



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
पूर्वी क्षेत्रीय विद्युत समिति
Eastern Regional Power Committee
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NO. ERPC/PROTECTION/2020/850-896

DATE: 06.05.2020

To,

As per list enclosed,

Sub: Notice for 90th Protection Coordination sub-Committee (PCC) meeting of ERPC

Sir,

Notice is hereby given that **90th PCC meeting** of ERPC will be held on **13.05.2020(Wednesday)** from **11:00 hrs** to **14:00 hrs** through online WEBEX meeting platform.

The tentative agenda items for discussion will be as follows:

- 1) Confirmation of the minutes of 89th Protection sub-Committee Meeting of ERPC.
- 2) Analysis of following grid disturbances of March and April 2020:

SI No	GD/ GI	Date	Time	Affected System	Summary	Load loss (MW)	Gen loss (MW)
1	GD-1	05-03-2020	19:27	ISTS	At 19:27Hrs, 400kV JITPL-Angul D/C tripped on B-N fault. At the time of the event, inclement weather was reported. JITPL Unit#1 was generating around 560MW, which got tripped due to no evacuation path.	0	560
2	GI-1	13-03-2020	03:26	OPTCL	At 03:21 Hrs., 220 kV Budhipadar – Raigarh S/C tripped hrs. due to snapping of R phase wave trap jumper of this line. At 03:26 hrs., 220 kV Korba East -Buddhipadar 2 and 3 also tripped on R phase to earth fault and Y phase to earth fault respectively. However, after 300 ms, 220 kV bus coupler breaker along with 220 kV Budhipadar Bus 2 and all connected elements got tripped at 220/132 kV Budhipadar S/S on bus bar protection relay operation.	0	0
3	GD-1	15-03-2020	13:52	ISTS	At 13:52 hrs 400 kV Teesta III - Kishangunj S/C, 400 kV Teesta III - Dikchu S/C and 400 kV Dikchu - Rangpo S/C tripped resulting total power failure at Teesta III and Dikchu. DT received at Teesta III from remote ends for both feeders. E/F protection picked up at Dikchu end.	0	200

4	GD-1	15-03-2020	16:12	JUSNL	At 16:12 hrs 220 kV Tenughat – Biharsharif S/C and 220 kV Patratu – Tenughat S/C tripped on earth fault protection resulting in tripping of both running units at Tenughat due to loss of evacuation path.	0	300
5	GI-1	28-03-2020	18:49	ISTS	At 18:49 hrs, 220 KV Muzaffarpur bus 1 tripped on LBB maloperation associated with 400/220 KV ICT 1 CB. Due to this, 220 KV Muzaffarpur Hajipur 1, 220 KV Muzaffarpur KBUNL 2, 220 KV Muzaffarpur Dhalkebar - 1, 400/220 KV ICT 1 and 2 at Muzaffarpur tripped.	0	0
6	GD-1	29-03-2020	19:21	JUSNL	At 19:21 hrs, R phase CT of 220 kV STPS bay of 220/132 kV Chandil s/s burst resulting tripping of all 220 kV feeders connected to Chandil S/S.	210	0
7	GD-1	01-04-2020	18:23	ISTS	At 18:23 hrs, 220 kV Rangpo - New Melli - S/C got tripped due to R and Y phase to earth fault in the circuit near to Rangpo end. In addition to this, 132 kV Rangpo Gangtok D/C also got tripped simultaneously with this fault. As Gangtok load was radially supplied from Rangpo through 132 kV Rangpo-Gangtok D/C so with their tripping, total power failure occurred at Gangtok city. At same time, 220 kV Rangpo – Tashiding S/C also got tripped only from Tashiding end sensing the same R and Y phase to earth fault in zone – 1 resulting total power failure at Tashiding – Jorethang – New Melli section and tripping of running unit at Tashiding due to loss of evacuation path. After these, at 18:28 hrs. 132 kV Rangpo Chujachen – D/C tripped from both ends on Y and B phase to earth fault. The fault was in circuit 1 based on which Chujachen has issued trip command in zone 1 and send DT to remote end. However, at the same time due to receipt of Direct trip from remote end, circuit 2 got tripped from Rangpo end. This led to black out of 132 kV Chujachen Hydro Power substation.	28	35
8	GD-1	03-04-2020	03:19	OPTCL	At 03:19 hrs. all running units and connected 220 kV feeders at Balimela HEP tripped on operation of bus bar protection of 220 kV bus 2 at Balimela (only bus 2 was in service at the time of disturbance) due to bursting of B phase bus CT (SLD attached in annexure 1) at Balimela end of 220 kV Balimela – Jayanagar – 1. On inspection, SF6 circuit breaker, post insulator, line isolator (both 3P and 4P) and line CT of 220 kV Balimela – Jayanagar – 1 at Balimela end were also found in damaged condition.	0	245
9	GD-1	14-04-2020	12:47	JUSNL	220 KV Tenughat (TTPS) Biharshariff S/C tripped on 12:32 hrs. due to B phase to earth fault. At 12:46 hrs, 220 kV Tenughat (TTPS) –	0	299

					Patratu (PTPS) S/C tripped on earth fault from PTPS end resulting in tripping of both running units at TTPS due to loss of the only available evacuation path. With this 220 kV Tenughat substation got black out.		
10	GD-1	15-04-2020	17:20	JUSNL	At 17:20 hrs., 220 kV Santaldih TPS (STPS) – Chandil S/C, 220 kV Ranchi – Chandil S/C and 220 kV Ramchandrapur – Chandil S/C tripped. At same time, flush at LT side of one 100 MVA, 220/132 kV ICT was observed and all four 132 kV feeders connected to Chandil were hand tripped resulting total power failure at Chandil end	35	0
11	GD-1	17-04-2020	10:50	DVC	At 10:49 hrs. 220 kV Waria – Parulia – 1 tripped on B phase to earth fault. At the same time all connected 220 kV lines tripped from Parulia end due to operation of bus bar protection. Around 30 kV dip has been observed in B phase voltage at Durgapur PMU data at the time of the disturbance. No auto-reclose operation has been captured in PMU data.	25	0
12	GD-1	18-04-2020	19:34	OPTCL	GMR unit # 3 was connected to rest of the grid via 400 kV Meramundali – GMR S/C. At 19:34 hrs, 400 kV GMR – Meramundali S/C tripped on B phase to earth fault (fault location at 4 km from Meramundali) resulting tripping of this unit.	0	249
13	GD-1	19-04-2020	20:54	ISTS	400/132 kV Motihari was connected to rest of the grid via 400 kV Barh – Motihari – 2 (Others lines are under breakdown due to tower-collapse) and radial load of 132 KV Betiya, 132 KV Motihari (Bihar) and 132 KV Raxaul was supplied through 400/132 kV ICT – 2 at Motihari. At 20:54 hrs. 400 kV Barh – Motihari – 2 got tripped due to Y phase to earth fault resulting in total power failure at 400/132 kV Motihari along with 132 kV Motihari, 132 kV Betiya and 132 kV Raxaul and other surrounding areas.	140	0
14	GD-1	21-04-2020	11:00	ISTS	At 09:30 hrs, 400 kV Teesta III – Dikchu S/C tripped from both ends. Due to problem in relay line could not be charged from Dikchu end and line was idle charged from Teesta III end .At 11:00 hrs, 400 kV Teesta III – Kishangunj S/C tripped from Teesta III end on operation of over voltage stage I protection and from Kishangunj end due to DT receipt.	0	0
15	GI-2	21-04-2020	18:29	ISTS	At 18:26 hrs. successful auto-reclose of 400 kV JITPL – Angul – 2 occurred at JITPL end for transient R phase to earth fault. At 18:29 hrs. both running units at JITPL tripped because of operation of bus bar protection of bus 2 at JITPL due to CT failure	0	749

16	GD-1	22-04-2020	20:12	JUSNL	At 20:12 hrs. 220 kV Tenughat (TTPS) – Patraru (PTPS) S/C tripped from PTPS end detecting a B phase to earth fault in zone 1. At same time, 220 kV TTPS – Biharshariff S/C tripped from Biharshariff end in 350 ms on zone – 2 distance protection. Due to tripping of both circuits, both the running units at TTPS tripped due to loss of evacuation path and total power failure occurred at TTPS	50	313
17	GD-1	26-04-2020	08:42	ISTS	400/132 kV Motihari was connected to rest of the grid via 400 kV Barh – Motihari – 2 (Others lines are under breakdown due to tower-collapse) and radial load of 132 KV Betiya, 132 KV Motihari (Bihar) and 132 KV Raxaul was supplied through 400/132 kV ICT – 2 at Motihari. During the event, 400 kV Barh – Motihari – 2 got tripped due to Y phase to earth fault resulting in total power failure at 400/132 kV Motihari along with 132 kV Motihari, 132 kV Betiya and 132 kV Raxaul and other surrounding areas.	80	0
18	GD-1	26-04-2020	11:10	ISTS	400/132 kV Motihari was connected to rest of the grid via 400 kV Barh – Motihari – 2 (Others lines are under breakdown due to tower-collapse) and radial load of 132 KV Betiya, 132 KV Motihari (Bihar) and 132 KV Raxaul was supplied through 400/132 kV ICT – 2 at Motihari. During the event, 400 kV Barh – Motihari – 2 got tripped due to Y phase to earth fault resulting in total power failure at 400/132 kV Motihari along with 132 kV Motihari, 132 kV Betiya and 132 kV Raxaul and other surrounding areas.	80	0
19	GI-1	28-04-2020	06:29	JUSNL	At 06:12 hrs auxiliary transformer of unit 1 at TTPS at tripped due to mal operation of differential relay resulted tripping of Tenughat Unit 1. At 06:29 hrs, all feeders connected to Bus 2 including Tenughat Unit #2, 220 kV TTPS – Patraru (PTPS) S/C, Station Transformer 2 at TTPS and 220 KV Bus coupler beaker at TTPS tripped due to operation LBB operation at TTPS. However, Tenughat station supply remains intact through 220 kV TTPS – Biharshariff S/C which was connected to 220 kV Bus-1 at TTPS.	50	300
20	GD-1	30-04-2020	19:37	JUSNL	At 19:37 hrs, all 220 kV lines and 220/132 kV ATRs tripped at Chandil due to burst 100 MVA 220/132 kV ICT - 3 at Chandil and total power failure occurred at Chandil and its nearby areas. Due to testing of other ICTs, initially power was extended to affected area from Manique (DVC) by 21:18 hrs.	145	0

- 3) Single line tripping incidences of March 2020 is enclosed at **Annexure-1**.
- 4) Single line tripping incidences of April 2020 will be shared with Agenda of 90th PCC Meeting.

You are requested to kindly furnish the detail report along with all records (SLD, SOE, DR, Relay and schematic diagram of auxiliary supply, wherever applicable) related to above trippings for meaningful analysis during the meeting. You are also requested to upload the details in on-line tripping incident reporting system implemented in Protection Database Management System www.erpc-protectiondb.in.

Your participation in the meeting is highly solicited.

Yours faithfully,

(J. Bandyopadhyay)
Member Secretary

LIST OF ADDRESSES:

Chief Engineer, Trans (O&M) Bihar State Power Transmission Limited, Vidyut Bhawan, Bailey Road, Patna-800021	Electrical Superintending Engineer (CRITL) Bihar State Power Transmission Limited, Vidyut Bhawan, Bailey Road, Patna-800021
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Executive Director, ERLDC, POSOCO, Tollygunge, Kolkata-700033	Head Construction, ENCIL, Siliguri-7340051
General Manager (OS), ER-II Power Grid Corporation of India Ltd., J-I-15, Block-EP, Sector-V, Salt Lake, Kolkata-91	Shri A.K.Nayak/Shri Sumit S Ghosh Maithon Power Limited, Maithon Office, MA 5 Gogna, Dist. Dhanbad, Jharkhand State, PIN-828207
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Managing Director, Bhutan Power Corporation Post Box no. 580, Thimpu, Bhutan.	Managing Director, Druk Green Power Corpn. P.O. Box-1351, Thimpu, Bhutan.
General Manager, Darbhanga (Bihar), Darbhanga Motihari Transmission Company Limited (DMTCL)	Shri Brajesh Kumar Pande, Plant Head, JITPL. (FAX:011-26139256-65)
Shri D. P. Bhagava, Chief Consultant (O&M), Teesta Urja Limited, New Delhi (FAX:011-46529744)	Director (GM Division), Central Electricity Authority Sewa Bhawan, R. K. Puram, New Delhi-110066
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CC:

ASSISTANT SECRETARY, ERPC		
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List of important transmission lines in ER which tripped in March2020											Annexure1	
S.NO	LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION TIME	Relay Indication end 1	Relay Indication end 2	Reason	Fault Clearance time in msec	Remarks	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END
1	400KV-MEERAMUNDALI-MENDHASAL-2	3/1/2020	7:47	3/1/2020	9:02	Meramundali: DT Receipt	Did not trip	DT Received at Meramundali	Fault was not observed in PMU data	DT receipt signal is not configured in Meramundali end DR, DR may be configured as per ER PCC's recommendation Reason for DT receipt may be shared	YES	--
2	400KV-NEW PPSP-ARAMBAGH-1	3/2/2020	12:52	3/2/2020	13:11	ZONE 1, DISTANCE= 132.8 KM, FAULT CURRENT=2.6 KA	ZONE 1, DISTANCE= 67 KM, FAULT CURRENT= 3.51 KA	B phase to Earth Fault	< 100 msec	Reason for non A/R attempt at Arambag end may be shared. Line successfully auto-reclosed at New PPSP end	YES	NO
3	220KV-MAITHON-DUMKA-2	3/3/2020	1:54	3/3/2020	2:37	R-N Ir 3.45 kA Loc 62 KM@Maithon	Zone- 01, R-ph, fault location:- 10.80 km @Dumka	R phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation may be shared.	NO	NO
4	220KV-DARBHANGA(DMTCL)-LAUKAHI-1	3/6/2020	4:11	3/7/2020	19:17	OVERVOLTAGE	Yet to be received	R phase to Earth Fault	6000 msec	Reason for delayed fault clearing may be shared. As per PMU data high resistant R phase to earth fault has been observed	NO	NO
5	400KV-MEERAMUNDALI-MENDHASAL-2	3/6/2020	11:48	3/6/2020	12:23	Tripped from Meramundali end only. DT received	Did not trip	DT Received at Meramundali	Fault was not observed in PMU data	DT receipt signal is not configured in Meramundali end DR, DR may be configured as per ER PCC's recommendation Reason for DT receipt may be shared	YES	--
6	400KV-MEERAMUNDALI-MENDHASAL-2	3/6/2020	13:29	3/6/2020	14:03	DT received at Meramundali	Yet to be received	DT Received at Meramundali	Fault was not observed in PMU data	DT receipt signal is not configured in Meramundali end DR, DR may be configured as per ER PCC's recommendation Reason for DT receipt may be shared	YES	NO
7	400KV-NEW PPSP-NEW RANCHI-2	3/7/2020	10:27	3/7/2020	10:42	Yet to be received	NRNC: DT Received	DT Received at New Ranchi	Fault was not observed in PMU data	Reason for DT receipt may be shared. New PPSP may confirm whether they send DT signal	NO	YES
8	400KV-NEW PPSP-NEW RANCHI-1	3/7/2020	17:22	3/7/2020	18:04	NPPSP: DT SENT	NRANCHI: DT RECEIPT	DT Received at New Ranchi	Fault was not observed in PMU data	Reason for sending DT signal from New PPSP end may be shared	NO	YES
9	220KV-CHANDIL-STPS(WBSEB)-1	3/7/2020	23:46	3/8/2020	0:06	z-1 86 km, 1.93 kA B-N at Chandil	AT STPS: B-N,Z-1,22.1 KM,5.6KA	B phase to Earth Fault	1360 msec	Breaker operation status may be configured in DR at Chandil end. Reason for non opening of B phase breaker at Chandil end for 1.4 seconds approx. may be explained. Reason for opening of R & Y phase breaker at Chandil end 400 ms after the tripping may be explained. Both Chandil and STPS end need to be time synchronized.	YES	YES
10	220KV-DARBHANGA (DMTCL)-MOTIPUR-1	3/9/2020	11:05	3/9/2020	11:43	Drabhanga-Z2 E/F, Dist-86.2 km DT send	B-N, 1.8 kA, z-1	B phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation may be shared.	NO	YES
11	220KV-DARBHANGA (DMTCL)-MOTIPUR-1	3/9/2020	13:40	3/9/2020	20:56	Yet to be received	B-N,59 KM,Z2@MOTIPUR	B phase to Earth Fault	Fault was not observed in PMU data	Reason for non auto-reclose operation may be shared.	NO	DR sent for different timing

S.NO	LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION TIME	Relay Indication end 1	Relay Indication end 2	Reason	Fault Clearance time in msec	Remarks	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END
12	400KV-MERAMUNDALI-LAPANGA-2	3/10/2020	11:54	3/11/2020	17:49	Y-N,Z1,FD 91.3 KM,FC 4.95 KA	Y-N, Z-1, 2.6 kA	Y phase to Earth Fault	<100 ms	Reason for non auto-reclose operation at Meramundali may be shared.	YES	YES
13	220KV-PUSAULI-DEHRI-1	3/12/2020	11:51	3/12/2020	12:28	B-N,10.912 KM,7.121 IN IB	Started phase-bn Tripped phase-R y b Ia-176.3a Ib-91094a Ic-2.029ka Van-126kv Vbn-134.6kv Vcn-85.70 kv Fault location-49.58km zone -1 at Dehri	B phase to Earth Fault	< 100 msec	Auto reclose operation did not took place at both ends. Reason may be shared. CB operation may be configured correctly in Gaya end DR. Time synchronization may be done at Dehri end	YES	YES
14	220KV-MUZAFFARPUR-HAJIPUR-1	3/13/2020	7:21	3/14/2020	15:42	R-N,FD 6.3KM,FC 12KA@MZF	R-N,1.89KA,FD 71.8 KM@HAJIPUR	R phase to Earth Fault	< 100 msec	Auto reclose operation did not took place at both ends. Reason may be shared. Naming of digital channels may be configured correctly at Muzaffarpur end	YES	NO
15	400KV-PUSAULI(PG)-NABINAGAR(BRBCL) 1	3/13/2020	19:26	3/13/2020	20:22	PLI: R-N, 81Km, 4.9KA	Yet to be received	R phase to Earth Fault	< 100 msec	At Pusauli, all three pole of tie CB tripped instantaneously and Y & B pole of main CB tripped after 1600 msec without auto reclose attempt. Nabinagar end DR may be shared	YES	NO
16	220KV-DEHRI-GAYA-1	3/13/2020	20:00	3/13/2020	20:29	B-N, Z-1, 3 kA	Gaya-B-N, 63.9Km, 2.3KA	B phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation at Dehri end may be shared. Dehri end DR is not time synchronized.	YES	YES
17	220KV-GAYA-SONENAGAR-2	3/13/2020	20:49	3/13/2020	21:07	Gaya: R-N, 21.8KM, 7.2KA, Auto reclose successful	R-N, 1,2 kA, z-1	R phase to Earth Fault	< 100 msec	Reason for opening healthy phase breakers at Sonenagar end without any auto-reclose attempt may be shared. Dead time at Sonenagar end may be reviewed	YES	YES
18	400KV-MERAMUNDALI-LAPANGA-2	3/16/2020	15:53	3/16/2020	21:37	Did not trip	DT received	DT received at Lapanga.	Fault was not observed in PMU data	Reason for DT receipt at Lapanga end may be shared. Meramundali end may confirm whether DT sent or not	NO	NO
19	765 kV Jharsuguda Raipur - 2	3/19/2020	14:20	3/19/2020	18:02	Y-N, 89.95 Kms Fault Current:7.116 Ka	Y-n, 202.5 Kms Fault Current:5.6 kA	Y phase to Earth Fault	< 100 msec	Reason for opening healthy phase breakers at Jharsuguda end without any auto-reclose attempt may be shared.	YES	NO
20	400 kV Angul Jharsuguda 3	3/19/2020	14:32	3/19/2020	15:21	Y-N, Z-2, 3.2 kA	Zone-1 Y-N fault ly-8.92ka Fault Location- 65.1km at Jharsuguda	Y phase to Earth Fault	< 100 msec	Reason for Auto reclose lock out at Angul end may be shared; Unsuccessful auto reclose operation has been observed at Jharsuguda end	YES	NO
21	220 kV Budhipadar - Korba - 2	3/19/2020	15:20			Z1,FD 1.3 KM,24.05 KA,R-N	Yet to be received	R phase to Earth Fault	< 100 msec	Reason for non-auto reclose operation at Budhipadar end may be shared. DR may be configured at Budhipadar end as per PCC's recommendation and post fault time window may be increased;	YES	NO
22	400KV-JHARSUGUDA(GIS)-OPGC-1	3/19/2020	15:26	3/19/2020	16:07	Jharsuguda:r-n,11.5 KA,FAULT 29.6 KM,A/R SUCCESSFUL	TRIPPED FROM OPGC END ONLY:R-N,21 KM	R phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation at OPGC may be shared.	YES	NO

S.NO	LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION TIME	Relay Indication end 1	Relay Indication end 2	Reason	Fault Clearance time in msec	Remarks	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END
23	400KV-MERAMUNDALI-LAPANGA-1	3/19/2020	16:54	3/19/2020	20:11	135 KM,Y-N,3.07 KA AT MEERAMANDALI	83.6 KM :Y-N;Z1 AT LAPANGA	Y phase to Earth Fault	< 100 msec	Dead time of tie breaker was less than main breaker at Lapanga end; auto reclose of main breaker occurred even after unsuccessful auto-reclose of tie breaker and opening of healthy poles of main breaker. Reason may be shared. Reason for non-auto reclose operation at Meramundali end may be shared. DR at Meramundali end may be configured as per ER PCC's recommendation	YES	YES
24	220 kV Talcher Meramundali -1	3/19/2020	18:03	3/20/2020	9:42	Yet to be received	Z1,R-N,7.68 KM,11.55 KA AT MEERAMANDALI	R phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation may be shared. DR at Meramundali end may be configured as per ER PCC's recommendation	NO	YES
25	400 kV Talcher Meramundali - 1	3/19/2020	18:14	3/20/2020	9:45	Yet to be received	Z1,R-N,9.5KA,34.4 KM AT MEERAMANDALI	R phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation may be shared. DR at Meramundali end may be configured as per ER PCC's recommendation	NO	YES
26	400KV-MERAMUNDALI-LAPANGA-1	3/19/2020	23:18	3/20/2020	13:39	Meramundali: RN 68.5 KM, 7.1 KA	Lapanga: Z1 RN DIST-135.2km IR- 2.798 kA	R phase to Earth Fault	< 100 msec	Dead time of tie breaker was less than main breaker at Lapanga end; auto reclose of main breaker occurred even after unsuccessful auto-reclose of tie breaker and opening of healthy poles of main breaker. Reason may be shared. Reason for non-auto reclose operation at Meramundali end may be shared. DR at Meramundali end may be configured as per ER PCC's recommendation	YES	YES
27	220KV-MUZAFFARPUR-HAJIPUR-2	3/20/2020	9:35	3/20/2020	10:12	bus bar protection maloperation while testing ict 1	Yet to be received	Maloperation of Bus Bar protection.	Fault was not observed in PMU data	Reason for bus bar operation may be shared. Same incident has been observed on 28th March 2020	NO	NO
28	220KV-TENUGHAT-BIHARSARIFF-1	3/20/2020	12:22	3/20/2020	12:57	B-N, Z-1, 3.14 kA 59.34 km	E/F, Zone 1, distance 146.2 KM ,fault resistance 28.88 Ohm	B phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation may be shared.	NO	NO
29	220KV-DEHRI-GAYA-2	3/20/2020	12:23	3/20/2020	13:17	B-N fault zone -1 29.49km from Dehri end I _c --2.685 kA	fault current 2.35 kA, B-N fault 64.9 km from Gaya	B phase to Earth Fault	< 100 msec	Reason for non auto-reclose operation at both ends may be shared. Dehri end DR is not time synchronized. CB operation may be configured correctly in Gaya end DR.	NO	YES
30	400KV-MEERAMUNDALI-MENDHASAL-2	3/21/2020	13:25	3/21/2020	13:45	Master Trip	Yet to be received	Master Trip	Fault was not observed in PMU data	Reason for master trip operation at Meramundali end may be shared	NO	NO
31	400KV-DURGAPUR-SAGARDIGHI-1	3/21/2020	18:49	3/21/2020	20:09	DGP: R-N, 3.983KA, 107.09KM	SDG:R-N, 2.9Km, 26.29KA	R phase to Earth Fault	1000 msec	As per PMU at Durgapur (PG) , Three phase A/R successful at 18:49:30 hrs and then Three phase tripped at 18:50:40 hrs.	NO	NO

S.NO	LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION TIME	Relay Indication end 1	Relay Indication end 2	Reason	Fault Clearance time in msec	Remarks	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END
32	400KV-KHSTPP-BANKA (PG)-1	3/21/2020	20:19	3/22/2020	10:05	KHSTPP: R-N, Z1, 4.5km from KhSTPP, 30.89kA	BANKA: R-N, 7KA, 48KM	R phase to Earth Fault	< 100 msec	R phase Main CB multiple times open and closed at Banka. Three phase tripped instantaneously. Auto reclose attempt was not observed in DR shared by NTPC and PG. Reason may be shared. KhSTPP end DR may be configured as per PCC's recommendation.	YES	YES
33	400KV-DURGAPUR-SAGARDIGHI-1	3/22/2020	15:48	3/22/2020	16:34	Durgapur End-Z1, YN Dist-23.6 km 25.16	Sagardighi End-YN, z1, Dist.-95.8km 3.87 kA	Y phase to Earth Fault	< 100 msec	Reason for non auto reclose operation may be shared	NO	NO
34	400KV-MERAMUNDALI-LAPANGA-1	3/23/2020	13:27	3/23/2020	18:24	Y-N, 3.22KA, 129.1KM	Y-N, 3.6 kA, Z-1	Y phase to Earth Fault	< 100 msec	Dead time of tie breaker was less than main breaker at Lapanga end; auto reclose of main breaker occurred even after unsuccessful auto-reclose of tie breaker and opening of healthy poles of main breaker. Reason may be shared. Reason for non-auto reclose operation at Meramundali end may be shared. DR at Meramundali end may be configured as per ER PCC's recommendation	YES	YES
35	400KV-MERAMUNDALI-LAPANGA-1	3/24/2020	11:53	3/24/2020	17:45	Meramundali: 124 km fc ly 3.21 kA lb 3.86 kA Y-B	Lapanga: Z1, Y-N, 89 kM	Y phase to Earth Fault	< 100 msec	Dead time of tie breaker was less than main breaker at Lapanga end; auto reclose of main breaker occurred even after unsuccessful auto-reclose of tie breaker and opening of healthy poles of main breaker. Reason may be shared. Reason for non-auto reclose operation at Meramundali end may be shared. DR at Meramundali end may be configured as per ER PCC's recommendation	YES	YES
36	400KV-KODERMA-BIHARSARIFF(PG)-2	3/26/2020	13:38	3/26/2020	14:39	R- N fault, 68.7 km from BS 2.07 kA	auto reclose unsuccessful at koderma end	R phase to Earth Fault	< 100 msec	Reason for no A/R operation at Koderma may be shared	YES	only cfg file
37	400KV-NEW CHANDITALA-KHARAGPUR-1	3/27/2020	10:28	3/27/2020	10:49	KGP: B-N,,Z1,6.903km,8.378 kA.	N CHANDITALA: B-N,,z1,108.9km,2.596kA	B phase to Earth Fault	< 100 msec	Reason for opening of healthy breakers without reclose attempt at Kharagpur end may be shared	YES	YES
38	400KV-NEW CHANDITALA-KHARAGPUR-1	3/27/2020	12:08	3/27/2020	16:44	KGP: B-PH,Z1,7.802KM,FC 7.94KA	NCHD:B-PH,FD 107.6KM FC 2.74KA	B phase to Earth Fault	< 100 msec	Reason for opening of healthy breakers without reclose attempt at Kharagpur end may be shared	YES	YES
39	400KV-MEERAMUNDALI-MENDHASAL-2	3/31/2020	10:22	3/31/2020	11:18	DT received at Meramundali	Yet to be received	DT Received at Meramundali	Fault was not observed in PMU data	DT receipt signal is not configured in Meramundali end DR, DR may be configured as per ER PCC's recommendation Reason for DT receipt may be shared	NO	NO