



Agenda for 70th PCC Meeting

Date: 21.08.2018
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 70TH PROTECTION SUB-COMMITTEE MEETING HELD AT ERPC, KOLKATA ON 21.08.2018 (TUESDAY) AT 10:30 HOURS

PART – A

ITEM NO. A.1: Confirmation of minutes of 69th Protection sub-Committee Meeting held on 19th July, 2018 at ERPC, Kolkata.

The minutes of 69th Protection Sub-Committee meeting held on 19.07.18 circulated vide letter dated 31.07.18.

Members may confirm the minutes of 69th PCC meeting.

PART – B

ANALYSIS & DISCUSSION ON GRID INCIDENCES OCCURRED IN JULY, 2018

ITEM NO. B.1: Tripping incidences in 400 kV Rangpo-Binaguri D/C line and subsequent operation of SPS-II.

A. Tripping of 400 KV Rangpo-Binaguri-I and operation of SPS-II on 10.07.18 at 08:14 hrs.

At 08:14:34:538 hrs R-B phase fault took place in 400 KV Rangpo-Binaguri-I and it tripped from both end in zone-1 distance protection within 100 msec. Pre fault flow in 400 KV Rangpo-Binaguri each circuit was around 830 MW. At 08:14:35:648 hrs SPS code-1 generated at Rangpo S/S and SPS operated at Teesta-III at 08:14:35:678 hrs. Also at Dikchu, Jorethang, Chujachen and Tashiding one generating unit tripped as per SPS-1 logic. At 08:14:36:348 hrs SPS-2 operated at Rangpo and 400 KV Teesta-III-Rangpo line tripped from Rangpo end. At the same Time 220 KV Tashiding-Rangpo tripped from Tashiding end, no detail of the tripping received from Tashiding.

Relay indications are as follows:

Name of the elements	Relay Indication at end 1	Relay Indication at end 2
400 KV Rangpo-Binaguri-I	Z-I, R-B phase fault, 48.11 KM, IR=5.6 KA and IB=6.9KA	Z-I, R-B phase fault, 61.61 KM ,
400 KV Rangpo-Teesta-III	SPS-II operated	

Load/Generation Loss: 1046 MW Generation loss with No Load loss.

B. Tripping of 400 KV Rangpo-Binaguri-II and operation of SPS-II on 30.07.18 at 20:48 hrs.

Due to Bad Weather in the Sikkim, 400 kV Binaguri-Rangpo 2 tripped on Y-B phase to Phase to earth fault at 20:42 Hrs due to conductor snapping at 38 km location from Rangpo end. The fault got cleared in 100 ms as observed from the PMU plot of Binaguri bus voltage. With this, SPS -1 code operated for 400 kV Binaguri-Rangpo ckts which in turn tripped the all running units of Teesta 3 (Except one Unit) and one unit each of Jorethang (Unit 2), Tashiding (Unit 2), Dikchu, Chujachen (Unit 1).

However, it was observed that SPS 2 also has operated causing tripping of 400 kV Teesta3-Rangpo circuit from Rangpo end. At the same time 400 kV Teesta 3-Dikchu circuit also tripped from

Dikchu end. This led to the blackout of Teesta 3 and Dikchu generation complex.

Further, it was observed that at the same time, 220 kV Rangpo-Tashiding circuit also got tripped from the Tashiding end.

Total Generation Loss: 1057 MW

Due to Generation Loss Frequency dipped from 49.92 Hz to 49.81 Hz (Drop of .11 Hz) and stabilized at 49.85 Hz.

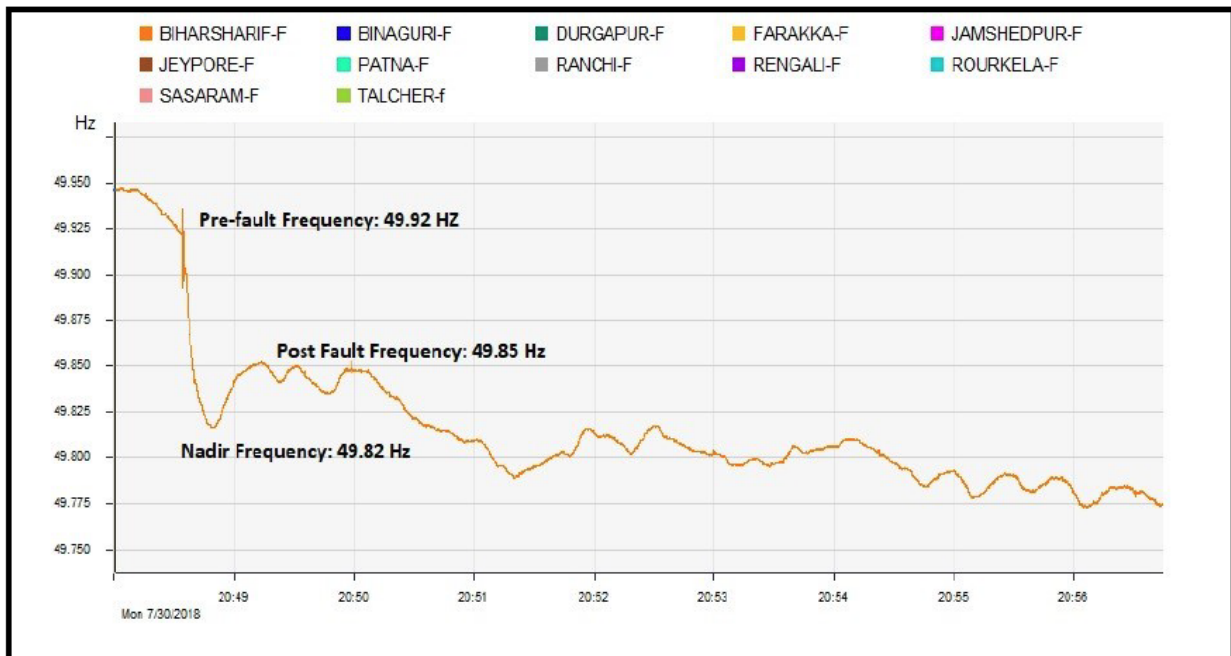


Fig: Frequency dip during the event

Issues of Concern :

1. Operation of Both SPS-1 and SPS-2 operation during one line tripping: It is the cause of concern that both SPS are operating indicating that the line loading of one circuit after tripping of another circuit and SPS-1 operation is not coming below 850 MW after the SPS-1 operation. A similar kind of event took place on 10th July 2018 at 08:14 Hrs where phase to phase fault occurred on 400 kV Bingauri-Rangpo 1 circuit leading to its tripping and operation of SPS-1 as well as SPS 2 causing loss of 1046 MW of generation.
2. Delay in commissioning of 400 kV Rangpo-Kishenganj D/C: The delay in the commission of 400 kV Rangpo-Kishenganj D/C is leading congestion in evacuation of generation of all the hydro IPPs in Sikkim. Tripping of Rangpo-Binaguri line with consequent SPS operation and generation outage is experienced in each rainy season.
3. Phase to phase fault and conductor snapping : The conductor snapping in above case, hot spots and frequent faults on the 400 kV Rangpo-Binaguri D/C are indicating that continuous high loading of these lines is not desirable.
4. Unwanted tripping of 220 kV Rangpo-Tashiding circuit: It was observed that on both days (10 July and 30th July), 220 kV Rangpo-Tashiding circuit got tripped from Tashiding end. No details on cause of tripping have been received from Tashiding end.

Members may discuss.

ITEM NO. B.2: Repeated Grid disturbances at 400/132 kV Motihari(DMTCL) Substation.

400 kV Motihari – Gorakhpur – II and 400 kV Barh – Motihari D/C were out of service due to tower collapse for more than one month. Motihari is connected to Indian grid through 400 kV Motihari Gorakhpur – I which tripped several times in the month of July 2018 due mal operation of SF6 gas monitoring relay resulted frequent interruption of transnational power supply as well as local power supply.

A. Disturbance on 04.07.18 at 10:52 hrs

Motihari was connected with rest of the grid via 400 kV Motihari Gorakhpur – I. At 10:52 hrs 400 kV Motihari Gorakhpur - I tripped on Gas compartment zone trip signal resulting total power failure at Motihari S/s. On investigation it is found that Density Monitor used for Bus-duct to Bushing (SF6 to air) detected false low pressure and sent tripping command to BCU (As per scheme whenever Density Monitor detect low pressure (except CB DM) it will issue trip command to Main & Tie CB and send DTT to remote end) though SF6 Gas pressure in respective duct was as per requirement/specification before fault and after fault. There was no actual fault in the circuit. Line tripped due to mal-operation of Density Monitor.

Load loss: 200 MW

B. Disturbance on 20.07.18 at 09:10 hrs and on 21.07.18 at 07:11 hrs.

400 kV Motihari - Gorakhpur - I tripped on gas compartment zone protection due to maloperation of gas monitoring relay which shows low indication despite proper level being maintained.

Load loss: 280 MW (on 20.07.18)
110 MW (on 21.07.18)

DMTCL may explain.

ITEM NO. B.3: Disturbance at 220kV Mejia & Kalyansweri S/s on 27.07.18 at 01:42 hrs.

220 kV main bus II at Kalyaneswari and Mejia tripped resulting tripping of all elements connected to these buses due to LBB operation after non-opening of breakers at both ends on R-N fault at 220 kV Mejia - Kalyaneswari - I

DVC may explain.

ITEM NO. B.4: Tripping of 400 kV Andal-Jamshedpur D/C on 28.07.18 at 21:07 hrs.

400 kV Andal – Jamshedpur D/C tripped at 21:07 hrs on R-N fault. At same time, unit II at Andal tripped on stator E/F protection.

DVC and Powergrid may explain.

ITEM NO. B.5: Repeated Grid Disturbances at 220kV Madhepura(BSPTCL) S/s on 19.07.18 at 13:31 hrs.

At 13:15 Hrs , 220 kV Madhepura-New Purnea-II tripped on BN fault. At 13:31 Hrs Purnea – Madhepura I also tripped duet to Y-B phase fault resulting total power failure at Madhepura S/S.

Relay indications are as follows:

Time	Name of the elements	End 1 Relay Indication	End 2 Relay Indication
13:15 Hrs	220 kV New Purnea - Madhepura - II	B-N	B-N

13:31 Hrs	220 kV New Purnea - Madhepura - I	Y-B	Y-B
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Load Loss: 150 MW

BSPTCL may explain.

ITEM NO. B.6: Total power failure at 220kV TLDP-III S/s on 04.07.18 at 19:00 hrs.

As per flash report received from WBSLDC, 220 kV TLDP III – NJP – S/C tripped on distance protection (fault distance 57 km from TLDP – III) resulting in tripping of all running units at TLDP - III in 51V (under voltage overcurrent protection) due to loss of evacuation path. In PMU data, fault was observed in R & B phases at the time of the incident. Fault clearing time is less than 100 ms.

Relay indications are as follows:

Name of the Element	Relay Indication at end 1	Relay Indication at end 2
220 kV TLDP III – NJP – S/C	Z-I, fault distance 57km	Yet to be received

Generation Loss: 136 MW

WBSETCL may explain.

ITEM NO. B.7: Total power failure at 220kV Hatia(JUSNL) S/s on 20.07.18 at 09:10 hrs.

Due to clearance issue with some 11 KV feeder (which has an in feed from Hatia old) repeated faults occurred in 220 kV Ranchi Hatia-I and II. As a result total power failed at 220kV Hatia S/s. Detailed report is enclosed at **Annexure-B7**.

JUSNL may explain.

ITEM NO. B.8: Tripping Incidences in the month of July, 2018.

Other tripping incidences occurred in the month of July 2018 which needs explanation from constituents of either of the end is given in **Annexure-B8**.

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.

PART- C:: OTHER ITEMS

ITEM NO. C.1: Presentation on “Best Practices and Advanced Diagnostic Solutions for O&M of Transmission Lines & Substations”.

M/s Taurus Powertronics Pvt. Limited vide a letter expressed their interest to conduct a program on the best practices and advanced diagnostic techniques for O&M of Lines and Substations in PCC forum.

Accordingly M/s Taurus Powertronics was advised to give a brief presentation in 70th PCC meeting.

M/S Taurus Powertronics may present.

ITEM NO. C.2: Islanding scheme at IbTPS- OPGC

68th PCC opined that the draft scheme submitted by Odisha was three years old and the draft scheme is needed to be reviewed with existing network configuration.

PCC decided to discuss the islanding scheme in next PCC Meeting and advised OPTCL to submit all the relevant details to ERPC and ERLDC.

In 69th PCC, OPTCL presented the revised islanding scheme based on updated network configuration and power flows. The details are enclosed at **Annexure-C.2**.

It was decided that ERLDC and ERPC will study and finalize the islanding scheme in next PCC Meeting.

ERLDC & ERPC may update.

ITEM NO. C.3: Auto Reclose scheme for 132KV feeders--Powergrid

Powergrid informed that they are planning to enable three phase autoreclose feature for 132kV lines owned by Powergrid.

Members may discuss.

ITEM NO. C.4: Repeated interruption of power supply at Lalmatia and Sahebgunj area

PCC advised JUSNL to comply the earlier observations/recommendations regarding frequent trippings incidences at Lalmatia S/s.

In view of repeated uncoordinated trippings and mal-operation of relays at 220/132kV Lalmatia S/s in the past, PCC decided to form a Committee with members from NTPC, Powergrid, ERLDC and ERPC. The Committee would visit Lalmatia and adjoining substations for on-site inspection and Third Party Protection Audit.

Audit Team may place the report. JUSNL may respond.

ITEM NO. C.5: Auto-Reclosure on Lines from PPSP Generating station.

It has been observed that, no transmission lines from 400 kV PPSP Plant are having the auto-reclosure facility in enabled condition. Further, the auto-reclosure facilities are also not enabled at remote end substation.

Element Name	Tripping Date	Tripping Time	Type of Fault
400KV PPSP-BIDHANNAGAR-I	05-08-16	21:43	R Phase to E/F
400KV PPSP-NEW PPSP-2	25-02-18	12:58	R Phase to E/F

400KV PPSP-BIDHANNAGAR-II	11-03-18	23:45	Y phase to E/F
400KV PPSP-BIDHANNAGAR-II	30-04-18	8:21	Y phase to E/F
400KV PPSP-BIDHANNAGAR-II	10-05-18	6:15	B phase to E/F
400KV PPSP-BIDHANNAGAR-II	20-05-18	16:39	R Phase to E/F
400KV PPSP-BIDHANNAGAR-I	01-06-18	11:37	Y phase to E/F
400KV PPSP-BIDHANNAGAR-II	08-06-18	2:32	B phase to E/F
400KV PPSP-BIDHANNAGAR-II	08-06-18	23:50	Y phase to E/F
400KV PPSP-BIDHANNAGAR-II	12-06-18	14:34	R Phase to E/F

Non-Implementation of Auto-reclosure results in the non-compliance of CEA Technical Standard for Construction of Electrical Plants and Electric Lines 43.4.C.

WBPDCCL may kindly update on the status of healthiness and enabling of the auto-reclosure on the transmission lines from PPSP Power plant. It may kindly be noted that, most of the power plant (Thermal/Hydro/Gas) in the Indian Power System have no issue in enabling single-phase auto-reclosure for the line emanating from their plant. This has indeed increased their reliability during bad weather conditions during which transient fault occur on the lines.

Members may discuss.

ITEM NO. C.6: Time Setting for Digital Disturbance Recorder in the Relay

Disturbance recorder file is the most important data during any event analysis. Further, it is essential that the disturbance recorder file should have adequate information about the event. In order to achieve that, it is desired to have 3-5 seconds as the recording time so that all the important aspect of event can be captured. However, it has been observed that, most of the Disturbance Recorder files have very small time window of record (0.5-1.5 seconds) and thus leading to lack of data for events like auto-reclosure, PDR operation etc.

In view of this, it is suggested to adopt a pre-event time window of 0.5 second and Post-event time window of 2.5 to 4.5 seconds.

Members may discuss.

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

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

Members may update the latest status.

ITEM NO. C.8: 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 70th PCC, PRDC was advised to resend the list of the lines to all constituents and constituents were advised to verify the settings at the earliest.

Members may update.

ITEM NO. C.9: Schedule of training program to be conducted by PRDC

As per AMC, PRDC will conduct training on PDMS and PSCT in state utility premises of Eastern Region. Tentative schedule is given below:

Training in Month	State	Date
June'2018	Bihar	11/06/18 To 15/06/18
July'2018	West Bengal	09/07/18 To 13/07/18
August'2018	Odisha	20/08/18 To 24/08/18
September'2018	Jharkhand	17/09/18 To 21/09/18
October'2018	Sikkim	08/10/18 To 12/10/18

Accordingly, training was conducted at Patna from 11th June 2018 to 15th June 2018 and in West Bengal from 09th July 2018 to 13th July 2018.

In 69th PCC, it was agreed and finalized that the training will be conducted in Odisha from 06.08.18 to 10.08.18 in Bhubaneswar.

PCC advised all the concern state constituents of Odisha to attend the training.

Members may update.

ITEM NO. C.10: Visit to newly commissioned substations by PRDC for data collection

Data of newly commissioned substations in Odisha and Bihar are to be incorporated in Protection data management system. PRDC is planning to visit newly commissioned substations for data collection. Tentative schedule for the visit is given below:

Odisha:

NEW SS NAME	OWNER	Date of visit
TSL-Kalinganagar	OPTCL	20-08-2018
Dhenkikote	GRIDCO	21-08-2018
Bargarh	GRIDCO	23-08-2018
BARGARH NEW	OPTCL	24-08-2018
Ghens	OPTCL	25-08-2018
Kantabanji	GRIDCO	27-08-2018
MUNIGUDA	OPTCL	29-08-2018
Podagada	GRIDCO	31-08-2018
TRITOL	OPTCL	03-09-2018

Bihar:

SL. NO.	NEW SS NAME	OWNER	DATE
1	New Sheikhpura	BSPTCL	21-08-2018
2	Chapra(New)	BSPTCL	22-08-2018
3	Shahpur - Patori	BSPTCL	23-08-2018
4	Amnaur	BGCL	24-08-2018
5	Khijisarai	PGCIL/BGCL	25-08-2018
6	Nawada 220KV	BGCL	27-08-2018
7	Bakhri	BSPTCL	28-08-2018
8	Jamalpur	BGCL	29-08-2018

SL. NO.	NEW SS NAME	OWNER	DATE
1	Manihari	BSPTCL	23-08-2018
2	Baisi	BSPTCL	24-08-2018
3	Barsoi	BSPTCL	25-08-2018
4	Laukhi	BSPTCL	27-08-2018
5	Jhanjharpur	BSPTCL	28-08-2018

Odisha and Bihar may confirm.

ITEM NO. C.11: 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.12: Non-commissioning of PLCC / OPGW and non-implementation of carrier aided tripping in 220kV and above lines.

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

List of line where auto reclose facility is not available(Information based on PMU data analysis)							
S. No	Transmission Lines name	Date of Tripping	Reason of Tripping	Owner Detail		Present Status	
				End-1	End-2	OPGW/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	<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	
19	<u>400 KV KOLAGHAT-KHARAGPUR-II</u>	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.
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		
32	220KV Bidhannagar-Waria-II			WBSET CL	DVC		
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:

- | | |
|--|--|
| <ol style="list-style-type: none"> 1. 220kV Purnea (PG)-Madhepura line 2. 220 kV Biharshariff- Begusarai line 3. 220 kV Biharshariff- Bodhgaya line 4. 220kV MTPS-Motiari line 5. 220KV Madhepura-New Purnea D/C 6. 220KV Muzaffarpur-Hajipur D/C line 7. 220KV FSTPP-Lalmatia-1 8. 220KV Patna-Khagaul-SC | <p>} <i>Work is in progress expected to be commissioned by December 2017.</i></p> <p>Auto recloser is out of service at Madhepura
 Auto recloser is out of service at Hazipur
 Auto recloser is out of service at Lalmatia
 Auto recloser is out of service at Khagaul</p> |
|--|--|

In 65th PCC, Powergrid informed that they will replace the Autorecloser relay of 400 kV Rourkela-Chaibasa 1 and 400 kV Meramundali-Sterlite 1 & 2 by April 2018.

In 67th PCC, BSPTCL informed that they are planning to hire an agency for implementing PLCC system in all the lines in their network.

Members may update the status.

ITEM NO. C.13: 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-C13**.

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

Constituents may note.

ITEM NO. C.14: ADDITIONAL AGENDA

पावर सिस्टम ऑपरेशन करपोरेशन लिमिटेड

(भारत सरकार का उद्यम)

POWER SYSTEM OPERATION CORPORATION LIMITED

(A Government of India Enterprise)



Eastern Regional Load Despatch Centre: 14, Golf Club Road, Tollygunge, Kolkata-700 033.

CIN: U40105DL2009GOI188682

फ़ोन: 033- 24235755, 24174049 फ़ैक्स : 033-24235809/5029 Website: www.erldc.org, Email ID- erldc@posoco.in

Incident No. 200718/1

Dtd: 01-08-18

Report on the incident in Eastern Region involving JUSNL system

1) Date / Time of disturbance: 20-08-18, 08:44 hrs

2) Category : - GD - I

3) Systems/ Subsystems affected: 220/132 kV Hatia S/S

4) Quantum of load/generation loss: 170 MW load loss with no

5) Antecedent condition:

PLCC of 220 KV Rahchi-Hatia D/C was out of service and System frequency 50:00 Hz

6) Major elements tripped:

220 kV Ranchi Hatia-I & II

220 kV Hatia Patratu-I & II

7) Network across Hatia

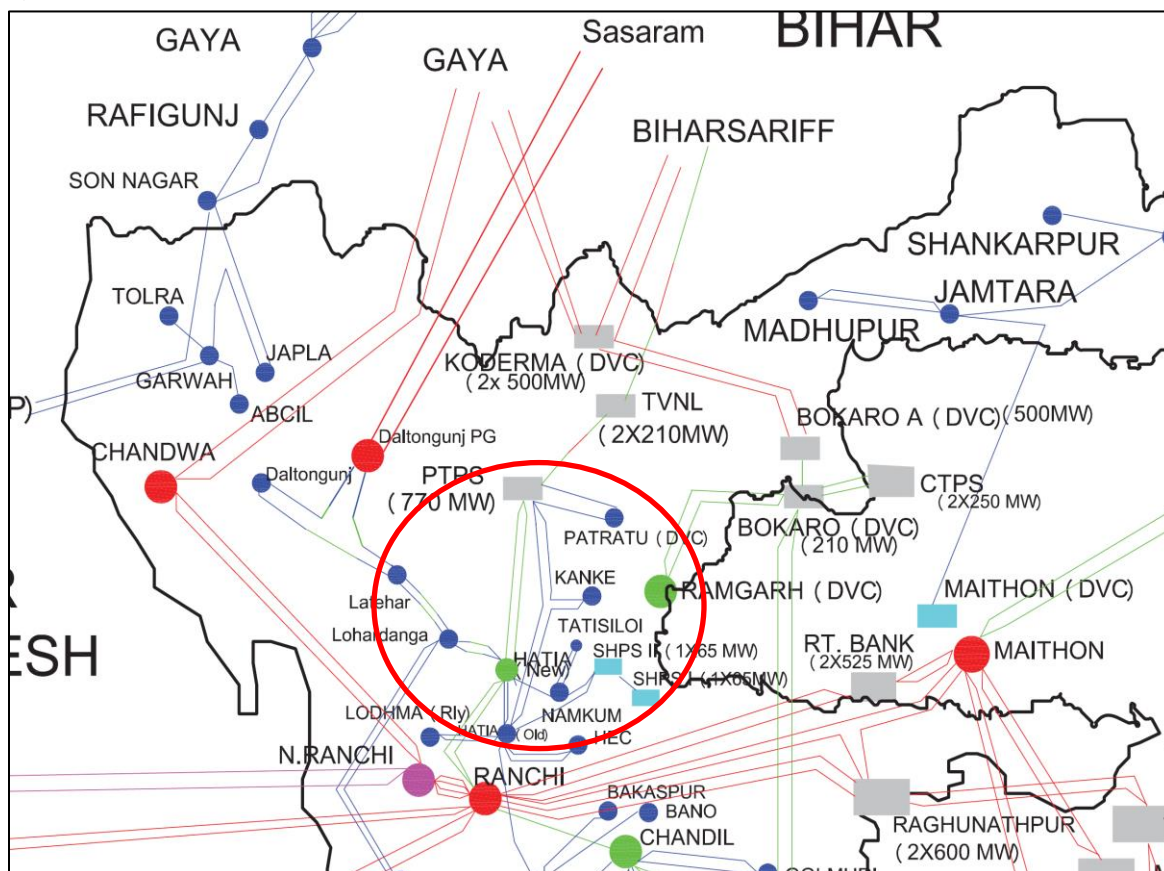


Figure 1: Geographical diagram of the network of affected system

8) Details of relay flag:

Time	Name of the elements	Relay Indication at End 1	Relay Indication at End 2
08:44:14:419	220 kV Ranchi Hatia-I	B-N,IB-4.8 kA, Zone-2 and 3phase tripping(also Y phase loop picked up)	B-N, IB 6.1 kA, 1.6 km from Hatia,Zone-1, single phase tripping
08:44:15:249	A/R of 220 kV Ranchi Hatia-I from Hatia end	-	B-N,IB-6.2 kA , Zone-1 picked up and T1 timer started still 3 phase tripping took place after 400ms approximately
At the same Instant all ATR of Hatia tripped on over current and 220 KV Patratu-Hatia-II and ATR (on o/c) at Patratu tripped. But DR/EL and relay details not submitted			
09:27:00:351	220 kV Ranchi Hatia-II	B-N,IB-3.8 kA, Zone-2 and 3phase tripping	Y-B-N, IY 1.7 kA IB-2.6kA,Zone-1, 3 Phase tripping phase tripping
09:41:28:831	220 kV Ranchi Hatia-I	B-N,IB-4.3 kA, Zone-2 and 3phase tripping(also Y phase loop picked up)	B-N, IB 2.5 kA, 3.458km from Hatia,Zone-1, single phase tripping
09:41:28:831	220 kV Hatia-Patratu-II	B-N,IB-1.2 kA, Zone-4 sensing the same fault of 220 kV Ranchi Hatia-I and reset as the fault cleared by opening of Hatia end breaker of 220 kV Ranchi Hatia-I	No DR ,Relay indication received
09:41:29:657	A/R of 220 kV Ranchi Hatia-I from Hatia end	-	B-N,IB-1.7 kA , Zone-1 picked up and T1 timer started still 3 phase tripping took place after 350ms approximately
09:41:29:657	220 kV Hatia-Patratu-II	B-N,IB-1.3 kA, Zone-4 sensing the same fault of 220 kV Ranchi Hatia-I during it's A/R and tripped after 350 ms	No DR ,Relay indication received
10:05:13:565	220 kV Hatia-Patratu-I	O/V stage 1 operated line voltage 255 KV	Not tripped
12:12:53:342	220 kV Ranchi Hatia-II	B-N,IB-3.8 kA, Zone-2 and 3phase tripping	Y-B-N, IY 1.5 kA IB-3.6kA,Zone-1, 3 Phase tripping phase tripping

9) Sequence of events & Detailed Analysis:

A. At 08:44:14:419 Hrs: Due to clearance issue with some 11 KV feeder (which has an in feed from Hatia old) B-N fault took place in 220 kV Ranchi Hatia-I and at the same time Y phase current also

increases. 220 KV Ranchi-Hatia- tripped from Hatia end(1 phsae) immediately in Z-1 and from Ranchi end(3 phase) after 350 ms in Z-2. Then after 800 ms A/R took place from Hatia end and again B-N fault took place and Z-1 picked up but tripped after 400ms. At the same time all ATR of Hatia and one ATR of Patratu tripped as per verbal information. Also 220 KV Hatia-Patratu-II tripped from Patratu of which no details received.

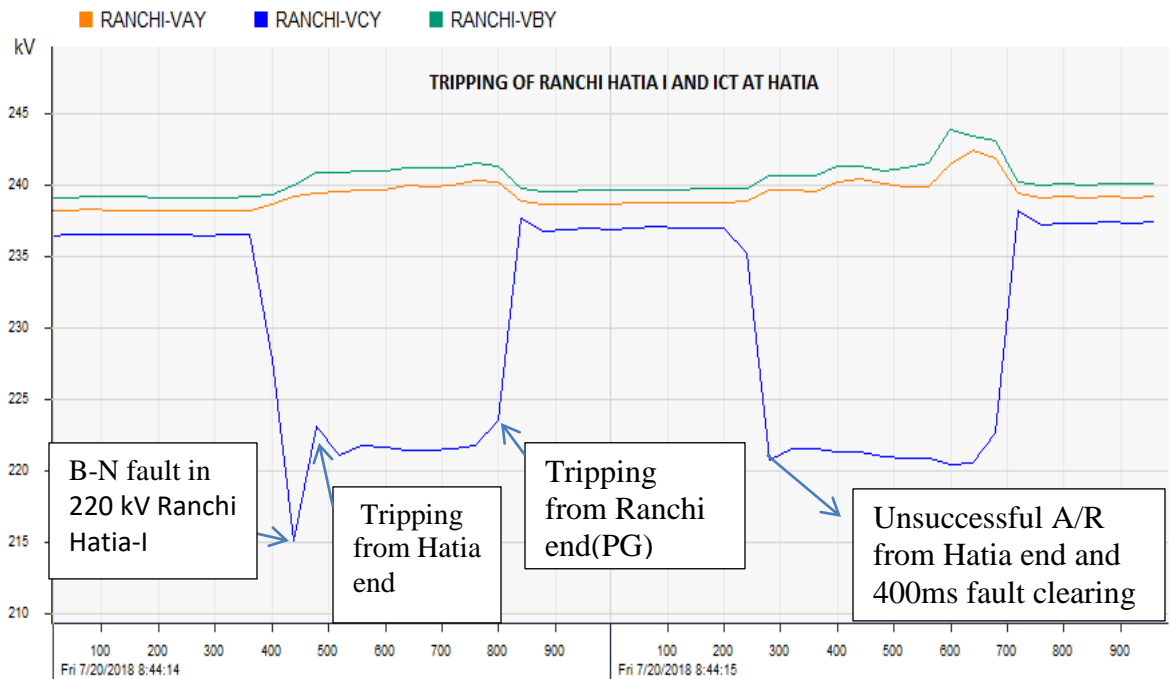


Figure 2: 400 kV Bus voltage at Ranchi

- B. At 09:27:00:351 Hrs:** Again due to clearance issue with 11 KV feeder Y-B-N fault took place. Though in PMU only B-phase voltage dip observed but from DR it is clear Y phase current also increased. Ranchi end sensed only B-N fault in Z-2 and tripped (3 phase) after 350ms but Hatia end tripped in Z-1, Y-B-N fault immediately (3 Phase).

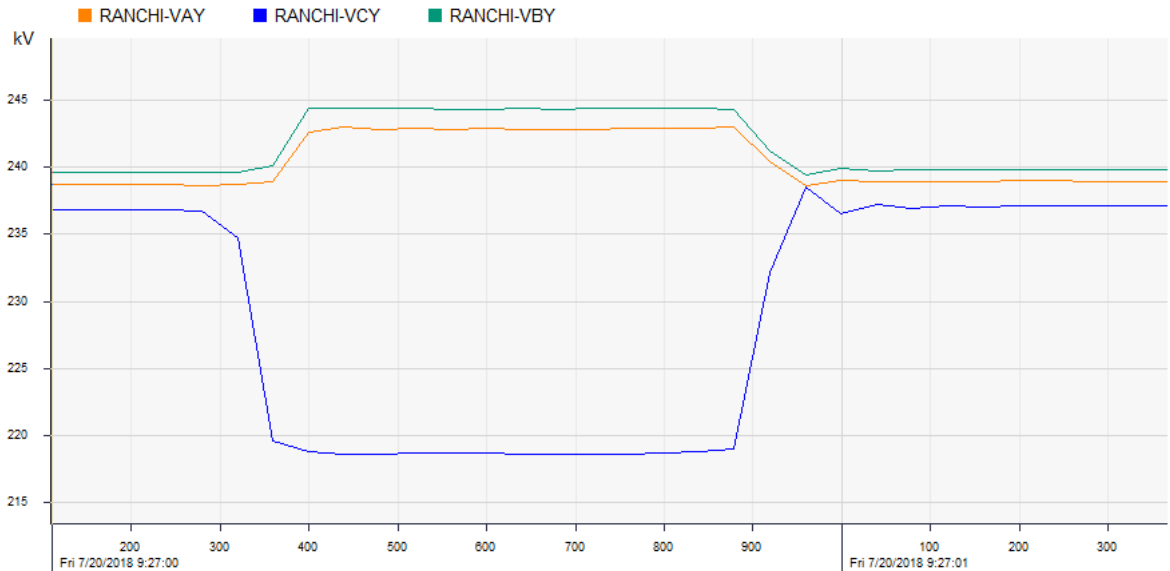


Figure 3: 400 kV Bus voltage at Ranchi at 09:27:00 hrs

- C. At 09:41:28:831 Hrs:** Due to clearance issue with some 11 KV feeder (which has an in feed from Hatia old) B-N fault took place in 220 kV Ranchi Hatia-I and at the same time Y phase current also increases. 220 KV Ranchi-Hatia- tripped from Hatia end(1phase) immediately in Z-1 and from Ranchi end (3 phase)after 350 ms in Z-2. At the same time Z-4 picked up for 220KV Hatia-Patratu-2 ,at the same time its R phase current reduced drastically with no change in voltage and again restored to pre fault value after 350 ms(??) .Then after 800 ms A/R took place from Hatia end and again B-N fault took place and Z-1 picked up but tripped after 400ms. Again Z-4 of 220KV Hatia-Patratu-2 picked up and line tripped from Hatia end. Also from DR it is seen voltage is also becoming zero implying tripping from Patratu end too. But no details received from Patratu end.

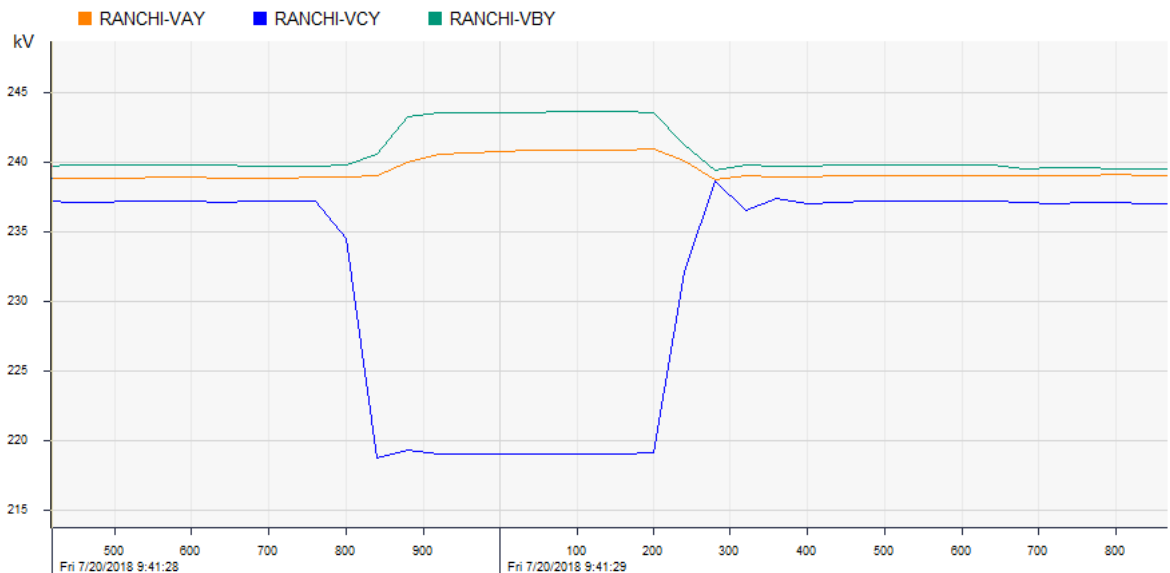
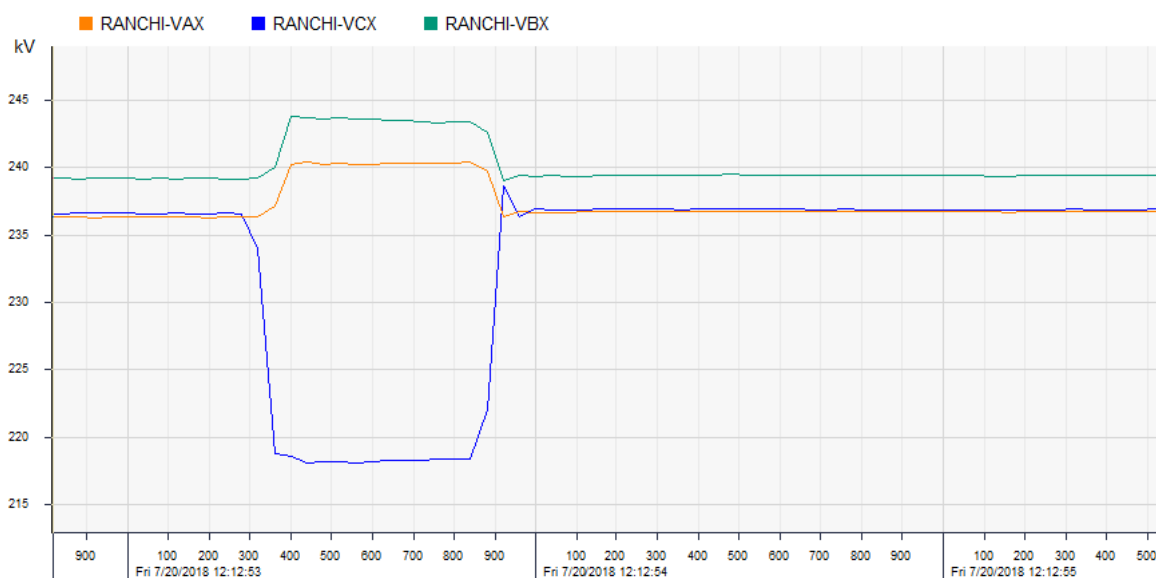


Figure 4: 400 kV Bus voltage at Ranchi at 09:41:28:00 hrs

- D. At 10:05:13:565 Hrs:** 220 KV Hatia-Patratu-1 tripped on over voltage stage-1 and voltage was 254 KV as per DR and there was huge Harmonic content in the line current and Voltage.
- E. At 12:12:53:342 Hrs:** Again due to clearance issue with 11 KV feeder Y-B-N fault took place. Though in PMU only B-phase voltage dip observed but from DR it is clear Y phase current also increased. Ranchi end sensed only B-N fault in Z-2 and tripped (3 phase) after 350ms but Hatia end tripped in Z-1, Y-B-N fault immediately (3 phase).



10) Restoration:

ELEMENT NAME	Tripping Time	Restoration Time
220 KV Ranchi-Hatia-I	08:44	09:38
	09:41	17:27
220 KV Ranchi-Hatia-II	09:27	10:24
	12:11	16:52
220 KV Hatia-Patratu-I	10:05	17:34
220 KV Hatia-Patratu-II	08:44	09:00
	09:41	10:07

Other 132 KV line from both Patratu and Hatia opened and closed in between to manage the situation and for doing rectification work.

11) Non Compliance Observed during the event:

Issues	Regulation Non-Compliance	Utility
DR/EL not provided within 24 Hours	1. IEGC 5.2 (r) 2. CEA grid Standard 15.3	JSEB,ER-I
Non-Submission of Details for the tripping which is required for appropriate analysis for GD/GI	1. IEGC 5.2 (r), 5.9.6.c (VI) 2. CEA grid Standard 15.3 3. CEA (Technical standards for connectivity to the Grid) Regulation, 2007-6. 4.d	JSEB
Incorrect/ mis-operation / unwanted operation of Protection system	1. CEA Technical Standard for Construction of Electrical Plants and Electric Lines: 43.4 .A. 2. CEA (Technical standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)	ER-I
Fault clearance in more than 100 ms at 400 kV level and above and 160 ms at 220 kV levels	1. CEA Grid standard 2010 -3.e 2. CEA Transmission Planning Criteria	JSEB,ER-1

12) Remedial Measures taken:

Yet to be received from JUSNL

13) Remarks:

JUSNL may share amount of energy unserved and duration of the disturbance and the detail disturbance report.

14) Issues:

- A) Operational:** While putting PLCC off, zone-2 timing should be made zero and A/R reclose should be put in non-auto mode for quick fault clearing. But in this case the same was not followed which lead to unwanted tripping along with delayed fault clearing.
- B) Protection co-ordination:**
 - 1)** Tripping of ATR for on line fault is not desirable and clearly indicates lack of proper protection co-ordination. JSEB may immediately look into it for ensuring reliable power supply to the consumers.
 - 2)** During A/R of 220 KV Hatia-Ranchi-I though it is showing zone-1 still why it is taking 400ms to trip need to be checked. Also to accelerate tripping during A/R Tor function of relay may be used.
 - 3)** Zone-4 timing co-ordination for 220 KV Hatia-Patratu-2 line need be checked.
 - 4)** In 220 KV Hatia-Patratu-1 line there was huge harmonics coming and over voltage taking place when it was almost at no load. Whether it is primary side phenomena or not need to be checked carefully for that system study need to be carried out.
 - 5)** At 09:41 hrs during fault, i.e unbalance system configuration ,why 220 KV Hatia-Patratu-2 R phase current becoming almost zero for 350 ms need to be deeply studied and whether

there is any chance of load encroachment during such condition ,when load would be very high, need to be reviewed .

15) Status of Reporting:

DRs at Hatia end are uploaded in PDMS. ER1 DR received via mail. Patraru end DR not submitted.

List of line tripping in the month of July 2018 which may be discussed in PCC

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
Multiple tripping at the same time												
400KV MAITHON-MEJIA-II	07-07-2018	12:54	07-07-2018	15:40	B_N, F.D. 59.7 KM, F.C. 3 kA		B-N Fault	<100 msec	No A/R operation			
400KV MAITHON-MEJIA-III	07-07-2018	12:54			B_N, F.D. 74.6 KM, F.C. 4.2 kA		B-N Fault	<100 msec	No A/R operation			
220KV PANDIABILI-SAMANGARA-II	15-07-2018	9:05	15-07-2018	9:41		B-N FAULT, TRIPPED FROM SAMANGARA END ONLY	B-N Fault	<100 msec	No A/R operation			
220KV PANDIABILI-SAMANGARA-I	15-07-2018	9:05	15-07-2018	9:48	B-N FAULT, TRIPPED FROM PANDIABILI END		B-N Fault	<100 msec	No A/R operation			
Miscellaneous: Tripping on DT, No Fault observed in PMU												
400KV TSTPP-RENGALI-I	04-07-2018	16:17	04-07-2018	18:42	DT RECEIPT AT TALCHER END. Again tripped at 16:42 hrs due to DT receipt at Tstpp end	No tripping at Rengali end	DT RECEIPT AT TALCHER	--				No Fault observed in PMU
400KV GMR-ANGUL-I	06-07-2018	0:56	06-07-2018	2:19	Tripped from only gmr end		Tripped from only gmr end	--				No Fault observed in PMU
400KV MUZAFFARPUR-GORAKHPUR-I	18-07-2018	15:23	18-07-2018	17:03	DT received		DT received at MZF	--				No Fault observed in PMU
400KV RANCHI-SIPAT-II	26-07-2018	8:03	26-07-2018	8:37	TRIPPED FROM RANCHI END ONLY		TRIPPED FROM RANCHI END ONLY	--				No Fault observed in PMU
400KV RANCHI-SIPAT-II	26-07-2018	13:17	26-07-2018	16:10	FAULT IN CABLES AT RANCHI		FAULT IN CABLES AT RANCHI	--				No Fault observed in PMU
400KV BAHARAMPUR-SAGARDIGHI-II	29-07-2018	7:47	29-07-2018	8:15		Tripped at Sagardighi end only	Tripped at Sagardighi end only	--			Yes	No Fault observed in PMU
400KV BAHARAMPUR-SAGARDIGHI-I	30-07-2018	12:47	30-07-2018	13:04	DT Received	Not tripped	DT Received at Baharampur	--				No Fault observed in PMU
Autoreclose related issues												
220KV RANCHI-HATIA-II	03-07-2018	16:53	03-07-2018	17:46	B-N, FD 14.7 KM, FC=5.83 KA, A/R successful	B-N, FD 10.80 KM, FC IB 1.8 KA	B-N Fault	<100 msec	No A/R operation			
220KV GAYA-SONENAGAR-I	03-07-2018	17:58	03-07-2018	19:32	R-N, 22.3 KM, 5.35 KA	Z1 58.49 KM, IR=1.24 KA	R-N Fault	<100 msec	No A/R operation			
220KV BINAGURI-BIRPARA-II	03-07-2018	21:46	03-07-2018	22:58	Y-N, 63.33 KM, FC 2.303 KA	Y-N, FC 2.193 KA, DIST 49.49 KM, A/R successful	Y-N Fault	<100 msec	No A/R operation	Yes	Yes	
400KV RANGPO-DIKCHU-I	04-07-2018	21:04	04-07-2018	21:34	BN, 25.54 KM, 8.35 KA, A/R SUCCESSFUL	BN, 23.82 KM, 3.134 KA, ONLY TIE CB TRIPPED	B-N Fault	<100 msec	No A/R operation		Yes	LINE SYNCHRONISED FROM DIKCHU END AT 21:34 WITHOUT INFORMING ERLDC
220KV WARIA-BIDHANNAGAR-II	05-07-2018	3:52	05-07-2018	5:01		RN,Z-2,5.4 KA, 19.85 KM	R-N Fault	300 msec	No A/R operation			
400KV RANGPO-DIKCHU-I	05-07-2018	14:46	05-07-2018	15:15	B-N, 22.1KM, 7.7KA		B-N Fault	<100 msec	No A/R operation		Yes	
220KV STPS(WBSEB)-CHANDIL-SC	06-07-2018	11:37	06-07-2018	19:26	B-N, 36 KM, Z1, 3.46 KA	Z1, A/R LOCKOUT IN CHANDIL, 112 KM REATTEMPTED AT 12:15 A/R LOCKOUT, Z1 B-N, 79.81 KM, 1.89 KA	B-N Fault	800 msec	No A/R operation			Fault clearance time very high
220KV STPS(WBSEB)-CHANDIL-SC	11-07-2018	3:40	11-07-2018	3:59	Y-N FAULT		Y-N Fault		No A/R operation			
400KV ALIPURDUAR-BONGAIGAON-II	11-07-2018	14:04	11-07-2018	15:13	Y-N F/D 19.8 KM F/C 6.238 KA		Y-N Fault		No A/R operation			
400KV JEERAT-BAHARAMPUR-SC	17-07-2018	15:27	17-07-2018	16:20		B-N fault , A/R successful	B-N Fault	<100 msec	No A/R operation			
400KV MALBASE-BINAGURI-I	20-07-2018	17:54	20-07-2018	18:57	R-N, 92.43 KM, 3.876 KA		R-N Fault	<100 msec	No A/R operation			
400KV MEERAMUNDALI-STERILITE-I	21-07-2018	16:34	22-07-2018	12:09	Y-N, 140.6km, 3.06KA		Y-N Fault	<100 msec	No A/R operation			
220KV KATAPALLI-BOLANGIR(PG)-SC	23-07-2018	11:53	23-07-2018	12:53		B_N, 4.38 kA, 9 KM	B-N fault	<100 msec	No A/R operation			
220KV MAITHON-DHANBAD-I	27-07-2018	1:44	27-07-2018	1:50		R_N Fault. A/r successful	R-N Fault	<100 msec	No A/R operation			

ISLANDING SCHEME FOR IB THERMAL - BUDHIPADAR GSS



ISLANDING SCHEME DESCRIPTION

1. Islanding schemes are implemented by generating stations & transmission system to isolate the healthy subsystems following a large-scale disturbance. This is a system requirement under contingency conditions according to which the power network may be split into healthy and self-sustaining zones so that cascade tripping of all generating stations in the entire region is avoided.
2. With a view to protect the generation of IB TPS during sudden and major disturbance in power system network, one special islanding scheme with part loads of Budhipadar GSS of OPTCL has been proposed.
3. Two numbers 210 MW generators of IB TPS connect to 220/132/33kV Grid substation through four numbers dedicated 220kV lines.
4. The islanding scheme envisages segregation of a group of matching 132kV load in closed loop with the IB generators.

ISLANDING SCHEME DESCRIPTION

5. 132kV feeders will be arranged radially in order to form islanding scheme with IB generation.
6. 220kV Budhipadar GSS has system has two main bus and a transfer bus system. The generation & matching loads put into two buses with bus coupler in operation.
7. The two numbers 220kV feeders from IB TPS put into Bus -II and the other two are kept in the other bus as normal arrangement.
8. 220 kV interstate line to Korba-2 & 3 and Raigarh will be in normal condition distributed to both the buses.
9. The islanding relay Micom P341 is installed at Bus coupler panel of the 220kV system.

ISLANDING SCHEME DESCRIPTION

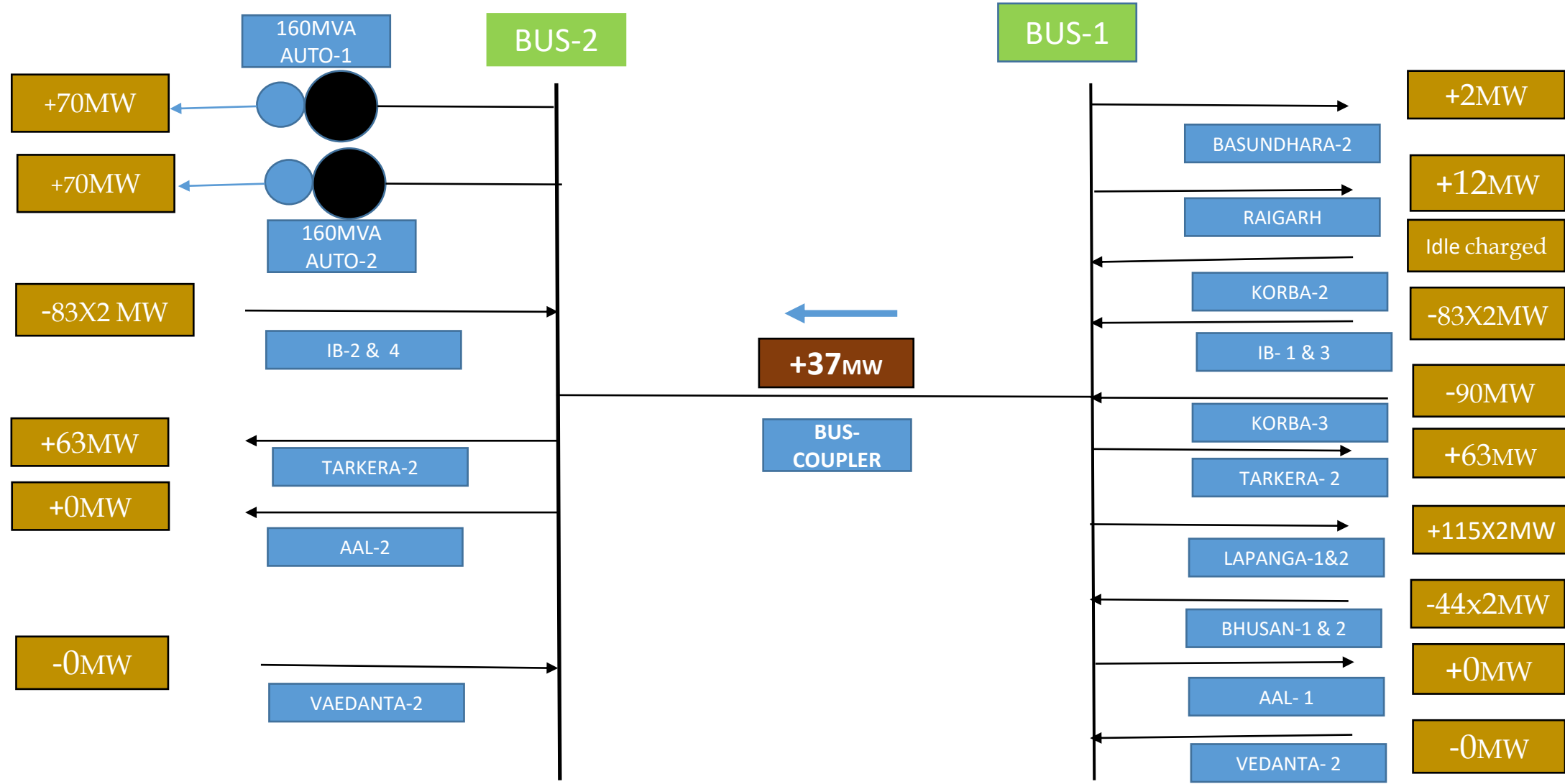
10. In the event of system disturbance and actuation of islanding relay:
- Relay will give command to trip all 220KV feeders connected to Bus-I and Bus II along with Bus coupler except selected islanding IB ckts. either (IB -1 & 3)/ (IB-2 & 4) and Auto transformer- I & II.
 - It will also trip non- selected islanding IB ckts. incomer breaker either (IB -1 & 3)/ (IB-2 & 4).
 - It will send carrier command to Tarkera end and to trip 132kV Tarkera –Rajgangpur feeder I & II and 132kV Tarkera- Kalunga feeder so as to feed Rajgangpur , Kuchinda and Kalunga Grid Load will be in radial arrangement.
 - It will send carrier signal to Lapanga end to trip 132kV Lapanga – Jharsuguda feeder at Lapanga in order to feed Jharsuguda load radially.
 - It will send carrier signal to IB thermal to start ramping and adjust IB generation to match the load.

ISLANDING SCHEME DESCRIPTION

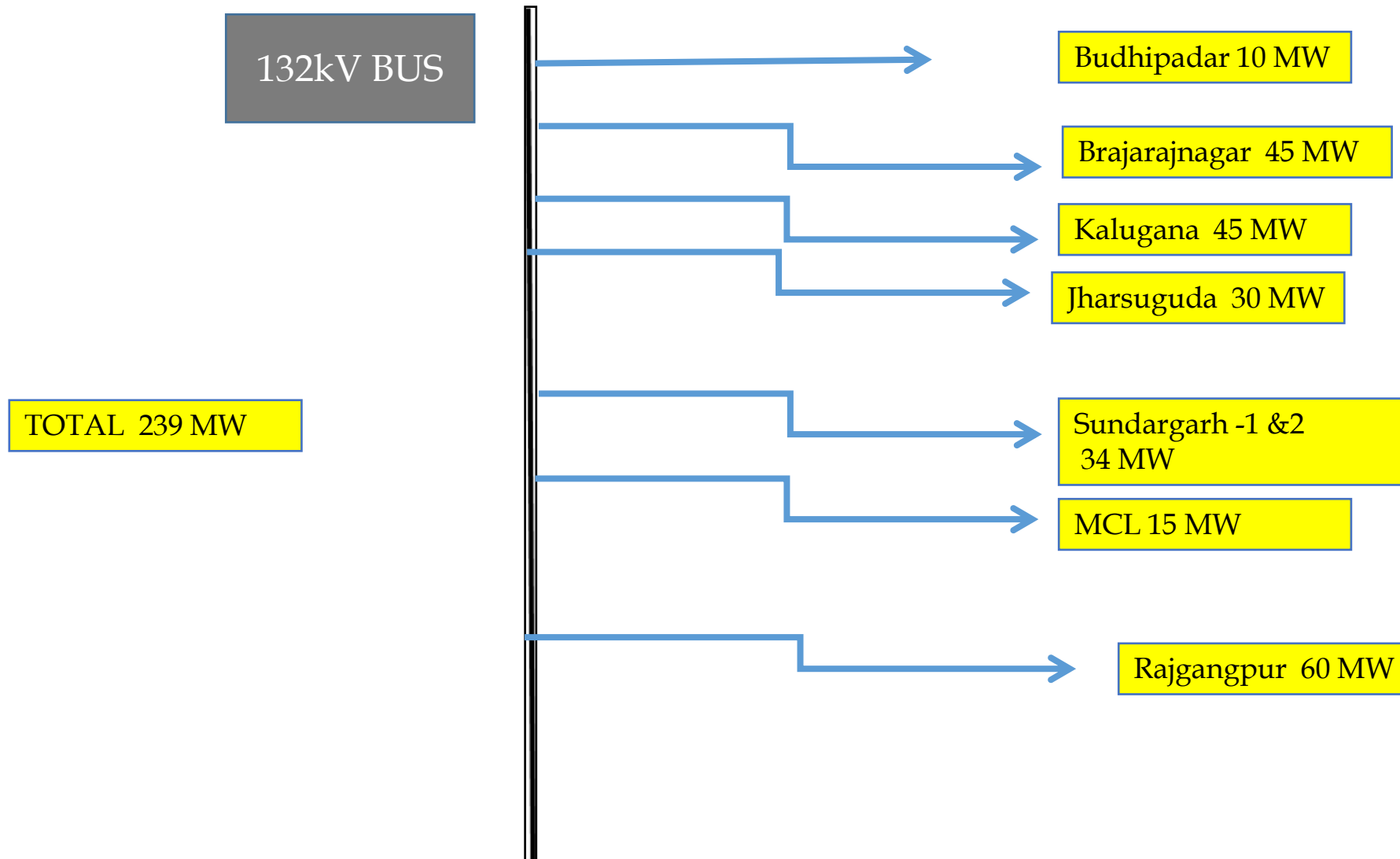
11. The CGP feeders such as Vedanta , Bhusan and Aditya Aluminium have their own islanding schemes to cater their industry load.
12. The general arrangement of 220kV feeder configuration, 132kV loads for islanding has shown in following slides.

POWER FLOW DETAILS OF 220KV SYSTEM

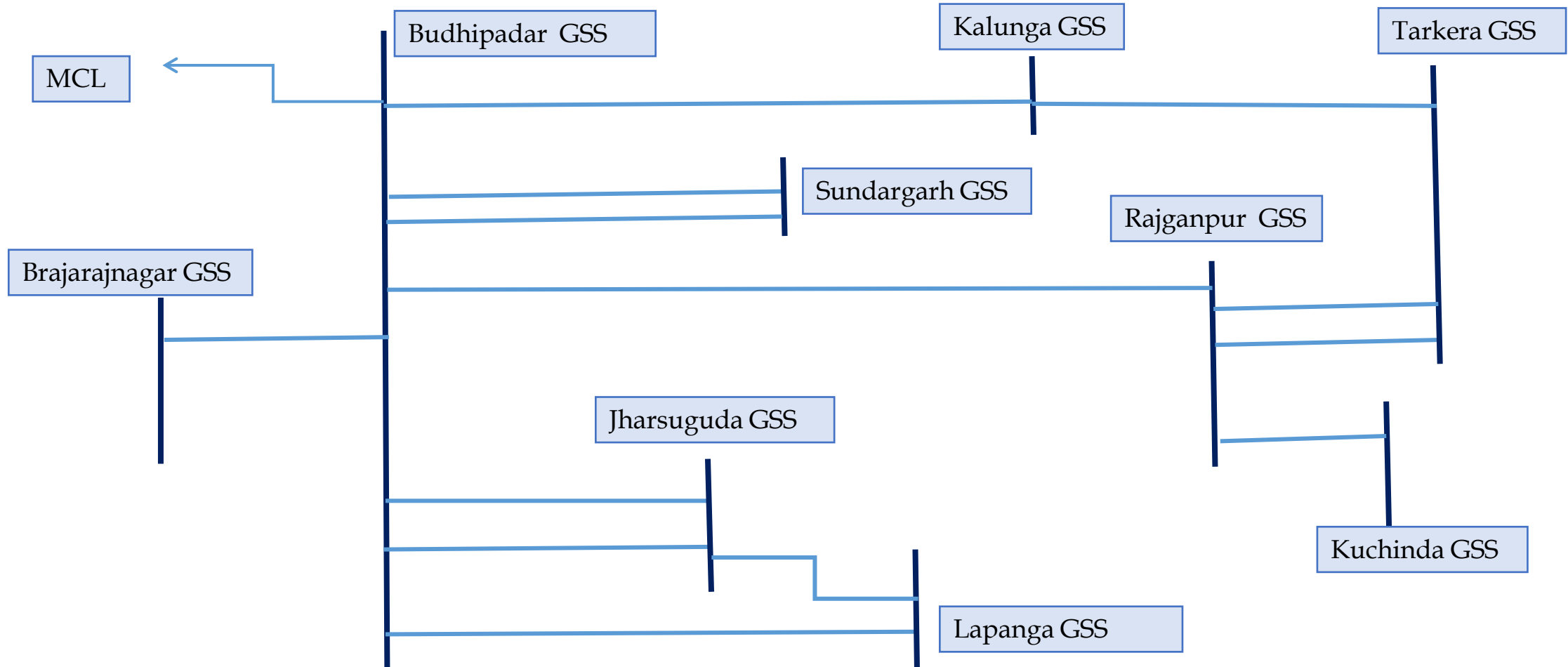
LOAD PATTERN OF DIFFERENT FEEDERS 12.07.2018 AT 12.00 HRS.



132kV RADIAL LOAD ARRANGEMENT FOR ISLAND SCHEME



132KV Connectivity of Budhipadar GSS

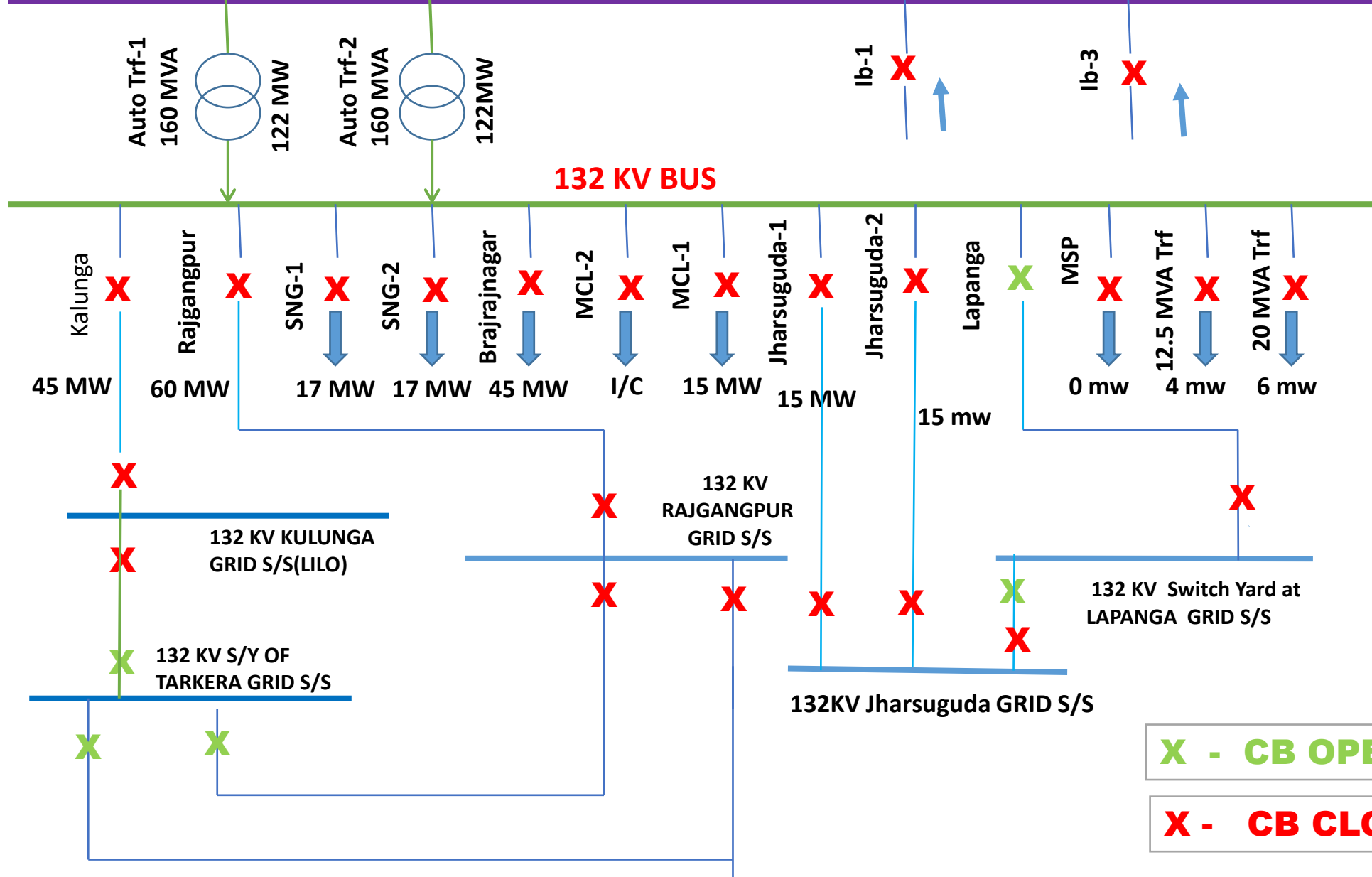


220 KV BUS - A

220 KV BUS - B

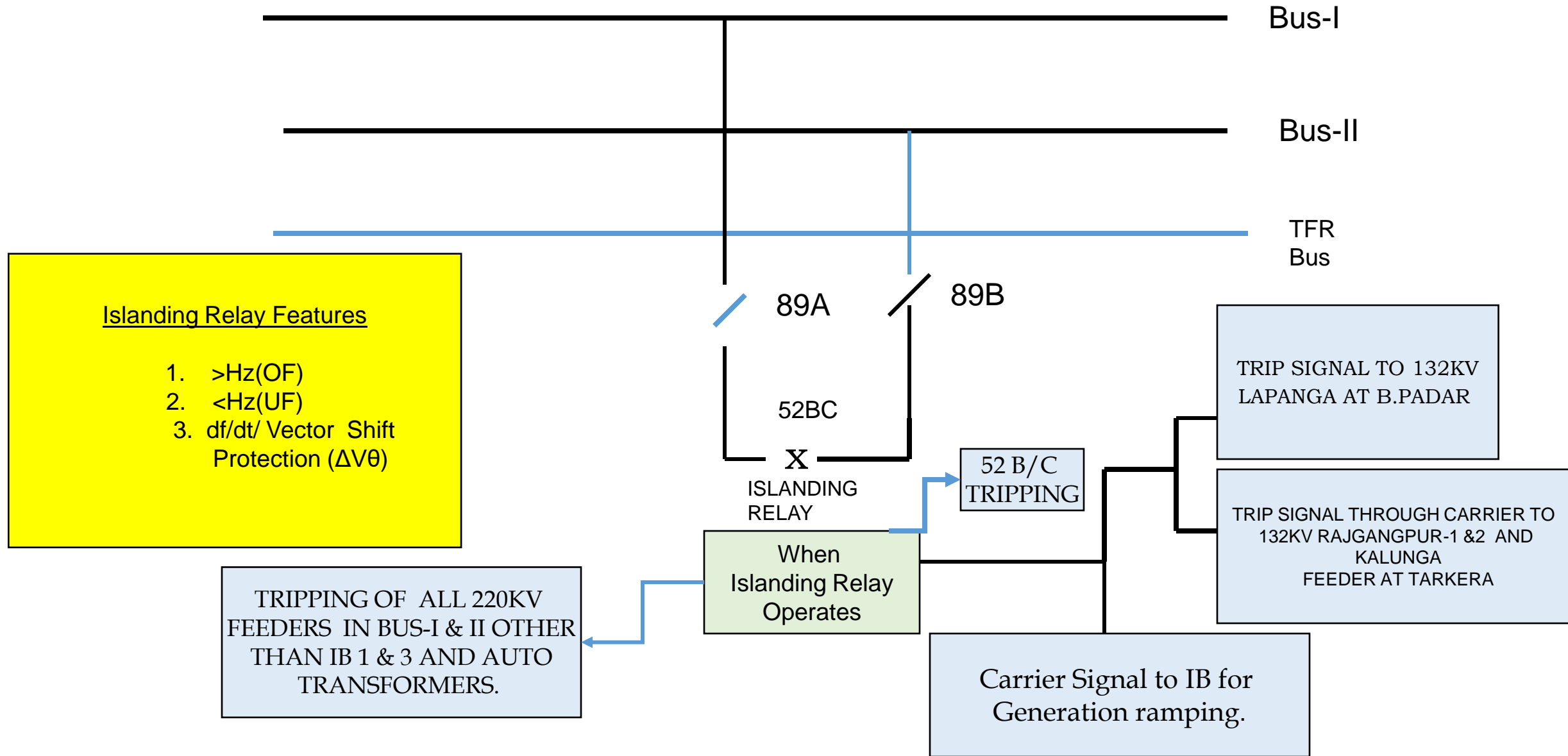
220 kV Bus Coupler X

Tripping of all 220KV Breakers

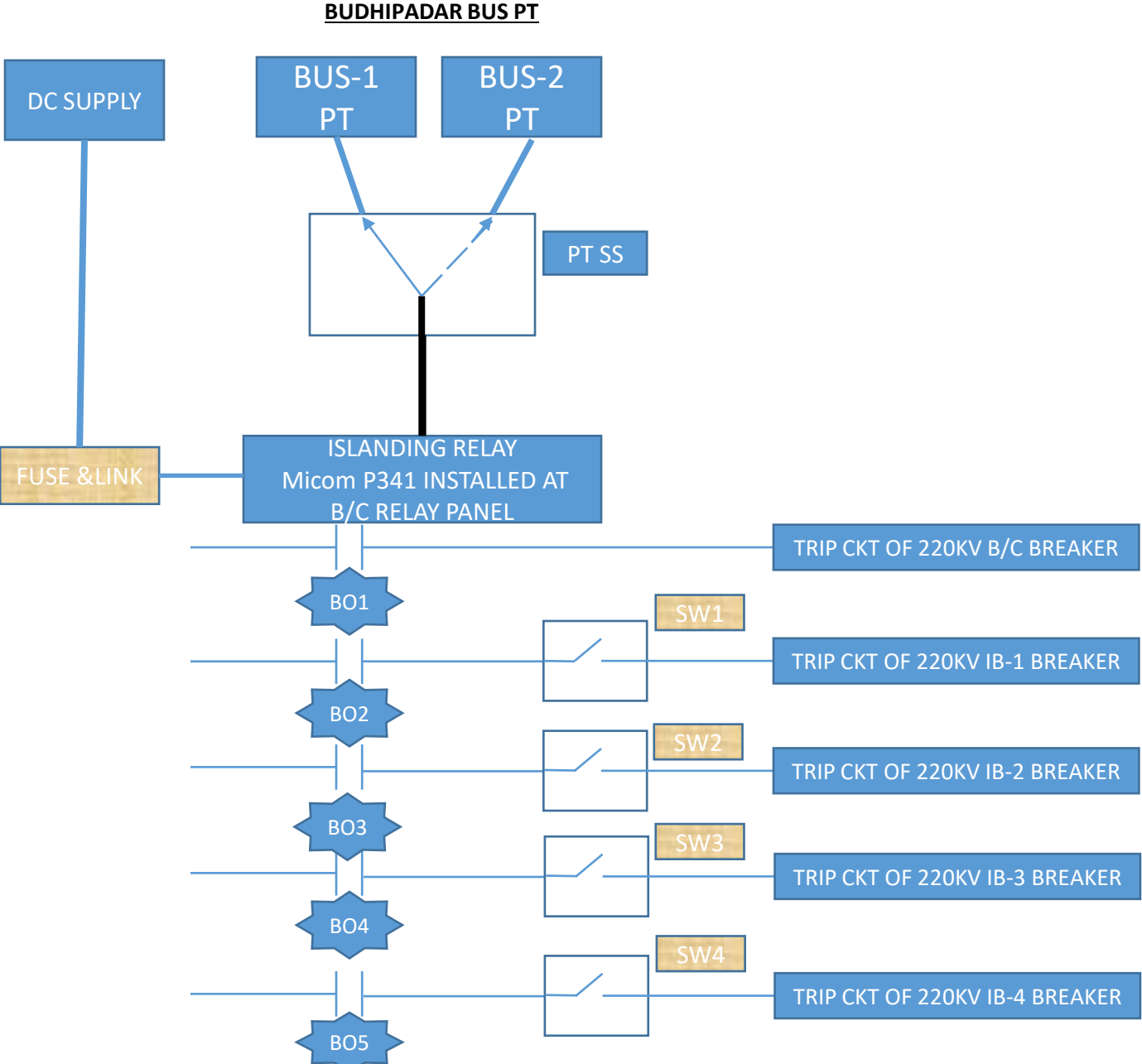


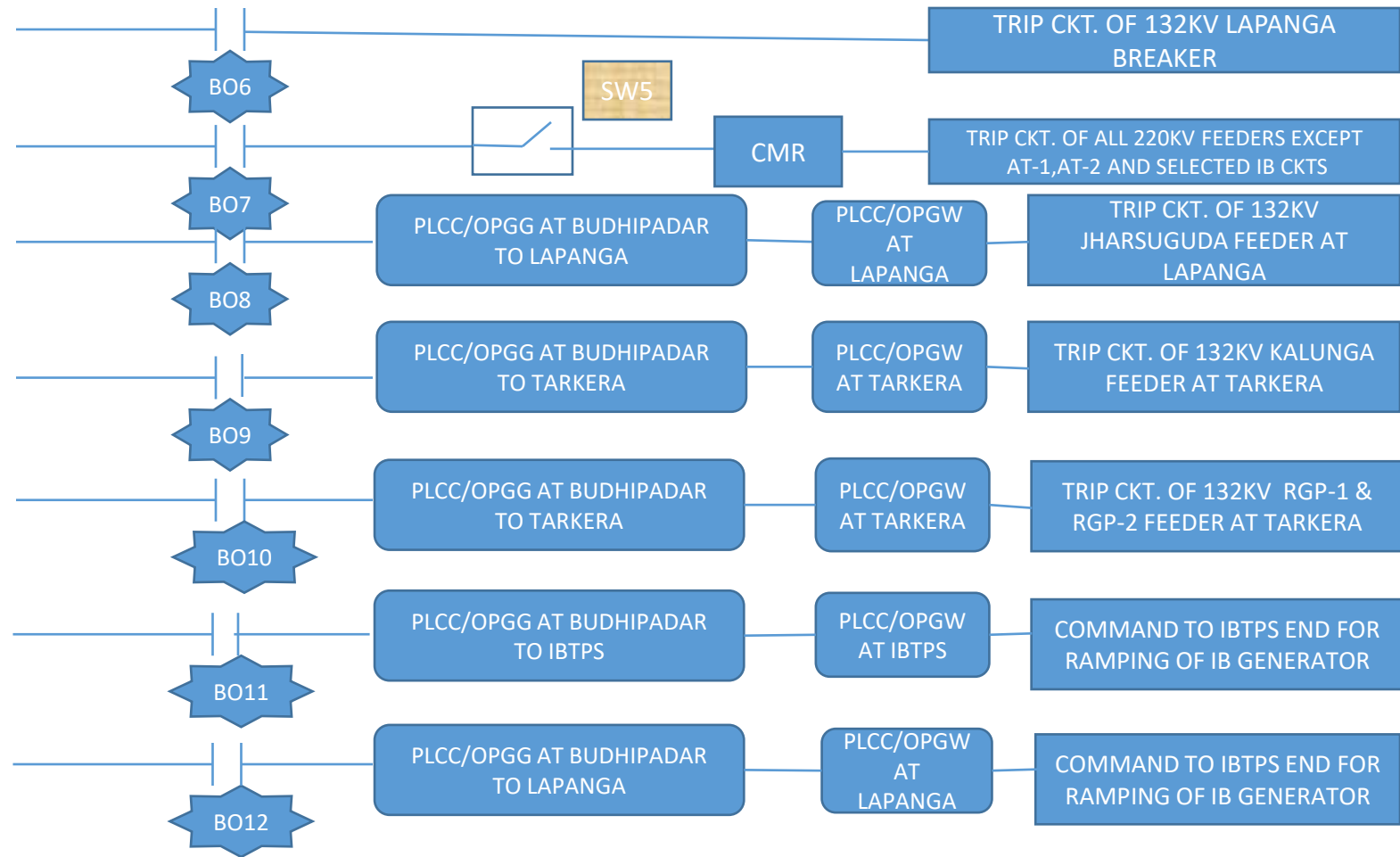
ISLANDING LOAD ARRANGEMENT.

SCHEMATIC DRAWING OF ISLANDING RELAY INSTALLED IN B/C PANEL FOR
TRIPPING OF DIFFERENT FEEDERS AT BUDHIPADAR GRID S/S.



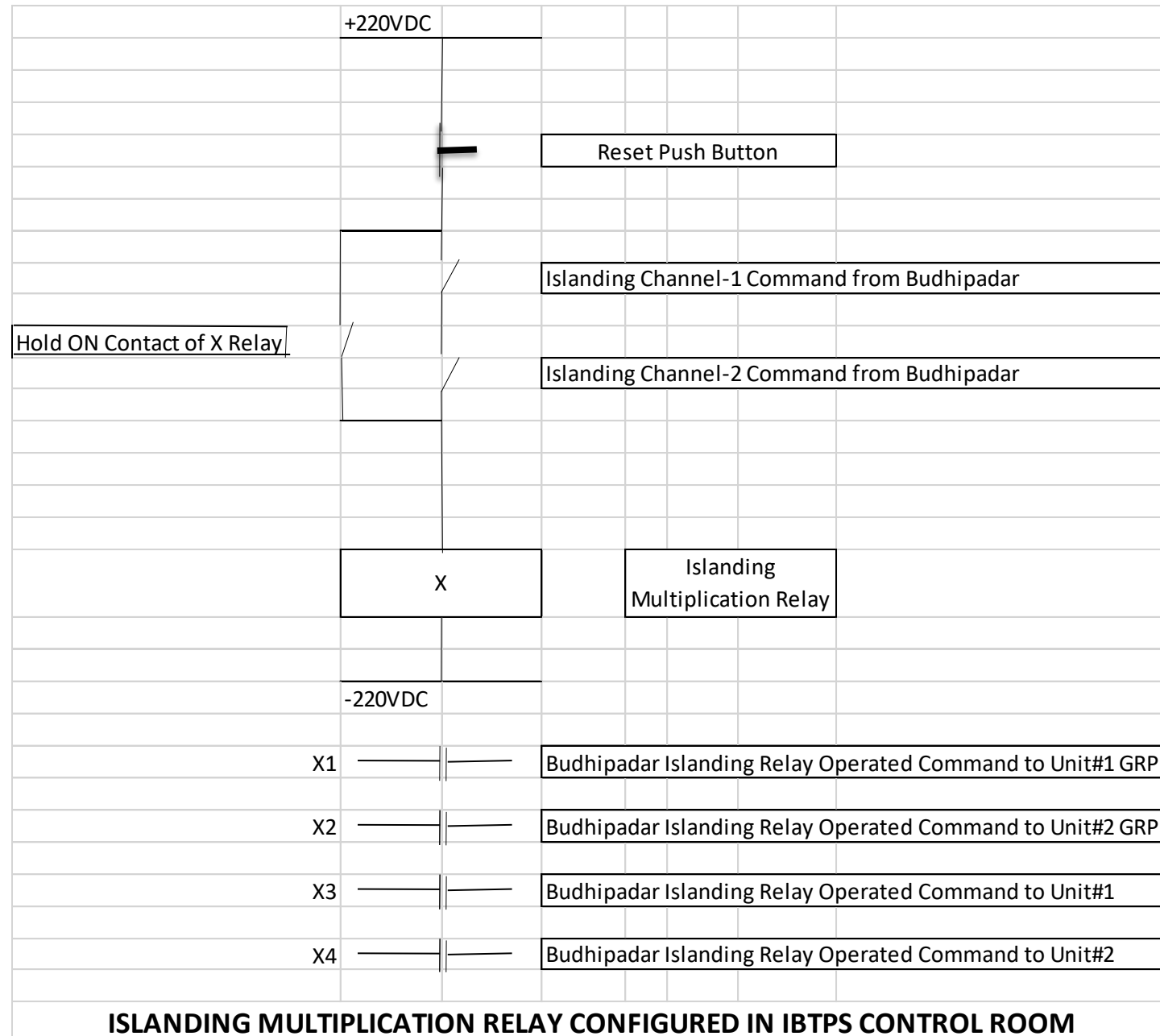
CONNECTION DIAGRAM OF ISLANDING RELAY (Micom P341) AT BUDHIPADAR SUB-STATION

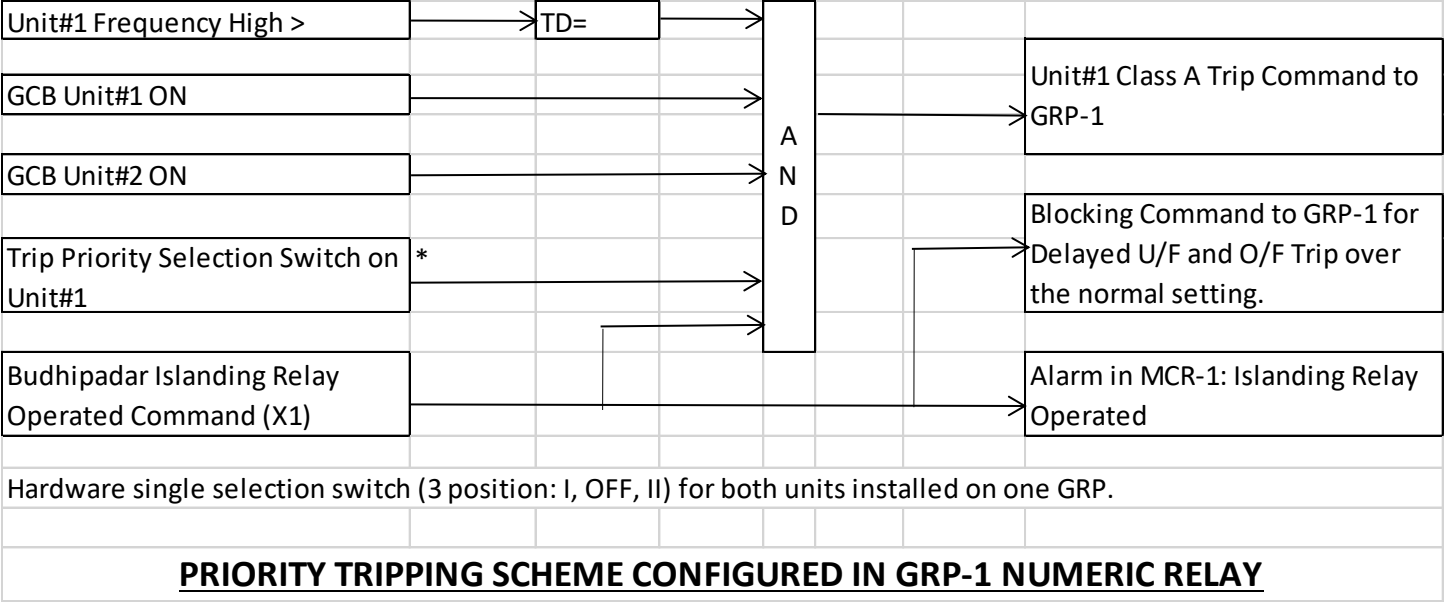


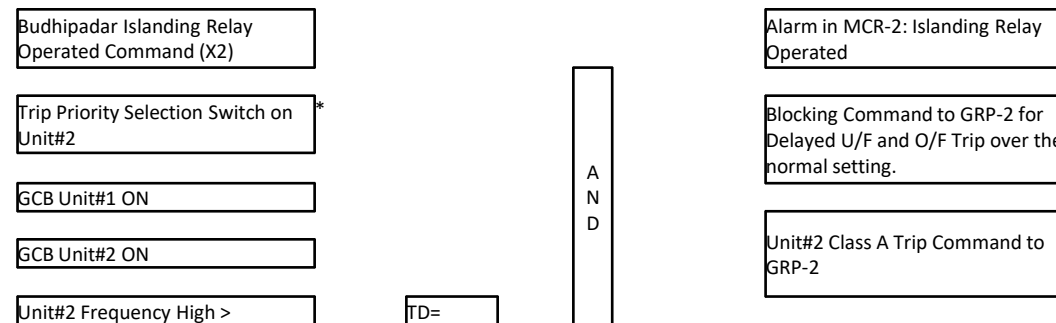


LEGEND

PTSS---- PT SELECTOR SWITCH
 SW1-----SW5- ON/OFF SWITCH
 CMR- CONTACT MULTIPLICATION RELAY

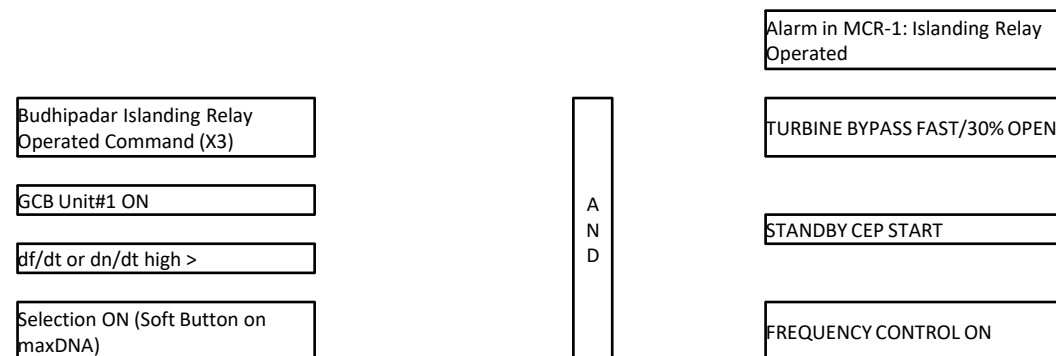






*Hardware single selection switch (3 position: I, OFF, II) for both units installed on one GRP.

PRIORITY TRIPPING SCHEME CONFIGURED IN GRP-2 NUMERIC RELAY



LOAD-GENERATION BALANCE SCHEME CONFIGURED IN UNIT#1 MAXDNA CONTROL SYSTEM

Budhipadar Islanding Relay
Operated Command (X4)

GCB Unit#2 ON

df/dt or dn/dt high >

Selection ON (Soft Button on
maxDNA)

A
N
D

Alarm in MCR-2: Islanding Relay
Operated

TURBINE BYPASS FAST/30% OPEN

STANDBY CEP START

FREQUENCY CONTROL ON

LOAD-GENERATION BALANCE SCHEME CONFIGURED IN UNIT#2 MAXDNA CONTROL SYSTEM

NOTES ON INTERCONNECTING RELAY FUNCTION.

Over voltage protection

An over voltage condition could arise when a generator is running but not connected to a power system, or where a generator is providing power to an islanded power system. Such an over voltage could arise in the event of a fault with automatic voltage regulating equipment or if the voltage regulator is set for manual control and an operator error is made. Over voltage protection should be set to prevent possible damage to generator insulation, prolonged over-fluxing of the generating plant, or damage to power system loads.

Under frequency protection

Under frequency operation of a generator will occur when the power system load exceeds the prime mover capability of an islanded generator or group of generators. Power system overloading can arise when a power system becomes split, with load left connected to a set of 'islanded' generators that is in excess of their capacity. Automatic load shedding could compensate for such events. In this case, under frequency operation would be a transient condition. This characteristic makes under frequency protection a simple form of "Loss of Mains" protection on system where it is expected that the islanded load attached to the machine when the grid connection fails exceeds the generator capacity.

Over frequency protection function

Over frequency running of a generator arises when the mechanical power input to the alternator is in excess of the electrical load and mechanical losses. The most common occurrence of over frequency is after substantial loss of load. When a rise in running speed occurs, the governor should quickly respond to reduce the mechanical input power, so that normal running speed is quickly regained.

Rate of Change of Frequency Protection (81R)

The two main applications for df/dt protection are network decoupling (loss of mains/loss of grid) and load shedding. During severe disturbances, the frequency of the system oscillates as various generators try to synchronize on to a common frequency. The frequency decay needs to be monitored over a longer period of time and time delayed df/dt can be used to make the correct decision for load shedding or provide early warning to the operator on a developing frequency problem.

Voltage Vector Shift Protection ($\Delta V\theta$)

The Voltage Vector Shift protection element measures the change in voltage angle over successive power system half-cycles. The element operates by measuring the time between zero crossings on the voltage waveforms. A measurement is taken every half cycle for each phase voltage. Over a power system cycle this produces 6 results, a trip is issued if 5 of the 6 calculations for the last power system cycle are above the set threshold. Checking all three phases makes the element less susceptible to incorrect operation due to harmonic distortion or interference in the measured voltage waveform.

The fast operation of this vector shift function renders it to operate at the instant of a disturbance rather than during a gradual change caused by a gradual change of power flow. Operation can occur at the instant of inception of the fault, at fault clearance or following non-synchronized reclosure, which affords additional protection to the embedded generator.

Sl No.	Name of the incidence	PCC Recommendation	Latest status
69th PCC Meeting:			
1.	Disturbance at 400kV Bakreswar S/s on 19.06.2018 at 10:10 hrs.	The agenda item could not be discussed as WBPDCCL representative was not present in the meeting.	
2.	Repeated Grid Disturbances at Madhepura S/s.	<p>PCC advised Powergrid and BSPTCL to take the following corrective actions:</p> <ul style="list-style-type: none"> Distance relay Zone 2 settings at New Purnea end should be set or incorporated as per the ERPC Protection philosophy Healthiness of PLCC and inter tripping scheme at both the ends should be examined and report. Since 220 KV Madhepura-Laukhi D/C lines were idle charged from Madhepura end, the timing of all forward zone settings including directional O/C & E/F settings should be revised to "Instantaneous" immediately. The line parameters of 220 KV Madhepura-Laukhi D/C lines should be measured. The zone reach settings should be revised as per the actual line parameters. At the time of charging 220 KV Madhepura-Laukhi D/C lines from both ends, the timing of all forward zone settings including directional O/C & E/F settings should be revised as per ERPC protection philosophy to avoid mismatch regarding coordination with adjacent line protection relays. 	
3.	Total power failure at 220/132 kV Sipara S/s (BSPTCL) on 15.06.2018 at 10:58 hrs.	PCC advised BSPTCL to check & analyse the disturbance recorders of all the feeders along with the timing of relay operation and Circuit breaker opening time in order to ascertain the cause of busbar relay operation.	

68 th PCC Meeting			
4.	Disturbance at Hatia at 18:22 hrs on 30-05-2018	PCC advised JUSNL to rectify the CVT polarity connection as well as to test the CVT in normal condition and submit a report on this tripping within seven days.	
5.	Issues related with Generation Backing down during Talcher-Kolar SPS operation on 16 th May 2018.	<p>PCC advised Powergrid to explore for inclusion of pole block with ground return mode signal in the SPS logic.</p> <p>PCC advised NTPC, GMR and JITPL to ensure the generation reduction as per the SPS logic.</p> <p>PCC advised NTPC also to explore for inclusion of pole block with ground return mode signal in the SPS logic.</p>	Regarding inclusion of pole block with ground return mode signal in the SPS logic, Powergrid informed that the issue was referred to OEM.
6.	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.	
7.	Total power failure at 400/132 kV Motihari substation on 07-04-2018 at 09:56 hrs	PCC advised DMTCL to comply the protection audit party observations at the earliest.	DMTCL informed that they have referred the observations to Siemens for necessary action and M/s Siemens would visit the stations in next week.
8.	Non-Operation of 400 kV Binaguri-Rangpo D/C SPS on 9th May 2018	PCC advised Powergrid to ensure the relevant data availability of SPS operation to ERLDC through SCADA.	Regarding implementation of SPS through SAS, Powergrid informed that the implementation would complete by July 2018.

9.	Disturbance at 400/220 kV Biharshariff S/s on 28-03-2018 at 18:43 hrs and 19-03-2018 at 02:02 hrs.	PCC advised BSPTCL and Powergrid to ensure proper relay coordination between 400kV and 220 kV system including ICTs at Biharshariff S/s.	BSPTCL informed that they are in the process of implementing the revised settings.
10.	Disturbance at 220/132 kV Patratu S/S on 09-02-2018 at 15:00 hrs	<p>In 65th PCC, JUSNL was advised to take the following measures:</p> <ul style="list-style-type: none"> • Check the healthiness of the DC system including end to end cables at 220/132kV Patratu S/s • Check the healthiness of all Circuit Breakers at 220/132kV Patratu S/s • Check the healthiness of all the relays installed at 220/132kV Patratu S/s including 220/132kV ATRs • Check Kanke end relay and CB of 132kV Patratu-Kanke line • Check the Directional feature of 132 kV Hatia I – Sikidri and 132 kV Namkum - Hatia I line relays at Hatia-I 	
11.	Disturbance at 220 kV Budhipadar S/s on 01-10-17 at 09:25 hrs	OPTCL informed that Busbar protection maloperated and tripped all the elements connected 220kV bus 1 at Budhipadar. OPTCL added that the issue has been referred to OEM (Siemens) for rectification.	

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

NAME OF ORGANISATION:
FOR THE MONTH OF:

SUBSTATION DETAIL:

SI 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: