GOVERNMENT OF INDIA

MINISTRY OF POWER

Eastern Regional Power Committee

AGENDA

FOR

158th PCC MEETING

Date: 12/05/2026

Venue: ERPC Conference Hall

Contents

Eastern Regional Power Committee, Kolkata

Agenda for 158th PCC MEETING
Date: 12th May, 2026(Tuesday) at 11:00 Hrs

1. PART-A

1.1. Confirmation of Minutes of 157th PCC Meeting held on 16th April 2026.

The minutes of 157th PCC meeting held on 16.04.2026 through virtual mode was circulated vide letter no. ERPC/ Protection/2026/209 dated 28/04/2026.

Members may confirm the minutes of 157th PCC Meeting.

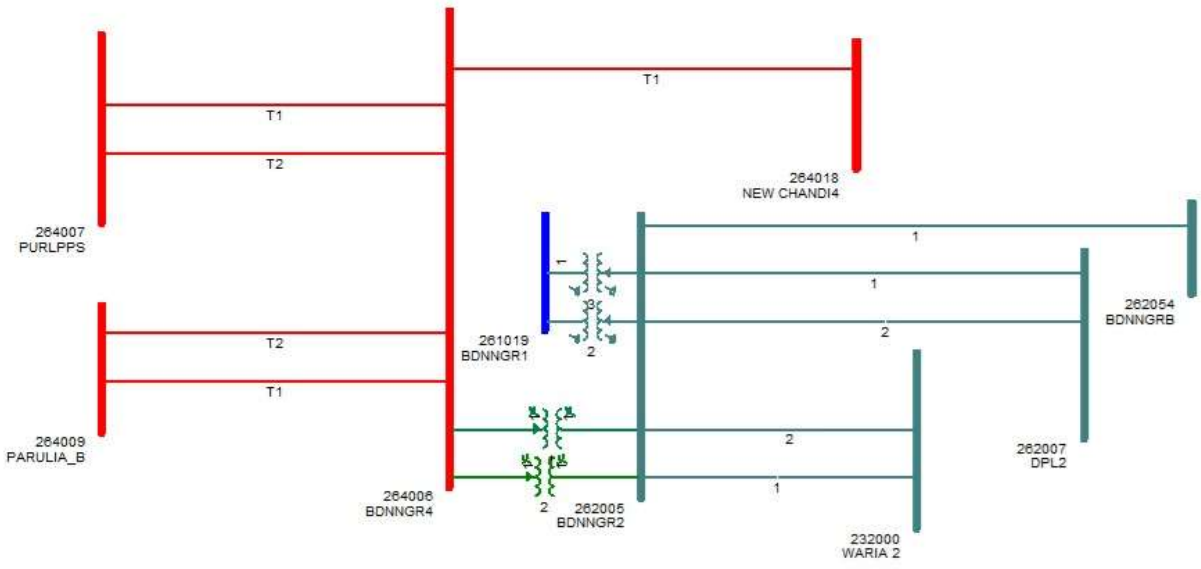
2. PART-B: ITEMS FOR DISCUSSION

2.1 Grid disturbance at 220 kV Bidhannagar, 220kV DPL, 220kV AB Zone S/s on 2nd April 2026 at 14:28 Hrs

Prior to the disturbance, 315 MVA ICT-3 at Bidhannagar S/s was under planned shutdown. On 2nd April 2026 at 14:20 Hrs, 315 MVA ICT-1 tripped due to PRD operation, which led to over loading of 315 MVA ICT-2 to 336 MW. To reduce the loading on ICT-2, 220kV Mangalpur and Shyam SEL feeder were manually tripped at 14:24 Hrs. Consequently, the loading on ICT-2 reduced to a safe limit of around 275 MW.

Subsequently, at 14:28 Hrs, 315 MVA ICT-2 was inadvertently hand tripped by site personal, which led to isolation of 220kV from 400kV system Simultaneously, 220kV Bidhannagar-Bakreswar D/C loading increased up to its thermal rating consequently both lines got tripped on O/C protection.

As a result, 220/132kV Bidhannagar islanded with AB Zone and DPL generation and got collapsed due to load generation unbalance.



Detailed report from ERLDC is attached at **Annexure 2.1.**

Load Loss: 782 MW, Gen. Loss: 413 MW
Outage Duration: 01:00 Hrs

WBSETCL may explain.

2.2 Grid disturbance at 400/220kV Tenughat, 220kV Godda S/s on 19th April 2026 at 23:13 Hrs

On 19/04/2026 at 23:13 Hrs, B-phase CT of bus coupler bay at Tenughat got burst which created bus fault at 220kV Tenughat S/s. Due to non-operation of bus bar protection at Tenughat S/s, all 220 kV emanating lines at Tenughat i.e., 220 kV Tenughat-Govindpur D/c and 220 kV Tenughat-Biharsharif got tripped from remote ends in zone 2 protection. Subsequently 400/220kV Tenughat S/s became dead which led to overloading of 220 kV Maithon-Dumka D/c and SPS operated at Dumka S/s.

Detailed report from ERLDC is attached at **Annexure 2.2.**

Load Loss: 120 MW, Gen. Loss: 317 MW
Outage Duration: 00:42 Hrs

TVNL &JUSNL may explain.

2.3 Grid disturbance at 400kV JSPL, ACPP-II S/s on 6th April 2026 at 16:03 Hrs

On 06/04/2026 at 16:03 Hrs, 400 kV Meramundali-JSPL-1 line got tripped from JSPL end due to B-phase CT blast at JSPL end. At the same time 400 kV Meramundali-JSPL-2 line got tripped on Zone 4 protection from JSPL end, which led to island formation of JSPL unit-1 with emergency load and another island formation with remaining JSPL units and load with ACPP-II. Island was not survived due to load generation mismatch.

Load Loss: 670 MW, Gen. Loss: 810 MW
Outage Duration: 00:06 Hrs

JSPL may explain.

2.4 Grid disturbance at 220kV Dalkhola (WBSETCL) S/s on 26th April 2026 at 00:09 Hrs

Prior to the disturbance 220kV bus coupler at Dalkhola S/s (PG) was in off condition due to system requirement and Dalkhola S/s (WB) was radially connected through 220kV Kishanganj-Dalkhola (PG)-Dalkhola (WB) D/C line. On 26th April 2026 at 00:09 Hrs, 220kV Kishanganj-Siliguri-1 and 220 kV Kishanganj- Dalkhola (PG) D/C got tripped due to inclement weather on B phase fault consequently 220 kV bus become dead at Dalkhola (WB) S/s.

Detailed report from ERLDC is attached at **Annexure 2.4.**

Load Loss: 80 MW
Outage Duration: 00:23 Hrs

WBSETCL may explain.

2.5 Grid disturbance at 220kV Raxaul & 220kV Gopalganj S/s on 20th April 2026 at 12:05 Hrs

Prior to the disturbance 220 kV Raxaul–Sitamarhi Circuit 1 & 2 were under planned shutdown from 11:30 Hrs on 20/04/2026 and Raxaul and Parwanipur areas of Bihar and the Nepal power system were connected to rest of the Eastern Region grid through the 220 kV Raxaul–Gopalganj–MTPS double circuit lines. On 20th April 2026 at 12:05 Hrs, 220 kV Gopalganj–MTPS line 1 & 2 got tripped due to Y-B phase fault, leading to a power failure at Raxaul and Gopalganj S/s.

Load Loss: 152 MW
Outage Duration: 01:44 Hrs

BSPTCL may explain.

2.6 Grid disturbance at Goraul (BSPTCL) S/s on 30th April 2026 at 19:05 Hrs

Prior to the disturbance 220kV Muzaffarpur-Goraul-1 line got tripped at 18:57 Hrs on 30/04/2026. Further, 220kV Goraul S/s is radially connected to 220kV Muzaffarpur S/s through 220kV Muzaffarpur-Goraul-2 line. On 30/04/2026 at 19:06 Hrs, 220kV Muzaffarpur-Goraul-2 line tripped on B phase fault consequently 220kV Goraul S/s became dead.

Load Loss: 113 MW
Outage Duration: 00:25 Hrs

BSPTCL may explain.

2.7 Grid disturbance at 220kV Chatra S/s on 24th April 2026 at 18:58 Hrs

Prior to the disturbance 220kV Daltonganj-Latehar line was kept opened on system requirement. On 24/04/2026 at 18:58 Hrs, Y phase fault occurred in 220kV Chatra-Latehar line and at the same time 220 kV Daltonganj-Chatra line got tripped from Chatra end only, resulting in total power failure at Chatra S/s.

Load Loss: 40 MW
Outage Duration: 00:56 Hrs

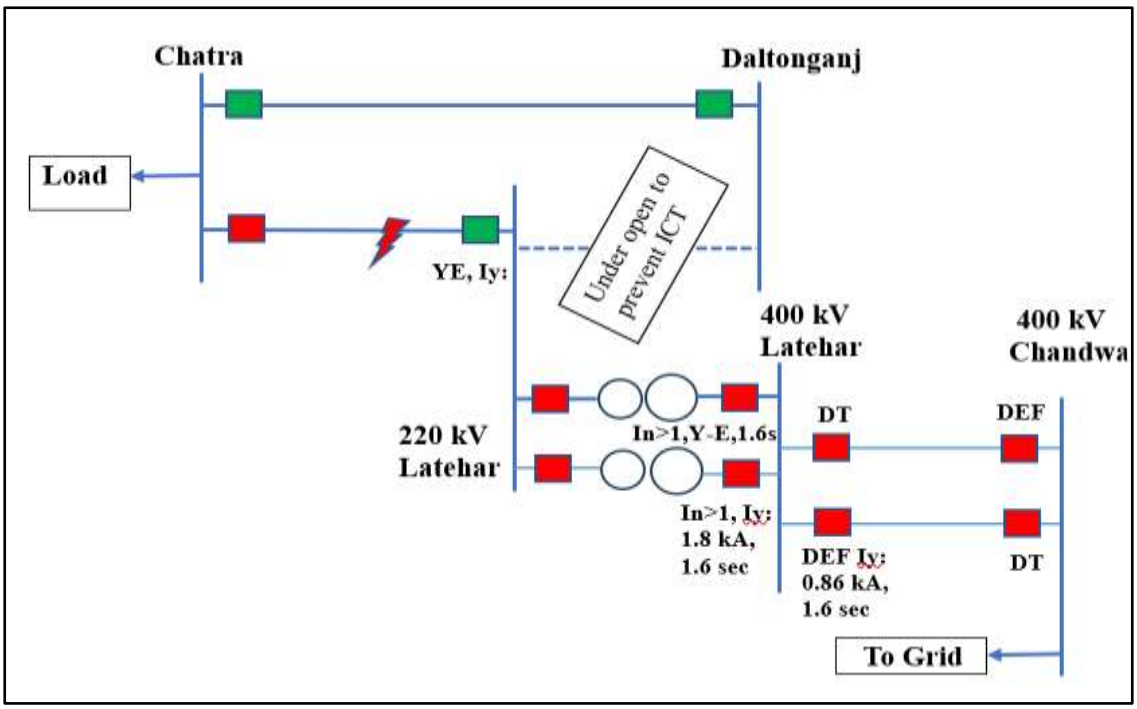
JUSNL may explain.

2.8 Multiple elements tripping at Latehar Substation on 24-04-2026 at 20:11 Hrs

Multiple elements tripping occurred on 24.04.2026 at 20:11 Hrs at Latehar substation. The sequence of events is as follows:

- 220 kV Latehar-Chatra line got tripped at 18:58 Hrs on 24-04-2026 due to snapping of Y- Ph jumper at Loc No 264 from Chatra end.

- At 20:11 Hrs , during the charging attempt of the above line from Latehar end , the TBC CB failed to open which resulted in tripping of both 400/220 kV ICTs and 400 kV Latehar-Chandwa D/C.



This incident highlights serious concern regarding the performance and coordination of the protection system, as it had the potential to escalate into a major disturbance at Latehar area of ER power system.

Protection Issues observed:

1. Non opening of 220 kV Bus Coupler CB at Latehar- Detail checks may be carried out for CB operational timing, static and dynamic contact resistance, contact travel characteristics, as well as the complete trip circuitry from Protection relay up to CB trip coils.
2. The reason for the non-operation of the LBB protection may be investigated in detail and suitable corrective measures may be taken accordingly.
3. Tripping of 400/220 kV ICTs and 400 kV Latehar–Chandwa D/C within 1.55 seconds indicates protection coordination issues. Nnecessary protection setting coordination of the backup earth fault (B/U EF) protection of ICTs may be carried out in line with the ERPC protection philosophy.

ERLDC had sought details regarding root cause and remedial measures through emails dated 03.05.2026. Response from JUSNL is still awaited.

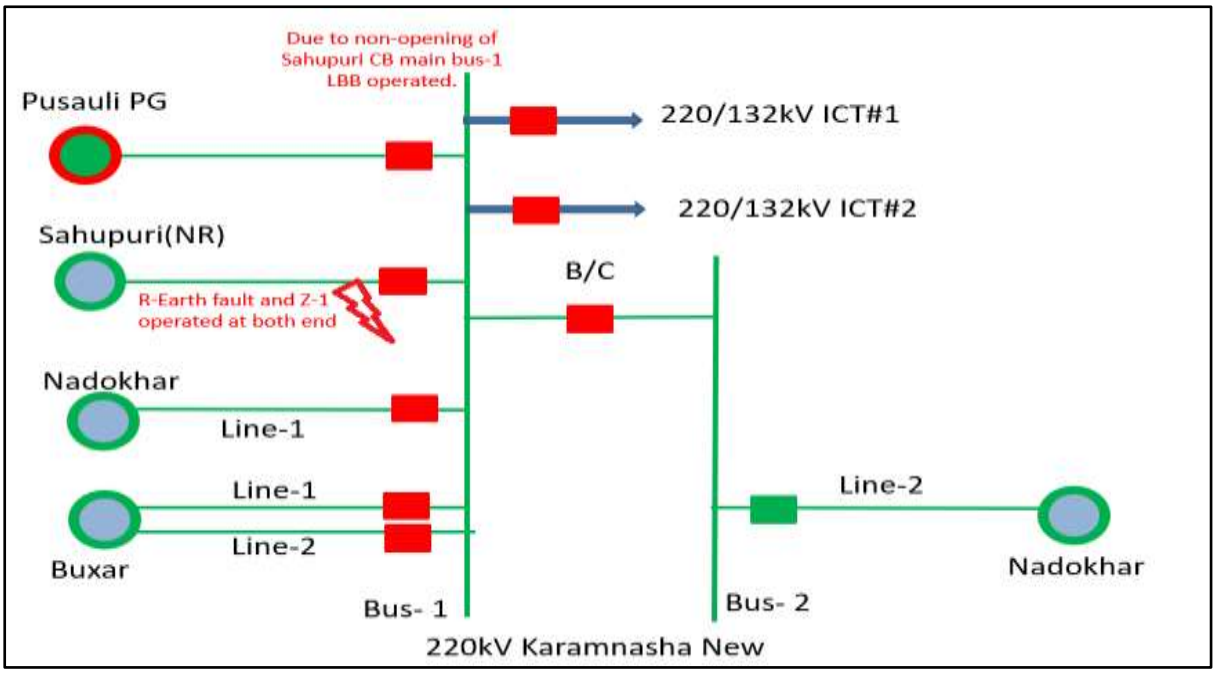
JUSNL may update.

2.9 LBB Operation at 220 kV Karamnasha Substation at 13:02 Hrs on 15-04-2026

On 15.04.2026 at 13:02 Hrs, R phase fault occurred in 220kV Karamnasha New- Sahupuri Line with Ir:10.07 kA at a distance of 4.9 Kms from Karmnasa end. The Distance relay operated, however, CB at Karmnasa end failed to open, which led to operation of LBB protection subsequently tripping of 220 kV Bus-1 as intimated. As a result, the following elements connected to 220 kV Bus-1 were tripped:

1. 220 kV Pusauli PG
2. 220 kV Nadokhar-1
3. 220 kV Buxar 1 and 2 and both 200 MVA ICT

During event, only 220 kV Nadhokar -2 line connected to 220 kV bus-2 remained in service.



The incident is a matter of serious concern, as it had the potential to escalate into a major grid disturbance in the Eastern Region power system.

Protection & Operational issues:

1. The Reason for non-opening of CB at Karmnasa for 220 k Sahupuri Line may be investigated and appropriate remedial measures may be taken immediately. Preventive maintenance of Circuit breaker should be ensured, including Operational timing test, CRM, DCRM with travel, protection trip circuit from Relay to CB coils in line with CEA Grid Standard Regulation-2010
2. Proper distribution of feeders across both buses may be ensured to enhance system reliability and avoid concentration of critical elements on a single bus.

ERLDC had sought details regarding above points thought emails dated 20.04.2026. Response from BSPTCL is still awaited.

BSPTCL may update.

2.10 Tripping of ICTs during the month of April'26

Sl. No	Name of the Element	Trip Date/Time	Reason of tripping	Utility
1	400KV/220KV 250 MVA ICT 2 AT TENUGHAT	2026-04-30 02:57	Over flux protection operated	TVNL
2	400KV/220KV 315 MVA ICT 1 AT BOKARO-A TPS	2026-04-29 15:23	Tripped on differential protection	DVC
3	400KV/220KV 250 MVA ICT 1 AT TENUGHAT	2026-04-30 02:57	Over flux Protection operated	TVUNL
4	400KV/220KV 500 MVA ICT 1 AT BAKHTIYARPUR(BH)	2026-04-26 20:39	Tripped due to high oil temperature.	BSPTCL
5	400KV/220KV 500 MVA ICT 1 AT BAKHTIYARPUR(BH)	2026-04-24 16:48	Due to a punctured control cable of the ICT, Main PRD-1, Buchholz, PRV-1, and OTI relays operated	BSPTCL
6	400KV/132KV 200 MVA ICT 4 AT KAHALGAON	2026-04-25 11:57	86B Lockout relay malfunctioned	NTPC Kahalgaon
7	400KV/220KV 315 MVA ICT 2 AT LATEHAR(JUSNL)	2026-04-24 20:11	E/f, Y-N, IY-1.812 kA	JUSNL
8	400KV/220KV 315 MVA ICT 1 AT LATEHAR(JUSNL)	2026-04-24 20:11	E/f, Y-N, IY-1. 763 kA	JUSNL
9	400KV/132KV 200 MVA ICT 2 AT KAHALGAON	2026-04-13 16:19	Spurious bus bar protection operated during maintenance work on 132kV Sabour line.	NTPC Kahalgaon
10	400KV/220KV 250 MVA ICT 1 AT TENUGHAT	2026-04-02 17:43	Tripped on REF Protection	TVNL
11	400KV/220KV 315 MVA ICT 3 AT JEERAT	2026-04-05 07:45	Due to foreign material, 220 kV Bus-1 at Jeerat tripped, along with ICT-3.	WBSETCL
12	400KV/220KV 250 MVA ICT 1 AT TENUGHAT	2026-03-30 15:01	REF Protection operated	TVNL

13	400KV/220KV 315 MVA ICT 2 AT LAPANGA	2026-04-14 06:50	Tripped on Differential Protection	OPTCL

Concerned utilities may explain.

2.11 Tripping of Buses during the month of April'26

Sl. No	Name of the Element	Trip Date	Trip Time	Reason of tripping	Utility
1	132KV MAIN BUS - 2 AT KHSTPP	2026-04-13	16:19	Spurious bus bar protection operated during maintenance work on 132kV Sabour line.	NTPC Kahalgaon
2	400KV MAIN BUS - 1 AT NEW DUBURI	2026-04-13	13:06	LBB operated during CT testing of 400kV New Duburi-TSL ckt-1	OPTCL

Concerned utilities may explain.

2.12 Repeated tripping of transmission lines during the month of April'26

Sl. No.	Name of the Element	No. of times Tripped	Reason of tripping	Utility
1	220KV-JODA-RAMCHANDRAPUR-1	4	Tripped on R-Earth, Y-Earth, B-Earth, and Y-B fault.	OPTCL/JUSNL
2	220KV-TENUGHAT-BIHARSARIFF-1	3	Tripped on Y-B, R-Earth, B-Earth fault.	BSPTCL/JUSNL
3	220KV-TTPS-TSTPP-1	3	Line tripped in Z-3 protection in all instances on R-Y-B, R-Earth and B-Earth fault.	NTPC Talcher/OPTCL

Concerned utilities may explain.

2.13 Single Line Tripping Incidences in month of April-2026

Single line tripping incidents in the month of April-2026 which needs explanation from constituents of either end is attached.

Members may discuss.

3. PART-C: FOLLOW UP ITEMS

3.1. Compliance of third party protection audit observations of critical substations carried out by ERPC

Third party protection audit of 7 numbers of critical substations mentioned below was done by ERPC Secretariat in 2025–

1. 400/220 k V Tenughat S/s(TVNL)
2. 400k V Kahalgaon S/s(NTPC)
3. 400/220 k V Jeerat S/s(WBSETCL)
4. 400/220 k V Lapanga S/s(OPTCL)
5. 220/132 k V Biharsharif S/s(BSPTCL)
6. 400/220 k V Meeramundali S/s(OPTCL)
7. 220/132 k V Ramchnadrapur S/s(JUSNL)

Audit report had been circulated to concerned utilities. Concerned utilities are requested to provide compliance status of third party protection audit report of these critical substations

Concerned utilities may update.

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

In 152nd 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.

In 155th 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.

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

In 156th PCC Meeting, Member Secretary ERPC advised that the observations of WBSETCL may be separately discussed with to clarify their queries.

Subsequently an online meeting was convened by ERLDC with WBSETCL to discuss and finalize the overvoltage settings of WBSETCL substations. Powergrid vide mail dated 13.04.2026 shared their observations on the proposed settings.

In 157th PCC Meeting, ERLDC representative informed that separate meeting was held with WBSETCL to finalise overvoltage settings for their lines.

PG ER-II representative informed that they are having few observations associated with the proposed settings which they have shared to ERPC/ERLDC vide email dated 13th April 2026.

PCC advised concerned utilities to go through the proposed overvoltage settings and submit their observations by end of April 2026.

It was decided that after receiving observation from concerned utilities, a special meeting may be convened to finalize the settings.

No further comment was received from utilities.

Members may update.

3.3. 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 April '26, protection performance indices have been received from NTPC Barh, Tashiding HEP, Jorethang HEP, TVNL and DMTCL. Indices details is attached at **Annexure 3.3.**

Utilities are requested to submit the details every month for necessary grid code compliance

Concerned utilities may update.

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

Sl No.	Name of the Incidence	PCC Recommendation	Latest status
157th PCC Meeting dated 16.04.2026			
1.	Repeated Grid disturbance at 220 kV TTPS (OPTCL) S/s	PCC advised OHPC to share the revised settings to ERPC for record. PCC further advised OHPC to investigate the reason for tripping of 220kV Rengali PH-Nalco & 220 kV Rengali-TSTPP line during the above disturbance.	
2.	Strengthening of Protection System for 132 kV Feeders Connected with Bandel TPS	2. PCC agreed to it and advised WBSETCL to reduce the zone-4-time settings to 250 msec for the feeders connected to 132 kV Chanditala & 132 kV Bighati S/s. 3. PCC advised WBSETCL & WBPDCL to share the DR /EL of the said event to ERPC/ERLDC for analysis. Further WBPDCL was advised to share the relay settings file for 132 kV feeders to ERPC/ERLDC.	
3.	Tripping of 220 kV Ramchandrapur Bus-1 due to LBB Operation	PCC advised JUSNL & OPTCL to carry out testing of carrier scheme for 220 kV Joda-Ramchandrapur line and resolve the carrier fail issue at the earliest.	
4.	Tripping of 220 kV Bus-II at 220/132/33	BGCL/BSPTCL may update the timeline for restoration of Bus-II at Amnour S/s.	

	kV Amnour Substation		
156th PCC Meeting dated 13.03.2026			
5.	Tripping of 400 kV Bus-II at Sagardighi Substation and 400 kV Sagardighi–Jeerat-1 Line	Regarding sending of DT trip signal to Jeerat end for Jeerat-1 line, WBPDCL was advised to check reason behind transmission of DT trip signal.	In 157th PCC Meeting, WBDPCL representative informed that as per existing scheme, DT is sent in 4 cases i.e LBB operation, bus differential protection operation, overvoltage protection operation and manually hand tripping. PCC observed that for one and half breaker bus arrangement, the existing DT send scheme will lead to tripping of healthy feeders from remote end though the feeder is charged though tie bay from source end. PCC advised WBPDCL to review the DT send logic in case of LBB operation.
155th PCC Meeting dated 19.02.2026			
6.	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.	In 157th PCC Meeting OPTCL representative informed that bus bar protection has not been restored yet due to non-availability of shutdown of line. PCC advised OPTCL to coordinate with SLDC Odisha and ERLDC for the requisite shutdown and restore the bus at the earliest.

ग्रिड-इंडिया GRID-INDIA ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / Eastern Regional Load Despatch Centre
कार्यालय : 14, गोल्फ क्लब रोड, टालिगंज, कोलकाता - 700033
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033
CIN : U40105DL2009GOI188682, Website : www.erldc.in, E-mail : erldcinfo@grid-india.in, Tel.: 033 23890060/0061

Detailed Report of grid event at 220kV Bidhannagar, DPL and AB Zone 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): 20-04-2026

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

Prior to the disturbance, 315 MVA ICT-3 at Bidhannagar S/s was under planned shutdown. At 14:20 Hrs of 02/04/2026, 315 MVA ICT-1 tripped due to PRD operation, which led to over loading of 315 MVA ICT-2(*Loading increased up to 336 MW*). To reduce the loading on ICT-2, 220kV Mangalpur and Shyam SEL feeder were manually tripped at 14:24 Hrs. Consequently, the loading on ICT-2 reduced to a safe limit of around 275 MW.
Subsequently, at 14:28 Hrs, 315 MVA ICT-2 was inadvertently hand tripped by site personal, which led to isolation of 220kV from 400kV system Simultaneously, 220kV Bidhannagar-Bakreswar D/C loading increased up to its thermal rating, causing both lines tripped on O/C protection.
As a result, 220/132kV Bidhannagar islanded with AB Zone and DPL generation and got collapsed due to load generation unbalance. 220kV Bidhananagr, Ab Zone, and DPL became dead and generation loss of **413 MW** at DPL and load loss of **782 MW** reported at Bidhannagar, AB Zone.

2. **Time and Date of the Event (घटना का समय और दिनांक):** 14:28 hrs of 02/04/2026
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
				Bihar (MW)	Bihar (MW)
Pre-Event (घटना पूर्व)	50.022 Hz	23357 MW	26100 MW	5094 MW	11080 MW
Post Event (घटना के बाद)	50.05 Hz	22944 MW	25318 MW	4681 MW	10298 MW

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

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है)	400/220KV ICT-3 at Bidhannagar is under planned shutdown
Weather Condition (मौसम स्थिति)	Normal

6. **Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss- 413 MW, Load loss-782 MW
7. **Duration of interruption (रुकावट की अवधि): 60 Mins**
8. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

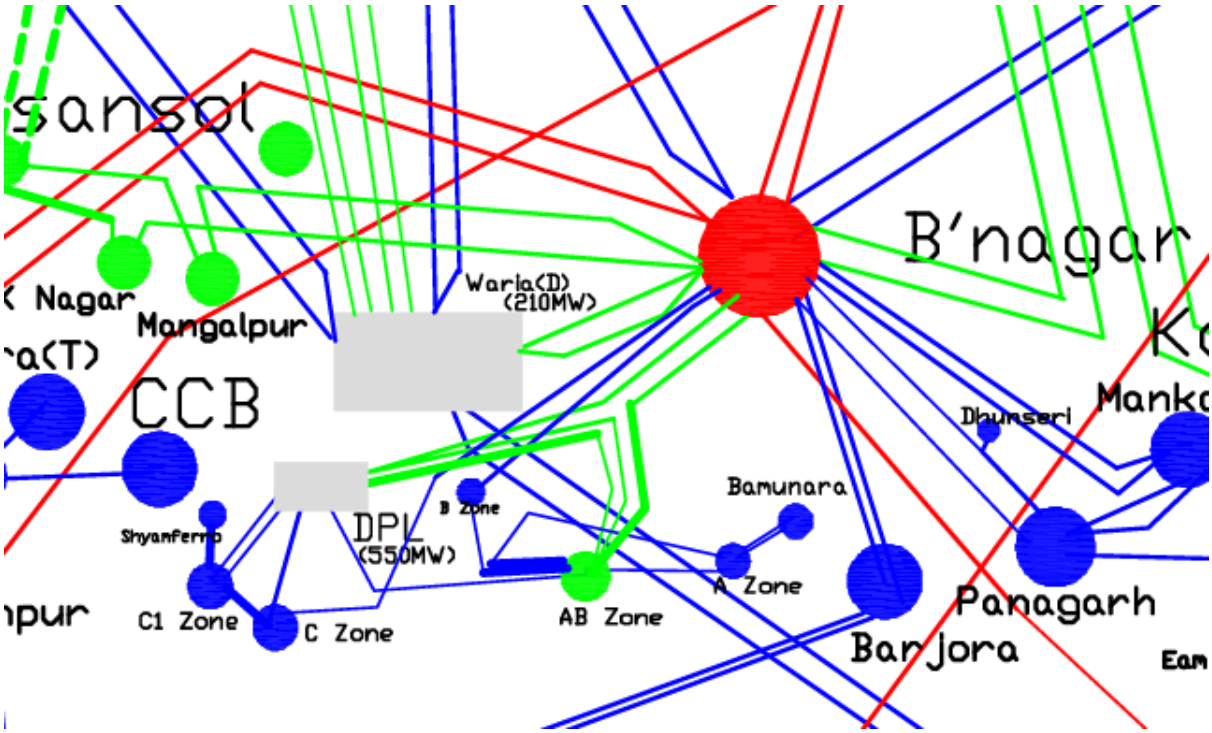


Figure 1: Network across the affected area

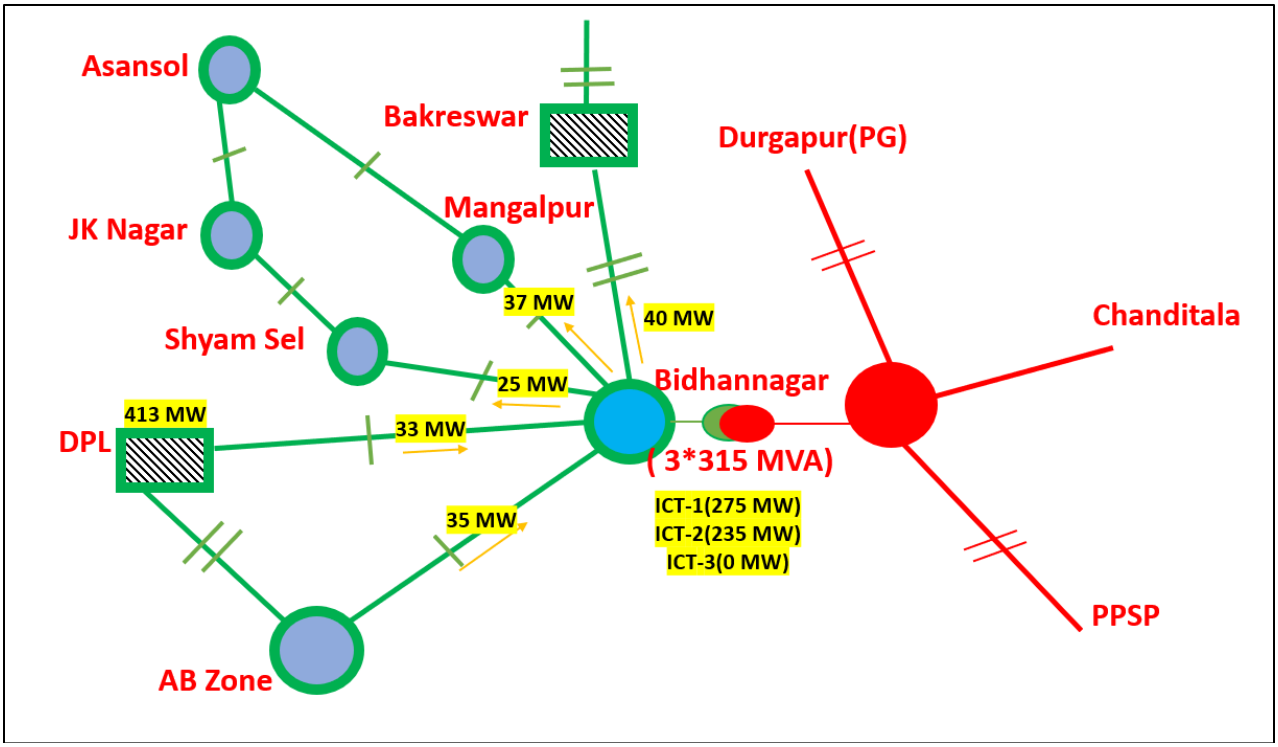
9. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** NIL

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

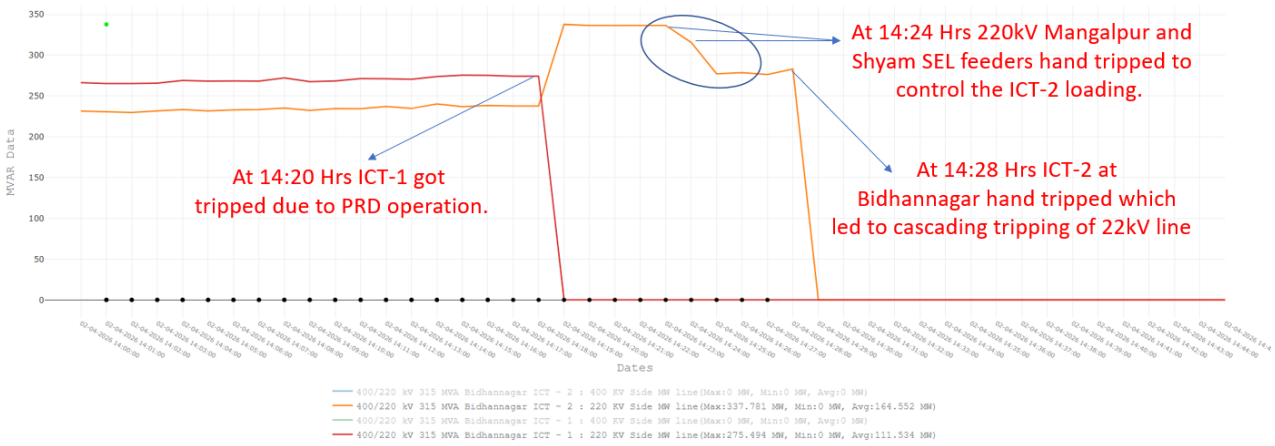
क्रoसo	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1.	**400/220KV ICT-1 at Bidhannagar**	14:20	PRD operated.		17:25
2.	**400/220KV ICT-2 at Bidhannagar**	14:28	Hand tripped by site personal.		15:20
3	**DPL Unit-7**	14:28	Loss of evacuation.		-
4	**DPL Unit-8**	14:28	Loss of evacuation.		-

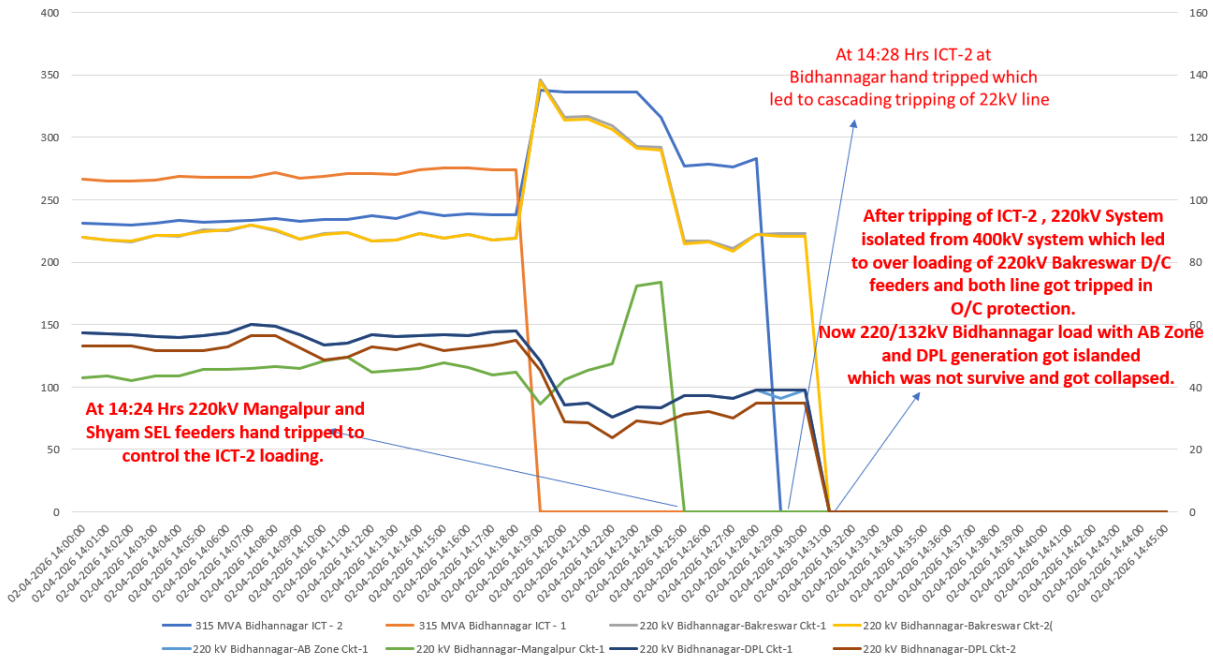
11. **Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):**

Pre-Disturbance condition



- At 14:20 Hrs on 02.04.2026, 315 MVA ICT-1 at Bidhannagar S/s tripped due to PRD operation.
- At that time, ICT-3 was under shutdown and only 315 MVA ICT-2 was in service (Loading was a round 336 MW).
- To control the loading of ICT-2, 220kV Mangalpur and Shyam SEL feeders were hand tripped.
- After tripping of both feeders ICT-2 loading was in safe side (Around 275 MW).
- Due to unintended switching operation by site person, ICT-2 was hand tripped. This led to cascading tripping in 220kV network by tripping of 220kV Bidhananar-Bakreswar D/C in O/C protection.
- 220/132kV Bidhannagar islanded with AB Zone and DPL generation.
- Due to load generation unbalance island got collapsed.
- 220kV Bidhananagr, Ab Zone, and DPL became dead and generation loss of about 413 MW at DPL and load loss of about 782 MW reported.





SCADA flow of lines and ICTs at Bidhanagar S/s

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

- Protection operation as per protection scheme.

Operational Observations-

- Switching operation of ICT-2 at Bidhannagar S/s may be explain as initiating factor for system collapse.
- During planned S/D of ICT-3, remaining ICT loading was not N-1 compliance. Real time monitoring and restriction of remaining ICTs loading in safe side were not adequately ensured.

One Special meeting was held on 10/04/2026 and during the meeting, the following points were suggested for further examination and implementation:

1. It was proposed to review the existing non-directional overcurrent setting of the 220 kV BKTPP–Bidhanagar D/C line (pickup: 584 A, time delay: 2.5 s at Durgapur end). It was suggested to incorporate OC with AND logic with tripping status of either circuit of the 220 kV BKTPP–Bidhanagar line and extend the output to downstream feeders to control overloading conditions of 220 kV BKTPP–Bidhanagar D/C line. This will prevent tripping of critical 220 kV BKTPP–Bidhanagar D/C line, thereby ensuring safe and reliable system operation.

OR

2. It was proposed to review the existing non-directional overcurrent setting of the 220 kV BKTPP–Bidhanagar D/C line (pickup: 584 A, time delay: 2.5 s at Durgapur end). It was suggested to incorporate OC with AND logic with tripping status of either circuit of the 220 kV BKTPP–Bidhanagar line and the output be extended to 220 kV Mangalpur and Shyam SEL feeders directional(power flow from Bidhan nagarto Mangalpur/ Shyam SEL). This arrangement will control overloading conditions effectively without tripping the 220 kV BKTPP–Bidhanagar D/C line, thereby ensuring safe and reliable system operation.

3. It was further requested to submit a list of 220 kV feeders in the West Bengal power system, where similar overcurrent settings are implemented for the information and awareness of real-time grid operators.

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

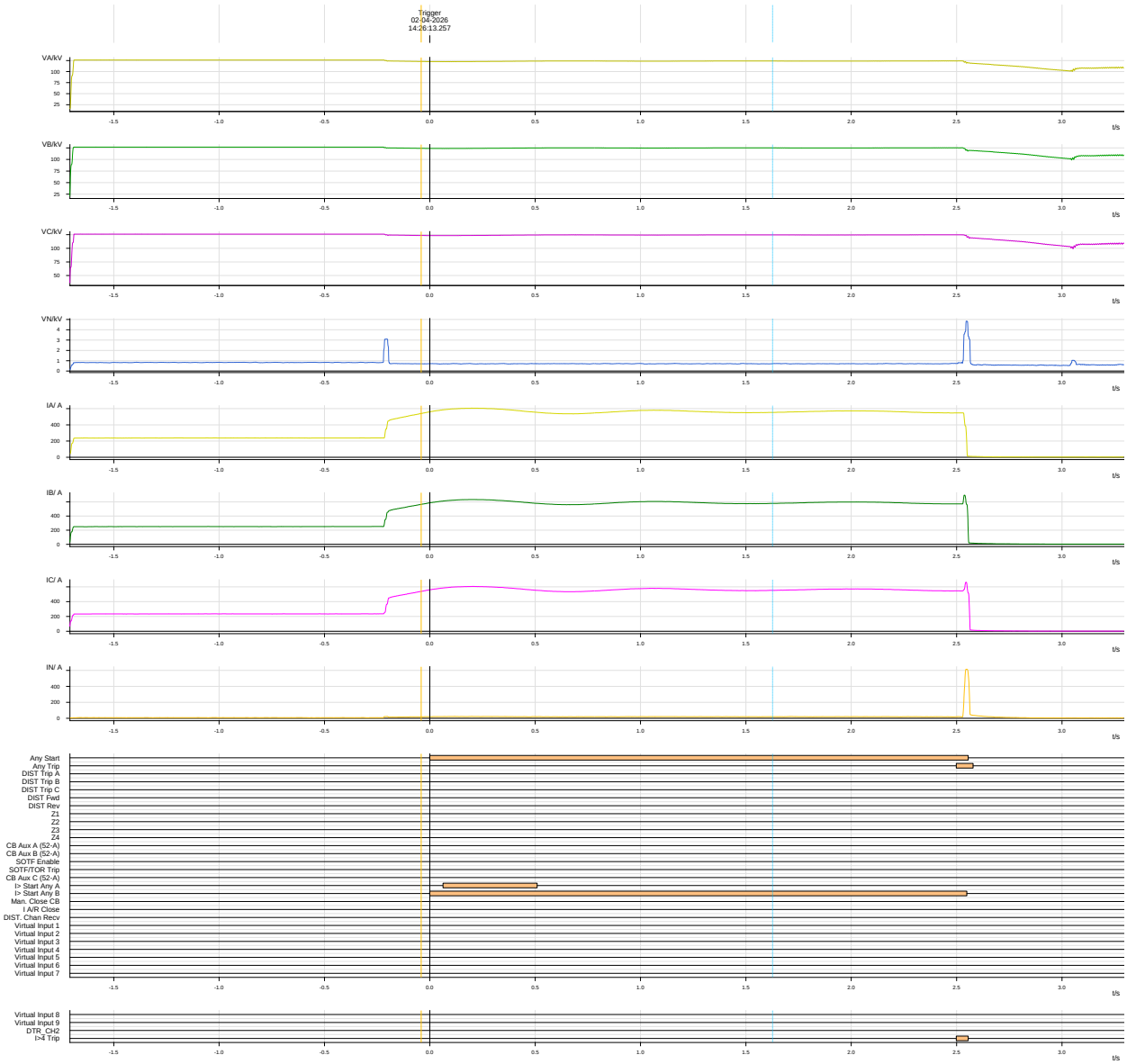
14. Non-compliance observed (विनियमन का गैर-अनुपालन):

S.No.	Issues	Regulation Non-Compliance	Remark
1	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	Submitted
2	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted (After 24 Hrs)
3	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	Submitted
4	**Protection system not operated correctly**	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 protection scheme.

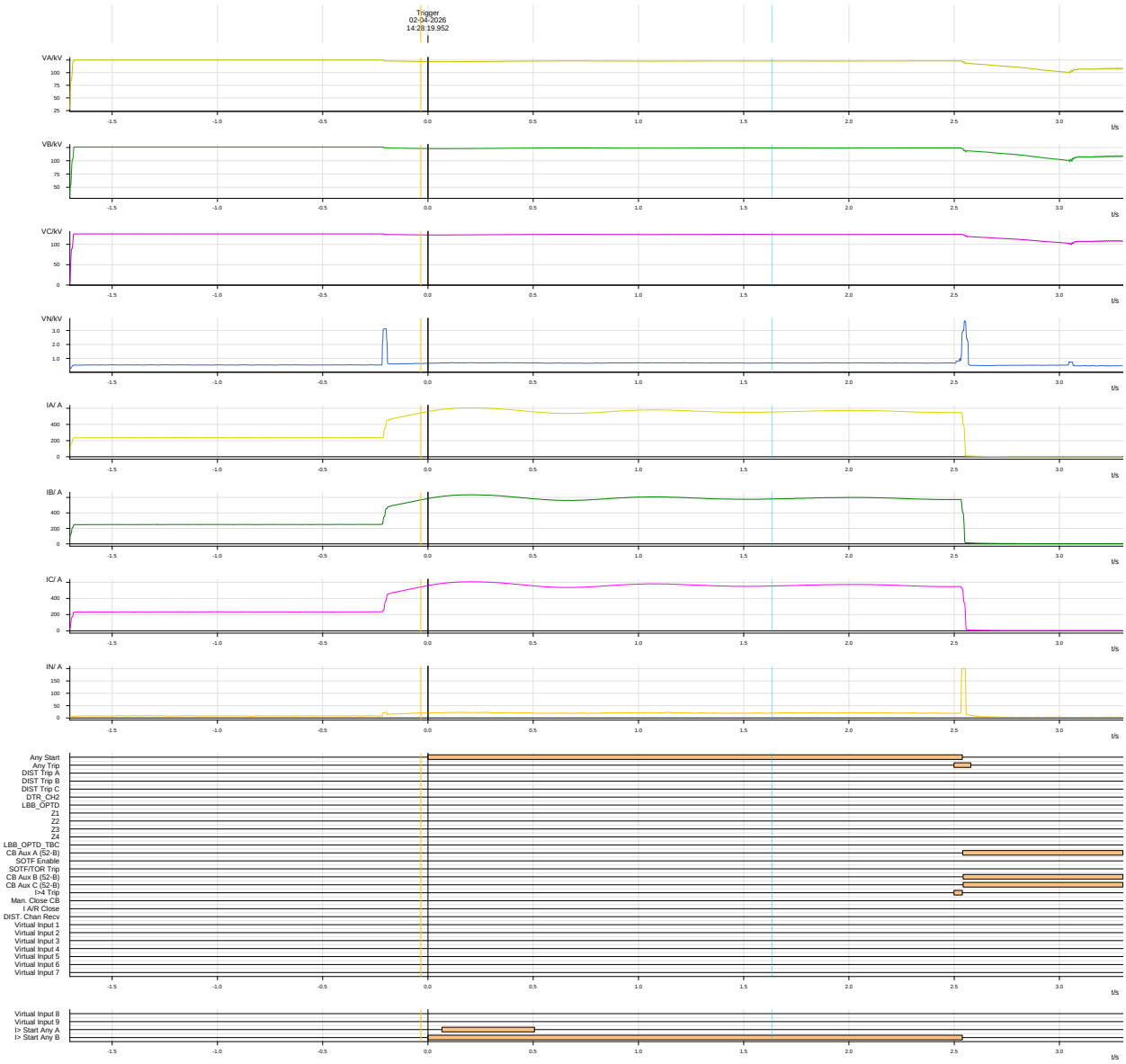
15. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil

Annexure 1:

DR of 220kV Bidhannagar-Bakreswar-1:



DR of 220kV Bidhannagar-Bakreswar-2:


Trigger
02-04-2026
14:28:19.952
VA/kV
VB/kV
VC/kV
VN/kV
IA/ A
IB/ A
IC/ A
IN/ A
t/s
Any Start
Any Trip
DIST Trip A
DIST Trip B
DIST Trip C
DTR_CH2
LBB_OPTD
Z1
Z2
Z3
Z4
LBB_OPTD_TBC
CB Aux A (52-B)
SOTF Enable
SOTF/TOR Trip
CB Aux B (52-B)
CB Aux C (52-B)
I>4 Trip
Man. Close CB
I A/R Close
DIST. Chan Recv
Virtual Input 1
Virtual Input 2
Virtual Input 3
Virtual Input 4
Virtual Input 5
Virtual Input 6
Virtual Input 7
Virtual Input 8
Virtual Input 9
I> Start Any A
I> Start Any B

INCIDENT REPORT:

Prior to incident :
Maintenance work of 400KV Main Bus 2 along with 315MVA, 400/220/33KV ICT-3 was already going on as per OCC approval .

315MVA, 400/220/33KV ICT-1 tripped at 14.18hrs on 02-04-2026 due to actuation of PRD (Main Tank R-Ph).

It may be noted that, on 13-03-2026, huge oil leakage was observed from PRD and was Manually switched OFF at 18:25 Hours and switched ON at 19:26 Hours. The PRD was replaced on 18-03-2026.

Before occurrence of incident 220 KV System Bus Configuration was

Bus A-

1.200 MVA 220/132/33 KV ICT 1
2.315 MVA 400/220/33 KV ICT 1
3.BKTPP 1
4.DPL AB Zone(DPL 1)
5.Mangalpur (Asansol)

Bus B-
1.200 MVA 220/132/33 KV ICT 2,
2.200 MVA 220/132/33 KV ICT 3,
3.315 MVA 400/220/33 KV ICT 2,
4.315 MVA 400/220/33 KV ICT 3 (in shutdown Condition),
5. BKTPP 2,
6. Shyamsel(JK Nagar),
7. DPL 2.

Chronology Of Occurrence

1.HV SIDE OF 315 MVA TR-1 Tripped at 14:18 Hours
2. 220 KV DGP-SHYAM SEL switched OFF at 14:23 Hours as per SLDC Instruction
3. 220 KV DGP-MANGALPUR switched OFF from Mangalpur end at 14:24 Hours as per SLDC Instruction. DT was received at that time.
4.315 MVA TR-2 Switched OFF at 14:26 Hrs. from 220 KV SIDE only (manual operation).
5. BKTPP -1, 2 Tripped in LRS (I>4, 584A, Non-Directional, Time delay-2.5 secs) at 14:27 Hours.
6. DPL AB Zone (DPL 1) & DPL 2 was NO power condition due to outage of DPL generation at DPL end at 14:27Hrs.
7. BUSBAR Zone B OPERATED AT 14:27:32 Hours at the time of closing of 220 KV side of 315 MVA 400/220/33 KV ICT 2.

OBSERVATION

315 MVA ICT#3 was in schedule shutdown along condition with 400 KV Main Bus B. At 14:18 hrs 315 MVA ICT#1 tripped with PRV with huge oil surge .As per instruction of SLDC on 14:23 hrs 220 KV Shyamsel and Mangalpur ckt was switched off to manage loading. At that time all the load was catered by 315 MVA ICT#2 . At that time at around

14:26 hrs operation personnel of 220 KV control room by **mistakenly switched off** IV CB of 315 MVA ICT#2 causing Durgapur 400 KV system isolated from Durgapur 220 KV. Around 14:27 hrs BKTPP #1 & 2 tripped with over current from Durgapur 220 KV end and at the same time DPL generation was isolated from DPL end .An special setting for preventing conductor /jumper snapping of Zebra conductor was adopted in consultation with SLDC in BKTPP circuit (Setting-584A,DT,Non-Directional,2.5 Sec) at Durgapur end. Due to mal operation of operating personnel, Durgapur 220 KV bus was in no power condition causing load loss in the following substations

1.Durgapur A Zone
2. Durgapur B Zone
3. Durgapur C Zone
4.Durgapur C1 Zone
5. Durgapur AB Zone
6.Bamunara
7.Ukhra
8.Panagarh
9.Mankar
10.Mahachanda

Operation personnel then closed 315 MVA ICT#2 IV side CB without switching off other 220 KV CB causing huge current to flow in ICT#2.Due to absence of CB closing command in ABB make REB 670 Busbar differential relay,Bus B operated in Busbar differential protection(315 MVA ICT#2 was in Bus B). During that time **busbar relay ignored current of ICT#2 bay as CB close status was not high at the time of pre arcing.**

Restoration

1. 220 KV BKTPP-1 switch ON at 14: 45 Hrs
2. 220 KV B/C ON at 14:50 hours
3. 220 KV BKTPP-2 ON AT 14:55 Hrs
4. 220 KV AB ZONE ON 15:00 HRS.
5. 220 KV MANGALPUR AT 15:15 HRS
6. 200 MVA TR-1 &3 AT 15:10 HOURS.
7. 315 MVA TR-2 AT 15:15 HOURS
8. 315 MVA TR-3 AT 15: 20 HRS
9. 200 MVA TR-22 ON AT 15:16 HOURS
10. 315 MVA TR-1 17: 25 HRS

ग्रिड-इंडिया GRID-INDIA ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / Eastern Regional Load Despatch Centre
कार्यालय : 14, गोल्फ क्लब रोड, टालिगंज, कोलकाता - 700033
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033
CIN : U40105DL2009GOI188682, Website : www.erldc.in, E-mail : erldcinfo@grid-india.in, Tel.: 033 23890060/0061

पूर्वी क्षेत्र के 400/220 केवी तेनुघाट में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 400/220 kV Tenughat TPS 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): 06-05-2025

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

At 23:13 Hrs on 19/04/2026, B-phase CT in the bus coupler bay at Tenughat substation got burst, which created bus fault at 220kV Tenughat S/s. Due to non-operation of bus bar protection at Tenughat S/s, all 220 kV emanating lines at Tenughat i.e., 220 kV Tenughat-Govindpur D/c and 220 kV Tenughat-Biharsharif got tripped from remote ends in Z-2 protection.
Consequently, the 400/220kV Tenughat S/s became dead, resulting in a generation loss of **317 MW**.
This event further caused overloading of 220 kV Maithon-Dumka D/c, leading to operation of SPS at Dumka S/s. Load loss of around **120 MW** occurred at Godda and Pakur due to SPS operation.

2. **Time and Date of the Event (घटना का समय और दिनांक):** 23:13 Hrs on 19/04/2026
3. **Event Category (ग्रिड घटना का प्रकार): Grid Disturbance (GD)-1**
4. **Location/Control Area (स्थान/नियंत्रण क्षेत्र):** Jharkhand
5. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency (Hz)	Regional Generation (MW)	Regional Demand (MW)	State Generation	State Demand
				Jharkhand (MW)	Jharkhand (MW)
Pre-Event (घटना पूर्व)	50.02 Hz	32995 MW	30910 MW	317 MW	2111 MW
Post Event (घटना के बाद)	50.01 Hz	32678 MW	30790 MW	0 MW	1991 MW

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

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

6. **Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss: 317 MW, load loss: 120 MW at Godda and Pakhur area of Jharkhand Power System
7. **Duration of interruption (रुकावट की अवधि):** 00:42 Hrs

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

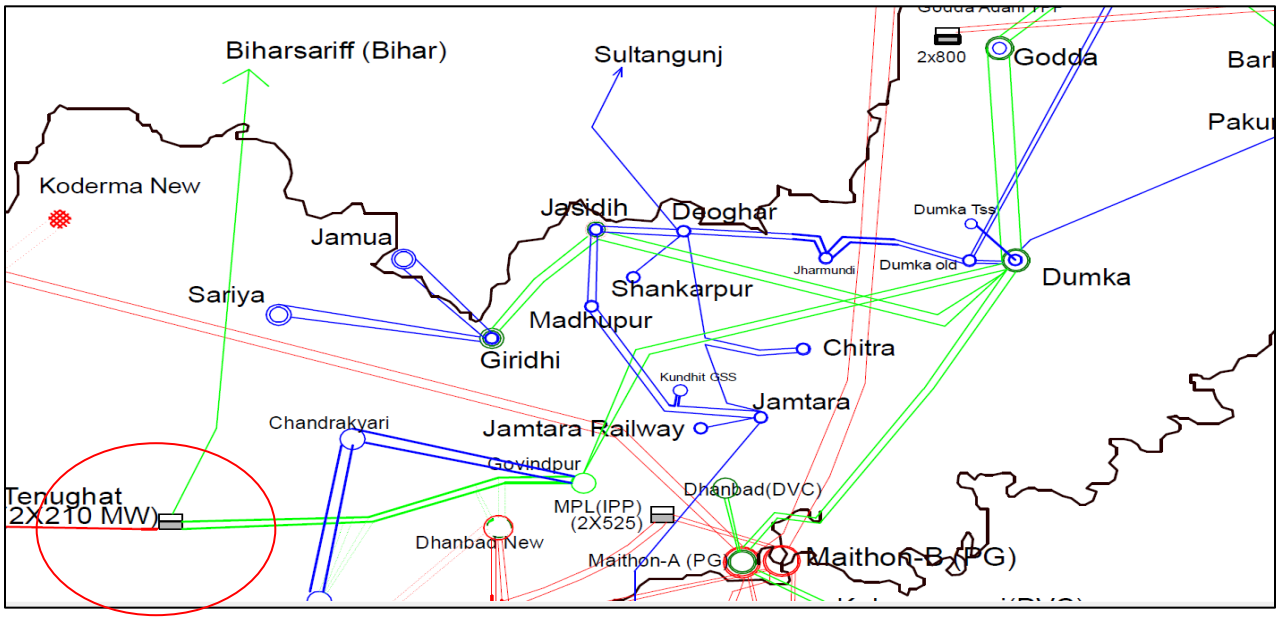


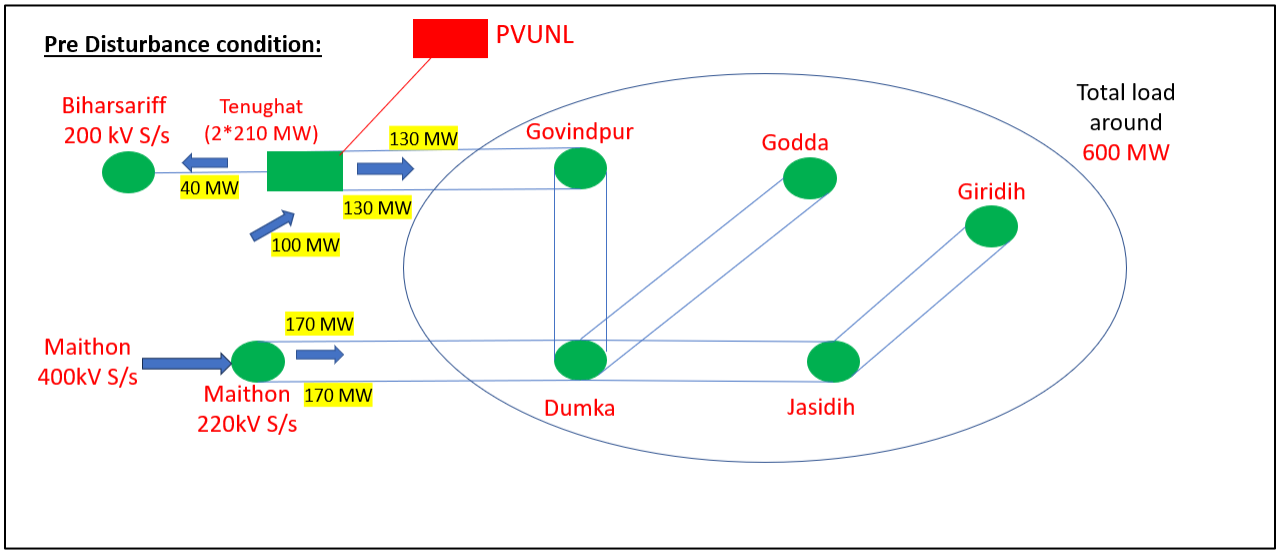
Figure 1: Network across the affected area

9. **Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** B-phase CT of 220 kV bus coupler bay at Tenughat S/s.

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	220KV-TENUGHAT-BIHARSHARIF	**23:13:17**	Tripped from remote end in Z-3 protection		23:55 Hrs
2	220KV-TENUGHAT-GOVINDPUR-1				01:51 Hrs
3	220KV-TENUGHAT-GOVINDPUR-2				01:52 Hrs
4	210 MWU#1 at Tenughat		Loss of evacuation path		07:59 Hrs
5	210 MWU#2 at Tenughat		Loss of evacuation path		-
6	400/220 kV ICT-1 at Tenughat		Back Up O/c E/f operated		00:38 Hrs
7	400/220 kV ICT-2 at Tenughat		Back Up O/c E/f operated		00:47 Hrs

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

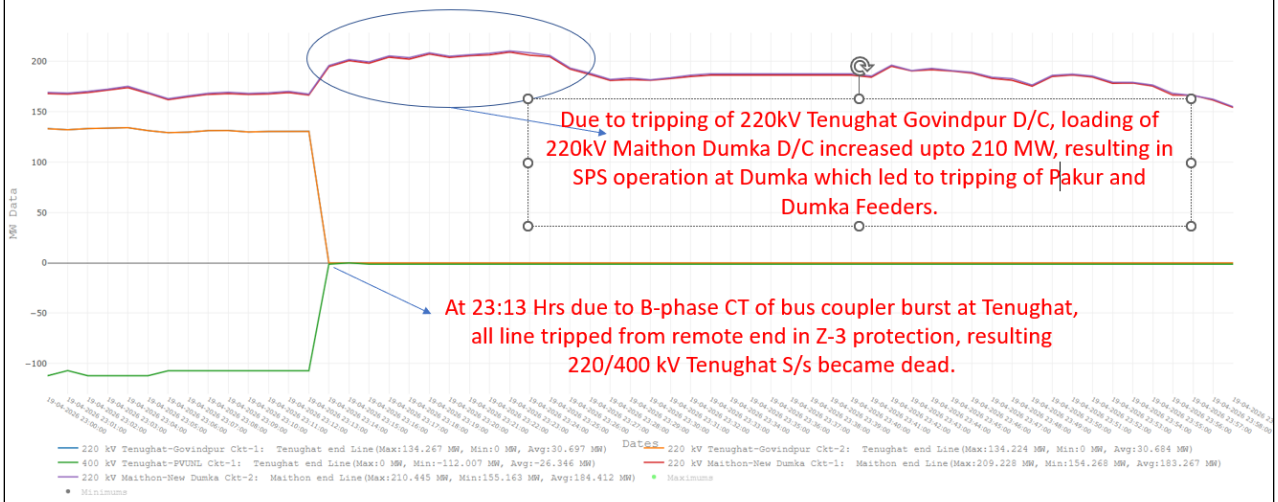


- At 23:13 Hrs on 19/04/2026, B-phase CT of bus coupler bay at Tenughat got burst which created bus fault at 220kV Tenughat S/s.
- Subsequently, all lines connected to 220 kV Tenughat sub-station tripped on Z-3 protection from remote end (Bus bar protection not operated at Tenughat) and

400/220kV both ICT tripped on E/F protection, resulting complete power supply failure of Tenughat sub station and a generation loss of about 317 MW reported.

- Further, due to the above incident, 220 kV Maithon-Dumka D/c loading increased up to its thermal rating, leading to SPS operation at Dumka, which resulted in load loss of 120 MW at Godda and Pukur areas of Jharkhand Power System.

Sequence of Event:



PMU Signature

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

- Identify the root cause of **B-Ph CT** bursting and share latest **test results** of CT carried out during preventive maintenance.
- Examine the reason of **non-isolation of fault** despite the availability of BB protection at Tenughat and take necessary remedial measures at earliest.
- Submit an action plan for revival of Bus coupler bay so that both bus can be charged with uniform feeder segregation to enhance system reliability
- Provide an update on replacement of E/M BB relay with Numerical Relays in compliance with CEA regulation and expedite the process.
- Ensure preventive maintenance of S/s equipment's is done in accordance with CEA Grid standard Regulation 2010.
- Clarify the reason for non-uniform distribution of feeders between both buses (All line feeders and GTs in 220 kV Bus-II).
- Possibility of fully utilization of both ICTs at Tenughat up to its rated MVA.
- Report received from Tenughat is attached in Annexure.

An online meeting was held on 21/04/2026 with participation from TVUNL, SLDC Jharkhand, CRITL Jharkhand Team, ERLDC and ERPC to discuss the Grid event (GD-1) at Tenughat S/s on 19/04/2026 which led to 317 MW generation loss at Tenughat and 120 MW load loss at Godda and Pakur due to SPS operation at Dumka S/s.

Deliberation of the discussion are as follows:

ERPC expressed concern over the criticality of generation loss at Tenughat and load loss due to SPS operation, which is a matter of serious concern for meeting Jharkhand demand.

ERLDC explained the sequence of event and highlighted protection and operational observation during the event. Reason of disturbance was bursting of B-phase CT of bus coupler bay and non-operation of bus bar protection which is electromechanical type relay.

TVUNL explained that during the fault, actual fault current contribution through the bus coupler was not measured correctly due to CT failure. The differential relay did not receive the true summation of currents, as a result, the operating current may not have exceeded the set threshold, causing non-operation of busbar protection.

TVUNL confirmed that burst CT will be replaced within one week and electromechanical bus bar relay will be replaced within 3 to 4 months.

ERLDC mentioned that during the event both units and feeders were kept on 220kV main bus #2. TVUNL confirmed that due to hotspot in main bus-1 side isolator of main bay GT-2, unit-2 and Govindpur line -2 shifted to main bus-2.

ERLDC suggested that after restoration of bus coupler, both 220kV bus taken into service with parallel segregation of elements for reliable operation at Tenughat S/s.

Points suggested by the forum are as follows:

Forum suggested that after revival of bus coupler bay high set O/C earth fault may be enabled in bus coupler to avoid total black out of Tenughat in case of non-operation of bur bar protection during bus fault at Tenughat S/s.

Forum suggested to explore the possibility of utilization of both ICTs up to its rated MVA capacity by reconductoring and upgradation of 220kV Tenughat substation for reliable operation during low Tenughat generation/ outage of Tenughat units.

Forum suggested to maintenance and testing of substation equipment on periodic basis to avoid equipment failure.

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

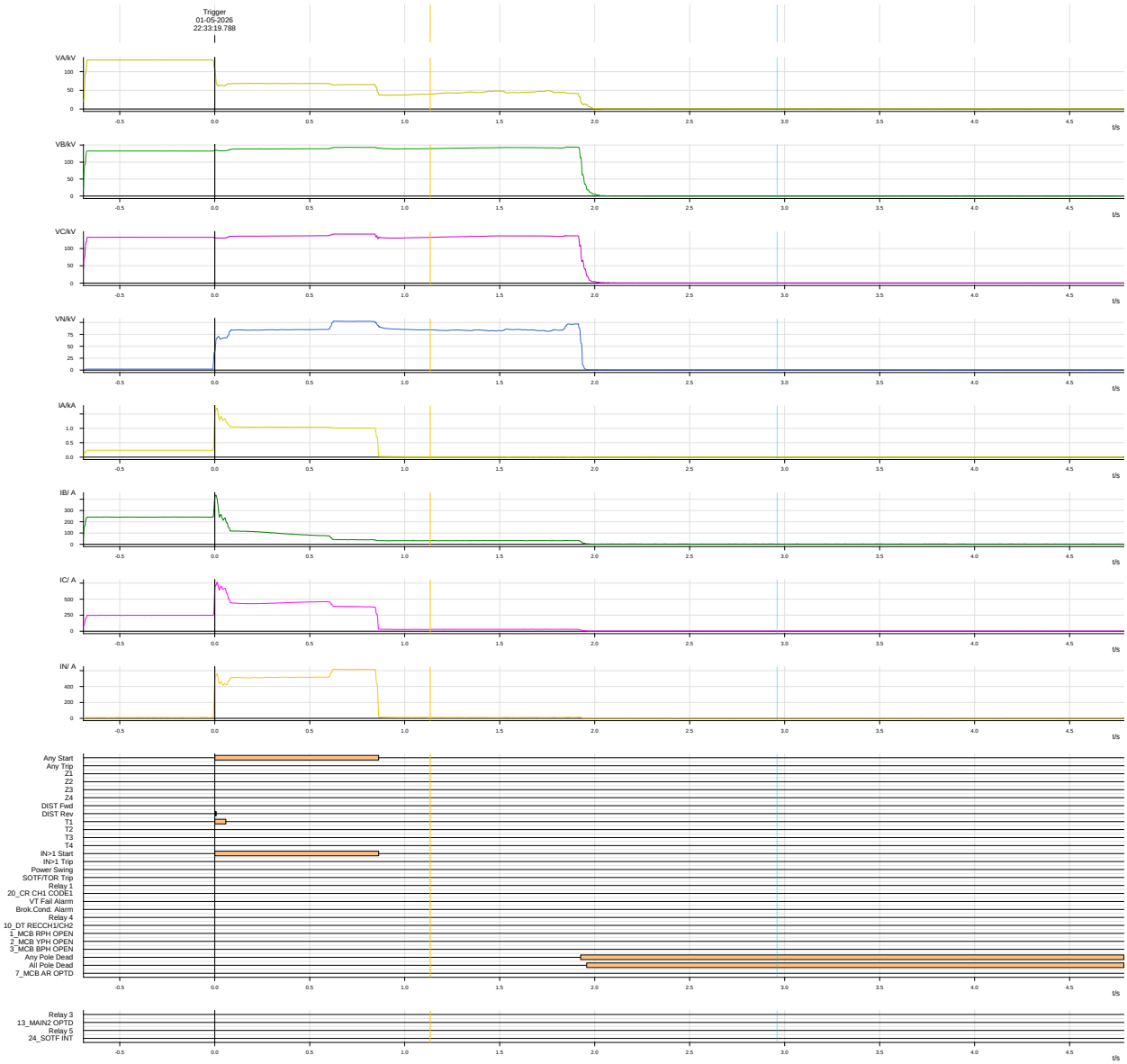
14.Non-compliance observed (विनियमन का गैर-अनुपालन):

S.No.	Issues	Regulation Non-Compliance	Remark
1	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	Not Submitted
2	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted
3	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	Submitted
4	**Protection system not operated correctly**	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)	Bus bar protection not operated at Tenughat S/s.

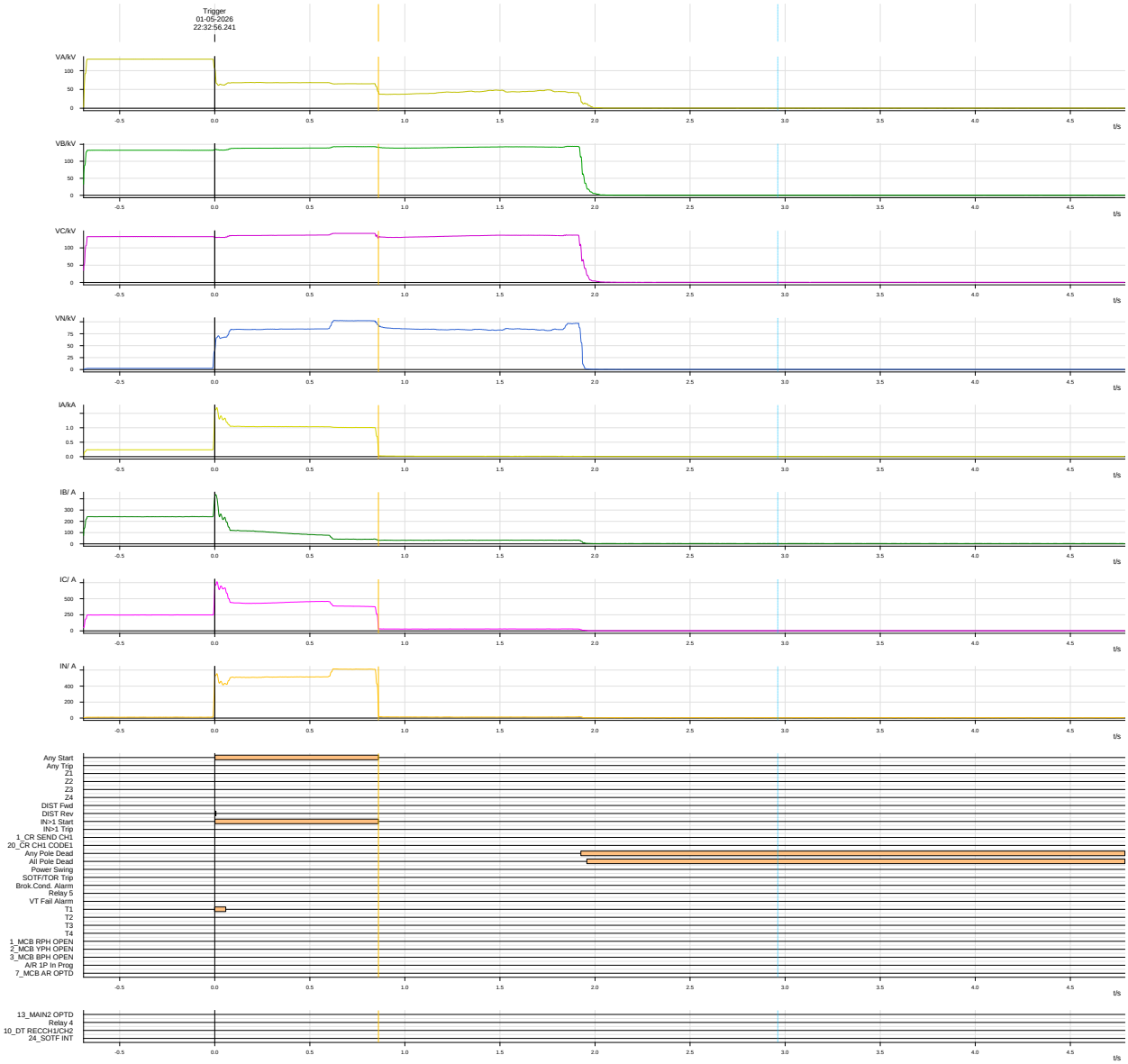
15. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil

Annexure 2:

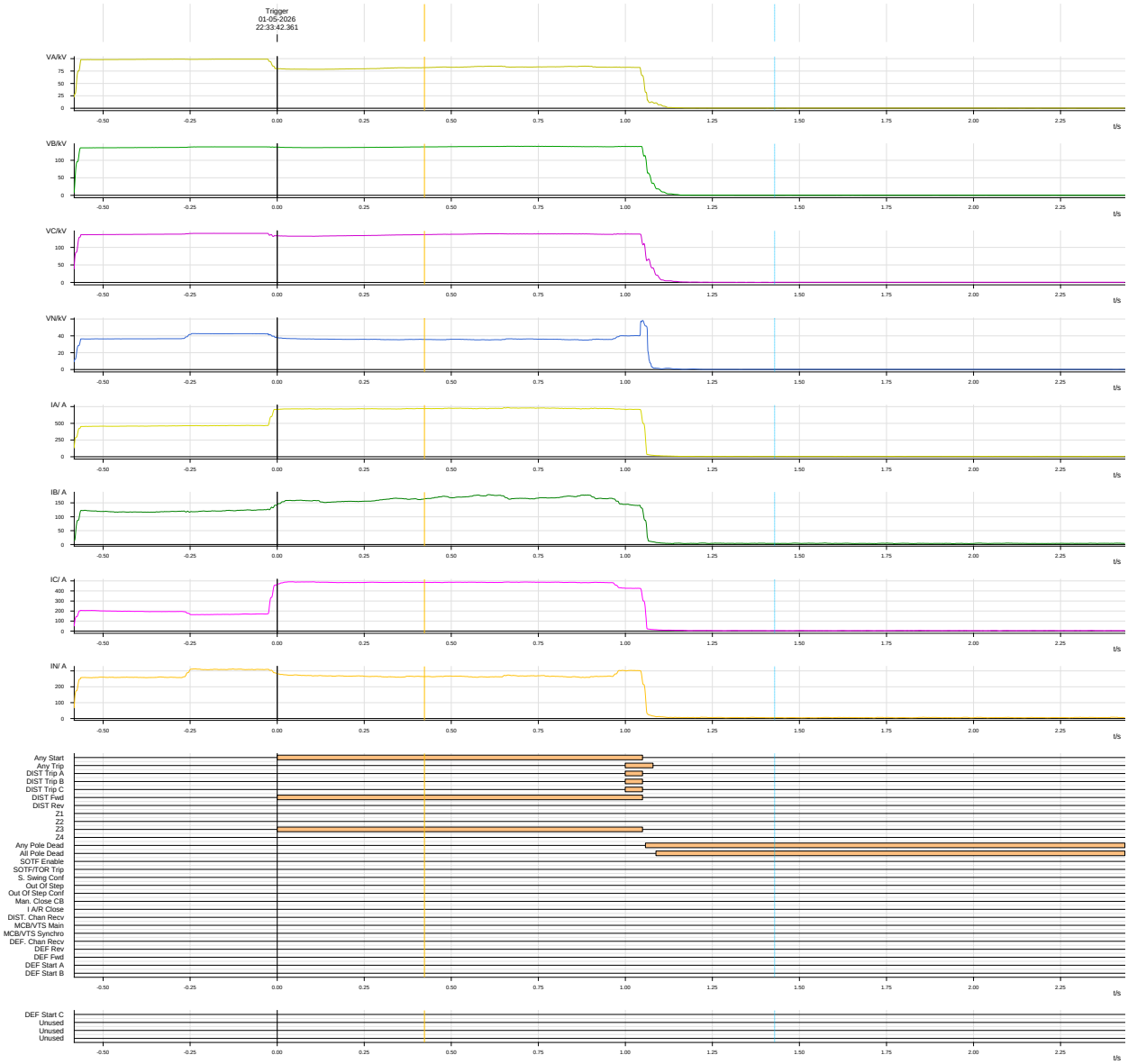
DR of ICT-1 at Tenughat



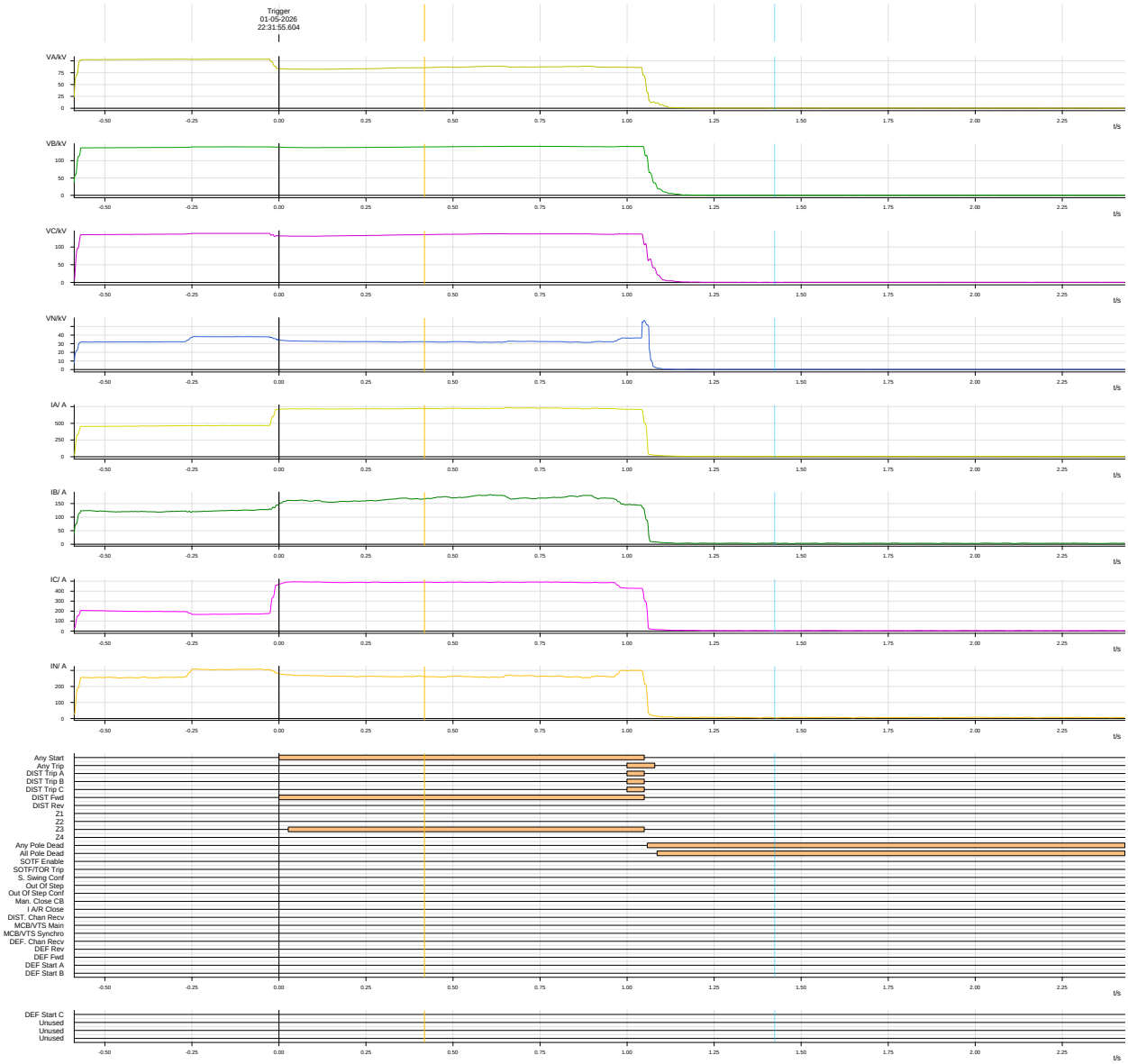
DR of ICT-2 at Tenughat



DR of Tenughat-Govindpur line 1 at Govindpur end:



DR of Tenughat-Govindpur line 2 at Govindpur end:



GRID DISTURBANCE AT TTPS Lalpania end at 23:13 Hrs on Dated: 19.04.2026

Event Detail : Bay No. 8 Bus-Coupler Bay CT of B-phase at 220KV TTPS Lalpania Switchyard exploded at 23:13 hrs on 19.04.2026.

Pre-Event Condition

BUS	BAY NO	BAY NAME	AMP	MW	OIL PR.	SF6 PR.
BUS-2	4	GOV-1	325A	130 MW(EXP)		7.1
BUS-2	5	GOV-2	328A	132 MW(EXP)		7.9
BUS-2	8	Bus Coupler	155A		325	7.0
BUS-2	14	Bihar Sharif	332A	134 MW(EXP)	328	7.4
BUS-1	17	IBT-1		52 MW(IMP)	330	7.6
BUS-2	18	GT-1	419A	147 MW	330	7.0
BUS-2	19	IBT-2		53 MW(IMP)	328	7.0
BUS-2	20	GT-2	480A	170 MW	325	7.2

Fig.1 may please be referred for Main Bus-1 & Main Bus-2 Loading before the occurrence, with 155A current flowing through Bus-Coupler.

Fig.1

Bus-Coupler Test & Thermography Details (attached in mail)

1.) Thermography Measured on 17.04.2026

CT Connector						Bus-1 Iso			Bus-2 Iso			Bus2 EMVT Connector			Bus2 EMVT Isolator		
R		Y		B		R	Y	B	R	Y	B	R	Y	B	R	Y	B
P1	P2	P1	P2	P1	P2	R	Y	B	R	Y	B	R	Y	B	R	Y	B
42	44	44	49	43	40	49	42	42	43	44	43	40	41	40	43	41	43

*Reports mailed to TTPS tech team on 17.04.2026

Tripping Analysis

The upper section of the CT, connected with the Moose conductor, broke during the explosion. The Moose conductor remained attached to the detached upper section, which subsequently fell to the ground, resulting in a Bus-1 earth fault.

Feeder	Tripping Time	Tripping End
Bihar Sharif	23:13:05	Remote
Govindpur-1	23:13:16	Remote
Govindpur-2	23:13:16	Remote
ICT-1	23:13:16	TTPS
ICT-2	23:13:16	TTPS
Unit 1 Tripped	23:13:36	TTPS
Unit 2 Tripped	23:13:43	TTPS

Operation of Bus-Bar Protection

Suspected Operation of Bus Bar Protection may as below:

NOTE:

- Existing 220KV Bus Bar is of Electromechanical Type.
- New 220KV NUMERICAL Bus Bar Protection is expected to be commissioned in 3 to 4 months.
- CT control cables melted in explosion fire of Bus Coupler Bay.

Case 1:

When the CT in the bus coupler explodes, the secondary current from that bay becomes zero or highly distorted which creates a current imbalance in the differential protection scheme. The protection system interprets incorrect current values, leading to Failure to detect internal faults (loss of sensitivity), or Unwanted restraint / spill current miscalculation.

Case 2:

During the fault, actual fault current contribution through the bus coupler was not measured correctly due to CT failure. The differential relay did not receive the true summation of currents. As a result, the operating current may not have exceeded the set threshold, causing non-operation or delayed operation of busbar protection.

ग्रिड-इंडिया GRID-INDIA ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / Eastern Regional Load Despatch Centre
कार्यालय : 14, गोल्फ क्लब रोड, टालिगंज, कोलकाता - 700033
Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033
CIN : U40105DL2009GOI188682, Website : www.erldc.in, E-mail : erldcinfo@grid-india.in, Tel.: 033 23890060/0061

Detailed Report of grid event at 220kV Dalkhola(WB) 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): 06-05-2026

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

Prior to the disturbance, 220kV bus coupler at Dalkhola (PG) was in off condition due to system requirement and Dalkhola(WB) was connected through 220kV Kishanganj-Dalkhola (PG)-Dalkhola (WB) D/C line.
At 00:09 Hrs on 26/04/2026, 220kV Kishanganj-Siliguri-1 and 220 kV Kishanganj- Dalkhola (PG) D/C tripped due to B-Earth fault. This resulted in 220 kV bus dead at Dalkhola (WB). Total load loss of 80 MW reported at Dalkhola(WB).

2. **Time and Date of the Event (घटना का समय और दिनांक):** 00:11 Hrs of 26/04/2026
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 WB (MW)	State Demand WB (MW)
Pre-Event (घटना पूर्व)	49.97 HZ	35069 MW	32034 MW	7173 MW	12183 MW
Post Event (घटना के बाद)	49.97 Hz	35069 MW	31954 MW	7173 MW	12103 MW

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

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है)	220 kV Bus coupler at Dalkhola (PG) was in off condition due to system requirement. Bus arrangement at Dalkhola (PG) was as follows: Bus 1: 220 kV Purnea D/C and 220 Gazole D/C Bus 2: 220 kV Kishanganj D/C and 220 kV Dalkhola (WB) D/C
Weather Condition (मौसम स्थिति)	Heavy storm reported.

6. **Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss- 0 MW, Load loss-80 MW
7. **Duration of interruption (रुकावट की अवधि): 23 Mins**
8. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

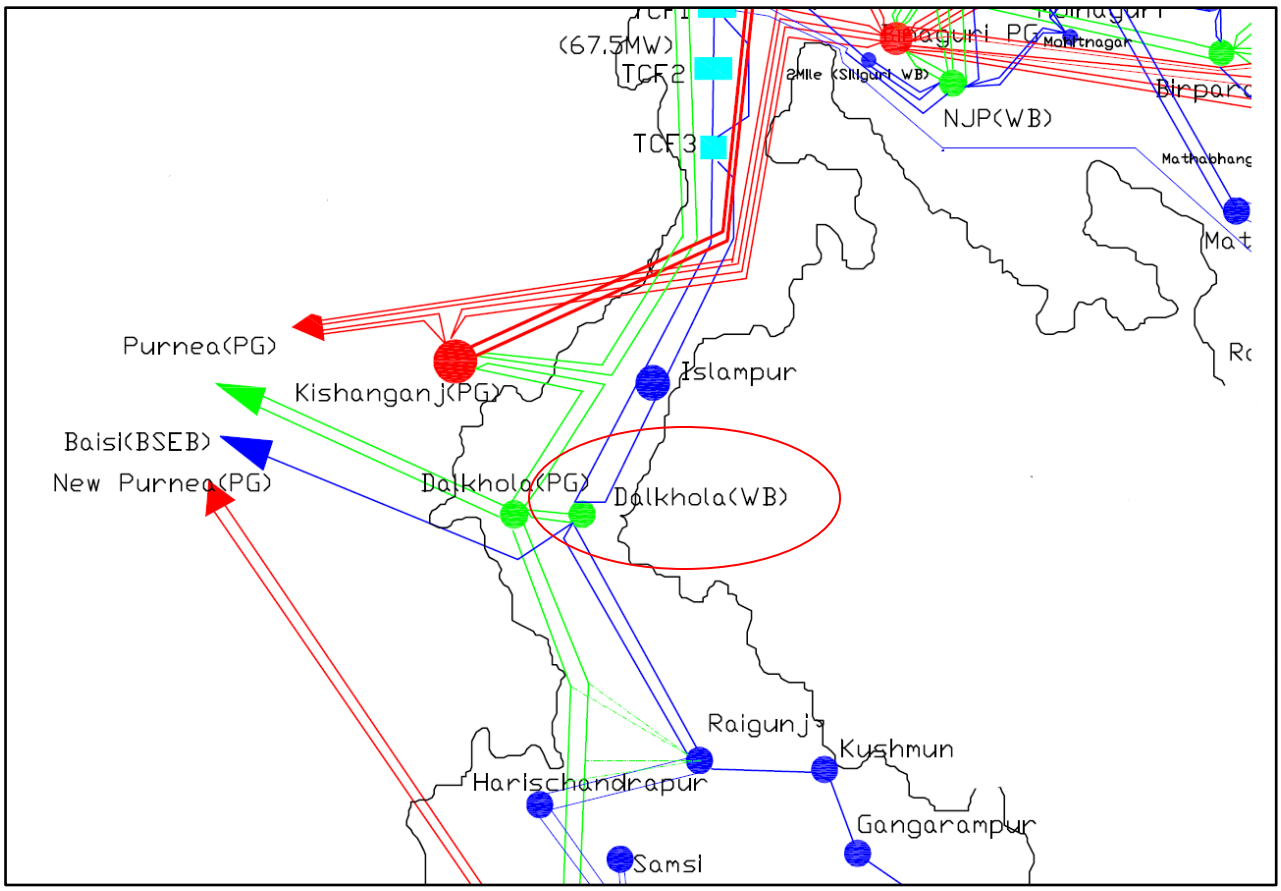


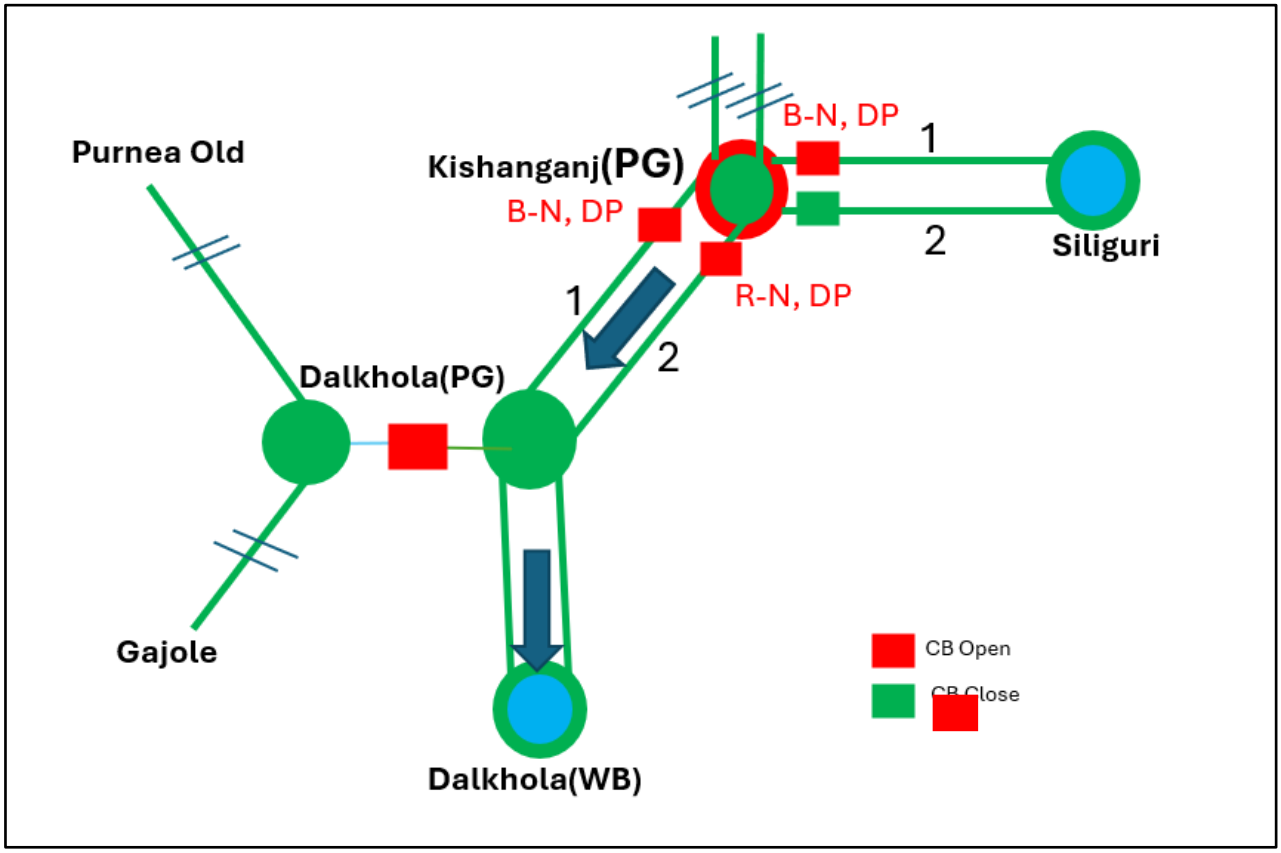
Figure 1: Network across the affected area

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

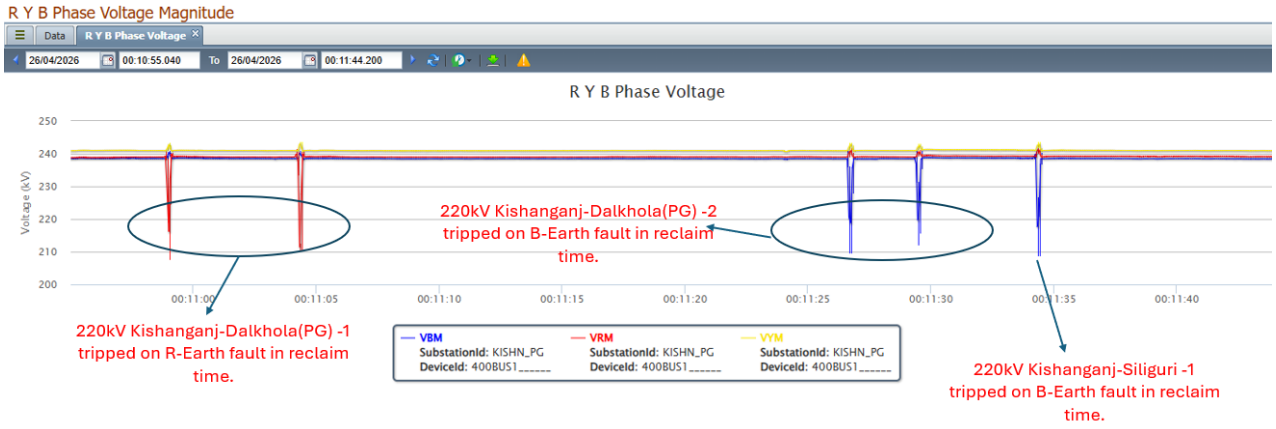
10. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्रoसo	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1.	220KV-KISHANGANJ(PG)-DALKHOLA (PG)-1	00:11:04	Tripped only from Kishanganj end: B-N, 4.7 km, Ib 14.1 kA,		03:11
2.	220KV-KISHANGANJ(PG)-DALKHOLA (PG)-2	00:11:29	Tripped only from Kishanganj end: 4.4 km, R-N.		03:13
3	220KV-SILIGURI-KISHANGANJ(PG)-1	00:11:35	Siliguri: B-N, 102 km, IB 2.2 kA. Kishanganj: B-N, IB 13.7 kA, 1.8 km,		03:05

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



- Prior to the disturbance, 220 kV bus coupler at Dalkhola(PG) was in OFF condition due to system requirement and Dalkhola (WB) connected through 220kV Kishanganj-Dalkhola(PG)-Dalkhola(WB) D/C line.
- On 26/04/2026 due to inclement weather multiple phases to ground transient fault occurred in 220kV Kishanganj-Dalkhola D/C and 220kV Kishanganj-Siliguri line.
- At 00:11:04 Hrs 220kV Kishanganj Dalkhola (PG) line-1 tripped on B-Earth fault in reclaim time.
- At 00:11:29 Hrs 220kV Kishanganj Dalkhola (PG) line-2 tripped on R-Earth fault in reclaim time.
- At 00:11:34 Hrs 220kV Kishangan-Siliguri line -1 tripped on B-Earth fault in reclaim time.
- Due to tripping of 220kV Kishanganj-Dalkhola (PG) D/C line, 220kV Dalkhola (WB) became dead.
- Total load loss of 80 MW reported at Dalkhola (WB) S/s of West Bengal Power System.



PMU of Kishanganj Voltage

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

- Protection operated as per protection scheme.

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

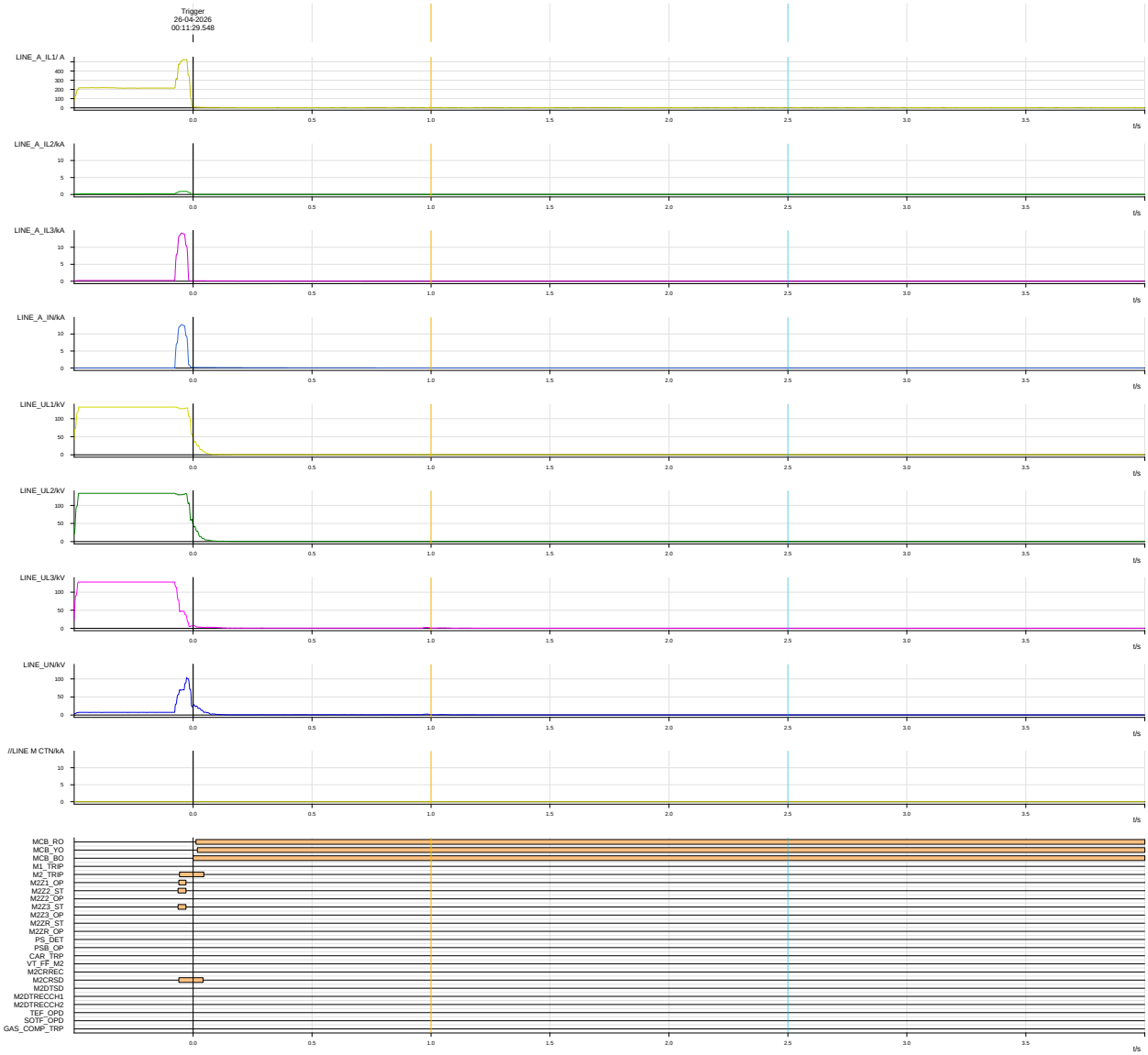
14. Non-compliance observed (विनियमन का गैर-अनुपालन):

S.No.	Issues	Regulation Non-Compliance	Remark
1	**Flash Report received within 8hrs?**	IEGC section 37.2 (b)	Not Submitted
2	**Whether DR/EL provided within 24 Hours?**	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted (After 24 Hrs)
3	**Detailed Report received within 7 days?**	IEGC section 37.2 (e)	Not Submitted
4	**Protection system not operated correctly**	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 protection scheme.

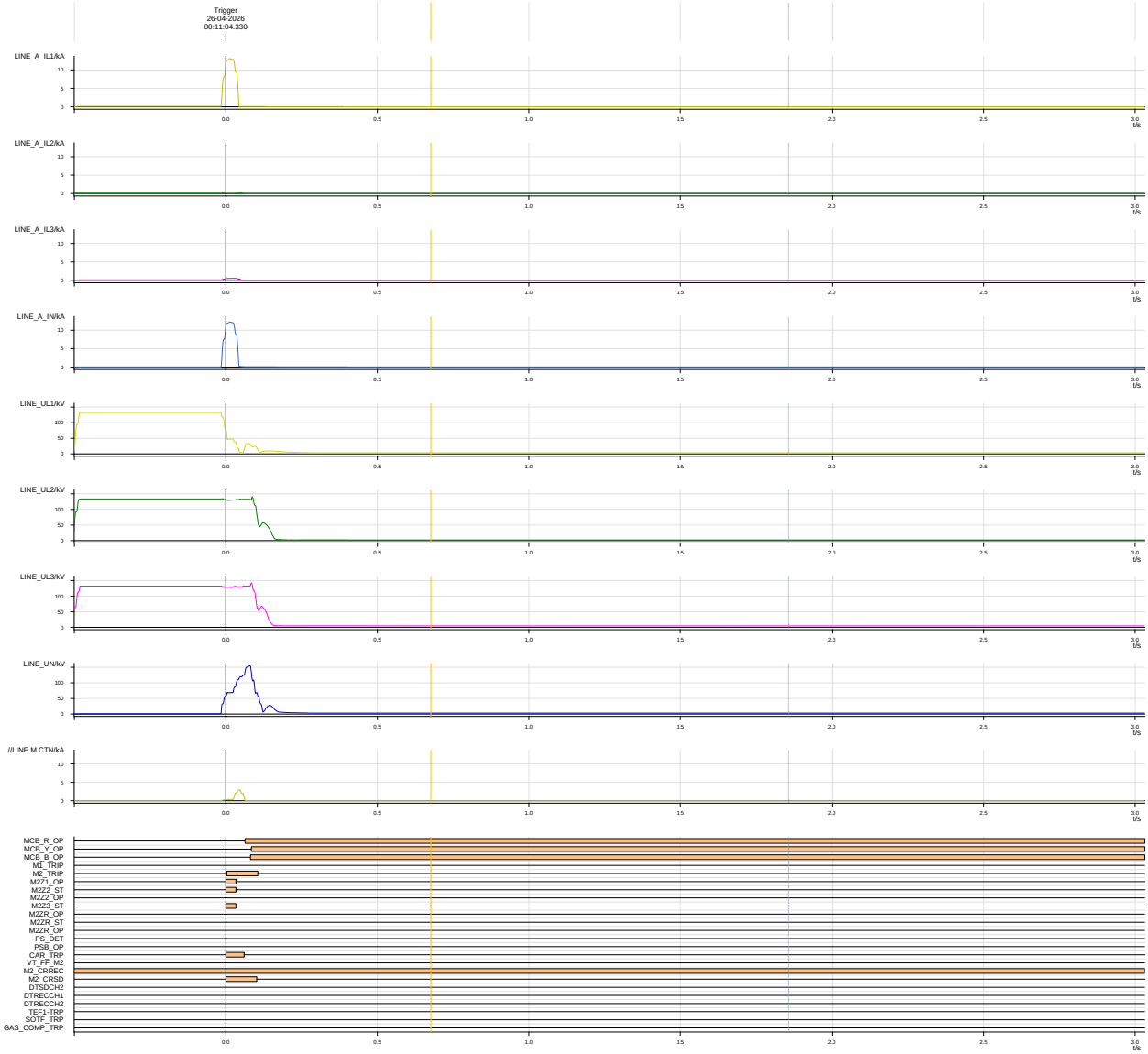
15. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil

Annexure 1:

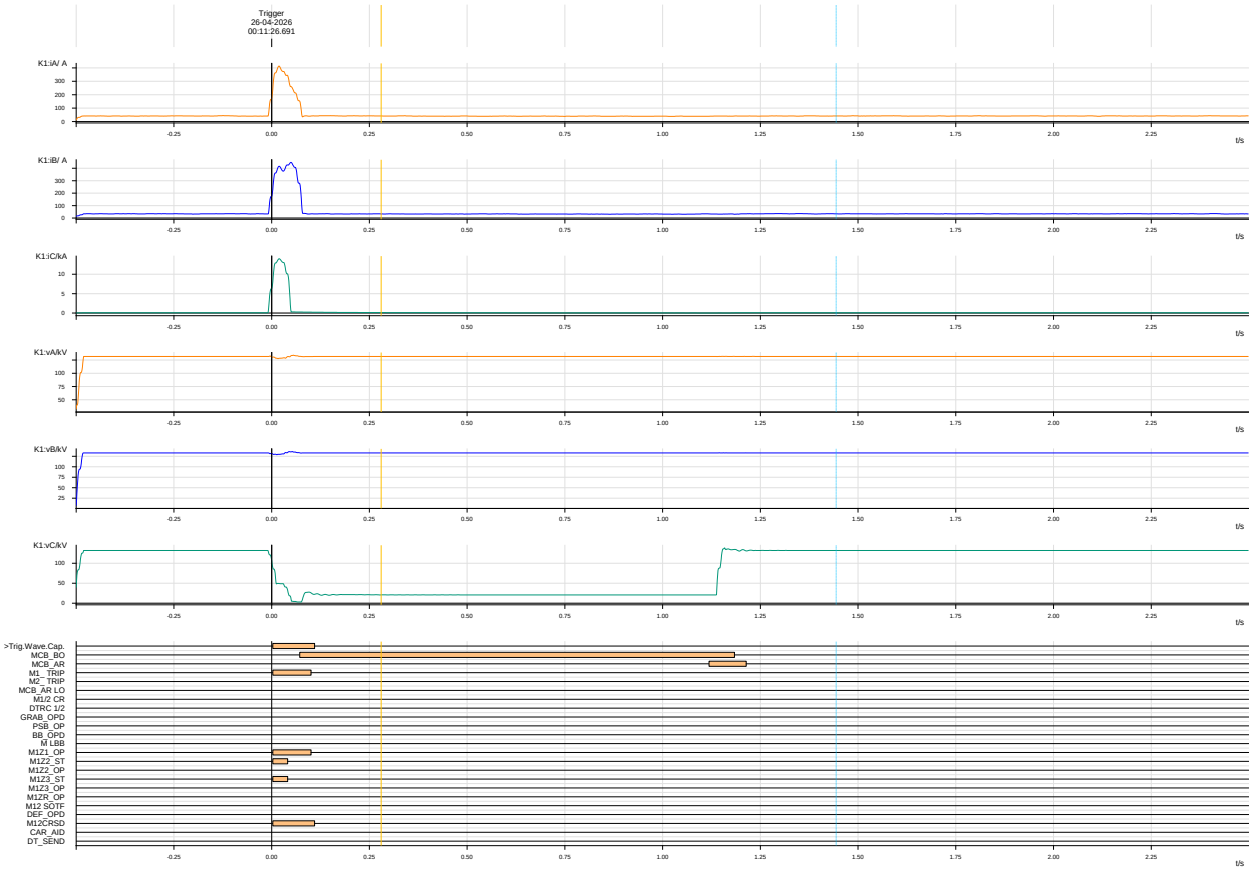
DR of 220kV Kishanganj-Dalkhola(PG)-1 at Kishanganj end



DR of 220kV Kishanganj-Dalkhola(PG)-2 at Kishanganj end



DR of 220kV Kishanganj-Siliguri-1 at Kishanganj end



Annexure 3.3

NTPC Barh

Month	April

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

1/5/26.

Signature of Area Engineer

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

01/05/2026

Signature of Area In-charge

कनिष्क रंजन / KANISHKA RANJAN
उप महाप्रबंधक (प्र॰ एवं अनु॰/विद्युत अनुरक्षण विभाग)
Dy. General Manager (O&M/EMD)
एनटीपीसी लि॰ बाढ़ / NTPC Ltd., Barh

Tashiding HEP

Tashiding Hydro Electric Project 2 X 48.5 MW

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

Nc - is the number of correct operations at internal power system faults.
Nf - is the number of failures to operate at internal power system faults.
Nu - is the number of unwanted operations.

Jorethang HEP

Jorethang Loop Hydro Electric Project 2 X 28 MW

Protection Performance Indices for the April-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+N f))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+ Nu+Nf))	Remarks (Reason for performance indices less than 1)	Analysis of the event
						End A	End B	End A	End B	End A	End B	End A	End B					
1	220KV Jorethang- New Melli Line-1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2	220KV Jorethang- New Melli Line-2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	

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.

TVNL

Protection Performance Indices for the month of APRIL 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	06-04-2026	02:25	06-04-2026	03:55	STARTED PH AN,DIST.Z1 49.26km		1		1		0		1.0000	0.5000	0.5000	
2	220KV TTPS-GOVINDPUR CKT 1 T/L	07-04-2026	12:25	07-04-2026	18:01	STARTED PH BC,FAULT Z1 39.34km		1		1		0		1.0000	0.5000	0.5000	
3	400KV TTPS-PVUNL T/L	07-04-2026	14:22	07-04-2026	18:08	A/R OPERATED,CARR,DT REC,DIST-58KM,Z1		1		1		0		1.0000	0.5000	0.5000	
4	220KV TTPS-GOVINDPUR CKT 2 T/L	14-04-2026	16:40	14-04-2026	20:50	Tripped from Remote End on Circuitary Fault		1		1		0		1.0000	0.5000	0.5000	
5	220KV TTPS-Bihar Shariff T/L	17-04-2026	13:14	17-04-2026	13:48	STARTED PH CN E/F DIST-Z1 72.54km		1		1		0		1.0000	0.5000	0.5000	
6	220KV TTPS-Bihar Shariff T/L	19-04-2026	23:13	19-04-2026	23:55									0.0000	0.0000	0.0000	Electromechanical Bus Bar Protection - To be replaced in 2-3 months
7	220KV TTPS-GOVINDPUR CKT 1 T/L	19-04-2026	23:13	20-04-2026	01:51	Bus Coupler CT at TTPS Exploded resulting in Bus Earth		0		1		1		0.0000	0.0000	0.0000	
8	220KV TTPS-GOVINDPUR CKT 2 T/L	19-04-2026	23:13	20-04-2026	01:55									0.0000	0.0000	0.0000	
9	400KV TTPS-PVUNL T/L	20-04-2026	01:50	20-04-2026	03:20	Overcurrent I>1		1		1		0		1.0000	0.5000	0.5000	
10	400KV TTPS-PVUNL T/L	20-04-2026	03:29	20-04-2026	10:32	Overcurrent I>1		1		1		0		1.0000	0.5000	0.5000	
11	220KV TTPS-Bihar Shariff T/L	22-04-2026	12:34	22-04-2026	13:34	STARTED PH BC,DIST-Z1 142.8km		1		1		0		1.0000	0.5000	0.5000	
12	400KV TTPS-PVUNL T/L	23-04-2026	07:45	23-04-2026	09:22	Overcurrent I>1		1		1		0		1.0000	0.5000	0.5000	
13	400KV TTPS-PVUNL T/L	24-04-2026	04:22	24-04-2026	07:33	Overcurrent I>1		1		1		0		1.0000	0.5000	0.5000	
14	400KV TTPS-PVUNL T/L	29-04-2026	15:16	02-05-2026	17:13	OverVoltaget V>1		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

DMTCL

Protection Performance Indices for the month of April'2026																		
Sr.No.	**Name of the Element**	**Tripping Date**	**Tripping Time**	**Restoration Date**	**Restoration Time**	**Reason (Relay indication)**		**Nc**	**Nc**	**Nu**	**Nu**	**Nf**	**Nf**	**Dependability index (Nc/(Nc+Nf))**	**Security Index (Nc/(Nc+Nu))**	**Reliability Index (Nc/(Nc+Nu+Nf))**	**Remarks (Reason for performance indices less than 1)**	**Analysis of the event**
						End A	**End B**	**End A**	**End B**	**End A**	**End B**	**End A**	**End B**					
	No-Tripping in April'2026 Month																	