



Agenda
for
59th PCC meeting

Date: 20.09.2017
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 59TH PROTECTION SUB-COMMITTEE MEETING TO BE HELD AT ERPC, KOLKATA ON 20.09.2017 (WEDNESDAY) AT 11:00 HOURS

PART – A

ITEM NO. A.1: Confirmation of minutes of 58th Protection sub-Committee Meeting held on 29th August, 2017 at ERPC, Kolkata.

The minutes of 58th Protection Sub-Committee meeting held on 29.08.17 circulated vide letter dated 11.09.17.

Members may confirm the minutes of 58th PCC meeting.

PART – B

ANALYSIS & DISCUSSION ON GRID INCIDENCES OCCURRED IN AUGUST, 2017

ITEM NO. B.1: Disturbance at 220 kV CTPS B S/s on 28-08-17 at 13:25 hrs

Due to bursting of R phase CT of U # VIII GT at CTPS B, bus differential relay at 220kV CTPS B operated and tripped the following elements connected to Bus-I:

- 220 KV CTPS B-CTPS A-I,
- 220 KV CTPS B- Dhanbad-II,
- 220 KV CTPS B-Bokaro B-I
- CTPS B unit # 8.

Unit # 7 Tripped due to loss of all fuel. HT Board 7CA tripped at the time of disturbance through Board U/V relay.

Consequently, 400/220 kV ICT at Bokaro A loading became more than 299 MW. After opening of 220 kV Bokaro B - Jamshedpur D/C and 220 kV Dhanbad - Giridih D/C at 13:30 hrs, ICT loading got reduced to 255 MW. Further at 15:15 hrs, 132 kV Bokaro - Konar S/C and 132 kV Bokaro - Bari S/C were opened to reduce 400/220 kV ICT loading.

DVC may explain.

ITEM NO. B.2: Disturbance at 220/132 kV Waria S/s on 27-08-17 at 07:36 hrs

Due to massive fire hazard at 132/33/3.3 kV station transformer # III at Waria, all 220 kV and 132 kV feeders are hand tripped resulting in total power failure at surrounding area.

Analysis:

1. Although the ST # 3 at Waria Differential relay operated, the breaker did not open. This caused tripping of all lines from remote end and all ATRs through LV O/C relay to isolate the fault.
2. DTPS Jamuria Line should have tripped from Jamuria end through Zone 2. But it did not trip. Instead Jamuria CTPS Line tripped from CTPS end through Distance Zone 3. DR of DTPS Jamuria Line at Jamuria Line showed that the fault had moved out of Zone 2 boundary before Z2 trip time.
3. This was because the fault resistance had varied during the fault. As Jamuria DTPS line has SEL 311C relay with MHO characteristics the high impedance fault was undetected by this

relay. Instead the relay of next section saw the fault within Z3 and tripped earlier as it had Quad Characteristics.

Relay indications:

Relay Indication				
Element Name	Local Relay	Remote Relay	Local Indication	Remote Indication
132 KV-Waria (DTPS) 220/132/33/25kV-132 KV-Burdwan 132/33/25kV-1	21 MAIN BURDWAN I DTPS	21 MAIN DIS L75 TL	No Trip	Z2 Trip
132 KV-Waria (DTPS) 220/132/33/25kV-132 KV-Jamuria 132/33kV- 1	21 MAIN JAMURIA- DTPS	21 MAIN DIS L100 DTPS WARIA TL	No Trip	Z2 Start, No trip
132 KV-Waria (DTPS) 220/132/33/25kV-132 KV-Burdwan 132/33/25kV-2	21 MAIN BURDWAN II DTPS	21 MAIN DIS L76 TL	No Trip	Z2 Trip
132 KV-Waria (DTPS) 220/132/33/25kV-132 KV-Kalipahari 132/33kV-1	21 MAIN KALIPAHARI-I DTPS	21 MAIN DIS L20 DTPS TL	No Trip	Z2 Trip
132 KV-Waria (DTPS) 220/132/33/25kV-132 KV-Kalipahari 132/33kV-2	21 MAIN KALIPAHARI-II DTPS	21 MAIN DIS L21 DTPS TL	No Trip	Z2 Trip
132 KV-Waria (DTPS) 220/132/33/25kV-220 KV-Waria (DTPS) 220/132/33/25kV-1	21 MAIN DIS L90 RAMKALI TL		No Trip	

In Durgapur PMU data, delayed clearance (700 ms) of Y-B phase fault (15 kV voltage dip) has been observed at 07:35 hrs.

DVC may explain.

ITEM NO. B.3: Disturbance at 220 kV Bakreswar S/s on 11-08-17 at 16:05 hrs

At 16:05 hrs all elements connected to Bakreswar 220 kV bus - I along with unit #III & #IV tripped due to operation of bus bar protection (96A) and Bus bar differential (87C, Check zone). At the same time R-N fault has been reported at 0.5 km from Bakreswar in 220 kV Bakreswar - Sadaipur - II.

In PMU data, no fault has been captured at 16:05 hrs. However a 23 kV voltage dip in R phase has been observed at 16:01 hrs, which was cleared within 80 ms.

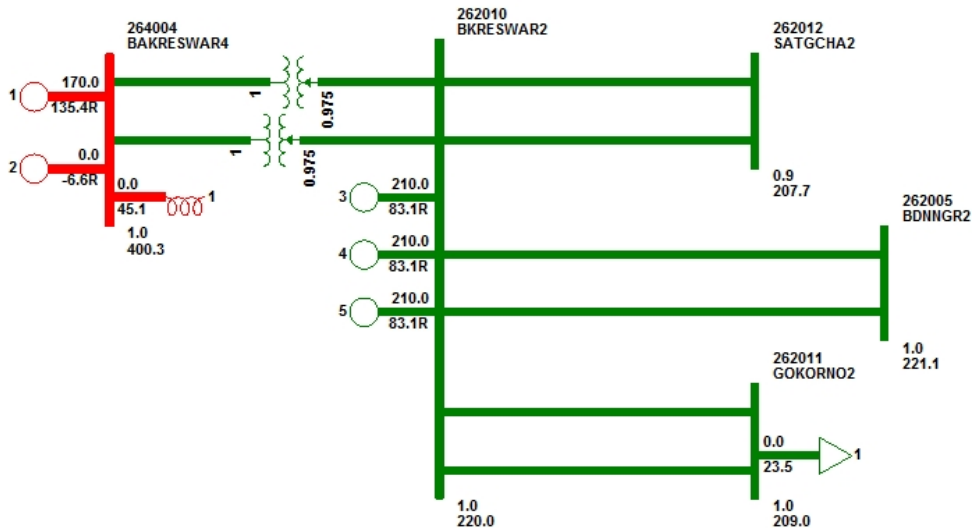
220kV Bus configuration at 220kV Bakreswar:

BUS A:

1) 220 kV BkTPP-Sadaipur Ckt # 2, 2) 220 kV BkTPP- Satgachia Ckt # 1, 3) 220 kV BkTPP-Bidhannagar Ckt # 1, 4) 220 kV side Tie Trf. # 2, 5) GT # 3, 6) GT # 4, 7) ST # 4, 8) New PASS bay.

BUS B:

1) 220 kV BkTPP-Sadaipur Ckt # 1, 2) 220 kV BkTPP- Satgachia Ckt # 2, 3) 220 kV BkTPP-Bidhannagar Ckt # 2, 4) 220 kV side Tie Trf. # 1, 5) GT # 5, 6) ST # 5, 7) ST#3



WBPDCCL may explain.

ITEM NO. B.4: Disturbance at 400/220 kV Sasaram S/s on 12-08-17 at 14:51 hrs

While availing emergency s/d of 220 kV bus I (East side) at Sasaram, HVDC Sasaram B/B, along with 765/400 kV 1500 MVA ICT - I and 400/220 kV ICT - I & II tripped resulting tripping of all 220 kV feeders eliminating from Sasaram followed by total supply of failure at 220 kV switchyard at Sasaram.

While transferring all elements to 220 KV Bus II from 220 kV bus I, flashover occurred in 220 kV Bus - I side isolator of 400/220 kV ICT-II.

At the time of opening of Bus Coupler, connection of different fdrs to BUS-1 & 2 was as follows:

Bus-1

- 1. 315 MVA ICT-2
- 2. Shahupuri fdr
- 3. Ara fdr

Bus-2

- 1. 500 MVA ICT-1
- 2. Nadokhar fdr
- 3. Dehri fdr

Fault clearing time as per PMU data: 1700 ms

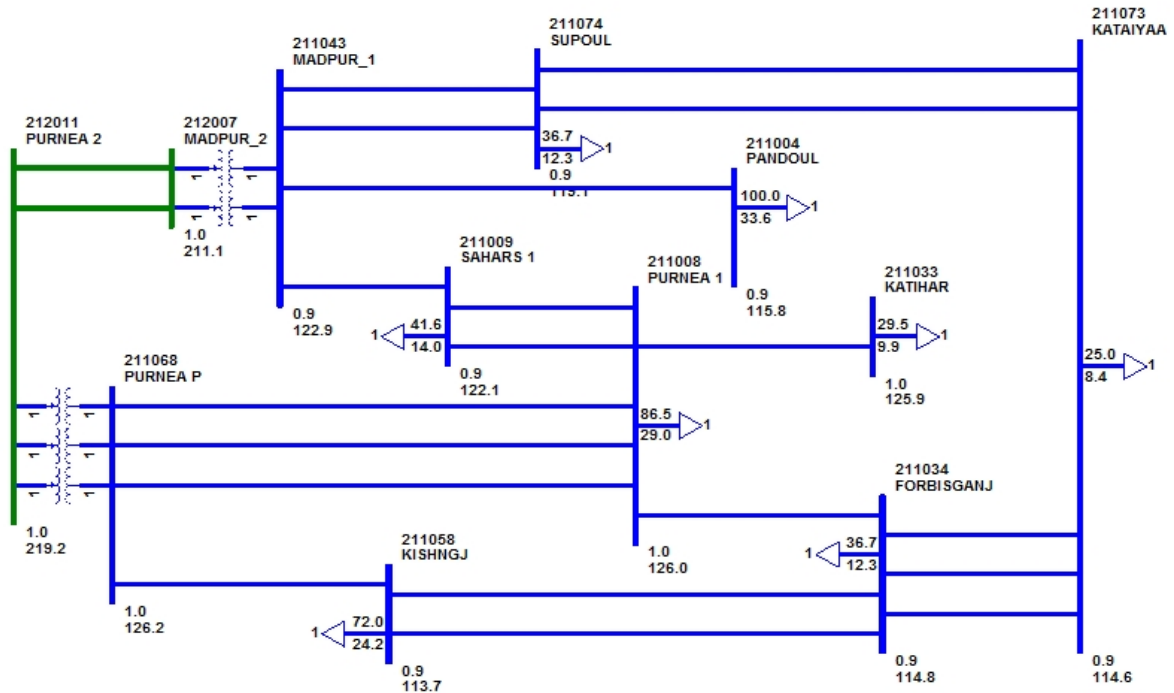
Analysis:

After closing of Isolator 389A, 500MVA ICT-I also get connection with Bus-1, which was initially feeded only bus-2 and hence flow of power may have increased in the isolator 389B for supplying of power to Shahupuri and Ara. Due to the mentioned reasons flashing started appearing in R & B contact of the mentioned isolator 389A of ICT-2 bay. It grow very rapidly and flame/ flash was observed between corona disc of male and female contacts.. When Main Bus-1 isolator of ICT-1 was only path for supplying power of ICT-1 &2 to Shaupuri and Ara. Due to high resistance hot spot occurred which further developed into flames causing melting of corona discs. This has resulted into tripping of ICT-1 on Over current protection. Pitting of conductor between 220 KV LA of ICT-1 and suspension insulator from the gantry has also been observed. This may be due to flashover between conductor and gantry. This may be the reason of differential protection of ICT-2.

Powergrid may explain.

ITEM NO. B.5: Disturbance at 220 kV Purnea and Madhepura S/s on 14-08-17 at 08:55 hrs

220/132/33 KV Madhepura GSS was availing power from 220/132 KV Purnea(PG). There was a transient fault(Y,B fault) at 8:55 hrs at distance 77.5 Km from GSS Madhepura in Circuit 1 of 220 KV Purnea(PG)-Madhepura D/C. Due to this fault, Circuit 1 tripped from Purnea(PG) end. After this, fault current continued to feed from Purnea(PG) end through Circuit 2 ,220 KV Madhepura GSS Main Bus and Circuit 1 resulting in tripping of Circuit 1 at Madhepura GSS end and tripping of Circuit 2 at Purnea(PG) end.



132 kV Supaul - Phoolparas D/C, 132 kV Kataiya - Duhabi S/C and 132 kV Kataiya - Forbisgunj T/C were under breakdown due to flood condition.

BSPTCL and Powergrid may explain.

ITEM NO. B.6: Repeated disturbances at 132 kV Rangit, Kurseong, Melli and Rangpo on 30-08-17 at 05:15 hrs and 31-08-17 at 00:39 hrs

30-08-17 at 05:15 hrs:

At 5:15 hrs. 132 KV Siliguri-Kurseong S/C, 132 KV Siliguri Melli S/C and 132 KV Rangit-Rangpo S/C tripped on R-B-N fault. As a result, all running units of Rangit(3 x 20 MW) tripped on over frequency and subsequently,132 KV Rangit-Kurseong S/C and 132 KV Rangit-Sagbari S/C were hand tripped.

31-08-17 at 00:39 hrs

At 00:39 hrs. 132 KV Siliguri-Kurseong S/C, 132 KV Siliguri Melli S/C and 132 KV Rangit-Rangpo S/C tripped on R-B-N fault. As a result, all running units of Rangit(3 x 20 MW) tripped on over frequency and subsequently,132 KV Rangit-Kurseong S/C and 132 KV Rangit-Sagbari S/C were hand tripped.

Powergrid and NHPC may explain.

ITEM NO. B.7: Disturbance at 400/132 kV Banka S/s on 21-08-17 at 13:50 hrs

At 13:04 Hrs, 132 KV Banka-Sultanganj D/C tripped due to B-N fault (FAULT LOCATION=8.4KM, FAULT CURRENT= 6.45KA). While attempting charging of Ckt II at 13:30 Hrs from Banka, CB of the line stuck. LBB operated and tripped all the elements connected to 132kV main bus along with both 400/132 KV ICTs.

Relay indications:

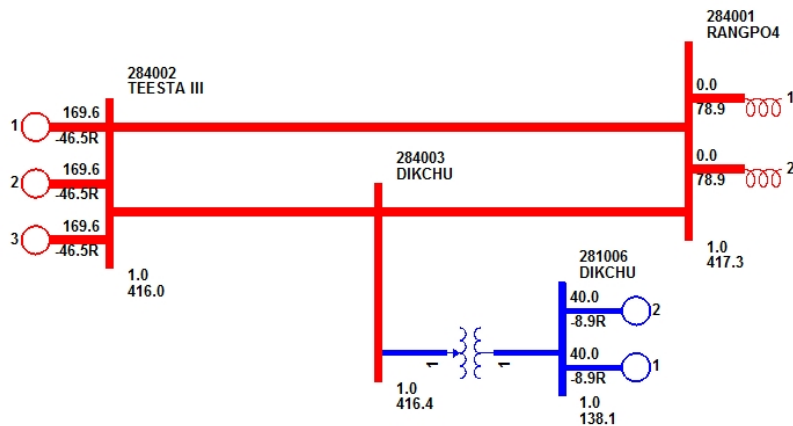
Relay Indication				
Element Name	Local Relay	Remote Relay	Local Indication	Remote Indication
132 KV-SULTANGANJ 132KV-132 KV- BANKA 400KV-1	21 MAIN DIST BANKA-II TL SULTANGANJ		ZONE1, B-ph, 31.4KM	
132 KV-SULTANGANJ 132KV-132 KV- BANKA 400KV-1		21 MAIN DISTANCE SULTANGANJ LINE-I		ZONE1, B-PH, 8.42KM
132 KV-SULTANGANJ 132KV-132 KV- BANKA 400KV-1	21 MAIN DIST BANKA-I TL SULTANGANJ	21 MAIN DISTANCE SULTANGANJ LINE-I	only operated on 86 ,no tripping of distance relay	zone1, B-ph, 7.48 KM

After patrolling it was found that at location no-27 of Banka-Sultanganj overhead line crossing 132KV D/C Banka-PG Sabour line between location no 112-113, at that location it was found that the earth wire of Banka(PG)-Sabour line was having clearance of less than a foot from B-ph of Banka(PG)-Sultanganj line of both circuits.This happend due to ongoing stringing works of OPGW of Banka PG -Sabour line as they were working at location no-112.

After attaining required clearance by lowering of earth wire the Banka PG-Sultanganj line ckt1 was charged at 20:05 Hrs and ckt2 at 20:30 hrs.

BSPTCL and Powergrid may explain.

ITEM NO. B.8: Disturbance at 400 kV Teesta and Dikchu on 04-08-17 at 13:46 hrs



400 KV Teesta III-Dikchu S/C tripped at 13:46 Hrs due to operation of directional O/c relay at Teesta III end. The line did not trip from Dikchu end. In PMU data, no voltage dip has been observed.

As per Teesta III end DR of 400 kV Teesta III-Dikchu S/C line, Dir. O/C picked up at 13:46:27.677 hrs, B phase current was 1.3 kA. As per Teesta III end DR of Teesta III Rangpo Cable, B/up O/C and

B/up E/F picked up at 13:46:27.462 hrs. Siemens relay Backup overcurrent IDMT characteristics operated at 2345 ms.

Teesta Urja Ltd. and Dikchu may explain.

ITEM NO. B.9: Disturbance at 400kV Teesta-III, Dikchu and Rangpo S/s on 16-08-17 at 12:18 hrs

At 12:18 Hrs, 400 KV RANGPO - TEESTA-3 S/C tripped on B-N fault (Rangpo end: B-N, Z-II, F/C 4.49 kA, 54.7 km and Teesta III end: B-N, Z-I) due to conductor snapping at tower no 23 resulting in outage of units # I, II, III, IV, V & VI (879 MW) at Teesta - III and unit I & II at Dikchu (100 MW) due to loss of evacuation path. Attempt was taken to charge the line from Rangpo end at 12:41 hrs but it immediately tripped in SOTF.

Teesta III end of 400 KV RANGPO - TEESTA-3 S/C line tripped without any attempt of auto-reclose.

Teesta Urja Ltd. may explain.

ITEM NO. B.10: Disturbance at 220kV Hatia on 03-08-17 at 11:45 hrs

220 kV Ranchi - Hatia D/C and 220 kV Patratu - Hatia D/C along with all 220/132 kV ATR at Hatia end tripped due to DC failure of Hatia S/S.

JUSNL may explain.

ITEM NO. B.11: Disturbance at 220 kV Meramundali S/s on 01-08-17 at 13:32 hrs.

At 13:07 hrs, one mentally challenged person entered into the substation and tried to climb the switchyard tower. To avoid unwanted accident all the emanating lines / ICTs from 220KV Meramundali were hand tripped.

OPTCL may explain.

ITEM NO. B.12: Format of First Hand Trip report for any tripping incident.--ERLDC

As per IEGC section 5.9.6 (a), users, STU, CTU, SLDC are to give written report along with oral information for tripping of any regional grid element and protection failure on any element of ISTS, and on any item on the "agreed list" of the intra-State systems. Format for written first hand trip report for the above mentioned events is attached in **Annexure-B12**. Users, STU, CTU and SLDCs in Eastern Region have to submit first hand report to ERLDC as per the format, failing which it will be considered as non-submission first-hand information.

Members may note and comply.

ITEM NO. B.13: Standardizing DR digital channel name.--ERLDC

Standardized naming convention may be followed for digital channel names of disturbance recorder (DR) output to ease the correct analysis of any tripping incident. In some cases, "virtual input" is used as digital channel names of DR output, which may be substituted with standardized names. If any digital channel name cannot be standardized, meaning of all digital channel names of DR output may be uploaded in PDMS.

Members may note and comply.

PART- C:: OTHER ITEMS

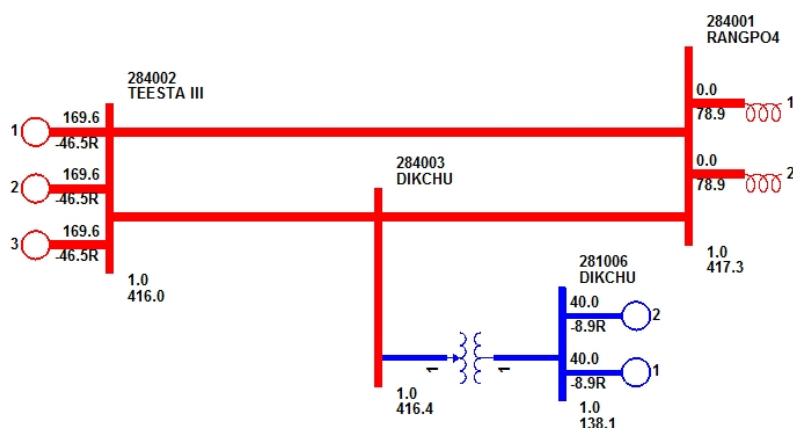
FOLLOW-UP OF DECISIONS OF THE PREVIOUS PROTECTION SUB-COMMITTEE MEETING(S)

(The status on the follow up actions is to be furnished by respective constituents)

ITEM NO. C.1: Repeated disturbances at 400kV Teesta-III, Dikchu and Rangpo on at 00:30 hrs on 16-07-2017, 15:56 hrs & 19:11 hrs on 24-07-2017 and 10:08 hrs on 27-07-2017

At 00:30 hrs on 16-07-2017:

400 kV Teesta III - Dikchu S/C (tripped only from Teesta III end) and Unit #I at Dikchu tripped due to operation of cable differential protection (B phase current 1.1 kA at Teesta III) resulting generation loss at Unit # II at Dikchu due to loss of evacuation path.



At 15:56 hrs on 24-07-2017:

400 kV B/C at Teesta III tripped on receipt of SPS signal resulting in tripping of unit I, II & IV. However both circuits of 400 kV Rangpo - Binaguri D/C were in service. Flow in 400 kV Rangpo - Binaguri D/C was around 800 MW/Ckt. Rangpo personnel verbally confirmed non increment of TX counter dedicated for transmitting SPS signal.

At 19:11 hrs on 24-07-2017:

Due to Rotor Earth Fault in Unit #5 of Teesta III there was a dip in DC Voltage during Unit 5 Start-up (DC Field Flushing) leading other synchronized units to No Load Operation.

At 10:08 hrs on 27-07-2017:

At 10:08 hrs 400 kV Rangpo – Binaguri – II tripped due to B-N fault. (DEF, F/C at Rangpo and DT received at Binaguri). After tripping of circuit – II, power flow in 400 kV Rangpo – Binaguri – I became more than 850 MW (1700 MW approx.) and SPS – I (generation reduction at Teesta III, Dikchu, JLHEP and Chujachen.) got activated resulting tripping of one unit at each power plant at Chujachen, JLHEP and Dikchu. Due to non-tripping of any unit at Teesta III, power flow in 400 kV Rangpo – Binaguri – I remained more than 850 MW for more than 500 ms and SPS – II got activated resulting tripping of 400 kV Teesta III – Rangpo S/C followed by tripping of remaining units at Teesta III and Dikchu due to loss of evacuation path.

In 58th PCC, it was informed that only Teesta III station has received SPS trip signal at 15:56 hrs on 24-07-2017 but Rangpo end confirm non-transmission of SPS signal. Hence it may be a spurious tripping.

In other instance at 10:08 hrs on 27-07-2017, Teesta-III did not provide generation relief when 400 kV Rangpo – Binaguri – II tripped and SPS operated at Rangpo.

PCC felt that this kind of inadvertent SPS operations of Teesta-III may endanger the grid security and advised Teesta-III to check and review the SPS at their end.

PCC opined that in view of repeated unsatisfactory SPS operations during last few months, the threshold limit on power flow through 400 kV Rangpo – Binaguri D/C line needs to be reviewed.

In last few OCC meetings, Teesta-III, Jorethang, Dikchu, Chuzachen & Powergrid were not submitting the healthiness certificate for Rangpo SPS as per the decision of special meeting of 21.06.2017.

The issue was referred to TCC.

In 36th TCC, Teesta-III explained that on 24-07-2017 at 15:56 hrs the tripping was initiated at Teesta III because of PLCC maloperation due to fault in DC system during DC field flushing.

Teesta-III informed that now they are following to AC field flushing in order to avoid the DC voltage dip.

Teesta-III explained that on 27-07-2017 at 10:08 hrs, they have not received the SPS signal due to some problem in PLCC panel. The same has been rectified and successfully operated on 19th August 2017.

Further Teesta-III suggested that second PLCC channel may also be used for transferring the signal from Rangpo to Teesta III to improve the reliability. Teesta III added that spare channel is already available.

Teesta Urja may update.

ITEM NO. C.2: Disturbance at 220 kV Lalmatia S/s(JUSNL) on 21-05-17 at 16:39 hrs.

At 16:39 hrs 220 kV Farakka Lalmatia S/C line tripped from Farakka end on O/C E/F protection F/C 4.68 kA in B phase at Farakka.

132 KV Kahalgaon(BSPTCL) - Lalmatia S/C & 132 KV Kahalgaon(NTPC)-Lalmatia S/C were also tripped resulting total loss of power supply at Lalmatia & Sahebgunj. Load at Dumka got survived as it was radially fed from Maithon.

JUSNL and NTPC may explain the following:

- Location of fault
- Tripping of 220 kV Farakka Lalmatia S/C line
- Tripping of 132 KV Kahalgaon(BSPTCL) - Lalmatia S/C & 132 KV Kahalgaon(NTPC)-Lalmatia S/C

In 56th PCC, NTPC informed that 220kV Farakka-Lalmatia line tripped from Farakka end on B-N fault, the fault distance was 59 km. 132 KV Lalmatia- Kahalgaon line didn't trip from Kahalgaon end. However DR recorded in relay of this line indicates that aforesaid line tripped at Lalmatia end.

PCC advised NTPC to collect tripping details of 220kV Farakka-Lalmatia line at Lalmatia end and submit to ERLDC and ERPC.

In 58th PCC, NTPC informed that submitted the DR of Farakka end for 220kV Farakka-Lalmatia line tripping.

PCC advised NTPC to collect tripping details of 220kV Farakka-Lalmatia line at Lalmatia end also and submit to ERLDC and ERPC.

JUSNL and NTPC may update.

ITEM NO. C.3: Multiple elements tripping at 220/132 kV Lalmatia (JUSNL) S/s on 06-02-17 at 16:40 Hrs.

At 16:40hrs, blasting of 132 kV Y & B phase CTs of 132 kV bus sectionalizer at 220/132kV Lalmatia S/s resulted in following events:

- 132 kV Lalmatia - Kahalgaon and 132 kV Lalmatia - Dumka – II tripped from Lalmatia end on zone IV protection.
- 132 kV Lalmatia -Dumka – I feeder tripped from both end.
- Farakka end of 220 kV Farakka Lalmatia line, remain picked up the fault in zone 1 for 880 ms but no line breaker was tripped.

The relay Indications are as follows:

Time	Name of the element	Relay at Lalmatia	Relay at remote end
16:40 hrs	220 kV Lalmatia - Farakka feeder	Did not trip	R-Y-B phase Z-I started, B phase relay picked at 16:40:28.504 hrs, Y phase relay picked at 16:40:28.664 hrs, R phase relay picked at 16:40:28.905 hrs, F/C 1.5 kA in all three phases. All the relay were in picked condition till the end of time frame captured by NTPC end DR (DR is attached)
	132 kV Lalmatia - KhSTPP feeder	B-N, Z-IV, O/C, IA 0.7kA, IB – 0.9 kA, IC – 3kA, Fault duration 183.8 ms.	Did not trip
	132 kV Lalmatia Dumka – I	E/F	D/P
	132 kV Lalmatia Dumka – II	E/F, Z-IV	Did not trip
	220/132 KV ATR, 132/33 KV ATR – I & II at Lalmatia	E/F protection at Lalmatia	

Analysis of PMU plots:

- At 16:40 hrs, 4 kV voltage dip observed in all three phases.
- Fault clearance time is 700 ms. Though the voltage fully recovered to pre-fault value after 600 ms of the fault.

In 53rd PCC, NTPC informed that 132 kV Y & B phase CTs of 132 kV bus sectionalizer were busted at 220/132kV Lalmatia S/s and Bus bar protection was failed to operate. One 220/132kV ATR at Lalmatia (under NTPC control area) tripped on backup E/F protection other ATR which is under JUSNL control area was failed to clear the fault. As a result, 220kV Lalmatia-Farakka line tripped from Farakka end on directional E/F protection.

JUSNL informed that 132kV Lalmatia-Dumka D/C line and 132kV Lalmatia-Khahalgaon S/C line tripped from Lalmatia end on non directional over current protection. The 220/132kV ATR at Lalmatia under their control area also tripped on over current E/F protection.

PCC observed that 220kV Lalmatia-Farakka line tripped from Farakka end after 6 sec which is not acceptable and tripping of 220/132kV ATRs is not clear.

PCC advised the following:

- NTPC should check the reason for non-operation of busbar protection at 132kV Lalmatia S/s.
- NTPC and JUSNL should jointly test the healthiness of the busbar protection at 132kV Lalmatia S/s
- NTPC and JUSNL should place the details of ATR tripping along the relevant DR.
- JUSNL should disable the non-directional over current protection feature in all 132kV lines and enable directional over current protection with proper relay coordination.

PCC advised JUSNL and NTPC to submit the action taken report to ERPC and ERLDC within a week.

In 54th PCC, NTPC and JUSNL informed that they will test the healthiness of the busbar protection at 132kV Lalmatia S/s in May 2017.

JUSNL informed they have not yet disabled the non-directional over current protection feature in all 132kV lines.

In 58th PCC, JUSNL informed that they have disabled the non-directional over current protection feature in all 132kV lines and enabled directional over current protection on 30th July 2017.

PCC advised JUSNL and NTPC to comply the other observations and submit the action taken report to ERPC and ERLDC.

NTPC and JUSNL may update.

ITEM NO. C.4: Disturbance at 765 kV Dharmajaygarh S/s on 15-06-17 at 14:23 hrs.

At 14:23:12.417, distance protection of Dharamjaigarh-Jabalpur Ckt-3 issued trip command on R-Y fault at both ends. At Dharamjaigarh end, main CB tripped, however, none of the poles of Tie CB tripped, thus all the connected lines tripped on Zone-3 from remote end. LBB did not operate at Dharamjaigarh due to failure in DC supply. Fault was cleared after tripping of 765kV Dharamjaigarh-Ranchi - II after 4 minutes from the fault.

In 57th PCC, Powergrid explained that R-Y fault occurred in 765kV Dharamjaigarh-Jabalpur Ckt-3, main CB at Dharamjaigarh end tripped, but none of the poles of Tie CB tripped. LBB at 765kV Dharamjaigarh also not operated due to some problem in DC supply. As a result, all the connected lines of 765kV Dharamjaigarh tripped from remote end on Zone-3. But Ranchi end of 765kV Dharamjaigarh-Ranchi line- II tripped after 4 minutes.

Powergrid informed that Ranchi end relay observed power swing hence the power swing blocking was initiated and blocked the relay to trip the line.

PCC felt that fault in 765kV network was cleared after 4 minutes is not acceptable. Moreover Powergrid did not send any report to ERPC and ERLDC in this regard.

PCC advised Powergrid to analyze the tripping and submit a detailed report to ERPC and ERLDC.

Powergrid vide mail dated 30th Aug 2017 informed that during investigation of delayed tripping, the zone 3 reach setting was found slightly less than the calculated zone 3 reach value. This might caused delay in pickup and drop of zone 3.

The zone 3 reach setting has been corrected.

In 36th TCC, ERLDC informed that though they have sent the DR, the relevant DR containing the tripping instant is missing. ERLDC asked that how 765kV Dharamjaigarh-Ranchi line- II only observed the power swing when parallel line (765kV Dharamjaigarh-Ranchi line- I) had successfully cleared the fault in time.

Powergrid informed that line length of both the ckts are different and the zone 3 setting of 765kV Dharamjaigarh-Ranchi line- II at Ranchi end was slightly less than the calculated zone 3 reach value.

TCC felt that delayed fault clearance of fault in 765 kV level may be resulted to serious threat for grid security.

TCC advised Powergrid to take the issue seriously and present detail analysis on delayed tripping of 765kV Dharamjaigarh-Ranchi line- II from Ranchi end with all the explanation in forthcoming PCC meeting scheduled to be held on 20th September 2017.

Powergrid may explain.

ITEM NO. C.5: Station blackouts at 220kV MTPS

Station Blackout being faced at MTPS due to tripping of 220KV MTPS-Kaffen Ckt-1 & 2 on various reasons. It may be noted that above lines are connected to the grid, while remaining lines emanating from MTPS remain connected in radial mode. Though 220KV MTPS-Motipur Ckt-1 and 220KV MTPS-Ujjayarpur Ckt-2 has grid connectivity, but these two lines are also most of the times kept on radial mode by SLDC, Patna due to power flow constraints.

Following three incidents Kaffen Ckt-1 & 2 trippings resulted in Station Blackout at KBUNL. This causes not only heavy loss to KBUNL but heavy stress on machines due to sudden power failure. North Bihar area which is connected with the MTPS with 6 Nos. 220KV & 7 Nos. 132KV lines also goes in dark during above period.

- 1. TRIPPING OF 220KV MTPS-KAFFEN CKT-1 & 2 FROM KAFFEN END ON 20.06.2017, 08:42 HRS RESULTING IN UNIT-2 TRIPPING AND THUS STATION BLACKOUT.**
- 2. TRIPPING OF 220KV MTPS-KAFFEN CKT-1 & 2 DUE TO PLCC MALFUNCTION ON 07.05.2017, 14:41 HRS RESULTING IN UNIT-1 TRIPPING AND THUS STATION BLACKOUT.**
- 3. TRIPPING OF 220KV MTPS-KAFFEN CKT-1 & 2 DUE TO PLCC MALFUNCTION ON 18.04.2017, 22:55 HRS RESULTING IN STATION BLACKOUT.**

In 57th PCC, Powergrid informed that the relays of 220KV MTPS-Kaffen Ckt-1 & 2 at Kaffen(PG) were not functioning properly. The relays have been replaced with new relays.

Regarding malfunction of PLCC system of 220KV MTPS-Kaffen Ckt-1 & 2, Powergrid informed that BPL make PLCC system has been rectified and now it is in order.

Regarding installation of PLCC system in other 220kV lines, BSPTCL informed that they have given consultancy to Powergrid for installing of OPGW in three 220kV lines.

PCC advised BSPTCL to place their action plan for installation of PLCC system in other transmission lines.

In 58th PCC, BSPTCL informed that PLCC system for 220kV MTPS-Motiari line is available at site. Clearance from MTPS end is awaited for installation of PLCC system.

BSPTCL may update.

ITEM NO. C.6: Concerned members may update the latest status.

- 1. Disturbance at 220 kV Hatia, Biharsharif and Fatua S/s on 05-06-17 at 20:27 hrs.**

In 57th PCC, PCC recommended the following:

- PCC felt that 220/132kV ATRs at 220kV Hatia S/s should not trip for a fault in 220 kV Ranchi*

- Hatia line-I and advised JUSNL to check the relays of 220/132kV ATRs at 220kV Hatia S/s
- 220 kV TVNL – Biharshariff S/C line should not trip from TVNL end on zone 2 in this case. PCC advised TVNL to review the zone 2 settings of 220 kV TVNL – Biharshariff S/C line at TVNL end.

JUSNL and TVNL may update.

2. Disturbance at 220 kV Fatua S/s (BSPTCL) on 15-06-17 at 06:23 hrs.

In 57th PCC, BSPTCL was advised to take the following corrective actions:

- CB of 220 kV Sipara - Fatuah S/C line at Fatuah end should be tested.
- Non directional over current feature should be disabled for 220 kV Biharshariff - Fatuah – I at Fatua end and backup directional over current protection should be properly coordinated with distance protection.

In 58th PCC, BSPTCL informed the following:

- They are planning to test CB of 220 kV Sipara - Fatuah S/C line at Fatuah end and submit the report after testing.
- Non directional over current feature has been disabled for 220 kV Biharshariff - Fatuah – I at Fatua end and backup directional over current protection was properly coordinated with distance protection.
- CB of 220 kV Biharshariff - Fatuah – II at Fatua end has been tested and found that opening time is higher and they are planning to replace the breaker.

BSPTCL may update.

3. Disturbance at 220 kV Hazipur (BSPTCL) on 11-06-17 at 11:39hrs.

In 57th PCC, members felt that zone 2 time settings of 220 KV Muzaffarpur-Hazipur-D/C line at Muzaffarpur (PG) end should be verified as the PMU fault clearing time was 100 ms.

PCC advised Powergrid to review the zone 2 time setting of 220 KV Muzaffarpur-Hazipur-D/C line at Muzaffarpur (PG) end.

PCC advised BSPTCL to collect the details of 220 KV Hazipur -Amnour line- I at Amnour end and send it to ERPC and ERLDC.

Powergrid and BSPTCL may update.

ITEM NO. C.7: Repeated pole blocking at HVDC Sasaram

S. No.	Tripping Date	Tripping Time	Brief Reason/Relay Indication	Restoration Date	Restoration Time	Duration
1	17-07-17	5:41	System failure alarm	17-07-17	6:38	0:57
2	17-07-17	16:35	System failure alarm	17-07-17	17:34	1:00:00
3	20-07-17	8:29	System failure alarm	20-07-17	9:25	0:56
4	31-07-17	18:34	System failure alarm	31-07-17	19:45	1:11:00
5	29-05-17	00:15	System failure alarm	29-05-17	01:24	1:09:00
6	25-04-17	06:03	Auxiliary supply failure	25-04-17	07:14	1:11:00
7	01-04-17	09:15	Tripped due to Valve cooling system	01-04-17	12:56	3:41:00

			problem			
8	11-04-17	23:32	System failure alarm	12-04-17	00:17	0:45:00
9	30-04-17	03:24	Due to tripping of filters on eastern side	30-04-17	16:13	12:49:00
10	12-01-17	13:36	Blocked due to unbalanced auxiliary system	12-01-17	15:06	1:30:00
11	14-01-17	05:03	Tripped due to system failure alarm	14-01-17	08:57	3:54:00
12	10-01-17	13:23	Filter problem at Sasaram	12-01-17	11:24	46:01:00
13	03-01-17	11:00	To take pole in service in HVDC mode	10-01-17	07:42	164:42:00
14	03-12-16	12:15	Converter control protection operated	03-12-16	13:22	1:07:00
15	06-12-16	19:12	Tripped due to CCP east side M1, M2 major alarm and observed sys fail in East side	06-12-16	20:55	1:43:00
16	19-12-16	12:43	Due to tripping of 400 kv Biharshariff-Sasaram-II	19-12-16	13:35	0:52:00
17	05-11-16	04:51	System fail alarm	05-11-16	06:57	2:06:00
18	22-11-16	12:12	CCP Main-2 major alarm	22-11-16	13:35	1:23:00
19	26-11-16	09:36	CB filter bank burst	27-11-16	11:31	25:55:00

Regarding pole block on 25-05-17, there is back up in the station in the following form:

132/33 KV Pusauli	315 MVA ICT-2 tertiary	01 No. DG set of 1500 KVA	Battery available for valve cooling system only. It can provide auxiliary supply for at max 2 minutes.
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In 56th PCC, Powergrid was advised to submit the details to ERLDC and ERPC.

In 36th TCC, Powergrid informed that pole blocking at HVDC Sasaram system is being initiated on system failure alarm. They have contacted OEM and OEM is also failing to conclude and rectify the issue.

Powergrid added that since the HVDC control system is quite old and it is not operating satisfactorily the HVDC control system at Sasaram needs to be upgraded. Powergrid requested TCC to consider.

TCC felt that Powergrid has not placed any report in the PCC meeting and advised Powergrid to take the issue seriously.

TCC opined that system upgradation needs detailed discussion in lower forums and advised Powergrid to place the details in forthcoming PCC meeting scheduled to be held on 20th September 2017.

Powergrid may update.

ITEM NO. C.8: Implementation of on-line tripping incident reporting system in Protection Database Management System.

On-line tripping incident reporting system has been implemented in Protection Database Management System (PDMS). As decided in 53rd & 54th PCC Meetings, details of the tripping incident along with the DR, EL events and other reports can be uploaded through this online portal.

The tripping incident reporting page can be accessed in PDMS through the ERPC protection database website: www.erpcc-protectiondb.in:8185. The link is also available in ERPC website on right side bar. Training on PDMS including on-line tripping incident reporting was given to all the constituents from 22.05.17 to 24.05.17. Subsequently, login ID and password for access of PDMS has been issued to the respective members as nominated by the authorities.

ERPC vide letter dated 12th July 2017 informed all the constituents to submit the tripping incident report along with DR (comtrade files), EL and other relevant files through this on-line portal with immediate effect.

In 57th PCC, all the constituents were advised to submit the tripping incident report along with DR (comtrade files), EL and other relevant files through this on-line portal.

PCC decided to consider both hard copy and details uploaded in the on-line portal for the month of August, 2017.

PCC decided to consider only the on-line tripping incident report as received in PDMS from 1st September, 2017.

In 58th PCC, all the constituents were advised to send their queries to mserpc-power@nic.in & eeop.erpcc@gov.in if they are facing any problem in uploading the tripping details.

In 36th TCC, TCC advised all the constituents to upload the tripping details of a month in networks under respective control area along with DR (comtrade files), EL and other relevant files in PDMS on-line portal, otherwise it will be considered as violation of compliance of clause 5.2(r) & 5.9 of IEGC.

The status of online-tripping reporting in PDMS for the disturbances of August, 2017 as follows:

SI No	UTILITY NAME	TRIPPING INCIDENT	OCCURRENCE DATE	UPLOAD STATUS IN PDMS
1	OPTCL	220kV MERAMUNDALI-BSL 1 Tripping	01-08-2017	YES
2	JUSNL	220kV HATIA-RANCHI and 220kV HATIA-PTPS Tripping	03-08-2017	YES, Details not uploaded
3	TEESTA-3 (TUL)	400kV TEESTA-3 to Dikchu Line Tripping	04-08-2017	YES
4	WBPDC	Disturbance at Bakreswar TPP	11-08-2017	Detailed report entered, DR file not uploaded
5	PGCIL-ER1	Disturbance at Sasaram	12-08-2017	YES
6	BSPTCL	Tripping of 220kV Purnea-Madhepura D/C	14-08-2017	YES, Relay indications not uploaded

7	TEESTA-3 (TUL)	400kV TEESTA-3 to RANGPO Line Tripping	16-08-2017	YES
8	BSPTCL	Tripping of 132kV BANKA-SULTANGANJ D/C and ICTs at BANKA	21-08-2017	YES
9	DVC	Disturbance at Waria S/S	27-08-2017	YES
10	DVC	Multiple tripping at CTPS-B and Bokaro A	28-08-2017	YES, DR file not uploaded
11	NHPC	Power Failure at Rangit Station	30-08-2017	Rangit end details uploaded. Other line tripping details not uploaded.
12	NHPC	Power Failure at Rangit Station	31-08-2017	Rangit end details uploaded. Other line tripping details not uploaded.

Members may comply.

ITEM NO. C.9: Third Party Protection Audit

1. Status of 1st 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	27	39.71
Odisha	59	38	64.41
JUSNL	34	16	47.06
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).

Members may update.

2. Schedule for 2nd Third Party Protection Audit:

The latest status of 2nd Third Party Protection audit is as follows:

- | | |
|--------------------------------------|---|
| 1) Jeerat (PG) | Completed on 15 th July 2015 |
| 2) Subashgram (PG) | Completed on 16 th July 2015 |
| 3) Kolaghat TPS (WBPDCCL)- | Completed on 7 th August 2015 |
| 4) Kharagpur (WBSETCL) 400/220kV - | Completed on 7 th August 2015 |
| 5) Bidhannagar (WBSETCL) 400 & 220kV | Completed on 8 th September, 2015 |
| 6) Durgapur (PG) 400kV S/s | Completed on 10 th September, 2015 |
| 7) DSTPS(DVC) 400/220kV | Completed on 9 th September, 2015 |
| 8) Mejia (DVC) TPS 400/220kV | Completed on 11 th September, 2015 |
| 9) 400/220/132kV Mendhasal (OPTCL) | Completed on 2 nd November, 2015 |

10) 400/220kV Talcher STPS (NTPC)	Completed on 3 rd November, 2015
11) 765/400kV Angul (PG)	Completed on 4 th November, 2015
12) 400kV JITPL	Completed on 5 th November, 2015
13) 400kV GMR	Completed on 5 th November, 2015
14) 400kV Malda (PG)	Completed on 23 rd February, 2016
15) 400kV Farakka (NTPC)	Completed on 24 th February, 2016
16) 400kV Behrampur(PG)	Completed on 25 th February, 2016
17) 400kV Sagardighi (WBPDCCL)	Completed on 25 th February, 2016
18) 400kV Bakreswar (WBPDCCL)	Completed on 26 th February, 2016
19) 765kV Gaya(PG)	Completed on 1 st November, 2016
20) 400kV Biharshariff(PG)	Completed on 3 rd November, 2016
21) 220kV Biharshariff(BSPTCL)	Completed on 3 rd November, 2016
22) 400kV Maithon (PG)	Completed on 18 th May, 2017
23) 132kV Gola (DVC)	Completed on 17 th May, 2017
24) 132kV Barhi (DVC)	Completed on 18 th May, 2017
25) 132kV Koderma (DVC)	Completed on 18 th May, 2017
26) 132kV Kumardhubi (DVC)	Completed on 19 th May, 2017
27) 132kV Ramkanali (DVC)	Completed on 19 th May, 2017
28) 220kV Ramchandrapur	Completed on 1 st June, 2017
29) 400kV Jamshedpur (PG)	Completed on 1 st June, 2017
30) 132kV Patherdih (DVC)	Completed on 31 st May, 2017
31) 132kV Kalipahari (DVC)	Completed on 30 th May, 2017
32) 132kV Putki (DVC)	Completed on 31 st May, 2017
33) 132kV ASP (DVC)	Completed on 30 th May, 2017
34) 132kV Mosabani (DVC)	Completed on 2 nd June, 2017
35) 132kV Purulia (DVC)	Completed on 1 st June, 2017

It was informed that the third party protection audit observations are available in the ERPC website in important documents.

PCC advised all the constituents to comply the observations at the earliest.

Members may update.

ITEM NO. C.10: Implementation of Protection Database Management System Project.

ERPC proposal for “Creation & Maintenance of web based protection database management system and desktop based protection calculation tool for Eastern Regional Grid” has been approved by the Ministry of Power for funding from Power System Development Fund (PSDF) vide No-10/1/2014-OM dated 07.03.2016.

In 49th PCC, PRDC informed that data collection for West Bengal is in progress and it will be completed by December, 2016.

In 50th PCC, It was informed that Software Acceptance Tests are in progress.

In 51st PCC, PRDC informed that data collection of Odisha and Jharkhand has been completed. Data collection in West Bengal and Bihar is in progress. Data collection of Eastern Region will be completed by 15th February 2017.

PRDC added that software acceptance trails of PSCT phase-I have been completed and phase-II will be done from 19th to 21st January 2017. Software acceptance trails of web based PDMS system have been completed and observations will be implemented at the earliest.

It was informed that a format for on-line reporting of tripping incidence has been prepared in PDMS and PRDC will present details in next PCC meeting.

In 52nd PCC, PRDC explained the format for on-line reporting of tripping incidence.

PCC suggested PRDC to include details of the elements under shutdown before the disturbance. In 53rd PCC, PRDC informed that data survey and modeling has been completed and PDMS will be operational by 31st March 2017. The login id will be provided soon.

PRDC presented the format for on-line reporting of tripping incidence.

PCC in principle agreed with the format and advised PRDC to include a summery sheet for the each tripping incidence.

In 54th PCC, PRDC informed that summery sheet for on-line tripping incidence reporting has been prepared. The PDMS is operational and constituents can access the data. Login credentials were given to all the constituents.

It was decided that a separate meeting will be convened in May 2017 to finalize the procedure for on-line reporting and data updation.

In 55th PCC, PRDC informed that collection of relay settings 97 out of 112 substations were completed in Bihar. Rest are in progress.

Pending relay setting file collection of JUSNL substations are in progress. Relay setting file collection of Sikkim substations are pending.

In 56th PCC, PRDC informed that relay setting file collection of BSPTCL and Sikkim substations are in progress.

In 58th PCC, It was informed that a special meeting will be held on 7th September 2017 at ERPC, Kolkata for validation of substation/relay data available at PDMS.

PCC advised all the constituents to send their representative with all the relevant details.

In 36th TCC, ERPC Secretariat informed that some relay setting data for protection database is still pending from constituents. The latest status as updated in special meeting on 7th September 2017 is given below:

1. Odisha: 92.77%
2. Jharkhand: 91.34%
3. West Bengal: 92.152%
4. Bihar: 70.617% (Powergrid ER-I data is pending)
5. Sikkim: 92.408%

TCC felt that Ministry of Power is funding the project and it would be a gross negligence of ER constituents, if complete relay setting data were not provided for implementation of the project.

TCC advised all the constituents to send the pending relay setting data to ERPC and also to check & verify their respective Substation data (relay data/SLD/CT/PT etc) as available in PDMS regularly and submit their observations as per the decision of 07.09.17.

PRDC may update.

ITEM NO. C.11: 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
10	400KV PATNA-BALIA-II	21.06.16	B-N FAULT	PGCIL	PGCIL		
12	400KV PATNA-BALIA-I	21.06.16	R-N FAULT	PGCIL	PGCIL	PLCC available	
13	<u>220KV BUDIPADAR-KORBA-II</u>	23.06.16	Y-N FAULT	OPTCL	CSEB	PLCC available	will be activated in consultation with Korba
14	400 KV ARAMBAGH - BIDHANNAGAR	02.07.16	Y-N FAULT	WBSET CL	WBSET CL	PLCC available	AR in service but some problem in y-ph pole
16	400 KV NEW RANCHI - CHANDWA - I	13.07.16	B-N FAULT	PGCIL	PGCIL	PLCC available	
17	<u>220 KV TSTPP-RENGALI</u>	17.07.16	EARTH FAULT	NTPC	OPTCL		
18	<u>220KV BUDIPADAR-RAIGARH</u>	21.07.16	EARTH FAULT	OPTCL	PGCIL	PLCC defective	
19	400 KV KOLAGHAT-KHARAGPUR	03.08.16	Y-N FAULT	WBPDC L	WBSET CL		
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.
21	400 KV PURNEA-MUZAFARPUR-I	03.08.16	R-N FAULT	PGCIL	PGCIL	PLCC available	
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
25	<u>220 KV CHANDIL-SANTALDIH</u>	25.08.16	R-N FAULT	JUSNL	WBPDC L	not available	
26	400 KV MPL-RANCHI-II	02.09.16	R-N FAULT	MPL	PGCIL	PLCC available	

27	220 KV BIHARSARIF-TENUGHAT	07.09.16	B-N FAULT	BSPTCL	TVNL		
29	220 KV RAMCHANDRAPUR - CHANDIL	22.09.16	B-N FAULT	JUSNL	JUNSL		
31	400 KV KOLAGHAT - CHAIBASA	28.09.16	B-N FAULT	WBPDC L	PGCIL	PLCC available	

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.

TCC advised to review the status of above in lower forums report back in next TCC.

Members may update the status.

ITEM NO. C.12: Non-commissioning / non-functional status of bus-bar protection at important 220 kV Sub-stations.

It has been observed that at many 220 kV substations particularly that of STU, bus-bar protection is either not commissioned or non-functional. The non-availability / non-functionality of bus bar protection, results in delayed, multiple and uncoordinated tripping, in the event of a bus fault. This in turn not only results in partial local black out but also jeopardises the security of interconnected national grid as a whole. The matter was also pointed out during the third party protection audit which is being carried out regularly. Constituents are required to meet the audit compliance and commission or made bus –bar protection functional where ever it is not available. A list of such important 220 kV sub-stations as per the first third party audit is placed in the meeting.

In 34th TCC, members updated the status as follows:

Bus Bar Protection not available (record as per third party protection audit)

Bihar				
SI No	Name of Substation	Bus protection status	Date of audit	Present Status
1	220 kV Bodhgaya	Not available	28-Dec-12	Single bus and there is no space available for busbar protection
Jharkhand				
1	220 kV Chandil	Not available	29-Jan-13	LBB available
2	220 kV Tenughat	Not available	12-Apr-13	
DVC				
1	220 kV Jamsedpur	Not available	10-Apr-13	Single bus. Bus bar will be commissioned under PSDF.
West Bengal				
1	220 kV Arambah	Not available	24-Jan-13	Available in alarm mode. Planning to replace with numerical relay
2	220 kV Jeerat	Not available	20-Dec-12	Relays have been received at site. Installation is in progress.

TCC further advised all the constituents to give the latest status of Bus Bar protection of other 220KV S/S under respective control area.

TCC advised to review the status of above in lower forums report back in next TCC.

58th PCC advised DVC to install numerical bus bar protection at 220kV Bokaro, Kalyaneswari, Chandrapura and Durgapur S/s to improve the reliability.

In 36th TCC, DVC informed that they have already covered the upgradation of busbar protection for 220kV Kalyaneswari and Durgapur in PSDF proposal. They will place their action plan for 220kV Bokaro and Chandrapura in upcoming PCC meeting.

Members may update.

PART- D

Item No D.1 Tripping incidences in the month of August, 2017

Other tripping incidences occurred in the month of August 2017 which needs explanation from constituents of either of the end is given at **Annexure- D1**.

In 58th PCC, ERLDC informed that most of the constituents are not submitting the DR and EL data for single line trippings.

PCC advised all the constituents to upload the details along with DR and EL in PDMS on-line portal and referred the issue to TCC for further guidance.

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.

Members may discuss.

Item No D.2 Any other issues.

FIRST HAND TRIP REPORT

Name of the S/S: A

Trip Report No:

Date & Time: 19.04.15**Time: 17: 00 hrs**

1. Name of the Tripped Line/ICT/Reactor/Bus : 400KV S/C (A- B) line
2. Tripping date & time : 19.04.2015 at 14:13 hrs
3. Status of Auto-reclosure (In case of Single phase to ground fault of transient nature) : A/R successful but fault persists
4. Reason for non-operation/Unsuccessful Auto-reclosure : N.A
5. System condition prior to tripping : 14: 00 hrs

Voltage (KV)	Frequency (Hz)	Load of the tripped line in MW/MVAR
412	50.16	1. 400KV S/C (A- B) line -377/+35

6. Relay flags:

Local End	Remote end
1. 400KV A - B line <u>Relay Flag:</u> MICOM P442 (Main-I), Z1 Trip REL 670 (Main-II), 86C (C-Phase) ,Dist.: C-E, 82.24KM	1. Main-I & Main-II

7. Sequence of Normalization :
(Date & Time to be mentioned)
 - a. 19.04.15 14:53 hrs A-B line extended from B end.
 - b. 19.04.15 14:54 hrs A-B line synchronized at A end
8. Cause of Tripping: Earth Fault (C-Phase to E) in system
9. Remedial action taken / required: Line patrolling is going on.

Signature:

Shift-In-Charge

LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION 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	Remarks
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Fault Clearing time violating protection standard

220KV PUSAULI-DEHRI-I	05/08/2017	11:27	05/08/2017	12:26	Tripped from PUSAULI end only	E/F, Ir=560 A		300 msec	No autoreclose operation observed in		Yes	
132KV MUZAFFARPUR-DHALKEBAR-I	11/08/2017	3:41	11/08/2017	4:13	Y_N, Z2, 1.288KA, 155.1 KM From Muzaffarpur		Y-N FAULT	150 msec				As per PMU Y-B fault
132KV MUZAFFARPUR-DHALKEBAR-I	11/08/2017	4:16	11/08/2017	4:37	Y_N, Z2, 1.288KA, 155.1KM From Muzaffarpur		Y-N FAULT	1100 msec				As per PMU Y-B fault
400KV TEESTA-III-RANGPO-I	16/08/2017	12:18	16/08/2017	12:41	Tripped on b_n fault - charging attempted at 12:41 hrs failed on		B-N FAULT	480 msec	Unsuccessful	Yes		
220KV TARKERA-ROURKELA-I	07/08/2017	12:36	07/08/2017	12:49	Z1, RN, 9.9KM From Tarkera, 8.29 KA		R-N FAULT	240 msec	No autoreclose operation observed in			
400KV BINAGURI-ALIPURDUAR-II	21/08/2017	10:55	21/08/2017	11:51		Alipurduar: B_N fault, F.D.: 93.5 KM, F.C.: 4.507 kA	B-N FAULT	700 msec	No autoreclose operation observed in PMU data			
220KV STPS(WBSEB)-CHANDIL-I	21/08/2017	13:46	21/08/2017	13:58	R_N Fault, Zone II	Successful A/R from Chandil end	R_N Fault	600 msec	No autoreclose operation observed in		Yes	
220KV STPS(WBSEB)-CHANDIL-I	23/08/2017	10:54	23/08/2017	15:35	Z2, BN, 97.24KM From STPS, 1.30KA	Z1, BN	B_N Fault	525 msec	No autoreclose operation observed in PMU data		Yes	Multiple tripping at the same
220KV CHANDIL-RAMCHANDRAPUR-SC	23/08/2017	10:54	23/08/2017	11:12	Tripped from Ramchandrapur only	Z2, BN, 64.76KM From Ramchandrapur,	B_N Fault	525 msec	No autoreclose operation observed in PMU data		Yes	Multiple tripping at the same
220KV PUSAULI-DEHRI-I	24/08/2017	14:37	24/08/2017	15:23	R-N , 178 KM, 1.1 KA,Z3		R_N Fault	800 msec	No autoreclose operation observed in			
400KV BINAGURI-MALBASE-III	26/08/2017	1:36	26/08/2017	2:10	B-N/109.7KM FRM BINAGURI, Fault current 3.16 ka		B-N FAULT	600 msec	No autoreclose operation observed in			

No autoreclose operation observed in PMU data

400KV NEW PURNEA-BIHARSARIFF-II	02/08/2017	14:05	02/08/2017	14:28	A/R unsuccessful at new purnea	B_N;201.2 km from biharshariff,2.37 KA,A/R successful at	B-N FAULT	< 100	No autoreclose operation observed in PMU data			
400KV KOLAGHAT-KHARAGPUR-II	04/08/2017	11:36	04/08/2017	12:01	Kgp: Z1, B-ph,Dist=55.2km, Ifault=3.415KA,	Ktpp: Z1, B-ph,Dist=26.69km, I fault= 7.255KA	B-N FAULT	< 100	No autoreclose operation observed in PMU data			
400KV NEW PPSP-ARAMBAGH-I	04/08/2017	19:06	04/08/2017	19:30		AT ARAMBAG:R-N FAULT,32.9 KM.	R-N FAULT	< 100	No autoreclose operation observed in			
220KV PUSAULI-SAHUPURI(UP)-I	05/08/2017	11:02	05/08/2017	12:27	RN, 18.09KM From PUSAULI, 5.539KA		R-N FAULT	< 100	No autoreclose operation observed in			
765KV JHARSUGUDA-DARLIPALI-II	14/08/2017	14:43	14/08/2017	15:45	YN,21KM From Jharsuguda, Iy=11.7KA		Y-N FAULT	<100	No autoreclose operation observed in			
400KV JEERAT-BAKRESWAR-SC	15/08/2017	9:20	15/08/2017	9:54	Y_N, 167KM, 1.04KA, Z_2	Y_N, Z_1, 3.2KM, 5.12KA	Y-N FAULT	<100	No autoreclose operation observed in			
220KV TSTPP-MEERAMUNDALI-I	15/08/2017	19:31	15/08/2017	20:47		R-N, 17 KM, 5.65 KA	R-N FAULT	<100	No autoreclose operation observed in	Yes		
220KV BINAGURI-NJP-I	16/08/2017	23:45	17/08/2017	1:00	B-N FAULT		B-N FAULT	<100	No autoreclose operation observed in			
400KV BINAGURI-ALIPURDUAR-I	21/08/2017	10:24	21/08/2017	11:31	Tripped from Binaguri end only		B-N FAULT	<100	No autoreclose operation observed in			
400KV JEYPORE-GAJUWAKA-II	21/08/2017	14:01	21/08/2017	15:16	B_N, 64.46KM from Jeypore, Ib=2.829KA	B_N, 172.1 KM from Gajuwaka, 0.64 KA	B_N Fault	<100	No autoreclose operation observed in			

220KV CHANDIL-STPS(WBSEB)-I	22/08/2017	11:33	22/08/2017	11:59	R_N Fault		R_N Fault	<100	No autoreclose operation observed in	Yes		
220KV CHANDIL-RANCHI-I	23/08/2017	11:23	23/08/2017	11:56		BN, ZI, 2.18KA, 85.1 KM From Ranchi	B_N Fault	<100	No autoreclose operation observed in	Yes		
220KV PATNA-KHAGAUL-SC	23/08/2017	13:53	23/08/2017	20:51	B-N , 10 KA		B_N Fault	<100	No autoreclose operation observed in			
400KV KODERMA-BIHARSARIFF-II	24/08/2017	21:18	24/08/2017	21:35	B_N, F.C. 8.73 kA, F.D. 26.7 KM (Koderma)	A/R successful from Biharsharif end	B_N Fault	<100	No autoreclose operation observed in			
400KV BINAGURI-TALA-IV	26/08/2017	15:47	26/08/2017	16:21	Zone 1 ,B_N,131 km from binaguri,2.26 KA ar successful	Tripped at tala end only	B_N Fault	<100	No autoreclose operation observed in			
220KV TTPS-TSTPP-I	29/08/2017	21:05	02/09/2017	15:39	B_N,CONDUCTOR SNAP AT TTPS NTPC SWITCHYARD	ZONE 2 ,26.8 KM TTPS GRIDCO	B_N Fault	<100	No autoreclose operation observed in			
220KV BIRPARA-MALBASE-SC	31/08/2017	1:01	31/08/2017	1:51	B_N,3.72 KA,27.17 KM FROM BIRPARA		B_N Fault	<100	No autoreclose operation observed in			
400KV BINAGURI-TALA-IV	31/08/2017	1:38	31/08/2017	1:56		Tripped at Tala end only	Y-N FAULT	<100	No autoreclose operation observed in			

Miscellaneous: Tripping on DT, No reason furnished

400KV BAHARAMPUR-BHERAMARA-I	01/08/2017	14:58	02/08/2017	19:51	Y_B fault;Iy=1.3 KA,Ib=5.57 KA,60.67 km from behrampur;tripped on reattempting at 15:48	CONDUCTOR SNAP AT LOC 79 IN BORDER AREA	Y-B FAULT, CONDUCTOR SNAP	< 100	Unsuccessful	Yes		As per PMU B_N Fault
220KV NEW MELLI-JORETHANG-I	01/08/2017	19:40	01/08/2017	19:56	tripped at jorethang end only			--				
400KV BINAGURI-NEW PURNEA-II	02/08/2017	23:59	03/08/2017	3:16	OVER VOLTAGE AT STAGE-I		OVER VOLTAGE	--	--			
220KV MAITHON-DUMKA-I	04/08/2017	11:39	04/08/2017	12:23	DT RECEIVED AT MAITHON.NO FAULR IN PMU SEEN	CKT REMAINED CLOSED AT DUMKA		--				
400KV ANGUL-JITPL-II	04/08/2017	19:17	05/08/2017	11:19	DT RECEIVED AT ANGUL		DT RECEIVED AT	--				
400KV BINAGURI-KISHANGANJ-I	05/08/2017	10:34	05/08/2017	10:42	DT Recieved at Binaguri	Tripped from Binaguri end only	DT Recieved at Binaguri	--				
400KV BINAGURI-KISHANGANJ-I	05/08/2017	11:11	05/08/2017	11:28	DT Recieved at Binaguri	Tripped from Binaguri end only	DT Recieved at Binaguri	--				
400KV NEW PURNEA-BIHARSARIFF-II	05/08/2017	13:44	05/08/2017	20:44	Tripped on O/v from Biharsharif end (Mal-operation, voltage at Biharsharif-410KV).DT received at sasarm:DT received.	Charging attempted at 14:44 Hrs but line tripped again on O/V.	O/V	--				
220KV PUSAULI-SAHUPURI(UP)-I	06/08/2017	11:10	06/08/2017	12:59			DT received at					
132KV RIHAND-GARWAH-I	07/08/2017	13:35				Tripped from Rihand end only						
400KV NEW PURNEA-BIHARSARIFF-II	11/08/2017	17:52	11/08/2017	18:17	DT RECEIVED AT PURNEA END		DT RECEIVED AT PURNEA END					
400KV NEW PURNEA-KISHANGANJ-I	12/08/2017	8:55	12/08/2017	10:08	DT RECEIPT AT N PURNEA		DT RECEIPT AT N					
400KV NEW PPSP-NEW RANCHI-II	14/08/2017	11:57	14/08/2017	12:40	Opened from New PPSP only. DT received.		DT received at New PPSP end					
132KV RIHAND-GARWAH-I	16/08/2017	13:07	16/08/2017	16:45	TRIPPED FROM RIHAND END.		TRIPPED FROM RIHAND END.					
132KV RIHAND-GARWAH-I	16/08/2017	13:30	16/08/2017	16:50	TRIPPED FROM RIHAND END		TRIPPED FROM RIHAND END					
400KV SUBHASGRAM-HALDIA-II	17/08/2017	20:59	17/08/2017	22:31	D/T recve	A/R relay L.O	D/T received at					
400KV NEW DUBURI-MEERAMUNDALI-II	21/08/2017	15:39	21/08/2017	16:26	DT Recived at New Dubri		DT Recived at New Dubri					
132KV RIHAND-GARWAH-I	23/08/2017	15:03	23/08/2017	16:15	Tripped from Rihand end		Tripped from					
400KV BINAGURI-TALA-IV	31/08/2017	0:48	31/08/2017	1:20	Tripped at Tala end only		Tripped at Tala end only					As per PMU R-N Fault, No Autoreclose
400KV BINAGURI-MALBASE-III	31/08/2017	0:48	31/08/2017	1:20	Tripped at Malabase end only		Tripped at Malabase end only					As per PMU R-N Fault, No Autoreclose