

**GOVERNMENT OF INDIA**  
**MINISTRY OF POWER**  
**Eastern Regional Power Committee**

**AGENDA**  
**FOR**  
**156<sup>th</sup> PCC MEETING**

**Date: 13.03.2026**

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## Eastern Regional Power Committee, Kolkata

### **Agenda for 155<sup>th</sup> PCC MEETING**

**Date: 13<sup>th</sup> March, 2026(Friday) at 11:00 Hrs**

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#### **1. PART-A**

##### **1.1. Confirmation of Minutes of 155<sup>th</sup> PCC Meeting held on 19.02.2026**

The minutes of 155<sup>th</sup> PCC meeting held on 19.02.2026 through virtual mode was circulated vide letter no. ERPC/ Protection/2026/2388 dated 09.03.2026.

**Members may confirm the minutes of 155<sup>th</sup> PCC meeting.**

#### **2. PART-B: ITEMS FOR DISCUSSION**

##### **2.1 Disturbance at 220 kV Begusarai (BSPTCL) S/s on 06.02.2026 at 09:35 Hrs**

The disturbance occurred due to bus fault caused by snapping of Y-phase jumper between the CB and CT of 220 kV BTPS line-2. This led to tripping of all emanating line from 220kV Bursaria S/s in Z-4 protection resulting in total power failure at 220 kV Begusarai S/s. Bus bar protection was not in service at 220 kV Begusarai S/s.

Report from ERLDC is attached at **Annexure 2.1.**

Load Loss: 390 MW

Outage Duration: 00:21 Hrs

**BSPTCL may explain.**

##### **2.2 Disturbance at 400 kV Malda (PG ER-II) S/s on 24.02.2026 at 17:36 Hrs**

Prior to the disturbance 400kV Malda-New Purnea line-1 was under planned shutdown and bus bar protection was out of service due to CRP upgradation work at Malda. At 17:36 Hrs, during charging of 400kV-Malda-New Purnea line-1, bus fault occurred which led to tripping of all emanating line in Zone 4 protection.

Report from ERLDC is attached at **Annexure 2.2.**

Load Loss: 250 MW

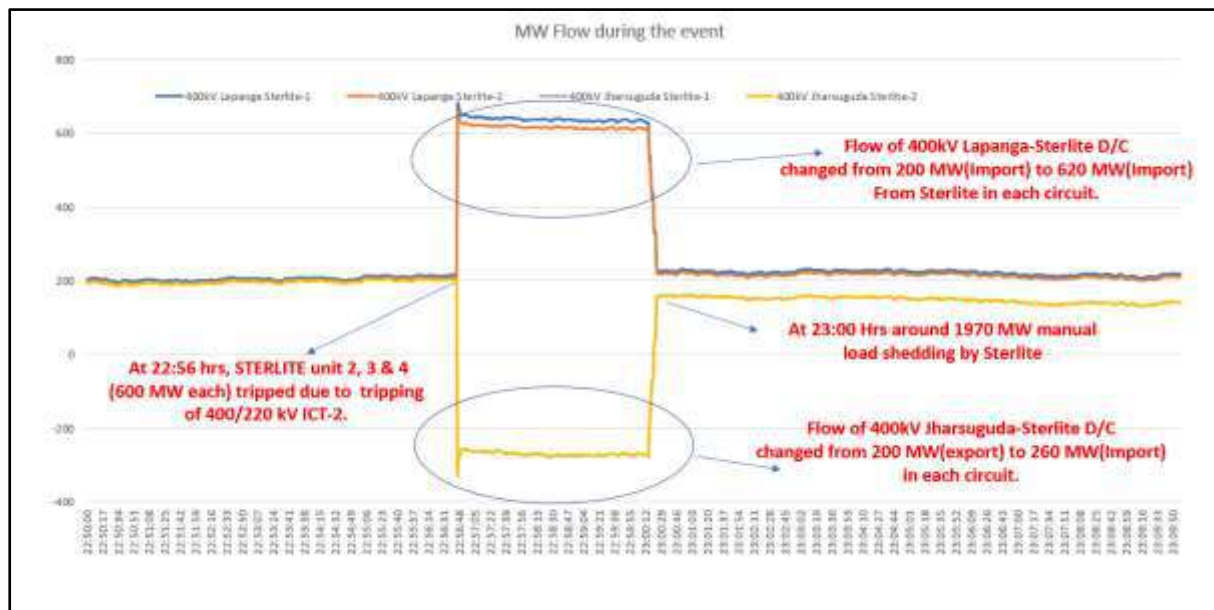
Outage Duration: 00:04 Hrs

**Powergrid ER-II may explain.**

##### **2.3 Grid Event at 400 kV Sterlite (Vedanta) S/s on 22.02.2026 at 22:56 Hrs**

On 22.02.2026 at 22:56 hrs, Units 2, 3, and 4 (600 MW each) of STERLITE got tripped and Unit 1 got islanded. Consequently, the system frequency dipped from 50.02 Hz to 49.91 Hz. The event resulted in Gen/load loss of about 1969 MW.

As intimated, the incident is suspected to have occurred due to a fault in the 400/220 kV ICT-2 at Sterlite.



**Vedanta may explain.**

#### 2.4 Third Party Protection audit by ERPC for the Year 2026-27

In 55<sup>th</sup> TCC & ERPC Meeting held in Dec-25, ERPC approved the proposal for carrying out audit for 15 nos. of substations in ER in FY 2026-27.

In 154<sup>th</sup> PCC Meeting held in Jan-26, SE, ERPC representative informed that ERPC secretariat is planning to carryout protection audit for another 15 substations in Eastern Region in FY 2026-27 for which a list of fifteen number S/s has been prepared as per discussion between ERPC and ERLDC which is attached above. He intimated that JUSNL is already carrying out third party protection audit for all its 220 kV and above substations hence the list has does not include substations of JUSNL.

ERLDC representative stated that grid disturbance had occurred in the past at Mejia S/s, Indravati S/s, Budhipadar S/s, Rengali S/s etc in last one year. Further Mendhasal S/s and Subhasgram S/s are critical in view of load connected with them. Carrier communication issues have been observed at Hazipur S/s, Begusarai S/s and Darbhanga S/s in last 6 months. Therefore, all these substations are suggested for carrying out protection audit in 2026-27.

It was informed that third party protection audit for Kalyaneshawari, Mejia S/s is in progress. Further tender for protection audit of CTPS S/s is already floated.

After discussion, PCC advised all state utilities to suggest 3-4 important/critical substations in each of their control area for third party protection audit within a week so that list of the substations for audit can be finalized.

In 155<sup>th</sup> PCC Meeting, OPTCL representative informed that SAS upgradation work in progress during at Budhipadar S/s and they are reviewing the protection settings comprehensively at

Budhipadar. He suggested that the third-party audit of Budhipadar S/s by ERPC is not necessary at present.

The modified list is given below:

1. 400/220 kV Mendhasal S/s(OPTCL)	2. 220 kV Subhasgram S/s(WBSETCL)
3. 400/220 kV New Duburi(OPTCL)	4. 220 kV Kasba S/s(WBSETCL)
5. 220 kV Jaynagar S/s(OPTCL)	6. 220 kV Balimela HEP(OHPC)
7. 220 kV Indravati HEP(OHPC)	
8. 220 kV Rengali S/s(OPTCL)	9. 220 kV Hazipur S/s(BSPTCL)
10. 220 kV Begusarai S/s(BSPTCL)	11. 220 kV Darbhanga S/s(BSPTCL)

PCC advised all state utilities to give their suggestions with respect to provided list (any addition or deletion) so that list of the critical substations for audit can be finalized.

**Members may discuss.**

## **2.5 Non-operation of Auto Recloser and transmission of DT signals from NTPC Kahalgaon end**

1. 400 kV Durgapur–Kahalgaon-2 line tripped from Kahalgaon end on 31.01.2026 at 03:28 hrs and on 11.09.2025 at 11:13 hrs.

In both cases, Auto-reclosure (A/R) was successful from the Durgapur end. However, three-phase tripping had occurred at NTPC end for a Y phase fault.

2. Durgapur–KHSTPP-1 line tripped on 17/12/2025 due to DT signal received at Durgapur and 400 kV Kahalgaon–Banka-2 line tripped on 30.10.2025 due to DT at Banka

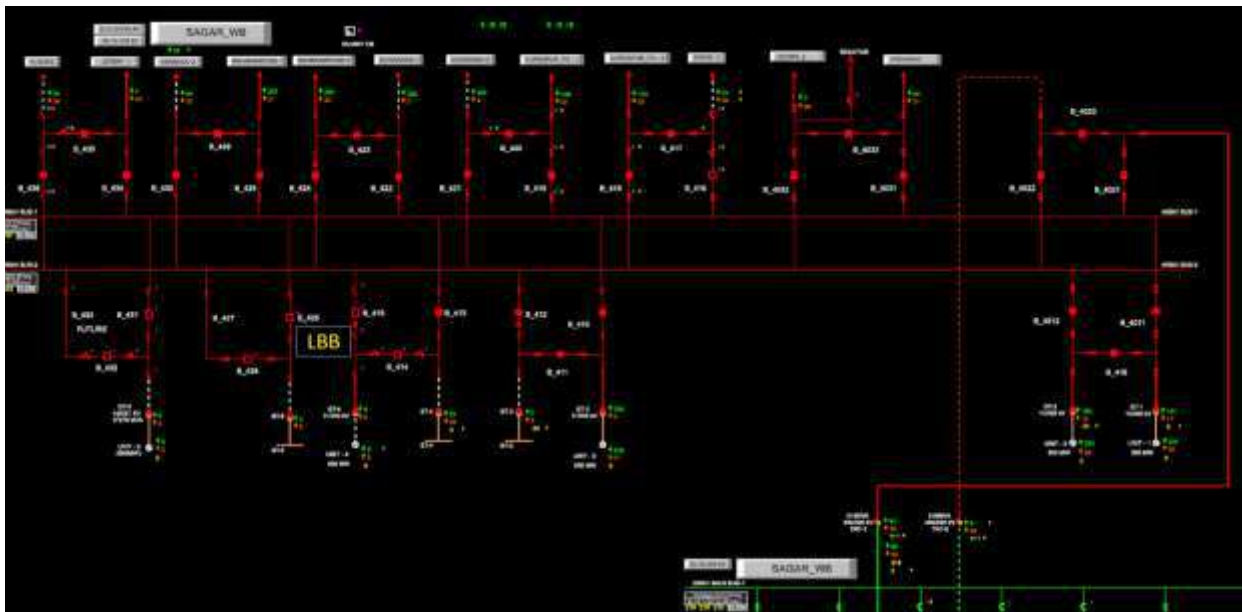
ERLDC issued follow-up emails on 17.12.25, 21.01.26 and 12.02.26 seeking updates (Copies of e-mails attached as **Annexure 2.5**). However, the response from Kahalgaon is still awaited.

**NTPC Kahalgaon may explain.**

## **2.6 Tripping of 400 kV Bus-II at Sagardighi Substation and 400 kV Sagardighi–Jeerat-1 Line**

On 24.02.2026 at 05:09 Hrs, all the main circuit breakers connected to 400 kV Bus-II at Sagardighi Substation along with the 400 kV Sagardighi–Jeerat-1 transmission line got tripped due to LBB operation of Main Bay of GT-4 (**GT-4 circuit breaker being in OFF condition**) and DT received at Jeerat for 400kV Sagardighi line -1.

As per the Disturbance Recorder (DR) data of the GT-4 LBB relay, LBB operated at 04:46:02.872 hrs with Ia: 2.8 kA and In: 2.8 kA.



WBPDCL may explain the event.

## 2.7 Restoration of 400 kV Bus-2 and Rangpo-II line at Dikchu HEP

A total power failure occurred at Dikchu HEP on 12<sup>th</sup> August 2025 due to the operation of 400 kV Bus-II busbar protection. The tripping was reported to be caused by flashover of the Y-phase bus isolator of Rangpo-II connected to 400 kV Bus-2.

With reference to ERLDC letter No. ERLDC/SO/2025-26/479, dated 28.05.25, Dikchu HEP intimated vide email dated 30.08.2025 that the initial assessment of the required repair work by OEM would be completed by 31.12.2026 and complete restoration of the GIS 400 kV Bus-2 is completed by 31.03.2026, subject to replacement of component like earth switch, isolator (DS) or other associated parts.

ERLDC subsequently followed up with Dikchu HEP through emails dated 21.01.2026 and 03.02.2026 seeking updates on the assessment and restoration of 400 kV Bus-II and Rangpo-II (Indirect Line bypassing Teesta-III). However, the update from Dikchu is still awaited.

At present, Dikchu generation is connected to only 400 kV Bus-1 and evacuated through a single 400 kV Dikchu-Rangpo Line. Therefore, it is important to ensure immediate restoration of 400 kV Bus-II and Rangpo-II line to enhance system reliability and prevent any potential disruption in power evacuation.

Dikchu HEP may update.

## 2.8 Tripping of ICTs during the month of February'26

Sl. No	Name of the Element	Trip Date/Time	Reason of tripping	Utility
1	400KV/220KV, 315 MVA ICT- 2 AT JEERAT	2026-02-24 05:09 Hrs	Differential protection operated	WBSETCL

2	400KV/220KV, 250 MVA ICT- 2 AT TENUGHAT	2026-02-19 03:37 Hrs	Differential protection operated	TVNL
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**Concerned utilities may explain.**

## 2.9 Repeated tripping of transmission lines during the month of February'26

SI.No.	Name of the Element	No. of times Tripped	Reason of tripping	Utility
1	400KV-MERAMUNDALI-LAPANGA-2	2	Tripped on Y-Earth (Tripped only from Lapanga end) and B-Earth fault (A/r failed from both side).	OPTCL

**OPTCL may explain.**

## 2.10 Single Line Tripping Incidences in month of February-2026

Single line tripping incidents in the month of February-2026 which needs explanation from constituents of either end is attached at **Annexure 2.10**.

**Members may discuss.**

### 3. PART-C: FOLLOW UP ITEMS

#### 3.1. Status of Busbar Protection at Indravati HEP S/s of OHPC.

In the month of July-25, there were two grid disturbances occurred at Indravati HEP S/s of OHPC. The issue was discussed in 150th PCC Meeting and subsequently in 230th OCC Meeting.

In the OCC Meeting held in Aug-25, OHPC intimated that numerical busbar protection will be implemented within four months. OCC advised OHPC

- to reduce the timeframe of 4 months and expedite the replacement of the old static relay installed at Indravati HEP with numerical relay.
- to identify all other locations having old static relays and ensure their replacement with new numerical relays at the earliest to prevent recurrence of such maloperation events in the future.
- OCC also recommended that third-party protection audit of all OHPC systems may be conducted to thoroughly review all protection settings.

**OHPC may update the present status.**

#### 3.2. Status of Busbar Protection and Submission of Protection Audit Plan & Audit Reports

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

Quote

*(3) 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). .....*

*(4) All users shall also conduct third party protection audit of each substation at 220 kV and above (132 kV and above in NER) once in five years or earlier as advised by the respective RPC.*

.....

*(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

#### Internal Audit Plan Status

Sl No.	Utility Name	Audit Plan for FY 2025-26	Audit Plan for FY 2026-27
1	PG-ER-1 & PMTL		
2	PG-ER-2		
3	PG-Odisha		

4	WBSETCL	Received	Received
5	BSPTCL	Received	Received
6	OPTCL	Received	Received
7	DVC	Received	Received
8	JUSNL	Received	Not Received
9	OPGC	Not Received	Not Received
10	OHPC	Not Received	Not Received
11	CESC	Received	Received
12	NHPC	Received	Not Received
13	DMTCL	Received	Not Received
14	NTPC ER-I	Not Received	Not Received
15	NTPC ER-II	Not Received	Not Received
16	Tashiding HEP	Received	Received
17	Jorethang HEP	Received	Received
18	MPL	Not Received	Received
19	JITPL	Not Received	Not Received
20	GMR	Not Received	Not Received
21	Adhunik	Not Received	Not Received
22	IBEUL	Received	Not Received

 Received,  Not Received

In 155<sup>th</sup> PCC Meeting, OPGC intimated that they are planning to carry out third party protection audit of OPGC in FY 2026-27 and internal audit for FY 2026-27 in May-26.

OHPC, NTPC ER-1 and ER-2 representative were not present in the meeting.

MPL representative informed that protection audit plan for FY 2026-27 will be shared to ERPC/ERLDC within a week.

**Members may update.**

### 3.3. Over-voltage setting of 400kV & above transmission lines in Eastern Region

In 152<sup>nd</sup> PCC Meeting, it was decided that ERLDC will circulate list of 400 kV & above level lines in the ER to all the concerned utilities. Concerned Utilities will verify the details & submit the existing overvoltage settings of the lines.

After receiving all the details, the overvoltage protections will be reviewed in the subsequent PCC Meeting.

The settings have been received from all the utilities.

In 155<sup>th</sup> PCC Meeting, ERLDC shared the draft settings and intimated that the settings have been suggested by incorporating grading in terms of voltage pick up & time delay of the overvoltage protection. The proposed settings are enclosed at **Annexure 3.3**.

PCC advised concerned utilities to go through the proposed settings and share their observations, if any to ERPC/ERLDC.

**Members may finalize the settings.**

**3.4. 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 respective RPC and action plan for corrective measures. For the month of February '26, detailed list attached at **Annexure 3.4**. Below table shows the status of PP Indices received for last five months. Utilities are requested to submit the details every month for necessary grid code compliance.

Sl.no	Utility Name	October 2025	November 2025	December 2025	January 2026	February 2026
1	PG-ER-1	Yes (26.11.2025)	Yes (10.12.2025)	Yes (19.01.2026)	Yes (12.02.2026)	Yes (11.03.2026)
2	PG-ER-2	Yes (21.11.2025)	Yes (31.12.2025)	Yes (12.01.2026)	Yes	Yes (11.03.2026)
3	PG-Odisha			Yes (05.01.2026)	Yes (04.02.2026)	
4	WBSETCL/ WBPDC	Yes (07.11.2025)	Yes (04.12.2025)	Yes (05.01.2026)	Yes (05.02.2026)	Yes (05.03.2026)
5	BSPTCL/ BGCL	Yes (24.11.2025)	Yes (19.12.2025)	Yes	Yes (13.02.2026)	Yes (11.03.2026)

6	OPTCL/ OHPC	Yes (24.11.2025)	Yes (28.12.2025)	Yes	Yes	
7	DVC	Yes (20.11.2025)				
8	JUSNL	Yes (17.12.2025)	Yes (17.12.2025)	Yes	Yes (04.02.2026)	
9	Sikkim					
10	OPGC					
11	PMTL					
12	NTPC- KHSTPP		Yes (30.12.2025)			
13	NTPC- FSTPP					
14	NTPC- BARH	Yes (01.11.2025)	Yes (01.12.2025)	Yes (05.01.2026)	Yes	Yes (02.03.2026)
15	NTPC- TSTPP					
16	NTPC- KBUNL					
17	NPGC					
18	BRBCL					
19	NTPC- DARILAPLI	Yes (03.11.2025)	Yes (01.12.2025)	Yes (01/01/2026)		
20	NTPC- NORTH KARNPUA RA					

21	ATL					
22	APNRL		Yes (09.12.2025)			
23	CBPTCL					
24	DMTCL	Yes (04/11/2025)	Yes (03/12/2025)	Yes (02/01/2026)	Yes (04/02/2026)	Yes (05.03.2026)
25	ENICL	Yes (06.11.2025)	Yes (06.12.2025)			
26	Chuzachen HEP					
27	Jorethang HEP	Yes (01/11/2025)	Yes (01/12/2025)	Yes (01/01/2026)	Yes (02.02.2026)	Yes (01.03.2026)
28	Tashiding Hep	Yes (01/11/2025)	Yes (01/12/2025)	Yes (02/01/2026)	Yes (02.02.2026)	Yes (02.03.2026)
29	GMR					
30	IBEUL					
31	JITPL					
32	MPL	Yes	Yes	Yes	Yes	Yes (10.03.2026)
33	NKTL					
34	OGPTL	Yes (06.11.2025)	Yes (06.12.2025)			
35	PMJTL					
36	Powerlink					
37	PKTCL	Yes (06.11.2025)	Yes (06.12.2025)			
38	CESC	Yes (26/11/2025)				
39	Rongnichu HEP					
40	SPTL					

41	TVNL	Yes (01.11.2025)	Yes (01.12.2026)	Yes (03.01.2026)	Yes (03.02.2026)	Yes (03.03.2026)
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Members my update.

### 3.5. Follow-up of Decisions of the Previous Protection Sub-Committee Meeting(s)

SI No.	Name of the Incidence	PCC Recommendation	Latest status
<b>155<sup>th</sup> PCC Meeting</b>			
1.	Disturbance at 220 kV Bolangir New (OPTCL) S/s on 13.01.2026 at 12:38 Hrs	On enquiry from PCC forum, regarding status of Main bus 2, OPTCL representative replied that Main bus 2 and bus bar protection will be in service within one week.	
2.	Total Power Failure at 220 kV Rengali S/s on 12th Dec 2025 at 19:06 Hrs	PCC advised followings: 1. OHPC was suggested to download the DR files immediately after the tripping occurs from the relay which has limited memory space. This will enable proper analysis of the event. 2. OPTCL was advised to enable overcurrent highest protection in bus coupler at Rengali S/s after the segregation of feeders. 3. OPTCL would submit a timeline for restoration of the busbar protection at Rengali S/s. 4. 220 kV Rengali(PH)-Rengali(OPTCL) & 220 kV Rengali(OPTCL)-Rengali(PG) lines being short lines, line differential protection need to be implemented as per the CEA(Technical Standards for Construction of Electric Lines) Regulation, 2022. Accordingly, OPTCL was advised to take necessary action to implement the line differential protection in coordination with OHPC & Powergrid.	
<b>154<sup>th</sup> PCC Meeting</b>			
3.	Total Power Failure at 400 kV PVUNL S/s on 20 <sup>th</sup> Dec 2025 at 11:23 Hrs	PCC advised JUSNL representative to take rectification measures as suggested by the OEM and submit a compliance to ERPC/ERLDC.	<i>JUSNL representative informed that line of differential relay for 400 kV PVUNL-Patratu Line will</i>

			<p><i>be implemented by Feb-26. He further updated that configuration issue has been updated in relay as advised by the relay OEM. However, CT connection issue, double earthing issue and bus stability test will be done during shutdown of the line/bus.</i></p>
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**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, टॉलिंगंज, कोलकाता - 700033  
 Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033  
 CIN : U40105DL2009GOI188682, Website : www.erfdc.in, E-mail : erfdcinfo@grid-india.in, Tel. : 033 23890060/0061

**Detailed Report of grid event at/220/132kV Begusarai(BSPTCL) 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): 09-03-2026

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

At 09:35 Hrs, bus fault occurred at 220kV Begusarai S/s due to snapping of Y-phase jumper between the CB and CT of 220 kV BTPS line-2. This led to tripping of all emanating lines from 220kV Begusarai S/s on Z-4 protection (*Bus bar protection was not in service*). Consequently, 220kV Begusarai S/s became dead, resulting total load loss of 390 MW.

**2. Time and Date of the Event (घटना का समय और दिनांक):** 09:35 hrs of 06/02/2026

**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 (Hz)	Regional Generation (MW)	Regional Demand (MW)	State Generation	State Demand
				Bihar (MW)	Bihar (MW)
Pre-Event (घटना पूर्व)	49.950 Hz	32955 MW	24070 MW	860 MW	5302 MW
Post Event (घटना के बाद)	49.950 Hz	32955 MW	23680 MW	860 MW	4912 MW

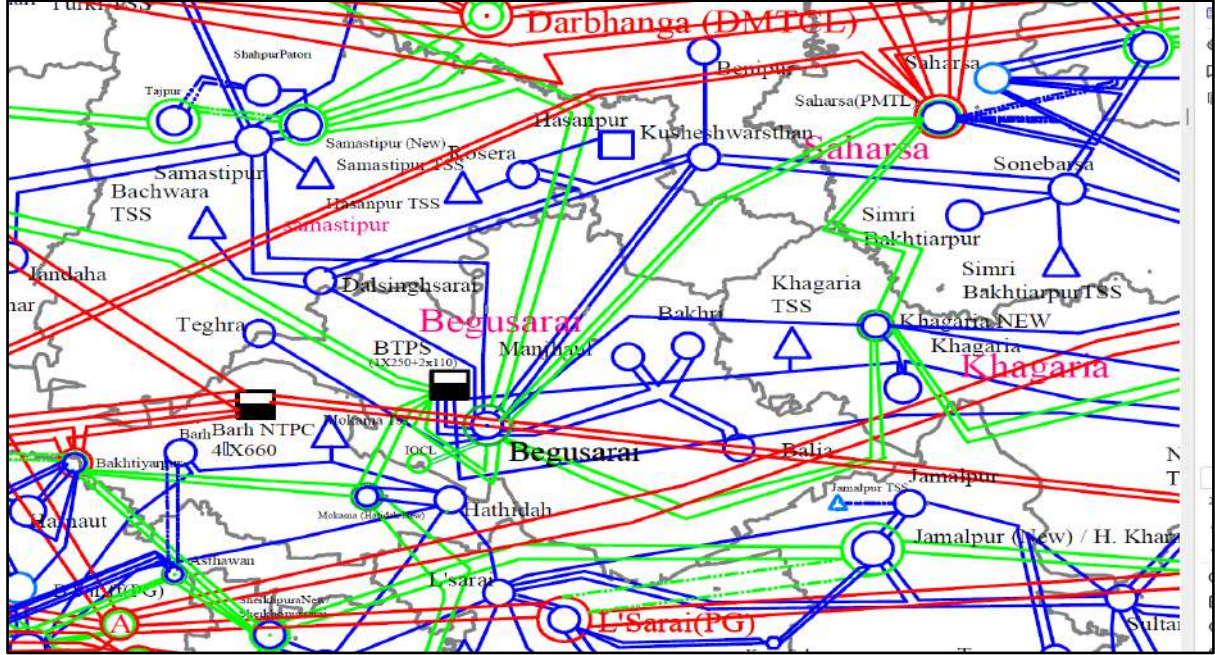
*\*Pre and post data of 1 minute before and after the event*

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	220kV Bus Coupler out of service.
Weather Condition (मौसम स्थिति)	Normal

**6. Load and Generation loss (लोड और जेनरेशन हानि):** 390 MW load loss at Begusarai S/s.

**7. Duration of interruption (रूकावट की अवधि):** 00:21 Hrs.

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



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

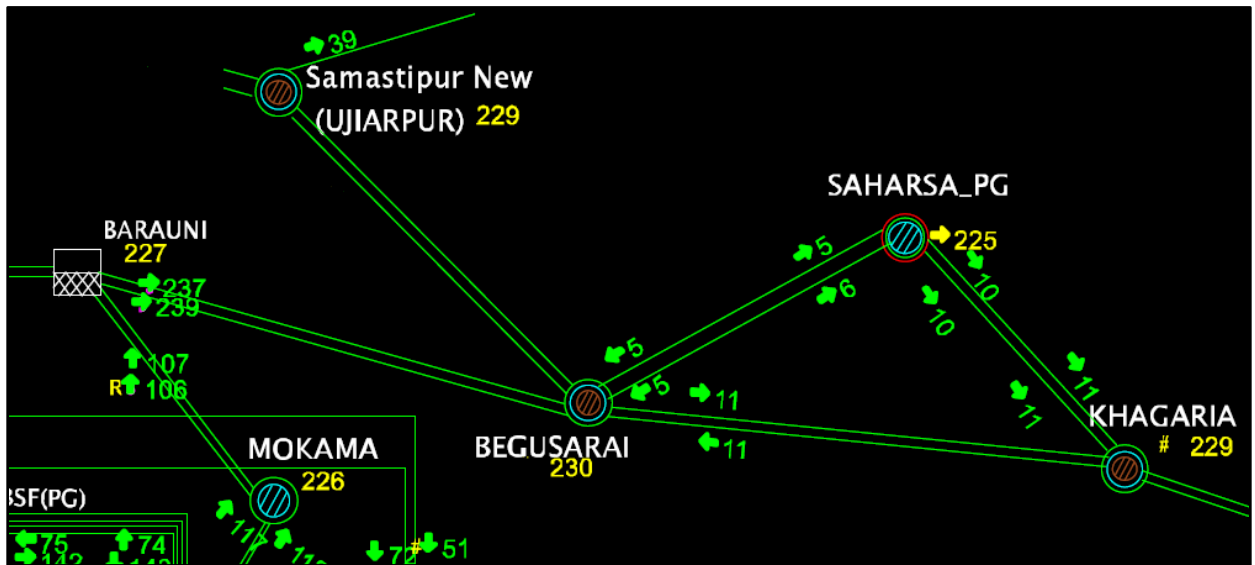
**9. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** NIL

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

क्र०सं०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1.	220KV BTPS Circuit 1 Line Bay	09:35:03	Line tripped from Begusarai end in Z-4 protection.		11:10
2.	220KV BTPS Circuit 2 Line Bay		Line tripped from Begusarai end in Z-4 protection.		11:11
3.	220KV Saharsa Circuit 1 Line Bay		Line tripped from Begusarai end in Z-4 protection.		-
4.	220KV Saharsa Circuit 2 Line Bay		Line tripped from Begusarai end in Z-4 protection.		-
5.	220KV Khagaria Circuit 1 Line Bay		Line tripped from Begusarai end in Z-4 protection.		09:56
6.	220KV Khagaria Circuit 2 Line Bay		Line tripped from Begusarai end in Z-4 protection.		09:56

7	220KV Samastipur Circuit 1 Line Bay		Line tripped from Begusarai end in Z-4 protection.	09:57
8	220KV Samastipur Circuit 2 Line Bay		Line tripped from Begusarai end in Z-4 protection.	09:57
9	220KV IOCL Circuit 1 Line Bay	Not tripped	Tripped from IOCL end on B/U protection in 150 msec.	-
10	220KV IOCL Circuit 2 Line Bay	Not tripped	Tripped from IOCL end on B/U protection in 150 msec.	-
11	220KV Bus Coupler	Out of service		-

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

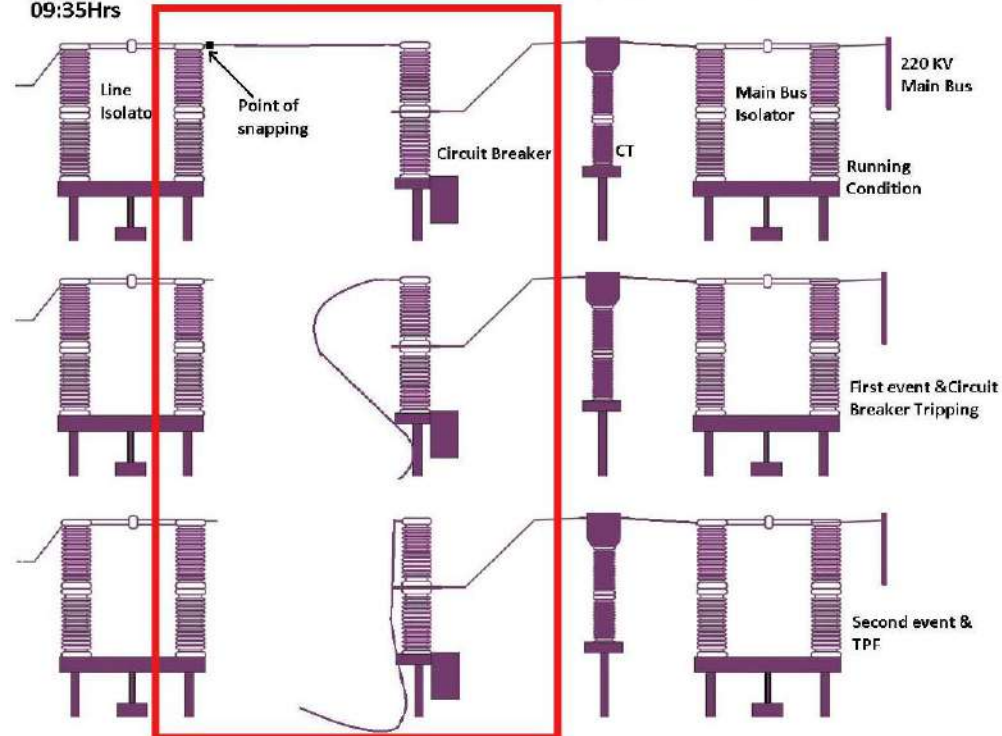


**Figure 1: Network across the affected area**

- Prior to the disturbance, 220kV Bus coupler bay and Bus bar protection was out of service at 220 kV Begusarai.
- At 09:35:02:817 Hrs, Y-Earth fault occurred in S/s due to conductor snapping between line isolator and CB of 220KV-BTPS line-2.

- Fault was sensed by 220kV BTPS line-2 in Z-1 protection and line got tripped after 80 msec.
- **After about** 100 msec snapped, conductor got earthed with CB, which again created Y-Earth fault. The emanating lines from Begusarai end sensed the fault under Z-4 protection, leading to tripping of 220kV Khagaria D/C, BTPS-2, 220kV Saharsa D/C and 220kV Samastipur New D/C after respective Z-4-time delay.
- The 220kV IOCL D/C feeders tripped from remote end within 150 msec on B/up OC protection.
- Due to tripping of all 220kV lines, 220kV Begusarai S/s became dead.
- Total load loss of **390 MW** reported at Begusarai S/s.

**Sequence of events during fault in 220KV BTPS Circuit2 (Begusarai end) on dt-06/02/26 at 09:35Hrs**



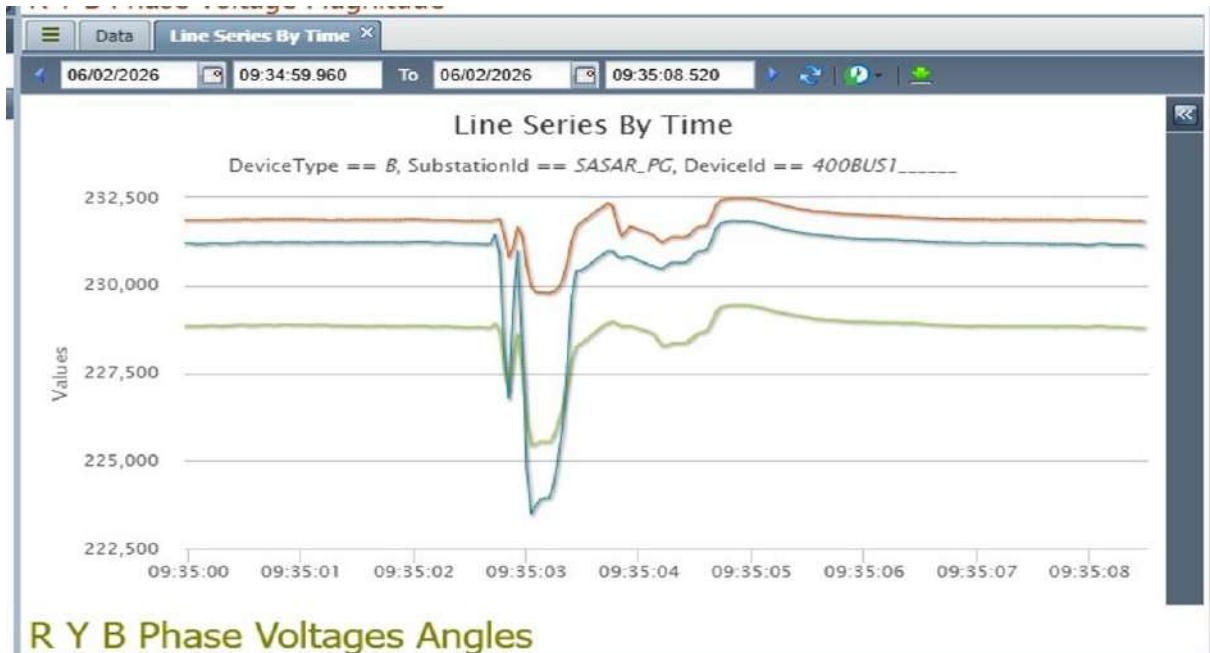


Figure 3: PMU of Voltage at Saharsa

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

### For 220 kV Saharsa-1 Line:

- The Zone-4 time reset setting needs to be checked, as the trip was issued within 250 msec even though the Zone-4 signal went low intermittently for 112 msec after the first start.
- It appears that only the Y-pole opened, as voltage and current are seen up to 814 msec and the fault evolved into an RB-E fault. However, no corresponding tripping was recorded. All poles appear to have become dead within 1.2 seconds.
- Open/Close Circuit Breaker digital status should be included in the DR channels for better analysis.
- The Y-Phase LBB initiation signal is appearing twice. The same needs to be verified and corrected.
- Non-opening of R-B pole circuit breaker, even after the Zone-4 trip command needs to be examined.

### 220 kV IOCL Circuit-1 & Circuit-2

- Both circuits tripped from the remote end within **150 msec as per report**. It is noted that **definite time** Overcurrent protection is enabled with pickup: **120 mA**, time delay: **150 msec**, along V<1 setting which is not as per protection philosophy of ERPC.

### High set O/C Earth fault in 220kV Bus coupler:

- During non-availability of bus bar protection O/C high set Earth fault setting to be enabled in bus coupler with parallel segregation of feeders on both buses to avoid total black out in case of bus fault.

### **Operational Observations-**

- The Bus Coupler may be restored as soon as possible, and feeders may be uniformly distributed across both buses to enhance operational reliability.
- Necessary thermo-vision scanning of all substation equipment should be carried out as per CEA Grid standard Regulation 2010 to identify hotspots or loose joints. Remedial measures should be taken immediately wherever abnormalities are detected to avoid recurrence of such incidents.
- The detailed report received from BSPTCL is attached in the annexure.

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

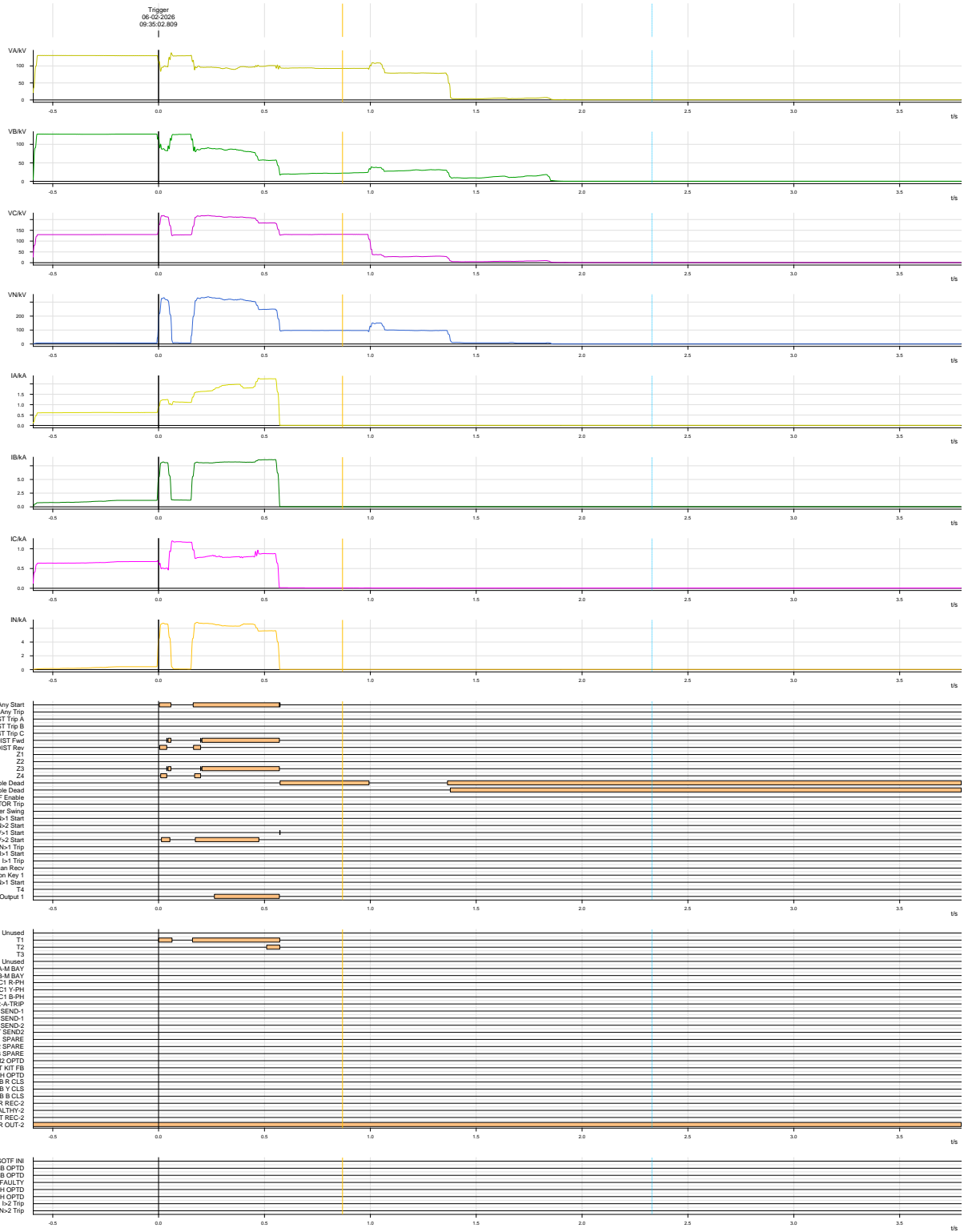
**14. Non-compliance observed (विनियमन का गैर-अनुपालन):**

S.No.	Issues	Regulation Non-Compliance	Remark
1	<b>Flash Report received within 8hrs?</b>	IEGC section 37.2 (b)	Submitted
2	<b>Whether DR/EL provided within 24 Hours?</b>	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted (After 24 Hrs)
3	<b>Detailed Report received within 7 days?</b>	IEGC section 37.2 (e)	Submitted
4	<b>Protection system not operated correctly</b>	CEA Technical Standard for Construction of Electrical Plants and Electric Lines: 48 (1) a. CEA (Technical standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)	For 220kV IOCL feeder's B/U protection was not as per ERPC protection philosophy.

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

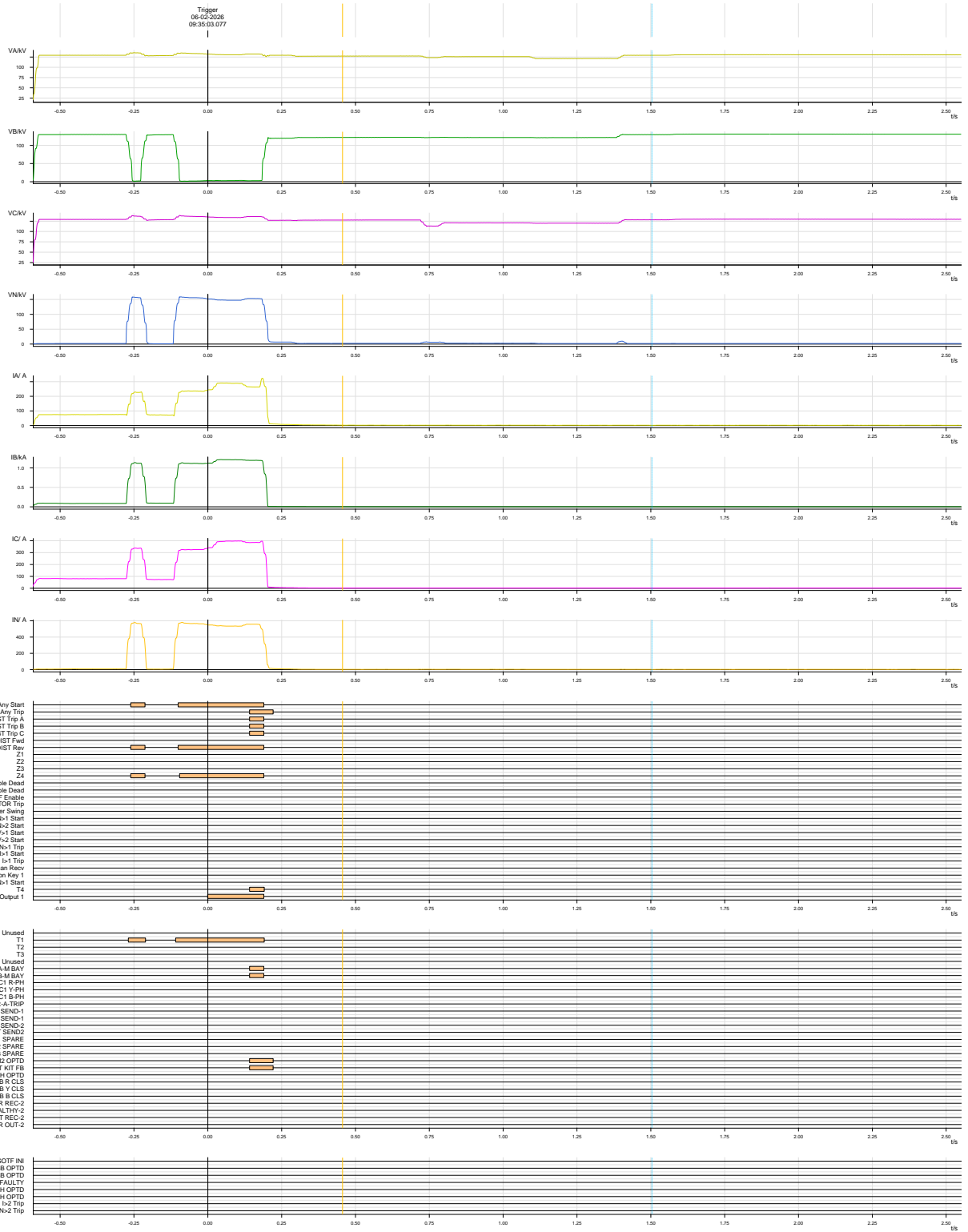
**Annexure 2:**

# DR of 220kV BTPS-1 line at Begusarai end:

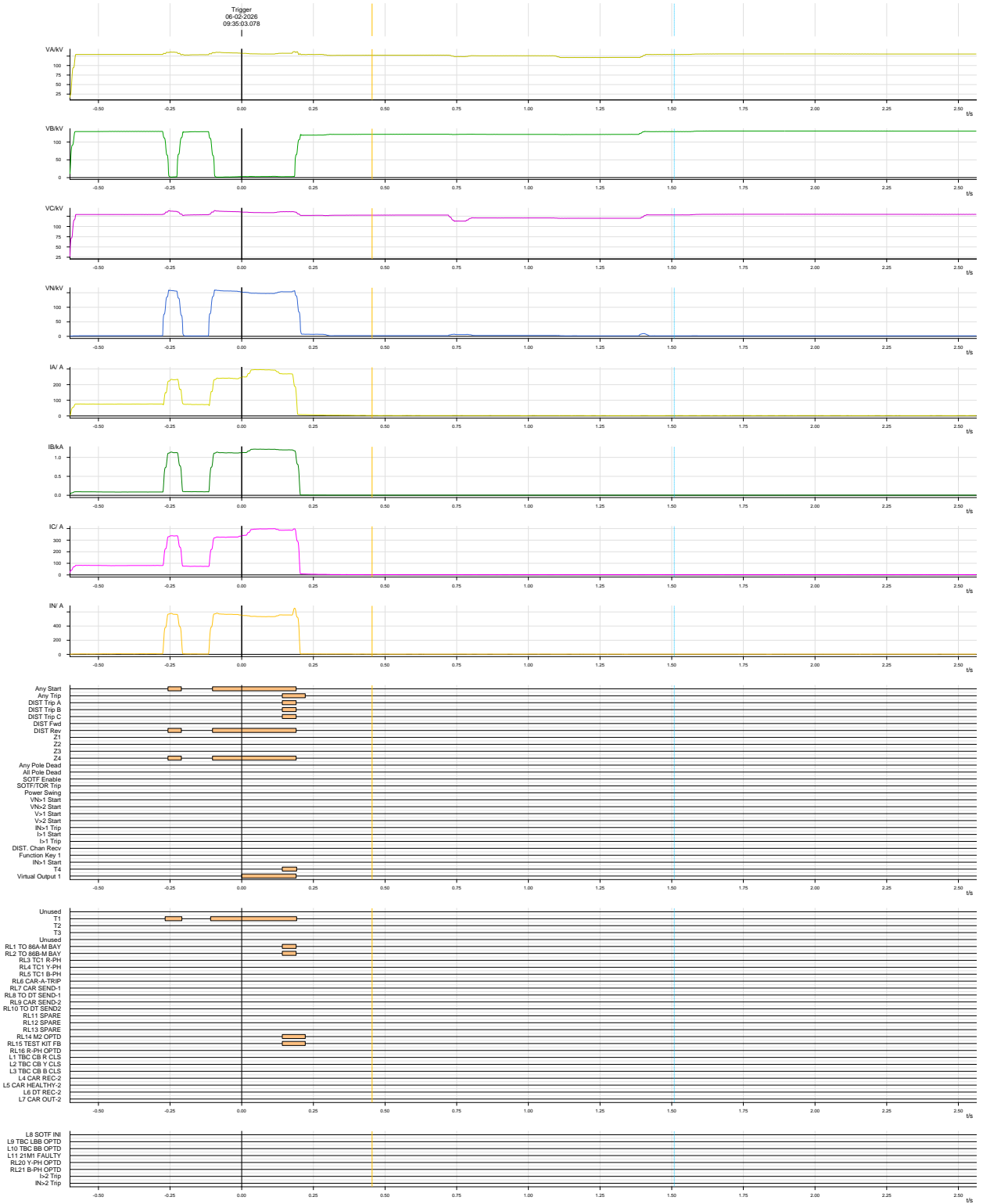




# DR of 220kV Khagaria-1 line at Begusarai end:

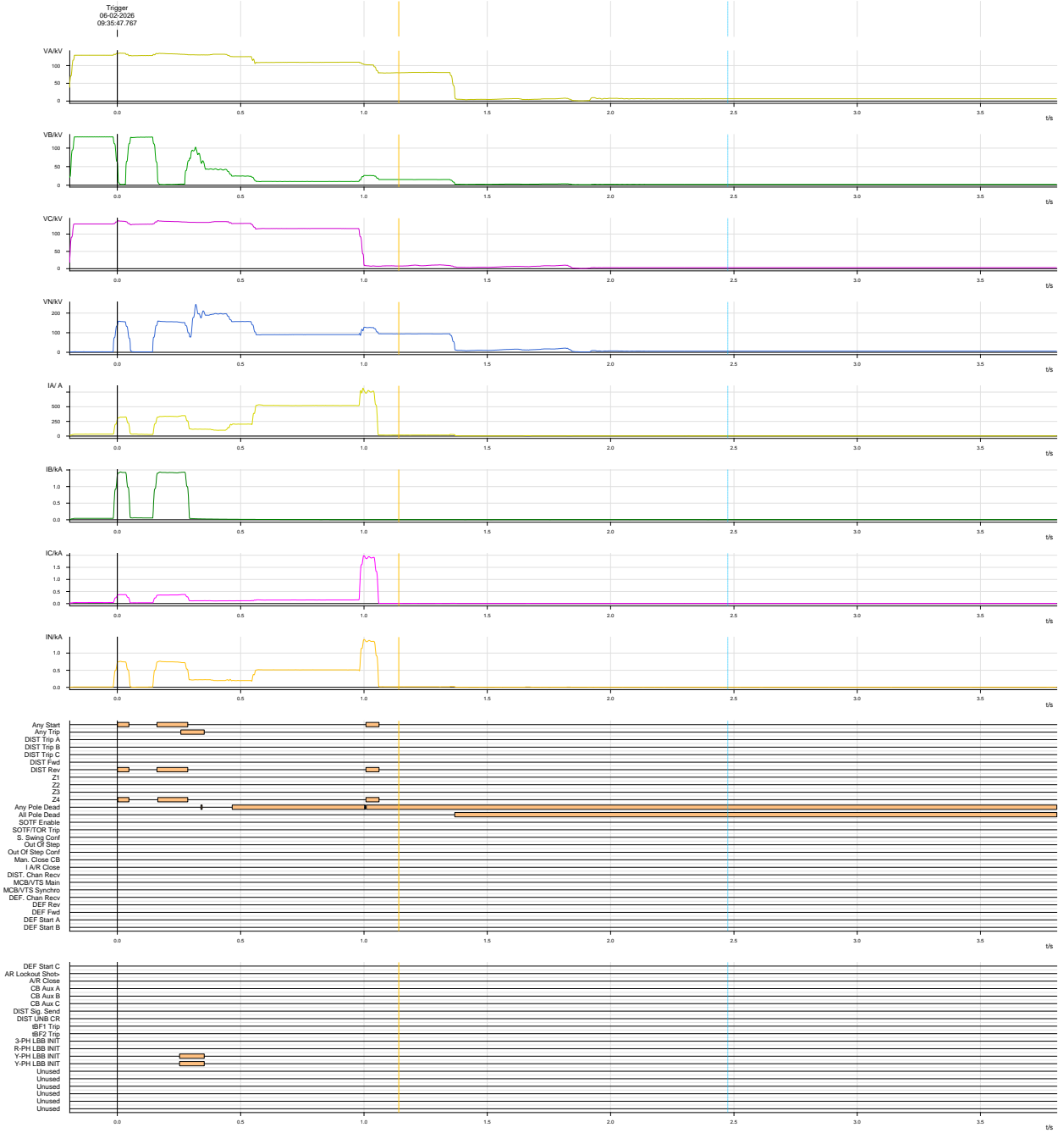


# DR of 220kV Khagaria-2 line at Begusarai end:





# DR of 220kV Begusarai-Saharsa #1



- **Time of disturbance** - 9:35Hrs on dated 06.02.2025.
- **Generation Loss/Load Loss** - 390 MW
- **Important Transmission Line/unit if under outage** – 220kV BTPS-Begusarai Ckt-2
- **Brief Details of the Grid event** –At 9:35Hrs 220KV BTPS-Begusarai ckt 2 a very high fault current of 21.01 kA in the Y-phase of BTPS ckt-2, the circuit breaker and CT-side conductor jumper snapped, due to which a complete TPF of the GSS, Begusarai occurred.
- **Transmission/Generation element Tripped during the event** – 220 KV BTPS ckt-2 and both ckt of 220 KV Saharsa-PG got tripped from GSS, Begusarai & pg end while 220 KV BTPS ckt-1 got tripped from BTPS end.
- **Current Status of Restoration** - 220KV Khagaria 1&2 taken into service through SLDC Code at 9:56HRS  
 220KV Samastipur 1&2 taken into service through SLDC Code at 9:57HRS  
 220KV IOCL ckt 1& 2 taken into service through SLDC Code at 9:57HRS  
 4X 100MVA ICT taken into service through SLDC Code at 9:58,10:00  
 10:10,10:12HRS  
 ALL 132KV & 33KV System normalized at 10:25HRS  
 220kV BTPS-Begusarai Ckt-2 restoration in progress ETR-1HRS

**At 09:35 Hrs, Grid disturbance of category (GD-1) occurred at 220 kV Begusarai Substation due to bus fault. As intimated, the fault was due to Y- Phase jumper snapped in between CB and CT of 220 kV BTPS Line-2. Due to non-availability of BB protection, fault was cleared delayed from remote end. Load loss of 390 MW occurred due to above incident, which is a matter of serious concern.**

**The disturbance could have been avoided if 220 kV BB protection is in service/ Bus coupler high set OC/EF in enable. For expedition of BB commissioning which is under implementation by M/s KRR, reduction of Z-IV-time delay to 250 msec and implementation of high set OC/EF protection in bus coupler bay to avoid complete blackout in case of bus fault till BB commissioning, a mail has already been communicated from ERLDC on 30<sup>th</sup> January'26. Considering the importance/criticality of the 220 kV sub stations, it is once again suggested to take immediate action and do the needful.**

**A detail report for the disturbance as per CERC IEGC regulation may be shared to this end .**

**Grid Disturbance at 220 kV Begusarai Substation on 06.02.2026 – Immediate Action Required**

Sir,

This is to inform you that at 09:35 Hrs, a grid disturbance of Category GD-1 occurred at 220 kV Begusarai Substation due to a bus fault. As intimated, the fault was caused by snapping of Y-phase jumper between the Circuit Breaker and CT of the 220 kV BTPS Line-2 Bay. Due to non-availability of Bus Bar protection at the substation, the fault clearance was delayed and was ultimately cleared from the

remote end. The incident resulted in a load loss of approximately 390 MW, which is a matter of serious concern.

The disturbance could have been avoided if the 220 kV Bus Bar Protection had been in service or if the high-set OC/EF protection in the Bus Coupler Bay had been enabled. In this regard, ERLDC has already communicated vide mail dated 30th January 2026 ( Mail copy attached) regarding:

1. Reduction of Zone-IV-time delay to 250 msec till BB commissioning
2. Enabling of high-set B/U OC/EF protection in the Bus Coupler Bay to avoid complete blackout in the event of a bus fault until BB protection is commissioned and
3. Expedite the commissioning of Bus Bar protection presently under implementation by M/s KRR

Considering the criticality and importance of the 220 kV substations in the regional grid, it is once again requested to take immediate necessary action on the above points on priority and ensure their earliest implementation.

Further, a detailed disturbance report including all relevant DR and EL files in line with the requirements of CERC IEGC Regulations may kindly be shared with ERLDC at the earliest for analysis and record. This is for your information and needful please.

## Report of Grid Disturbance at 220 KV Begusarai GSS on dt-06/02/26 at 09:35Hrs.

GSS Begusarai is undergoing complete SAS integration ,BUS Bar Implementation and change of C/R panels since couple of months by M/s KRR and will be finished in coming two months.

At Present Bus Bar Protection is not taken in service and its testing is pending. Field officials has been asked to expedite the work.

In 220KV Bus Coupler bay, C/R panel is erected and commissioned(setting file attached), but due to some CT wiring issues and CT leakage problem, presently 220KV Bus Coupler bay is in off condition. After resolving the said issues, 220KV Bus Coupler bay is to be charged in 2-3 days.

Z4 setting in Dist Prot relay is already 250ms.

**Fault description:-**B phase (Middle) Jumper between CB and Line isolator of 220KV BTPS ckt2 snapped from Line isolator end and touched ground leading in creation of Bus Fault. Detail Schematic Picture is attached.

### Configuration of feeders:-SLD attached

S.no.	Feeder	Main Bus
1	220KV BTPS Circuit 1 Line Bay	Connected to both Bus
2	220KV BTPS Circuit 2 Line Bay	Connected to both Bus
3	220KV Saharsa Circuit 1 Line Bay	MB1
4	220KV Saharsa Circuit 2 Line Bay	MB1
5	220KV Khagaria Circuit 1 Line Bay	MB1
6	220KV Khagaria Circuit 2 Line Bay	MB2
7	220KV Samastipur Circuit 1 Line Bay	MB1
8	220KV Samastipur Circuit 2 Line Bay	MB2
9	220KV IOCL Circuit 1 Line Bay	MB1
10	220KV IOCL Circuit 2 Line Bay	MB2
11	220KV side 100 MVA Transformer 1 Bay	MB1
12	220KV side 100 MVA Transformer 2 Bay	MB1
13	220KV side 100 MVA Transformer 3 Bay	MB1
14	220KV side 100 MVA Transformer 4 Bay	MB1
15	220KV Bus Coupler	Not Connected

### Tripping Details:DR filesattached.

S.no.	Feeder	Relay detail
1	220KV BTPS Circuit 1 Line Bay	Tripped from BTPS end
2	220KV BTPS Circuit 2 Line Bay	Z1,2KM
3	220KV Saharsa Circuit 1 Line Bay	Tripped from Saharsa end
4	220KV Saharsa Circuit 2 Line Bay	Z4,1.5Km
5	220KV Khagaria Circuit 1 Line Bay	Z4,1.5Km
6	220KV Khagaria Circuit 2 Line Bay	Z4,1.5Km
7	220KV Samastipur Circuit 1 Line Bay	Z4,1.5Km
8	220KV Samastipur Circuit 2 Line Bay	Z4,1.5Km

<b>9</b>	<b>220KV IOCL Circuit 1 Line Bay</b>	<b>Tripped from IOCL end on special prot.in 150ms</b>
<b>10</b>	<b>220KV IOCL Circuit 2 Line Bay</b>	
<b>11</b>	<b>220KV side 100 MVA Transformer 1 Bay</b>	<b>No tripping</b>
<b>12</b>	<b>220KV side 100 MVA Transformer 2 Bay</b>	
<b>13</b>	<b>220KV side 100 MVA Transformer 3 Bay</b>	
<b>14</b>	<b>220KV side 100 MVA Transformer 4 Bay</b>	
<b>15</b>	<b>220KV Bus Coupler</b>	<b>Not Connected, not tripped</b>


**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**

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

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**Detailed Report of grid event at 400/220/132kV Malda (PG) 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): 09-03-2026

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

Prior to the disturbance, 400kV Malda-New Purnea line-1 was under planned shutdown and bus bar protection was out of service due to CRP upgradation work at Malda. At 17:36 Hrs, during normalisation of 400kV-Malda-New Purnea line-1, bus fault occurred at 400kV Malda S/s due to issue with pantograph type isolator. Consequently, all emanating lines tripped on Z-4 protection. As a result, 400/220/132kV Malda S/s became dead and load loss of 250 MW was reported at radially connected Gazole and Malda (WB) S/s.

**2. Time and Date of the Event (घटना का समय और दिनांक):** 17:36 hrs of 24/02/2026

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

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

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

	Frequency (Hz)	Regional Generation (MW)	Regional Demand (MW)	State Generation	State Demand
				WB (MW)	WB (MW)
<b>Pre-Event</b> (घटना पूर्व)	50.00 Hz	32126 MW	22515 MW	5776 MW	8073 MW
<b>Post Event</b> (घटना के बाद)	50.01 Hz	32126 MW	22265 MW	5776 MW	7823 MW

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

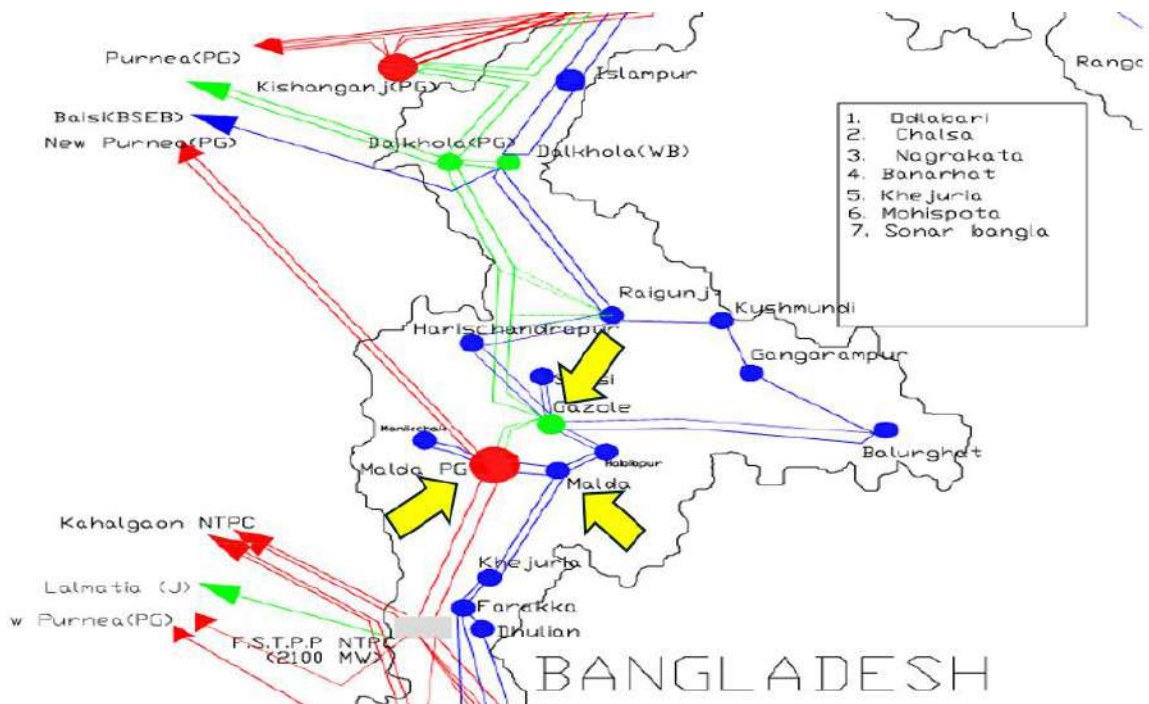
Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	<ol style="list-style-type: none"> <li>1. 400 kV Malda-New Purnea-1 was under planned shutdown (CRP Upgradation work)</li> <li>2. 220 Bus coupler bay at Gazole was out to control loading of 220 kV Malda-Gazole D/C.</li> <li>3. Bus Bar protection at 400 kV Malda PG was out due to CRP upgradation work.</li> </ol>
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Weather Condition (मौसम स्थिति)	Normal

6. Load and Generation loss (लोड और जेनरेशन हानि): 250 MW at Gazole and Malda (WB).

7. Duration of interruption (रुकावट की अवधि): 00:04 Hrs.

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



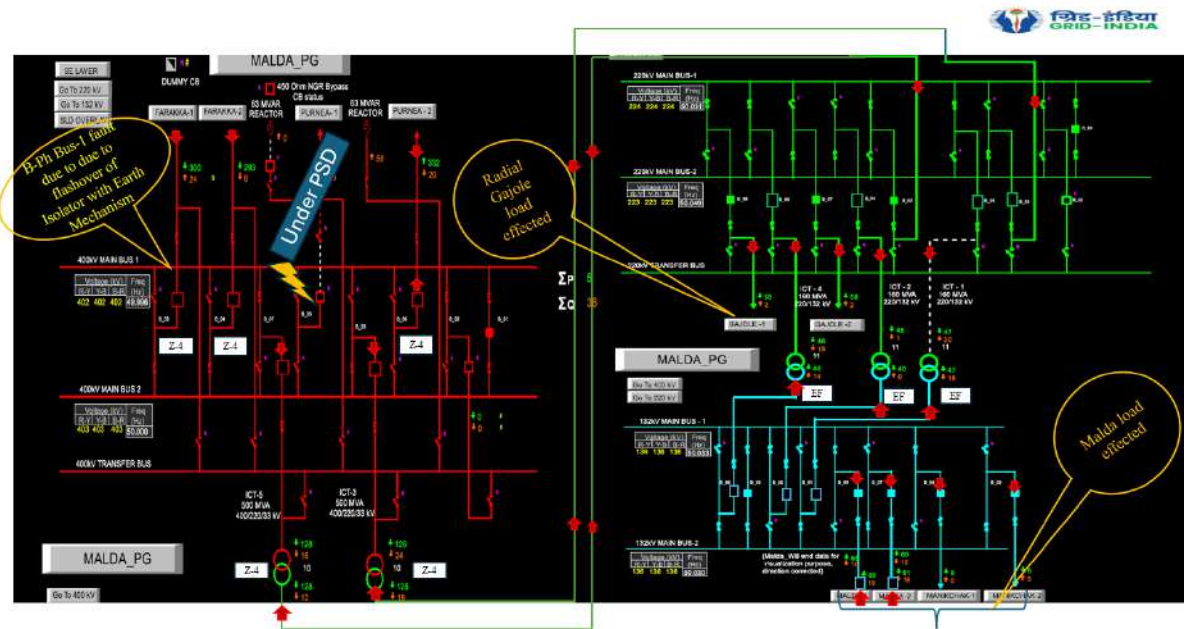
**Figure 1: Network across the affected area**

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

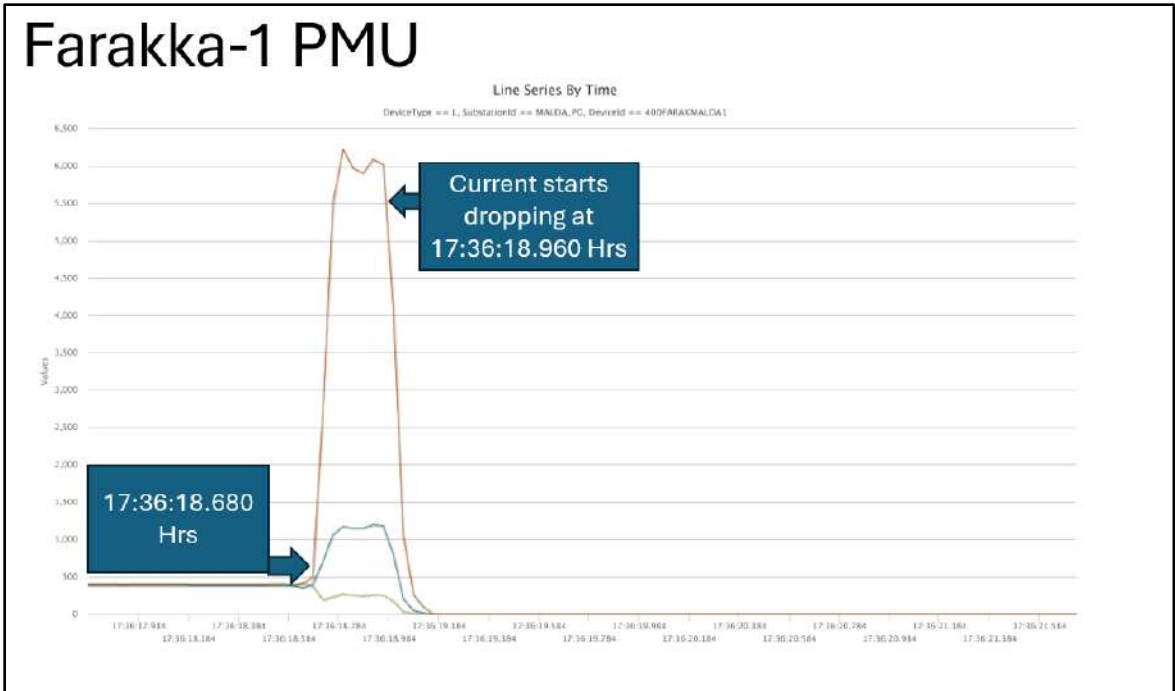
### 10. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1.	400KV-FSTPP-MALDA(PG)-2	17:36	Tripped in Z-4 protection from Malda end.		18:27
2.	400KV-FSTPP-MALDA(PG)-1				18:27
3.	400KV-MALDA(PG)-NEW PURNEA-2				18:13

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



- Prior to the disturbance, 400 kV Malda-New Purnea-1 line was under planned shutdown and Bus Bar protection at 400 kV Malda PG was out due to CRP upgradation work.
- 220 Bus coupler bay at Gazole was out to control loading of 220 kV Malda-Gazole D/C and Gazole and Malda (WB) was radially connected to Malda (PG).
- During normalisation of 400kV Malda-New Purnea line B-Earth bus fault occurred at 400kV Malda bus due to issue with pantograph isolator of said line, resultant in all emanating line from 400kV Malda S/s got tripped in Z-4 protection.
- Due to tripping of all emanating line from Malda S/s, 400/220/132kV Malda (PG) became dead.
- Total load loss of 250 MW reported at Malda (WB) and Gazole S/s.



**Figure 3: PMU of Farakka line 1**

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

- Protection operated as per scheme.
- The detailed report received from PG is attached in the annexure..

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

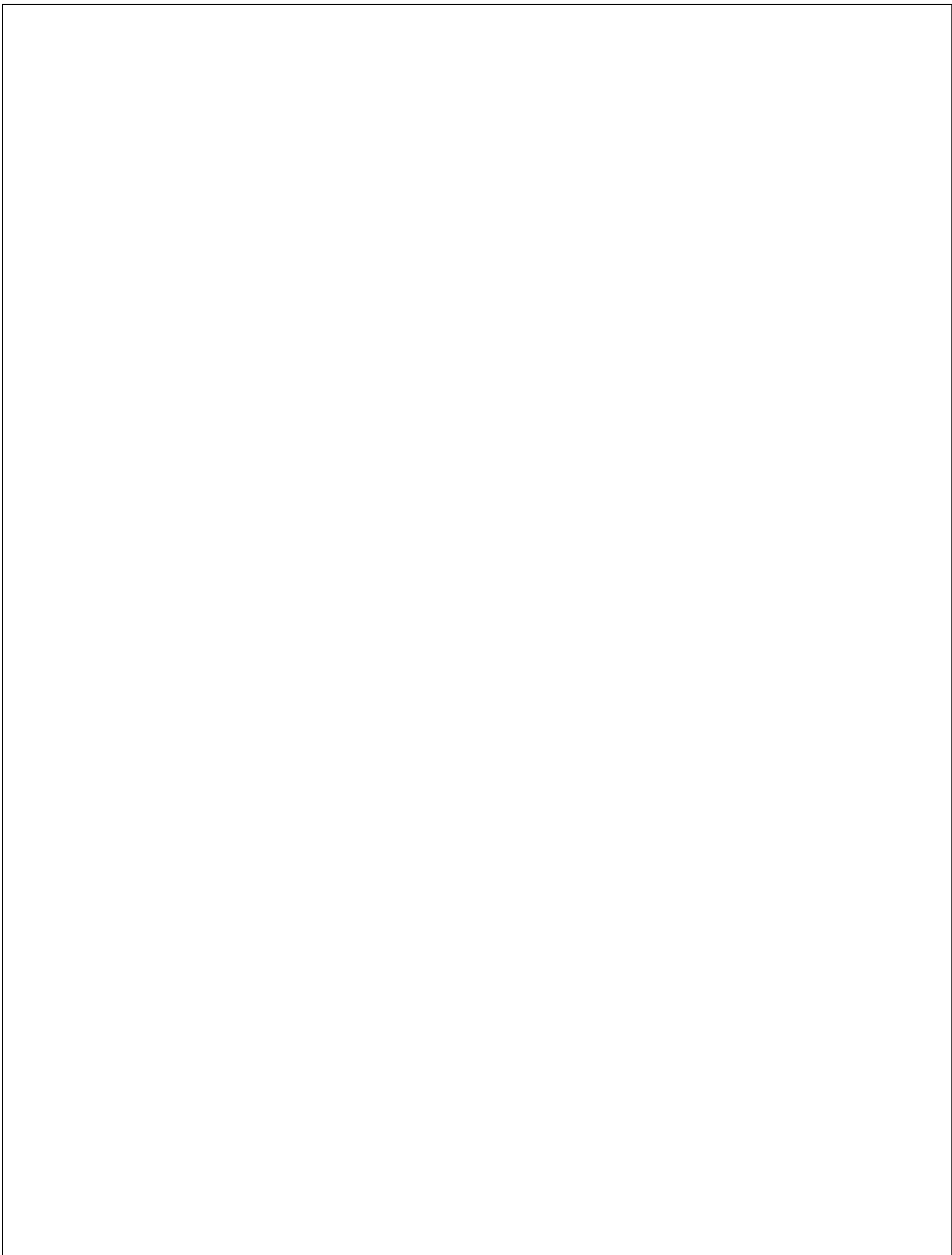
**14. Non-compliance observed (विनियमन का गैर-अनुपालन):**

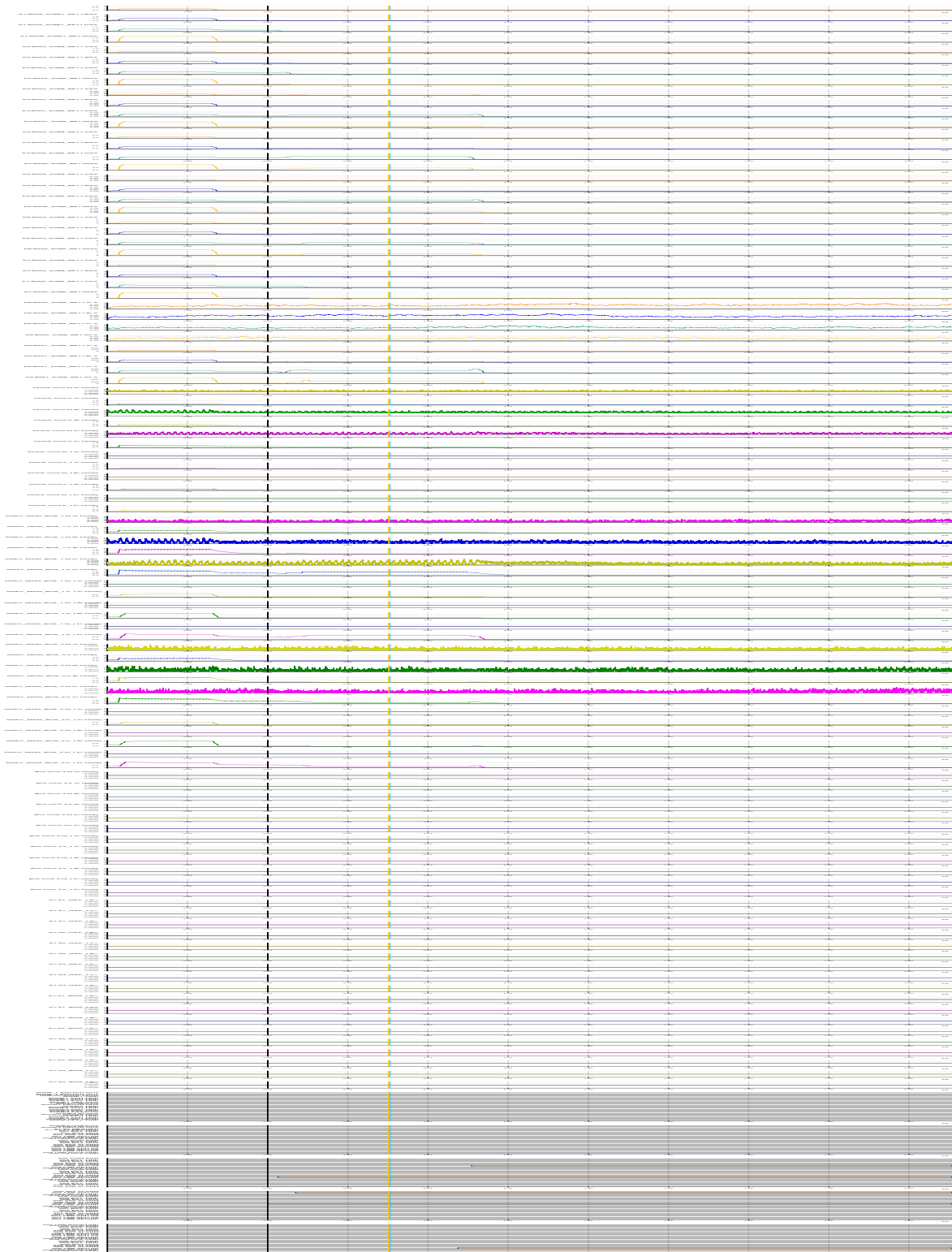
S.No.	Issues	Regulation Non-Compliance	Remark
1	<b>Flash Report received within 8hrs?</b>	IEGC section 37.2 (b)	Not Submitted
2	<b>Whether DR/EL provided within 24 Hours?</b>	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted (After 24 Hrs)
3	<b>Detailed Report received within 7 days?</b>	IEGC section 37.2 (e)	Submitted
4	<b>Protection system not operated correctly</b>	CEA Technical Standard for Construction of Electrical Plants and Electric Lines: 48 (1) a. CEA (Technical standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)	Protection operated as per scheme.

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

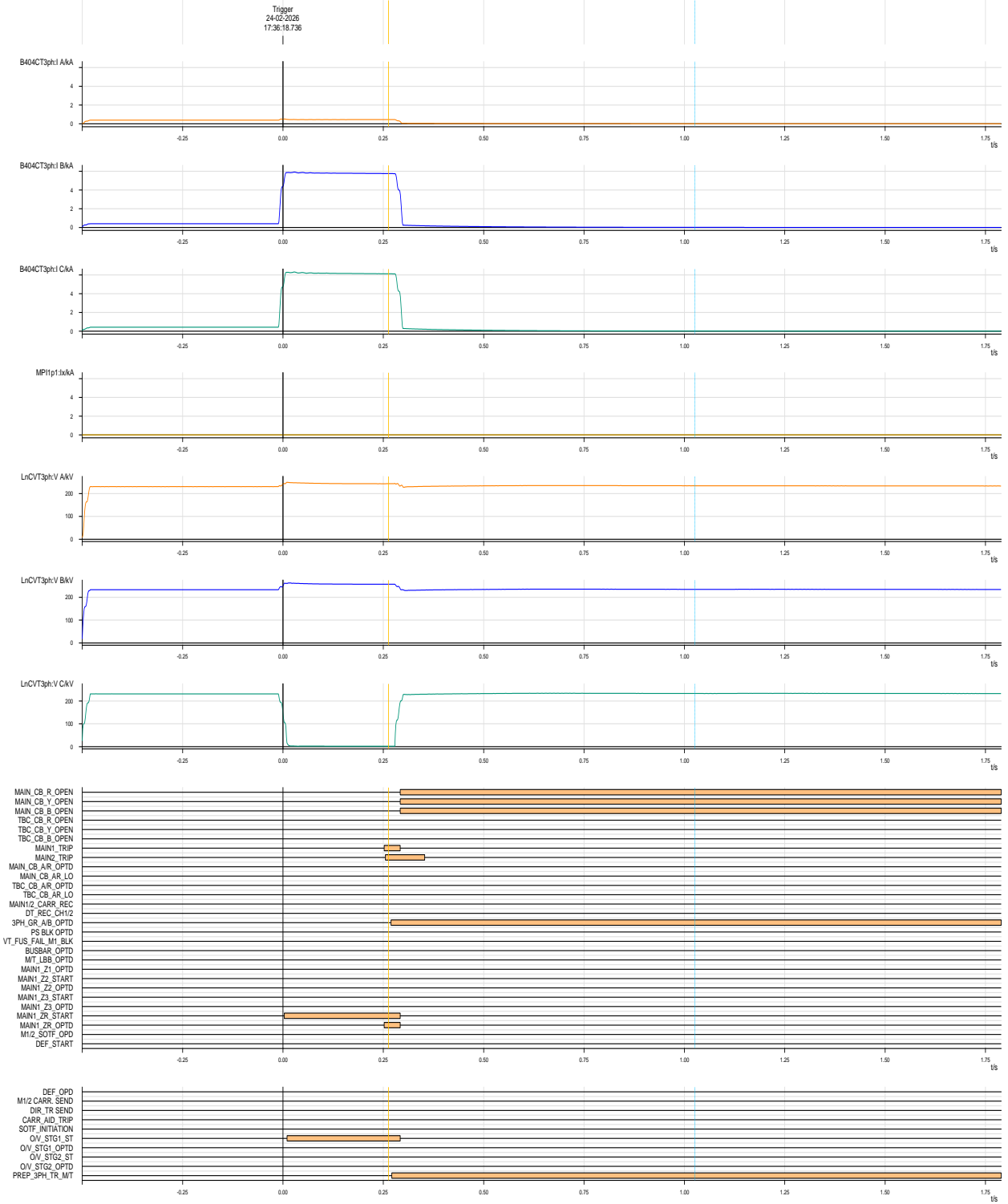
**Annexure 2:**

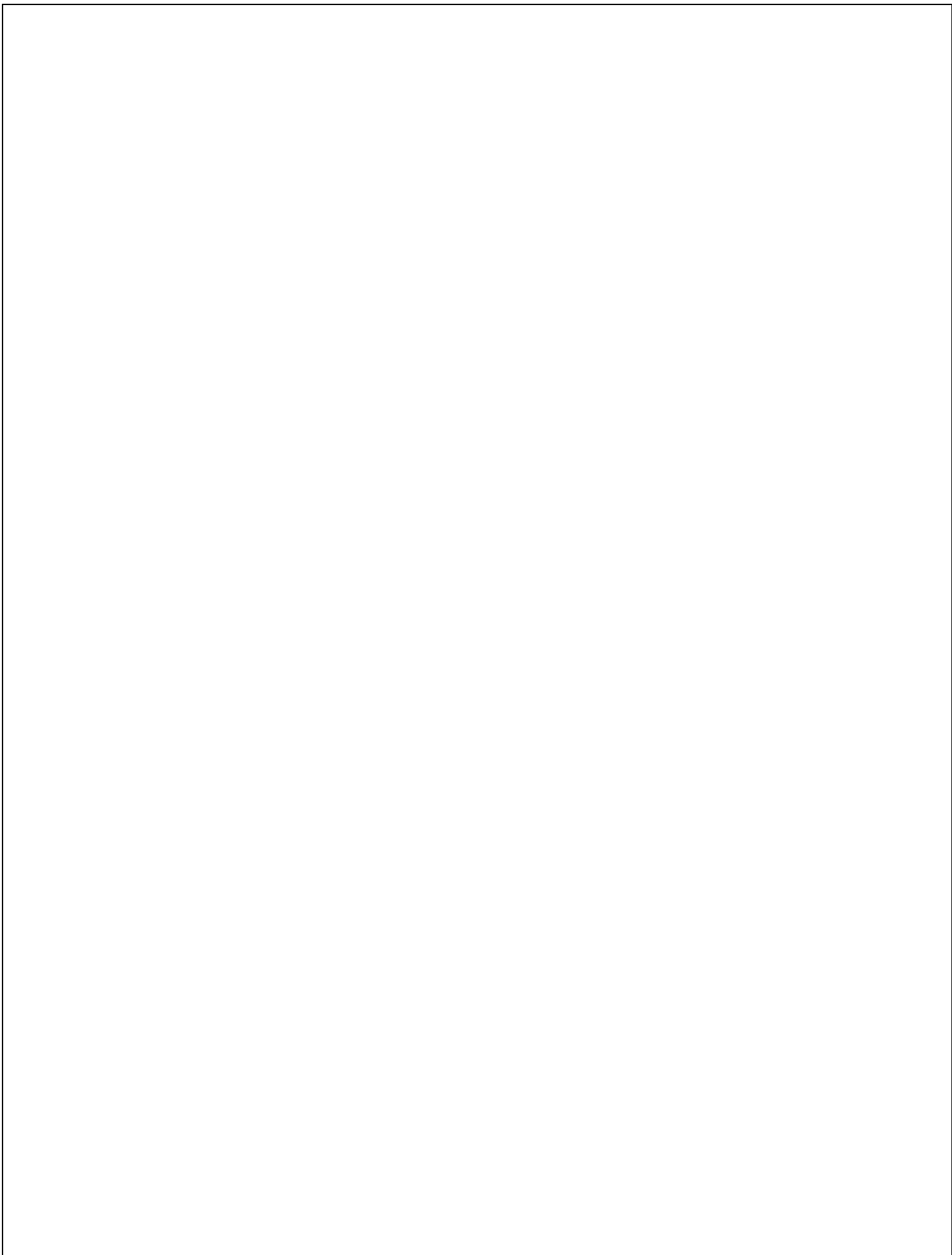
**DR of MCU**





# DR of Malda Purnea line-2





# 400/220/132 kV Malda S/S

Tripping Report of 400 kV Bus-I & II along with other elements at  
Malda Substation on 24.02.2026  
(17:36 hrs)

## Tripping Report of 400 kV Bus-I & II along with other elements at Malda Substation on 24.02.2026 (17:36 hrs) :

### 1. 400 kV Bus-I & Bus-II Configuration at Malda Substation:

- 400 kV Bus-I : Farakka Ckt#1, 400/220KV ICT-V, Purnea Ckt#1 ( Under S/D since 14.02.2026)
- 400 kV Bus –II : Farakka Ckt#2, Purnea Ckt#2, 400/220KV ICT-III
- 400 kV Bus Coupler ( Bay-405) – Under Closed Condition

2. As per ERLDC code dated 16.01.2026 , Zone-4 timing for 400 kV feeders connected to Malda SS were set at 250 ms .

3. 400 kV Malda Purnea CKT#I was under shutdown since 14/02/2026 for CRP upgradation work under ADDCAP and 63 MVAR Line Reactor Commissioning work under ERES XL Pkg.

4. After completion of the work , Charging code was issued by ERLDC for both Purnea CKT-I( Charging Code: 1567) & 63 MVAR Line Reactor ( 1<sup>st</sup> Time Charging Code: 1569).

## Tripping Report of 400 kV Bus-I & II along with other elements at Malda Substation on 24.02.2026 (17:36 hrs) :

4. After receipt of code and in consultation with RTAMC, Earth switch of Line Reactor Bay( 40589LRE) and Line Earth switch ( 405 89 LE2 along with 405 89 LE1) were opened. Bus Earth Switch (405-89AE) was already under Open Condition.

5. For Normalisation of the bay , at the time of manual Closing of B-ph Isolator/89A, flashover was observed across the insulator. On inspection found that rotating part of insulator was not functioned properly causing, earth mechanism to come in vicinity of main isolator contact causing flashover. All isolators are very old and already planned for replacement under ADDCAP.

6. Subsequently, following elements connected to Malda S/S tripped at 17:36 hrs:

- 400 kV Farakka Ckt-I & Ckt-II
- 400 kV Purnea Ckt-II
- 400/220 kV ICT-III
- 400/220 kV ICT-V
- 200/132 kV ICT-I
- 200/132 kV ICT-II
- 200/132 kV ICT-IV

(DR enclosed for individual element Tripping)

## Tripping Report of 400 kV Bus along with other Elements at Malda Substation on 24.02.2026 (17:36 hrs) :

7. Subsequently , the Elements were taken into service in the following order after receiving of codes from ERLDC.

400 kV Purnea Ckt-II

400/220 kV ICT-III

400/220 kV ICT –V

400KV Farakka-I&II

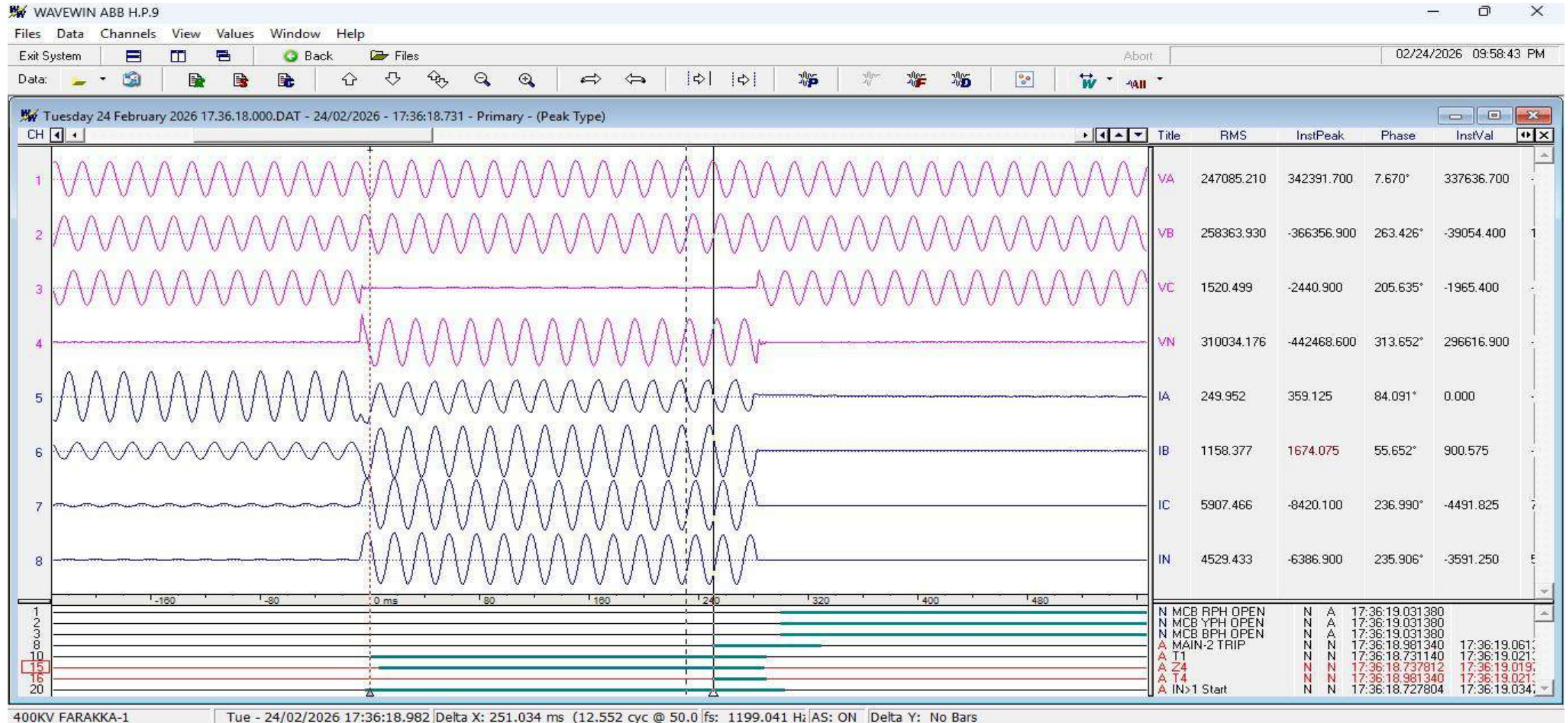
220/132 kV ICT-I

220/132 kV ICT-II

220/132 kV ICT-IV

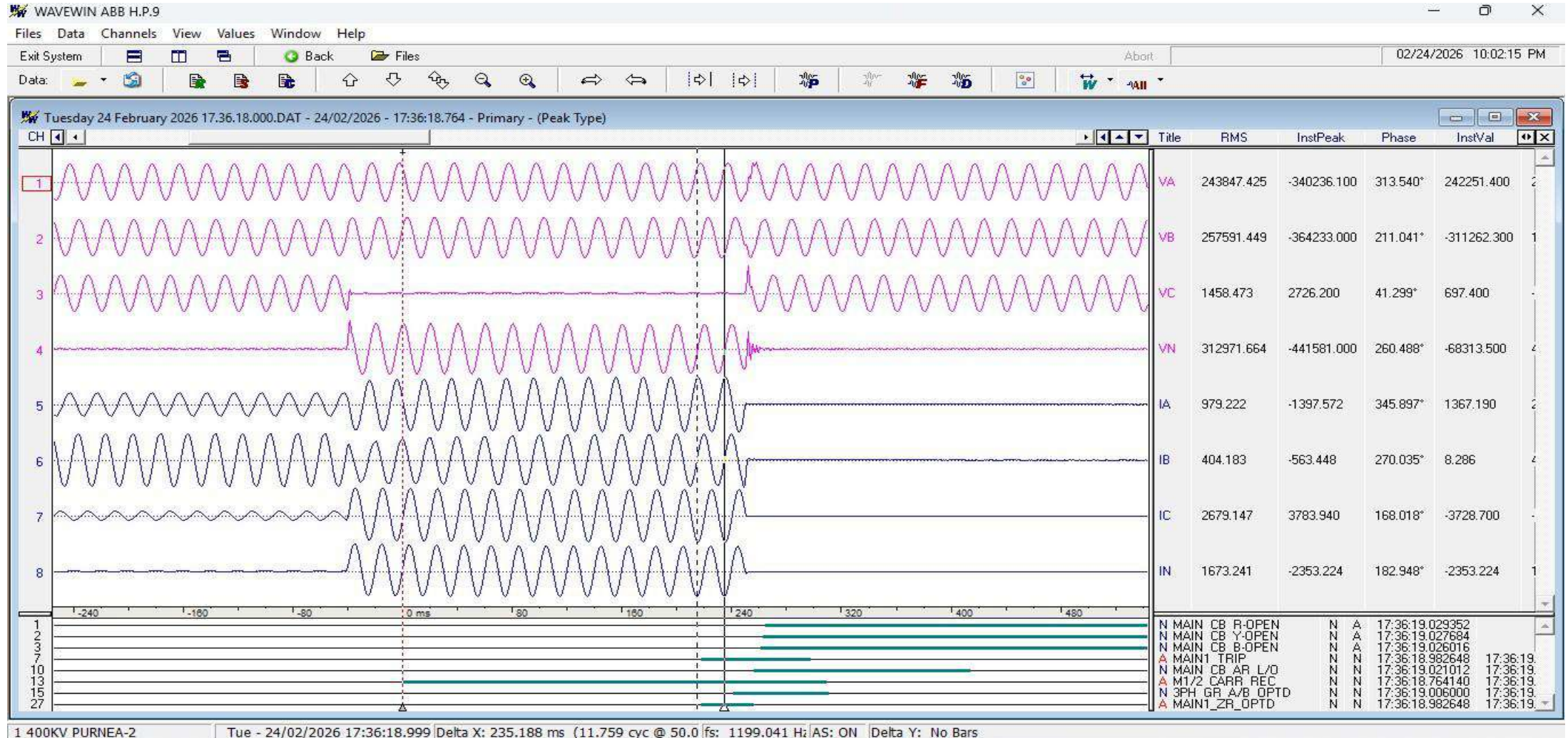
# Disturbance Recorder Snaps:

- 400 kV Farakka CKT-1



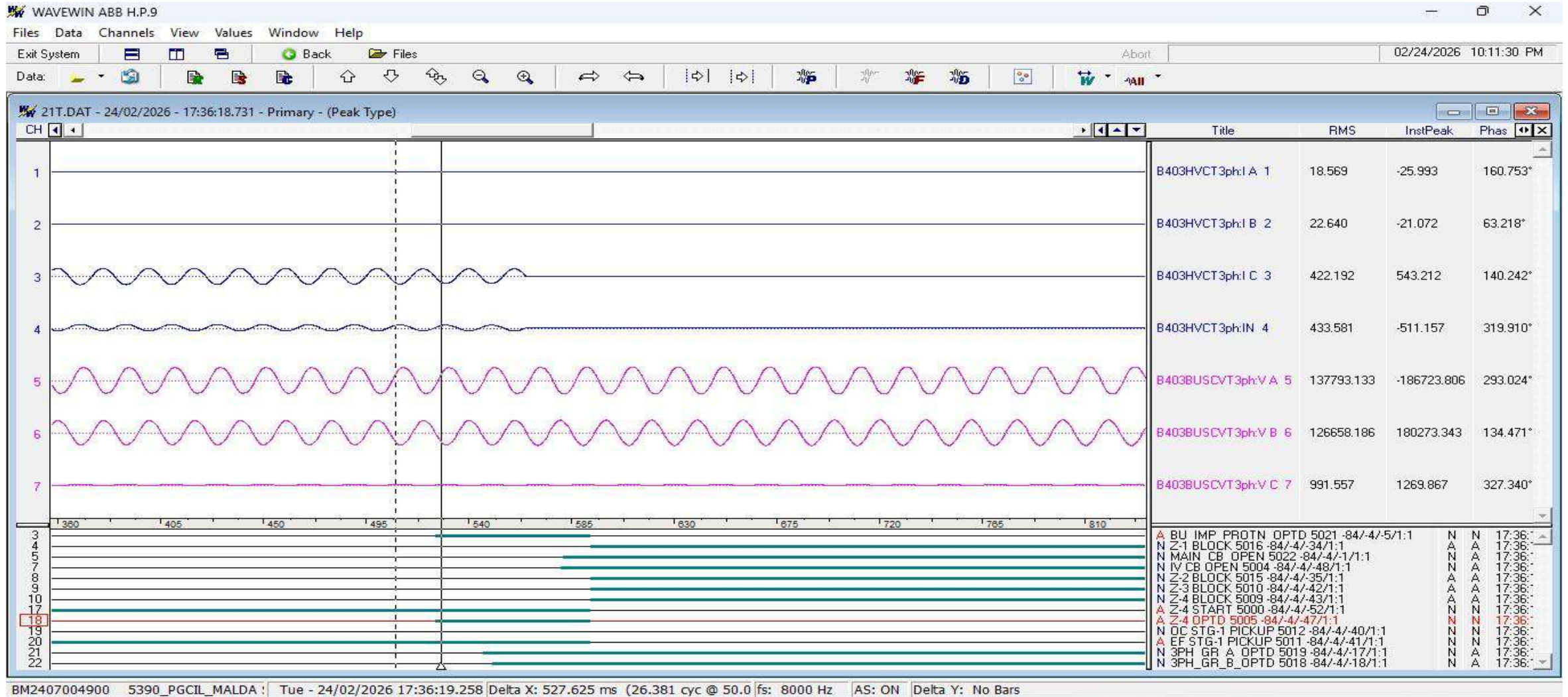
# Disturbance Recorder Snaps:

- [400 kV Purnea CKT-2](#)



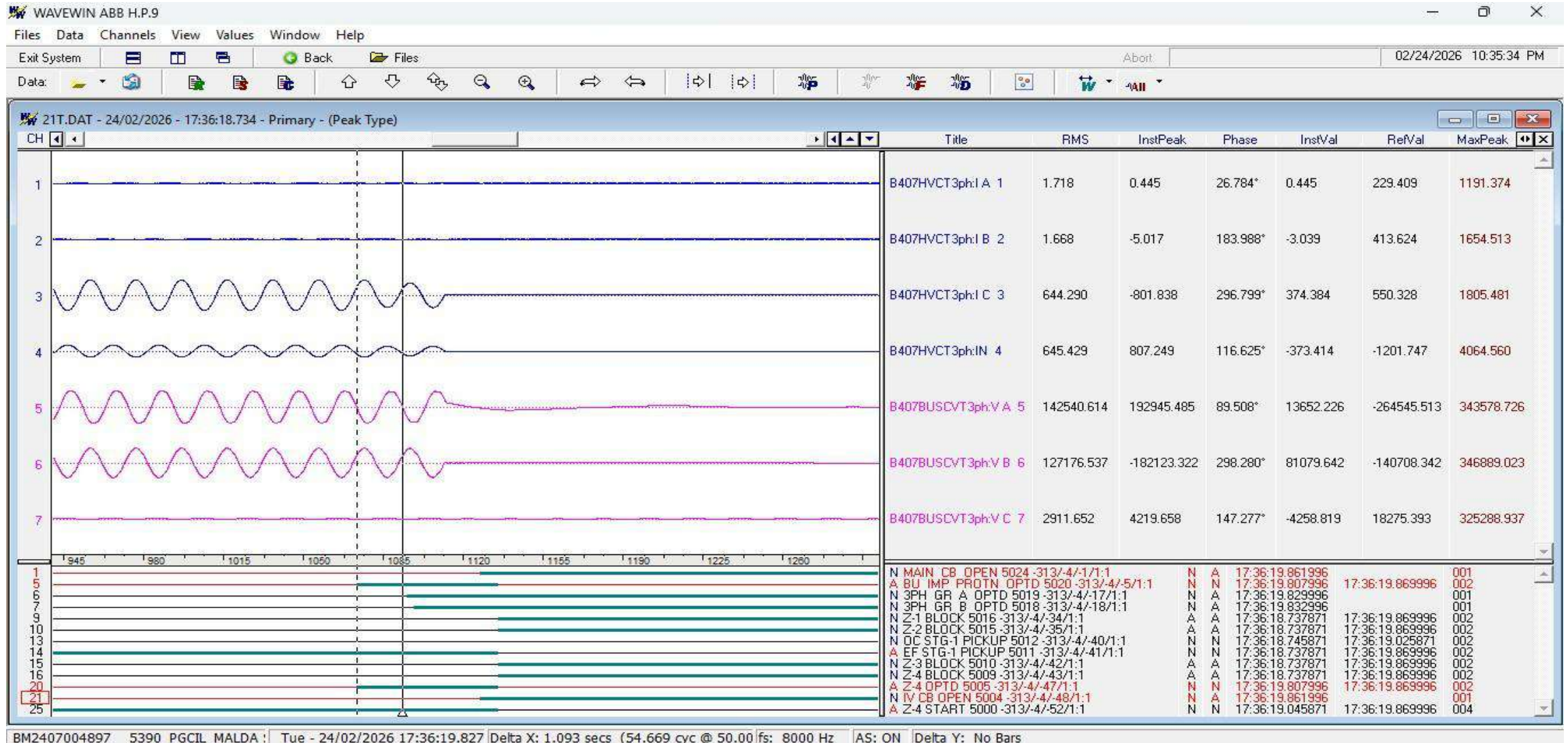
# Disturbance Recorder Snaps:

- 400/220 kV ICT-III ( B/U Impedance Relay)



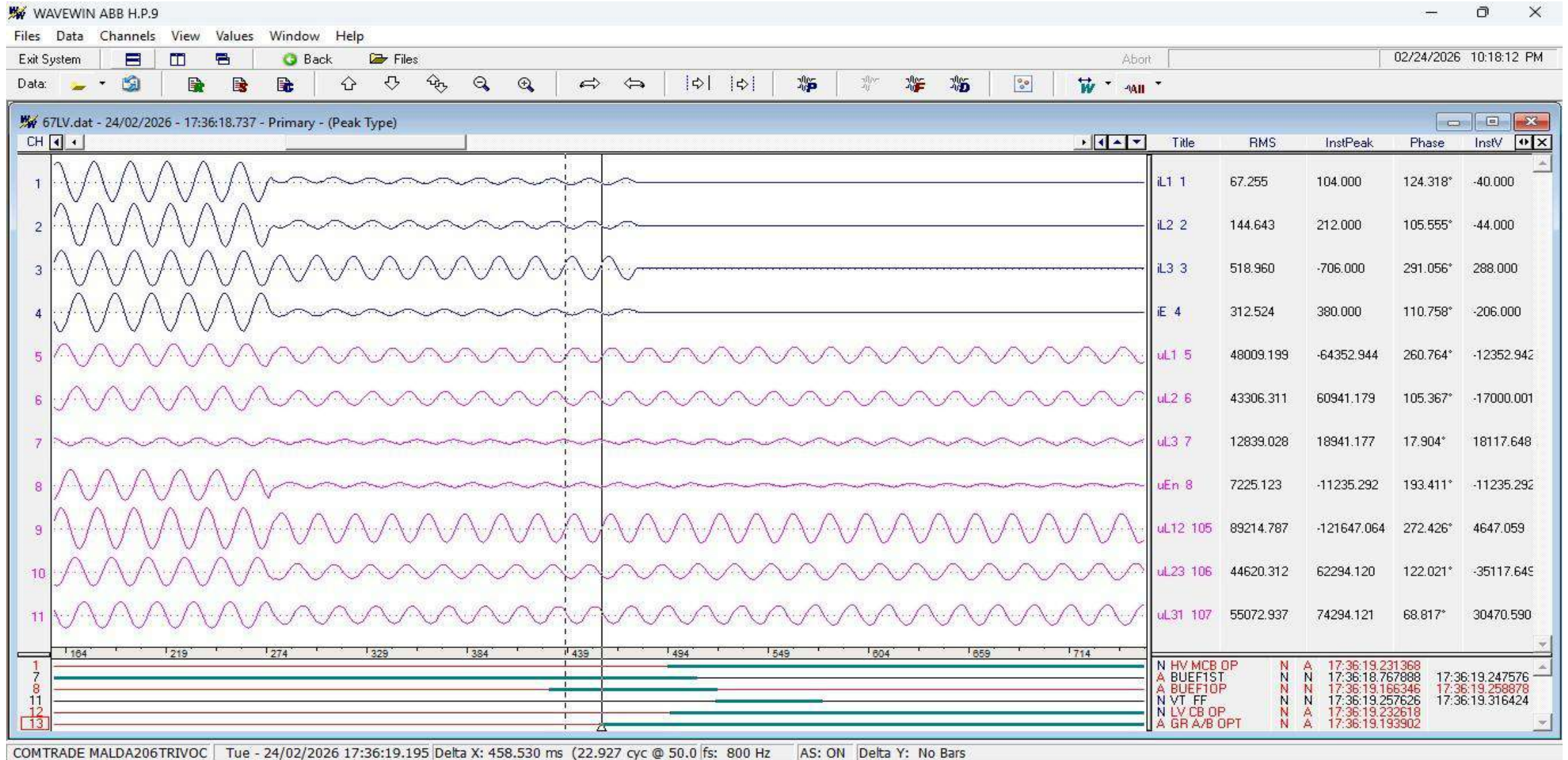
# Disturbance Recorder Snaps:

- 400/220 kV ICT-V ( B/U Impedance Relay)



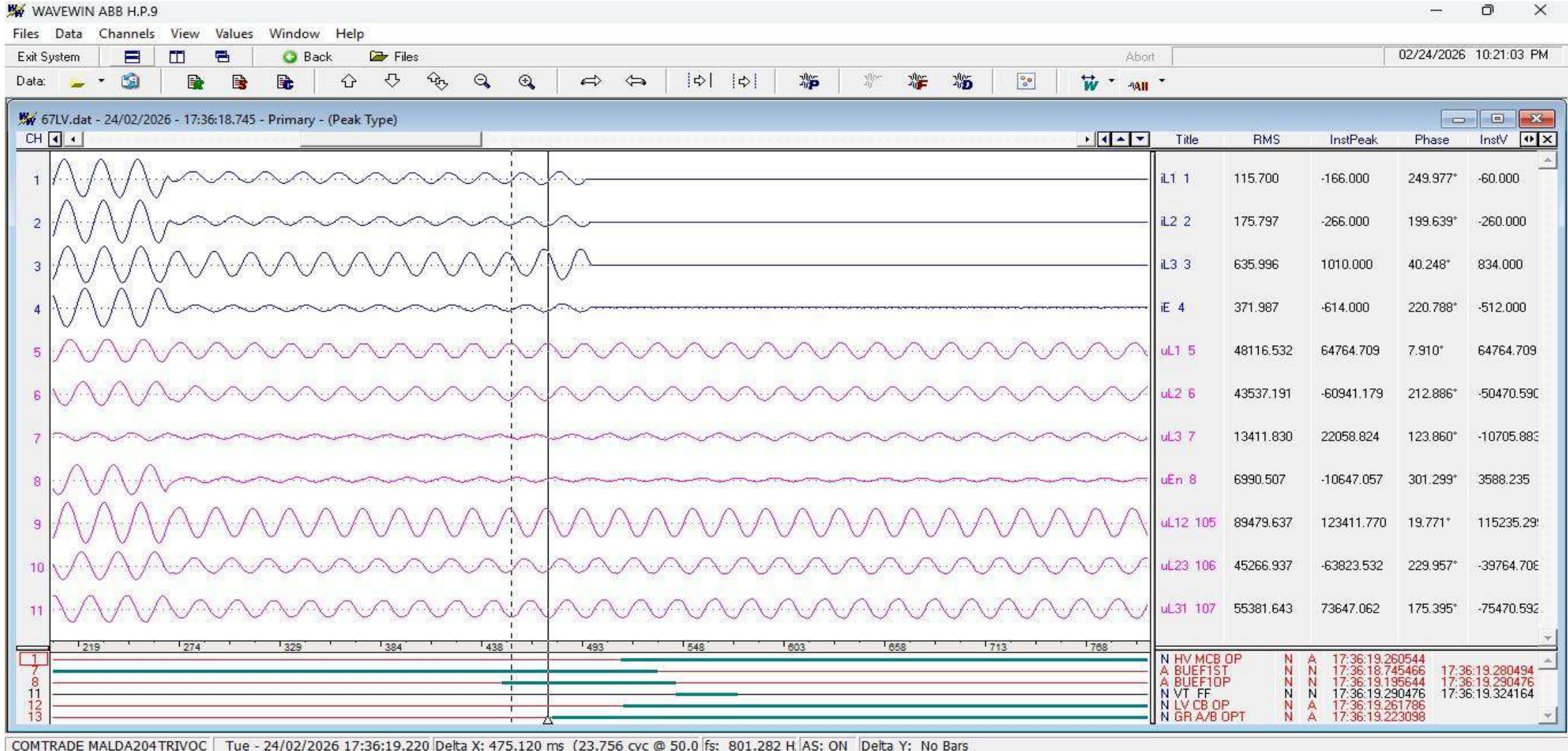
# Disturbance Recorder Snaps:

- 220/132 kV ICT-I ( 67 LV Relay)



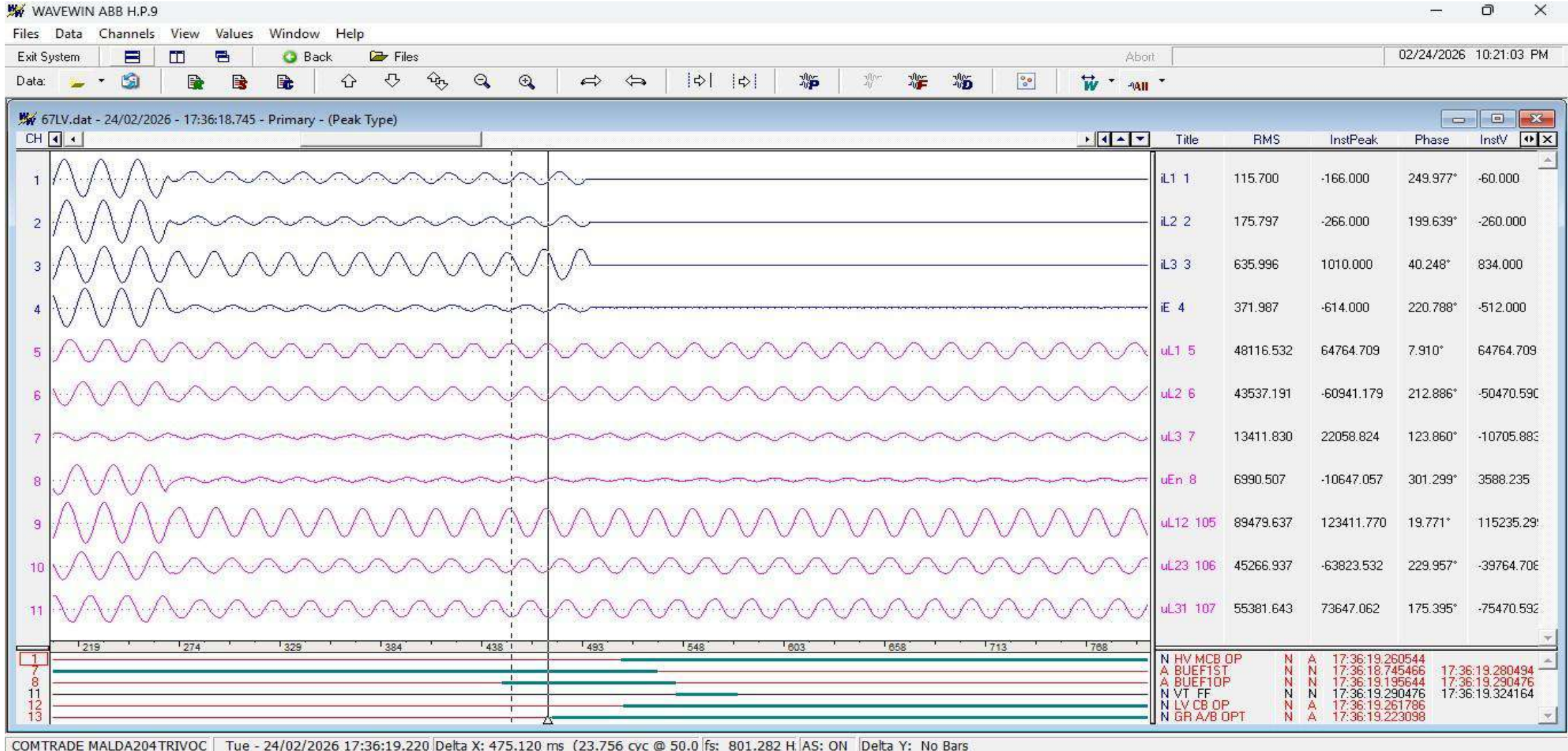
# Disturbance Recorder Snaps:

- 220/132 kV ICT-II ( 67 LV Relay)



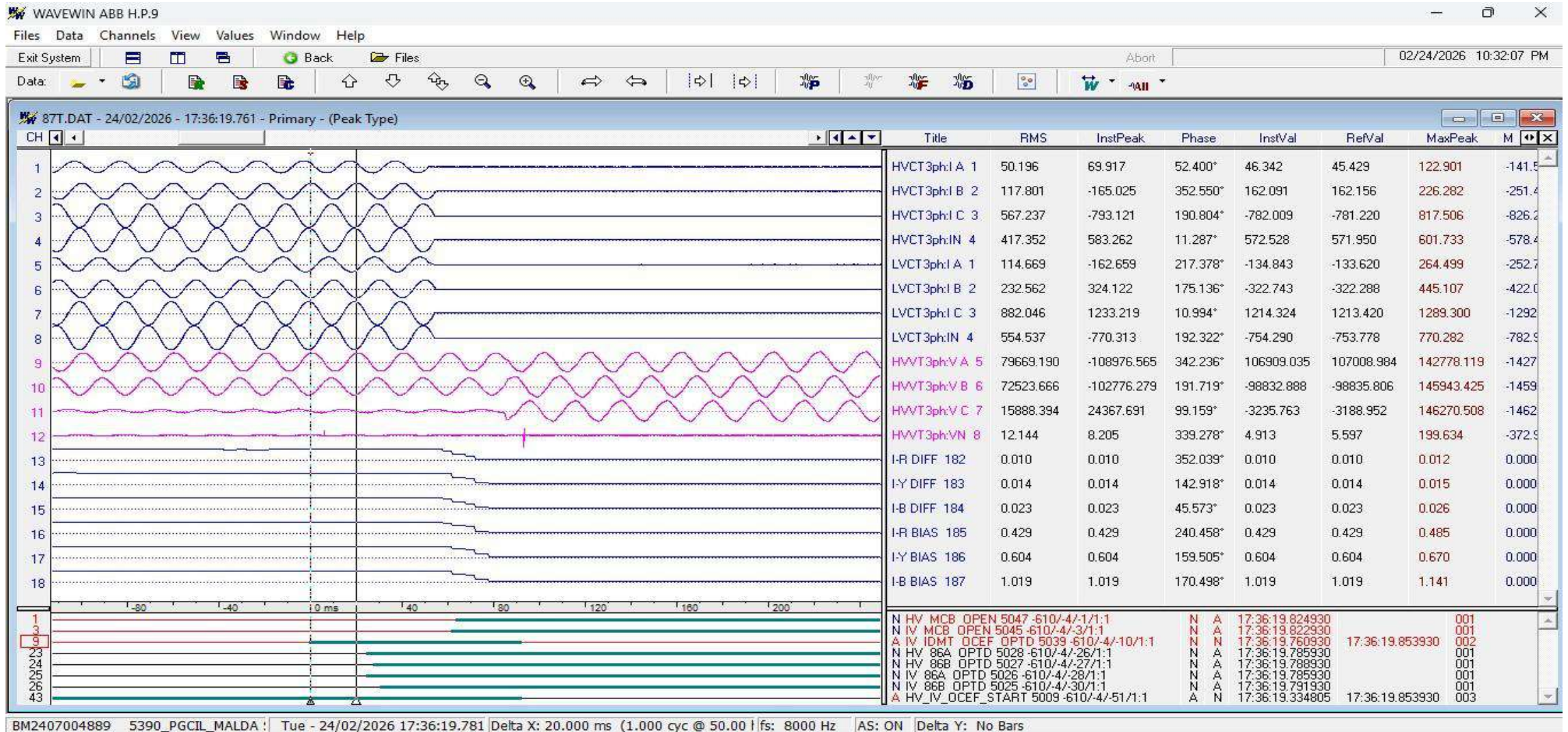
# Disturbance Recorder Snaps:

- 220/132 kV ICT-II ( 67 LV Relay)



# Disturbance Recorder Snaps:

- 220/132 kV ICT-IV



# Re: Tripping of 400KV Durgapur-KHSTPP-1 due to receipt of DT signal from KHSTPP end

ERLDC Protection2

Thu 12-02-2026 15:33

To:Deborshi <DEBORSHICHAKRABORTY@NTPC.CO.IN>; SCE NK <scenk@ntpc.co.in>;

Cc:D Biswas (डी बिस्वास) <dbiswas@grid-india.in>; GBHASKAR01@NTPC.CO.IN <GBHASKAR01@NTPC.CO.IN>; Manas Das (मानस दास) <manasdas@grid-india.in>; lilychowdhury@ntpc.co.in <lilychowdhury@ntpc.co.in>; Bilash Achari (बिलाश आचारि) <bilash.achari@grid-india.in>; Gitesh Patel (गितेश पटेल) <giteshpatel@grid-india.in>; ERLDC Control Room <erldccr@grid-india.in>; erldccontrolroom@gmail.com <erldccontrolroom@gmail.com>; ERPC Protection Official ID <erpc-protection@gov.in>;

Sir/Madam,

No update has been received so far regarding the resolution of the issue, which is a matter of concern from the system operational point of view. You are requested to kindly provide the details of the remedial measures taken in this regard.

Timely action in this matter will help prevent unintended tripping of healthy EHV lines and ensure safe and reliable grid operation.

सादर धन्यवाद / Thanks & Regards,

Bimal Swargiary/DGM

**पू.क्षे.भा.प्रे.केँ सुरक्षा समूह/ERLDC Protection Team**

पू.क्षे.भा.प्रे.केँ/Eastern Regional Load Despatch Centre

Contact No.:- 9748409928 / 9147016222

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

Grid Controller of India Ltd.

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**From:** ERLDC Protection2

**Sent:** 21 January 2026 14:09:03

**To:** Deborshi; SCE NK

**Cc:** D Biswas (डी बिस्वास); GBHASKAR01@NTPC.CO.IN; Manas Das (मानस दास); lilychowdhury@ntpc.co.in; Bilash Achari (बिलाश आचारि); Gitesh Patel (गितेश पटेल); ERLDC Control Room; erldccontrolroom@gmail.com

**Subject:** Re: Tripping of 400KV Durgapur-KHSTPP-1 due to receipt of DT signal from KHSTPP end

Sir/Madam,

The matter could not be deliberated in the 154th PCCM held on 20.01.2026 due to the non-availability of a representative from Kahalgaon. A similar DT transmission issue was also recorded earlier on 30.10.2025 at 11:34 hrs for the 400 kV Kahalgaon–Banka-2 line.

In this regard, it is requested to please update the root cause analysis and findings at the earliest.

Cooperation is requested.

सादर धन्यवाद / Thanks & Regards,

**पू.क्षे.भा.प्रे.केँ सुरक्षा समूह/ERLDC Protection Team**

पू.क्षे.भा.प्रे.केँ/Eastern Regional Load Despatch Centre

Contact No.:- 9748409928 / 9147016222

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

Grid Controller of India Ltd.

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**From:** ERLDC Protection2

**Sent:** 17 December 2025 12:33:41

**To:** Deborshi; SCE NK

**Cc:** D Biswas (डी बिस्वास); GBHASKAR01@NTPC.CO.IN; Manas Das (मानस दास); lilychowdhury@ntpc.co.in; Bilash Achari

(बिलाश आचारी); Gitesh Patel (गितेश पटेल); ERLDC Control Room; erldccontrolroom@gmail.com

**Subject:** Fw: Tripping of 400KV Durgapur-KHSTPP-1 due to receipt of DT signal from KHSTPP end

Sir/Madam,

Please refer to the trailing mail regarding the unintended tripping of 400 kV Durgapur–KHSTPP-1 line due to a DT signal received from Kahalgaon (NTPC).

It is observed that during opening of 400 kV Main and Tie bay at Kahalgaon for shutdown of the Maithon-2 line, a DT signal was transmitted to 400 kV Durgapur-1 line, which is **UNWANTED**.

**Observation and suggestion-**

1. Opening the Tie CB of the 400 kV Kahalgaon–Maithon-2/Durgapur-1 bay should not send a DT signal, when the **Durgapur-1 Main CB is ON**.
2. The DT circuit logic and the auxiliary contact/status of the Durgapur-1 Main CB at Kahalgaon need to be checked.

In view of the above, it is requested to verify the mentioned points and resolve the issue at the earliest to prevent recurrence of unwanted tripping of this critical EHV line.

Your cooperation is requested to ensure a safe, secure, and reliable protection system.

सादर धन्यवाद / Thanks & Regards,

**पू.क्षे.भा.प्रे.के सुरक्षा समूह/ERLDC Protection Team**

पू.क्षे.भा.प्रे.के/Eastern Regional Load Despatch Centre

Contact No.:- 9748409928 / 9147016222

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

Grid Controller of India Ltd.

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**From:** ERLDC Control Room

**Sent:** 17 December 2025 11:38

**To:** scentpckh

**Cc:** ERLDC Outage; ERLDC Protection2; ERLDC SO; rtamcer2oprnr; rtamcer1

**Subject:** Fw: Tripping of 400KV Durgapur-KHSTPP-1 due to receipt of DT signal from KHSTPP end

Sir/ Madam,

Tripping of 400KV Durgapur-KHSTPP-1 at 09:08 Hrs as per trailing email has not been shared with ERLDC which is severe violation as per IEGC.

Further since 400 kV Khstpp Maithon Ckt 2 is in same dia with 400 kV Khstpp Durgapur Ckt 1, and line tripping is at same instance of availing the line shutdown of Maithon Ckt 2, it is requested to diagnose the event and share the DR and relevant details from Khstpp end at the earliest.

Regards

पाली प्रभारी/Shift Charge Manager

पूर्वी क्षेत्रीय भार प्रेषण केंद्र

Eastern Region Load Despatch Centre

Grid Controller of India (GRID-INDIA)

ग्रिड कंट्रोलर ऑफ इंडिया (ग्रिड-इंडिया)

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**Erstwhile -Power System Operation Corporation Ltd.**

**Contact:** 033-24235875, 033-35687459

**Hotline:** 20331000,20330002,20330070,20330000

**Mob-**7596084290, 8100299321

**Email:** [erldccr@grid-](mailto:erldccr@grid-india.in)

[india.in](http://www.erldc.in) ; **Website:** [www.erldc.in](http://www.erldc.in)



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**From:** rtamcer2oprn <rtamcer2oprn@powergrid.in>

**Sent:** Wednesday, December 17, 2025 11:30 AM

**To:** ERLDC Control Room

**Cc:** Partha Ghosh {पार्थ घोष}; M K Kirtania {एम.के. किरटानिया}; Mithun Gayen {मिथुन गायेन}

**Subject:** Tripping of 400KV Durgapur-KHSTPP-1 due to receipt of DT signal from KHSTPP end

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Viruses can be easily transmitted via email.

Sir,

400KV Durgapur-KHSTPP-1 is tripped due to receipt of DT signal from KHSTPP end at 09:08 Hrs on 17.12.2025. The said line is in charged condition from KHSTPP end.

भवदीय / Regards,

आरटीएमसी, पूर्वी क्षेत्र-II, कोलकाता

RTAMC, ERTS-II, KOLKATA



दावात्याग : यह ईमेल पावरग्रिड के दावात्याग नियम व शर्तों द्वारा शासित है जिसे

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<http://apps.powergrid.in/Disclaimer.htm>

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# Tripping of 400KV-DURGAPUR-KAHALGAON-2 from Kahaolgaon-Reg

## ERLDC Protection2

Thu 12-02-2026 16:22

To:Deborshi <DEBORSHICHAKRABORTY@NTPC.CO.IN>; SCE NK <scenk@ntpc.co.in>;

Cc:D Biswas (डी बिस्वास) <dbiswas@grid-india.in>; GBHASKAR01@NTPC.CO.IN <GBHASKAR01@NTPC.CO.IN>; Manas Das (मानस दास) <manasdas@grid-india.in>; lilychowdhury@ntpc.co.in <lilychowdhury@ntpc.co.in>; Bilash Achari (बिलाश आचारि) <bilash.achari@grid-india.in>; Gitesh Patel (गितेश पटेल) <giteshpatel@grid-india.in>; ERPC Protection Official ID <erpc-protection@gov.in>;

Sir/Madam,

This is to inform that 400 kV Durgapur–Kahalgaon-2 line tripped from Kahalgaon end on 31.01.2026 at 03:28 hrs. Auto-reclosure (A/R) was successful from the Durgapur end. However, three-phase tripping from NTPC end was observed for a Y–E fault, which is the concern from operational point of view.

A similar instance of tripping was also observed on 11.09.2025 at 11:13 hrs. The reason for three-phase tripping for a single line-to-ground fault needs to be examined in detail and necessary corrective action may be taken immediately to ensure successful auto-reclosure in case of transient single-phase faults. This will help in maintaining continuity of supply and ensuring compliance with the CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022.

The remedial measures taken in this regard may please be shared with ERLDC.

Co-operation requested.

सादर धन्यवाद / Thanks & Regards,

Bimal Swargiary/DGM

**पू.क्षे.भा.प्रे.केँ सुरक्षा समूह/ERLDC Protection Team**

पू.क्षे.भा.प्रे.केँ/Eastern Regional Load Despatch Centre

Contact No.:- 9748409928 / 9147016222

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड

Grid Controller of India Ltd.

### List of important transmission lines in ER which tripped in February-2026

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 END	DR/EL RECEIVED FROM REMOTE END	LOCAL END UTILITY	REMOTE END UTILITY
1	400KV-GAYA-NORTH KARANPURA-2	28-02-2026	09:37	28-02-2026	14:16	Gaya: B_N, 15.85 km, 1.9 kA	B-Earth, Z-1, Ib-13.6kA	B-Earth	<100 msec	A/r failed after 1 sec.			YES	NO	PG ER-I	NTPC
2	220KV-KARAMNASHA (NEW)-SAHUPURI-1	27-02-2026	10:11	27-02-2026	16:56	Karamnasha end: R-ph, FC:3.29 kA, FD:45.9 Km, Z-2;	Sahupuri end: R-ph, FC: 2.606kA, FD: 0.931 km, Z-1	R-Earth	<100 msec	Line tripped in Z-2 protection from Karamnasha end in Z-1 protection from Sahupuri end. BSPTCL may explain.			NO	NO	PG ER-I	PG NR
3	400KV-BINAGURI-NORBUGANG-1	25-02-2026	12:45	01-03-2026	17:13	Binaguri end: F/D:110.1KM, F/C:3.090kA ( A/R Successful on Y-N fault	Norbugang end :Distance protection optd(Z1@6.849km) YN Fault - FC:3.88KA	Y-Earth	<100 msec	A/r successful from Binaguri end and three phase tripping from Bhutan end.			YES	NO	PG ER-II	BHUTAN

4	220KV-NEW PURNEA-MADHEPURA-1	24-02-2026	13:35	24-02-2026	11:47	Madhepura: Y_B, Zone -1, fault distance 65.59km, Fault current Iy- 1.291kA, Ib- 3.373kA	New Purnea end: Y_N, 60.1 km, 2.07 kA	Y-B	<100 msec	B-Earth fault occurred and within 1 sec another fault led to three phase tripping from both end.			YES	NO	PG ER-I	BSP TCL
5	400KV-MEDINIPUR-KHARAGPUR-2	24-02-2026	02:57	24-02-2026	03:51	R_N , 6.001 KA , 42.56 KM from Medinipur	Kharagpur end - Zone 1 , M1 - 70 km , 4.07 kA , M2 - 69.83 km , 4.12 kA	R-Earth	<100 msec	Three phase tripping for phase to ground fault. PG ER-II and WB may explain.			YES	YES	PG ER-II	WB SET CL
6	220KV-Rongnichu-RANGPO-2	22-02-2026	14:23	23-02-2026	14:45	Rangpo: Y-B, FD:1.51 KM, FC: 11.51 KM, 10.7 KA	Rongnichu: IY:1.35 KA IB:1.216 KA, FD: 6.5 KM	Y-B	<100 msec	Line tripped on phase to phase fault.			YES	NO	MBP CL	PG ER-II
7	220KV-RANCHI-MTPS(DVC)-1	18-02-2026	06:36	18-02-2026	07:49	A/R Successful	MTPS(DVC) End: R_N, Ir :0.771 kA,FD: 228 km	R-Earth	<100 msec	A/R successful from Ranchi end and not attempted from Mejia end led to three phase tripping. DVC may explain.			YES	NO	PG ER-I	DV C

8	220KV-TENUGHAT-BIHARSARIFF-1	17-02-2026	13:25	17-02-2026	14:14	Z-1, B-Earth	Biharsariff: B-N, 1.15kA	R-Earth	<100 msec	Three phase tripping for phase to ground fault.			NO	NO	TVU NL	JUS NL
9	220KV-TTPS-TSTPP-1	17-02-2026	11:36	17-02-2026	15:14	TSTPP: Z1, R-Y, IR-6.5kA, IY-6.4kA, 19.5km	TTPS :Z-1, R-Y ph, 9.6 km, Ir 10.5 kA, Iy 10.6 kA	R-Y	<100 msec	As per PMU line tripped in phase to phase fault.			NO	NO	GRI DCO	NTP C
10	400KV-JHARSUGUDA-RAIGARH-4	15-02-2026	12:57	15-02-2026	14:59	Relay at Jharsuguda end: R-N FD-45km, FC-8.086 kA	-	R-Earth	<100 msec	As per PMU IA/r failed after 1 sec.			NO	NO	PG ODI SHA	PG WR
11	400KV-PPSP-BIDHANNAGAR-1	11-02-2026	13:41	11-02-2026	18:18	Bidhannagar:Z-1, B-n, FD:113.6 Km, FC:2.85 kA	PPSP :Z-1, B-n, FC:3.85 kA, FD:60.85 Km	B-Earth	<100 msec	Three phase tripping for phase to ground fault. A/r was under OFF condition.			YES	NO	WBS EDC L	WB SET CL

12	400KV-MAITHON-DURGAPUR-2	10-02-2026	14:36	10-02-2026	23:10	Maithon: Y_N, 9.4 km, 13.94 kA;	Durgapur: Y_N, 58.09 km, 3.1 kA	Y-Earth	<100 msec	A/r failed after 1 sec.			YES	YES	PG ER-II	PG ER-II
13	400KV-JHARSUGUDA-RAIGARH-1	08-02-2026	12:21	08-02-2026	15:41	JHARSUGUDA:-B-G FAULT, FD-110 km	-	B-Earth	<100 msec	Three phase tripping for phase to ground fault. A/r was under S/D.			YES	NO	PG ODI SHA	PG WR
14	400KV-MERAMUNDALI-LAPANGA-2	07-02-2026	15:20	07-02-2026	16:25	Meramundali: y-N, Z-1, 83.3km, 2.26kA,A/R Successful	Lapanga : Z-1 Y-N, 138.4km, 2.3 kA	Y-Earth	<100 msec	A/r successful from Meramundali end and A/r not attempted from Lapanga end further after 2.5 sec of the event PDR operated at Lapanga end. OPTCL may explain.			YES	YES	GRI DCO	GRI DCO
15	400KV-JEERAT-NEW JEERAT-1	06-02-2026	16:07	06-02-2026	16:45	Jeerat: tripped due to Pole discrepancy at Jeerat( WB end)		No Fault	N/A	Line tripped from Jeerat end only due to spurious Bus bar operation which led to tripping of Y & B pole, further after 2.5 sec PDR operated. WB may explain.			YES	YES	WBS ETC L	PG ER-II

16	220KV-PUSAULI-DEHRI-1	04-02-2026	12:05	04-02-2026	16:35	Sasaram: B_N, 37.7 km, 3.73 kA		B-Earth	<100 msec	Line tripped in reclaim time.			YES	NO	PG ER-I	BSP TCL
17	400KV-PATNA-BAKHTIYARPUR(BH)-2	03-02-2026	12:29	03-02-2026	15:11	86B relay faulty at Patna.	DT received at Bakhtiyarpur.	No Fault	NA	Three phase tripping from Patna end and DT send to remote end. PG ER-I may explain.			YES	NO	PG ER-I	BSP TCL

Name of the substation		OVERVOLTAGE % SETTING							
		LOCAL END(STAGE-I)		LOCAL END(STAGE-II)		REMOTE END(STAGE-I)		REMOTE END(STAGE-II)	
		VOLTAGE GARDIENT(% setting)	TIME DELAY(sec)	VOLTAGE GARDIENT(% setting)	TIME DELAY(sec)	VOLTAGE GARDIENT(% setting)	TIME DELAY(sec)	VOLTAGE GARDIENT(% setting)	TIME DELAY(sec)
Binaguri	400 KV Alipurduar- Binaguri -1	110	5	150	0.1	110	5	150	0.1
	400 KV Alipurduar- Binaguri -2	110	6	150	0.1	111	6	150	0.1
	400 KV Alipurduar- Binaguri -3	110	5	150	0.1	110	5	150	0.1
	400 KV Alipurduar- Binaguri -4	111	6	150	0.1	111	6	150	0.1
	400 KV Binaguri- Kishanganj -1	110	6	150	0.1	110	6	150	0.1
	400 KV Binaguri- Kishanganj -2	111	6	150	0.1	111	6	150	0.1
	400 KV Binaguri- Rangpo -1	110	6	150	0.1	110	5	150	0.1
	400 KV Binaguri- Rangpo -2	111	6	150	0.1	111	6	150	0.1
	400 KV New Purnea - Binaguri -1	110	5	150	0.1	110	5	150	0.1
	400 KV New Purnea - Binaguri -2	111	6	150	0.1	111	6	150	0.1
	400 KV Binaguri- Bongaigaon -1	110	5	150	0.1	-	-	-	-
	400 KV Binaguri- Bongaigaon -2	111	6	150	0.1	-	-	-	-
	400 KV Binaguri- Tala -1	110	5	150	0.1	-	-	-	-
	400 KV Binaguri- Tala -2	111	6	150	0.1	-	-	-	-
400 KV Binaguri- Tala -4	110	5	150	0.1	-	-	-	-	
400 KV Binaguri- Malbase -3	110	6	150	0.1	-	-	-	-	
Kishanganj	400 KV Saharsa - Kishanganj -1	110	5	150	0.1	110	5	150	0.1
	400 KV Saharsa - Kishanganj -2	111	6	150	0.1	111	6	150	0.1
	400 KV KISHANGANJ- Saharsha -3	110	5	150	0.1	110	5	150	0.1
	400 KV KISHANGANJ- Saharsha -4	111	6	150	0.1	111	6	150	0.1
	400 KV Binaguri- Kishanganj -1	110	5	150	0.1	110	6	150	0.1
	400 KV Binaguri- Kishanganj -2	111	6	150	0.1	111	6	150	0.1
	400 KV Kishanganj- Rangpo -1	111	6	150	0.1	110	5	150	0.1
	400 KV Kishanganj- Rangpo -2	110	6	150	0.1	111	6	150	0.1
	400 KV New Purnea - Kishanganj -1	110	5	150	0.1	110	5	150	0.1
400 KV New Purnea - Kishanganj -2	111	6	150	0.1	111	6	150	0.1	
Rangpo	400 KV Teesta V- Rangpo -1	110	3	150	0	110	7	140	0.1
	400 KV Teesta V- Rangpo -2	111	3	150	0	110	5	140	0.1
	400 KV Rangpo- Dikchu -1	110	5	150	0.1	110	5	0.1	0.1
	400 KV Rangpo- Teesta III -	107	3	150	0.1	110	5	0.1	0.1
	400 KV Binaguri- Rangpo -1	110	7	150	0.1	110	5	150	0.1
	400 KV Binaguri- Rangpo -2	111	7	150	0.1	111	6	150	0.1
	400 KV Kishanganj- Rangpo -1	110	5	150	0.1	110	5	150	0.1
	400 KV Kishanganj- Rangpo -2	111	6	150	0.1	111	6	150	0.1
PURNEA	400KV NEW PURNEA-GOKARNA	110	5	150	0.1	110	5	150	0.1
	400 KV Farakka- New Purnea -1	110	5	150	0.1	110	5	150	0.1
	400 KV Biharshariff- New Purnea -1	110	5	150	0.1	110	5	150	0.1
	400 KV Biharshariff- New Purnea -2	111	6	150	0.1	110	6	150	0.1
	400 KV Malda - New Purnea -1	111	5	150	0.1	111	5	150	0.1
	400 KV Malda - New Purnea -2	111	6	150	0.1	111	6	150	0.1
	400 KV New Purnea - Binaguri -1	110	5	150	0.1	110	5	150	0.1
	400 KV New Purnea - Binaguri -2	111	6	150	0.1	111	6	150	0.1

	400 KV New Purnea - Muzaffarpur -1	110	5	150	0.1	111	5	150	0.1
	400 KV New Purnea - Muzaffarpur -2	111	6	150	0.1	112	6	150	0.1
	400 KV New Purnea - Kishanganj -1	110	5	150	0.1	110	5	150	0.1
	400 KV New Purnea - Kishanganj -2	111	6	150	0.1	111	6	150	0.1
MALDA	400 KV Farakka- Malda -1	110	5	140	0.1	110	5	140	0.1
	400 KV Farakka- Malda -2	111	5	150	0.1	111	5	150	0.1
	400 KV Malda - New Purnea -1	111	5	150	0.1	111	5	150	0.1
	400 KV Malda - New Purnea -2	111	6	150	0.1	111	6	150	0.1
FARAKKA	400 KV Sagardighi- Farakka -1	110	5	140	0.1	110	5	140	0.1
	400 KV Sagardighi- Farakka -2	110	6	140	0.1	110	6	140	0.1
	400 KV Farakka- Malda -1	110	5	140	0.1	110	5	140	0.1
	400 KV Farakka- Malda -2	110	6	150	0.1	110	6	150	0.1
	400 KV Farakka- Baharampur -1	110	6	140	0.1	110	6	140	0.1
	400 KV Farakka- Baharampur -2	110	5	140	0.1	110	5	140	0.1
	400 KV Farakka- New Purnea -1	110	5	140	0.1	110	5	140	0.1
	400 KV Farakka- Rajarhat -1	111	6	140	0.1	111	6	140	0.1
	400 KV Kahalgaon B- Farakka -1	111	5	140	0.1	111	5	140	0.1
	400 KV Kahalgaon B- Farakka -2	111	6	140	0.1	111	6	140	0.1
Jeerat	400 KV Jeerat- Subhasgram -1	112	6	150	0.1	112	6	150	0.1
	400 KV Jeerat- Rajarhat -1	111	5	150	0.1	111	5	150	0.1
	400 KV Bakreshwar - Jeerat -2	110	6	150	0.1	110	6	150	0.1
	400 KV New Chanditala - Jeerat -1	110	5	150	0.1	110	5	150	0.1
	400 kV-Jeerat-New Jeerat-1	110	5	150	0.1	110	5	150	0.1
	400 kV-Jeerat-New Jeerat-2	111	6	150	0.1	111	6	150	0.1
	400 kV-Jeerat-Sagardighi-1	110	5	150	0.1	110	5	150	0.1
	400 kV-Jeerat-Sagardighi-2	111	6	150	0.1	111	6	150	0.1
Subhashgram	400 KV Jeerat- Subhasgram -1	112	6	150	0.1	112	6	150	0.1
	400 KV Rajarhat- Subhasgram -1	112	5	150	0.1	112	5	150	0.1
	400 KV New Jeerat- Subhasgram -1	110	5	150	0.1	110	5	150	0.1
	400 KV New Jeerat- Subhasgram -2	111	6	150	0.1	111	6	150	0.1
	400 KV Haldia- Subhasgram -1	111	5	150	0.1	111	5	150	0.1
	400 KV Haldia- Subhasgram -2	111	6	150	0.1	111	6	150	0.1
SAGARDIGHI	400 KV Sagardighi- Farakka -1	110	5	150	0.1	110	5	150	0.1
	400 KV Sagardighi- Farakka -2	111	6	150	0.1	111	6	150	0.1
	400 KV Sagardighi- Baharampur -1	110	5	150	0.1	110	5	150	0.1
	400 KV Sagardighi- Baharampur -2	110	6	150	0.1	110	6	150	0.1
	400 KV Jeerat- Sagardighi -1	110	5	150	0.1	110	5	150	0.1
	400 KV Jeerat- Sagardighi -1	111	6	150	0.1	111	6	150	0.1
	400 KV Sagardighi- Durgapur B -1	110	5	150	0.1	110	5	150	0.1
	400 KV Sagardighi- Durgapur B -2	111	6	150	0.1	111	6	150	0.1
Durgapur	400 KV Sagardighi- Durgapur B -1	110	5	150	0.1	110	5	150	0.1
	400 KV Sagardighi- Durgapur B -2	111	6	150	0.1	111	6	150	0.1
	400 KV Kahalgaon - Durgapur B -1	110	5	150	0.1	110	5	150	0.1
	400 KV Kahalgaon - Durgapur B -2	111	6	150	0.1	111	6	150	0.1
	400 KV Maithon A- Durgapur A -1	110	5	150	0.1	110	5	150	0.1
	400 KV Maithon A- Durgapur A -2	111	6	150	0.1	111	6	150	0.1
	400 KV Bidhannagar- Durgapur B -2	110	5	150	0.1	110	5	150	0.1

BIDHANNAGAR	400 KV Bidhannagar- New Chanditala -1	110	5	150	0.1	110	5	150	0.1
	400 KV PPSP- Bidhannagar -1	110	5	150	0.1	110	5	150	0.1
	400 KV PPSP- Bidhannagar -2	112	6	150	0.1	112	6	150	0.1
	400 KV Bidhannagar- Durgapur B -1	110	5	150	0.1	110	5	150	0.1
	400 KV Bidhannagar- Durgapur B -2	111	5	150	0.1	111	5	150	0.1
PPSP	400 KV PPSP-BIDHAN NAGAR-I	110	5	150	0.1	110	5	150	0.1
	400 KV PPSP-BIDHAN NAGAR-II	112	6	150	0.1	112	6	150	0.1
	400 KV PPSP-New PPSP-1	111	5	150	0.1	111	5	150	0.1
	400 KV PPSP-New PPSP-1	112	6	150	0.1	112	6	150	0.1
Arambagh	400 KV Bakreshwar - Arambagh -1	110	5	150	0.1	110	5	150	0.1
	400 KV Arambagh- New Chanditala -1	111	5	150	0.1	111	5	150	0.1
	400 KV Kolaghat TPS- Arambagh -1	110	6	150	0.1	110	6	150	0.1
	400 KV New PPSP - Arambagh -1	111	5	150	0.1	111	5	150	0.1
	400 KV New PPSP - Arambagh -2	112	6	150	0.1	112	6	150	0.1
Savgachia	Savgachia-Gokarna Ckt-I	110	5	150	0.1	110	5	150	0.1
	Savgachia-Gokarna Ckt-II	111	6	150	0.1	111	6	150	0.1
	Savgachia-New Chanditala Ckt-I	110	5	150	0.1	110	5	150	0.1
	Savgachia-New Chanditala Ckt-II	111	6	150	0.1	111	6	150	0.1
BAKRESWAR	400 KV BAKRESWAR-JEERAT	110	5	150	0.1	110	5	150	0.1
	400 KV BAKRESWAR-ARAMBAG	111	6	150	0.1	111	6	150	0.1
KOLAGHAT	400 KV Kolaghat TPS- Arambagh -1	111	6	150	0.1	111	6	150	0.1
	400 KV Kolaghat TPS- New Chanditala -1	110	6	150	0.1	110	6	150	0.1
	400 KV Kolaghat TPS- Kharagpur -1	110	5	150	0.1	110	5	150	0.1
	400 KV Kolaghat TPS- Kharagpur -1	111	6	150	0.1	111	6	150	0.1
KHARAGPUR	400 KV Chaibasa- Kharagpur -1	110	5	150	0.1	110	5	150	0.1
	400 KV Chaibasa- Kharagpur -2	111	5	150	0.1	111	5	150	0.1
	400 KV Medinipur- Kharagpur -1	110	5	150	0.1	110	5	150	0.1
	400 KV Medinipur- Kharagpur -2	111	5	150	0.1	111	5	150	0.1
	400 KV Kolaghat TPS- Kharagpur -1	111	5	150	0.1	111	5	150	0.1
	401 KV Kolaghat TPS- Kharagpur -1	111	6	150	0.1	111	6	150	0.1
	400 KV Baripada- Kharagpur -1	111	6	150	0.1	111	6	150	0.1
BARIPADA	400 KV TISCO- Baripada -1	111	5	150	0.1	111	5	150	0.1
	400 KV New Dubri- Baripada -1	111	5	150	0.1	111	5	150	0.1
	400 KV Baripada - Pandiabili -1	111	6	150	0.1	111	6	150	0.1
	400 KV Jamshedpur- Baripada -1	111	6	150	0.1	111	6	150	0.1
	400 KV Keonjhar- Baripada -1	110	5	150	0.1	110	5	150	0.1
	400 KV Baripada- Kharagpur -1	111	6	150	0.1	111	6	150	0.1
Jamshedpur	400 KV Adhunik- Jamshedpur -1	111	5	140	0.1	111	5	140	0.1
	400 KV Adhunik- Jamshedpur -2	111	6	140	0.1	111	6	140	0.1
	400 KV ANDAL- Jamshedpur -1	110	5	140	0.1	110	5	140	0.1
	400 KV ANDAL- Jamshedpur -2	111	6	140	0.1	111	6	140	0.1
	400 KV Mejia- Jamshedpur -1	111	5	140	0.1	111	5	140	0.1
	400 KV TISCO- Jamshedpur -1	111	5	150	0.1	111	5	150	0.1
	400 KV Jamshedpur - Chaibasa -1	110	5	140	0.1	110	5	140	0.1
	400 KV Jamshedpur - Chaibasa -2	110	6	140	0.1	110	6	140	0.1
	400 KV Jamshedpur- Baripada -1	111	6	150	0.1	111	6	150	0.1
400KV JAMSHEDPUR-DURGAPUR	110	5	140	0.1	110	5	140	0.1	

	400 KV Maithon A- Jamshedpur -1	110	6	140	0.1	110	6	140	0.1
CHAIBASA	400 KV Chaibasa- Kharagpur -1	110	5	150	0.1	110	5	150	0.1
	400 KV Chaibasa- Kharagpur -2	111	5	150	0.1	111	5	150	0.1
	400 KV Chaibasa- Rourkela -1	110	5	150	0.1	110	5	150	0.1
	400 KV Chaibasa- Rourkela -2	111	6	150	0.1	111	6	150	0.1
	400 KV Jamshedpur - Chaibasa -1	110	5	150	0.1	110	5	150	0.1
	400 KV Jamshedpur - Chaibasa -2	111	6	150	0.1	111	6	150	0.1
APNRL	400 KV APNRL-JAMSHEDPUR-I	111	5	140	0.1	111	5	140	0.1
	400 KV APNRL-JAMSHEDPUR -II	111	6	140	0.1	111	6	140	0.1
TISCO	400 KV TISCO-JAMSHEDPUR	111	5	150	0.1	111	5	150	0.1
	400 KV TISCO-BIRPADA	111	5	150	0.1	111	5	150	0.1
Maithon	400 KV Kahalgaon B- Maithon A -1	110	6	150	0.1	110	6	150	0.1
	400 KV Kahalgaon A- Maithon B -1	110	7	150	0.1	110	7	150	0.1
	400 KV MPL- Maithon A -1	111	5	150	0.1	111	5	150	0.1
	400 KV MPL- Maithon A -2	111	6	150	0.1	111	6	150	0.1
	400 KV Raghunathpur- Maithon A -1	110	5	150	0.1	110	5	150	0.1
	400 KV Mejia- Maithon B -2	110	5	150	0.1	110	5	150	0.1
	400 KV Mejia- Maithon B -3	111	5	150	0.1	111	5	150	0.1
	400 KV Mejia- Maithon B -1	111	6	150	0.1	111	6	150	0.1
	400 KV Maithon A- Jamshedpur -1	111	5	150	0.1	111	5	150	0.1
	400 KV Maithon A- Ranchi -1	110	5	150	0.1	110	5	150	0.1
	400 KV Maithon B- Gaya -1	110	5	150	0.1	110	5	150	0.1
	400 KV Maithon B- Gaya -2	111	6	150	0.1	111	6	150	0.1
	400 KV Maithon A- Durgapur A -1	110	5	150	0.1	110	5	150	0.1
400 KV Maithon A- Durgapur A -2	111	6	150	0.1	111	6	150	0.1	
Ranchi	400 KV Ranchi- Raghunathpur -2	112	7	150	0.1	112	7	150	0.1
	400 KV Ranchi- Raghunathpur -3	110	5	150	0.1	110	5	150	0.1
	400 KV Ranchi- Raghunathpur -1	110	5	150	0.1	110	5	150	0.1
	400 KV Dhanbad NKTL- Ranchi -	110	5	150	0.1	110	5	150	0.1
	400 KV Dhanbad NKTL- Ranchi -	111	6	150	0.1	111	6	150	0.1
	400 KV Maithon A- Ranchi -1	110	5	150	0.1	110	5	150	0.1
	400 KV Ranchi- Ranchi New -1	110	5	150	0.1	110	5	150	0.1
	400 KV Ranchi- Ranchi New -2	111	6	150	0.1	111	6	150	0.1
	400 KV Ranchi- Ranchi New -3	110	5	150	0.1	110	5	150	0.1
	400 KV Ranchi- Ranchi New -4	111	6	150	0.1	111	6	150	0.1
	400 KV Ranchi- Rourkela -1	110	5	150	0.1	110	5	150	0.1
	401 KV Ranchi- Rourkela -2	112	7	150	0.1	112	7	150	0.1
	400 KV Ranchi- Sipat -1	110	7	150	0.1	110	7	150	0.1
	400 KV Ranchi- Sipat -2	112	5	150	0.1	112	5	150	0.1
765/400 KV NEW RANCHI S/S	765KV NEW RANCHI-DHARAMJAIGARH-1	105	5	140	0.1	105	5	140	0.1
	765KV NEW RANCHI-DHARAMJAIGARH-2	106	6	140	0.1	106	6	140	0.1
	765KV NEW RANCHI-MEDINIPUR-1	105	5	140	0.1	105	5	140	0.1
	765KV NEW RANCHI-MEDINIPUR-2	106	6	140	0.1	106	6	140	0.1
	400 KV New Ranchi- New PPSP -1	111	5	150	0.1	111	5	150	0.1
	400 KV New Ranchi- New PPSP -2	111	7	150	0.1	111	7	150	0.1
	400 KV New Ranchi- Chandwa -1	110	5	150	0.1	110	5	150	0.1
400 KV New Ranchi- Chandwa -2	112	7	150	0.1	112	7	150	0.1	

	400 KV New Ranchi- Patratu -1	111	5	150	0.1	111	5	150	0.1
	400 KV New Ranchi- Patratu -2	112	6	150	0.1	112	6	150	0.1
	400 KV Ranchi- Ranchi New -1	110	5	150	0.1	110	5	150	0.1
	400 KV Ranchi- Ranchi New -2	110	7	150	0.1	110	7	150	0.1
	400 KV Ranchi- Ranchi New -3	112	5	150	0.1	112	5	150	0.1
	400 KV Ranchi- Ranchi New -4	112	7	150	0.1	112	7	150	0.1
CHANDWA	400 KV North Karanpura- Chandwa -1	111	6	150	0.1	111	6	150	0.1
	400 KV North Karanpura- Chandwa -2	112	7	150	0.1	112	7	150	0.1
	400 KV New Ranchi- Chandwa -1	110	5	150	0.1	110	5	150	0.1
	400 KV New Ranchi- Chandwa -2	111	6	150	0.1	111	6	150	0.1
	400 KV Gaya- Chandwa -1	110	5	150	0.1	110	5	150	0.1
	400 KV Gaya- Chandwa -2	111	6	150	0.1	111	6	150	0.1
	400 KV Chandwa- Latehar New -2	110	5	150	0.1	110	5	150	0.1
MAITHON RIGHT BANK	400 KV Chandwa- Latehar New -1	110	6	150	0.1	110	6	150	0.1
	400 KV MPL- Maithon A -1	110	5	150	0.1	110	5	150	0.1
	400 KV MPL- Maithon A -2	111	6	150	0.1	111	6	150	0.1
	400 KV Dhanbad NKTL- MPL -1	110	6	150	0.1	110	6	150	0.1
DSTPS	400 KV Dhanbad NKTL- MPL -2	111	6	150	0.1	111	6	150	0.1
	400 KV DSTPS- Jamshedpur -1	110	5	140	0.1	110	5	140	0.1
	400 KV DSTPS- Jamshedpur -2	111	6	140	0.1	111	6	140	0.1
	400 KV DSTPS- Raghunathpur -1	111	5	150	0.1	111	5	150	0.1
KODERMA	400 KV DSTPS- Raghunathpur -2	111	6	150	0.1	111	6	150	0.1
	400 KV Biharshariff- Koderma -1	110	5	150	0.1	110	5	150	0.1
	400 KV Biharshariff- Koderma -2	111	5	150	0.1	111	5	150	0.1
	400 KV Gaya- Koderma -1	110	6	150	0.1	110	6	150	0.1
	400 KV Gaya- Koderma -2	111	6	150	0.1	110	6	150	0.1
	400 KV Bokaro- Koderma -1	111	6	150	0.1	111	6	150	0.1
BOKARO-A	400 KV Bokaro- Koderma -2	111	7	150	0.1	111	7	150	0.1
	400KV BOKARO-A-KODERMA-I	111	6	150	0.1	111	6	150	0.1
Mejia	400KV BOKARO-A-KODERMA-II	111	7	150	0.1	111	7	150	0.1
	400 KV Mejia- Maithon B -2	110	5	150	0.1	110	5	150	0.1
	400 KV Mejia- Maithon B -3	111	5	150	0.1	111	5	150	0.1
	400 KV Mejia- Maithon B -1	111	6	150	0.1	111	6	150	0.1
RAGHUNATHPUR	400 KV Mejia- Jamshedpur -1	111	5	150	0.1	111	5	150	0.1
	400 KV Ranchi- Raghunathpur -2	110	5	150	0.1	110	5	150	0.1
	400 KV Ranchi- Raghunathpur -3	111	5	150	0.1	111	5	150	0.1
	400 KV Ranchi- Raghunathpur -1	111	6	150	0.1	111	6	150	0.1
	400 KV Raghunathpur- Maithon A -1	110	5	150	0.1	110	5	150	0.1
	400 KV DSTPS- Raghunathpur -1	111	5	150	0.1	111	5	150	0.1
PANDIABILLI	400 KV DSTPS- Raghunathpur -2	111	6	150	0.1	111	6	150	0.1
	400 KV PANDIABILLI-MENDASAL-I	110	5	150	0.1	110	5	150	0.1
	400 KV PANDIABILLI-MENDASAL-II	111	6	150	0.1	111	6	150	0.1
	400 KV PANDIABILLI-N.DUBURI	110	5	150	0.1	110	5	150	0.1
	400 KV PANDIABILLI - BARIPADA	110	5	150	0.1	111	5	150	0.1
	400 KV MEERAMUNDALI-TALCHER-1	113%	5	140%	0.1	113%	5	140%	0.1
	401 KV MEERAMUNDALI-TALCHER-2	113%	4	142%	0.1	113%	4	142%	0.1
	400 KV MEERAMUNDALI-JINDAL-I	110%	5	140%	0.1	110%	5	140%	0.1

MEERAMUNDALI	400 KV MEERAMUNDALI-JINDAL-II	110%	4	142%	0.1	110%	4	142%	0.1
	400 KV MEERAMUNDALI-ANGUL-I	105%	3	140%	0.1	105%	3	140%	0.1
	400KV MERAMUNDALI-GMR	110%	5	140%	0.1	110%	5	140%	0.1
	400 KV MERAMUNDALI-LAPANGA -I	110%	5	140%	0.1	110%	5	140%	0.1
	401 KV MERAMUNDALI-LAPANGA -II	110%	4	142%	0.1	110%	4	142%	0.1
	400 KV MERAMUNDALI-N.DUBURI -I	110%	5	140%	0.1	110%	5	140%	0.1
	400 KV MERAMUNDALI-N.DUBURI -II	110%	4	142%	0.1	110%	4	142%	0.1
	400KV MERAMUNDALI-MENDHASAL-1	110%	5	140%	0.1	110%	5	140%	0.1
	400KV MERAMUNDALI-MENDHASAL-2	110%	4	142%	0.1	110%	4	142%	0.1
ANGUL	400 KV ANGUL-MEERAMUNDALI-I	108%	5	149%	0.1	108%	5	149%	0.1
	400KV ANGUL-BOLANGIR	110%	4	142%	0.1	110%	4	142%	0.1
	400 KV ANGUL-JITPL-II	109%	5	150%	0.1	109%	5	150%	0.1
	400 KV ANGUL-JITPL-I	109%	4	139%	0.1	109%	4	139%	0.1
	400KV ANGUL-GMR-I	110%	5	150%	0.1	110%	5	150%	0.1
	400KV ANGUL-GMR-II	110%	6	150%	0.1	110%	6	150%	0.1
	765kV Angul-Jharsuguda-I	108%	6	150	0.1	108%	6	150	0.1
	765kV Angul-Jharsuguda-II	108%	5	150	0.1	108%	5	150	0.1
JITPL	400 KV JITPL-ANGUL-I	109%	5	150%	0.1	109%	5	150%	0.1
	400 KV JITPL-ANGUL-II	109%	4	139%	0.1	109%	4	139%	0.1
BOLANGIR	400 KV BOLANGIR-ANGUL	110.08	5	150.08	0.1	110.08	5	150.08	0.1
	400 KV BOLANGIR-JEYPORE	110.08	5	150.08	0.1	110.08	5	150.08	0.1
Jeypore	400 KV Jeypore - Indravati -1	110	5	140	0.1	110	5	140	0.1
	400 KV Jeypore - Bolangir -1	110	5	150	0.1	110	5	150	0.1
	400 KV Jeypore- Gazuwaka -1	110	5	140	0.1	110	5	140	0.1
	400 KV Jeypore- Gazuwaka -2	110	10	140	0.1	110	10	140	0.1
	400 KV Jeypore- Jagdalpur -1	110	5	140	0.1	110	5	140	0.1
	400 KV Jeypore- Jagdalpur -2	111	6	142	0.1	111	6	142	0.1
INDRAVATI(PG)	400 KV INDRAVATI-JEYPORE	110	5	150	0.1	110	5	150	0.1
	400 KV INDRAVATI-RENGALI	110	5	150	0.1	110	5	150	0.1
INDRAVATI(GR)	400 KV INDRAVATI(GR)-INDRAVATI(PG)	110	5	150	0.1	110	5	150	0.1
Rengali	400 KV RENGALI-INDRAVATI(PG)	110.24	5	149.68	0.1	110.24	5	149.68	0.1
	400 KV RENGALI-KEONJHAR	110.24	5	150.08	0.1	110.24	5	150.08	0.1
	400 KV RENGALI-TALCHER-I	110.24	6	141.73	0.1	110.24	6	141.73	0.1
	400 KV RENGALI-TALCHER-II	110.24	6	141.73	0.1	110.24	6	141.73	0.1
KEONJHOR	400 KV KEONJHAR-RENGALI	110%	5	150%	0.1	110%	5	150%	0.1
	400 KV KEONJHAR-BIRPADA	110%	5	150%	0.1	110%	5	150%	0.1
Talcher	400 KV Talcher-Rourkela-I	110%	5	140%	0.1	110%	5	140%	0.1
	400 KV Talcher-Rourkela-II	110%	5	140%	0.1	110%	5	140%	0.1
	400 KV Talcher-Rengali-I	110%	4	140%	0.1	110%	4	140%	0.1
	400 KV Talcher-Rengali-II	110%	5	140%	0.1	110%	5	140%	0.1

	400 KV Talcher-MERAMUNDALI	110%	5	140%	0.1	110%	5	140%	0.1
	400 KV Talcher-ANGUL	110%	5	140%	0.1	110%	5	140%	0.1
Rourkela	400 KV ROURKELLA-JHARSHUGUDA-I	110%	5	150%	0.1	110%	5	150%	0.1
	400 KV ROURKELLA-JHARSHUGUDA-II	110%	5	150%	0.1	110%	5	150%	0.1
	400 KV ROURKELLA-RAIGARH	111%	6	150%	0.1	111%	6	150%	0.1
	400 KV ROURKELLA-STERLITE-II	111%	6	150%	0.1	111%	6	150%	0.1
	400 KV ROURKELLA-TALCHER-I	110%	5	150%	0.1	110%	5	150%	0.1
	400 KV ROURKELLA-TALCHER-II	111%	6	150%	0.1	111%	6	150%	0.1
	400 KV ROURKELLA-CHAIBASA-I	110%	5	150%	0.1	110%	5	150%	0.1
	400 KV ROURKELLA-CHAIBASA-II	111%	6	150%	0.1	111%	6	150%	0.1
	400 KV ROURKELLA-RANCHI-I	110%	5	150%	0.1	110%	5	150%	0.1
400 KV ROURKELLA-RANCHI-II	111%	6	150%	0.1	111%	6	150%	0.1	
Jharshuguda	400KV JHSUGUDA-ROURKELA-I	109	4	140	0.1	109	4	140	0.1
	400KV JHSUGUDA-ROURKELA-II	110	6	140	0.1	110	6	140	0.1
	400KV JHSUGUDA-ROURKELA-III	109	5	140	0.1	109	5	140	0.1
	400KV JHSUGUDA-ROURKELA-IV	110	7	140	0.1	110	7	140	0.1
	400 KV JHARSHUGUDA-RAIGARH -I	109	4	140	0.1	109	4	140	0.1
	400 KV JHARSHUGUDA-RAIGARH -II	110	6	140	0.1	110	6	140	0.1
	400 KV JHARSHUGUDA-RAIGARH -III	109	5	140	0.1	109	5	140	0.1
	400 KV JHARSHUGUDA-RAIGARH -IV	110	7	140	0.1	110	7	140	0.1
	400 KV JHARSHUGUDA-OPGC -I	109	5	140	0.1	109	5	140	0.1
	400 KV JHARSHUGUDA-JSWEUL	109	7	140	0.1	109	7	140	0.1
	400 KV JHARSHUGUDA-STERLITE-I	110	6	140	0.1	110	6	140	0.1
	400 KV JHARSHUGUDA-STERLITE-II	110	8	140	0.1	110	8	140	0.1
	765kV JHARSUGUDA-ANGUL-I	108	5	150	0.1	108	5	150	0.1
	765kV JHARSUGUDA-ANGUL-II	109.5	7	150	0.1	109.5	7	150	0.1
	765kV JHARSUGUDA-ANGUL-III	108	6	150	0.1	108	6	150	0.1
	765kV JHARSUGUDA-ANGUL-IV	110	8	150	0.1	110	8	150	0.1
	765kV JHARSUGUDA-NTPC DARLIPALI-I	110	7	150	0.1	110	7	150	0.1
	765kV JHARSUGUDA-NTPC DARLIPALI-II	110	8	150	0.1	110	8	150	0.1
	765kV JHARSUGUDA-RAIPUR-I	108	5	150	0.1	108	5	150	0.1
	765kV JHARSUGUDA-RAIPUR-II	108	6	150	0.1	108	6	150	0.1
765kV JHARSUGUDA-DHARAMJAYGARH-I	108	5	150	0.1	108	5	150	0.1	
765kV JHARSUGUDA-DHARAMJAYGARH-II	109.5	7	150	0.1	109.5	7	150	0.1	
765kV JHARSUGUDA-DHARAMJAYGARH-III	108	6	150	0.1	108	6	150	0.1	
765kV JHARSUGUDA-DHARAMJAYGARH-IV	109.5	8	150	0.1	109.5	8	150	0.1	
BIHARSHARIFF	400 KV Biharshariff- Koderma -1	110	5	150	0.1	110	5	150	0.1
	400 KV Biharshariff- Koderma -2	111	6	150	0.1	111	6	150	0.1
	400 KV Lakhisarai- Biharshariff -1	110	5	150	0.1	110	5	150	0.1
	400 KV Lakhisarai- Biharshariff -2	111	6	150	0.1	111	6	150	0.1
	400 KV Banka- Biharshariff -1	110	5	150	0.1	110	5	150	0.1
	400 KV Banka- Biharshariff -2	111	6	150	0.1	111	6	150	0.1
	400 KV Biharshariff- Pusauli -1	110	5	150	0.1	110	5	150	0.1
	400 KV Biharshariff- Pusauli -2	111	6	150	0.1	111	6	150	0.1
	400 KV Biharshariff- Muzaffarpur -1	110	5	150	0.1	110	5	150	0.1
	400 KV Biharshariff- Muzaffarpur -2	111	6	150	0.1	111	6	150	0.1
400 KV Biharshariff- New Purnea -1	110	5	150	0.1	110	5	150	0.1	

	400 KV Biharshariff- New Purnea -2	111	6	150	0.1	111	6	150	0.1	
	400 KV Biharshariff- Balia -1	110	5	150	0.1	110	5	150	0.1	
	400 KV Biharshariff- Balia -2	111	6	150	0.1	111	6	150	0.1	
	400 KV Biharshariff- Sahupuri(Chandauli) -1	110	5	150	0.1	110	5	150	0.1	
	400 KV Biharshariff- Sahupuri(Chandauli) -2	111	6	150	0.1	111	6	150	0.1	
Kahalgaon	400 KV KhSTPP-BANKA -I	110%	6	140%	0.1	110%	6	140%	0.1	
	400 KV KhSTPP-BANKA - II	112%	7	140%	0.1	112%	7	140%	0.1	
	400 KV KhSTPP - LAKHISARAI- I	112%	7	140%	0.1	112%	7	140%	0.1	
	400 KV KhSTPP - LAKHISARAI- II	112%	5	140%	0.1	112%	5	140%	0.1	
	400 KV KhSTPP-MAITHON -I	112%	5	140%	0.1	112%	5	140%	0.1	
	400 KV KhSTPP-MAITHON -II	110%	5	140%	0.1	110%	5	140%	0.1	
	400 KV KhSTPP-BARH- I	110%	6	140%	0.1	110%	6	140%	0.1	
	400 KV KhSTPP-BARH- II	110%	6	140%	0.1	110%	6	140%	0.1	
	400 KV KHSTPP-FKK-I	110%	5	140%	0.1	110%	5	140%	0.1	
	400 KV KHSTPP-FKK-II	112%	5	140%	0.1	112%	5	140%	0.1	
	400 KV KHSTPP-DGP-I	110%	5	150%	0.1	110%	5	150%	0.1	
	400 KV KHSTPP-DGP-II	111%	6	150%	0.1	111%	6	150%	0.1	
	Barh	400 KV BARH-KAHALGAON-I	110%	6	140%	0.1	110%	6	140%	0.1
		400 KV BARH-KAHALGAON-II	110%	6	140%	0.1	110%	6	140%	0.1
400 KV BARH - BAKHTIYARPUR-I		110%	6	140%	0.1	110%	6	140%	0.1	
400 KV BARH - BAKHTIYARPUR-II		110%	6	140%	0.1	110%	6	140%	0.1	
400 KV BARH - PATNA-III		110%	6	140%	0.1	110%	6	140%	0.1	
400 KV BARH - PATNA-IV		110%	6	140%	0.1	110%	6	140%	0.1	
400 KV BARH - MOTIHARI-I		110%	6	140%	0.1	110%	6	140%	0.1	
400 KV BARH - MOTIHARI-II		110%	6	140%	0.1	110%	6	140%	0.1	
PATNA	400 KV PATNA-BAKHTIYARPUR-I	112	6	150	0.1	112	6	150	0.1	
	400 KV PATNA-BAKHTIYARPUR-II	112	7	150	0.1	112	7	150	0.1	
	400 KV PATNA-BARH-III	110	4	150	0.1	110	4	150	0.1	
	400 KV PATNA-BARH-IV	110	5	150	0.1	110	5	150	0.1	
	400KV PATNA-SAHARSA-1	112	7	150	0.1	112	7	150	0.1	
	400KV PATNA-SAHARSA-2	111	5	150	0.1	111	5	150	0.1	
	400 KV PATNA - BALIA - I	110	5	150	0.1	110	5	150	0.1	
	400 KV PATNA - BALIA - II	112	6	150	0.1	112	6	150	0.1	
	400 KV PATNA - BALIA - III	110	5	150	0.1	110	5	150	0.1	
	400KV PATNA-NAUBATPUR	112	6	150	0.1	112	6	150	0.1	
	400KV PATNA-JAKKANPUR-1	111	6	150	0.1	111	6	150	0.1	
	400KV PATNA-JAKKANPUR-2	110	5	150	0.1	110	5	150	0.1	
Sasaram	765KV SASARAM-FATEHPUR	109	5	140	0.1	109	5	140	0.1	
	400 KV PUSAULI - VARANASI	112	7	150	0.1	112	7	150	0.1	
	400 KV PUSAULI - ALLAHABAD	112	7	150	0.1	112	7	150	0.1	
	400 KV PASAULI-BIHARSHARIFF-I	110	5	150	0.1	110	5	150	0.1	
	400 KV PASAULI-BIHARSHARIFF-II	112	5	150	0.1	112	5	150	0.1	
	400KV PUSAULI-NABINAGAR-I	110	5	150	0.1	110	5	150	0.1	
	400KV PUSAULI-NABINAGAR-II	110	6	150	0.1	110	6	150	0.1	
	400KV DALTONGANJ-SASARAM-1	110	5	150	0.1	110	5	150	0.1	
	400KV DALTONGANJ-SASARAM-2	111	6	150	0.1	111	6	150	0.1	
	400 KV GAYA-KODERMA-I	110	5	150	0.1	110	5	150	0.1	

Gaya	400KV GAYA-KODERMA-II	111	6	150	0.1	111	6	150	0.1
	400KV GAYA-MAITHON-I	110	5	150	0.1	110	5	150	0.1
	400KV GAYA-MAITHON-II	111	6	150	0.1	111	6	150	0.1
	400KV GAYA-CHANDWA-1	110	5	150	0.1	110	5	150	0.1
	400KV GAYA-CHANDWA-2	111	6	150	0.1	111	6	150	0.1
	400KV GAYA-CHANDAUTI-1	110	5	150	0.1	110	5	150	0.1
	400KV GAYA-CHANDAUTI-2	111	6	150	0.1	111	6	150	0.1
	765 KV GAYA-VARANASI-I	105	5	140	0.1	105	5	140	0.1
	765 KV GAYA-VARANASI-II	106	6	140	0.1	106	6	140	0.1
765 KV GAYA-BALIA	105	5	140	0.1	105	5	140	0.1	
BANKA	400 KV BANKA-BIHARSHARIFF-I	110	5	150	0.1	110	5	150	0.1
	400 KV BANKA-BIHARSHARIFF-II	111	6	150	0.1	111	6	150	0.1
	400 KV BANKA-KAHALGAON-I	110	5	150	0.1	110	5	150	0.1
	400 KV BANKA-KAHALGAON-II	111	6	150	0.1	111	6	150	0.1
Muzaffarpur	400 KV MUZAFFARPUR - NEW PURNEA - I	111	5	150	0.1	111	5	150	0.1
	400 KV MUZAFFARPUR - NEW PURNEA - II	112	6	150	0.1	112	6	150	0.1
	400 KV MUZAFFARPUR - GORAKHPUR - I	111	6	150	0.1	111	6	150	0.1
	400 KV MUZAFFARPUR - GORAKHPUR - II	110	5	150	0.1	110	5	150	0.1
	400 KV MUZAFFARPUR - BIHARSHARIFF - I	110	6	150	0.1	110	6	150	0.1
	400 KV MUZAFFARPUR - BIHARSHARIFF - II	111	6	150	0.1	111	6	150	0.1
	400KV MUZAFFARPUR-NEPAL-1	110	5	150	0.1	110	5	150	0.1
	400KV MUZAFFARPUR-NEPAL-2	111	6	150	0.1	111	6	150	0.1
	400KV MUZAFFARPUR-DARBHANGA-1	111	6	150	0.1	111	6	150	0.1
400KV MUZAFFARPUR-DARBHANGA-2	110	5	150	0.1	110	5	150	0.1	
LAKHISARAI	400 KV LAKHISARI-BIHARSHARIFF-I	110	5	150	0.1	110	5	150	0.1
	400 KV LAKHISARI-BIHARSHARIFF-II	111	6	150	0.1	111	6	150	0.1
	400 KV LAKHISARAI-KAHALGAON-I	110	5	150	0.1	110	5	150	0.1
	400 KV LAKHISARI-KAHALGAON-II	111	6	150	0.1	111	6	150	0.1
Medinipur	765kV-Medinipur-New Ranchi-1	108%	5	140%	0.1	108%	5	140%	0.1
	765kV-Medinipur-New Ranchi-2	108%	6	140%	0.1	108%	6	140%	0.1
	765kV-Medinipur-New Jeerat-1	109%	5	140%	0.1	109%	5	140%	0.1
	765kV-Medinipur-New Jeerat-2	109%	6	140%	0.1	109%	6	140%	0.1
400/220/33 KV GSS NEW DUBURI	400KV NEW DUBURI -MERAMUNDALI-1	110%	5	140%	0.1	110%	5	140%	0.1
	400KV NEW DUBURI -MERAMUNDALI-2	110%	5	140%	0.1	110%	5	140%	0.1
	400KV NEW DUBURI -PANDIABIL	110%	5	150%	0.1	110%	5	150%	0.1
	400KV NEW DUBURI -BARIPADA	110%	5	150%	0.1	110%	5	150%	0.1
	400KV NEW DUBURI-TATA-1	110%	5	140%	0.1	110%	5	140%	0.1
	400KV NEW DUBURI-TATA-2	110%	5	140%	0.1	110%	5	140%	0.1
400KV CHANDAUTI	400KV GAYA-CHANDAUTI-1	110	5	150	0.1	110	5	150	0.1
	400KV GAYA-CHANDAUTI-2	111	6	150	0.1	111	6	150	0.1
	400KV CHANDAUTI-NABINAGAR-1	110	5	150	0.1	110	5	150	0.1
	400KV CHANDAUTI-NABINAGAR-2	111	6	150	0.1	111	6	150	0.1
400KV SAHARSA	400KV KISHENGANJ-SAHARSA-1	110	5	150	0.1	110	5	150	0.1
	400KV KISHENGANJ-SAHARSA-2	111	6	150	0.1	111	6	150	0.1
	400KV KISHENGANJ-SAHARSA-3	112	5	150	0.1	112	5	150	0.1
	400KV KISHENGANJ-SAHARSA-4	112	7	150	0.1	112	7	150	0.1
	400KV PATNA-SAHARSA-1	110	5	150	0.1	110	5	150	0.1
	400KV PATNA-SAHARSA-2	111	6	150	0.1	111	6	150	0.1

	400KV SAHARSA-DARBHANGA-1	110	5	150	0.1	110	5	150	0.1
	400KV SAHARSA-DARBHANGA-2	111	6	150	0.1	111	6	150	0.1
400KV SITAMARHI	400KV SITAMARHI-DARBHANGA-1	110	5	150	0.1	110	5	150	0.1
	400KV SITAMARHI-DARBHANGA-2	111	6	150	0.1	111	6	150	0.1
	400KV SITAMARHI-MOTIHARI-1	110	5	150	0.1	110	5	150	0.1
	400KV SITAMARHI-MOTIHARI-2	111	6	150	0.1	111	6	150	0.1

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 Tripping				NA	NA	NA	NA

Dependability Index $D = Nc / (Nc + Nf)$	NA
Security Index $S = Nc / (Nc + Nu)$	NA
Reliability Index $R = Nc / (Nc + Ni)$	NA

*Chatterjee* 2/3/26  
 Signature of Area Engineer

पराग चटर्जी / Parag Chatterjee  
 वरिष्ठ प्रबंधक (प्र. एवं अनु./वि.अनु. विभाग)  
 Sr. Manager (O&M/EMD)  
 एनटीपीसी लि. बारह / NTPC Ltd., Barh

*Kanishka Ranjan* 2/3/26  
 Signature of Area in-charge

कनिष्का रंजन / KANISHKA RANJAN  
 उप महाप्रबंधक (प्र. एवं अनु./विद्युत अनुसंधान विभाग)  
 Dy. General Manager (O&M/EMD)  
 एनटीपीसी लि. बारह / NTPC Ltd., Barh

PG ER1

Protection Performance Indices for the month of Feb'26 (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							
1	220KV DEHRI(BSPTCL)-SASARAM-1	04-02-2026	12:05:00	04-02-2026	16:35:00	Other Utility	TRIPPED FROM BOTH ENDS DUE TO B-N FAULT, FAULT DETAILS, DEHRI (SITE DETAILS)-FD-16.95KM FC-4.79KA, FAULT UNDER BSPTCL JURISDICTION	NA	1	NA	0	NA	0	1	1	1		
2	400 KV JAMSHEDPUR-CHAIBASA-1	28-02-2026	15:13:00	28-02-2026	16:34:00	TRIPPED FROM BOTH ENDS ON R-N FAULT . JAMSHEDPUR (SITE):M1-FD-10.4KM, FC-20.7KA. FLASHOVER DUE TO FIRE UNDER THE CONDUCTOR BETWEEN LOC 7 & 8		1	1	0	0	0	0	1	1	1		
3	400KV BAKHTIYARPUR-PATNA -2	03-02-2026	12:29:00	03-02-2026	15:11:00	Other Utility	LINE TRIPPED DUE TO OPERATION OF MASTER TRIP RELAY AT PATNA SS.	NA	0	NA	1	NA	0	0	0	0	0	Line got tripped during testing of Busbar Protection Relay of 400kV Bus-2 which was under planned shutdown due to wiring issue in Group Relay Circuit. The same has been rectified during shutdown.
4	400KV GAYA MAITHON-1	24-02-2026	03:32:00	24-02-2026	03:32:00	A/R SUCCESSFUL FROM BOTH ENDS DUE TO Y-N FAULT DUE TO THUNDERSTORM & LIGHTENING AROUND FAULT AREA. GAYA(SITE):- M1-FC-2.20KA,FD-155.8KM.		1	NA	0	NA	0	NA	1	1	1		
5	400KV NEW RANCHI-CHANDWA-1	23-02-2026	22:03:00	23-02-2026	22:03:00	A/R SUCCESSFUL FROM BOTH ENDS DUE TO R-N FAULT DUE TO THUNDERSTORM & LIGHTENING AROUND FAULT AREA. NEW RANCHI (SITE):- M1-FD-55.9KM,FC-6.13KA.		1	1	0	0	0	0	1	1	1		

List of important transmission lines in ER which tripped in February-2026															END-A					END-B										
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)	DREL RECEIVED FROM LOCAL END	DREL RECEIVED FROM REMOTE END	LOCAL END UTILITY	REMOTE END UTILITY	UTILITY RESPONSE	Nc	Nu	Nf	Dependability Index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nu+Nf))	Nc	Nu	Nf	Dependability Index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nu+Nf))	
1	400KV-BINAGURI-NORBUGANG-1	25-02-2026	12:45	01-03-2026	17:13	Binaguri end: F/D:110.1K.M, F/C:3.090KA (A/R Successful on Y-N fault)	Norbugang end :Distance protection op/d(ZI@6.849km) YN Fault - F/C:3.88KA	Y-Earth	<100 msec	A/r successful from Binaguri end and three phase tripping from Bhutan end.			YES	NO	PG ER-II	BHUTAN	A/R was successful at Binaguri end. Protection operated properly at PG ER-II end.	1				1	1	1						NA
2	400KV-MEDINIPUR-KHARAGPUR-2	24-02-2026	02:57	24-02-2026	03:51	R_N , 6.001 KA , 42.56 KM from Medinipur	Kharagpur end - Zone 1, M1 - 70 km , 4.07 kA , M2 - 69.83 km , 4.12 kA	R-Earth	<100 msec	Three phase tripping for phase to ground fault. PG ER-II and WB may explain.			YES	YES	PG ER-II	WBSETCL	Fault was single phase type & single phase trip was issued at Medinipur end. However, DT was received after 66ms. Hence, 3 phase trip happened. Protection operated properly at PG ER-II end.	1				1	1	1						NA
3	400KV-MAITHON-DURGAPUR-2	10-02-2026	14:36	10-02-2026	23:10	Maithon: Y_N, 9.4 km, 13.94 kA;	Durgapur: Y_N, 58.09 km, 3.1 kA	Y-Earth	<100 msec	A/r failed after 1 sec.			YES	YES	PG ER-II	PG ER-II	A/R attempted & 3 phase trip happened due to persisting fault in line. Protection operated properly at PG ER-II end.	1				1	1	1	1			1	1	1
4	400KV-JEERAT-NEW JEERAT-1	06-02-2026	16:07	06-02-2026	16:45	Jeerat: tripped due to Pole discrepancy at Jeerat( WB end)		No Fault	N/A	Line tripped from Jeerat end only due to spurious Bus bar operation which led to tripping of Y & B pole. further after 2.5 sec PDR operated. WB may explain.			YES	YES	WBSETCL	PG ER-II	No issue at New Jeerat end.					NA		1				1	1	1

Protection Performance Indices for the month of February'26																	
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 (/Rectification)
						End A	End B	End A	End B	End A	End B	End A	End B				
1	220KV-KARAMNASHA (NEW)-SAHUPURI-1	27-02-2026	10:11	27-02-2026	16:56	Karamnasa end: R-ph, FC:3.29 kA, FD:45.9 Km, Z-2;		1		0		0		1	1	1	carrier not received at Karmnasha end from sahpuri end. <b>Karmnasha end operated correctly</b>
2	220KV-NEW PURNEA-MADHEPURA-1	24-02-2026	13:35	24-02-2026	11:47	New Purnea end: Y_N, 60.1 km, 2.07 kA	Madhepura: Y_B, Zone -1, fault distance 65.59km, Fault current Iy-1.291kA, Ib-3.373kA	1	1	0	0	0	0	1	1	1	
3	220KV-TENUGHAT-BIHARSARIFF-1	17-02-2026	13:25	17-02-2026	14:14		Biharsariff: B-N, 1.15kA			1		0	0	1	1	1	Tenughat end communication not ready. <b>Biharsariff end operated correctly.</b>
4	220KV-PUSAULI-DEHRI-1	04-02-2026	12:05	04-02-2026	16:35		Dehri: B_N, 37.7 km, 3.73 kA			1		0	0	1	1	1	

Protection Performance Indices for the month of FEB'26 (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	Jeerat-New Jeerat #1	06.02.2026	16:07:00	06.02.2026	16:56:00	Tripped during Busbar Testing		0	1	0	0	#	0	0			
2	Durgapur-PPSP #1	11.02.2026	13:41:00	11.02.2026	18:18:00	Zone-1,B-Phase,C5,CR,3 phase Trip		1	0	0	0	1	1	1			Auto reclose Kept off From PPSP end.
3	Kharagpur-Midnapore PG # 2	24.02.2026	02:57:00	24.02.2026	03:51:00	Zone-1,R-Phase,C5,CR,3 phase Trip		0	1	0	0	#	0	0			CB Unhealthy signal persisted due to Cable damage of CB healthy signal from Mechanism Cubicle to Marshalling Cubicle
4	Jeerat-Sagardighi #1	24.02.2026	05:09:00	24.02.2026	09:18:00	DT received		1	0	0	0	1	1	1			
5	315 MVA TR#2 at Jeerat	24.02.2026	05:09:00	24.02.2026	21:31:00	Differential Trip		1	0	0	0	1	1	1			HV Side R Phase CT Burst
6	Kharagpur-Chalbasa # 1	28.02.2026	13:16:00	28.02.2026	18:46:00	Zone-1,Y-Phase,C5,A/R Close,A/R L/O		1	0	0	0	1	1	1			





# Tashiding HEP

Tashiding Hydro Electric Project 2 X 48.5 MW																		
Protection Performance Indices for the FEBRUARY -2026 (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- Legship Line-1	24-02-2026	23:00	24-02-2026	00:00	--	--	--	--	--	--	--	--	--	--	--	HV Test of GIS Extension Bay 215&216 under TL01 Package at Rangpo S/S.	--
2	220KV Tashiding- New Mell Line-2	24-02-2026	23:00	24-02-2026	00:00													
3	220KV Tashiding- Legship Line-1	25-02-2026	00:00	25-02-2026	05:47													
4	220KV Tashiding- New Mell Line-2	25-02-2026	00:00	25-02-2026	05:47													
5	220KV Tashiding- Legship Line-1	25-02-2026	22:51	25-02-2026	00:00													
6	220KV Tashiding- New Mell Line-2	25-02-2026	22:51	25-02-2026	00:00													
7	220KV Tashiding- Legship Line-1	26-02-2026	00:00	26-02-2026	05:00													
8	220KV Tashiding- New Mell Line-2	26-02-2026	00:00	26-02-2026	05:00													

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.



Protection Performance Indices for the month of February 2026(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	220KV TTPS-Bihar Shariff T/L	17-02-2026	13:25	17-02-2026	14:14	STARTED TRIPPED PH ABC, EARTH FAULT IN ZONE NONE.		1		1		0		1.0000	0.5000	0.5000	

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