessfully	YES	YES	YES	NO	NO SFS	<b>DR Analysis from Alstair:</b> Fault Induction Time Mean : 03:36:43.336, CB Opening Time(msec) : 63, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_84.68 km - Fault Current(MA)) : 8.1, 8.2, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Kumarighat:</b> Fault Induction Time Mean : 03:36:43.336, CB Opening Time(msec) : 63, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 84.68 km - Fault Current(MA)) : 8.1, 8.2, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Likely Solid Fault	As per Change Report shared by POWERGRID, Fault time from outside not interfaced on monitoring @ 13.5 LV Busbar system	As per DR analysis most of the trip(s) were single phase to Earth fault likely due to isolation of fault. The study plans to Agrelita and Balaha end do not exist for any of the trip(s). This phase sequence has been checked and rectified by TSECL for proper analysis purposes. It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC	
138	AGBFF Line 7	NERDC	20-05-2023 10:44	20-05-2023 11:19	01:36:00	NERDC	Control Of Pressure line due to checking of filter valves	NA	NO	NA	NA	NA	NA	Not Applicable	NA	NA	NA	NA	NA	NO SFS	No DR & B inputs submitted	Control Of Pressure line due to checking of filter valves	Root cause and action taken report may be submitted by NERDC	
139	132 KV Korung - Achha Line	MPCL & Duf. Negand	20-05-2023 13:00	20-05-2023 13:12	00:12:00	MPCL	No Tripping	NA	YES	YES	YES	YES	Duf. Negand	Backup Earth Fault	NA	YES	YES	YES	NO	NO SFS	<b>DR Analysis from Korung:</b> Only CB Open observed, Fault not to be explained from DR <b>DR Analysis from Achha:</b> Only CB Open observed, Fault not to be explained from DR	Root Cause given by NERDC - Fault Beyond Line/Distribution Fault	The non-clearance of fault by the protection system of Faulty feeder by the matter of various concern and needs immediate attention by MPCL.	
140	132 KV Mohal (MPCL) - Kandi Line	MPCL	20-05-2023 13:00	20-05-2023 13:10	00:10:00	MPCL	No Tripping	NA	YES	YES	NA	MPCL	Earth Fault	NA	NO	NO	NO	NO	NO SFS	DR only submitted from Mohal and where there is No Tripping, No DR, DL, BR Submitted from Kandi	Root Cause given by NERDC - Fault Beyond Line/Distribution Fault	The non-clearance of fault by the protection system of Faulty feeder by the matter of various concern and needs immediate attention by MPCL.		
141	132 KV Korung - Achha Line	MPCL & Duf. Negand	21-05-2023 01:15	21-05-2023 01:20	00:05:00	MPCL	No Tripping	NA	YES	NA	NA	Duf. Negand	Earth Fault	NA	YES	YES	YES	NO	NO SFS	<b>DR Analysis from Korung:</b> Only CB Open observed at 00:14:57 737 hrs Clear Reason information - Unwanted Relay Operation	Root Cause given by NERDC - Unwanted Relay Operation	Reported only at Mohal and		
142	132 KV Untharapangan - Sungrithinagar 07 Line	TSECL	21-05-2023 06:22	21-05-2023 07:19	00:57:00	TSECL	OP_3_1_4_F0	Not Operated	NO	YES	YES	N/A	N/A	OP_3_1_4_F0 15.88 km	Operated Successfully	YES	YES	YES	NO	NO SFS	<b>DR Analysis from Sungrithinagar:</b> Fault Induction Time Mean : 07:22:06.189, CB Opening Time(msec) : 62, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_15.88 km - Fault Current(MA)) : 16.5, 16.6, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Untharapangan:</b> Fault Induction Time Mean : 08:22:18.264, CB Opening Time(msec) : 111, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 15.88 km - Fault Current(MA)) : 16.5, 16.6, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Likely High resistance Fault	Root Cause given by NERDC - Likely Vegetation Fault	It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC	
143	400 KV Alstair - Bangalore 1 Line	ENCL	21-05-2023 07:40	21-05-2023 08:09	00:29:00	ENCL	OP_3_1_4_F0	Not Operated	NO	NO	NO	NO	POWERGRID	OP_3_1_4_F0 56.89 km	Not Operated	YES	YES	NO	NO	NO SFS	<b>DR Analysis from Bangalore:</b> Fault Induction Time Mean : 07:40:00.003, CB Opening Time(msec) : 60, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_56.89 km - Fault Current(MA)) : 11.1, 11.4, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Alstair:</b> Fault Induction Time Mean : 07:40:00.003, CB Opening Time(msec) : 60, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 56.89 km - Fault Current(MA)) : 11.1, 11.4, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Likely High resistance Fault. Remarks: No AR attempted which needs to be addressed by NERDC	Root Cause given by NERDC - Like High Resistance Fault	No AR attempted which needs to be addressed by NERDC	
144	132 KV Agrelita - Balaha 2 Line	TSECL	21-05-2023 06:57	21-05-2023 08:16	00:38:00	TSECL	OP_3_1_4_F0 43 km	NA	NO	YES	YES	NO	TSECL	OP_3_1_4_F0 24.8 km	NA	NO	NO	YES	YES	NO	NO SFS	<b>DR Analysis from Agrelita:</b> Fault Induction Time Mean : 08:07:49.484, CB Opening Time(msec) : 278, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_43 km - Fault Current(MA)) : 17.4, 18.1, Fault Voltage(V)) : 19.88, Angle between(degrees) - 70, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Balaha:</b> Fault Induction Time Mean : 08:07:49.484, CB Opening Time(msec) : 278, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 24.8 km - Fault Current(MA)) : 17.4, 18.1, Fault Voltage(V)) : 19.88, Angle between(degrees) - 70, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - Sensitive DR input only where DR is entered and not using any file, Which protection issued does command is not clear. <b>DR Analysis from Balaha:</b> No DR Submitted, subject to report for fault in fault at 08:07:42.188 hrs and fault cleared in 109 hrs, 19.1, 19.1, 19.1, 19.1, 19.1, Angle between(degrees) - 75 Degree, Likely solid fault	Root Cause given by NERDC - Likely Solid Fault	As per DR analysis most of the trip(s) were single phase to Earth fault likely due to isolation of fault. The study plans to Agrelita and Balaha end do not exist for any of the trip(s). This phase sequence has been checked and rectified by TSECL for proper analysis purposes. It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC
145	Karung 001 1	NERDC	21-05-2023 09:44	21-05-2023 10:09	00:25:00	NERDC	Wind Trip	NA	YES	YES	NO	YES	NA	Not Applicable	NA	NA	NA	NA	NA	NO SFS	<b>DR Analysis from Karung:</b> Fault Induction Time Mean : 09:43:47.482, CB Opening Time(msec) : 23, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_001 km - Fault Current(MA)) : 11.1, 11.1, Fault Voltage(V)) : 19.88, Angle between(degrees) - 73, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No	Stator Earth Fault	Root cause and action taken report may be submitted by NERDC	
146	132 KV Unthar(MPCL) - Bangalore Line	MPCL	22-05-2023 13:09	22-05-2023 13:12	00:03:00	MPCL	Earth Fault	NA	YES	NA	NA	NO	MPCL	Earth Fault	NA	YES	YES	YES	NO	NO SFS	<b>DR Analysis from Bangalore:</b> Fault Induction Time Mean : 13:09:09.041, CB Opening Time(msec) : 60, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_001 km - Fault Current(MA)) : 19.2, 19.4, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Unthar:</b> Fault Induction Time Mean : 13:09:09.041, CB Opening Time(msec) : 60, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_001 km - Fault Current(MA)) : 19.2, 19.4, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Like High Resistance Vegetation Fault	Root Cause given by NERDC - Likely Vegetation Fault	It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC	
147	220 KV Bijnor - Mita 1 Line	MPFCL	24-05-2023 10:10	24-05-2023 11:03	00:53:00	MPFCL	OP_3_1_4_F0 42.2 km	NA	YES	YES	YES	NO	POWERGRID	OP_3_1_4_F0 47.42 km	NA	YES	YES	YES	NO	NO SFS	<b>DR Analysis from Bijnor:</b> Fault Induction Time Mean : 10:20:51.468, CB Opening Time(msec) : 71, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_42.2 km - Fault Current(MA)) : 17.1, 17.2, Fault Voltage(V)) : 19.88, Angle between(degrees) - 70, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Mita:</b> Fault Induction Time Mean : 10:20:51.468, CB Opening Time(msec) : 71, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 47.42 km - Fault Current(MA)) : 17.1, 17.2, Fault Voltage(V)) : 19.88, Angle between(degrees) - 70, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Solid Fault	Root Cause given by NERDC - Likely Solid Fault	DRs till time synchronization to be done.	
148	132 KV Laxmi - Bangalore Line	MPCL	24-05-2023 10:51	24-05-2023 11:12	00:21:00	MPCL	OP_3_1_4_F0 13.36 km	NA	NO	YES	YES	NO	MPCL	Earth Fault	NA	NO	NO	NO	NO	NO SFS	<b>DR Analysis from Bangalore:</b> Fault Induction Time Mean : 10:51:00.579, CB Opening Time(msec) : 133.3, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0_13.36 km - Fault Current(MA)) : 19.2, 19.2, 19.2, 19.2, 19.2, 19.2, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No <b>DR Analysis from Laxmi:</b> Fault Induction Time Mean : 10:51:00.579, CB Opening Time(msec) : 133.3, Fault Characteristics - Relay Indication Mean(OP_3_1_4_F0 13.36 km - Fault Current(MA)) : 19.2, 19.2, 19.2, 19.2, 19.2, 19.2, Fault Voltage(V)) : 19.88, Angle between(degrees) - 67, Autoreset Status - NA, CARBIB SENT - No, Carbin Received - No, DT Sent - No, DT Received - No Other Relevant Information - PN to F Fault, Likely High resistance vegetation fault	Root Cause given by NERDC - Likely Vegetation Fault	It is requested to ensure that pending related activities are undertaken by TSECL in line with Clause no. 2(2), 2(3) and 2(4) of ISA (ISA Standard Regulation - 2022 on regular basis and also request that the pending report and remedial measures taken may be shared with NERDC & NERDC	





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

S.No	Element Name	Owner Name	Tripping Date and Time	RESTORATION Date and Time	OUTAGE DURATION	SENDOWNER	RELAINDICATION_A	AA_A	SENSE_R	SENSE_A	SENSE_X	SENSE_T	SENDOWNER	RELAINDICATION_B	AA_B	SENSE_R	SENSE_A	SENSE_X	SENSE_T	STATUS	DR Analysis	Root Cause	RemedialMeasures
69	132 KV Agrihara - Ashika 1 Line	TSECL	29-05-2022 23:59	30-05-2022 00:28	1:03:00	TSECL	OP_3, 4 & F0:24.74 kVms	NA	NO	YES	YES	NO	TSECL	OP_3, 4 & F0: 24.83kVms	NA	NO	YES	YES	NO	No	<p><b>DR Analysis from Backup:</b> Fault Induction Time Min: 1:18.11.202, CB Opening Time: min: 65, Fault Characteristics: Relay Indication Min: OP_3, 4 &amp; F0:24.74 kVms, Fault Current(MA): 19.08, No. of Faults: 1, Fault Voltage(kV): 19.08, Angle between (degrees): -68, Auto-recloser Status: NA, CARRIER SENT: No, Carrier Received: No, OT Sent: No, OT Received: No</p> <p><b>Other Relevant Information:</b> Ph to B Fault, Likely Solid Fault.</p>	Root Cause given by NERLDC: Likely Solid Fault	As per DR analysis most of the triplogs were single phase to earth fault likely due to solid nature of fault. The faulty phase is Agrihara and Ashika and do not exist for any of the triplogs. The values requested have been checked and verified by TSECL. Also, all CB records submitted from Agrihara Line from a 14. In order to ensure that planning related activities are undertaken by TSECL, a line with Cause: 2022, 2023 and 7-01 of CB (Auto Recloser) Register, 1:03:00 on regular basis and also inspect from the monitoring report and remedial measures taken may be shared with NERDC & NEERC.
170	220 KV Bymahal - Misa 1 Line	MAFTEL	29-05-2022 15:01	29-05-2022 15:35	00:34:00	MAFTEL	OP_3, 4 & F0:73.7 kVms	Not Operated	YES	YES	YES	NO	POWERGRID	OP_3, 4 & F0:73.83 kVms	Not Operated	YES	YES	NO	NO	No	<p><b>DR Analysis from Backup:</b> Fault Induction Time Min: 1:15:09:08 (70) CB Opening Time: min: 73, Fault Characteristics: Relay Indication Min: OP_3, 4 &amp; F0:73.7 kVms, Fault Current(MA): 80.24, No. of Faults: 1, Fault Voltage(kV): 80.24, Angle between (degrees): -56, Auto-recloser Status: Not Operated, CARRIER SENT: No, Carrier Received: No, OT Sent: No, OT Received: No</p> <p><b>Other Relevant Information:</b> Ph to B Fault, Likely Solid Fault. No. of operation records: All CB operation records may be checked by MAFTEL.</p>	Root Cause given by NERLDC: Likely Solid Fault	All with Carrier scheme may be checked by MAFTEL.
171	132 KV Karing - Ashika Line	MSKCL & Duf, Nagaland	29-05-2022 21:46	29-05-2022 22:24	01:38:00	MSKCL	No Tripping	NA	YES	YES	YES	NA	Duf, Nagaland	Backup Earth Fault	NA	YES	YES	YES	NO	No	<p><b>DR Analysis from Backup:</b> B.U.F Protection as per Relay indication. CB opened subsequent to time AFTER the fault has occurred.</p>	Root Cause given by NERLDC: Fault Beyond Line/Overrun Fault	
172	132 KV Wuhai (MSKCL) - Karing Line	MSKCL	29-05-2022 21:46	29-05-2022 22:36	00:50:00	MSKCL	Backup Earth Fault	NA	YES	YES	YES	NO	MSKCL	No Tripping	NA	YES	YES	YES	NA	No	<p><b>DR Analysis from Backup:</b> Fault Induction Time Min: 21:29:58.957 (CB Opening Time: min: 1246, Fault Characteristics: Relay Indication Min: Backup Earth Fault, Fault Current(MA): 80.24, No. of Faults: 1, Fault Voltage(kV): 80.24, Angle between (degrees): -55, Auto-recloser Status: NA, CARRIER SENT: No, Carrier Received: No, OT Sent: No, OT Received: No</p> <p><b>Other Relevant Information:</b> Ph to B Fault. The fault was behind the Karing G. Fault cleared from tripping within 1246 msec.</p>	Root Cause given by NERLDC: Fault Beyond Line/Overrun Fault	As per the Cause Analysis, the fault location seems to be in the downstream side of Karing G. The non-occurrence of fault in the protection system of Karing feeder is the matter of action taken and needs investigation initiated by MSKCL. It is due to non-coverage of fault by the protection relay. Fault was cleared delayed within 1246 msec from tripping and it is more regular to be checked on NTP operation. Therefore, it is recommended to grant to occurrence and done corrective measures taken to MSKCL & NERLDC.
173	400 KV Misa - New Mardani Line	POWERGRID	30-05-2022 13:43	30-05-2022 18:08	04:26:00	POWERGRID	OP_3, 4 & F0: 5.37 kVms	Operated (Unsuccessful)	YES	YES	YES	NO	POWERGRID	OP_3, 4 & F0: 211.1 kVms	Operated (Unsuccessful)	YES	YES	YES	NO	No	<p><b>DR Analysis from Backup:</b> Fault Induction Time Min: 1:18:08:39 (CB Opening Time: min: 13, Fault Characteristics: Relay Indication Min: OP_3, 4 &amp; F0:5.37 kVms, Fault Current(MA): 81.0, No. of Faults: 1, Fault Voltage(kV): 81.0, Angle between (degrees): -60, Auto-recloser Status: Operated (Unsuccessful), CARRIER SENT: No, Carrier Received: No, OT Sent: No, OT Received: No</p> <p><b>Other Relevant Information:</b> Ph to B Fault. Likely Solid Fault. All operation records may be checked by POWERGRID.</p>	As per Cause Report shared by POWERGRID, incident, whether CB tripping or not, happened from lightning strike & hit on insulator @ No. 2025	
174	132 KV Ashika - Waha Line	Duf, Nagaland	30-05-2022 14:58	30-05-2022 16:35	01:37:00	Duf, Nagaland	OP_3, 4 & F	NA	NO	NO	NO	NO	Duf, Nagaland	Over Current	NA	YES	YES	NA	NO	No	<p><b>DR Analysis from Backup:</b> Fault Induction Time Min: 14:27:18.119 (CB Opening Time: min: 83, Fault Characteristics: Relay Indication Min: OP_3, 4 &amp; F0:24.74 kVms, Fault Current(MA): 19.08, No. of Faults: 1, Fault Voltage(kV): 19.08, Angle between (degrees): -68, Auto-recloser Status: NA, CARRIER SENT: No, Carrier Received: No, OT Sent: No, OT Received: No</p> <p><b>Other Relevant Information:</b> CB for Ashika not connected by Duf, Nagaland.</p>	Root Cause given by NERLDC: Likely Solid Fault	Root cause and action taken report may be submitted by Duf, Nagaland
175	132 KV Doung Saha Line	Duf, Nagaland	30-05-2022 16:25	31-05-2022 17:56	1:03:00	NERLDC	OP_3, 4 & F	NA	NO	NO	YES	YES	Duf, Nagaland	Backup Earth Fault	NA	YES	YES	NO	NO	No	<p><b>DR Analysis from Backup:</b> Fault Induction Time Min: 1:47:18.758 (CB Opening Time: min: 206, Fault Characteristics: Relay Indication Min: Backup Earth Fault, Fault Current(MA): 81.0, No. of Faults: 1, Fault Voltage(kV): 81.0, Angle between (degrees): -55, Auto-recloser Status: NA, CARRIER SENT: No, Carrier Received: No, OT Sent: No, OT Received: No</p> <p><b>Other Relevant Information:</b> CB for Ashika not connected by Duf, Nagaland.</p>	Root Cause given by NERLDC: Trip falling on the line due to heavy thunderstorm.	Tree falling on the line due to heavy thunderstorm.
176	132 KV Ashika - Waha Line	Duf, Nagaland	30-05-2022 16:25	30-05-2022 16:52	00:27:00	Duf, Nagaland	Over Current	NA	NO	NO	NO	NO	Duf, Nagaland	Backup Over Current	NA	YES	YES	NA	NO	No	<p><b>DR Analysis from Backup:</b> Fault Induction Time Min: 16:24:33.44 (CB Opening Time: min: 165, Fault Characteristics: Relay Indication Min: Backup Over Current, Fault Current(MA): 19.08, No. of Faults: 1, Fault Voltage(kV): 19.08, Angle between (degrees): 137, Auto-recloser Status: NA, CARRIER SENT: No, Carrier Received: No, OT Sent: No, OT Received: No</p> <p><b>Other Relevant Information:</b> 1. Ph to B Fault was on 132 KV Doung Saha Line due to fault on the side was cleared from Doung S 2. 2. Same fault was also seen on Duf, Nagaland for Ashika to Karing but CB was not connected for Ashika to Karing. It is noted that there may be delay/non-coverage of fault from Saha to Doung Line due to which fault was cleared from Ashika's G.S. Protection system to be checked as per by Duf, Nagaland.</p>	Root Cause given by NERLDC: Fault Beyond Line/Overrun Fault	It seems that there may be delay/non-coverage of fault from Saha to Doung Line due to which fault was cleared from Ashika's G.S. Protection system to be checked as per by Duf, Nagaland.
177	Doung Line 3	NERLDC	30-05-2022 19:45	30-05-2022 20:20	00:36:00	NERLDC	Negative Phase sequence	NA	NO	YES	YES	YES	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p><b>DR Analysis from Backup:</b> Line 3, NPS Relay operated at 19:45:55.872 hrs</p>	Root Cause not concluded	Root cause and action taken report may be submitted by NERLDC
178	AGBP Line 4	NERLDC	31-05-2022 08:34	31-05-2022 08:33	00:29:00	NERLDC	Due to loss in connection motor and loss of cooler fans of CB which leads to loss signal coming from GIS leading to misoperation of relay	NA	NO	NO	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p>No DR &amp; EI reports submitted</p>	Root Cause given by NERLDC: Relay Misoperation	Root cause and action taken report may be submitted by NERLDC
179	AGBP Line 2	NERLDC	31-05-2022 08:38	31-05-2022 13:14	04:36:00	NERLDC	Due to loss in connection motor and loss of cooler fans of CB which leads to loss signal coming from GIS leading to misoperation of relay	NA	NO	NO	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p>No DR &amp; EI reports submitted</p>	Root Cause given by NERLDC: Relay Misoperation	Root cause and action taken report may be submitted by NERLDC
180	AGBP Line 7	NERLDC	31-05-2022 08:56	31-05-2022 16:32	07:36:00	NERLDC	Due to non-availability of GTS 1 and 2	NA	NO	NO	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p>No DR &amp; EI reports submitted</p>	Loss of excitation fault	-
181	AGBP Line 1	NERLDC	31-05-2022 08:56	03-06-2022 09:22	3:00:24:00	NERLDC	Due to power failure in emergency bus (DVP relay report)	NA	NO	NO	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p>No DR &amp; EI reports submitted</p>	Due to power failure in emergency bus (DVP relay report)	Root cause and action taken report may be submitted by NERLDC
182	BGPP Line 3	NTPC	31-05-2022 13:48	31-05-2022 17:27	03:39:00	NTPC	Tripping of boiler due to loss of PA header	NA	NO	NO	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p>No DR &amp; EI reports submitted</p>	Tripping of boiler due to loss of PA header	Root cause and action taken report may be submitted by NTPC
183	Monachuk Unit D1	NERLDC	31-05-2022 14:54	31-05-2022 16:08	00:53:00	NERLDC	Due to over tripping	NA	NO	NO	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p>No DR &amp; EI reports submitted</p>	Due to over tripping	Root cause and action taken report may be submitted by NERLDC
184	Monachuk Unit C1	NERLDC	31-05-2022 14:54	31-05-2022 16:04	00:50:00	NERLDC	Due to over tripping	NA	NO	NO	NO	NO	NA	Not Applicable	NA	NA	NA	NA	NA	No	<p>No DR &amp; EI reports submitted</p>	Due to over tripping	Root cause and action taken report may be submitted by NERLDC