



# Agenda for 96<sup>th</sup> PCC Meeting

**Date: 12.11.2020**  
**Eastern Regional Power Committee**  
**14, Golf Club Road, Tollygunge**  
**Kolkata: 700 033**

## **EASTERN REGIONAL POWER COMMITTEE**

### **AGENDA FOR 96<sup>TH</sup> PROTECTION SUB-COMMITTEE MEETING TO BE HELD ON 12.11.2020 AT 10:30 HOURS**

#### **PART – A**

##### **ITEM NO. A.1: Confirmation of minutes of 95<sup>th</sup> Protection sub-Committee Meeting held on 15<sup>th</sup> October 2020 through MS Teams.**

The minutes of 95<sup>th</sup> Protection Sub-Committee meeting held on 15.10.2020 circulated vide letter dated 06.11.2020.

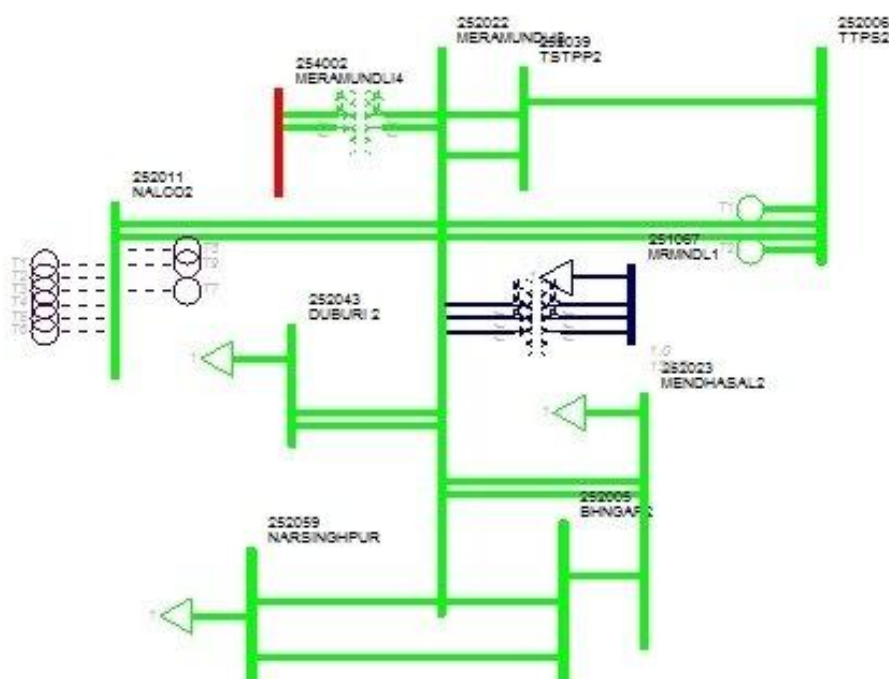
**Members may confirm the minutes of 95<sup>th</sup> PCC meeting.**

#### **PART – B**

##### **ITEM NO. B.1: Disturbance at 220 kV Meramundali Substation on 01.10.2020 at 04:07 hrs**

On 30th September 2020 at 22:36 hrs, 220 kV Meramundali – NALCO - 1 was tripped on overcurrent protection. The line was charged at 00:05 hrs on 01<sup>st</sup> October 2020. At 01:35 hrs, sparking was noticed on this circuit at Meramundali end switchyard due to which GRIDCO SLDC advised NALCO to reduce the loading of the circuit.

At 04:07 hrs, line side pipe at Meramundali end of the above-mentioned circuit got broken and fell on the ground along with the breaker jumper causing line fault at Meramundali S/s. Bus jumper of 220 kV bus 1 at Meramundali also got damaged at several places which led to bus fault at 220 kV bus 1 at Meramundali. All the elements connected with 220 kV bus 1 along with the bus coupler tripped at Meramundali.



### Relay Indications:

Time	Name	End 1	End 2	PMU Observation
04:07 hrs	220 kV Meramundali NALCO - 1	B-N, Zone-4, F/C =2.3 kA, 511ms	Yet to be received	Around 20 kV dip has been observed in all three phase voltages at Meramundali PMU data during the fault at 22:36 hrs on previous day. The fault clearing time was around 900 ms. During this event, around 200 kV dip has been observed in Y phase voltage at Meramundali PMU data. But as per Talcher PMU, fault was in B phase. Same has been observed in DR output recorded at Meramundali. The fault clearing time was around 500 ms. Around 70 – 200 kV rise has been captured in healthy phases of Meramundali PMU data during the fault.
	220 kV Meramundali NALCO - 2	B-N, Zone-4, F/C =2.4 kA, 516ms	Yet to be received	
	220 kV Meramundali TTPS - 1	B-N, F/C =5.3 kA, Distance: 1km, 526 ms	Did not trip	
	220 kV Meramundali TTPS - 2	B-N, F/C =5.1 kA, Distance: 1km, 522 ms	Did not trip	
	220 kV Meramundali Narsinghapur S/C	Did not trip, only zone – 4 picked up	B-N, Zone-2, F/C =0.9 kA, 357 ms, Dist. 75 km	
	220 kV Meramundali Duburi S/C	Did not trip, only zone – 4 picked up	B-N, Zone-2, F/C =3.1 kA, 397 ms, Dist. 83 km	
	220 kV Meramundali Bhanjanger S/C	Did not trip, only zone – 4 picked up	B-N, Zone-2, F/C =1.2 kA, 350 ms, Dist. 166.7 km	
	220 kV Meramundali Tata Steel - 1	Did not trip	B/U relay operated, IR=1.1 kA, IY=1.8kA, IB=5.17 kA	
	220 kV Meramundali Tata Steel - 2	Tripped on E/F protection	B/U relay operated, IR=2.3kA, IY=2.7kA, IB=7.8kA	
	220/132 kV ICT – 1 at Meramundali	67N, IB=6.4KA, 494ms	NA	
	220 kV Bus coupler at Meramundali	E/F tripped	NA	

**Load Loss : 280 MW**

**The following issues need to be explained by the concerned utilities:**

1. OPTCL may explain the tripping of 220 kV Meramundali – NALCO – 1 on 30<sup>th</sup> September 2020 at 22:36 hrs,
2. Status of Bus bar protection of 220kV level at Meramundali S/S.

3. The reason for non-operation of 220 kV Meramundali NALCO D/C and 220 kV Meramundali TTPS D/C in the zone – 2 protection from NALCO and TTPS ends respectively may be clarified.
4. 220 kV Meramundali-Tata Steel D/C tripped from Tata Steel end in back up protection. Details of back up protection operation may be shared by OPTCL and Odisha SLDC.
5. Plan for the installation of carrier protection at 220 kV Meramundali Narsinghapur S/C, 220 kV Meramundali Duburi S/C and 220 kV Meramundali Bhanjangan S/C may be shared.
6. As per PMU data, around 70 – 200 kV rise has been observed in healthy phases during the fault at 04:07 hrs. OPTCL may share the reason for so high voltage in healthy phases during single line to ground fault.

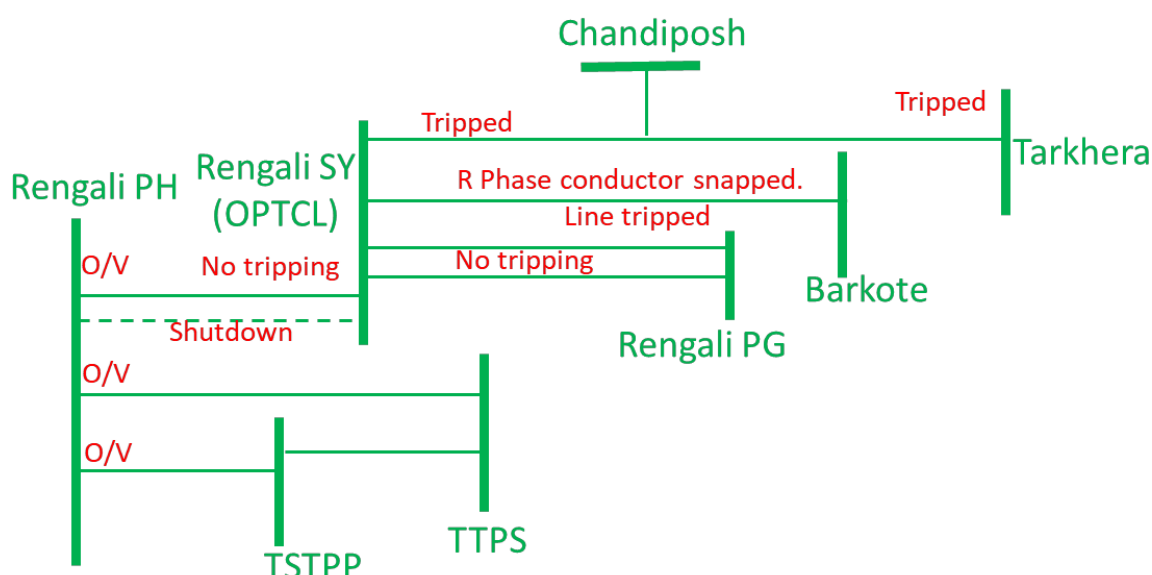
**OPTCL may explain.**

#### **ITEM NO. B.2: Disturbance at 220 kV Rengali Substation on 10.10.2020 at 16:10 hrs**

220 kV Rengali Power House (PH) – Rengali Switchyard (OPTCL) – 2 was under shutdown.

On 10<sup>th</sup> October 2020 at 16:08 hrs, 220 kV Rengali Switchyard (OPTCL) - Barkote S/C and 220 kV Rengali Switchyard (OPTCL)-Tarkera S/C tripped due to R phase to earth fault and B phase to earth fault respectively. It was reported that top conductor (R phase) of 220 kV Rengali Switchyard (OPTCL) - Barkote S/C snapped at location no 336.

Thereafter, 220 kV Rengali PH – TSTPP S/C and 220 kV Rengali PH – TTPS S/C and 220 kV Rengali PH – Rengali Switchyard (OPTCL) – 1 tripped on overvoltage from Rengali PH end. Subsequently all the running units at Rengali PH tripped. 220 kV Rengali Switchyard remained connected to rest of grid through 220 kV Rengali PG – Rengali SY D/C.



#### **Relay Indications :**

Time	Name	End 1	End 2	PMU Observation
16:10 Hrs	220 kV Rengali SY – Tarkera S/C	B-N, Zone 2, 75 km from Rengali, F/C 5.2 kA	B-N, Zone 1, 65 km from Tarkera, F/C 2.3 kA	Around 10 kV dip has been observed in B phase voltage and around 9 kV dip has been observed in R
	220 kV Rengali S/Y - Barkote S/C	D/P, Zone 1, 34 km from Rengali, F/C 8 kA	R-N, Zone 1, 13 km from Barkote, F/C 2.3 kA	
	220 kV Rengali (PH) –	Tripped on	Did not trip	

Rengali SY - 1	overvoltage		phase simultaneously in 400 kV bus voltage of Talcher. The fault clearing time was around 350 ms.
220 kV Rengali PH – TSTPP S/C	Tripped on overvoltage	Yet to be received	
220 kV Rengali PH – TTPP S/C	Tripped on overvoltage	Yet to be received	
Unit # 1, 2, & 3 at Rengali PH	instantaneous O/V. 115% over speed trip. 86 KLM operated.		
Unit # 5 at Rengali PH	Tripped on solenoid trip circuit faulty. 86 LM operated.		

**Gen Loss : 190 MW**

**The following issues need to be explained by concerned utilities:**

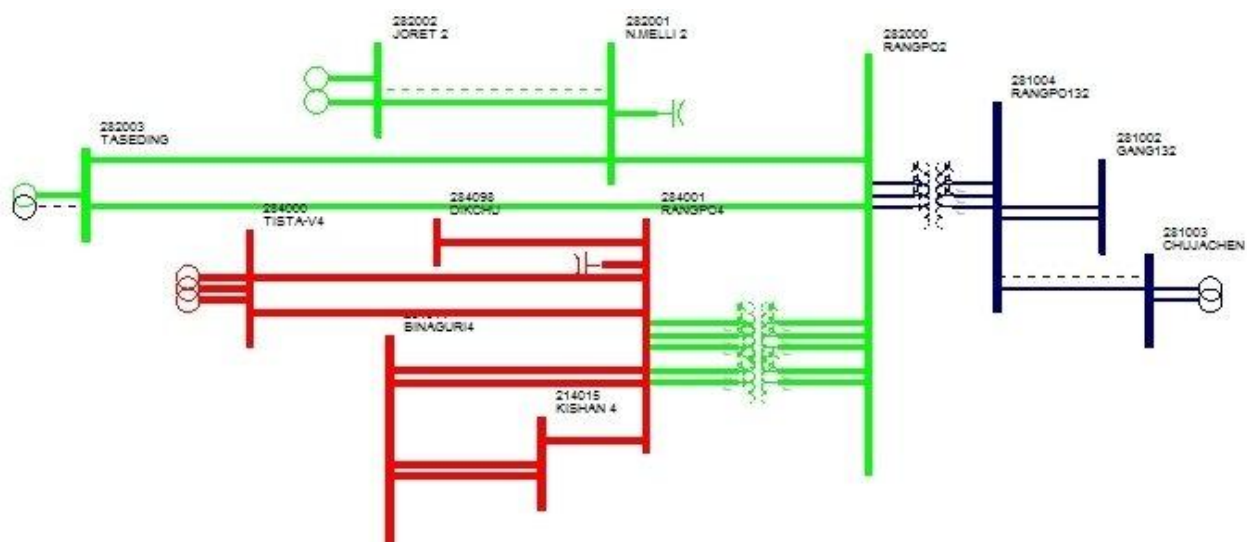
1. 220 kV Rengali Switchyard (OPTCL)-Tarkera S/C has been tripped within zone 2 time (350 ms). The status of carrier-based protection scheme may be placed.
2. 220 kV Rengali PH – TSTPP S/C and 220 kV Rengali PH – TTPS S/C and 220 kV Rengali PH – Rengali Switchyard (OPTCL) – 1 tripped on overvoltage from Rengali PH end. GRIDCO SLDC/OHPC may share voltage at Rengali PH at this time along with DR recorded at Rengali PH.

**OPTCL, OHPC and SLDC Odisha may explain.**

**ITEM NO. B.3: Total power failure at Jorethang and Chuzachen HEP on 01.10.2020 at 14:47 hrs**

On 1<sup>st</sup> Oct 2020 at 14:03 hrs, 132 kV Rangpo-Chuzachen - 1 tripped due to B phase to earth fault. Charging was attempted at 14:32 hrs but the line could not be charged. Chuzachen HEP was connected to the rest of the grid via 132 kV Rangpo-Chuzachen – 2. 220 kV Jorethang – New Melli – 1 was under emergency shutdown. Hence, Jorethang HEP was connected to the rest of grid via 220 kV Jorethang – New Melli – 2.

At 14:47 Hrs, 400 kV Rangpo-Dikchu S/C tripped due to B phase to earth fault. Tripping of 400 kV Rangpo – Dikchu S/C (only outgoing feeder connected to 400 kV bus 1 at Dikchu), resulted in the isolation of both units from the grid leading to tripping of both running units at Dikchu HEP. At the same time, 220 kV Jorethang – New Melli – 2 and 132 kV Rangpo-Chuzachen – 2 also got tripped resulting in total power failure at Jorethang and Chuzachen HEP also.



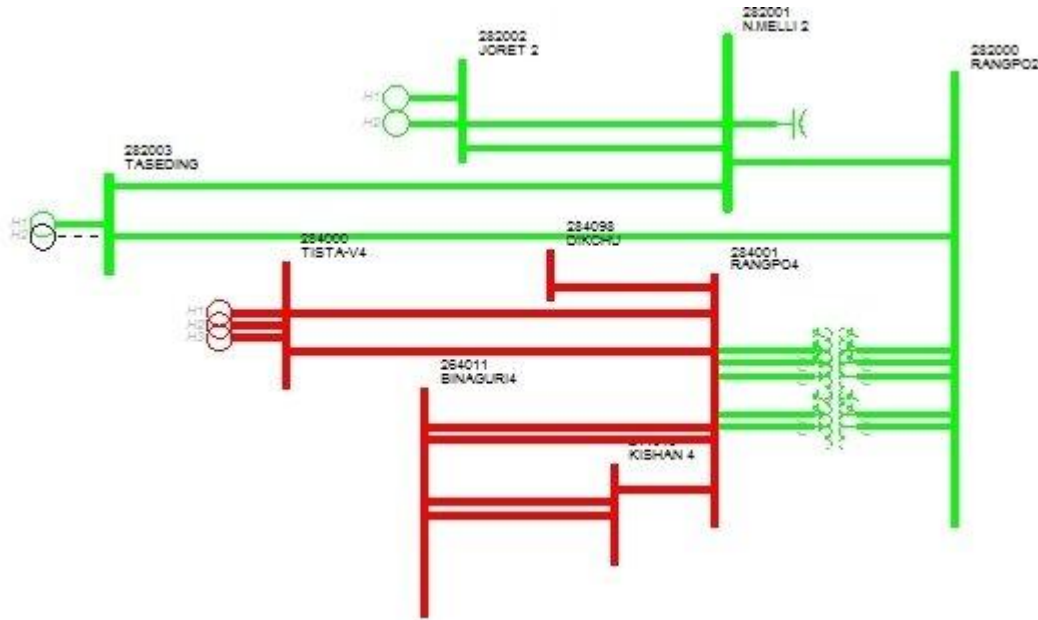
**Gen Loss : 269 MW**

**Dikchu, Jorethang Chuzachen and Powergrid may explain.**

**ITEM NO. B.4: Total Power failure at Jorethang HEP on 30.10.2020 at 13:15 hrs**

At 13:15 hrs on 30-10-2020, 400 kV TEESTA V - Rangpo line- 1 tripped. At the same time, 220 KV Jorethang- New Melli D/C tripped at Jorethang end only resulting in total power failure at Jorethang HEP.

As per PMU data, initially there was a high resistance fault in R phase. After around 800 ms, this fault got converted to R and B phase fault.

**Relay Indications:**

Time	Name	End 1	End 2	PMU Observation
13:15 hrs	400 kV Teesta V – Rangpo – 1	R-B, Zone 1, 1.9 Km from Teesta V	R-B, IR = 5.9 kA, IY = 6.5 kA, 10 km from Rangpo	As per voltage measurement by Rangpo PMU data, initially the fault was evolving nature in R phase. After around 700 ms, it converted to R and B phase to earth fault. Around 120 kV dip in R and B phase voltage has been observed at Rangpo PMU data. The fault clearing time was around 800 ms
	220 kV Jorethang New Melli – 1	R phase O/C and E/F. 110 km from Jorethang end	Did not trip	
	220 kV Jorethang New Melli – 2	R phase O/C and E/F. 110 km from Jorethang end.	Did not trip	
	Unit 1 at Jorethang HEP	Loss of evacuation path		

**Gen Loss : 48 MW****The following issues need to be explained by concerned utilities:**

1. Delayed clearance of fault has been observed in PMU data for 400 kV Rangpo-Teesta V circuit 1. The same may explained.
2. Uncoordinated tripping of 220kV Jorethang- New Melli – D/C lines to be explained.
3. DR recorded for MICOM P141 relay at Jorethang end has not been configured as per ERPC's guideline.
4. DR output at Teesta V has not been configured as per ERPC's guideline. It has been observed turn ratio has not been properly incorporated in DR. Same may be checked by Teesta V HEP.

## DANS Energy , NHPC, Jorethang and Powergrid may explain

### ITEM NO. B.5: Disturbance at Teesta V on 20.10.2020 at 12:12 hrs

400 kV Teesta V Hydroelectric Plant is connected to the rest of the grid through 400 kV Teesta V – Rangpo D/C. Prior to the event 400 kV Teesta V – Rangpo - 2 and units 1 & 3 at Teesta V HEP were connected to 400 kV bus 2 at Teesta V while remaining elements (Circuit 1 and unit 2) were on 400 kV Bus 1 with Bus coupler closed.

On 20<sup>th</sup> October 2020 at 12:12 hrs, 400 kV Teesta V – Rangpo – 2 and 400 kV bus coupler at Teesta V HEP tripped due to Y phase to earth fault resulting in tripping of units 1 & 3 at Teesta V HEP due to loss of evacuation path.

#### Relay indications:

समय	नाम	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	पीएमयू पर्यवेक्षण
12:12 Hrs.	400 kV Bus coupler at Teesta V	Earth fault protection operation.	--	As per current measurement by Rangpo PMU data for 400 kV Teesta V Rangpo – 2, initially the fault was of resistive nature. Later it converted to Y phase to earth fault. Fault current increased to around 7 kA at Rangpo end. Around 100 kV dip in Y phase voltage has been observed at Rangpo PMU data. The fault clearing time was around 1600 ms.
	400 kV Teesta V – Rangpo – 2	Y-N, Zone – 1, F/C 2.4 kA, A/R successful, DT received from Rangpo	Y-N, Zone – 2, F/C 13.08 kA, 12 km from Rangpo	
	Units 1 & 3 at Teesta V HEP	Loss of evacuation path		
	400 kV B/C at Teesta V HEP	Over current & E/F protection		

## NHPC and Powergrid may explain.

### ITEM NO. B.6: Backup Overcurrent Relay coordination of Sikkim Complex

In 93<sup>rd</sup> PCC, It was opined that proper coordination of backup protection of these 400kV lines is required keeping IDMT characteristics.

*In 94<sup>th</sup> PCC, PRDC informed that they had computed the backup overcurrent E/F settings considering the IDMT characteristics.*

*PCC advised all the concerned utilities to study the revised settings done by PRDC and provide their comments within one week.*

*In 95<sup>th</sup> PCC, Powergrid and Dikchu informed that generating unit fault current contribution and fault level at the substation were not given in the study.*

*ERLDC informed that star-star should be considered for the ICTs instead of star-delta.*

*The revised details are enclosed at **Annexure-B6**.*

#### Members may discuss.

## **ITEM NO. B.7: Resistive reach setting guidelines and model calculation for distance protection--ERLDC**

### **1. Proposed Criteria for Phase-earth fault:**

- a. Calculation of minimum load impedance should be as per Ramkrishna Committee Recommendation:
  - Maximum load current ( $I_{max}$ ) may be considered as 1.5 times the thermal rating of the line or 1.5 times the associated bay equipment current rating (the minimum of the bay equipment individual rating) whichever is lower.
  - Minimum voltage ( $V_{min}$ ) to be considered as 0.85pu (85%).
- b. Minimum setting for resistive reach should be such that it must cover fault resistance, arc resistance and the tower footing resistance.
- c. Generally Maximum reach setting should be 80% of the minimum load impedance.
- d. Resistive reach setting < 4.5 times the zone reactive reach setting.

Resistive reach should be the maximum of the value determined by the above three rules.

### **2. Proposed Criteria for Phase-Phase fault:**

- a. Calculation of minimum load impedance as per the same method mentioned above.
- b. Minimum setting for resistive reach should be such that it must cover fault resistance and arc resistance.
- c. Generally, the resistive reach of zone-3 is set less than 80% of minimum load impedance. For power swing consideration, a margin of DR is given. Therefore, it is essential that load should not encroach this DR. In view of this, R3ph – R4ph is set 60% of minimum load impedance. R2ph and R1ph are set 80% of R3ph-R4ph respectively.
- d. Resistive reach setting < 3 times the zone reactive reach setting.

Resistive reach should be the maximum of the value determined by the above three rules.

Another important point is consideration of remote end in feed for zone-2 and 3 reach calculations.

**Members may discuss.**

## **ITEM NO. B.8: Other disturbances in October 2020**

### **1. Tripping of 220 kV Bus bar – 1 at 400/220/132 kV Rangpo S/S on 08 – 10 – 2020 at 12:10 hrs.**

220 kV Bus bar – 1 at 400/220/132 kV Rangpo S/S tripped on 08 –10 –2020 at 12:10 hrs. It has been reported that 220KV Bay up-gradation/construction work was being carried out by M/s MBPCL at Rangpo on behalf of Govt. of Sikkim under Sikkim Consultancy Work during the time of the event. The reason for the tripping of the bus bar at Rangpo may be shared by POWERGRID along with relevant details.

**POWERGRID may explain.**

### **2. Disturbance at 400/132 kV Dikchu S/S on 18-10-2020 at 13:11 hrs**

On 18th October 2020 at 13:11 hrs, 400 kV Teesta III - Dikchu S/C got tripped due to B phase to earth fault resulting in tripping of 400 kV bus – 2 at Dikchu HEP. At the same time, overall differential protection of 400/132 kV ICT at Dikchu also operated leading to its tripping and

isolation of both running units at Dikchu HEP from the system and their tripping. 400 kV bus – 1 at Dikchu HEP remained energized through 400 kV Rangpo – Teesta III S/C.

**Operational issues Observed:**

- The prolonged outage of tie bay at Dikchu is becoming a serious issue for the reliability of the grid as well as the generating power plant (Teesta 3 as well as Dikchu).
- 400 kV Dikchu-Teesta III circuit has observed similar nature fault in the past as discussed in the previous few PCC meeting. Such, resistive nature fault causing uncoordinated tripping is not desirable for system security and reliability.

**Protection issues observed:**

- Delayed clearance of fault has been observed in PMU data.
- Reason for the operation of overall differential protection of 400/132 kV Dikchu end may be shared. It has been observed that differential protection for units or ICT had operated repeatedly for through fault in several events in the past. **(Dikchu HEP to update)**
- Dikchu HEP may check the reason for non-auto reclose operation of main breaker and dead time for tie-breaker at Dikchu HEP for 400 kV Teesta III – Dikchu S/C. **(Dikchu HEP to update)**
- Teesta III may share the reason for the non-auto reclose operation of 400 kV Teesta III – Dikchu S/C at Teesta III end. **(Teesta III HEP to update)**

**Dikchu and Teesta III may explain.**

**3. Tripping of 220 kV bus 2 at Indravati on 06-10-2020 at 13:30 hrs**

On 06-10-2020 at 13:30 hrs, 220 kV bus 2 at Indravati tripped due to the operation of bus bar protection. As per the GRIDCO SLDC report, a transient fault occurred at the station. As per PMU data no-fault had been observed. DR/EL is yet to be received from Orissa SLDC.

**OHPC and OPTCL may explain.**

**4. Tripping of 220 kV bus 2 at Jaynagar on 06-10-2020 at 18:36 hrs**

On 06-10-2020 at 18:36 hrs, 220 kV bus 2 at Jaynagar tripped. OPTCL informed that during charging of 220 kV Balimela- Jaynagar 2 at 18:36Hrs (which had earlier tripped at 18:24hrs) the R phase (Top) suspension string of the said feeder at Loc no-1469 got detached from tower structure and during its free fall it came in contact with both Y and B phase of the said line. The fault current as recorded by Busbar protection relay : R-phase-11.2 kA, Y-phase-15.9 kA, B-phase -13.8 kA.

As the magnitude of the fault current is too high that exceeded the stability limit of the bus bar, it actuated trip command despite the fault being of external nature. Hence 220 kV bus bar 2 at Jaynagar got tripped.

**OPTCL may explain.**

**5. Disturbance at 220/132 kV Kalyaneswari (DVC) S/S on 13-10-2020 at 20:30 hrs.**

On 13 – 10 – 2020 at about 20:30 Hrs. 220 kV Main Bus# 2 of 220kV Kalyaneshwari Sub-station tripped due to tripping of all the 220 kV Lines from other end and tie bus breaker.

**DVC may explain.**

## 6. Grid event at 132/33 kV Malda S/S on 01-10-2020 at 08:51 hrs

On 01st October 2020 at 08:51 hrs, bus fault occurred at 33 kV bus of 132/33 kV Malda (WBSETCL) S/S. To clear the fault, 132 kV Malda (PG) - Malda (WBSETCL) D/C tripped from PG end on zone – 3 protection. At the same time, 160 MVA 220/132 KV ICT 1 & 2 at Gazole S/S also got tripped. As a result, there was a total power failure at 132/33 kV Malda S/S (WBSETCL). DC power failure was reported at 132/33 kV Malda (WBSETCL) S/S at the time of the event which led to no protection operation.

**WBSETCL and Powergrid may explain.**

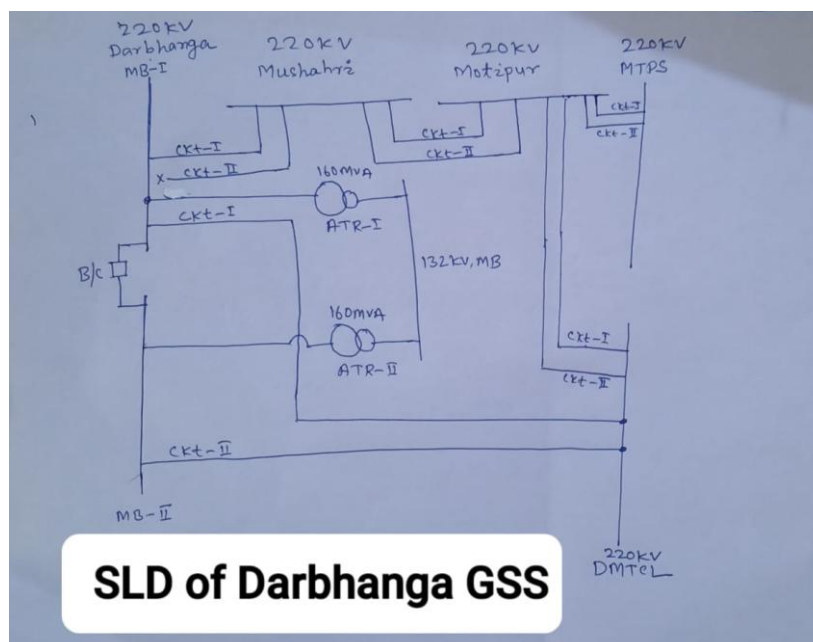
### ITEM NO. B.9: Disturbance at 220 kV Patratu and 220kV Tenughat Substation on 23.09.2020 at 08:45 hrs and 13:49 hrs

In 95<sup>th</sup> PCC, PCC advised JUSNL to take the following corrective measures to avoid multiple trippings of the transmission elements:

- LBB protection for 132kV system should be implemented at Patratu S/s.
- Air pressure alarm annunciation system for 132/ 33 k V ICT circuit breaker should be implemented
- Operation of circuit breaker of 132/ 33 k V ICT should be checked by giving a trip command from the relay.
- Reason for non issue of trip command by backup protection of 220/ 132 k V ICT to be analyzed
- 220 kV Patratu-Hatia – 2 line should not trip Patratu end on Directional Overcurrent protection. Settings related to direction are to be verified.
- SLDC, Jharkhand should control the TVNL generation depending on the network availability in order to avoid the overloading of the transmission lines during any contingency.
- Healthiness of protection system of 220/132kV and 132/33 kV transformers at Patratu and Hatia to be tested.

**JUSNL may update.**

### ITEM NO. B.10: Disturbance at 220 kV Darbhanga S/S on 19-09-2020 at 16:37 hrs



*In 95<sup>th</sup> PCC, BSPTCL submitted that, 220 kV Darbhanga(DMTCL)– Darbhanga (BSPTCL) Ckt-II was connected via the transfer bus coupler (TBC) bay at Darbhanga (BSPTCL) S/s which was connected to Main Bus-I, in order to perform breaker timing test the said line got tripped on backup protection within 100 ms.*

*220 kV Darbhanga(DMTCL)– Darbhanga (BSPTCL) Ckt-II tripped from Darbhanga (DMTCL) end and Ckt-I was manually tripped by BSPTCL from their end. Darbhanga (BSPTCL)-Musahari Ckt- I & II tripped on Z2 tripping time of 350msec, for this DR has been submitted to ERLDC by BSPTCL. 220kV Darbhanga (DMTCL) – Motipur Ckt I tripped on Z2 from BSPTCL end*

*DMTCL submitted that the ICT I&II tripped on backup overcurrent E/F protection within 100msec.*

*After detailed deliberation, PCC advised DMTCL and BSPTCL to take following corrective actions:*

- For ICT I & II at Darbhanga S/S, DMTCL has to review backup overcurrent E/F protection*
- For 220 kV Darbhanga(DMTCL)– Darbhanga (BSPTCL) Ckt, back up protection to be coordinated properly (as it is tripped on 100msec).*
- BSPTCL to collect all the relay indications from MTPS and other sub-stations and send the same to ERPC & ERLDC along with a brief report on how the fault got cleared.*

**BSPTCL may update.**

**ITEM NO. B.11:        Disturbance at 220 kV Darbhanga S/S on 10.06.2020 at 10:54 hrs.**

*In 95<sup>th</sup> PCC, DMTCL informed that POTT inter trip scheme along with current reversal scheme has been implemented at DMTCL. BSPTCL submitted that the same would be implemented at BSPTCL end by 16<sup>th</sup> Oct'2020.*

*PCC advised DMTCL and BSPTCL to coordinate and implement the scheme simultaneously at both the ends to avoid maloperation.*

*DMTCL submitted that settings of Directional Overcurrent E/F protection have been submitted to ERLDC for their review and observation.*

*BSPTCL requested DMTCL to provide their 220kV Relay settings so that the same could be coordinated with the downstream network.*

*PCC advised DMTCL and BSPTCL to coordinate and review the settings at the earliest.*

**BSPTCL and DMTCL may update.**

**ITEM NO. B.12:        Disturbance at 220 kV Begusarai , 220 kV Khagaria and 220 kV Barauni Substation on 03.08.2020 at 11:05 hrs**

*In 94<sup>th</sup> PCC, BSPTCL was advised to take following corrective actions:*

- Tripping of 220kV BTPS-Hazipur D/C line from Hazipur to be verified. BSPTCL advised to check the relay settings of main and backup protection.*
- PLCC system, inter tripping and auto recloser should be in service to minimise the fault clearing time.*

*In 95<sup>th</sup> PCC, BSPTCL added that checking of relay settings of main and backup protection of 220kV BTPS-Hajipur D/C line would be completed by 16<sup>th</sup> Oct'2020.*

*Further, BSPCTL informed that PLCC frequency settings of 220kV Begusarai-Khagaria line were not as per Purnea (PG), but the same has been rectified and coordinated with Purnea (PG).*

PLCC of 220kV Begusarai-BTPS D/C Ckt is to be checked, which will be completed at the earliest.

PCC advised BSPTCL to complete the pending works regarding checking of settings of main and backup protection of 220kV BTPS-Hajipur D/C line without delay.

**BSPTCL may update.**

**ITEM NO. B.13: Disturbance at 220 kV Biharsharif Substation on 14.08.2020 at 20:23 hrs**

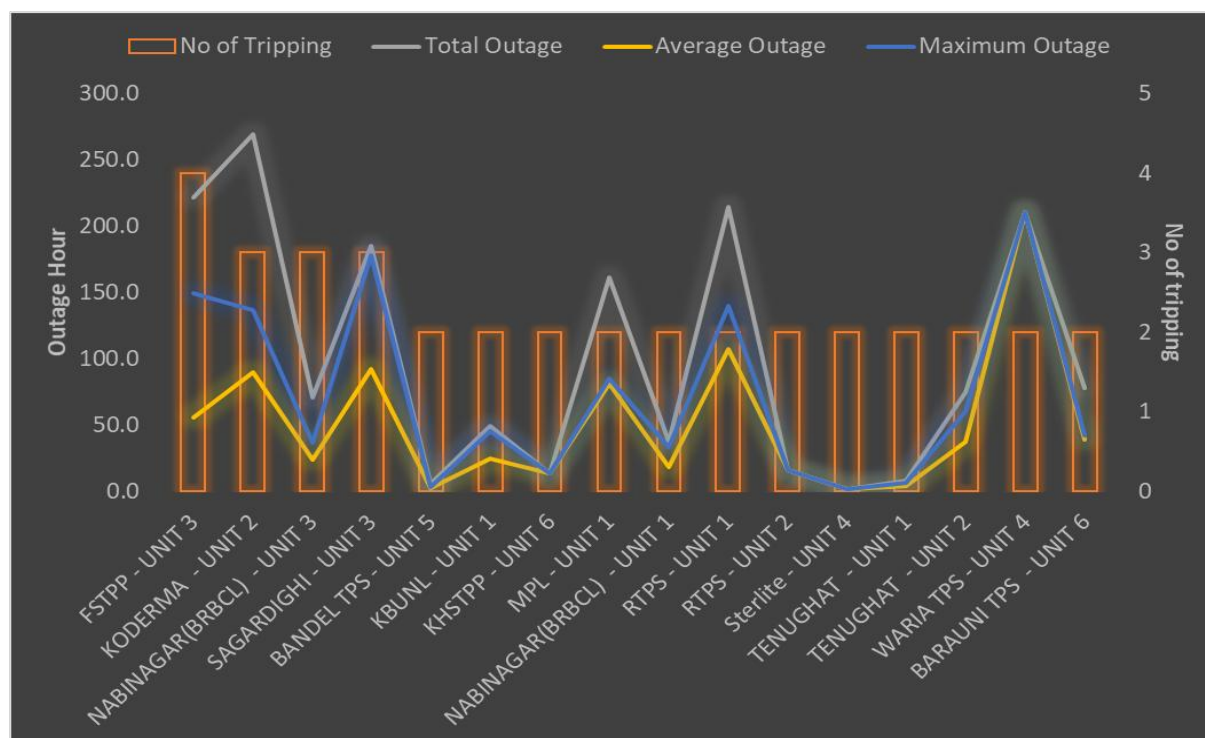
In 94<sup>th</sup> PCC, PCC observed the following and advised BSPTCL to take the corrective action:

- BSPTCL should carry out proper maintenance of the transmission system to avoid snapping of conductors.
- 400/220 kV ICT 2 & 3 at Biharsharif should not trip from backup overcurrent protection of LV side as the fault got cleared within 400 ms. BSPTCL review the relay settings in coordination with Powergrid.
- Healthiness of the transformers 220/132 kV ICT 1, 2 & 3 should be checked as the transformers tripped on Oil Surge Relay protection.

**BSPTCL may update.**

**ITEM NO. B.14: Repeated tripping of generating units in October 2020**

During October 2020, repeated tripping of following generators has been observed:



Reasons for multiple tripping is given in below table:

Name of generating units	Reason for tripping	No of tripping	Utility to respond
Farakka Unit 3	Boiler Tube leakage, High Furnace Pressure, Cooling water system problem	3	NTPC
Koderma Unit 2	Boiler Tube Leakage	3	DVC
BRBCL Unit 3	Boiler Tube leakage, High Furnace Pressure, High Primary Air	3	BRBCL

	Pressure		
<b>Sagardighi Unit 3</b>	High Turbine vibration, Rotor Earth fault System checking	2	WBPDC

Following tripping incidents of generating units has been reported due to electrical fault or operation of generator protection. But DR/EL outputs are yet to be received from generating stations.

Element Name	Tripping Date	Tripping Time	Reason shared	Utility to share DR/EL
KHSTPP - UNIT 6	01-10-2020	15:26	Operation of GT differential protection	NTPC
RTPS - UNIT 1	04-10-2020	21:30	Electrical Fault	DVC
TENUGHAT - UNIT 2	10-10-2020	06:28	Tripping of station transformer	Jharkhand SLDC/TVNL
TENUGHAT - UNIT 1	10-10-2020	06:28	Tripping of station transformer	Jharkhand SLDC/TVNL
RTPS - UNIT 2	13-10-2020	00:09	Electrical Fault	DVC
KHSTPP - UNIT 2	15-10-2020	14:30	Tripping of UAT	NTPC
BARAUNI TPS - UNIT 6	31-10-2020	08:45	Operation of Generator protection	Bihar SLDC/NTPC

**Concerned Generating stations may update.**

## **PART- C:: OTHER ITEMS**

### **ITEM NO. C.1: Collection of substation data by PRDC**

PRDC is collecting the substation data and maintaining the database for the Eastern Region. The data for following new substations are to be collected:

#### **New Substation List**

Sl No	SS Name	Data Collection	Owner	State
1	Bagmundi		WBSETCL	West Bengal
2	Gajole	Collected	WBSETCL	West Bengal
3	Dinahata		WBSETCL	West Bengal
4	Rejinagar		WBSETCL	West Bengal
5	Jhalda		WBSETCL	West Bengal
6	Goghat		WBSETCL	West Bengal
7	Saltlake Stadium		WBSETCL	West Bengal
8	Kashipur		OPTCL	Odisha
9	Betanati		OPTCL	Odisha
10	Aska New		OPTCL	Odisha
11	Udala		OPTCL	Odisha
12	Narashinghpur		OPTCL	Odisha
13	IBTPS		OPGC	Odisha
14	Mancheswar		OPTCL	Odisha
15	Govindpur	Collected	JUSNL	Jharkhand
16	North Karanpura		NTPC	Jharkhand
17	Mangdhechu		MHPA	Sikkim
18	TingTing		....	Sikkim

19	Lethang		....	Sikkim
20	Rongichu		....	Sikkim

In view of COVID-19 pandemic the data is being collected through online. All the constituents may note and submit the relevant data to PRDC for maintaining the database.

*In 93<sup>rd</sup> PCC, all the concerned utilities were advised to submit the relevant data to PRDC for maintaining the database.*

**Members may note and comply.**

#### **ITEM NO. C.2: Submission of protection settings in PDMS**

Relay settings of many transmission elements are not available in the protection database. The list has been prepared and forwarded to all the concerned utilities.

All the utilities are advised to upload the relay settings in PDMS or send the relay settings to [erpcprotection@gmail.com](mailto:erpcprotection@gmail.com).

**Members may note and comply.**

#### **ITEM NO. C.3: Protection coordination of the new transmission elements to be charged in Eastern Region**

<b>Elements Name</b>	<b>S/S may be affected</b>	<b>Remarks</b>
Upgradation of 220 kV Muzaffarpur Dhalkebar D/C to 400 kV voltage level.	At 220 kV voltage level: Hazipur (BSPTCL) and MTPS (KBUNL/BSPTCL)	Longest line connected to 220 kV Muzaffarpur (PG) bus will change from 220 kV Muzaffarpur Dhalkebar D/C to 220 kV Muzaffarpur Hazipur D/C (51 km). Distance protection is to be coordinated at affected s/s
	At 400 kV voltage level: Bihar Sharif, Purnea New, Gorakhpur (POWERGRID) Darbhanga (DMTCL)	Details of 400 kV Muzaffarpur Dhalkebar D/C (as per ERLDC data) Conductor type: Tripple Snow Bird and line length: 140 km. Distance protection is to be coordinated at affected s/s.

**Members may note.**

#### **ITEM NO. C.4: Any additional agenda – with permission of the Chair.**

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