Agenda
for

65th PCC meeting

Date: 28.03.2018
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 65TH PROTECTION SUB-COMMITTEE MEETING TO BE HELD AT ERPC, KOLKATA ON 28.03.2018 (WEDNESDAY) AT 11:00 HOURS

PART – A

ITEM NO. A.1: Confirmation of minutes of 64th Protection sub-Committee Meeting held on 22nd February, 2018 at ERPC, Kolkata.

The minutes of 64th Protection Sub-Committee meeting held on 22.02.18 circulated vide letter dated 12.03.18.

Members may confirm the minutes of 64th PCC meeting.

PART – B

ANALYSIS & DISCUSSION ON GRID INCIDENCES OCCURRED IN FEBRUARY, 2018

ITEM NO. B.1: Disturbance at 400kV Mejia S/s on 19-02-2018 at 18:12 hrs

At 8.10 Hrs LBB protection operated during synchronization of U#4 through Main Bus-1. All the Bays connected to Main Bus-1 and Bus section 1-3 Breaker tripped through 96 Lock-out Relays. With the failure of Main Bus-1, SST –A tripped which was supplying power to the Reserve Boards of U#1 and 2. This initiated a Class-A tripping for U#2 which was on the other Bus i.e Main Bus-2. Y and B-Pole of the GT#2 Breaker got stuck which initiated LBB protection of GT#2. 96 Lock-out Relays of all the bays of Main Bus #2 and Bus Section 2-4 operated. However, Bus section 2-4 Breaker failed to trip. In this Breaker also Y & B-pole got stuck, it initiated LBB protection of Bus Section 2-4 which resulted in tripping of all the bays associated with Main Bus-4 and Tie Breaker of Bus-3 and Bus-4. The following elements tripped:

- 220 KV Mejia-Kalyaneshwari T/c
- 220 KV Mejia-Burnpur
- 220 KV Mejia-Barjora D/c
- 220 KV Mejia-Durgapur (DVC)-I
- 220 KV Mejia-Waria D/c
- Unit-2,3 and 6
- Bus 1,2 and 4

Load loss 288MW

Generation loss 630 MW

No major voltage dip is observed in PMU

DVC may explain.

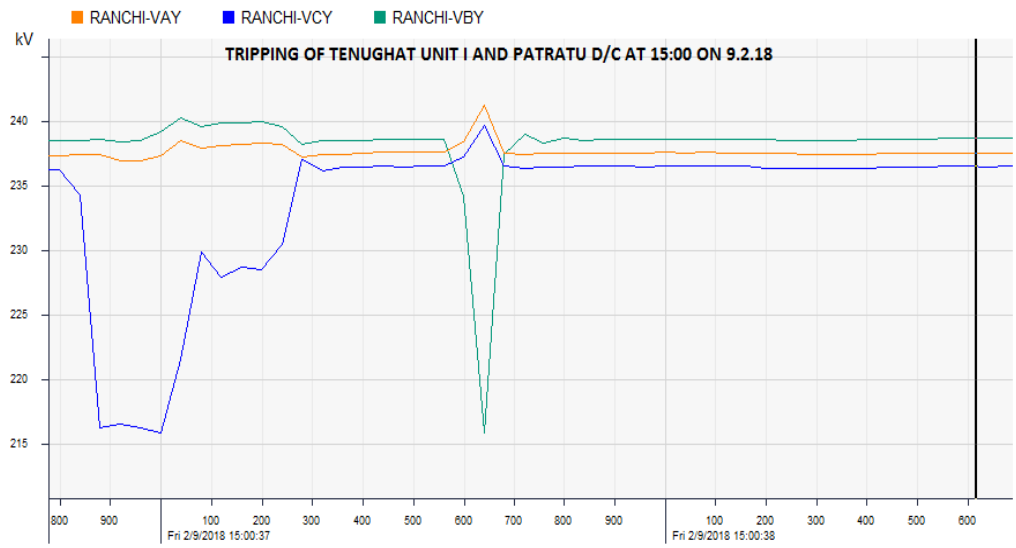
ITEM NO. B.2: Disturbance at 220/132 kV Patratu S/S on 09-02-2018 at 15:00 hrs

There was a fault at 220 KV Patratu-Hatia ckt II as jumper and insulator disc puncture has been found in this circuit. As per PMU data, fault was not cleared within the specified time which may results in cascaded tripping in nearby region.

Relay indications are as follows:

Name of the elements	Relay Indication	
220 kV TVNL - Patratu S/C	B-N, Zone - None, IB = 1.53 Ka at TVNL end	R/I yet to be received from Patratu end
220 kV Patratu - Hatia - I	R/I yet to be received from Patratu end	Did not trip from Hatia end
220 kV Patratu - Hatia - II	Did not trip from Patratu end	R/I yet to be received from Hatia end
132 kV Hatia - Hatia T/C	R/I yet to be received from any end	
132 kV Namkum - Hatia S/C	R/I yet to be received from any end	
220/132 kV ICT - I at Patratu	R/I yet to be received from any end	
Unit I at TVNL		

Analysis of PMU plots:



In PMU data, two faults have been observed. First fault was in B phase at 15:00:36.800 hrs which was cleared in 500 ms. 300 ms after clearing the first fault, another fault was observed in Y phase which was cleared within 100 ms.

Load loss 200MW

Generation loss 180 MW

JUSNL and TVNL may explain.

ITEM NO. B.3: Tripping of 132 kV Birpara(PG) – Birpara(WB) D/C line on 13-02-2018 at 17:53 hrs

132 kV NJP – Moinaguri S/C and 132 kV NJP - Chalsa - Moinaguri link were out of service. At 17:53 hrs 132 kV Birpara - Birpara D/C tripped from PG end resulting load loss at Birpara, Moinaguri, Alipurduar and their surrounding areas.

WBSETCL may explain.

ITEM NO. B.4: Tripping of 132 KV Rangpo-Melli S/C and 132 KV Melli-Siliguri S/c lines on 14-02-2018 at 16:29 hrs

132 kV Melli - Sagbari S/C was under shutdown. 132 kV Rangpo - Melli S/C and 132 kV Melli - Siliguri S/C tripped at 16:29 hrs due to R-Y-N fault resulting load loss at Melli and its surrounding area.

Powergrid and Sikkim may explain.

ITEM NO. B.5: Disturbance at 220/132 kV Baripada S/S on 23-02-2018 at 08:54 hrs

220 kV Baripada - Balasore - II was under shutdown. At 08:54 hrs all elements connected to 220 kV bus along with ICTs tripped from 220 kV side due to bus bar protection of 220 kV bus at Baripada. During restoration all elements connected to 132 kV bus at Baripada (PG) were hand tripped at 09:32 hrs from 132 kV side. There was no tripping at 400 kV level at Baripada. Detailed report enclosed at Annexure-B5.

Powergrid may explain.

ITEM NO. B.6: Disturbance at 220/132 kV Purnea S/S on 25-02-2018 at 10:51 hrs

220/132 kV ATR - III at Purnea is under shutdown. At 10:51 hrs 220/132 kV ATR - I & II at Purnea tripped due to B phase O/C. After the tripping of ICT'S nearby area's load is supplied by 132 kV Kishangunj - Purnea S/C which tripped due to overload.

Powergrid and BSPTCL may explain.

ITEM NO. B.7: Total Power failure at RHP, Darjeeling & Kurseong S/s on 11.03.2018 at 15:05 hrs

132kV NBU-Darjeeling and NBU-Rammam line tripped due to zone 1 operation. But 132kV bus of RHP got dead due to tripping of 132kV Rammam-Rangit line from Rangit(NHPC) end. At the same time, 132kV Siliguri(PG)-Kurseong line tripped from PG end causing total power failure at Kurseong S/s.

Members may discuss.

ITEM NO. B.8: Issues related to Rangpo SPS operation

In 54th PCC, Powergrid informed that the scheme was implemented using PLC and there may be minor errors in MW transducers. This problem would be resolved when the SPS scheme implemented through BCU and SAS which is under the awarding stage. The implementation would take 3 to 4 months.

PCC felt that the time delay between SPS 1 and II may be reviewed till the SPS scheme implemented through SAS. PCC decided to review the time delay in next PCC meeting.

SPS operation Date	Issue
27-07-17	Time delay for SPS-2 more than 500 ms
10-01-18	Time delay of SPS-2 less than 500 ms aft
21-02-18	SPS-1 operated even though the flow did not cross 850 MW after tripping of one line

Members may discuss.

ITEM NO. B.9: Issues of SPS associated with tripping of any pole of HVDC Talcher-Kolar

During synchronization of NEW grid with SR grid, to limit the surplus power likely to be wheeled to SR through ER and WR, in the event of single or bi-pole outage of 500 kV Talcher-Kolar HVDC, arrangement for 600 MW generation reduction in ER (200 MW each at SEL, GMR and JITPL) by sending digital signals from Talcher STPS was made, apart from the pre-existing reduction/tripping of TSTPS-II generation.

To implement this SPS, signal is transmitted from Talcher to the concerned generating stations.

The SPS needs to be reviewed in view of the following:

A. **Availability of new high capacity AC transmission elements in ER, SR and WR:** A number of new high capacity transmission elements have been commissioned in ER, SR and WR after implementation of the SPS. Since 765kV Angul-Srikakulam D/c line is available, the chances of wheeling of surplus power from ER to SR via WR are limited.

B. **Sending SPS signal to Vedanta (SEL):** after removing LILO of Rourkela-Jharsuguda at SEL, this link is no more available. In view of removal of 400kV Rourkela-Jharsuguda LILO at SEL, PLCC link for sending SPS signal to Vedanta/Sterlite may be re-established either via Jharsuguda or via Meramandali or via Angul.

C. **Continuous receipt of generation back down signal on shutdown of HVDC Talcher-Kolar single pole:** The SPS could not be taken back into service as there was continuous receipt of backing down signal at the respective generator ends. Hence, the SPS had to be kept by-passed throughout the shutdown period even though Pole-II was in service.

37th TCC advised Member Secretary, ERPC to convene a separate meeting with the concerned stakeholders to have a review of the existing 600 MW generation reduction SPS in ER.

Members may decide.

ITEM NO. B.10: Tripping incidences in the month of February, 2018

Other tripping incidences occurred in the month of February 2018 which needs explanation from constituents of either of the end is given at **Annexure- B10**.

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

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

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

ITEM NO. C.1: Multiple tripping around Talcher during Pole shutdown on 09-01-2018

Regarding sending of carrier signal from Rourkela to Talcher, Powergrid informed that they have tested the scheme on 17th January 2018 and the issue has been referred to OEM(Alstom) for rectification.

Tripping of tie CB (1752) of 400kV Talcher-Meramandali line at Talcher on Pole Discrepancy would be attended in March 2018 during shutdown.

Powergrid Odisha Project and NTPC, Talcher may update.

ITEM NO. C.2: Disturbance at 220 kV Budhipadar S/s on 01-10-17 at 09:25 hrs

In 62nd PCC, 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.

In 63rd PCC, OPTCL informed that OEM (SIEMENS) visited the Substation on 29th December'2017 and taken the data (i.e. Trip Log, Even Log & DR) for analysis.

In 64th PCC, OPTCL informed that OEM, Siemens has recommended for updating of 7SS52_MCU device firmware version to V4.73 or higher to resolve the restart automatic problems. Accordingly, Siemens will upgrade the firmware.

OPTCL may update.

ITEM NO. C.3: Disturbance at 400 kV Teesta-V S/s on 12-10-17 at 12:55 hrs

In 61st PCC, Powergrid explained that there was a high resistance Y-N fault in 400 kV Teesta - Rangpo – II close to Teesta V bus. Initially the fault was seen in zone 3 characteristics of distance protection at Rangpo end. Later the fault was evolved into zone 2 characteristics. Since it was an evolving fault the Autorecloser was not initiated at Rangpo end as per the scheme and 400 kV Teesta - Rangpo – II tripped from Rangpo end. DT was sent to Teesta-V end.

PCC advised NHPC to take the following measures:

- Any one (Main I or II) distance protection should have quadrilateral characteristics to accommodate arc resistance of the fault. The zone settings and starter settings should be modified accordingly in coordination with Rangpo, Powergrid.
- The 400kV bus coupler overcurrent setting should be properly coordinated with the distance protection of transmission lines. Otherwise bus coupler will trip for the faults in transmission line. Since busbar protection is available for 400kV bus at Teesta-V, the over current setting of bus coupler can be reviewed and time setting should be coordinated at least with zone 2 time of the transmission line protection.

PCC opined that since length of 400 kV Teesta - Rangpo D/C line is 12 km and it is in high resistance fault prone area, PCC recommended for differential protection using OPGW to improve the reliability.

In 62nd PCC, NHPC informed that 400kV bus coupler overcurrent setting has been revised. The settings of transmission line relays will be revised during line shutdown.

In 63rd PCC, Powergrid informed that the revised settings of 400 kV Teesta - Rangpo D/C line at Teesta have been forwarded to their corporate office. The settings will be incorporated after approval from their corporate office.

NHPC may update.

ITEM NO. C.4: Tripping of 220 KV Darbhanga-Motipur D/C and 220 KV Muzaffarpur (MTPS)-Motipur D/C on 02-11-17 at 13:18 hrs

In 62nd PCC, it was opined that the busbar protection should not operate in this case.

BSPTCL informed that the issue of maloperation of busbar protection at 220kV Motipur has been communicated to OEM (GE) for rectification.

BSPTCL may update.

ITEM NO. C.5: Third Party Protection Audit

1. **Status of 1st Third Party Protection Audit:**

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

Name of Constituents	Total Observations	Complied	% of Compliance
Powergrid	54	46	85.19
NTPC	16	14	87.50
NHPC	1	1	100.00
DVC	40	26	65.00
WB	68	27	39.71
Odisha	59	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 update.

ITEM NO. C.6: Repeated pole blocking at HVDC Sasaram

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

			failure			
7	01-04-17	09:15	Tripped due to Valve cooling system problem	01-04-17	12:56	3:41:00
8	11-04-17	23:32	System failure alarm	12-04-17	00:17	0:45:00
9	30-04-17	03:24	Due to tripping of filters on eastern side	30-04-17	16:13	12:49:00
10	12-01-17	13:36	Blocked due to unbalanced auxiliary system	12-01-17	15:06	1:30:00
11	14-01-17	05:03	Tripped due to system failure alarm	14-01-17	08:57	3:54:00
12	10-01-17	13:23	Filter problem at Sasaram	12-01-17	11:24	46:01:00
13	03-01-17	11:00	To take pole in service in HVDC mode	10-01-17	07:42	164:42:00
14	03-12-16	12:15	Converter control protection operated	03-12-16	13:22	1:07:00
15	06-12-16	19:12	Tripped due to CCP east side M1, M2 major alarm and observed sys fail in East side	06-12-16	20:55	1:43:00
16	19-12-16	12:43	Due to tripping of 400 kv Biharshariff-Sasaram-II	19-12-16	13:35	0:52:00
17	05-11-16	04:51	System fail alarm	05-11-16	06:57	2:06:00
18	22-11-16	12:12	CCP Main-2 major alarm	22-11-16	13:35	1:23:00
19	26-11-16	09:36	CB filter bank burst	27-11-16	11:31	25:55:00

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

132/33 KV Pusauli	315 MVA ICT-2 tertiary	01 No. DG set of 1500 KVA	Battery available for valve cooling system only. It can provide auxiliary supply for at max 2 minutes.

In 56th PCC, Powergrid was advised to submit the details to ERLDC and ERPC.

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

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

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

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

In 59th PCC, Powergrid informed that the issue has been referred to their corporate office and they

will submit the report soon.

In 61st PCC, Powergrid informed that M/s Alstom has inspected the site and collected all the details. They will submit the report.

In 62nd PCC, Powergrid informed that M/s Alstom has submitted the report.

PCC advised Powergrid to send the report to ERPC and ERLDC.

In 63rd PCC, Powergrid submitted the report which is enclosed at **Annexure-C6**.

In 64th PCC, Powergrid informed that they are implementing the observations. PCC advised Powergrid update the status in monthly PCC Meetings.

Powergrid may update.

ITEM NO. C.7: 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	
19	400 KV KOLAGHAT-KHARAGPUR	03.08.16	Y-N FAULT	WBPDCL	WBSETCL		1 ckt resolved
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		
32	220KV Bidhannagar-Waria-II			WBSETCL	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:

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

Members may update the status.

ITEM NO. C.8: 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-C8**.

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

Constituents may note.

ITEM NO. C.9: Any other issues.

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POWER SYSTEM OPERATION CORPORATION LIMITED
EASTERN REGIONAL LOAD DESPATCH CENTRE
14, GOLF CLUB ROAD, TOLLYGUNGE
KOLKATA – 700033
Flash Report

1. Date and time of the Incident: 08:54 Hrs, 23.02.18

2. Antecedent Conditions:

   i. Frequency: Pre incidence: 50.03 Hz
   Post Incidence: 50.03 Hz

Sl. No.	Area/ Region	LOSS OF LOAD(MW)	LOSS OF GENERATION(MW)
1	Baripada, Bangriposi /Rairangpur, Jaleswar & Bograi	100	NIL

3. Lines/Bus under shutdown: 220 kV Baripada – Balasore ckt # 2 was under planned s/d
4. Details of tripping:
   At 08:54 hrs All elements connected through 220 KV Bus tripped on mal operation of Bus Bar Protection as reported by RTAMC,Kolkata.

Following elements connected to 220 KV Bus tripped:

1. 400/220 kV 315 MVA ICT I (Tripped from LV side)
2. 400/220 kV 315 MVA ICT II (Tripped from HV and LV side)
3. 400/220 kV 315 MVA ICT III (Tripped from LV side)
4. 220 kV Baripada – Balasore # I
5. 220/132 kV ICT I & II (Tripped from HV side)

During restoration of above elements all elements connected from 132 KV Bus at Baripada (PG) were hand tripped at 09:32 hrs.
Following elements connected from 132 KV Bus at Baripada (PG) were hand tripped.

1. 220/132 kV ICT I & II (Hand Tripped from LV side)
2. 132 kV Baripada – Baripada
3. 132 kV Baripada – Bogra
4. 132 kV Baripada – Jaleswar
5. 132 kV Baripada – Rairangpur

Due to above tripping Total power failure occurred at 132 kV Baripada, Bangriposi /Rairangpur, Jaleswar & Bograi (Orissa System). Total loss of load as reported by OPTCL is 100 MW and the breakup of which is Baripada:55 MW, Banriposi (Rairangpur): 20 MW and 25 MW at Jaleswar & Bogra.

5. Current Status:

Sl. No.	Element/Line Name	Charging Code	Charging Time	Remarks
01.	220 kV Main Bus-I	1043	09:32 Hrs	This was charged by closing 220 kV side CB of 315 MVA ICT-I
02.	220 kV Main Bus-II charged Via 220 kV BC	1043	09:40 Hrs	

03.	220 kV Side of 315 MVA ICT-II	1043	09:42 hrs	
04.	220 kV Balasore Line-I	1046	09:44 Hrs	
05.	220/132 kV 160 MVA ICT-I	1047	09:49 Hrs	220 kV Side charged
06.	220/132 kV 160 MVA ICT-II	1048	09:50 Hrs	220 kV Side charged
07.	132 kV Main Bus	1047	09:52 Hrs	Charged via 132 kV side CB of 160 MVA ICT-I
08.	132 kV Side of 160 MVA ICT-II	1048	09:54 Hrs	
09.	132 kV Baripada-Baripada OPTCL Line	1050	09:56 Hrs	
10.	132 kV Baripada-Bangriposi OPTCL Line	1052	1001 Hrs	
11.	132 kV Baripada-Bhograi OPTCL Line	1054	10:06 Hrs	
12.	132 kV Baripada-Jaleswar OPTCL Line	1051	10:51 Hrs Hrs	Delayed due to problem at Jaleswar end

6. : Action Taken Co-ordinated with RTAMC,Kolkata and SLDC Odisha .

Detail reports are awaited from with RTAMC,Kolkata.

Copy to : MS, ERPC
SCE, NLDC

SCE/ERLDC

Annexure-B10

List of important transmission lines in ER which tripped in February 2018

S.NO	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												
1	220KV ATRI-PANDIABILI-I	12/02/2018	1:35	12/02/2018	3:06	B-N, Z-I, F/D 3KA		B-N FAULT	<100	No autoreclose operation observed in PMU data			Multiple tripping at same time
2	220KV PANDIABILI-SAMANGARA-I	12/02/2018	1:35	12/02/2018	3:05	B-N FAULT		B-N FAULT	<100	No autoreclose operation observed in PMU data			Multiple tripping at same time
3	220KV ATRI-PANDIABILI-II	17/02/2018	4:49	17/02/2018	5:28	B-N FAULT		B-N FAULT	<100	No autoreclose operation observed in PMU data			Multiple tripping at same time
4	220KV PANDIABILI-SAMANGARA-II	17/02/2018	4:49	17/02/2018	5:30	B-N FAULT		B-N FAULT	<100	No autoreclose operation observed in PMU data			Multiple tripping at same time
5	220KV PANDIABILI-SAMANGARA-II	18/02/2018	5:32	18/02/2018	6:17	B-N,4.1 KM, 1.3 KA	B-N,2.98 KA	B-N FAULT	<100	--			Multiple tripping at same time
6	220KV ATRI-PANDIABILI-II	18/02/2018	5:32	18/02/2018	6:29	B-N, 1.409 KA	Did not trip	B-N FAULT	<100	--			Multiple tripping at same time
7	220KV ATRI-PANDIABILI-II	22/02/2018	14:05	22/02/2018	14:42		Did not trip	TRIPPED ONLY FROM ATRI DUE TO OPERATION OF MASTER TRIP RELAY	<100	--			Multiple tripping at same time
8	220KV PANDIABILI-SAMANGARA-I	22/02/2018	14:05	22/02/2018	14:38	R-N, F/C 2.8KA, 45.5 KM	R-N, Z-I, 15.4 KM, 2.14 KA	R-N FAULT	<100	No autoreclose operation observed in PMU data			Multiple tripping at same time
	Miscellaneous: Tripping on DT, No reason furnished												
9	HVDC PUSAULI	01/02/2018	8:48	01/02/2018	9:56	SYSTEM FAILURE ALARM		SYSTEM FAILURE ALARM					
10	400KV PATNA-KISHANGANJ-II	06/02/2018	18:33	06/02/2018	19:10	DT received		DT RECEIVED AT PATNA	--	--	--	--	Fault not observed in PMU data
11	400KV BINAGURI-NEW PURNEA-I	09/02/2018	15:59	09/02/2018	16:19	DT Received		DT RECEIVED AT BINAGURI	--	--			Fault not observed in PMU data
12	400KV TSTPP-ROURKELA-I	09/02/2018	16:51	09/02/2018	17:04	Did not trip	DT received	LINE TRIPPED ONLY FROM ROURKELA ON DT RECEIPT	--	--		Yes	Fault not observed in PMU data
13	220KV ATRI-PANDIABILI-II	10/02/2018	18:25	10/02/2018	18:59			CARRIER RECEIVED AT ATRI	--	--			Fault not observed in PMU data
14	220KV NEW MELLI-TASHIDING-SC	17/02/2018	19:02	17/02/2018	19:57	DT received	Did not trip	DT RECEIVED AT NEW MELLI	--	--			Fault not observed in PMU data
15	220KV NEW MELLI-TASHIDING-SC	19/02/2018	9:10	19/02/2018	9:46	DT received		DT RECEIVED AT NEW MELLI	--	--			Fault not observed in PMU data
16	400KV NEW DUBURI-MEERAMUNDALI-I	19/02/2018	14:13	19/02/2018	14:38	DT received		DT RECEIVD AT N. DUBURI	--	--			Fault not observed in PMU data
17	400KV FSTPP-GOKARNO-II	20/02/2018	15:32	20/02/2018	15:56	DT Received		DT RECEIVED AT FSTPP	--	--			Fault not observed in PMU data
18	400KV PUSAULI-NABINAGAR-I	24/02/2018	22:11	25/02/2018	23:48	DT received		DT RECEIVED AT SASARAM	--	--			Fault not observed in PMU data
19	400KV RENGALI-INDRAVATI-SC	26/02/2018	10:25	26/02/2018	10:41	DT received		DT RECEIVED AT INDRAVATI	--				

S.NO	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
	No Autoreclose operation observed in PMU data												
20	400KV ROURKELA-CHAIBASA-I	05/02/2018	17:06	06/02/2018	14:06	B-N, 37.44 KM, 6.687 KA	B-N, 85.211 KM, 3.661 KA	B-N FAULT	<100	No autoreclose operation observed in PMU data			No autoreclose operation observed in PMU data
21	765KV FATEHPUR-PUSAULI-I	13/02/2018	4:06	13/02/2018	4:59	B-N , 150 KM , 3.5 KA	B-N	B-N FAULT	<100	No autoreclose operation observed in PMU data			No autoreclose operation observed in PMU data
22	220KV TENUGHAT-BIHARSARIFF-I	24/02/2018	13:07	24/02/2018	14:05	Y-N, Z-I, 114.6 km	Y-N, Z-I, 1.485 kA, 103 km	Y-N FAULT	<100	No autoreclose operation observed in PMU data	Yes		--
23	400KV KODERMA-BOKARO-I	25/02/2018	20:57	25/02/2018	22:04	B-N, Z-I, 18.5 km, 11.61 Ka	B-n, z2, 80 km	B-N FAULT	<100	No autoreclose operation observed in PMU data			No autoreclose operation observed in PMU data

MINUTES OF MEETING BETWEEN POWERGRID (HVDC SASARAM) AND GE T&D INDIA LTD.

Date: 14/10/17

Members Present:

GE T&D INDIA LTD.

Mr. Sunil Joshi

POWERGRID

Mr. Sunit Kumar Singh

Mr. D.S. Karthik

Mr. Aman Kumar

M/s GE T&D repersentative reported at Sasaram site on 11.10.2017 to analyse the long pending issues related to HVDC Back to back to Station.

SL NO	ISSUE	Comment
1	**Converter control and Protection: Software issues** a. Control System SYS fail, Independent booting, frequent failure of compact flash cards, Profibus signals updating problems are still persisting. The problem is yet to be resolved. b. Spurious tripping of HVDC pole showing switchyard connectivity lost during opening of any bay connected to HVDC system. c. All AC harmonic filters/ Line reactors become unavailable after resetting of lane inspite of availability of same. d. Only one APEX PC is running, need stand by APEX PC available	a. GE to analyse sysfail logs and revert. b. Switchyard connectivity tripping test done and found that HVDC is blocking upon opening of CWD50Q50 breaker. GE to check the logs and revert. Scheme generally blocks after any breaker open command. c. GE to check the logs and revert. d. New Apex PC has been configured. Issue resolved.
2	**Supply of Spare Control and Protection card as per modified hardware architecture.** The card supplied as spare is for old type of installed cards architecture, which has been modified by GE. So spares cards for C&P panel should be changed as per new modified card architecture. 04 nos. Cards (02 nos. CIBS, 01no. Pentium and 01 no. PMC251) taken by GE in April-2014 for repairing is yet to be returned. Required spare configured compact flash cards as the rate of card corruption is very high (Once in a two month).	GE to check and update the status of cards taken in 2014. Spare cards urgently required at site. Failure rate of compact flash card is very high (15 card fail/year on an average). GE to urgently provide 10 no. pre-configured compact flash cards and procedure to configure new flash card.
3	**HVDC controls and Protection Lane-1 is out of order since long time.** Both the Lane has never worked simultaneously since commissioning and HVDC block is running only through Lane-2	One PMC card found defective on Side B Lane-1 M2 subrack (L1SBM2). Card has been replaced with spare PMC card and Lane is now not having any sys fail and VBE protection also reset.

	Both the Lane has never worked simultaneously since commissioning and HVDC block is running only through Lane-2 from April-2014 without any redundancy. Also in Lane-2 intermittent problems are observed during running and at the time of re-start corruption of compact flash cards. M/s GE has done many up gradation of software but system is not yet satisfactory.	has been replaced with spare PMC card and Lane is now not having any sys fail and VBE protection also reset. One Pentium card(VMIC 7740) found defective on Side A Lane-1 control subrack(L1SACP1). The P1 of control (Side A Lane-1) is also showing "Interrupt VME bus coupler error" inspite of replacing faulty card with healthy card from M1 subrack. subrackSpare card is not available at site. Lane redundancy test can only be done after replacing Side A Lane-1 control subrack VMIC 7740 card.
4	**Malfunctioning/failure of VBE cards** Problem persisting since commissioning. GE is yet to provide the solution.	S5004 is getting failed very frequently(2 card failure/year). GE to check and revert.
5	**Converter Transformer issue** None of the Hydran transformer gas monitoring system and Drycol breather in operation condition. Matter taken up with GE from 2006 and matter not resolved. Converter transformer WTI/OTI unit is not working properly. GE to provide compatible replacement.	GE to check and revert.
6	**Pending contractual tests:** Auto reclose test on inverter side with both line available, and one line available and system isolation test with one line available at inverter side. It was committed during September 2010 that AREVA shall conduct these tests in 3 months but still pending	GE to check and revert.
7	**Long term spares** AREVA has been requested to give quotation for long term spares but the quotation is yet to be received.	GE to check and revert.
8	**Valve cooling PLC B problem** Reported to M/s AREVA on 18.07.2011. Alarm from PLC B of Valve cooling is continuously being reflected in SCADA. The alarms are "Valve cooling PLC B Fuse failed", "Valve cooling PLC B operation error". GE committed in MOM dtd 13.12.11 to provide the same, not provided. PLC software has not been provided by M/s GE.	GE to provide PLC software application of valve cooling system.

9	**Addition of newly commissioned line in Eastern Side to HVDC system** Earlier HVDC Back to back system is connected through only two 400 KV transmission lines namely Biharshariff-I &II in Eastern Side. Now the connectivity in eastern bus is extended with 1500 MVA, 765/400 KV ICT, 400 Kv S/c Varanasi and one D/C 400Kv Line Nabinagar-I &II. Integrated for last feeder protection to be done.	Details have been provided to GE by PGCIL. GE to check and revert.
10	**Breaking of System Docking Station (RTU) from their base unit due to brittleness of material used** The SDS is breaking from their base plate due to the excessive brittleness of fibre/ plastic installed in Bay Interface Outstations (BIOS) panels.	Defective RTU can not be repaired. RTU upgrade is required.
11	**Failure of DC-DC converters** All 12 nos. 220 V, DC-DC converters and 02 nos. 48 V DC-DC converters have been failed.	Power supply to be replaced with new power supply.

POWERGRID raised their concern to resolve the above long pending issues and requested to take necessary action for rectification of converter control and protection issues immediately.

POWERGRID also requested to assign single contact person to discuss technical issues in the intermittent period till the final resolution of aforesaid problems.

GE to check all above-mentioned issues and revert detailed plan within 3 weeks.

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: