



Agenda
for
87th PCC Meeting

Date: 21.01.2020
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 87TH PROTECTION SUB-COMMITTEE MEETING TO BE HELD AT ERPC, KOLKATA ON 21.01.2020 (TUESDAY) AT 11:00 HOURS

PART – A

ITEM NO. A.1: Confirmation of minutes of 86th Protection sub-Committee Meeting held on 18th December, 2019 at ERPC, Kolkata.

The minutes of 86th Protection Sub-Committee meeting held on 18.12.19 circulated vide letter dated 26.12.2019.

Members may confirm the minutes of 86th PCC meeting.

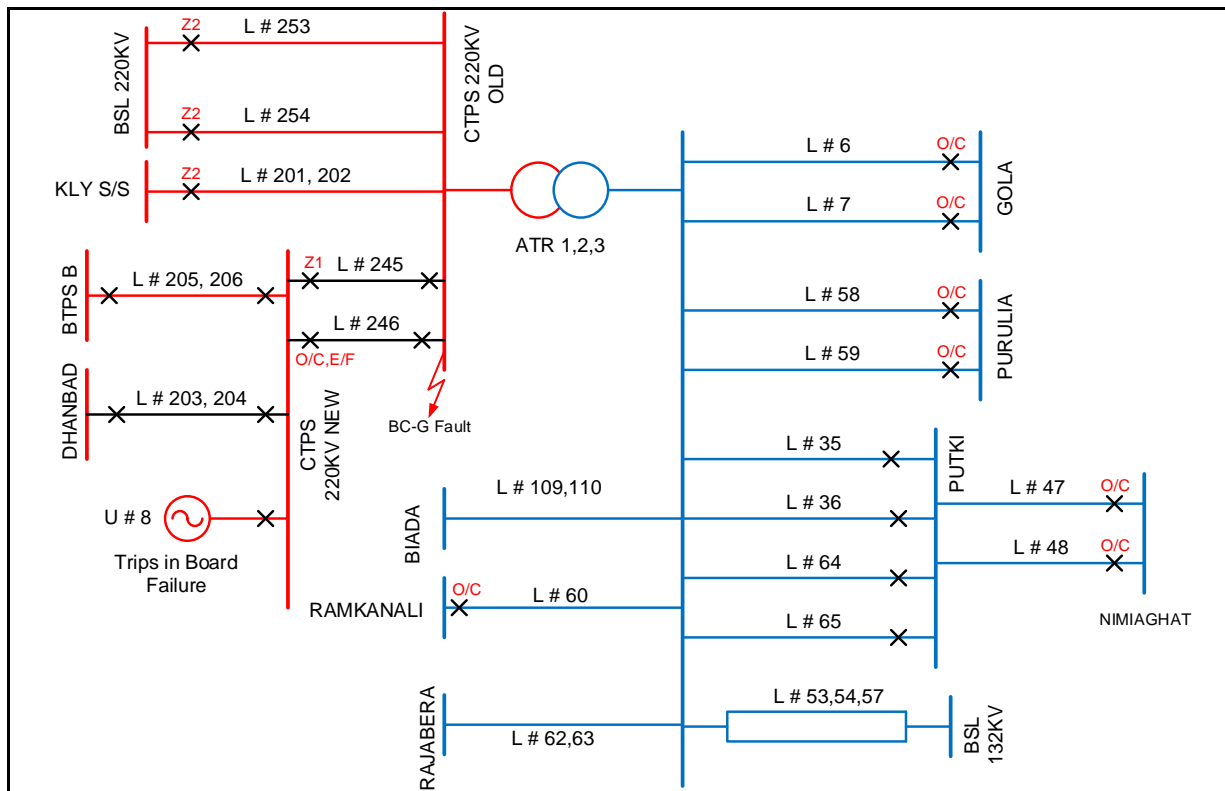
PART – B

ANALYSIS & DISCUSSION ON GRID INCIDENCES OCCURRED IN DECEMBER, 2019

ITEM NO. B.1: Disturbance at CTPS-A 220 kV/132 kV substation on 28.12.2019 at 05:26 Hrs.

At 05:25 Hrs, total power failure occurred at CTPS-A switch yard (both 220 kV and 132 KV). In addition to this, Unit # 8 at CTPS B plant has tripped at same time due to auxiliary system failure.

Since 132 kV Putki – Patherdih link was disconnected and it was being radially fed from CTPS A, total power failure has also occurred at this substation due to loss of incoming supply.



It is suspected that fault was at 220 kV bus at CTPS – A s/s. As Bus bar protection was not in service, 220 kV feeders and 220/132 kV ICTs at CTPS – A tripped from remote end in back up protection.

D/P relay at CTPS – B end of 220 kV CTPS A – CTPS – B tie circuit – 2 overreached for this fault (Z-I setting is 80% of line section) and tripped in Z-I.

Generation Loss: 193 MW & Load Loss: 300 MW

Relay indications are as follows:

1. Line # 245 (CTPS new - CTPS old): Line differential protection (SEL311L Relay):- Z1, BCG at CTPS new 220 kV Sub Station. No Trip at CTPS 220 kV Old Sub Station.
2. L # 246 (CTPS new- CTPS old): Directional O/C and E/F at CTPS New 220 kV Sub Station. No Trip at CTPS 220 kV Old Sub Station.
3. L # 201, 202 (CTPS Old – Kalyaneshwary) & L # 245, 246 (CTPS Old – BSL Lines): Zone 2 at Kly & BSL Ends. No trip at CTPS Old End.
4. In CTPS 132 KV system there was no tripping pf any 132KV line from CTPS End. However CTPS Gola lines, CTPS Ramkanali, CTPS Purulia tripped in D/O/C Protection from remote ends. Putki Nimiaghat both lines tripped from Nimiaghat End through D/O/C Protection.

Name	Relay Indication at End 1	Relay Indication at End 2	Tripping time
220 kV CTPS-A-CTPS-B Tie Ckt-1	Did not trip	Y-B-N line differential protection, Z-I	240 ms
220 kV CTPS-A-CTPS-B Tie Ckt-2	Did not trip	Directional O/C & E/F	440 ms
220 kV CTPS-A-Kalyaneswari D/C	Did not trip	Y-B-N, Z-II	520 ms
132 kV Purulia-CTPS D/C	Did not trip	Y & B phase Directional O/C & E/F	Not available
132 kV CTPS – Gola D/C	Did not trip	Y & B phase Directional O/C & E/F	Not available
220/132 kV ICT – 2 at CTPS A	Tripped from both LV & HV in lock out relay		Not available

DVC may explain.

ITEM NO. B.2: Total power failure at Khizersarai on 19.12.2019 at 17:09 Hrs.

220 KV Biharsariff- Khizersarai S/C, 132 kV Bus at Lakhisarai & 132 KV Banka-Sultanganj D/c were out of service.

220 KV Gaya- Khizersarai I tripped at 17.09 hrs on B-N fault. 220KV Gaya-Khizersarai II tripped on overload interrupting power supply to Khizersarai S/S. In absence of feed from other sources like Biharshariff, Lakhisarai and Banka due to shut down, total power failure occurred at Khizersarai and its surrounding areas.

As per PMU data, fault was cleared within 100 ms.

Load Loss: 266 MW

Relay indications are as follows:

Name	Relay Indication at End 1	Relay Indication at End 2
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220 kV Gaya- Khizersarai I	Yet to be received	B-N, 53.3 km
220 kV Gaya- Khizersarai II	Overload	Did not trip

Discrepancies observed:

- Reason for non-auto reclose operation of 220 kV Gaya – Khizersarai – I may be explained by BSPTCL/PGCIL.
- Power transfer to Khizersarai via 220 kV Gaya – Khizersarai D/C did not satisfy the N-1 contingency criteria. (Action being taken to ensure its N-1 reliability)
- Bihar SLDC may kindly explain why the other incoming feeders were not in service and Khizersarai was being radially fed from Gaya substation only.

BSPTCL and Powergrid may explain.

ITEM NO. B.3: Tripping of 220 KV Gaya Sonenagar-II on 12.12.2019 at 11:18 Hrs.

Planned shutdown of 220 KV Gaya-Sonenagar-I was availed at 11:12 Hrs. At 11:18 Hrs 220 KV Gaya-Sonenagar-II tripped from Sonenagar on R-N fault leading to a load loss of 90 MW in downstream at Sonenagar and Japla (Traction loss- 20 MW at Japla). Auto-reclose was successful at Gaya.

As per PMU data at Gaya, fault was cleared within 100 ms.

Load Loss: 90 MW

Discrepancies observed:

- BSPTCL may explain reason for non-auto reclose of 220 kV Gaya – Sonenagar – II at Sonenagar end.

BSPTCL may explain.

ITEM NO. B.4: Tripping of 220 KV Darbhanga (DMTCL) – Motipur I on 14.12.2019 at 02:50 Hrs.

220 KV Darbhanga (DMTCL)-Motipur II was kept open on voltage regulation from 14:35 hrs on 13.12.19.

At around 02:50 hrs on 14-12-19, 220 kV Darbhanga (DMTCL) – Motipur I and 220 kV MTPS – Motipur D/C tripped on E/F causing load loss of around 45 MW at Motipur / Sitamari/Musari area of BSPTCL system.

220 kV Darbhanga (DMTCL) – Motipur I was taken in to service at 03:25 hrs and tripped again on E/F at 03:37 hrs.

Load Loss: 45 MW

Relay indications are as follows:

Time	Name	Relay Indication at End 1	Relay Indication at End 2
02:50	220 kV Motipur -	E/F, Fault duaration-178.6ms	Yet to be received

Hrs.	Darbhanga (DMTCL)- 1	IR-108.10A, IY-332.8A, IB-77.64A	
	220 kV Motipur - MTPS D/C	Yet to be received	Yet to be received
03:37 Hrs.	220 kV Motipur - Darbhanga (DMTCL)- 1 (line was charged at 03:25 hrs.)	O/V in R & Y phase, Fault Duration- 5.061sec, Ia-65.46A, Ib-96.75A, Ic-68.50A Van-138kV, Vbn-139.2kV, Vcn-137.9kV	Yet to be received

As per PMU data at Muzaffarpur, fault got cleared within 160 ms.

BSPTCL may explain.

ITEM NO. B.5: Tripping of 132 kV Dumka – Lalmatia D/C on 09.12.2019 at 11:35 hrs

At 10:26 Hrs, 220 kV FSTPP -Lalmatia S/C tripped from Lalmatia end only due to pole discrepancy (as reported). Consequently, 38 MW load loss occurred at 220/132 kV Lalmatia.

After this, Lalmatia substation availed power from Dumka through 132 kV Dumka-Lalmatia D/C at 11:25 Hrs. However, 132 kV Dumka-Lalmatia D/C got tripped at 11:35 Hrs on Y-B-N fault, Z-II protection (Iy = 0.94 kA & Ib = 1.25 kA) from Dumka end resulting in again the load loss at 220/132 kV Lalmatia substation.

No fault was observed during patrolling. In Farakka PMU data, no fault was captured.

Load Loss: 38 MW

Relay indications are as follows:

Name	Relay Indication at End 1	Relay Indication at End 2
220 kV FSTPP -Lalmatia S/C	Yet to be received	Yet to be received
132 kV Dumka-Lalmatia D/C	Distance Zone 2, Y-B-N fault, Fault loc – 90.1 KM, Ir-0.04 kA, Iy- 0.94 kA, Ib- 1.25 kA	Did not trip

JUSNL may explain.

ITEM NO. B.6: CT failure of 220 kV Gokarna – Sadaipur – 2 at Gokarna on 06.12.2019 at 10:58 Hrs.

220 kV Sagardighi – Gokaran - I was under planned shutdown and 220 kV bus bar protection at Gokarna was kept out of service before the incident.

At 10:58 hrs B phase CT of 220 kV Gokarna - Sadaipur - II failed at Gokarna end. This resulted bus into fault at Gokarna which led to tripping of all lines connected to 220 kV Bus 2 at Gokarna end. 400 kV Farakka Gokarna S/C also tripped at same time sensing the same fault in Z-III. Line was in charged condition from Gokarna end.

Though the fault was cleared from Sadaipur in Z-II, breaker did not open at Gokarna end in absence of Bus bar protection.

To clear the fault all 220 kV feeders, bus coupler, 400/220 kV ICT and 220/132 kV ICTs at 87th PCC Agenda

Gokarna tripped from remote ends on back up protection as bus bar protection was not available at Gokarna.

220/132 kV ICT 4 & 2 at Gokarna tripped on E/F and O/C from 132 kV side. 220 kV Gokarna - Rejinagar D/C tripped from Rejinagar end in Z-II and from Gokarna end on DT receipt. 220kV B/C at Gokarna tripped on O/C protection. 220 kV Gokarna – Sagardighi D/C and 220 kV Gokarna – Sadaipur – 1 tripped from Sagardighi end on Z-II protection. 400/220 kV ICT – II at Gokarna tripped from 400 kV side on O/C protection.

As per PMU, fault clearance was around 1 second (Z-III time).

No Generation & Load Loss.

Relay indications are as follows:

Name	Relay Indication at End 1	Relay Indication at End 2	Approx. fault duration
220 kV Gokarna – Sadaipur – 2 (Fault was at this line at Gokarna end)	Did not trip	Y-B, Z-II, 83km (400 ms)	Did not clear from Gokarna
220 kV Gokarna – Sadaipur – 1	Did not trip	Y-B, Z-II, 83km	400 ms
220 kV Gokarna – New Sagardighi D/C	Did not trip	B-N, Z-II, 37 km	400 ms
220 kV B/C at Gokarna	O/C & E/F		Not available
220 kV Gokarna – Rejinagar D/C	DT received	B-N, Z-II, 43 km	400 ms
400 kV Gokarna - Farakka S/C	Did not trip	B-N, Z-III, 288.3 km	1000 ms
400/220 kV ICT - 2	O/C , E/F from 132 kV side		1300 ms
220/132 kV ICT -2 & 4	O/C , E/F from 132 kV side		930 ms

WBSETCL may explain.

ITEM NO. B.7: Disturbance at Liluah substation on 27.11.2019 at 02:36 Hrs.

At 02:36 Hrs, 132 KV BUS PT at Liluah S/s burst resulting tripping of 132 KV Liluah-Howrah Q/C.

At the time of incident, CESC system was synchronized to rest of the grid at Howrah point (132 KV Southern-Howrah, 132 KV Southern-Botanical-Howrah D/c) which got islanded as synchronization relay at Southern operated to disconnect CESC system from rest of the grid. CESC started running in island mode for 9 minutes.

At 02:45 Hrs, when re-synchronization attempt was taken at Howrah, 2 running Units (U#1, U#3-264 MW generation) at BudgeBudge tripped, thereby around 260 MW load loss occurred in CESC area.

Generation Loss: 264 MW & Load Loss: 260 MW

In 86th PCC meeting, WBSETCL informed that bus fault at 132kV Liluah bus was occurred due to failure of 132 KV BUS PT at Liluah S/s. WBSETCL added that 132 kV lines from Howrah and Rishra got tripped on zone 2 after 350 ms.

From the report submitted by CESC, PCC observed that SPS at Howrah was operated within 300 ms and isolated the CESC system from rest of the grid.

ERLDC informed that sequence of events for this disturbance was not captured in ERLDC SCADA system.

After detailed deliberation, PCC decided to discuss the disturbance in next PCC meeting on following observations:

1. Isolation of CESC system might not be required in this case and proper time coordination between WBSETCL protection system and CESC islanding scheme is required to be deliberated in detail to avoid such unwanted system separation.
2. Rough synchronisation was observed at Howrah during resynchronisation attempt at 02:45 hrs

CESC and WBSETCL may explain.

ITEM NO. B.8: Disturbance at Koderma Generating station on 26.11.2019 at 05:56 Hrs.

At 05:56 Hrs, R phase shunt capacitor of GCB burst while synchronizing U#2 at Koderma, which is connected through Bus#1.

Subsequently, all elements connected to bus I tripped and bus I became dead.

No Generation/Load Loss.

DVC may explain.

ITEM NO. B.9: Tripping Incidences in the month of December, 2019.

Other tripping incidences occurred in the month of December, 2019 which needs explanation from constituents of either of the end is given in **Annexure-B9**.

In 36th TCC, all the constituents were advised to use the PDMS on-line portal for uploading the single line tripping details along with DR (comtrade files), EL and other relevant files for all trippings of August 2017 onwards. Otherwise, it will be considered as violation of compliance of clause 5.2(r) & 5.9 of IEGC.

In 74th PCC, all the constituents were requested to submit the disturbance report along with DR through the new version of on-line portal which was implemented from 01st Jan. 2019.

Members may discuss.

PART- C:: OTHER ITEMS

ITEM NO. C.1: FOLLOW-UP OF TRIPPING/AUTO-RECLOSE INCIDENTS IN THE MONTHS OF OCTOBER, 2019 AND NOVEMBER, 2019

The list of tripping/auto-reclose incidents in the month of October, 2019 and November, 2019 are given at **Annexure-C1**, where discrepancies has been observed in protection system/DR configuration.

Members may update the latest status.

ITEM NO. C.2: FOLLOW-UP OF DECISIONS OF THE PREVIOUS PROTECTION SUB-

COMMITTEE MEETING(S)

The decisions of previous PCC Meetings are given at **Annexure-C2**.

In 73rd PCC, it was observed that latest status on the implementation of the previous PCC recommendations were not updated by the constituents regularly. All the constituents were advised to update the latest status of the recommendations as per the list given in Annexure.

Members may update the latest status.

ITEM NO. C.3: List of works carried out by PRDC Pvt. Ltd. during the period of November, 2018 to October, 2019.

The Protection Database project has been implemented by PRDC and declared “Go Live” on 31st October, 2017. In continuation to above, PRDC submitted a report (given at **Annexure-C3**) for verification of works carried out during the period of November, 2018 to October, 2019.

Members may discuss.

ITEM NO. C.4: Schedule of training program to be conducted by PRDC

PRDC, as per the AMC, is going to conduct 2nd training programme on PDMS and PSCT in state utility premises of Eastern Region. The tentative schedule is given below:

SL NO.	State	Date	Training
1	West Bengal(Siliguri)	04.02.2019-05.02.2019	On PDMS
	West Bengal(Durgapur)	08.02.2019-09.02.2019	On PDMS
2	Bihar	08.04.2019-09.04.2019	On PDMS
		10.04.2019-11.04.2019	On PSCT
3	Sikkim	11.06.2019-12.06.2019	Relay Setting analysis and Protection Co-ordination
4	Odisha	22.07.2019-23.07.2019	On PDMS
5	Jharkhand	25.08.2019-26.08.2019	On PDMS
6	For all state	27.01.2020-29.01.2020	On PSCT

PRDC informed that the training programme on PDMS has already been completed in West Bengal, Bihar, Sikkim & Odisha as per the schedule.

Members may update.

ITEM NO. C.5: Status of Third Party Protection Audit

The compliance status of 1st Third Party Protection Audit observations is as follows:

Name of Constituents	Total Observations	Complied	% of Compliance
Powergrid	54	46	85.19
NTPC	16	14	87.50
NHPC	1	1	100.00
DVC	40	26	65.00
WB	68	49	72.06
Odisha	59	42	71.19
JUSNL	34	25	73.53
BSPTCL	16	5	31.25
IPP (GMR, Sterlite and MPL)	5	5	100.00

* Pending observations of Powergrid are related to PLCC problems at other end.

The substation wise status of compliance is available at ERPC website (Observations include PLCC rectification/activation which needs a comprehensive plan).

In 77th PCC, BSPTCL has submitted the updated status.

In 79th & 80th PCC, BSPTCL was advised to submit the details of the compliance report.

BSPTCL may update.

ITEM NO. C.6: Non-commissioning of PLCC / OPGW and non-implementation of carrier aided tripping in 220kV and above lines.

According to CEA technical standard for construction of electric plants and electric lines -Clause 43(4) (c), transmission line of 220 KV and above should have single-phase auto-reclosing facility for improving the availability of the lines. However, from the tripping details attached June-August, 2016 it is evident that the some of 220kV above Inter & Intra-Regional lines do not having auto-reclose facility either at one end or at both ends. Out of these for some of the lines even PLCC/OPGW is not yet installed and carrier aided protection including Autorecloser facility is not yet implemented. Based on the trippings of June- August, 2016 and PMU analysis a list of such lines has been prepared and as given below:

List of line where auto reclose facility is not available(Information based on PMU data analysis)							
S. No	Transmission Lines name	Date of Tripping	Reason of Tripping	Owner Detail		Present Status	
				End-1	End-2	OPGW/PLCC Link available	AR facility functional
13	<u>220KV BUDIPADAR-KORBA-II</u>	23.06.16	Y-N FAULT	OPTCL	CSEB	PLCC available	will be activated in consultation with Korba
17	<u>220 KV TSTPP-RENGALI</u>	17.07.16	EARTH FAULT	NTPC	OPTCL		by March 2018
18	<u>220KV BUDIPADAR-RAIGARH</u>	21.07.16	EARTH FAULT	OPTCL	PGCIL	PLCC defective	

20	<u>220 KV FARAKKA-LALMATIA</u>	03.08.16	B-N FAULT .	NTPC	JUNSL	Yes	Old Relay and not functional. 7-8 months required for auto re-close relay procurement.
23	<u>220 KV MUZAFFARPUR - HAZIPUR - II</u>	10.08.16	B-N FAULT	PGCIL	BSPTCL		Voice established. For carrier required shutdown
24	<u>220 KV ROURKELA - TARKERA-II</u>	11.08.16	B-N FAULT	PGCIL	OPTCL	OPGW available	Expected to install protection coupler by Jan 17
27	<u>220 KV BIHARSARIF-TENUGHAT</u>	07.09.16	B-N FAULT	BSPTCL	TVNL		
33	220KV Jamshedpur-Jindal-SC						

34th TCC advised all the respective members to update the above list along with the last tripping status in next PCC meeting.

TCC further advised all the constituents to give the latest status of PLCC of other 220kV and above lines under respective control area.

OPTCL:

1. 220kV Rengali(PG)-Rengali S/Y (Proposal for Commn. in OPGW is pending): *PSDF appraisal committee accepted the proposal*
2. 220kV Indravati(PG)-Indravati(PH) (Proposal for Commn. in OPGW pending): *PSDF appraisal committee accepted the proposal*
3. 132kV Baripada(PG)-Baripada (Tendering in Progress for OPGW): *Contract awarded*
4. 132kV Baripada(PG)-Rairangpur (Tendering in Progress for OPGW): *Contract awarded*

BSPTCL:

Sl No.	Lines	Status
1	220 kV Purnea(PG)-Madhepura	Protection through PLCC is working properly
2	220 kV Biharsharif-BTPS new	Commissioning of PLCC is under progress.
3	220 kV BTPS new- Begusarai	Commissioning of PLCC is under progress.
4	220 kV Biharshariff-Bodhgaya line LILO at Khizersarai	OPGW is present. Protection is done through DPC.
5	220kV MTPS-Motiari line	OPGW is installed.
6	220KV Madhepura-New Purnea D/C	Protection through PLCC is working properly
7	220KV Muzaffarpur-Hajipur D/C line	Protection through PLCC is working properly
8	220KV Patna-Khagaul-SC	PLCC Panel working properly.
9	220 kV DMTCL(Darbhanga)-Laukhi Circuit-I	PLCC Panel working properly
10	220 kV Tenughat-Biharsharif S/C	PLCC to be commissioned
11	220 kV Gaya-Sonenagar New circuit-I	Communication through OPGW
12	220 kV Pusauli-Dehri S/C	PLCC not working
13	220 kV Begusarai-Purnea(PG) D/C	PLCC working properly
14	220 kV DMTCL-Motipur ckt-II	PLCC to be commissioned.
15	220 kV Dehri- Gaya D/C	PLCC working properly
16	220 kV Kishanganj(PG)-Kishanganj(B)-II	PLCC working properly

In 79th PCC, BSPTCL submitted PLCC status of some of the lines. The details have been updated in above table.

In 80th PCC meeting, BSPTCL was advised to rectify the PLCC & Autoreclose issues in coordination with their communication wing.

Members may update.

ITEM NO. C.7: Any additional agenda – with permission of the Chair.

List of important transmission lines in ER which tripped in December-2019

S.NO	LINE NAME	TRIP DATE	TRIP TIME	Relay Indication LOCAL END	Relay Indication REMOTE END	Reason	Fault Clearance time in msec	Auto Recloser status	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END	Primary observation/ Remarks
1	400KV-JEERAT-SAGARDIGHI-1	01-12-2019	13:30	Y_N Fault, 91 KM		Y-N Fault	100 msec	No A/R	NO	NO	A/R not operated either one or both end
2	400KV-ANGUL-TSTPP-1	04-12-2019	13:55	B-N , 34KM ,10.37KA	B-N, 28KM	B-N Fault	100 msec	A/R unsu	YES	NO	A/R Timing to be corrected
3	220KV-CHANDIL-STPS(WBSEB)-1	15-12-2019	03:17	Y-N,5.03 KA,Z2 ,A/R success	Y-N, Z2, 89 KM , ly 1.5 KA	Y-N Fault	100 msec	No A/R	YES	NO	A/R not operated at STPS end
4	220KV-NEW MELLI-TASHIDING-1	17-12-2019	14:17	NO TRIPPING	B-N,10.83 KM,1.	B-N Fault	100 msec	No A/R	only EL	NO	A/R not operated at Tashiding end
5	220KV-NEW MELLI-JORETHANG-1	18-12-2019	14:25	Y-N,3.405KM,3.92 KA,A/R SUCCESSFUL		Y-N Fault	100 msec	No A/R	only EL	NO	A/R not operated at Jorethang end
6	400KV-PATNA-BALIA-4	26-12-2019	12:02	R-N , 62.16 Km	AR successful	R-N Fault		No A/R	NO	NO	A/R not operated at Patna end
7	400KV-KHSTPP-LAKHISARAI-1	09-12-2019	10:55	DT received		DT received at Kahalgaon		No fault d	YES	YES	No fault observed in PMU
8	220KV-RAJARHAT-JEERAT-2	14-12-2019	15:32	No tripping	Master trip relay at Jeerat	Master trip relay at Jeerat		No fault d	NO	NO	No fault observed in PMU
9	400KV-KISHANGANJ-TEESTA-III-1	17-12-2019	11:34	DT received	Tripped on O/v while performing LBB test of Bus II	DT received at Kishanganj		No fault d	NO	NO	No fault observed in PMU
10	220KV-RAJARHAT-JEERAT-1	18-12-2019	14:10	Not tripped	R-n, z1, 94.91 A, A/R L/O	R-N Fault		No fault d	NO	NO	No fault observed in PMU

S.NO	LINE NAME	TRIP DATE	TRIP TIME	Relay Indication LOCAL END	Relay Indication REMOTE END	Reason	Fault Clearance time in msec	Auto Recloser status	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END	Primary observation/ Remarks
11	400KV-BAHARAMPUR-SAGARDIGHI	23-12-2019	07:11	DT Receipt	No tripping	DT received at Baharampur		No fault d	YES	NO	No fault observed in PMU
12	400KV-BAHARAMPUR-SAGARDIGHI	24-12-2019	08:43	DT Receipt	suprious carrier signal while taking bus shutdown	DT receipt at baharampore		No fault d	YES	NO	No fault observed in PMU
13	220KV-RAJARHAT-JEERAT-2	31-12-2019	15:40	No tripping	Opened from Jeerat end only	Opened from Jeerat end only		No fault d	NO	NO	No fault observed in PMU

Annexure-C1

List of tripping/auto-reclose incidents in the month of October 2019, where discrepancies has been observed in protection system/DR configuration (discussed in 85th ER PCC meeting)

S.NO	LINE NAME	TRIP DATE	TRIP TIME	Reason	Primary observation/ Remarks	Deliberation in PCC meeting	Status of action taken
1	400KV JEYPORE-GAZUWAKA-I	01-10-2019	13:17	O/V Stage I operated at Jeypore	STATCOM TFR not received for analysis of High voltage	Static O/V relay has been replaced by numeric relay. PG to send .dat file of STATCOM DR	
10	220KV RENGALI(PH)-TSTPP-SC	06-10-2019	15:46	B-N fault	Reason for delayed trip (400 ms) may be explained.	PLCC issue; OHPC/GRIDCO SLDC to update	
11	400KV LAPANGA-OPGC (IB THERMAL)-1	07-10-2019	0:50	B-Phase conductor snapped	As per PMU data repeated attempt of auto-reclose has been observed; As per DR recorded at Lapanga, no successive A/R attempt has been observed. OPGC end DR may be sent	OPTCL/GRIDCO SLDC/OPGC to update	
18	400KV NEW PPSP-NEW RANCHI-II	10-10-2019	13:06	B-N fault	Reason for non-attempt of A/R at New Ranchi may be explained. D/P pick up signal in New PPSP end DR may be configured properly. DR may be configured as per decisions taken in 79th ER PCC meeting	PG to update	

S.NO	LINE NAME	TRIP DATE	TRIP TIME	Reason	Primary observation/ Remarks	Deliberation in PCC meeting	Status of action taken
24	220KV RENGALI(PH)-TSTPP-SC	17-10-2019	12:35	Y-N Fault	Reason for delayed trip (500 ms approx.) may be explained.	PLCC issue; OPTCL/GRIDCO to update	

Sr No	Date	Time	Line name	Problem at	issues	Utility to update	Action taken by utilities
1	04-10-2019	14:23	400 kV Tala Binaguri - IV	PLCC	Carrier not received at Binaguri end. Delayed tripping of 500 ms from Binaguri end in Z-II.	Bhutan/PG ER2	
7	12-10-2019	08:51	220 kV Gaya Sonenagar - I	Sonenagar	A/R operation started at Sonenagar end; But three poles tripped after 1 second without reclose attempt.	BSPTCL	
8	15-10-2019	04:37	220 kV Gaya Sonenagar - II	Sonenagar	A/R operation started at Sonenagar end; But three poles tripped after 1 second without reclose attempt	BSPTCL	

List of substations where DR is to be standardized as per decision taken in 79th ER PCC meeting (discussed in 85th ER PCC meeting)

Sr No	Line name	Problem at	Action taken by utilities
1	400 kV Maithon Ranchi	Maithon	
2	220 kV Maithon – Dhanbad – I	Maithon	
3	220 kV Birpara – Alipurduar - D/C	Birpara	
4	400 kV Maithon Jamshedpur	Maithon	

5	400 kV Alipurduar – Bongaigaon – D/C	Alipurduar	
6	400 kV Binaguri - Rangpo - II	Binaguri	
7	400 kV Sagardighi Berhampur - II	Berhampur	
8	400 kV Binaguri – Bongaigaon – II	Binaguri	

List of tripping/auto-reclose incidents in the month of November 2019, where discrepancies has been observed in protection system/DR configuration (discussed in 86th ER PCC meeting)

S.NO	LINE NAME	TRIP DATE	TRIP TIME	Reason	Primary observation/ Remarks	comments in PCC	Action taken (to be updated by utilities)
1	220KV-PUSAULI-DEHRI-1	03-11-2019	11:34	PLCC problem	BSPTCL to update about status of PLCC	BSPTCL to update	
3	400KV-NEW PPSP-NEW RANCHI-2	06-11-2019	09:02	DT received at New Ranchi	Why DT was send from NEW PPSP ?	WBSETCL informed DT not sent by New PPSP end. PG ER1 to check PLCC issue	
4		07-11-2019	09:10	DT received at New Ranchi	Why DT was send from NEW PPSP ?		
	220KV-MADHEPURA-NEW PURNEA-1	16-11-2019	11:23	R-N Fault			
6	220KV-FSTPP-LALMATIA-1	11-11-2019	11:30	TRIPPED FROM FSTPP	High fault clearance time and No Auto-reclose operation may be explained	NTPC to share DR	
8	400KV-BARIPADA-KHARAGPUR-1	15-11-2019	11:20	Y-N Fault	Kharagpur end DR to be standardized. Baripada end DR to be shared. Status of A/R operation at both ends to be shared.	PG to share DR at Baripada end. Line tripped from Kharagpur end due to fault in reclaim time.	

S.NO	LINE NAME	TRIP DATE	TRIP TIME	Reason	Primary observation/ Remarks	comments in PCC	Action taken (to be updated by utilities)
10	400KV-KODERMA-BOKARO-1	19-11-2019	01:27	B-N Fault	DR may be sent, A/R operation may be explained.	No representative from DVC was present. DVC to update	
12	220KV-CHANDIL-STPS(WBSEB)-1	21-11-2019	12:35	Y-N Fault	STPS end DR to be shared, Chandil end DR to be standardized, Status of A/R operation at both end to be shared	WBPDC & JUSNL are to solve the issue of PLCC panel	
14	220KV-GAYA-SONENAGAR-1	26-11-2019	21:28	R-N Fault	Only R phase breaker opened at Sonenagar end. But auto-reclose attempt was not taken after dead time. Reason may be explained by BSPTCL.	BSPTCL to update (Same problem was flagged in 85th ER PCC meeting also)	
15	220KV-RANCHI-HATIA-1	29-11-2019	15:40	DT received at Ranchi	Reason for DT sent from Hatia may be explained	At Ranchi end, the CB tripped in PD as initially only Y pole opened due to wiring issue. The same is rectified. No DT sent from Hatia end as per JUSNL. PG ER1 to check PLCC issue	

S.NO	LINE NAME	TRIP DATE	TRIP TIME	Reason	Primary observation/ Remarks	comments in PCC	Action taken (to be updated by utilities)
		27-11-2019	02:50	O/V relay operated at Arambagh			
		28-11-2019	22:01	O/V operated due to problem in line CVT at Arambagh			

SI No.	Name of the incidence	PCC Recommendation	Latest status
86th PCC Meeting			
1.	Disturbance at Teesta – III Generating Station on 25.11.2019 at 15:18 Hrs.	<p>PCC advised Teesta-III to take the following corrective actions:</p> <ul style="list-style-type: none"> • DT should not be initiated for Bus II elements in this case, the LBB scheme at Teesta III should be reviewed • One second delay was observed between initiation of reverse power flow relay of Unit 5 and LBB initiation, the same need to be checked. • Operation of pole discrepancy to be checked • Occurrence of resonance phenomenon to be simulated/verified at Teesta-III after tripping of 400kV Teesta III-Kishanganj Line from Kishanganj end in view of distortion in signals at Teesta III end • The settings of Unit #5 reverse power relay to be reviewed <p>Protection system at Teesta III including CB operation to be tested to avoid inadvertent operation of protection system in future.</p>	
2.	Tripping of 220 KV Gaya Sonenagar D/C on 27.11.2019 at 15:30 Hrs.	PCC advised BSPTCL to send the details to ERPC/ERLDC at the earliest.	
3.	Disturbance at Jorethang on 04.11.2019 at 14:18 Hrs.	PCC observed that settings of DEF at Jorethang of 220 kV Jorethang - New Melli - II needs to be reviewed.	
85th PCC Meeting			
4.	Multiple tripping incident at Indravati on 17-09-2019 at 16:03 hrs	PCC advised Powergrid to analyze the reason for sudden voltage rise.	
5.	Implementation of Zone 4 reduced time setting at Sipara Substation and enabling of back up protection in 220 kV Patna-Sipara T/C	<p>PCC advised BSPTCL to share the details to ERLDC and ERPC.</p> <p>In 3rd TeST meeting, BSPTCL informed that they are yet to resolve the issue.</p>	

	Differential protection		
84th PCC Meeting			
6.	Disturbance at Talcher HVDC station on 04.09.19 at 16:59 Hrs.	Powergrid informed that the issue has been referred to M/s Siemens for analysis. PCC noted this and asked powergrid to share the findings.	<i>LOA placed. OEM would visit the site in January 2020.</i>
83rd PCC Meeting			
7.	Total power failure at 220 kV Darbhanga (BSPTCL) S/s on 16.08.2019 at 22:23 Hrs.	PCC observed that DR configuration at DMTCL end is not in order. PCC advised DMTCL to configure the DR settings as per the standard.	
81st PCC Meeting			
8.	Disturbance at 400 kV Dikchu S/s on 30.06.2019 at 09:55 Hrs.	<p>The time setting for the DEF relay at Jorethang end was 500 msec. PCC advised Jorethang to review the timer setting of DEF protection at Jorethang end.</p> <p>PCC advised Chuzachen to review the zone settings for 132 kV Chuzachen-Rangpo line.</p> <p>PCC advised TPTL to do line patrolling for 400 kV Rangpo-Dikchu line to find out the cause of such high resistive fault in the line.</p>	
9.	Disturbance at 220 kV Budhipadar(OPTCL) S/s on 12.06.2019 at 00:37 Hrs.	<p>PCC advised OPTCL to properly configure the DRs for 220 kV Budhipadar – Korba D/C & 220 kV Budhipadar-Raigarh circuit at Budhipadar end and for 220 kV Budhipadar – Lapanga - II at Lapanga end as per the DR standard finalised in 79th PCC Meeting.</p> <p>PCC also advised OPTCL to check the time synchronization.</p> <p>In 3rd TeST meeting, OPTCL informed that they had replaced the old relay at Korba.</p>	
10.	Disturbance at 400 kV Meramundali (OPTCL) S/s on 03.06.2019 at 01:15 Hrs.	<p>For voltage rise issue, PCC advised to check for any CVT related issues in the substation. PCC also advised to carry out earthing audit of the complete substation.</p> <p>In 3rd TeST meeting, OPTCL informed that they have issued tender for the earthing audit of the substation.</p>	

11.	Disturbance at 220/132 kV Dumka(JUSNL) S/s on 19.06.2019 at 13:02 Hrs.	<p>PCC advised for time synchronization of the DR outputs at both Maithon & Dumka end.</p> <p>JUSNL informed that there was antenna and cable fault in the time synchronisation module.</p> <p>JUSNL informed that the material is to be received via courier and same is to resolved by December, 2019.</p>	
71st PCC Meeting			
12.	Disturbance at 220/132 kV Motipur(BSPTCL) S/s on 15.08.18 at 13:00 hrs.	PCC advised BSPTCL to check the disturbance recorders of all the lines in 220 kV Motipur S/s and communicate the findings to ERPC/ERLDC at the earliest.	
13.	Disturbance at 400 kV Farakka S/s on 19.08.18 at 15:26 hrs.	PCC advised to check the reason for not sending carrier from Farakka to Kahalgaon and non-operation of Autorecloser.	<i>NTPC informed that the carrier healthiness is being checked and work is in under progress.</i>

SUPPORT PERIOD WORK DONE BY PRDC Pvt. Ltd.

1. Technical analysis for Major grid disturbances and in other protection aspect through out the year.
 - a. Major analysis done for Biharshariff S/S .
 - b. Major analysis done for PTPS S/S .
 - c. Major analysis done for Sonenagar S/S .
 - d. Major Analysis done for TLDP -4 S/S .
 - e. Analysis done for DR standardization for eastern region .
 - f. Recently Analysis done for Jorthang S/S.
 - g. Consolidated all distance relay setting for eastern region.
 - h. Attended all PCC meetings for protection consultancy.

2. Preparation of database for all lines and transformers in eastern region .

3. Regular maintenance of Server . Some prime works are listed below.

UPS Backup Activity	
Date	Time
19.11.2018	15:00 - 15:40
31.12.2018	10:45 - 11:20
16.01.2019	10:20 - 11:00
24.01.2019	11:50 - 12:35
19.02.2019	14:25 - 15:05
15.03.2019	12:00 - 12:40
12.04.2019	13:45 - 14:25
02.05.2019	13:05 - 13:45
06.06.2019	09:40 - 10:20
15.07.2019	09:50 - 10:30
30.07.2019	10:15 - 10:16
20.08.2019	14:30 - 15:10
23.09.2019	11:10 - 11:40
21.10.2019	09:50 - 10:30

Hard Drive backup restore	
Sl no	Date
1	03.11.2018
2	01.03.2019
3	01.04.2019
4	08.07.2019

4. New Substation Visit in Last year for data collection and database building.

VISITED SS LIST 2019						
SL. NO.	SS NAME	VOLTAGE LEVEL	UTILITY	VISITED DATE	REASON FOR VISIT	STATE
1	RAJARHAT	400/220 kV	PGCIL	13-02-19	DATA COLLECTION	WEST BENGAL
2	KESHIARY	132/33 kV	WBSETCL	23-04-19	DATA COLLECTION	WEST BENGAL
3	INDUS	132/33 kV	WBSETCL	24-04-19	DATA COLLECTION	WEST BENGAL
4	DOMKAL	132/33 kV	WBSETCL	26-04-19	DATA COLLECTION	WEST BENGAL
5	SAGARDIGHI NEW	220/132/33 kV	WBSETCL	26-04-19	DATA COLLECTION	WEST BENGAL
6	BHADRAPUR	132/33 kV	WBSETCL	27-04-19	DATA COLLECTION	WEST BENGAL
7	ISLAMPUR	132/33 kV	WBSETCL	30-04-19	DATA COLLECTION	WEST BENGAL
8	SONAKHALI	132/33 kV	WBSETCL	08-05-19	DATA COLLECTION	WEST BENGAL
9	TASHIDING HEP	220/11 kV	DANS POWER	12-06-19	DATA COLLECTION	SIKKIM
10	LAPANGA	400/220/132/33 kV	OPTCL	11-07-19	DATA COLLECTION	ODISHA
11	TENTULIKHUNI VENTO SOLAR	132/11 kV	ESSEL	15-07-19	DATA COLLECTION	ODISHA
12	TUSHURA VENTO SOLAR	132/11 kV	ESSEL	17-07-19	DATA COLLECTION	ODISHA
13	KESINGA VENTO SOLAR	132/11 kV	ESSEL	17-07-19	DATA COLLECTION	ODISHA
14	DAKSHIN ODISHA SOLAR,PADAMPUR	132/11 kV	ESSEL	18-07-19	DATA COLLECTION	ODISHA
15	UNIT-8	132/33 kV	OPTCL	19-07-19	DATA COLLECTION	ODISHA
16	CHIKITI	132/33 kV	OPTCL	25-07-19	DATA COLLECTION	ODISHA
17	KEONJHAR	220/33 kV	OPTCL	26-07-19	DATA COLLECTION	ODISHA
18	CHANDABALI	132/33 kV	OPTCL	27-07-19	DATA COLLECTION	ODISHA
19	BIHTA NEW	220/132 kV	BSPTCL	04-10-19	DATA COLLECTION	BIHAR
20	GORADIH	220/132 kV	BGCL	06-10-19	DATA COLLECTION	BIHAR

5. Trainings are done State wise .

On PDMS:-

West Bengal(Siliguri)	04/02/2019 to 05/02/2019
West Bengal(Durgapur)	08/04/2019 to 09/04/2019
Bihar	08/04/2019 to 09/04/2019
Odisha	22/07/2019 to 23/07/2019
Jharkhand	25/09/2019 to 26/09/2019

ON PSCT:-

Bihar	10/04/2019 to 11/04/2019
Jharkhad	11/06/2019 to 12/06/2019

6. Update new changes of substation elements as discussed in OCC meetings .

7. Regular update of PDMS and Mi-PSCT software.

8. New Portal for tripping analysis in MiP – PDMS is launched in January ‘ 2019 for eastern region.

9. Providing a continuous support in database management and protection simulation for all days being present in ERPC premises.