Agenda
for
75th PCC Meeting

Date: 22.01.2019
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 75TH PROTECTION SUB-COMMITTEE MEETING TO BE HELD AT ERPC, KOLKATA ON 22.01.2019 (TUESDAY) AT 11:00 HOURS

PART – A

ITEM NO. A.1: Confirmation of minutes of 74th Protection sub-Committee Meeting held on 19th December, 2018 at ERPC, Kolkata.

The minutes of 74th Protection Sub-Committee meeting held on 19.12.18 circulated vide letter dated 02.01.19.

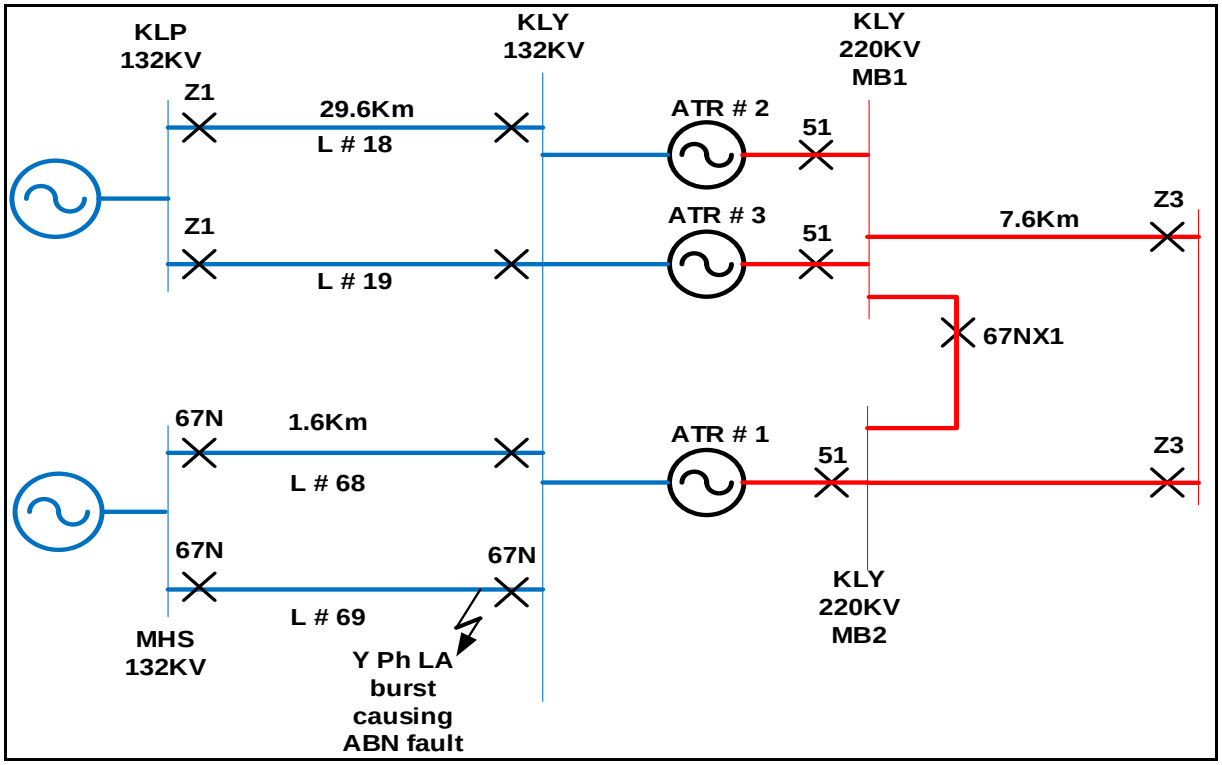
Members may confirm the minutes of 74th PCC meeting.

PART – B

ANALYSIS & DISCUSSION ON GRID INCIDENCES OCCURRED IN DECEMBER, 2018

ITEM NO. B.1: Total Power Failure at 132 kV Kalyansweri (DVC) S/s on 18.12.2018 at 02:57 hrs.

Due to burst of Y phase LA of 132 kV Kalyaneswari - Maithon - II at Kalyaneswari end, 220 kV bus tie breaker, 220/132 kV ATR I, II & III at Kalyansweri end got tripped. In addition to this 132 kV Kalyaneswari - Kalipahari D/C, 132 kV Kalyaneswari - Maithon D/C also got tripped resulting total power failure at Kalyaneswari S/S.



Load Loss: 250 MW

DVC may explain.

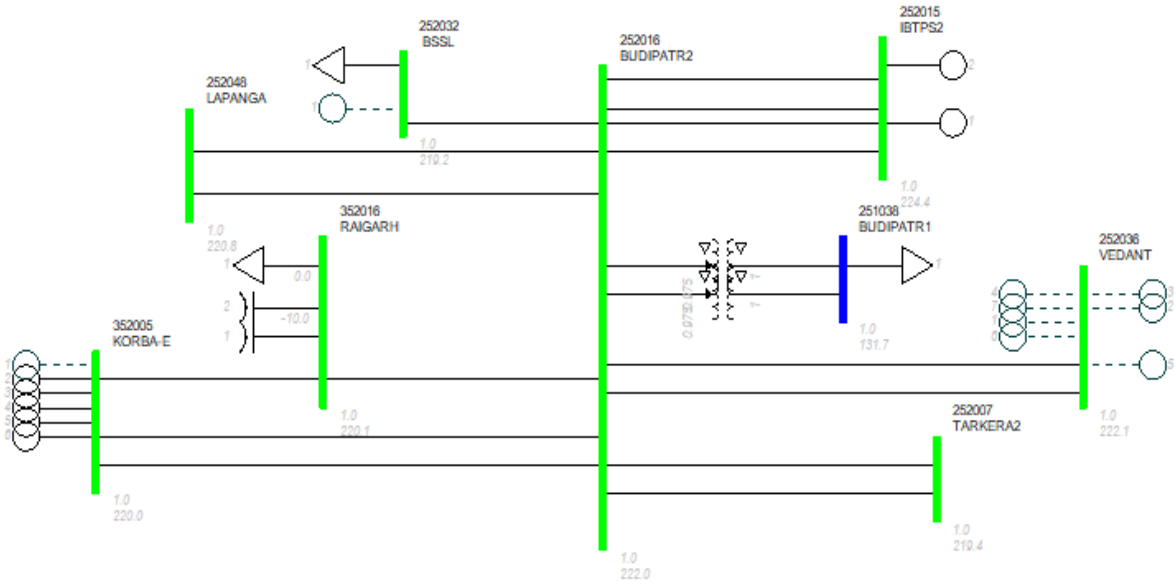
ITEM NO. B.2: Disturbance at 220 kV Budhipadar S/s & at 220 kV IBTPS system.

A. Disturbance at 220 kV Budhipadar (OPTCL) S/s on 25.12.18 at 12:46 Hrs.

At 12:46 hrs, disk insulator of y phase transfer bus snapped and fell on 220 kV Budhipadhar - Lapanga - II resulting tripping of all lines emanating from 220 kV Budhipadhar system. Due to loss of evacuation path, all units of IBTPS got tripped in over frequency.

The detailed report is attached in **Annexure B2.**

Generation Loss: 370 MW
Load Loss: 30 MW



OPTCL may explain.

B. Disturbance at 220 kV IBTPS system on 01.01.2019 at 04:32 hrs.

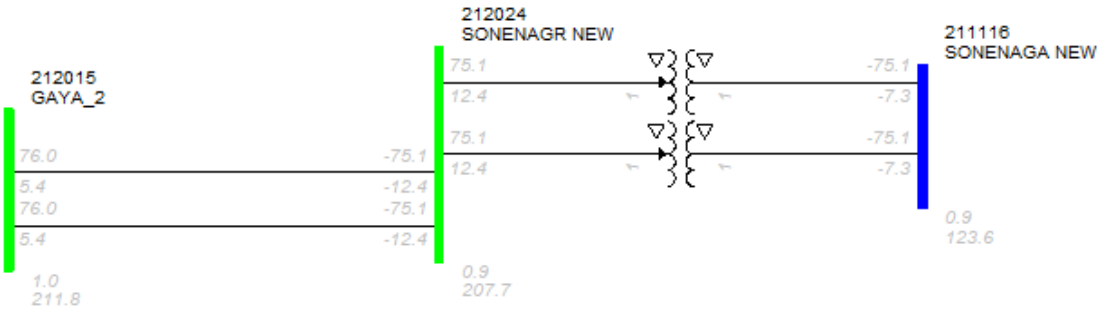
At 04:32 hrs, high voltage jerk observed in 220 kV IBTPS-Budhipadar feeders. Phase voltage of R & Y phase dropped from 135 kV to 71 kV, which initiated zone-3 distance protection in all feeders. As a result some of the auxiliaries got tripped in IBTPS.

OPTCL & IBTPS may explain.

ITEM NO. B.3: Total Power Failure at 220/132 kV Sonenagar(BSPTCL) S/s on 24.12.2018 at 23:28 Hrs.

220 kV Gaya Sonenagar D/C tripped on R-N fault leading to a load loss at Sonenagar and its nearby area.

Load Loss: 115 MW



BSPTCL may explain.

ITEM NO. B.4: Disturbance at 400 kV Jeypore(Powergrid) S/s on 06.12.18 at 13:27 Hrs.

At 13:27 hrs, Bus-I at 400 kV Jeypore S/s got tripped due to operation of LBB of main bay of 125 MVAr bus reactor (409 Bay). At the same time ICT II also tripped due to nonavailability of its tie bay as 63 MVAr bus reactor was out of service.

Generation/Load Loss: Nil

Powergrid may explain.

ITEM NO. B.5: Disturbance at 400/220 kV Alipurduar (Powergrid) S/s on 05.12.18 at 10:29 hrs.

400 kV Alipurduar-Bongaigaon D/C and 220 kV Alipurduar-Salakati D/C tripped along with pole-III of HVDC Alipurduar during a disturbance occurred in 400 kV Bongaigaon S/s. HVDC Alipurduar pole IV was under shutdown.

Generation/Load Loss: Nil

Powergrid may explain.

ITEM NO. B.6: Tripping Incidences in the month of December, 2018.

Other tripping incidences occurred in the month of December 2018 which needs explanation from constituents of either of the end is given in **Annexure-B.6.**

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

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

Members may discuss.

PART- C:: OTHER ITEMS

ITEM NO. C.1: Protection Audit and checking of relay settings in transmission system/distribution system within States.

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

Members may discuss.

ITEM NO. C.2: Disturbance at 400 kV BRBCL S/s on 25.11.18 at 16:31 hrs.

At 16:31 hrs, 400 kV bus-II at BRBCL tripped due to mal-operation of bus bar protection. At the same time, tie CB between 400/132 kV ICT – I & GT – I tripped on master trip signal due to logic error from Bus bar relay of Bus II ,which again led to erroneous LBB re trip signal to main CB no. 401 connected to GT I leading to tripping of unit I.

In 74th PCC, BRBCL representative was not present in the meeting. Based on preliminary report submitted, PCC could not conclude the disturbance and advised BRBCL to submit a report explaining the following issues.

- Reason for mal operation of Busbar Relay which tripped 400 kV Bus-II.
- Reason for tripping of tie circuit Breaker between 400/132 kV ICT – I & GT – I at the same time.
- Reason for tripping of main circuit breaker of GT-I connected to 400 kV Bus-I.
- Reason for tripping of 400 kV BRBCL-Sasaram-I line.

BRBCL may explain.

ITEM NO. C.3: Disturbance at 400 kV Dikchu S/s on 14.11.18 at 16:31 hrs.

On 27th Nov 2018, at 13:26 Hrs 400 kV Sasaram-Allahabad & 400 kV Sasaram-Varanasi tripped due to Y-B phase fault. At the same time HVDC Sasaram also got blocked due to operation of inter-zone protection of Northern converter transformer.

In 74th PCC, Dikchu representative was not present in the meeting.

PCC advised Dikchu to submit a detail report on the disturbance (including the location of fault and status of line tripping at Dikchu end) and to rectify the time synchronization issue in the relays.

Dikchu may explain.

ITEM NO. C.4: Disturbance at 400 kV Sasaram S/s on 27.11.18 at 13:26 hrs.

On 27th Nov 2018, at 13:26 Hrs 400 kV Sasaram-Allahabad & 400 kV Sasaram-Varanasi tripped due to Y-B phase fault. At the same time HVDC Sasaram also got blocked due to operation of inter-zone protection of Northern converter transformer.

In 74th PCC, Powergrid was advised to submit a detailed report explaining the reason for tripping of the line by Main-I relay and reason for zone-2 pick up by Main-II relay. PCC also advised Powergrid to configure the digital channels properly in the disturbance recorders.

Powergrid may explain.

ITEM NO. C.5: FOLLOW-UP OF DECISIONS OF THE PREVIOUS PROTECTION SUB-COMMITTEE MEETING(S)

The decisions of previous PCC Meetings are given at **Annexure-C5.**

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

Members may update the latest status.

ITEM NO. C.6: Schedule of training program to be conducted by PRDC

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

Sl no.	State	Location	Date	Training
1.	West Bengal	North Bengal	**04.02.2019-05.02.2019**	
		South Bengal	**07.02.2019-08.02.2019**	
2.	Bihar	North Bihar	**08.04.2019-09.04.2019**	
		South Bihar	**11.04.2019-12.04.2019**	**on PDMS**
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**

Members may discuss.

ITEM NO. C.7: Zone 3 settings of ISTS lines

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

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

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

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

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

Members may update.

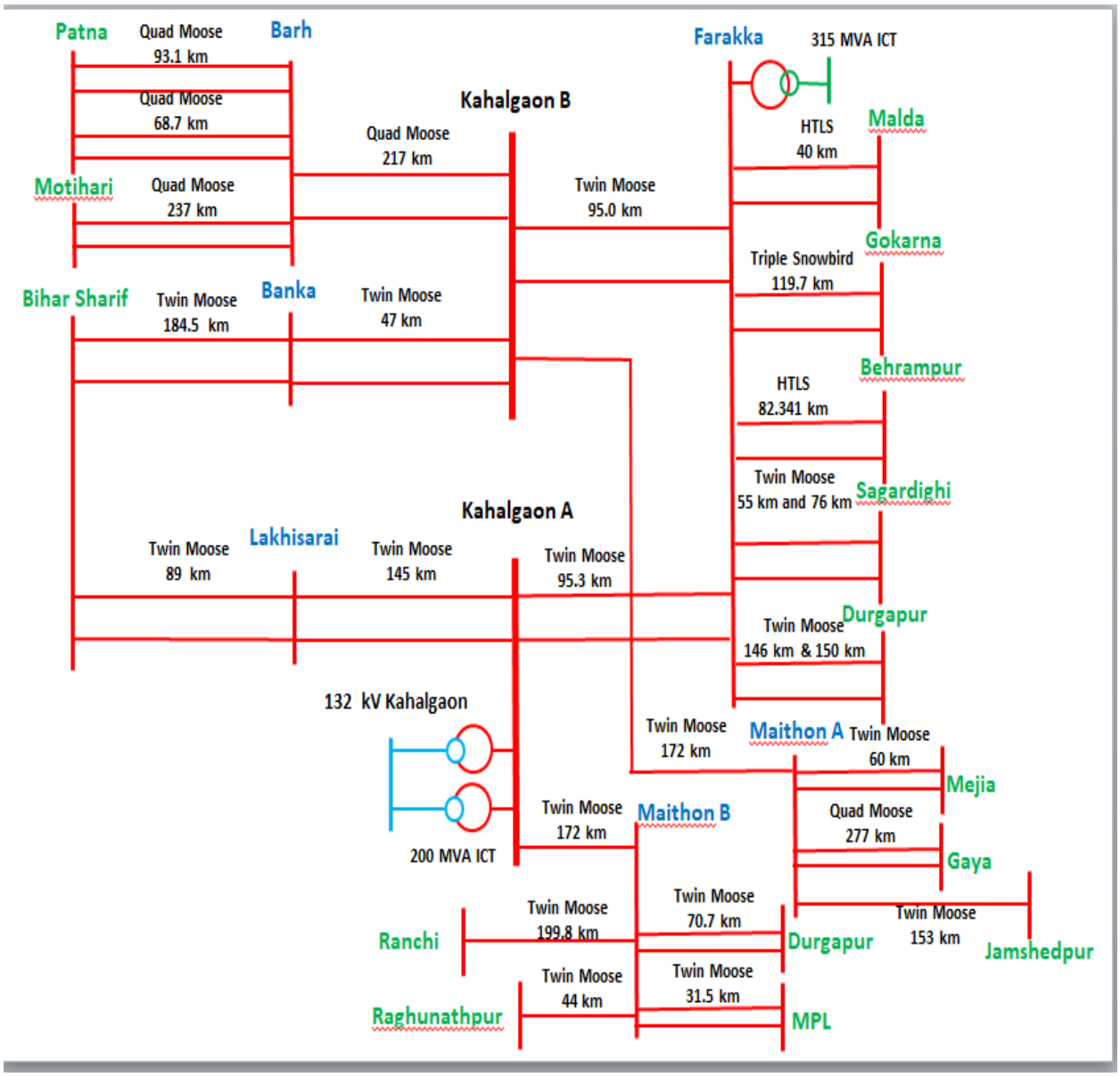
ITEM NO. C.8: Revision in protection settings due to Bus splitting operation in 400 kV Kahalgaon S/s

As per the CTU planning Bus splitting activity at 400 kV Kahalgaon S/s is completed for reducing the fault level. As this is a generating station, so before operating the system in bus split mode proper protection coordination is very much essential to avoid any unwanted tripping.

After split of the bus the selection of longest and shortest remote end line have to be revisited by all the concerned utilities. Accordingly changes in protection setting have to be done. Also in some operating condition it may be required to operate the system by coupling all the buses. So preserving the existing setting is also essential for quickly changing the setting in those conditions.

In view of the above, all concerned utilities are requested to keep two setting group ready in the relay itself for two different operating conditions.

SLD with line length is attached for the convenience of the concerned utilities.



Members may discuss.

ITEM NO. C.9: Status of Third Party Protection Audit

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

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

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

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

Members may note.

ITEM NO. C.10: Non-commissioning of PLCC / OPGW and non-implementation of carrier aided tripping in 220kV and above lines.

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

List of line where auto reclose facility is not available(Information based on PMU data analysis)							
S. No	**Transmission Lines name**	**Date of Tripping**	**Reason of Tripping**	**Owner Detail**		**Present Status**	
				End-1	**End-2**	**OPGW/PLCC Link available**	**AR facility functional**
13	220KV BUDIPADAR-KORBA-II	23.06.16	Y-N FAULT	OPTCL	CSEB	PLCC available	will be activated in consultation with Korba
17	220 KV TSTPP-RENGALI	17.07.16	EARTH FAULT	NTPC	OPTCL		by March 2018
18	220KV BUDIPADAR-RAIGARH	21.07.16	EARTH FAULT	OPTCL	PGCIL	PLCC defective	
20	220 KV FARAKKA-LALMATIA	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	220 KV MUZAFFARPUR - HAZIPUR - II	10.08.16	B-N FAULT	PGCIL	BSPTCL		Voice established. For carrier required shutdown
24	220 KV ROURKELA - TARKERA-II	11.08.16	B-N FAULT	PGCIL	OPTCL	OPGW available	Expected to install protection coupler by Jan 17
27	220 KV BIHARSARIF-TENUGHAT	07.09.16	B-N FAULT	BSPTCL	TVNL		
33	220KV Jamshedpur-Jindal-SC						

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

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

OPTCL:

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

BSPTCL:

1. 220kV Purnea (PG)-Madhepura line
2. 220 kV Biharshariff- Begusarai line
3. 220 kV Biharshariff- Bodhgaya line
4. 220kV MTPS-Motiari line

Work is in progress expected to be commissioned by December 2017.

5. 220KV Madhepura-New Purnea D/C — Auto recloser is out of service at Madhepura
6. 220KV Muzaffarpur-Hajipur D/C line — Auto recloser is out of service at Hazipur
7. 220KV FSTPP-Lalmatia-1 — Auto recloser is out of service at Lalmatia
8. 220KV Patna-Khagaul-SC — Auto recloser is out of service at Khagual

In 74th PCC, it was observed that there was no progress in implementation of PLCC and Autorecloser in BSPTCL system. BSPTCL was advised to take up the issue with the implementation agency and expedite for early commission of PLCC and Autorecloser.

Members may update.

ITEM NO. C.11: Disturbance monitoring equipment(DME) standardization

The power system is routinely subjected to faults or disturbances which can range from transient faults on transmission lines to system-wide disturbances involving multiple control areas, states and even countries. Investigation of each incident is critical in optimizing the performance of protection systems with the goal of preventing future incidents from becoming wide-area disturbances. The tools required to perform post-incident analyses include DME which can capture pre-event, event, and post-event conditions with a high degree of accuracy.

Recorders can be classified into two categories:

• FR (Fault Recorder)
• Sequence of events Recorder (SER)

For FR (Fault Recorder) following points may be standardized:

a. Deployment
b. Record Length
c. Triggers
d. Sampling Rates

For Sequence of events Recorder following points may be standardized:

a. SER Capability
b. Point Assignments
c. Use of RTUs for SER

Common issues:

a. Data format
b. Power Supply
c. Monitoring

Reference documents for this:

1. NERC Standard PRC-002-2 Disturbance Monitoring and Reporting Requirements

2. NPCC Regional Reliability Reference Directory # 11 Disturbance Monitoring Equipment Criteria

In 74th PCC, all the constituents were advised to submit their comments/observations relating to the draft standard which is enclosed at **Annexure-C11**.

PCC also decided similar kind of standard would be prepared for Transformer Protection and Busbar Protection.

Members may update.

ITEM NO. C.12: Checklist for submission of updated data for Protection Database

The network data in Protection Database needs to be updated on regular basis on account of commissioning of new elements in the CTU as well as STU networks. Accordingly a checklist has been prepared which is enclosed in **Annexure-C12**.

All the constituents requested to submit the checklist on monthly bases in every OCC/PCC meetings.

Constituents may note.

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SYSTEM DISTURBANCES REPORT
(Detail Report)

(1) Date & Time of Occurrence:25.12.2018, 12:46 Hrs

(2) Name of the Sub Station/ Generating Station:220/132/33 KV Grid S/S, Budhipadar

(3) Details of Occurrence:

AT 12:46 Hrs dt. 25.12.2018
Y-Phase of 220 KV Transfer Bus Conductor (between 220 KV Budhipadar - Tarkera Ckt-II & 220 KV Budhipadar - Bhusan Ckt-I) fell on 220 KV Budhipadar - Lapanga Ckt-I & CKt-II Line & TBC side Pipe Bus due to disc insulator string failure causing heavy sound & spark which leads to 220 KV Side Black out at Grid S/S, Budhipadar. As the bus bar protection is in OFF condition & only 220KV Main Bus – I in service whereas Main Bus –II is under shutdown since 24.12.2018 for Annual Maintenance, which leads to total black out of 220 KV System at Budhipadar. Unit #1 & #2 of IBTPS tripped due to over frequency of generator .132 KV system at Budhipadar availed power supply form Lapanga & Jharsuguda end with partial load loss.

(4)Sequence of Tripping with relay indication:

Time	Details of tripping
12:46 Hrs	220 KV & 132 KV Sides CB of 220/132/33 KV, 160 MVA AT-I tripped at Budhipadar end with following relay indications:- **220 KV Side** -3-Phase Master Trip **132 KV Side** - Micom P14DB(O/C + E/F) - R, Y&B-Phase O/C & E/F(LED indications, Tripped Phase A B,O/C Start I>1,O/C Trip I>1,IA= 984.4 A, IB= 1.225 KA
	Only 132 KV Side CB of 220/132/33 KV, 160 MVA AT-II tripped at Budhipadar end with following relay indications:- **132 KV Side** - 3-Phase Master Trip **Micom P14DB(O/C + E/F)** - R, Y&B-Phase O/C & E/F(LED indications), Tripped Phase A B C, O/C Start I>1, O/C Trip I>1 , IA= 935.2 A, IB= 1.95 KA, IC = 235.4 A ,Fault Duration- 972 ms, CB open = 75 ms
	220 KV TBC C.B charged for 220 KV Budhipadar-Tarkera Ckt-II tripped at both Budhipadar & Tarkera end with following relay indications:- **At Budhipadar end:** **1) Siemens Siprootec 7SJ62(O/C + E/F)** -Relay Trip , Dir L2 PU, Dir O/C Trip, IL2 = 34.5 KA **2) 3 Phase Master Trip** At Tarkera end:- DP operated, Zone 1, Distance – 124.99 Km, fault loop – L2N, IL2 – 1.41KA
	None of the other 220 KV feeders CB tripped at Budhipadar end but tripped at other ends whose relay indications are given below.

1) 220 KV Raigarh PG- D/P operated, FL = Yph-G, IY = 2.5 KA, F.D = 84.0 Kms, d[%]= 100%
2) 220 KV Korba-II - D/P operated, Zone-II, FL = Yph-G, IY = 10.75 KA, F.D = 255.0 Kms
3) 220 KV Korba-III- D/P operated, IR = 964.4 A, IY = 938 A, F.D = 197.30 Kms
4) 220 KV IBTPS-I - D/P operated in Zone-1
5) 220 KV IBTPS-II - D/P operated in Zone-1
6) 220 KV IBTPS-III - D/P operated in Zone-1
7) 220 KV IBTPS-IV - D/P operated in Zone-1, as
8) 220 KV Tarkera-I - D/P operated, FL = R-Y, IR = 1.19 KA, IY = 2.15 KA, F.D = 107.7 Kms, d[%]= 105.6%
9) 220 KV Lapanga-I - D/P-I operated, FL = R-Y, IR = 2.745 KA, IY = 3.147 KA, F.D = 17.17 Kms, D/P-II operated, FL = R-Y, F.D = 18.4 Kms d[%]= 108.1%
10) 220 KV Lapanga-II - D/P operated, FL = R-Y-B, IR = 5.4 KA, IY = 5.74 KA, IB = 5.39 KA F.D = 18.6 Kms,
11) 220 KV Bhusan-I – D/P operated in Zone-I
12) 220 KV Bhusan-II – D/P operated in Zone-I
13) 220 KV Aaditya Auminum Ltd -I – D/P operated
14) 220 KV Aaditya Auminum Ltd -II – D/P operated
15) 220 KV Vedanta Aluminium Ltd-I – D/P operated
16) 220 KV Vedanta Aluminium Ltd-II – D/P operated

220 KV Budhipadar-Basundhara Ckt-II CB did not tripped at Budhipadar end & Basundhara end (But Power transformers at Basundhra Switch yard tripped during that incident)

[The bus bar protection was in OFF condition which led to non tripping of breakers of above feeders at Budhipadar end. Hence following feeders are Hand tripped at Budhipadar Grid S/S for availing power supply from Grid S/S, Tarkera through 220 KV Tarkera Ckt – I fdr.]

At 13:24 Hrs_-1) 220 KV Budhipadar- Basundhara Ckt-II CB made H/T
2) 220 KV Budhipadar- Raigarh PG Ckt & 220 KV Budhipadar- Korba Ckt-II CB made H/T
At 13:25 Hrs_ - 220 KV Side CB of 220/132/33 KV, 160 MVA AT-II made H/T

At 13:27 Hrs 1) 220 KV Budhipadar-Korba Ckt-III C.B could not be made H/T at Budhipadar end due to low SF6 Gas pressure

in Y-Phase Limb of its C.B . So, its line & bus isolator were opened at 13:45 Hrs.
2) 220 KV Budhipadar- Bhusan Ckt -I & 220 KV Budhipadar- Bhusan Ckt-II CB made H/T
3) 220 KV Budhipadar- Lapanga Ckt -I & 220 KV Budhipadar- Lapanga Ckt-II CB made H/T

At 13:28 Hrs 1) 220 KV Budhipadar- AAL Ckt -I & 220 KV Budhipadar- AAL Ckt-II CB made H/T
2) 220 KV Budhipadar- VAL Ckt -I & 220 KV Budhipadar- VAL Ckt-II CB made H/T

Weather Condition: Normal

(5)PLCC counter readings: Not applicable

(6)Restoration:

At 14:15 Hrs - 220 KV Budhipadar-Tarkera Ckt-I CB Charged at Tarkera End & P/S made through after thorough checking of 220 KV Switchyard & making all necessary operations. 220 KV Main Bus-I got charged along with 220 KV Budhipadar-IBTPS Ckt-I, ckt-II, Ckt-III & Ckt-IV.

At 14:23 Hrs -220 KV Budhipadar-AAL Ckt-I CB charged at Budhipadar end & it stood ok.

At 14:24 Hrs -220 KV Budhipadar-AAL Ckt-II CB charged at Budhipadar end & it stood ok.

At 14:29 Hrs-_220 KV Budhipadar-VAL Ckt-I CB charged at Budhipadar end & it stood ok.

At 14:44 Hrs-220 KV Budhipadar-Bhusan Ckt-I CB charged at Budhipadar end & it stood ok.

At 14:45 Hrs-_220 KV Budhipadar-Basundhara Ckt-II CB charged at Budhipadar end & it stood ok.

At 16:05 Hrs-220 KV Budhipadar-Raigarh PG Ckt CB charged at Both ends end & P/S made through.

At 16:09 Hrs-220 KV & 132 KV Side CB of 220/132/33 KV , 160 MVA AT-II charged at Budhipadar end & it stood ok.

At 16:12 Hrs-220 KV Budhipadar-Korba Ckt-II CB charged at Both ends & P/S made through.

At 15:44 Hrs- 220 KV Budhipadar-Bhusan Ckt-II CB charged at Both ends & P/S made through.

At 15:56 Hrs- 220 KV Budhipadar-VAL Ckt-II CB charged at Budhipadar end & it stood ok.

At 15:48 Hrs-220 KV Budhipadar-Bhusan Ckt-I CB made H/T at Both ends to issue L/C for removal of snapped Y-phase 220 KV Transfer Bus conductor at Budhipadar end.

At 17:17 Hrs-220 KV Bus Coupler CB charged at Budhipadar end & 220 KV Main Bus-II got charged at Budhipadar end.

At 18:42 Hrs-220 KV & 132 KV Sides CB of 220/132/33 KV , 160 MVA AT-I charged at Budhipadar end & it stood ok.(Delay in charging due to inspection of R-PH 220 KV Side CT of 160 MVA AT-II by E&MR Wings, Jharsuguda & found ok as light sparking & smoke was observed at R-phase CT during earlier tripping of 160 MVA AT-II at 12:46 hrs).

At 19:10 Hrs-220 KV Budhipadar-Bhusan Ckt-I CB charged at Both ends & P/S made through after removal of snapped Y-phase 220KV Transfer Bus conductor at Budhipadar end.

At 19:38 Hrs-220 KV Budhipadar-Tarkera Ckt-II CB charged at Both ends & P/S made through after removal of snapped Y-phase 220 KV Transfer Bus conductor at Budhipadar end & other rectification of damaged work in the Bay at Budhipadar .

At 20:15 Hrs-220 KV Budhipadar-Korba Ckt-III charged at Budhipadar end through 220 KV TBC CB.

At 20:15 Hrs-220 KV Budhipadar-Korba Ckt-III synchronized at Korba end & P/S made through.

At 23:05 Hrs-**220 KV Budhipadar-Lapanga Ckt-II made Idle charged from Lapanga end after removal of snapped Y-phase 220 KV Transfer Bus conductor at Budhipadar end & other rectification of damaged work in the Bay at Budhipadar end. The said feeder could not be charged at Budhipadar end due to damage to its R-phase Line isolator female Contact. 220 KV Budhipadar- Lapanga Ckt-I is under L/C due to heavy damage to its bay at Budhipadar end & rectification work could not be completed on DT- 25.12.2018.**

At 02:58 Hrs dt. 26.12.2018 - #2 of IBTPS synchronized.

At 03:25 Hrs dt. 26.12.2018 - #1 of IBTPS synchronized.

Load Loss- 30 MW (Sundargarh area)
Generation Loss- 370 MW (IBTPS – 340MW, CGP(VAL, AAL, BPSL) -30MW
Energy unserved- 0.15MU

Chief Load Despatcher
SLDC, OPTCL,Bhubaneswar

Letter No-SGM(PS)/MIS/237- 4118(9) **Date** 26/12/18

Copy Forwarded to the
1.Director(Engg), OERC, Bhubaneswar
2. DGM, 220/ 132 /33 KV Grid S/S Budhipadara
3. DGM, E & MR Division, Burla
4. GM,EHT (O&M), OPTCL Headquarters.
5. Member Secretary, GCC
6. Sr GM (RT& C), OPTCL, Bhubaneswar
7. CGM (O&M), OPTCL, Bhubaneswar
8.. GM, ERLDC, Kolkata
9. Member Secretary, ERPC, Kolkata
10.EA to CMD, OPTCL, Bhubaneswar for favour of information.

Annexure-B6

List of Intra Regional line tripping in the month of December 2018 where violation of protection standard has been observed

LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION TIME	Relay Indication LOCAL END	Relay Indication REMOTE END	Reason	Fault Clearance time in msec	Remarks
Miscellaneous: High Fault clearing time, Tripping on DT, No Fault observed in PMU									
400KV MOTIHARI-BARH-II	07-12-2018	11:25	07-12-2018	11:35	DT received at Motihari		DT received at Motihari	--	--
220KV PUSAULI-SAHUPURI-SC	07-12-2018	16:02	07-12-2018	16:32	RN, 0.98 KA,25.2 KM		R-N Fault	800 msec	No A/R operation
400KV KHARAGPUR-KOLAGHAT-I	10-12-2018	16:01	10-12-2018	16:20	DT RECEIVED AT KGP WHILE TRANSFERRING TO MAIN BAY		DT RECEIVED AT KGP WHILE TRANSFERRING TO MAIN BAY	--	--
220KV ARRAH-NADHOKHAR-SC	11-12-2018	0:40	11-12-2018	1:45		Nadokar: CB Auto trip, charged but tripped		--	--
765KV ANGUL-JHARSUGUDA-III	17-12-2018	3:21	17-12-2018	4:05	DT SENT BY ANGUL		DT SENT BY ANGUL	--	--
400KV PPSP-NEW PPSP-II	17-12-2018	6:56	17-12-2018	9:56	LINE DIFFERENTIAL PROTN. OPTD.		LINE DIFFERENTIAL PROTN. OPTD.		No fault signature in PMU
400KV NEW PPSP-NEW RANCHI-II	20-12-2018	8:46	20-12-2018	9:25	NO TRIPPING AT N PPSP END	DT Received at N Ranchi end	DT Received at N Ranchi end	--	--
400KV MEERAMUNDALI-MENDHASAL-SC	27-12-2018	17:40	27-12-2018	19:42	No tripping	Master trip signal at Mendhasal; 2nd time for 18:29, master trip operated	Master trip signal at Mendhasal	--	--
Autoreclose related issues									
400KV KOLAGHAT-KHARAGPUR-II	09-12-2018	13:32	09-12-2018	14:10	RN, 36.73 KM	RN, 20 KM, 1.6 KA	R-N Fault	< 100 msec	No A/R operation
400KV DURGAPUR-SAGARDIGHI-II	10-12-2018	9:28	10-12-2018	13:46	B-N Fault, A/R SUCESSFUL FROM DURGAPUR END ONLY		B-N Fault	< 100 msec	No A/R operation
400KV PATNA-BARH-I	19-12-2018	5:12	19-12-2018	5:46		BN, 15.07 KM, 20.23 KA	B-N Fault	< 100 msec	No A/R operation
220KV PARULIA-DURGAPUR-II	19-12-2018	11:57	19-12-2018	13:24	B-N , F/D-7.1KM , F/C5.6KA		B-N Fault	< 100 msec	No A/R operation
220KV BARIPADA-BALASORE-I	20-12-2018	16:26	20-12-2018	21:47	R_ph LA burst at Baripada end		R_ph LA burst at Baripada end	< 100 msec	No A/R operation
220KV GAYA-SONENAGAR-II	24-12-2018	23:28	24-12-2018	11:48	R-N, 64.9KM, 2.54KA		R-N Fault	< 100 msec	No A/R operation
220KV PUSAULI-DEHRI-SC	25-12-2018	12:59			RN, 39.4 KM, 3.4 KA		R-N Fault	< 100 msec	No A/R operation

Annexure-C5

Sl No.	Name of the incidence	PCC Recommendation	Latest status
74th PCC Meeting			
1.	Disturbance at 220 kV TTPS (NTPC) S/s on 29.11.18 at 07:21 hrs	PCC advised NTPC to verify the PSL logic in the distance relay and check the reason for distance relay pickup in this case. PCC felt that 3.1 sec for pole discrepancy timer is quite high and advised NTPC to review the pole discrepancy timer settings.	
2.	Multiple tripping incident at Darbhanga at 13:33 hrs on 06-11-18 and at 15:23 hrs on 06-11-18	PCC suggested to keep the highset setting more than 7 and advised DMTCL to review the settings.	
3.	Tripping of 400 kV KTPP Kharagpur - I S/C on 11.11.18	PCC advised WBSETCL and WBPDCL to coordinate autorecloser discrimination time with the dead time of circuit breaker.	
4.	Tripping of 400 KTPP New Chanditala S/C at 12:12 hrs on 15.11.18	PCC advised WBPDCL to verify zone-3 time settings as well as TOR settings.	
5.	Tripping of 400 kV Jeerat-Bakreswar S/C at 00:22 hrs on 18.11.18	PCC observed that sampling frequency and time duration of DR at Bakreswar end is not proper and advised WBPDCL to take necessary action.	
6.	Tripping of 400 kV KTPP-Kharagpur-2 & 400 KTPP-New Chanditala S/C at 12:21 hrs on 23.11.18	PCC advised WBPDCL to submit a report explaining the following points. • Reason for tripping of Y & B phase breaker in 400 KTPP-New Chanditala S/C line and subsequently non-operation of pole discrepancy relay at KTPP end. • Reason for sending carrier signal from KTPP end to New Chanditala end. • Reason for delayed opening of R-phase breaker(manually) of 400 KTPP-New Chanditala S/C line at KTPP end.	

		PCC also advised WBSETCL and WBPDCL to verify the DEF status for 400 KTPP-New Chanditala S/C line at respective end.	
7.	Total power failure at 220kV Hatia (JUSNL) S/s on 20.07.18 at 09:10 hrs.	PCC also advised JUSNL to test the healthiness of the relays at 220kV Patratu and 220/132kV Hatia S/s on urgent basis.	JUSNL informed that testing for healthiness of relays will be done by third party vendor. The work has already been awarded to the vendor and it will be completed by one month.
73rd PCC Meeting			
7.	Total Power failure at 220 kV Hatia (JUSNL) substation on 03.10.18 at 17:23 hrs and on 04.10.18 at 00:26 hrs	PCC advised JUSNL to test the Bus bar and LBB protection, PLCC and configuration of DT signal in the relay at Hatia end.	JUSNL informed that tender has been awarded to local agency for testing of PLCC & protection system. The testing will be completed within 10 days. They have configured the DT signal at Hatia end.
8.	Total Power failure at Madhepura(BSPTCL) S/s on 20.10.18 at 09:48 hrs.	PCC advised BSPTCL to check for any trippings in downstream network.	
9.	Total Power failure at TLDP-III S/s on 27.10.18 at 10:24 hrs.	PCC advised WBSETCL and NHPC to review the DEF settings for proper protection coordination between the transmission lines and generating station.	PCC advised PRDC to coordinate the settings with reference to GT of TLDP side.
72nd PCC Meeting			
10.	HVDC TFR triggering standardization and reporting requirements.	PCC advised POWERGRID to submit TFR triggering criteria and TFR signal list for all HVDC station of Eastern region to ERLDC	
71st PCC Meeting			

12.	Disturbance at 220/132 kV Motipur(BSPTCL) S/s on 15.08.18 at 13:00 hrs.	PCC advised BSPTCL to check the disturbance recorders of all the lines in 220 kV Motipur S/s and communicate the findings to ERPC/ERLDC at the earliest.	
13.	Disturbance at 400 kV Farakka S/s on 19.08.18 at 15:26 hrs.	PCC advised NTPC to replace/divert Micom P437 relay to avoid unwanted tripping of such important transmission line. PCC also advised to check the reason for not sending carrier from Farakka to Kahalgaon and non-operation of Autorecloser.	NTPC informed that the relay has been replaced.
68th PCC Meeting			
14.	Issues related with Generation Backing down during Talcher-Kolar SPS operation on 16th May 2018.	PCC advised Powergrid to explore for inclusion of pole block with ground return mode signal in the SPS logic. PCC advised NTPC, GMR and JITPL to ensure the generation reduction as per the SPS logic. PCC advised NTPC also to explore for inclusion of pole block with ground return mode signal in the SPS logic.	Regarding inclusion of pole block with ground return mode signal in the SPS logic, Powergrid informed that the issue was referred to OEM.
15.	Issue of Protection Coordination Observed during Blackout of Tala on 23rd May 2018.	PCC advised Bhutan representatives to submit a detailed report on the above disturbance to ERPC and ERLDC at the earliest.	

STANDARD FOR DR CONFIGURATION FOR TRANSMISSION LINES PROTECTION

Triggering criteria for DR : Any Start
DR time window : minimum 3 seconds.
Pre-fault time window: 0.5 seconds;
Post fault time window: 2.5 seconds.
Minimum sampling frequency: 1000 Hz

Analog signals as per priority

A. Mandatory signals:

1. Three phase voltage
2. Neutral voltage
3. Three phase current
4. Neutral current

B. Optional signals:

1. Mutual current
2. Check Sync
3. Open Delta

Digital signals as per priority

A. Mandatory signals:

1. Any Start
2. Any trip
3. Z1, Z2, Z3, Z4 pick up
4. Over current and Earth fault pick up
5. Over voltage stage I & II pick up
6. DT send & reverse
7. Carrier send & Receive
8. Main three phase CB open signal
9. Tie three phase CB open signal (where applicable)
10. Power Swing
11. SOTF/TOR
12. LBB
13. A/R L/O
14. Main-1/2 operated
15. Bus Bar trip
16. VT failure
17. Distance Forward & Reverse
18. T1, T2, T3, T4
19. Broken conductor
20. 86A & 86B
21. A/R 1P In Prog
22. A/R Fail
23. STUB/TEED (where applicable)

B. Optional signals:

1. Any External input
2. Any Binary Input

Checklist for Submission of new transmission elements for updation in Protection Database

NAME OF ORGANISATION:
FOR THE MONTH OF:

SUBSTATION DETAIL:

Sl No	DETAILS OF ELEMENTS	DATA TYPE	Status of Submission (Y/N)	Remarks
1	TRANSMISSION LINE	LINE LENGTH, CONDUCTOR TYPE, VOLTAGE GRADE		
2	POWER TRANSFORMER	NAMEPLATE DETAILS		
3	GENERATOR	TECHNICAL PARAMETERS		
4	CURRENT TRANSFORMER	NAMEPLATE DETAILS		
5	VOLTAGE TRANSFORMER	NAMEPLATE DETAILS		
6	RELAY DATA	MAKE, MODEL and FEEDER NAME		
7	RELAY SETTINGS	NUMERICAL RELAYS: CSV or XML file extracted from Relay ELECTROMECHANICAL RELAYS: SNAPSHOT of RELAY		
8	REACTOR	NAMEPLATE DETAILS		
9	CAPACITOR	NAMEPLATE DETAILS		
9	UPDATED SLD			

SIGNATURE:
NAME OF REPRESENTATIVE:
DESIGNATION:
CONTACT:
E-MAIL ID: