Agenda
for
142nd PCC Meeting

Date:26.12.2024
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

AGENDA FOR 142nd PROTECTION COORDINATION SUB-COMMITTEE MEETING TO BE HELD ON 26th DEC 2024 AT 10:30 HRS THROUGH MS TEAMS

PART – A

ITEM NO. A.1: Confirmation of Minutes of 141st Protection Coordination sub-Committee Meeting held on 28th Nov 2024 through MS Teams.

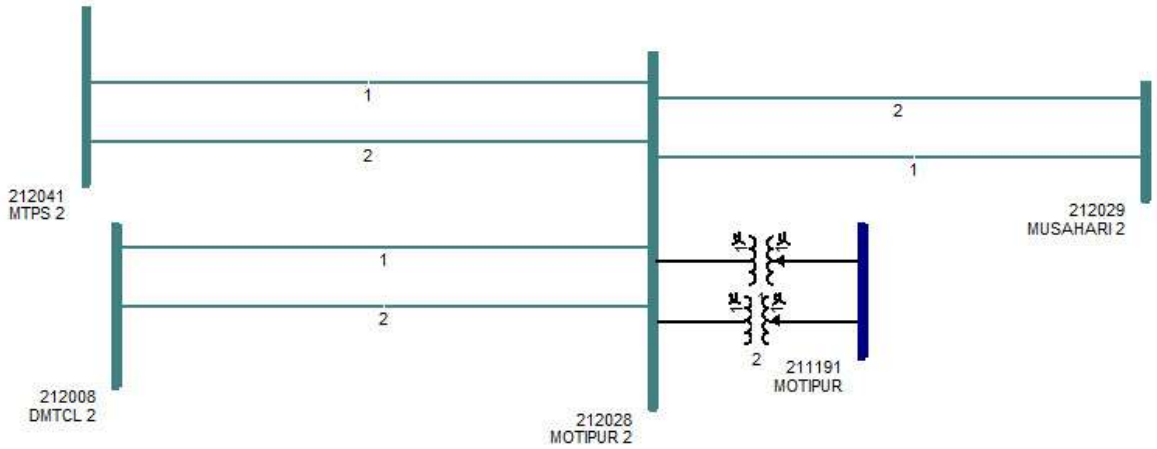
The minutes of 141st Protection Coordination sub-Committee meeting held on 28.11.2024 was circulated vide letter dated 12.12.2024.

Members may confirm the minutes of the Meeting.

PART – B

ITEM NO. B.1: Disturbance at 220 kV Motipur (BSPTCL) S/s on 15.11.2024 at 18:23 Hrs

On 15th Nov 2024 at 18:23 hrs, a bus fault occurred in 220 kV Bus of 220/132 kV Motipur S/s which led to tripping of all emanating lines from Motipur S/s.



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

Load Loss: 84 MW
Outage Duration: 00:18 Hrs
BSPTCL may explain.

ITEM NO. B.2: Disturbance at 220 kV Tenughat (TVNL) S/s on 21.11.2024 at 04:28 Hrs

On 21st Nov 2024 at 04:28 Hrs, Y phase CT of 220kV Tenughat Govindpur-1 burst at Tenughat. Consequently, line got tripped. Further, two running units at Tenughat also tripped at the same time.

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

Gen. Loss: 341 MW
Outage Duration: 03:55 Hrs
TVNL may explain.

ITEM NO. B.3: Disturbance at 400 kV Lapanga (OPTCL) S/s on 22.11.2024 at 11:03 Hrs

On 22nd Nov 2024 at 11:03 Hrs, a bus fault occurred at 400 kV side of 400/220 kV Lapanga S/s while availing shutdown of 400 kV Lapanga-Sterlite-2. However, Bus bar protection didn't operate and thereafter, all 400 kV elements tripped at Lapanga. At the same time, auxiliary drives of thermal units at IB TPS (220 kV) also tripped which led to tripping of both running units.

In 141st PCC Meeting, OPTCL representative informed that while availing shutdown of 400 k V Lapanga- Sterlite -2, only line isolator was opened and bus isolator for both 400 k V Bus 1 and 400 k V Bus 2 were not opened. Meanwhile, some issue was noticed in 89 A isolator and in order to rectify it 89 B isolator connected to bus 2 was opened. While opening 89 B isolator, B phase bus side isolator of line remain stuck and earth switch was closed by site personnel without noticing status of isolator leading to bus fault. Later on, bus bar protection also didn't operate leading to disturbance at Lapanga S/s.

ERLDC representative informed that at the same time, one bus at Meeramundali was under shutdown and lines connecting to sterlite, OPGC and Lapanga were connected through tie bay therefore, after this incident 400 k V Lapanga- Meeramundali got tripped resulting in increasing loading to around 900 MW in 400 k V Talcher- Meeramundali line consequently Talcher- Kolar HVDC flow was increased from 1200 MW to 1800 MW and manual generation backdown was done for IBEUL and OPGC. Further, 330 MW generation loss was also caused due to tripping of auxiliary drives of thermal units of IB TPS.

OPTCL representative informed that on day of incident, bus bar protection had not operated due to fibre comm error due to defective FO cables for two no of PU which had been rectified on the same day. However, in this case, tripping had resulted due to lack from operation part.
PCC advised SLDC Odisha and OPTCL representative to prepare standardize SOP and provide training to all the site personnel on periodic basis so that these SOPs are followed strictly.

PCC advised ERPC and ERLDC representative to share communication to concerned authority of SLDC Odisha and OPTCL to highlight issue so that SOPs are followed strictly in order to avoid such incident in future.

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

Gen. Loss: 330 MW
Outage Duration: 02:05 Hrs
OPTCL may explain.

ITEM NO. B.4: Major grid events other than GD/GI

Tripping of ICTs during the month of October'24

Sl. No	Name of the Element	Trip Date	Trip Time	Remarks	Utility
1	400KV/220KV 315 MVA ICT 4 AT JEERAT	06-11-2024	12:29	Buchholz Relay operated	WBSETCL
2	400KV/220KV 315 MVA ICT 1 AT TSTPP	01-11-2024	03:18	PRD operated	NTPC

Members may discuss.

ITEM NO. B.5: Submission of protection performance indices on 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 10th of every month to ERPC and ERLDC along with reasons for performance indices less than unity of individual element wise protection system to the ERPC and action plan for corrective measures. For the month of November'24, PP indices had been received from OPTCL, WBSETCL, NTPC Farakka, NTPC Barh, NTPC Talcher, NTPC Darlipalli, NTPC North Karanpura, PG Odisha, DMTCL, Jorethang HEP, Tashiding HEP, PKTCL and TVNL attached at **Annexure B.5.**

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

Sl.no	Utility Name	July	August	September	October	November
1	PG-ER-1		YES (25.09.2024)			
2	PG-ER-2		YES (25.09.2024)	YES (23.10.2024)	Yes (26.11.2024)	
3	PG-Odisha			Yes (21.10.2024)	Yes (01.11.2024)/-	Yes (03.12.2024)
4	WBSETCL/WBPDCL	YES	YES (20.09.24)/-	Yes (08.10.2024)/-	Yes (05.11.2024)/-	YES (09.12.2024)
5	BSPTCL/ BGCL		YES	Yes (15.10.2024)/-	Yes (12.11.2024)/-	
6	OPTCL/ OHPC		YES (25.09.2024)	Yes (22.10.2024)	Yes (11.11.2024)	YES
7	DVC				Yes (23.11.2024)/-	
8	JUSNL		Yes (14.09.24)	Yes (08.10.2024)	Yes (22.11.2024)/-	
9	Sikkim					
10	OPGC					
11	PMTL					
12	NTPC- KHSTPP	YES	YES	YES	Yes (13.11.2024)	
13	NTPC- FSTPP	YES	YES (18.09.2024)		Yes (07.11.2024)	YES (04.12.2024)
14	NTPC-BARH			Yes (16.10.2024)		Yes (15.12.2024)
15	NTPC- TSTPP					YES (14.12.2024)
16	NTPC- KBUNL	YES				
17	NPGC					
18	BRBCL					
19	NTPC- DARILAPLI					Yes (02.12.2024)
20	NTPC- NORTH KARNPUARA					Yes (10.12.2024)
21	ATL					
22	APNRL					

23	CBPTCL					
24	DMTCL		Yes (13.09.24)	Yes (05.10.2024)	Yes (05.11.2024)	Yes (03.12.2024)
25	ENICL					
26	Chuzachen HEP					
27	Jorethang HEP	YES	YES (01.09.24)	Yes (01.10.2024)	Yes (05.11.2024)	Yes
28	Tashiding Hep			Yes (03.10.2024)	Yes (05.11.2024)	YES (09.12.2024)
29	GMR					
30	IBEUL					
31	JITPL					
32	MPL					
33	NKTL					
34	OGPTL					
35	PMJTL					
36	Powerlink					
37	PKTCL					YES (09.12.2024)
38	CESC					
39	Rongnichu HEP					
40	SPTL					
41	TVNL					Yes (06.12.2024)

Members may discuss.

ITEM NO. B.6: 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 140th PCC Meeting, ERPC representative informed that as per protection protocol developed by NPC in line with IEGC 2023, Protection System Analysis Group (PSAG) needs to be formed in eastern region with members from ERPC, NLDC, ERLDC, 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.

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

In 141st 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.

Members may update.

ITEM NO. B.7: Single Line Tripping Incidences in month of Nov 2024

Single line tripping incidents in the month of Nov 2024 which needs explanation from constituents of either end is attached at **Annexure B.7.**

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 140th 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 22nd Nov 2024 had submitted internal protection audit plan.

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	Darbhanga (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 140th 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 141st 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.

Members may update.

ITEM NO. C.3: Follow-up of Decisions of the Previous Protection Sub-Committee Meeting(s)

The decisions of previous PCC meetings are attached at **Annexure C.3.**

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, टालिगंज, कोलकाता - 700033
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033
CIN : U40105DL2009GOI188682, Website : www.erldc.in, E-mail : erldcinfo@grid-india.in, Tel.: 033 23890060/0061

पूर्वी क्षेत्र के 220/132 केवी मोतीपुर में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 220/132 kV Motipur S/s 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):12-12-2024

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

At 18:23 hrs, while charging 220 kV Motipur-MTPS-1 from Motipur after shutdown, a R-Earth fault occurred in that bay at Motipur S/s. All emanating lines at Motipur tripped leading to load loss of around 84 MW at Motipur station. Power was restored through 132kV Motipur-Motihari ckt 1 at 19:08 Hrs.

2. **Time and Date of the Event (घटना का समय और दिनांक):** 18:23 hrs of 15.11.2024
3. **Event Category (ग्रिड घटना का प्रकार): Grid Disturbance (GD)-1**
4. **Location/Control Area (स्थान/नियंत्रण क्षेत्र):** Bihar
5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Bihar	Bihar
Pre-Event (घटना पूर्व)	49.970 Hz	32279 MW	21941 MW	471 MW	4626 MW
Post Event (घटना के बाद)	49.955 Hz	32279 MW	21891 MW	471 MW	4576 MW

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

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है)	220kV Motipur-Muzaffarpur 1 was under S/D.
Weather Condition (मौसम स्थिति)	Normal.

6. **Load and Generation loss (लोड और जेनरेशन हानि):** Approximate load loss of 84 MW at Motipur S/s.
7. **Duration of interruption (रुकावट की अवधि):** 18:23 Hrs to 19:08 Hrs (Around 00:45 Hrs)

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

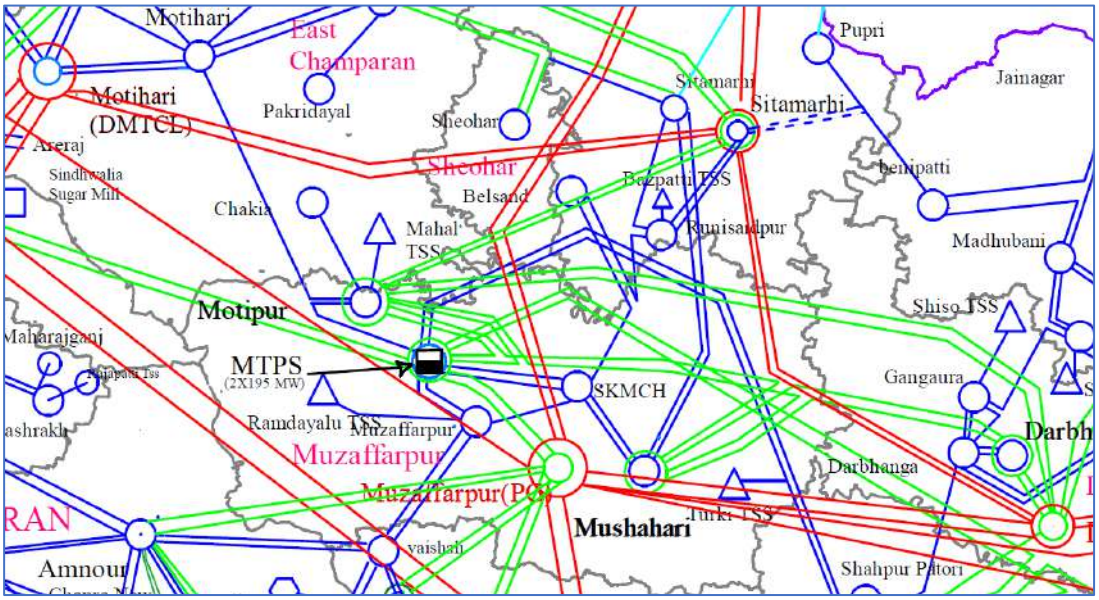


Figure 1: Network across the affected area

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

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

क्रमसं	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1	220kV Motipur-Sitamarhi-1	18:23	Z-4 started but didn't trip.	Z-2, FC-Ir-2.79 kA, Ib-2.89 kA	19:45
2	220kV Motipur-Sitamarhi-2			Z-2, FC-Ir-2.81 kA, Ib-2.87 kA	19:45
3	220kV Motipur-Darbhanga-1			Z-2, FC-Ir-1.46 kA, Ib-1.47 kA	20:00
4	220kV Motipur-Darbhanga-2			Z-2, FC-Ir-1.44 kA, Ib-1.43 kA	20:01
5	220kV Motipur-Musari -1			Z-2, FC-Ir-1.3 kA, Ib-1.23 kA	-

6	220kV Motipur-Musari -2			Z-2, FC-Ir-1.3 kA, Ib-1.23 kA	-
7	220kV Motipur-Muzaffarpur 2			Z-2, FC-Ir-3.64 kA, Ib-4.01 kA	16/11/2024 15:32

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

- 220kV-Motipur-Muzaffarpur ckt#1 was under planned S/D. During returning of S/D of said circuit, bus side isolator was closed at Motipur. The moment isolator was closed, a R-Earth fault occurred in the bay while its breaker was still in open condition. SOTF operated, however the breaker was already in open condition. Fault current of the order of around 15 kA was recorded in the CT of this bay at Motipur. This suggests fault occurred between CT and CB of this feeder at Motipur.

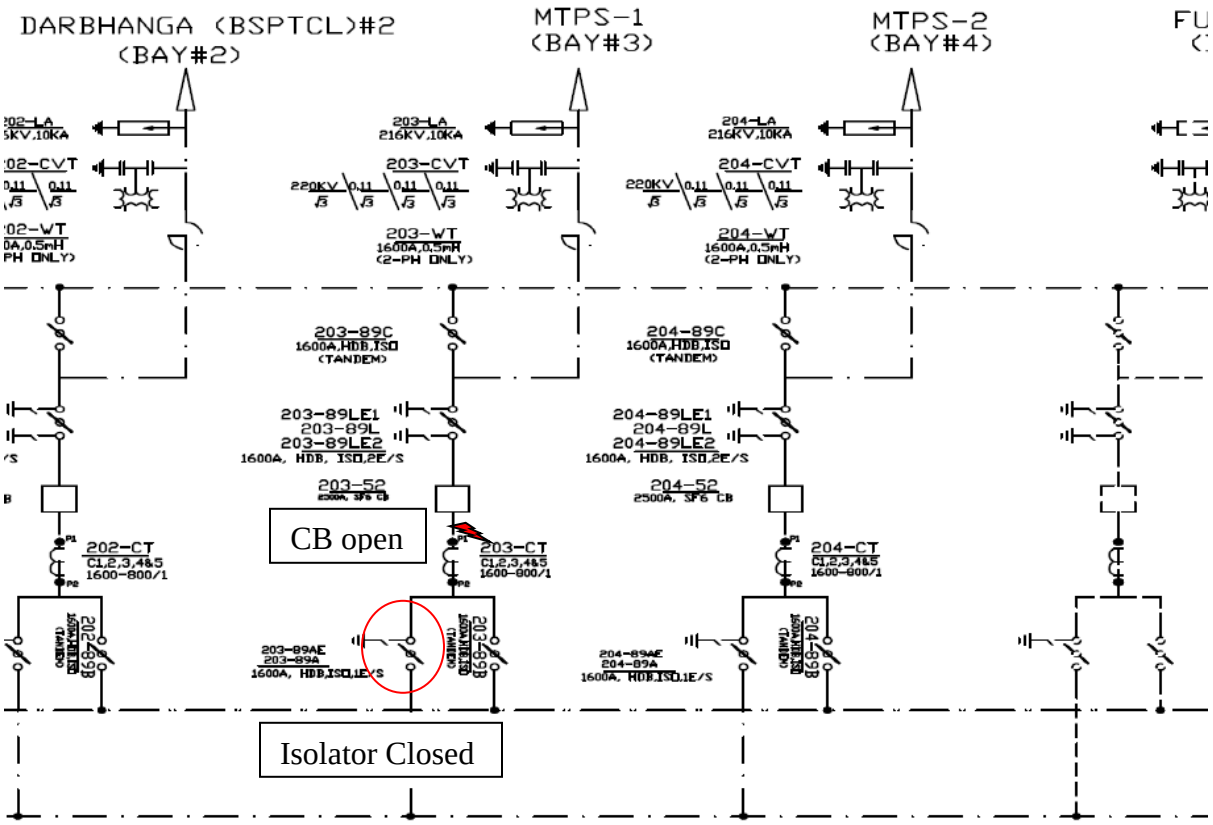
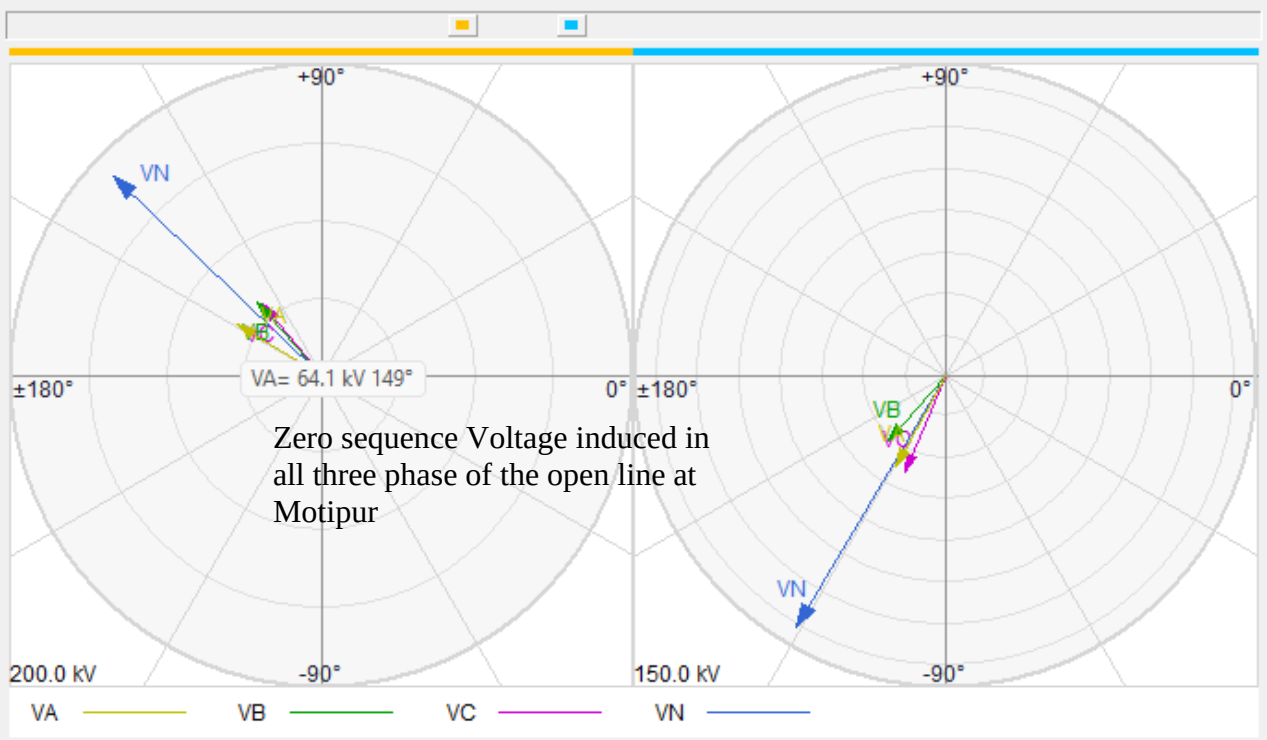


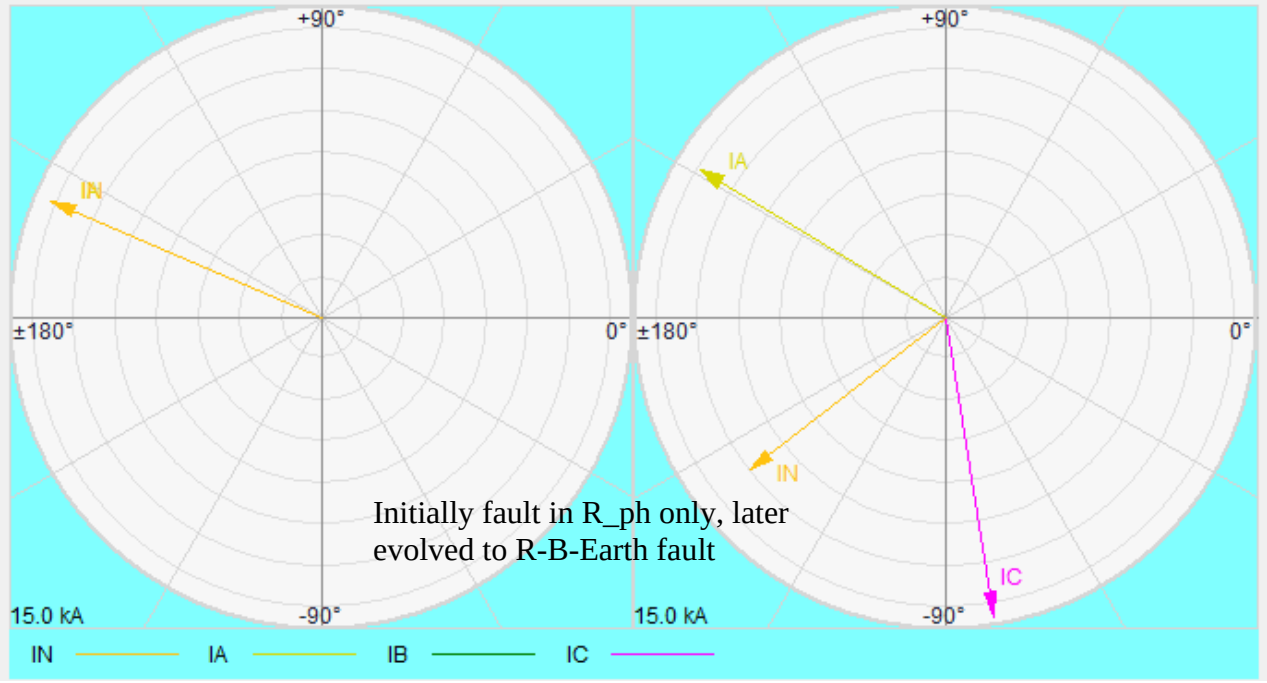
Figure 2: SLD of Motipur S/S

- As the fault was not in bus differential Zone, bus bar protection didn't operate.
- LBB should have operated after 200 msec but LBB didn't operate due to improper LBB logic at Motipur.

- High induced zero sequence voltage (around 50%) was observed in all three phase at Motipur end due to mutual coupling from parallel circuit.
- Later R-Earth fault evolved to R-B-Earth fault.



Zero sequence Voltage induced in all three phase of the open line at Motipur



Initially fault in R_ph only, later evolved to R-B-Earth fault

- Later all emanating 220 kV lines tripped in Zone-2 from remote end.
- 132 kV MTPS-Motipur and 132 kV Motipur-Motihari also tripped during this fault.

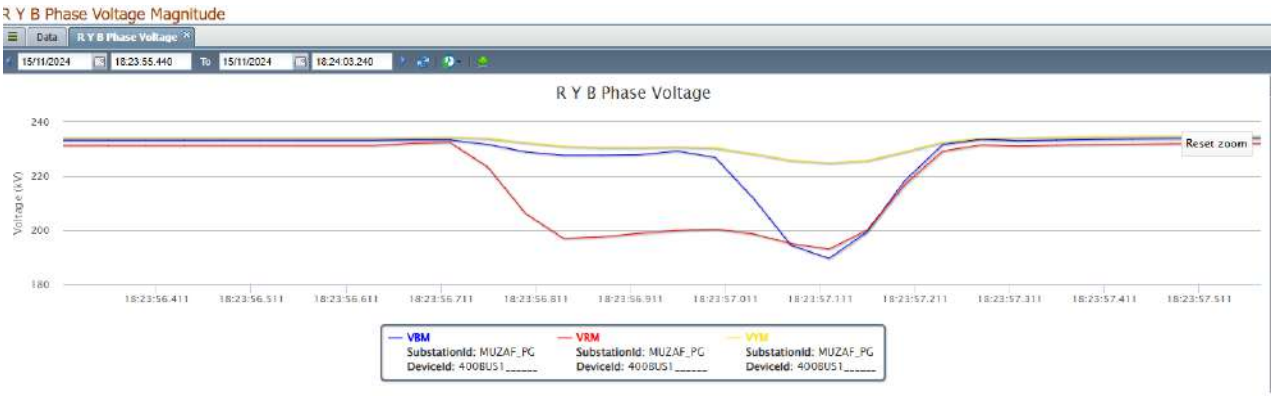


Figure 3: PMU of Bus voltage at Muzaffarpur

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

- It seems the fault occurred while closing the bus side isolator and it was in between CT and breaker of MTPS-1 bay at Motipur. It suggests that there was some temporary earthing arrangement between CT and CB which was not opened before closing the isolator. Proper SOP was not followed for availing and returning shutdowns.
- Later LBB of the bay also didn't operate as the logic for LBB was taking AND of breaker status and current. As breaker status was open LBB didn't operate. The same may be modified.
- Reason for tripping of 132 kV feeders may be checked, and necessary co-ordination may be done with 220/132 kV ICTs.

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 submitted within 24 hours**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	**BSPTCL**

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

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

Time	Station	Description	Status
15-11-2024 18:23:57:185	DARBH_PG	220_MOTIP_BH_1_CB	Open
15-11-2024 18:23:57:188	KBUNL_PG	220_MOTIP_BH_2_CB	Open
15-11-2024 18:23:57:189	DARBH_PG	220_MOTIP_BH_2_CB	Open
15-11-2024 18:23:57:199	SITAM_PG	220_MOTIP_BH_1_CB	Open
15-11-2024 18:23:57:201	SITAM_PG	220_MOTIP_BH_2_CB	Open

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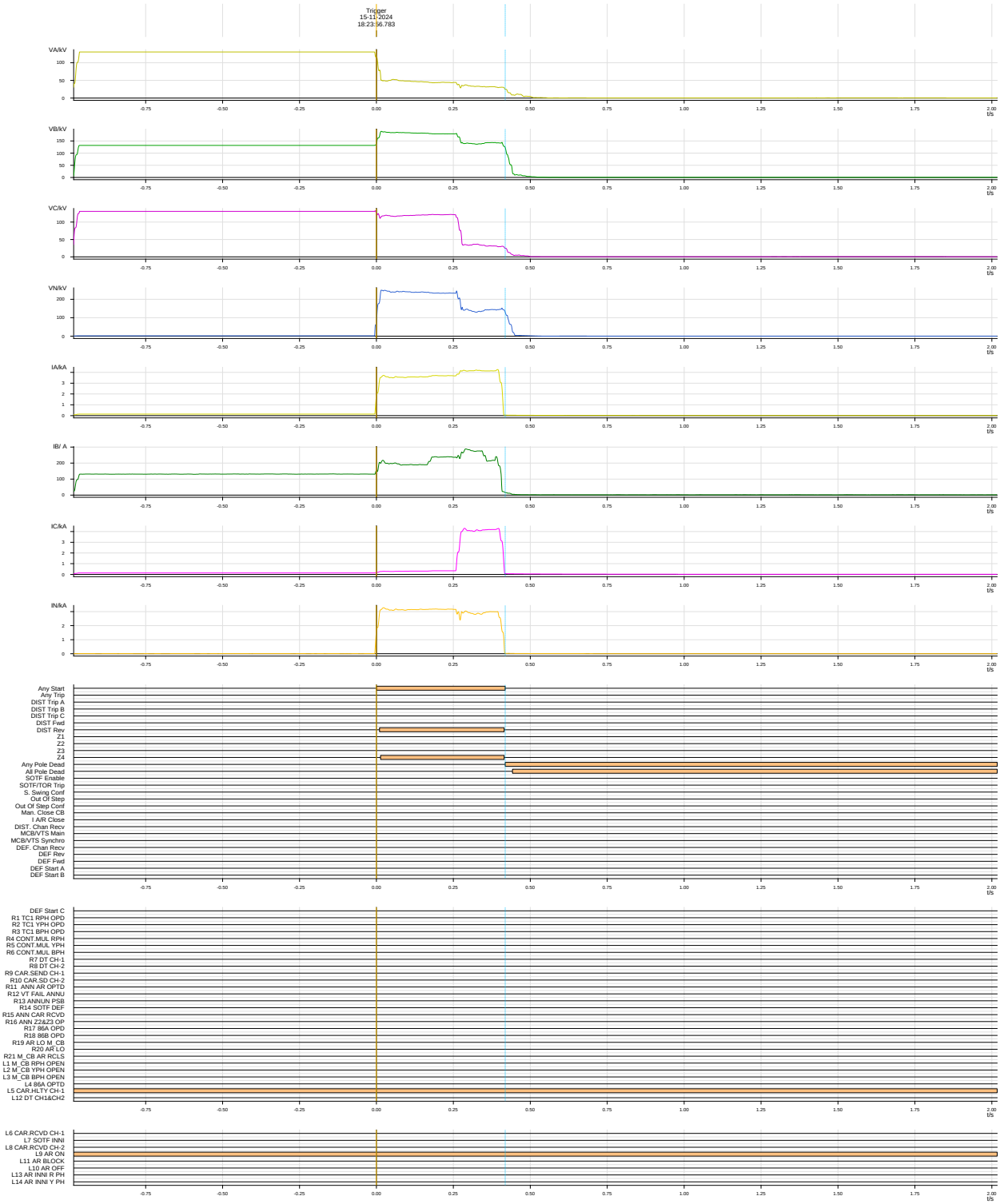
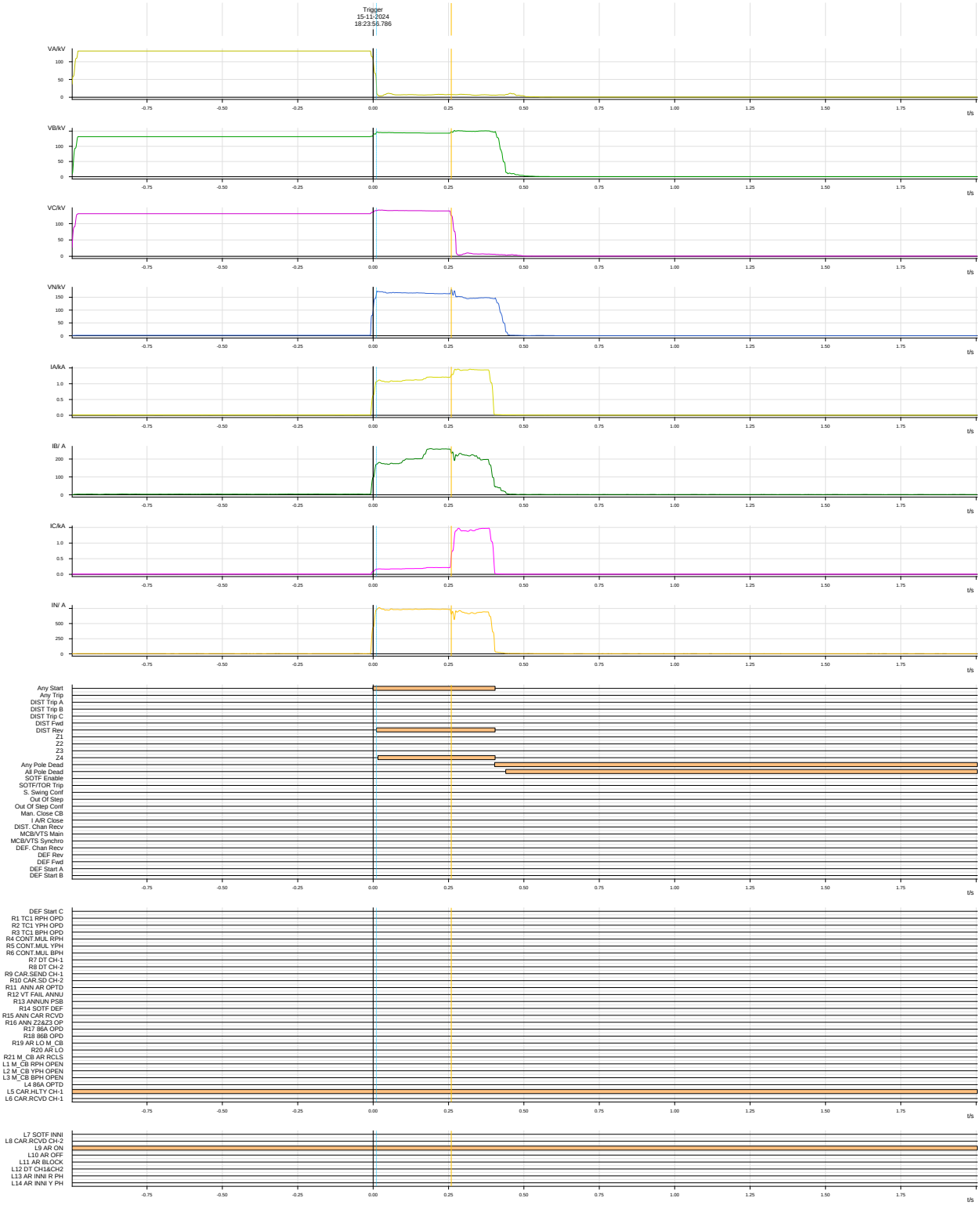
Annexure 2:

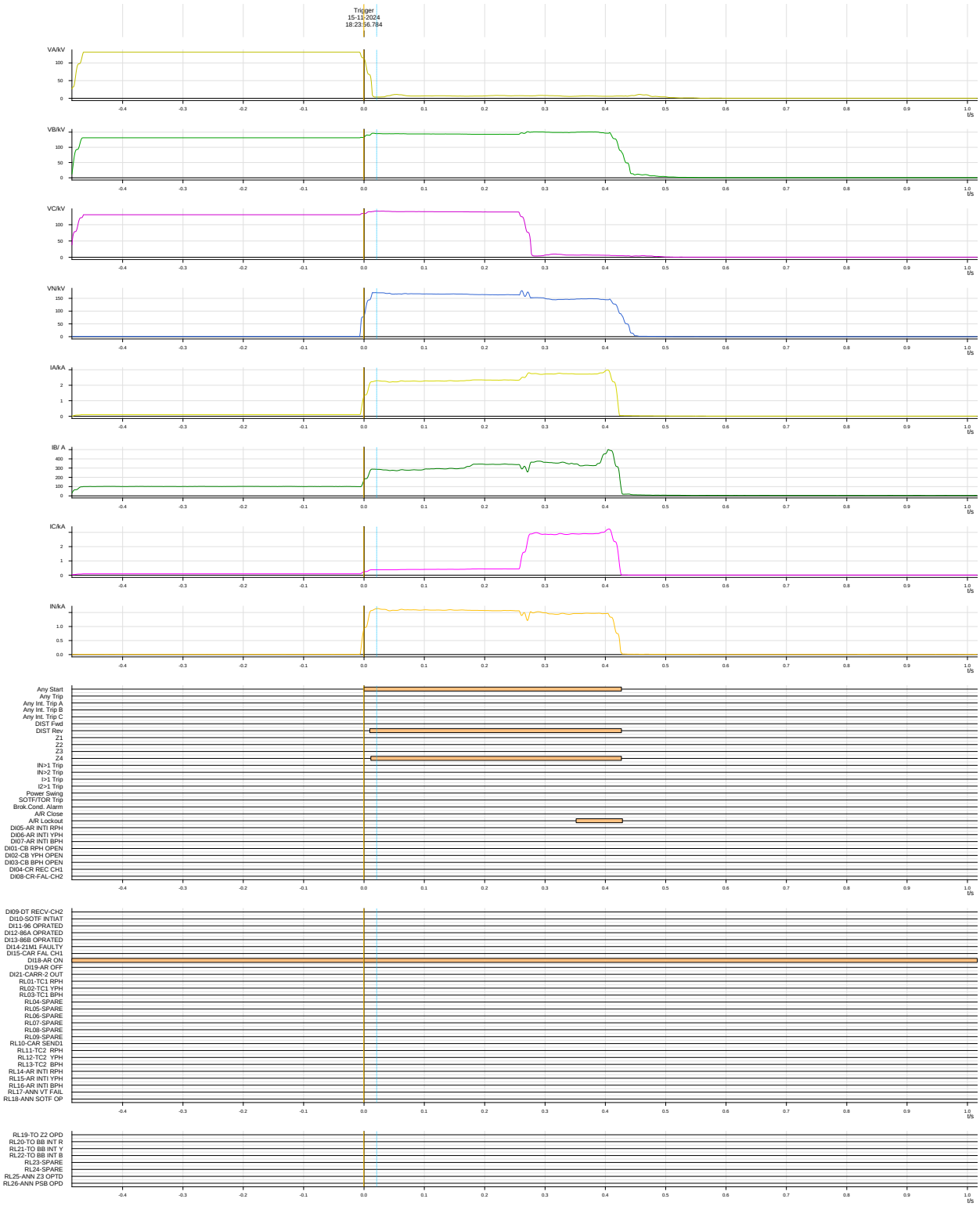
DR of 220kV Motipur- Muzaffarpur 2 at Motipur:



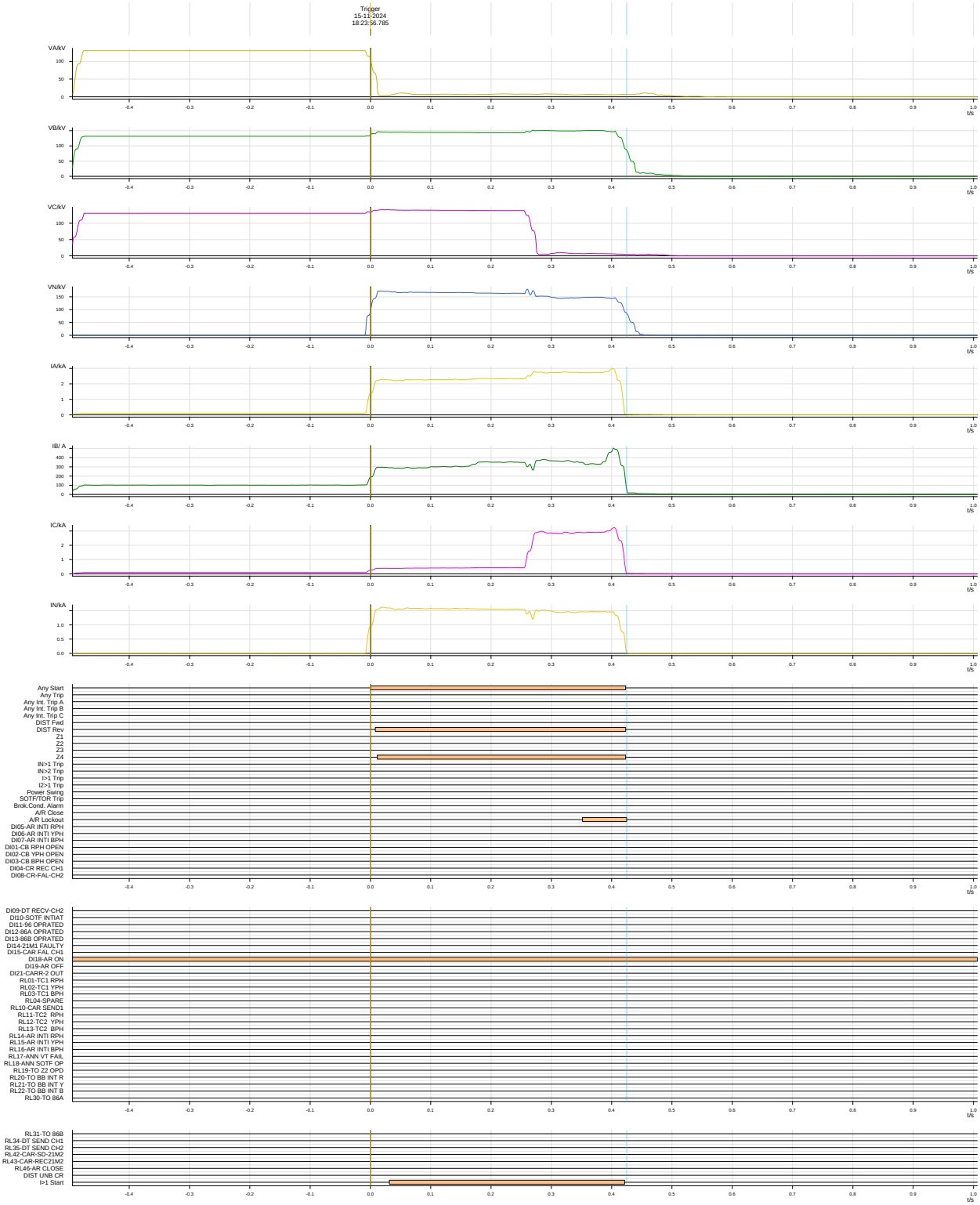
DR of 220kV Motipur-Darbhanga-1 at Motipur:



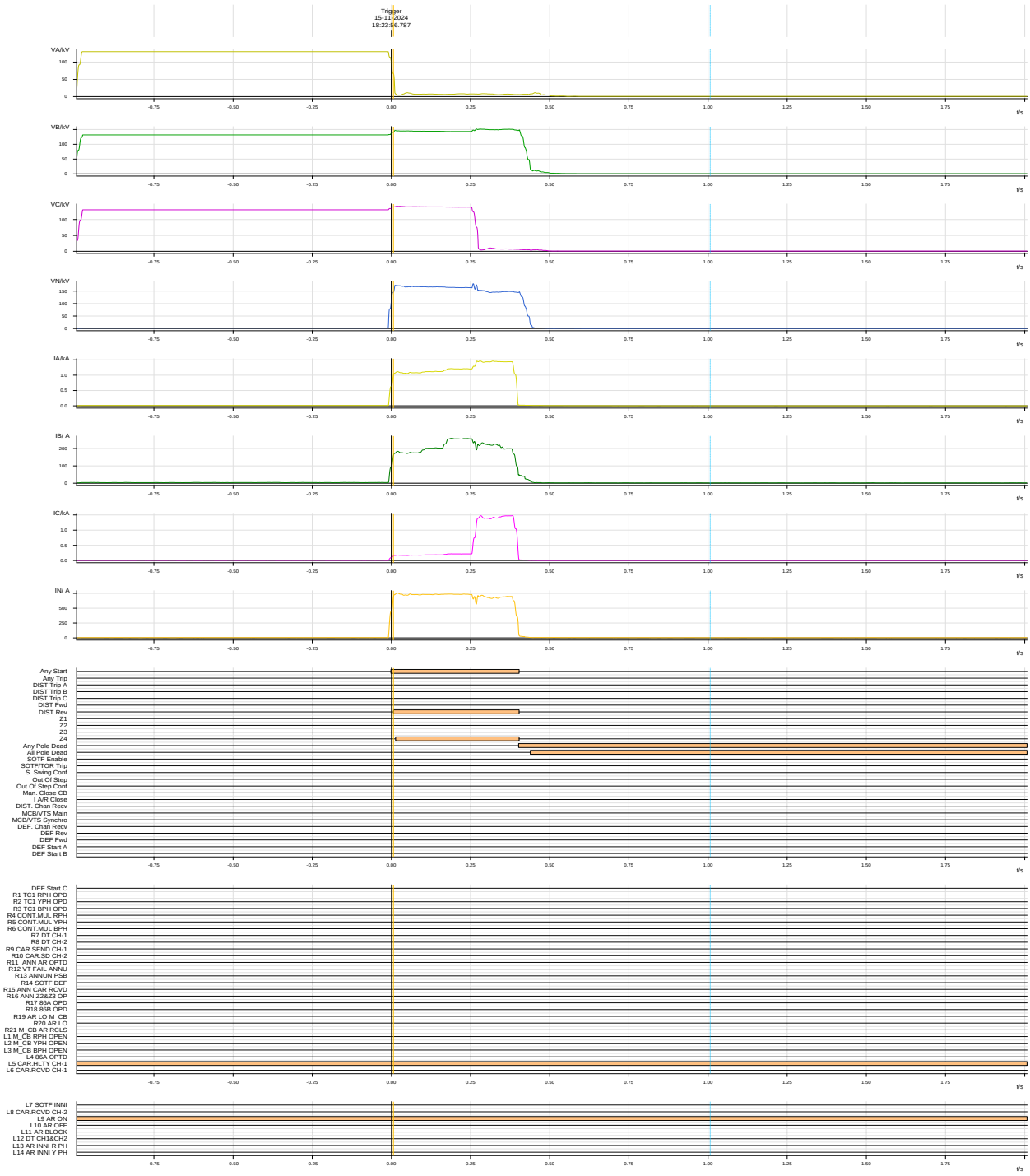
DR of 220kV-Motipur-Sitamarhi #1 at Motipur:



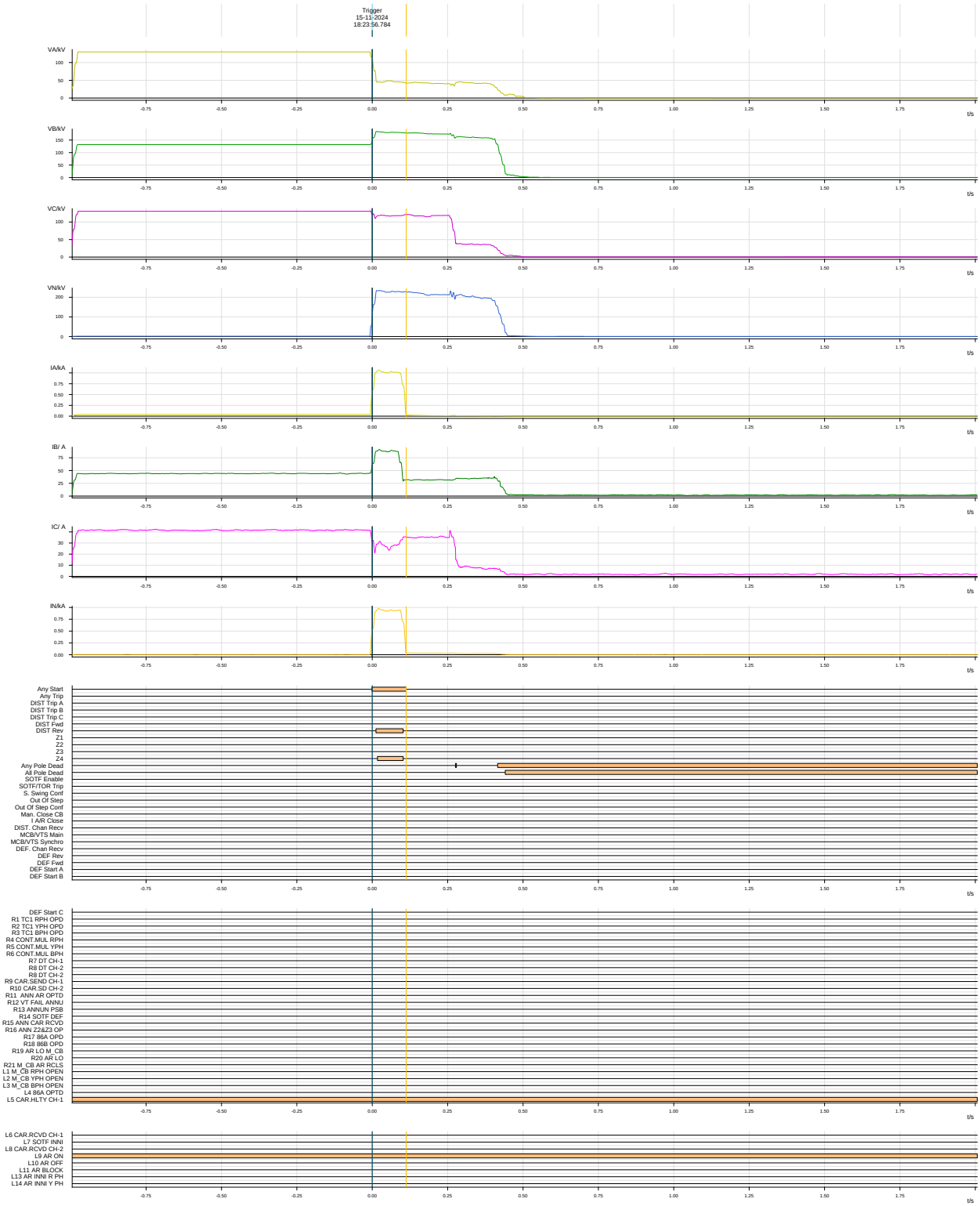
DR of 220kV-Motipur-Sitamarhi #2 at Motipur:



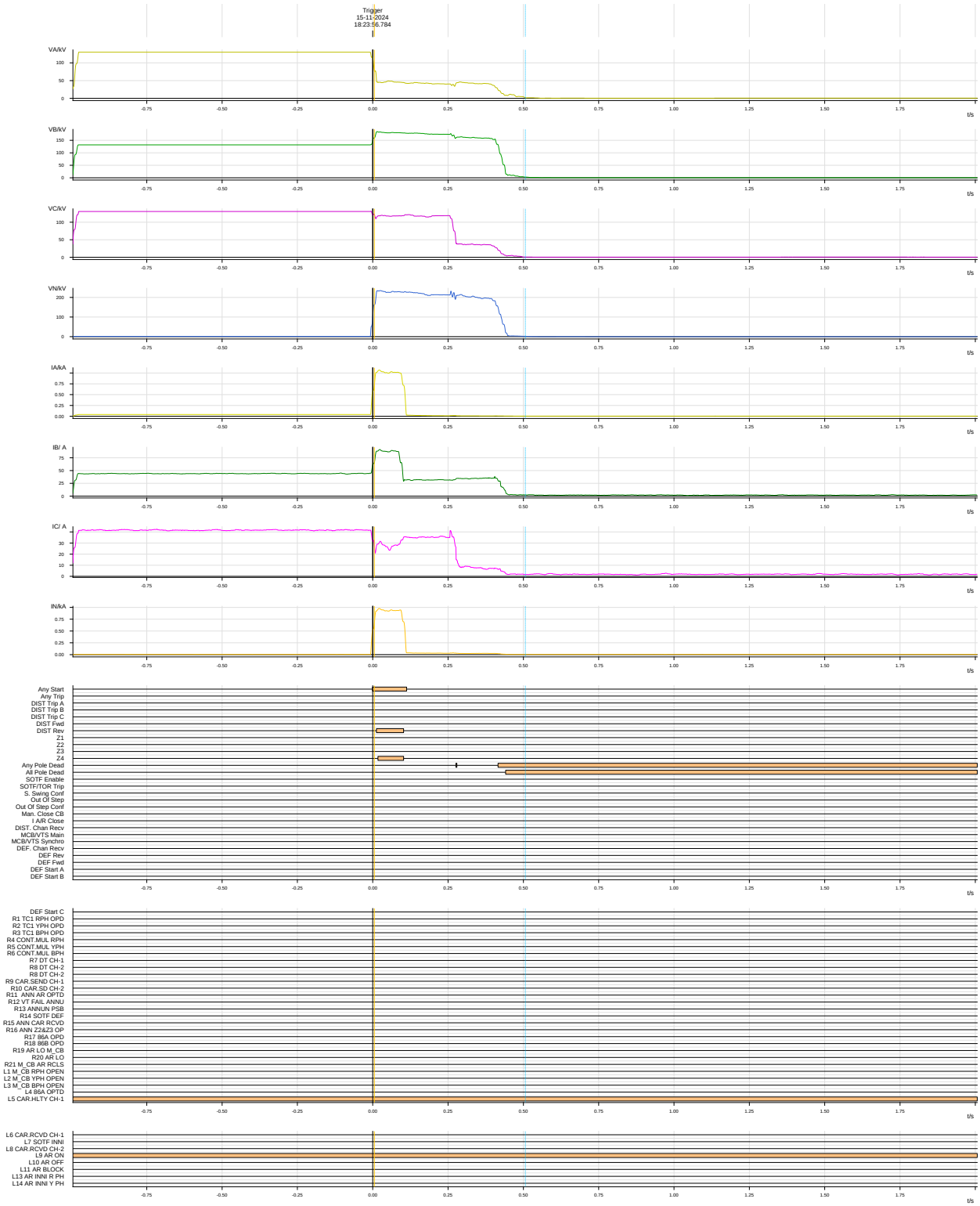
DR of 220kV Motipur-Darbhanga-2 at Motipur:



DR of 220kV-Motipur-Musari #1 at Motipur:



DR of 220kV-Motipur-Musari #2 at Motipur:



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, टालिगंज, कोलकाता - 700033
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033
CIN : U40105DL2009GOI188682, Website : www.erldc.in, E-mail : erldcinfo@grid-india.in, Tel.: 033 23890060/0061

पूर्वी क्षेत्र के 220 केवी तेनुघाट में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 220 kV Tenughat TPS 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): 11-12-2024

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

At 04:28 Hrs, Y_phase CT of 220kv Tenughat Govindpur-1 burst at Tenughat. The line tripped, however, the two running units at Tenughat also tripped at the same time. Total generation loss of 341 MW occurred at Tenughat TPS. Tenughat unit 1 & 2 synchronised at 08:23 Hrs & 14:41 Hrs respectively.

2. **Time and Date of the Event (घटना का समय और दिनांक):** 04:28 hrs of 21.11.2024
3. **Event Category (ग्रिड घटना का प्रकार): Grid Incident (GI)-1**
4. **Location/Control Area (स्थान/नियंत्रण क्षेत्र):** Jharkhand
5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency (Hz)	Regional Generation (MW)	Regional Demand (MW)	State Generation	State Demand
				Jharkhand (MW)	Jharkhand (MW)
Pre-Event (घटना पूर्व)	49.949	29782	22968	394	1633
Post Event (घटना के बाद)	50.013	29441	22458	53	1123

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

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

1. **Load and Generation loss (लोड और जेनरेशन हानि):** Approximate generation loss of 341 MW at Tenughat TPS.
6. **Duration of interruption (**रुकावट की अवधि**):** 04:28 Hrs to 08:23 Hrs (Around 03:55 Hrs)

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

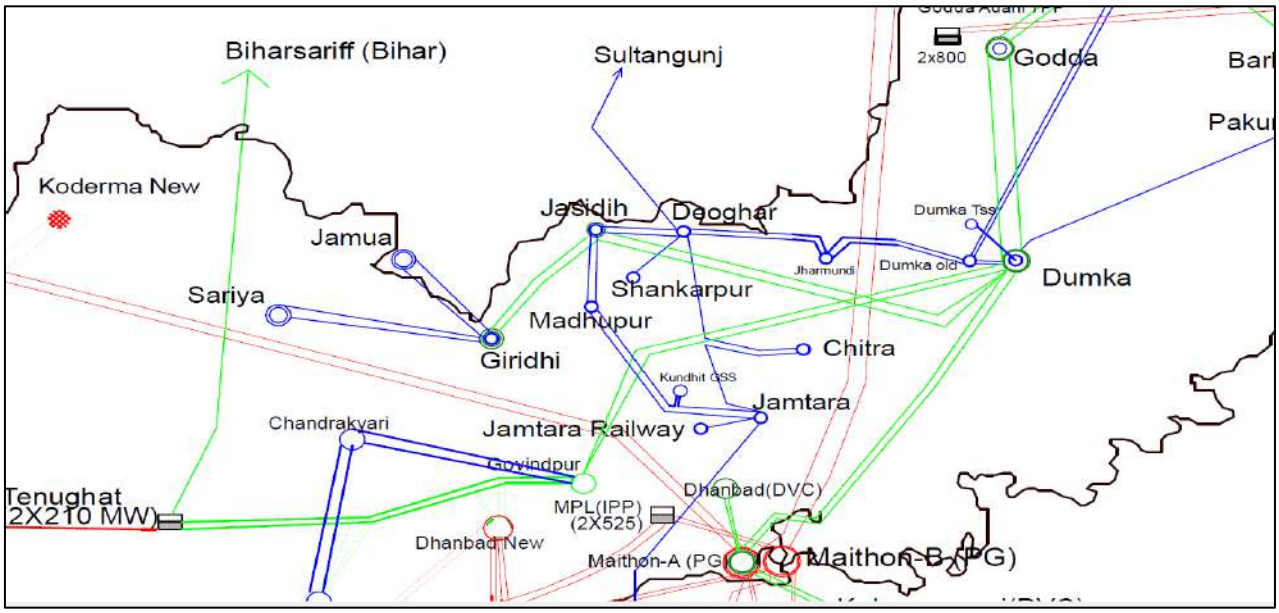


Figure 1: Network across the affected area

8. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण): Y_ph CT of 220 kV Tenughat-Govindpur-1 burst at Tenughat

9. 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 TTPS-Govindpur ckt 1 T/L.	04:28	R_Y_N, Z-1,	R_Y_B, Z-- 2, FD-87.69km,	-
2	210 MW Tenughat Unit 1		Field Failure		08:23
3	210 MW Tenughat Unit 2		Generator Overload Protection		14:41

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

- At 04:28 Hrs Y_phase CT of 220kv Tenughat Govindpur-1 burst at Tenughat, which created bus fault at Tenughat S/S which was seen in reverse direction at Tenughat. However, after around 200 msec, fault struck R_ph also which was seen in Zone-1 and all three-phase tripped.

Figure 2: PMU of Bus voltage at Tenughat

- Unit-1&2 at Tenughat also tripped at the same time. As reported, U#1 ripped due to field failure and U#2 tripped on O/c protection.
- Total generation loss of 341 MW occurred at Tenughat S/S.

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

- Rason for tripping of both units may be analyzed. O/c setting of U#2 of Tenughat may be reviewed.
- As seen from DR at Tenughat, DEF picked in Y_ph of Govindpur-1 while it was seen in reverse direction by distance protection. The same may be checked and rectified.
- DR length at Tenughat should be increased to 2.5-3 seconds.
- Report received from JUSNL attached in annexure 3.

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

13.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	**JUSNL**

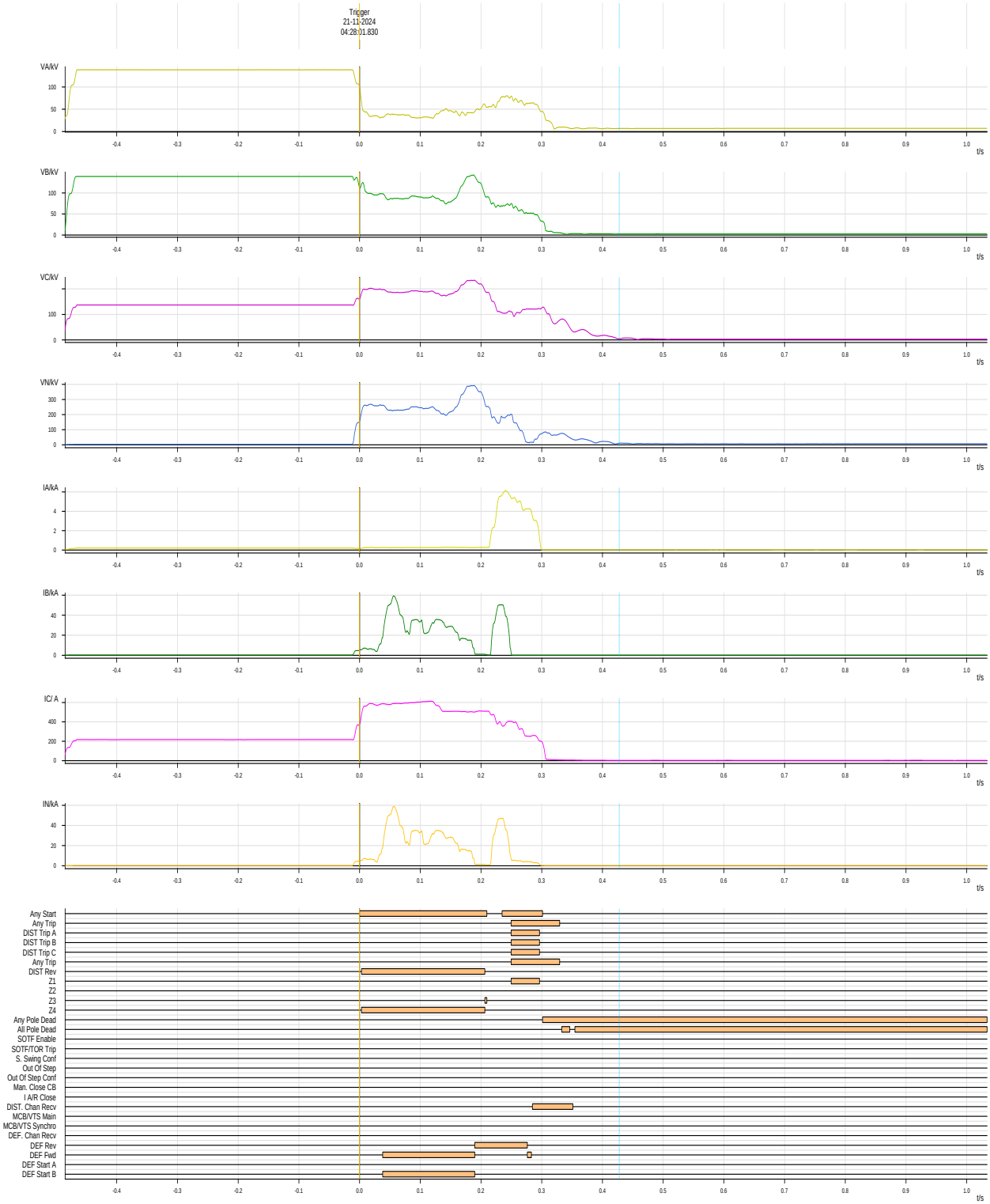
14. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil

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

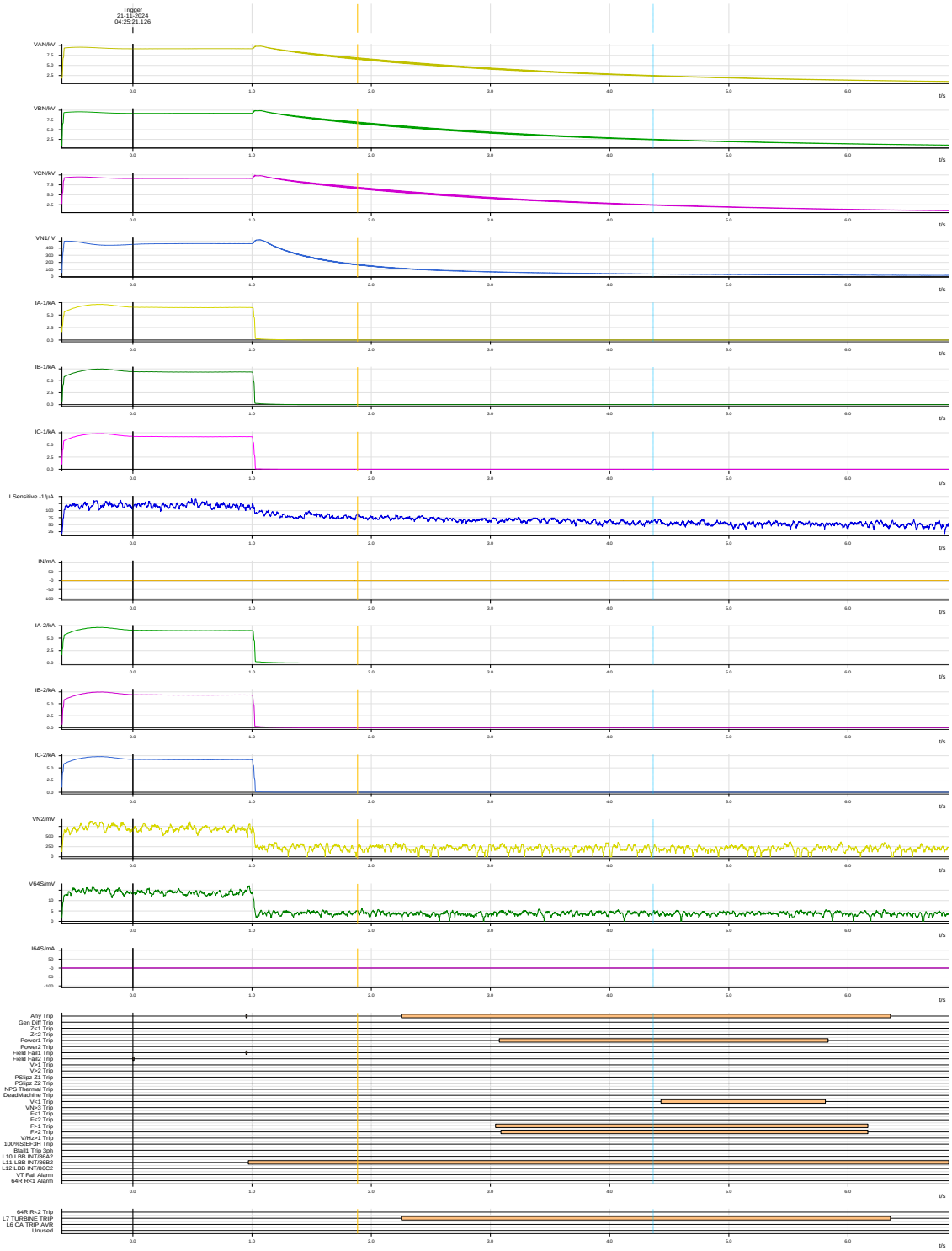
***SOE not available at ERLDC end.**

Annexure 2:

DR of 220kV-Tenughat-Govindpur ckt #1 at Tenughat:



DR of Tenughat Unit:



Annexure 3:

FORMAT FOR REPORTING SYSTEM DISTURBANCES

(DETAILED REPORT)

Occurrence Report

(1) Date and Time of Occurrence:- 21-11-2024, 04:28 hrs.

(2) Name of the substation/Generating station

TENUGHAT THERMAL POWER STATION LALPANIA

(3) Details of Occurrence:-

Due to Explosion of Y-Phase CT of Govindpur-1 Bay 04, TTPS-Govindpur feeder ckt-1 tripped form both end

Relay report at TTPS end
Main 1
Active group 1 Started phase ABN Tripped phase ABC Start elts. Distance Overcurrent Start I > 1 Distance trip Z1 21 NOV, 2024 ,04:28:02.079 AR Lockout shortly System frequency 50.01 Hz Fault duration 66.65 ms Relay trip time 0.000 s Fault Location – 624.8 M IA -4.186 KA IB – 0.00 A IC – 252.6 A VAN- 62.91 KV VBN – 52.56 KV VCN – 121.5KV Fault Resistance xy- 2.373 Ω Fault In Zone 1

At the time of Occurrences the Disposition of the feeder was as below

BUS 1	BUS 2
AT TTPS-BIHARSHARIFF	AT TTPS-GOVINDPUR Ckt 2
AT TTPS-GOVINDPUR Ckt 1	

BUS COUPLER BREAKER WAS “ON/OFF” :- ON

(4) Relay indication for faulted line/transformer/BUS

(A) Relay indication			
S.no.	Name of bay/line	Local end relay type/make and indications	Remote end relay type/make and indications

(5) Location and Nature of fault

Location 624.8 M. & Fault in zone 1

1. TTPS-Govindpur ckt 1 feeder tripped from both end at 04:28 hrs.
2. TTPS-Govindpur ckt 1 Y- PHASE C.T Explosion at TTPS end.

(6) Restoration

Sl.no.		From	To	Duration
1	TTPS-Govindpur feeder ckt 1	04:28 hrs		

(7) Remedial Measures/Lesson Learnt

Enclosure:-

1. DR.

ग्रिड-इंडिया GRID-INDIA ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
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(A Government of India Enterprise)
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कार्यालय : 14, गोल्फ क्लब रोड, टालिगंज, कोलकाता - 700033
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033
CIN : U40105DL2009GOI188682, Website : www.erldc.in, E-mail : erldcinfo@grid-india.in, Tel.: 033 23890060/0061

पूर्वी क्षेत्र के 400 केवी लापंगा, 220 केवी आईबी टीपीएस में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 400 kV Lapanga, 220 kV IB TPS 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): 11-12-2024

1. Event Summary (घटना का सारांश):

At 11:03 Hrs on 22.11.2024, a bus fault occurred at 400 kV side of 400/220 kV Lapanga S/s while availing shutdown of 400 kV Lapanga-Sterlite-2. Bus bar protection didn't operate and thereafter, all 400 kV elements tripped at Lapanga. At the same time, auxiliary drives of thermal units at IB TPS (220 kV) also tripped which led to tripping of both running units. Around 330 MW generation loss occurred at IB TPS. Lapanga power restored at 13:52 hrs and IB.TPS - unit 1 & unit 2 synchronised at 19:08 hrs & 15:53 hrs respectively.

2. Time and Date of the Event (घटना का समय और दिनांक): 11:03 hrs of 22.11.2024

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
Pre-Event (घटना पूर्व)	50.01 Hz	27353 MW	19009 MW	2927 MW	4058 MW
Post Event (घटना के बाद)	49.99 Hz	16690 MW	19009 MW	2597 MW	4058 MW

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

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है)	1- 400KV-Lapanga-Sterlite-2 2- 400KV Main bus - 1 at Meramundali was under planned shutdown
Weather Condition (मौसम स्थिति)	Normal

6. **Load and Generation loss (लोड और जेनरेशन हानि):** Approximate generation loss of 330 MW due to tripping of IBTPS – 1 &2
7. **Duration of interruption (**रुकावट की अवधि**):** 11:03 Hrs to 13:08 Hrs (Around 02:05 Hrs)
8. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

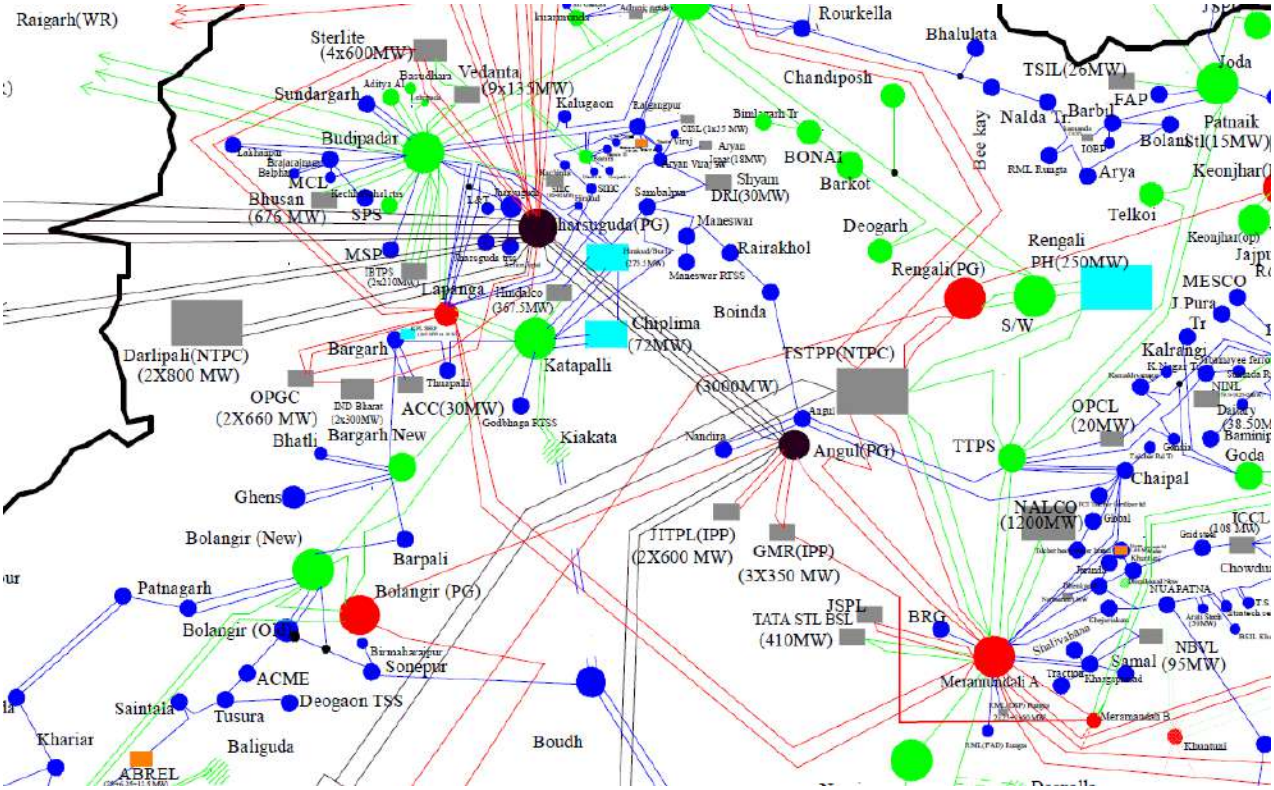


Figure 1: Network across the affected area

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	400KV-LAPANGA-OPGC (IB THERMAL)-1	11:03	Lapanga: B_N, 6.28 kA, Zone-4	-	13:08
2	400KV-LAPANGA-OPGC (IB THERMAL)-2		Lapanga: B_N, 6.9 kA, Zone-4	-	-

3	400KV-MERAMUNDALI-LAPANGA-1		Tripped in Z-2 protection	Lapanga: B_N, 2.15 kA, Zone-4	-
4	400KV-MERAMUNDALI-LAPANGA-2		Tripped in Z-2 protection	Lapanga: B_N, 2.08 kA, Zone-4	13:52
5	400KV-LAPANGA-STERLITE-1		Not tripped.	Tripped in Z-1 protection	13:30
6	400KV-MEERAMUNDALI-TSTPP-2		Due to Meramundali bus S/D TSTPP ckt charged through Tie Bay of Lapanga ckt which got tripped in Z-2 protection	DT received	11:36
7	IB.TPS - UNIT 1		Tripped due to tripping of all CW & BCW pumps.		19:08
8	IB.TPS - UNIT 2				15:53
9	400KV/220KV 315 MVA ICT 1 AT LAPANGA		Dir. E/F in LV and inter tripped HV Side		13:24
10	400KV/220KV 315 MVA ICT 2 AT LAPANGA		Dir. E/F in LV and inter tripped HV Side		13:44

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

- At 11:03 Hrs while opening of bus side isolator of 400 kV Lapanga-Sterlite-2 (Availing planned S/D for Annual maintenance of Bay equipment & Line) at Lapanga B-phase bus side isolator got stuck. Thereafter, earth switch was closed locally without checking whether isolator got opened or not which led to heavy sparking and bus fault.

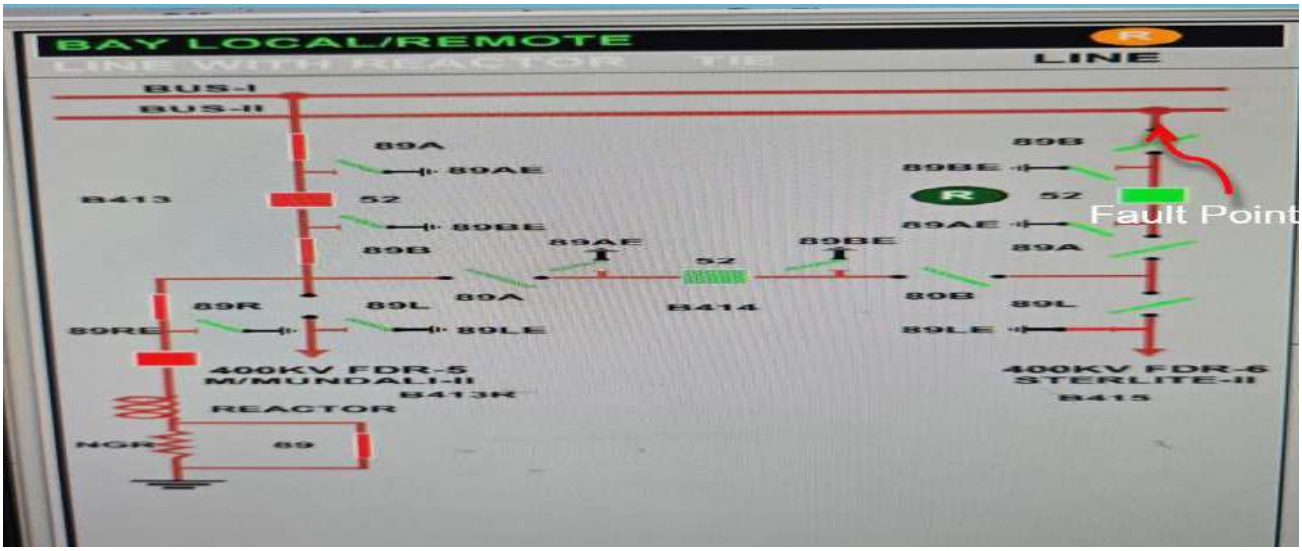


Figure 2: SLD of Lapanga S/s

- Bus bar protection didn't operate, and all feeders connected to Lapanga S/s tripped either in Zone-4 from Lapanga or in Zone-2 from remote end except 400 kV Lapanga-Sterlite-1.
- As per DR of Lapanga, B_ph of 400 kV Lapanga-Sterlite-1 tripped in Zone-1 from Lapanga, other two phase later tripped on PD after around 2 seconds. Breaker didn't open at Lapanga.
- 400/220 kV ICT-1&2 at Lapanga tripped on Directional E/f from LV side after 1200 msec. DR of ICTs are no time synchronized.
- Simultaneously, auxiliary drives of two units at IB TPS (220 kV) also tripped which led to tripping of both running units. Generation loss of around 330 MW occurred.

Figure 3: PMU of Bus voltage at Budipadar

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

- As reported, Bus bar protection didn't operate due to fibre communication error for both Main 1 and Main 2. **Bus bar healthiness may be ensured.**
- Before availing S/D without checking isolator status, closing Earth switch was unwanted type of event. Proper SOP should be followed during any type of S/D activity in S/S.
- The detailed reasons for IB TPS unit tripping may be share.

- 400kV-Lapanga-Sterlite #1 didn't trip from Lapanga end and delayed tripping from Sterlite end may be explain.
- Disturbance report received from OPTCL attached in annexure-3.

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

- Rectification carried out for Main 1 CUA of bus bar system by replacing defective FO cables for PU10 and PU15 with spare one. After this now 400 KV central Bus bar protection Main 1 CUA is healthy.

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	**-**

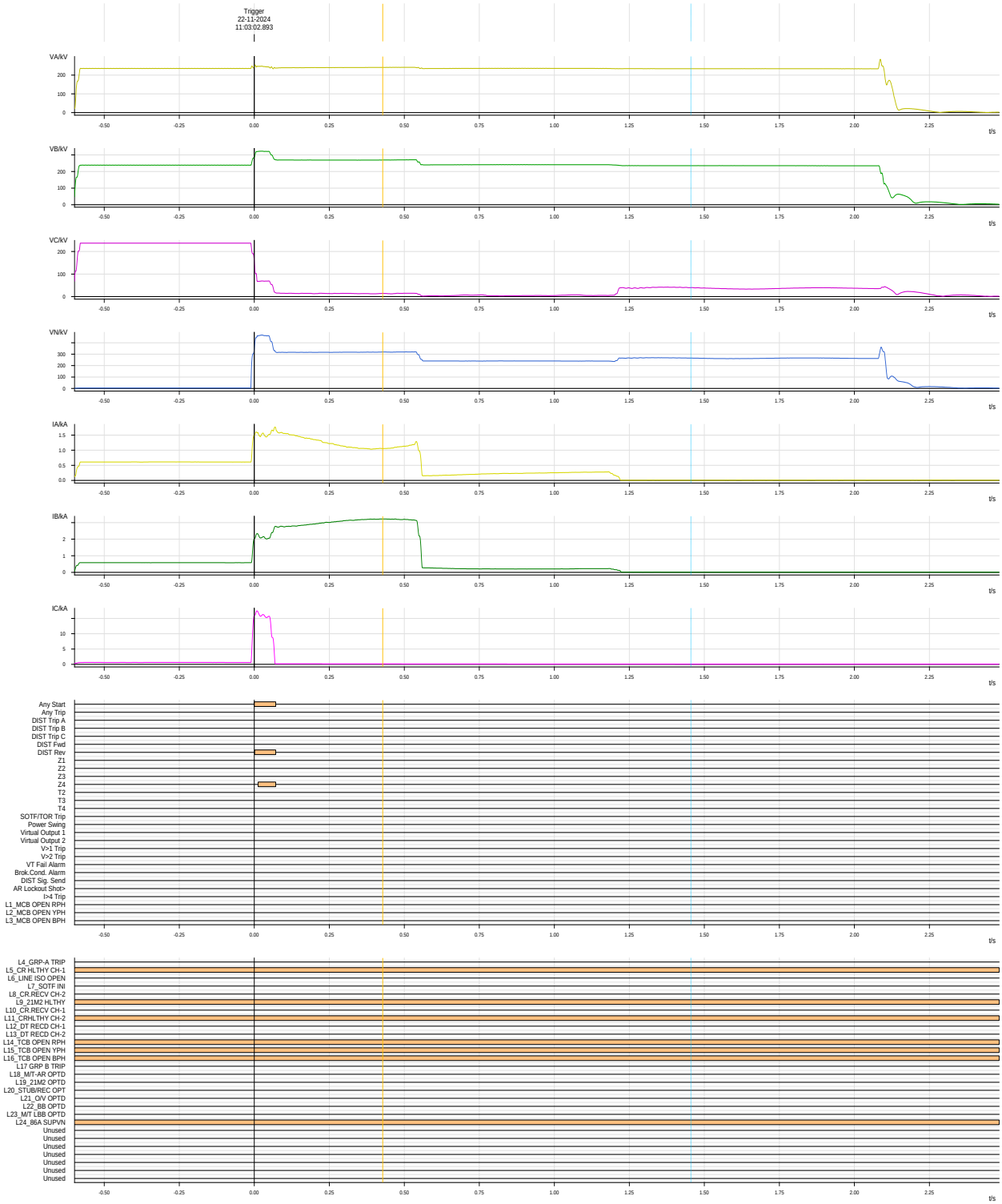
15. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil

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

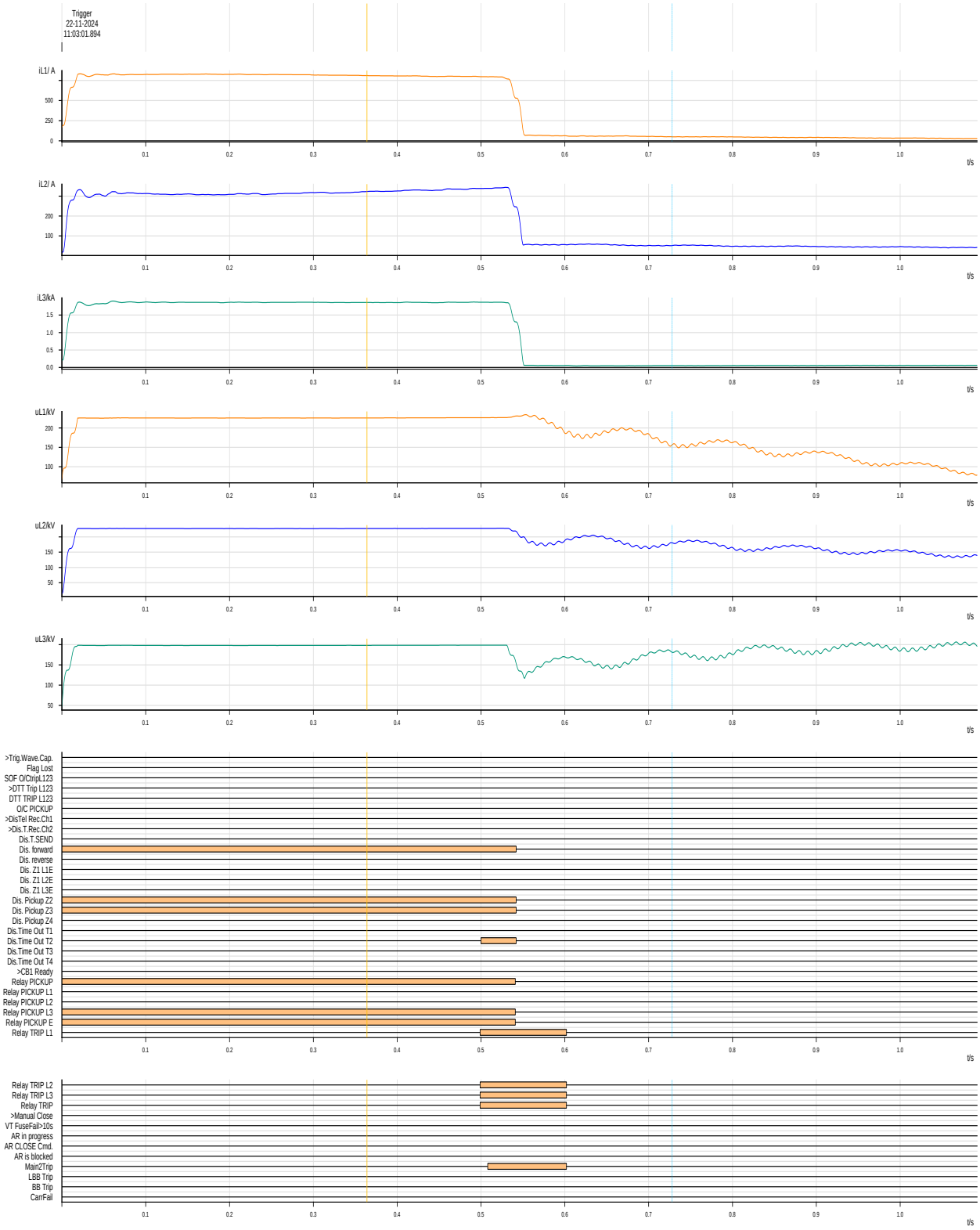
***SOE not available at ERLDC end.**

Annexure 2:

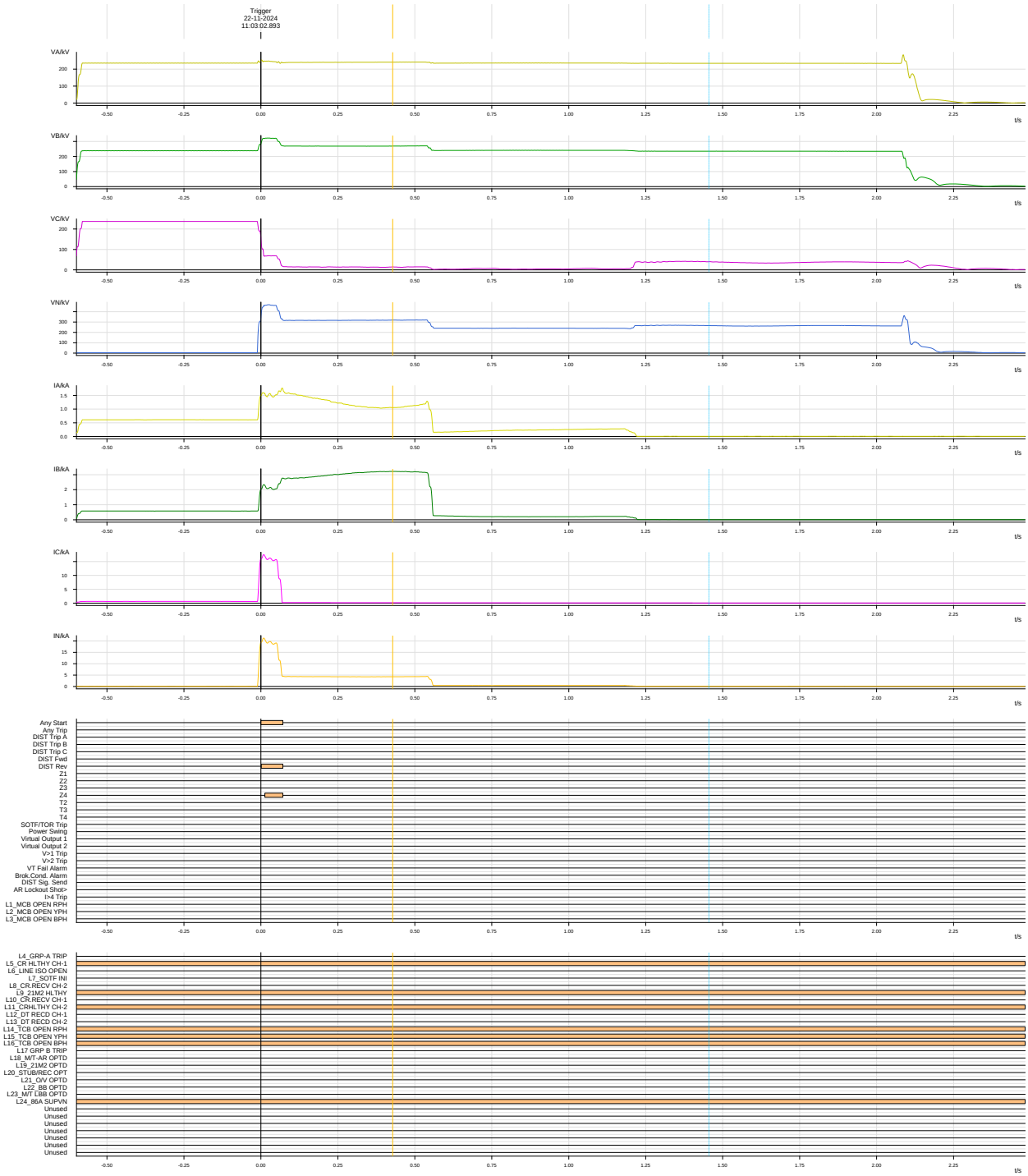
DR of 400KV-MERAMUNDALI-LAPANGA-1 at Lapanga:



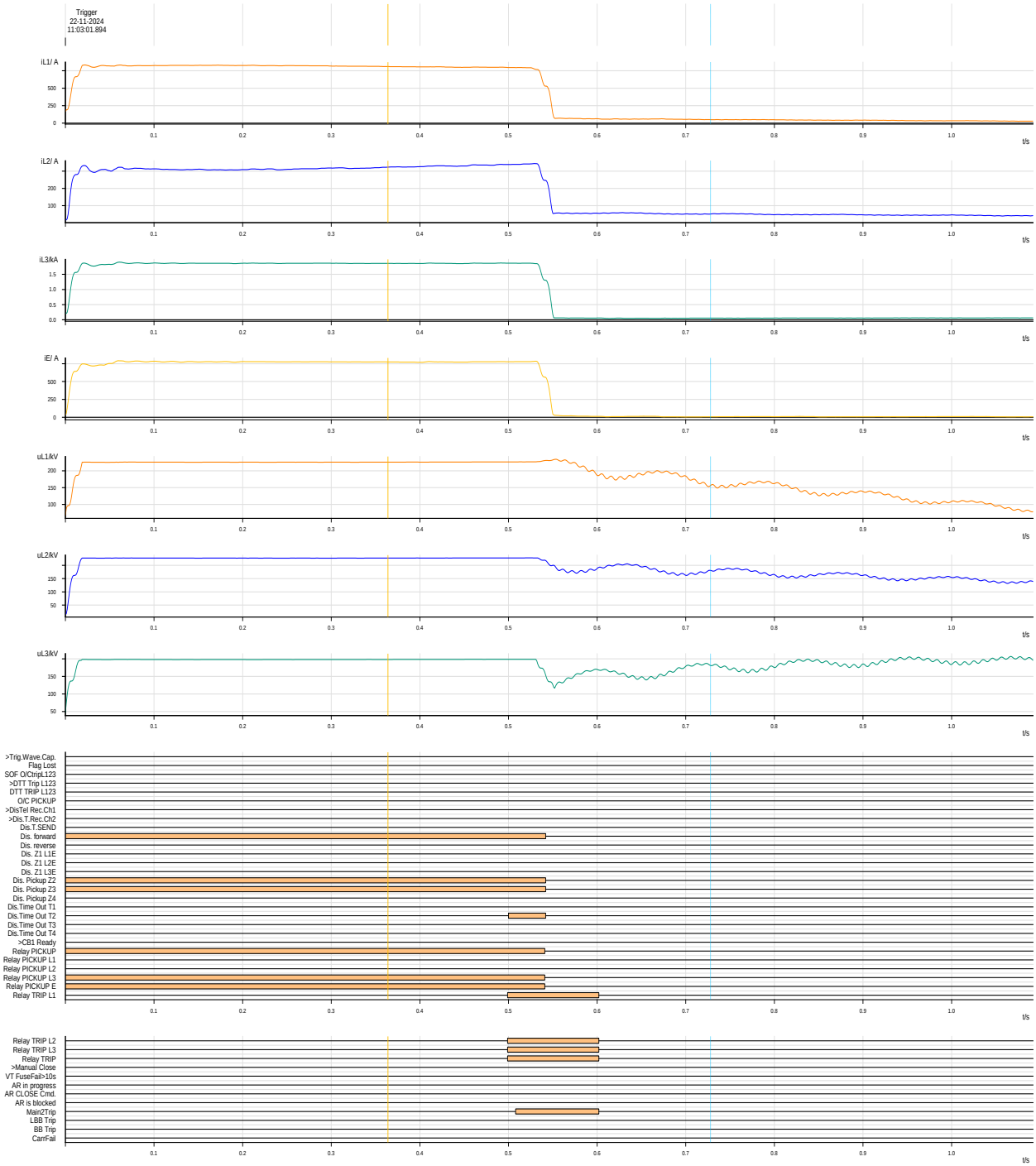
DR of 400KV-MERAMUNDALI-LAPANGA-1 at Meramundali:



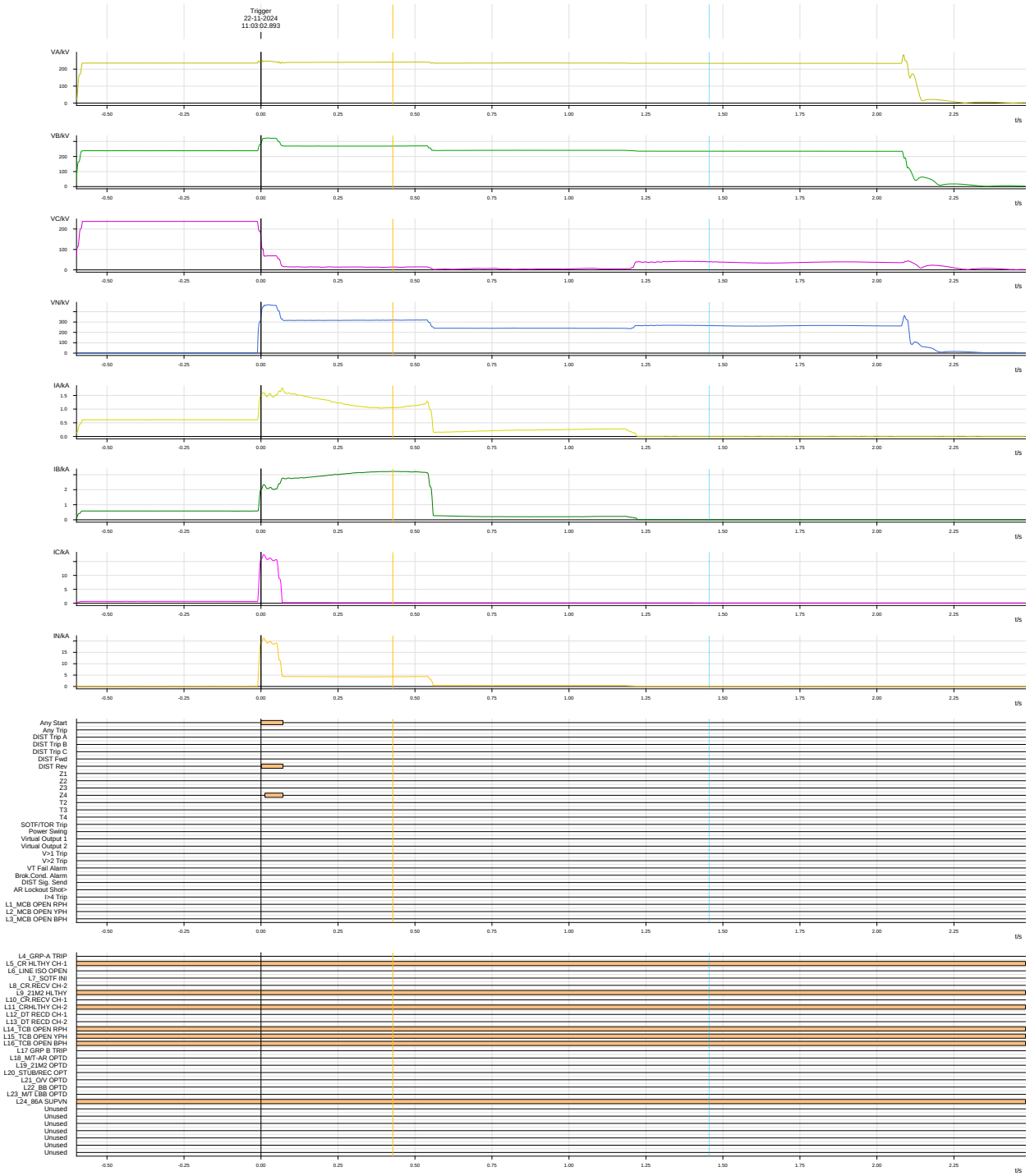
DR of 400KV-MERAMUNDALI-LAPANGA-2 at Lapanga:



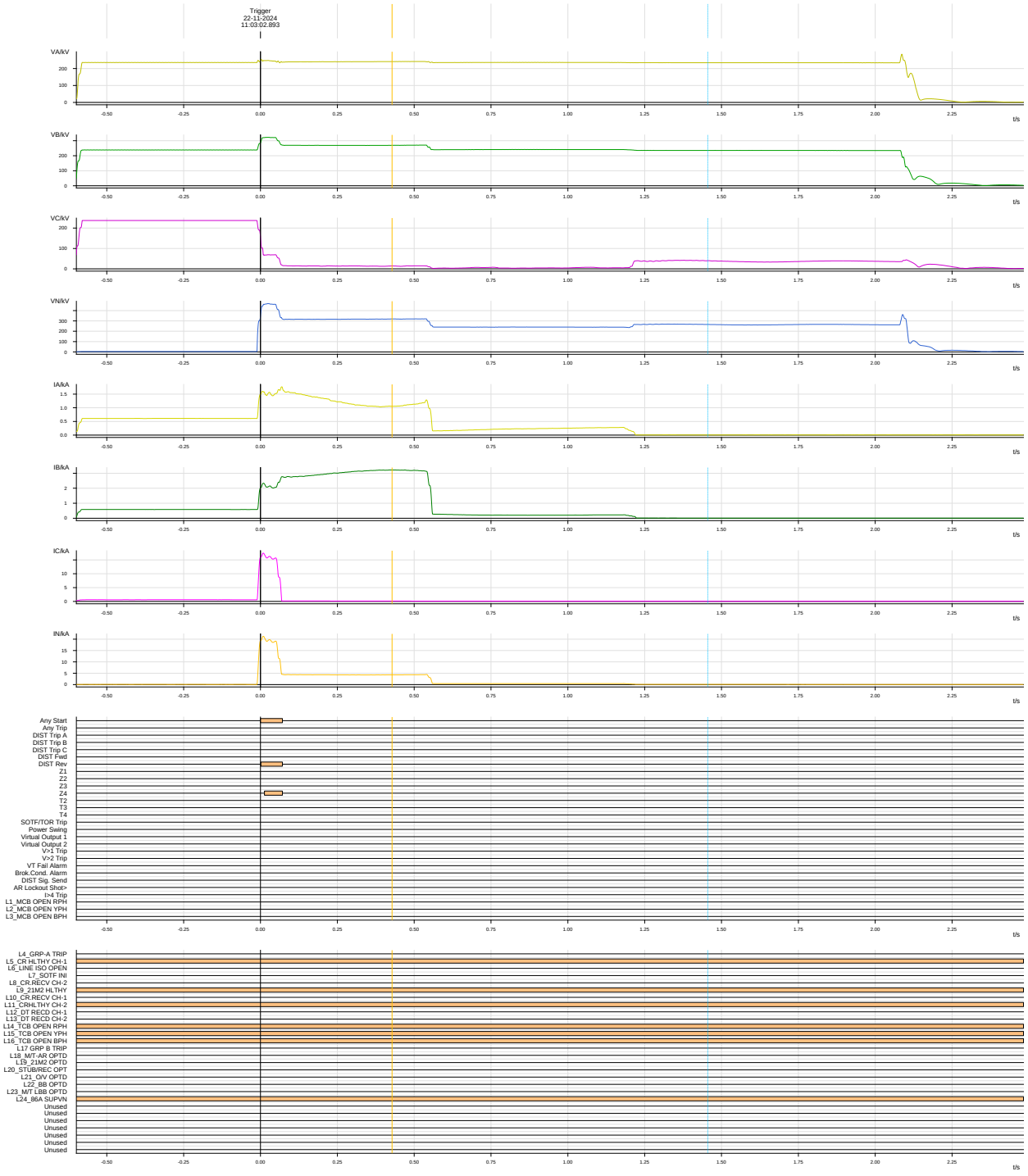
DR of 400KV-MERAMUNDALI-LAPANGA-2 at Meeramundali:



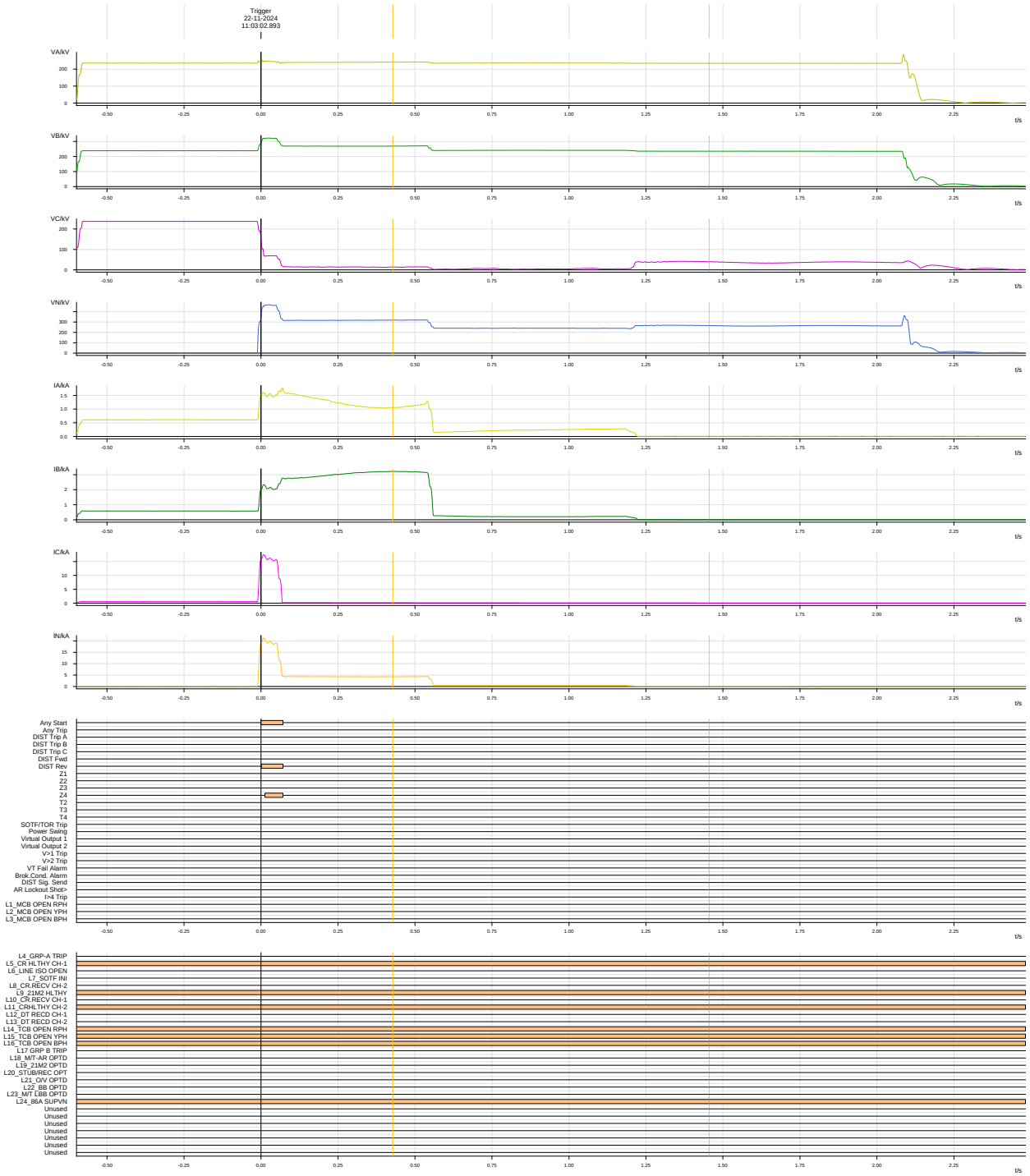
DR of 400kV-Lapanga-OPGC #1 at Lapanga:



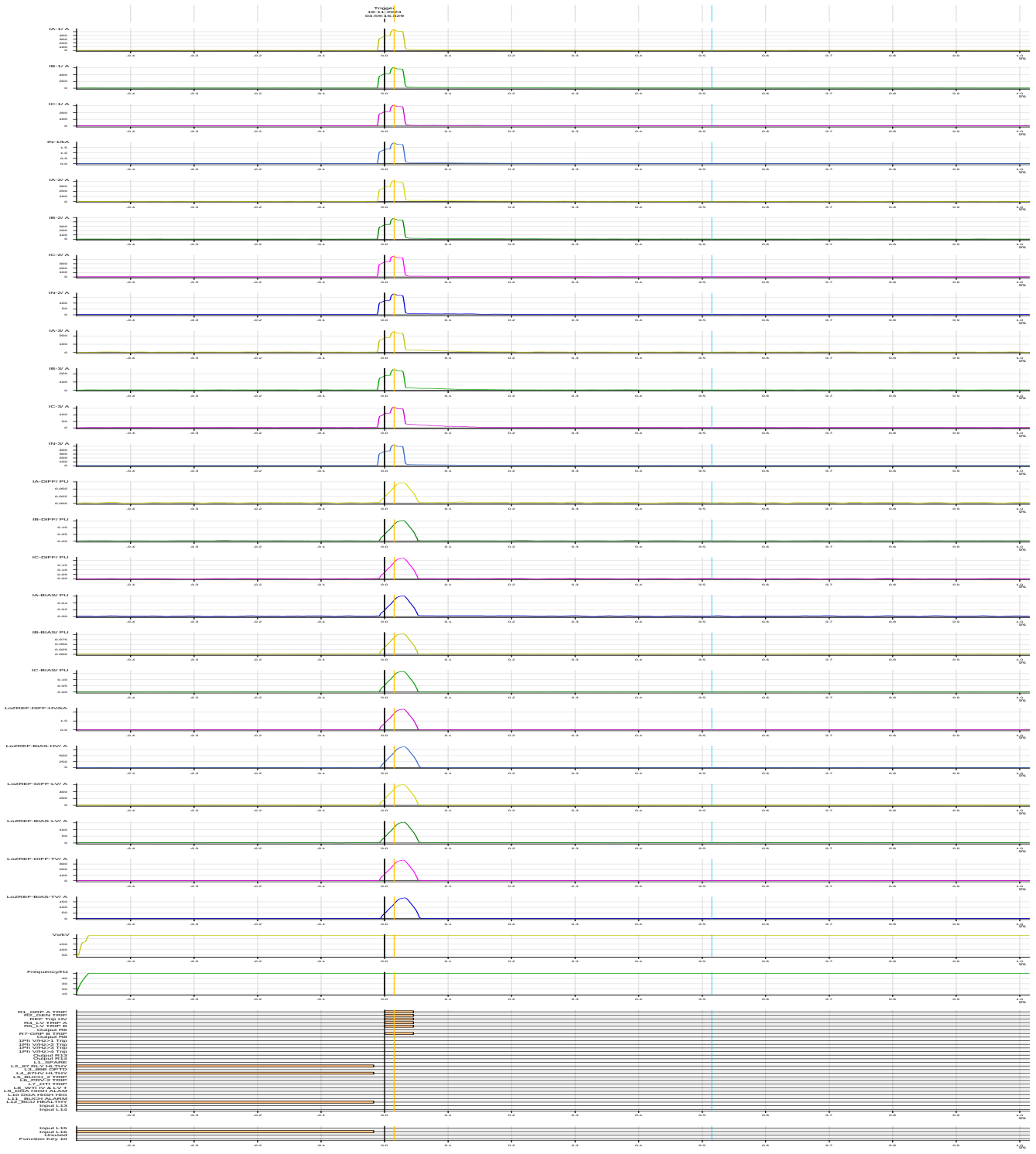
DR of 400kV-Lapanga-OPGC #2 at Lapanga:



DR of 400kV-Lapanga-Sterlite #1 at Lapanga:



DR of Lapanga ICT at Lapanga:



Annexure 3:

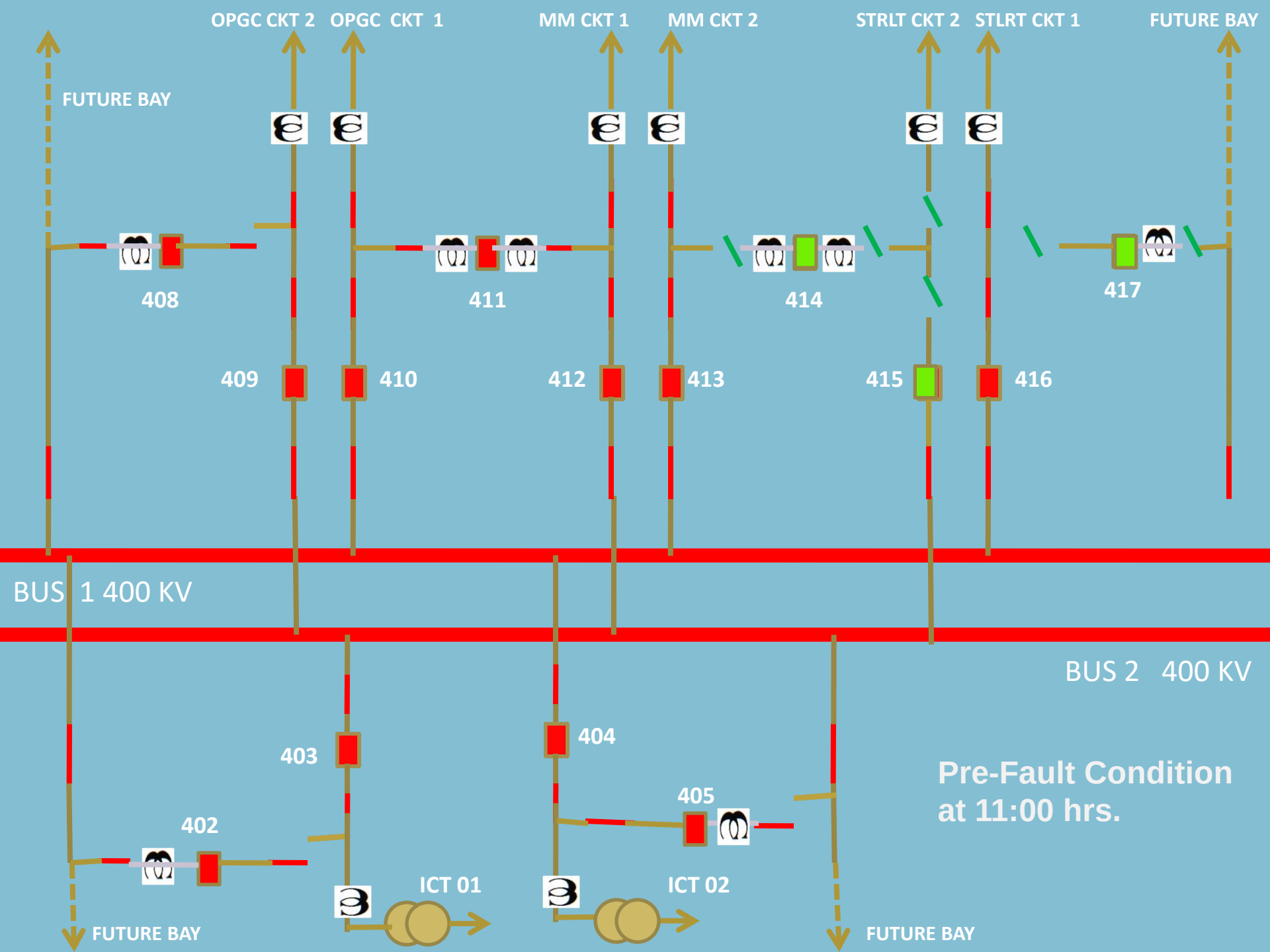
Disturbance occurred at 400/220/132/33 KV Lapanga GSS on dt 22.11.24.

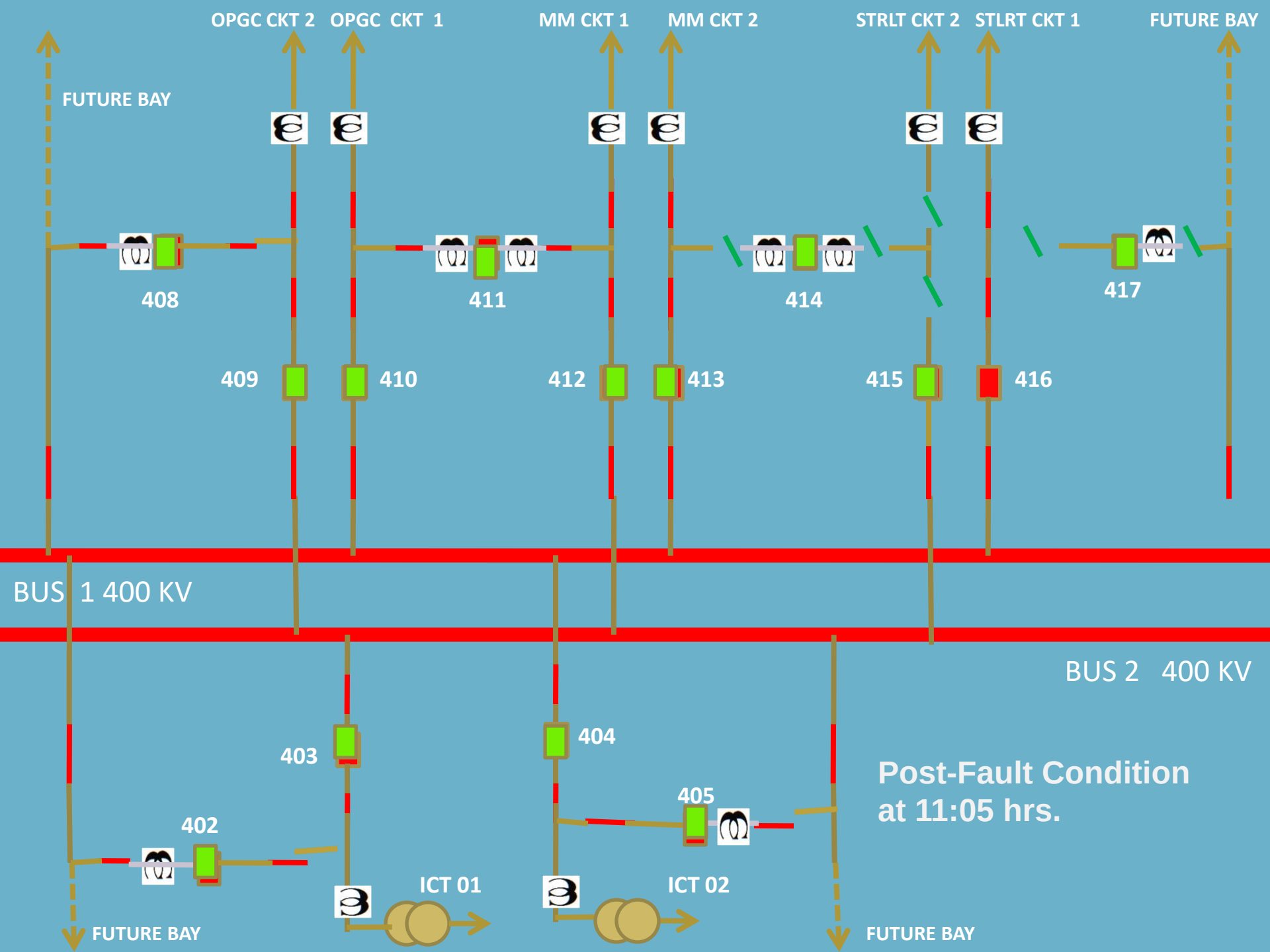
Date: 22.11.24,Time- 11.03 Hrs.

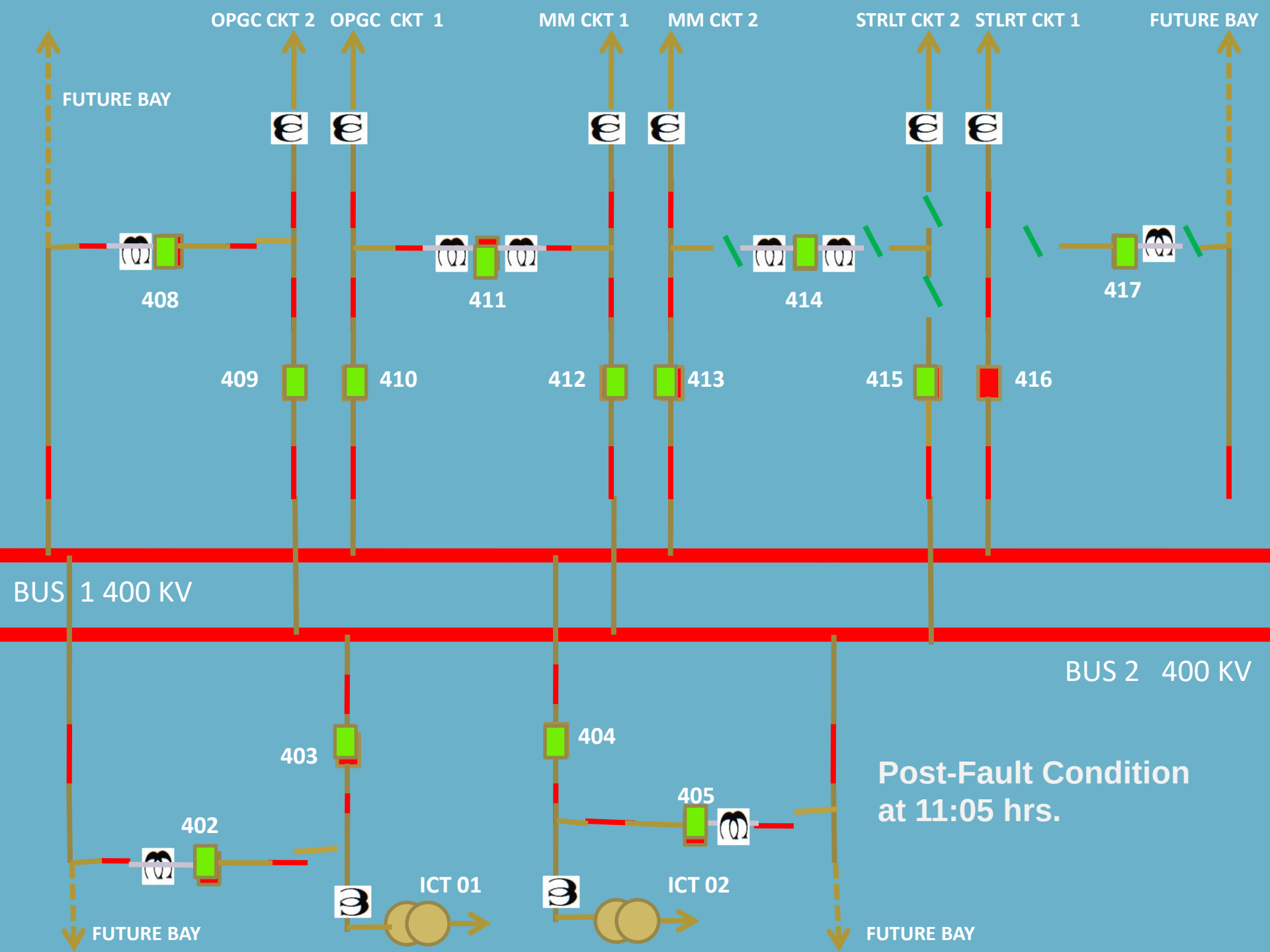
Station : 400/220/132/33 KV GSS,Lapanga

FAULT : -

1. **At 11.03 hrs. 400 KV Bus-1 & Bus-2 became dead due to tripping of all 400 KV feeders & Both the 315 MVA ICTs.**
2. **All the feeders at Local end tripped with Zone 4 with approx. 500 mSec delay (in Zone 4 timing) where as from remote end feeders tripped with Zone 2 .**
3. **ICT 1 & 2 tripped with dir. E/f after feeding the fault for almost 1 Sec.**
4. **220 KV system was healthy after the event occurred.**


OPGC CKT 2
OPGC CKT 1
MM CKT 1
MM CKT 2
STRLT CKT 2
STLRT CKT 1
FUTURE BAY
FUTURE BAY
408
411
414
417
409
410
412
413
415
416
BUS 1 400 KV
BUS 2 400 KV
403
404
405
402
ICT 01
ICT 02
FUTURE BAY
FUTURE BAY
Pre-Fault Condition
at 11:00 hrs.


OPGC CKT 2
OPGC CKT 1
MM CKT 1
MM CKT 2
STRLT CKT 2
STLRT CKT 1
FUTURE BAY
FUTURE BAY
408
411
414
417
409
410
412
413
415
416
BUS 1 400 KV
BUS 2 400 KV
403
404
405
402
ICT 01
ICT 02
FUTURE BAY
FUTURE BAY
Post-Fault Condition
at 11:05 hrs.


OPGC CKT 2
OPGC CKT 1
MM CKT 1
MM CKT 2
STRLT CKT 2
STLRT CKT 1
FUTURE BAY
FUTURE BAY
408
411
414
417
409
410
412
413
415
416
BUS 1 400 KV
BUS 2 400 KV
403
404
405
402
ICT 01
ICT 02
FUTURE BAY
FUTURE BAY
Post-Fault Condition
at 11:05 hrs.

Post Fault Condition at 11.05 Hrs

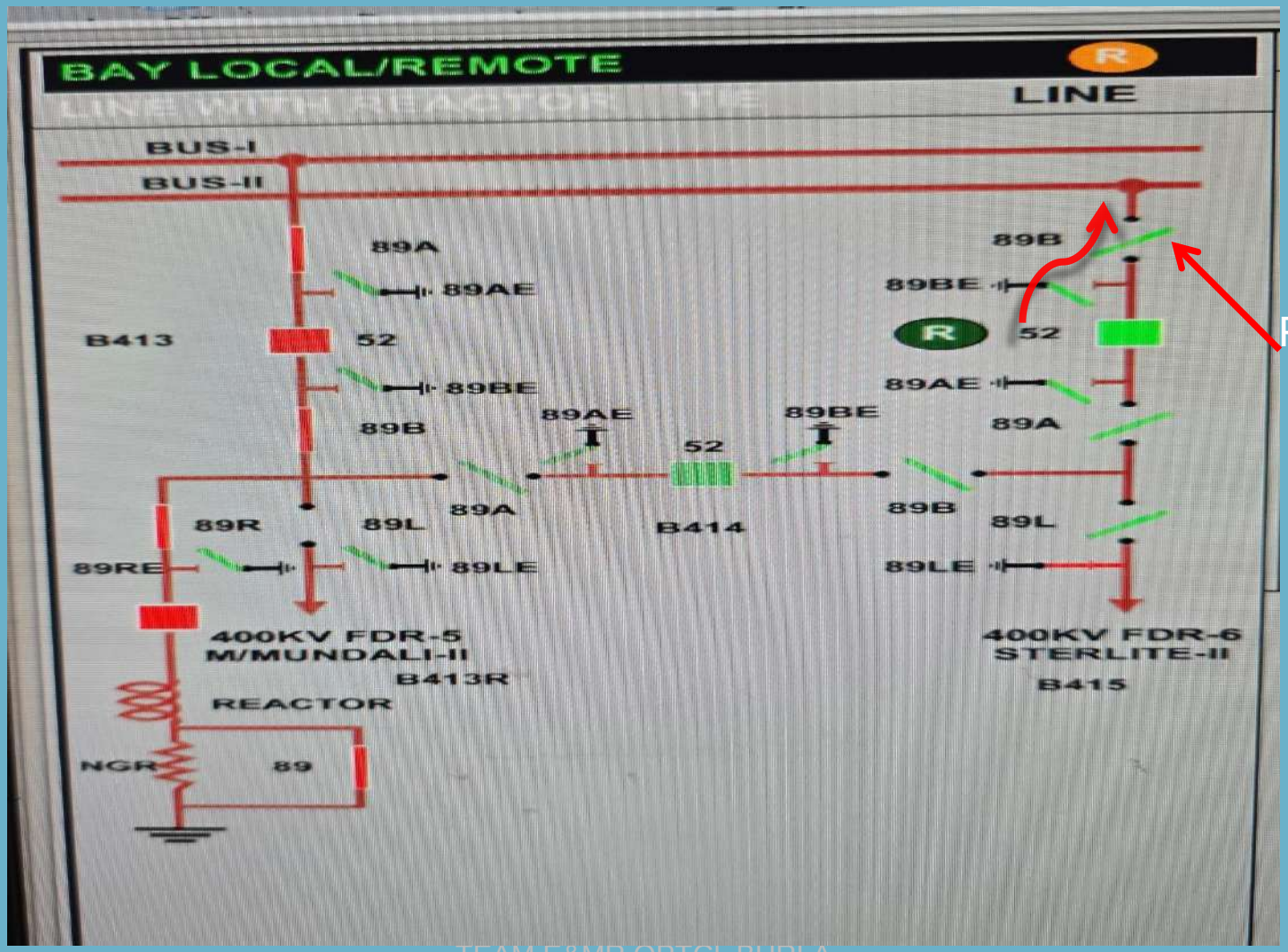
Bay No.	Name of the Feeder	Breaker Status at local end	Remarks
403	ICT-1	Tripped	Both ICTS tripped With Dir. E/F in LV and inter tripped HV Side.
404	ICT-2	Tripped	
409	OPGC CKT-2	Tripped	All feeders tripped with Zone 4 from local end except Sterlite 02 (ON L/C)
410	OPGC CKT-1	Tripped	
412	Meramundali ckt-1	Tripped	
413	Meramundali ckt -2	Tripped	
415	Sterlite -2	L/C	
416	Sterlite -1	Tripped	

Analysis of Fault:

1. On 22.11.2024 at 07:55hrs, L/C issued to 400KV Lapanga-Sterlite ckt-2 for maintenance work. Accordingly, the circuit breaker was H/T and all isolators were made open except 89 B .

It was observed that the 89A isolator contacts of bay 415 was defective and maintenance work supposed to be carried out on that bay. Before starting the maintenance work, isolator 89B isolator of main bay (415) was opened but B-phase isolator bar didn't open which was unobserved, while R and Y phase has got opened, the earth switch 89BE was going to be closed by motorised operation locally. As the B-phase isolator bar was still in close condition and Earth switch 89BE came in close proximity of induction zone resulting in heavy spark and all the 400KV feeders/ICT were tripped and system disturbance occurred for 400KV system at 11:03hrs.

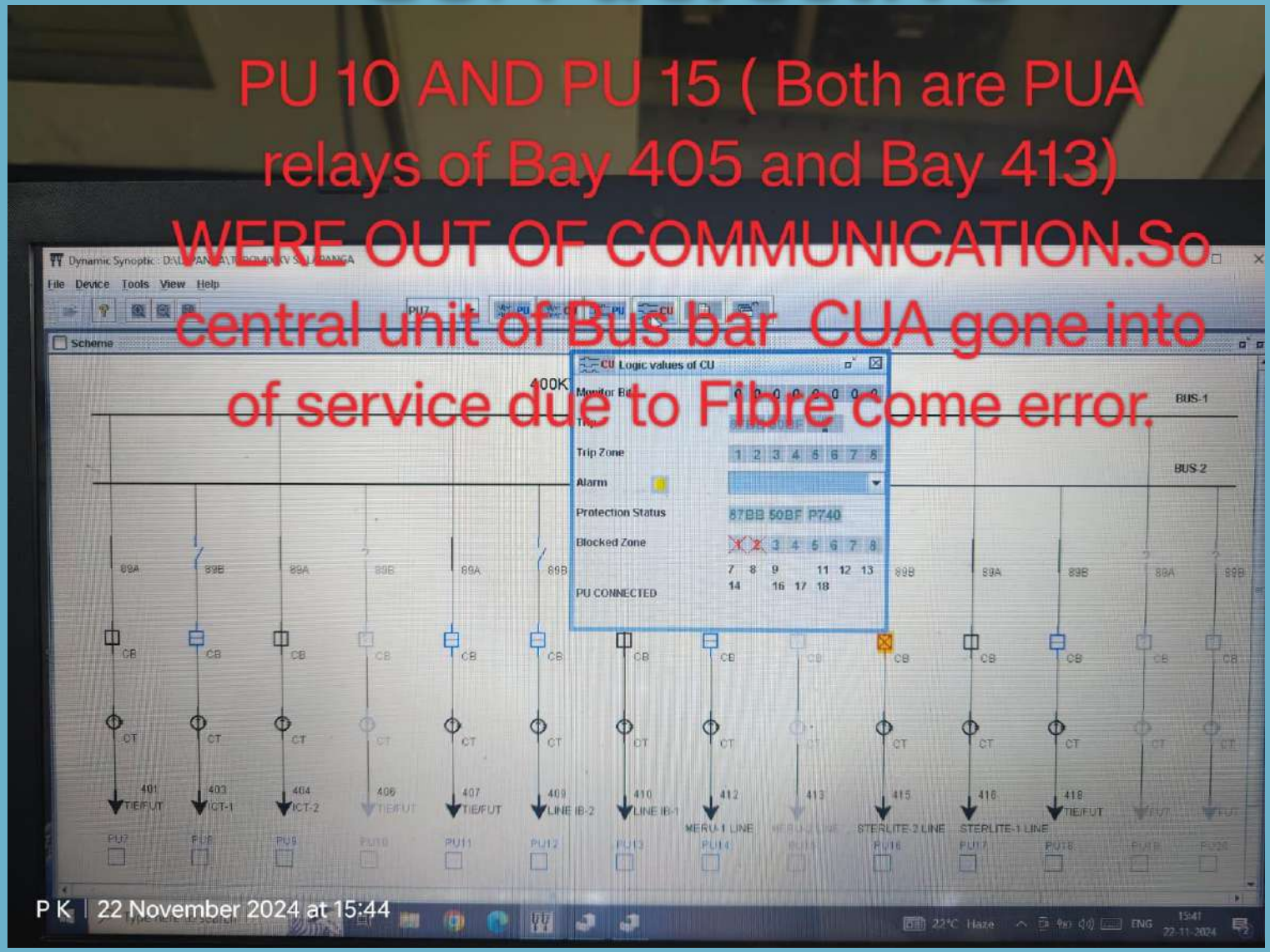
Analysis of Fault



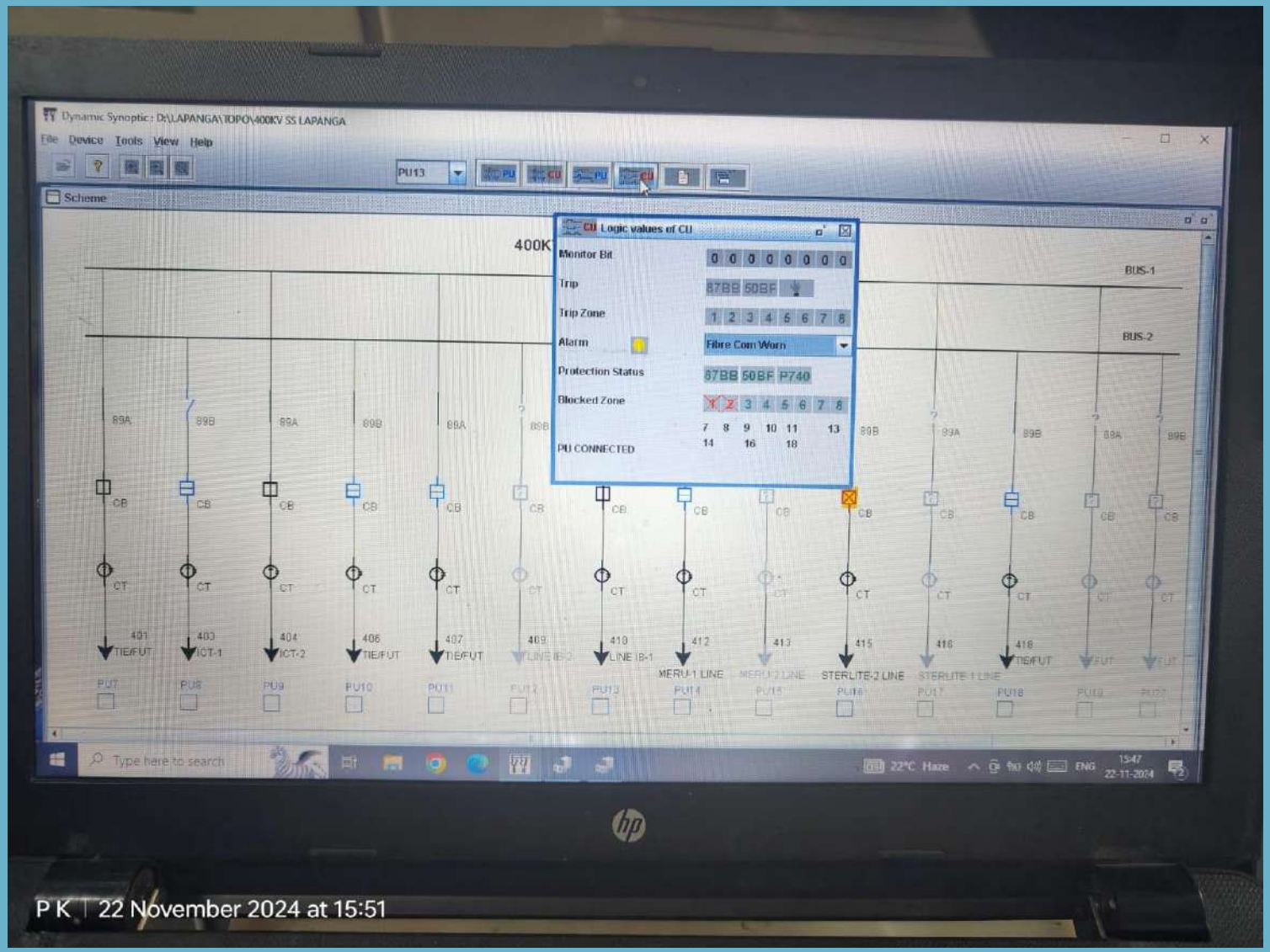
Analysis of Fault:

- **1. Also it is observed that 400 KV Bus bar system has gone into out of service due to fibre comm error. Both Main 1 and Main 2 unit showing the same error. Slides attached for the same.So Bus bar did not operated for 400 KV system.**
- **2. All feeders tripped at Zone 4 at local end and Zone 2 from remote end. ICT 1 & 2 tripped with dir. E/f on LV side intertripping HV side. All DRs recorded were justified to the fault happended.**

CUA defective



CUB defective



Remedial Action/Suggestion :

1. **Rectification carried out for Main 1 CUA of bus bar sytem by replacing defective FO cables for PU10 and PU15 with spare one. After this now 400 KV central Bus bar protection Main 1 CUA is healthy.**
2. **Main 2 Busbar protection is still in out of service condition due to non-availabilty of spare FO cables.**
3. **Protection settings and healthiness of all the relays verified for all 400 KV system nad found in order.**
4. **Defective isolator of Sterlite ckt 02 has been rectified.**

THANK U

OPTCL
Lifeline of Odisha

TEAM E&MR Division , OPTCL

Burla.

Annexure B.5

OPTCL

PROTECTION PERFORMANCE INDICES FOR THE MONTH OF NOV-2024 FOR OPTCL , SLDC, ODISHA																			
SL.NO	NAME OF THE ELEMENT	TRIPPING DATE	TRIPPING TIME	RESTORATION DATE	RESTORATION TIME	REASON(RELAX INDICATION)		NC		NU		NF		DEPENDABILITY INDEX (NC/NC+NF)	SECURITY INDEX (NC/NC+NU)	RELIABILITY INDEX(NC/NC+NU+NF)	REMARKS		
						END-A	END-B	END-A	END-B	END-A	END-B	END-A	END-B						
1	220KV JODA-RAMACHANDRAPUR	11-10-2024	12:40	11-10-2024	13:01	Y-N/ 0.848 KA /9.49KM/AR-SUCCESS	Y-N/Iy=2.65KA/39.4KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	TRIPPING AT RAMACHANDRAPUR END AND A/R SUCCESS AT JODA END		

Protection Performance Indices for the month of NOV'24 (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)	Analysis of the event
						End A	End B	End A	End B	End A	End B	End A	End B					
1	315 MVA TR # 4	06.11.24	12:29:00	06.11.24	13:22:00	Trip due to Buchh. Trip relay operation.		0		1		0		0	#	#		One lizard found in dead condition between the terminal of Buch. Trip wire and DC + wire terminal at CRP which may be the causes of BT operation due to short circuit between the terminal.
2	Kharagpur-Midnapore PG #1	07.11.24	11:54:00	07.11.24	12:30:00	B-phase, Zone-1, CS,A/R close		1		0		0		1	1	1		
3	Kharagpur-Midnapore PG #1	15.11.24	15:00:00	15.11.24	18:04:00	R-Y-phase, Zone-2, CR , A/R L/O		1		0		0		1	1	1		
4	Arambag-KTPP #1	20.11.24	21:42:00	20.11.24	22:04:00	DT Receive from far End		1		0		0		1	1	1		
5	Gokarna- Sagardighi #1	25.11.24	10:52:00	25.11.24	11:09:00	DT Receive from far End		1		0		0		1	1	1		
6	Gokarna- Sagardighi #2	25.11.24	10:52:00	25.11.24	11:45:00	DT Receive from far End		1		0		0		1	1	1		
7	Gokarna- Sagardighi #1	25.11.24	14:24:00	25.11.24	15:07:00	DT Receive from far End		1		0		0		1	1	1		
8	Gazol-Dalkhola #2	30.11.24	10:02:00	30:11:24	15:42:00	Y-phase , Zone-2 , 3-Phase Trip, No CR		1		0		0		1	1	1		
9	NJP-Binaguri # 1	30.11.24	15:27:00	30.11.24	19:35:00	No Tripping at NJP End												

Protection Performance Indices for the month of November'24 (In compliance of Clause 15(6) of IEGC 2023)																	
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				
	no trips	-	-	-	-	-	-	0	-	0	-	0	-	1	1	1	

NTPC Barh

Month	November						
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)**
03.11.2024	400 kV Barh-Motihari-2	ne 1, Y phase transient fa	Line tripped on single phase, Y phase fault. The fault was transient in nature. However three phasing tripping took place at Barh end with DT being sent to remote substation leading to line tripping. It is suspected that maloperation of Main 1 distance relay has led to unwanted tripping. Zone 1 picked up in Main 2 relay. Main-1 relay shall be checked and updated for correctness of operation.	0	1	1	2
05.11.2024	400 kV Barh-Kahalgaon 1	ne-1, R phase persisting fa	Line tripped on single phase, R phase fault. Initially only R phase of Main and Tie CB opened at Barh end. Auto Reclosure attempted for Main and Tie CB. However due to persisting fault in Y phase, 3 phase tripping took place. Zone-1 picked up twice as evident in DR window. (DR file may be viewed in Agile software)	1	0	0	0
				1	0	0	0
Dependability Index D = Nc/(Nc+Nf)				0.5			
Security Index S = Nc /(Nc+Nu)				0.5			
Reliability Index R= Nc/(Nc+Ni)				0.5			

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

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	**NO EQUIPMENT OPERATED**	**NA**	**NA**	**NA**	**NA**	NA	NA	1	1	0	0	0	0	1	1	1	

Performance Indices of Darlipali STPP for Nov'24

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

Protection Performance Indices for the month of Nov '24 (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 Nov 24'

Protection Performance Indices for the month of November'2024_DMTCL SS																		
Sr. No.	Name of the Element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason		Nc	Nc	Nu	Nu	Nf	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)	Analysis of the event
						End A	End B	End A	End B	End A	End B	End A	End B					
1	400 kV Motihari - Barh Circuit - 2	03-11-2024	4:12 PM	03-11-2024	5:06 PM	0	1	1	1	0	1	0	0	1	0.5	0.5	DTT received from NTPC Barh.	Line tripped with LR
	End A :	Motihari-DMTCL																
	End B :	Barh-NTPC																

Jorethang Loop Hydro Electric Project 2 X 28 MW

Protection Performance Indices for the NOVEMBER-2024 (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+N f))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+ Nu+Nf))	Remarks (Reason for performance indices less than 1)	Analysis of the event
						End A	End B	End A	End B	End A	End B	End A	End B					
1	220KV Jorethang-New Melli Line-1																NO TRIPING	
2	220KV Jorethang-New Melli Line-2																NO TRIPING	
	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.																	

Tashiding Hydro Electric Project 2 X 48.5 MW

Protection Performance Indices for the NOVEMBER -2024 (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)	Analysis of the event
						End A	End B	End A	End B	End A	End B	End A	End B					
1	220KV Tashiding- New Melli Line-1	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NO TRIPPING	--
2	220KV Tashiding- New Melli Line-2	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	NO TRIPPING	--
	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.																	

Protection Performance Indices for the month of November-24 (In compliance of Clause 15(6) of IEGC 2023)

S. No.	Name of Utility	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	EAST NORTH INTERCONNECTION LIMITED	400 kv (Quad) D/C Bongaigaon - Alipurduar line CKT- 1(BNG- ALIP #1)							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400 kv (Quad) D/C Bongaigaon - Alipurduar line CKT- 2(BNG- ALIP #2)							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400 kv (Quad) D/C Alipurduar - Siliguri line CKT-1(ALIP- SLG #1)	28-11-2024	12:23	28-11-2024	12:23	**14.5 Kms**	**14.36 KMs**	1.00	-	-	-	-	-	-NA-	1	1	A/R successful
		400 kv (Quad) D/C Purnia-Biharshrif Line CKT-2(NPRN- BSF# 2)							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400 kv (Quad) D/C Purnia-Biharshrif Line CKT-1 (NPRN-BSF#1)							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400 kv (Quad) D/C Alipurduar - Siliguri line CKT-2(ALIP- SLG #2)							-	-	-	-	-	-	-NA-	-NA-	-NA-	
2	ODISHA GENRATION PHASE - II LIMITED	400kV D/C LILO POINT (T. No. - 130) - Sundargarh							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400kV D/C OPGC-LILO POINT (T. No. - 130)							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400kV D/C IB-OPGC-Jharsuguda(Sundargarh) Ckt-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		765kV D/C Jharsuguda(Sundargarh)-Raipur pool CKT-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	

		765kV D/C Jharsuguda(Sundargarh)-Raipur pool CKT-2							-	-	-	-	-	-	-NA-	-NA-	-NA-	
3	PURULIA KHARAGPUR TRANSMISSION COMPANY LIMITED	400 kV Chaibasa-Kharagpur D/C line CKT- 1							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400 kV Chaibasa-Kharagpur D/C line CKT- 2							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400 KV,D/C New Ranchi-New Purulia Line: CKT-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	
		400 KV,D/C New Ranchi-New Purulia Line: CKT-2							-	-	-	-	-	-	-NA-	-NA-	-NA-	

TVNL

Protection Performance Indices for the month of NOVEMBER 2024 (In compliance of Clause 15(6) of IEGC 2023)

Sl. No.	Name of the element	Tripping Date	Tripping Time hrs	Restoration Date	Restoration Time hrs	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	TTPS-B/S 220KV T/L	08.11.2024	11:45	08.11.2024	12:12	Started Phase AN E/F start in 1 Distance Trip Z1 Fault Location 83.33kms		1		0		0		1.0000	1.0000	1.0000	
2	TTPS-B/S 220KV T/L	15.11.2024	11:38	15.11.2024	12:22	Started Phase AN E/F start in 1 Distance Trip Z2 Fault Location 57.12kms		1		0		0		1.0000	1.0000	1.0000	
3	CT EXPLOSION IN 220KV TTPS LALPANIA SWITCHYARD IN GOVINDPUR CKT-1 BAY	21.11.2024	04:28	22.11.2024	15:28	In 220KV Switchyard Started Phase ABN Overcurrent Start I>1 Distance Trip Zone 1 In Unit #01 Field Failure In Unit #02 Class A Lock Out Relay 86A11/86A12		1		0		0		1.0000	1.0000	1.0000	
4	400KV TTPS-PVUNL T/L	24.11.2024	11:38	24.11.2024	13:02	Started Phase CN E/F start in 1 Distance Trip Z2 Fault Location 60.12kms		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 November-2024																	
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 END-1	DR Configuration Discrepancy END-2	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END	LOCAL END UTILITY	REMOTE END UTILITY
1	400KV-MOTIHARI-BARH-2	03-11-2024	16:11	03-11-2024	17:06	Motihari : B_N, FC-2.17 KA, FD-159.9 km	Barh: B_N, 6.53KA, 58.49 km	B_Earth	120 msec	Three phase tripping on phase to ground fault at Barh and DT sent to Motihari. NTPC may explain.			YES	YES	DMTCL	NTPC
2	400KV-KHSTPP-BARH-1	05-11-2024	23:49	06-11-2024	03:05	Kahalgaon: R-N, 3 kA	Barh: R-N, 22.24 kA, 8.72 Km	R_Earth	100 msec	A/r failed from both ends after 1 second due to persistent fault.			NO	YES	NTPC	NTPC
3	400KV-KHSTPP-BANKA (PG)-1	05-11-2024	23:49	06-11-2024	02:58	R_N, Z-1	Not Tripped	R_Earth	100 msec	Line tripped from KHSTPP end only due to tripping of KHSTPP-Barh #1(Main bay of Banka #1 at KHSTPP under S/D, Banka #1 charged through Tie bay of Barh #1 at KHSTPP)			NO	NO	NTPC	ER-I

4	220KV-DALKHOLA-PURNEA-1	06-11-2024	11:54	06-11-2024	13:16	Dalkola: B_N, 2.9 kA, 30.86 Km	Purnea - B_N, 7.5 kA, 4.3 Km	B_Earth	100 msec	A/r failed from both ends after 1 second due to persistent fault.			YES	YES	ER-II	ER-II
5	400KV-MEDINIPUR-KHARAGPUR-1	07-11-2024	11:54	07-11-2024	12:23	Medinipur: B-N, 1.36 kA, 93.58 km	Kharagpur: A/R Successful	B_Earth	500 msec	A/r successful from Kharagpur end. Carrier sent from Kharagpur but wasn't received at remote end and line tripped in Zone-2 from Medinipur. PG ER-2 may explain.			YES	YES	ER-II	WBSETCL
6	220KV-BIHARSARIFF-TTPS-1	08-11-2024	11:46	08-11-2024	12:10	Biharshariff: R-N, 1.502 kA, 89 km	Tenughat: R-N, 83.33 km, 271.1 A	R_Earth	100 msec	Three phase tripping for phase to ground fault. JUSNL may explain.			NO	NO	BSPTCL	JUSNL
7	220KV-JODA-RAMCHANDRAPUR-1	10-11-2024	12:40	10-11-2024	13:01	Joda: Y-N, IY=848 A, 9.49 km	Ramchandrapur: Y_N, Iy=2.65 KA, 39.4 km	Y_Earth	100 msec	Three phae tripping at Ramchandrapur. A/r successful at Joda.			NO	NO	OPTCL	JUSNL
8	400KV-KISHANGANJ(PG)-RANGPO-2	12-11-2024	07:13	12-11-2024	10:33	Kishanganj: R-Y, 5.13 KA , 129.7 Km	Rangpo: R-Y, 6.018 KA , 5.82 Km	R_Y	100 msec	Phase to Phase fault.			YES	YES	ER-I	ER-II

9	220KV-BINAGURI-BIRPARA-2	14-11-2024	17:34	15-11-2024	07:34	Binaguri: R-N, 3.88 kA, 30.599 km	Birpara: R-N, 2.32 kA, 54.6 km	R_Earth	100 msec	A/r failed from both end after 1 second due to persistent fault.			YES	YES	ER-II	ER-II
10	220KV-TENUGHAT-BIHARSARIFF-1	15-11-2024	11:38	15-11-2024	12:22	Tenughat: R_N, 57.12 km , Z-2	Biharsariff: R-N, Ir-1.412 kA, 110.01 km	R_Earth	350 msec	Line tripped in Z-2 from Tenughat end.			NO	NO	JUSNL	BSPTCL
11	400KV-DURGAPUR-KAHALGAON-1	15-11-2024	12:54	15-11-2024	14:04	LBB MAL OPERATION OF TIE BAY SAGARDIGHI 2-KAHALGAON -1 at Durgapur S/S		No Fault	-	Due to LBB mal operation of Tie Bay of Sagardighi #2 & Kahalgaon #1 at Durgapur S/S(Durgapur Sagardighi #2 under S/D)			NO	NO	ER-II	NTPC
12	400KV-MEDINIPUR-KHARAGPUR-1	15-11-2024	15:00	15-11-2024	18:04	Medinipur :-Y-B, Iy -12.15 KA, Ib- 12.16 KA, 15 Km	Kharagpur :-Y-B, Iy- 4.9 kA, Ib- 4.9 kA, 94 km	Y_B	100 msec	Phase to Phase fault.			YES	YES	ER-II	WBSETCL
13	400KV-BINAGURI-RANGPO-1	16-11-2024	06:42	16-11-2024	12:06	Binaguri : B_N, 21.83 kA, 1.857 Km	Rangpo : B_N, 3.692 kA, 109 Km	B_Earth	100 msec	A/r failed from both end after 1 second due to persistent fault.			YES	YES	ER-II	ER-II

14	400KV-KOLAGHAT-ARAMBAGH-1`	20-11-2024	21:42	20-11-2024	22:04	Kolaghat:-Not tripped	Arambagh: DT Reciept.	No Fault	-	DT received at Arambagh end. WBSETCL/WBPDCL may explain.			NO	NO	WBPDCL	WBSETCL
15	400KV-TENUGHAT-PVUNL-1	24-11-2024	11:38	24-11-2024	13:02	Tenughat: B-N, Ib-1.282KA, 60.13 km	-	B_Earth	350 msec	As per PMU fault cleared in 350 msec in Z-2 protection from Tenughat end.			NO	NO	JUSNL	JUSNL
16	400KV-GOKARNA-SAGARDIGHI-2	25-11-2024	10:52	25-11-2024	11:45	Gokarna: DT Recieved	Sagardighi : Not Tripped	No Fault	-	Tripped from Gokarna end due to DT received. WB may explain.			YES	NO	WBSETCL	WBPDCL
17	400KV-GOKARNA-SAGARDIGHI-1	25-11-2024	10:52	25-11-2024	11:08	Gokarna: DT Recieved	Sagardighi : Not Tripped	No Fault	-	Tripped from Gokarna end due to DT received. WB may explain.			YES	NO	WBSETCL	WBPDCL
18	400KV-GOKARNA-SAGARDIGHI-1	25-11-2024	14:24	25-11-2024	15:07	Gokarna: DT Recieved	Sagardighi : Not Tripped	No Fault	-	Tripped from Gokarna end due to DT received. WB may explain.			YES	NO	WBSETCL	WBPDCL

19	220KV-RANCHI-MTPS(DVC)-1	25-11-2024	17:30	26-11-2024	14:16	Y_B	Mejia: Y-B, Iy-4.55 KA, Ib-4.37 KA, 49.8 Km	Y_B	100 msec	Phase to Phase fault.			YES	YES	ER-I	DVC
20	220KV-MUZAFFARPUR (PG)-AMNOUR-2	27-11-2024	18:32	27-11-2024	20:21	Muzaffarpur : DT received	Not Tripped	No Fault	-	Tripped from Muzaffarpur end due to DT received. PG(ER-I) & BSPTCL may explain.			YES	NO	ER-I	BSPTCL
21	220KV-KHAGARIA-NEW PURNEA-1	29-11-2024	05:26	29-11-2024	07:35	A/r successful from Khagaria end.	New Purnea : R-N, 2.46 KA, 82.3 km	R_Earth	400 msec	A/r successful from Khagaria end. Delayed fault clearance from Purnea end in Z-2 protection. PG(ER-I) may explain.			YES	NO	BSPTCL	ER-I
22	220KV-DALKHOLA (PG)-GAZOLE-2	30-11-2024	10:02	30-11-2024	15:42	Dalkhola end : Y-phase, reverse zone, FC 2.31 KA	Gazole (WB) - RYB phase , .FC - IA -2.45 kA , 2.60 kA , 2.49 kA , FD - 181.3 km zone - 2	Y_Earth	350 msec	Line tripped in Z-4 protection from Dalkhola end and Z-2 protection from Gazole end.			NO	NO	ER-II	WBSETCL
23	220KV-DALKHOLA-PURNEA-1	30-11-2024	10:02	30-11-2024	13:09	Tripped only at Dalkhola end, due to fault in line bay 220 kv Dalkhola-gazole ckt#2 at Dalkhola.	-	No Fault	NA	Line tripped in Z-4 protection from Dalkhola			NO	NO	ER-II	ER-I

24	220KV-DALKHOLA-PURNEA-2	30-11-2024	10:02	30-11-2024	13:08	Tripped only at Dalkhola end, due to some external fault in line bay 220 kv Dalkhola-gazole ckt#2	-	No Fault	NA	end . Bus bar protection is out of service			NO	NO	ER-II	ER-I
25	220KV-BINAGURI-NJP-2	30-11-2024	15:27	30-11-2024	16:20	Binaguri: DT Received	Jalpaiguri: Not tripped	No Fault	-	DT received at Binaguri end. PG(ER-II) & WB may explain.			NO	NO	ER-II	WBSETCL

ANNEXURE C.3

Sl No.	Name of the incidence	PCC Recommendation	Latest status
141st PCC Meeting			
1.	Repeated disturbance at 220 kV Balimela (OPTCL) S/s and 220 kV Balimela(PH)(OHPC) S/s	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, MVAr, voltage and speed data with 1 minimum 1 second resolution to ERPC/ERLDC for further study. 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. 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. PCC advised OHPC representative to expedite work for operating Balimela PH with both bus 1 and bus 2. PCC advised OHPC representative to rectify issue of time synchronisation of DR for identified feeders at Balimela PH at earliest. PCC advised OHPC representative to prepare SOP. Regardingg 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.	

		As per observation received from ERLDC, PCC advised OHPC representative to increase DR length of Balimela PH need as per ERPC DR standardization guideline. PCC advised OHPC representative to share timeline for all suggestive actions to ERPC/ERLDC.	
2.	Repeated disturbance at 220 kV Dumka (JUSNL) S/s, 220 kV Jasidih(JUSNL) S/s, 220 kV Giridih(JUSNL) S/s, 220 kV Govindpur(JUSNL) S/s, 220 kV Godda(JUSNL) S/s & 220 kV Tenughat (TVNL) S/s	PCC advised JUSNL representative to share observation report to ERPC/ERLDC/TVNL/Powergrid. BSPTCL representative informed that shutdown of 220 kV Tenughat-Biharsharif is scheduled on 19th Dec 2024 in which testing will be done in relation to o/c e/f protection subsequently observations will be shared to ERPC/ERLDC.	
3.	Total Power failure at 220 kV Ramchandrapur (JUSNL) S/s on 22.10.2024 at 05:08 Hrs	PCC advised JUSNL representative to expedite the process for implementing bus bar protection at Ramchandrapur S/s. PCC opined that 400/220 kV ICT-1&2 at Jamshedpur should not had tripped immediately on Hi-Set O/c protection from 220 kV side so it advised JUSNL representative to	

		review the settings of ICT 1 and 2 in order to avoid its tripping in case of fault in adjacent bus. Further, it advised to review O/c Hi-set setting of ICT-3 also in co-ordination with other two ICTs.	
4.	Repeated tripping of 220KV-RANCHI-MTPS(DVC)-1	PCC advised DVC representative to share logic of implementing auto-recloser scheme to ERPC/ERLDC. DVC representative informed that auto-recloser scheme will be implemented after getting clearance from Ranchi end.	
5.	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	
6.	Repeated tripping of 132KV-KAHALGAON(BSEB)-LALMATIA-1	PCC advised JUSNL representative to share patrolling report to ERPC/ERLDC and do thorough patrolling for line again.	
7.	Repeated tripping of 132KV-NAGARUNTARI-NABINAGAR-1	PCC advised BSPTCL and JUSNL representative to share patrolling report to ERPC/ERLDC.	
8.	Tripping of 400KV/220KV 315 MVA ICT 2 AT RAGHUNATHPUR on 24.10.2024 at 17:44 Hrs and at 21:55 Hrs	PCC advised DVC representative to share report of tripping incident to ERPC/ERLDC.	

9.	Tripping of 400KV/220KV 315 MVA ICT 3 AT JAMSHEDPUR on 04.10.2024 at 02:16 Hrs	PCC advised Powergrid representative to share report to ERPC/ERLDC.	
10.	Proposal for Additional overcurrent function for 315MVA, 400/220kV ICT-3 at Jamshedpur S/S: Powergrid	PCC opined that since high set o/c settings of bus coupler at Ramchandrapur S/s is kept at 100 ms and it takes around 40 - 50 seconds of operating time to open breaker which gives opening time of breaker to around 140- 150 ms for bus coupler so additional overcurrent function at HV side of ICT-3 with 2.4kA in primary may be kept with 180 ms delay by Powergrid. PCC advised Powergrid representative to discuss suggested settings by forum with concerned authorities and share observation to ERPC/ERLDC.	
140th PCC Meeting			
11.	Repeated tripping of 765KV-JHARSUGUDA-RAIPUR PS (DURG)-1	Member Secretary, ERPC advised Indigrid to share root cause analysis report for damaged insulator to ERPC/ERLDC/Powergrid Odisha. PCC advised same to Indigrid. Powergrid representative informed that after receiving observation from OEM, it will be shared to ERPC/ERLDC.	In 141st PCC , Indigrid representative was not available in the meeting.
12.	Repeated tripping of 132KV-MAITHON-JAMTARA-1	PCC advised DVC to share report prepared by them to ERPC/ERLDC and send letter to JUSNL asking for actions taken so far for removing dumping done by industry.	In 141st PCC, JUSNL representative informed that shutdown of line is planned on 14th Dec 2024 during which rectification work will be done.
139th PCC Meeting			

13.	Total Power failure at 220/132 kV Katapalli (OPTCL) S/s on 29.08.2024 at 06:52 Hrs	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. PCC advised OPTCL to investigate about reason behind non-operation of protection on 29th Aug 2024 and submit observation to ERPC/ERLDC. 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. 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. PCC advised OPTCL representative to share status of remedial measures taken for protection/ operation issues to ERPC/ERLDC on periodic basis.	In 141st PCC Meeting, SLDC Odisha representative informed that meeting is scheduled in first week of Dec 24 among concerned utilties to revise settings. PCC advised SLDC Odisha to share deliberation of scheduled meeting to ERPC/ERLDC. 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.

14.	Total Power failure at 220/132 kV Purnea (PG) S/s on 01.08.2024 at 15:50 Hrs	PCC advised PG representative to test differential protection for 132 kV Purnea-Purnea-1 along with rectification. It further advised BSPTCL representative to test OPGW and differential protection for 132 kV Purnea-Purnea-1 along with rectification at their end. PCC advised PG representative to identify reason behind difference in fault currents in each circuit of 132 k V Purnea-Purnea T/c. PCC advised PG ER-II representative to review zone 3 protection settings at Dalkhola end for 220 kV Dalkhola-Purnea in coordination with 220/132 kV ICTs at Purnea & 220 kV Gazole-Dalkhola and coordinate with WBSETCL for same.	In 141st PCC Meeting, ERLDC representative informed that study is under progress regarding review of protection setting of 220 kV Dalkhola-Purnea in coordination with 220/132 kV ICTs at Purnea & 220 kV Gazole-Dalkhola.
15.	Total Power failure at 220 kV Darbhanga (BSPTCL) S/s on 01.08.2024 at 17:59 Hrs	MS, ERPC advised BSPTCL representative to carry out third party inspection at Darbhanga S/s in coordination with DMTCL and submit observations to ERPC/ERLDC. PCC advised same to BSPTCL & DMTCL representative. PCC opined that zone 4 pickup at BSPTCL end in 220 kV Darbhanga (DMTCL)-Darbhanga 2 should not have dropped in 50 ms so it advised BSPTCL representative to check the issue and submit observation to ERPC/ERLDC. PCC advised BSPTCL representative to resolve issue of DR channel configuration and time synchronization at BSPTCL end at	PCC advised BSPTCL representative to share report to ERPC, ERLDC & DMTCL. PCC advised BSPTCL representative to resolve issue of DR channel configuration and time synchronization at BSPTCL end at earliest and share confirmation to ERPC/ERLDC. In 141st PCC, BSPTCL representative informed that SAS upgradation work is under progress for 132 k V system at Darbhanga and coordination will be done with

		earliest and share confirmation to ERPC/ERLDC after its rectification.	DMTCL once SAS work starts for 220 k V system.
138th PCC Meeting			
16.	Disturbance at 220 kV Bokaro (DVC) S/s on 20.07.2024 at 19:38 Hrs	DVC representative replied that old MOCB breaker is present at BTPS B which failed to open during the disturbance therefore it is planned to replace all old MOCB breaker by Sep 2024. DVC representative informed that at present there is no independent set of batteries however during renovation work at CTPS & BTPS-B, two independent set of batteries will be installed. PCC opined that for DR recording, there should be independent supply system so that in case of total power failure at substation DR should be captured for which DVC was advised to comply same. PCC advised all utilities to submit their observation regarding DR retrieving feature for relays of different make being used by them in case of DC supply failure to ERPC/ERLDC. PCC advised DVC representative to replace the Old High Impedance Bus bar scheme with low impedance Bus Bar Scheme for enhancing the stability of the protection as per IEGC guideline. PCC advised DVC representative to share status of renovation/upgradation work to ERPC/ERLDC on periodic basis.	Regarding old MOCB breaker, DVC representtaive replied that procurement process had been started and it will be implemeneted by Dec 2024. Regarding two set of batteries, DVC representative informed that two DC sources are kept at S/s however DCCB is fed from only one source at present. He further added that complete switchyard at Bokaro S/s will be renovated by one and half year during which numerical relay, two independent sources etc issue will be reolved. On enquiry from ERLDC, DVC representatve submitted that since additional independent source is available so in case of failure of connected DC source , it can be replaced manually by additional source hence similar issue of DC power failure will not be observed. PCC advised all utilities to submit their observation regarding DR retrieving feature for relays of different make being used by them in case of DC supply failure to ERPC/ERLDC.

		DVC representative replied that DC system will be rectified along with enabling of bus bar protection by 10th Sep 2024.	PCC advised DVC representative to replace the Old High Impedance Bus bar scheme with low impedance Bus Bar Scheme for enhancing the stability of the protection as per IEGC guideline. In 141st PCC Meeting, PCC advised DVC representative to share status of renovation/upgradation work to ERPC/ERLDC.
137th PCC Meeting			
17.	Disturbance at 220 kV Budhipadar(OPTCL) S/s and 220 kV Ib-TPS (OPGC) S/s on 05.06.2024 at 04:11 Hrs	PCC advised SLDC Odisha to coordinate with CPPs and share islanding scheme details to ERPC/ERLDC. OPTCL representative replied that due to non availability of shutdown & testing kit, testing of auto-recloser was not done however it is expected to be completed within 10 days and report will be shared to ERPC/ERLDC. PCC advised OPTCL to test relays at earliest and submit observation to ERPC/ERLDC. PCC advised OPTCL to conduct testing of breaker also and submit observation to ERPC/ERLDC. PCC advised OPTCL representative to review zone 3 time & reach settings of relay at Budhipadar end for 132 k V Budhipadar- Lapanga.	In 141st PCC Meeting, OPTCL representative informed that relay had been tested. SLDC Odisha representative informed that islanding scheme details of all CPPs will be shared by 10 days to ERPC/ERLDC.

		PCC advised OPTCL representative to increase in DR length to 3 seconds. It further advised OPTCL representative to prepare annual maintenance plan and outage plan of each S/s and share to ERPC/ERLDC.	
18.	Disturbance at 400 kV Meeramundali B (OPTCL) S/ s and 400 kV GMR S/s on 20.06.2024 at 19:18 Hrs	PCC advised OPTCL & GMR to carry out testing of the carrier communication jointly and submit observation to ERPC/ERLDC.	In 141st PCC Meeting, OPTCL representative informed that testing of carrier was done on 1st Nov 2024 for which result is satisfactory. PCC advised OPTCL representative to share testing report to ERPC/ERLDC.
136th PCC Meeting			
19.	Disturbance at 220 kV Tenughat (TVNL) S/s on 29.05.2024 at 12:57 Hrs	PCC advised JUSNL representative to rectify auto-reclose issue at Govindpur end by next week and intimate to ERPC/ERLDC. 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. PCC advised CRITL, JUSNL team to test auto-reclose and carrier at both Govindpur as well as Tenughat end.	In 140th PCC Meeting, In 141st PCC Meeting, JUSNL representative informed that visit of OEM engineer is scheduled in mid of Dec 2024 for testing of auto-recloser.

133rd PCC Meeting			
20.	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 141st PCC, Vedanata representative informed that PO had been awarded to ABB in November however due to Calendar year 2024 closing of ABB in December 2024, no Manpower is deployed till date hence work will be started by first week of Jan 2025 and will be completed by 31st Jan 2025.