



# Agenda for 85<sup>th</sup> PCC Meeting

**Date: 19.11.2019**  
**Eastern Regional Power Committee**  
**14, Golf Club Road, Tollygunge**  
**Kolkata: 700 033**

# **EASTERN REGIONAL POWER COMMITTEE**

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## **AGENDA FOR 85<sup>TH</sup> PROTECTION SUB-COMMITTEE MEETING TO BE HELD AT ERPC, KOLKATA ON 19.11.2019 (TUESDAY) AT 11:00 HOURS**

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### **PART – A**

#### **ITEM NO. A.1: Confirmation of minutes of 84<sup>th</sup> Protection sub-Committee Meeting held on 23<sup>rd</sup> October, 2019 at ERPC, Kolkata.**

The minutes of 84<sup>th</sup> Protection Sub-Committee meeting held on 23.10.19 circulated vide letter dated 11.11.2019.

**Members may confirm the minutes of 84<sup>th</sup> PCC meeting.**

### **PART – B**

#### **ANALYSIS & DISCUSSION ON GRID INCIDENCES OCCURRED IN OCTOBER, 2019**

##### **ITEM NO. B.1: Tripping of 400 kV Angul – JITPL D/C on 17.10.2019 at 08:11 Hrs.**

400 kV Angul – JITPL D/C tripped at 08:11 hrs while availing scheduled Shutdown of 400 kV Angul–JITPL II.

Generation loss of 470 MW occurred of JITPL Unit #2 due to loss of evacuation path.

**Generation Loss: 470 MW**

**Powergrid may explain.**

##### **ITEM NO. B.2: Total power failure at 220/132 kV Sadaipalli S/s on 25.10.2019 at 04:44 Hrs.**

At 04:44 Hrs, B phase jumper of Bus II-isolator of 220 KV Sadaipalli – New Bargarh S/C snapped at Sadaipalli end and caught fire.

For safety reason, 220 KV Bolangir (PG)-Sadaipalli was hand-tripped on emergency basis.

Consequently, 220/132 KV Sadaipalli S/s became dead and load loss of 111 MW occurred in downstream areas of Sadaipalli.

**Load Loss: 111 MW**

**OPTCL may explain.**

##### **ITEM NO. B.3: Multiple tripping at Budipadar S/s on 08.10.2019 at 19:26 Hrs.**

At 18:04 hrs, 220 kV Budipadar – Korba – II and 220 kV Budipadar – Raigarh S/C tripped at 18:04 hrs on Y-B fault.

At 18:17 hrs 220 kV Budipadar – Korba – III tripped due to Y-N fault.

At 18:20 hrs. 220 kV Budipadar –Tarkera – II tripped. Fault was cleared within 100 ms.

While charging this line 220 kV Budipadar bus II became dead at 19:26 hrs, tripping all elements connected to bus II i.e. 220 kV Budipadar –Lapanga– D/C, 220 kV Budipadar –IB – II & IV and 220/132 kV ICT at Budipadar.

**OPTCL may explain.**

**ITEM NO. B.4: Disturbance at Teesta – III Generating Station on 26.10.2019 at 15:43 Hrs.**

At 15:43 hrs, Unit #3 and #6 at Teesta III tripped on neutral overcurrent protection and 400 kV Dikchu - Teesta III line, 400 kV Kishanganj - Teesta III tripped on overvoltage protection.

All this led to loss of voltage at 400 kV Teesta III with 400 MW generation loss.

Also, at this moment Dikchu Unit #1 tripped at 48 MW on neutral overcurrent protection on generator transformer.

**Generation Loss: 448 MW**

**TUL, Dikchu and Powergrid may explain.**

**ITEM NO. B.5: Tripping of 400 kV Binaguri – Rangpo – II and 220 kV Jorethang – New Melli D/C on 26.10.2019 at 07:27 Hrs.**

At 07:27 hrs, 400 kV Binaguri – Rangpo – II tripped due to B-N fault.

At same time, 220 kV Jorethang – New Melli D/C tripped from Jorethang end only on DEF protection resulting tripping of running unit #1 due to loss of evacuation path.

**Generation Loss: 45 MW**

**Powergrid and Jorethang may explain.**

**ITEM NO. B.6: Tripping of 220 kV FSTPP - Lalmatia S/C & 132 KV KhSTPP-Lalmatia S/C on 22.10.2019 at 11:55 Hrs.**

At 11:55 Hrs, 220 KV FSTPP Lalmatia S/C tripped due to B-N Fault. At the same time, 132 KV KhSTPP-Lalmatia S/C also tripped, leading to a load loss of 44 MW.

132 KV KhSTPP - Lalmatia S/C was charged at 12:08 but tripped again while taking charging attempt of 220 KV FSTPP-Lalmatia s/c at 12:20 Hrs.

Delayed fault clearance of 500 ms has been observed in PMU data.

Time	Name	Relay Indication at End 1	Relay Indication at End 2
11:55	220 KV FSTPP Lalmatia S/C	D/P	O/C, E/F, BU, 86 trip
11:55	132 KV KhSTPP - Lalmatia S/C	Yet to be received	BU, O/C
12:20	220 KV FSTPP Lalmatia S/C	B-N, D/P,	E/P, 54 KM FROM Lalmatia
12:20	132 KV KhSTPP - Lalmatia S/C	Yet to be received	BU, O/C

**Load Loss: 44 MW**

**JUSNL and NTPC may explain.**

**ITEM NO. B.7: Disturbance at Talcher HVDC station on 03.10.2019 at 14:05 Hrs.**

At 14:05 hrs, HVDC Talcher Kolar pole-I tripped resulting reduction of power flow from 1500 MW to 1000 MW.

At the time of incident there was no generation at GMR. So, 40 MW generation reduction occurred at JITPL.

Pole I was deblocked at 17:45 hrs.

**Generation Loss: 40 MW**

**Powergrid may explain.**

**ITEM NO. B.8: Tripping Incidences in the month of October, 2019.**

Other tripping incidences occurred in the month of October 2019 which needs explanation from constituents of either of the end.

In 36<sup>th</sup> 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 74<sup>th</sup> 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 01<sup>st</sup> Jan. 2019.

**Members may discuss.**

**PART- C:: OTHER ITEMS**

**ITEM NO. C.1: FOLLOW-UP OF DECISIONS OF THE PREVIOUS PROTECTION SUB-COMMITTEE MEETING(S)**

The decisions of previous PCC Meetings are given at **Annexure-C1**.

In last 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.2: Schedule of training program to be conducted by PRDC**

PRDC, as per the AMC, is going to conduct 2<sup>nd</sup> 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

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

**Members may update.**

**ITEM NO. C.3: Status of Third Party Protection Audit**

The compliance status of 1<sup>st</sup> Third Party Protection Audit observations is as follows:

Name of Constituents	Total Observations	Complied	% of Compliance
<b>Powergrid</b>	54	46	85.19
<b>NTPC</b>	16	14	87.50
<b>NHPC</b>	1	1	100.00
<b>DVC</b>	40	26	65.00
<b>WB</b>	68	49	72.06
<b>Odisha</b>	59	42	71.19
<b>JUSNL</b>	34	25	73.53
<b>BSPTCL</b>	16	5	31.25
<b>IPP (GMR, Sterlite and MPL)</b>	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 77<sup>th</sup> PCC, BSPTCL has submitted the updated status.

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

**BSPTCL may update.**

**ITEM NO. C.4: 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	220KV BUDIPADAR-KORBA-II	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						

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

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

**OPTCL:**

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

**BSPTCL:**

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

<b>11</b>	<i>220 kV Gaya-Sonenagar New circuit-I</i>	<i>Communication through OPGW</i>
<b>12</b>	<i>220 kV Pusauli-Dehri S/C</i>	<i>PLCC not working</i>
<b>13</b>	<i>220 kV Begusarai-Purnea(PG) D/C</i>	<i>PLCC working properly</i>
<b>14</b>	<i>220 kV DMTCL-Motipur ckt-II</i>	<i>PLCC to be commissioned.</i>
<b>15</b>	<i>220 kV Dehri- Gaya D/C</i>	<i>PLCC working properly</i>
<b>16</b>	<i>220 kV Kishanganj(PG)-Kishanganj(B)-II</i>	<i>PLCC working properly</i>

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

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

**Members may update.**

**ITEM NO. C.5: Any additional agenda.**

SI No.	Name of the incidence	PCC Recommendation	Latest status
<b>84<sup>th</sup> PCC Meeting</b>			
1.	Total power failure at 220 kV Dumka(JUSNL) on 07.09.2019 at 17:32 Hrs	<ul style="list-style-type: none"> <li>• PCC advised JUSNL to check the distance relay settings at Dumka end for 220 kV Dumka- Govindpur idle charged lines and advised to set all the zone timing as instantaneous till the lines are not charged from other end.</li> <li>• PCC also advised to set directional earth fault time setting as instantaneous till the lines are not charged from other end.</li> <li>• PCC advised JUSNL to check the healthiness of the LBB protection at 220kV Dumka S/s.</li> </ul>	
2.	Disturbance at 220 kV Hatia(JUSNL) S/s on 24.09.2019 at 17:32 Hrs	<ul style="list-style-type: none"> <li>• PCC advised JUSNL to review the relay settings for 220 kV Hatia-Ranchi circuit-III as well as to test the relays.</li> <li>• PCC also advised to set the zone-2 timing instantaneous for the anti theft charge line till the line is not charged from other end and to enable directional earth fault protection at Hatia end for this line.</li> <li>• PCC also advised JUSNL to check and rectify the CT polarity issue for 220 kV Hatia-Ranchi circuit-II.</li> </ul>	
3.	Disturbance at Talcher HVDC station on 04.09.19 at 16:59 Hrs.	Powergrid informed that the issue has been referred to M/s Siemens for analysis. PCC noted this and asked powergrid to share the findings.	
<b>83<sup>rd</sup> PCC Meeting</b>			
4.	Total power failure at 220 kV Dehri S/s on 18.08.2019 at 17:24 Hrs	PCC advised BSPTCL to submit the detailed report along with all the relevant DR & EL within a week for further analysis.	



5.	Total power failure at 220 kV Darbhanga (BSPTCL) S/s on 16.08.2019 at 22:23 Hrs.	PCC observed that DR configuration at DMTCL end is not in order. PCC advised DMTCL to configure the DR settings as per the standard.	
6.	Disturbance at 400 kV New Purnea S/s 29.08.2019 at 08:08 Hrs	From the DRs submitted by BSPTCL, it was observed that the sampling frequency was set at 200 Hz which hampers in capturing the correct information. PCC advised BSPTCL to properly configure the DR settings as per the standard approved by PCC.	BSPTCL informed that they will set sampling frequency at 1000 Hz.
7.	Three phase tripping of tie breaker in case transient fault at Binaguri end of 400 kV Binaguri – Bongaigaon – I.	Powergrid informed that the issue would be resolved in next available shutdown.	<i>Powergrid informed that shutdown will be taken in November,2019.</i>
<b>82<sup>nd</sup> PCC Meeting</b>			
8.	Total Power failure at 220 kV Jorethang, 220 kV Tashiding & 220 kV New Melli S/s on 14.07.2019 at 10:35 Hrs.	PCC advised DANS Energy to take the following actions to avoid the unwanted tripping of the lines: <ul style="list-style-type: none"> <li>• Since the line length of the transmission lines are less than 20 km, differential protection may be implemented for 220kV Tashiding-New Melli line and Jorethang-New Melli line to improve the reliability.</li> <li>• Distance relay reach settings and selection of primary/secondary in the relay configuration settings to be reviewed at both Tashiding and Jorethang end.</li> <li>• Exact impedance of the line to be measured using off line fault location and the relay settings are to be reviewed accordingly.</li> </ul> Distance relays at Tashiding and Jorethang end should be tested to verify the correct operation.	
9.	Disturbance at 220 kV Siliguri S/s on 22.07.19 at 03:57 Hrs.	PCC advised Powergrid to take the	<i>Powergrid informed that the</i>

		<p>following corrective actions:</p> <ul style="list-style-type: none"> <li>• Time synchronization of DRs need to be checked and rectified at Dalkhola end.</li> <li>• As carrier was sent from dalkhola end in zone-2 initiation, Powergrid was advised to check overreach scheme in the relay settings at Dalkhola end and to review the settings.</li> </ul>	<p><i>module for time synchronisation was found corrupt and they have issued the order for procurement for new module. They also informed it will take two months time for new installation.</i></p>
<b>81<sup>st</sup> PCC Meeting</b>			
10.	Disturbance at 400 kV Dikchu S/s on 30.06.2019 at 09:55 Hrs.	<p>PCC advised Dikchu to review the backup E/F time setting of the ICT and coordinate the setting with with the zone-3 timing of the transmission line.</p> <p>The time setting for the DEF relay at Jorethang end was 500 msec. PCC advised Jorethang to review the timer setting of DEF protection at Jorethang end.</p> <p>PCC advised Chuzachen to review the zone settings for 132 kV Chuzachen-Rangpo line.</p> <p>PCC advised TPTL to do line patrolling for 400 kV Rangpo-Dikchu line to find out the cause of such high resistive fault in the line.</p>	
11.	Disturbance at 220 kV Budhipadar(OPTCL) S/s on 12.06.2019 at 00:37 Hrs.	<p>PCC advised OPTCL to properly configure the DRs for 220 kV Budhipadar – Korba D/C &amp; 220 kV Budhipadar-Raigarh circuit at Budhipadar end and for 220 kV Budhipadar – Lapanga - II at Lapanga end as per the DR standard finalised in 79th PCC Meeting.</p> <p>PCC also advised OPTCL to check the time synchronisation</p>	<p><i>OPTCL informed that they will replace the old relays at the earliest.</i></p>
12.	Disturbance at 400 kV Meramundali (OPTCL) S/s on	For voltage rise issue, PCC advised to check for any CVT related issues	<p><i>OPTCL informed that they have</i></p>

	03.06.2019 at 01:15 Hrs.	in the substation. PCC also advised to carry out earthing audit of the complete substation.	<i>issued tender for the earthing audit of the substation.</i>
13.	Disturbance at 220/132 kV Dumka(JUSNL) S/s on 19.06.2019 at 13:02 Hrs.	PCC advised for time synchronization of the DR outputs at both Maithon & Dumka end.	<i>JUSNL informed that there was antenna and cable fault in the time synchronisation module.  JUSNL informed that it will be rectified within a month.</i>
<b>76<sup>th</sup> PCC Meeting</b>			
14.	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.	<i>BSPTCL informed that they will send the relay settings at the earliest.</i>
<b>72<sup>nd</sup> PCC Meeting</b>			
15.	HVDC TFR triggering standardization and reporting requirements.	PCC advised POWERGRID to submit TFR triggering criteria and TFR signal list for all HVDC station as well as STATCOMs of Eastern region to ERLDC.	<i>It was informed that required information was received from Talcher HVDC station.</i>
<b>71<sup>st</sup> PCC Meeting</b>			
16.	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.	<i>BSPTCL informed that OEM found CT core of 220 kV MTPS Circuit saturated. CT has been replaced.</i>
17.	Disturbance at 400 kV Farakka S/s on 19.08.18 at 15:26 hrs.	PCC advised to check the reason for not sending carrier from Farakka to Kahalgaon and non-operation of Autorecloser.	<i>NTPC informed that the carrier healthiness will be checked in November 2019.</i>