



सत्यमेव जयते



भारत सरकार  
Government of India  
विद्युत मंत्रालय  
Ministry of Power

पूर्वी क्षेत्रीय विद्युत समिति

**Eastern Regional Power Committee**

14, गोल्फ क्लब रोड, टॉलीगंज, कोलकाता-700033

14 Golf Club Road, Tollygunj, Kolkata-700033

स./NO. पू.क्षे.वि.स./PROTECTION/2025/1098

दिनांक /DATE: 10/09/2025

सेवा में / To,

संलग्न सूची के अनुसार / As per list enclosed.

विषय : दिनांक – 19.08.2025 को आयोजित 150 वीं पीसीसी बैठक का कार्यवृत्त ।

Sub: Minutes of the 150<sup>th</sup> PCC meeting held on 19.08.2025

महोदय/ Sir,

19.08.2025 को आयोजित 150वीं पीसीसी बैठक का कार्यवृत्त पू.क्षे.वि.स. की वेबसाइट (<http://www.erpc.gov.in/>) पर उपलब्ध है। कृपया देखें।

Please find the minutes of the 150<sup>th</sup> PCC meeting of ERPC held on 19.08.2025 available at ERPC website (<http://www.erpc.gov.in/>).

यदि कोई अवलोकन हो, तो कृपया इस कार्यालय को यथाशीघ्र भेजा जाए।

Observations, if any, may please be forwarded to this office at the earliest.

यह सदस्य सचिव, पू. क्षे. वि. स. के अनुमोदन से जारी किया जाता है।

This issues with approval of Member Secretary, ERPC.

भवदीय / Yours faithfully,

*(Handwritten signature)*  
10/9/2025

(आई.के.मेहरा / I.K.Mehra)

अधीक्षण अभियंता(पी.एस)

Superintending Engineer (PS)

## **LIST OF ADDRESSES:**

Chief Engineer, Trans (O&M) Bihar State Power Transmission Limited, Vidyut Bhawan, Bailey Road, Patna-800021	Chief Engineer (CRITL) Bihar State Power Transmission Limited, Vidyut Bhawan, Bailey, Road, Patna-800021
Chief Engineer( System Operation), SLDC , BSPTCL, Patna-800021	
Chief Engineer (SLDC) Damodar Valley Corporation, GOMD-I Premises, P.O.- DaneshSeikh Lane, Howrah- 711109	Chief Engineer (CTC) Damodar Valley Corporation, P.O. Maithon Dam, Dist. Dhanbad,Jharkhand-828207
Chief Engineer, (CRITL) Jharkhand Urja Sancharan Nigam Limited Kusai Colony, Doranda, Ranchi-834002	Chief Engineer (CLD) Jharkhand UrjaSancharan Nigam Limited, Kusai Colony,Doranda, Ranchi-834002
Chief General Manager (O&M), OPTCL, Janpath, Bhubaneswar, Odisha – 751 022. FAX: 0674-2542932 cgm.onm@optcl.co.in	Sr. General Manager (PPA), Technical Wing, OHPCL, Orissa State Police Housing & Welfare Corpn. Bldg. VaniviharChowk, Janpath, Bhubaneswar-752022
Chief Load Dispatcher, SLDC OPTCL, P.O. Mancheswar Rly. Colony Bhubaneswar-751017	Chief Engineer (Testing), WBSETCL Central Testing Laboratory, Abhikshan, Salt Lake, Kolkata-700091 ( Fax no. 2367-3578/1235 )
Chief Engineer (CLD) WBSETCL, P.O.Danesh Sheikh Lane, AndulRoad, Howrah-711109	Addl. Chief Engineer (ALDC) West Bengal Electricity Distribution Company Ltd VidyutBhavan, 7 <sup>th</sup> Floor, Bidhannagar, Sector-I Salt Lake City, Kolkata-700091(Fax-033-2334-5862)
Dy. Chief Engineer (Testing)/ Sr. Manager (Testing) CESC Ltd.,4, SasiSekhar Bose Road, Kolkata-700025	General Manager (O&M) KhSTPS, NTPC Ltd., P.O. Deepti Nagar, Dist. Bhagalpur, Bihar-813203
General Manager(O&M) FSTPS, NTPC Ltd., P.O. Nabarun, Dist. Murshidabad, West Bengal-742236	Dy. General Manager (Engineering), WBPDC, OS Dept. Corporate Office, 3/C, L.A Block, Salt Lake-III, Kolkata-700098 (Fax-033-23350516)
General Manager (O&M) Barh STPS, NTPC Ltd., P.O. NTPC Barh, Dist. Patna, Bihar-803213	General Manager (OS), ERHQ-II, NTPC Ltd., 3 <sup>rd</sup> flr. OLIC Building, Plot no. N 17/2, Nayapalli, Unit-8 Bhubaneswar- 751012 (Fax No. 0674-2540919)
General Manager(O&M), TSTPS, NTPC Ltd., P.O.Kaniha, Dist. Angul, Orissa-759117	General Manager (AM), POWERGRID, Odisha Projects, Sahid Nagar, Bhubaneswar – 751 007
General Manager (OS), ERHQ-I, NTPC Ltd., LoknayaJaiprakashBhawan, (2 <sup>nd</sup> Floor), DakBunglowChawk, Patna-800001	Manager (Electrical), Adhunik Power & Natural Resources Ltd. “Lansdowne Towers, Kolkata-700020 (Fax No. 033-2289 0285)
Executive Director (O&M) NHPC Ltd., NHPC Office Complex, Sector-33, Faridabad, Haryana-121003 (Fax-01292272413)	Electrical Superintending Engineer, TTPS, TenughatVidyut Nigam Ltd.,Lalpania, Dist. Bokaro, Jharkhand-829149
Dy. General Manager (Electrical) IB Thermal Power Station, OPGCL Banhapalli, Dist. Jharsuguda-768234, Orissa	General Manager (AM), ER-I Power Grid Corporation of India Ltd., Alankar Place, Boring Road, Patna-800001
Chief Engineer (Trans.) Power Deptt., Govt. of Sikkim, Gangtok-731010	Sr. Manager (CTMC) Durgapur Projects Limited,Durgapur-713201
Executive Director, ERLDC, POSOCO, Tollygunge, Kolkata-700033	Head –Regulatory and contracts, IndiGrid Limited , 247 Embassy, Office No 107, ‘B’ Wing, Hindustan Co. Bus Stop, Gandhi Nagar, L.B.S. Road, Vikhroli West, Mumbai – 400 079. Ph : +91 845509 96408
General Manager (AM), ER-II Power Grid Corporation of India Ltd., J-I-15, Block-EP, Sector-V,Salt Lake,Kolkata-91	The Plant Head, Maithon Power Limited, Maithon Office, MA 5 Gogna, Dist. Dhanbad, Jharkhand State, PIN-828207
General Manager (P&O), PTC Ltd., Kanchanjunga Bldg.,18, Barakhamba Road,	

New Delhi-110001	
Managing Director, Bhutan Power Corporation Post Box no. 580, Thimpu, Bhutan.	Managing Director, Druk Green Power Corprn. P.O. Box-1351, Thimpu, Bhutan.
Associate Director ( Commercial and Regulatory) Darbhanga-Motihari Transmission Company Limited (DMTCL),503,Windsor, Off CST Road, Kalina, Santacruz(E), Mumbai-400098	The Plant Head, JITPL. (FAX:011-26139256-65)
General Manager, Sikkim Urja Limited, New Delhi (FAX:011-46529744)	President , TPTEL, Bhikaji Cama Place, New Delhi , 110066
Director (NPC), CEA, NRPC Building, KatwariaSarai, New Delhi- 110016	President, Dans Energy Pvt. Ltd, 5th Floor, DLF Building No. 8, Tower-C, Gurgaon - 722002
Director, Shiga Energy Pw. Ltd., 5th Floor, DLF Building No. 8, Tower-C, Gurgaon - 722002	DGM (E&I), HALDIA ENERGY LIMITED, BARIK BHAWAN, KOKATA-700072, FAX: 033-22360955
The Plant Head, Dikchu HEP, Sikkim	

मुख्य अभियंता, ट्रांस (ओ एंड एम), बिहार स्टेट पावर ट्रांसमिशन लिमिटेड, विद्युत भवन, बेली रोड, पटना-800021	मुख्य अभियंता (सीआरआईटीएल), बिहार स्टेट पावर ट्रांसमिशन लिमिटेड, विद्युत भवन, बेली, रोड, पटना-800021
मुख्य अभियंता (सिस्टम ऑपरेशन), एसएलडीसी, बीएसपीटीसीएल, पटना-800021	
मुख्य अभियंता (एसएलडीसी), दामोदर वैली कॉर्पोरेशन, जीओएमडी-1 परिसर, पी.ओ.- दानेशशेख लेन, हावड़ा- 711109	मुख्य अभियंता (सीटीसी), दामोदर घाटी निगम, पी.ओ. मैथन बांध, जिला। धनबाद, झारखण्ड-828207
मुख्य अभियंता (सीआरआईटीएल), झारखण्ड ऊर्जा संचरण निगम लिमिटेड कुसाई कॉलोनी, डोरंडा, रांची-834002	मुख्य अभियंता (सीएलडी), झारखंड ऊर्जा संचरण निगम लिमिटेड, कुसाई कॉलोनी, डोरंडा, रांची-834002
मुख्य महाप्रबंधक (ओ एंड एम), ओपीटीसीएल, जनपथ, भुवनेश्वर, ओडिशा – 751 022. फैक्स: 0674-2542932 cgm.onm@optcl.co.in	वरिष्ठ महाप्रबंधक (पीपीए), तकनीकी विंग, ओएचपीसीएल, उड़ीसा राज्य पुलिस आवास एवं कल्याण निगम बिल्डिंग वाणीविहार चौक, जनपथ, भुवनेश्वर-752022
मुख्य लोड डिस्पैचर, एसएलडीसी ओपीटीसीएल, पी.ओ. मंचेश्वर रेलवे कॉलोनी भुवनेश्वर-751017	मुख्य अभियंता (परीक्षण), डब्ल्यूबीएसईटीसीएल केंद्रीय परीक्षण प्रयोगशाला, अभिक्षण, साल्ट लेक, कोलकाता-700091 (फैक्स नंबर 2367-3578/1235)
मुख्य अभियंता (सीएलडी), डब्ल्यूबीएसईटीसीएल, पी.ओ. दानेश शेख लेन, अंदुलरोड, हावड़ा-711109	अतिरिक्त मुख्य अभियंता (एएलडीसी), पश्चिम बंगाल विद्युत वितरण कंपनी लिमिटेड विद्युत भवन, 7वीं मंजिल, बिधाननगर, सेक्टर-I साल्ट लेक सिटी, कोलकाता-700091 (फैक्स-033-2334-5862)
उप मुख्य अभियंता (परीक्षण)/वरिष्ठ प्रबंधक (परीक्षण) सीईएससी लिमिटेड, 4, शशि शेखर बोस रोड, कोलकाता-700025	महाप्रबंधक (ओ एंड एम), खएसटीपीएस, एनटीपीसी लिमिटेड, पी.ओ. दीप्ति नगर, जिला भागलपुर, बिहार-813203
महाप्रबंधक (ओ एंड एम) एफएसटीपीएस, एनटीपीसी लिमिटेड, पी.ओ. नबारून, जिला- मुर्शिदाबाद, पश्चिम बंगाल-742236	उप. महाप्रबंधक (इंजीनियरिंग), डब्ल्यूबीपीडीसीएल, ओएस विभाग कॉर्पोरेट कार्यालय, 3/सी, एलए ब्लॉक, साल्ट लेक-III, कोलकाता-700098 (फैक्स-033-23350516)
महाप्रबंधक (ओ एंड एम), बाढ़ एसटीपीएस, एनटीपीसी लिमिटेड, पी.ओ. एनटीपीसी बाढ़, जिला- पटना, बिहार-803213	महाप्रबंधक (ओएस), ईआरएचक्यू-II, एनटीपीसी लिमिटेड, 3 <sup>rd</sup> Floor, ओएलआईसी बिल्डिंग, प्लॉट नं. एन 17/2, नयापल्ली, यूनिट-8 भुवनेश्वर- 751012 (फैक्स नंबर 0674-2540919)
महाप्रबंधक (ओ एंड एम), टीएसटीपीएस, एनटीपीसी लिमिटेड, पी.ओ.कनिहा, जिला- अंगुल, उड़ीसा- 759117	महाप्रबंधक (एएम), पावरग्रिड, ओडिशा प्रोजेक्ट्स, साहिद नगर, भुवनेश्वर - 751 007
महाप्रबंधक (ओएस), ईआरएचक्यू-I, एनटीपीसी लिमिटेड, लोकनायक जयप्रकाश भवन, (दूसरी मंजिल), डाकबंगलाचौक, पटना-800001	प्रबंधक (इलेक्ट्रिकल), आधुनिक पावर एंड नेचुरल रिसोर्सेज लिमिटेड, लैंसडाउन टावर्स, कोलकाता-700020 (फैक्स नंबर 033-2289 0285)

कार्यकारी निदेशक (ओ एंड एम), एनएचपीसी लिमिटेड, एनएचपीसी कार्यालय परिसर, सेक्टर-33, फरीदाबाद, हरियाणा-121003 (फैक्स- 01292272413)	विद्युत अधीक्षण अभियंता, टीटीपीएस, तेनुघाट विद्युत निगम लिमिटेड, ललपनिया, जिला। बोकारो, झारखण्ड-829149
उप महाप्रबंधक (विद्युत), आईबी थर्मल पावर स्टेशन, ओपीजीसीएल बनहापल्ली, जिला। झारसुगुड़ा-768234, उड़ीसा	महाप्रबंधक (एएम), ईआर-I पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड, अलंकार प्लेस, बोरिंग रोड, पटना- 800001
मुख्य अभियंता (ट्रांस.), विद्युत विभाग, सरकार। सिक्किम, गंगटोक-731010	वरिष्ठ प्रबंधक (सीटीएमसी), दुर्गापुर प्रोजेक्ट्स लिमिटेड, दुर्गापुर-713201
कार्यकारी निदेशक, ईआरएलडीसी, पोसोको, टॉलीगंज, कोलकाता-700033	प्रमुख-नियामक और अनुबंध, इंडीग्रिड लिमिटेड, 247 दूतावास, कार्यालय संख्या 107, 'बी' विंग, हिंदुस्तान कंपनी बस स्टॉप, गांधी नगर, एल.बी.एस. रोड, विक्रोली, पश्चिम, मुंबई - 400 079 फ़ोन: +91 845509 96408
महाप्रबंधक (एएम), ईआर-II इंडिया लिमिटेड का पावर ग्रिड कॉर्पोरेशन।, जे-आई-15, ब्लॉक-ईपी, सेक्टर-वी, साल्ट लेक, कोलकाता- 91	प्लांट हेड, मैथन पावर लिमिटेड, मैथन कार्यालय, एमए 5 गोगना, जिला। धनबाद, झारखंड राज्य, पिन-828207
महाप्रबंधक (पी एंड ओ), पीटीसी लिमिटेड, कंचनजंगा बिल्डिंग, 18, बाराखंभा रोड, नई दिल्ली-110001	
प्रबंध निदेशक, भूटान पावर कॉर्पोरेशन पोस्ट बॉक्स नं. 580, थिम्पू, भूटान।	प्रबंध निदेशक, ड्रुक ग्रीन पावर कॉर्पोरेशन। पी.ओ. बॉक्स-1351, थिम्पू, भूटान।
सह निदेशक (वाणिज्यिक एवं नियामक), दरभंगा- मोतिहारी ट्रांसमिशन कंपनी लिमिटेड (डीएमटीसीएल), 503, विंडसर, ऑफ सीएसटी रोड, कलिना, सांताक्रूज़ (पूर्व), मुंबई- 400098	प्लांट हेड, जेआईटीपीएल। (फैक्स:011-26139256-65)
महाप्रबंधक, सिक्किम ऊर्जा लिमिटेड, नई दिल्ली (फैक्स:011-46529744)	अध्यक्ष, टीपीटीएल, भीकाजी कामा प्लेस, नई दिल्ली- 110066
निदेशक (एनपीसी), सीईए, एनआरपीसी बिल्डिंग, कटवारियासराय, नई दिल्ली- 110016	अध्यक्ष, डान्स एनर्जी प्रा. लिमिटेड, 5वीं मंजिल, डीएलएफ बिल्डिंग नंबर 8, टावर-सी, गुडगांव - 722002
निदेशक, शिगा एनर्जी पी.डब्ल्यू. लिमिटेड, 5वीं मंजिल, डीएलएफ बिल्डिंग नंबर 8, टावर-सी, गुडगांव - 722002	डीजीएम (ई एंड आई), हल्दिया एनर्जी लिमिटेड, बारीक भवन, कोकाता-700072, फैक्स: 033-22360955
प्लांट हेड, डिक्चु एचईपी, सिक्किम ।	



# Minutes of 150<sup>th</sup> PCC Meeting

**Date: 10.09.2025**  
**Eastern Regional Power Committee**  
**14, Golf Club Road, Tollygunge**  
**Kolkata: 700 033**

## **EASTERN REGIONAL POWER COMMITTEE**

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### **MINUTES OF 150<sup>th</sup> PROTECTION COORDINATION SUB-COMMITTEE MEETING HELD ON 19<sup>TH</sup> AUG 2025 AT 10:30 HRS THROUGH MS TEAMS**

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*Member Secretary, ERPC welcomed all the participants to the meeting. He stated that to improve overall reliability of the grid, protection system must be robust and intact. He requested members of this committee to share best practices adopted in their respective organizations in PCC forum so that the same can be discussed and adopted by all other utilities which in turn benefit other members. After detailed analysis of major events, compliance of the recommendations made by PCC needs to be monitored effectively so that similar type of disturbances does not happen in future.*

*He further stated that third part protection audit for seven critical substations is in progress and highlighted that during audit it is being observed that there are various issues like incorrect relay settings, non-implementation of bus bar protection, carrier issues, etc. due to which protection system is not working as desired. He stressed that periodic maintenance and testing needs to be ensured by utilities for all equipment involved in protection system like relay, CT, PT, circuit breaker etc so that these can perform accurately during the disturbances. He also advised that monitoring of compliance for suggestions made by PCC needs to be done effectively.*

*ERLDC representative explained the protection performance of Eastern Region for July 2025. The presentation is attached at **Annexure A.1**.*

*Member Secretary ERPC suggested ERLDC to share protection performance trend curve for last few months in next PCC Meeting along with root cause analysis and recommendations for improving accurate protection system operation percentage.*

*List of participants is attached at **Annexure A.2**.*

### **PART – A**

#### **ITEM NO. A.1: Confirmation of Minutes of 149<sup>th</sup> Protection Coordination sub-Committee Meeting held on 15<sup>th</sup> July 2025 through MS Teams.**

The minutes of 149<sup>th</sup> Protection Coordination sub-Committee meeting held on 15.07.2025 was circulated vide letter dated 5<sup>th</sup> Aug 2025.

Members may confirm the minutes of the Meeting.

#### **Deliberation in the meeting**

*Powergrid ER-I representative submitted that under agenda point B.8, the repeated tripping of 400KV-BINAGURI-MALBASE-1 line has occurred in Bhutan Jurisdiction. They were present in the meeting however during discussion of the agenda they were disconnected in Teams due to network issue.*

*The Minutes was confirmed with the above observation of Powergrid.*

## **PART – B**

### **ITEM NO. B.1: Repeated Disturbance at 400 kV Dikchu HEP**

#### **A) Disturbance at 400 k V Dikchu HEP on 4<sup>th</sup> July 2025 at 13:02 Hrs**

Prior to the disturbance Dikchu generation of around 105 MW was evacuating through 400kV Dikchu-Rangpo Line and 400kV Dikchu-Rangpo (Teesta-III Bypass) Line. At 13:02 Hrs, Y-B Phase fault occurred in 400kV Dikchu-Rangpo line and line got tripped from both end in Z-1 protection. Simultaneously 400/132kV ICT at Dikchu also tripped on LV side B/U over current protection. Due to complete loss of evacuation path, Dikchu unit 1 & 2 got tripped on over speed/ over frequency protection.

Gen. loss: 105 MW

Outage Duration: 00:25 Hrs

#### **B) Disturbance at 400 k V Dikchu HEP on 23<sup>rd</sup> July 2025 at 13:45 Hrs**

Prior to the disturbance Dikchu generation of around 106 MW was evacuating through 400kV Dikchu-Rangpo Line and 400kV Dikchu-Rangpo (Teesta-III Bypass) Line. At 13:45 Hrs Phase(B) to ground fault occurred in 400kV Dikchu-Rangpo line (Teesta-III Bypass) and line got tripped from Dikchu end in Z-1 protection. Simultaneously 132kV bus bar protection mal-operated, which led to tripping of 400/132kV ICT and GT-1 & 2 at Dikchu. Due to complete loss of evacuation path, Dikchu unit 1 & 2 got tripped on over speed/ over frequency protection.

Gen. loss: 106 MW

Outage Duration: 01:29 Hrs

#### **C) Disturbance at 400 kV Dikchu HEP on 30<sup>th</sup> July 2025 at 13:26 Hrs**

Prior to the disturbance Dikchu generation of around 106 MW was evacuating through 400kV Dikchu-Rangpo Line and 400kV Dikchu-Rangpo (Teesta-III Bypass) Line. At 13:26 Hrs, 132kV bus bar protection mal-operated during testing of bus-coupler relay, which led to tripping of 400/132kV ICT and GT-1 & 2 at Dikchu. Due to complete loss of evacuation path, Dikchu unit 1 & 2 got tripped on over speed/ over frequency protection.

Gen. loss: 106 MW

Outage Duration: 00:26 Hrs

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

### **Deliberation in the meeting**

*Dikchu representative explained the events as follows:*

#### **On 4<sup>th</sup> July 2025 at 13:02 Hrs**

- *400kV Rangpo-Dikchu line line got tripped from both end in Zone-1 protection within 100 msec due to Y B fault in the line. At the same time, 400/132kV ICT at Dikchu also got tripped on B/U over current protection in 132kV LV side and master trip command extended to HV*



side of ICT as per scheme subsequently ICT got tripped. Further, unit 1 & 2 got tripped on overspeed/ over frequency protection due to loss of evacuation path.

- Backup overcurrent protection settings for lv side of ICT had been revised after this incident and no further tripping of ICT was observed.

#### **On 23<sup>rd</sup> July 2025,**

- At 13:45 Hrs, a B phase high resistive fault developed at 13.7 km from Dikchu end in 400kV Rangpo-Dikchu - 2(Bypassing Teesta-III) line. The fault was sensed in O/C earth fault from both ends. After 850 msec three phase tripping occurred from Dikchu end and A/R was successful from Rangpo end. At the same time bus bar protection of 132kV main bus 1 mal-operated and all elements (GT 1 & 2 and 400/132kV ICT) connected to main bus 1 got tripped. Due to tripping of 132kV main bus 1, Dikchu unit 1 & 2 got tripped on overspeed/ over frequency protection due to loss of evacuation path.
- He added that the issue was investigated with the help of relay OEM and it was found that due to incorrect feedback of isolator status to bus bar relay, the relay operated. In addition to it it was also found that CT polarity of bus coupler was incorrectly configured in the relay.

#### **On 30<sup>th</sup> July 2025**

On 30<sup>th</sup> July 2025 at 13:26 Hrs, during rectification work of bus coupler CT in BB relay CT configuration, bus bar LBB mal-operated resulting in tripping of 400/132kV ICT and GT 1 & 2 subsequently tripping of unit 1 and 2.

He updated that on 2<sup>nd</sup> Aug 2025, 132 kV bus bar protection relay was rectified completely and put into service at Dikchu HEP.

MPL representative opined that had there been the stability test carried out for the busbar relay before putting the relay in service, the CT polarity issue would have been identified at that time. He suggested to carry out stability test for busbar protection relay.

ERLDC reported that during a disturbance on 4<sup>th</sup> July 2025, auto-reclose (A/R) was not attempted for the phase-to-ground fault at the Dikchu end. Further tripping is also observed at Dikchu HEP in the month of Aug-25.

- PCC observed that there were repeated disturbances occurred at Dikchu HEP in recent months and opined that a comprehensive third party protection audit needs to be carried out for Dikchu HEP at the earliest.
- Dikchu was advised to share relay settings, test report of relays to ERPC/ERLDC.

SPTL representative submitted that as per discussions held, the disturbances occurred due to malfunctioning of protection system at Dikchu end hence they are not attributable to SPTL.

#### **ITEM NO. B.2: Repeated Disturbance at 400/220 kV Indravati HEP (OHPC)**

##### **A) Disturbance at 400/220 k V Indravati HEP (OHPC) on 13<sup>th</sup> July 2025 at 23:30 Hrs**

Prior to the disturbance, Indravati HEP generation of around 500 MW was evacuating through 220 kV Indravati-Jaypatna, 220 kV Therubali-Indravati-1,2 & 3 lines which were connected to 220kV main bus 1. At 23:30 Hrs on 13.07.2025, bus bar protection of 220 kV main bus-1 mal-operated

and all element connected to main bus 1 got tripped subsequently 220kV Indravati bus became dead.

Gen. loss: 500 MW

Outage Duration: 04:28 Hrs

OHPC may explain.

#### **B) Disturbance at 400/220 kV Indravati HEP (OHPC) on 14<sup>th</sup> July 2025 at 11:22 Hrs**

Prior to the disturbance, Indravati HEP generation of around 150 MW was evacuating through 220 kV Indravati-Jaypatna, 220 kV Therubali-Indravati-1,2 & 3 which was connected to 220kV main bus 2. At 10:25 Hrs on 14.07.2025, bus bar protection of 220 kV main bus-2 mal-operated and Indravati unit 1, ICT 1 & 2 and 220 kV Indravati–Therubali Ckt-1 & 3 got tripped. Further at 11:22 Hrs again bus bar protection of main 2 mal-operated and remaining element also got tripped subsequently 220kV Indravati bus became dead.

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

Gen. loss: 150 MW

Outage Duration: 31:01 Hrs

OHPC may explain.

#### **Deliberation in the meeting**

*OHPC representative explained that the disturbances occurred due to maloperation of busbar relay and upon investigation it was found that the problem lies in the relay module itself. He added that the busbar relay is quite old and static type and the relay has been switched off at present. Further they had initiated the process for procurement of numerical busbar relay for 220 kV Indravati HEP. However, the timeline for implementation of busbar relay was not provided.*

*PCC suggested that as the busbar protection will not be in service, zone-4 time settings for all the lines shall be reduced to 250 msec till implementation of busbar protection. Further the implementation of busbar protection shall be expedited.*

*MS, ERPC suggested that busbar protection is crucial protection for any substation and shall be implemented in a timebound manner. He suggested referring to this agenda to forthcoming OCC meeting for further discussion. Further OHPC was requested to provide types of busbar protections existing in their substations at present. In case of static type relay, the same shall be replaced with numerical relays at the earliest.*

#### **ITEM NO. B.3: Total Power Failure at 220 kV Tenughat (TVNL) S/s & 220 kV Govindpur (JUSNL) S/s on 17<sup>th</sup> July 2025 at 13:53 Hrs**

Prior to the disturbance 220kV- Dumka – Govindpur D/C was kept open to control the loading of 220 kV Maithon-Dumka D/c and Tenughat unit 1 however unit 2 was Under Planned Maintenance. Therefore, generation was evacuating through 220 kV Tenughat–Biharsharif–1 and feeding load of Govindpur S/s. At 13:53 Hrs, 220kV Tenughat–Biharsharif–1 line got tripped on phase(R) to ground fault which led to island formation of Tenughat unit#1 with Govindpur load which didn't survive due to load generation mismatch. Subsequently Tenughat unit#1 got tripped on over speed/over frequency protection and as a result 220kV Tenughat and Govindpur S/s became dead.

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

Gen. Loss: 150 MW, Load loss: 70 MW

Outage Duration: 00:24 Hrs

JUSNL, TVNL & BSPTCL may explain.

#### **Deliberation in the meeting**

*TVNL representative informed that prior to the disturbance 220kV- Dumka – Govindpur D/C was kept open to control the loading of 220 kV Maithon-Dumka D/c to avoid load shedding as per SPS in festive season. Tenughat unit 1 as unit 2 was also under planned maintenance.*

*At 13:53 Hrs, R phase fault developed in 220kV Tenughat Biharsariff line and the line got tripped from both ends. Due to tripping of this line, Tenughat unit 1 generation (Around 150 MW) got islanded with Govindpur load (Around 70 MW). Due to load generation mismatch, Tenughat island didn't survive and Tenughat unit 1 got tripped on overspeed/over frequency protection leading to total power failure at 220kV Tenughat & Govindpur.*

*Regarding status of autorecloser for 220kV Tenughat Biharsarif line, it was understood that the issue was long pending and due to issues regarding installation of wavetrapp at Tenughat end, autoreclosure was not implemented till date. PCC advised TVNL and BSPTCL to resolve the issue bilaterally and implement carrier communication along with auto-recloser scheme for 220kV Tenughat Biharsarif line at the earliest.*

#### **ITEM NO. B.4: Total Power Failure at 220 kV Goraul (BSPTCL) S/s on 7th July 2025 at 14:31 Hrs**

The 220kV Goraul S/S is connected to the grid through the 220kV-Goraul-Muzaffarpur (PG) D/C line. Prior to the disturbance, 220kV-Goraul-Muzaffarpur-2 line got tripped at 13:24 Hrs on phase to ground fault. Subsequently at 14:31 Hrs, 220kV-Goraul-Muzaffarpur (PG)-1 line also got tripped due to conductor snapping. Due to tripping of radial connected lines, 220kV Goraul S/S became dead.

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

Load loss: 180 MW

Outage Duration: 00:25 Hrs

BSPTCL may explain.

#### **Deliberation in the meeting**

*BSPTCL representative informed that at 13:24:13 Hrs 220kV-Goraul-Muzaffarpur (PG) -2 line was tripped on B phase fault. Autoreclosure attempt was initiated after 1 sec at Goraul end. However, B phase breaker did not reclose. Subsequently the line got tripped on PDR (Pole Discrepancy) operation after 2.5 sec from both ends.*

*Since Goraul S/s was connected through 220kV-Goraul-Muzaffarpur (PG) D/c, it become radially connected to Muzaffarpur through line 1 after tripping of line 2 as discussed above. He informed that at 14:31 Hrs, B phase jumper snapped at tower location number 29 from Goraul end for line 1. Subsequently 220kV-Goraul-Muzaffarpur (PG)-1 line got tripped on directional B-E fault protection after 350 msec at Goraul end and DT was send to Muzaffapaur(PG) end. As Goraul was radially feeding from Muzaffarpur end, due to tripping of said circuit, 220kV Goraul S/s became dead.*

*ERLDC enquired about the non initiation of auto-recloser at PG end for 220kV-Goraul-Muzaffarpur (PG) -2 & tripping of 220kV Muzaffarpur Goraul-1 in B/U earth fault within 350 msec from Goraul end. BSPTCL representative replied that bay control unit is out of service at PG end and*

*rectification of the relay is already in process. Regarding Backup protection, he informed that Backup earth fault protection settings has been revised after the incident.*

*BSPTCL was advised to configure the DR time window as per ERPC Guidelines.*

#### **ITEM NO. B.5: Disturbance at 400 kV JSPL S/s on 21<sup>st</sup> July 2025 at 12:22 Hrs**

Prior to the disturbance, 400 kV Meramundali-JSPL-2 was under planned shutdown for maintenance activity. JSPL was radially connected to 400 kV Meramundali S/S through JSPL-Meramundali circuit 1. 400kV MEERAMUNDALI-JSPL-1 got tripped at 12:22 Hrs on phase to ground fault. As a result, both Bus at 400 kV JSPL became dead. Captive power plant of JSPL has 6 units of 135 MW capacity each. Unit-1 with emergency load of 90 MW was separately connected with 220 kV Bus-1 and 220 kV bus-coupler was open. All other units were connected to 220 kV Bus-2 and As both evacuating lines tripped, the captive island didn't survive.

Detailed report from ERLDC is attached at **Annexure B.5.**

Gen. Loss: 540 MW, Load loss: 620 MW  
Outage Duration: 00:52 Hrs

JSPL & OPTCL may explain.

#### **Deliberation in the meeting**

*JSPL representative informed that there was a fire in tree caused by nearby cylinder blast at tower no 38 of the line. Due to this fault the 400kV-Meeramundali-JSPL-1 line tripped from both end. Autoreclosure was not successful as the fault was persisting. Prior to the disturbance, 400kV-Meeramundali-JSPL -2 was under planned shutdown for maintenance of bay & line equipment's at JSPL end hence JSPL was radially connected through line 1 therefore due to tripping of 400kV-Meeramundali-JSPL-1, 400kV JSPL became dead. He added that unit-1 at JSPL with emergency load of 90 MW was separately connected with 220 kV Bus-1 survived during the incident.*

*ERLDC enquired about an islanding scheme plan for remaining units at JSPL. JSPL representative replied that they are in process of implementing islanding scheme for other units. PCC advised JSPL to consult SLDC Odisha/ERLDC before putting the islanding scheme in operation.*

#### **ITEM NO. B.6: Disturbance at 400 kV PVUNL S/s on 28th July 2025 at 03:27 Hrs**

PVUNL was drawing start up power radially from 400kV Tenughat S/s through 400kV Tenughat-PVUNL. On 28.07.2025, at 03:27 Hrs, 400KV Tenughat-PVUNL got tripped on over voltage from PVUNL and DT was sent to Tenughat end. Further, due to tripping of this line, 400 kV PVUNL S/s became dead.

Detailed report from ERLDC is attached at **Annexure B.6.**

Load loss: 4 MW  
Outage Duration: 16:56 Hrs

PVUNL & TVNL may explain.

#### **Deliberation in the meeting**

*PCC observed that as per DR analysis the voltage reached 435 volt which was under limit and hence the overvoltage protection should not have operated.*

*PCC suggested to test the overvoltage relay using relay test kit. It was intimated that the overvoltage settings have been modified to 111 % with time delay 5sec at PVUNL end.*

#### **ITEM NO. B.7: Tripping of ICTs during the month of July 25**

<b>Sl. No</b>	<b>Name of the Element</b>	<b>Trip Date</b>	<b>Trip Time</b>	<b>Remarks</b>	<b>Utility</b>
<b>1</b>	400KV/220KV 250 MVA ICT 2 AT TENUGHAT	28-07-2025	05:37	Over flux trip, transformer Differential 87 operated	Tenughat
<b>2</b>	400KV/220KV 315 MVA ICT 2 AT PATRATU	18-07-2025	18:02	Master trip relay operated.	JUSNL
<b>3</b>	400KV/220KV 500 MVA ICT 2 AT MERAMUNDALI B	18-07-2025	12:55	Master relay operated, SPR (Sudden Pressure Relay) operated.	OPTCL
<b>4</b>	400KV/220KV 315 MVA ICT 2 AT BOKARO-A TPS	13-07-2025	13:45	Tripped on Sensitive earth fault protection	DVC
<b>5</b>	400KV/220KV 315 MVA ICT 2 AT TSTPP	01-07-2025	13:01	Tripped on earth fault	NTPC Talcher

Concerned utilities may explain.

#### **Deliberation in the meeting**

- **Tripping of 400KV/220KV 250 MVA ICT 2 AT TENUGHAT on 28<sup>th</sup> July 2025 at 05:37 Hrs**

*TVNL representative informed that, ICT 2 tripped on operation of over flux protection. TVNL was advised to share the DR & Overflux settings to ERLDC. ERPC.*

- **Tripping of 400KV/220KV 315 MVA ICT 2 AT PATRATU on 18<sup>th</sup> July 2025 at 18:02 Hrs**

*JUSNL representative informed that ICT 2 tripped spuriously on operation of master trip relay from LV side. On investigation, dc earth leakage was found in ICT Cable which had been rectified on 20<sup>th</sup> July 2025.*

- **Tripping of 400KV/220KV 500 MVA ICT 2 AT MERAMUNDALI B on 18<sup>th</sup> July 2025 at 12:55 Hrs**

*OPTCL representative informed that cable from SPR to Marshalling Box was damaged due to rat bite which had caused tripping of ICT on SPR operation. The cable has already been replaced.*

- **Tripping of 400KV/220KV 315 MVA ICT 2 AT BOKARO-A TPS on 13<sup>th</sup> July 2025 at 13:45 Hrs**

*DVC representative informed that on 13<sup>th</sup> July 2025 at 13:45 Hrs a fault was developed near Bokaro end in Bokaro- Jamshedpur line. Due to issue in CRP panel, the line did not*

*trip at Bokaro end. During the fault the ICT was tripped on sensitive earth fault protection. He intimated that the issue in CRP panel has been resolved and main-I relay of the line was replaced with new relay.*

- **Tripping of 400KV/220KV 315 MVA ICT 2 AT TSTPP on 1<sup>st</sup> July 2025 at 13:01 Hrs**

*NTPC representative was not present in the meeting.*

#### **ITEM NO. B.8: Tripping of Buses during the month of July 25**

Sl. No	Name of the Element	Trip Date	Trip Time	Remarks	Utility
1	400KV MAIN BUS - 1 AT NEW PPSP	01-07-2025	16:23	Tripped due to some technical issues while performing some modifications work at LCC panel	WBSEDCL

#### **Deliberation in the meeting**

*WBSETCL representative informed that modification work related to replacement of old cable and wire damaged by rat bite was carried out at site e by testing team in LCC panel at New PPSP. During the work, wire got shorted inadvertently and tripping command was initiated which caused tripping of bus 1.*

#### **ITEM NO. B.9: Repeated tripping of transmission lines during the month of July 25**

Sl. No.	Name of the Element	No. of times Tripped	Remarks	Utility
1	400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2	5	Line tripped from Punasanchun end only in 4 instances and in Z-3 protection in one instance.	Bhutan/PG ER-2
2	400KV-BINAGURI-MALBASE-1	5	Line tripped due to R phase fault, Y-B-Earth fault and DT received at Binaguri end in one instance.	Bhutan/PG ER-2
3	400KV-KOLAGHAT-ARAMBAGH-1	3	Line tripped on DT received at Arambagh end in 2 instances and Y-Earth fault in one instance.	WBPDCCL /WBSETCL

4	220KV-SAHARSA-BEGUSARAI-1	4	Tripped on B-Earth fault and fault distance was 14-15 kM from Saharsa end in 4 instances.	PG ER-1/BSPTCL
5	220KV-DALTONGANJ-CHATRA-1	5	Spurious tripping at Chatra end.	JUSNL
6	220KV-JODA-RAMCHANDRAPUR-1	3	A/r successful from Joda end line tripped in Z-2 protection from Ramchandrapur end in 2 instances.	JUSNL

Concerned utilities may explain.

### **Deliberation in the meeting**

- **Repeated tripping of 400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2 in July 2025**

*PG representative informed that no tripping had occurred at their end except tripping on 14<sup>th</sup> Jul 2025 in which line tripped in zone 3 from their end due to incorrect settings in the relay. The settings have already been revised after the incident.*

*ERLDC representative informed that the repeated tripping of the line due to fault in Bhutan Jurisdiction was communicated to NLDC and subsequently NLDC has taken up the matter with Bhutan.*

- **Repeated tripping of 400KV-BINAGURI-MALBASE-1 in July 2025**

*PG representative informed that no tripping had occurred at their end.*

*ERLDC representative informed that issue was communicated to NLDC.*

- **Repeated tripping of 400KV-KOLAGHAT-ARAMBAGH-1 in July 2025**

*WBSETCL representative informed that line had tripped due to DT received at Arambagh end. He intimated that card in the DTPC was found damaged at Kolaghat end which will be replaced within a week.*

- **Repeated tripping of 220KV-SAHARSA-BEGUSARAI-1 in July 2025**

*BSPTCL representative said that line had tripped due to faulty polymer insulators at tower number 59 and 71 which had been replaced on 15<sup>th</sup> July 2025.*

- **Repeated tripping of 220KV-DALTONGANJ-CHATRA-1 in July 2025**

*JUSNL representative informed that line had tripped due to spurious DT signal received at Chatra end. He further informed that dc earth leakage issue was found in DTPC panel and they are in process of rectifying the DC earth issue.*

*PCC advised JUSNL representative to resolve carrier issue at the earliest.*

- **Repeated tripping of 220KV-JODA-RAMCHANDRAPUR-1 in July 2025**

*JUSNL representative informed that OPGW had been found damaged from tower no 7 to 9 in the line. The repair work will be completed at the earliest.*

#### **ITEM NO. B.10: On-load Operation of 400kV PVUNL-Tenughat**

An online meeting was organized by ERLDC on 06.08.2025 to discuss regarding on-load operation of 400kV PVUNL-Tenughat circuit. Minutes of Meeting is attached in **Annexure B.10.1.**

Following action Points were agreed for improvement of system Reliability and equipment protection:

##### **a) Tenughat ICT Protection:**

Enabling backup overcurrent protection for the Tenughat ICT corresponding to 180 MW loading, with a 5-minute delay which would allow the operator sufficient time to rearrange loads and limit the Maithon–Dumka circuit loading thereby preventing tripping of ICT.

##### **b) Operational SOP – Load Trend Monitoring:**

Whenever loading of ICT exceeds 160 MW with a rising trend, Tenughat shall promptly inform SLDC Jharkhand to initiate load rearrangement and create a cushion on Maithon–Dumka loading. This is critical to ensure that, in case the Tenughat ICT trips, the Maithon–Dumka line loading remains within thermal limits and does not trigger SPS operation.

##### **c) Protection Settings for 400 kV Patratu–Tenughat Line:**

Enabling non-directional overcurrent protection at both ends of the line, with settings corresponding to 200 MW flow and Coordinating this protection with Zone-3 timing such that any flow exceeding 200 MW will result in tripping of line with a maximum delay of 800 milli seconds which will ensure system security under full generation from PUVNL and dual circuit outage of the 400 kV PUVNL–Patratu line.

Implemented setting at both ends is attached in **Annexure B.10.2.**

Members may discuss.

#### **Deliberation in the meeting**

*PCC noted.*

*TVNL representative intimated that implemented settings will be reviewed after charging of ICT 2 at Tenughat.*

#### **ITEM NO. B.11: Multiple tripping at 400kV Lapanga S/s**

At 22:35 Hrs on 13/08/2025, switching off code of 400kV-Lapanga-Sterlite -1 was issued on request of SLDC Odisha to control the loading of 400kV OPGC-Lapanga D/C. During opening of line, B-phase of Tie CB at Lapanga got stuck which resulted in unbalanced flow and 400kV Lapanga-OPGC D/C and 400kV Lapanga-Sterlite 2 got tripped in Directional earth fault protection.

Detailed report is attached at **Annexure B.11.**

Members may discuss.



### **Deliberation in the meeting**

*It was informed that there was discrepancy in relay setting configuration for direction earth fault of the lines at OPGC & Sterlite end. Representative of OPGC & Sterlite was not present in the meeting.*

*It was decided that the issue will be discussed in next PCC Meeting.*

*Member Secretary suggested referring to the agenda also to 230<sup>th</sup> OCC Meeting.*

### **ITEM NO. B.12: Single Line Tripping Incidences in month of July 2025**

Single line tripping incidents in the month of July 2025 which needs explanation from constituents of either end is attached.

Members may discuss.

### **Deliberation in the meeting**

*Explanation from constituents of either end for single line tripping incidences in month of July 2025 is attached at **Annexure B.12**.*

## **PART- C: OTHER ITEMS**

### **ITEM NO. C.1: 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 10<sup>th</sup> of every month to ERPC and ERLDC along with reasons for performance indices less than unity of individual element wise protection system to the respective RPC and action plan for corrective measures. For the month of July'25, detailed list is attached.

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

Sl.no	Utility Name	March 2025	April 2025	May 2025	June 2025	July 2025
1	PG-ER-1		Yes (23.02.2025)			
2	PG-ER-2	Yes (19.04.2025)	Yes		Yes (14.07.2025)	
3	PG-Odisha	Yes (21.4.2025)	Yes (12.05.2025)	Yes (16.06.2025)		
4	WBSETCL/ WBPDC	Yes (08.04.2025)	Yes (07.05.2025)	Yes (09.06.2025)	Yes (07.07.2025)	Yes (05.08.2025)

5	BSPTCL/ BGCL	Yes (11.04.2025)	Yes (13.05.2025)	Yes (18.06.2025)	Yes (07.07.2025)	Yes (14.08.2025)
6	OPTCL/ OHPC	Yes (15.04.2025)	Yes (15.05.2025)	Yes (16.06.2025)	Yes (14.07.2025)	Yes (14.08.2025)
7	DVC		Yes (12.05.2025)			
8	JUSNL	Yes (23.04.2025)	Yes (21.05.2025)	Yes (22.06.2025)		
9	Sikkim					
10	OPGC					
11	PMTL					
12	NTPC- KHSTPP	Yes	Yes (23.05.25)	Yes (14.06.2025)	Yes (21.07.2025)	
13	NTPC- FSTPP					
14	NTPC- BARH	Yes (15.04.2025)	Yes (09.05.2025)	Yes (14.06.2025)		Yes (08.08.2025)
15	NTPC- TSTPP					
16	NTPC- KBUNL					
17	NPGC					
18	BRBCL					
19	NTPC- DARILAPLI	Yes (02.04.2025)	Yes (02.04.2025)	Yes (02.06.2025)	Yes (02.07.2025)	Yes (01.08.2025)
20	NTPC- NORTH KARNPUA RA					
21	ATL					
22	APNRL				Yes (09.07.2025)	Yes (13.08.2025)
23	CBPTCL					
24	DMTCL	Yes (02/04/2025)	Yes (03.05.2025)	Yes (04/06/2025)	Yes (03.07.2025)	Yes (04.08.2025)
25	ENICL		Yes (13.05.2025)		Yes (07.07.2025)	Yes (11.08.2025)
26	Chuzachen HEP					

27	Jorethang HEP	Yes (02.04.2025)	Yes (02.05.2025)	Yes (01/06/2025)		Yes (01.08.2025)
28	Tashiding Hep	Yes (01.04.2025)	Yes (03.05.2025)	Yes (02/06/2025)	Yes (01.07.2025)	Yes (01.08.2025)
29	GMR					
30	IBEUL					
31	JITPL					
32	MPL					Yes (08.08.2025)
33	NKTL					
34	OGPTL		Yes (13.05.2025)		Yes (07.07.2025)	Yes (11.08.2025)
35	PMJTL					
36	Powerlink					
37	PKTCL		Yes (13.05.2025)		Yes (07.07.2025)	Yes (11.08.2025)
38	CESC	Yes (11.07.2025)	Yes (11.07.2025)	Yes (11.07.2025)	Yes (11.07.2025)	Yes (17.08.2025)
39	Rongnichu HEP					
40	TVNL	Yes (01.04.2025)	Yes (03.05.2025)	Yes (04.06.2025)	Yes (01.07.2025)	Yes (04.08.2025)

Members may discuss.

### **Deliberation in the meeting**

*ERPC representative informed that protection performance indices for July 2025 has been received from PG ER-II, WBSETCL, BSPTCL, OPTCL, NTPC Barh, NTPC Darlipalli, APNRL, DMTCL, CESC, Tashiding HEP, Jorethang HEP and TVNL.*

*PG ER- 1 and PG Odisha representative said that indices were shared to ERPC/ERLDC on 18<sup>th</sup> Aug 2025 and 8<sup>th</sup> Aug 2025 respectively.*

*DVC representative said that indices were shared to ERPC/ERLDC on 12<sup>th</sup> Aug 2025.*

*JUSNL representative replied that indices were shared to ERPC/ERLDC on 18<sup>th</sup> Aug 2025.*

*Protection performance indices for July 2025 received from utilities is attached at **Annexure C.1**.*

*PCC advised all utilities to share indices data of particular month by 10th day of subsequent month to ERPC/ERLDC.*

## **ITEM NO. C.2: Internal Protection Audit Plan of Sub stations for the Year 2025-26**

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

Quote

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

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

Unquote

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

In 145<sup>th</sup> PCC Meeting, PCC advised all utilities to share internal protection audit plan for FY 2025-26 to ERPC at earliest.

Powergrid ER-II had submitted internal protection audit plan for FY 2025-26 to ERPC vide email dated 19 April 2025.

DMTCL had submitted internal protection audit plan for FY 2025-26 to ERPC vide email dated 5 April 2025.

In 149<sup>th</sup> PCC Meeting, PCC advised concerned utilities to share internal protection audit plan for FY 2025-26 to ERPC at earliest. It further said that final report of completed audits should also be shared with ERPC.

Concerned utilities may update.

### **Deliberation in the meeting**

*PCC advised concerned utilities to share internal protection audit plan for FY 2025-26 to ERPC at earliest. It further said that final report of completed audits should also be shared with ERPC.*

## **ITEM NO. C.3: Third Party Protection audit of Sub stations for the Year 2025-26**

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

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

In 149<sup>th</sup> PCC Meeting, PCC advised all utilities to share third party protection audit plan for FY 2025-26 to ERPC at earliest.

Concerned utilities may update.

**Deliberation in the meeting**

*PCC advised all utilities to share third party protection audit plan for FY 2025-26 to ERPC at earliest. It further said that final report of completed audits should also be shared with ERPC.*

**ITEM NO. C.4: Follow-up of Decisions of the Previous Protection Sub-Committee Meeting(s)**

The decisions of previous PCC meetings are attached.

Members may update.

**Deliberation in the meeting**

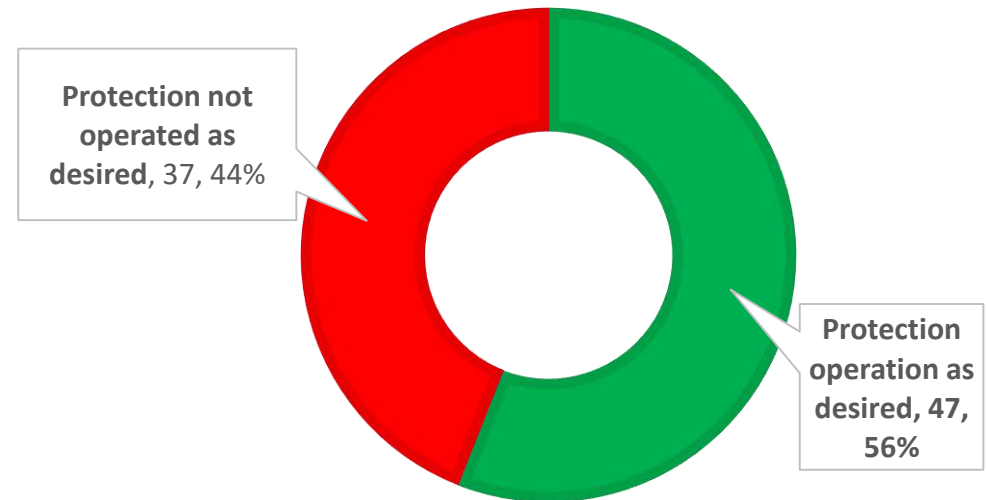
*Updated status of decisions of previous PCC meetings is attached at **Annexure C.4.***

# 150<sup>th</sup> PCC Meeting (19-08-2025)

# Protection Performance For The Month Of July 2025:

- Total 84-line tripping:
  - Protection operation as per scheme: **47 (56%)**
  - Protection operation not as desired: **37 (44%)**
- Number of Grid Event: **9**
  - Maximum Generation loss: **500 MW**(Disturbance at Indravati HEP due to spurious bus bar operation)
  - Total Load loss: **0.17 MU**

PROTECTION PERFORMANCE

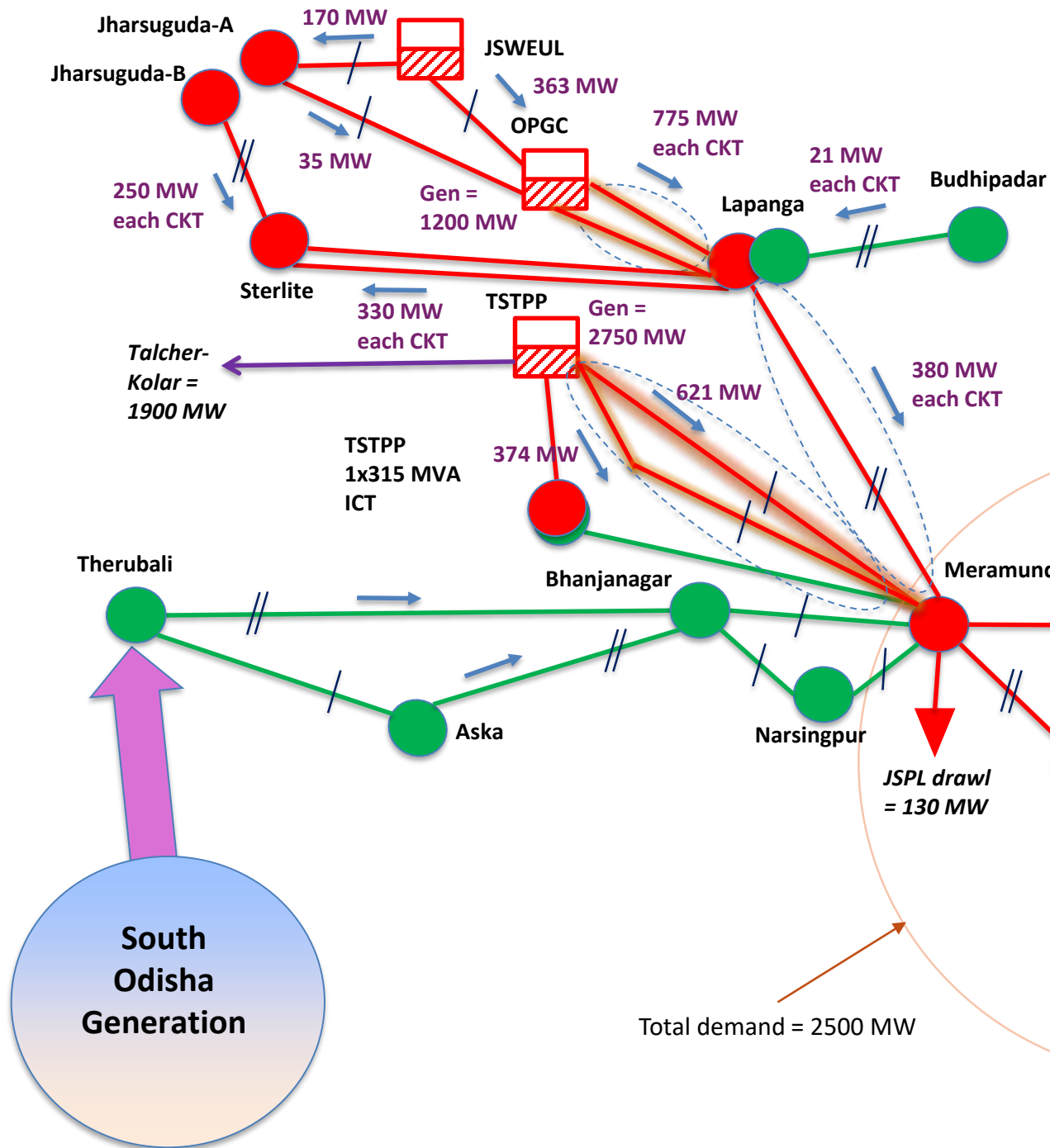




On 12.08.2025

# Near Miss Event at Odisha





## Pre-Condition

@ 22:36 Hrs

**SOP Action 1:** HVDC T-K flow reduction, further optimization not possible as it would increase loading of Talcher-Meramundali D/c.

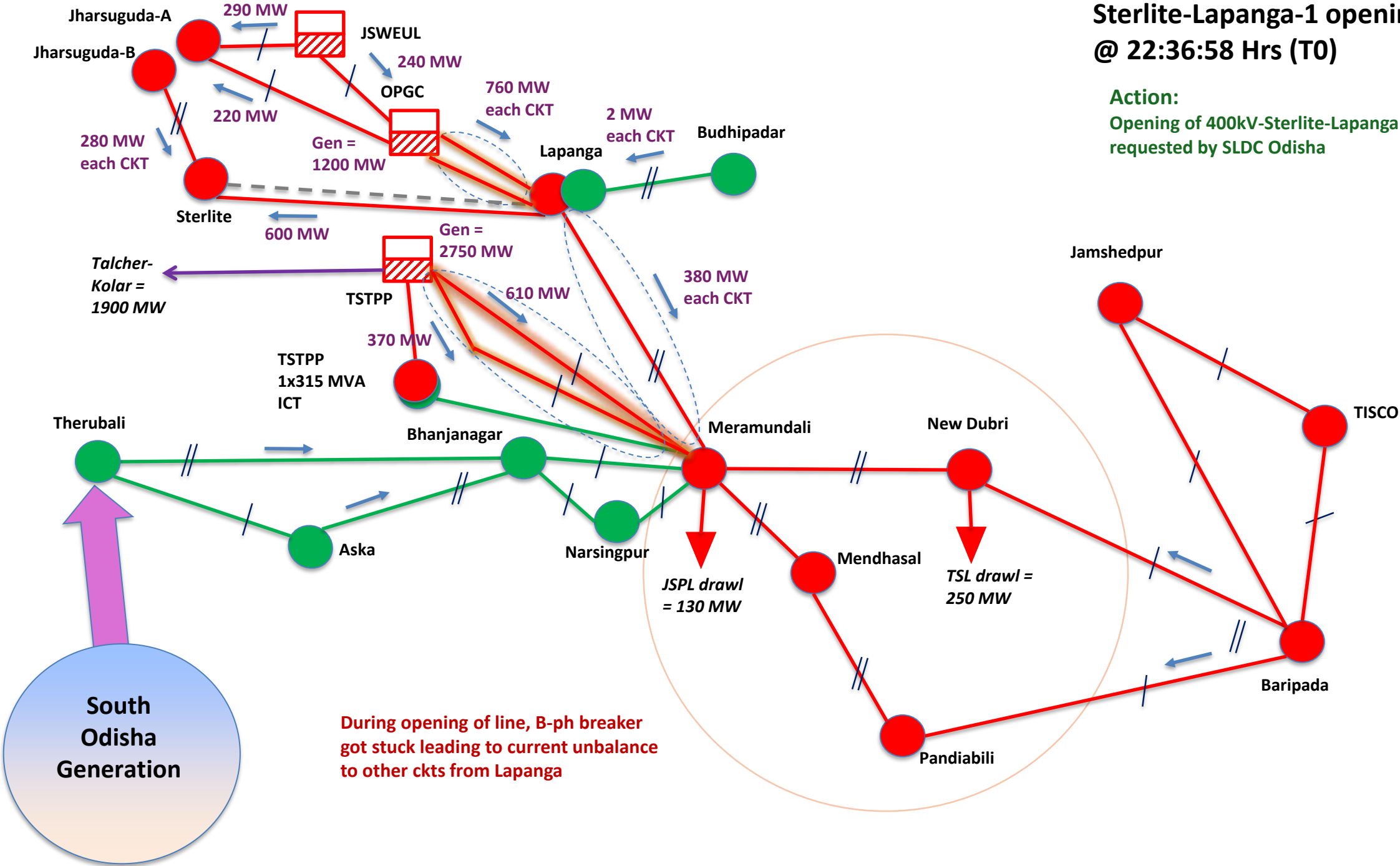
**SOP Action 2:** Sterlite drawal to be restricted by SLDC Odisha  $\leq 900$  MW or else open one Lapanga–Sterlite circuit on request of Odisha

**SOP Action 3: 22:33 hrs:** SLDC Odisha request – opening code issued for Lapanga–Sterlite-1.

**4.22:36 hrs:** While opening Lapanga–Sterlite-1, B-phase CB at Lapanga tie bay stuck.

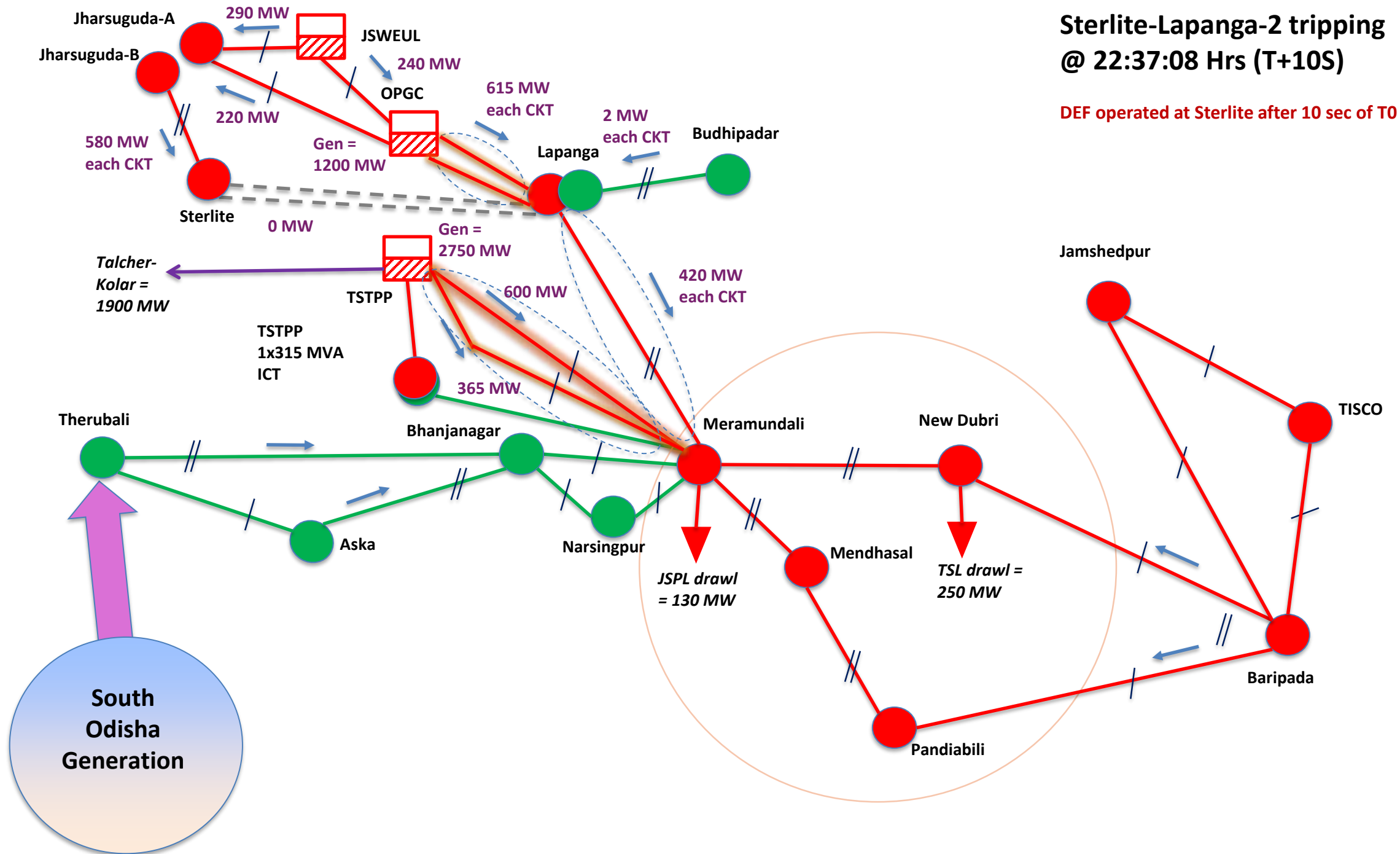
**Sterlite-Lapanga-1 opening  
@ 22:36:58 Hrs (T0)**

**Action:**  
Opening of 400kV-Sterlite-Lapanga as requested by SLDC Odisha



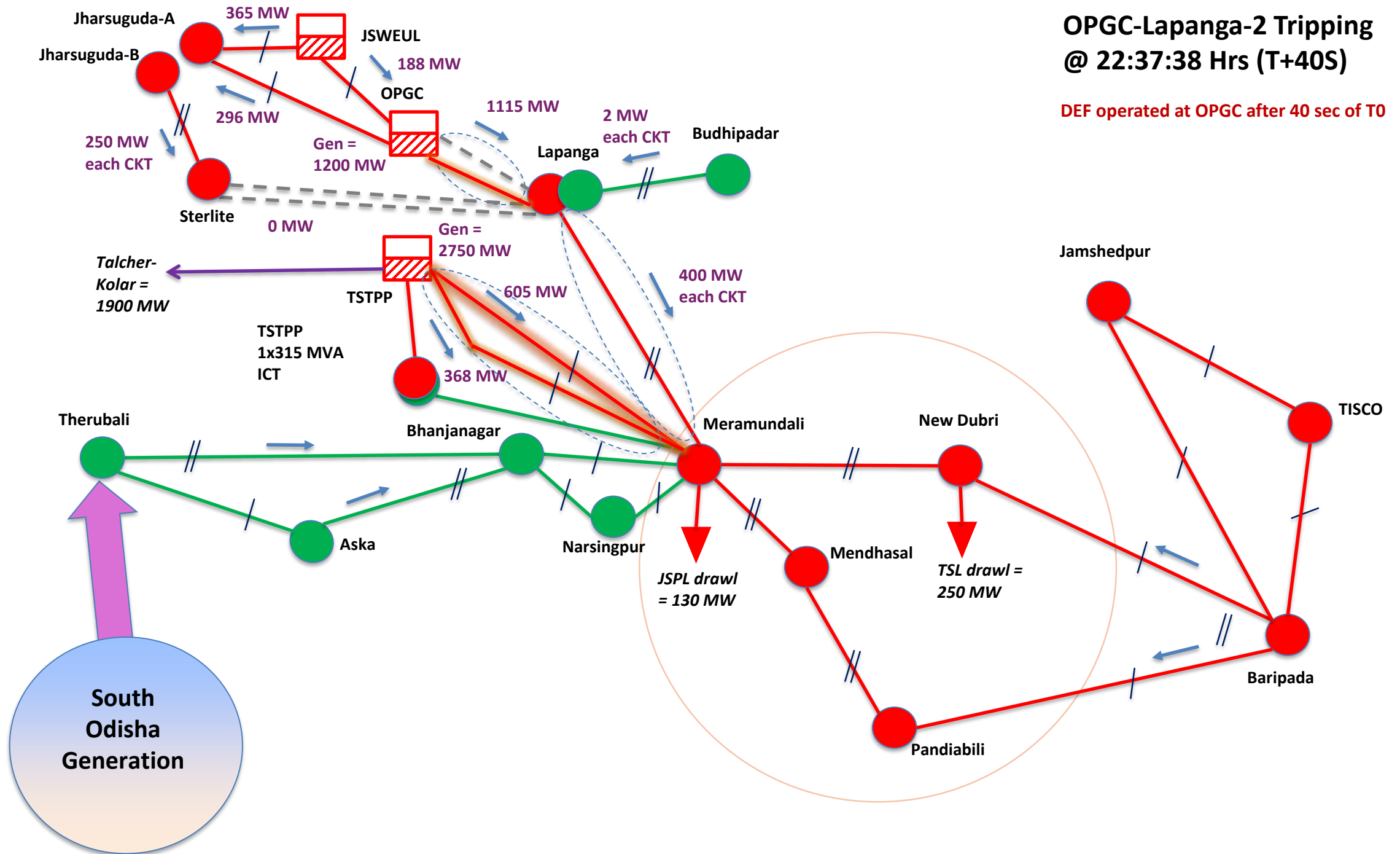
# Sterlite-Lapanga-2 tripping @ 22:37:08 Hrs (T+10S)

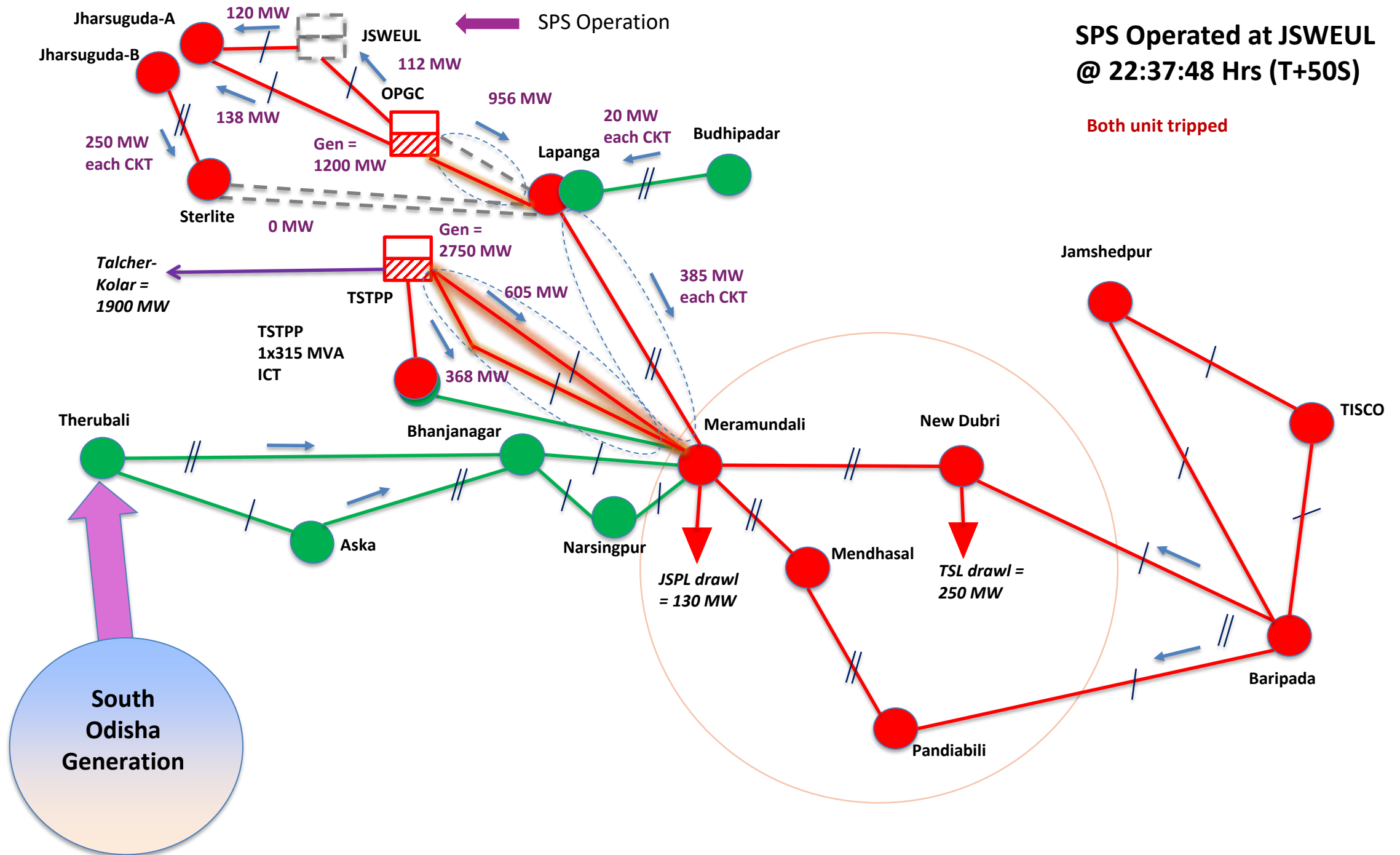
DEF operated at Sterlite after 10 sec of T0

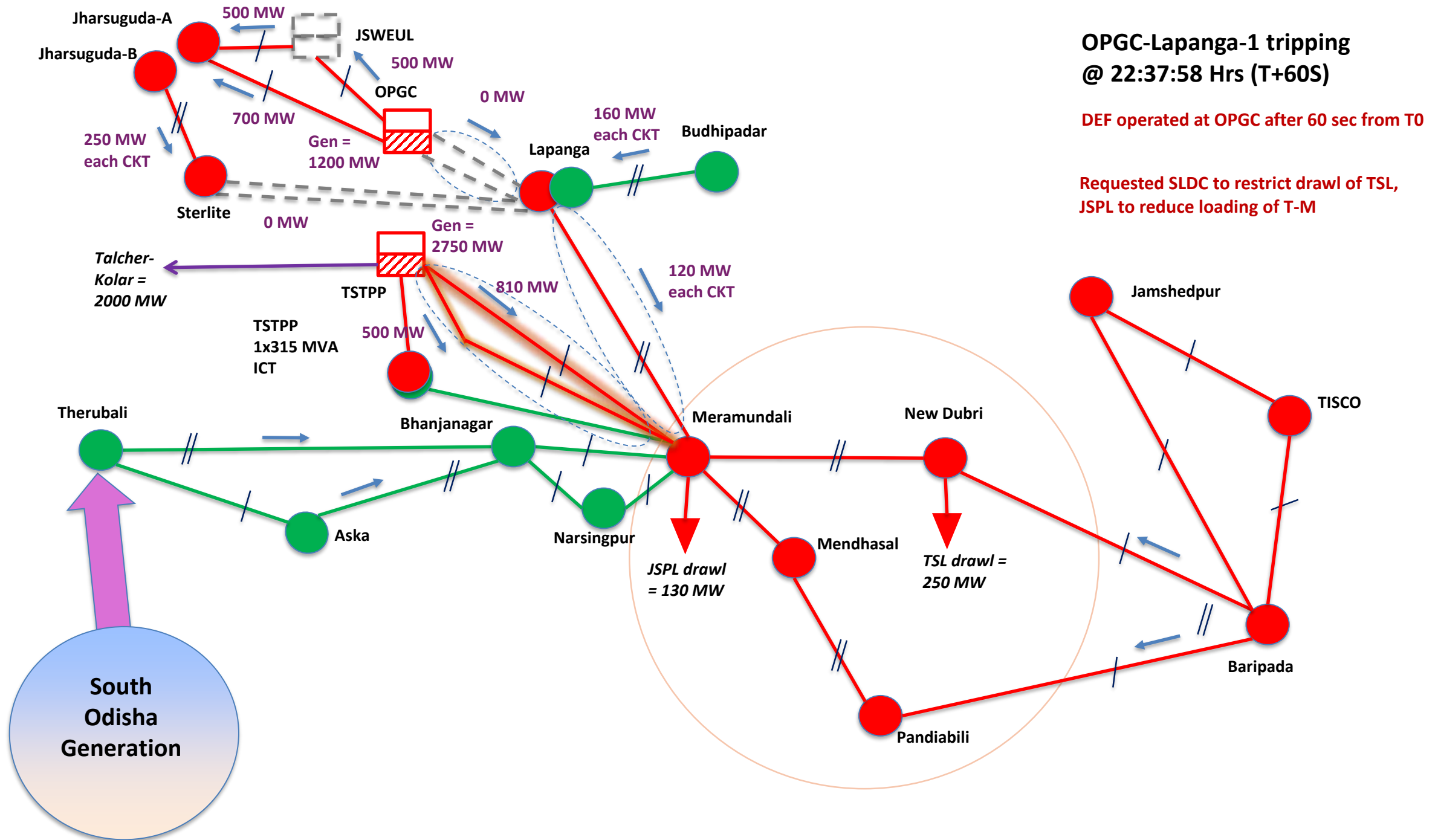


# OPGC-Lapanga-2 Tripping @ 22:37:38 Hrs (T+40S)

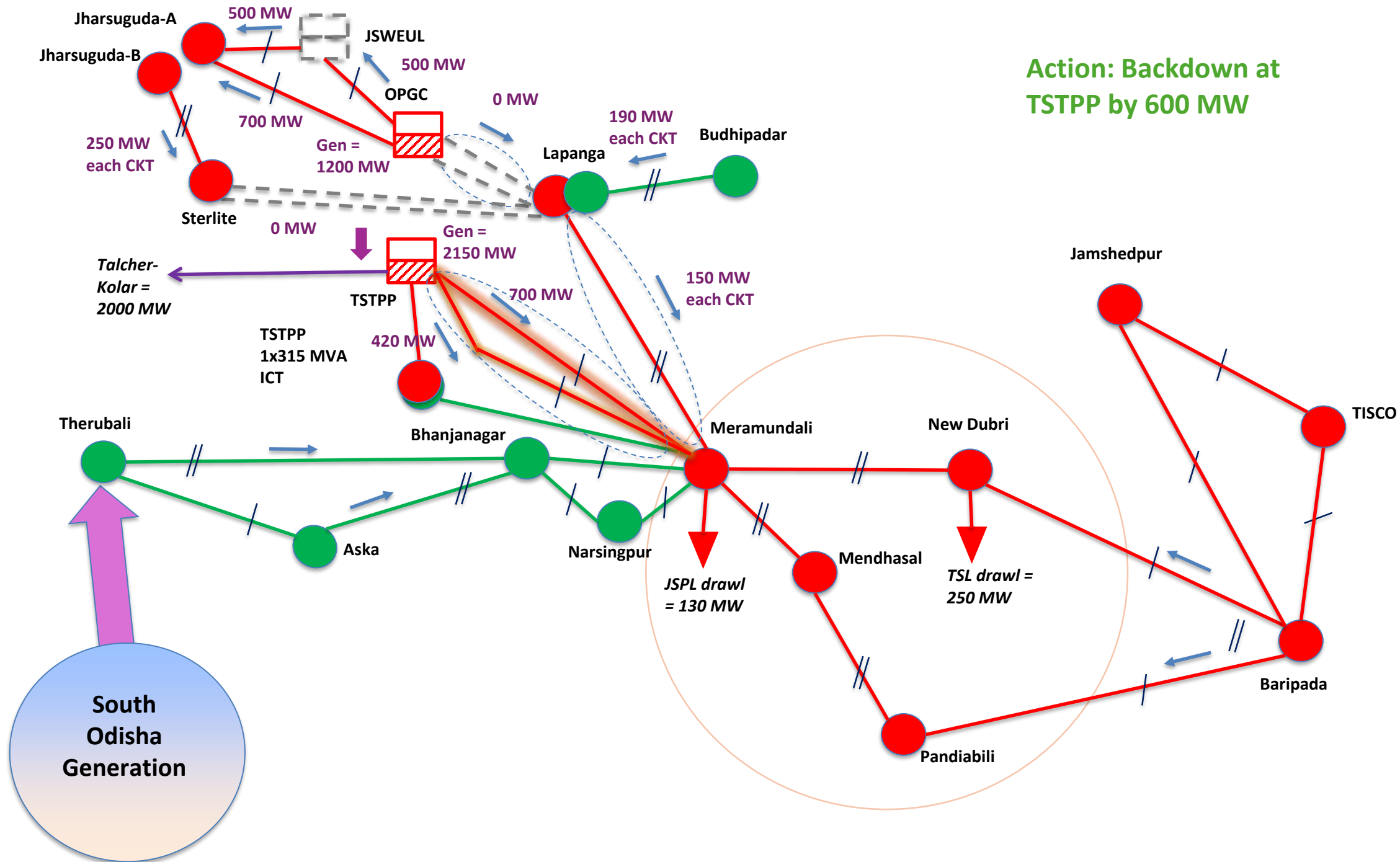
DEF operated at OPGC after 40 sec of T0



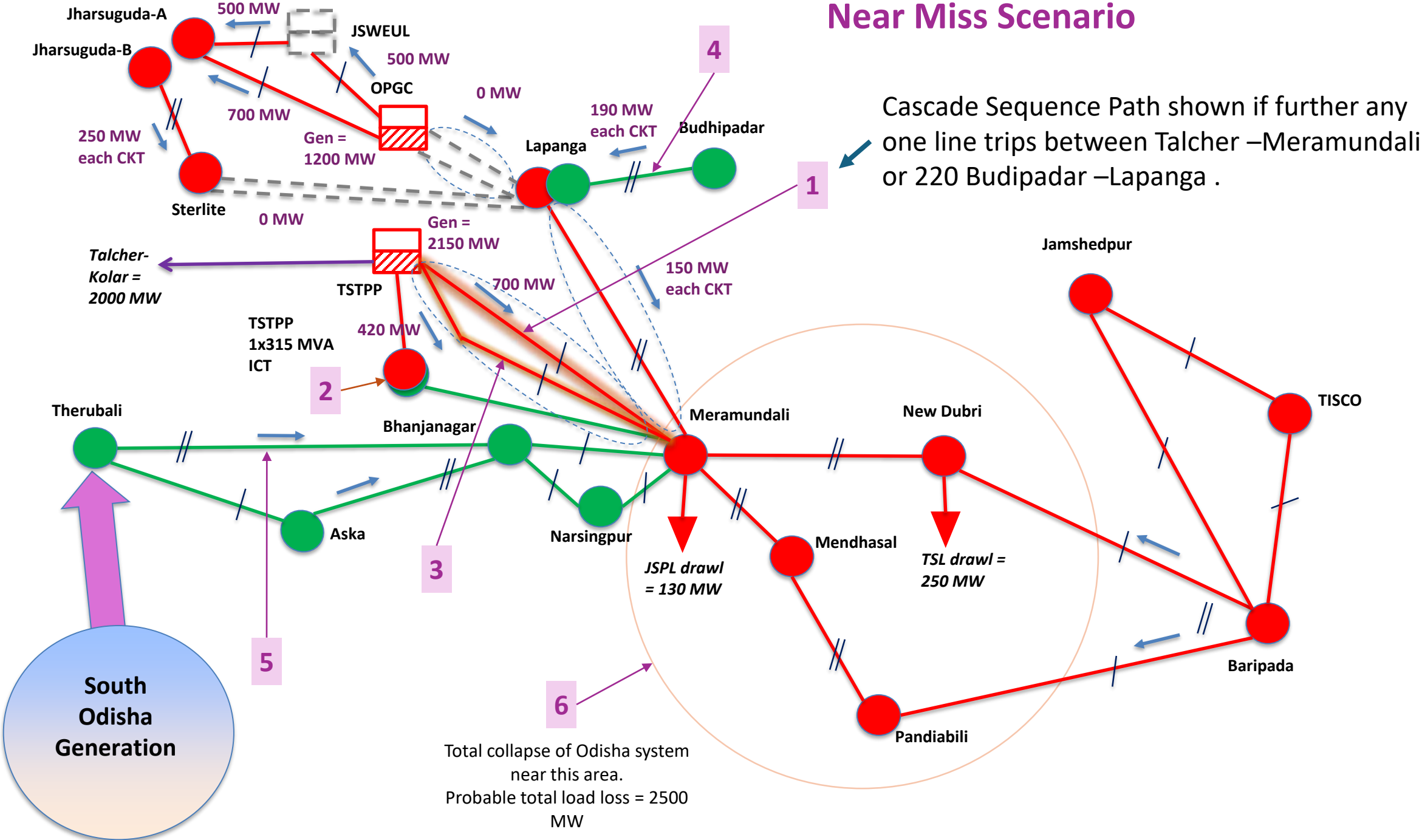






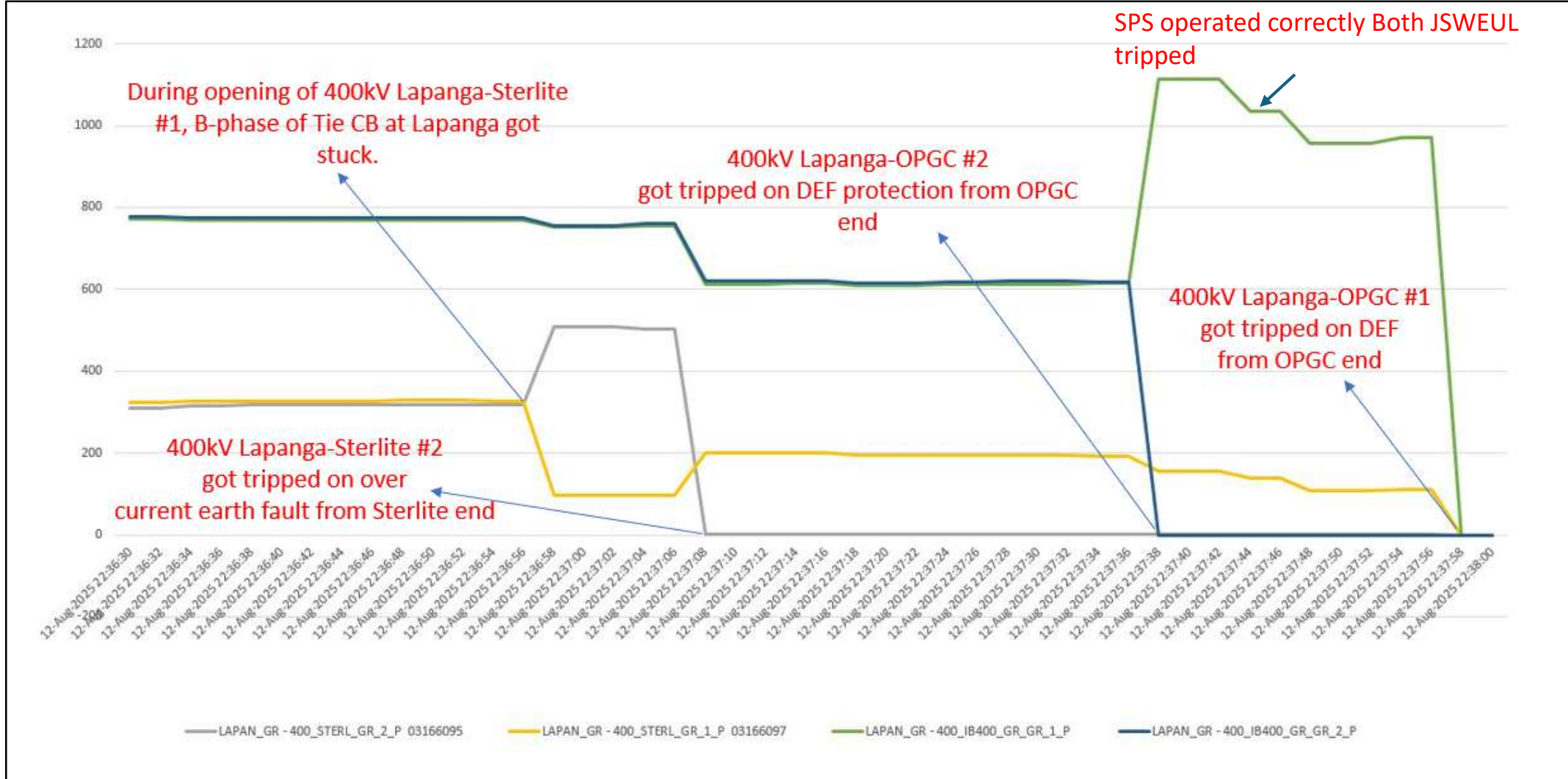


# Near Miss Scenario





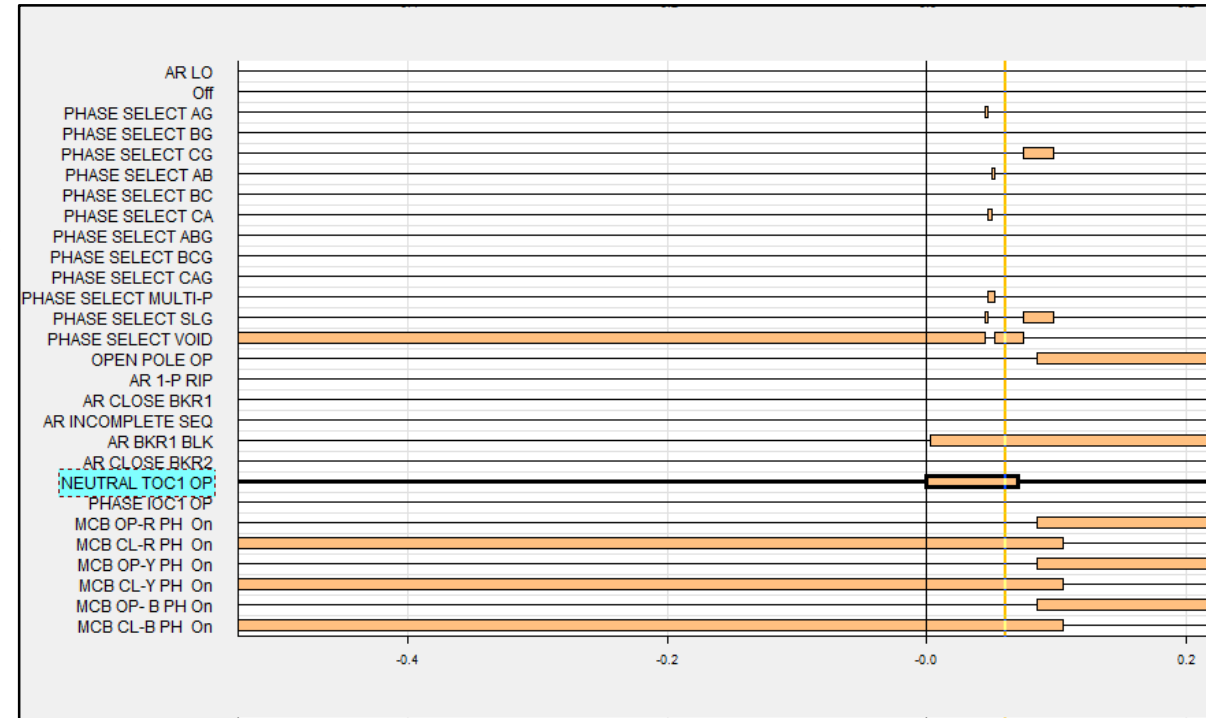
## Sequence of operation and Flows



## Protection Observation:

### At OPGC end:

- ❑ 400kV OPGC-Lapanga D/C tripped from OPGC end on over current earth fault and DT send to Lapanga end.
- ❑ As per ERPC protection philosophy O/C earth fault should be in directional nature.
- ❑ As per DR of 400kV Lapanga Sterlite D/C, Neutral TOC operated which is non-directional in nature and pickup current is 200 A(10 % of base current).
- ❑ During charging of 400kV Lapanga-OPGC D/C, line could not be synchronized immediately at OPGC end due to conservative angular separation setting in auto synchro-check relay which was 10 degree. Angular separation setting in auto synchro-check relay increased to 20 degree.

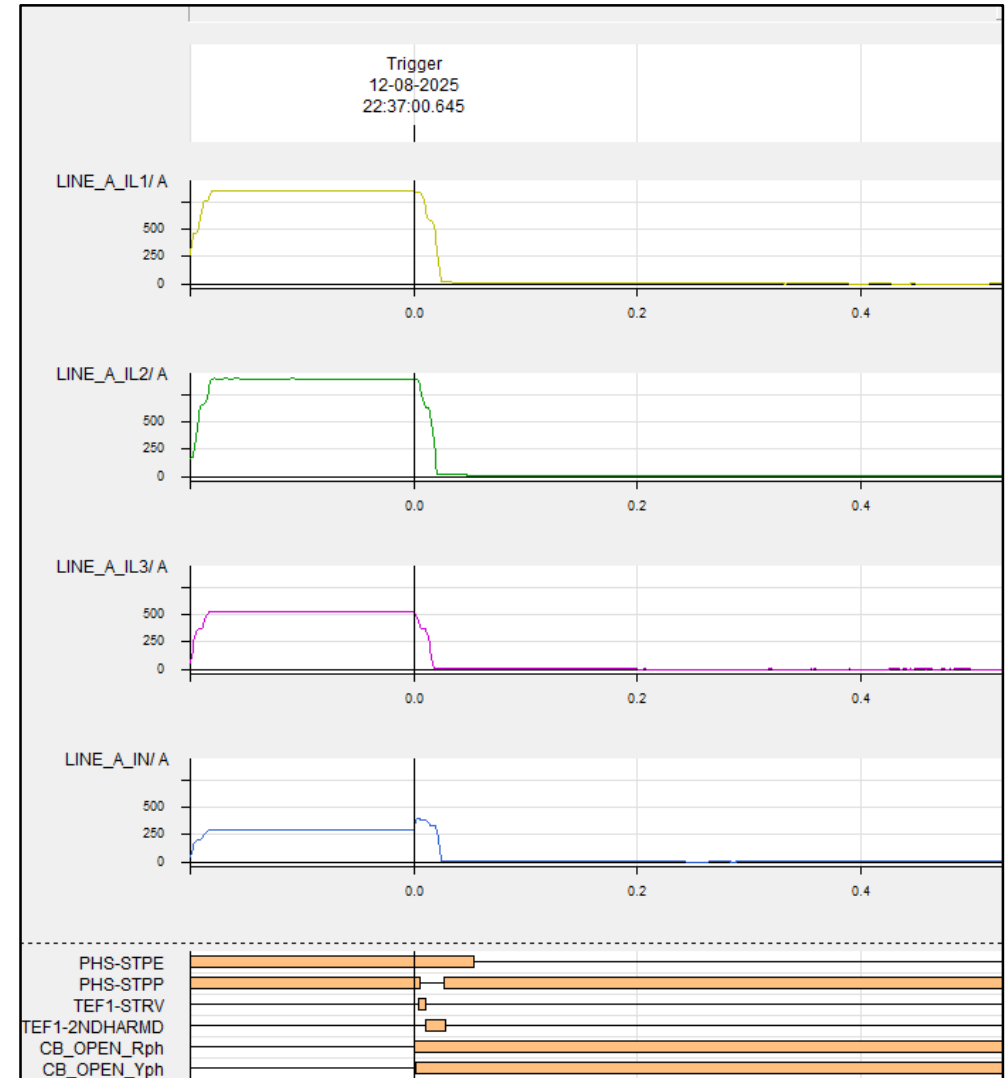


**DR of 400kV Lapanga-OPGC #1 at OPGC end 3**

## Protection Observation:

### At Sterlite end:

- ❑ 400kV Sterlite-Lapanga #2 tripped from Sterlite end on over current earth fault protection.
- ❑ DEF protection didn't operate for 400kV Lapanga-Sterlite #1 at Sterlite end.(E/F setting kept non-directional at Sterlite end with pickup current 200 A).
- ❑ As per ERPC protection philosophy O/C earth fault should be in directional nature but at Sterlite end non-directional O/C earth fault setting is enabled with pickup current is 200 A(10 % of base current).



**DR of 400kV Lapanga-Sterlite #2 at Sterlite end**

THANK YOU

## List of participants in 150th PCC Meeting

Name	First Join	Email
ERPC Kolkata	8/19/25, 10:17:06 AM	ERPC@KolkataMST.onmicrosoft.com
TVNL (Unverified)	8/19/25, 10:18:29 AM	
SMS Sahoo, GM(Elect), OPTCL (Unverified)	8/19/25, 10:21:21 AM	
Gitesh ERLDC (Unverified)	8/19/25, 10:23:49 AM	
Bimal ERLDC (Unverified)	8/19/25, 10:24:52 AM	
NIRMAL MONDAL (WBSETCL) (Unverified)	8/19/25, 10:24:55 AM	
Prabhat Kumar	8/19/25, 10:27:00 AM	pk@sikkimurjalimited.in
MS ERPC (Unverified)	8/19/25, 10:28:02 AM	
Sayan Sarkar(PRDC) (Unverified)	8/19/25, 10:28:04 AM	
Mithun Gayen {मिथुन गायेन} (External)	8/19/25, 10:28:05 AM	mithun.gayen@powergrid.in
SLDC Odisha (Unverified)	8/19/25, 10:28:13 AM	
Debabrata Biswas (External)	8/19/25, 10:28:41 AM	dbiswas@erldc.onmicrosoft.com
Pandi Krishnan N {पाण्डी कृष्णन एन.} (External)	8/19/25, 10:29:07 AM	pandikrishnan.n@powergrid.in
Rajeev (Unverified)	8/19/25, 10:29:45 AM	
Nishant Kumar Shankwar	8/19/25, 10:30:16 AM	Nishant.Kumar@energy-sel.com
Ashish Kumar (External)	8/19/25, 10:30:59 AM	ashish.k@budhilhydro.com
RAHUL (Unverified)	8/19/25, 10:31:03 AM	
OPTCL MERAMUNDALI (Unverified)	8/19/25, 10:31:52 AM	
Kumar Niraj (External)	8/19/25, 10:32:41 AM	nirajkumar@tatapower.com
Avinash Kumar	8/19/25, 10:32:53 AM	
Somnath Chatterjee (External)	8/19/25, 10:34:26 AM	schatterjee@tatapower.com
Amiya Kumar Pradhan (External)	8/19/25, 10:34:41 AM	Amiya.Pradhan@vedanta.co.in
Eee CRITL (Unverified)	8/19/25, 10:34:46 AM	
DGM,E&MR DIVISION, BURLA (Unverified)	8/19/25, 10:35:31 AM	
Samish (External)	8/19/25, 10:35:43 AM	samish@tvnl.in
PARAG CHATTERJEE (External)	8/19/25, 10:35:55 AM	PARAGCHATTERJEE@NTPC.CO.IN
ESE CRITL BSPTCL (Unverified)	8/19/25, 10:36:48 AM	
CRITL Patna (Unverified)	8/19/25, 10:37:05 AM	
Rajiv Singh (External)	8/19/25, 10:37:15 AM	rajiv.singh1@rpsg.in
SLDC, ODISHA (Unverified)	8/19/25, 10:40:08 AM	
Suvakanta Satapathy Indravati HEP (Unverified)	8/19/25, 10:40:19 AM	
bsptcl 123	8/19/25, 10:42:11 AM	
WBPDC (Unverified)	8/19/25, 10:42:11 AM	

Samai Majhi (Unverified)	8/19/25, 10:42:26 AM	
PRASANTA kumar PRUSTY	8/19/25, 10:43:39 AM	
PRASANTA KUMAR PRUSTY OPTCL BURLA (Unverified)	8/19/25, 10:44:46 AM	
M.Arfin (Unverified)	8/19/25, 10:45:32 AM	
suvakanta Indravati hep (Unverified)	8/19/25, 10:46:11 AM	
SUBHASISH SARKAR (Unverified)	8/19/25, 10:46:25 AM	
DHARMADAS TRIPATHI (External)	8/19/25, 10:46:28 AM	dharmadas.tripathi@dvc.gov.in
Ranjan Kumar Biswal {रंजन कुमार बिस्वाल} (External)	8/19/25, 10:46:40 AM	ranjankumar@powergrid.in
CRITL BSPTCL (Unverified)	8/19/25, 10:49:36 AM	
Ranjib (Unverified)	8/19/25, 10:51:23 AM	
Aman (Unverified)	8/19/25, 10:52:27 AM	
Amit critl bsptcl (Unverified)	8/19/25, 10:53:05 AM	
M MISHRA NHPC (Unverified)	8/19/25, 10:53:32 AM	
Bilash Achari (External)	8/19/25, 10:53:55 AM	bilash.achari@erldc.onmicrosoft.com
Shubhechha Pal (Unverified)	8/19/25, 10:54:03 AM	
M.arfin (Unverified)	8/19/25, 10:54:25 AM	
Manas Das (External)	8/19/25, 10:59:57 AM	manasdass@erldc.onmicrosoft.com
DGM , J,ROAD , OPTCL (Unverified)	8/19/25, 11:03:06 AM	
DGM,EHT O&M Division, Burla (Unverified)	8/19/25, 11:03:14 AM	
Dharm Das Murmu, JUSNL (Unverified)	8/19/25, 11:04:13 AM	
Akash Kumar Modi (External)	8/19/25, 11:08:08 AM	akmodi@erldc.onmicrosoft.com
Laldhari Kumar (External)	8/19/25, 11:10:51 AM	laldhari@erldc.onmicrosoft.com
Alok Pratap Singh (External)	8/19/25, 11:21:58 AM	apsingh@erldc.onmicrosoft.com
OPTCL Meramundali (Unverified)	8/19/25, 11:28:41 AM	
Pritam Mukherjee (External)	8/19/25, 11:30:03 AM	pritam@erldc.onmicrosoft.com
Pranav Rathore (External)	8/19/25, 11:42:46 AM	pranav.rathore@indigrid.com
MD SHADABUL HASAN	8/19/25, 11:46:33 AM	
jalaj kumar singh, JSPL angul (Unverified)	8/19/25, 11:49:20 AM	
Ranjib Maity	8/19/25, 11:50:21 AM	
CRITL, jusnl (Unverified)	8/19/25, 12:28:25 PM	
Ganesh Korada (External)	8/19/25, 12:40:24 PM	ganesh.korada@opgc.co.in
Mangu Srinivas (External)	8/19/25, 12:43:12 PM	Mangu.Srinivas@vedanta.co.in
Manas Mohapatra (External)	8/19/25, 12:47:42 PM	manas.mohapatra@opgc.co.in
WBPD (Unverified)	8/19/25, 12:52:42 PM	

sibesh kumar	8/19/25, 12:56:57 PM	
Ardhendu (Unverified)	8/19/25, 12:59:24 PM	
Sachin Singh (External)	8/19/25, 1:18:17 PM	sachinsingh@adhunikpower.co.in
dikchu (Unverified)	8/19/25, 2:36:33 PM	



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

**पूर्वी क्षेत्र के 400 केवी दिक्चू में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 400 kV  
Dikchu 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): 24-07-2025**

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

Prior to the disturbance Dikchu generation was around 105 MW evacuating through 400kV Dikchu-Rangpo Line and 400kV Dikchu-Rangpo (Teesta-III Bypass) Line. At 13:02 Hrs, Y-B Phase fault occurred in 400kV Dikchu-Rangpo line and line got tripped from both end in Z-1 protection. Simultaneously 400/132kV ICT at Dikchu also tripped on LV side B/U over current protection. Due to complete loss of evacuation path, Dikchu unit#1 & 2 tripped on over speed/ over frequency protection. This resulted in a total generation loss of 105 MW at Dikchu S/s.

**2. Time and Date of the Event (घटना का समय और दिनांक):** 13:02 hrs of 04.07.2025

**3. Event Category (ग्रिड घटना का प्रकार):** Grid Incident (GI)-2

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

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

	Frequency in Hz	Regional Generation in MW	Regional Demand in MW
<b>Pre-Event (घटना पूर्व)</b>	50.260	25153	26255
<b>Post Event (घटना के बाद)</b>	50.260	25048	26255

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

Important Transmission Line/Unit if under outage	NA
--	----



(महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	
Weather Condition (मौसम स्थिति)	Inclement weather reported.

6. Load and Generation loss (लोड और जेनरेशन हानि): Generation loss of 105 MW at Dikchu HEP.

7. Duration of interruption (रुकावट की अवधि): 00:25 Hrs.

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

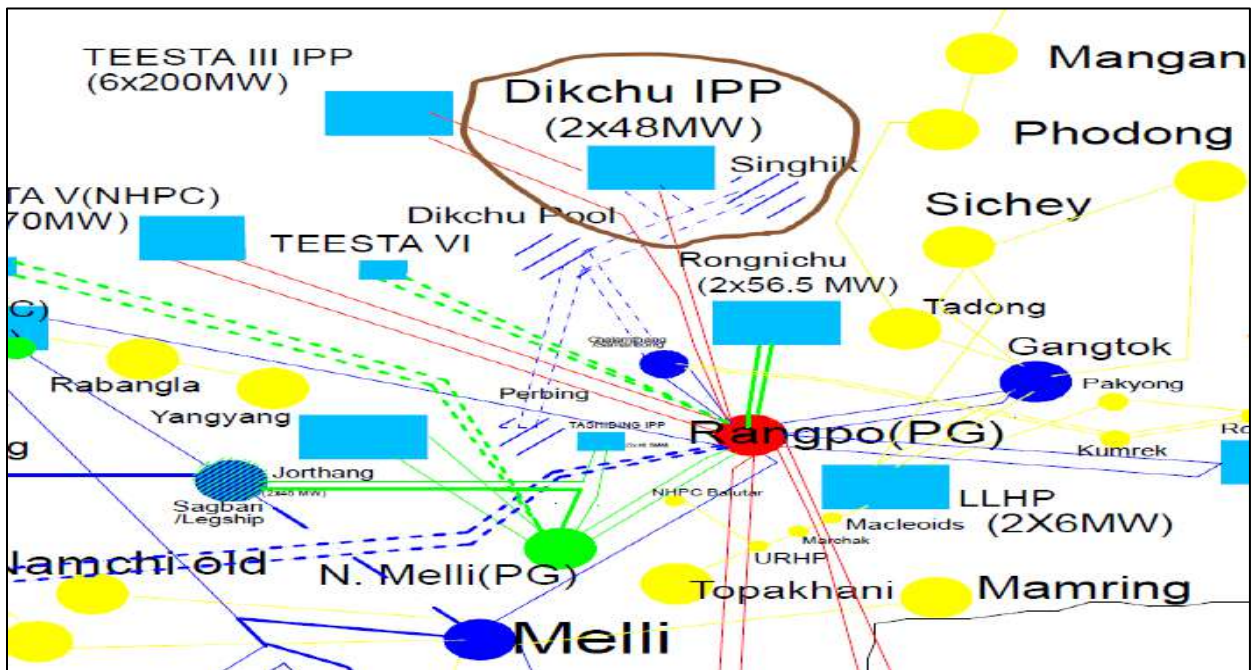


Figure 1: Network across the affected area

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

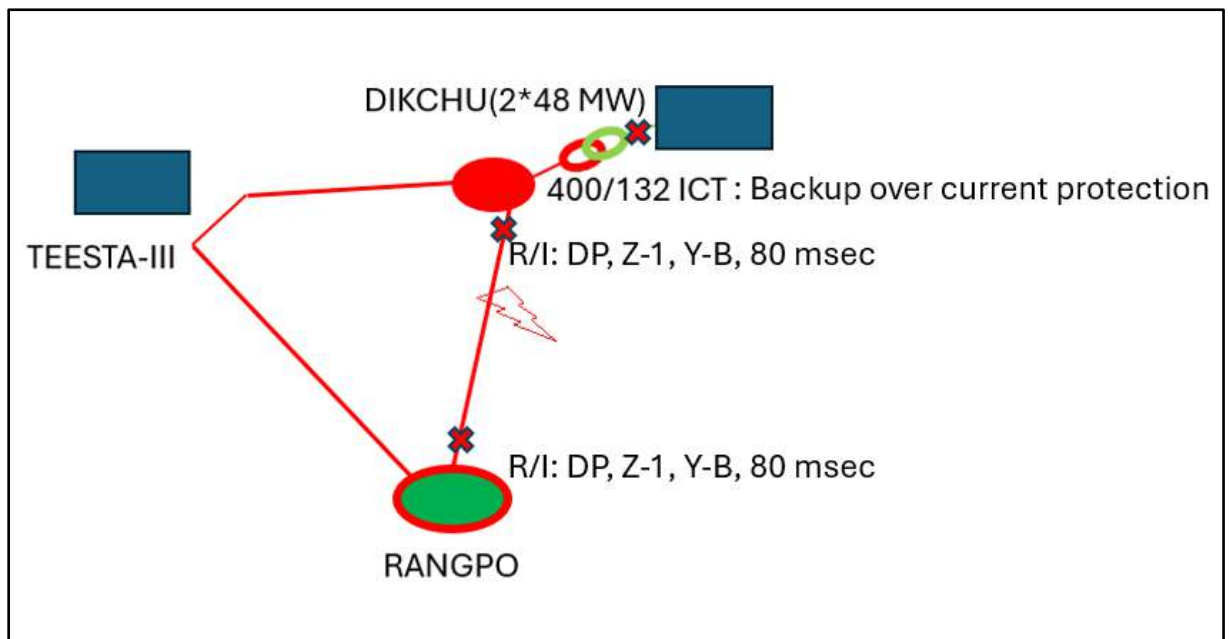
10. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time in Hrs
1	400 kV Rangpo-Dikchu Line	13:02:02:039	Rangpo: Y-B, FD: 11.4 km, Iy-4.5 kA, Ib-4.6 kA	Dikchu: Y-B, FD: 29.97 km, Iy-0.7 kA, Ib-0.6 kA	16:22

2	400/132kV ICT at Dikchu		LV side B/U over current protection operated	13:27
3	Dikchu Unit-1		Over frequency/Overspeed	14:11
4	Dikchu Unit-2		Over frequency/Overspeed	13:32

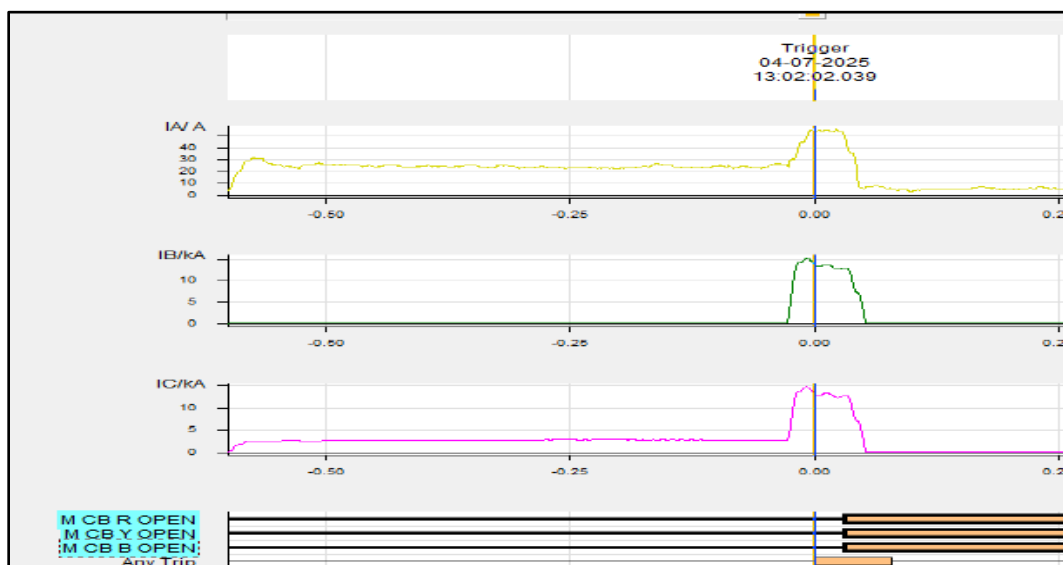
#### 11. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):

- Dikchu generation was evacuated through 400kV Rangpo-Dikchu S/c and 400kV Rangpo-Dikchu (Bypassing Teesta-III) Line.



**Figure 2: SLD of 400kV Dikchu S/s**

- At 13:02:02 Hrs, Y-B fault occurred in 400kV Rangpo-Dikchu line and line got tripped from both end in Zone-1 protection within 100 msec.
- At the same time, 400/132kV ICT at Dikchu also got tripped on B/U over current protection in 132kV LV side and master trip command extended to HV side of ICT as per scheme.
- Due to tripping of 400/132kV ICT at Dikchu, Dikchu unit#1 & 2 got tripped on overspeed/over frequency protection due to loss of evacuation path.
- Generation loss of 105 MW reported at Dikchu HEP.
- 400/132kV ICT at Dikchu charged at 13:27 Hrs and Dikchu unit #1 & 2 synchronised at 14:41 Hrs and 13: Hrs respectively.



**Figure 3: DR of 400kV Rangpo-Dikchu at Rangpo**

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

- Line fault was cleared within 100 msec from both end and at the same time 400/132kV ICT tripped on LV side B/U over current protection which is unwanted. Backup over current setting of ICT at Dikchu may be reviewed.
- SOE not recorded for tripping of other elements like ICT, Line tripping and Unit tripping at Dikchu end. The same needs attention from Dikchu team.
- As discussed in 149<sup>th</sup> PCC meeting held on 15/07/2025, revised setting as per ERPC protection philosophy implemented by Dikchu as mentioned below:

### 1. Phase Overcurrent 132kV Side of ICT

- CT Ratio: 2000/1A

#### Stage:1

- Type: IEC S Inverse
- Direction: Forward Directional
- Current Setting Stage-1  $I_p$ : 1535.222 A (Primary)
- TMS: 0.30

#### Stage:2

- Type: DT
- Direction: Forward Directional
- Current Setting Stage-2  $I_p$ : 10392.6 A (Primary)
- Time Delay: 150ms

### 2. EF Overcurrent 132kV Side of ICT

- NOT REQUIRED at 132KV LV Side

**13. Action Taken/Remedial Measures (सुधारात्मक उपाय):** Revised settings in accordance with ERPC protection philosophy were implemented on 04/07/2025.

**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)	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)	400/132kV ICT tripped on backup over current due to incorrect relay setting which was not as per CEA and ERPC protection philosophy.

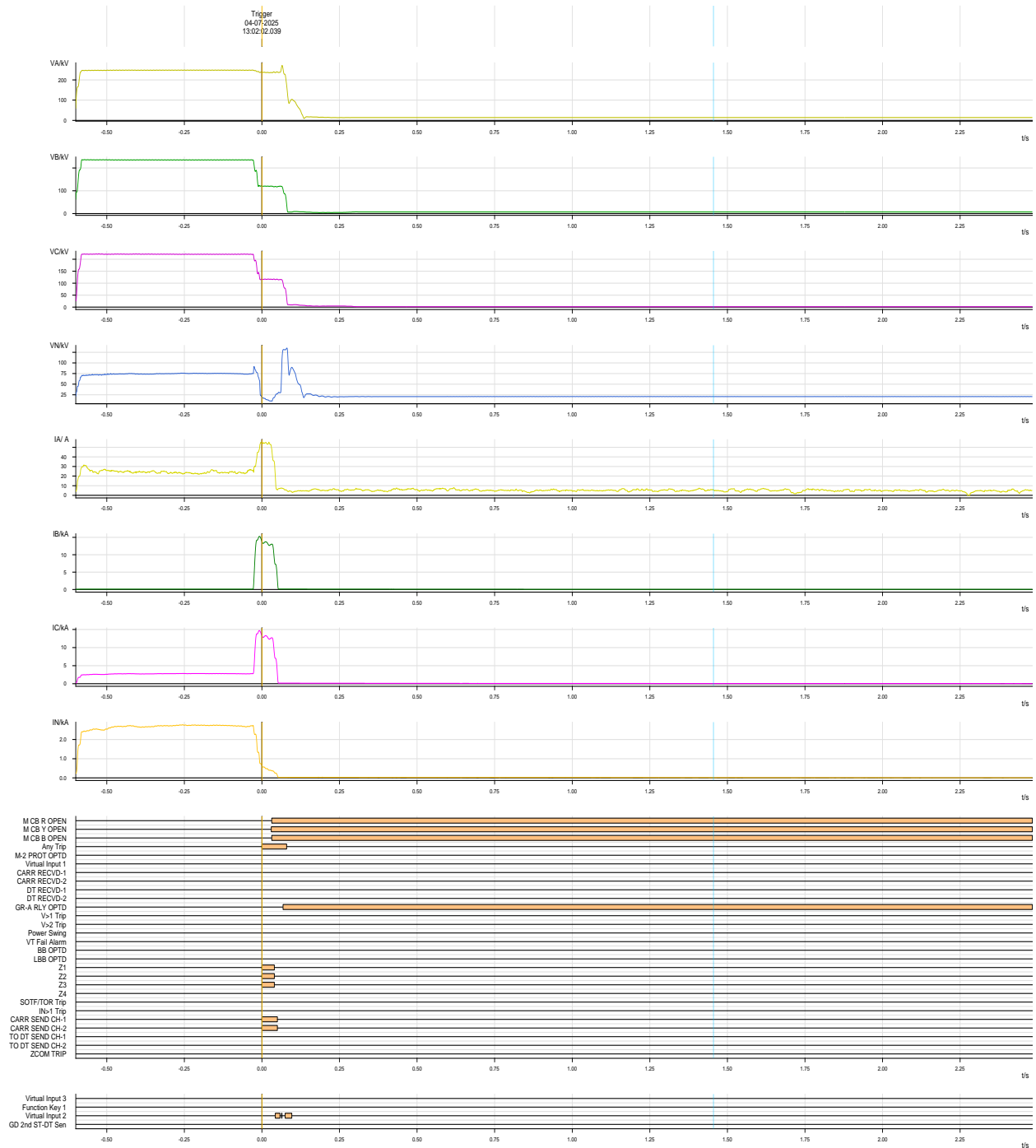
**15. Key Lessons Learnt (प्रमुख अधिगम बिंदु):** Ensuring proper protection setting in line with ERPC protection Philosophy is essential to prevent UNWANTED tripping and system disturbance. As per Grid code, this should be verified by the user through an internal protection audit conducted annually.

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

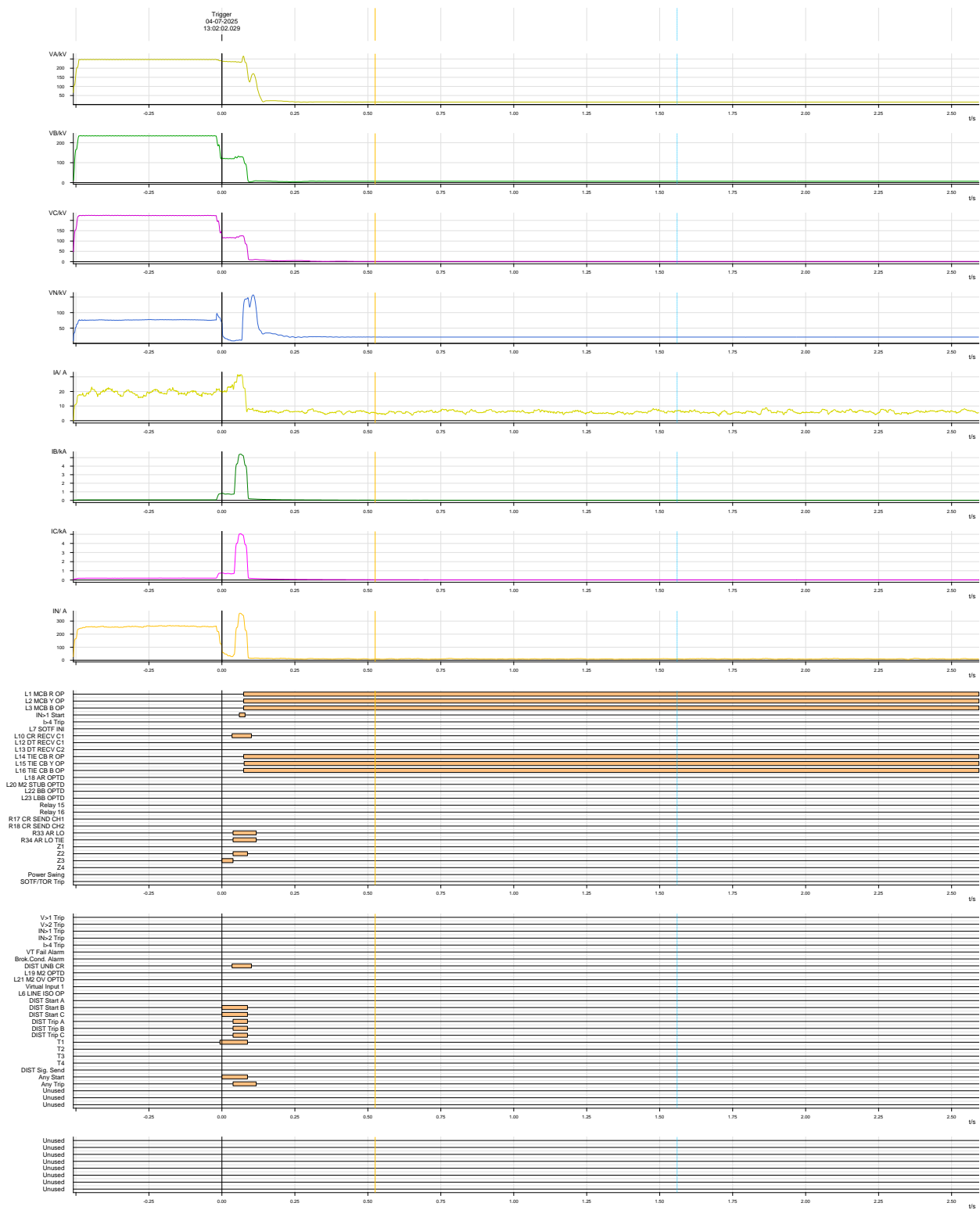
TIME	MILLI_SEC	STATION	DESCRIPTION	STATUS
04-07-2025 13:02	72	RANGP_PG	400_DIKCHU_PG_CB	Open
Rest SOE not available at ERLDC				

## Annexure 2:

### DR of 400kV Rangpo-Dikchu at Rangpo:



**DR of 400kV Rangpo-Dikchu at Dikchu:**





**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, टॉलीगंज, कोलकाता - 700033

Office : 14, Golf Club Road, Tollygunge, Kolkata - 700033

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

**पूर्वी क्षेत्र के 400 केवी दिक्चू में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at 400 kV**

**Dikchu 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): 05-08-2025**

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

#### **Event #1: At 13:45 Hrs on 23/07/2025**

Prior to the disturbance Dikchu generation was around 106 MW evacuating through 400kV Dikchu-Rangpo Line and 400kV Dikchu-Rangpo (Teesta-III Bypass) Line. At 13:45 Hrs Phase(B) to ground fault occurred in 400kV Dikchu-Rangpo line (Teesta-III Bypass) and line got tripped from Dikchu end in Z-1 protection. Simultaneously 132kV bus bar protection mal-operated, which led to tripping of 400/132kV ICT and GT-1 & 2 at Dikchu. Due to complete loss of evacuation path, Dikchu unit#1 & 2 tripped on over speed/ over frequency protection. This resulted in a total generation loss of 106 MW at Dikchu S/s.

#### **Event #2: At 13:26 Hrs on 30/07/2025**

Prior to the disturbance Dikchu generation was around 106 MW evacuating through 400kV Dikchu-Rangpo Line and 400kV Dikchu-Rangpo (Teesta-III Bypass) Line. At 13:26 Hrs, 132kV bus bar protection mal-operated during testing of bus-coupler relay, which led to tripping of 400/132kV ICT and GT-1 & 2 at Dikchu. Due to complete loss of evacuation path, Dikchu unit#1 & 2 tripped on over speed/ over frequency protection. This resulted in a total generation loss of 106 MW at Dikchu S/s.

### **2. Time and Date of the Event (घटना का समय और दिनांक):**

**Event #1: At 13:45 Hrs on 23/07/2025**

**Event #2: At 13:26 Hrs on 30/07/2025**

### **3. Event Category (ग्रिड घटना का प्रकार): Grid Incident (GI)-2**

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

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

**Event #1: At 13:45 Hrs on 23/07/2025**

	Frequency in Hz	Regional Generation in MW	Regional Demand in MW
Pre-Event (घटना पूर्व)	50.10	25212	30605
Post Event (घटना के बाद)	50.09	25106	30605

***\*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)	NA
Weather Condition (मौसम स्थिति)	Inclement weather reported.

**Event #2: At 13:26 Hrs on 30/07/2025**

	Frequency in Hz	Regional Generation in MW	Regional Demand in MW
Pre-Event (घटना पूर्व)	49.979	23316	25564
Post Event (घटना के बाद)	49.979	25210	25564

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

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

**6. Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss of 106 MW at Dikchu HEP during both disturbances.

**7. Duration of interruption (रूकावट की अवधि):** 01:29 Hrs(1 hours 29 minutes) and 00:26 Hrs( 26 minutes) respectively.



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

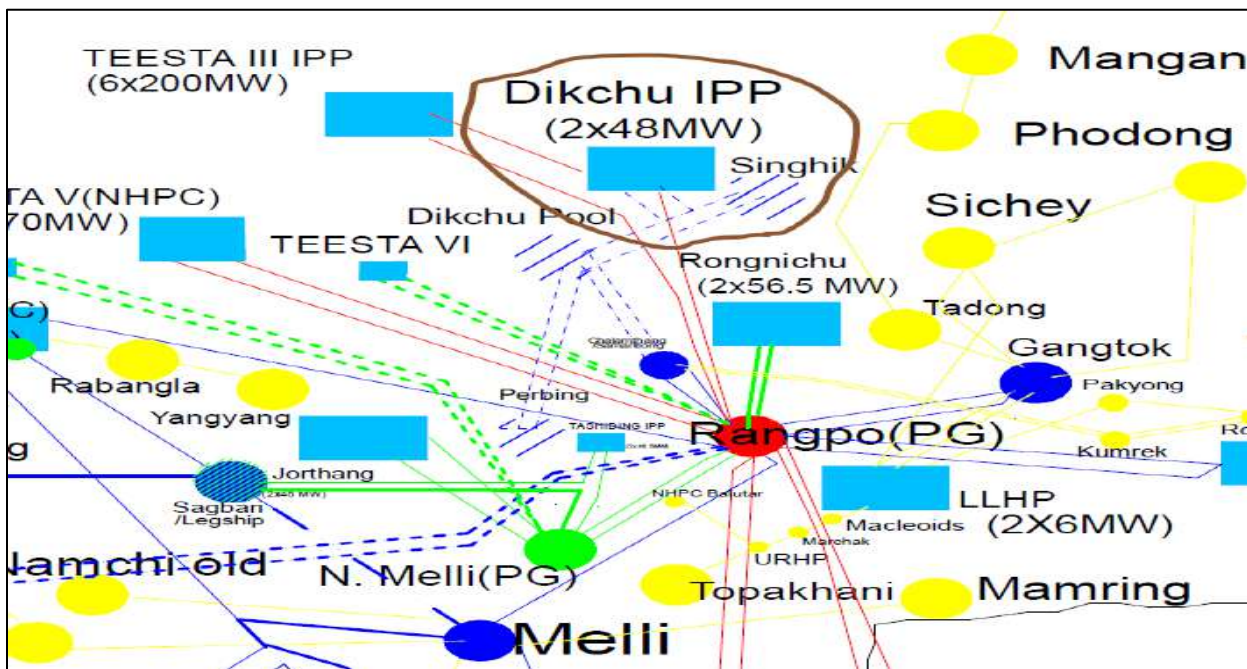


Figure 1: Network across the affected area

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

10. Major Elements Tripped (प्रमुख ट्रिपिंग):

Event #1: At 13:45 Hrs on 23/07/2025

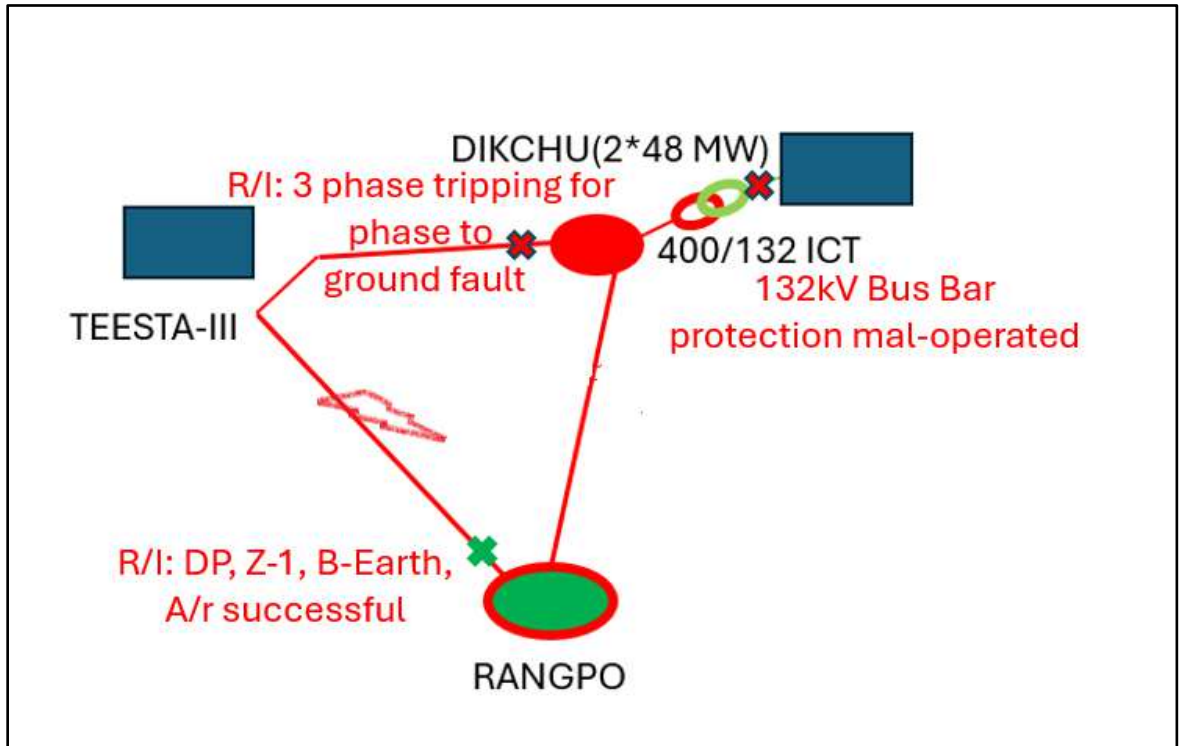
क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time in Hrs
1	400 kV Rangpo-Dikchu Line (Teesta-III Bypass)	13:45:12	Rangpo: A/r successful from Rangpo end.	Dikchu: Z-1, B-N, FD: 13.72 Km, FC:2.142 kA	15:20
2	400/132kV ICT at Dikchu		132kV (LV) side bus bar protection operated		15:14
3	Dikchu Unit-1		Over frequency/Overspeed		15:20
4	Dikchu Unit-2		Over frequency/Overspeed		15:19

**Event #2: At 13:26 Hrs on 30/07/2025**

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time in Hrs
1	400/132kV ICT at Dikchu	13:25:51	LBB protection of 132kV Bus coupler bay mal-operated.		13:38
2	Dikchu Unit-1		Over frequency/Overspeed		14:01
3	Dikchu Unit-2		Over frequency/Overspeed		14:01

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

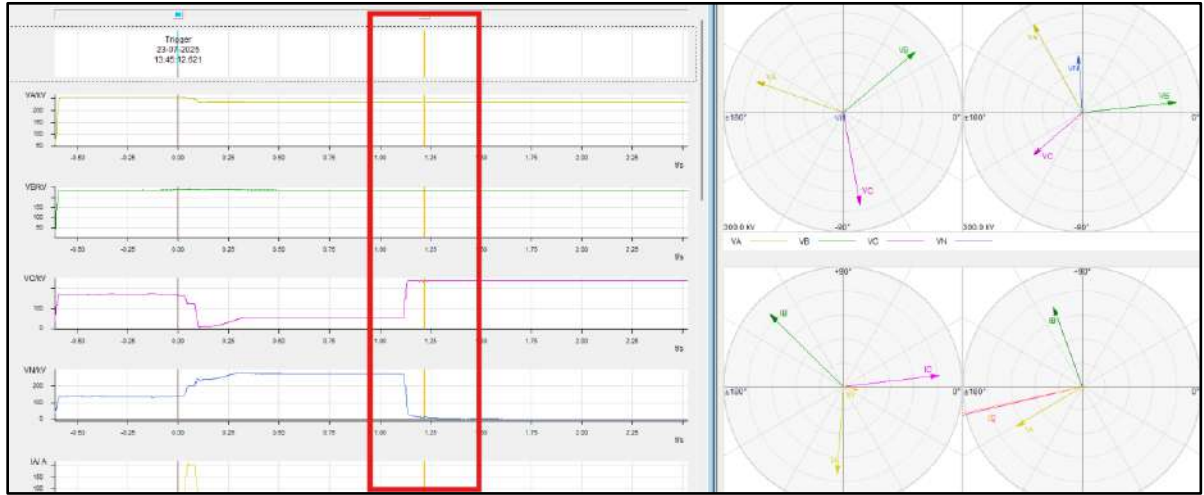
**Event #1: At 13:45 Hrs on 23/07/2025**



**Figure 2: SLD of Dikchu HEP**

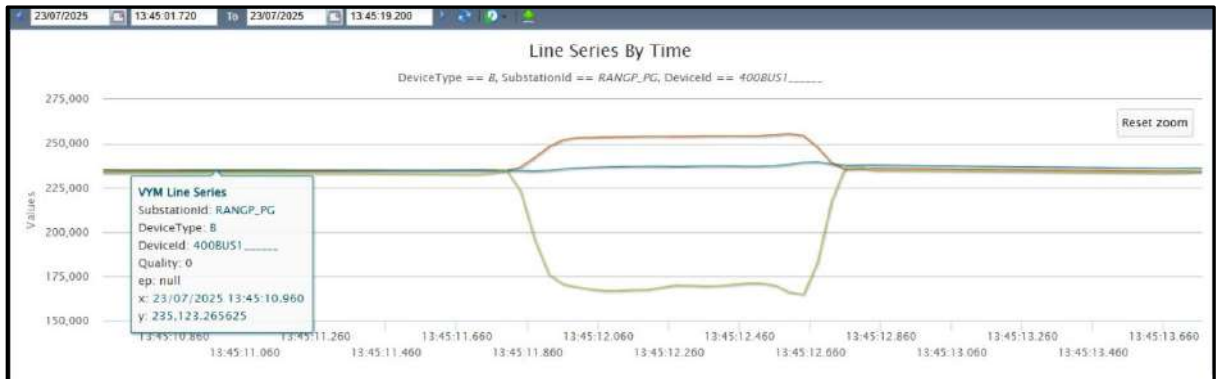
- Dikchu generation was around 106 MW evacuated through 400kV Rangpo-Dikchu S/c and 400kV Rangpo-Dikchu (Bypassing Teesta-III) Line.
- At 13:45:11:860 Hrs, B phase high resistive fault occurred in 400kV Rangpo-Dikchu #2(Bypassing Teesta-III) line and fault was sensed in O/C earth fault from both end but after

850 msec line three phase tripping occurred from Dikchu end and A/r successful from Rangpo end.



**Figure 3: DR of 400kV Rangpo-Dikchu#2 at Rangpo**

- At the same time, bus bar protection of 132kV main bus #1 mal-operated and all elements (GT#1 & 2 and 400/132kV ICT) connected to main bus #1 got tripped.
- Due to tripping of 132kV main bus #1, Dikchu unit#1 & 2 got tripped on overspeed/ over frequency protection due to loss of evacuation path.
- Generation loss of 106 MW reported at Dikchu HEP.
- 400/132kV ICT at Dikchu charged at 15:14 Hrs and Dikchu unit #1 & 2 synchronised at 15:20 Hrs and 15:19 Hrs respectively.



**Figure 4: PMU of Rangpo**

### **Event #2: At 13:26 Hrs on 30/07/2025**

- Prior to the disturbance Dikchu generation was around 106 MW evacuated through 400kV Rangpo-Dikchu S/c and 400kV Rangpo-Dikchu (Bypassing Teesta-III) Line.
- After returning from S/D, Dikchu unit#2 synchronised on 132kV main bus #2 and unit#1 and 400/132kV ICT kept on 132kV main bus #1.
- After this configuration differential currents were observed in 132kV Busbar protection relay (132kV BB protection relay kept out due to ongoing rectification work).
- Further, it was found that polarity of Bus Coupler CT needs to be reversed to resolve the differential current issue in 132kV busbar relay. Hence, CT polarity of the same was reversed in BB relay CT configuration and tried to upload the same, resulted in Bus Coupler LBB protection mal-operation and tripping of 400/132kV ICT and GT#1 & 2.
- Dikchu unit#1 & 2 got tripped on overspeed/ over frequency protection due to loss of evacuation path.
- 400/132kV ICT at Dikchu charged at 13:38 Hrs and Dikchu unit #1 & 2 synchronised at 14:01 Hrs.

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

- During event #1, Auto-reclose (A/R) was not attempted for the phase-to-ground fault at the Dikchu end. The reason for this may be shared, and the healthiness of the A/R scheme should be ensured.

**13. Action Taken/Remedial Measures (सुधारात्मक उपाय):** Differential current issue in 132kV busbar relay was resolved. Now all the current measurements in 132kV BB relay are as per actual and healthy.

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

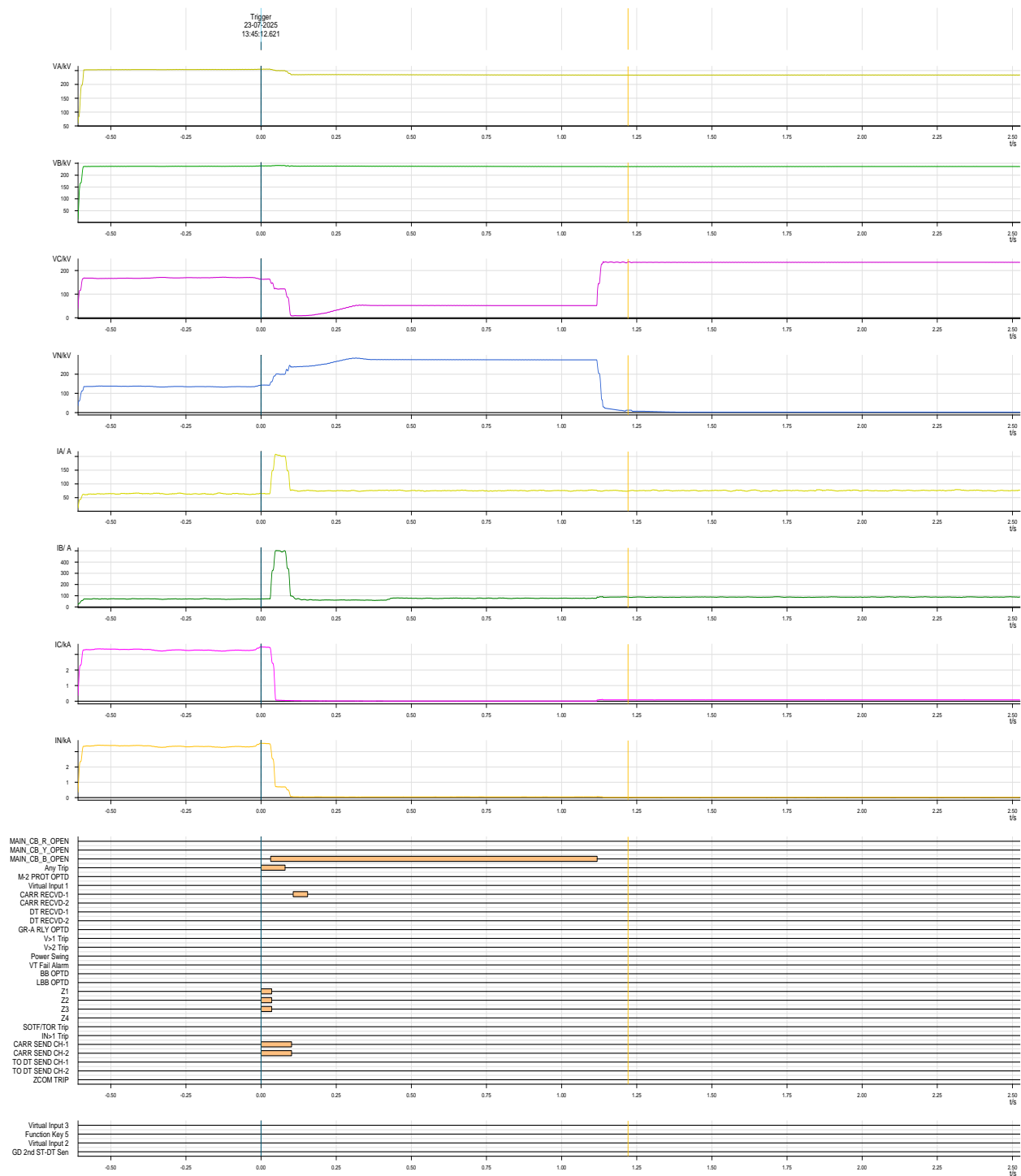
S.No.	Issues	Regulation Non-Compliance	Remark
1	Flash Report received within 8hrs?	IEGC section 37.2 (b)	Not Submitted
2	Whether DR/EL provided within 24 Hours?	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted
3	Detailed Report received within 7 days?	IEGC section 37.2 (e)	Submitted

4	<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)	A/r not attempted at Dikchu HEP end which was not as per CEA and ERPC protection philosophy.
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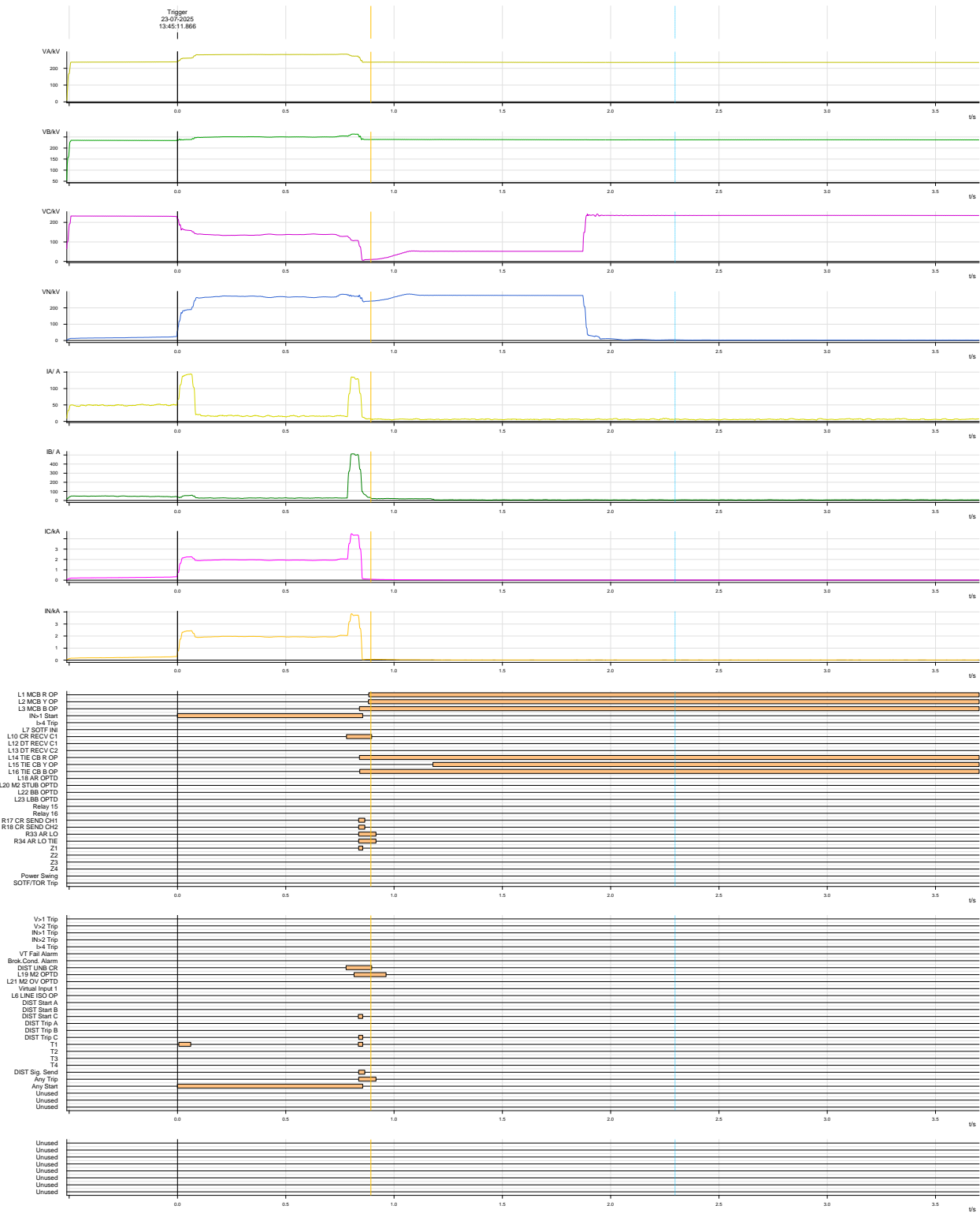
15. Key Lessons Learnt (प्रमुख अधिगम बिंदु): NIL

Annexure 2:

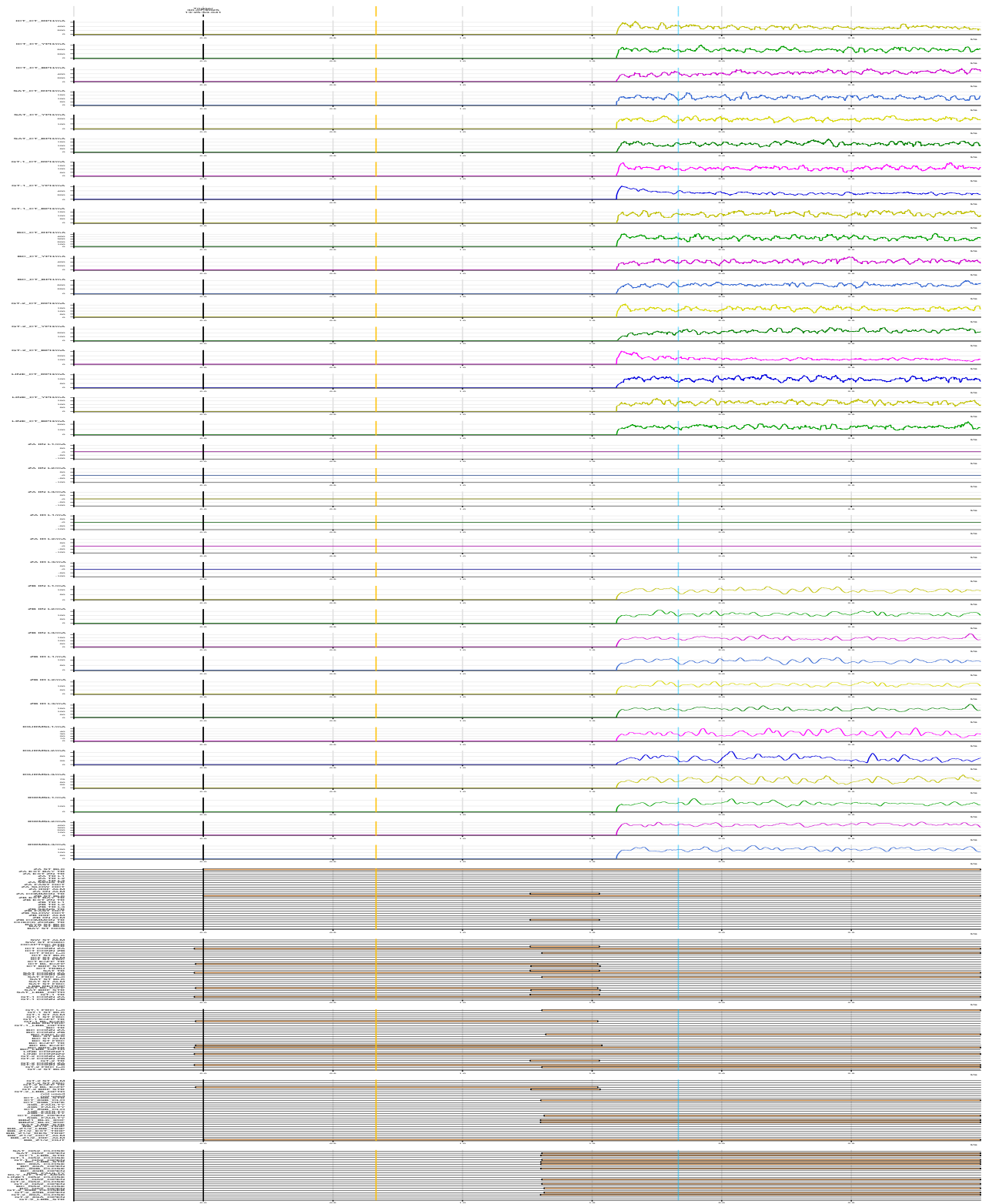
DR of 400kV Rangpo-Dikchu at Rangpo(Event#1):



**DR of 400kV Rangpo-Dikchu at Dikchu:**



DR of 132kV Bus bar:







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

Date(दिनांक):05-08-2025

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

**Event at 23:30 Hrs on 13/07/2025:**

Prior to the disturbance, Indravati HEP generation was around 500 MW evacuating through 220 kV Indravati-Jaypatna, 220 kV Therubali-Indravati-1,2 & 3 which was connected to 220kV main bus #1 at Indravati HEP. At 23:30 Hrs on 13.07.2025, bus bar protection of 220 kV main bus-1 at Indravati HEP mal-operated and all element connected to main bus #1 got tripped. 220kV Indravati bus became dead and generation loss of 500 MW occurred at Indravati HEP.

**Event at 11:22 Hrs on 14/07/2025:**

Prior to the disturbance, Indravati HEP generation was around 150 MW evacuating through 220 kV Indravati-Jaypatna, 220 kV Therubali-Indravati-1,2 & 3 which was connected to 220kV main bus #2 at Indravati HEP. At 10:25 Hrs on 14.07.2025, bus bar protection of 220 kV main bus-2 at Indravati HEP mal-operated and, Indravati unit#1, ICT 1 & 2 and 220 kV Indravati-Therubali Ckt-1 & 3 got tripped, further at 11:22 Hrs again bus bar protection of main #2 mal-operated and remaining element also got tripped. 220kV Indravati bus became dead and generation loss of 150 MW occurred at Indravati HEP.

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

- Event at 23:30 Hrs on 13/07/2025
- Event at 11:22 Hrs on 14/07/2025

**3. Event Category (ग्रिड घटना का प्रकार): Grid Incident (GI)-2**

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

## 5. Antecedent Conditions (पूर्ववर्ती स्थिति):

### Event at 23:30 Hrs on 13/07/2025:

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Odisha	Odisha
<b>Pre-Event</b> (घटना पूर्व)	49.98 Hz	31898 MW	27404 MW	3786 MW	5567 MW
<b>Post Event</b> (घटना के बाद)	49.98 Hz	31398 MW	27404 MW	3286 MW	5567 MW

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

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

### Event at 11:22 Hrs on 14/07/2025:

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Odisha	Odisha
<b>Pre-Event</b> (घटना पूर्व)	50.05 Hz	23212 MW	25412 MW	2840 MW	5487 MW
<b>Post Event</b> (घटना के बाद)	50.07 Hz	23062 MW	25412 MW	2690 MW	5487 MW

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	<ul style="list-style-type: none"> <li>• Indravati – Unit#2</li> <li>• Indravati – Unit#3</li> <li>• Indravati – Unit#4</li> </ul>
Weather Condition (मौसम स्थिति)	Normal.

## 6. Load and Generation loss (लोड और जेनरेशन हानि):

**Event at 23:30 Hrs on 13/07/2025:** 500 MW Generation loss.

**Event at 11:22 Hrs on 14/07/2025:** 150 MW Generation loss

### Duration of interruption (रूकावट की अवधि):

**Event at 23:30 Hrs on 13/07/2025:** 04:28 Hrs(4 hours, 28 minutes).

**Event at 11:22 Hrs on 14/07/2025:** 31:01 Hrs(31 hours, 01 minute).

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

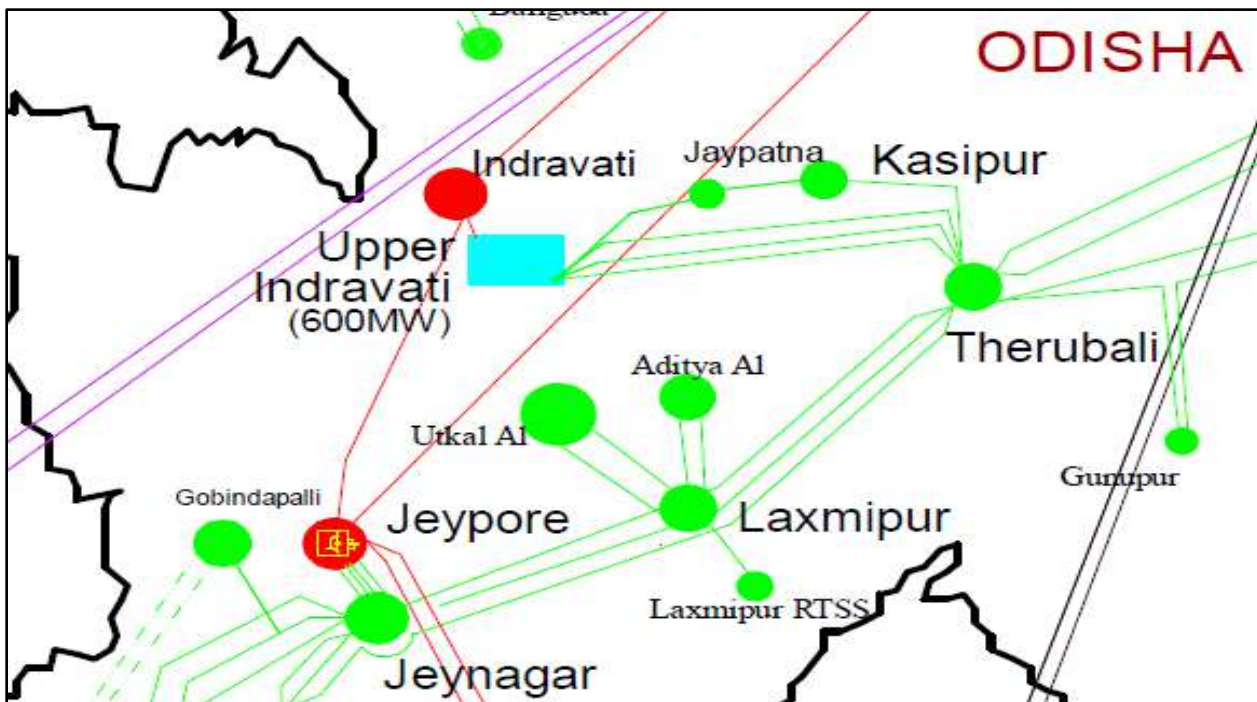


Figure 1: Network across the affected area

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

NIL

9. Major Elements Tripped (प्रमुख ट्रिपिंग):

Event at 23:30 Hrs on 13/07/2025:

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
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1	220 KV Main Bus - 1 At Indravati HEP	23:30: Hrs.	Bus bar protection operated for bus#1.	-
2	Indravati - Unit 1			-
3	Indravati - Unit 2			-
4	Indravati - Unit 3			-
5	Indravati - Unit 4			-
6	400KV/220 KV 315 MVA ICT 1 at Indravati HEP			05:13
7	400KV/220 KV 315 MVA ICT 2 at Indravati HEP			06:15
8	220 KV Indravati-Therubali-1			03:58
9	220 KV Indravati-Therubali-2			04:00

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

**Event at 23:30 Hrs on 13/07/2025:**

- Prior to the disturbance, Indravati HEP generation was around 500 MW evacuating through 220 kV Indravati-Jaypatna, 220 kV Therubali-Indravati-1,2 & 3 which was connected to 220kV main bus #1 at Indravati HEP.
- At 23:30:12 Hrs on 13.07.2025, bus bar protection of 220 kV main bus-1 at Indravati HEP mal-operated and all element connected to main bus #1 got tripped.
- 220kV Bus at Indravati HEP became dead and 500 MW generation loss occurred at Indravati HEP.

**Event at 11:22 Hrs on 14/07/2025:**

- After disturbance on 13/07/2025, all elements at Indravati charged through 220kV main #2 and Indravati Unit#1 generating around 150 MW.

- Further, on 14.07.2025 at 10:25 Hrs, the following elements tripped due to the bus bar operation of 220 kV Bus-II:

1. 220 kV side CB of 400/220 kV, 315 MVA ICT-2
2. 400 kV side CB of 400/220 kV, 315 MVA ICT-1
3. 220 kV Indravati–Therubali Ckt-1
4. 220 kV Indravati–Therubali Ckt-3

Subsequently, at 11:22 Hrs on 14.07.2025, the following elements also tripped due to busbar-II protection operation and few elements hand tripped.

1. Indravati – Unit #1
2. Indravati – Unit #2 (in standstill condition) – hand tripped
3. 220 kV Indravati–Therubali Ckt-2 – hand tripped
4. 220 kV Indravati–Jaypatna – hand tripped

Which resulted in 220kV Indravati HEP became dead and 150 MW generation loss occurred at Indravati HEP.

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

- As discussed in 149<sup>th</sup> PCC meeting, It was also noted that the currently installed Bus Bar protection relay at the 220 kV Indravati HEP is of **static type**, lacking Disturbance Recorder (DR) and Event Logger (EL) facilities. As per CEA regulations, all protection relays shall be numerical type with communication protocols in accordance with IS-61850.
- Reason of spurious operation and root cause analysis of bus bar protection of main bus 1 & 2 may be shared, and status of bus bar protection may be shared.
- For double main & transfer bus scheme, it is recommended that feeder's arrangement should be equally distributed on both buses to avoid load and generation loss in case of any bus fault.
- Upgrade to a numerical type BB protection relay with DR/EL features and IS-61850 compliance.

**12. Action Taken/Remedial Measures (सुधारात्मक उपाय):** As discussed in 149<sup>th</sup> PCC meeting it was decided that mal operated bus bar protection for main bus 1 & 2 was disabled and zone-4-time delay kept 250 msec for all connected feeders at Indravati HEP till the restoration of Bus Bar protection.

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

14. 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)	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)	For 220kV level, Double bus scheme should be operationalise as per CEA standards.

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



**ग्रिड-इंडिया**  
**GRID-INDIA**

**ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड**  
(भारत सरकार का उद्यम)  
**GRID CONTROLLER OF INDIA LIMITED**  
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**पूर्वी क्षेत्रीय भार प्रेषण केन्द्र / Eastern Regional Load Despatch Centre**

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**पूर्वी क्षेत्र के 220 केवी तेनुघाट, गोविन्दपुर में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at  
220 kV Tenughat TPS and 220kV Govindpur 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): 07-08-2025**

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

Prior to the disturbance 220KV- Dumka – Govindpur D/C was kept open to control the loading of 220 kV Maithon-Dumka D/c and Tenughat unit#1(Unit#2 was Under Planned Maintenance) generation evacuating through 220 kV Tenughat–Biharsharif–1 and feeding load of Govindpur S/s. At 13:53 Hrs, 220kV Tenughat–Biharsharif–1 line tripped on phase(R) to ground fault. This led to island formation of Tenughat unit#1 with Govindpur load which didn't survive due to load generation mismatch and Tenughat unit#1 tripped on over speed/over frequency protection. 220kV Tenughat and Govindpur became dead. Generation loss of 150 MW at Tenughat and load loss of 70 MW at Govindpur was reported. Govindpur load was restored at 14:17 Hrs by charging 220KV- Dumka – Govindpur D/C line.

**2. Time and Date of the Event (घटना का समय और दिनांक): 13:53 hrs of 17.07.2025**

**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)
<b>Pre-Event (घटना पूर्व)</b>	49.73 Hz	25092 MW	26482 MW	190 MW	1453 MW
<b>Post Event (घटना के बाद)</b>	49.73 Hz	24942 MW	26412 MW	40 MW	1383 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- Dumka – Govindpur D/C kept open from 07/07/2025 to control loading of 220 kV Maithon-Dumka D/c. Tenughat Unit #2 Under Planned Maintenance
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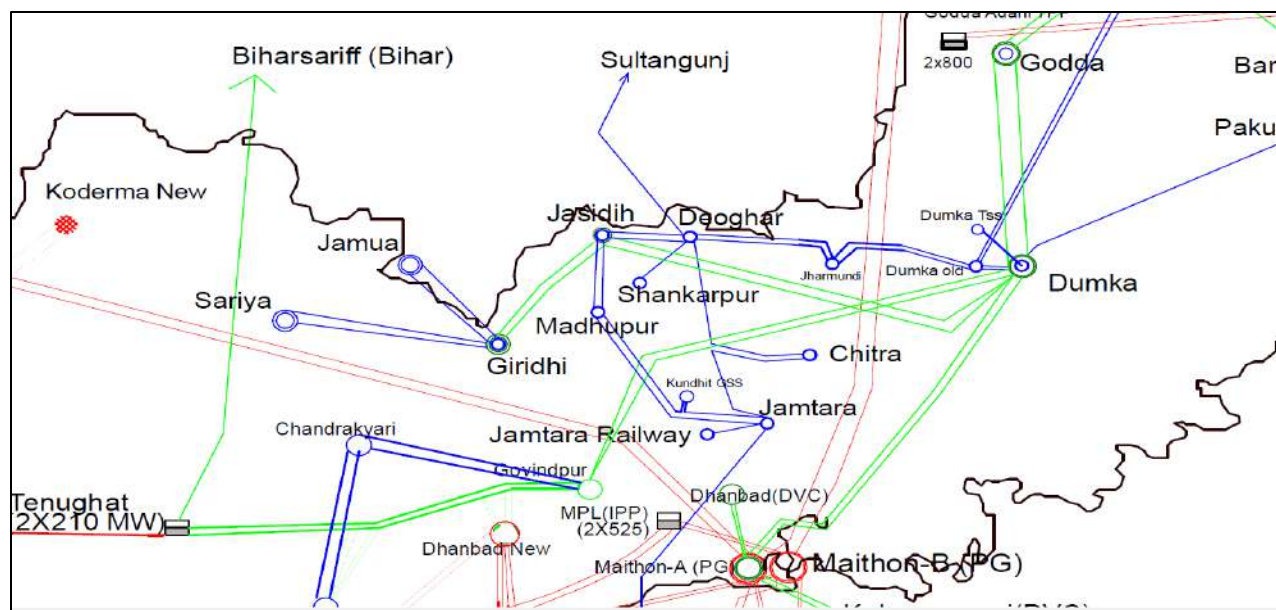


Weather Condition (मौसम स्थिति)	Normal

**6. Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss of 150 MW at Tenughat TPS and Load loss of 70 MW at Govindpur.

**7. Duration of interruption (रूकावट की अवधि):** 00:24 Hrs (Govindpur Load was restored at 14:17 Hrs by charging 220KV- Dumka – Govindpur D/C)

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



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

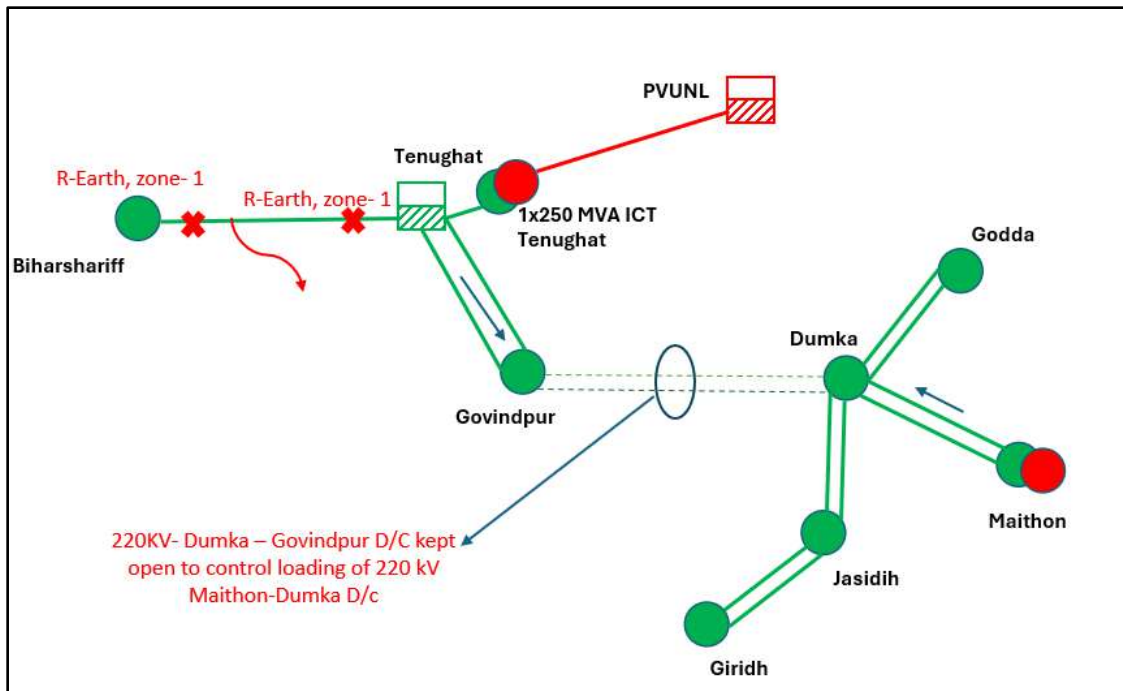
**9. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** NIL

**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	220 kV TTPS- Bihar Sharif Line	13:53:23	Tenughat: R-Earth, zone- 1, FD - 79.56km, FC- 1.083 kA	R-E, FC-1.49 kA, Z-1	14:38
2	210 MW Tenughat Unit 1		Over speed/over frequency protection		19:35

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





**Figure 2: Network across the affected area**

- Prior to the disturbance 220KV- Dumka – Govindpur D/C was kept open to control the loading of 220 kV Maithon-Dumka D/c and Tenughat unit#1(Unit#2 was Under Planned Maintenance) generation evacuating through 220 kV Tenughat–Biharsharif–1 and feeding load of Govindpur S/s.
- At 13:53:23 Hrs, R phase to ground fault occurred in 220kV Tenughat Biharsariff line and line got tripped from both ends.
- Due to tripping of this line, Tenughat unit#1 generation (Around 150 MW) island with Govindpur load(Around 70 MW).
- Due to load generation mismatch, Tenughat island didn't survive and Tenughat unit#1 got tripped on overspeed/over frequency protection.
- 220kV Tenughat & Govindpur became dead.
- 150 MW generation loss at Tenughat and 70 MW load loss at Govindpur occurred.

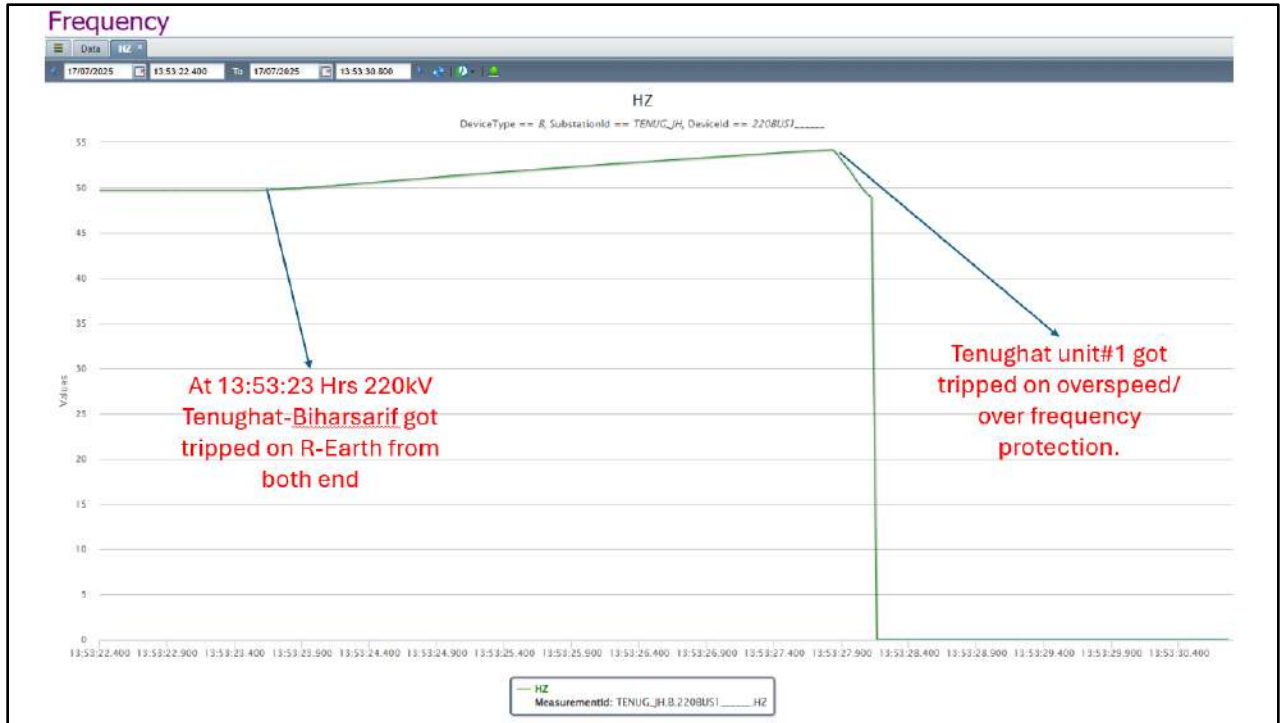


Figure 3: PMU of Frequency

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

- A/r scheme not implemented in 220kV Tenughat Biharsarif line. Kindly share the latest status of A/r scheme.

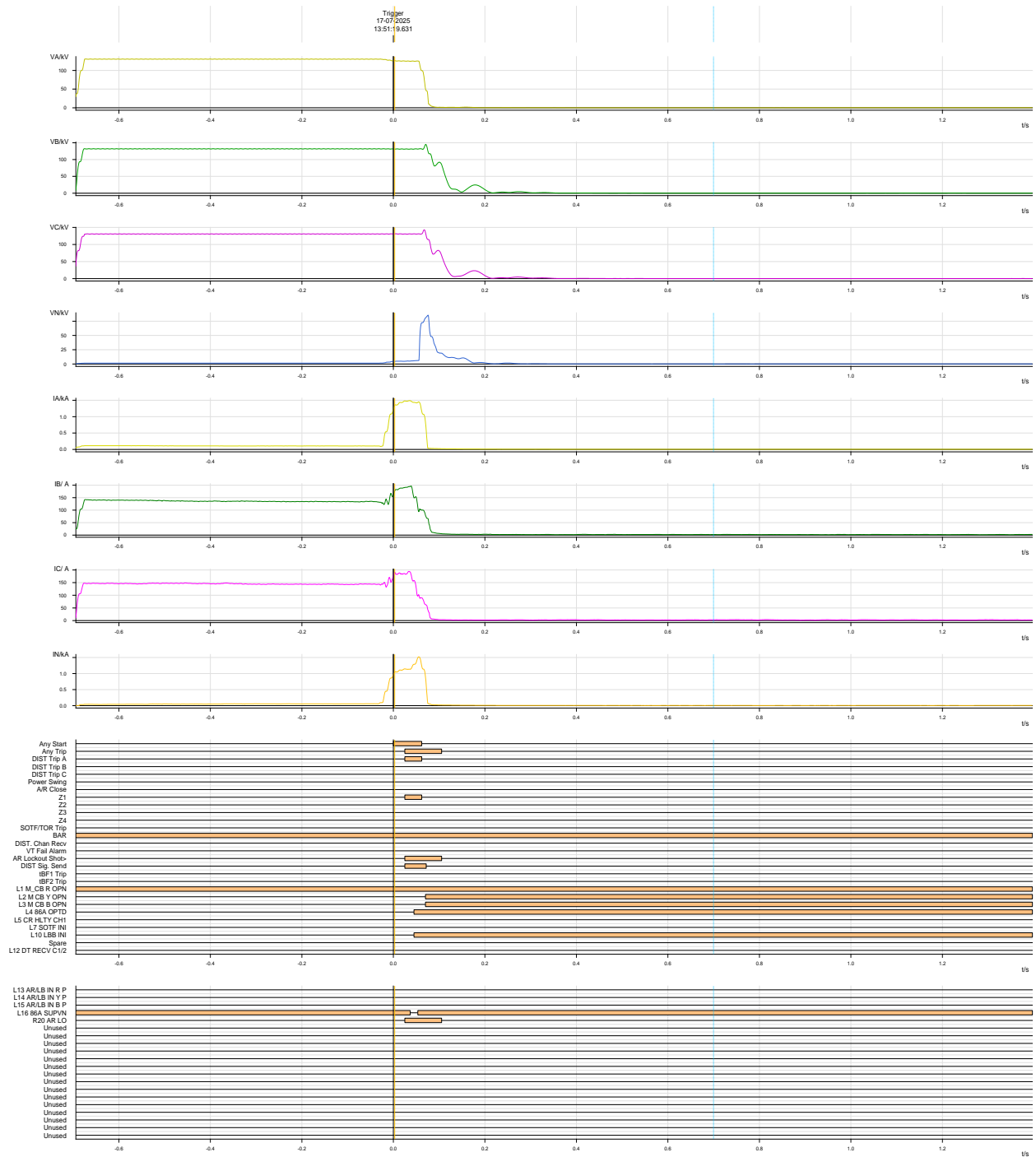
13. Action Taken/Remedial Measures (सुधारात्मक उपाय): Nil

**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
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)	A/r not implemented in 220kV Tenughat Biharsariff line which was not as per CEA standard.

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

**DR of 220kV-Tenughat-Biharsariff ckt #1 at Biharsariff:**





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

**पूर्वी क्षेत्र के 220/132 केवी गोरौल में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event at  
220/132kV Goraul 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): 21-07-2025**

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

The 220kV Goraul S/S is connected to the grid through the 220kV-Goraul-Muzaffarpur (PG) D/C line. Prior to the disturbance, 220kV-Goraul-Muzaffarpur #2 line tripped at 13:24 Hrs on phase to ground fault. Subsequently at 14:31 Hrs, 220kV-Goraul-Muzaffarpur (PG) #1 line also got tripped on ground-Phase-E fault due to conductor snapping. Due to tripping of radial connected line, 220kV Goraul S/S became dead.

Due to the above, total 180 MW load loss occurred at Goraul (Goraul (20 MW), Vaishali (42 MW), Sheetalpur (43 MW), Railway (15 MW), Jandaha (50 MW) and Mahnar (10 MW)). Power supply was subsequently restored via 132kV system through Hazipur, Jandaha and Manhar links. Further, 220kV Muzaffarpur (PG) -Goraul Ckt#2 line charged at 14:56 Hrs.

**2. Time and Date of the Event (घटना का समय और दिनांक):** At 14:31 Hrs on 07-07-2025

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

**4. Location/Control Area (स्थान/नियंत्रण क्षेत्र):** 220/132kV Goraul S/S

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

	Frequency in Hz	Regional Generation in MW	Regional Demand in MW	State Generation in MW	State Demand in MW
				Bihar	Bihar
<b>Pre-Event</b> (घटना पूर्व)	49.99	460	6730	25829	26186
<b>Post Event</b> (घटना के बाद)	49.99	460	6550	25829	26006

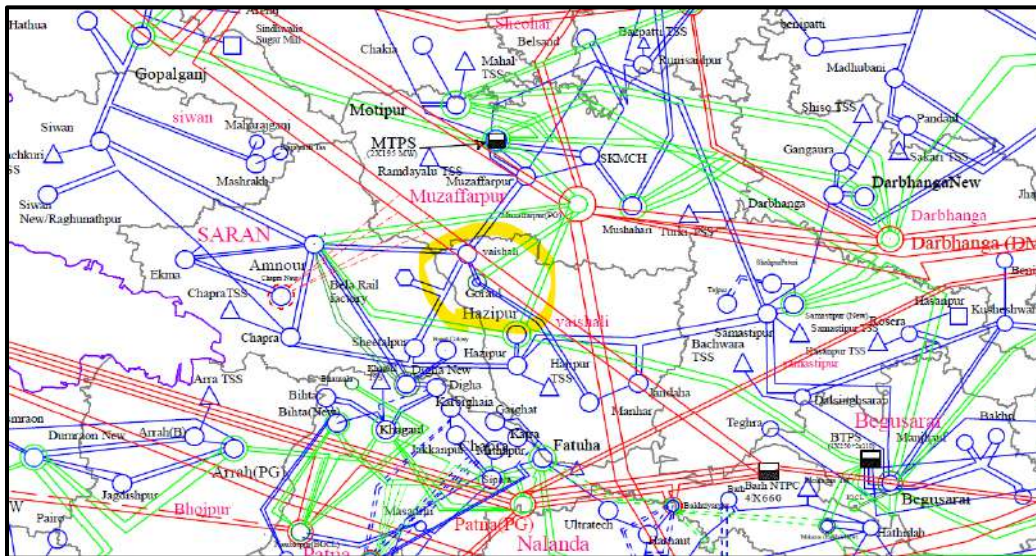
*\*Pre and post data of 1 minute before and after the event*

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	<ul style="list-style-type: none"> <li>220 kV Muzaffarpur (PG) - Goraul ckt #2 tripped since 13:24 hrs of 07.07.2025.</li> </ul>
Weather Condition (मौसम स्थिति)	Normal

**6. Load and Generation loss (लोड और जेनरेशन हानि):** Total load loss reported was approx. 180 MW at Goraul (20 MW), Vaishali (42 MW), Sheetalpur (43 MW), Railway (15 MW), Jandaha (50 MW) and Mahnar (10 MW).

**7. Duration of interruption (रुकावट की अवधि):** 25 Minutes.

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



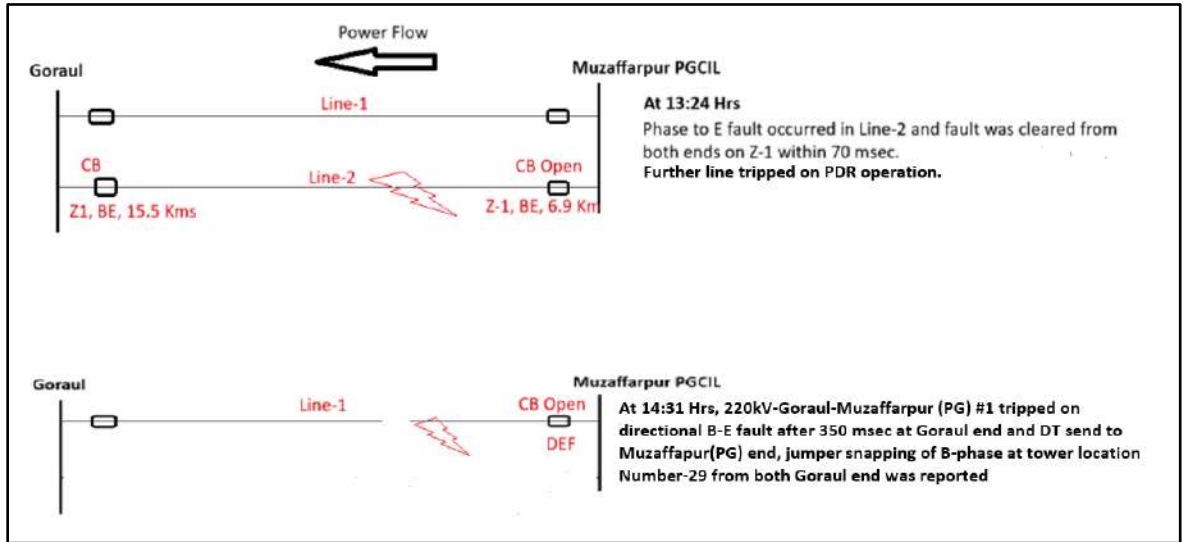
**Figure 1: Network across the affected area**

**9. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** 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 (Hrs)
1	220 kV Muzaffarpur (PG)-Goraul ckt 1	14:31:51	DT received at Muzaffarpur end.	Directional earth fault operated at Goraul end	23:18
2	220 kV Muzaffarpur (PG)-Goraul ckt 2	13:24:13	Zone -1 B-Phase fault	Goraul: Zone -1 B-Phase fault with fault current -2.41 KA Fault Distance: 15.5 Km, Line tripped on Pole Discrepancy Relay operation.	14:56

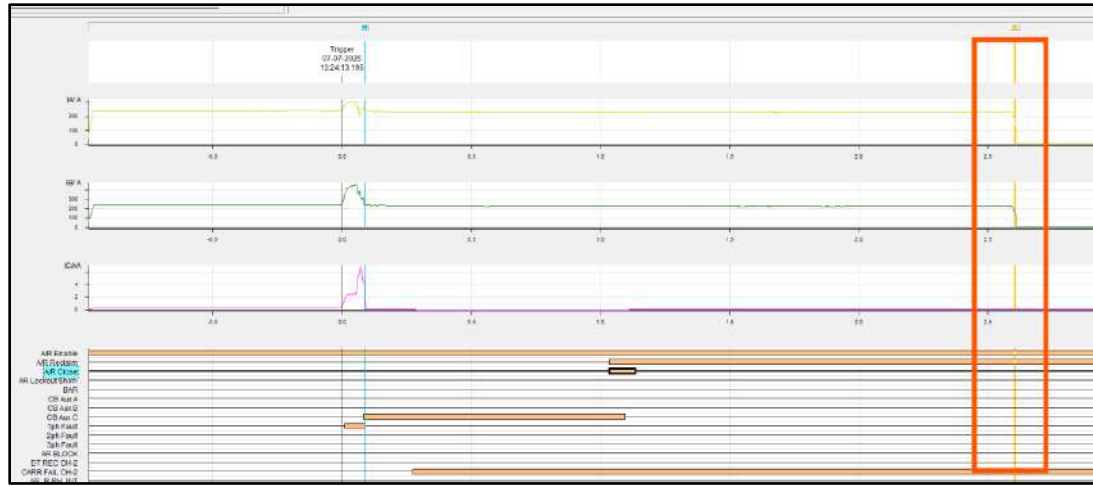
### 11. Event Analysis (Based on PMU, SCADA & DR) (घटना का विश्लेषण):



**Fig 2: SLD of 220 kV Goraul S/S**

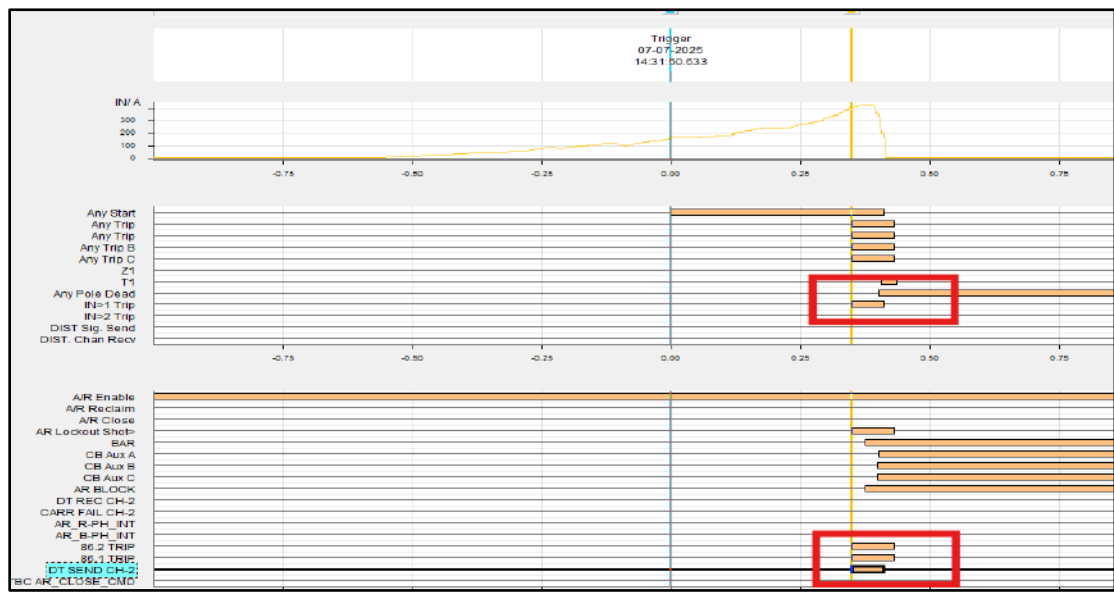
- 220kV Goraul S/S is connected to Muzaffarpur (PG) S/s through 220kV-Goraul-Muzaffarpur (PG) D/C Line.
- Prior to the disturbance, 220kV-Goraul-Muzaffarpur (PG) #2 line tripped at 13:24:13 Hrs on B-E fault and A/r attempt was initiated after 1 sec at Goraul end. However, B-phase CB failed to reclose, leading to a pole discrepancy and A/r not attempted from Muzaffarpur end. Consequently, the line tripped on PDR operation after 2.5 sec from both ends.





**Figure 3: DR of 220kV Goraul-Muzaffarpur (PG) #1 at Goraul end**

- After tripping of 220kV-Muzaffarpur (PG)-Goraul #1 line, Goraul was radially feeding from Muzaffarpur.
- At 14:31:51 Hrs, 220kV-Goraul-Muzaffarpur (PG) #1 line tripped on directional B-E fault after 350 msec at Goraul end and DT send to Muzaffarpur(PG) end, jumper snapping of B-phase at tower location Number 29 from both Goraul end was reported.
- As Goraul was radially feeding from Muzaffarpur end, due to tripping of said circuit, 220kV Goraul S/s became dead.



**Figure 4: DR of 200kV Muzaffarpur (PG)-Goraul #1 at Goraul end**

- Total load loss of 180 MW occurred at Goraul (20 MW), Vaishali (42 MW), Sheetalpur(43 MW), Railway (15 MW), Jandaha(50 MW) and Mahnar(10 MW)).
- Power supply was extended through 132kV system via Hazipur, Jandaha and Manhar link. Further, 220kV Muzaffarpur-Goraul Ckt#2 line charged at 14:56 Hrs.



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

- Non reclosing of CB at Goraul for Line-2 even after reclosing command from the protection relay. The same may be updated.
- A/r not attempted at Muzaffarpur end for phase to ground fault in 220kV Muzaffarpur (PG)-Goraul #2. A/r scheme may be reviewed.
- 220kV Muzaffarpur Goraul #1 line tripped on B/U earth fault within 350 msec from Goraul end. B/U earth fault setting may be reviewed.
- Time duration of DR at Muzaffarpur (PG) end needs to be increased as per standard (Minimum 3 seconds total duration (500 msec pre-fault, 2500 msec post-fault)).

**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
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)	A/r not operated properly which was not as per CEA and ERPC protection philosophy.

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

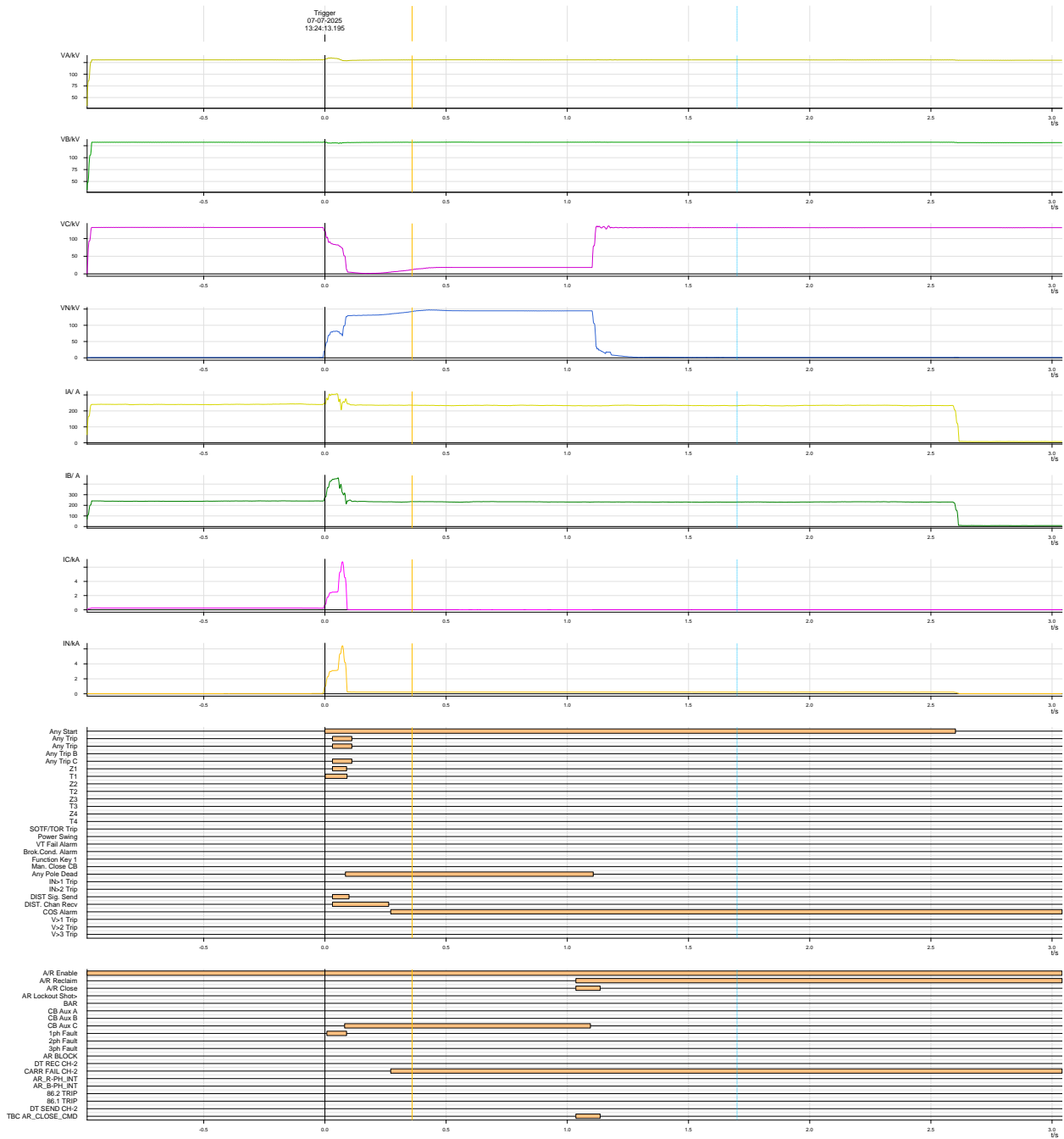
Periodic verification of the Auto Reclose (AR) circuit should be carried out to ensure its proper functionality and healthiness. Additionally, thermos-vision scanning of the transmission line should be conducted in line with CEA standards to detect potential issues such as loose or overheated joints.

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

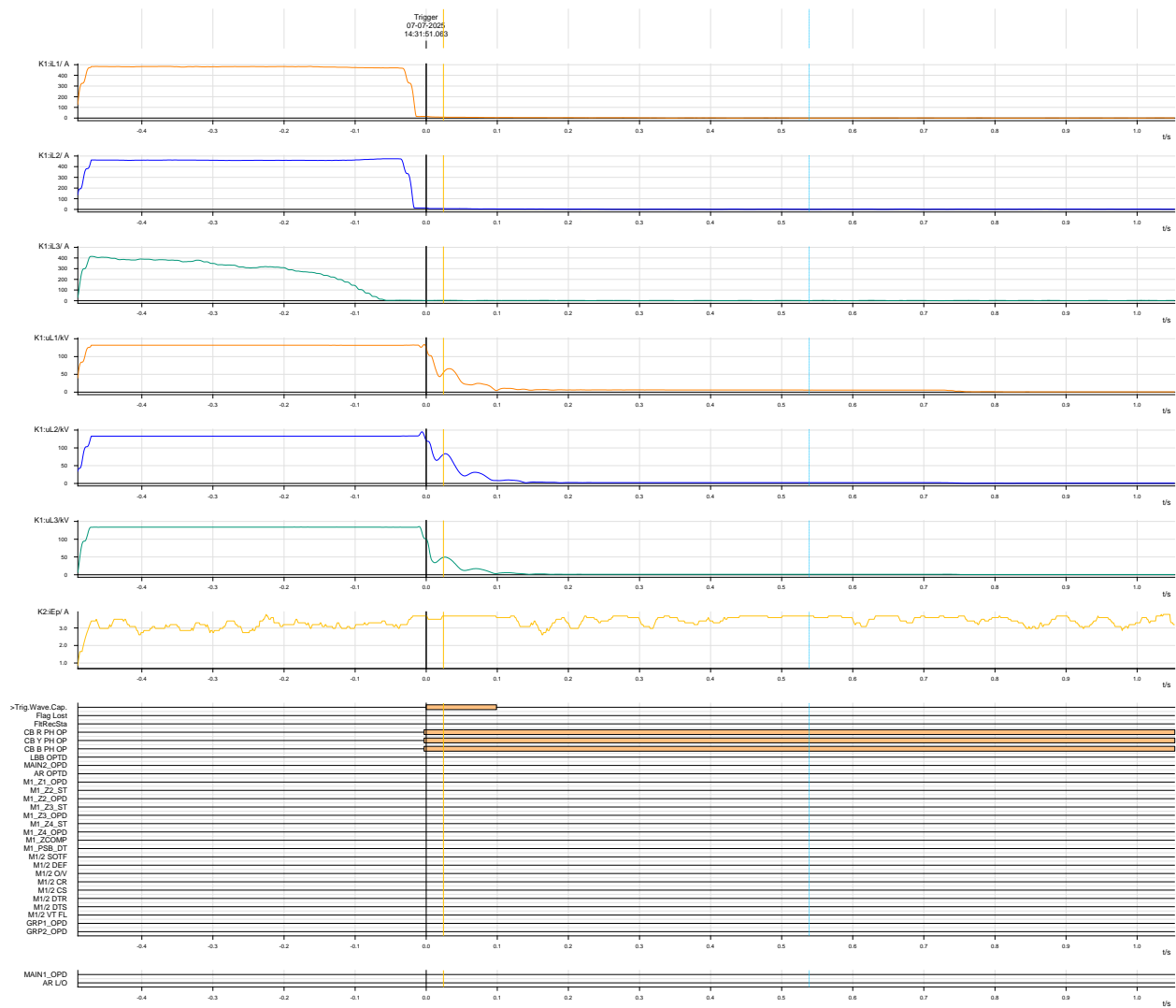
TIME	MILLI_SEC	STATION	DESCRIPTION	STATUS
07-07-2025 13:24	222	MUZAF_PG	220_GARAU_BH_2_CB	Open
07-07-2025 14:32	499	MUZAF_PG	220_GARAU_BH_1_CB	Open



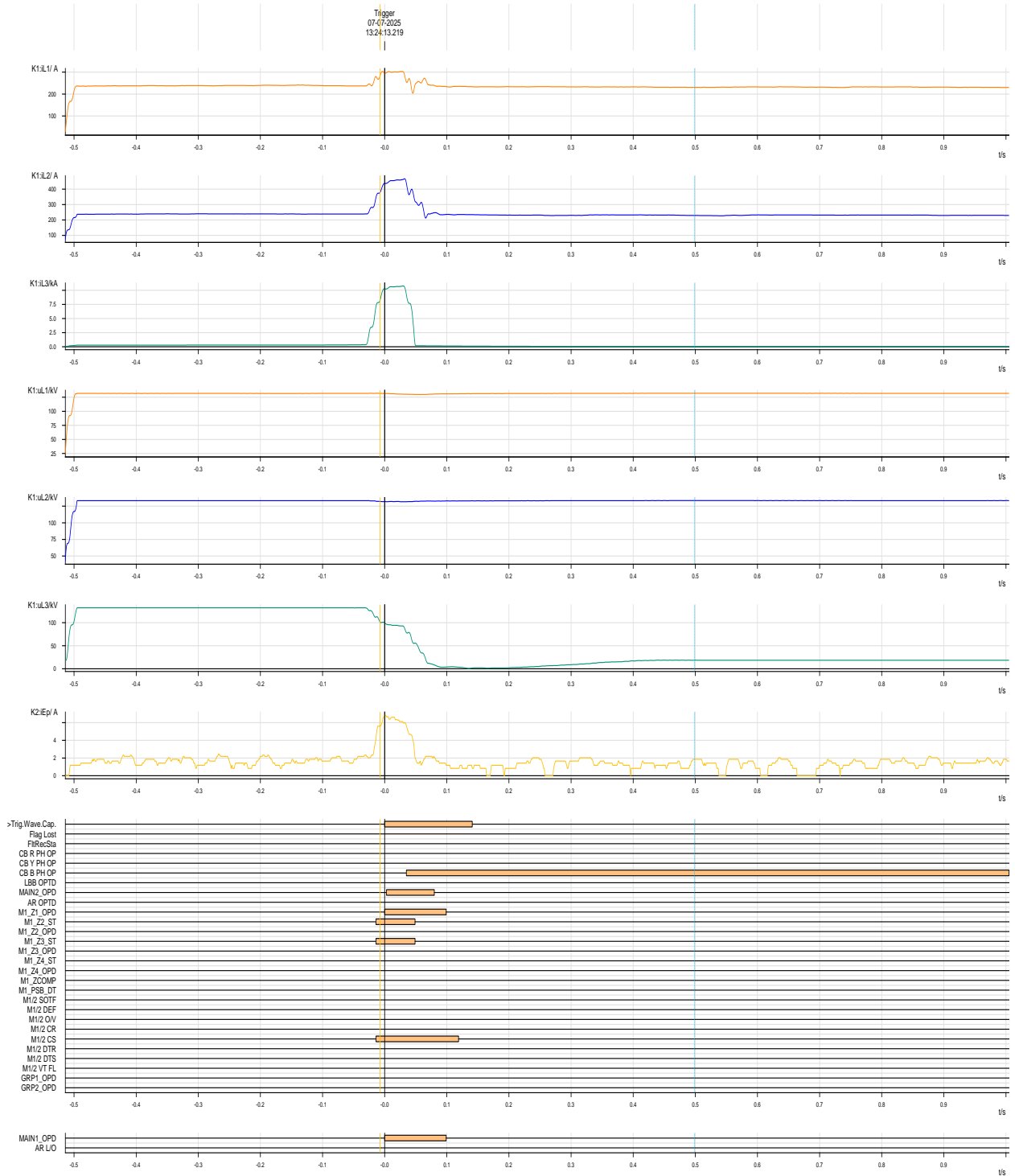
**DR of 220 Goraul-Muzaffarpur # 2 at Goraul:**

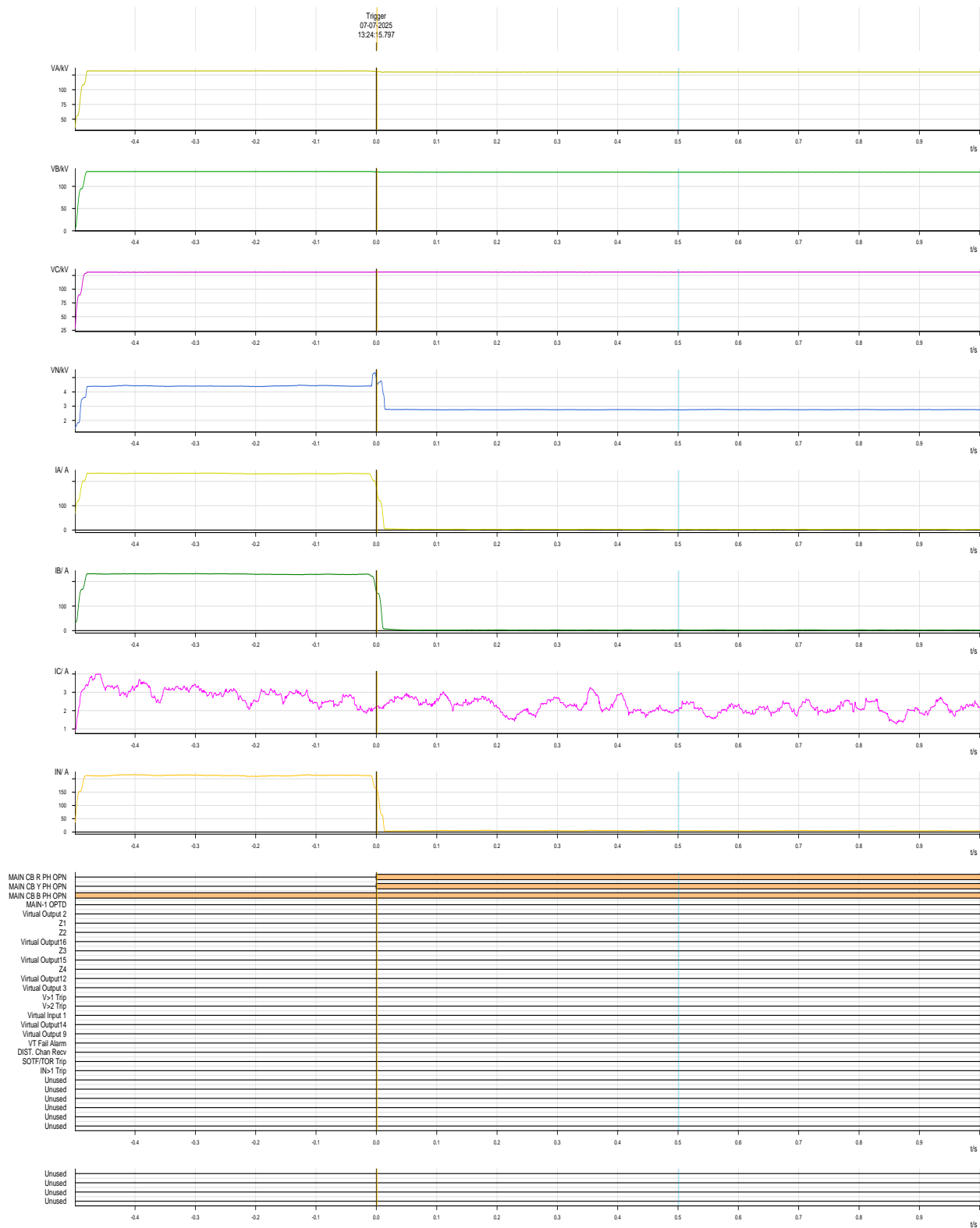


**DR of 220 Goraul-Muzaffarpur # 1 at Muzaffarpur(PG):**



**DR of 220 Goraul-Muzaffarpur # 2 at Muzaffarpur(PG):**





## **Report regarding outage of power of 220/132/33 kV GSS Goraul at 14:31 Hrs on dated-07.07.2025 due to outage of 220 KV Muzaffarpur (PG)- Goraul T/L**

### **List of Lines & tripping details during**

Following transmission line are connected to 220 kV 220/132/33 KV GSS, Goraul:-

(a) 220 KV Muzaffarpur (PG) -Goraul Ckt-01 & Ckt-02

(b) 220 KV Goraul- Tajpur Ckt-01 & ckt-02

### **Line tripped during the event: -**

<b>S.N.</b>	<b>Name of T/L</b>	<b>Tripping time</b>	<b>Reason/Relay</b>	<b>Restoration time</b>
<b>1</b>	220 KV Muzaffarpur (PG) - Goraul Ckt no.-02	13:24 Hrs	Zone-1, B-Pghase fault at a distance of 14.85 km having fault current-2.37 KA	<b>14:56 hrs</b>
<b>2</b>	220 KV Muzaffarpur (PG) to Goraul Ckt no.-01	14:31 Hrs	Due to jumper snapping of "B" phase at Tower no.-29 of 220 KV Muzaffarpur (PG) - Goraul Ckt no.-01 T/L causing total power failure as 220 KV Muzaffarpur(PG) - Goraul Ckt no.-02 was also under tripped condition.	<b>23:18 hrs</b>

### **Antecedent condition prior to event**

220 KV Muzaffarpur (PG) - Goraul Ckt no.-02 was under tripped condition and total power was flowing through 220 KV Muzaffarpur (PG) - Goraul Ckt no.-01 T/L.

### **List of Elements Under Outage Prior to the Event:**

- 220 kV Muzaffarpur (PG) – Goraul Circuit No. 02

### **Load Loss:**

- Approximate quantum of load loss: 180 MW

### **Duration of the Event:**

- Approximately 1 hour

### **Load Management:**

- All downlinking GSSs, namely **Vaishali, Sheetalpur, Mahnar, Jandaha, and RWP Bela**, were shifted to alternate sources to maintain supply.

### **Root Cause of Line Tripping:**

- Jumper snapped at Tower No. 29 of the 220 kV Muzaffarpur (PG) – Goraul Circuit No. 01 transmission line.

### **Remedial Action Taken:**

- The 220 kV Muzaffarpur (PG) – Goraul Circuit No. 01 was charged after carrying out jumpering at Location No. 29 of the transmission line.

**Restoration Time:** The 220 KV Muzaffarpur (PG) - Goraul Ckt no.-01 was successfully restored at 23:18 hrs.

**Weather Conditions During the Event:** Normal

Report regarding outage of power of 220/132/33 KV GSS, Goraul at 14:31 Hrs on dated-07.07.2025 due to outage of 220 KV Muzaffarpur(POWERGRID) to Goraul Transmission Line

- List of Lines & tripped during the event

220/132/33 KV GSS, Goraul having following connected 220 KV lines:-

- (a) 220 KV Muzaffarpur (PG) to Goraul Ckt-01 & Ckt-02
- (b) 220 KV Goraul to Tajpur Ckt-01 & ckt-02
- (c) 132KV Goraul- Mahanar Ckt-01 & Ckt- 02
- (d) 132KV Goraul- Vaishali Ckt-01 & Ckt-02

Line tripped during the event:-

1. 220 KV Muzaffarpur(PG) to Goraul Ckt no.-02 tripped at 13:24 Hrs with Zone-1, B-Phase fault at a distance of 14.85 km from Gss Goraul end having fault current-2.37 KA and restored at 14:56 Hrs.
2. 220 KV Muzaffarpur(PG) to Goraul Ckt no.-01 was tripped at 14:31 Hrs due to snapping of "B" phase jumper at Tower no.-29 causing total power failure as 220 KV Muzaffarpur(PG) to Goraul Ckt no.-02 was also under tripped condition from Muzzafarpur(PG) end.

- Antecedent condition prior to event

220 KV Muzaffarpur(PG) to Goraul Ckt no.-02 was under tripped condition and total power was flowing through 220 KV Muzaffarpur(PG) to Goraul Ckt no.-01

- List of element which was under outage prior to the event

220 KV Muzaffarpur(PG) to Goraul Ckt no.-02

- Amount of load loss in MW-180 MW
- Duration of the event- Approx 1 Hr
- Catering load from alternate souce-All the downlinking GSS ie. Vaishali, Sheetalpur, Mahnar, Jandaha & RWP Bela were shifted on alternate source
- Root cause of tripping of Line-Jumper snapped at Tower no.-29
- Remedial action taken- restoration of snapped B-ph jumper completed and line became successfully charged.
- Restoration of element-220 KV Muzaffarpur(PG) to Goraul Ckt no.-01 was restored at 23:18 hrs
- Weather condition during event-Normal





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

**पूर्वी क्षेत्र के 400 केवी जेएसपीएल में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of  
grid event at 400 kV JSPL (CPP) 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):06-07-2025**

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

400KV-MEERAMUNDALI-JSPL-1 tripped at 12:22 Hrs on phase to ground fault (Ckt-2 was under planned shutdown for maintenance job of bay & line equipment's at JSPL end). Both Bus at 400 kV JSPL became dead as it was radially connected to 400 kV Meramundali S/S. Captive power plant JSPL has 6 units of 135 MW capacity each. Unit-1 with emergency load of 90 MW was separately connected with 220 kV Bus-1 (220 kV bus-coupler remaining open). All other units connected to 220 kV Bus-2 were generating around 510 MW and were taking 110 MW from grid. As both evacuating lines tripped, 400kV JSPL became dead. 510 MW generation loss and 620 MW load loss occurred at JSPL.

**2. Time and Date of the Event (घटना का समय और दिनांक):** 12:22 Hrs of 21.07.2025

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

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

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

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Odisha	Odisha
<b>Pre-Event</b> (घटना पूर्व)	49.958 Hz	27264 MW	27383 MW	2535 MW	5895 MW
<b>Post Event</b> (घटना के बाद)	49.982 Hz	27264 MW	27273 MW	2535 MW	5785 MW

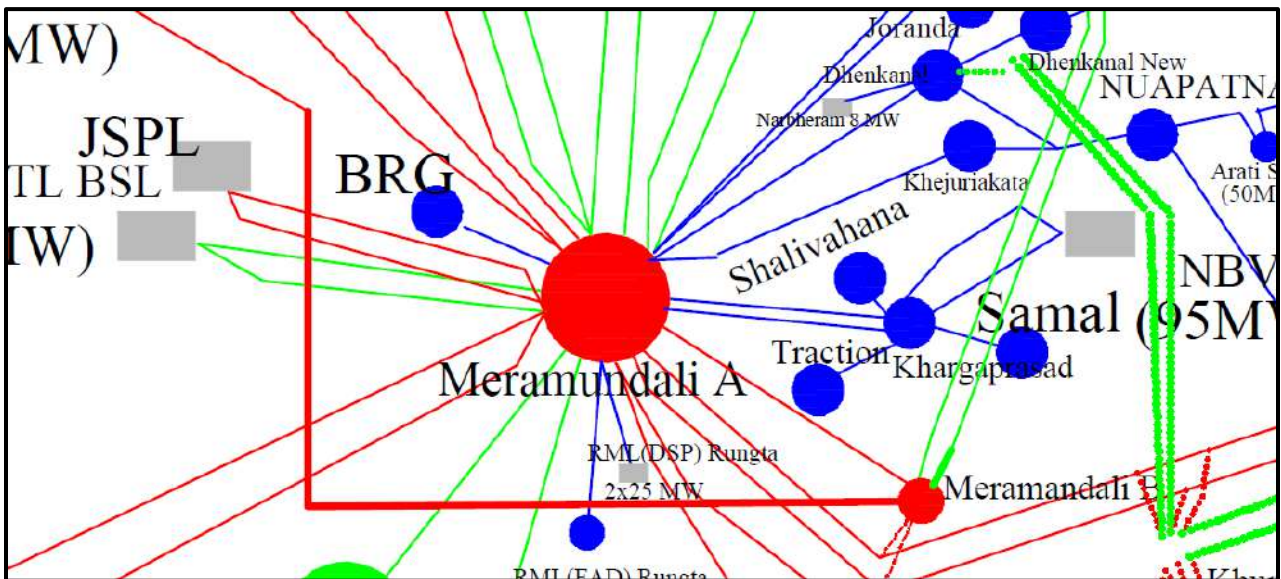
**\*Pre and post data of 1 minute before and after the event**

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विद्युत उत्पादन इकाइयां जो बंद हैं)	400 kV JSPL-Meeramundali-2 was under planned shutdown for maintenance job of bay & line equipment's at JSPL end
Weather Condition (मौसम स्थिति)	Normal.

**6. Load and Generation loss (लोड और जेनरेशन हानि):** Net load loss of 110 MW at JSPL (CPP).

**7. Duration of interruption (रूकावट की अवधि): 00:52 Hrs (52 minutes)**

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



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

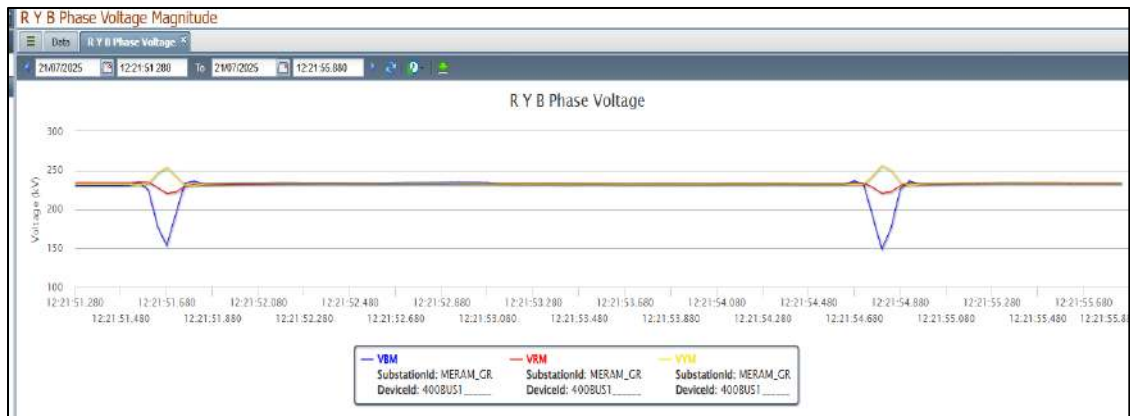
**9. Details of Equipment Failure (if any during the event) (उपकरण विफलता का विवरण):** NA

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

क्र०स०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time (Hrs)
1	400 kV Meramundali-JSPL-1	12:21:51	Meeramundali End: B_N, Ib=11.65 KA, Z1, 13.5KM.	JSPL End: carrier added trip, FD-31.0KM, Ib=3.14 Ka	16:54

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

- Prior to the disturbance JSPL(CPP) drawing 110 MW radially through 400kV-Meeramundali-JSPL #1(400kV-Meeramundali-JSPL #2 was under planned shutdown for maintenance job of bay & line equipment's at JSPL end).
- Captive power plant JSPL has 6 units of 135 MW capacity each. Unit-1 with emergency load of 90 MW was separately connected with 220 kV Bus-1 (220 kV bus-coupler remaining open). All other units connected to 220 kV Bus-2 were generating around 510 MW and were taking 110 MW from grid.
- At 12:22:51 Hrs B phase to earth fault occurred in 400kV-Meeramundali-JSPL #1 and A/r failed after 1 sec from both ends.
- As JSPL radially connected through this line, due to tripping of this line 400kV JSPL became dead.
- Generation loss of 510 MW and load loss of 620 MW (Net 110 MW) reported at JSPL(CPP).



**Figure 2: PMU of 400 kV Meramundali-JSPL-1 at Meramundali**

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

- NIL

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

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

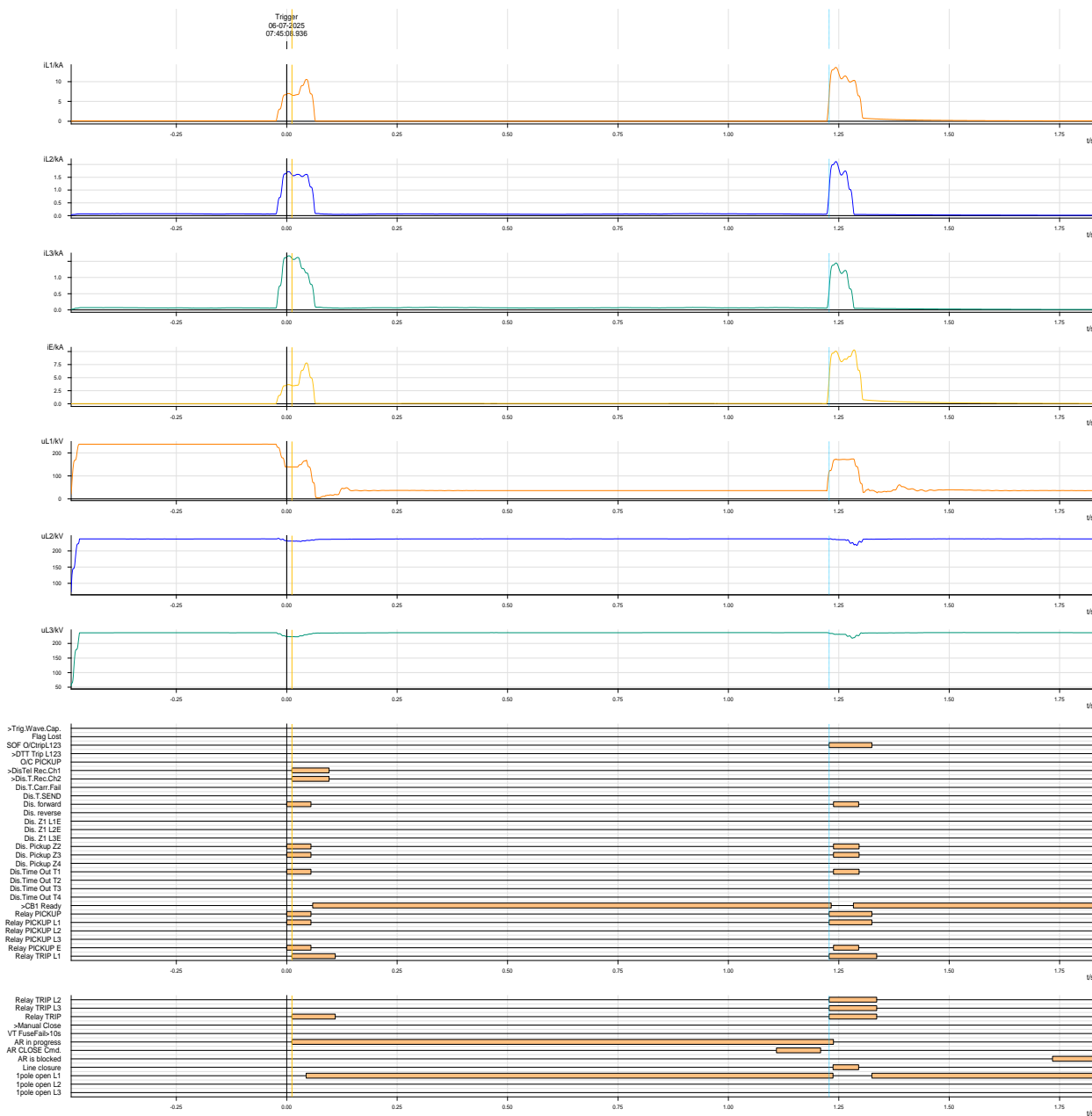
S.No.	Issues	Regulation Non-Compliance	Remark
1	Flash Report received within 8hrs?	IEGC section 37.2 (b)	Not Submitted

2	<b>Whether DR/EL provided within 24 Hours?</b>	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted
3	<b>Detailed Report received within 7 days?</b>	IEGC section 37.2 (e)	Not 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)	<b>Protection operated as per scheme.</b>

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

## Annexure 2:

### DR of 400 kV Meramundali-JSPL-1 (Meramundali):





**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, टॉलीगंज, 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

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

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

(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date(दिनांक):12-08-2025

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

Prior to the disturbance PVUNL was drawing start up power radially through 400kV Tenughat S/s through 400kV Tenughat-PVUNL line. At 03:27 Hrs on 28.07.2025, 400KV Tenughat-PVUNL line tripped on over voltage from PVUNL and DT send to Tenughat end. Due to tripping of this line, 400 kV PVUNL S/s became dead. Around 4 MW load loss (start-up power) occurred at PVUNL S/s.

**2. Time and Date of the Event (घटना का समय और दिनांक):** At 03:27 Hrs on 28/07/2025

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

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

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

	Frequency	Regional Generation	Regional Demand	State Generation Jharkhand	State Demand Jharkhand
<b>Pre-Event</b> (घटना पूर्व)	50.01	28830	26167	208	1410
<b>Post Event</b> (घटना के बाद)	50.01	28830	26163	208	1406

*\*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)	400/220 kV 250 MVA Tenughat ICT#1 under long outage condition.
Weather Condition (मौसम स्थिति)	Normal.

**6. Load and Generation loss (लोड और जेनरेशन हानि):**

- Generation loss: Nil; Load loss: 4 MW.



7. Duration of interruption (रूकावट की अवधि): 16:56 Hrs

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

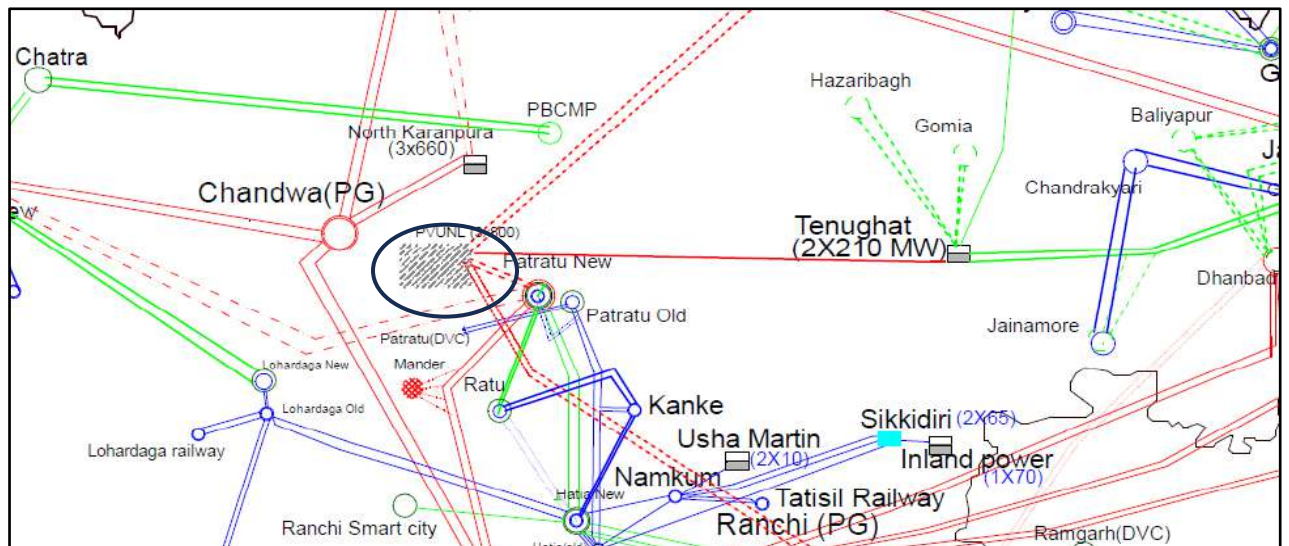


Figure 1: Network across the affected area

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

10. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०सं०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time(Hrs)
1	400KV-TENUGHAT-PVUNL-1	03:27:35	DT received at Tenughat	Over Voltage Stg#1 operated.	20:23

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

- Prior to the disturbance PVUNL was drawing start up power radially through 400kV Tenughat S/s through 400kV Tenughat-PVUNL line
- At 03:27:35 Hrs 400kV Tenughat-PVUNL line tripped on over voltage protection from PVUNL end and DT send to Tenughat end.

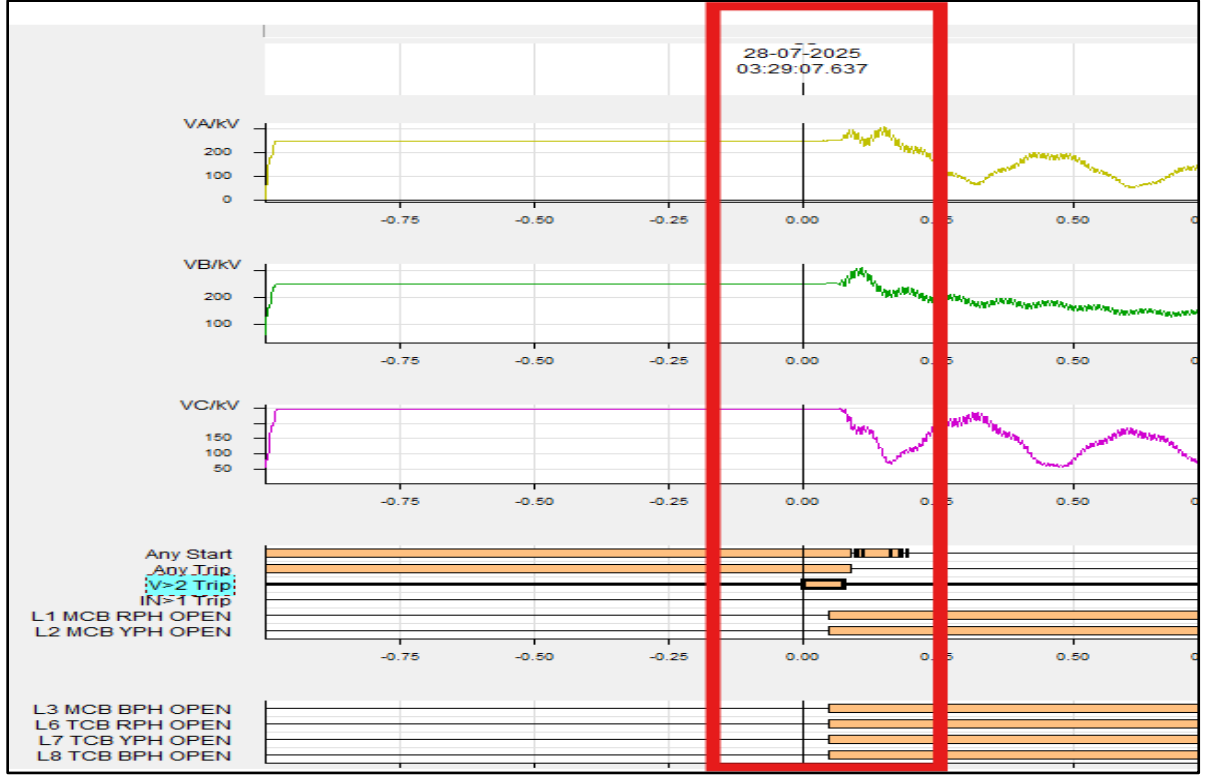


Figure 2: DR at PVUNL

- Due to tripping of radial connected line from PVUNI, PVUNL became dead and load loss of 4 MW(Start-up) reported at PVUNL.

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

- As per DR of Tenughat end, during over voltage operation,  $V_{ae} = 249$  kV,  $V_{be} = 251$  kV,  $V_{ce} = 247$  kV. Line voltage reached  $\sim 435$  kV, which appears **unwanted for O/V operation**.
- Test the Overvoltage (O/V) function in both relays using a relay test kit to check for any faults and take corrective action immediately.
- Till the issue is resolved, it is suggested to temporarily revise the **V>2(Over voltage stage-1) setting to 111%** from **110%** with a **5-second delay** in both relays to avoid spurious tripping.
- For easier fault analysis of relay operation in future, it is suggested to clearly label the O/V stages in the DR digital channels—Stage-1 as V>1 and Stage-2 as V>2.

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

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

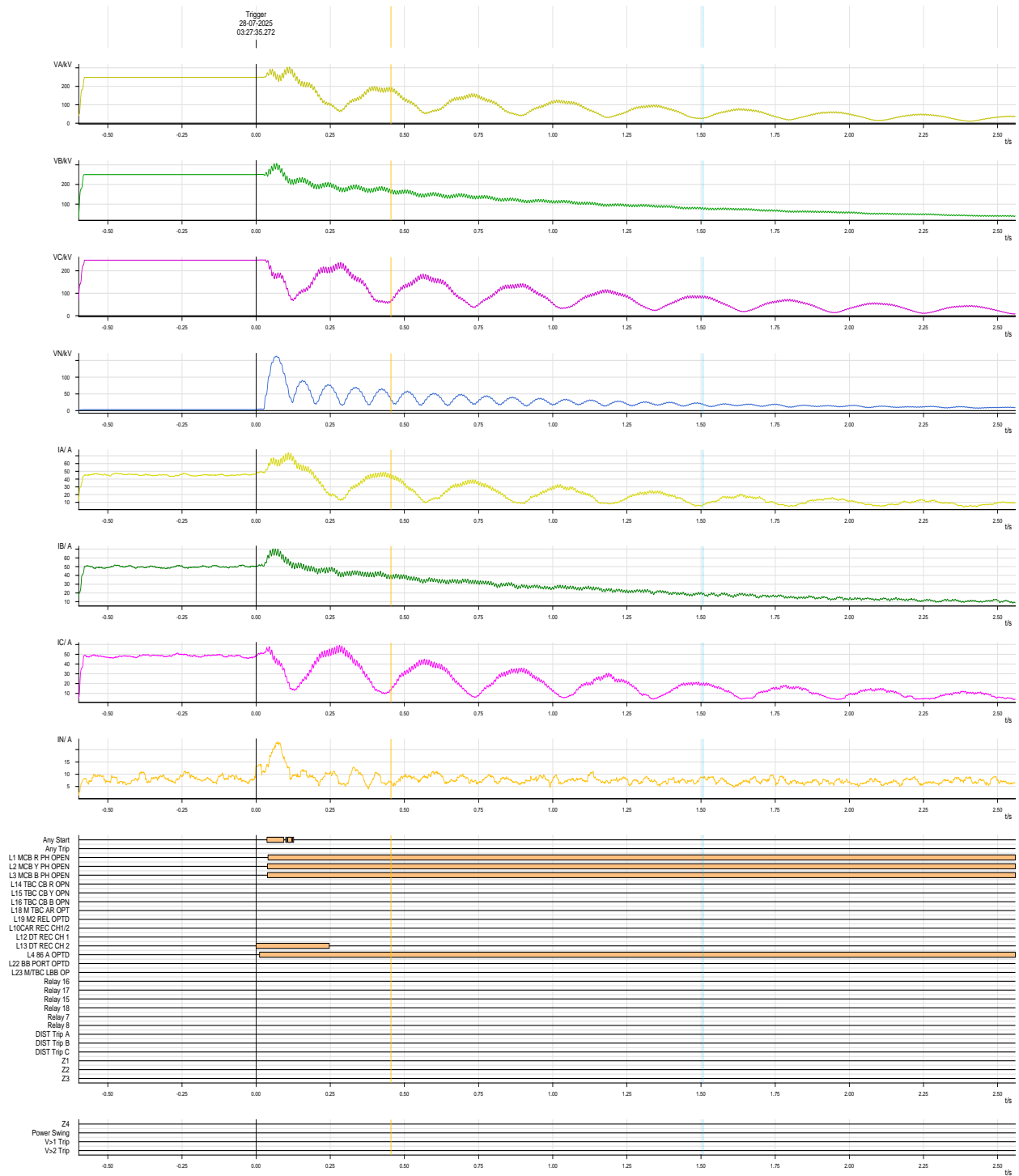


S.No.	Issues	Regulation Non-Compliance	Remark
1	<b>Flash Report received within 8hrs?</b>	IEGC section 37.2 (b)	Not Submitted
2	<b>Whether DR/EL provided within 24 Hours?</b>	1. IEGC section 37.2 (c) 2. CEA grid Standard 15.3	Submitted
3	<b>Detailed Report received within 7 days?</b>	IEGC section 37.2 (e)	Not 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.

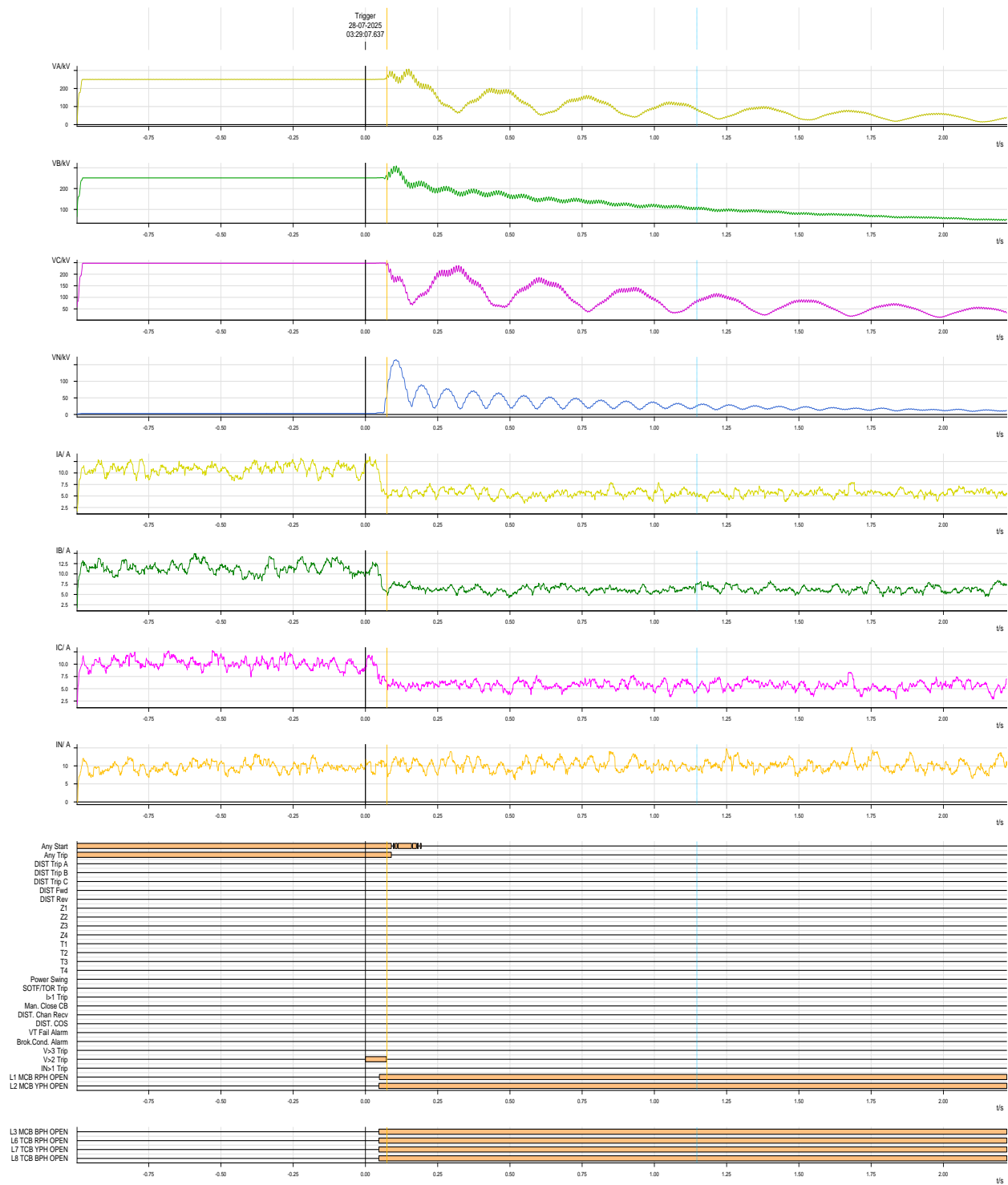
- **Key Lessons Learnt (प्रमुख अधिगम बिंदु):** NIL

## Annexure 2:

### DR of 400kV PVINL-Tenughat at Tenughat:



DR of 400kV PVINL-Tenughat at PVUNL:



## **Minutes of Meeting Regarding On-load Operation of 400kV PVUNL-Tenughat**

One online meeting was organized by ERLDC on 06.08.2025 to discuss regarding on-load operation of this 400kV PVUNL-Tenughat circuit. Executives from SLDC Jharkhand, JUSNL, TUVNL, PVUNL and ERLDC were present at this meeting. A schematic diagram of the whole system under discussion is shown in (***Annexure-1***).

The details of the discussions are deliberated in the points below:

1. ERLDC presented a comparative analysis of power flow conditions under the peak demand scenario of Jharkhand. It was highlighted that the connection of the 400 kV Patratu-Tenughat link is significantly helping the Jharkhand system by relieving network constraints on the 220 kV Maithon-Dumka D/C. This link facilitates integrated system operation by allowing the Dumka-Govindpur D/C loop to be kept in service under various conditions of Tenughat unit availability, including scenarios of one unit outage or both units out. (***Study results attached in Annexure-3***)
2. Additionally, the link ensures reliable evacuation of power from the Tenughat plant and prevents the islanding of Govindpur load under situations where the Dumka-Govindpur loop is opened to manage loading on the Maithon-Dumka circuit.
3. A real-time case from 05.08.2025 was also presented, validating the study results. During that instance, both Tenughat units were out, and the 400 kV Patratu-Tenughat line provided 150 MW support to Tenughat through the 250 MVA ICT, effectively relieving loading on the Maithon-Dumka line. (***Annexure -2***)
4. It was observed that the 400 kV Patratu-Tenughat link helps to keep circuit loading within System Protection Scheme (SPS) thresholds, reducing the risk of overloading on the Maithon-Dumka double circuit line.
5. Jharkhand SLDC and JUSNL also acknowledged the importance of maintaining this link and emphasized its critical role in ensuring the reliability of the Jharkhand power system.
6. ERLDC further highlighted that under extreme operating scenarios—such as peak Jharkhand demand, full injection from PUVNL, and both Tenughat units being out—the loading on the 400/220 kV (250 MVA) ICT at Tenughat as well as the 400 kV Tenughat-Patratu line may exceed 200 MW. (***Refer to study results in Annexure-3.***)

Tenughat -TVUNL raised concerns about the existing old ICT, submitted that the associated CT is over 40 years old which will be loaded up to 210 MW during certain operating conditions. Considering potential operational stress, Tenughat suggested adopting a temporary safe operating limit of 180 MW for the ICT. This threshold may be reviewed and revised in the future based on further operational experience.

Tenughat also submitted that 400 kV Patratu-Tenughat line, which, although constructed with twin HTLS conductor, has end terminations with single moose conductor, effectively limiting its secure transfer capability to 200 MW.

PUVNL also pointed out that, in the event of an outage of the 400 kV Patratu-PUVNL D/C under full injection, the entire output of one generating unit would be forced through the ICTs. This could potentially damage critical equipment and jeopardize the stability of the 220 kV Jharkhand system.

## **Minutes of Meeting Regarding On-load Operation of 400kV PVUNL-Tenughat**

Action Points Agreed for System Reliability and Equipment Protection:

### **A. Tenughat ICT Protection:**

- Enable backup overcurrent protection for the Tenughat ICT corresponding to 180 MW loading, with a 5-minute delay. This would allow the operator sufficient time to rearrange loads and limit the Maithon–Dumka circuit loading, thereby preventing an ICT trip.

### **B. Operational SOP – Load Trend Monitoring:**

- Whenever ICT loading exceeds 160 MW with a rising trend, Tenughat shall promptly inform SLDC Jharkhand to initiate load rearrangement and create a cushion on Maithon–Dumka loading.
- This is critical to ensure that, in case the Tenughat ICT trips, the Maithon–Dumka line loading remains within thermal limits and does not trigger SPS operation.

### **C. Protection Settings for 400 kV Patratu–Tenughat Line:**

- Enable non-directional overcurrent protection at both ends of the line, with settings corresponding to 200 MW flow.
- Coordinate this protection with Zone-3 timing such that any flow exceeding 200 MW will result in tripping the line with a maximum delay of 800 milliseconds.
- This ensures system security under full generation from PUVNL and dual circuit outage of the 400 kV PUVNL–Patratu line.

It was decided by JUSNL and SLDC Jharkhand that the 400 kV Patratu-Tenughat link shall be kept in continuous service to enhance the reliability of the Jharkhand power system. All necessary protection and operational settings, as proposed to facilitate the secure operation of this link, will be implemented and formally confirmed through written communication.

Furthermore, JUSNL and Tenughat assured that, to further strengthen system reliability, efforts will be expedited to commission an additional 250 MVA ICT at Tenughat.

PUVNL also committed for implementing the agreed protection settings by the end of same day 06-08-2025.

The meeting concluded with a vote of thanks to all participants.

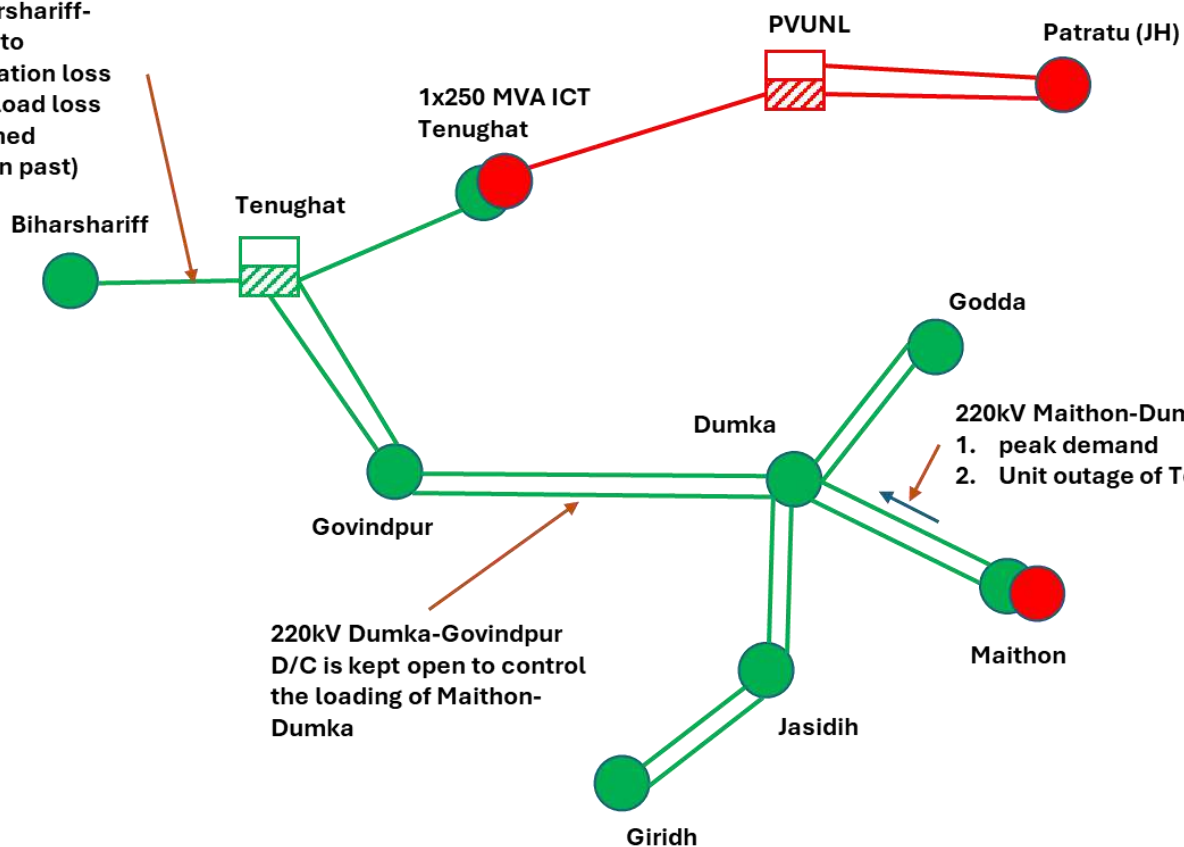
## **Minutes of Meeting Regarding On-load Operation of 400kV PVUNL-Tenughat**

### List of Participants

1. Shri M.K.Karmali , ED -Operations -JUSNL
2. Shri Shailesh Kumar, ED- SLDC Jharkhand
3. Shri Shailesh Chowdhary, DGM-SLDC Jharkhand
4. Shri Praveen Ram, DGM -JUSNL
5. Shri Ashish Kumar Sharma ESE – TVUNL
6. Shri Suresh Kumar-AGM Maintenance- PUVNL
7. Shri Rohit – Sr Manager EEMG-PUVNL
8. Shri Niladri Biswas – DGM Operations -PUVNL
9. Shri D. Biswas – GM SO-ERLDC
10. Shri Manas Das – DGM SO-ERLDC
11. Shri Bilash Achari -DGM SO-ERLDC
12. Shri Alok Pratap Singh-CM SO -ERLDC
13. Shri Laldhari -Manager SO-ERLDC
14. Shri Srimalya Ghosal Asst Manager SO- ERLDC

Under this condition:

Tripping of Biharshariff-  
Tenuhat leads to  
Tenuhat generation loss  
and Govindpur load loss  
(Already happened  
multiple times in past)

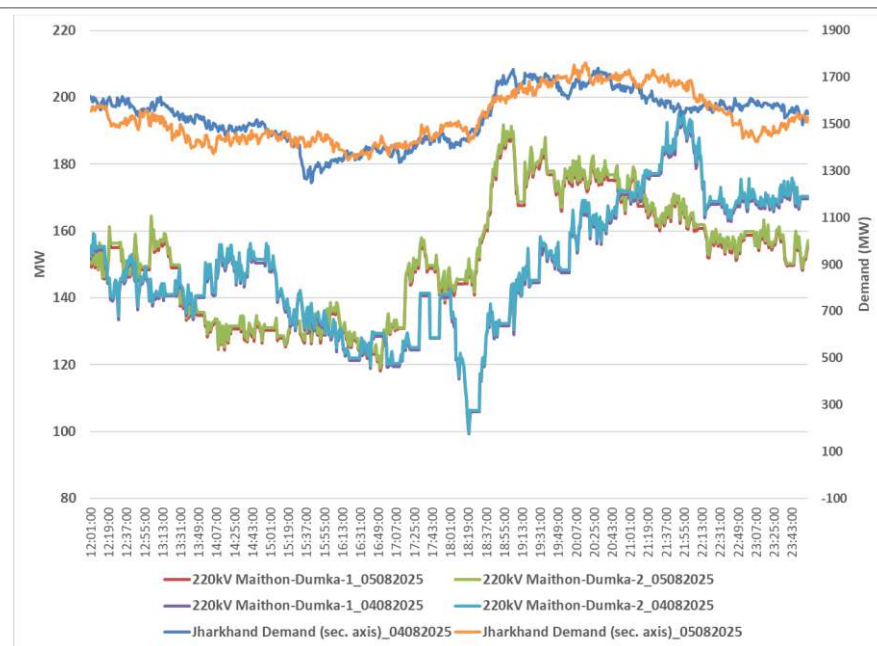
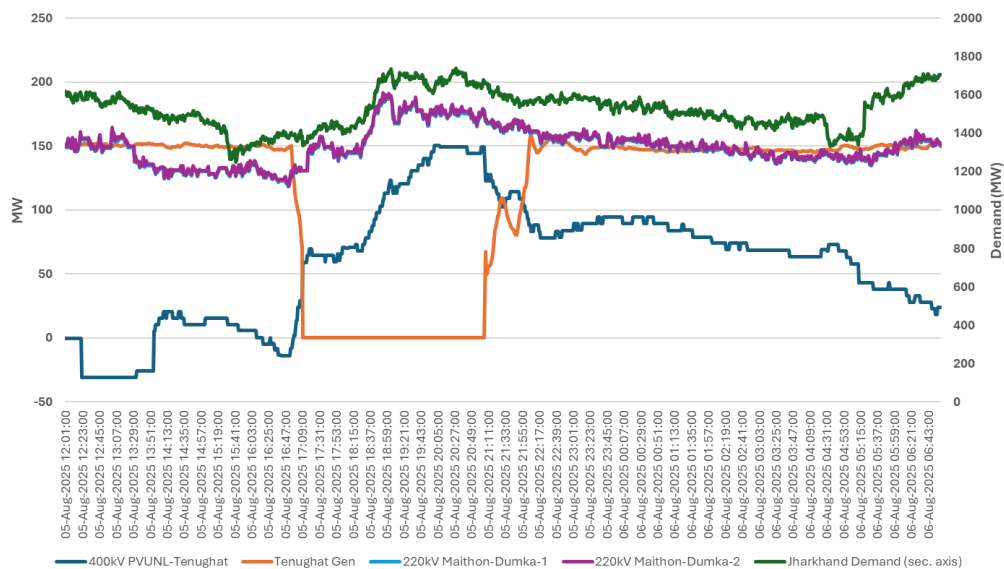


## Relief in 220kV Maithon-Dumka Loading

Sensitivity of Tenughat generation on 220kV Maithon -Dumka each CKT:

39% without 400kV PVUNL -Tenughat link.

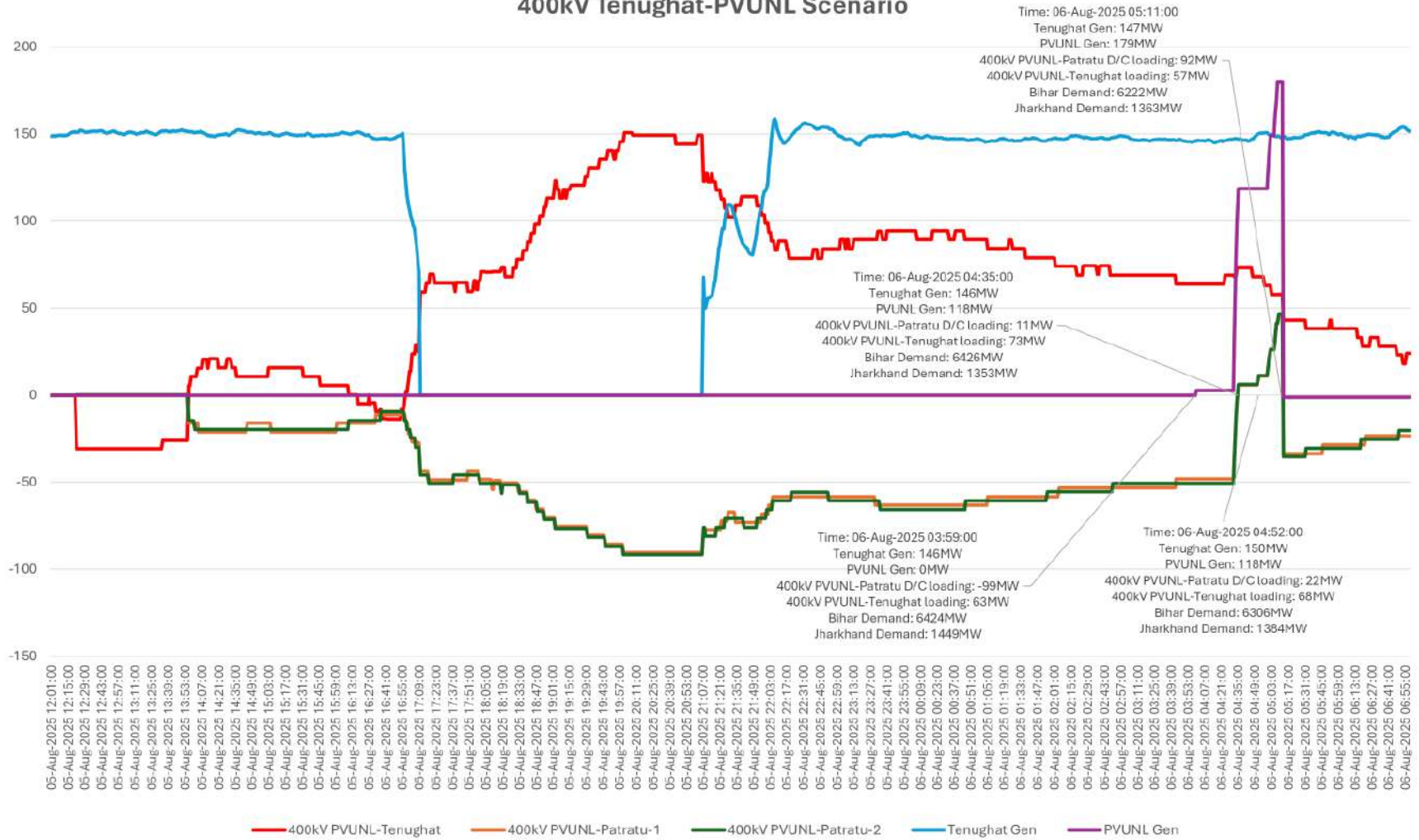
11.8% with 400kV PVUNL -Tenughat link.



On 05-08-2025, between 17:00 to 21:00 Hrs, one Tenughat unit was under outage.

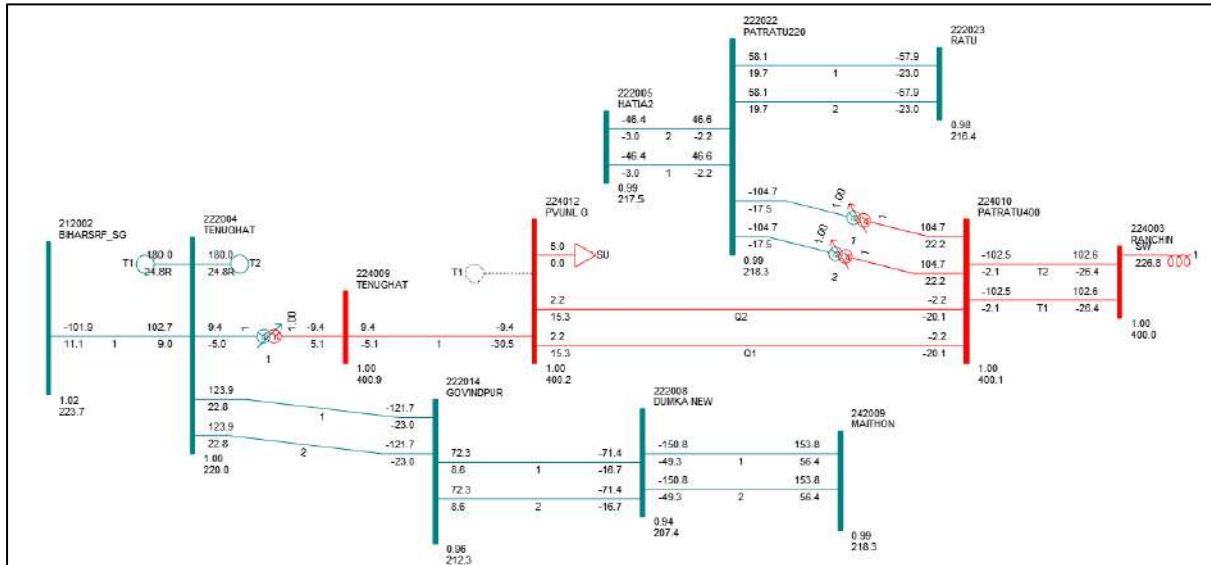


## 400kV Tenughat-PVUNL Scenario

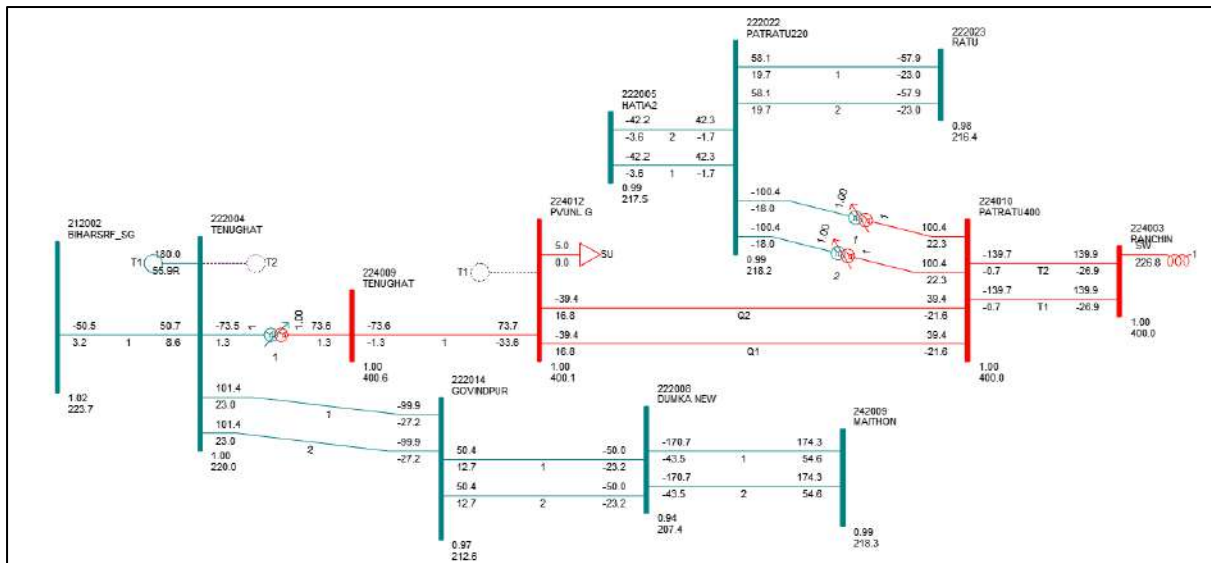


## Interconnection Study of PVUNL Before commissioning of PVUNL unit

A start-up drawl of 5 MW was considered at PVUNL.

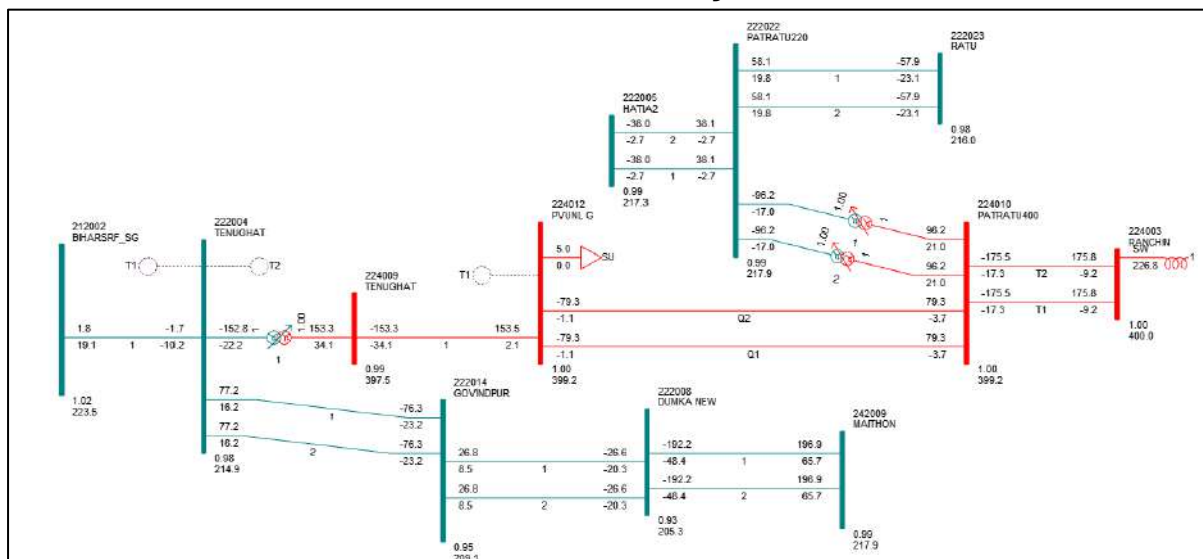


With both units of Tenughat in service, 9 MW is going from Tenughat to PVUNL via 250 MVA ICT at Tenguhat.



With one unit of Tenughat in service, 74 MW is coming from PVUNL to Tenughat via 250 MVA ICT at Tenguhat.

## Interconnection Study of PVUNL



With no units of Tenughat in service, 154 MW is coming from PVUNL to Tenughat via 250 MVA ICT at Tenguhat.

### Post commissioning of PVUNL unit

PVUNL 400kV S/S consists of three 400kV transmission lines for evacuation of power of 800 MW unit. This report comprises of the effect of commissioning of the generator on the Grid.

#### Basecase conditions

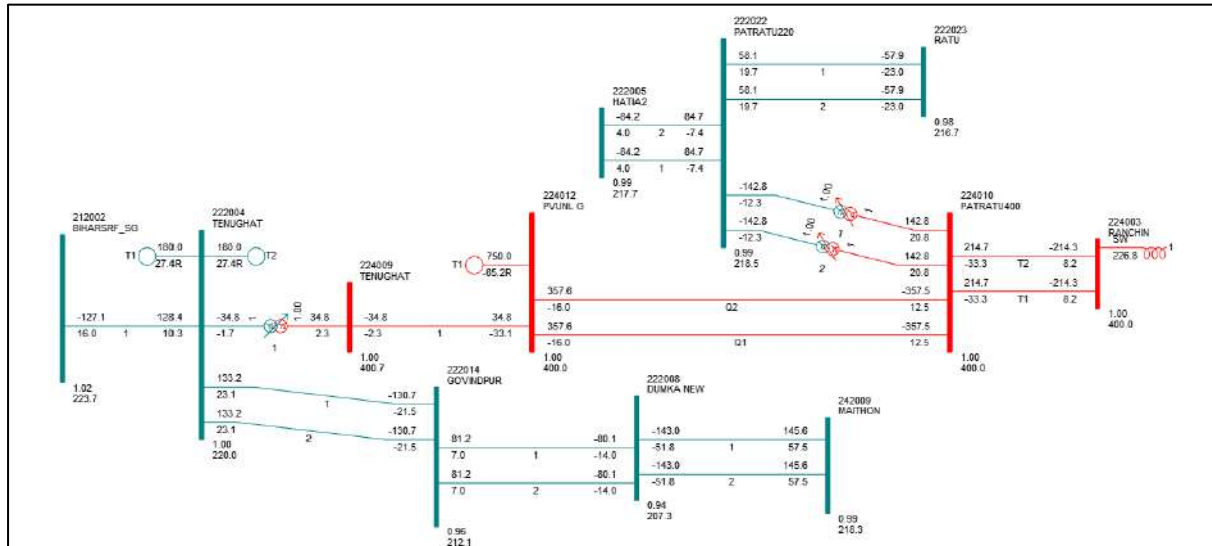
Sl. No.	Name	Value
1	Jharkhand Demand	2054 MW
2	ER Demand	26124 MW
3	WR to ER injection	4427 MW
4	PVUNL Generation	750 MW
5	Tenughat Generation	2x180 MW

Under above conditions the distribution of PVUNL Generation is as follows:

Direction	Fraction of Generation
Towards 400kV Patratu (JH) S/S	0.9536
Towards 400kV Tenughat S/S	0.0464

With full generation of PVUNL and both units of Tenughat in service, 35 MW is coming from PVUNL to Tenughat via 250 MVA ICT at Tenguhat.

# Interconnection Study of PVUNL

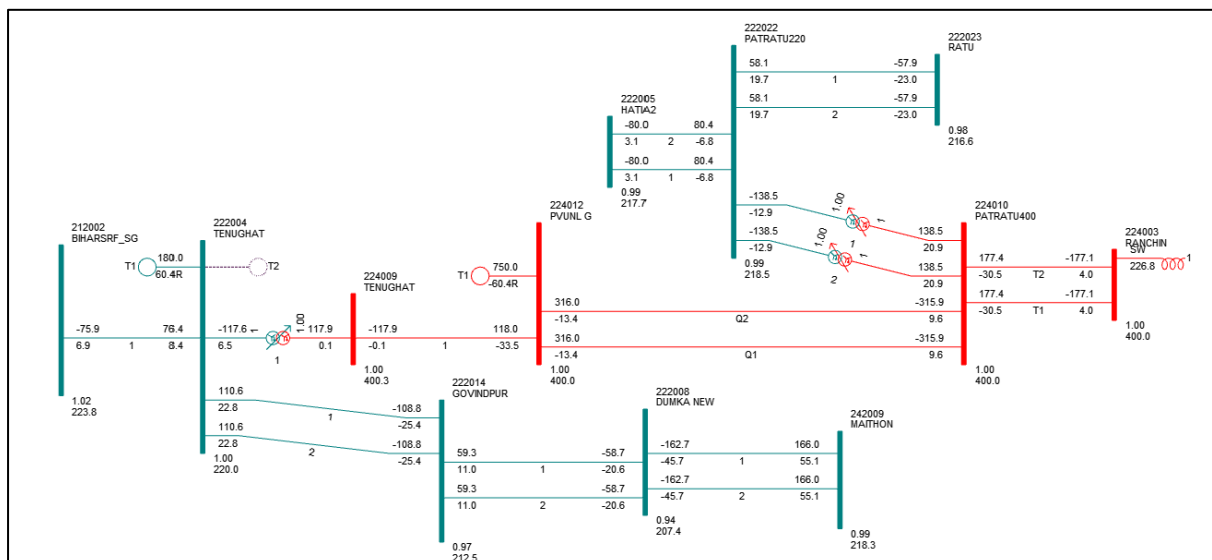


Sensitivities under these conditions:

The sensitivities on 400/220kV Tenughat single ICT are as follows –

Sl. No.	Name	Sensitivity
1	Jharkhand Demand	4%
2	WR to ER injection	1.2%
3	PVUNL Generation	5.8%
4	Tenughat Generation	- 46.2%

### One Tenughat unit under outage



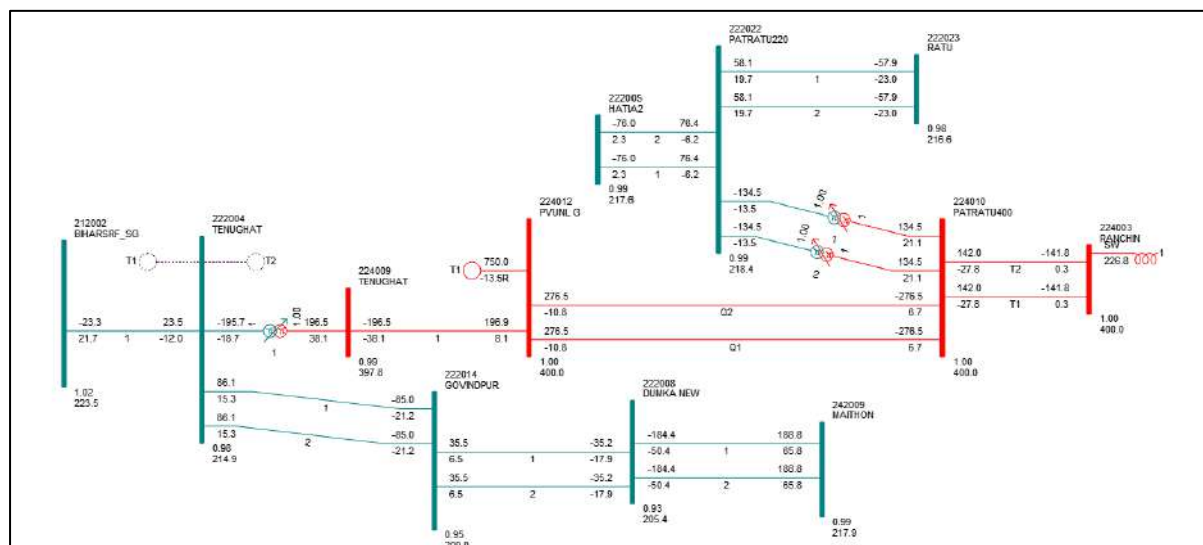
**With full generation of PVUNL and only one unit of Tenughat in service, 118 MW is coming from PVUNL to Tenughat via 250 MVA ICT at Tenguhat.**

## Interconnection Study of PVUNL

The sensitivity on 400/220kV Tenughat single ICT are as follows –

Sl. No.	Name	Sensitivity
1	Jharkhand Demand	4%
2	WR to ER injection	1.2%
3	PVUNL Generation	5.8%
4	Tenughat Generation	- 46.2%

### Both Tenughat units under outage



With high demand of Jharkhand and high injection from WR towards ER, single 400/220kV ICT at Tenughat may get loaded beyond 200 MW.

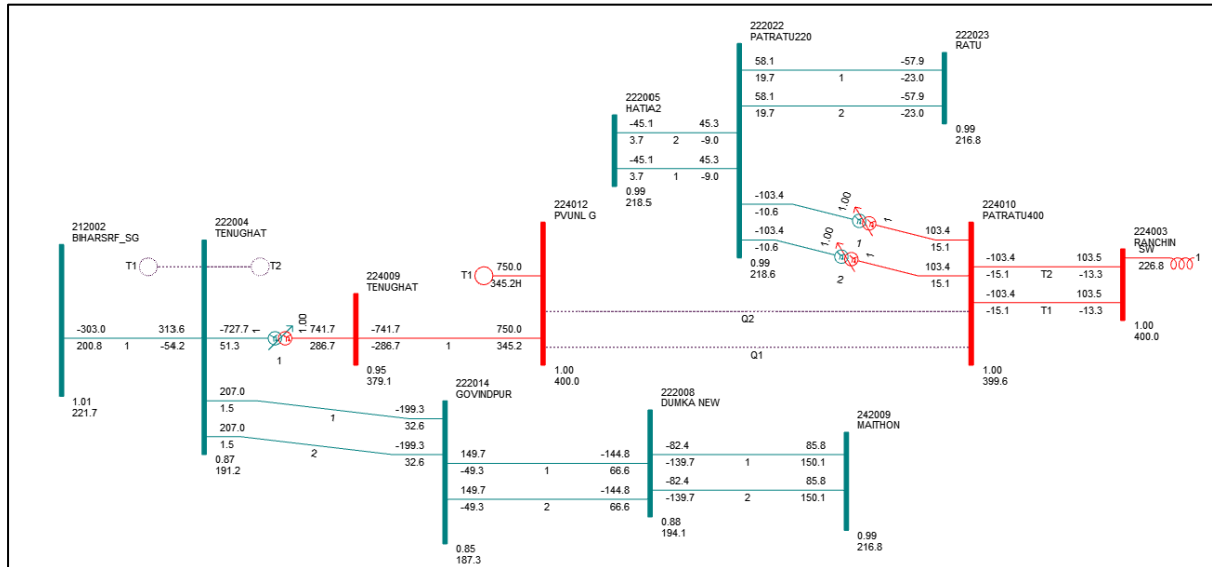
The sensitivities on 400/220kV Tenughat single ICT are as follows –

Sl. No.	Name	Sensitivity
1	Jharkhand Demand	4%
2	WR to ER injection	1.2%
3	PVUNL Generation	5.8%
4	N-1 of 220kV Maithon-Dumka	17.1%
5	N-1 of 400kV PVUNL-Patratu	0.8%

### 400kV PVUNL-Patratu D/C under outage

In case of fault in one 400kV PVUNL-Patratu CKT and simultaneous fault in the parallel CKT with first CKT under tripped conditions, the full power of PVUNL shall be avacuated through single 400kV PVUNL-Tenughat CKT and eventually overload the single 400/220kV Tenughat ICT.

## Interconnection Study of PVUNL





Hence, a SPS may be thought of to safeguard the network elements in such scenario.

## Fw: Interconnection of Katia-PVUNL-Tenughat, Adoption of 3phase Over current settings in Patratu-Tenughat line to avoid overstressing of ICT of Tenughat-reg



S MD RASOOL <SMDRASOOL@NTPC.CO.IN>

 Reply all | 

Thu 8/7/2025 4:03 PM

To: erpcprotection@gmail.com; Gitesh Patel (गितेश पटेल); P P JENA <erpc-protection@gov.in>

Cc: Kothamasu <SURESHKUMARK@NTPC.CO.IN> 

Inbox

To help protect your privacy, some content in this message has been blocked. To re-enable the blocked features, [click here](#).

To always show content from this sender, [click here](#).

You forwarded this message on 8/7/2025 4:36 PM

\*\*\*\*Warning\*\*\*\*

This email has not originated from Grid-India. Do not click on attachment or links unless sender is reliable. Malware/ Viruses can be easily transmitted via email.

Sir

The setting implemented at patratu end for Tenughat line to avoid overstressing of ICT at Tenughat side.

May find details in trailing mail.

Sent from [Outlook for Android](#)

---

**From:** Kothamasu <SURESHKUMARK@NTPC.CO.IN>

**Sent:** Wednesday, August 6, 2025 8:21:56 pm

**To:** SLDC,JSEB Ranchi <sldcranchi@gmail.com>; JUSNLPATRATU GSS <srmgr400kvpatratu@gmail.com>; Transmission Circle <esetcirclehzb@gmail.com>; General Manager, TZ-V, HZB <gmtzone5hzb@gmail.com>; critljusnl@gmail.com <critljusnl@gmail.com>; SCE PATRATU <sce\_patratu@ntpc.co.in>; CHANDAN KUMAR <CHANDANKUMAR02@NTPC.CO.IN>; GRID ROOM <gcrttps@gmail.com>; RAKESH <RAKESHKUMAR07@NTPC.CO.IN>; YUGANDHAR BABU SAHUKARU <SYUGANDHARBABU@NTPC.CO.IN>; SCE PATRATU <sce\_patratu@ntpc.co.in>; NILADRI BISWAS <NILADRIBISWAS@NTPC.CO.IN>  
**Cc:** Prasenjit Halder <HALDERPRASENJIT@NTPC.CO.IN>; Ranjan Kumar <RANJANKUMAR07@NTPC.CO.IN>; OMPRAKASH SOLANKI <OPSOLANKI@NTPC.CO.IN>; S MD RASOOL <SMDRASOOL@NTPC.CO.IN>; Manish Khetrpal <MANISHKHETRAPAL@NTPC.CO.IN>; SANGITA DASH <SDASH@NTPC.CO.IN>; Prashant Pandurang <PRASHANTPATIL@NTPC.CO.IN>; JAYA PRAKASH AMBALLA <AJAYAPRAKASH@NTPC.CO.IN>; Cos Electrical <coselectrical@ntpc.co.in>

**Subject:** Interconnection of Katia-PVUNL-Tenughat, Adoption of 3phase Over current settings in Patratu-Tenughat line to avoid overstressing of ICT of Tenughat-reg

Dear Sir/Madam,

This has reference to tele conference held on 06.08.2025 regarding Settings to be adopted on Tenughat-Patratu line for facilitating powerflow without overstressing of 250MW ICT of Tenughat. In this connection as suggested following settings are made in main-1 & 2 relays of "patratu-tenughat" line at PVUNL end.

1. 3Phase Non directional Over current setting: 300A.
2. Time delay: 800 m sec, Definate Time.
3. DT sent to other end during this protection operation.

This is for your information. RLDC/SLDC may please ensure same settins may be adopted at Tenughat end. These contingent settings may be reviewed after real time loadflow observations of PVUNL Unit#1 on full load.



Suresh Kumar K

AGM (EMD)

PVUNL



NTPC 50

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## MOM for 400KV Relay Setting Revision at T.T.P.S., Lalpania

Relay Setting done at T.T.P.S. Lalpania on Dated 07.08.2025 as per guidelines issued by ERPC as discussed in Meeting held on 06.08.2025 and telephonic discussion.

1

ELEMENT 400KV TTPS-PVUNL T/L  
RELAY NAME MAIN 1 DISTANCE PROTECTION  
RELAY MAKE MICOM P444

### PARAMETERS

#### GROUP 1 BACK UP I>

I>Function DT  
I>Directional Non Directional  
I>1 Current Set 150.0 mA  
I>1 Time Delay 800.0 ms  
I>1 tReset 0 s  
I>2 Function Disabled  
I>3 Function Disabled  
I>4 Function Disabled

2

ELEMENT 400KV TTPS-PVUNL T/L  
RELAY NAME MAIN 2 DISTANCE PROTECTION  
RELAY MAKE ABB REL 670

### PARAMETERS

#### GROUP 1 BACK UP I>

DirModel1 Non Directional  
Char1 IEC Def. Time  
I1> 15% IB  
t1 800.0 ms  
t1Min 0 s  
I1Mult 1

3


ELEMENT 400KV ICT-2  
RELAY NAME TRAFO DIFF. PROTN 87T  
RELAY MAKE MICOM P643

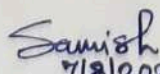
### PARAMETERS

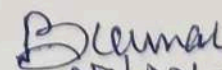
#### GROUP 1 OVERCURRENT

I>1 Status Enabled  
I>1 Char IEC S Inverse  
I>1 Direction Directional FWD  
I>1 Current Set 130.0 mA  
I>1 TMS 1.2  
I>1 tReset 500.0 ms  
I>2 Status Disabled  
I>3 Status Enabled  
I>3 Direction Non-Directional  
I>3 Current Set 3.180 A  
I>3 Time Delay 50.00 ms  
I>4 Status Disabled  
I> Char Angle 60.00 deg

Representatives Present During Relay Setting

  
Chandra Shekhar Kumar  
Senior Manager  
J.U.S.N.L.

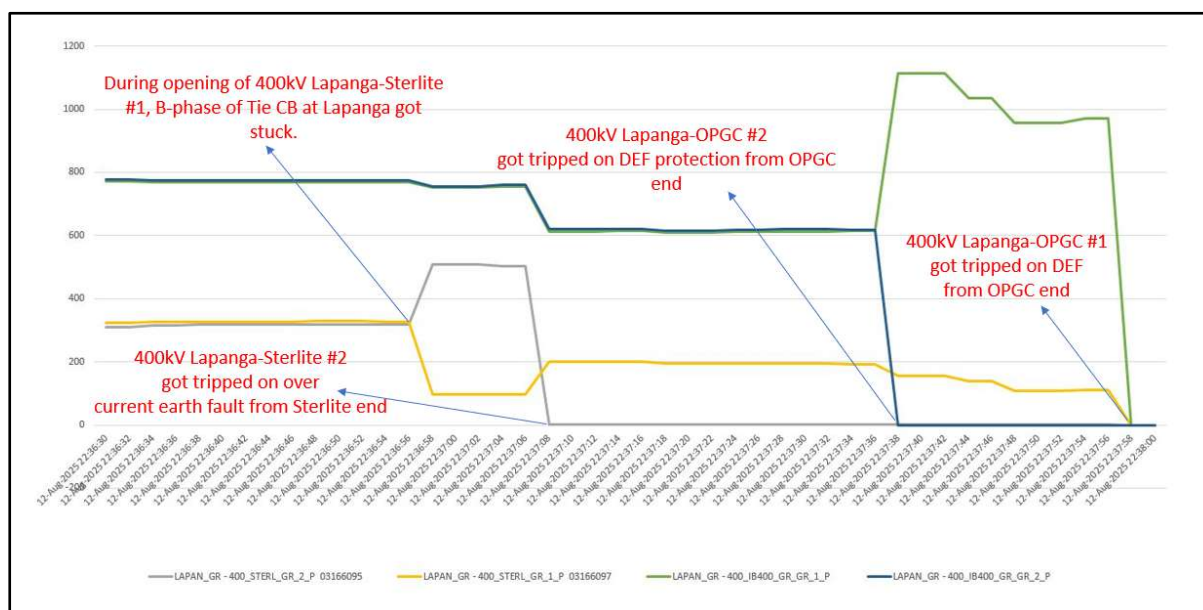
  
Samish Srivastava  
A.Ex.E.  
T.T.P.S. Lalpania

  
Birendra Kumar  
E.Ex.E.  
T.T.P.S. Lalpania

## Multiple tripping on 13/08/2025 at Lapanga S/s

At 22:35 Hrs on 13/08/2025, switching off code of 400kV-Lapanga-Sterlite #1 issued on request of SLDC Odisha to control the loading of 400kV OPGC-Lapanga D/C. During opening of line, B-phase of Tie CB at Lapanga got stuck which resulted in unbalanced flow and 400kV Lapanga-OPGC D/C and 400kV Lapanga-Sterlite #2 got tripped in Directional earth fault protection.

### Tripping sequence and power flow graph attached:



Sr. No.	Time_ 12/08/2025	Event Summary
1	22:36:52 Hrs	During opening of 400kV Lapanga-Sterlite #1 B phase of Tie CB got stuck.
2	22:37:00 Hrs	400kV Lapanga-Sterlite #2 got tripped from Sterlite end on O/C earth fault.
3	22:37:31 Hrs	400kV Lapanga-OPGC #2 got tripped on DEF at OPGC end and DT send to Lapanga end.
4	22:37:48 Hrs	Due to tripping of 400kV Lapanga-OPGC #2, SPS operated at OPGC and both unit of JSWEUL got tripped. 400kV Lapanga-OPGC #1 got tripped on DEF at OPGC end and DT send to Lapanga end.

### Protection Observation during this event:

#### At Lapanga end:

- During opening of 400kV Lapanga-Sterlite #1, B-phase Tie CB got stuck at Lapanga end. LBB of Tie CB not operated. Reason of non-operation of LBB protection may be shared.

- Thereafter, around 670 A current was flowing through stuck B\_ph as line was charged from Sterlite. DEF neither picked up nor operated neither at Lapanga nor at Sterlite end. Reason may be shared.
- If either LBB or DEF would have operated at Lapanga or Sterlite end, rest of the tripping wouldn't have occurred.
- After non-opening of B-ph pole of Tie Bay at Lapanga, PD operated after 2.5 msec. Digital channel of the same may be configured in DR.

**At Sterlite end:**

- 400kV Lapanga Sterlite #2 got tripped in over current earth fault from Sterlite end which had residual current of 290 Amps.
- Around 670 A current was flowing in stuck B-ph of 400 kV Lapanga-Sterlite-1 which will be reflected as residual current, however this line tripped after 50 seconds at last after tripping of OPGC-Lapanga D/C tripping. If this line would have tripped first, then rest of the tripping could have been avoided.
- **I pickup** of earth fault protection **set as 200 A**, which may be reviewed.

**At OPGC end:**

- 400kV Lapanga OPGC D/C tripped on DEF protection from OPGC end. I pickup of earth fault protection **set as 200 A**, which may be reviewed.
- During charging of 400kV Lapanga-OPGC D/C, line could not be synchronized at OPGC end due to conservative angular separation setting in auto synchro-check relay which was 10 degree. Angular separation setting in auto synchro-check relay may be checked at OPGC end and kept in the range of 20 degree.

You are requested to take necessary action to avoid unwanted tripping.

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

Sl. No.	LINE NAME	TRIP DATE	TRIP TIME	RESTORATION DATE	RESTORATION TIME	Relay Indication LOCAL END	Relay Indication REMOTE END	Reason	Fault Clearance time in msec	Remarks	DR Configuration Discrepancy (Local End)	DR Configuration Discrepancy (Remote End)	DR/EL RECEIVED FROM LOCAL END	DR/EL RECEIVED FROM REMOTE END	LOCAL END UTILITY	REMOTE END UTILITY	UTILITY RESPONSE
1	220KV-BUDHIPADAR-KORBA-3	31-07-2025	18:20	01-08-2025	03:36	Not tripped	Tripped from Korba end.	No Fault	NA	No fault observed in PMU. Line tripped from Korba end only.			NO	NO	OPTCL	WRLDC	
1	400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2	30-07-2025	17:41	30-07-2025	19:32	Alipurduar : Not tripped	PUNASANGCHUN: No relay indication	No Fault	NA	As per PMU no fault was observed. Line tripped on Bhutan end on DTT trip.			NA	YES	PG ER-II	BHUTAN	Line tripped at Bhutan end only due to issue at their end. No tripping at Alipurduar end.
2	400KV-MALDA(PG)-NEW PURNEA-2	28-07-2025	15:53	29-07-2025	00:18	Line tripped from Malda	NA	No Fault	NA	Line tripped from Malda end due to WTI of its non-switchable line reactor operated at Malda.			NO	YES	PG ER-II	PG ER-I	Severe DC earth fault occurred in system due to fault in age-old cables. Due to cable fault, spurious WTI trip signal got high in relay BI circuit. Hence, trip happened. Faulty cable has been replaced and DC earth fault was removed.
4	400KV-GORAKHPUR-MOTIHARI-2	28-07-2025	14:18	28-07-2025	18:57	Gorakhpur: B-Earth Fault, F.D.-15.5041MVA	Motihari: B-Ph, 3.11kA, 160.41ms	B-Earth	100 msec	A/r failed after 1 sec			YES	NO	NRLDC	DMTCL	
5	400KV-TENUGHAT-PATRATU-1	28-07-2025	03:29	28-07-2025	20:23	DT Received at Tenughat	Tripped on Overvoltage, start > 1, VAN-260.4 KV, VDSN 202.0	B-Earth	NA	Over voltage protection operated at PVUNL end			YES	YES	JUSNL	NTPC	

3	400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2	25-07-2025	11:03	29-07-2025	23:52	Alipurduar : Not tripped	PUNASANGCHUN: Tripped on BU over current	No Fault	NA	Line tripped from Bhutan end only on BU over current protection.			NA	YES	PG ER-II	BHUTAN	Line tripped at Bhutan end only due to issue at their end. No tripping at Alipurduar end.
4	400KV-ALIPURDUAR (PG)-BINAGURI-4	25-07-2025	02:26	25-07-2025	04:22	Alipurduar end: B-N fault, FC-9.74 kA, FD- 12 km	Binaguri: B-N fault, FD-82.5 km, FC-5 kA	B-Earth	100 msec	Line tripped in reclaim time			YES	YES	PG ER-II	PG ER-II	main & tie bay. However, fault re-appeared after 2.3 sec of the first fault. Hence, 3 phase trip happened due to fault within reclaim time. Protection operated properly at PG ER-2 end.
8	220KV-PATNA-SIPARA-3	24-07-2025	16:20	24-07-2025	19:47	R/I at Patna : Y-N, F Current 16 kA	-	Y-Earth	100 msec	Line differential protection			YES	NO	PG ER-I	OPTCL	
5	400KV-BINAGURI-MALBASE-1	24-07-2025	13:31	24-07-2025	14:23	D/T received at Binaguri end from remote end	Not tripped	No Fault	NA	DT received at Binaguri end. No fault			YES	YES	PG ER-II	BHUTAN	No fault was present in line. DT received at Binaguri end and 3 phase trip happened.
10	400KV-GAYA-KODERMA-1	24-07-2025	11:44	24-07-2025	20:37	DT received from Koderma end	Not tripped	No Fault	NA	Line tripped from Gaya end due to DT received			YES	NA	PG ER-I	DVC	
11	400KV-RENGALI-INDRAVATI-1	23-07-2025	19:31	23-07-2025	23:20	Indravati : Y_N, F Dist: 303 km, FC: 1.157 kA.	Rengali: Y_N, FC: 19.7 kA, FD: 0.048 km	Y-Earth	100 msec	A/R operated unsuccessfully			NO	NO	OPTCL	G ODISHA	
12	220KV-BUDHIPADAR-KORBA-2	23-07-2025	15:43	23-07-2025	18:37	Budhipadar: R_N, F Distance-53.27km, Zone-1 Ir-2.859kA	R/I at Korba: R_N,Z-1, F Distance -104 km, Ir-1.7kA	Y-Earth	100 msec	R Phase to ground fault occurred in line and R pole CB got opened and after 400			YES	NO	OPTCL	WRLDC	
13	400KV-TSTPP-ROURKELA-1	23-07-2025	15:23	23-07-2025	20:43	Tancher end: Y_N, Zone-1, F Distance 93 km, Fault current 2.86	R/I at Rourkela : Y_N, F Dist 69.65 km, F Current 4.84	Y-Earth	100 msec	Line tripped in reclaim time			YES	NO	NTPC	G ODISHA	
14	400KV-DIKCHU-RANGPO-2	23-07-2025	13:45	23-07-2025	15:20	Dikchu : Zone-1 B_N, F Distance-13.72 kms Fault Current, Ib: 2.142 kA	A/R successful at Rangpo end	B-Earth	850 msec	B phase high resistive fault occurred and fault was sensed in O/C earth fault, further after 800 msec line B phase			YES	YES	GREENK	PG ER-II	A/R operated at Rangpo end. Protection operated properly at PG ER-2 end.
15	220KV-CHANDIL-STPS(WBPDCL)-1	23-07-2025	12:05	23-07-2025	12:52	STPS: R-N, Z-2, 92.7km, 0.319kA	Chandil: R-N, Z-1, 31.4km, 2.94kA	R-Earth	350 msec	Line tripped in Z-1 protection from Chandil end and in Z-2	DR length need to		YES	NO	JUSNL	WBPDCL	
6	400KV-BINAGURI-ALIPURDUAR (PG)-1	23-07-2025	10:15	23-07-2025	13:23	Binaguri: R-Y, IR-4.5kA, IY-5.2kA, FD-0.055kA	Alipurduar: R-Y, 33.2 Km, IR-7.9kA, IY-10.04kA	R-Y-Earth	100 msec	Line tripped on phase to phase fault.			YES	YES	PG ER-II	PG ER-II	3 phase trip happened due to ph-ph fault. Protection operated properly at PG ER-2
17	220KV-JODA-RAMCHANDRAPUR-1	22-07-2025	14:44	22-07-2025	15:43	RAMCHANDRAPUR: B-N, FC:2.38kA, Zone 01, Distance 32.7k	JODA: B-N, FC=1.241KA, Dist=32.7KM, Zone- 1	B-Earth	100 msec	Line tripped in reclaim time from Joda end and three phase tripping from	DR is not time synchronised and DR length need to		YES	YES	OPTCL	JUSNL	

18	400KV-KOLAGHAT-ARAMBAGH-1	22-07-2025	14:04	22-07-2025	14:29	Arambagh : M1: Y-N fault, ZONE 1, 37.44KM, FC-6.389 KA	Kolaghat :- Y Ph, Z 1, 31.5 KM, 5.27 KA.	Y-Earth	100 msec	A/r failed after 1 sec.		DR is not time synchronised.	YES	YES	WBPDC	WBSETCL
19	400KV-GMR-ANGUL-2	22-07-2025	12:10	23-07-2025	15:41	Angul : B-N, 22.77km, 11.69kA	GMR: Z-1, B-N, 14.73km, 8kA	B-Earth	100 msec	A/r failed after 1 sec.			NO	YES	GMR	G ODISHA
20	400KV-MEERAMUNDALI-JSPL-1	21-07-2025	12:22	21-07-2025	16:54	At MRDL end::B_N,Ib=11.65KA,Z1,13.5KM.	-	B-Earth	100 msec	Line tripped in reclaim time			YES	NO	OPTCL	JSPL
21	220KV-JAMSHEDPUR-JINDAL-1	21-07-2025	11:29	21-07-2025	12:19	Jamshedpur end: B-N fault, fe-86A, Zone-2 , FL: 131.6 km	-	B-Earth	100 msec	As per PMU Three phase tripping for phase to ground fault. DVC and OPTCL may explain.			NO	NO	DVC	OPTCL
22	220KV-ROURKELA-TARKERA-1	21-07-2025	09:37	21-07-2025	11:37	Tarkera: Y-Earth, fault, FC-0.24 kA	onal earth fault c	Y-Earth	560 msec	A/r failed after 1 sec from Rourkela end and DEF operated from Tarkera	DR is not time synchronised.		YES	YES	G ODISH	OPTCL
23	400KV-TSTPP-ROURKELA-1	20-07-2025	16:39	21-07-2025	17:40	Talcher: Z-I,Y-Ph, 80.8km	Rourkela: Y-N fault, 4.96 kA, 69.9 km.	Y-Earth	100 msec	A/r failed after 1 sec.			YES	YES	NTPC	G ODISHA
24	220KV-DARBHANGA(DMTCL)-LAUKAHI-2	20-07-2025	00:34	20-07-2025	01:25	Not tripped	Laukhi end: Z-4,R-ph, FC:1.457 kA, FD:16.8 Km	R-Earth	100 msec	Line tripped in Z-4 protection within 100 msec at Laukhi end. BSPTCL may			NO	YES	DMTCL	BSPTCL
25	220KV-TENUGHAT-BIHARSARIF-1	19-07-2025	13:36	19-07-2025	14:00	at: B_N, 45.76 km,	rif: B_N, 126 km	B-Earth	100 msec	Three phase tripping for phase to ground fault. JUSNL and BSPTCL may explain.			NO	YES	JUSNL	BSPTCL

26	220KV-TTPS-TSTPP-1	19-07-2025	13:25	22-07-2025	13:45	Z1, RN fault, 2.71 km	RN fault, 17.22 km	R-Earth	100 msec	As per PMU three phase tripping for phase to ground fault. NTPC and OPTCL may			NO	NO	OPTCL	NTPC	
27	220KV-DARBHANGA (DMTCL)-MOTIPUR-2	19-07-2025	10:58	19-07-2025	15:11	Darbhangha: Y_B, Iy=Ib=3.2 kA, 63 km	Y-B, Z-1	Y-B	100 msec	Line tripped on phase to phase fault.			NO	YES	DMTCL	NRLDC	
7	400KV-NEW JEERAT-SUBHASGRAM(PG)-1	19-07-2025	10:35	19-07-2025	18:10	New Jeerat: Y_N, 36 km, 6.782 kA	Subhashgram: Y_N, 61.8 km, 3.9 kA	Y-Earth	100 msec	A/r failed after 1 sec.			YES	YES	PMJTL	PG ER-II	A/R attempted but tripped on persisting fault in line. Protection operated properly at PG ER-2 end.
8	400KV-MALDA(PG)-NEW PURNEA-2	18-07-2025	14:07	18-07-2025	20:13	Y_N, F Dist 33.236 km, F Current 7.695 kA	A/R successful at New Purnea	Y-Earth	100 msec	A/r successful from N Purnea end and three phase tripping from			NO	YES	PG ER-II	PG ER-I	A/R relay issued the close command properly. However, command was not extended up to CB due to fault in age-old cables. Hence, CB did not close at Malda SS. Faulty cable has been replaced.
30	220KV-DARBHANGA (DMTCL)-MOTIPUR-1	18-07-2025	13:37	18-07-2025	15:16	Darbhangha: B_N, 97.35 km,	Motipur: B_N, 37.76km, 2.425 kA,	B-Earth	100 msec	A/r failed after 1 sec from Motipur end and three phase tripping for phase to					DMTCL	BSPTCL	
9	400KV-DURGAPUR-KAHALGAON-2	18-07-2025	10:58	18-07-2025	19:05	Durgapur end: R_N, F Dist 161km, 1.92 kA	R/I at Khstpp end: Z-1, R_N, 4.36 kA, 73.34 km, A/R unsuccessful;	R-Earth	100 msec	A/r failed after 1 sec.			YES	NO	PG ER-II	NTPC	A/R attempted but tripped on persisting fault in line. Protection operated properly at PG ER-2 end.
32	220KV-SAHARSA-BEGUSARAI-2	18-07-2025	09:16	20-07-2025	19:30	N, F Current 6.31 kA	; Begusarai end: Zone1, F Distance 42.6km, Ib= 2.63kA	B-Earth	100 msec	A/r failed after 1 sec.	DR length need to increase to 3 sec.		NO	YES	PG ER-I	BSPTCL	
33	220KV-BUDHIPADAR-KORBA-2	17-07-2025	17:55	17-07-2025	19:17	lar: R_N, 142 km,	pa: R_N, 9 km, 9	R-Earth	100 msec	Line tripped on phase to ground fault in Z-1 protection and after 250 msec three			YES	NO	OPTCL	WRLDC	

34	220KV-PATNA-FATUHA-1	17-07-2025	16:59	17-07-2025	18:14	: B_N, 17.6 km, 2.	-	B-Earth	350 msec	Line tripped in Z-2 protection from Patna end. BSPTCL may explain.			YES	NO	PG ER-I	BSPTCL	
35	400KV-MUZAFFARPUR(PG)-DHALKEBAR-1	17-07-2025	16:21	17-07-2025	18:49	DT receipt at Muzaffarpur end	-	No Fault	NA	DT received at Muzaffarpur end.			YES	NO	PG ER-I	NEPAL	
36	400KV-BARH-BAKHTIYARPUR(BH)-2	16-07-2025	16:57	16-07-2025	17:27	R/I at Barh : R_N, F Current 8.4 kA, F Dist 30.46 km	A/R successful, Bakhtiyarpur: R_N, zone -1 dist 12.32km, Ir-8.593kA	R-Earth	100 msec	As per PMU R phase tripped in Z-1 protection and after 2.5 sec line tripped in PD	.DAT file not available on PDM		YES	NO	NTPC	BSPTCL	
10	400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2	16-07-2025	15:26			Not tripped.	ly from Phunats	No Fault	NA	Line tripped from Bhutan end, No event recorded at APD end.			YES	NO	PG ER-II	BHUTAN	Line tripped at Bhutan end only due to issue at their end. No tripping at Alipurduar end.
38	220KV-JODA-RAMCHANDRAPUR-1	16-07-2025	14:01	16-07-2025	17:06	At JODA end:DP Relay Tripped DP Main -I: Start ph -BN Trip ph -B Zone-01 Fault Distance: 1.411KM Fault	At Ramchandrapur end: DP relay: Zone- 2 Trip ph- BG Dist=122.9KM Fault current:	B-Earth	350 msec	A/r successful from Joda end and later tripped in reclaim time, and for			YES	YES	OPTCL	JUSNL	
39	220KV-NEW PURNEA-MADHEPURA-1	16-07-2025	13:15	16-07-2025	15:30	Not tripped	Madhepura: DT Recieved.	No Fault	NA	Line tripped from Madhepur end on master trip. BSPTCL may explain.			NA	YES	PG ER-I	BSPTCL	
40	765KV-JHARSUGUDA-RAIPUR PS (DURG)-1	15-07-2025	21:38	18-07-2026	00:43	Jharsuguda: Z2, RN fault, 2.388 kA, 300.1 km		R-B-Earth	350 ms	Line tripped in Z-2 protection from Jharsuguda end and A/r failed after 1			YES	NO	G ODISH	WRLDC	
41	400KV-BIHARSARIFF(PG)-BALIA-2	15-07-2025	15:31	15-07-2025	20:08	Biharsariff : Y-N (LINE TRIPPED IN RECLAIM TIME), Fault Dist- 25.339km, Fault Current-	-	Y-Earth	100 msec	Line tripped in reclaim time.			YES	NO	PG ER-I	NRLDC	



42	400KV-KOLAGHAT-ARAMBAGH-1	15-07-2025	15:20	15-07-2025	15:46	Tripped at Arambagh end only. Relay at Arambagh end 86G1,86G2,85L/O	Not tripped.	No Fault	NA	Due to DT Received at Arambagh end line got tripped from Arambagh end only. WB			NO	YES	WBPDC	WBSETCL	
43	400KV-KOLAGHAT-ARAMBAGH-1	15-07-2025	05:42	15-07-2025	05:49	Tripped from Arambagh only on DT receipt	Not tripped.	No Fault	NA	Due to DT Received at Arambagh end line got tripped from Arambagh end only. WB			NO	YES	WBPDC	WBSETCL	
44	400KV-BARH-PATNA-4	15-07-2025	04:39	15-07-2025	14:42	Barh: R_N, 30.33 km, 18.08 kA	Patna: R_N, 8.916 kA, 47.72 km	R-Earth	100 msec	A/r failed after 1 sec from Patna end and from Barh end Tie A/r attempted after failed			YES	YES	NTPC	PG ER-I	
45	220KV-SAHARSA-BEGUSARAI-1	14-07-2025	20:58	15-07-2025	15:30	Saharsa: B_N, 15.189 km, 7.22 kA	Behusarai - Zone 2, B_N 82.4km, FC=1.82KA	B-Earth	100 msec	A/r failed after 1 sec from Saharsa end and three phase tripping for phase to			YES	YES	PG ER-I	BSPTCL	
11	400KV-BINAGURI-MALBASE-1	14-07-2025	19:06	14-07-2025	20:58	Binaguri : r-y-b, fd-126.2 km, fc-1.350 ka	-	R-Y-B	350 msec	As per PMU three phase fault occurred.	Wrong DR uploaded.		YES	NO	PG ER-II	BHUTAN	Initially, fault was detected in Z2. Then, the fault encroached in Z1 and single phase trip happened. However, it attempted the AR on persisting fault and SOTF operated. Protection operated
12	220KV-BIRPARA-MALBASE-1	14-07-2025	19:00	14-07-2025	20:39	Birpara: Z-3, b-n, fc-1.97 kA, fd-93.6 km	-	B-Earth	880 msec	A high resistive fault in B phase occurred and DEF pickup started and after 900			YES	NO	PG ER-II	BHUTAN	High resistive fault occurred in Bhutan end and fault was not cleared timely as observed from DR. Hence, Z3 operated at Birpara end. Protection operated properly at Birpara end.
13	400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2	14-07-2025	17:01	14-07-2025	18:19	Alipurduar: Z3 Protection operated	Not tripped	B-Earth	100 msec	Instantaneous tripping occurred in Z-3 protection from Alipurduar end. PG ER-			YES	NO	PG ER-II	BHUTAN	The line tripping was happening multiple times earlier and it was under anti-theft condition. During normalization process, due to some issues, one setting in M1 relay was not changed.
49	220KV-SAHARSA-BEGUSARAI-1	13-07-2025	20:35	14-07-2025	15:25	Saharsa: B_N, 14.6 km, 7.43 kA	Begusarai: Z-1, F.c-1.94 kA, F.D-82 km	B-Earth	100 msec	A/r failed after 1 sec from Saharsa end and three phase tripping for phase to			YES	YES	PG ER-I	BSPTCL	

50	220KV-KHAGARIA-NEW PURNEA-2	13-07-2025	19:24	13-07-2025	20:29	New Purnea: Y-B, 15.5km, 3.96kA	Khagaria: R, Y ph, FD-88.58 KM, Ir-2.47 KA, Iy-2.029 KA	Y-B-Earth	320 msec	Initially B-Earth fault occurred and B phase tripped in Z-1 protection from			YES	YES	BSPTCL	PG ER-I	
51	400KV-KHSTPP-BARH-2	13-07-2025	15:48	13-07-2025	16:31	Barh: A/R successful, Z1, Y-N, 11.36kA, 40.5km	KHSTPP:- Y-N, Z1, 186.2 KM, 2.74 KA	Y-Earth	100 msec	A/r successful from Barh end and three phase tripping for phase to			YES	NO	NTPC	NTPC	
52	220KV-KHAGARIA-NEW PURNEA-2	13-07-2025	13:20	13-07-2025	13:55	Khagaria end: Y ph B ph, Zone -1, Distance - 84.32km, Iy-1.804kA, Ib-1.807kA	Purnea end: Z1 Y-B FC-Iy-8.89 kA Ib-8.55 kA FD-14.3km	Y-B	100 msec	Line tripped on phase to phase fault.		DR is not time synchronised and DR length need to increase to			BSPTCL	PG ER-I	
53	400KV-MUZAFFARPUR(PG)-GORAKHPUR-1	13-07-2025	12:37	13-07-2025	17:14	MUZAFFARPUR:- FD-158KM FC-2.509KA	GORAKHPUR: R- B ph trip, FC -4.66kA, FD-88.3km	B-Earth	100 msec	A/r failed after 1 sec.			YES	NO	PG ER-I	NRLDC	
14	220KV-BIRPARA-MALBASE-1	13-07-2025	11:09	13-07-2025	14:50	M1 Zone 3 B-N fault, fault distance at 100%	Malbase: Tripped on Overvoltage.	B-Earth	800 msec	Main-2 operated. As per PMU line may be tripped on Z-3 protection from Birpara			YES	YES	PG ER-II	BHUTAN	High resistive fault occurred in Bhutan end and fault was not cleared timely as observed from DR. Hence, Z3 operated at Birpara end. Both M1 & M2 detected the fault in Z3. Protection operated properly
15	400KV-BINAGURI-MALBASE-1	13-07-2025	11:09	13-07-2025	13:01	Tripped from Binaguri end M1 Zone 2, B-N fault	-	B-Earth	500 msec	A high resistive fault in B phase occurred and DEF pickup at Binaguri end and after			YES	YES	PG ER-II	BHUTAN	A/R attempted but tripped on persisting fault in line. Protection operated properly at PG ER-2 end.
56	220KV-CHANDIL-STPS(WBPDCL)-1	13-07-2025	11:05	14-07-2025	13:36	STPS: B-Ph, Z-2, O/C	Chandil: B ph Fault, Ic -2.45 kA, Distance - 16 km, Zone -1	B-Earth	350 msec	Line tripped in Z-1 protection from Chandil end and in Z-2 protection from					JUSNL	WBODCL	
57	400KV-ARAMBAGH-BAKRESWAR-1	13-07-2025	10:30	13-07-2025	10:41	Bakreshwar: Y-N fault, Z-1, 30.31 km, 38.7 km, 5.11 kA	Y-N fault, Z-1, 30.31 km, 2.61 kA,	Y-Earth	100 msec	Phase to ground fault occurred in line, and line tripped in Z-1 protection from both,		DR length need to increase to 3 sec.	YES	YES	WBSETCL	WBPDCL	

58	220KV-JODA-RAMCHANDRAPUR-1	13-07-2025	09:58	13-07-2025	10:44	Joda: auto recloser successful	Ramchandrapur: Ia -0.51kA, Ib -1.5kA, Ic -0.3 kA, Distance - 129.9 km, Zone -	B-Earth	350 msec	A/r successful from Joda end and line tripped in Z-2 protection from			YES	YES	OPTCL	JUSNL	
59	400KV-NEW CHANDITALA-SATGACHIA-1	12-07-2025	14:10	12-07-2025	14:45	TRIPPED from Satgachia end only - zone -1 B_N, FD - 54.6 km	ul from New Cha	B-Earth	100 msec	Three phase tripped from Satgachia end for phase to ground fault and A/r successful			YES	YES	WBSETC	WBSETCL	
60	400KV-NEW DUBURI-PANDIABILI-1	10-07-2025	05:21	11-07-2025	16:01	NEW DUBRI: Y-N	Z1,6.42KA Y-	Y-Earth	100 msec	A/r failed after 1 sec.			NO	NO	OPTCL	G ODISHA	
16	400KV-BINAGURI-MALBASE-1	10-07-2025	11:09	10-07-2025	11:56	R/I at Binaguri : Y-B, Z-2, F Dist- 118.72 km, F Current - Iy 4.4 kA, Ib 4.35kA	Malbase : Y and B operated, Zone 1, Fault distance 12.83km, Ir=22.06A,	Y-B-Earth	500 msec	A high resistive fault in B phase occurred and DEF pickup at Binaguri end and after			YES	YES	PG ER-II	BHUTAN	3 phase trip happended due to ph-ph fault. Protection operated properly at PG ER-2 end.
62	400KV-NEW DUBURI-PANDIABILI-1	10-07-2025	05:21	11-07-2025	16:01	NEW DUBRI: Y-N, Z1, 3.74 KA, 88.94 KM	Pandiabili: Z1,6.42KA Y-N 42.8 km	Y-Earth	100 msec	A/r failed after 1 sec.			NO	YES	OPTCL	G ODISHA	
63	220KV-SAHARSA(PMTL)-BEGUSARAI-1	09-07-2025	21:45	10-07-2025	18:38	Begusarai: Zone 1, Dist: 77.39km, FC=1.96KA,	Saharsa B-N, 3.7 kA, 14.6 kM	B-Earth	100 msec	A/r failed after 1 sec.			NO	YES	PMTL	BSPTCL	
64	220KV-DALTONGUNJ-GARWAH (NEW)-2	09-07-2025	00:05	09-07-2025	20:01	Daltonganj: 3.47km,3.27kA,Y-Ph,Z-I	Garwah: 1.973kA, 65.08km, R-Ph	R&Y-Earth	100 msec	A/r failed after 1 sec from Garwah end and A/r successful from Daltonganj	DR is not time synchronised.		YES	YES	PG ER-I	JUSNL	
65	220KV-KATAPALLI-BOLANGIR(PG)-1	08-07-2025	23:39	09-07-2025	00:22	Katapalli end: R-Ph, Auto recloser successful	Bolangir end: R-N fault, 113.37 km, 1.764 kA.	R-Earth	350 msec	As per PMU delayed tripping(Z-2 operated) reported from Bolangir end. PG ODISHA			YES	NO	OPTCL	G ODISHA	

66	400KV-LAPANGA-STERLITE-1	08-07-2025	03:45	08-07-2025	15:44	Lapanga end: Z-2,16.12KM, B_N, Ib:12.43 kA	Starlite end: Main 1: Z-1,Ib=25.96kA, 13.98KM	B-Earth	350 msec	As per PMU delayed tripping(Z-2 operated) reported from Lapanga end. OPTCL mav			YES	NO	OPTCL	OPTCL	
17	400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2	07-07-2025	15:04	07-07-2025	19:04	-	Bus bar protection operated at PUNASANGCHUN	No Fault	100 msec	Bus bar protection operated at PUNASANGCHUN			YES	NO	PG ER-II	BHUTAN	No issue at Alipurduar end. Protection operated properly at PG ER-2 end.
68	400KV-LAPANGA-STERLITE-1	07-07-2025	04:38	07-07-2025	08:55	Sterlite: B_N, 3.15 km, 36.45 kA; Lapanga: B_N, 13.8 km, 20.32 kA; A/r failed after 1 second from both	Lapanga: B_N, 13.8 km, 20.32 kA; A/r failed after 1 second from both ends	B-Earth	100 msec	A/r failed after 1 sec.			YES	NO	OPTCL	OPTCL	
69	220KV-DALTONGANJ-CHATRA-1	07-07-2025	03:12	07-07-2025	22:50	Daltonganj : Not tripped	Chatra : DT Recieved:	No Fault	NA	As per PMU no fault was observed. Line tripped from Chatra end only due to DT			YES	NO	PG ER-I	JUSNL	
70	220KV-DALTONGANJ-CHATRA-1	07-07-2025	00:13	07-07-2025	02:07	Daltonganj : Not tripped	Chatra : DT Recieved:	No Fault	NA	As per PMU no fault was observed. Line tripped from Chatra end only due to DT			YES	NO	PG ER-I	JUSNL	
18	400KV-MAITHON-GAYA-2	06-07-2025	12:31	06-07-2025	14:50	Gaya R-Y-E fault, Ir 2.5 kA, Iy 2.3 kA, Distt 269.5 km.	Maithon: R-Y-E fault, Distt 1.8km, Ir 18.95 kA, Iy 18.66 kA	R-Y-Earth	100 msec	Line tripped on phase to phase fault.			YES	YES	PG ER-II	PG ER-I	3 phase trip happended due to ph-ph fault. Protection operated properly at PG ER-2 end.
72	400KV-MEERAMUNDALI-JSPL-2	06-07-2025	07:45	06-07-2025	17:35	Meramundali: R_N, 37.4 km, 6.56 kA;	JSPL: R_N, 4.56 km, 12.14 kA	R-Earth	100 msec	A/r failed after 1 sec.			YES	NO	OPTCL	JSPC	
73	400KV-MEDINIPUR-NEW CHANDITALA-1	05-07-2025	17:33	06-07-2025	12:46	Medinipur: Y-Ph, Z-I, 10.6km,9.20kA	New Chaditala: Y-Ph,Z-I,2.481kA	Y-Earth	100 msec	A/r failed after 1 sec.			YES	YES	WBSETC	WBSETCL	

74	220KV-DALTONGANJ-CHATRA-1	04-07-2025	18:24	04-07-2025	19:54	Chatra : DT Recieved:	Daltonganj : Not tripped	No Fault	NA	As per PMU no fault was observed. Line tripped from Chatra end only due to DT			YES	NO	PG ER-I	JUSNL	
75	400KV-ARAMBAGH-PPSP-1	04-07-2025	13:08	04-07-2025	14:46	gh: Y_N, 128.6 km	_N, 25.06 km, 8	Y-Earth	100 msec	Three phase tripping for phase to ground fault. A/r kept OFF at both end.			YES	NO	WBSETC	WBPDC	
19	400KV-RANGPO-DIKCHU-1	04-07-2025	13:02	04-07-2025	16:22	, 29.97 km, Iy-0.7 k	, 11.4 km, Iy-4.5	Y-B	100 msec	Line tripped on phase to phase fault.			YES	YES	PG ER-II	GREENK	3 phase trip happended due to ph-ph fault. Protection operated properly at PG ER-2 end.
77	220KV-DALTONGANJ-CHATRA-1	03-07-2025	07:23	03-07-2025	08:39	Daltonganj : Not tripped	Chatra : DT Recieved:	No Fault	NA	As per PMU no fault was observed. Line tripped from Chatra end only due to DT			YES	NO	PG ER-I	JUSNL	
78	220KV-DALTONGANJ-CHATRA-1	03-07-2025	01:10	03-07-2025	01:40	Chatra : DT Recieved:	Daltonganj : Not tripped	No Fault	NA	As per PMU no fault was observed. Line tripped from Chatra end only due to DT			YES	NO	PG ER-I	JUSNL	
79	220KV-SAHARSA-BEGUSARAI-1	02-07-2025	18:17	03-07-2025	18:30	rai: B_N, 75.3 km,	ai: B_N, 14.7 km,	B-Earth	100 msec	A/r failed after 1 sec.			YES	YES	PG ER-I	BSPTCL	
80	400KV-BIHARSARIFI(PG)-SAHUPURI(CHAND AULI)-1	02-07-2025	08:03	02-07-2025	10:42	pped from Bihasa	problem in Sahup	No Fault	NA	Line tripped from Sahupuri end with any line fault.			YES	NO	PG ER-I	NRLDC	
81	400KV-JAMSHEDPUR-ADHUNIK-2	01-07-2025	22:02	02-07-2025	21:39	: Y-N Fault , 25.1	-	Y-Earth	100 msec	Line diffrential protection operated.			YES	NO	PG ER-I	ADHUNIK	

82	400KV-NEW PPSP- NEW RANCHI-2	01-07-2025	16:23	01-07-2025	17:54	pping of 400 kV B	ceived at New R	No Fault	NA	Line tripped due to Bus tripping at New PPSP.			NO	YES	WBSEDC	PG ER-I	
83	400KV-NEW PPSP- NEW RANCHI-1	01-07-2025	16:23	01-07-2025	17:55	pping of 400 kV B	ceived at New R	No Fault	NA				NO	YES	WBSEDC	PG ER-I	
84	400KV- BIHARSARIFF(PG)- SAHUPURI(CHAND AULI)-1	01-07-2025	13:44	01-07-2025	16:15	pped from Biharsa	problem in Sahup	No Fault	NA	Line tripped from Sahupuri end with any line fault.			YES	NO	PG ER-I	NRLDC	
20	220KV- DARBHANGA(DMT CL)-LAUKAHI-2	20-07-2025	00:34	20-07-2025	01:25	Not tripped	Laukhi end: Z- 4,R-ph, FC:1.457 kA, FD:16.8 Km	R-Earth	100 msec	Line tripped in Z-4 protection within 100 msec at Laukhi end. BSPTCL may			NO	YES	DMTCL	BSPTCL	Zone-4. As per DR, Line tripped within 50 ms. Time Delay for Zone-4 has been verified in the relay and found to be 500 ms. (Relay Make- Micom P442). It seems that Relay has malfunctioned/
21	220KV-NEW PURNEA- MADHEPURA-1	16-07-2025	13:15	16-07-2025	15:30	Not tripped	Madhepura: DT Recieved.	No Fault	NA	Line tripped from Madhepur end on master trip. BSPTCL may explain.			NA	YES	PG ER-I	BSPTCL	Line tripped at Madhepura end due to DT received and no other relay picked at that time. As per DR, no any fault was present in the line. It seems that PLCC communication has falsely

Month	July						
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)
13.07.2025	Barh-Kahalgaoon-2	Y-N fault	Fault in zone-1 (Y-N fault). Successful auto-reclosure took place at Barh end for both main and tie breaker. Line remained idle charged from Barh end.	1	0	0	0
15.07.2025	Barh-Patna -4	R-N fault, developed into R-Y fault	Fault initially in zone 1, R-N (Fault current: 17 kA). A/R attempt took place. Fault developed into R-Y fault (phase to phase fault) resulting in three phase tripping. Charging attempt was further taken from Patna end which resulted in tripping on SOTF.	1	0	0	0
16.07.2025	Barh-Bakhtiyarpur-2	R-N fault	Fault in zone-1 (R-N fault). Inclement weather conditions prevailing at Barh end. Auto-reclosure attempt did not take place and both breakers tripped on Pole discrepancy. As analysed later on, 'CB not ready' status was coming in AR relay which is a pre-requisite for AR operation. Breakers in BKP-2 are hydraulically operated, and 1/3 pole tripping results in sudden dip in oil pressure which resulted in 'CB not ready' status.	0	1	0	1

## Performance Indices of Darlipali STPP for July'25

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

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

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

**NOTE for reference of deciding parameters:**

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





20	400KV MOTIHARI(DMTCL)-GORAKHPUR-2	24-07-2025	15:21:00	24-07-2025	15:21:00	A/R SUCCESSFUL FROM BOTH ENDS DUE TO Y-N FAULT DURING LIGHTENING AND THUNDERSTORM AROUND THE FAULT AREA. MOTIHARI SITE DETAILS- FD- 115.6KM, FC- 2.79KA		NA	NA	NA	NA	NA	NA	NA	NA	NA	
21	400KV PATNA-BALIA-1	17-07-2025	17:16:00	17-07-2025	17:16:00	A/R SUCCESSFUL FROM BOTH ENDS DUE TO Y-N FAULT, LIGHTENING AND THUNDERSTORM REPORTED NEAR FAULT AREA. BALIA SITE DETAILS- M1: FD- 63.5KM, FC- 6.43KA, M2: FD- 63.9KM, FC- 6.14KA.		1	NA	0	NA	0	NA	1	1	1	
22	400KV RANCHI-MAITHON-1	23-07-2025	17:59:00	23-07-2025	17:59:00	A/R SUCCESSFUL FROM BOTH ENDS DUE TO Y-N FAULT, LIGHTENING AND THUNDERSTORM REPORTED NEAR FAULT AREA. RANCHI(SITE): M1: FD- 64.9KM, FC- 5.39KA ; M2: FD- 62.3KM, FC- 5.36KA		1	NA	0	NA	0	NA	1	1	1	
23	400KV RANCHI-NEW RANCHI-3	13-07-2025	18:14:00	13-07-2025	18:14:00	A/R SUCCESSFUL FROM BOTH ENDS DUE TO B-N FAULT DUE TO LIGHTENING AND THUNDERSTORM REPORTED AROUND FAULT AREA. FAULT DETAILS-RANCHI(AFAS) M1:-FD-27.248KM FC-10.640KA .		1	1	0	0	0	0	1	1	1	
24	400KV SASARAM-ALLAHABAD	12-07-2025	15:21:00	12-07-2025	15:21:00	A/R SUCCESSFUL FROM BOTH ENDS DUE TO B-N FAULT DUE TO THUNDERSTORM AND LIGHTENING AROUND FAULT AREA. FAULT DETAILS-SASARAM(SITE)-M1: FD-49.5KM FC-2.35KA M2: FD-49.13KM FC-2.24KA		1	NA	0	NA	0	NA	1	1	1	
25	400KV-BIHARSHARIF-SAHUPURI-ACL-CKT1	01-07-2025	13:44:00	01-07-2025	16:15:00	TRIPPED FROM SAHUPURI END ONLY DUE TO PROBLEM AT SAHUPURI(UPPTCL) END (BCU ISSUES AT SAHUPURI END) FAULT IS UNDER UPPTCL JURISDICTION	Other Utility	1	NA	0	NA	0	NA	1	1	1	
26	400KV-BIHARSHARIF-SAHUPURI-ACL-CKT1	02-07-2025	08:03:00	02-07-2025	10:42:00	TRIPPED FROM SAHUPURI END ONLY DUE TO PROBLEM AT SAHUPURI(UPPTCL) END (BCU ISSUES AT SAHUPURI END) FAULT IS UNDER UPPTCL JURISDICTION	Other Utility	1	NA	0	NA	0	NA	1	1	1	

Li+A1:S16st of important transmission lines in ER which tripped in July-2025										END-A						END-B					
Sl. No.	LINE NAME	TRIP DATE	TRIP TIME	Relay Indication LOCAL END	Relay Indication REMOTE END	Remarks	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+Nf+Nd))	Nc	Nu	Nf	Dependability Index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nf+Nd))
1	400KV-ALPREDIAR (PG)-PUNASANGCHUN-2	30-07-2025	17:41	Aliphar: Not tripped	PUNASANGCHUN: No relay indication	As per PMU, no fault was observed. Line tripped on Bhutan end and on BOTL line.	PG-ER-II	BBUTAN	Line tripped at Bhutan end only due to issue at their end. No tripping at Bhutan end.	1			1	1	1					NA	
2	400KV-MALDAPQ-NEW PUNE-A-2	28-07-2025	15:53	Line tripped from Malda	NA	Line tripped from Malda end due to WTI of its non-releachable line reactor operated at Malda.	PG-ER-II	PG-ER-I	Series DC earth fault occurred in system due to fault in age-old cables. Due to cable fault, sporadic WTI trip signal got high in relay B1 circuit. Hence, trip happened. Faulty cable has been isolated and DC earth fault was removed.		1		#DIV0!	0	0					NA	
3	400KV-ALPREDIAR (PG)-PUNASANGCHUN-3	25-07-2025	11:03	Aliphar: Not tripped	PUNASANGCHUN: Tripped on BI over current	Line tripped from Bhutan end only on BI over current protection.	PG-ER-II	BBUTAN	Line tripped at Bhutan end only due to issue at their end. No tripping at Bhutan end.	1			1	1	1					NA	
4	400KV-ALPREDIAR (PG)-BINAGRI-4	25-07-2025	02:26	Aliphar end : B-N fault, FC=9.74 KA, FD= 12 km	Bhanga: B-N fault, FD=62.3 km, FC=3 KA	Line tripped in reaction time	PG-ER-II	PG-ER-II	A/R was successful through main & tie bay. However, fault re-occurred after 2-3 sec of the first fault. Hence, 3 phase trip happened due to fault within reaction time. Protection operated properly at PG-ER-II end.	1			1	1	1	1		1		1	
5	400KV-BINAGRI-MALBASE-1	24-07-2025	13:31	DT received at Bhanga end from remote end	Not tripped	DT received at Bhanga end. No fault observed at PMU.	PG-ER-II	BBUTAN	No fault was present in line. DT received at Bhanga end and 3 phase trip happened. Protection operated properly at PG-ER-II end.	1			1	1	1					NA	
6	400KV-ORCHH-BANGPO-2	23-07-2025	13:45	Dikchu : Zone-1 R, N, F Distance-13.72 km Fault Current: B- 2.142 KA	A/R successful at Rangpo end	By phase high sensitive fault occurred and fault was cleared by CC earth fault, further after 100 msec line B phase got tripped in 2-3 tripping end. A/R successful from Rangpo end. It was not attempted at Dikchu end. Dikchu time critical.	GREENKO	PG-ER-II	A/R operated at Rangpo end. Protection operated properly at PG-ER-II end.					NA		1			1		1
7	400KV-BINAGRI-ALPREDIAR (PG)-1	23-07-2025	10:15	Bhanga: R-Y, B-A, S-KVTS-2.8KA,FD-55.55KM	Aliphar: R-Y, 31.2 Km, B-7.0KA, FY-10.0KA	Line tripped on phase to phase fault.	PG-ER-II	PG-ER-II	3 phase trip happened due to ph-ph fault. Protection operated properly at PG-ER-II end.	1			1	1	1	1			1		1
8	400KV-NEW JERAT-SUBSANGRAMPG-1	19-07-2025	10:35	New Jerat: Y-N, 36 km, 3.762 KA	Subsangram: Y-N, 61.8 km, 3.9 KA	A/R failed after 1 sec.	PMOTL	PG-ER-II	A/R attempted but tripped on parading fault in line. Protection operated properly at PG-ER-II end.	1			1	1	1	1			1		1
9	400KV-MALDAPQ-NEW PUNE-A-2	18-07-2025	14:07	Y, N, F Dist 33.236 km, F Current 7.695 KA	A/R successful at New Purna	A/R successful from New Purna end and three phase tripping from Malda and during A/R attempt at Purna end. PG-ER-II may explain.	PG-ER-II	PG-ER-I	A/R relay issued the close command properly. However, command was not extended up to CB due to fault in age-old cables. Hence, CB did not close at Malda SS. Faulty cable has been isolated.		1		0	#DIV0!	0					NA	
10	400KV-DURGAPUR-KAIGALLAGIN-2	18-07-2025	10:58	Durgapur end : R, N, F Dist 16.0km, 1.92 KA	Rt at Khatp end : Z-1, R, N, 4.36 KA, 71.34 km, A/R unsuccessful.	A/R failed after 1 sec.	PG-ER-II	NTPC	A/R attempted but tripped on parading fault in line. Protection operated properly at PG-ER-II end.	1			1	1	1					NA	
11	400KV-ALPREDIAR (PG)-PUNASANGCHUN-3	16-07-2025	15:26	Not tripped	Tripped only from Phantapangha end	Line tripped from Bhutan end. No event recorded at APD end.	PG-ER-II	BBUTAN	Line tripped at Bhutan end only due to issue at their end. No tripping at Bhutan end.	1			1	1	1					NA	
12	400KV-BINAGRI-MALBASE-1	14-07-2025	19:06	Bhanga : r-y-b, 40-126.2 km, 6-1.350 km	-	As per PMU three phase fault occurred.	PG-ER-II	BBUTAN	High sensitive fault in B phase occurred and DT pickup started and after 900 msec came fault was cleared in 2-3 protection and line got tripped in 2-3 protection after 100 msec from both end.	1			1	1	1					NA	
13	220KV-BIRPARA-MALBASE-1	14-07-2025	19:00	Bhanga : Z-3, b-a, 6-1.97 KA, 40-93.6 km	-	A high sensitive fault in B phase occurred and DT pickup started and after 900 msec came fault was cleared in 2-3 protection and line got tripped in 2-3 protection after 100 msec from both end.	PG-ER-II	BBUTAN	The line tripping was happening multiple times earlier and it was under and fault condition. During normalisation process, due to some issues, one setting in MT relay was not changed. Hence, Z3 trip happened instantaneously. Later on, it has been corrected.	1			1	1	1					NA	
14	400KV-ALPREDIAR (PG)-PUNASANGCHUN-2	14-07-2025	17:01	Aliphar: Z3 Protection operated	Not tripped	Instantaneous tripping occurred in Z-3 protection from Aliphar end. PG-ER-II may explain.	PG-ER-II	BBUTAN	High sensitive fault occurred in Bhutan end and fault was not cleared timely as observed from DRS. Hence, Z3 operated at Bhanga end. Both M1 & M2 detected the fault in Z3. Protection operated properly at PG-ER-II end.	1			#DIV0!	0	0					NA	
15	220KV-BIRPARA-MALBASE-1	13-07-2025	11:09	MT Zone 3 B-N fault, fault distance at 100%	Malbase: Tripped on Overvoltage.	Minor-2 operated. As per PMU line may be tripped on Z-3 protection from Bhanga end. PG-ER-II may explain.	PG-ER-II	BBUTAN	A high sensitive fault in B phase occurred and DT pickup at Bhanga end and after 900 msec, Z-3 protection operated at Bhanga end and after 1 sec, A/R failed.	1			1	1	1					NA	
16	400KV-BINAGRI-MALBASE-1	13-07-2025	11:09	Tripped from Bhanga end and MT Zone 2, B-N fault	-	A high sensitive fault in B phase occurred and DT pickup at Bhanga end and after 900 msec, zone fault was corrected on Y-B fault fault and Z-3 protection operated at Malbase end and carrier added trip at Bhanga end.	PG-ER-II	BBUTAN	A/R attempted but tripped on parading fault in line. Protection operated properly at PG-ER-II end.	1			1	1	1					NA	
17	400KV-BINAGRI-MALBASE-1	10-07-2025	11:09	Rt at Bhanga : Y-B, Z-2, F Dist- 118.72 km, F Current- 4.4 KA, B- 4.5KA	Malbase : Y and B operated, Zone 1, Fault distance 12.83km, b-22.0KA, fy-1.0KA, B=679.1A.	A high sensitive fault in B phase occurred and DT pickup at Bhanga end and after 900 msec, zone fault was corrected on Y-B fault fault and Z-3 protection operated at Malbase end and carrier added trip at Bhanga end.	PG-ER-II	BBUTAN	3 phase trip happened due to ph-ph fault. Protection operated properly at PG-ER-II end.	1			1	1	1					NA	
18	400KV-ALPREDIAR (PG)-PUNASANGCHUN-2	07-07-2025	15:04	-	-	Bus bar protection operated at PUNASANGCHUN	PG-ER-II	BBUTAN	No issue at Aliphar end. Protection operated properly at PG-ER-II end.	1			1	1	1					NA	
19	400KV-MATHION-GAYA-2	06-07-2025	12:31	Gaya R-Y-E fault, b-2.3 KA, fy-2.3 KA, Dist 200.3 km	Mathion: R-Y-E fault, Dist 1 km, b-18.95 KA, fy-18.00 KA	Line tripped on phase to phase fault.	PG-ER-II	PG-ER-I	3 phase trip happened due to ph-ph fault. Protection operated properly at PG-ER-II end.	1			1	1	1					NA	
20	400KV-RANGPO-DIKCHU-1	04-07-2025	13:02	Dikchu Y, B, 29.97 km, fy-0.7 KA, B-0.0 KA	Rangpo Y, B, 11.4 km, fy-0.5 KA, B-0.0 KA	Line tripped on phase to phase fault.	PG-ER-II	GREENKO	3 phase trip happened due to ph-ph fault. Protection operated properly at PG-ER-II end.	1			1	1	1					NA	

Protection Performance Indices for the month of July' 25 (In compliance of Clause 15(6) of IEGC 2023)																	
S. No.	Name of the element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason (Relay indication)		Nc		Nu		Nf		Dependability index (Nc/(Nc+Nf))	Security index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nu+Nf))	Remarks (Reason for performance indices less than 1)
						End A	End B	End A	End B	End A	End B	End A	End B				
1	220KV-DALTONGANJ-CHATRA-1	03-07-2025	01:10			Not tripped	Week infeed with Carrirer Received		1		1		0	1	0.5	0.5	Due to spurious carrier received, caused by unhealthy DC supply
2	220KV-DALTONGANJ-CHATRA-1	03-07-2025	07:23			Not tripped	Week infeed with Carrirer Received		1		1		0	1	0.5	0.5	
3	220KV-DALTONGANJ-CHATRA-1	04-07-2025	18:24	04-07-2025	19:54	Not tripped	Week infeed with Carrirer Received		1		1		0	1	0.5	0.5	
4	220KV-DALTONGANJ-CHATRA-1	07-07-2025	00:13			Not tripped	Week infeed with Carrirer Received		1		1		0	1	0.5	0.5	
5	220KV-DALTONGANJ-CHATRA-1	07-07-2025	03:12			Not tripped	Week infeed with Carrirer Received		1		1		0	1	0.5	0.5	
6	220KV-DALTONGUNJ-GARWAH (NEW) - 2	09-07-2025	00:05				RN, Z1, IR- 1.88 kA A/R successful but trip in reclaim time.		1		0		0	1	1	1	
7	220 kV Ramchandrapur - Joda	13-07-2025	09:38:00			Ramchandrapur: Ia - 0.51kA Ib -1.5kA, Ic -0.3 kA , Distance - 129.9 km, Zone -2	Joda: auto recloser successful	1		1		0		1	0.5	0.5	DTPC not healthy
8	220KV-CHANDIL - STPS -1	13-07-2025	11:05			Chandil end:- Zone -1, Ia=0.12 KA, Ib= 0.11 KA, Ic=2.96 KA, fault distance =27.4km.	STPS: z-2, 83 km, IB=0.859 kA, B-N.	1		1		0		1	0.5	0.5	PLCC not healthy
9	220 kV Ramchandrapur - Joda	16-07-2025	14:01			Zone- 2 Trip ph- BN Dist=122.9 KM Fault current: Ia=0.65KA,Ib- 1.78KA,Ic=0.27KA	BN, Zone-01, 1.411 KM Fault Current: Ia=34.58A, Ib=6.343KA, Ic=37.25A	1		1		0		1	0.5	0.5	DTPC not healthy
10	220 kV Ramchandrapur - Joda	22-07-2025	14:44:00			YN, Z1, 32.7 km, IY - 2.38 kA	JODA: B-N, FC=1.241KA, Dist=32.7KM, Zone- 1	1		1		0		1	0.5	0.5	DTPC not healthy
11	220KV-CHANDIL-STPS(WBPDCL)-1	23-07-2025	12:05			Chandil: R-N, Z-1, 31.4km, 2.94kA	STPS: R-N, Z-2, 92.7km, 0.319kA		1		1		0	1	0.5	0.5	PLCC not healthy

## BSPTCL

Protection Performance Indices for the month of July'25																	
S. No.	Name of the element	Tripping Date	Tripping time	Restoration Date	Restoration Time	Reason (Relay indication)		Nc		Nu		Nf		Dependability index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nu+Nf))	Remarks (Reason for performance indices less than 1)
						End A	End B	End A	End B	End A	End B	End A	End B				
1	220KV-PATNA-SIPARA-3	24-07-2025	16:20	24-07-2025	19:47	R/I at Patna : Y-N, F Current 16 kA;	-		1		0		0	1	1	1	Line differential protection operated.
2	220KV-DARBHANGA(DMTCL)-LAUKAHI-2	20-07-2025	00:34	20-07-2025	01:25	Not tripped	Laukhi end: Z-4,R-ph, FC:1.457 kA, FD:16.8 Km		0		1		0	0	0	0	220 kv DMTCL(Darbhanga)-Laukahi(BSPTCL) ckt-2 tripped on Zone-4. As per DR, Line tripped within 50 ms. Time Delay for Zone-4 has been verified in the relay and found to be 500 ms. (Relay Make- Micom P442). It seems that Relay has malfunctioned/ became defective.Request for arrangement of Shutdown in said ckt-2 has already been placed for the testing/ replacement of this Relay.
3	220KV-TENUGHAT-BIHARSARIFF-1	19-07-2025	13:36	19-07-2025	14:00	Tenughat: B, N, 45.76 km, 2.228 Ka	Biharsharif: B, N, 126 km, 1.7 kA;		0		0		1	0	0	0	PLCC issue persisting since long . As stated earlier ,ERPC intervention required ,as it involves Inter state Transmission line.
4	220KV-DARBHANGA (DMTCL)-MOTIPUR-2	19-07-2025	10:58	19-07-2025	15:11	Darbhang: Y, B, ly=lb=3.2 kA, 63 km	Y-B, Z-1		1		0		0	1	1	1	Line tripped on phase to phase fault.
5	220KV-DARBHANGA (DMTCL)-MOTIPUR-1	18-07-2025	13:37	18-07-2025	15:16	Darbhang: B, N, 97.35 km,	Motipur: B, N, 37.76km, 2.425 kA,		1		0		0	1	1	1	A/r and carrier send success from Motipur end and three phase tripping at DMTCL end.
6	220KV-SAHARSA-BEGUSARAI-2	18-07-2025	09:16	20-07-2025	19:30	R/I at Saharsa: B, N, F Current 6.31 kA, F Distance 19 km	; Begusarai end: Zone1, F Distance 42.6km, lb= 2.63kA		1		0		0	1	1	1	A/r failed after 1 sec.
7	220KV-PATNA-FATUHA-1	17-07-2025	16:59	17-07-2025	18:14	Patna: B, N, 17.6 km, 2.74 kA	-		0		1		0	0	0	0	There was some issue in tripping circuit of 220KV Biharsharif ckt at GSS Fatuha end, which was later rectified.
8	220KV-NEW PURNEA-MADHEPURA-1	16-07-2025	13:15	16-07-2025	15:30	Not tripped	Madhepura: DT Recieved.		0		1		0	0	0	0	Line tripped at Madhepura end due to DT received and no other relay picked at that time. As per DR, no any fault was present in the line. It seems that PLCC communication has falsely triggered DT signal due to which Relay tripped on DT received. After that no any tripping of such type has been observed till date.Communication wing has been requested for thorough checking of PLCC system
9	220KV-SAHARSA-BEGUSARAI-1	14-07-2025	20:58	15-07-2025	15:30	Saharsa: B, N, 15.189 km, 7.22 kA	Begusarai - Zone 2, B, N 82.4km, FC=1.82KA		0		0		1	0	0	0	For no load charging(fault finding) of transmission line, all forward zones were set to time setting of Zero ms. While restoration, Zone 2 time was wrongly left to Zero ms. This mistake was later modified on dt-16/07/25
10	220KV-SAHARSA-BEGUSARAI-1	13-07-2025	20:35	14-07-2025	15:25	Saharsa: B, N, 14.6 km, 7.43 kA	Begusarai: Z-1, F,c-1.94 kA, F.D-82 km		0		0		1	0	0	0	
11	220KV-KHAGARIA-NEW PURNEA-2	13-07-2025	19:24	13-07-2025	20:29	New Purnea: Y-B, 15.5km, 3.96kA	Khagaria: R, Y ph , FD-88.58 KM, lr=2.47 KA, ly= 2.029 KA	1	1	0	0	0	0	1	1	1	Initially B-Earth fault occurred and B phase tripped in Z-1 protection from Khagaria end, further same fault converted into phase to phase fault and three phase tripping occurred after 350 msec from both end.
12	220KV-KHAGARIA-NEW PURNEA-2	13-07-2025	13:20	13-07-2025	13:55	Khagaria end: Y ph B ph, zone -1, Distance - 84.32km, ly= 1.804kA, lb= 1.009 kA	Purnea end: Z1 Y-B FC-ly- 8.89 kA lb=8.55 kA FD-14.3km	1	1	0	0	0	0	1	1	1	Line tripped on phase to phase fault.
13	220KV-SAHARSA(PMTL)-BEGUSARAI-1	09-07-2025	21:45	10-07-2025	18:38	Begusarai: Zone 1, Dist: 77.39km, FC=1.96KA,	Saharsa B-N, 3.7 kA, 14.6 kM		1		0		0	1	1	1	A/r failed after 1 sec.

14	220KV-SAHARSA-BEGUSARAI-I	02-07-2025	18:17	03-07-2025	18:30	Begusarai: B_N, 75.3 km, 1.96 kA	Saharsa: B_N, 14.7 km, 7.2 kA		1		0		0	1	1	1	A/r failed after 1 sec.
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OPTCL

PROTECTION PERFORMANCE INDICES AS PER TRIPPING LIST OF 150TH PCC MEETING AGENDA FOR THE MONTH OF JULY 2025 FOR OPTCL,SLDC,ODISHA																	
SL.NO	NAME OF THE ELEMENT	TRIPPING DATE	TRIPPING TIME	RESTORATION DATE	RESTORATION TIME	REASON(RELAX INDICATION)		NC		NU		NF		DEPENDABILITY INDEX (NC/NC+NF)	SECURITY INDEX (NC/NC+NU)	RELIABILITY INDEX(NC/NC+NU+NF)	REMARKS
						END-A	END-B	END-A	END-B	END-A	END-B	END-A	END-B				
1	220 KV BUDHIPADAR-KORBA-II	31/07/25	18:20	08-01-2025	03:36		NO TRIP	0	1	0	1	0	1	END A=0 ,END B=1/2	END A=0 ,END B=1/3	END A=0 ,END B=1/3	NO FAULT OBSERVED IN PMU
2	400KV RENGALI PG-INDRAVATH-I	23/07/25	19:31	23/07/25	23:20	Z-1/Y-N/19.7 KA/0.048 KM	Z-1/Y-N/1.157 KA/203 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	A/R UNSUCCESSFUL AT BOTH END
3	220 KV BUDHIPADAR-KORBA-II	23/07/25	15:43	23/07/25	18:37	Z-1/R-N/2.859 KA/53.27 KM	Z-1/R-N/1.7 KA/104 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	R-PHASE TO GROUND FAULT OCCURRED IN LINE BUT AFTER 400ms REMAINING POLE GOT TRIPPED
4	220 KV JODA-RAMACHANDRAPUR-1	22/07/25	14:44	22/07/25	15:43	Z-1/B-N/1.24 KA/32.7 KM	Z-1/B-N/2.38 KA/32.7 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	LINE TRIPPED IN RECLAIM TIME FROM JODA END AND 3-PHASE TRIPPED FROM RAMCHANDRAPUR END
5	400KV MRDL-ISPL-I	21/07/25	12:22	21/07/25	16:54	Z-1/B-N/11.65 KA/13.5 KM	NO TRIP	1	0	1	0	1	0	END A=1/2,END B=0	END A=1/2,END B=0	END A=1/3,END B=0	LINE TRIPPED IN RECLAIM TIME MRDL END
6	220KV JAMSHEDPUR-JINDAL-I	21/07/25	11:29	21/07/25	12:19	Z-2/B-N/0.086 KA/131.6 KM	-	1	0	1	0	1	0	END A=1/2,END B=0	END A=1/2,END B=0	END A=1/3,END B=0	3-PHASE TRIPPING FOR SINGLE PHASE TO GROUND FAULT
7	220 KV TTPS-TSTPP-I	19/07/25	13:25	22/07/25	13:45	Z-1/R-N/2.718 KA/	Z-1/R-N/2.57 KA/17.22 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	3-PHASE TRIPPING FOR SINGLE PHASE TO GROUND FAULT
8	220 KV BUDHIPADAR-KORBA-II	17/07/25	17:55	17/07/25	19:17	Z-1/R-N/1.185 KA/142 KM	Z-1/R-N/9.3 KA/9 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	LINE TRIPPED IN PHASE TO GROUND FAULT AFTER 250ms 3-PHASE TRIPPED OCCURRED
9	220 KV JODA-RAMACHANDRAPUR-1	16/07/25	14:01	16/07/25	17:06	Z-1/B-N/6.343 KA/1.411 KM	Z-2/B-N/1.78 KA/122.9 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	A/R SUCCESSFUL AT JODA END THEN TRIPPED IN RECLAIM TIME AT RAMCHANDRAPUR END 3-PHASE TRIPPED OCCURED DUE TO CARRIER ISSUE AT RAMCHANDRAPUR END
10	220 KV JODA-RAMACHANDRAPUR-1	13/07/25	09:58	13/07/25	10:44	A/R SUCCESSFUL	Z-2/L.5 KA/129.9 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	A/R SUCCESSFUL AT JODA END THEN TRIPPED IN RECLAIM TIME AT RAMCHANDRAPUR END 3-PHASE TRIPPED OCCURED DUE TO CARRIER ISSUE AT RAMCHANDRAPUR END
11	400KV NEW DUBURI-PANDIAVIL-I	10-7-25	05:21	07-11-2025	16:21	Z-1/Y-N/3.74 KA/88.94 KM	Z-1/Y-N/6.42 KA/42.8 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	A/R FAILED AFTER 1SEC
12	400KV NEW DUBURI-PANDIAVIL-I	10-7-25	05:21	07-11-2025	16:21	Z-1/Y-N/3.74 KA/88.94 KM	Z-1/Y-N/6.42 KA/42.8 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	A/R FAILED AFTER 1SEC
13	KATAPALI-BOLANGIR PG-I	8-7-25	23:39	07-09-2025	00:22	A/R SUCCESSFUL /R-N	Z-2/R-N/1.764 KA/113.31 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	Z-2 RELAY TRIPPING FROM BOLANGIR PG END
14	400KV LAPANGA-STERLITE-I	8-7-25	03:45	07-08-2025	15:44	Z-2/B-N/12.43 KA/16.12 KM	Z-1/B-N/25.96 KA/13.98 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	Z-2 RELAY TRIPPING FROM LAPANGA END
15	400KV LAPANGA-STERLITE-I	7-7-25	04:38	07-07-2025	08:55	Z-1/B-N/20.32 KA/13.8 KM	Z-1/B-N/36.45 KA/3.15 KM	1	1	0	0	0	0	END A=1 ,END B=1	END A=1 ,END B=1	END A=1 ,END B=1	A/R FAILED AFTER 1SEC FROM BOTH END

## WBSETCL

[illegible]



CESC

[illegible]

## DMTCL

[illegible]

[illegible]

MPL

[illegible]

[illegible]

## Tashiding

[illegible]

ENICL, OGPTL, PKTCL

Protection Performance Indices for the month of July-25 (In compliance of Clause 15(6) of IEGC 2023)																		
S. No.	Name of Utility	Name of the element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason (Relay Indication)		Nc		Nu		Nf		Dependability Index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nf))	Reliability Index (Nc/(Nc+Nf))	Remarks (Reason for performance indices less than 1)
							End A	End B	End A	End B	End A	End B	End A	End B				
1	EAST NORTH INTERCONNECTION LIMITED	400 kv [Qand] D/C Bongaigaon - Alipourhaz line CKT-1 (ENIG- ALIP #1)							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		400 kv [Qand] D/C Bongaigaon - Alipourhaz line CKT-2 (ENIG- ALIP #2)							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		400 kv [Qand] D/C Purma-Bharatpur Line CKT-1 (P0906-BSP# 1)							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		400 kv [Qand] D/C Purma-Bharatpur Line CKT-2 (P0906-BSP# 2)							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		400 kv [Qand] D/C Alipourhaz - Shigarvi line CKT-1 (ALIP- SIG #1)	23-07-2025	10:15	23-07-2025	13:20	FD-33.2 KM, F C-7.9,10.4 KA.	FD-97.55 KM, F C-4.5, 5.2 KA.	1.00	1.00	-	-	-	-	-NA-	1	1	No events in the month of July/25
		400 kv [Qand] D/C Alipourhaz - Shigarvi line CKT-2 (ALIP- SIG #2)	19-07-2025	16:22	19-07-2025	16:22:00	39.5km 5.812KA	69.82 5.59KA	1.00	1.00	-	-	-	-	-NA-	1	1	Line Tripped due to R-ph to X-Ph fault.
2	ODISHA GENERATION PHASE - II LIMITED	76kV D/C Jharsuguda(Randagpur)-Rajnagar post CKT-2							-	-	-	-	-	-	-NA-	-NA-	-NA-	All Success
		60kV D/C IB-OPGC-Jharsuguda(Randagpur) Cbe-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		60kV D/C IB-OPGC-Jharsuguda(Randagpur) Cbe-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		76kV D/C Jharsuguda(Randagpur)-Rajnagar post CKT-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		60kV D/C LILLO PORT (F. No. - 130) - Randagpur							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		60kV D/C OPGC-LILO PORT (F. No. - 130)							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
3	PURULLA KHARAGPUR TRANSMISSION COMPANY LIMITED	600 kV Chulhana-Kharagpur D/C line CKT-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		600 kV Chulhana-Kharagpur D/C line CKT-2							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		600 kV D/C New Branch-New Purulia Line CKT-1							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25
		600 kV D/C New Branch-New Purulia Line CKT-2							-	-	-	-	-	-	-NA-	-NA-	-NA-	No events in the month of July/25

SI No.	Name of the incidence	PCC Recommendation	Latest status
<b>149<sup>th</sup> PCC Meeting</b>			
1.	Total Power failure at 220 k V Jorethang HEP on 3rd June 2025 at 14:49 Hrs	PCC advised to configure bus bar protection in DR and check whether DT signal was sent from Jorethang end during operation of bus bar protection and submit compliance to ERPC/ERLDC.	<i>Jorethang HEP representative was not present in the meeting.</i>
2.	Total Power Failure 220 k V Chatra (JUSNL) S/s on 8th June 2025 at 10:48 Hrs	PCC once again advised JUSNL to check phase to phase clearance issues for the line.	<i>JUSNL representative informed that there are in process of hiring surveyor to check the clearance issue. It was informed that no tripping was observed in the line in recent times.</i>
3.	Total Power Failure 220 kV Kishangunj (BSPTCL) S/s on 12th June 2025 at 18:24 Hrs	PCC advised BSPTCL to time synchronize bus bar relay with GPS at earliest.	<i>BSPTCL representative informed time synchronization will be completed soon.</i>
4.	Tripping of 400KV/220KV 315 MVA ICT 2 AT PATRATU on 19th June 2025 and 20th June 2025	PCC advised JUSNL representative to test for DC leakage in the substation and healthiness of cable.	<i>JUSNL representative informed that DC leakage issue had been rectified.</i>
5.	Repeated tripping of 220kV-DALTONGANJ-CHATRA-1 in June 2025	JUSNL representative said that testing of carrier will be done on 19th July 2025.	<i>Issue Discussed in <b>Item No. B.9</b></i>
6.	Repeated tripping of 132kV-BARIPADA(PG)-BHOGARAI-1 and 132kV-BARIPADA(PG)-JALESWAR-1 in June 2025	PCC advised OPTCL representative to share relay settings at their end to ERPC/ERLDC along with issues being faced due to PG end settings. It further opined that auto-recloser can be enabled at PG end to avoid tripping of lines in transient faults.	<i>PG representative informed that carrier has not been implemented for the line. PCC advised OPTCL representative to coordinate with PG representative in order to implement carrier and subsequently auto-recloser for in these lines.</i>



<b>148<sup>th</sup> PCC Meeting</b>			
<b>2.</b>	Disturbance at 220 k V Garhwa (JUSNL) S/s on 4th May 2025 at 15:36 Hrs	PCC advised JUSNL for thorough testing of healthiness of lines, jumpers etc. and ensure proper maintenance of lines including tightening of jumpers, tightening of nut bolts etc.	<i>JUSNL representative informed that maintenace work of line is in progress.</i>
<b>3.</b>	Disturbance at 220 k V Joda (OPTCL) S/s on 31st May 2025 at 12:07 Hrs	PCC suggested that GPS based time synchronization shall be installed in the substation.	<i>OPTCL representative informed that requisition for GPS clock is already placed and it will be implemented by Oct 2025.</i>
<b>5.</b>	Tripping of 400KV/220KV 315 MVA ICT 3 AT JAMSHEDPUR on 1st May 2025 at 16:08 Hrs	PCC advised PG representative to share DR for the event to ERPC/ERLDC.	<i>PG representative informed that DR was uploaded in PDMS portal.</i>
<b>147<sup>th</sup> PCC Meeting</b>			
<b>7.</b>	Repeated disturbance at 400 kV PVUNL S/s	<p>PVUNL representative replied that update regarding implementation of week infeed protection will be shared to ERPC/ERLDC after consultation with protection team.</p> <p>ERLDC representative said that in case of disturbance held on 5th April 2025, after auto-recloser attempt at Tenughat side, line must have tripped in SOTF at Tenughat end instead of pickup in zone 2 protection.</p> <p>PCC advised TVNL representative to review protection settings at their end for 400KV Tenughat-PVUNL line in consultation with CRITL, JUSNL.</p>	<i>In 150<sup>th</sup> PCC, PVUNL representative was not present in the meeting.</i>
<b>9.</b>	Repeated tripping of 220kV-PATNA-KHAGAUL-1,	PCC advised BSPTCL representative to take appropriate action for rectifying clearance issue caused due to dumping. It further advised BSPTCL representative to test auto-recloser of 220kV-PATNA-KHAGAUL-1 at their end and	<p>In 148<sup>th</sup> PCC Meeting, BSPTCL representative informed rectification work for clrance issue is in progress.</p> <p>In 149<sup>th</sup> PCC Meeting, BSPTCL representative said that estimate for commissioning of tower is</p>

		share observation report to ERPC/ERLDC. PCC advised BGCL to test auto-recloser of 220kV-PATNA-KHAGAUL-3 at their end and share observation report to ERPC/ERLDC.	<p>already proposed from site. Further necessary actions of rectifying clearance issue due to dumping is already done for temporary basis.</p> <p><i>In 150<sup>th</sup> PCC Meeting, BSPTCL representative said that tower commissioning is in progress.</i></p>
<b>136th PCC Meeting</b>			
<b>10.</b>	Disturbance at 220 kV Tenughat (TVNL) S/s on 29.05.2024 at 12:57 Hrs	<p>PCC advised JUSNL representative to rectify auto-reclose issue at Govindpur end by next week and intimate to ERPC/ERLDC.</p> <p>TVNL representative informed that settings at their end had been implemented by CRITL, JUSNL team and he further assured that O/C E/F settings will be revised at the earliest after consultation with CRITL, JUSNL team.</p> <p>PCC advised CRITL, JUSNL team to test auto-reclose and carrier at both Govindpur as well as Tenughat end.</p>	<p><i>No progress on this matter.</i></p> <p><i>PCC advised TVNL representative to coordinate with JUSNL site and CRITL JUSNL in order to rectify this issue at earliest.</i></p>