



Agenda  
for  
**145<sup>th</sup> PCC Meeting**

**Date:27.03.2025**  
**Eastern Regional Power Committee**  
**14, Golf Club Road, Tollygunge**  
**Kolkata: 700 033**

## **EASTERN REGIONAL POWER COMMITTEE**

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### **AGENDA FOR 145TH PROTECTION COORDINATION SUB-COMMITTEE MEETING TO BE HELD ON 27<sup>th</sup> MARCH 2025 AT 10:30 HRS THROUGH MS TEAMS**

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#### **PART – A**

**ITEM NO. A.1: Confirmation of Minutes of 144<sup>th</sup> Protection Coordination sub-Committee Meeting held on 24<sup>th</sup> Feb 2025 through MS Teams.**

The minutes of 144<sup>th</sup> Protection Coordination sub-Committee meeting held on 24.02.2025 was circulated vide letter dated 24.03.2025.

**Members may confirm the minutes of the Meeting.**

#### **PART – B**

**ITEM NO. B.1: Disturbance at 400 k V GMR S/s on 4<sup>th</sup> Feb 2025 at 16:49 Hrs**

On 4<sup>th</sup> Feb 2025 at 16:49 Hrs, 400kV Angul-GMR-2 tripped due to B-Earth fault developed due to snapping of B-Ph conductor at 21 km from GMR. Since 400kV-Angul-GMR Ckt-1 was under planned shutdown, both buses at 400 kV GMR(IPP) became dead as it was radially connected to 400 kV Angul S/S.

Detailed report from ERLDC is attached at **Annexure B.1.**

**Gen. Loss: 655 MW**

**Outage Duration: 00:15 Hrs**

**GMR may explain.**

**ITEM NO. B.2: Disturbance at 220 k V Indravati S/s on 15<sup>th</sup> Feb 2025 at 16:49 Hrs**

On 15.02.2025 at 16:49 Hrs, while synchronizing Unit 2 at Indravati, bus bar protection operated for 220 kV Bus-1 which resulted in tripping of all elements connected to 220 kV Bus-1 at Indravati. Further running units (unit 1 and unit 4) at Indravati got tripped.

Detailed report from ERLDC is attached at **Annexure B.2.**

**Gen. Loss: 200 MW**

**Outage Duration: 01:34 Hrs**

**OHPC may explain.**

**ITEM NO. B.3: Disturbance at 400 k V PVUNL S/s on 20<sup>th</sup> Feb 2025 at 02:33 Hrs**

On 20.02.2025 at 02:33 Hrs, 400kV Tenughat-PVUNL got tripped due to Y phase fault. At present PVUNL is drawing start up power radially through this line. As the line tripped, 400 kV PVUNL S/s became dead.

Detailed report from ERLDC is attached at **Annexure B.3.**

**No load loss and gen. loss**  
**Outage Duration: 43:40 Hrs**  
**PVUNL may explain.**

**ITEM NO. B.4: Disturbance at 765/400 k V Angul S/s on 20<sup>th</sup> Feb 2025 at 16:20 Hrs**

On 20.02.2025 inclement weather with localized storm was reported around Angul S/s. At 16:20 Hrs, 400 kV Bus-1 & 2 and 765 kV Bus 1 & 2 at 765/400 kV Angul S/s got tripped. All elements got tripped except 765 kV Jharsuguda-Angul-1&2, 765/400 kV ICT-1&2, 400 kV Angul-Bolangir which remained charged through tie bay. Further, GMR and JIPL S/s also became dead.

Detailed report from ERLDC is attached at **Annexure B.4.**

**Gen. Loss: 1777 MW**  
**Outage Duration: 01:37 Hrs**  
**Powergrid, GMR and JITPL may explain.**

**ITEM NO. B.5: Major grid events other than GD/GI**

**A) Repeated tripping of transmission lines during the month of February'2025.**

Sl.No.	Name of the Element	No. of times Tripped	Remarks	Utility
1	220KV-BIRPARA-MALBASE-1	3	There was a fault in Bhutan system which didn't clear from Bhutan end and line tripped in Z-3 protection from Birpara end in all instances.	Bhutan
2	400KV-MALBASE-BINAGURI-1	3	There was a fault in Bhutan system which didn't clear from Bhutan end and line tripped in Z-2 protection from Binaguri end in all instances.	Bhutan

**Bhutan may explain.**

**B) Regarding preventive maintenance and strengthening work of 400kV critical lines:**

As per previous record following lines had tripped multiple time during April, May, and June 2024. Considering summer peak period, reliability of critical line is very much important for reliable power supply. To avoid tripping of critical line, proper preventive maintenance and strengthening work should be carried out before peak summer period.

S.No.	Name of the Element	No. of times Tripped	Remarks	Utility
1	400KV-MERAMUNDALI-LAPANGA-D/C	1	Tripped on R phase to ground fault, Fault Distance was around 17 km from Meramundali end.	OPTCL
2	400KV-NEW DUBURI-MEERAMUNDALI-2	5	Tripped on to R phase to ground fault in 2 instances and in 3 instances DT received at Meramundali end.	OPTCL

3	400KV-MEERAMUNDALI-MENDHASAL-1	2	Line tripped without any line fault due to DT received at Meramundali end.	OPTCL
4	400KV-NEW PPSP-ARAMBAGH-1	6	Line tripped on B_Earth fault, Fault distance was around 100 to 110 Km in 5 instances.	WB
5	765KV-MEDINIPUR-NEW JEERAT-2	1	Tripped on R phase to ground fault and fault distance was 26 kM from Medinipur end.	PG
6	765KV-NEW RANCHI-MEDINIPUR-2	1	Due to Y-Phase bus pipe connector broken between line Isolator to BPI (towards line side) at Medinipur End.	PG
7	400KV-LAPANGA-OPGC (IB THERMAL)-2	2	Tripped on R phase to ground fault due to A/r issue at Lapanga end.	OPTCL
8	220KV-JODA-RAMCHANDRAPUR-1	13	3 Times A/R was successful from Joda end while line tripped from Ramchandrapur and B phase to ground fault, fault distance was around 80 to 100 kM from Ramchandrapur end in 5 instances.	OPTCL/JUSNL
9	400KV-KHSTPP-BARH-1	4	Tripped every time without fault on DT received at Barh end .	NTPC / PG - ER-1
10	220 kV Daltoganj-Chatra-1	11	Y_B fault, fault distance was around 1 to 5 kM from Daltonganj end in 5 instances and B phase to ground fault in 5 instances.	JUSNL
11	220 kV Rengali (PH)-TSTPP-1	4	Fault in R_ph in three instances.	OPTCL
12	220KV-DARBHANGA (DMTCL)-DARBHANGA-1	10	Fault in R_ph in six instances and in B phase in 3 instances.	BSPTCL and DMTCL

**Members may discuss.**

**C) Regarding Grid disturbance at 765kV New Ranchi S/s on 21/03/2025:**

On 21/03/2025 at 09:35 hrs, due to the failure of four (4) CTs at New Ranchi S/s caused by lightning, the bus bar protection of main bus #1 and #2 operated, resulting in the total power failure at 765kV New Ranchi S/s.

Multiple CT failures during lightning induced overvoltage is the suspected cause for the disturbance.

**Members may discuss.**

## D) Review of protection setting and protection audit as per IEGC, 2023

On 12/03/2025 at 14:50 Hrs, multiple tripping occurred in Central to South Gujarat Corridor within interval of 20 sec which led to load loss of 5600 MW in Gujrat and 3200 MW in Maharashtra. Initiating cause was protection mal operation which led to cascading and overloading of lines which in turn led to severe low voltages in South Gujrat and Maharashtra subsequently under voltage load shedding Scheme, LTS operated and safeguarded the system and limited its impact to a smaller area.

As observed in the event total 5 number of 400 kV lines tripped simultaneously on unintended protection operation. 3 number of lines tripped on Zone -8 operation and 2 Nos of lines on Backup overcurrent operation.

Hence seeing the gravity of the event utilities are requested to adhere following points,

- Utilities are requested to review over current setting and additional zone setting as per CEA standards and protection philosophy of ERPC to avoid such type of protection maloperation.
- *As per IEGC 2023, chapter 4, clause (15)(1):  
All users shall conduct internal audit of their protection systems annually, and any shortcomings identified shall be rectified and informed to their respective RPC. The audit report along with action plan for rectification of deficiencies detected, if any, shall be shared with respective RPC for users connected at 220 kV and above (132 kV and above in NER).*

**Members may discuss.**

### ITEM NO. B.6: Submission of protection performance indices on a monthly basis by users to RPC and RLDC for 220 kV and above lines

As per IEGC 2023 Clause 15(6), 15(7) all users shall submit protection performance indices of previous month by 10<sup>th</sup> of every month to ERPC and ERLDC along with reasons for performance indices less than unity of individual element wise protection system to the respective RPC and action plan for corrective measures. For the month of February'2025, detailed list attached as **Annexure B.6**.

Following table shows the status of PP Indices received for last five months.

Sl.no	Utility Name	October	November	December	January	February
1	PG-ER-1	Yes (26.12.2024)	Yes (13.02.2025)	Yes (13.02.2025)	Yes (13.02.2025)	
2	PG-ER-2	Yes (26.11.2024)	Yes (24.12.2024)	Yes (16.01.2025)	Yes	
3	PG-Odisha	Yes (01.11.2024) /-	Yes (03.12.2024)	Yes (02.01.2025)	Yes (07.02.2025)	Yes (06.03.2025)
4	WBSETCL/ WBPDCL	Yes (05.11.2024) /-	YES (09.12.2024)	Yes (07.01.2025)	Yes (11/02/2025)	

5	BSPTCL/ BGCL	Yes (12.11.2024) /-	Yes	Yes (13.01.202 5)	Yes (10.02.2025 )	Yes (10.03.2025)
6	OPTCL/ OHPC	Yes (11.11.2024)	YES	Yes (15.01.202 5)	Yes (10.02.2025 )	
7	DVC	Yes (23.11.2024) /-	YES (21.12.202 4)	Yes		
8	JUSNL	Yes (22.11.2024) /-	Yes (07.01.202 5)	Yes (07.01.202 5)	Yes (13.02.2025 )	
9	Sikkim					
10	OPGC					
11	PMTL					
12	NTPC- KHSTPP	Yes	Yes (13.12.202 4)			
13	NTPC- FSTPP	Yes (07.11.2024)	YES (04.12.202 4)			
14	NTPC- BARH		Yes (15.12.202 4)	Yes (10.01.202 5)		Yes (07.03.20225)
15	NTPC- TSTPP		YES (14.12.202 4)			
16	NTPC- KBUNL					
17	NPGC					
18	BRBCL					
19	NTPC- DARILAPLI		Yes (02.12.202 4)	Yes (04.01.202 5)	Yes (12/02/2025 )	Yes (01/03/2025)
20	NTPC- NORTH KARNPUA RA		Yes (10.12.202 4)	Yes (01/03/202 5)	Yes (01/03/2025 )	Yes (01/03/2025)
21	ATL					
22	APNRL					
23	CBPTCL					
24	DMTCL	Yes (05.11.2024)	Yes (03.12.202 4)	Yes (02.01.202 5)	Yes (03/02/2025 )	
25	ENICL		YES (09.12.202 4)	Yes (03.01.202 5)	Yes (12.02.2025 )	

26	Chuzachen HEP					
27	Jorethang HEP	Yes (05.11.2024)	Yes	YES (02.01.2024)	Yes (01/02/2025)	Yes (01/03/2025)
28	Tashiding Hep	Yes (05.11.2024)	YES (09.12.2024)	YES (02.01.2024)	Yes (01/02/2025)	Yes (02/03/2025)
29	GMR					
30	IBEUL					
31	JITPL					
32	MPL					
33	NKTL					
34	OGPTL		YES (09.12.2024)	Yes (03.01.2025)	Yes (12.02.2025)	
35	PMJTL					
36	Powerlink					
37	PKTCL		YES (09.12.2024)	Yes (03.01.2025)	Yes (12.02.2025)	
38	CESC		Yes (25.12.2024)	Yes (17.02.2025)	Yes (17.02.2025)	
39	Rongnichu HEP					
40	SPTL					
41	TVNL		Yes (06.12.2024)	Yes (08.01.2025)	Yes (04.02.2025)	Yes (05.03.2025)

**Members may discuss.**

#### **ITEM NO. B.7: Protection System Analysis Group of Eastern Region**

A Uniform Protection protocol has been developed by NPC in line with IEGC 2023. The protocol envisages formation of a Protection System Analysis Group (PSAG) loads in each region with members from RPC, NLDC, RLDC, PGCIL, a Protection Expert from the region along with the entity under whose jurisdiction GD/GI occurred to analyze the GD/GI for analysis of Grid Disturbances/incidents at major/critical S/s and at substations that affected critical/essential/strategic in detail by visiting the respective substation/substations physically and conducting the meetings. The progress of implementation of the PSAG shall be followed up in the monthly PCC Meeting.

In 143<sup>rd</sup> PCC Meeting, PCC advised concerned utilities to provide nominations of nodal officer to ERPC by one week for forming Protection system analysis group of eastern region.

In 144<sup>th</sup> PCC Meeting, ERPC representative informed that nomination had been received from BSPTCL.

PCC advised concerned utilities to provide nominations of nodal officer to ERPC by Feb 25 for forming Protection system analysis group of eastern region.

**Members may update.**

**ITEM NO. B.8: Single Line Tripping Incidences in month of Feb 2025**

Single line tripping incidents in the month of Feb 2025 which needs explanation from constituents of either end is attached at **Annexure B.8.**

**Members may discuss.**

**PART- C: OTHER ITEMS**

**ITEM NO. C.1: Internal Protection Audit Plan of Sub stations for the Year 2024-25**

The Clause (5) of Regulation 15 of IEGC Regulations, 2023 envisages as below:

Quote

*(1) All users shall conduct internal audit of their protection systems annually, and any shortcomings identified shall be rectified and informed to their respective RPC. The audit report along with action plan for rectification of deficiencies detected, if any, shall be shared with respective RPC for users connected at 220 kV and above (132 kV and above in NER). .....*

*(5) Annual audit plan for the next financial year shall be submitted by the users to their respective RPC by 31st October. The users shall adhere to the annual audit plan and report compliance of the same to their respective RPC."*

Unquote

All utilities are requested to submit the annual audit plan for the substations 220kV and above voltage level for FY 2024-25 to ERPC by 31.10.2023. Annual audit plans for internal audit of their protection systems and third-party protection audit shall be furnished separately.

**The utility wise status is given below:**

Sl.no	Utility Name	Status
1	PG-ER-1 & PMTL	Received
2	PG-ER-2	Received
3	PG-Odisha	Received
4	WBSETCL	Received
5	BSPTCL	Received
6	OPTCL	Not Received
7	DVC	Received
8	JUSNL	Received
9	OPGC	Not Received
10	CESC	Received
11	NTPC	Not Received
12	NHPC	Received
13	DMTCL	Received
14	IPP	Not Received



In 140<sup>th</sup> PCC Meeting, on enquiry from PCC, OPTCL representative informed that internal protection audit plan will be shared to ERPC/ERLDC by 2-3 days.

PCC advised NTPC & IPPs to share internal protection audit plan at earliest to ERPC/ERLDC.

PCC advised concerned utilities to submit internal protection audit report for S/s where audit had been completed to ERPC/ERLDC.

OPTCL vide email dated 22<sup>nd</sup> Nov 2024 had submitted internal protection audit plan.

In 144<sup>th</sup> PCC Meeting, PCC advised concerned utilities to submit internal protection audit report for S/s where audit had been completed to ERPC/ERLDC.

**Concerned utilities may update.**

### **ITEM NO. C.2: Third Party Protection audit of Sub stations for the Year 2024-25**

As per IEGC 2023 Clause 15.2, “All users shall also conduct third party protection audit of each sub-station at 220 kV and above (132 kV and above in NER) once in five years or earlier as advised by the respective RPC.”

Further IEGC 2023 Clause 15.3 states that “After analysis of any event, each RPC shall identify a list of substations / and generating stations where third-party protection audit is required to be carried out and accordingly advise the respective users to complete third party audit within three months.”

Accordingly, a list of S/s has been identified where third-party protection audit needs to be carried out:

NTPC Kahalgaon	Tenughat	Budhipadar	Darbhangha (BH)
NTPC Farakka	Chatra	Lapanga	Biharsharif (BH)
NTPC Barh	Hatia	Rengali (OPTCL)	Purnea Old (PG)
Jorethang	Garhwa	Rengali (PH)	Kishanganj (PG)
Tashiding	Chandil	Therubali	Meramundali
Ramchandrapur	Bantala (KLC)	Balimela	

As per SOP for Third Party Protection Audit prepared by NPC, Third Party Protection Audit shall be carried out by the third party designated agencies in line with the IEGC Regulations 2023 or by the audit teams constituted by RPCs with the members from other states (at least two) who opt for the RPC coordinated third party protection audit.

In 140<sup>th</sup> PCC Meeting, ERPC representative informed that third party protection audit plan has been received from OPTCL and Powergrid ER-1. He further added that after receiving audit plan from all utilities, ERPC will communicate to concerned utilities regarding substations for which protection audit can be done through audit team of ERPC. He further told that it is planned to carry out protection audit for critical substations by last week of November 2024.

NTPC representative informed that they are planning to carry out third party protection audit by CPRI in Dec 2024 /Jan 2025 for which audit plan will be shared to ERPC/ERLDC.

PCC advised all utilities to submit third party protection audit plan by 7 days to ERPC along with their choice to carry out protection audit either through ERPC coordinated third party protection audit or by third party designated agencies.

In 141<sup>st</sup> PCC Meeting, PCC advised all utilities to submit third party protection audit plan by 7 days to ERPC along with their choice to carry out protection audit either through ERPC coordinated third party protection audit or by third party designated agencies.

In 142<sup>nd</sup> PCC Meeting, ERPC representative informed that as per communications received from Jorethang HEP and Tashiding HEP, they are planning to conduct third party protection audit for concerned S/s by Reliserve solution before 31<sup>st</sup> March 2025. He further informed that as per communication received from NTPC Barh, they are planning to carry out third party protection audit by CPRI in Jan 2025.

PCC advised concerned utilities to submit third party protection audit plan by 31<sup>st</sup> Dec 2024 to ERPC along with their choice to carry out protection audit either through ERPC coordinated third party protection audit or by third party designated agencies.

In 143<sup>rd</sup> PCC Meeting, ERPC representative informed that it is planned to carry out protection audit for few critical substations by last week of Feb 2024.

PCC advised concerned utilities to submit third party protection audit plan by one week to ERPC along with their choice to carry out protection audit either through ERPC coordinated third party protection audit or by third party designated agencies.

In 144<sup>th</sup> PCC Meeting, ERPC representative informed that it is planned to carry out protection audit for few critical substations by last week of March 2024.

**Members may update.**

**ITEM NO. C.3: Internal Protection Audit Plan of Sub stations for the Year 2025-26**

The Clause (5) of Regulation 15 of IEGC Regulations, 2023 envisages as below:

Quote

*(1) All users shall conduct internal audit of their protection systems annually, and any shortcomings identified shall be rectified and informed to their respective RPC. The audit report along with action plan for rectification of deficiencies detected, if any, shall be shared with respective RPC for users connected at 220 kV and above (132 kV and above in NER). .....*

*(5) Annual audit plan for the next financial year shall be submitted by the users to their respective RPC by 31<sup>st</sup> October. The users shall adhere to the annual audit plan and report compliance of the same to their respective RPC."*

Unquote

All utilities are requested to submit the annual audit plan for the substations 220kV and above voltage level for FY 2025-26 to ERPC by 31.10.2024. Annual audit plans for internal audit of their protection systems and third-party protection audit shall be furnished separately.

In 144<sup>th</sup> PCC Meeting, PCC advised all utilities to share internal protection audit plan for FY 2025-26 to ERPC at earliest.

**Concerned utilities may update.**

**ITEM NO. C.4: Third Party Protection audit of Sub stations for the Year 2025-26**

As per IEGC 2023 Clause 15.2, "All users shall also conduct third party protection audit of each sub-station at 220 kV and above (132 kV and above in NER) once in five years or earlier as advised by the respective RPC."

and as per clause 15.5,” Annual audit plan for the next financial year shall be submitted by the users to their respective RPC by 31st October. The users shall adhere to the annual audit plan and report compliance of the same to their respective RPC.”

In 144<sup>th</sup> PCC Meeting, PCC advised all utilities to share third party protection audit plan for FY 2025-26 to ERPC at earliest.

**Concerned utilities may update.**

**ITEM NO. C.5: Follow-up of Decisions of the Previous Protection Sub-Committee Meeting(s)**

The decisions of previous PCC meetings are attached at **Annexure C.5.**

**Members may update.**



**ग्रिड-इंडिया**  
GRID-INDIA

**ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड**  
(भारत सरकार का उद्यम)  
**GRID CONTROLLER OF INDIA LIMITED**  
(A Government of India Enterprise)  
[formerly Power System Operation Corporation Limited (POSOCO)]

**पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / Eastern Regional Load Despatch Centre**

कार्यालय : 14, गोल्फ क्लब रोड, टॉलिंगुंज, कोलकाता - 700033  
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033  
CIN : U40105DL2009GOI188682, Website : www.erfdc.in, E-mail : erfdinfo@grid-india.in, Tel. : 033 23890060/0061




**पूर्वी क्षेत्र के 400 केवी जीएमआर (आईपीपी) उप-केन्द्र में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event 400 kV-GMR(IPP) Station of Eastern Region**

**(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))**

**(आई ई जी सी 37.2 (एफ) के अनुपालन में)**

**Date(दिनांक):24-02-2025**

**1. Event Summary (घटना का सारांश):**

At 16:49 Hrs, 400KV Angul-GMR-2 tripped due to B-Earth fault (B-Ph conductor snapped at 21 km from GMR). 400KV-ANGUL-GMR Ckt-1 was under planned shutdown. Both Bus at 400 kV GMR(IPP) became dead as it was radially connected to 400 kV Angul S/S and total generation loss of 655 MW occurred.

**2. Time and Date of the Event (घटना का समय और दिनांक):** 16:49 hrs of 04.02.2025

**3. Event Category (ग्रिड घटना का प्रकार):** Grid Disturbance (GD)-1

**4. Location/Control Area (स्थान/नियंत्रण क्षेत्र):** Odisha / 400kV-GMR (Unit#1 & 2 Bus Section)

**5. Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Odisha	Odisha
<b>Pre-Event</b> (घटना पूर्व)	50.006 Hz	27938 MW	20555 MW	5377 MW	5110 MW
<b>Post Event</b> (घटना के बाद)	50.003 Hz	27283 MW	20555 MW	5377 MW	5110 MW

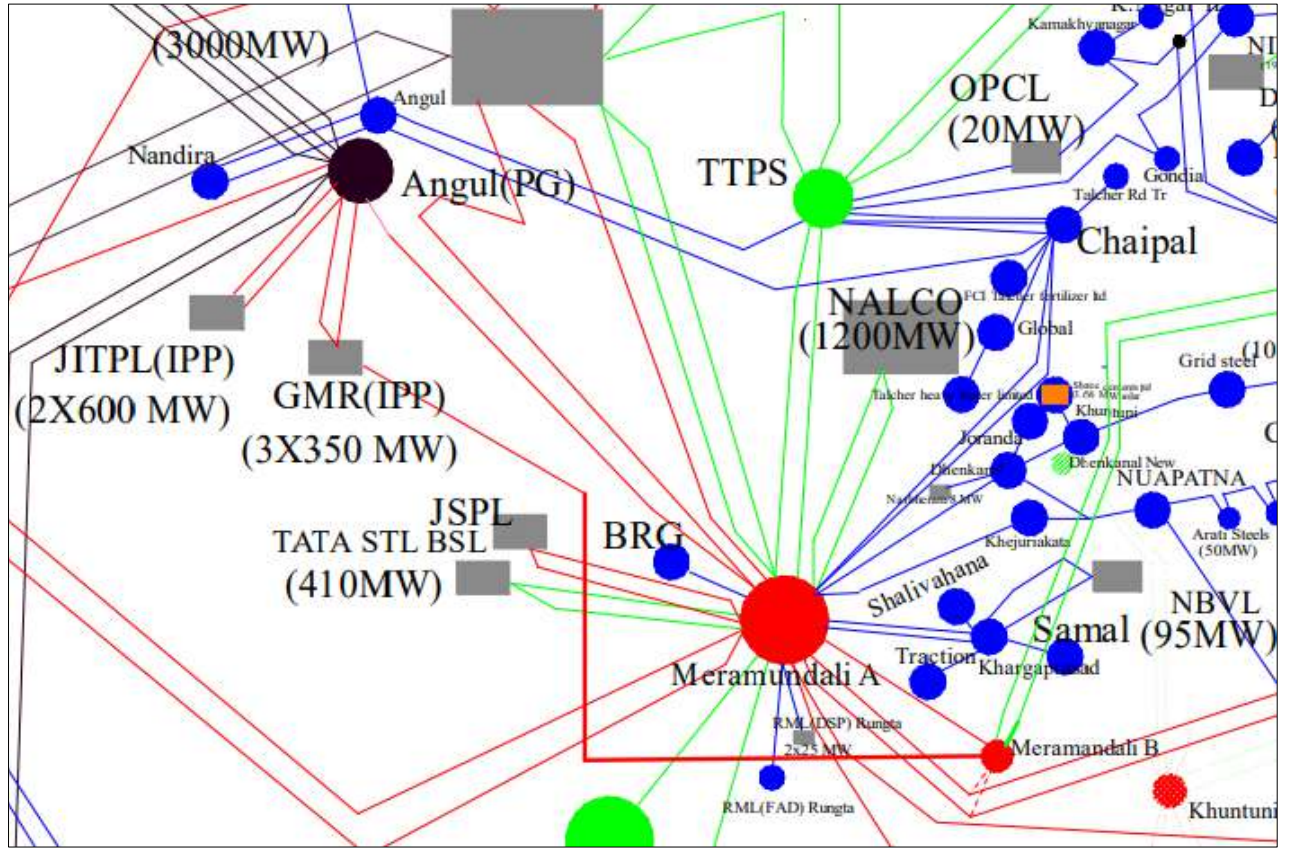
*\*Pre and post data of 1 minute before and after the event*

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	400KV GMR-Angul-1(Under Planned S/D)
Weather Condition (मौसम स्थिति)	Normal.

**6. Load and Generation loss (लोड और जनरेशन हानि):** Generation loss: 655 MW; Load loss: NIL.

**7. Duration of interruption (रुकावट की अवधि):** 00:15 Hrs

**8. Network across the affected area (प्रभावित क्षेत्र का नक्शा)**



**Figure 1: Network across the affected area**

**9. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NA**

**10. Major Elements Tripped (प्रमुख ट्रिपिंग):**

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1	400 kV GMR-Angul-2	16:49	GMR: B_N, 4 kA	Angul: B_N, 11.3 km, 12 kA, A/R unsuccessful	01:10 Hrs (05-02-2025)
2	GMR Unit #1		Loss of evacuation path		01:10 Hrs (05-02-2025)
3	GMR Unit # 2				17:50 Hrs (05-02-2025)

**11. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**

- 350 MW U#1 and U#2 of GMR is connected radially through 400 kV GMR-Angul D/c. Prior to incident, 400 kV GMR-Angul-1 was under planned shutdown. GMR generation was 655 MW.
- At 16:49 Hrs, 400 kV GMR-Angul-2 tripped due to B-Earth fault. B\_ph conductor snapping reported. A/r attempt was unsuccessful from both ends.
- Shutdown of 400 kV Angul-GMR-1 was returned and line charged at 17:04 Hrs.

**12. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):**

- A/r dead time is set to 500 msec at GMR. The same may be reviewed.
- Reason for conductor snapping at loading of 655 MW (much below thermal limit) may be investigated.

**13. Action Taken/Remedial Measures (सुधारात्मक उपाय): Nil**

**14. Non-compliance observed (विनियमन का गैर-अनुपालन):**

S.No.	Issues	Regulation Non-Compliance	Utilities
1.	DR/EL not provided within 24 Hours	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	OPTCL, PG Odisha

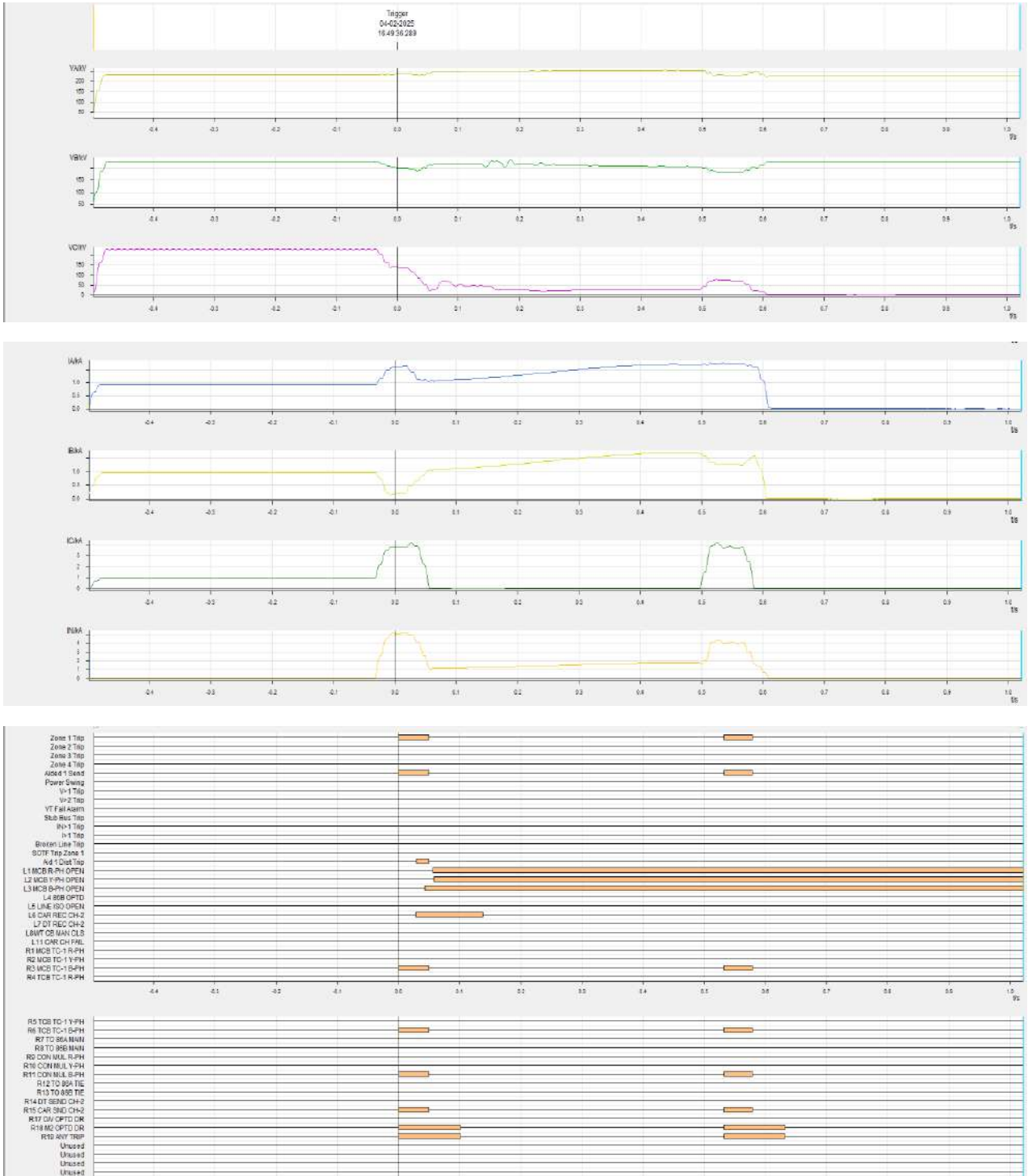
**15. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil**

**Annexure 1: (Sequence of Events-As per ERLDC SCADA)**

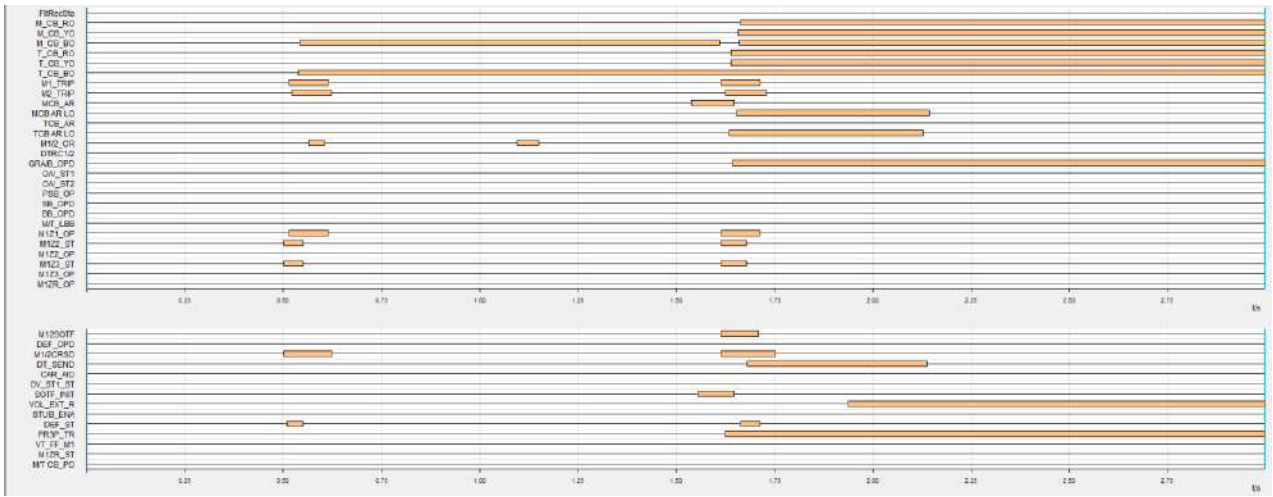
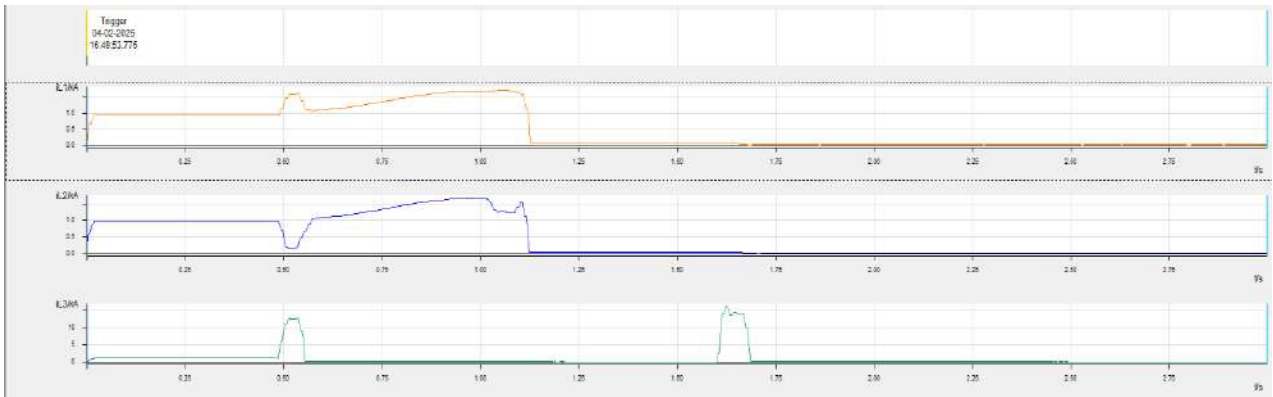
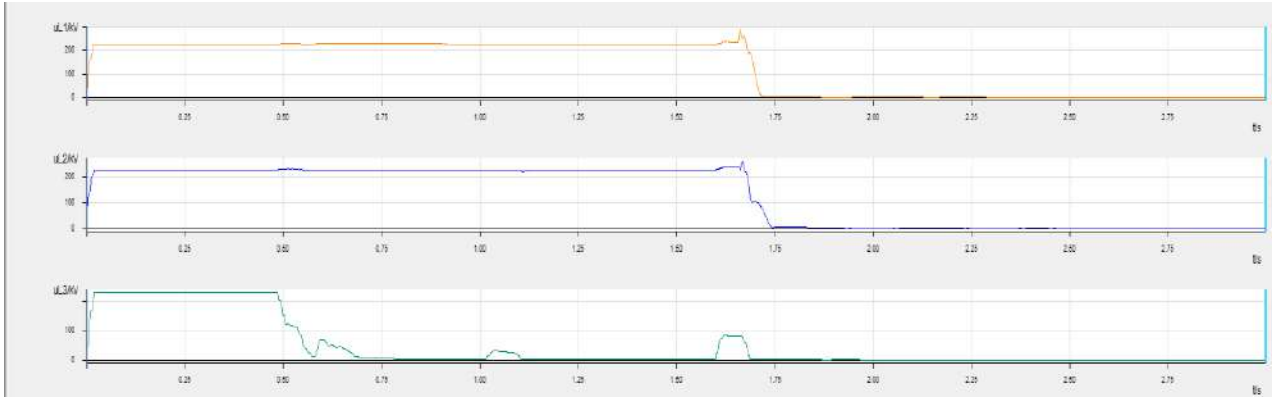
SOE data not available at ERLDC Scada.

## Annexure 2:

### DR of 400kV GMR – Angul-2 (GMR)



# DR of 400kV GMR – Angul-2 (Angul)







**ग्रिड-इंडिया**  
**GRID-INDIA**

**ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड**  
(भारत सरकार का उद्यम)  
**GRID CONTROLLER OF INDIA LIMITED**  
(A Government of India Enterprise)



[formerly Power System Operation Corporation Limited (POSOCO)]

**पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / Eastern Regional Load Despatch Centre**

कार्यालय : 14, गोल्फ क्लब रोड, टॉलिंगुंज, कोलकाता - 700033  
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033

CIN : U40105DL2009GOI188682, Website : www.erfdc.in, E-mail : erfdinfo@grid-india.in, Tel. : 033 23890060/0061

**पूर्वी क्षेत्र के 400/220kV केवी इन्द्रावती उप-केन्द्र में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 400/220 kV Indravati HEP Sub-Station of Eastern Region (To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f)) (आई ई जी सी 37.2 (एफ) के अनुपालन में)**

Date(दिनांक):18-03-2025

**1. Event Summary (घटना का सारांश):**

At 16:49 Hrs on 15.02.2025, while synchronizing U#2 at Indravati, bus bar protection operated for 220 kV Bus-1 which resulted in tripping of all elements connected to 220 kV Bus-1 at Indravati. Running units (U#1, U#4) at Indravati tripped leading to generation loss of around 200 MW.

**2. Time and Date of the Event (घटना का समय और दिनांक): 16:49 hrs of 15.02.2025**

**3. Event Category (ग्रिड घटना का प्रकार): Grid Incident (GI)-1**

**4. Location/Control Area (स्थान/नियंत्रण क्षेत्र): Odisha**

**5. Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Odisha	Odisha
<b>Pre-Event (घटना पूर्व)</b>	49.98 Hz	30943 MW	20241 MW	4461 MW	3090 MW
<b>Post Event (घटना के बाद)</b>	49.98 Hz	30743 MW	20241 MW	4261 MW	3090 MW

*\*Pre and post data of 1 minute before and after the event*

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	NIL
Weather Condition (मौसम स्थिति)	Normal.

**1. Load and Generation loss (लोड और जेनरेशन हानि): Approximate Generation loss of 200 MW.**

**Duration of interruption (रूकावट की अवधि): 01:34 Hrs.**

6. Network across the affected area (प्रभावित क्षेत्र का नक्शा):

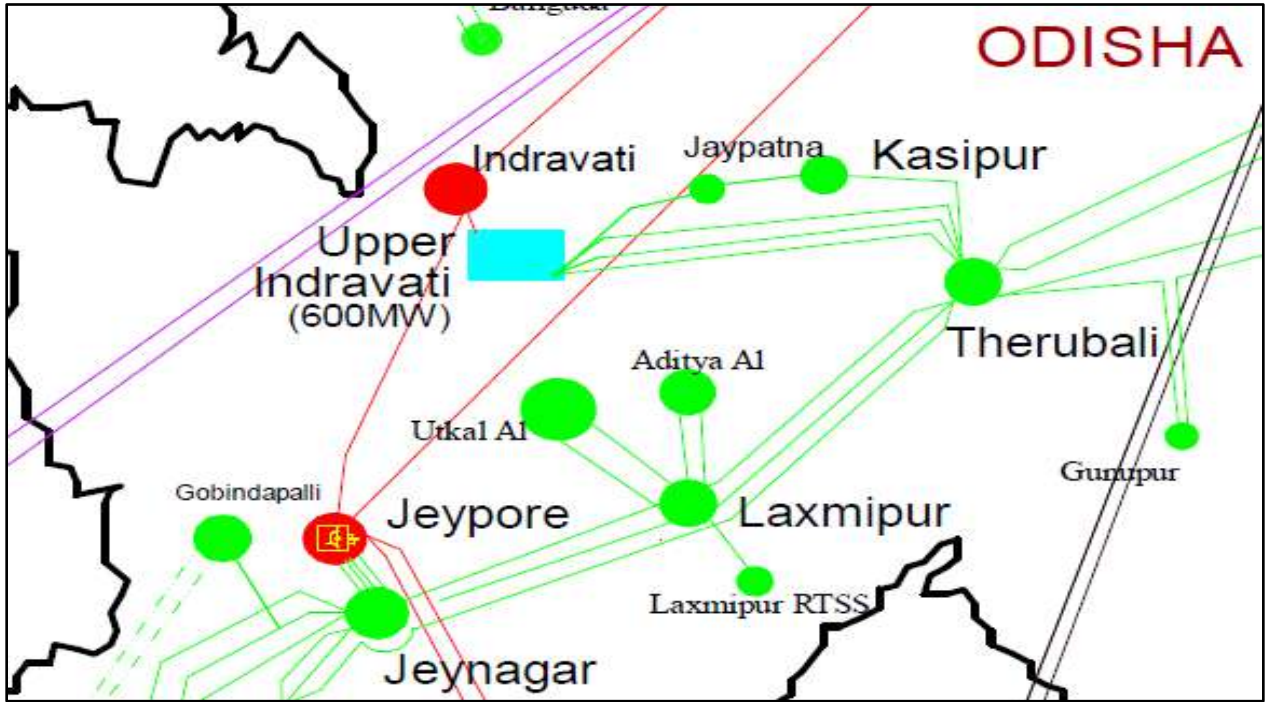


Figure 1: Network across the affected area

7. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NA

8. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1	220 KV MAIN BUS - 1 AT INDRAVATI	16:49:29 Hrs.	Bus bar protection operated for bus#1.		18:23 hrs
2	INDRAVATI - UNIT 1				18:40 hrs
3	INDRAVATI - UNIT 4				18:35 hrs
4	INDRAVATI - UNIT 2				14:15_16/02/2025

5	400KV/220KV 315 MVA ICT 1 AT INDRAVATI HEP			21:26 hrs
6	400KV/220KV 315 MVA ICT 2 AT INDRAVATI HEP			20:21 hrs
7	220 kV INDRAVATI- THERUBALI-1	Bus bar protection operated for bus#1	-	18:23 hrs
8	220 kV INDRAVATI- THERUBALI-2	Bus bar protection operated for bus#1	-	18:43 hrs
9	220 kV INDRAVATI- THERUBALI-3	Bus bar protection operated for bus#1	-	18:26 hrs

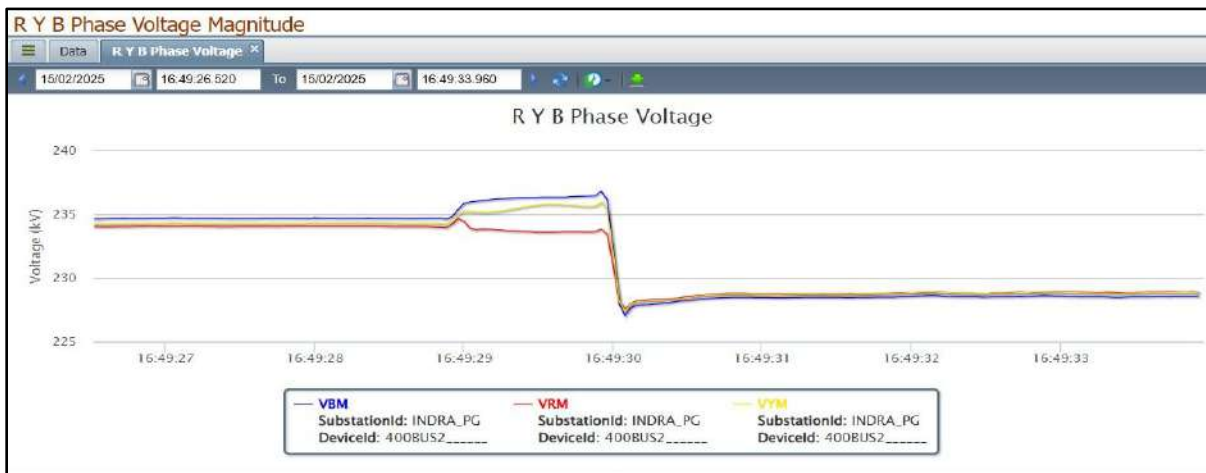
### 9. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):

#### Pre disturbance condition:

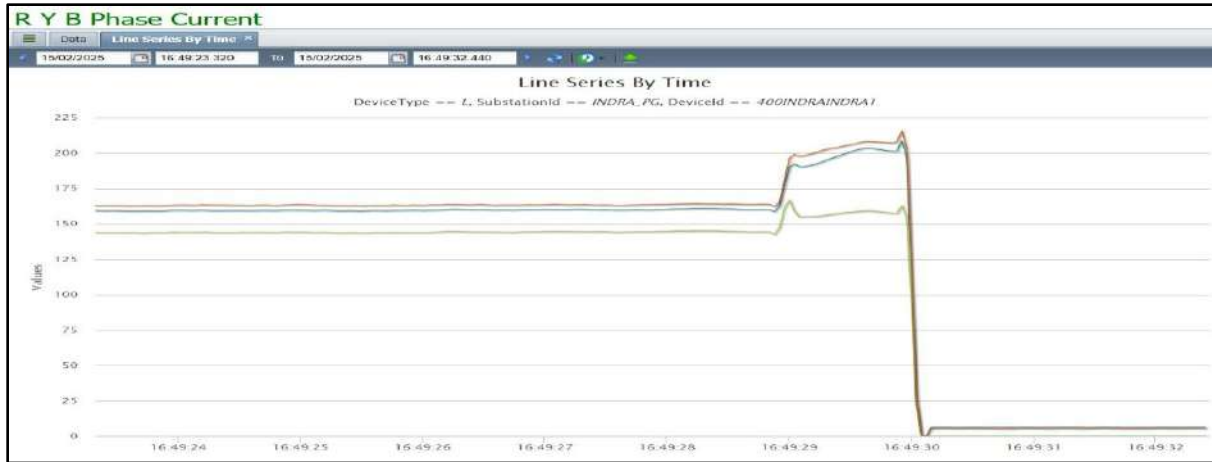
At 220kV Indravati S/s 220kV Therubali #1,2 &3 and Indravati Unit # 1, 2, 3 & 4 connected to 220kV main bus #1 and 220kV-Jayapatana-Kasipur-Therubali connected through main bus #2. Indravati generating around 200 MW and Indravati unit#2 synchronization under process.

#### Event at 16:49 Hrs:

- At 16:49 Hrs, during synchronization of unit#2, bus bar protection and LBB of 220kV main bus #1 operated and all emanating feeders connected to main bus #1 tripped.



**Figure#2 : PMU of Voltage at Indravati(PG)**



**Figure#2 : PMU of Line current 400kV Indravati(PG)**

- 220kV-Indravati-Therubali #1,2 &3 and Indravati unit#1. 2 & 4 tripped due to bus bar protection of main bus #1 operated.
- 200 MW generation loss occurred at Indravati S/s.
- 220kV-Jayapatana-Kasipur-Therubali charged through main bus #2.

**10. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):**

- 220 kV Indravati (OHPC) has double main and transfer scheme, however it has been observed that only one element was on 220 kV Bus-2 and rest all elements were kept on 220 kV Bus-1. It is stressed that elements should be equally distributed on the two buses as much as practically possible to minimize tripping in case of any bus tripping.
- Unit#2 was also being synchronized through Bus-1 with all the elements except 220 kV Indravati-Jayapatna.
- As per PMU high resistive and evolving fault is observed which persisted for around 1 second. Later bus bar protection and LBB operated. OPTCL may share details of fault finding and reason of delayed fault clearance.
- DR from Indravati (OHPC) S/s was not received for this event due to faulty DR extraction tool (As per verbal information received from site).
- Detailed report from OHPC has not been shared despite multiple reminders.

**11. Action Taken/Remedial Measures (सुधारात्मक उपाय): Nil**

**12. Non-compliance observed (विनियमन का गैर-अनुपालन):**

S.No.	Issues	Regulation Non-Compliance	Utilities
1.	DR/EL not submitted within 24 hours	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	OHPC

**13. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil**

**Annexure 1: (Sequence of Events-As per ERLDC SCADA):**

SoE data not available at ERLDC.


**ग्रिड-इंडिया**  
**GRID-INDIA**

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**पूर्वी क्षेत्र के 400 केवी पी.वी.यू.एन.एल. उप-केन्द्र में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 400 kV-PVUNL Station of Eastern Region**

**(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))**

**(आई ई जी सी 37.2 (एफ) के अनुपालन में)**

**Date(दिनांक):27-02-2025**

**1. Event Summary (घटना का सारांश):**

At 02:33 Hrs on 20.02.2025, 400KV Tenughat-PVUNL tripped due to Y\_N fault. At present PVUNL is drawing start up power radially through this line. As the line tripped, 400 kV PVUNL S/s became dead. Around 32 MW load loss occurred.

**2. Time and Date of the Event (घटना का समय और दिनांक):** 02:33 hrs of 20.02.2025

**3. Event Category (ग्रिड घटना का प्रकार):** Grid Disturbance (GD)-1

**4. Location/Control Area (स्थान/नियंत्रण क्षेत्र):** Jharkhand / 400kV-PVUNL

**5. Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Jharkhand	Jharkhand
<b>Pre-Event</b> (घटना पूर्व)	50.047 Hz	26983 MW	18664 MW	352 MW	1181 MW
<b>Post Event</b> (घटना के बाद)	50.047 Hz	26983 MW	18664 MW	352 MW	1149 MW

*\*Pre and post data of 1 minute before and after the event*

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	Nil
Weather Condition (मौसम स्थिति)	Normal.

**6. Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss: Nil; Load loss: 32 MW.

**7. Duration of interruption (रुकावट की अवधि):** 43 Hrs 40 minutes

## 8. Network across the affected area (प्रभावित क्षेत्र का नक्शा)

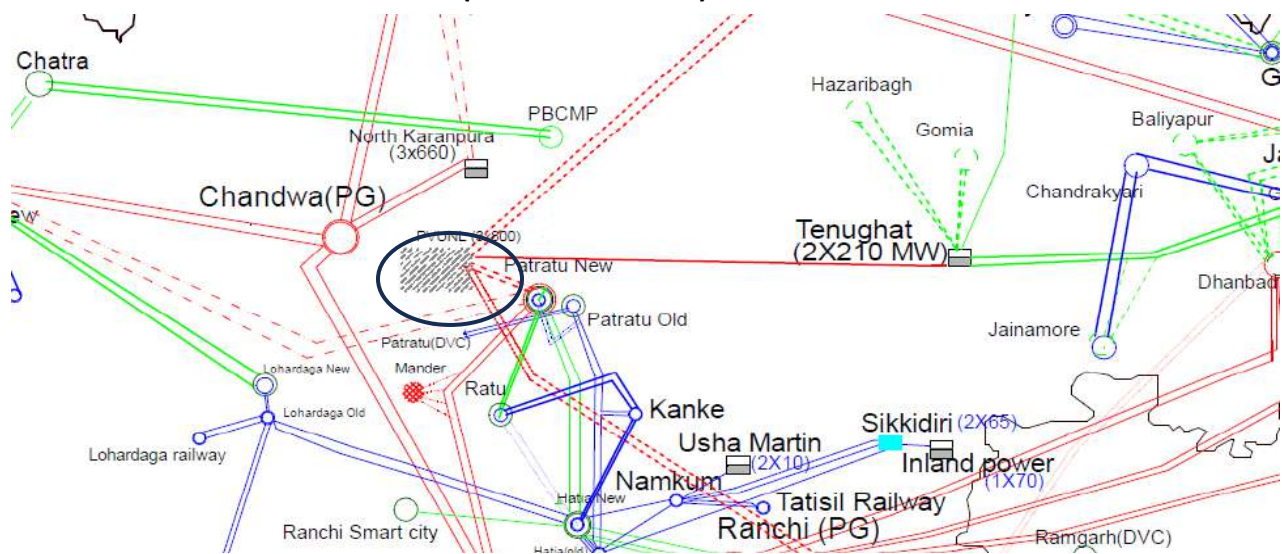


Figure 1: Network across the affected area

## 9. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): NA

## 10. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1	400 kV Tenuhat-PVUNL-1	02:33:44	Tenuhat: Y_N, 1.38 kA	PVUNL: Didn't trip	22:13 Hrs (21.02.2025)

## 11. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):

- 400 kV Tenuhat-PVUNL tripped due to Y\_N fault from Tenuhat end and A/r attempt failed due to persisting fault. Line didn't trip from PVUNL (radial load end).
- Y\_ph conductor snapped at loc. 56.

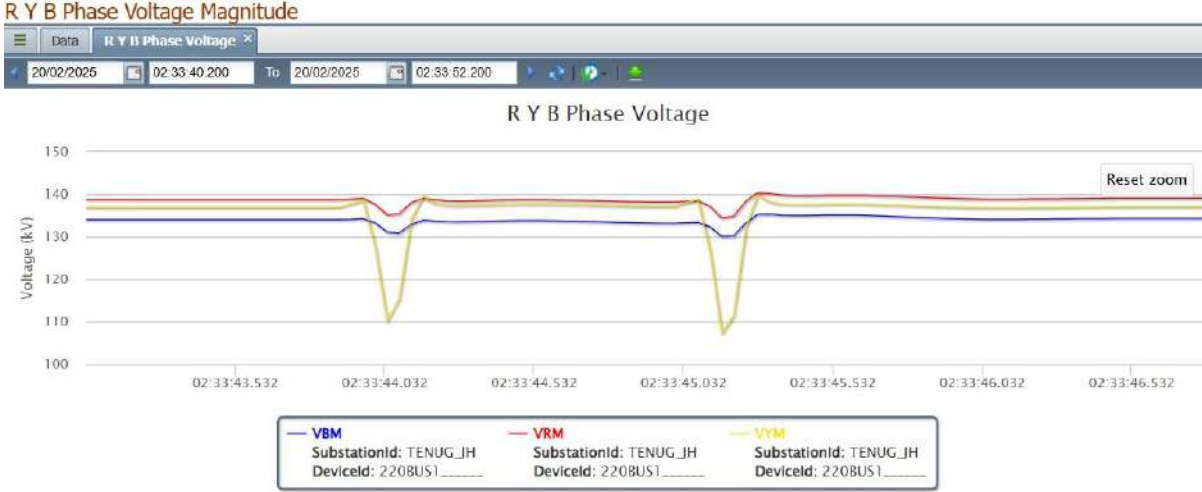


Figure 2: PMU snapshot of 220 kV Bus voltage at Tenughat

12. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या): Nil

13. Action Taken/Remedial Measures (सुधारात्मक उपाय): Nil

14. Non-compliance observed (विनियमन का गैर-अनुपालन):

S.No.	Issues	Regulation Non-Compliance	Utilities
1.	DR/EL not provided within 24 Hours	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	-

15. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil






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**पूर्वी क्षेत्र के 765/400 केवी अंगुल, 400 केवी जीएमआर और 400 केवी जेआईटीपीअल में ग्रिड घटना पर विस्तृत रिपोर्ट**  
**/ Detailed Report of grid event at 765/400 kV Angul S/s, 400kV GMR and 400kV JIPL of Eastern Region**  
**(To be submitted by RLDC/NLDC during Grid Disturbances/Grid Incidents/Near Miss Event as per IEGC section 37.2 (f))**

(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date(दिनांक):10-03-2025

**1. Event Summary (घटना का सारांश):**

At 16:20 Hrs on 20.02.2025, 400 kV Bus-1 & 2 and 765 kV Bus 1 & 2 at 765/400 kV Angul S/s tripped. All elements except 765 kV Jharsuguda-Angul-1&2, 765/400 kV ICT-1&2, 400 kV Angul-Bolangir (these elements remained charged through tie bay) tripped. Generation loss of 1777 MW occurred at GMR and JIPL due to loss of evacuation path. GMR and JIPL S/s also became dead. Inclement weather with localized storm was reported around Angul S/s.

**2. Time and Date of the Event (घटना का समय और दिनांक):** 16:20 hrs of 20.02.2025

**3. Event Category (ग्रिड घटना का प्रकार):** Grid Disturbance (GD)-1

**4. Location/Control Area (स्थान/नियंत्रण क्षेत्र):** Odisha

**5. Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency	Regional Generation	Regional Demand	State Generation (Odisha)	State Demand (Odisha)
Pre-Event (घटना पूर्व)	49.840	28913	21029	3225	4449
Pre-Event (घटना पूर्व)	49.780	27136	21029	3225	4449

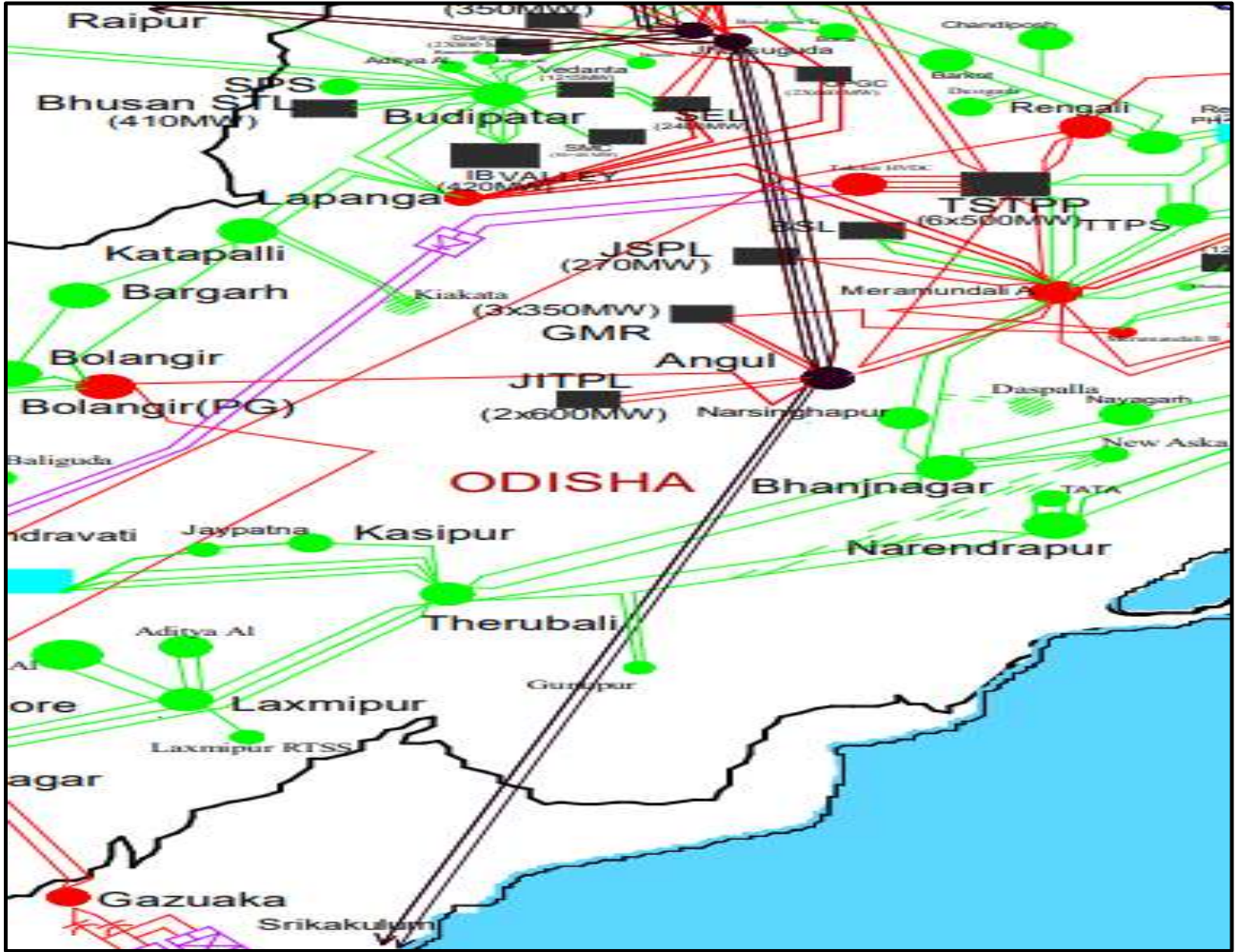
**\*Pre and post data of 1 minute before and after the event**

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद है)	765kV Angul Jharsuguda -4, 400kV Angul Meramundali -1, 400kV Angul Meramundali -2
Weather Condition (मौसम स्थिति)	Due to Inclement weather at Odisha.

**6. Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss of around 1777 MW at GMR and JIPL.

7. Duration of interruption (रूकावट की अवधि): 01 Hrs and 37 Minutes.

8. Network across the affected area (प्रभावित क्षेत्र का नक्शा):



**Figure 1: Network across the affected area**

9. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):

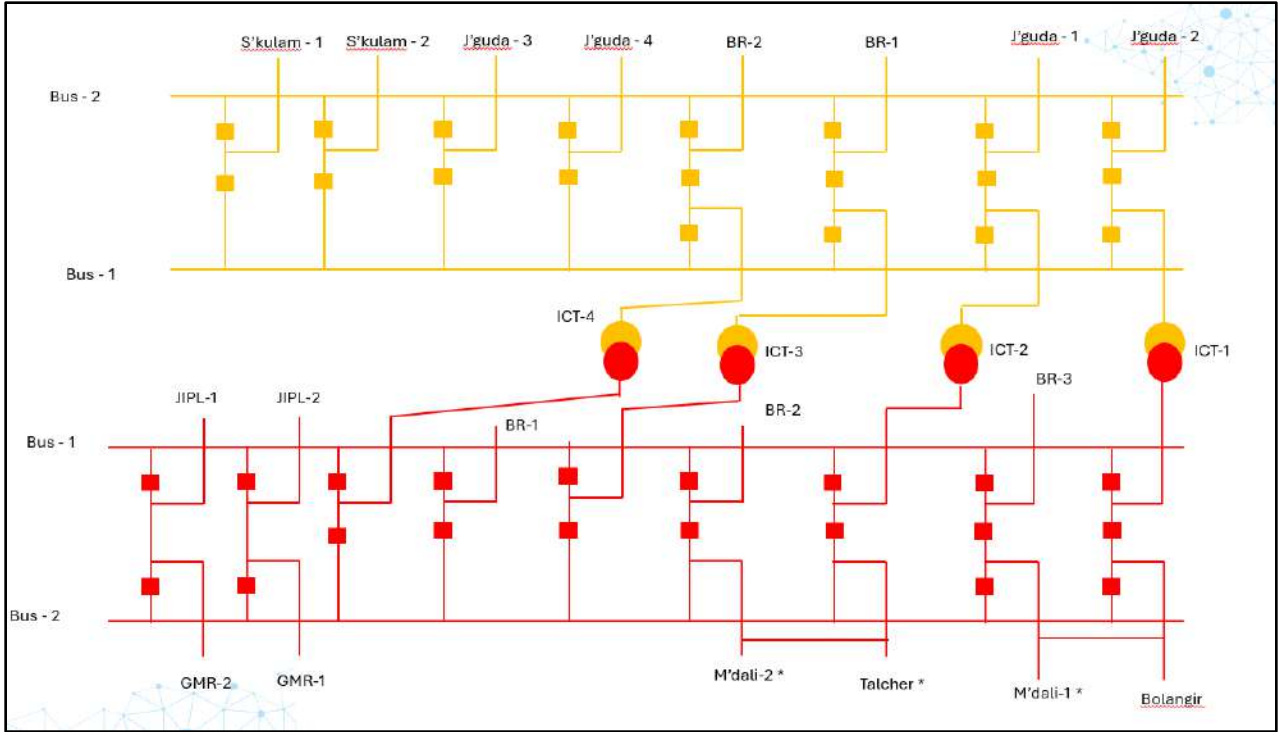
- R Phase CT of Main Bay of Meramundli#1 Line (406)
- Y Phase CT of Tie Bay of BR#3 and Meramundli#1 Bay (405)
- B Phase CT of Main Bay of GMR#2(427)
- Y Phase CT of Main Bay of Sundargarh#4(720)
- Y phase CT of Main Bay of Sundargarh#3(423)
- B Phase CT of Tie Bay of Sundargarh#4(719)

10. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिसे संकेत	उप केंद्र 2 रिसे संकेत	Restoration time
1	400KV-ANGUL-JITPL-2	16:20:23 Hrs.	Angul: Tie Bay LBB operated	JTIPL: Didn't trip	18:57 Hrs.
2	400KV-GMR-ANGUL-1	16:20:23 Hrs.	GMR: B_N, Zone-2, 4.3 kA, DT received	Angul: Tie Bay LBB operated	20:26 Hrs.
3	765KV-ANGUL-JHARSUGUDA-3	16:20:31 Hrs.	Due to tripping of Main Bus #1 & 2	Jharsuguda: Didn't trip	00:02 Hrs_21/02/2025
4	765KV-ANGUL-SRIKAKULAM-1	16:20:31 Hrs.	Due to tripping of Main Bus #1 & 2	Srikakulam: O/V St.1	20:31 Hrs.
5	765KV-ANGUL-SRIKAKULAM-2	16:20:31 Hrs.	Due to tripping of Main Bus #1 & 2	Srikakulam: O/V St.1	19:55 Hrs.
6	GMR - UNIT 1	16:20:20 Hrs.	Loss of evacuation path		21:01
7	GMR - UNIT 2	16:20:20 Hrs.			00:11 Hrs_21/02/2025
8	JIPL - UNIT 1	16:20:20 Hrs.			20:50 Hrs_25/02/2025
9	JIPL - UNIT 2	16:20:20 Hrs.			00:16 Hrs_21/02/2025
10	765/400kv 1500MVA ICT 3	16:20:31 Hrs.	Due to tripping of Main Bus #1 & 2		23:26 Hrs.
11	765/400kv 1500MVA ICT 4	16:20:31 Hrs.	Due to tripping of Main Bus #1 & 2		18:46 Hrs.
12	765kv 330MVar B/R 2	16:20:31 Hrs.	Due to tripping of Main Bus #1 & 2		18:09 Hrs.
13	400kv 125 MVar Bus reactor 1	16:20:20 Hrs.	Due to tripping of Main Bus #1 & 2		19:24 Hrs.
14	400kv 125 MVar Bus reactor 2	16:20:20 Hrs.	Due to tripping of Main Bus #1 & 2		19:35 Hrs.
15	400kv 125 MVar Bus reactor 3	16:20:20 Hrs.	Differential protection operated		19:33 Hrs.
16	400kv Main Bus 1 at Angul	16:20:20 Hrs.	Bus Bar Protection Operated		18:51 Hrs.
17	400kv Main Bus 2 at Angul	16:19:50 Hrs.	Bus Bar Protection Operated		18:15 Hrs
18	765kv Main Bus 1 at Angul	16:20:31 Hrs.	Bus Bar Protection Operated		00:02 Hrs_21/02/2025

19	765kV Main Bus 2 at Angul	16:20:27 Hrs.	Bus Bar Protection Operated	17:57 Hrs.
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### 11. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):



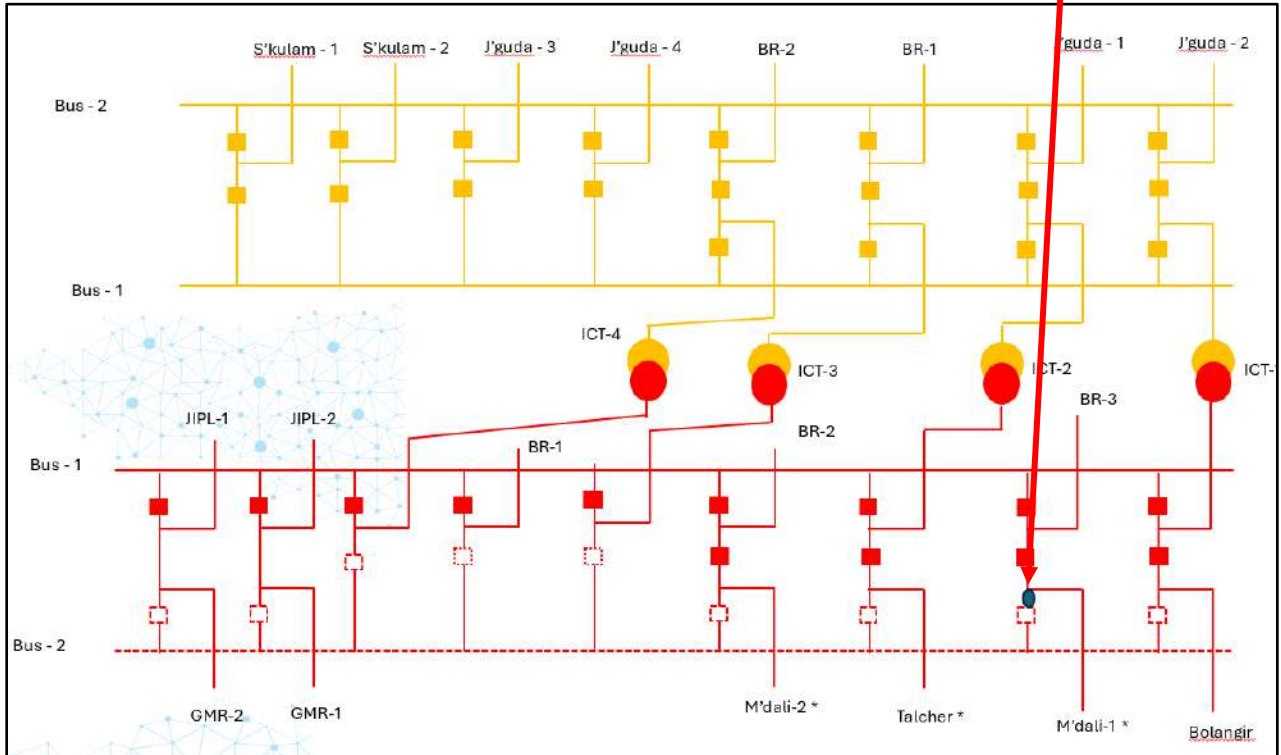
**Figure 2: SLD of Angul S/s**

#### **Pre disturbance condition:**

- 765kV Angul-Sundergarh Line-4 was out of service for Voltage regulation & its switchable LR was charged as Bus Reactor.
- 765 KV Bus Reactor-1 was out of service for Voltage regulation and Its Main Bay was out for Scheduled AMP Work.
- 400 KV Angul-Meramundali-1 was anti-theft charged and 400kV Bolangir- Mermanudali LILO bypass was open and Bolangir was connected to Angul.
- GMR and JITPL generation was around 660 MW & 1117 MW respectively.

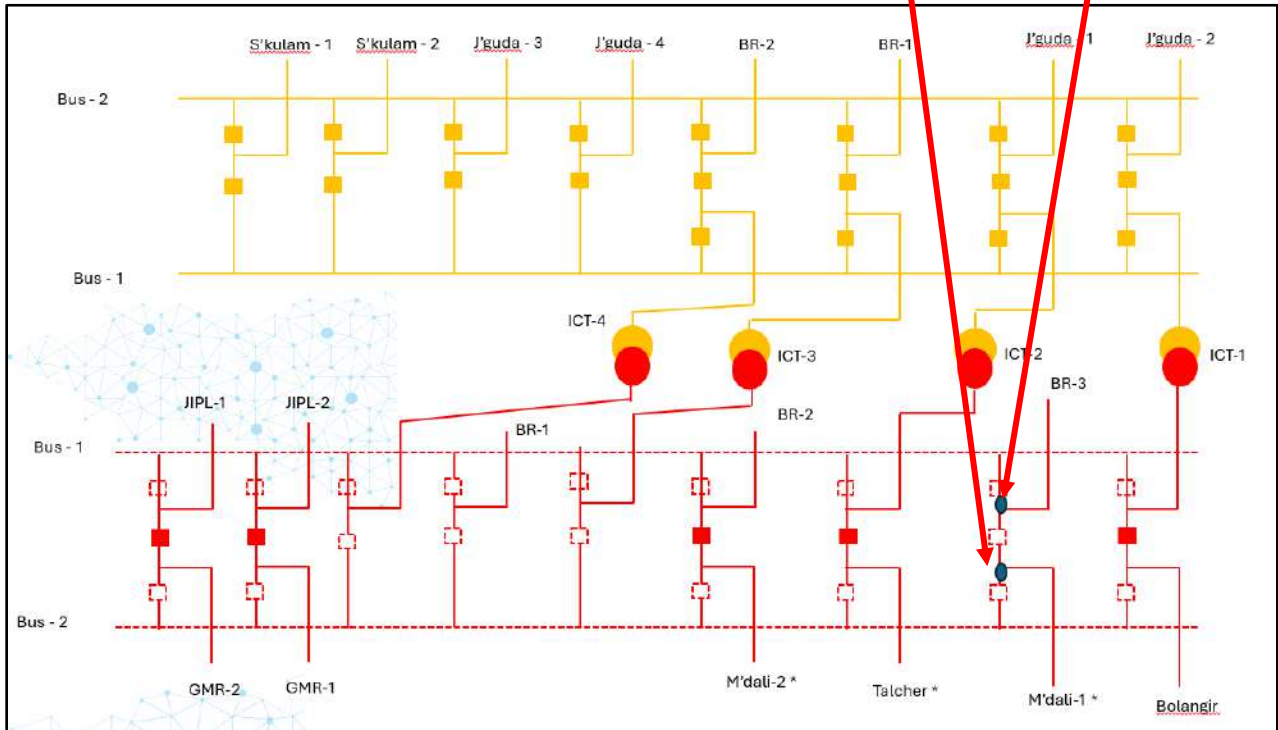
**Sequence of Events:**

<b>Event 1 Time:</b>	16:19:50.018 Hrs.	<b>Fault Location:</b>	Main Bay of Meramundli#1 Line(406)
<b>Bay No:</b>	406	<b>Reason:</b>	<b>Failure of 406 R-ph CT</b>



- **At 16:19:50:018 Hrs**, Fault occurred at CT junction box of 400 kV main bay of Meramundali-1 (406) and bus bar protection operated. All main bay connected to Bus-2 tripped. As CT is on the line side, fault was still fed through Tie bay, hence LBB of 406 bay operated and tie bay tripped after 200 msec.

<b>Event 2 Time:</b>	16:20:20.536 Hrs. (after 30.5 Sec of event 1)	<b>Fault Location:</b>	Tie Bay of BR#3 and Meramundli#1(404) Bay & Main bay of Bus reactor 3(405)
<b>Bay No:</b>	405 & 404	<b>Reason:</b>	<b>Failure of 405 Y-ph CT &amp; 404 R-ph CT</b>

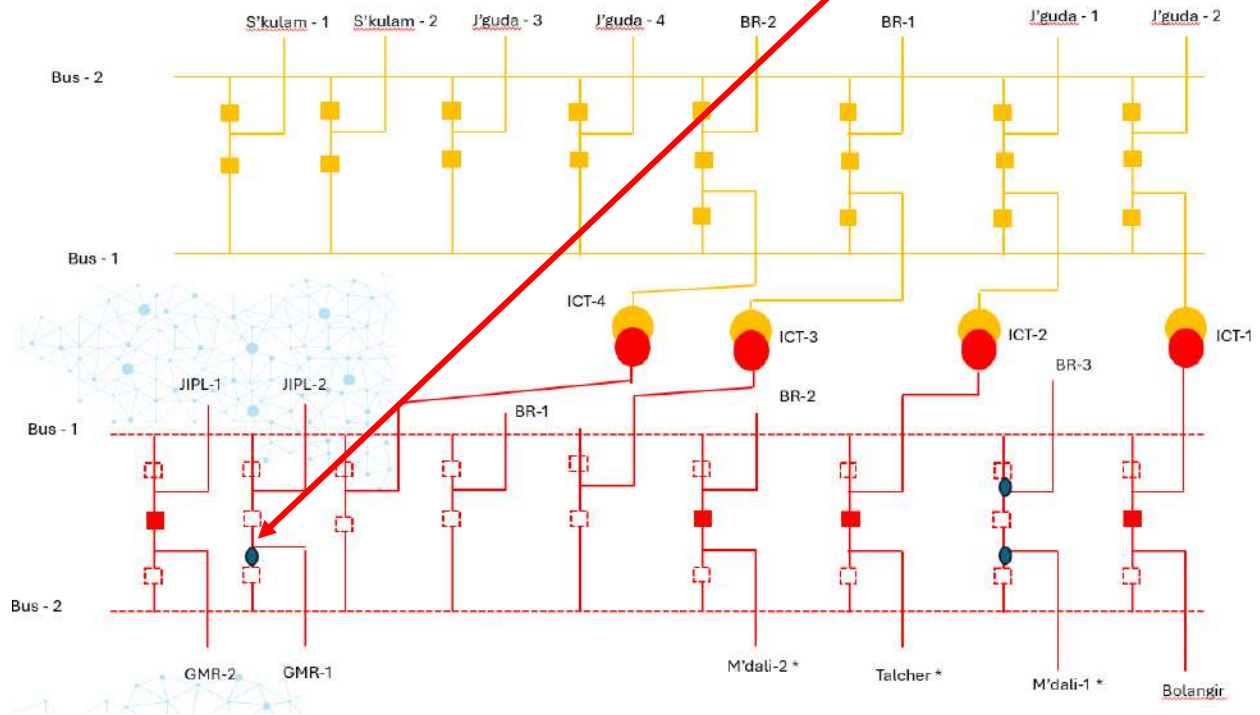


- **At 16:20:20:536 Hrs**, due to failure of R\_ph CT of 400 kV main bay of Bus Reactor-3 (404) and Y\_ph CT of 400kV Tie Bay of Meramundali #1 and Bus Reactor-3(405), differential protection of bus reactor and bus bar protection of Bus-1 operated, and all main bay connected to Bus-1 tripped.
- 400 kV Bus-1 and Bus-2 became dead. Generation loss of around 1777 MW at GMR (660 MW) and JITPL (1117 MW) occurred due to loss of evacuation path.

Elements remained in service on 400kV Side after event #1 & 2:

- 765/400kV ICT#1 connected with 400kV Angul-Bolangir Line through Tie Bay (402)
- 400kV Jindal – Angul#2 with 400kV GMR – Angul#1 through Tie Bay (426).
- 400kV Jindal – Angul#1 with 400kV GMR – Angul#2 through Tie Bay (429)

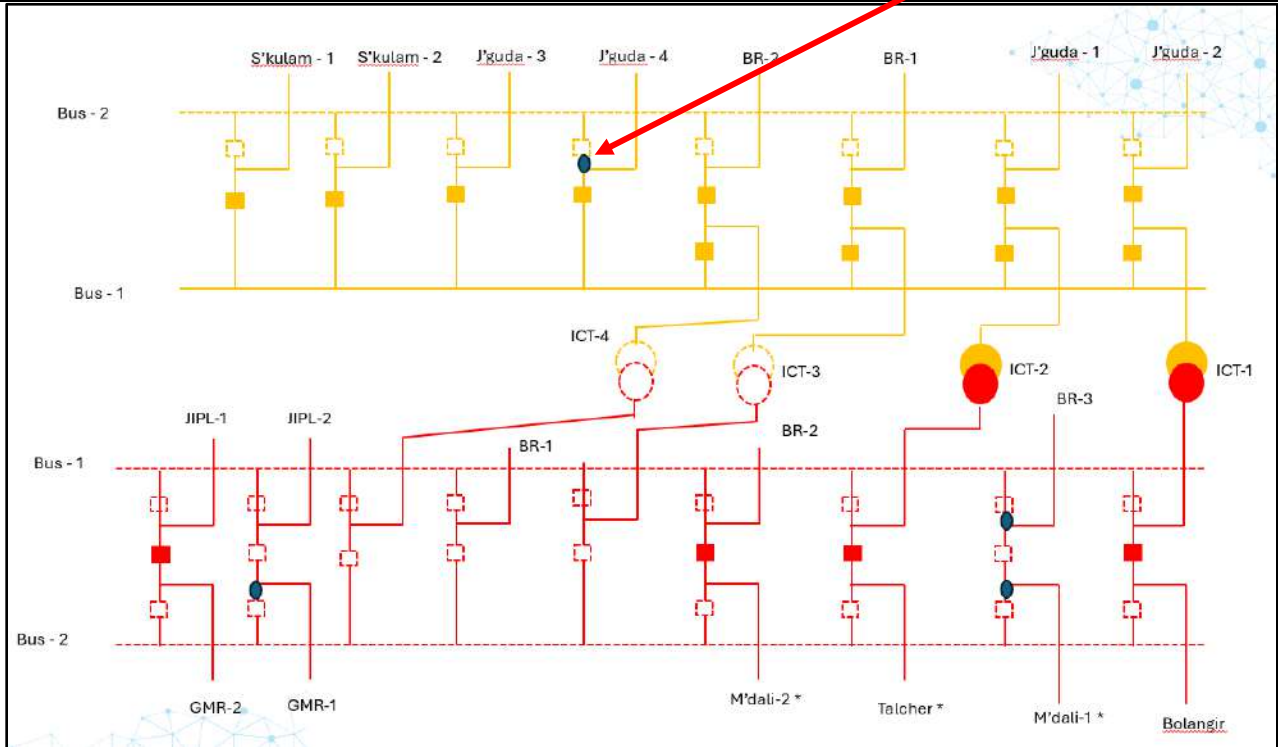
<b>Event 3 Time:</b>	16:20:23.301 Hrs. (after 2.8 Sec of event 2)	<b>Fault Location:</b>	Main bay of GMR#1(427)
<b>Bay No:</b>	427	<b>Reason:</b>	<b>Failure of 427 B-ph CT</b>



- At 16:20:23:301 Hrs**, CT of main bay of GMR-1 failed as line was charged from GMR through the tie bay. LBB operated after 200 msec and tie bay tripped and from GMR end phase to ground fault was sensed in Z-2. However, line tripped immediately due to carrier received from Angul end. Reason of Carrier send from Angul end needs to be investigated. Later DT was also received at GMR after LBB operation at Angul and all three-phase tripped at GMR.

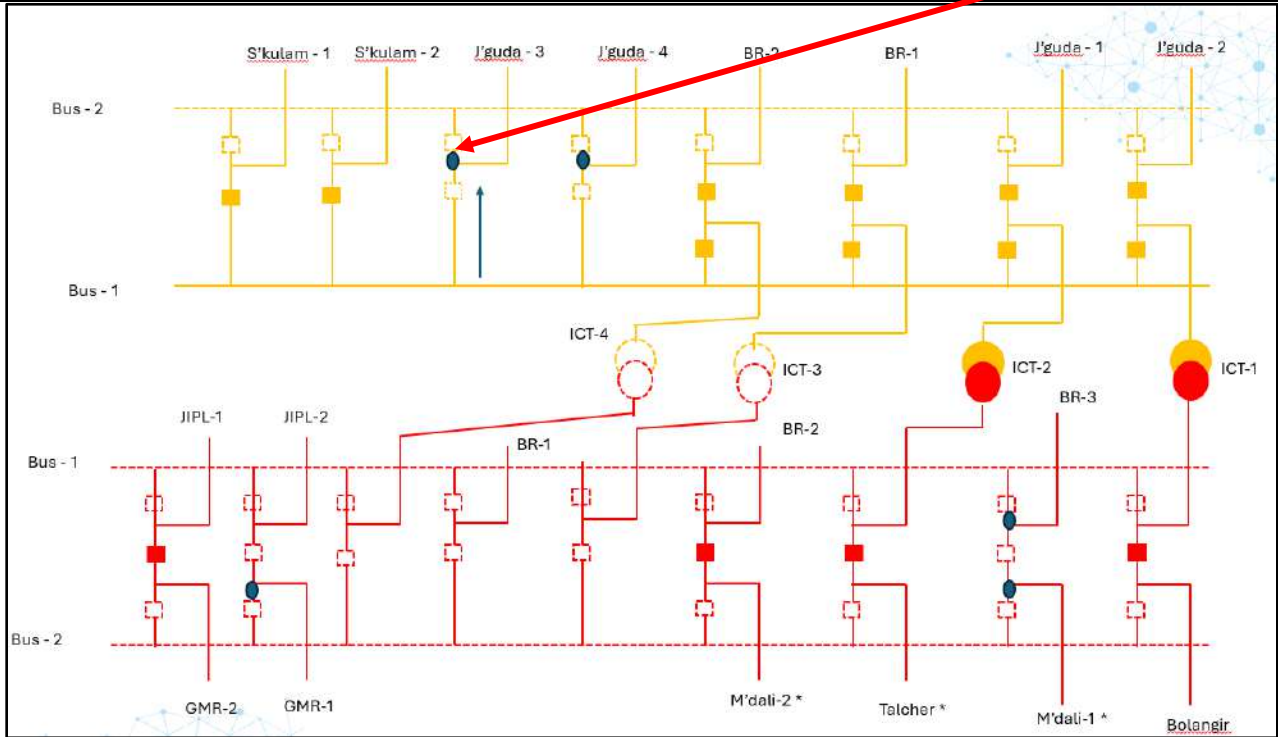


<b>Event 4 Time:</b>	16:20:27.760 hrs (after 4.46 Sec of event 3)	<b>Fault Location:</b>	Main bay of Sundargarh#4(720)
<b>Bay No:</b>	720	<b>Reason:</b>	<b>Failure of 720 Y-ph CT</b>



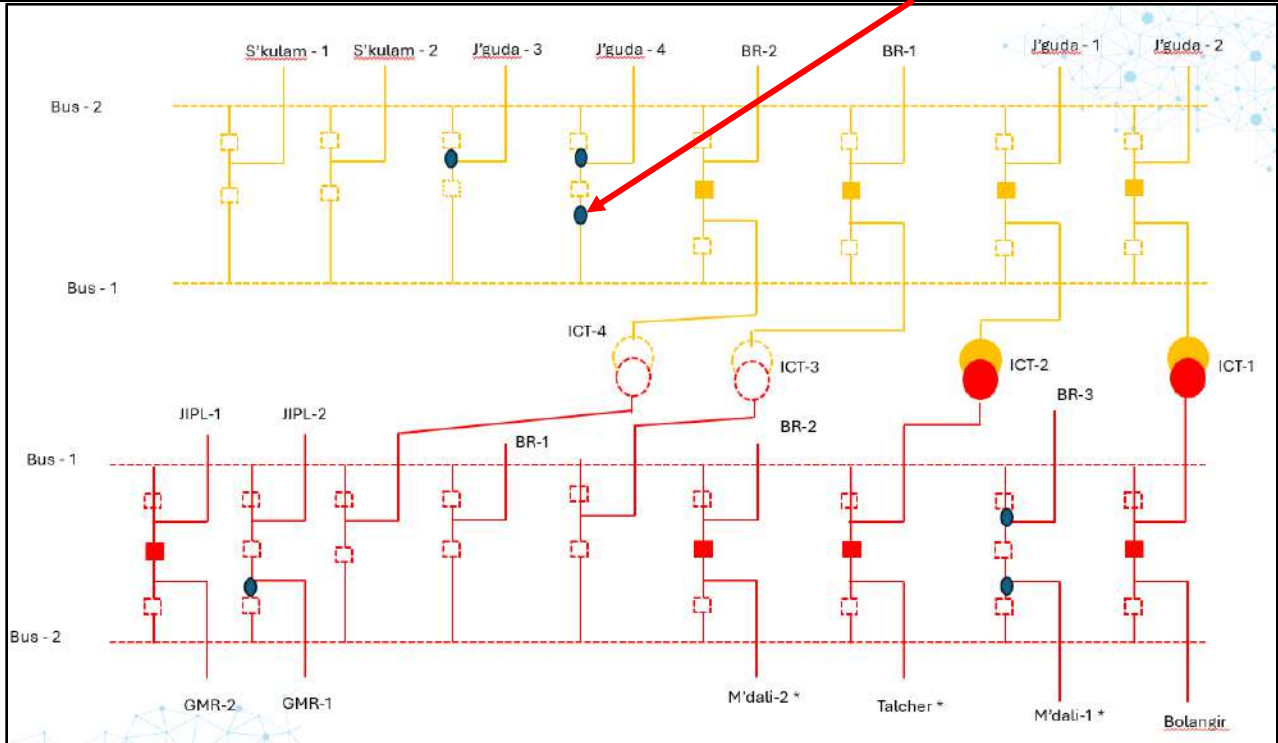
- **At 16:20:27:760 Hrs** Fault occurred at CT junction box of 765 kV main bay (720) of Jharsuguda-4 and bus bar protection operated. All main bay connected to Bus-2 tripped and tie bay of this dia also tripped on LBB after 200 msec as fault was being fed through Bus-1.

<b>Event 5 Time:</b>	16:20:31.178 Hrs. (after 3.4 Sec of event 4)	<b>Fault Location:</b>	Main bay of Sundargarh#3(723)
<b>Bay No:</b>	723	<b>Reason:</b>	<b>Failure of 723 Y-ph CT</b>



- **At 16:20:31:178 Hrs** Fault at CT junction box of main bay of Jharsuguda-3 as main bay was already open, tie bay of this dia tripped on LBB as fault was being fed through Bus-1.

<b>Event 6 Time:</b>	16:20:55.213 Hrs. (after 20 Sec of event 5)	<b>Fault Location:</b>	Tie bay of Sundargarh#4(719)
<b>Bay No:</b>	719	<b>Reason:</b>	<b>Failure of 719 B-ph CT</b>



- **At 16:20:55:213 Hrs**, Fault at CT junction box of 765 kV main bay (719) of Jharsuguda-4 (connected to Bus-1) and bus bar protection operated. All main bay connected to Bus#1 tripped.
- 765kV Main Bus#1 & 2 became dead.

**Following elements remained charged:**

- 765 kV Angul-Jharsuguda-2 and 765 kV/400 kV ICT-1 (in same dia) remained charged through tie bay. At 400 kV side, in ICT-1 dia, 400 kV Angul-Bolangir also remained charged through tie bay.
- 765 kV Angul-Jharsuguda-1 and 765 kV/400 kV ICT-2 (in same dia) remained charged through tie bay.
- At 400 kV side, in ICT-2 dia, tie bay remained charged. Dia element- 400 kV Talcher was out due to bypass arrangement.

**12. Protection/Operational issues observed (सुरक्षा/परिचालन संबंधी समस्या):**

- Tripping of 400kV GMR-Angul #1 from GMR end was due to carrier received from Angul end. Reason of carrier send from Angul end need to be investigated.
- A similar kind of incident happened on 12.10.23 wherein 4nos of CTs failed (3nos in 765Kv side & 1nos in 400KV side). Root cause analysis needs to be done for failure of CTs in both incidents.
- It is observed that flashover at the junction box is occurring during lightning. Earthing needs to be checked for entire switchyard.
- Detailed report received from Power Grid is attached at Annexure-3.

### 13. Action Taken/Remedial Measures (सुधारात्मक उपाय):

- DLSP study and earthing audit needs to be conducted again.
- Root cause analysis of failure of CTs needs to be done.
- Powergrid may submit findings of study/audit thereafter along with timeline of implementation of remedial measures.
- GMR and JITPL are in same dia which leads to loss of generation in the event of outage of both 400 kV bus. Bay rearrangement may be done at Angul.

### 14. Non-compliance observed (विनियमन का गैर-अनुपालन):

S.No.	Issues	Regulation Non-Compliance	Utilities
1.	DR/EL not submitted within 24 hours	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Powergrid Odisha

### 15. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

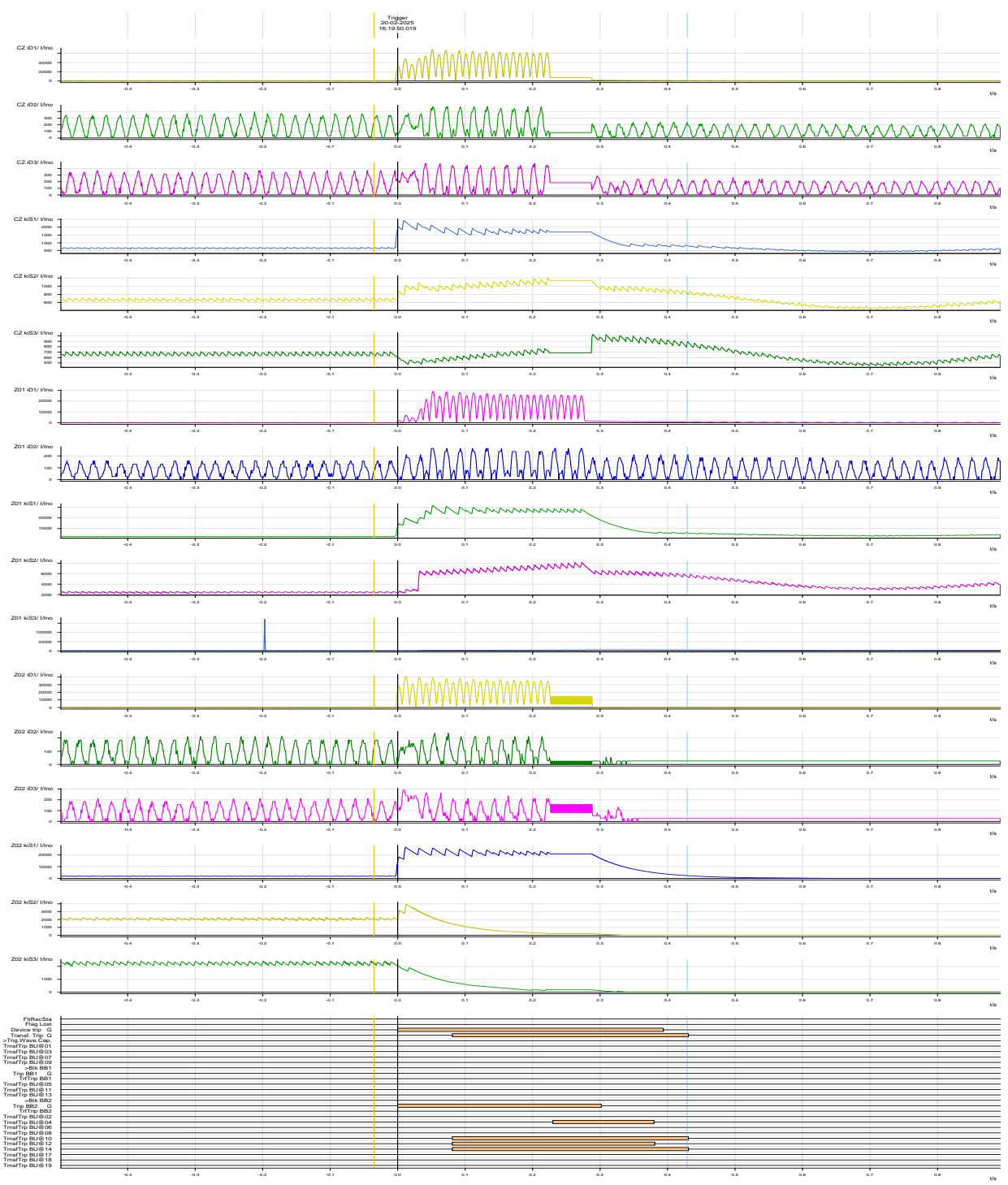
- In a switchyard with one and half bus scheme, any D/c line should not terminate in same dia. Also, in one dia, the two elements should not be from two generators. The bay arrangement should be done in such a way that generator has a evacuation path even after outage of both bus.

### Annexure 1: (Sequence of Events-As per ERLDC SCADA):

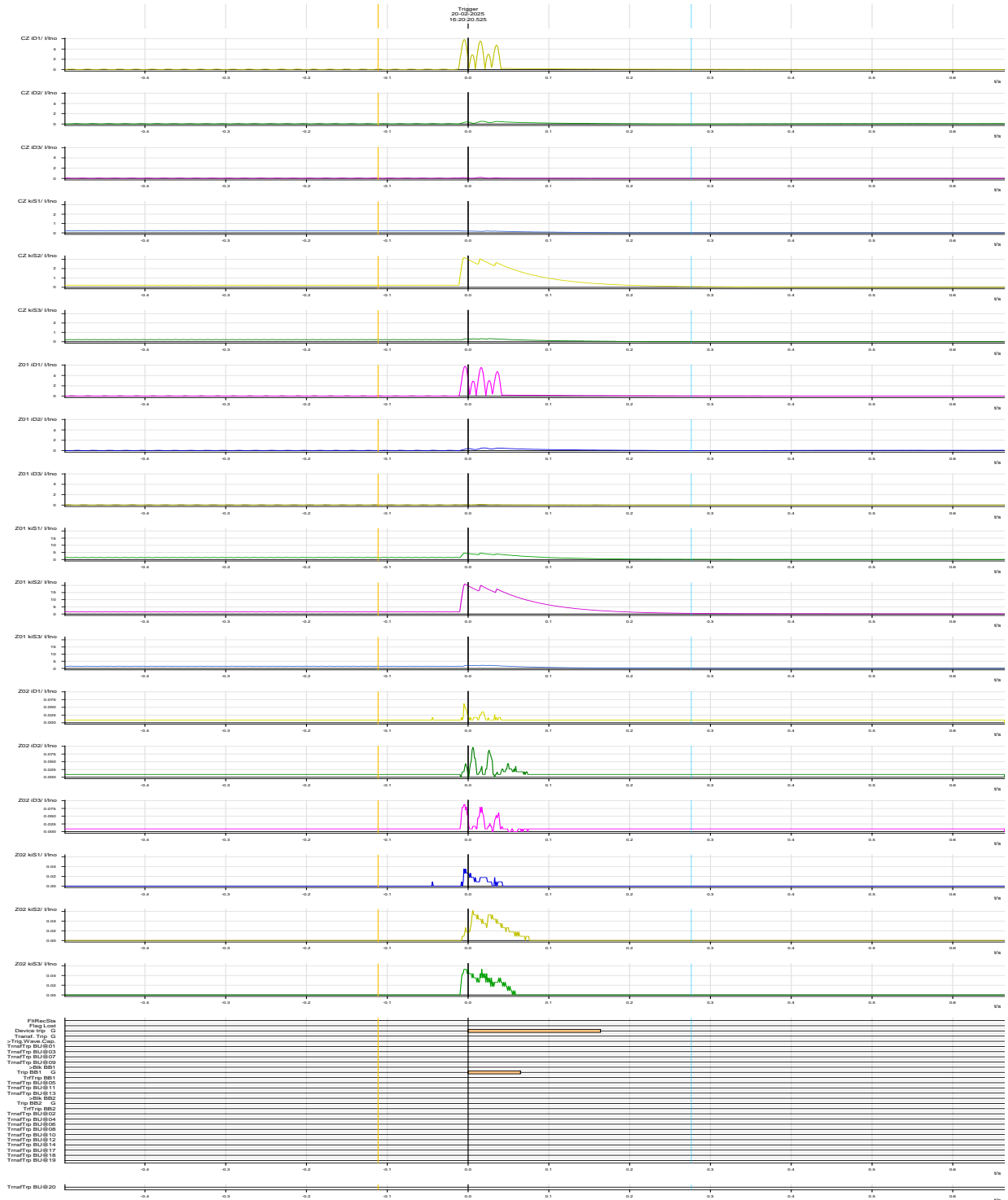
Date/Time	Origin	Description	Value
20-02-25 16:19:34	ANGUL_PG	400_TALCH_PG_Main_CB STTS	1 Open
20-02-25 16:19:34	ANGUL_PG	400_MERAM_GR_2_Main_CB STTS	1 Open
20-02-25 16:19:34	ANGUL_PG	400_MERAM_GR_1_Main_CB STTS	1 Open
20-02-25 16:19:34	ANGUL_PG	400_BOLAN_PG_Main_CB STTS	1 Open
20-02-25 16:19:32	ANGUL_PG	400_GMR_2_Main_CB STTS	1 Open
20-02-25 16:19:32	ANGUL_PG	400_Main_Bus_R3_SPARE_3_Tie STTS	1 Open
20-02-25 16:19:32	ANGUL_PG	400_MERAM_GR_1_Main_Bus_R1_Tie STTS	1 Open
20-02-25 16:19:31	ANGUL_PG	400 ICT4_MB1_ISO STTS	Open
20-02-25 16:19:31	ANGUL_PG	400_GMR_1_Main_CB STTS	1 Open
20-02-25 16:25:40	ANGUL_PG	765_SPARE_NEW_1_Tie_ISO STTS	Open
20-02-25 16:25:40	ANGUL_PG	765_SPARE_NEW_1_Main_CB STTS	4 Open
20-02-25 16:25:40	ANGUL_PG	765_JHARS_PG_3_Tie_ISO STTS	2 Open
20-02-25 16:25:40	ANGUL_PG	765_SPARE_NEW_2_Main_CB STTS	Open
20-02-25 16:25:40	ANGUL_PG	765_Spare_2_Srikakulam_2_Tie STTS	2 Open
20-02-25 16:25:40	ANGUL_PG	765_Spare_2_Main_CB STTS	Open
20-02-25 16:25:40	ANGUL_PG	765_Spare_1_Srikakulam_1_Tie STTS	2 Open
20-02-25 16:25:40	ANGUL_PG	765_Spare_1_Main_CB STTS	Open
20-02-25 16:25:40	ANGUL_PG	400 ICT4_MB1_ISO STTS	2 Open
20-02-25 16:25:40	ANGUL_PG	765 ICT3_Tie_ISO STTS	24 Open
20-02-25 16:25:40	ANGUL_PG	765 ICT2_Tie_ISO STTS	2 Open
20-02-25 16:25:40	ANGUL_PG	765_JHARS_PG_2_R_LL_ISO STTS	1 Open
20-02-25 16:25:40	ANGUL_PG	400_GMR_1_MB2_ISO STTS	1 Open
20-02-25 16:25:40	ANGUL_PG	400 JITPL_PG_2_Main_CB STTS	2 Open
20-02-25 16:25:40	ANGUL_PG	400 JITPL_PG_1_Main_CB STTS	2 Open
20-02-25 16:25:33	ANGUL_PG	765_SPARE_NEW_1_Main_CB STTS	4 Open
20-02-25 16:25:33	ANGUL_PG	765_JHARS_PG_3_Tie_ISO STTS	Open
20-02-25 16:25:33	ANGUL_PG	765_Spare_2_Srikakulam_2_Tie STTS	Open
20-02-25 16:25:33	ANGUL_PG	765_Spare_1_Srikakulam_1_Tie STTS	Open
20-02-25 16:25:33	ANGUL_PG	765 ICT4_LL_ISO STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	765 ICT4_Tie_ISO STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	765 ICT4_MB1_ISO STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	765 ICT3_LL_ISO STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	765_JHARS_PG_1_R_LL_ISO STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	765 ICT2_Tie_ISO STTS	Open
20-02-25 16:25:33	ANGUL_PG	765_JHARS_PG_2_Tie_ISO STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	400 JITPL_PG_2_Main_CB STTS	Open
20-02-25 16:25:33	ANGUL_PG	400 JITPL_PG_1_GMR_2_Tie STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	400 JITPL_PG_1_Main_CB STTS	Open
20-02-25 16:25:33	ANGUL_PG	400 ICT2_Main_CB STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	400_Main_Bus_R3_Main_CB STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	400_Main_Bus_R2_Main_CB STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	400_Main_Bus_R1_Main_CB STTS	1 Open
20-02-25 16:25:33	ANGUL_PG	400 ICT1_Main_CB STTS	1 Open
20-02-25 16:33:42	ANGUL_PG	765_SPARE_NEW_2_Main_CB STTS	2 Open
20-02-25 16:33:42	ANGUL_PG	765_Spare_2_Main_CB STTS	2 Open
20-02-25 16:33:42	ANGUL_PG	765_Spare_1_Main_CB STTS	2 Open

# Annexure 2

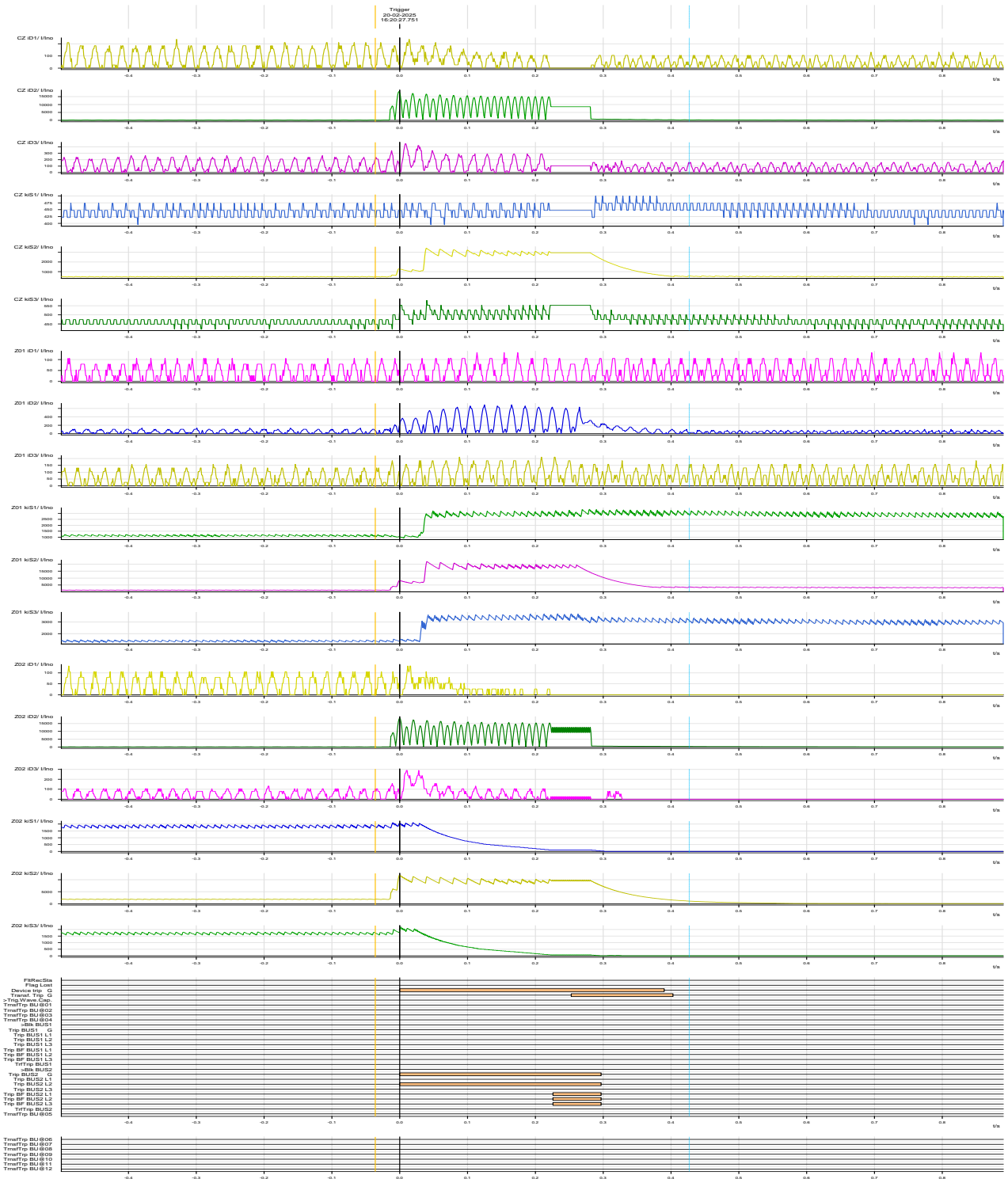
## DR of Bus Bar of 400kV Main Bus#2 :



# DR of Bus Bar of 400kV Main Bus#1:



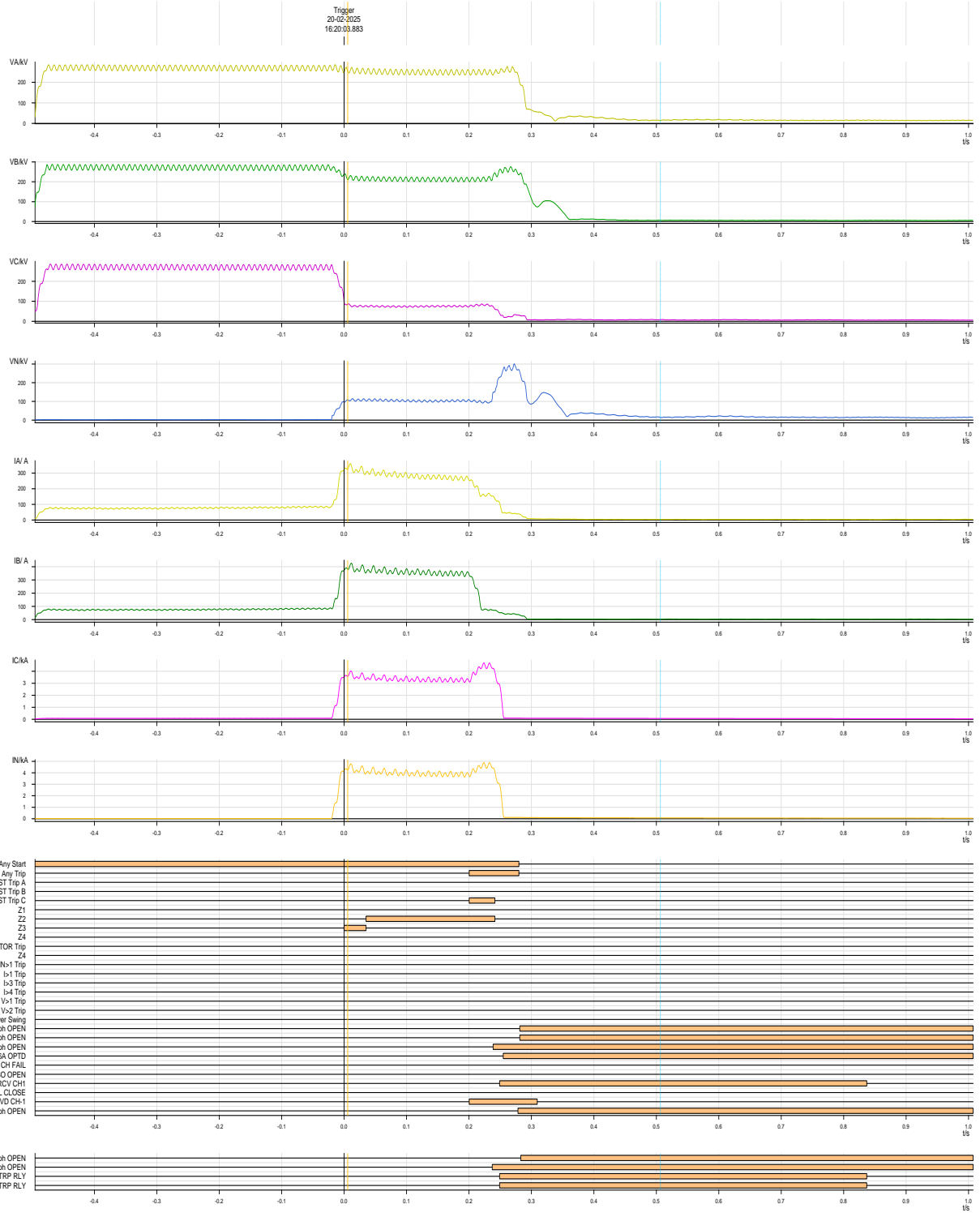
# DR of Bus Bar of 765kV Main Bus#2:



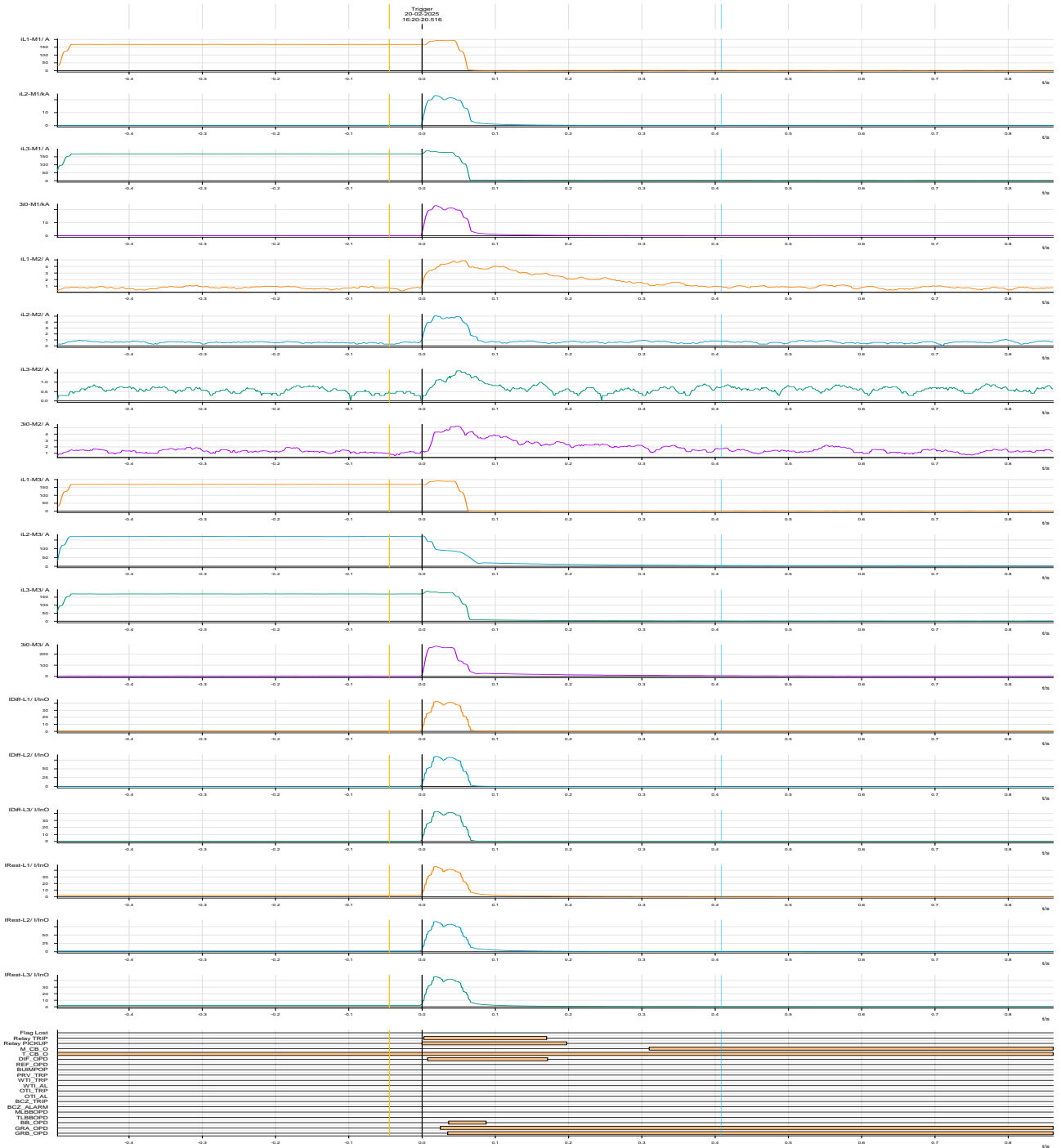




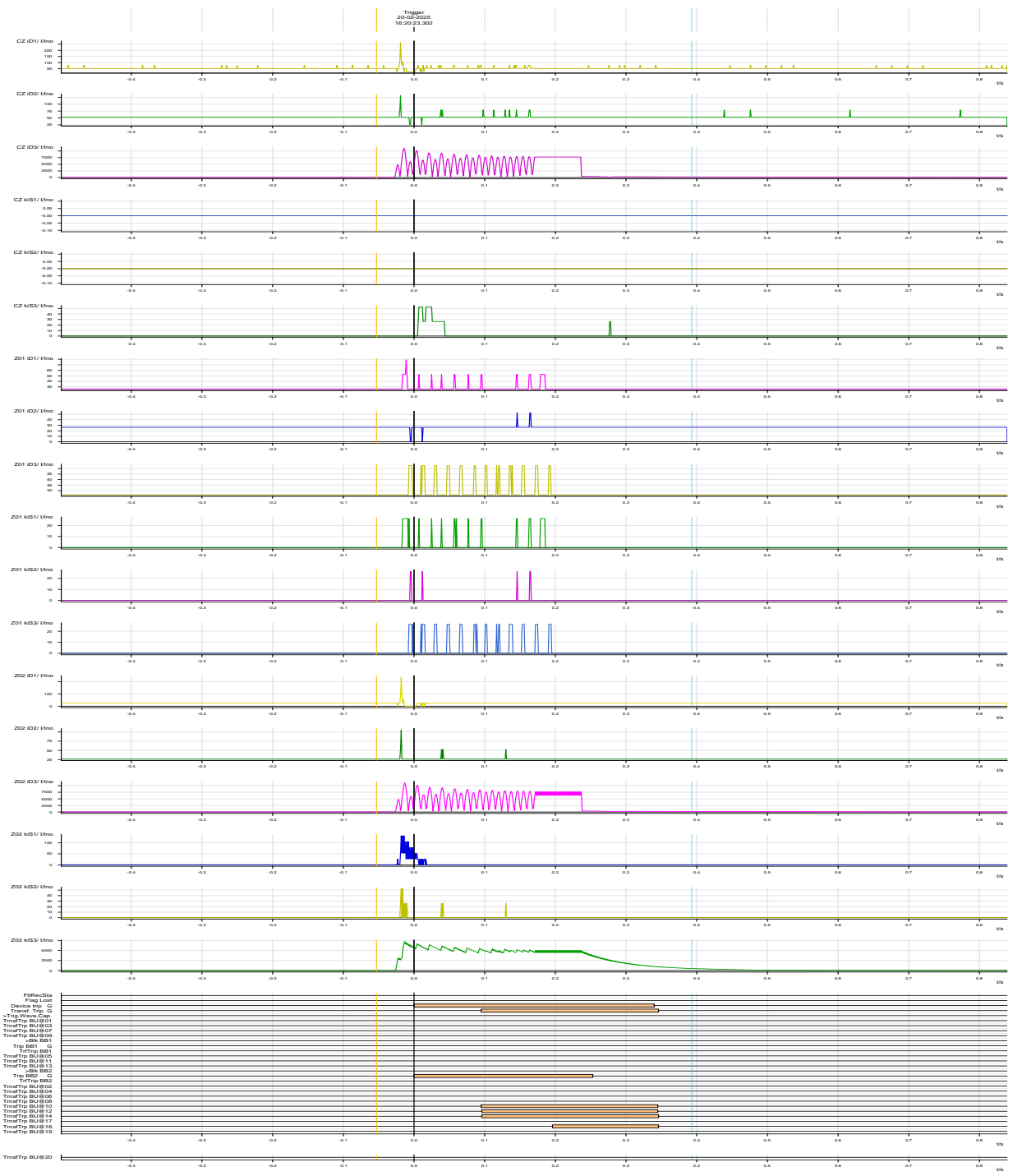
# DR of Angul-GMR #1 at GMR end:



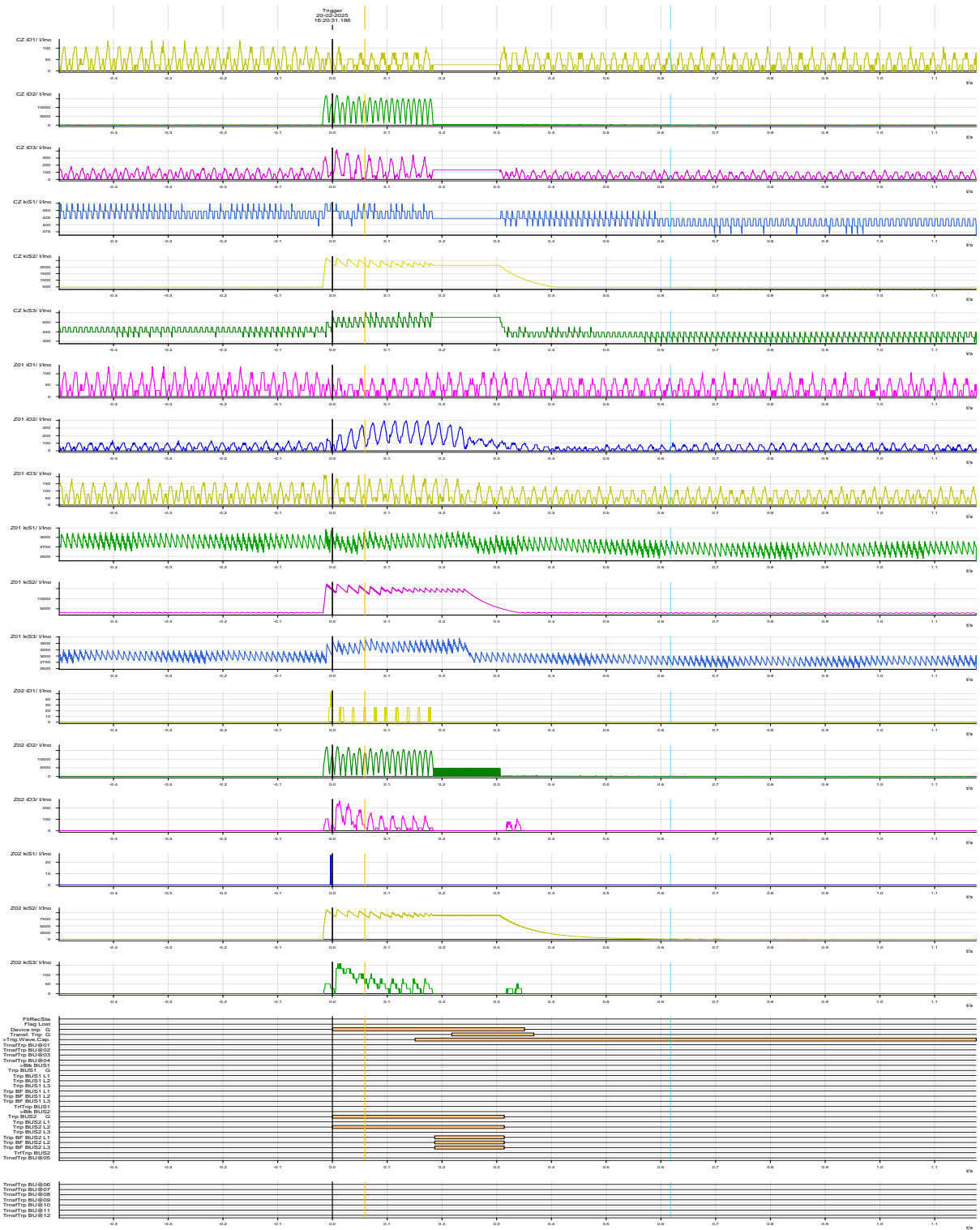
# DR of 400kV Bus Reactor #3



# DR of LBB of Main Bay of GMR#1 at Angul:



# DR of LBB of Main Bay of Sundargarh#3(723) at Angul:





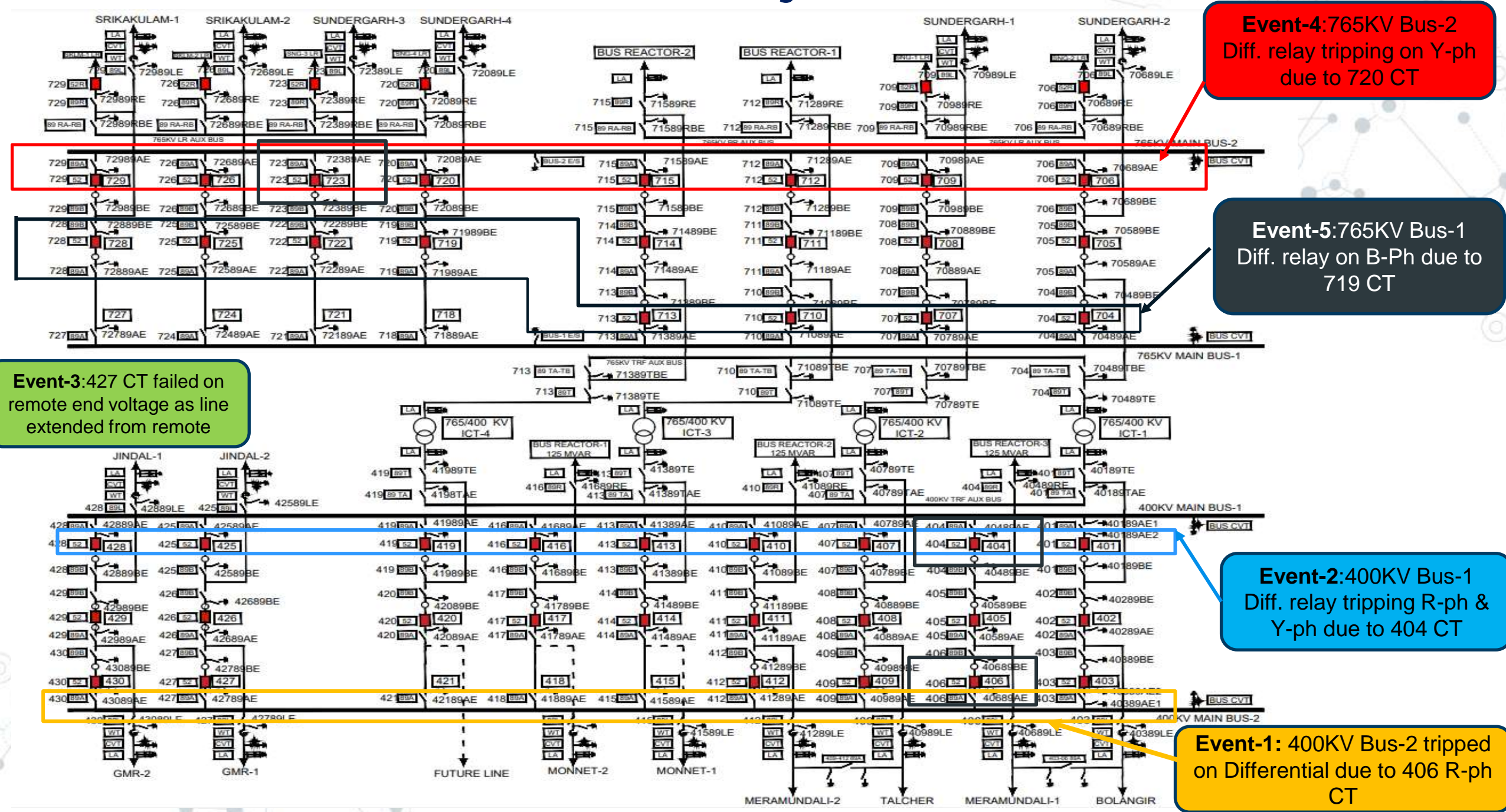
**Report on Multiple element  
trippings at Angul on 20.02.25**



# Preliminary report on Multiple element trippings at Angul on 20.02.25

<b>STATION:</b>	<b>765/400KV Angul S/s</b>
<b>Tripping event Date &amp; Time</b>	20/02/2025 16:19:50 hrs
<b>Details</b>	765KV Bus-1 & 2 and 400KV Bus-1 &2 Tripped during Heavy Whirl Wind, Hail storm & Lighting.
<b>Condition prior incident</b>	<ul style="list-style-type: none"><li>765kV Angul-Sundergarh Line-4 was out for Voltage regulation &amp; its corresponding LR was charged as Bus Reactor.</li><li>765 KV Bus Reactor-1 was out of service for Voltage regulation and Its Main Bay was out for Scheduled AMP Work.</li><li>400 KV Angul-Meramundali-1 was anti-theft charged.</li><li>400 KV Talcher &amp; Meramundali-2 were in LILO bypass mode.</li></ul>
<b>Elements tripped</b>	<p>16:19:50:019- 400 KV Bus-2 on R-ph Differential 16:20:20:525- 400 KV Bus-1 on R-ph Differential 16:20:23:302- 427 LBB Optd 16:20:27:751- 765 KV Bus-2 on Y-ph Differential 16:20:31:186- 723 LBB Optd 16:20:55:210- 765 KV Bus-1 on B-ph Differential</p>

# Angul SLD



# Sequence of Restoration:



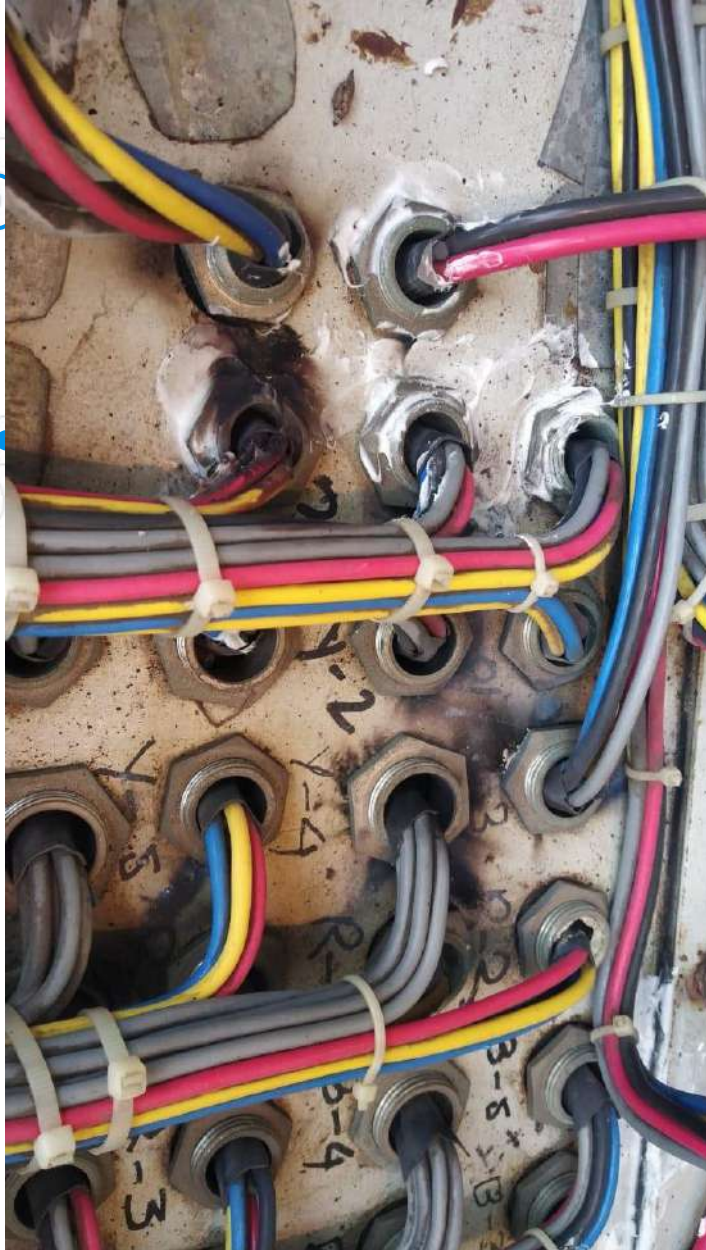
- xvi. 19:48 - 400 kV Main Bay of ICT #4
- xvii 19:55 – 765 kV Sklm #2
- xviii 20:25 – 400 kV Tie Bay of Jindal #2 & GMR #1
- xix 20:31 – 765 kV Sklm #1
- xx. 23:26 -1500 MVA ICT-3
- xxi 00:02-765kV Angul-Jharsuguda CKT-3
- xxii 00:02-765kV BUS-1 charged
- xxiii 00:08-Tie Bay of 765 kV Srikakulam-2
- xxiv 00:08- Tie Bay of 765 kV Srikakulam-1
- xxv 00:13- Main Bay of 1500 MVA ICT-4
- xxvi 00:14- Main Bay of 1500 MVA ICT-3
- xxvii 00:15- Main Bay of 1500 MVA ICT-1
- xxviii 00:15- Main Bay of 1500 MVA ICT-2

**To be restored :** 765 KV -Bay No-719,720 and 723 & 400kV- 404,405,406 and 427





720CT



427CT



406CT



## External view of CTs



### Performance Indices of Darlipali STPP for Mar'25

Index. No.	Number of correct operations at internal power system faults( Nc)	Number of failures to operate at internal power system faults(Nf)	The Dependability Index( $D=Nc/(Nc+Nf)$ )
1	1	0	1

Index. No.	Number of correct operations at internal power system faults( Nc)	Number of unwanted operations (Nu)	The Security Index( $S=Nc/(Nc+Nu)$ )
2	1	0	1

Index. No.	Number of correct operations at internal power system faults( Nc)	Number of incorrect operations ( $Ni=Nf+Nu$ )	The Reliability Index ( $R=Nc/(Nc+Ni)$ )
3	1	0	1

**NOTE for reference of deciding parameters:**

- 1) Nc = The number of correct operation of switchyard breakers (220kV and above) on protection to be counted i.e if the breaker has operated correctly on internal protection operation**
- 2) Nf = The number of failure of switchyard breaker (220kV and above) to operate on its protection to be counted i.e if the breaker has not operated on internal protection operation (includes LBB operation etc)**
- 3) Nu = The number of unwanted operation of switchyard breaker (220kV and above) without its own protection operation to be counted i.e if the breaker has opened without operation of its protection leading to tripping of other breaker or grid connected equipments**

# NTPC Barh

Month	February						
Date	Line tripping	Cause of Tripping	Tripping Analysis	Correct Operations at NTPC Barh (Nc)	Failed operations at NTPC Barh(Nf)	Number of Unwanted Operation (Nu)	Number of incorrect operations (Ni= Nf+Nu)
	No line trippings in the month of February 2025						
			Dependability Index $D = Nc / (Nc + Nf)$	#DIV/0!			
			Security Index $S = Nc / (Nc + Nu)$	#DIV/0!			
			Reliability Index $R = Nc / (Nc + Ni)$	#DIV/0!			

# NTPC NKSTPP

Protection Performance Indices for the month of Feb '25 (In compliance of Clause 15(6) of IEGC 2023)																	
NAME OF STATION:			NTPC NORTH KARANPURA SUPER THERMAL POWER PROJECT (3 X 660MW)														
S. No.	Name of the element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason (Relay)		Nc		Nu		Nf		Dependability index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nu+Nf))	Remarks (Reason for performance indices less than 1)
						End A	End B	End A	End B	End A	End B	End A	End B				
1	Nil					NA	NA	0	0	0	0	0	0	1	1	1	NO electrical tripping in the month of Feb 2025'



# BSPTCL

Protection Performance Indices for the month of February'25																		
S. No.	Name of the element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason (Relay indication)		Nc		Nu		Nf		Dependability Index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nu+Nf))	Remarks (Reason for performance indices less than 1)	
						End A	End B	End A	End B	End A	End B	End A	End B					
1	220KV-SAHARSA-BEGUSARAI-1	07-02-2025	11:30	07-02-2025	12:52		Begusarai: R-N, Ir - 2.39 KA, 61.25Km,AR		1		0		0	1		1	1	
2	220KV-KHAGARIA-NEW PURNEA-1	07-02-2025	11:48	07-02-2025	12:49	Khagaria: B-N, 1.935 kA ,86.05 km,AR	New Purnea: B-N, 4.31 kA, 22km,AR	1	1	0	0	0	0	1		1	1	
3	220KV-DARBHANGA(DMTCL)-LAUKAHI-2	24-02-2025	07:14	24-02-2025	08:48		Y_B Fault			1			0	1		1	1	







# TTPS

## Protection Performance Indices for the month of FEBRUARY 2025(In compliance of Clause 15(6) of IEGC 2023)

Sl. No.	Name of the element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason (Relay indication)		Nc		Nu		Nf		Dependability index (Nc / (Nc+Nf))	Security Index (Nc / (Nc+Nu))	Reliability Index (Nc / (Nc+Nu+Nf))	Remarks (Reason for performance indices less than 1)
						End A	End B	End A	End B	End A	End B	End A	End B				
1	400KV TTPS-PVUNL T/L	20.02.2025	02:31 HRS	21.02.2025	22:13 HRS	Earth Fault/ 35.40km		1		0		0		1.0000	1.0000	1.0000	

Note:

Nc is the number of correct operations at internal power system faults.  
 Nf is the number of failures to operate at internal power system faults.  
 Nu is the number of unwanted operations.  
 Ni is the number of incorrect operations and is the sum of Nf and Nu

## List of important transmission lines in ER which tripped in February-2025

Sl. 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	Remarks	DR Configuration Discrepancy (Local End)	DR Configuration Discrepancy (Remote End)	DR/EL RECEIVED FROM LOCAL	DR/EL RECEIVED FROM REMOTE	LOCAL END UTILITY	REMOTE END UTILITY
1	220KV-CHANDIL-STPS(WBPDCL)-1	05-02-2025	11:00	05-02-2025	11:19	Chandil:-R-N, 1.56 kA, 21km	STPS(WBPDCL): R-N, 0.62 kA, 85.5 Km	R-Earth	350 msec	Tripped in Zone-2 from Chandil end			Yes	No	JUSNL	WBPDCL
2	400KV-PUSAULI(PG)-NABINAGAR(BRBCL)-1	07-02-2025	09:48	07-02-2025	10:22	Sasaram: R-N, FC: 7.75 kA, 54 Km	BRBCL : R-N, 4.79 kA, 42.3 Km	R-Earth	100	A/r failed after 1 second			Yes	No	PG ER-1	NTPC
3	400KV-PUSAULI(PG)-NABINAGAR(BRBCL)-1	07-02-2025	10:23	07-02-2025	19:39	Sasaram: R-N, FC: 3.01 kA, Z-1	BRBCL: R-N, 4.77 kA, 42 Km	R-Earth	100	A/r failed after 1 second			Yes	No	PG ER-1	NTPC
4	220KV-SAHARSA-BEGUSARAI-1	07-02-2025	11:30	07-02-2025	12:52	Saharsa : R-N, 4.958 kA, 24.9 Km	Begusarai: R -N, Ir - 2.39 KA, 61.25Km	R-Earth	100	A/r successful from both ends. Tripped again within reclaim time.			Yes	Yes	PMTL	BSPTCL
5	220KV-KHAGARIA-NEW PURNEA-1	07-02-2025	11:48	07-02-2025	12:49	Khagaria: B-N, 1.935 kA ,86.05 km	New Purnea: B-N, 4.31 kA, 22km	B-Earth	100	A/r successful from both ends. Tripped again within reclaim time.			Yes	Yes	BSPTCL	PG ER-1
6	220KV-JSPL-JAMSHEDPUR(DVC)-1	07-02-2025	12:43	07-02-2025	15:55	JSPL: R-Y, Ir: 2.17 kA Iy: 2.09 kA, 82.45 km	Jamshedpur:- R-Y, 49.4 km. Ir: 2.91KA, Iy: 2.8 kA	R_Y	100	As per PMU line tripped on phase to phase fault			No	No	CPP	DVC
7	400KV-MUZAFFARPUR-GORAKHPUR-2	08-02-2025	03:11	08-02-2025	05:00	Muzaffarpur: R-B, Ir 4.630 KA, Ib 4.631 KA, 135.942 Km	Gorakhpur : R-B, Ir-4.75 KA Ib-4.71 KA, 123.5 Km	R-B	100	Phase to phase fault			Yes	NA	PG ER-1	NORTHERN REGION
8	220KV-SUBHASGRAM(PG)-BANTALA-1	10-02-2025	12:25	10-02-2025	13:08	Subhasgram: Didn't trip	Tripped from Bantala end	No fault	NA	Tripped from Bantala only due to Pole discrepancy. WBSETCL may explain.			NA	No	PG ER-2	WBSETCL
9	400KV-ARAMBAGH-BAKRESWAR-1	11-02-2025	02:53	11-02-2025	19:51	Arambag:Y-N, Iy: 12.43 kA, 35.47 Km	Bakreswar: Y-N, 92.49 Km	Y-Earth	100	A/r failed after 1 second			Yes	No	WBSETCL	WBPDCL
10	220KV-RANGPO-NEW MELLI-2	11-02-2025	15:00	11-02-2025	16:06	Rangpo :R-N, Ir 5.734 KA, 23.493 km,	Melli: R-N, Ir 2.980 KA, 2.304 km	R-Earth	840 msec	R-Phase to ground fault occurred near to N Melli end. A/r successful from Melli end and tripped in reclaim time from N Melli end. Same fault sensed by Rangpo in Z-3 and three phase tripping from Rangpo end in Z-3 protection. ER-II may explain.			Yes	Yes	PG ER-2	PG ER-2

11	400KV-GAYA-KODERMA-2	13-02-2025	14:53	13-02-2025	17:18	Gaya: Y-B, 7.03 kA, 87.8 km	Koderma: Y-B, Ib=9.93 KA, ly=9.85KA, 40.8 km	Y-B	100	Phase to phase fault			Yes	Yes	PG ER-1	DVC
12	400KV-MERAMUNDALI-LAPANGA-2	14-02-2025	13:58	14-02-2025	15:39	Meeramundali :R-N, Ir 1.87 KA, 132 km	Lapanga: R-N, Ir 7.63 KA, 32.5 km	R-Earth	100	A/r failed after 1 second			Yes	Yes	OPTCL	OPTCL
13	765KV-MEDINIPUR-NEW JEERAT-2	14-02-2025	15:20	14-02-2025	18:50	Medinipur: R-Y, Ir: 5.626 kA, ly: 5.629 kA, 130.5 Km	Jeerat: R-Y, Ir: 6.428 kA, ly:6.401 kA, 29.6 Km	R_Y	100	Phase to phase fault			Yes	Yes	PMJTL	PMJTL
14	400KV-DSTPS(ANDAL)-RAGHUNATHPUR-1	15-02-2025	13:00	15-02-2025	17:31	Tripped due to tripping of Andral Raghunathpur Ckt#2	Didn't trip	No fault	-	Raghunathpur Ckt #1 & 2 are in same Dia at DSTPS(Andal) and Main bay of Raghunathpur #1 at DSTPS(Andal) was under S/D. At 13:00 Hrs 400kV-Raghunathpur-DSTPS(Andal) #2 tripped on phase to ground fault led to tripping of ckt#1 also.			NA	NA	DVC	DVC
15	400KV-DSTPS(ANDAL)-RAGHUNATHPUR-2	15-02-2025	13:00	15-02-2025	18:52	DSTPS (ANDAL) : B_N, 4.17kA, 47.62 Km	Raghunathpur : B-N, Ib-7.378 kA, 34.86 Km	B-Earth	100	A/r failed after 1 second			Yes	Yes	DVC	DVC
16	400KV-MEERAMUNDALI-TSTPP-1	15-02-2025	13:20	15-02-2025	15:12	Event 1- B-N, Z2, Ib - 6.06 kA, 36.8 KM, Event 2- Y-ph pickup; Y-N, Z2, ly - 4.54 kA, 40 KM;	TSTPP : Y-N, ly - 8.2 kA, 13.25 Km	B-Earth	100	B phase to ground fault occurred near Talcher end and after 300 msec another Y phase fault developed which led to three phase tripping from Meramundali end in Z-2 protection.			Yes	No	OPTCL	NTPC
17	400KV-JAMSHEDPUR-BARIPADA-1	18-02-2025	18:42	18-02-2025	20:04	Jamshedpur : R_N, 3kA, 141 Km	Baripada: R_N, 12.53 kA, 0.8 Km, Main 2 - Y_N, 12.42 kA, 0.5 Km	R-Earth	100	R phase to ground fault occurred near Baripada end and after 300 msec another Y phase fault developed which led to three phase tripping from both end.			Yes	No	PG ER-1	PG Odisha
18	400KV-MEDINIPUR-KHARAGPUR-1	18-02-2025	20:11	18-02-2025	21:00	Medinipur:Y-N, ly=3.1 kA, 115.5 Km	Kharagpur - Y_N, 4.3 Km, 15.4 kA	Y-Earth	100	A/r successful from both ends. Tripped again within reclaim time.			Yes	Yes	PMJTL	WBSETCL
19	400KV-KHARAGPUR-KOLAGHAT-1	18-02-2025	20:16	18-02-2025	21:28	Kharagpur : B_N, 16 kA, 0.421 km	Kolaghat - B_N, 3.1 kA, 61 Km	B-Earth	100	A/r successful from both ends. Tripped again within reclaim time.			No	No	WBSETCL	WBSETCL
20	400KV-BIDHANNAGAR-NEW CHANDITALA-1	20-02-2025	07:06	20-02-2025	23:45	Bidhannagar :R-N, 12 KA, 7.8 km	New Chanditala: R-N, 2.7 KA, 124 km	R-Earth	100	A/r successful from both ends. Tripped again within reclaim time.			No	Yes	WBSETCL	WBSETCL
21	220KV-RANCHI-MTPS(DVC)-1	20-02-2025	07:32	20-02-2025	09:42	Ranchi: R_N, 1,028 kA, 167.805 Km (A/R successful)	(Tripped only from MTPS end, ) MTPS: R_N, 4.56 kA, 34.5 Km	R-Earth	100	A/r successful from Ranchi end. Line tripped from Mejia end.			Yes	No	PG ER-1	DVC
22	765KV-MEDINIPUR-NEW JEERAT-2	20-02-2025	10:38	20-02-2025	12:09	Medinipur: B-N, 4.7 kA, 72.8 km	New Jeerat: B-N, 4.24 kA, 77.6 km	B-Earth	100	A/r failed after 1 second			Yes	Yes	PMJTL	PMJTL
23	400KV-MERAMUNDALI-LAPANGA-2	20-02-2025	16:10	20-02-2025	18:53	Meramundali: B-N, Ib=8.96 KA, 19.2 Km	Lapanga: Y-N, ly=2.9 KA, 160.8 Km	Y_Earth	100	Y phase to ground fault occurred and after 200 msec another B phase fault developed which led to three phase tripping from both end.			Yes	Yes	OPTCL	OPTCL

24	220KV-BIRPARA-MALBASE-1	23-02-2025	02:56	23-02-2025	04:21	Y_B_N, Iy=1.09 kA, Ib=1.83 kA, 40 km	Didn't trip	Y_B	800	Line tripped on phase to phase fault in Z-3 protection from Birpara end.			Yes	Yes	PG ER-2	BHUTAN
25	400KV-MALBASE-BINAGURI-1	23-02-2025	02:56	23-02-2025	04:36	Didn't trip	B_N, 1.517 kA, 126.2 km	B-Earth	350	Line tripped on phase to ground fault in Z-2 protection from Binaguri end.			NA	Yes	BHUTAN	PG ER-2
26	220KV-DALKHOLA (WB)-PURNEA(OLD)-1	23-02-2025	02:58	23-02-2025	03:34	B Phase to ground fault	Purnea: B_N, 4.54 kA, 32.8 km	B-Earth	100	Three phase tripping for phase to ground fault.			No	Yes	WBSETCL	PG ER-1
27	220KV-DARBHANGA(DMTCL)-LAUKAHI-2	24-02-2025	07:14	24-02-2025	08:48	Y-B, Iy-5.8 KA, Ib-5.77 KA, 32.5 Km	Y_B Fault	Y_B	100	As per PMU line tripped on Phase to phase fault			No	No	DMTCL	BSPTCL
28	220KV-BIRPARA-MALBASE-1	24-02-2025	20:11	24-02-2025	21:45	Birpara: B-N, 85 km, 2.17 kA	Malbase: Not tripped.	B-Earth	800	Line tripped in Z-3 protection from Birpara end.			Yes	No	PG ER-2	BHUTAN
29	400KV-MALBASE-BINAGURI-1	24-02-2025	20:11	24-02-2025	21:47	Binaguri: B-N, 1.35 kA, 103 km		B-Earth	500	Line tripped on phase to ground fault in Z-2 protection.			Yes	No	BHUTAN	PG ER-2
30	220KV-BIRPARA-MALBASE-1	24-02-2025	22:46	25-02-2025	00:40	Birpara: B-N, 1.98 kA, 89.1 Km	-	B-Earth	800	Line tripped in Z-3 protection from Birpara end.			Yes	No	PG ER-2	BHUTAN
31	400KV-MALBASE-BINAGURI-1	24-02-2025	22:46	25-02-2025	00:27	Binaguri : B-N, 2.2 kA, 103.1 Km	-	B-Earth	500	Line tripped on phase to ground fault in Z-2 protection.			Yes	No	BHUTAN	PG ER-2
32	220KV-DALTONGANJ-CHATRA-1	27-02-2025	05:42	27-02-2025	06:36	Daltonganj : R_N, 1.849 kA, 84.11 Km(A/r successful from Daltonganj end)	Chatra: R-N, 1.5 kA, 45.4 Km	R-Earth	100	A/r successful from Daltonganj end. Line tripped from Chatra end. JUSNL may explain.			Yes	No	PG ER-1	JUSNL
33	220KV-DALKHOLA (WB)-PURNEA(OLD)-1	27-02-2025	06:24	27-02-2025	13:57	Dalkhola: B-N, 5.39 kA, 1 Km	Purnea : B-N, 4.48 KA, 32.497 Km	B-Earth	100	Three phase tripping for phase to ground fault.			Yes	Yes	WBSETCL	PG ER-1

SI No.	Name of the incidence	PCC Recommendation	Latest status
<b>144<sup>th</sup> PCC Meeting</b>			
1.	Disturbance at Balimela HEP (OHPC) S/s on 6 <sup>th</sup> Jan 2025 at 17:53 Hrs	PCC advised OHPC representative to share report of disturbance to ERPC/ERLDC.	
2.	Repeated Disturbance at 400 k V JSPL S/s	JSPL representative informed that shutdown of line is planned for next month in order to replace other damaged insulators as per PID test report of insulators.  PCC advised JSPL representative that matter related to excess dust production from industries should be communicated to CPCB	
3.	Tripping of 400KV/220KV 315 MVA ICT 2 AT MEJIA-B	PCC advised DVC representative to share detailed report after carrying out investigation. Further, it advised DVC representative to share DR of event to ERPC/ERLDC.	
4.	Over Current setting of lines at generator end	PCC advised all concerned generating stations to share relay settings of lines emanating from them at their end in google sheet shared by ERLDC at earliest.	
5.	Uniform Protection Protocol prepared by NPC	PCC agreed with proposal made by ERLDC accordingly it advised concerned utilities to share nomination to form this committee.	
6.	Support Service for Protection Database	ERPC representative informed that as per communication received from PRDC, already these	

	Project of ER for FY 2025-26	proposals are getting discussed by software team of PRDC and reply regarding feasibility of including these features along with cost estimate will be submitted to ERPC by one week.	
7.	Mock testing of SPS	PCC advised SLDCs to share mock testing details for intra state SPS to ERPC/ERLDC.	
<b>143<sup>rd</sup> PCC Meeting</b>			
8.	Disturbance at 400 k V JSPL S/s on 19 <sup>th</sup> Dec 2024 at 13:27 Hrs	<p>JSPL representative informed that communication is already being made with consultant in order to do system study and it is expected that around 4-5 months will be required for complete study.</p> <p>PCC advised JSPL representative to share islanding scheme details to ERPC/ERLDC. It further advised to share sequence of events, voltage and current data for furnace, motor load etc, drawl by furnace load and auxiliary load in minimum resolution as possible.</p> <p>PCC advised JSPL representative to do system study of JSPL as earliest as possible and submit final report to ERPC/ERLDC.</p>	<p>In 144<sup>th</sup> PCC, JSPL representative informed that on doing investigation regarding less current being read for B phase by relay at JSPL end, CT was found faulty which had been replaced. Further report will be shared to ERPC/ERLDC.</p> <p>PCC advised JSPL representative to share islanding scheme details to ERPC/ERLDC.</p>
9.	Tripping of 400KV/220KV 315 MVA ICT 2 AT NEW	PCC advised OPTCL representative to share report to ERPC/ERLDC.	In 144 <sup>th</sup> PCC, PCC advised OPTCL representative to share report to ERPC/ERLDC.

	DUBURI on 21 <sup>st</sup> Dec 2024 at 03:49 Hrs	PCC advised utilities to share practice that are followed by them in case of keeping single or 2 nos of auxiliary relay TTX -2 to ERPC/ERLDC.	
<b>141st PCC Meeting</b>			
10.	Repeated disturbance at 220 kV Balimela (OPTCL) S/s and 220 kV Balimela(PH)(OHPC) S/s	<p>PCC advised OHPC representative to test backup impedance protection and share report to ERPC/ERLDC. It also advised OHPC representative to share unit-wise MW, MVA, voltage and speed data with 1 minimum 1 second resolution to ERPC/ERLDC for further study.</p> <p>PCC further advised OHPC representative to coordinate with OEM for analysing reason behind failure of governor during the event and share observation to ERPC/ERLDC.</p> <p>PCC opined that as PLCC is already available for 2 feeders, so A/r scheme can be implemented by OHPC at earliest after finalising scheme.</p> <p>PCC advised OHPC representative to expedite work for operating Balimela PH with both bus 1 and bus 2.</p> <p>PCC advised OHPC representative to rectify issue of time synchronisation of DR for identified feeders at Balimela PH at earliest.</p> <p>PCC advised OHPC representative to prepare SOP.</p>	<p>In 144<sup>th</sup> PCC Meeting, OHPC representative informed that DR length of Balimela PH had been increased as per ERPC DR standardization guideline.</p> <p>Regarding BCU, he informed that it had been received at site and under implementation stage for which OEM is helping from remote through online mode. Further they are planning to issue work order for deputation of engineer for this purpose if required. He further said that after implementing it, double bus bar scheme will be implemented at Balimela HEP. Bus bar relay had been already procured.</p> <p>It is expected that BCU will be implemented by 3 days if issue is resolved through OEM by online mode only however it will take around one month to resolve issue in case there is need to hire engineer.</p>



		<p>Regarding present status of BCU and bus bar protection, OHPC representative replied that work order had been placed for both procurement of relay and repair of old relays. It is expected that issue will be resolved by 6 weeks.</p> <p>As per observation received from ERLDC, PCC advised OHPC representative to increase DR length of Balimela PH need as per ERPC DR standardization guideline.</p> <p>PCC advised OHPC representative to share timeline for all suggestive actions to ERPC/ERLDC.</p>	
11.	Repeated tripping of 220KV-KHAGARIA-NEW PURNEA-1&2	PCC advised BSPTCL representative to resolve all issues associated with tripping of line along with root cause analysis of repeated tripping of line after flood ends and share analysis report to ERPC/ERLDC	In 144 <sup>th</sup> PCC Meeting, BSPTCL representative informed that agency was engaged in different work therefore they are planning to execute testing work related to phase to phase clearance of line in March 2025 and report will be shared to ERPC/ERLDC.
<b>139th PCC Meeting</b>			

<p>12.</p>	<p>Total Power failure at 220/132 kV Katapalli (OPTCL) S/s on 29.08.2024 at 06:52 Hrs</p>	<p>OPTCL representative informed that it is planned to test relays by availing shutdown of lines as earliest as possible however at present they are facing difficulty in getting shutdown of lines due to evacuation path issue for heavy generation of Burla PH.</p> <p>PCC advised OPTCL to investigate about reason behind non-operation of protection on 29<sup>th</sup> Aug 2024 and submit observation to ERPC/ERLDC.</p> <p>PCC advised SLDC Odisha, OPTCL to communicate with Hindalco to explore possibility of setting delay time of 100-150 ms in islanding scheme of Hindalco to avoid islanding in transient faults and submit summary of discussion and decision taken to ERPC/ERLDC.</p> <p>PCC advised SLDC Odisha, OPTCL, OHPC representative to review o/c e/f settings at Lapanga, Burla, Chiplima, Katapalli, Sambalpur for all feeders and submit revised settings to ERPC/ERLDC Subsequently a meeting will be conducted among ERPC, ERLDC, OPTCL, OHPC, SLDC Odisha representative to finalize the settings.</p> <p>PCC advised OPTCL representative to share status of remedial measures taken for protection/ operation issues to ERPC/ERLDC on periodic basis.</p>	<p>In 144<sup>th</sup> PCC Meeting, SLDC Odisha representative informed that meeting among concerned utilities to revise settings will be done by one week.</p> <p>PCC advised SLDC Odisha to share deliberation of scheduled meeting to ERPC/ERLDC.</p> <p>PCC advised ERPC to convey meeting among ERPC, ERLDC, OPTCL, OHPC, SLDC Odisha representative to finalize the settings after receiving revised settings from OPTCL, OHPC and SLDC Odisha.</p>
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<b>136th PCC Meeting</b>			
<b>13.</b>	Disturbance at 220 kV Tenughat (TVNL) S/s on 29.05.2024 at 12:57 Hrs	<p>PCC advised JUSNL representative to rectify auto-reclose issue at Govindpur end by next week and intimate to ERPC/ERLDC.</p> <p>TVNL representative informed that settings at their end had been implemented by CRITL, JUSNL team and he further assured that O/C E/F settings will be revised at the earliest after consultation with CRITL, JUSNL team.</p> <p>PCC advised CRITL, JUSNL team to test auto-reclose and carrier at both Govindpur as well as Tenughat end.</p>	<p>In 144<sup>th</sup> PCC Meeting, JUSNL representative informed that no further communication had been received from TVNL.</p> <p>PCC advised JUSNL, SLDC Jharkhand and TVNL representatives to coordinate and resolve auto-relcoser issue at Tenughat end and share report to ERPC/ERLDC.</p>
<b>133rd PCC Meeting</b>			
<b>13.</b>	Review of SPS at Sterlite (Vedanta)	SLDC Odisha representative informed that the meeting to discuss the modalities of implementation of proposed SPS scheme will be convened within a week.	In 144 <sup>th</sup> PCC Meeting, Vedanta representative informed that testing of SPS had been done at Bangalore factory of Hitachi and they are planning to implement it by 15 <sup>th</sup> March 2025 at site. Further, a special meeting will be convened among concerned utilities before implementing SPS at site.