



Agenda for 80th PCC Meeting

Date: 25.06.2019
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 80TH PROTECTION SUB-COMMITTEE MEETING TO BE HELD AT ERPC, KOLKATA ON 25.06.2019 (TUESDAY) AT 11:00 HOURS

PART – A

ITEM NO. A.1: Confirmation of minutes of 79th Protection sub-Committee Meeting held on 21st May, 2019 at ERPC, Kolkata.

The minutes of 79th Protection Sub-Committee meeting held on 21.05.19 circulated vide letter dated 11.06.2019.

Members may confirm the minutes of 79th PCC meeting.

PART – B

ANALYSIS & DISCUSSION ON GRID INCIDENCES OCCURRED IN MAY, 2019

ITEM NO. B.1: Disturbance at 400 kV Mendhasal(OPTCL) S/s on 08.05.2019 at 13:05 Hrs.

220 kV Mendasal - Bhanjanagar S/C was under breakdown. While taking charging attempt of 400/220 kV ICT - II at Mendasal, B phase LA of its HV side burst and subsequently all 400 kV and 220 kV lines at Mendasal tripped. Pandiabili which was being supplied only through Mendasal end also became dead.

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

Load Loss: Nil

OPTCL may explain.

ITEM NO. B.2: Disturbance at 400 kV OPGC S/s on 22.05.2019 at 19:57 Hrs.

At 19:57 hrs 400 kV Jharsuguda - OPGC - II tripped from OPGC end only. At 19:59 hrs 400 kV Jharsuguda OPGC - I tripped on R-N fault resulting tripping of GT#4 & interruption of auxiliary supply to plant followed by tripping of all station compressors. At 20:15 hrs, U#3 at OPGC was hand tripped.

As per PMU data, fault clearing time is less than 100 ms.

OPGC may explain.

ITEM NO. B.3: Disturbance at 400 kV Vedanta S/s on 16.05.2019 at 19:10 Hrs.

Due to heavy localized wind storm, a flying metal sheet was come in induction zone of two smelter SEZ transmission lines creating the fault. As a result SEZ lines (2nos) got tripped on earth fault protection and third line tripped on over current protection. Unit -1 came to home load operation and HP/LP bypassed of other units (unit-3&4) immediately by CILMS (Internal SPS) action.

As per PMU data, fault clearing time is less than 100 ms.

Generation Loss: 540 MW

Load Loss: 1332 MW

OPTCL may explain.

ITEM NO. B.4: Disturbance at 765 kV Angul S/s on 02.05.2019 at 01: 08 Hrs.

At 01:08 Hrs, 765 KV Angul-Jharsuguda III tripped due to R_ph CT failure of its tie bay at Angul substation. At the same time, all the elements connected to 765 KV Bus I at Angul substation also got tripped.

Load Loss: Nil

As per PMU data, fault was cleared after 300 ms.

Powergrid may explain.

ITEM NO. B.5: Disturbance at 400 kV Darbhanga S/s on 29.05.2019 at 21: 44 Hrs.

400 kV Darbhanga - Kishangunj D/C along with 400 kV bus-2 at Darbhanga tripped at 21:44 hrs. It was intimated by ATL that 400 kV Darbhanga - Kishangunj D/C has tripped due to collapse of Tower No 385 (Loc. 96/0, suspension type) due to high speed wind.

After isolation of these lines, 400 kV Bus 2 was tried to normalize. However, it again tripped. Thereafter both transmission lines and 400 kV Darbhanga bus-2 were declared under breakdown.

Load Loss: Nil

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

DMTCL, KPTL & Powergrid may explain.

ITEM NO. B.6: Disturbance at 400/220 kV Bakreswar S/s on 18.05.2019 at 22:34 Hrs.

At 22:34 hrs, 220 kV main bus-I at Bakreswar (BkTPP) tripped on bus differential protection leading to the tripping of following elements:

- i) 220 KV Bakreswar-Satgachia-I,
- ii) 220 KV Bakreswar Sadaipur-I
- iii) 220 KV Bakreswar Durgapur-II &
- iv) 315 MVA ICT-II at Bakreswar.

U#3 and U#5 of Bakreswar switched to house-load mode, resulting into generation loss of around 350 MW (House load catered: 15 MW approx.)

Load at Satgachia was interrupted due to an inter-tripping scheme which trips Satgachia's load during peak hours if any one of the 220 KV Bakreswar-Satgachia D/c trips.

Generation Loss: 350 MW

Load Loss: 18 MW

WBPDCCL may explain.

ITEM NO. B.7: Repeated Tripping of Ranchi-Raghunathpur - II & III and Raghunathpur-DSTPS – I. - ERLDC

In the past few months, 400 kV Ranchi – Raghunathpur II & III and Raghunathpur-DSTPS circuits have tripped on several occasions. List of tripping incidents occurred in the month of April & May 2019 is given in following table.

Element Name	Tripping Date	Tripping Time	Reason 1	Revival Date	Revival Time
400KV RANCHI-RAGHUNATHPUR-II	06/04/2019	17:21	R-N fault F/C 4.13 kA, 80.823 km from Ranchi	06/04/2019	18:06
400KV RANCHI-RAGHUNATHPUR-III	08/04/2019	17:05	Y-N fault, Z1, 9.93 kA, 32 km from RTPS	08/04/2019	17:58
400KV RANCHI-RAGHUNATHPUR-II	08/04/2019	17:05	R-N fault	08/04/2019	19:04
400KV RANCHI-RAGHUNATHPUR-II	30/04/2019	15:18	R-N Fault,96.71km from Ranchi, F/C 3.911kA	30/04/2019	16:35
400KV RANCHI-RAGHUNATHPUR-III	30/04/2019	15:20	R-N, Z-I, 68.2 km from RTPS, F/C 6.82 kA	30/04/2019	16:33
400KV RANCHI-RAGHUNATHPUR-III	08/05/2019	12:14	B-N, 6.21 kA, 29.76 KM from Ranchi	08/05/2019	12:38
400KV RANCHI-RAGHUNATHPUR-II	31/05/2019	14:51	R-Y, Z-I, 124KM from RTPS		
400KV RANCHI-RAGHUNATHPUR-III	31/05/2019	18:30	R-N, F/C 4.145 kA, 105.81 km from Ranchi	31/05/2019	19:35
400KV DSTPS(ANDAL)-RAGHUNATHPUR-I	21-04-19	14:50	Y-N Fault	21-04-19	16:22
400KV DSTPS(ANDAL)-RAGHUNATHPUR-I	01-05-19	20:46	B-N Fault	01-05-19	21:40
400KV DSTPS(ANDAL)-RAGHUNATHPUR-I	08-05-19	15:54	DT Received at DSTPS	08-05-19	16:52
400KV DSTPS(ANDAL)-RAGHUNATHPUR-I	21-05-19	13:04	B-N Fault	21-05-19	16:45
400KV DSTPS(ANDAL)-RAGHUNATHPUR-I	27-05-19	15:19	B-N Fault	27-05-19	16:34

The above lines being connected to generating station, healthiness of these lines are very important for grid security and generating plant reliability.

DVC & Powergrid may explain.

ITEM NO. B.8: Repeated Tripping of 132 kV KhSTPP-Lalmatia S/C.- ERLDC

In the last two months, 132 kV KhSTPP Lalmatia S/C tripped several times due to B-N fault. List of the fault on this line is given below.

S.No	Date	Time	Phase	Fault Location from Kahalgaon end	Fault current from Kahalgaon end	Zone
1	29.04.2019	10:23 hrs	B	26.4KM	3.26KA	Zone#1

2	30.04.2019	11:35hrs	B	26.6KM	3.26KA	Protection ,Distance Protection
3	01.05.2019	12:26hrs	B	26.5KM	3.14KA	
4	07.05.2019	10:39hrs	B	26.4KM	3.13KA	
5	08.05.2019	12:24 hrs	B	26.4KM	3.11KA	
6	11.05.2019	10:59 hrs	B	26.4KM	3.12KA	
7	12.05.2019	11:46 hrs	B	26.5KM	3.12KA	
8	14.05.2019	13:12hrs	B	26.4KM	3.14KA	
9	20.05.2019	10:25 hrs	B	26.4KM	3.13KA	
10	20.05.2019	11:11 hrs	B	26.4KM	3.13KA	
11	21.05.2019	12:28 hrs	B	26.5KM	3.15KA	
12	21.05.2019	14:50 hrs	B	26.4KM	3.13KA	
13	26.05.2019	11:40 hrs	B	26.4KM	3.14KA	
14	27.05.2019	10:01 hrs	B	26.6KM	3.20KA	
15	27.05.2019	11:23 hrs	B	26.4KM	3.17KA	

Such frequent faults on this circuit have caused voltage transient in NTPC Kahalgaon auxiliary system and poses a threat to the power plant stability.

JUSNL and NTPC may explain.

ITEM NO. B.9: Repeated auto-reclose operation of 400 kV Ranchi-RTPS- II at Ranchi end during the tripping at 14:50 hrs on 31.05.2019 - ERLDC

400 kV Ranchi - RTPS - II tripped at 14:50 hrs on 31-05-19 due to fault in the circuit. As per PMU data, A/R of 400 kV Ranchi – RTPS – II started from both ends at 14:50:46.360 hrs (approx) on 31-05-19 on B-N fault. During this, B phase has opened from both ends of the circuit. At 14:50:46.800 hrs (approx), another fault occurred in the R phase and with this the other two poles also opened from both ends thus tripping the circuit. However, it is observed that A/R attempt was again taken at Ranchi end in the faulty R & Y phases at 14:50:47.400 hrs (approx) and Y phase at 14:50:48.800 hrs (approx) even after the three poles opening at 14:50:46.800 hrs (approx). Such repeated auto-reclose operation is not desirable due to vicinity of the generating station for reliability and security.

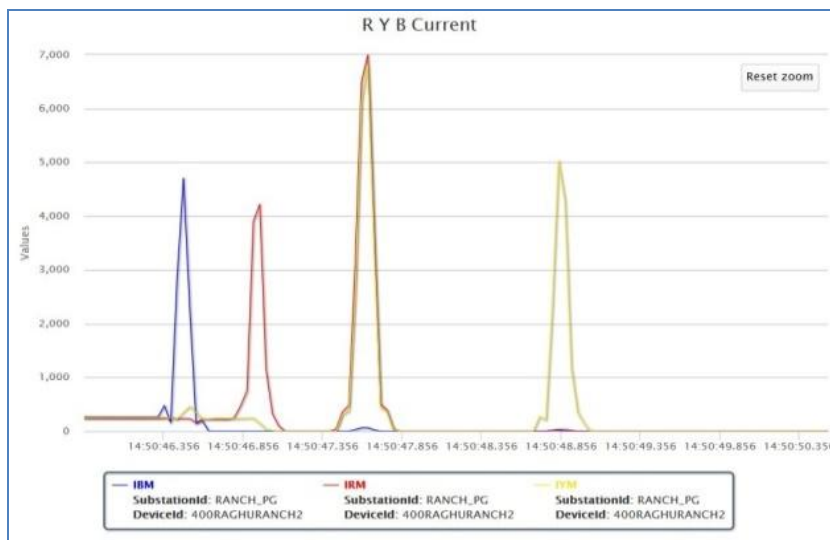


Fig 1: Line Current measured at Ranchi end for 400 kV Ranchi - RTPS – II from PMU indicating multiple reclosure

Powergrid may explain.

ITEM NO. B.10: Spurious Tripping of 400 kV Rangpo-Kishanganj circuit from Kishanganj end on 26.04.2019 and 15.05.2019-ERLDC

On 15th May 2019 at 19:14 Hrs, 400 kV Kishanganj-Rangpo and 400/220 kV, 315 MVA Kishanganj ICT-2 tripped at Kishanganj substation during the successful A/R of 400 kV New Purnea -Kishanganj Ckt-II. Similar event has occurred on 26th April at 14:31 Hrs where 400 kV Rangpo-Kishanganj circuit tripped during a fault on a different circuit.

Powergrid & TPTL may explain.

ITEM NO. B.11: Tripping Incidences in the month of May, 2019.

Other tripping incidences occurred in the month of May 2019 which needs explanation from constituents of either of the end is given in Annexure-B11.

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: Islanding Scheme at Kanti TPS- KBUNL

In 68th PCC Meeting, it was decided that the islanding of Kanti TPS would be implemented with the following scheme:

1. Stage II units (2x195 MW) of Kanti TPS will be islanded with station load of 40 MW and radial load of 150 MW (approx.) of 220kV Kanti TPS-Gopalganj D/C line.
2. Once the grid frequency falls to 48.2 Hz, the PLC at Kanti TPS would initiate the islanding process with 500 ms time delay.

In 78th PCC Meeting, NTPC suggested that a step wise islanding scheme may be planned considering different grid conditions and unit availability at Kanti TPS.

PCC advised NTPC to prepare a draft plan and submit to ERPC and ERLDC for detailed discussion in next PCC Meeting.

PCC advised BSPTCL to carry out the line patrolling in 220 kV Kanti TPS -Gopalganj line-II immediately and resolve the clearance issues, if any.

PCC also advised BSPTCL and Powergrid to check the healthiness of PLCC system in coordination with Kanti TPS.

Members may discuss.

ITEM NO. C.2: Tripping of 400/132 kV ICTs at Dikchu S/s during the disturbance on 16.04.2019.

At 23:32 Hrs, Resistive fault occurred in the Y phase on 400 kV Rangpo-Kishanganj circuit which led to tripping of the circuit on Directional E/F protection from Kishanganj end. During this fault, 400/132 kV ICT at Dikchu got tripped on Backup O/C protection.

79th PCC opined that tripping of 400/132 kV ICTs at Dikchu on backup O/C protection need to be explained by Dikchu.

Dikchu representative was not present in the meeting.

Dikchu may explain.

ITEM NO. C.3: Disturbance at 220 kV Patratu S/s on 29.04.19 at 12:37 Hrs

At 12:37 hrs all lines emanating from Patratu tripped resulting total power failure at 220 kV Patratu S/s.

As per PMU data, fault was cleared within 400 ms.

In 79th PCC, the disturbance could not be concluded due to incomplete details (DR and EL records) of the disturbance. PCC took a serious note of it and advised JUSNL to submit disturbance records of all the related lines for the above disturbance to ERPC/ERLDC at the earliest.

PCC further advised JUSNL to submit the relevant details including the DR, EL etc. of any tripping/disturbances before monthly PCC meeting so that proper analysis can be done. PCC also advised TVNL to configure the DR setting properly for 220 kV TVNL-Patratu line.

JUSNL vide mail dated 12.06.2019 submitted the DR & ELs of the above disturbance.

Members may discuss.

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**ITEM NO. C.4: Different A/R timing at two ends of 400 kV Kodarma-Bokaro-I circuit.
-ERLDC**

400 kV Koderma-Bokaro-I circuit tripped at 18:09 Hrs due to Y phase to earth fault. In the PMU plot for generator voltage, different dead time has been observed at two ends leading to two faults being fed to the system one by one with A/R operation. It may kindly be noted that, both ends of the line is connected to major generating station of Eastern region and the feeding of fault on two occasions due to different A/R timing is not desirable.

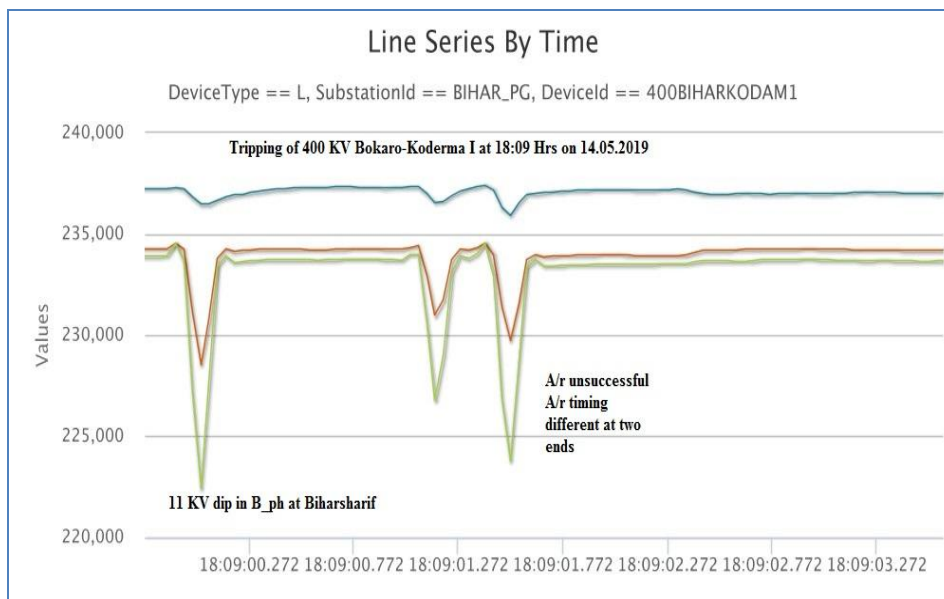


Fig: 400 kV Bihar Sharif Bus Voltage during the event indicating different A/R timing on 400 kV Koderma-Bokaro 1 circuit

DVC may explain.

ITEM NO. C.5: Protection Coordination issue in 400 kV Kishanganj-Darbhanga D/C line along with Line Reactor at Darbhanga end

400 kV Kishanganj-Darbhanga-I and II have tripped on multiple occasions in the month of April 2019. From the analysis of DR/PMU data, it was observed that on all the occasions Darbhanga end was sensing the fault in Zone-3 even through fault was on the line itself. Further on all most of these occasions, A/R has been successful from remote end (Kishanganj). Details of the tripping are as follows:

Line	Date & Time	Relay End 1	Relay End 2
400 kV Kishanganj-Darbhanga-2	01-04-19 00:00	No tripping Reported	Line Tripped at Zone#3 fault, B-Phase
400 kV Kishanganj-Darbhanga-2	10-04-19 09:23	Zone-1, A/R successful	Line Tripped at Zone#3 fault, Y-Phase
400 kV Kishanganj-Darbhanga-2	23-04-19 07:07	Zone-1, A/R successful	Line Tripped at Zone#3 fault, B-Phase
400 kV Kishanganj-Darbhanga-1	25-04-19 22:12	Zone-1, A/R successful	Line Tripped at Zone#3 fault, B-Phase

In addition to these, it was also observed that, the switchable line reactor (80 MVar) at Darbhanga end for the circuit is also getting tripped along with line tripping in zone 3 protection.

Following issues need to be discussed:

1. Reason for tripping of 400 kV Kishanganj-Darbhanga circuits from Darbhanga end in Zone 3 (Protections setting to be checked)
2. Reason for tripping of Switchable line reactor at Darbhanga end during the tripping of lines Darbhanga end only.

Members may discuss.

ITEM NO. C.6: Protection Audit and checking of relay settings in transmission system/distribution system within States.

CERC vide its order dated 26th March, 2018 in petition no. 09/SM/2015 directed RPCs to take up the issue of protection audit and relay settings in transmission system/distribution system within states.

In 77th PCC meeting, DVC, OPTCL and West Bengal informed that healthiness of the protection system including the relay settings in the intrastate sub-transmission system/distribution system is being carried out once in a year during the annual maintenance.

PCC advised all the other constituents to submit their practice of carrying out protection audit and checking of relay settings in transmission system/distribution system to ERPC.

In 78th & 79th PCC, JUSNL, BSPTCL and Sikkim were advised to submit the details at the earliest.

JUSNL, BSPTCL and Sikkim may update.

ITEM NO. C.7: FOLLOW-UP OF DECISIONS OF THE PREVIOUS PROTECTION SUB-COMMITTEE MEETING(S)

The decisions of previous PCC Meetings are given at **Annexure-C7**.

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.8: 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:

SI no.	State	Location	Date	Training
1.	West Bengal	NJP	04.02.2019-05.02.2019	on PDMS
		Durgapur	07.02.2019-08.02.2019	
2.	Bihar	North Bihar	08.04.2019-09.04.2019	
		South Bihar	11.04.2019-12.04.2019	
3.	Sikkim	-	03.06.2019-04.06.2019	
4.	Odisha	-	08.07.2019-09.07.2019	
5.	Jharkhand	-	05.08.2019-06.08.2019	
6.	For All States	ERPC	02.09.2019-06.09.2019	on PSCT

In 78th PCC, PRDC informed that the training programmes at West Bengal and Bihar has already been conducted as per the above schedule.

BSPTCL requested to conduct one more training programme for their personnel. PCC advised BSPTCL to coordinate with PRDC for arranging one more training at Bihar.

Members may update.

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ITEM NO. C.9: Zone 3 settings of ISTS lines

Based on the data available in PDMS, the zone 3 settings of all ISTS lines in Eastern Region were verified and compared with the corresponding resistive reach of the line thermal loading. Zone 3 settings were also checked with the agreed protection philosophy of ER. The discrepancies observed in the settings will be presented in the meeting.

In 67th PCC, PRDC presented the list of ISTS lines where they observed the discrepancy in zone-3 setting.

In 73rd PCC, It was informed that Powergrid ER-I had verified the settings. Powergrid ER-II and Powergrid odisha will verify the settings at the earliest.

In 74th PCC, Powergrid & DVC informed that they will submit the details at the earliest.

DVC has submitted the zone settings data vide mail dated 16.01.19.

*In 77th PCC, it was informed that the zone 3 relay reach settings were compared with the thermal rating of the conductor and verified with the agreed protection philosophy. The updated settings received from the constituents are enclosed at **Annexure-C9**.*

In 78th PCC, West Bengal informed that they would sent the updated settings at the earliest.

Members may update.

ITEM NO. C.10: 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 are available at ERPC website (Observations include PLCC rectification/activation which needs a comprehensive plan).

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

In 78th & 79th PCC, BSPTCL was advised to submit the details of the compliance report.

BSPTCL may update.

ITEM NO. C.11: Schedule for 2nd Third Party Protection Audit

In 78th PCC, the third party protection Audit for the following substations in Odisha were planned to be carried out in the month of May, 2019.

1. 400 kV Talcher HVDC- Powergrid
2. 400 kV Rengali S/s- Powergrid
3. 400 kV Meramundali S/s- OPTCL
4. 400 kV JSPL S/s-CPP
5. 220 kV TTPS- NTPC
6. 220 kV Rengali S/s- OPTCL
7. 220 kV NALCO-CPP
8. 220 kV BSSL-CPP

In 79th PCC, It was decided to postpone the protection Audit planned to be carried out in the month of May-19 due to ongoing restoration work of transmission lines in odisha system after the cyclone "FANI".

Members may update.

ITEM NO. C.12: 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/P LCC 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:

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

BSPTCL:

SI 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.

Members may update.

List of Intra Regional line tripping in the month of May 2019 where violation of protection standard has been observed

LINE NAME	TRIP DATE	TRIP TIME	RESTORATION TIME	RESTORATION DATE	Relay Indication LOCAL END	Relay Indication REMOTE END	Reason	Fault Clearance time in msec	Remarks
Miscellaneous: Tripping on DT, No Fault observed in PMU									
400KV DARBHANGA (DMTCL)-KISHANGANJ(PG)-I	14-05-2019	18:15	14-05-2019	19:56	DT RECEIVED AT DARBHANGA		DT RECEIVED AT DARBHANGA		No fault observed in PMU
220KV MAITHON-KALYANESHWARI-I	15-05-2019	20:15	15-05-2019	21:44	B-N, FC 660 A, FD 56.7 KM	Did not trip from Kalyanashwari	B-N Fault		No fault observed in PMU
220KV MAITHON-KALYANESHWARI-II	15-05-2019	20:16			Did not trip from Maithon	Over Current relay operated at KALYANESHWARI ;attempted at 20:14hrs...tripped on o/c e/f	O/C		No fault observed in PMU
400KV JAMSHEDPUR-ANDAL-II	16-05-2019	12:55	16-05-2019	13:17	DT RECEIVED AT JAMSHEDPUR		DT RECEIVED AT JAMSHEDPUR		
765KV ANGUL-JHARSUGUDA-II	16-05-2019	19:06	16-05-2019	19:13	DT Received	No tripping	DT Received at Angul		No fault observed in PMU
765KV ANGUL-JHARSUGUDA-I	28-05-2019	15:03	28-05-2019	15:34	DT received at Angul	No tripping at Jharsuguda	DT received at Angul		
220KV RAURKELLA-TARKERA-I	28-05-2019	15:29	28-05-2019	16:00	Z-1, 9.9 KM	DT received at Tarkera	DT received at Tarkera		
220KV RAURKELLA-TARKERA-II	28-05-2019	15:29	28-05-2019	16:00	Z-1, 9.6 KM	DT received at Tarkera	DT received at Tarkera		
400KV LAPANGA-OPGC (IB THERMAL)-1	28-05-2019	16:18	28-05-2019	18:04	DT received at Lapanga from OPGC	No tripping	DT received at Lapanga from OPGC		
400KV FSTPP-GOKARNO-II	28-05-2019	17:02	28-05-2019	17:28	DT received	B-N, Z-1, 3.296 KA, 18.9 Km	B-N Fault	< 100 msec	No A/R operation
400KV FSTPP-GOKARNO-I	28-05-2019	17:02	28-05-2019	17:24	DT received	B-N, Z-1, 3.296 KA, 18.9 Km	B-N Fault	< 100 msec	No A/R operation
400KV TSTPP-ROURKELA-I	31-05-2019	17:43	31-05-2019	18:27	DT RECEIVED	Y-N, Z1, IY 4.7 KA FD 66 KM	Y-N Fault	< 100 msec	No A/R operation
Autoreclose related issues									
220KV PUSAULI-DEHRI-SC	01-05-2019	12:57	01-05-2019	13:51	BN, 6.9 KM, 7.75 KA		B-N Fault	< 100 msec	No A/R operation from both side
400KV ALIPURDUAR-BONGAIGANON-II	02-05-2019	21:50	02-05-2019	22:37	Y_N, 26.4 KM, 5.37 kA		Y_N, 65.5 KM, 5.3 kA		No A/R operation
765KV ANGUL-SRIKAKULAM-II	03-05-2019	1:18	03-05-2019	2:43	B-N,1.74KA, 269KM		B-N Fault		No A/R operation
220KV ALIPURDUAR-SALAKATI-I	12-05-2019	18:43	12-05-2019	19:25	Y-N, Z-1, 71.4 Km, 2.13 KA		Y-N, 32 KM, 4.3 KA		No A/R operation
220KV MAITHON-DUMKA-I	13-05-2019	18:36	13-05-2019	18:49	R_N, 6.4 KM, 10.18 kA		R-N Fault		No A/R operation
220KV MAITHON-DUMKA-II	13-05-2019	18:36	13-05-2019	19:04	Y_N, 11.9 KM, 10.22 kA		Y-N Fault		No A/R operation
400KV DURGAPUR-SAGARDIGHI-I	13-05-2019	18:36	13-05-2019	18:58	B_N, 116.1 KM, 4.04 kA		B_N, 8.73 KM, 16.8 kA	< 100 msec	No A/R operation
220KV MEERAMUNDALI-BHANJANGR-I	15-05-2019	16:42	15-05-2019	18:14			B-n, 122.27 km, 1.14 kA		No A/R operation
400KV MEERAMUNDALI-MENDHASAL-SC	15-05-2019	17:08	16-05-2019	11:28	RN, 23.6 KM, 21.93 KA		RN, 87.6 KM, 1.14 KA		No A/R operation
400KV MALDA(PG)-NEW PURNEA-I	16-05-2019	7:50	16-05-2019	8:08			A/R SUCCESSFUL,Y-N,19.57 KM,6.218 KA,		No A/R operation
400KV MALDA(PG)-NEW PURNEA-II	17-05-2019	14:34	17-05-2019	15:20	Tripped from Malda end only when clearing fault of 132 KV Malda-Samsi		A/R successful, R-N , 104 KM , 3 KA, Z1	1000 msec	No A/R at Malda
220KV ALIPURDUAR-SALAKATI-I	19-05-2019	9:25	19-05-2019	9:56	b-n , f/d-50km from salakati ,		B-N Fault		No A/R operation
400KV DARBHANGA (DMTCL)-MUZAFFARPUR-II	22-05-2019	21:15	22-05-2019	21:53	B-N, Z1, 19.46 KM, 1.72kA, From Darbhanga		B-N Fault		No A/R operation
400KV DURGAPUR-JAMSHEDPUR-SC	24-05-2019	21:06	24-05-2019	21:18	A/R SUCCESSFUL, B-N Z1 22.1 9.83 KA		z2, B PH 161.6 KM 2.654 KA	< 100 msec	No A/R operation
400KV MERAMUNDALI-LAPANGA-I	27-05-2019	14:16	27-05-2019	17:52	Yph-N, Z1, 4.90KA, 102.7 KM		Yph-N, Z1, 2.6 KA, 116.8 KM		No A/R operation
220KV BEGUSARAI-NEW PURNEA-I	19-05-2019	12:28	22-05-2019	18:44			B-N, Z1, 2.06 kA, 84.7 km		No A/R operation
220KV BEGUSARAI-NEW PURNEA-II	22-05-2019	10:30	22-05-2019	11:04	Z-2, 162 km Ia. 253amp Ib. 163amp Ic. 975amp Tripped phase BN		A/R successful, B-N,Z1,1.92 KA,46.2 KM	< 100 msec	No A/R operation
220KV BEGUSARAI-NEW PURNEA-III	22-05-2019	12:54	25-05-2019	18:12	Z2 162 KM,B-N,0.975 KA		B-N,1.11 KA,184 KM	500 msec	No A/R operation
220KV BEGUSARAI-NEW PURNEA-IV	22-05-2019	19:20	25-05-2019	17:38	b-n, z1,		B-N Fault		No A/R operation
220KV BEGUSARAI-NEW PURNEA-V	27-05-2019	10:58					Z1, B-N, 81.2 km, 2 kA		No A/R operation
220KV BEGUSARAI-NEW PURNEA-VI	27-05-2019	12:54					B-N, 1.17 kA, 149.7 km		No A/R operation
220KV CHANDIL-RANCHI-sc	12-05-2019	16:17	12-05-2019	18:20	Z1, B-N Fault, 27.86 KM, 3.76 KA		B-N Fault		No A/R operation
220KV STPS(WBSEB)-CHANDIL-SC	13-05-2019	18:51	14-05-2019	12:03	Y_N, 16.72 KM, 6.51 kA		Y-N Fault		No A/R operation
220KV STPS(WBSEB)-CHANDIL-SC	22-05-2019	16:08	22-05-2019	16:24	B_N, 16.4 KM, 1.701 kA		B-N Fault		No A/R operation
220KV CHANDIL-RANCHI-sc	22-05-2019	16:55	22-05-2019	17:16	B_N,		B-N Fault		No A/R operation
220KV CHANDIL-RANCHI-sc	22-05-2019	17:23	23-05-2019	11:51	Z1, R-N, 2.517KA, 52.64Km		R-N Fault		No A/R operation

Sl No.	Name of the incidence	PCC Recommendation	Latest status
79th PCC Meeting			
1.	Disturbance at Sikkim Hydro Complex on 12.04.19 at 23:55 hrs.	<p>PCC advised Powergrid to configure the DR settings properly at Kishanganj end as per the DR standard finalized in PCC meeting.</p> <p>PCC also advised to send all the relay settings at Kishanganj end to ERPC for updating of the settings in PDMS database.</p>	
2.	Total Power Failure at 220 kV Tenughat S/s on 17.04.19 at 10:16 Hrs.	<p>PCC advised BSPTCL to coordinate with Powergrid audit team & review their settings at Biharsharif S/s.</p> <p>PCC observed that zone settings at TVNL need to be reviewed and advised TVNL to submit the line & relay details to ERPC at the earliest. ERPC and PRDC will study the settings.</p>	TVNL vide mail dated 12.06.19 submitted the relay settings to ERPC & PRDC.
3	Total Power failure at TLDP-III S/s on 27.10.18 at 10:24 hrs.	PCC advised NHPC to change the DEF settings from DMT to IDMT keeping the settings at 40A and advised to increase the time delay of DEF settings in order to have a proper protection coordination between Line and GTs.	
4	Tripping of 400 kV Barh-Patna-I on 27/01/19 at 06:47 Hrs	Powergrid was advised to carryout PID testing of the insulators as well as to measure the tower footing resistance of 400 kV Barh-Patna-I.	<p>Powergrid informed that tower footing resistance was measured for all the towers and found within the limit.</p> <p>They informed that the PID testing is in progress and it will be completed at the earliest.</p>
76th PCC Meeting			

5	Disturbance at 220 kV Katapalli S/s on 07.01.2019 at 15:40 hrs.	PCC advised OPTCL to send the details of Hindalco islanding scheme to analyze the reasons behind failure of the islanding scheme during this disturbance	OPTCL informed that they have received the scheme from Hindalco.
6	Disturbance at 400kV Gaya(PG), 220kV Gaya and Bodhgaya on 05-01-19 at 11:20 hrs	PCC advised BSPTCL to review the Khijasarai end relay settings to avoid unwanted tripping at Khijasarai end and submit the relay settings to ERPC for inclusion in PDMS.	BSPTCL informed that they will send the relay settings at the earliest.
7.	Mutual effect 400kV Andal-Jamshedpur-II on 400 kV Adhunik-Jamshedpur D/C	PCC advised Adhunik and POWERGRID to analyze the event in detail to find the root cause in consultation with the ERPC and ERLDC. PCC also advised Adhunik to submit the details of PSS tuning to ERLDC/ERPC.	
74th PCC Meeting			
8.	Multiple tripping incident at Darbhanga at 13:33 hrs on 06-11-18 and at 15:23 hrs on 06-11-18	PCC suggested to keep the highset setting more than 7 and advised DMTCL to review the settings.	
72nd PCC Meeting			
9.	HVDC TFR triggering standardization and reporting requirements.	PCC advised POWERGRID to submit TFR triggering criteria and TFR signal list for all HVDC station of Eastern region to ERLDC	
71st PCC Meeting			
10.	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.	BSPTCL informed that OEM is yet to visit the station.
11.	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.	NTPC informed that the carrier healthiness will be checked at next available shutdown.
68th PCC Meeting			

12.	Issues related with Generation Backing down during Talcher-Kolar SPS operation on 16th May 2018.	<p>PCC advised Powergrid to explore for inclusion of pole block with ground return mode signal in the SPS logic.</p> <p>PCC advised NTPC also to explore for inclusion of pole block with ground return mode signal in the SPS logic.</p>	<p>PCC advised Powergrid and NTPC to coordinate and implement pole block with ground return mode signal in SPS.</p> <p>Powergrid informed that confirmation from NTPC is awaited whether they are receiving the pole block signal or not.</p>
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Annexure-C9

SL NO.	Line Details		Calculated Settings				UPDATED RELAY DETAILS							
	From Bus Name	To Bus Name	Z3 Ohms (Primary)	Z3 Ohms (Secondary)	R Reach (secondary)		Main - 1			Main - 2				
					PP	PN	Relay Model	Zone3	R3-PP	R3-PG	Relay Model	Zone3	R3-PP	R3-PG
132 kv														
1	GANGTOK	RANGPO												
	GANGTOK		40.29	10.07	25.51	34.01	SEL 311C	11.85	-	35.5				
		RANGPO	36.62	12.21	34.01	45.34	P444	12.34	50	64.01				
2	MELLI	SILLIGURI												
	MELLI		60.96	0.00	0.00	0.00								
		SILLIGURI	61.31	20.44	34.01	45.34	7SA522	20.44	12.5	30.43	-	-	-	-
3	GANGTOK	RANGPO												
	GANGTOK		39.32	9.83	25.51	34.01	SEL 311C	7	-	6.6				
		RANGPO	37.49	12.50	34.01	45.34	P444	12.34	50	64.01				
4	BIRPARA	CHUKHA 1												
	BIRPARA		68.05	27.22	44.17	58.90	P442	27.17	30	35.49	REL670	66.9	75	125
		CHUKHA 1	72.80	29.12	44.17	58.90	P442							
5	BIRPARA	CHUKHA 2												
	BIRPARA		68.05	27.22	44.17	58.90	P442	27.17	30	35.49	REL670	73.59	82.7	137.5
		CHUKHA 2	72.80	29.12	44.17	58.90								
6	BINAGURI	SILIGURI 1												
	BINAGURI		55.40	22.16	44.17	58.90	P444	22.15	40	61		54.5		
		SILIGURI 1	41.68	16.67	44.17	58.90	P442	16.68	35.49	30	REL670	41	75	125
7	BINAGURI	SILIGURI 2												
	BINAGURI		55.40	22.16	44.17	58.90	P444	22.15	40	61		54.5		
		SILIGURI 2	41.68	16.67	44.17	58.90	P442	16.68	35.49	30	REL670	41	75	125
8	MALDA	DALKHOLI 1												
	MALDA		112.45	44.98	44.17	58.90	P442	45	30	38.19	REL670	111	75	125
		DALKHOLI 1	112.45	0.00	0.00	0.00								
9	MALDA	DALKHOLI 2												
	MALDA		112.45	44.98	44.17	58.90	P442	45	30	38.19	REL670	111	75	125
		DALKHOLI 2	112.45	0.00	0.00	0.00								
10	RANGPO	NEW MILLI												
	RANGPO		18.18	14.54	88.35	117.80	P442	17.76	32.27	32.27				
		NEW MILLI	24.72	19.78	88.35	117.80	P444	26.99	80	122.44	REL670	12.46	100	102
11	RANGPO	JORTHANG												
	RANGPO		17.69	14.15	88.35	117.80	P442	17.87	80	122.4				
		JORTHANG	24.72	4.94	22.09	29.45	P442	17.76	32.27	32.27				
12	NEW MILLI	JORTHANG												
	NEW MILLI		9.69	7.76	88.35	117.80	P444	7.78	80	122.44	REL670	9.5	100	102
		JORTHANG	17.45	3.49	22.09	29.45	P442	10	80	122				

13	SILIGURI	DALKHOLI 1/Kisanganj												
	SILIGURI		104.69	41.88	44.17	58.90	P442	41	30	35.52	REL670	103	75	125
	DALKHOLI 1		104.69	0.00	0.00	0.00								
14	SILIGURI	DALKHOLI 2/Kisanganj												
	SILIGURI		104.69	41.88	44.17	58.90	P442	41	30	35.52	REL670	103	75	125
	DALKHOLI 2		104.69	0.00	0.00	0.00								
400 KV														
15	BINAGURI	BONGAIGAON 1												
	BINAGURI		178.57	49.11	24.47	32.62	REL670	176	75	125	P442	48	20.64	20.6
	BONGAIGAON 1		173.60	0.00	0.00	0.00								
16	BINAGURI	BONGAIGAON 2												
	BINAGURI		178.57	49.11	24.47	32.62	REL670	176	75	125	P442	48	20.64	20.6
	BONGAIGAON 2		173.60	0.00	0.00	0.00								
17	BAHAARAMPUR	BEHRAMARA 1												
	BAHAARAMPUR		80.80	22.22	24.47	32.62	P444	20.55	20.63	20.64	REL670	74.51	75	125
	BEHRAMARA 1		80.80	0.00	0.00	0.00								
18	BAHAARAMPUR	BEHRAMARA 2												
	BAHAARAMPUR		80.80	22.22	24.47	32.62	P444	20.55	20.63	20.64	REL670	74.51	75	125
	BEHRAMARA 2		80.80	0.00	0.00	0.00								
19	BAHAARAMPUR	FARAKKA												
	BAHAARAMPUR		91.60	50.38	48.93	65.24	P444	46.6	20.63	41.44	REL670	94.57	75	125
	FARAKKA		69.60	38.28	48.93	65.24	P444	41	25.4	33.87				
20	BAHAARAMPUR	SAGARDIGHI 1												
	BAHAARAMPUR		112.80	62.04	48.93	65.24	P444	55.45	29	37	P546	59.6	-	-
	SAGARDIGHI		50.80	27.94	48.93	65.24	P444	32.75	55	84	P546	32.78	88	74
21	BAHAARAMPUR	SAGARDIGHI 2												
	BAHAARAMPUR		112.80	62.04	48.93	65.24	P444	55.45	29	37	P546	59.6	-	-
	SAGARDIGHI		50.80	27.94	48.93	65.24	P444	32.75	55	84	P546	32.78	88	74
22	JEERAT	SUBHASGRAM												
	JEERAT		130.40	35.86	24.47	32.62	P442	35.4	29.6	20.6	REL670	128.4	75	125
	SUBHASGRAM		106.88	29.39	24.47	32.62	P444	29.03	29.6	20.6	7SA522	28.92	10.31	13.87
23	MALDA	FARAKKA 1												
	MALDA		76.00	41.80	48.93	65.24	P442	40	37.15	23.68	REL670	72.24	75	125
	FARAKKA 1		82.80	45.54	48.93	65.24	P442	41.4	25.4	33.87				
24	MALDA	FARAKKA 2												
	MALDA		76.00	41.80	48.93	65.24	P442	40	37.15	23.68	REL670	72.24	75	125
	FARAKKA 2		82.80	0.00	0.00	0.00	P442	41.4	25.4	33.87				
25	MALDA	PURNEA 1												
	MALDA		137.30	37.76	24.47	32.62	P442	36.4	20.63	20.69	REL670	132	100	102
	PURNEA 1		133.60	36.74	24.47	32.62	P442	36.74	20.63	20.69	7SA522	36.59	10.31	13.87
26	MALDA	PURNEA 2												
	MALDA		137.30	37.76	24.47	32.62	P442	36.4	20.63	20.69	REL670	132	75	125

	PURNEA 2		133.60	36.74	24.47	32.62	P442	36.74	20.63	20.69	7SA522	36.59	10.31	13.87
27	RANGPO	BINAGURI 1												
	RANGPO		130.80	71.94	48.93	65.24	P444	71.5	20.63	41.29		129		
	BINAGURI 1		119.60	65.78	48.93	65.24	P444	64.9	41.25	41.29	REL670	101.5	75	125
28	RANGPO	BINAGURI 2												
	RANGPO		130.80	71.94	48.93	65.24	P444	71.5	20.63	41.29		129		
	BINAGURI 2		119.60	65.78	48.93	65.24	P444	64.9	41.25	41.29	REL670	101.5	75	125
29	RANGPO	TEESTA 1												
	RANGPO		9.86	5.42	48.93	65.24	P442	5.35	37.5	68.75				
	TEESTA 1		64.13	0.00	0.00	0.00		11						
30	RANGPO	TEESTA 2												
	RANGPO		9.86	5.42	48.93	65.24	P442	5.35	37.5	68.75				
	TEESTA 2		64.13	0.00	0.00	0.00		6.85	25.4	33.87				
31	SAGARDIGHI	SUBHASGRAM												
	SAGARDIGHI		134.40	73.92	48.93	65.24	RCS-902D	93.98	-	-	RCS-902D	93.98	-	-
	SUBHASGRAM		177.28	48.75	24.47	32.62	P442	49.3	20.63	20.69	7SA522	49.3	10.31	13.87
32	TALA	BINAGURI 3												
	TALA		126.00	0.00	0.00	0.00								
	BINAGURI 3		85.20	23.43	24.47	32.62	P442	30.3	20.63	20.64	REL670	55.33	75	125

SL NO.	Line Details		Calculated			UPDATED RELAY DETAILS			
	From Bus Name	To Bus Name	Z3 Ohms (Primary)	Z3 Ohms (Secondary)	R Reach	Main - 1			
					PP	Relay Model	Zone3	R3-PP	R3-PG
400 kV									
1	MTPS	MAITHON PG							
	MTPS		113.55	62.45	65.24	REL670	113.15		
2	MTPS	JAMSHEDPUR							
	MTPS		139.94	76.96	65.24	REL670	139.94		
	JAMSHEDPUR		105.95	29.14	32.62	P442			
3	RTPS	RANCHI PG (DC)							
	RTPS		208.67	114.77	32.60	REL670	209		
4	RTPS	MAITHON PG (SC)							
	RTPS		100.08	55.04	65.24	REL670	100.76		
220 KV									
1	DHANBAD	MAITHON PG							
	DHANBAD		55.32	22.13	58.90	REL670	49.46		
2	WARIA	BIDHANNAGAR WBSETCL							
	WARIA		28.31	11.32	58.90	REL670	68		