सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
पूर्वी क्षेत्रीय विद्युत समिति
Eastern Regional Power Committee
14, गोल्फ क्लब रोड, टालीगंज, कोलकाता-700033
14 Golf Club Road, Tollygunj, Kolkata-700033

स./NO. पू.क्षे.वि.स./PROTECTION/2024/ 975 **दिनांक /DATE: 11/09/2024**

सेवा में / To,

संलग्न सूची के अनुसार / As per list enclosed.

विषय : दिनांक – 28.08.2024 को आयोजित 138 वीं पीसीसी बैठक का कार्यवृत्त ।

Sub: Minutes of the 138th PCC meeting held on 28.08.2024

महोदय/ Sir,

28.08.2024 को आयोजित **138**वीं 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 **138th PCC** meeting of ERPC held on **28.08.2024** available at ERPC website (http://www.erpc.gov.in/).

यदि कोई अवलोकन हो, तो कृपया इस कार्यालय को यथाशीध्र 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,

11/9/2024

(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, 7th 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), WBPDCL, 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., 3rdflr. 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., LoknayakJaiprakashBhawan, (2nd 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, Jhankand 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 , TPTL, 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 - 722OO2
Director, Shiga Energy Pw. Ltd., 5th Floor, DLF Building No. 8, Tower-C, Gurgaon - 722OO2	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-I 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, 3rd 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, थिंपू, 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, गुड़गांव - 722OO2
निदेशक, शिगा एनर्जी पी.डब्ल्यू. लिमिटेड, 5वीं मंजिल, डीएलएफ बिल्डिंग नंबर 8, टावर-सी, गुड़गांव - 722OO2	डीजीएम (ई एंड आई), हल्दिया एनर्जी लिमिटेड, बारीक भवन, कोकाता-700072, फैक्स: 033-22360955
प्लांट हेड, डिक्चु एचईपी, सिक्किम ।	

Minutes
of
138th PCC Meeting

Date:11.09.2024
Eastern Regional Power Committee
14, Golf Club Road, Tollygunge
Kolkata: 700 033

EASTERN REGIONAL POWER COMMITTEE

MINUTES OF 138th PROTECTION COORDINATION SUB-COMMITTEE MEETING HELD ON 28.08.2024 AT 10:30 HRS THROUGH MS TEAMS

Member Secretary, ERPC chaired the meeting. List of participants is attached at ***Annexure A.1.*** *ERLDC representative explained about the comparison of protection performance of eastern region for period of April- July 2024 with April – July 2023 with help of presentation which is attached at* ***Annexure A.2.***

PART – A

ITEM NO. A.1: Confirmation of Minutes of 137th Protection Coordination sub-Committee Meeting held on 30th July 2024 through MS Teams.

The minutes of 137th Protection Coordination sub-Committee meeting held on 30.07.2024 was circulated vide letter dated 05.08.2024.

Members may confirm the minutes of the Meeting.

Deliberation in the meeting

Members confirmed the minutes of 137th PCC Meeting.

PART – B

ITEM NO. B.1: Disturbance at 220 kV Bokaro (DVC) S/s on 20.07.2024 at 19:38 Hrs

On 20th July 2024, at 19:38 Hrs, during Line opening and isolation process of 220 kV CTPS-BTPS D/C line, bus fault occurred at 220 kV BTPS along with DC supply failure subsequently both ICTs got tripped.

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

Load Loss: 65 MW

Outage Duration: 02:40 Hrs

DVC may explain.

Deliberation in the meeting

ERLDC representative informed that on 20/07/2024, trip command was issued at BTPS-B to open 220 kV CTPS-BTPS D/C for opening of both lines at BTPS -B during which circuit 1 got opened however for circuit 2, during issue of trip command through its TNC switch at BTPS -B, Y pole and B pole of breaker got opened however R pole of breaker did not open. At the same time, its lockout relay operated due to grounding of DC (+) supply because of low IR of cable No. K475.
He further added that as R pole of breaker didn't open at BTPS B and lock out relay had operated, its LBB initiation started and after 200 msec, LBB operated, and all elements connected to Bus-2 got tripped since 220 kV CTPS-BTPS B-2 was connected to Bus-2 at BTPS B.
He said that as per report received from DVC, due to incorrect isolator status, Bus 2 was shorted with Bus 1, hence all elements connected to 220 kV Bus 1 also had tripped leading to total supply interruption at 220 kV BTPS B.

DVC representative said that on day of incident, generation of BTPS-B was low (around 300 MW) and due to supply of this power to Koderma, there was less power available with DVC grid therefore load at Ramgarh was being supplied through Ramgarh- Ranchi circuit causing lines to get overloaded hence 220 kV CTPS-BTPS D/C was tried to be made off at BTPS -B end. However due to issue in R pole of breaker and DC supply, LBB protection had operated resulting in tripping of Bus 2 and further due to shorting of bus 2 with bus 1, bus 1 also tripped in disturbance.

He informed that dismantling work at BTPS- B is under progress, however since units at BTPS -B are very old, cable identification was not done properly by team leading to grounding of DC system which ultimately resulted in this disturbance. He informed that DC system rectification work is in progress at BTPS end and bus bar protection had been made disabled along with bus tie breaker till rectification work gets completed. He said that zone 4 settings had been reduced to 250 ms as per ERPC protection philosophy till bus bar protection is made off.

He informed that renovation work at BTPS- B had been started and will take around 12 months to be completed. He further informed that work for upgradation of switchyard at CTPS & BTPS B is already started and it will take around one and half year to gets completed.

On enquiry from ERLDC regarding reason behind non opening of R pole of breaker, DVC representative replied that old MOCB breaker is present at BTPS B which failed to open during the disturbance therefore it is planned to replace all old MOCB breaker by Sep 2024.

ERLDC representative enquired DVC representative whether DC supply had failed completely during the disturbance at BTPS B because SCADA data, PMU data and DR had not captured after total power failure at S/s for which DVC representative informed that DC system failure was not noticed earlier.

On enquiry from ERLDC representative regarding two independent set of batteries at BTPS -B, DVC representative informed that at present there is no independent set of batteries however during renovation work at CTPS & BTPS- B, two independent set of batteries will be installed.

ERLDC representative informed that as DC system is not in healthy condition at BTPS B and Battery is isolated and entire DC system is directly connected to the charger which has AC supply. It is observed that due to failure of AC supply, its DC system failed hence no DR was recorded due to failure of DC supply.

PCC opined that for DR recording, there should be independent supply system so that in case of total power failure at substation DR should be captured for which DVC was advised to comply same.

DVC representative informed that relays of ABB, Siemens and GE were tested in lab in which it was found that for ABB & Siemens relays, DR is not being captured after 2 second of DC supply failure after complete power failure at S/s however for GE relays, DR is being captured. PCC advised all utilities to submit their observation regarding DR retrieving feature for relays of different make being used by them in case of DC supply failure to ERPC/ERLDC.

PCC advised DVC representative to replace the Old High Impedance Bus bar scheme with low impedance Bus Bar Scheme for enhancing the stability of the protection as per IEGC guideline.

PCC advised DVC representative to share status of renovation/upgradation work to ERPC/ERLDC on periodic basis.

On enquiry from ERLDC representative regarding target date of rectification of DC system and enabling bus bar protection at BTPS, DVC representative replied that DC system will be rectified along with enabling of bus bar protection by 10th Sep 2024.

DVC representative asked ERLDC representative that in case of load management situation whether BTPS – Koderma circuit can be made off for which ERLDC representative informed that since this is ISTS connected circuit so grid situations like solar injection etc of NR and other features also needs to be considered and further both tie lines cannot be opened from generator because it may result in loss of stability of generator hence such practice is not recommended except in case of severe exigencies.

ITEM NO. B.2: Total Power Failure at 220 kV Chatra (JUSNL) S/s on 08.07.2024 at 13:10 Hrs.

On 8th July 2024, at 13:10 Hrs 220kV-Chatra-Latehar got tripped due to B phase fault from Latehar end however line didn't trip from Chatra subsequently, 220kV Chatra-Daltongunj tripped from Daltongunj end in Zone 3 distance protection resulting in total power failure at Chatra S/S.

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

Load Loss: 36 MW
Outage Duration: 01:15 Hrs

JUSNL may explain.

Deliberation in the meeting

ERLDC representative informed that on 08.07.2024, at 13:10 Hrs a B phase resistive fault got developed in 220kV-Chatra-Latehar subsequently line got tripped from Latehar end due to operation of Directional earth fault protection after around 700 msec however no tripping was observed from Chatra end. He further informed that after tripping of 220 kV Latehar-Chatra from Latehar end this fault was seen in Zone 3 by distance protection relay at Daltongunj end for 220kV Chatra-Daltonganj and line got tripped after 800 msec from Daltongunj end.

PCC opined that relay at Chatra end should have seen the fault however neither DEF nor distance protection had operated at Chatra end for 220kV-Chatra-Latehar & 220kV Chatra-Daltonganj which shows that either relay is fault or settings are not correct. On enquiry from PCC regarding non operation of relays at Chatra end, JUSNL representative replied that fault had not been captured in DR. He further added that testing of relay is planned in first week of Sep 2024. He also informed that at present, only single relay is present and procurement of main 2 relay is already done and it is expected that it will be installed by 30th Aug 2024.

ERLDC representative informed that as per DR, no fault was captured as nominal current (20 -30 A) is being observed in three phases along with healthy voltages and further no tripping of breaker is observed.

PCC advised JUSNL representative to test distance protection & DEF protection relays at Chatra end along with review of DEF settings & distance protection settings and submit report to ERPC/ERLDC. It further advised JUSNL representative to check DR triggering criteria for relays and revise it as per ERPC guidelines.

ITEM NO. B.3: Major grid events other than GD/GI

a) Repeated tripping of transmission lines during the month of July'24

Sl.No.	Name of the Element	No. of times Tripped	Remarks	Utility
1	220KV RANCHI-MEJIA (MTPS)-1	4	A/r successful from Ranchi in all instances.	DVC
2	400KV LAPANGA-STERLITE-2	4	Fault at 3 km in Y_ph in all 4 instances	OPTCL

Concerned utilities may explain.

Deliberation in the meeting

Regarding repeated tripping of 220kV RANCHI-MEJIA (MTPS)-1, DVC representative informed that at present auto-reclose is kept disabled at Mejia end because it had been observed in past that MTPS unit is getting tripped for close in fault due to auto-reclose attempt. He further added that since generators are old so it is planned to replace them in which one of generator will be replaced by one month and subsequently other two generators will be replaced as early as possible.
ERLDC representative suggested that similar issue had been observed for other generators also in which one scheme is being kept that A/r can be kept on both end with grading of dead time so in this case also A/r can be kept on both end and dead time can be set to 1 second at Mejia end and 800 ms at PG end so that in case of transient fault no tripping will be observed for line. Further DT will be shared from PG end in case of permanent fault in case of unsuccessful attempt of auto-reclose.
DVC representative replied that there are only 4 channels for carrier for main 1 and main 2 relay (2 for both) with single PLCC panel with so one channel/pole needs to be kept disabled/sacrificed for implementing this scheme.
ERLDC representative also explained about the time differentiated auto-recloser scheme implemented in southern region according to which after opening of line from generator end and remote end on operation of A/r, the remote end will be auto reclosed as usual after dead time of 1 second however generator end will check for line voltage after elapse of an elongated dead time (say 1.3 or 1.5 second) and after which if line voltage is healthy and normal (which implies that fault has been cleared) then generator end will be auto-reclosed else 3 phase trip will be given to generator end to open other two phase poles.
DVC representative informed that line CVT is present at only one phase at S/s and not present in other two phases hence it will be difficult to implement.
PCC advised ERLDC representative to share scheme details along with case description where such scheme had been implemented to DVC and Powergrid so that this can be internally discussed with higher authorities of DVC as well Powergrid jointly and scheme can be implemented after receiving due approval.

Regarding repeated tripping of 400kV Lapanga-Sterlite-2, OPTCL representative informed that first tripping was observed on 4th July 2024 in which auto-reclose was successful from Lapanga end, second tripping was observed on 5th July 2024 in which auto-reclose attempt was initiated and got failed after 1 second, third and fourth incidents were observed on 13th July 2024 in which A/r was successful from Lapanga end. He further informed that patrolling was done after these incidents in which crack in insulator was found at one location subsequently damaged insulator was replaced as per communication received from Sterlite.

Sterlite representative informed that insulator had been replaced. On enquiry from PCC regarding reason behind non operation of auto-recloser, Sterlite representative submitted that issue will be checked and report for A/r will be shared to ERPC/ERLDC along with insulator replacement report by 2 days.

b) Tripping of ICTs during the month of July'24

Sl. No	Name of the Element	Trip Date	Trip Time	Remarks	Utility
1	400KV/220KV 315 MVA ICT 4 AT JEERAT	14-07-2024	16:07	R_Phase OSR (Oil Surge Relay) operated.	WBSETCL
2	400KV/220KV 500 MVA ICT 2 AT MERAMUNDALI B	18-07-2024	13:02	PRV operated	OPTCL
3	765KV/400KV 1500 MVA ICT 4 AT GAYA	23-07-2024	18:21	Differential protection operated	PG-ER-1
4	400KV/220KV 315 MVA ICT 1 AT BOKARO-A TPS	23-07-2024	19:50	DC Supervision relay faulty.	DVC
5	400KV/220KV 315 MVA ICT 2 AT BAKRESWAR	24-07-2024	22:32	Bph E/F, O/C, WTI trip	WBSTECL
6	400KV/220KV 315 MVA ICT 1 AT RAGHUNATHPUR	26-07-2024	08:49	PRD- 1 Operated	DVC
7	400KV/220KV 315 MVA ICT 1 & 3 AT ROURKELA	27-07-2024	11:21	LV over flux protection	PG – ODISHA
8	220KV/132KV 160 MVA ICT 2 AT BIRPARA	30-07-2024	11:21	Differential protection operated.	PR- ER-2

Concerned utilities may explain.

Deliberation in the meeting

Regarding tripping of 400kV/220kV 315 MVA ICT 4 AT JEERAT, WBSETCL representative informed that short cable between mercilin box and OSR was damaged subsequently OSR relay had operated resulting in tripping of ICT however damaged cable had been replaced by new cable after the incident.
ERLDC representative informed that at present around 57-60 % of tripping of ICTs had occurred due to maloperation of mechanical relays like OSR, bucholz, PRV etc. therefore it is requested from every utility to share preventive practices that are followed to avoid maloperation of mechanical relays. He informed that earlier MPL representative had also shared practice followed by them to install canopy and providing casing them prior to monsoon season to avoid moisture ingress leading to maloperation of relays.

MPL representative further added that additional box inside mercilin box is also being used in ICTs and trip cable of all relays is kept there so that in case of moisture ingress inside mercilin box, maloperation of these relays can be avoided.
PCC advised all utilities to share preventive practices that are followed by them to avoid maloperation of mechanical relays associated with ICTs to ERPC/ERLDC so that these practices can be compiled and guidelines can be prepared.

Regarding tripping of 400kV/220kV 500 MVA ICT 2 AT MERAMUNDALI B, OPTCL representative replied that cable between PRV relay and marcilin box had damaged leading to tripping of ICT on operation of PRV relay however damaged cable had been replaced.

Regarding tripping of 765kV/400kV 1500 MVA ICT 4 AT GAYA, Powergrid representative replied that, on day of incident flashover had occurred at insulator of ICT 4 subsequently differential protection had operated leading to tripping of ICT. He further added that disc insulator had been replaced after the incident.

Regarding tripping of 400kV/220kV 315 MVA ICT 1 AT BOKARO-A TPS, DVC representative replied that due to DC circuit issue at BTPS, short circuit occurred near circuit of DC supervision relay leading to operation of DC supervision relay ultimately leading to tripping of ICT however circuit issue had been rectified.

Regarding tripping of 400kV/220kV 315 MVA ICT 2 AT BAKRESWAR, WBPDCL representative was not present in the meeting.

Regarding tripping of 400kV/220kV 315 MVA ICT 1 AT RAGHUNATHPUR, DVC representative replied that due to water ingress in PRV relay panel occurred due to leakage in ceiling, PRV relay operated leading to tripping of ICT however issue had been rectified.

Regarding tripping of 400kV/220kV 315 MVA ICT 1 & 3 AT ROURKELA, Powergrid Odisha representative was not present in the meeting.

Regarding tripping of 220kV/132kV 160 MVA ICT 2 AT BIRPARA, Powergrid representative replied that interturn fault had occurred in ICT due to which differential protection relay, PRV relay and bucholz relay had operated leading to tripping of ICT.

ITEM NO. B.4: Mock Testing of SPS

As per IEGC 2023 Clause 16.2, Mock Testing of all operational SPS has to be done at least once a year for reviewing SPS parameter and functions.

List of all operational SPS in Eastern region and the proposed month of testing are proposed below:

Sl. No.	SPS Details	SPS implemented at	Proposed test month
1	SPS for HVDC Talcher-Kolar at Talcher end (PGCIL and NTPC)	NTPC, Talcher	Operated on 04.06.2024
2	HVDC Bheramara SPS for Secure Power Transfer to Bangladesh (Bangaldesh)	Baharampur(PG)	To be coordinated with NLDC
3	SPS at Sterlite Power (Sterlite)	Sterlite	Modified SPS is under implementation by Sterlite
4	SPS for 220 kV EMSS-Shubhasgram D/C (CESC)	EMSS (CESC)	Aug'24

5	SPS for generation Runback at JITPL	JITPL	Aug'24
6	SPS for 5*400/220 kV ICTs at Subhashgram	Subhasgram(PG)	Sep'24
7	SPS for evacuation of IBEUL generation	IBEUL	Aug'24
8	SPS at Rajarhat (PG) for 2x500MVA ICTs	Rajarhat (PG)	Sep'24

In 137th PCC Meeting, ERLDC representative informed that as per IEGC 2023 Clause 16.2, mock Testing of all operational SPS has to be done at least once a year for reviewing SPS parameter and functions.

For SPS for HVDC Talcher-Kolar at Talcher end, ERLDC representative informed that SPS had operated on 4th June 2024 therefore there is no need to do mock testing for this SPS.

Regarding HVDC Bheramara, it was decided that ERLDC would initiate a communication regarding the same. NLDC would further take up with Bangladesh side for finalization of date for the testing.

Regarding SPS at Sterlite Power, the SPS is already under review by Sterlite. A communication is to be sent to sterlite for status of the SPS implementation and finalization of date for SPS testing.

Regarding SPS for 220 kV EMSS-Shubhasgram D/C, it was decided to conduct SPS testing in Aug 2024.

Regarding SPS for generation Runback at JITPL, as representative from JITPL was not available in the meeting, PCC advised ERPC/ERLDC to communicate with JITPL in order to get proposed date for SPS testing.

*Regarding SPS for 5*400/220 kV ICTs at Subhashgram, CESC representative informed that test was carried out by Powergrid on 15th April 2024. A report is prepared by CESC as per DR file/records received at their end which will be shared to ERPC/ERLDC.*

Regarding SPS at Rajarhat (PG) for 2x500MVA ICTs, WBSTECL representative informed that test was done on 10th April 2024 by Powergrid.

PCC advised Powergrid representative to submit report for testing of SPS at Subhasgram & Rajarhat to ERPC/ERLDC. It further said that if these tests are conducted in financial year 2024-25 then there is no requirement to conduct test again in this financial year else it needs to be done again.

Regarding SPS for evacuation of IBEUL generation, it was decided that date would be finalized in consultation with IBEUL.

Members may update.

Deliberation in the meeting

ERLDC representative informed that SPS testing for JITPL was not completed on proposed date because issue regarding generator stability was observed at that time as per communication received from JITPL. He further added that SPS mock test for JITPL is planned on 30th Aug 2024.

Regarding SPS testing for 220 kV EMSS-Shubhasgram D/C, ERLDC representative informed that as per CESC, loading had not been decreased till date to carry out testing however as soon as loading of lines will be reduced, Mock test of SPS will be carried out.
CESC representative was not available in the meeting.

Regarding IBEUL, ERLDC representative informed that unit 2 is going to be commissioned soon at IBEUL hence SPS will be revised after that subsequently mock testing for SPS will be done.

On enquiry from ERPC representative regarding report submitted by Powergrid testing of SPS at Subhasgram & Rajarhat, ERLDC representative replied that report had been received for testing of SPS of Subhasgram ICT and will be shared to ERPC.

ITEM NO. B.5: Submission of protection performance indices on monthly basis by users to RPC and RLDC for 220 kV and above lines

As per IEGC 2023 Clause 15(6), 15(7) all users shall submit protection performance indices of previous month 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 '24, only NTPC (KBUNL), WBSETCL, BSPTCL & Jorethang HEP had submitted the same, which is attached as **Annexure B.5.**

Following table shows the status of PP Indices received for April 24 – July 2024

Sl.no	Utility Name	April	May	June	July
1	PG-ER-1				
2	PG-ER-2				
3	PG-Odisha			YES	
4	WBSETCL	YES	YES	YES	YES
5	BSPTCL			YES	YES
6	OPTCL				
7	DVC				
8	JUSNL			YES	
9	OPGC				
10	PMTL				
11	NTPC- KHSTPP			YES	
12	NTPC- FSTPP			YES	
13	NTPC-BARH			YES	
14	NTPC- TSTPP				
15	NTPC- KBUNL		YES	YES	YES
16	NTPC- NPGC			YES	
17	NTPC- BRBCL			YES	
18	NTPC- DARILAPLI				
19	NTPC- NORTH KARNPUARA	YES	YES	YES	
20	JORETHANG HEP			YES	YES

Members may explain the reason for non-submission of details.

Deliberation in the meeting

ERPC representative informed that as per IEGC 2023 Clause 15(6), 15(7) all users shall submit protection performance indices of previous 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 however for the month of July '24, only NTPC (KBUNL), WBSETCL, BSPTCL & Jorethang HEP had submitted the same.

On enquiry from PCC regarding reason behind non submission of protection performance indices, following replies were submitted by concerned utilities –

- *PG ER-1 representative replied that outage data is being shared to ERPC/ERLDC however PP indices will be submitted from Sep 2024 in coordination with PG ER-II.*
- *NTPC Barh representative submitted that PP indices was shared on 14th Aug 2024.*
- *OPTCL representative submitted that PP indices data will be shared from Sep 2024 and there is no such issue being faced in calculation of indices.*

- *DVC representative submitted that PP indices for month of June 2024 and July 2024 had been submitted on 27th Aug 2024 however it will be submitted timely by 10th of each month from Sep 2024.ERLDC representative replied that in PP indices for only 132 k V lines and single number of 220 k V line was given however it needs to be provided for 132, 220 & 400 k V level lines where tripping was observed. DVC representative agreed with the same.*
- *JUSNL representative replied that in month of Aug 2024, a greater number of visits were done by CRITL team therefore PP indices was not complied however PP indices for July 2024 and Aug 2024 will be shared by 10th Sep 2024.*

Member Secretary advised ERPC representative to include all IPPs in list and provide date of receipt of indices also in list so that it can be tracked for all utilities. He requested all utilities to provide nodal officer details also so that it will be easier for ERPC to coordinate for getting these details. He also requested all SLDC representative to coordinate with their concerned utilities for getting these data.

PCC advised all utilities to submit Protection Performance Indices on timely basis otherwise issue will be highlighted to higher authority. It further advised concerned utilities to share details of nodal officer to ERPC.

ITEM NO. B.6: Single Line Tripping Incidences in month of July 2024

Single line tripping incidents in the month of July 2024 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 2024 is attached at ***Annexure B.6.***

PART- C: OTHER ITEMS

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

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

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

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

Unquote

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

The utility wise status is given below:

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

Internal protection audit plan received from various utilities is attached at **Annexure C.1.** Utilities are requested to update completion status of audit as per the schedule along with audit report.

Concerned utilities may update.

Deliberation in the meeting

OPTCL representative submitted that internal protection audit plan upto Oct 2024 had been received however plan upto March 2025 will be received soon and subsequently it will be submitted to ERPC/ERLDC by 15 days.
NTPC representative submitted that plan had been submitted to NTPC Barh already accordingly internal audit is planned in Sep 2024. NTPC Barh representative was not available in the meeting.

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

On enquiry from ERPC representative regarding status of internal protection audit carried out as per the proposed plan following comments were received from utilities.

- *Powergrid ER- 1 representative informed that internal audit had been completed as per schedule upto July 2024 however confirmation has not been received from site for proposed audit plan for Aug 2024*
- *Powergrid ER- 2 representative informed that internal audit had been completed as per schedule upto Aug 2024.*
- *Powergrid Odisha representative was not available in the meeting.*
- *BSPTCL representative submitted that internal audit had been completed for Biharsharif, Gopalganj, Dehri, Bodhgaya, Khagaul and few other substations for which updated list will be shared to ERPC/ERLDC.*
- *JUSNL representative informed that internal audit had been completed for Chandil, Ramchandrapur, Chaibasa-I, Hatia-II, Itkhori, Govindpur, Dumka, Jasidih, Giridih etc for which updated list will be shared to ERPC/ERLDC along with proposed date for remaining S/s.*
- *DVC representative submitted that audit had been completed for 3 nos of S/s and it is proposed that audit will be carried out for major no of S/s in Sep 2024 subsequently report will be submitted.*
- *WBSETCL representative submitted that audit had been completed for 4 nos of S/s*
- *CESC & NHPC representative was not present in the meeting.*

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

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

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

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

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

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

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

Members may discuss.

Deliberation in the meeting

ERPC representative informed that as per SOP for Third Party Protection Audit prepared by NPC, Third Party Protection Audit shall be carried out by the third party designated agencies in line with the IEGC Regulations 2023 or by the audit teams constituted by RPCs with the members from other states (at least two) who opt for the RPC coordinated third party protection audit. He further informed that ERPC & ERLDC has prepared list of critical substations for which third party protection audit needs to be carried out on priority which is attached at ***Annexure C.2.***

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

Member Secretary, ERPC informed that after receiving audit plan from all utilities, ERPC will communicate to concerned utilities regarding substations for which protection audit can be done through audit team of ERPC. He further proposed that ERPC Secretariat would identify critical substations in consultation with ERLDC for which the protection audit will be carried out by ERPC along with the members from ERLDC & other utilities with help of third party agencies (to be hired by ERPC).

PCC agreed with proposal made by Member Secretary, ERPC.

ITEM NO. C.3: Guidelines for Periodic Testing of Power System Elements

As mandated in IEGC, clauses 40.1 there shall be periodic tests shall be carried out on power system elements to ascertain the correctness of mathematical models used for

simulation studies as well as ensuring desired performance during an event in the system.

List of various tests to be performed by different asset owner are as follows:

Power System Elements	Tests	Applicability
Synchronous Generator	(1) Real and Reactive Power Capability assessment. (2) Assessment of Reactive Power Control Capability as per CEA Technical Standards for Connectivity (3) Model Validation and verification test for the complete Generator and Excitation System model including PSS. (4) Model Validation and verification of Turbine/Governor and Load Control or Active Power/ Frequency Control Functions. (5) Testing of Governor performance and Automatic Generation Control.	Individual Unit of rating **100MW** and above for Coal/lignite, **50MW** and above gas turbine and **25 MW** and above for Hydro.
HVDC/FACTS Devices	(1) Reactive Power Controller (RPC) Capability for HVDC/FACTS (2) Filter bank adequacy assessment based on present grid condition, in consultation with NLDC. (3) Validation of response by FACTS devices as per settings.	To all ISTS HVDC as well as Intra-State HVDC/FACTS, as applicable

There are no guidelines available regarding mentioned procedures/tests for confirmatory to grid codes.

Members may discuss.

Deliberation in the meeting

ERLDC representative informed that guidelines on testing of Power system elements had been prepared by NLDC and is available at NLDC website.
MPL representative asked ERLDC representative that guidelines prepared by NLDC is available under stackholder consultation however it had not been approved by CERC so whether it can be used or not.
ERLDC representative informed that status regarding approval for the guidelines will be taken from NLDC along with feasibility of using these guidelines before approval from CERC and shared by one week.
MPL representative requested ERLDC representative to share list of vendors/third party that can be communicated for simulation models of excitation system etc for which ERLDC representative replied that list will be shared to MPL.
On enquiry from MPL representative regarding carrying out tests in presence of OEM representative, ERPC representative and SLDC representative, ERLDC representative submitted that as per guidelines it will be preferable to conduct these tests in presence of OEM representative, ERPC representative and SLDC representative however it is not mandatory.

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.***

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List of participants in 138th PCC Meeting

Annexure A.1

Name	First Join	Email
ERPC Kolkata	8/28/24, 9:40:55 AM	ERPC@KolkataMST.onmicrosoft.com
Kumar Satyam, AEE, ERPC (Unverified)	8/28/24, 10:00:48 AM	
NIRMAL MONDAL , ADDL. CE , WBSETCL (Unverified)	8/28/24, 10:02:51 AM	
Nisar Husain	8/28/24, 10:06:14 AM	
Pandi Krishnan N {पाण्डी कृष्णन एन.} (External)	8/28/24, 10:07:49 AM	pandikrishnan.n@powergrid.in
Mayank Teotia (External)	8/28/24, 10:15:09 AM	mayankteotia@erldc.onmicrosoft.com
WBPDCL (Unverified)	8/28/24, 10:15:11 AM	
D Tripathi (Unverified)	8/28/24, 10:22:57 AM	
SEPL (Unverified)	8/28/24, 10:23:58 AM	
Alok Pratap Singh (External)	8/28/24, 10:24:18 AM	apsingh@erldc.onmicrosoft.com
Vikash Kumar	8/28/24, 10:24:20 AM	
Akhand (Unverified)	8/28/24, 10:24:28 AM	
Subhasish Sarkar (Unverified)	8/28/24, 10:24:58 AM	
PARAG CHATTERJEE (External)	8/28/24, 10:25:58 AM	PARAGCHATTERJEE@NTPC.CO.IN
Bilash Achari (External)	8/28/24, 10:26:16 AM	bilash.achari@erldc.onmicrosoft.com
SMS SAHOO, DGM(ELECT), OPTCL, BHUBANESWAR (Unver	8/28/24, 10:26:28 AM	
Shyamal Konar (External)	8/28/24, 10:27:04 AM	konar_s@erldc.onmicrosoft.com
Shanker choudhry (Unverified)	8/28/24, 10:27:19 AM	
DGM,E&MR,Burla (Unverified)	8/28/24, 10:27:20 AM	
Subrat Swain (External)	8/28/24, 10:28:09 AM	subratswain@erldc.onmicrosoft.com
Somnath Chatterjee (External)	8/28/24, 10:28:38 AM	schatterjee@tatapower.com
SLDC ODISHA (Unverified)	8/28/24, 10:29:26 AM	
Manas Das (External)	8/28/24, 10:29:52 AM	manasdas@erldc.onmicrosoft.com
Rakesh Kr Pradhan (External)	8/28/24, 10:30:48 AM	rkpradhan@erldc.onmicrosoft.com
Kumar Niraj (External)	8/28/24, 10:30:57 AM	nirajkumar@tatapower.com
MS ERPC (Unverified)	8/28/24, 10:31:11 AM	
chandan prasad (Unverified)	8/28/24, 10:31:15 AM	
Amresh Prusti (External)	8/28/24, 10:31:58 AM	amresh.prusti@opgc.co.in
arindam bsptcl (Unverified)	8/28/24, 10:32:17 AM	
Dilshad Alam BSPTCL (Unverified)	8/28/24, 10:32:35 AM	
Premkant Kumar Singh (External)	8/28/24, 10:33:02 AM	premkant@erldc.onmicrosoft.com
Mithun Gayen {मिथुन गायेन} (External)	8/28/24, 10:34:17 AM	mithun.gayen@powergrid.in

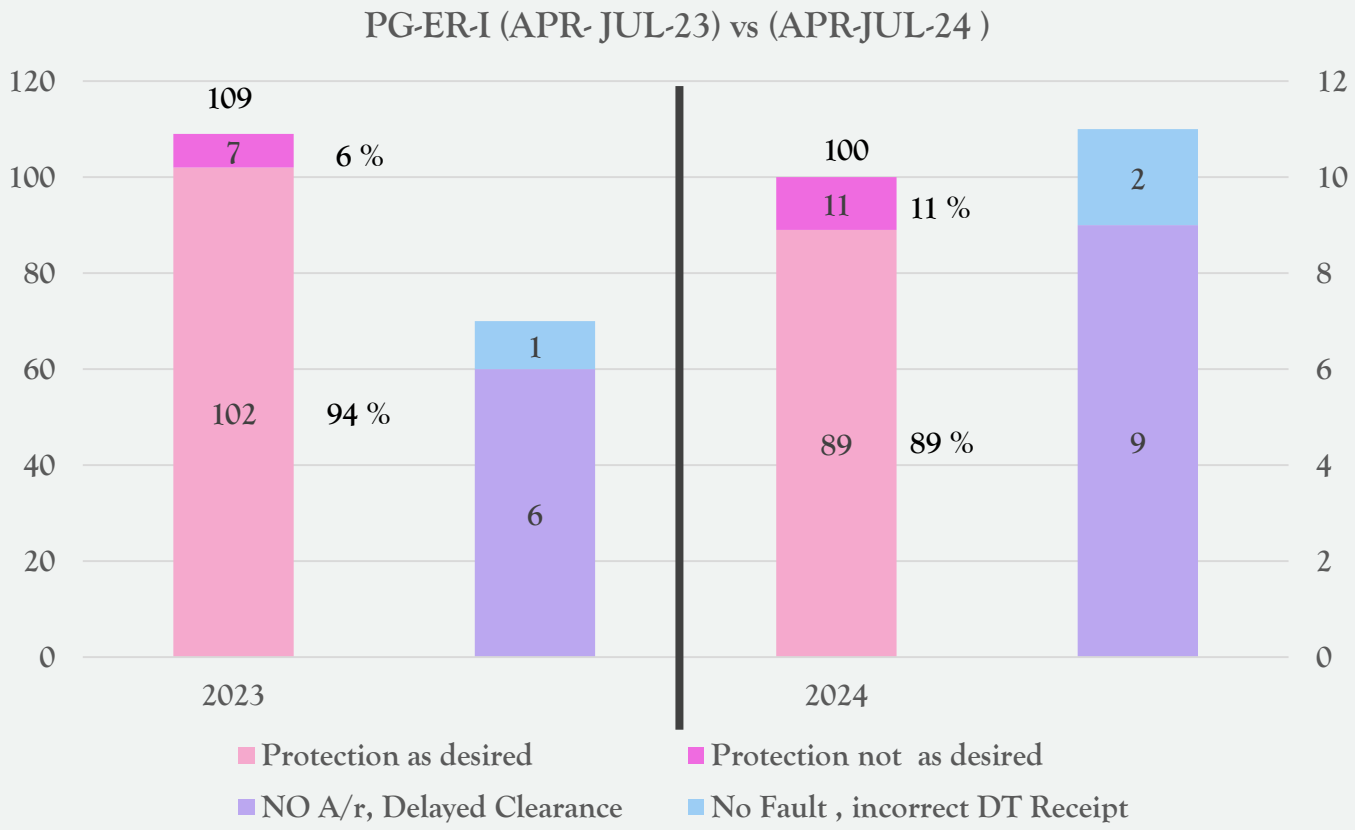
Sanjeev Kumar (External)	8/28/24, 10:34:18 AM	sanjeev.kumar@dansenergy1.onmicrosoft.cc
Srimalya Ghosal (External)	8/28/24, 10:34:37 AM	sghosal@erldc.onmicrosoft.com
Laldhari Kumar (External)	8/28/24, 10:34:44 AM	laldhari@erldc.onmicrosoft.com
Mahendra Malik	8/28/24, 10:35:47 AM	mahendra.malik@jsw.in
EMR DIVISION,BBSR,OPTCL (Unverified)	8/28/24, 10:37:10 AM	
Pravin Ram (Unverified)	8/28/24, 10:38:57 AM	
Subhasish Sarkar (Unverified)	8/28/24, 10:41:57 AM	
Hanumanth Rao D	8/28/24, 10:43:06 AM	hanumanth.rao@jsw.in
Dharm das Murmu (Unverified)	8/28/24, 10:45:39 AM	
critl bsptcl (Unverified)	8/28/24, 10:48:00 AM	
Deepak Kumar EEE, CRITL, BSPTCL	8/28/24, 10:48:20 AM	
Dilip Kant jha (Unverified)	8/28/24, 10:51:53 AM	
SUSHIL KUMAR (External)	8/28/24, 10:52:39 AM	SUSHILKUMAR02@NTPC.CO.IN
Jitendraprasad Malik (External)	8/28/24, 10:54:26 AM	Jitendra.Malik@gmrgroup.in
Yamana Ayyappa	8/28/24, 10:56:21 AM	ya@sikkimurjalimited.in
Ashish Kumar (Unverified)	8/28/24, 10:58:27 AM	
gotham Chatterjee (Unverified)	8/28/24, 10:58:58 AM	
Somnath Patra (External)	8/28/24, 10:59:03 AM	Somnath.Patra@gmrgroup.in
Ratnakar Padhy (External)	8/28/24, 11:00:40 AM	p_ratnakar@erldc.onmicrosoft.com
Amit Kumar.. (External)	8/28/24, 11:07:56 AM	AMITKUMAR29@NTPC.CO.IN
dgm,emr,burla (Unverified)	8/28/24, 11:08:48 AM	
CRITL (Unverified)	8/28/24, 11:17:20 AM	
OPTCL BURLA	8/28/24, 11:17:23 AM	
OPTCL (Unverified)	8/28/24, 11:21:58 AM	
Sudhir Kumar (Unverified)	8/28/24, 11:27:52 AM	
Mangu Srinivas (External)	8/28/24, 11:34:33 AM	Mangu.Srinivas@vedanta.co.in
kesinga emr (Unverified)	8/28/24, 11:36:17 AM	
Rajendra prasad Tenughat (Unverified)	8/28/24, 11:39:35 AM	
Biswaranjan Mohanty (Unverified)	8/28/24, 11:46:32 AM	
aditya jha	8/28/24, 12:04:35 PM	
D.k.jha (Unverified)	8/28/24, 12:16:48 PM	
Nishant Kumar Shankwar (External)	8/28/24, 12:17:01 PM	Nishant.Kumar@energy-sel.com
CRITL BSPTCL (Unverified)	8/28/24, 12:17:02 PM	
SUBHASISH SARKAR (Unverified)	8/28/24, 12:53:43 PM	

Bablu Kumar Singh (External)	8/28/24, 1:32:47 PM	bablu.singh@opgc.co.in
d t (Unverified)	8/28/24, 1:47:03 PM	

EASTERN REGION PROTECTION PERFORMANCE

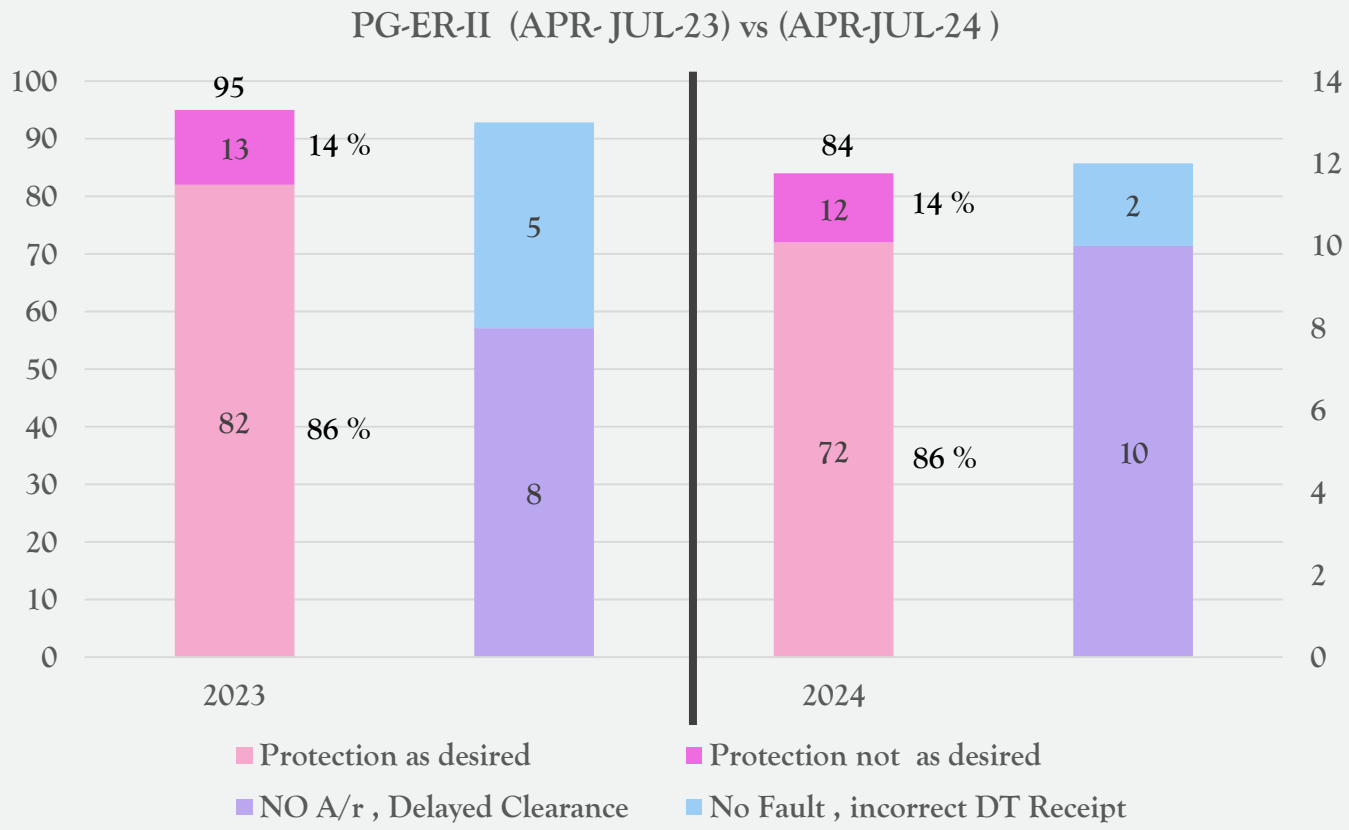
(APR- JUL-23) vs (APR-JUL-24)

PG – ER – I



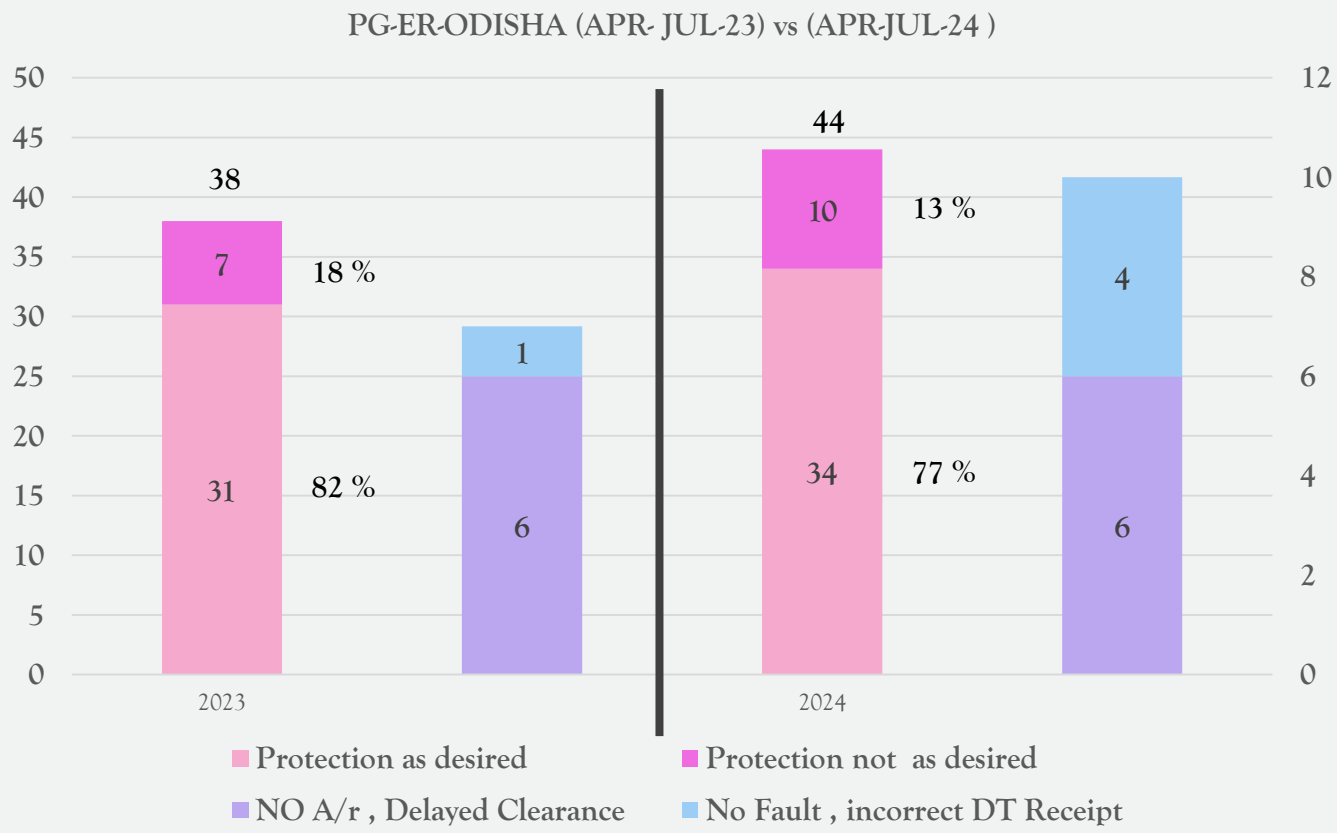
Sr. no	Line Name	Tripping in Apri-July'24 (Nos.)
1	400KV-MAITHON-GAYA-1	5
2	400KV-KODERMA-BOKARO-1	4
3	400KV-BIHARSARIFF(PG)-SAHUPURI(CHANDAULI)-2	3
4	400KV-GORAKHPUR-MOTIHARI-2	2
5	400KV-RANCHI-NEW RANCHI-1	2

PG – ER – II



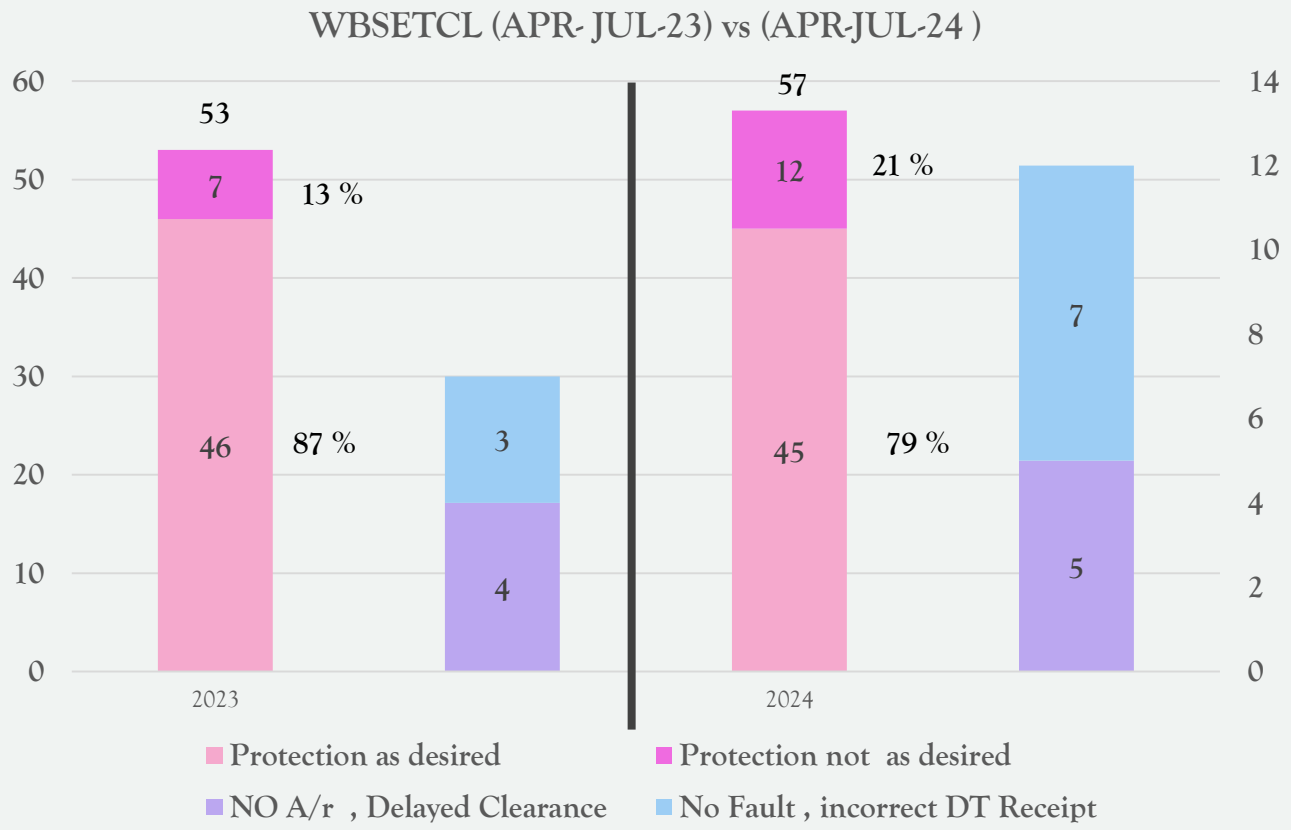
Sr. no	Line Name	Tripping in Apri-July'24 (Nos.)
1	400KV-MAITHON-GAYA-1	5
2	220KV-CHUKHA-BIRPARA-1	4
3	220KV-CHUKHA-BIRPARA-2	4
4	400KV-MALBASE-BINAGURI-1	4

PG – ER – ODISHA



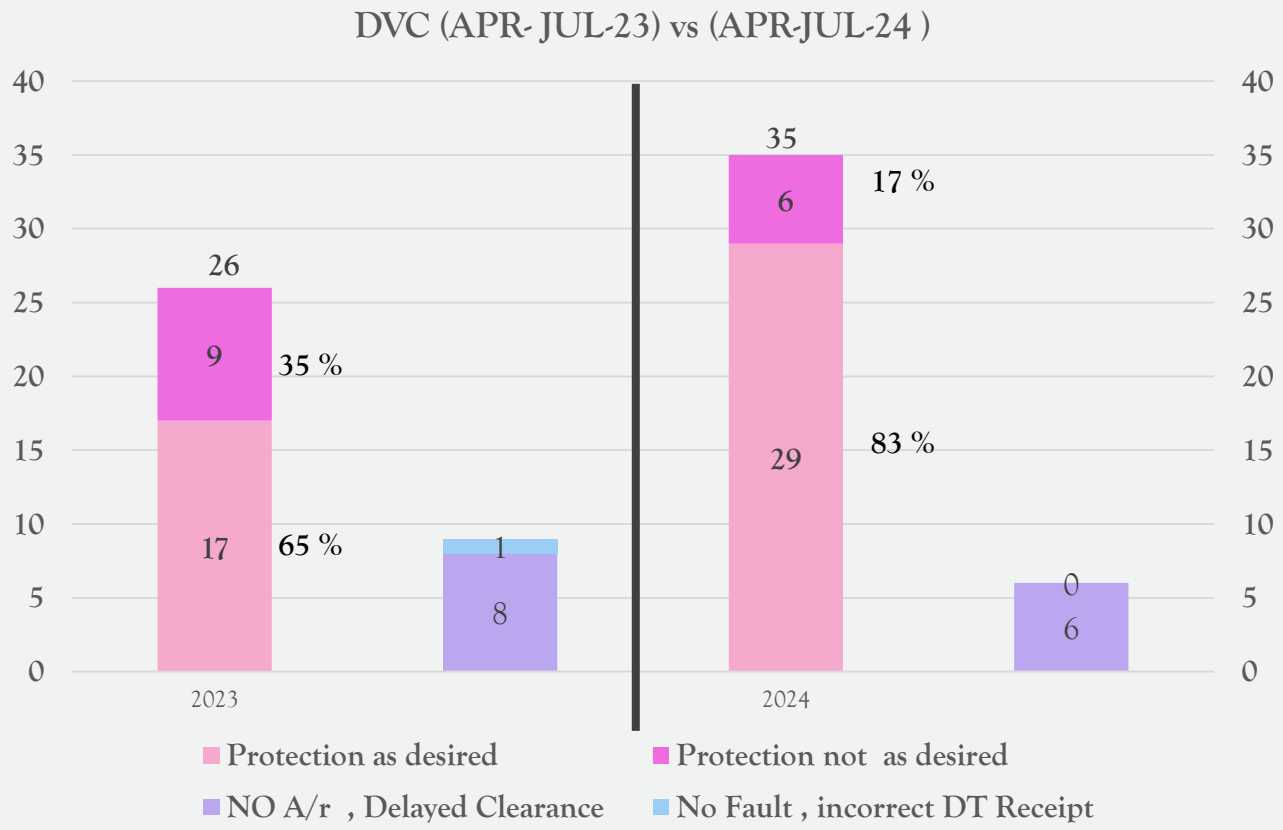
Sr. no	Line Name	Tripping in Apri-July'24 (Nos.)
1	400KV-JEYPORE-BOLANGIR-1	3
2	400KV-JEYPORE-GAJUWAKA-1	2
3	400KV-JEYPORE-GAJUWAKA-2	2

WBSETCL



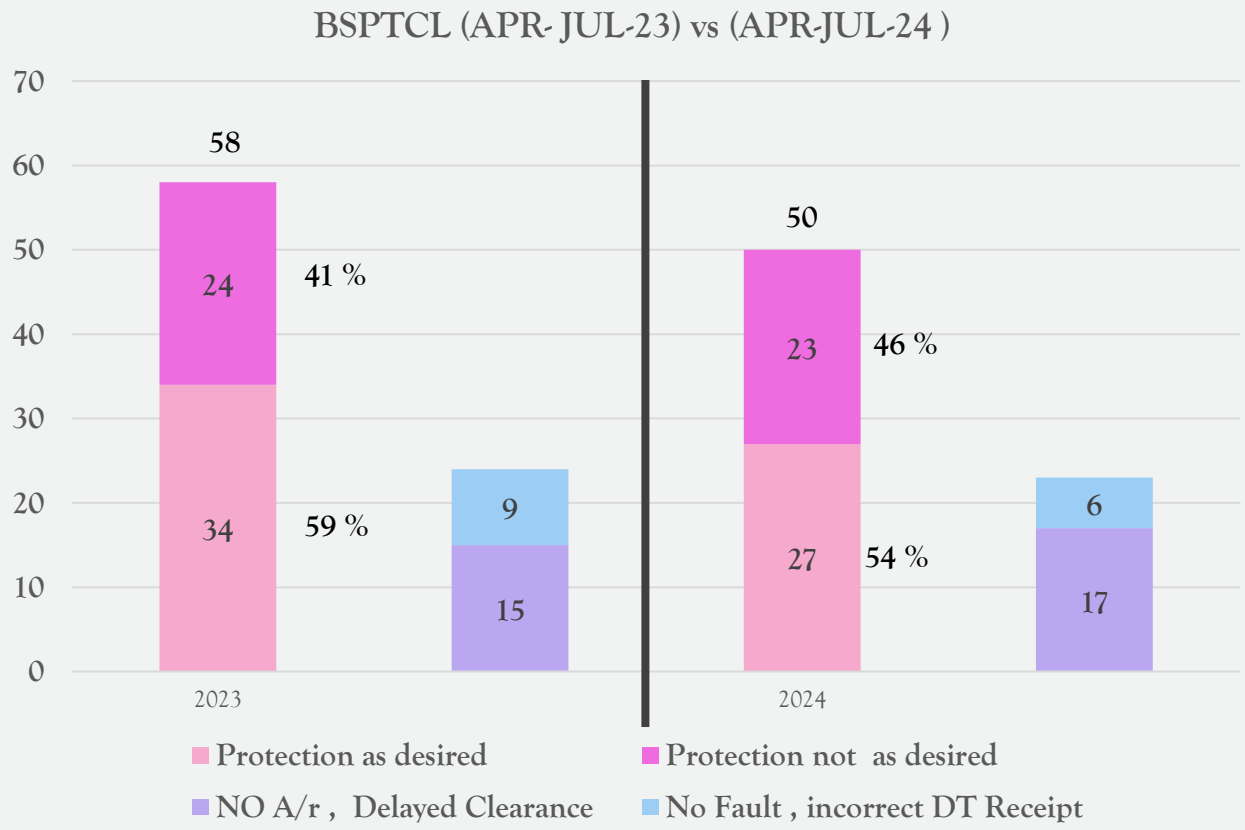
Sr.no	Line Name	Tripping in Apri-July'24 (Nos.)
1	220KV-BARUIPUR-SUBHASGRAM(PG)-1	5
2	400KV-ARAMBAGH-NEW CHANDITALA-1	3
3	400KV-JEERAT-BAKRESWAR-1	3
4	400KV-KOLAGHAT-NEW CHANDITALA-1	3
5	400KV-PPSP-BIDHANNAGAR-2	3

DVC



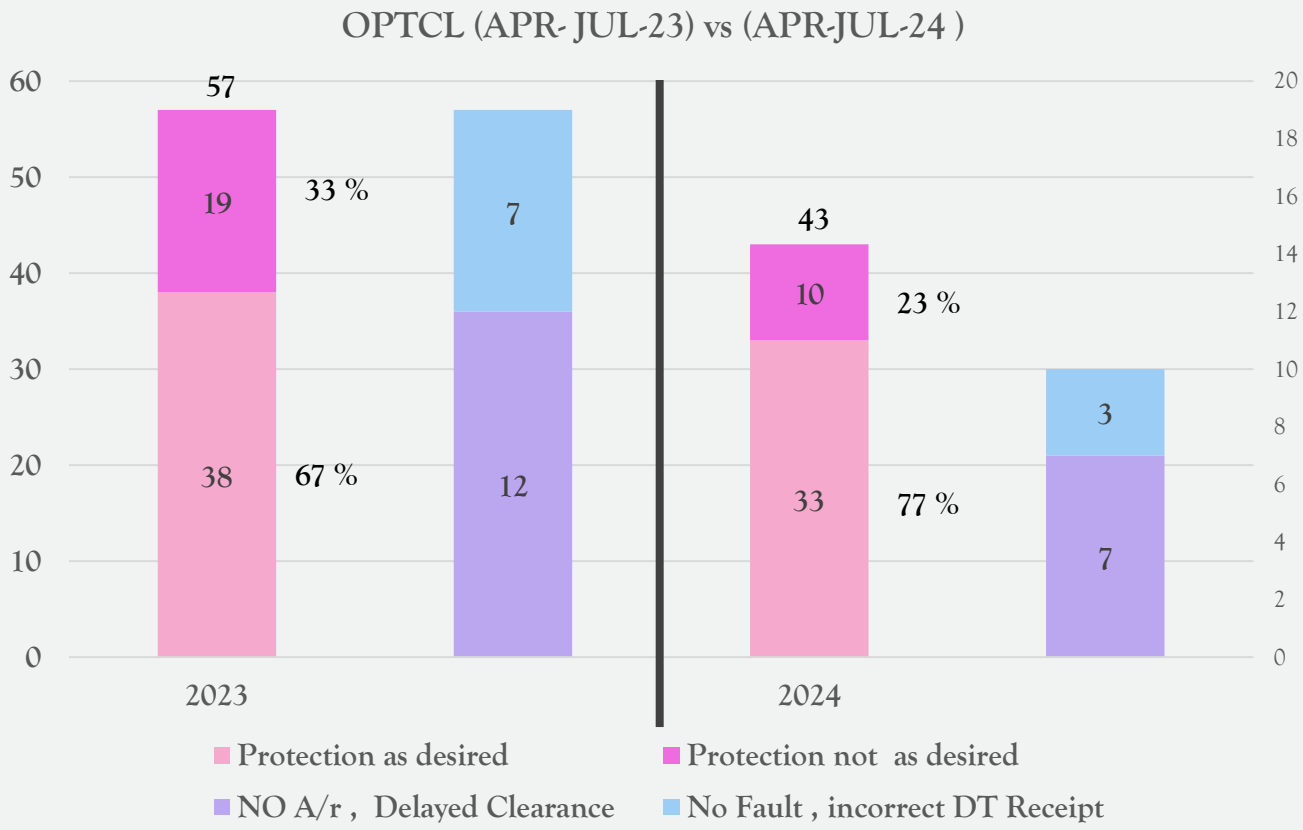
Sr.no	Line Name	Tripping in Apri-July'24 (Nos.)
1	220KV-RANCHI-MTPS(DVC)-1	9
2	220KV-MAITHON-DHANBAD-1	4
3	220KV-MAITHON-DHANBAD-2	4
4	220KV-JSPL-JAMSHEDPUR(DVC)-1	2

BSPTCL



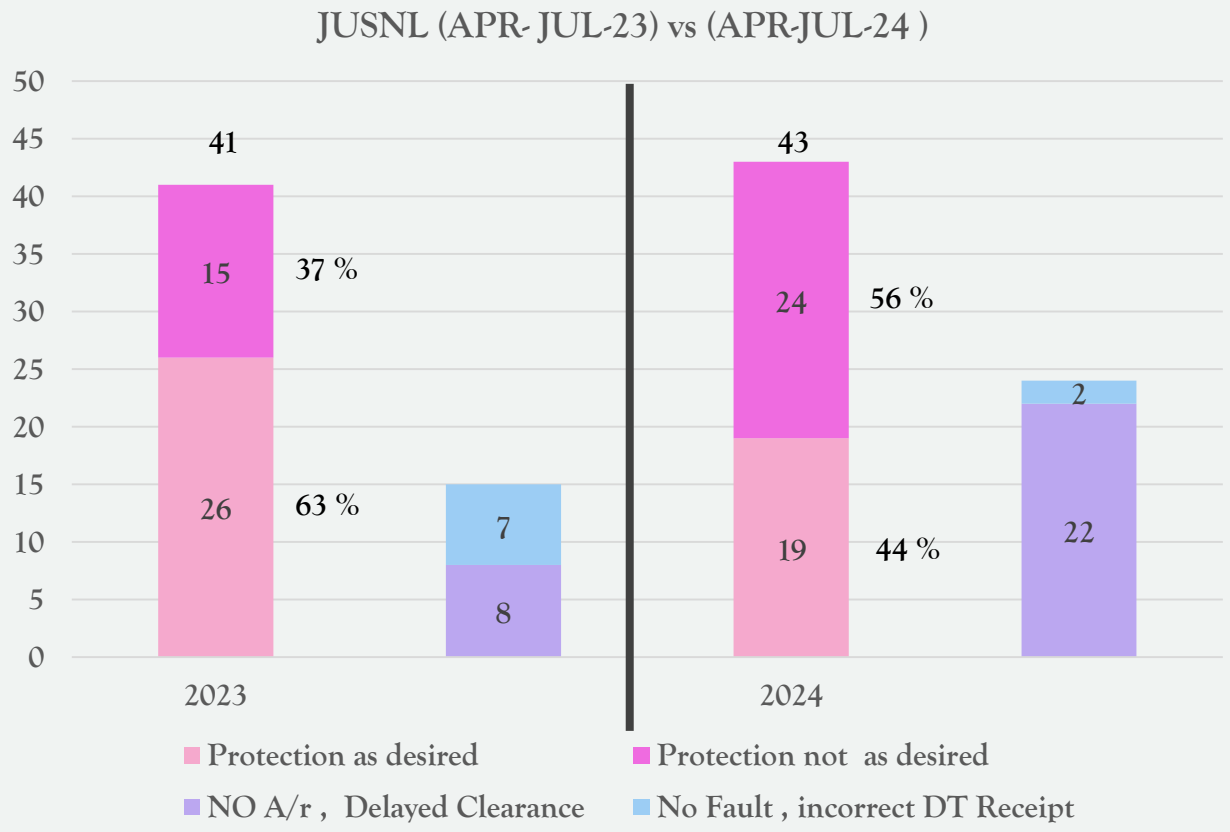
Sr.no	Line Name	Tripping in Apri-July'24 (Nos.)
1	220KV-DARBHANGA (DMTCL)-DARBHANGA-1	8
2	220KV-DARBHANGA(DMTCL)-LAUKAHI-1	5
3	220KV-SAHARSA-BEGUSARAI-1	4
4	220KV-DARBHANGA(DMTCL)-LAUKAHI-2	3
5	220KV-NEW PURNEA-MADHEPURA-1	3

OPTCL



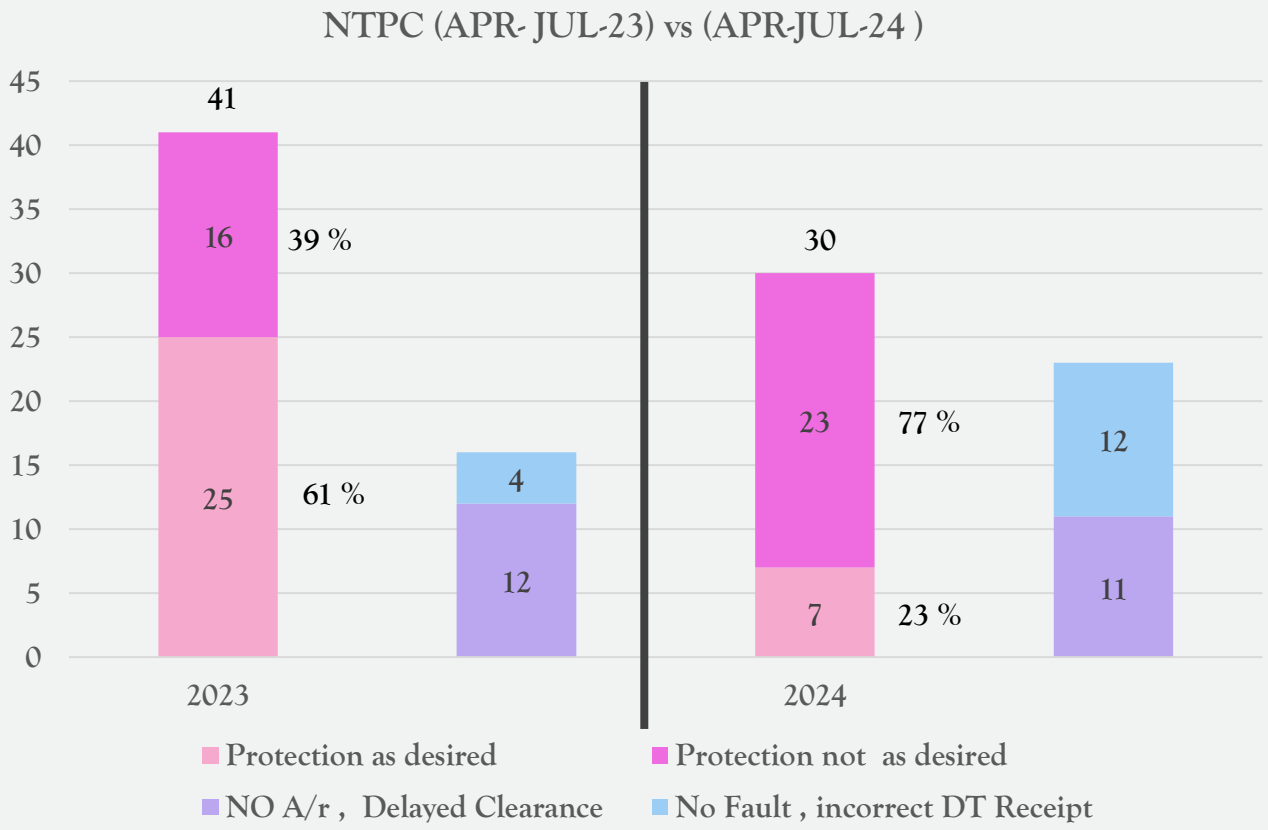
Sr.no	Line Name	Tripping in Apri-July'24 (Nos.)
1	220KV-JODA-RAMCHANDRAPUR-1	16
2	220KV-BUDHIPADAR-KORBA-2	8
3	220KV-BUDHIPADAR-RAIGARH-1	6
4	400KV-LAPANGA-STERLITE-2	5
5	400KV-NEW DUBURI-MEERAMUNDALI-2	5

JUSNL



Sr.no	Line Name	Tripping in Apri-July'24 (Nos.)
1	220KV-JODA-RAMCHANDRAPUR-1	16
2	220KV-DALTONGANJ-CHATRA-1	11
3	220KV-CHANDIL-RANCHI-1	4
4	220KV-DALTONGUNJ-GARWAH (NEW)-1	4

NTPC

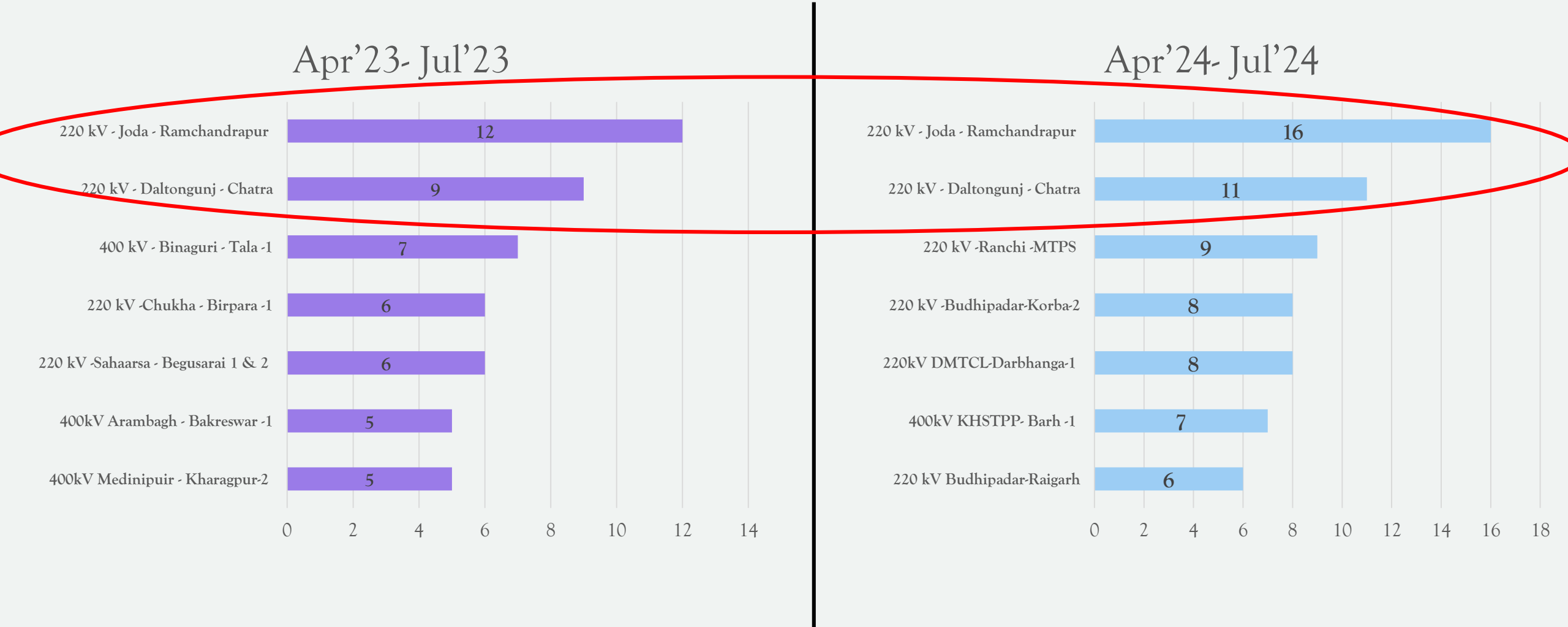


Sr.no	Line Name	Tripping in Apri-July'24 (Nos.)
1	400KV-KHSTPP-BARH-1	7
2	400KV-KHSTPP-BARH-2	2
3	400KV-MOTIHARI-BARH-2	2

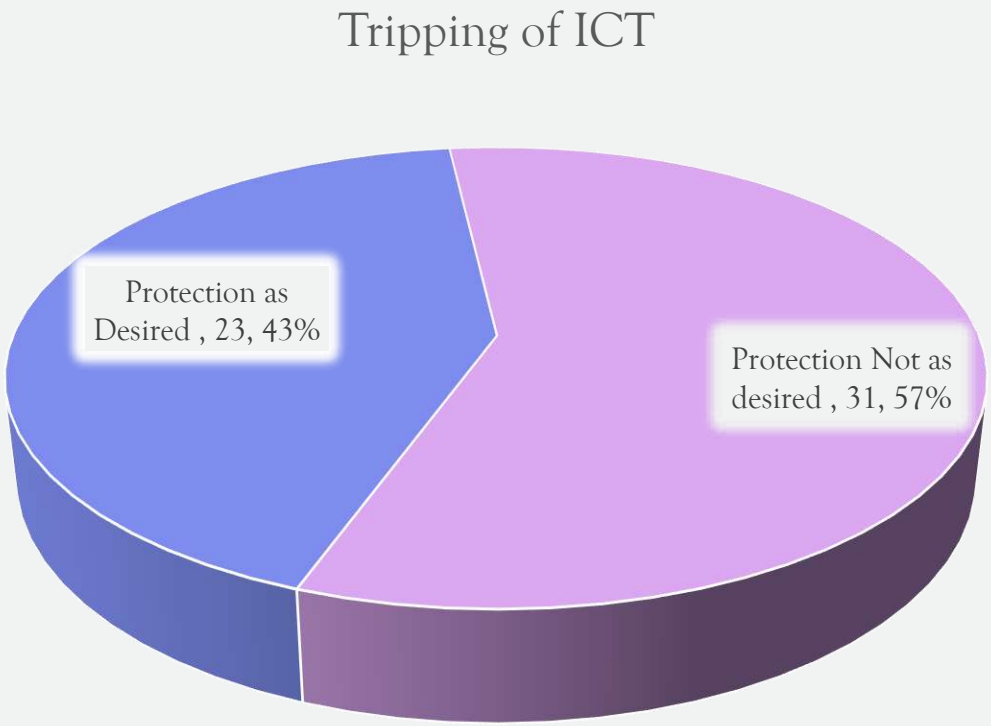
CONSTITUTE WISE PROTECTION PERFORMANCE COMPARISON

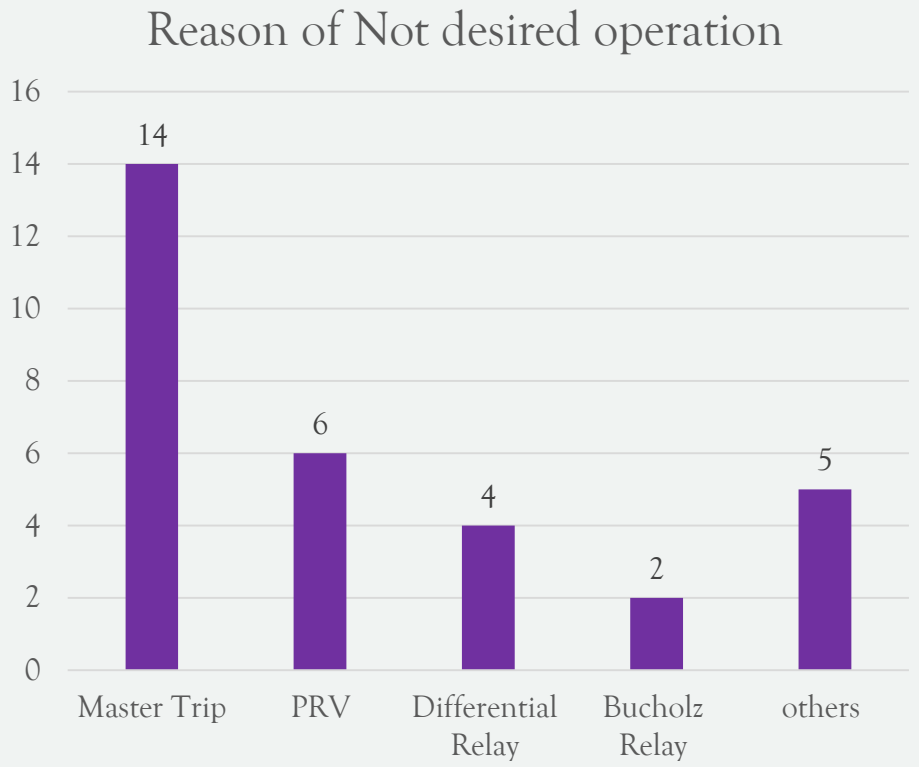
	2023 (Apr-Jul)		2024 (Apr – Jul)	
	Total Tripping	Percentage of Protection as desired	Total Tripping	Percentage of Protection as desired
↓ PG-ER-I	109	94%	100	89%
– PG-ER-II	95	86%	84	86%
↓ PG-ER-ODISHA	38	82%	44	77%
↓ WBSETCL	53	87%	57	79%
↓ BSPTCL	58	59%	50	54%
↑ DVC	26	65%	35	83%
↑ OPTCL	57	67%	43	77%
↓ JUSNL	41	63%	43	44%
↓ NTPC	41	61%	30	23%

MOST FREQUENTLY TRIPPED LINE (APR'24 – JUL'24) VS (APR'24 – JUL'24)

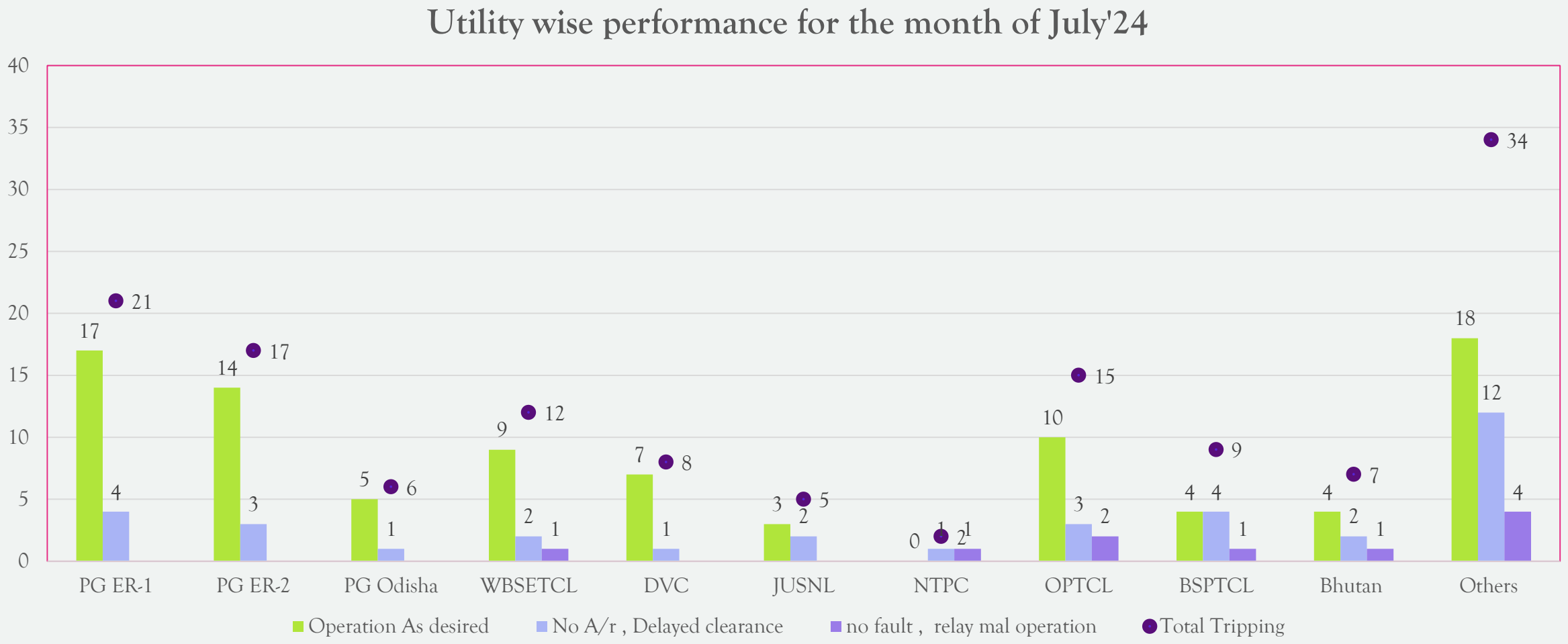


ICT TRIPPING ANALYSIS FOR AUG-23 TO JUL- 24





UTILITY WISE PERFORMANCE



THANK YOU

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

पूर्वी क्षेत्र के 220 केवी उपकेन्द्र में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event in 220/132 kV Bokaro Substation of Eastern Region

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

(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date(दिनांक):09-08-2024

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

At 19:38 Hrs on 20.07.2024, during Line opening and isolation process of 220 kV CTPS-BTPS D/C line, when trip command was given to 220 kV CTPS-BTPS-2 at NTPC through its TNC switch Y and B pole of the breaker opened however R pole of the breaker failed to open. At the same time Lock-Out relay had operated which initiated the LBB function and after 200 milli second delay LBB protection operated causing tripping of all 220 kV bays resulting in Tripping of Both 220 / 132 kV ICTs causing Load loss of around 65 MW. Load was restored by charging 132 kV BTPS-Barhi Line at 22:18 Hrs and subsequently other elements were normalized.

2. **Time and Date of the Event (घटना का समय और दिनांक):** 19:38 hrs of 20.07.2024
3. **Event Category (ग्रिड घटना का प्रकार): Grid Disturbance (GD)-1**
4. **Location/Control Area (स्थान/नियंत्रण क्षेत्र):** 220/132 kV Bokaro Substation
5. **Report submitted by utility on:** 02.08.2024
6. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Sikkim	Sikkim
Pre-Event (घटना पूर्व)	49.94 Hz	27956 MW	28850 MW	5393 MW	3248 MW
Post Event (घटना के बाद)	49.90 Hz	27968 MW	28777 MW	5393 MW	3175 MW

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

Important Transmission Line/Unit if under outage (महत्वपूर्ण संचरण लाइने/ विधुत उत्पादन इकाइयां जो बंद है)	NA

Weather Condition (मौसम स्थिति)	Heavy rainfall

7. **Load and Generation loss (लोड और जेनरेशन हानि)**: Generation loss: NIL; Load loss: 65 MW.
8. **Duration of interruption (**रुकावट की अवधि**): 02:40 Hrs**
9. **Network across the affected area (प्रभावित क्षेत्र का नक्शा):**

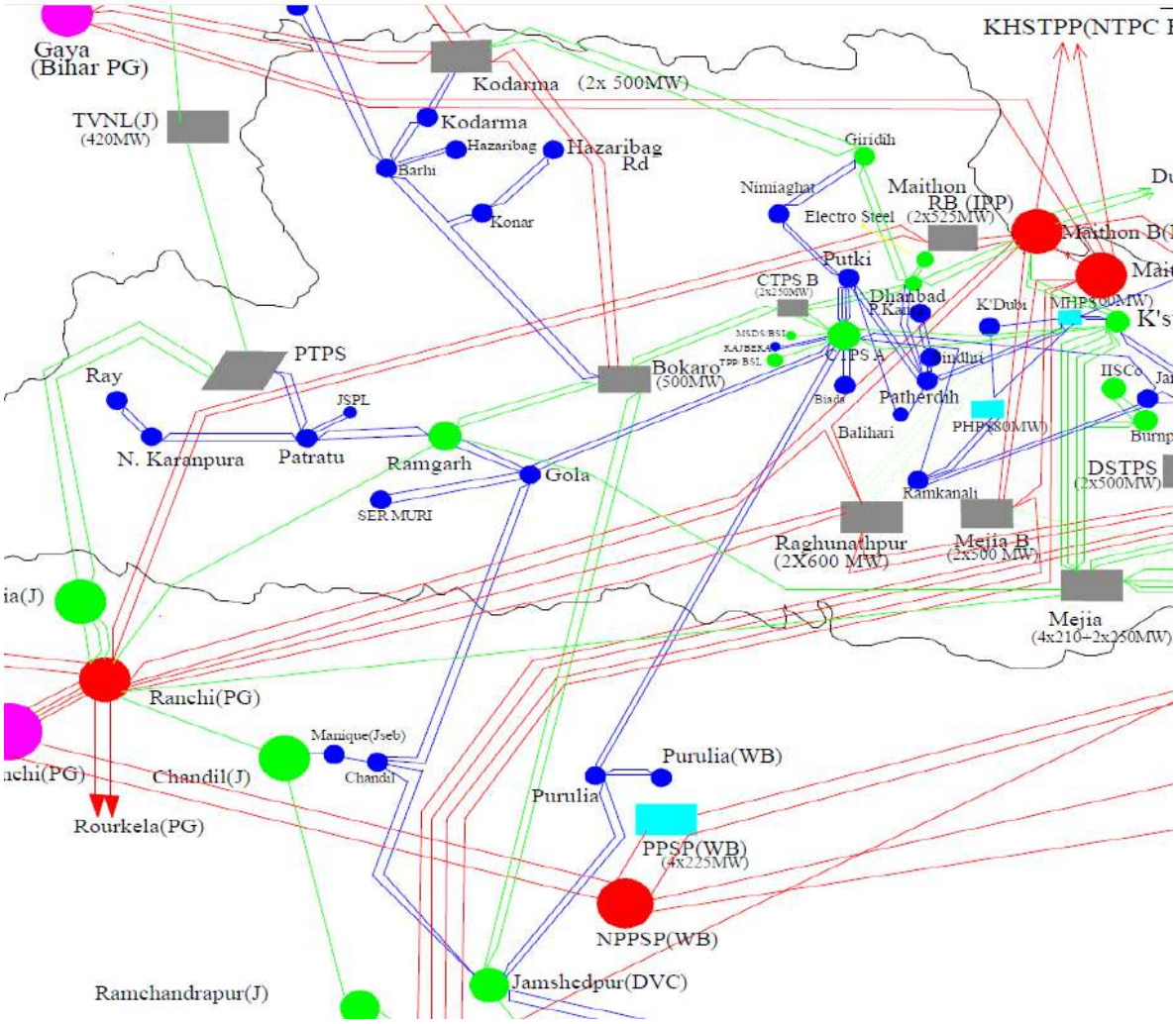


Figure 1: Network across the affected area

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

11. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०सं०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1	220 BTPS B-CTPS B-2	19:38	BTPS B-Hand-tripped, 86 operated and later LBB operated	-	
2	400KV/220KV 315 MVA ICT 1 AT BOKARO-A TPS		400 kV Side: Inter trip	220 kV side: LBB operated	01:31
3	400KV/220KV 315 MVA ICT 2 AT BOKARO-A TPS		400 kV Side: Inter trip	86 Master trip 220 kV side: LBB operated	23:43
4	220KV BOKARO -JAMSHEDPUR-1		LBB operated	-	22:18
5	220KV BOKARO -JAMSHEDPUR-2			-	22:18
6	220KV/132 KV ATR 1			-	22:18
7	220KV/132 KV ATR 2			-	23:45
8	220KV BOKARO -RAMGARH-1			-	-
9	220KV BOKARO -RAMGARH-2			-	-

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

- On 20/07/2024 when trip command was given to 220 kV CTPS-BTPS B-2 through its TNC switch at BTPS B, Y and B pole of the breaker opened however R pole of the breaker failed to open. At the same time, its lockout relay operated due to grounding of DC (+) supply because of low IR of cable No. K475.
- As R_ph didn't open at BTPS B and lock out relay operated, its LBB initiation started and after 200 msec, LBB operated, and all elements connected to Bus-2 tripped)220 KV CTPS-BTPS B-2 was connected to Bus-2 at BTPS B).
- Due to incorrect isolator status, Bus#2 was shorted with Bus#1, hence all elements connected to 220 kV Bus#1 also tripped. This led to total supply interruption at 220 kV BTPS B.
- Detailed report from DVC is attached at Annexure-1.

PMU Snapshot:

Figure 6: PMU Voltage snapshot of 400/220 kV Biharsharif S/s

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

- Lock Out relay of 220 kV CTPS B-BTPS B-2 operated at BTPS-B due to grounding of DC (+) and hence, LBB operated. DC Earth fault is frequent at 220 kV BTPS B S/s.
- Due to incorrect isolator status, both 220 kV Bus tripped at 220 kV BTPS B instead of Bus-2 only.
- 220 V DC system is not in healthy condition at BTPS B. Battery is isolated and entire DC system is directly connected to the charger which has AC supply. Due to failure of AC supply, its DC system failed.
- No DR recorded due to failure of DC supply.

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

- DC supply should be completely isolated from AC system. Due to failure of DC system, entire telemetry, auxiliary system became out of service. SCADA and PMU stopped reporting. Necessary action may be taken to rectify the same immediately.
- The issue of frequent DC earth fault at BTPS B also needs to be resolved.
- Reason for incorrect isolator status which led to tripping of both buses may be analysed and remedial measured may be taken to avoid it in future.
- Other recommendations suggested by DVC need to be implemented at the earliest.

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

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

16. Key Lessons Learnt (प्रमुख अधिगम बिंदु):

- Due to DC grounding, lockout relay operated, and it initiated LBB. DC Earth fault needs to be rectified at the earliest to avoid any unwanted operation as it may lead to total power failure at the sub-station.
- DC system should be completely isolated from AC system.

Annexure-1

DAMODAR VALLEY CORPORATION

OFFICE OF THE SUPERINTENDING ENGINEER

CENTRAL RELAY AND INSTRUMENT TESTING LABORATORY

MAITHON

No: CRID/ Date:

REPORT ON TOTAL POWER FAILURE OF 220 KV SYSTEM ON 20.07.24

Brief History: Total Power Failure of 220 KV at BTPS-B occurred on 20.07.24 while switching off L#206(BTPS-B-CTPS Line) after receiving instruction from ALDC.

A. Sequence of Events:

1. To manage the voltage disturbance at CTPS region ALDC instructed BTPS to made off Line-205 & 206 (CTPS- BTPS-B 220 KV lines) .
2. Line-205 made off successfully at BTPS-B end.
3. After that L-206 was switch off, during switching off the line through TNC switch all 220 KV bay tripped.
4. ICT#1 & ICT#2 tripped at 400 KV side also.
5. Total 132 KV system was healthy.

Bus- Configuration on 20/07/2024 when TPF occurred.

Main Bus-I	Main Bus-II
ATR#1	ATR#2
SST#1	SST#2
ICT#1	ICT#2
L#205	L#206
L#213	L#214
L#233	L#234
BUS TIE WAS ON	

Relay details

BAY	RELAY DETAILS
ATR#1	96
ATR#2	96
SST#1	96
SST#2	96
ICT#1	96(220 KV side), 86 Optd (at 400 KV side , due to Intertripping logic)
ICT#2	96(220 KV Side) , 86 Optd (at 400 KV side , due to Intertripping logic)
L#205	96
L#206	86,96
L#213	96
L#214	96
L#233	96

L#234	96
BUS TIE	96A,96B

All bay 96 operated but no Bus Bar or LBB Protection found to be Operated.

B. Investigation and Findings:

1. **Simulating the same incidence on 21-07-2024: -**

After taking necessary precautions (by removing 96 relays of some of the bays and keeping remaining 96 relays in circuit) the same situation was simulated twice (on 21/07/2024) i.e. L#206 was made off manually through TNC switch while the line was on load, however all the 96 relays (which were in service) remained stable and no tripping was observed.

2. **Findings in the Bus-Bar Protection Circuit: -**

In the Bus-Bar protection circuit it was observed that P11 Bus (Bus for tripping MB#1 during Bus-Differential or CB-Fail operation) was shorted with P13 Bus (Bus for tripping MB#2 during Bus-Differential or CB-Fail operation) (Bus-Bar scheme mentioned Annexure-I).

Status of VAJC relays of all the bays located in switchyard were checked and found to be in order.

However, the existing shorting got removed after giving isolator open command (to the isolator which was in open condition) through the Isolator Open Close switch present in the Control Panel.

Insulation Resistance (IR) of Bus-Bar Protection circuit was checked with 500 V DC Megger, IR value follows: -

IR in between	IR Value
P1 to Earth	>12 MΩ
P2 to Earth	>12 MΩ
P11 to Earth	>12 MΩ
P13 to Earth	>12 MΩ
P11 to P13	>12 MΩ
P15 to Earth	>12 MΩ
P15 to P11/ P13	>12 MΩ

3. **Observations regarding the DC profile of the 220KV panel: -**

It was noticed that the DC voltage profile of the 220 KV panels were not stable.

Given below is the DC voltage profile of the 220 KV panel noted on different occasions

Date	DC Positive Voltage (In Volts)	DC Negative Voltage In Volts)	Remarks
21.07.24	O	-235	DC Positive Ground
26.07.24	190	-30	DC Negative Ground
26.07.24	130 V	-90 V	When Bus coupler bay Annunciator circuit only DC +ve fuse was inserted

4. **Findings in the Relay panel of L#206: -**

On 26-07-2024, L#206 was to be made off for checking its protection circuit. While giving the Trip Command to the Circuit Breaker through the TNC switch it was noticed that Lock-Out relay of L#206 operated and LBB protection for L#206 operated. The same operation was repeated for two more times, however this time breaker tripped correctly and neither any protection function nor any tripping relay (like 86 or 96) had operated.

After going through the disturbance record of L#206 for this particular incidence, it was observed that when trip command was given to the breaker through the TNC switch Y and B pole of the breaker opened however R pole of the breaker failed to open. At the same time Lock-Out relay had operated which initiated the LBB function and after 200 milli second delay LBB protection operated.

When Lock-Out relay circuit of L#206 was investigated it was observed that the Insulation Resistance of cable no. K475 used for extending +DC to the operating coil of the Lock-Out relay (scheme mentioned in Annexure-II), with respect to earth was low. The reason for low IR value was mainly due to accumulation of dust particles as because the IR value had improved when the relay as well cable no. K475 was removed from the casing and reinserted after cleaning.

C. Event analysis after doing necessary investigation: -

- It is concluded that on 20/07/2024 when trip command was given to L#206 through its TNC switch one of its breaker poles failed to open and at the same it its Lock-Out relay operated (due to DC fluctuation since DC (+) was grounded and IR value of cable no. K475 with respect to ground was low).
- As one pole of the breaker did not open, the distance relay (in which LBB function is also incorporated) continued to measure the current for that particular phase and at the same time the relay had also sensed LBB initiation (due to operation of Lock-Out relay), thus after 200 milli second delay the LBB function had operated.
- Thus 96 relays of the feeders connected to Main Bus#2 (since L#206 was connected to MB#2) operated.
- Since P11 bus (used for tripping MB#1) was shorted with P13 bus (used for tripping MB#2), thus 96 relays of all the feeders connected to Main Bus#1 also tripped, causing TPF at 220KV level.
- However, it is to be noted that none of the numerical relays have registered any Disturbance record at the time of tripping, this was mainly due to failure of DC supply, which occurred immediately after the failure of 220KV AC system. This behavior of ABB relay has been checked at CRITL Laboratory and found that if the DC supply to the relay fails immediately after any tripping incidence the relay fails to record the disturbance record of that particular incidence.

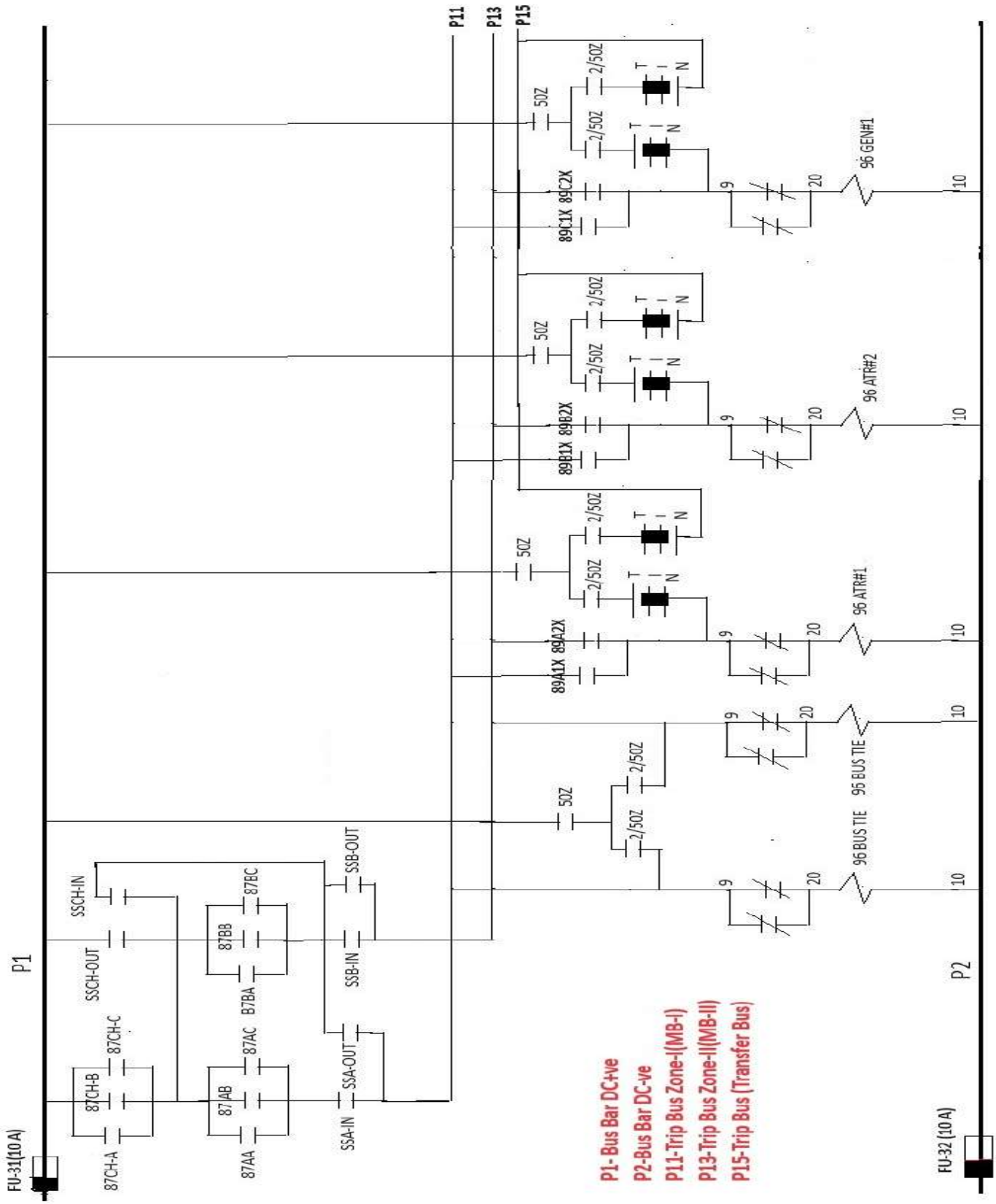
D. Trouble of DC System

- 220V DC system of 220 KV switchyard at BTPS-B is not in healthy condition at all.
- The battery system was isolated from DC bus. Only charger was catering the load of DC system.
- As SST tripped during TPF, AC supply of charger failed causing outage of DC system.
- 220 V DC system is also not in balance condition. On 20/7/24 the +ve polarity found completely earthed. This is one of the main cause for operation of LBB protection.
- The trouble of DC earthing is still persisting, the grounding of +ve/ -ve polarity is also changing. It may results spurious operation of different relays, causing mal-tripping.
- The trouble of DC system may be due fault in cable because of different dismantling works which are going on at BTPS-B.

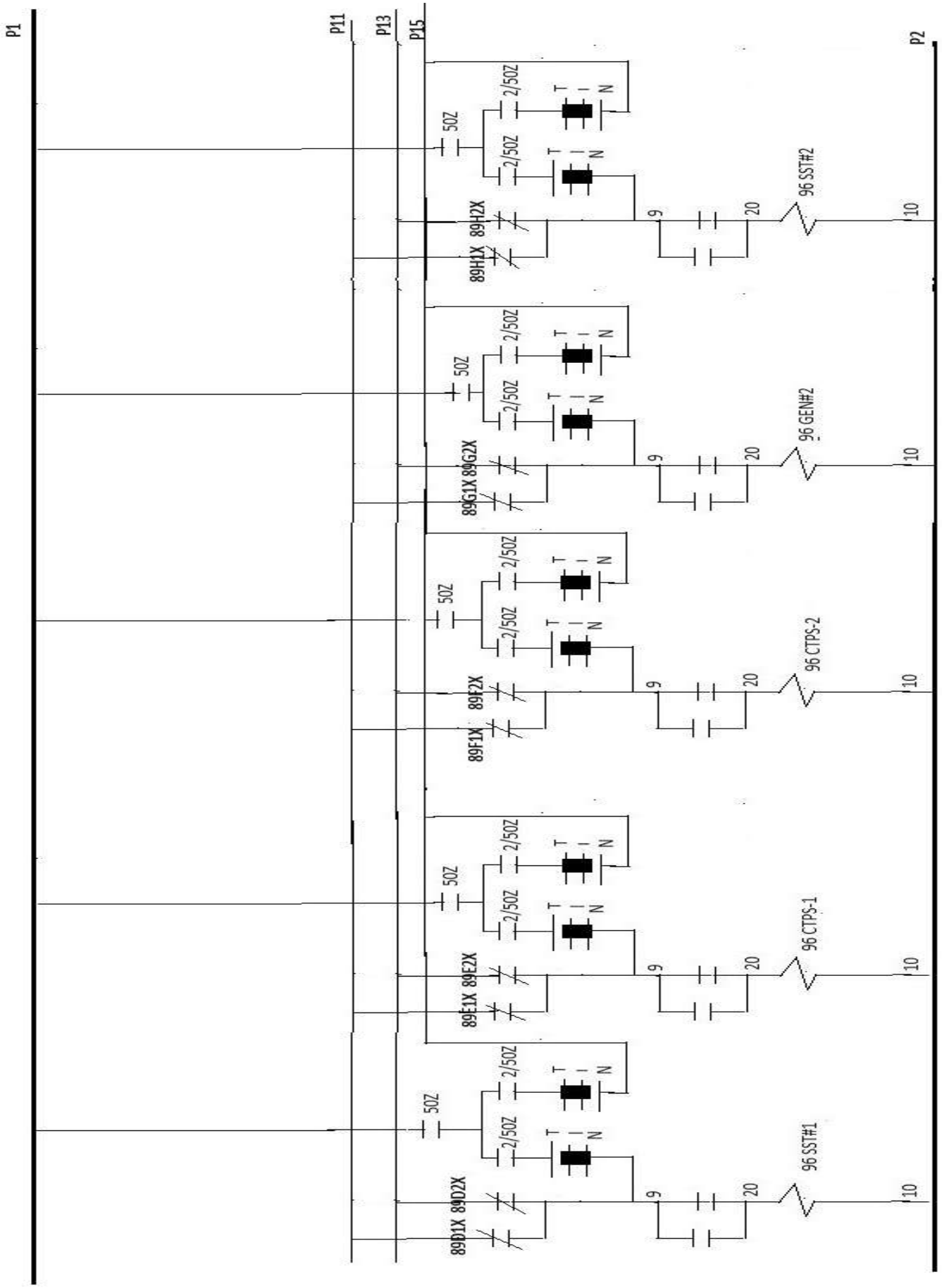
Recommendation/Remarks:

1. Problem associated with DC system needs to be rectified at the earliest, till then it is recommended to keep the Busbar and LBB protection out of service.
2. It is recommended to perform Time test and DCRM of Circuit Breaker of L#206.
3. It is recommended to replace the old MOCB Breaker to avoid such kind of intermittent maloperations.
4. BTPS-B is one of important load centre of DVC. Two no.s ICT, two ATR and different 220 KV and 132 KV lines are connected. Also from BTPS important CCL loads is connected. The switchyard components of BTPS are very old, its control and protective system are also not as per protection guidelines. So complete upgradation of BTPS-B switch yard is required at the earliest.
5. It is recommended to replace the Old High Impedance Bus bar scheme with modern centralized or decentralized Bus Bar Scheme for enhancing the stability of the protection as per IEGC guideline.
6. All old protection panel need to be replaced.

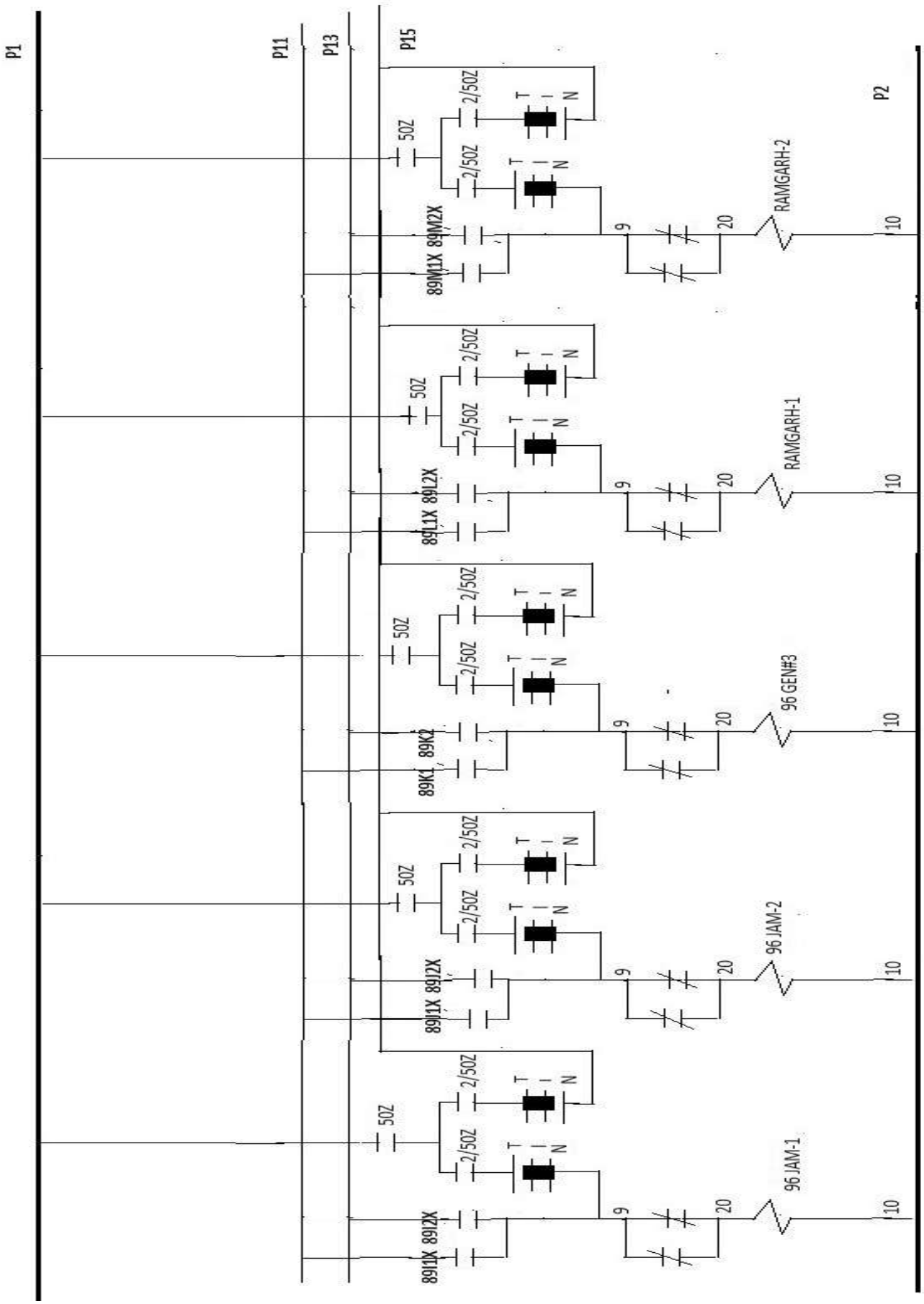
ANNEXURE-I


P1
P2
P11
P13
P15
FU-31(10 A)
FU-32 (10 A)
87CH-A
87CH-B
87CH-C
87AA
87AB
87AC
87BA
87BB
87BC
SSA-IN
SSA-OUT
SSB-IN
SSB-OUT
SSCH-IN
SSCH-OUT
50Z
2/50Z
89A1X
89A2X
89B1X
89B2X
89C1X
89C2X
96 ATR#1
96 ATR#2
96 BUS TIE
96 BUS TIE
96 GEN#1
P1- Bus Bar DC+ve
P2-Bus Bar DC-ve
P11-Trip Bus Zone-I(MB-I)
P13-Trip Bus Zone-II(MB-II)
P15-Trip Bus (Transfer Bus)

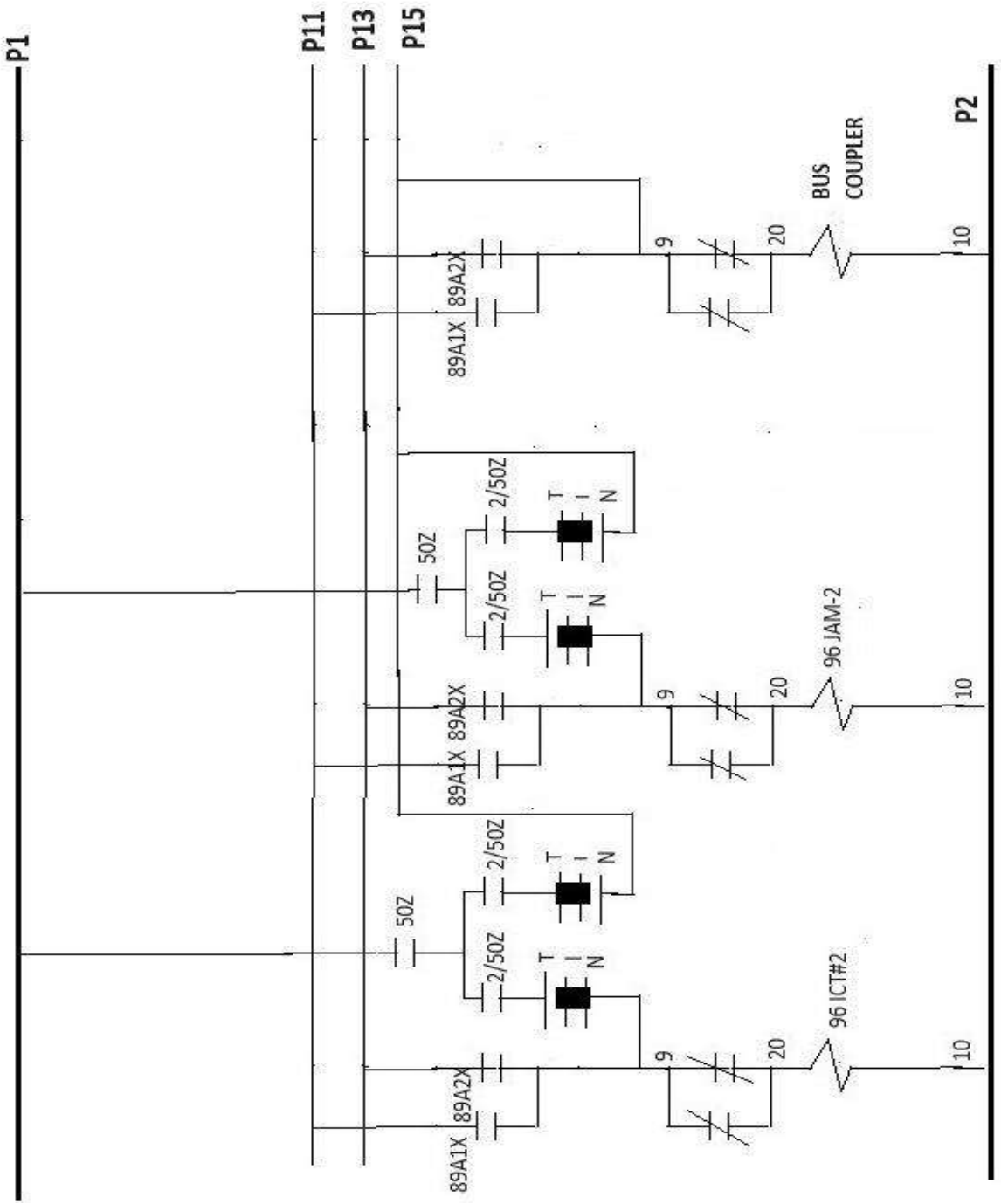
Annexure-1


P1
P11
P13
P15
P2
50Z
2/50Z
T
I
N
89H2X
89H1X
96 SST#2
89G2X
89G1X
96 GEN#2
89F2X
89F1X
96 CTPS-2
89E2X
89E1X
96 CTPS-1
89D2X
89D1X
96 SST#1
9
20
10

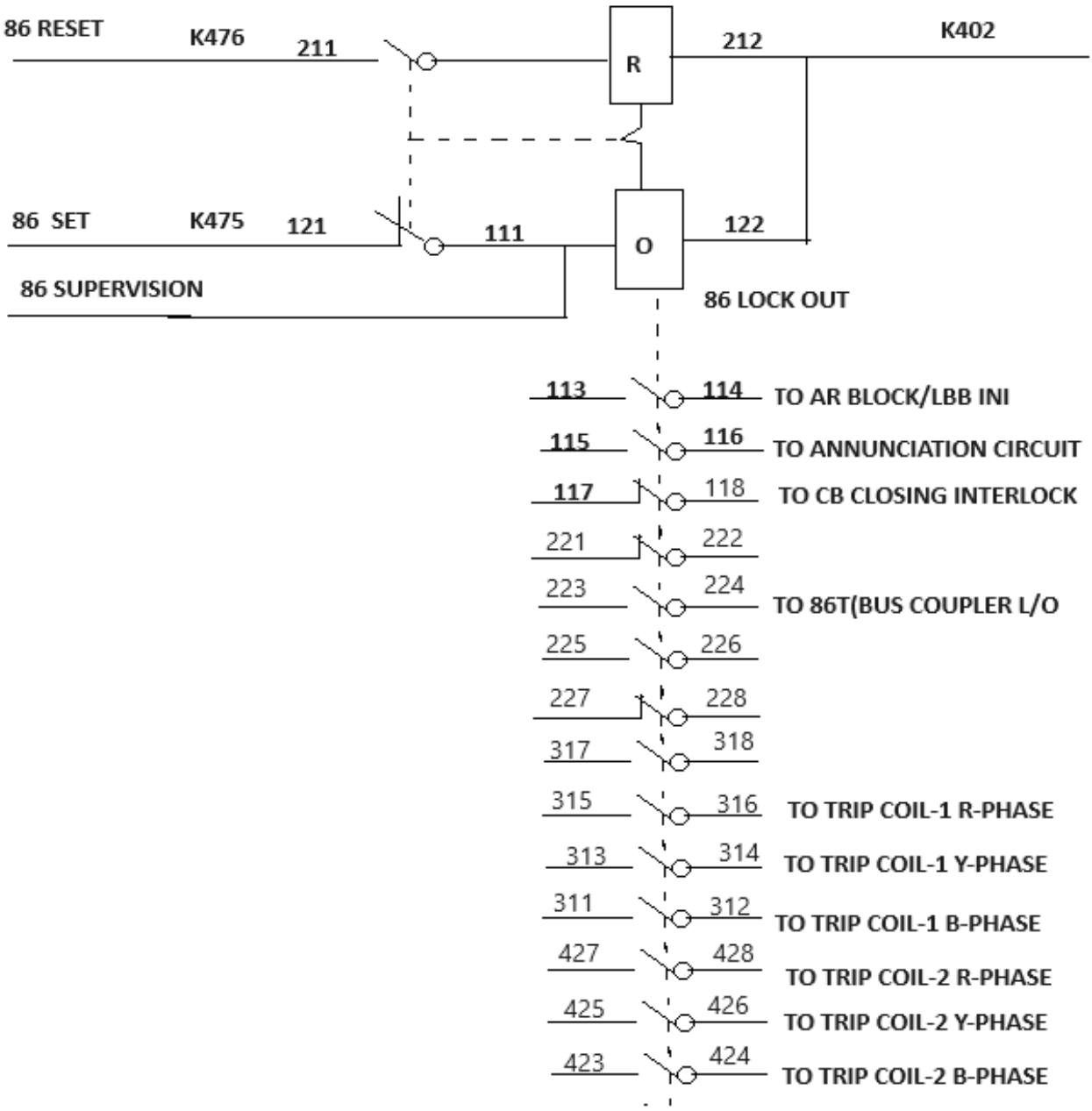
Annexure-1


P1
P11
P13
P15
P2
50Z
2/50Z
T
I
N
89M1X
89M2X
89L1X
89L2X
89K1
89K2
89J1X
89J2X
89I1X
89I2X
9
20
10
RAMGARH-2
RAMGARH-1
96 GEN#3
96 JAM-2
96 JAM-1

Annexure-1


P1
P11
P13
P15
P2
BUS
COUPLER
89A1X
89A2X
9
20
10
50Z
2/50Z
T
I
N
96 JAM-2
96 ICT#2

ANNEXURE-II


86 RESET
K476
211
R
212
K402
86 SET
K475
121
111
O
122
86 SUPERVISION
86 LOCK OUT
113
114
TO AR BLOCK/LBB INI
115
116
TO ANNUNCIATION CIRCUIT
117
118
TO CB CLOSING INTERLOCK
221
222
223
224
TO 86T(BUS COUPLER L/O
225
226
227
228
317
318
315
316
TO TRIP COIL-1 R-PHASE
313
314
TO TRIP COIL-1 Y-PHASE
311
312
TO TRIP COIL-1 B-PHASE
427
428
TO TRIP COIL-2 R-PHASE
425
426
TO TRIP COIL-2 Y-PHASE
423
424
TO TRIP COIL-2 B-PHASE

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

पूर्वी क्षेत्र के 220/132 केवी चतरा उप-केन्द्र में ग्रिड घटना पर विस्तृत रिपोर्ट / Detailed Report of grid event in 220/132 kV Chatra of Eastern Region

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

(आई ई जी सी 37.2 (एफ) के अनुपालन में)

Date(दिनांक):09-08-2024

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

At 13:10 Hrs, 220kV-Chatra-Latehar tripped due to B_N fault from Latehar, however line did not trip from Chatra. Subsequently, 220kV Chatra-Daltongunj tripped from Daltongunj end in Z-3 distance protection resulting in total power failure at Chatra S/S with approximate 36 MW load loss. Power was restored via charging 220kV Latehar-Chatra at 14:25 Hrs.

2. **Time and Date of the Event (घटना का समय और दिनांक):** 13:10 hrs of 08.07.2024
3. **Event Category (ग्रिड घटना का प्रकार): Grid Disturbance (GD)-1**
4. **Location/Control Area (स्थान/नियंत्रण क्षेत्र):** Jharkhand
5. **Report received from Utility on:** Not submitted yet.
6. **Antecedent Conditions (पूर्ववर्ती स्थिति):**

	Frequency	Regional Generation	Regional Demand	State Generation	State Demand
				Jharkhand	Jharkhand
Pre-Event (घटना पूर्व)	49.98 Hz	28189 MW	26236 MW	326 MW	1634 MW
Post Event (घटना के बाद)	50.03 Hz	28189 MW	26230 MW	326 MW	1598 MW

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

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

7. **Load and Generation loss (लोड और जेनरेशन हानि):** Generation loss: 0 MW; Load loss: 36 MW.
8. **Duration of interruption (रुकावट की अवधि): 01:15 Hrs**

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

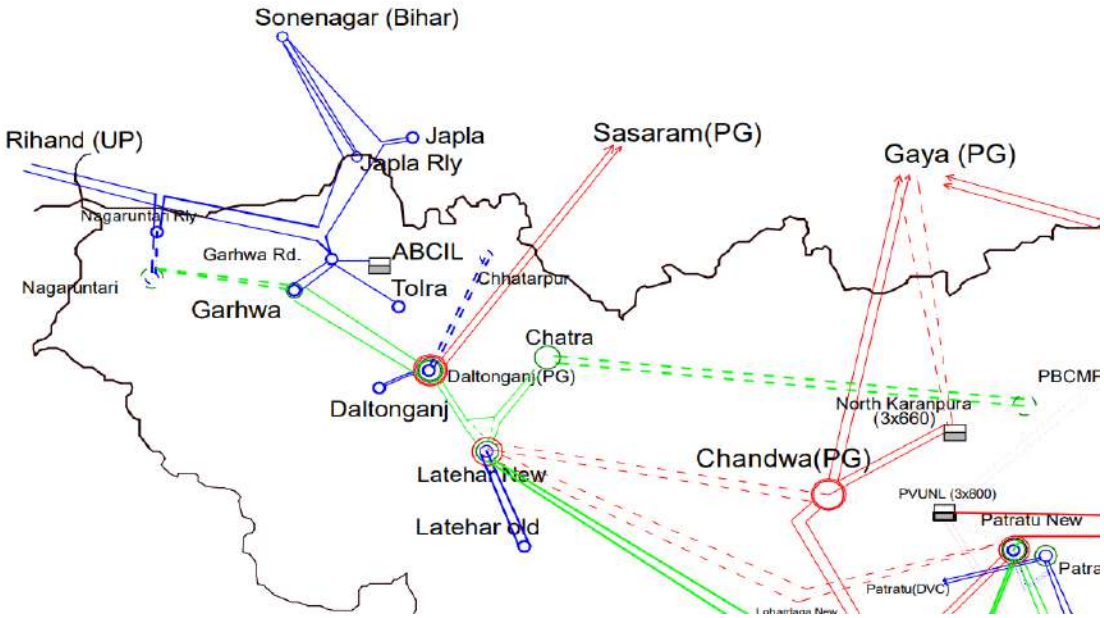


Figure 1: Network across the affected area

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

11. Major Elements Tripped (प्रमुख ट्रिपिंग):

क्र०सं०	नाम	Trip time (hh:mm:ss)	उप केंद्र 1 रिले संकेत	उप केंद्र 2 रिले संकेत	Restoration time
1	220kV Latehar-Chatra	13:10	Latehar: B-Earth, DEF operated	Chatra: Didn't trip	14:25
2	220kV Daltongunj-Chatra		Daltonganj: B_N, 0.78 kA, Zone-3	Chatra: Didn't trip	15:13

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

- At 13:10 Hrs of 08.07.2024 a resistive fault struck B phase of 220kV-Chatra-Latehar and line tripped from Latehar due to operation of Directional E/f after around 700 msec. Line didn't trip from Chatra.

- After tripping of 220 kV Latehar-Chatra from Latehar, this fault came in Zone-3 of 220kV Chatra-Daltonganj from Daltonganj end and line tripped after 800 msec.

PMU Snapshot:

Figure 2: PMU Voltage snapshot of 400/220 kV Daltongunj S/S

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

- No tripping occurred at Chatra end. Neither DEF operated nor distance protection operated after tripping of 220 kV Latehar-Chatra from Latehar.
- 220 kV Daltonganj-Chatra sensed the fault in Zone-3 but at Chatra even Zone02 didn't operate for 220 kV Chatra-Latehar.

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

- DEF settings and distance zone settings need to be reviewed at Chatra and reason for non-tripping of both 220 kV Latehar-Chatra and 220 kV Daltonganj-Chatra may be analysed.

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

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

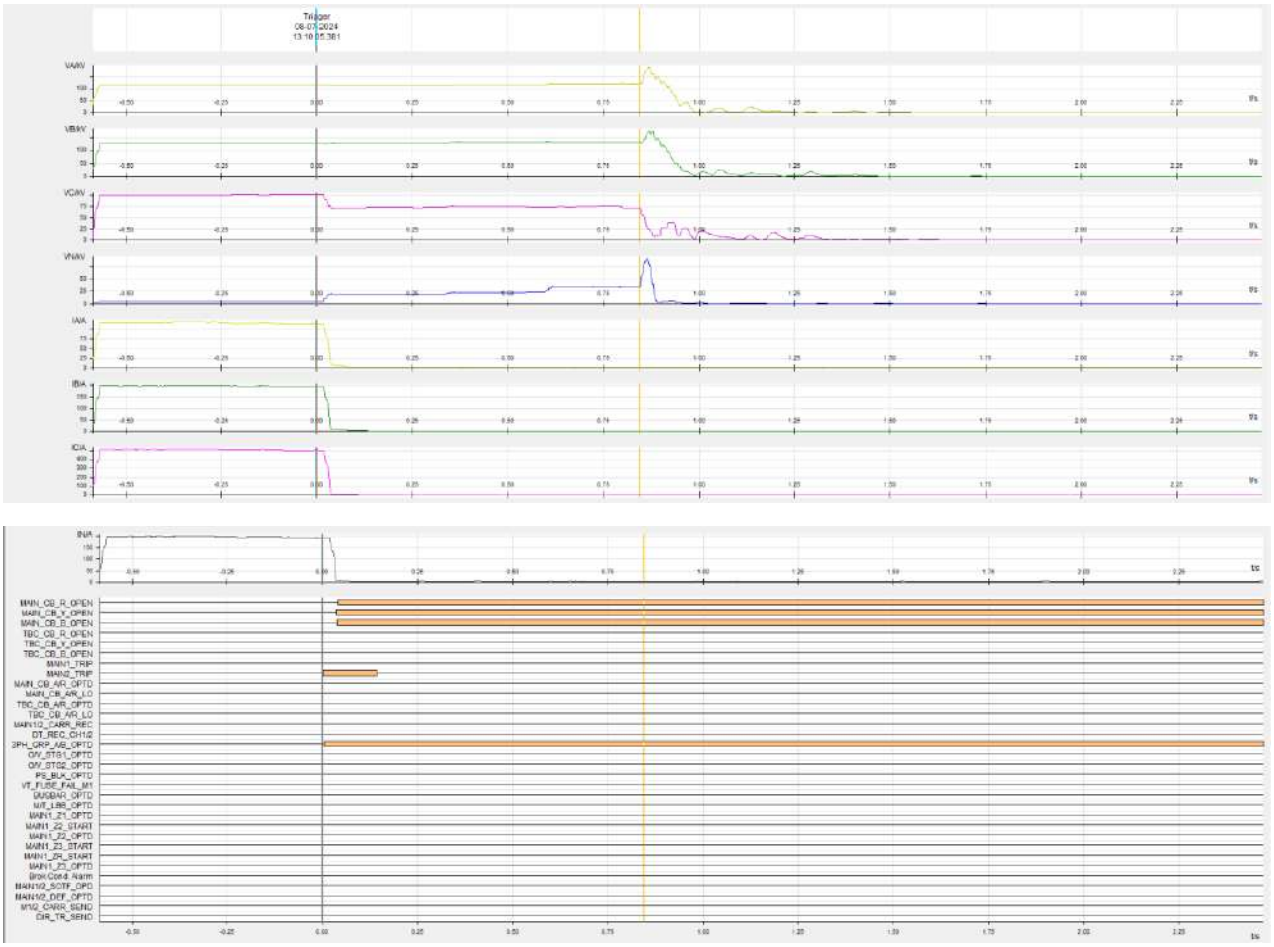
16. Key Lessons Learnt (प्रमुख अधिगम बिंदु): Nil

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

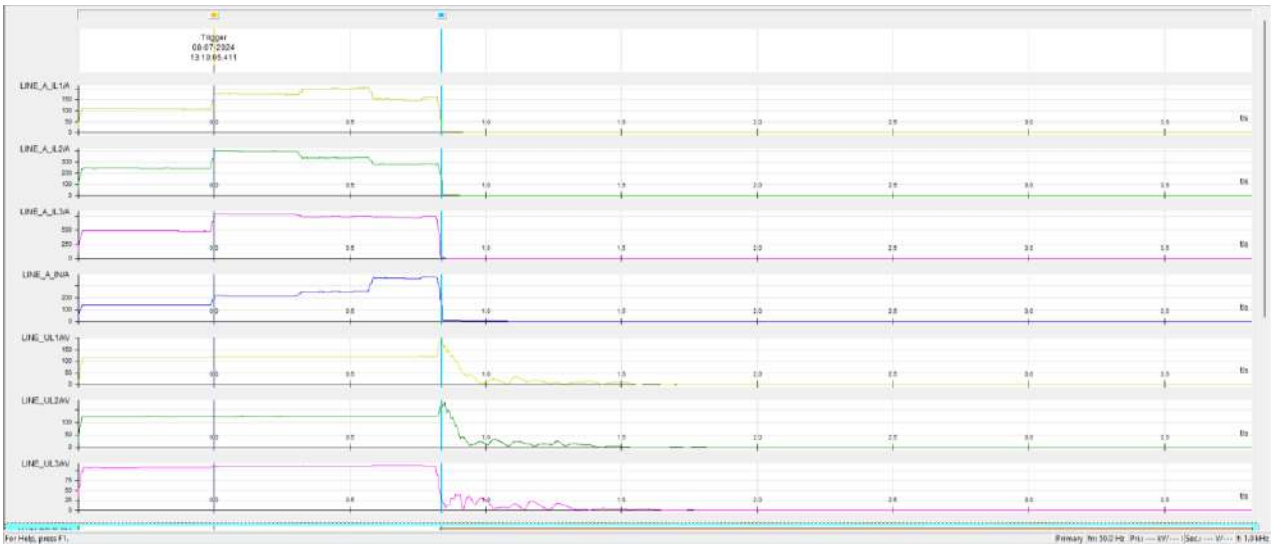
SOE data not available in ERLDC Scada.

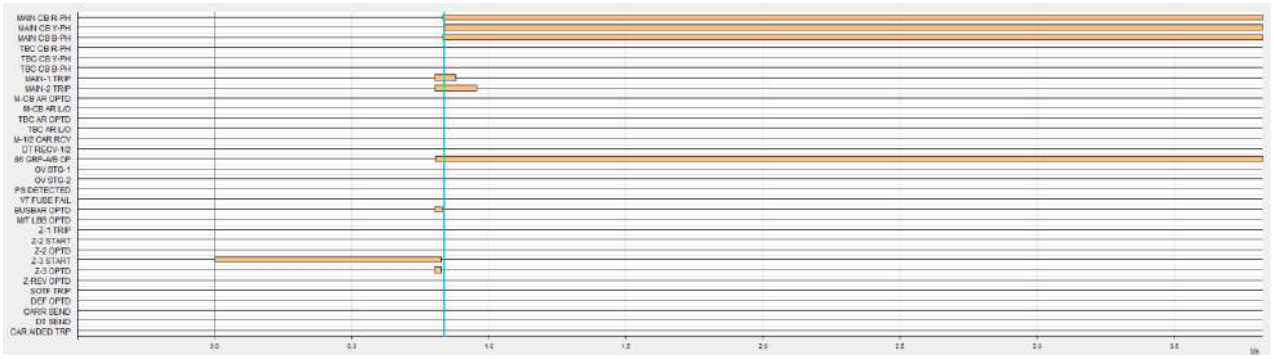
Annexure 2:

DR of Chatra-Lathehar -2 (Lathehar)



DR of Chatra-Daltongunj (at Daltongunj end)





Annexure B.5

NTPC Kanti

Protection Performance Indices for the month of July-2024 (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				
	220 KV System																
1	220KV NTPC Kanti to Samastipur New-1	21.07.2024	13:52:00	21.07.2024	14:43:00	Zone-1 B phase to ground fault, Fault I: 1.77KA, 88 Km	Zone-1 B phase to ground fault,	Yes	Yes	NO	NO	NO	NO	1	1	1	
	132 KV System																
1	132 KV SKMCH- Line 2	07.07.2024	00:25:00	07.07.2024	00:48:00	Y phase Overcurrent Iy:869.2A	Y phase Overcurrent	Yes	Yes	NO	NO	NO	NO	1	1	1	
2	132KV Motipur-Line-3	26.07.2024	11:37:00	26.07.2024	12:48:00	over current Y &B and zone1 Y&B to Eart fault; Iy:5.72KA Ib:5.55KA	over current Y &B and zone1 Y&B to Eart fault	Yes	Yes	NO	NO	NO	NO	1	1	1	
3	132 KV SKMCH- Line 2	27.07.2024	13:10:00	27.07.2024	13:22:00	Overcurrent protection Ir: 459.6A; Iy:456.4A; Ib:472.9A	Overcurrent protection	Yes	Yes	NO	NO	NO	NO	1	1	1	
4	132 KV SKMCH- Line 2	31.07.2024	23:19:00	31.07.2024	23:22:00	Overcurrent protection Ir: 277A; Iy:850.2A; Ib:638.4A	Overcurrent protection	Yes	Yes	NO	NO	NO	NO	1	1	1	

WBSETCL

Protection Performance Indices for the month of JULY24 (In compliance of Clause 15(6) of IEGC 2023)																		
Sl. No.	Name of the element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason (Relay indication)		Nc		Nu		Nf		Dependability index (Nc/(Nc+Nf))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+Nu+Nf))	Remarks (Reason for performance indices less than 1)	Analysis of the event
						End A	End B	End A	End B	End A	End B	End A	End B					
1	New-chanditala- Gokarna#1	04.07.24	18:16:00	04.07.24	18:28:00	Y-phase, Zone-1, CS,CR, A/R L/O	Y-phase, Zone-1, CS,CR, A/R close	1	1	0		0		1	1	1		New Chanditala end received DT within 98 ms (during A/R in progress) and A/R L/O operated. No DT send from Berhampore End.Communication team attended and rectify the fault in ZIV make PLCC at New-Chanditala.
2	New PPSP- Arambag#1	14.07.24	11:26:00	14.07.24	11:47:00	R-phase, Zone-2, A/R optd., A/R L/O	R-phase, Zone-1, A/R Close	1	1	0		0		1	1	1		
3	Jeerat-Satgachia #1	14.07.24	16:53:00	14.07.24	17:51:00	No Tripping	DT Receive	0		1		0		0	#	#	At Jeerat , BPL make PLCC are present against Jeerat-Sagardighi #1 which is maintained by WBPDCL and Powergrid.. Fourious DT signal send from Jeerat End. Informed the same to Powergrid for rectification.	
4	Jeerat-Satgachia #1	15.07.24	01:10:00	15.07.24	01:54:00	No Tripping	DT Receive	0		1		0		0	#	#	At Jeerat , BPL make PLCC are present against Jeerat-Sagardighi #1 which is maintained by WBPDCL and Powergrid.. Fourious DT signal send from Jeerat End. Informed the same to Powergrid for rectification. Power Grid Engineer attended the same. The matter also informed to WBPDCL.	
5	Jeerat-New-Chanditala	16.07.24	17:36:00	16.07.24	18:03:00	B-phase, Zone-1, CS,CR, A/R L/O	B-phase, Zone-1, CS,CR, A/R L/O	1	1	0		0		1	1	1		
6	Jeerat-New-Jeerat #2	18.07.24	13:29:00	18.07.24	19:03:00	B-phase, Zone-1, A/r optd, A/R L/O		1		0		0		1	1	1		

7	New-Chanditala -- Midnapore #1	20.07.24	11:59:00	20.07.24	13:04:00	Y-phase, Zone-2, A/r optd., A/R L/O		1		0		0		1	1	1		
8	New-Chanditala -- Midnapore #2	20.07.24	12:12:00	20.07.24	22:19:00	Y-phase, Zone-1, A/r optd., A/R L/O		1		0		0		1	1	1		
9	New-Chanditala -Kolaghat	23.07.24	12:25:00	23.07.24	13:03:00	Y-phase, Zone-2, A/r optd., A/R L/O		1		0		0		1	1	1		
10	New-Chanditala -Arambag #1	29.07.24	17:41:00	29.07.24	18:27:00	B-phase, Zone-1, A/R OFF., A/R L/O	B-phase, Zone-1, A/R OFF., A/R L/O	1	1	0		0		1	1	1		A/R switch made Off due to OPGW laying work for a/R L/O operated.
11	Barasat- Rajarhat PG #1	31.07.24	18:06:00	31.07.24	19:39:00	Busduct Gas L/O optd	DT Receive	0		1		0			#	#	Due to ingress of water in Busduct density montor, Gas L/O contact shorted and causes for tripping.	

BSPTCL

Protection Performance Indices for the month of July'24

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-KHAGARIA-NEW PURNEA-2	03-07-2024	19:11:00	03-07-2024	19:56:00	Khagaria:-Z2,Y-B, Iy-1.9 kA, Ib-1.9 kA,89.3Km	New Purnea:-Z1,Y-B, Iy-12.9 kA, Ib-7.84 kA,7.9Km	0	1	0	0	1	0	0(Khagaria end) 1(New Purnea end)	0(Khagaria end) 1(New Purnea end)	0(Khagaria end) 1(New Purnea end)	PLCC issue will be rectified after getting shutdown
2	220KV-DARBHANGA(DMTCL)-LAUKAHI-1	11-07-2024	04:13	11-07-2024	05:32:00		Laukahi End :- L-G fault,R-N,Fault Location -14.15KM,Ia-4.522KA		0		0		1	0	0	0	Due to inappropriate operation of PLCC at Darbhanga(DMTCL) end.
3	220KV-SAHARSA(PMTL)-BEGUSARAI-1	11-07-2024	13:50	11-07-2024	14:38		Begusarai: Z1,R-N, 61.4 Km, 2.5 KA		1		0		0	1	1	1	
4	220KV-SAHARSA-BEGUSARAI-1	13-07-2024	13:43	13-07-2024	14:23		Begusarai : Z1,AR,B_N		1		0		0	1	1	1	
5	220KV-PATNA-KHAGAUL-1	14-07-2024	13:35	15-07-2024	19.57		Khagaul: Z1, Y-B, Iy-1.47 KA,Ib-8.35 KA, Dist-16.56 KM		1		0		0	1	1	1	Haiwa came in range of line.
6	220KV-NEW PURNEA-MADHEPURA-1	20-07-2024	15:07	20-07-2024	16:12		Madhepura End :- L-G fault,B-N,Fault Location -77.0KM, Ib-0.5KA	1	0	0	0	0	1	1(New Purnea end) 0(Madheura end)	1(New Purnea end) 0(Madheura end)	1(New Purnea end) 0(Madheura end)	PLCC issue will be rectified after getting shutdown
7	220KV-DARBHANGA (DMTCL)-MOTIPUR-2	27-07-2024	17:09	27-07-2024	18:04		Motipur :-phase to phase,Z1,BC fault, Ib=Ic=4.5KA, 40.5Km		1		0		0	1	1	1	
8	220KV-PUSAULI-NADHOKAR-1	31-07-2024	14:22	31-07-2024	15.23		DT send from Nadokhar end during PLCC testing. Testing of PLCC was being done by Telcom team.										Testing of PLCC was being carried out by Telcom team but during testing DT send.
9	220KV-PATNA-FATUHA-1	31-07-2024	16:12	31-07-2024	16.4		Fatuha end:- Z1,R-N, Ir-8.546 KA, Dis-6.33 KM		0		1		0	0	0	0	A/R not successful at Fatuha end.

Jorethang Loop Hydro Electric Project 2 X 28 MW

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

Sl. No.	Name of the element	Tripping Date	Tripping Time	Restoration Date	Restoration Time	Reason (Relay indication)		Nc		Nu		Nf		Dependability index (Nc/(Nc+N f))	Security Index (Nc/(Nc+Nu))	Reliability Index (Nc/(Nc+ Nu+Nf))	Remarks (Reason for performance indices less than 1)	Analysis of the event
						End A	End B	End A	End B	End A	End B	End A	End B					
1	220KV Jorethang-New Melli Line-1																**NO TRIPING**	
2	220KV Jorethang-New Melli Line-2																**NO TRIPING**	
	Nc - is the number of correct operations at internal power system faults.																	
	Nf - is the number of failures to operate at internal power system faults.																	
	Nu - is the number of unwanted operations.																	

List of important transmission lines in ER which tripped in July-2024

Sl. No.	LINE NAME	TRIP DATE	TRIP TIME	Reason	Fault Clearance time in msec	Remarks	DR Configuration Disc	DR Configuration Discrepancy - 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	01-07-2024	03:45	No fault	NA	Tripped from Korba end only. No fault observed from PMU.			No	No	OPTCL	WR	No tripoping at Budhipadar bend however breaker tripped at korba end due to internal problem
2	765KV-DHARAMJAIGARH-JHARSUGUDA-1	01-07-2024	10:34	B-Earth	100	A/r failed after 1 second			No	No	WR	PG Odisha	
3	400KV-BAHARAMPUR-BHERAMARA-3	01-07-2024	12:18	R-Earth	100	A/r failed after 1 second			Yes	NA	PG ER-2	Bangladesh	
4	220KV-BOLANGIR(PG)-SADEIPALLI-1	02-07-2024	11:11	No fault	NA	No fault observed from PMU. OPTCL may explain.			No	No	PG Odisha	OPTCL	
5	220KV-NEW MELLI-TASHIDING-1	02-07-2024	14:03	B-Earth	300	Intially fault in Zone-2 from New Melli. Later fault was sensed in Zone-1 and A/r attempted after 1 second which failed.			Yes	No	PG ER-2	THEP	
6	220KV-BOLANGIR(PG)-BOLANGIR(GRIDCO)-1	02-07-2024	16:48	No fault	NA	No fault observed from PMU. OPTCL may explain.			No	No	PG Odisha	OPTCL	
7	400KV-NEW JEERAT-SUBHASGRAM(PG)-1	03-07-2024	00:40	R-Earth	100	A/r failed after 1 second			Yes	Yes	PG ER-2	PG ER-2	
8	220KV-KHAGARIA-NEW PURNEA-2	03-07-2024	19:11	Y-B	400	Phase to phase fault. Tripped in Zone-2 time from Khagaria		DR length less and not time synchr	Yes	Yes	BSPTCL	PG ER-1	
9	400KV-LAPANGA-STERLITE-2	04-07-2024	02:39	Y-Earth	100	A/r successful from Lapanga. No A/r attempted at Sterlite and other two phase tripped after seconds. PD time may be checked. Sterlite may explain.			Yes	No	OPTCL	VEDANTA	The fault was attended by sterlite team , the reason of A/ R failure will be shared later

10	400KV-CHANDAUTI (PMTL)-NABINAGAR (NPGC)-1	04-07-2024	14:22	Y-Earth	100	3 phase tripping for single phase fault from NPGC while A/R successful from chanduati			Yes	Yes	PMTL	NTPC	A/R successful from Chandauti end and 3 phase tripping at NPGC End. The Site DR is uploaded in ERPC Portal
11	400KV-GOKARNA-NEW CHANDITALA-1	04-07-2024	18:16	Y-Earth	100	DT received at New Chanditala and all three phase tripped for single phase fault. A/r successful from Gokarna.			Yes	Yes	WBSETCL	WBSETCL	New Chanditala end received DT within 98 ms (during A/R in progress) and A/R L/O operated.Communication team attended and rectify the fault in ZIV make PLCC at New-Chanditala.
12	400KV-LAPANGA-STERLITE-2	05-07-2024	15:51	Y-Earth	100	A/r failed after 1 second			Yes	No	OPTCL	VEDANTA	
13	400KV-BINAGURI-TALA-1	06-07-2024	01:30	B-Earth	100	A/r successful at Binaguri. However after 1.5 second DT received from Tala and all three phase tripped.			Yes	No	PG ER-2	Bhutan	No issue at Binaguri end. DT received at Binaguri end even after successful A/R due to Bhutan end issue.
14	400KV-ALIPURDUAR (PG)-PUNASANGCHUN-2	06-07-2024	02:45	B-Earth	200	Evolving resistive fault. A/r failed after 1 second			Yes	No	PG ER-2	Bhutan	
15	400KV-GORAKHPUR-MOTIHARI-2	09-07-2024	05:40	R-Earth	100	A/r failed after 1 second from Motihari. At Gorakhpur end tie bay attempted A/R even after main bay A/R was failed .			No	Yes	NR	DMTCL	
16	400KV-BIHARSARIFF(PG)-SAHUPURI(CHANDAULI)-2	09-07-2024	14:37	B-Earth	100	A/R successful from Biharsariff while tripped from sahupuri end			Yes	NA	PG ER-1	NR	
17	220KV-RANCHI-MTPS(DVC)-1	10-07-2024	12:22	B-Earth	100	A/r succesful from Ranchi. A/r kept disabled at Mejia			Yes	No	PG ER-1	DVC	
18	400KV-BIHARSARIFF(PG)-SAHUPURI(CHANDAULI)-1	10-07-2024	15:54	Y-Earth	500				NA	No	PG ER-1	NR	

19	400KV-BIHARSARIFF(PG)-SAHUPURI(CHANDAULI)-2	10-07-2024	15:54	Y-Earth	500	Disturbance at Sahupuri S/s. Zone-2 picked at Biharsharif but line tripped from remote end after around 480 msec			NA	No	PG ER-1	NR	
20	400KV-BIHARSARIFF(PG)-SAHUPURI(CHANDAULI)-2	10-07-2024	18:37	Y-Earth	500				NA	No	PG ER-1	NR	
21	400KV-BIHARSARIFF(PG)-SAHUPURI(CHANDAULI)-1	10-07-2024	18:37	Y-Earth	500				NA	No	PG ER-1	NR	
22	220KV-DARBHANGA(DMTCL)-LAUKAHI-1	11-07-2024	04:13	R-Earth	100	Three phase tripping for single phase fault. DMTCL & BSPTCL may explain			No	No	DMTCL	BSPTCL	
23	220KV-SAHARSA(PMTL)-BEGUSARAI-1	11-07-2024	13:50	R-Earth	100	A/R successful. Line tripped again within reclaim time			Yes	No	PMTL	BSPTCL	
24	220KV-GAYA-KHIZERSARAI-2	11-07-2024	17:53	R-Earth	100	3 phase tripping for 1 phase fault , POWERGRID/BSPTCL may explain			Yes	No	PG ER-1	BSPTCL	
25	400KV-BAHARAMPUR-BHERAMARA-2	11-07-2024	19:12	R-Earth	100	3 phase tripping for 1 phase fault. DT received at Baharampur end			Yes	No	PG ER-2	Bangladesh	
26	220KV-DALTONGUNJ-GARWAH (NEW)-1	11-07-2024	20:15	R-Earth	100	A/R failed affter 1 sec from Daltongunj end but Y & B poles remained charged from Garwah end. PD time may be checked.			Yes	No	PG ER-1	JUSNL	
27	220KV-RANCHI-CHANDIL-2	12-07-2024	20:21	Y-Earth	100	A/R Sucessful from Chandil only , while Y phase tripped from Ranchi end and other 2 phases tripped after 2.5 seconds on Pole Discrepancy. PG ER-1 may explain.		DR is not time synchronized and channels are	Yes	Yes	PG ER-1	JUSNL	Only one Channel used for PLCC Communication i.e., in Y Ph. During the Y Ph fault carrier fail alarm raised and A/R blocked as per scheme.
28	220KV-RANCHI-MTPS(DVC)-1	12-07-2024	21:54	Y-Earth	100	A/r succesful from Ranchi. A/r kept disabled at Mejia			Yes	No	PG ER-1	DVC	
29	400KV-LAPANGA-STERLITE-2	13-07-2024	09:04	Y-Earth	100	A/R sucessful from Lapnaga while no A/r attempted at Sterlite and other two phase tripped after 5 seconds. PD time may be checked. Sterlite may explain.			Yes	No	OPTCL	VEDANTA	

30	400KV-LAPANGA-STERLITE-2	13-07-2024	11:01	Y-Earth	100	A/r attempted from Lapanga after 1 second. However, this time line tripped in 400 msec despite seen in Zone-1 and SOTF also picked up. No LBB operated. At sterlite, no A/r attempt was taken and other two phase tripped after 5 seconds. OPTCL/Sterlite may explain.			Yes	No	OPTCL	VEDANTA	
31	220KV-SAHARSA-BEGUSARAI-1	13-07-2024	13:43	B-Earth	500	Tripped in zone 2 from saharsa. Carrier sent from Begusarai but not received at remote end. A/r successful from Begusarai.			Yes	Yes	PG ER-1	BSPTCL	Line and PLCC are owned and maintained by BSPTCL
32	220KV-BUDHIPADAR-KORBA-1	13-07-2024	18:39	R-Earth	100	Three phase tripping for single phase fault. OPTCL may explain.			Yes	NA	OPTCL	WR	Heavy rain & lightning 3 phase tripping occurred for 1 ph fault to be confirmed by testing of DP relay after getting shutdown on 04.09.24
33	220KV-BUDHIPADAR-RAIGARH-1	13-07-2024	19:01	R-Earth	500	3 phase tripping for single phase fault at Budhipadar while tripped in zone-2 from Raigarh.			Yes	NA	OPTCL	WR	Presently charged through TBC , 3 phase tripping occurred for 1 phase fault to be checked after getting shutdown 05.09.24
34	400KV-IBEUL-OPGC-1	13-07-2024	20:43	R-Earth	100	A/r attempt could not be ascertained from PMU. OPGC/IBEUL may explain.			No	No	IND-Bharat	OPGC	
35	400KV-NEW PPSP-ARAMBAGH-1	14-07-2024	11:26	R-Earth	100	A/R Sucessful at Arambagh end , while momentarily R_ph breaker at New PPSP closed after 1 second and tripped again. After 1.5 seconds all three phase at New PPSP tripped. WBSETCL may explain.			Yes	Yes	WBSETCL	WBSETCL	A/R Sucessful at Arambagh end , while momentarily R_ph breaker at New PPSP closed after 1 second and tripped again. After 1.5 seconds all three phase at New PPSP tripped. WBSETCL may explain.
36	220KV-PATNA-KHAGAUL-1	14-07-2024	13:35	B-Earth	100	A/r attempt failed after 1 second			Yes	No	PG ER-1	BSPTCL	
37	400KV-JEERAT-SAGARDIGHI-1	14-07-2024	16:53	No fault	NA	Tripped only from sagardighi on DT receipt. No fault observed from PMU.			No	No	WBSETCL	WBPDCL	Tripped only from sagardighi on DT receipt. No fault observed from PMU.

38	400KV-JEERAT-SAGARDIGHI-1	15-07-2024	01:10	No fault	NA	Tripped only from sagardighi on DT receipt. No fault observed from PMU.			No	No	WBSETCL	WBPDCL	Tripped only from sagardighi on DT receipt. No fault observed from PMU.
39	400KV-MOTIHARI-GORAKHPUR-1	15-07-2024	04:30	B-Earth	100	A/R failed after 1 sec			Yes	NA	PG ER-1	NR	
40	400KV-JEERAT-NEW CHANDITALA-1	16-07-2024	17:36	B-Earth	100	3 phase tripping for single phase fault. A/r kept in non-auto mode for OPGW work.			Yes	Yes	WBSETCL	WBSETCL	
41	400KV-NEW JEERAT-SUBHASGRAM(PG)-2	17-07-2024	01:54	R-Earth	100	A/R failed after 1 sec	DR not time synchronized		Yes	Yes	PMJTL	PG ER-2	
42	400KV-MEERAMUNDALI-MENDHASAL-1	17-07-2024	03:04	O/V St.2	NA	B_ph voltage at Meramundali shot up to 386.5 kV gradually and O/V St.2 operated. OPTCL may explain.			Yes	Yes	OPTCL	OPTCL	
43	220KV-MAITHON(PG)-DUMKA-1	18-07-2024	04:26	R-Earth	100	Three phase tripping at Maithon. Other two phase at Dumka tripped later on PD.	DR length less and not		Yes	Yes	PG ER-1	JUSNL	
44	400KV-JEERAT-NEW JEERAT-2	18-07-2024	13:29	B-Earth	100	A/R failed after 1 sec		Unable to open DR due to some format	Yes	Yes	WBSETCL	PMJTL	
45	400KV-MEDINIPUR-NEW CHANDITALA-1	20-07-2024	11:59	Y-Earth	100	A/R failed after 1 sec			Yes	Yes	PMJTL	WBSETCL	
46	400KV-MEDINIPUR-NEW CHANDITALA-2	20-07-2024	12:12	Y-Earth	100	A/R failed after 1 sec			Yes	Yes	PMJTL	WBSETCL	
47	220KV-NEW PURNEA-MADHEPURA-1	20-07-2024	15:07	B-Earth	100	A/R Sucessful from New Purnea end while line tripped in Zone-2 from Madepura End			Yes	No	PG ER-1	BSPTCL	Line and PLCC are owned and maintained by BSPTCL
48	220KV-PANDIABILI-PRATAPSASAN-2	23-07-2024	00:19	B-Earth	100	Bus PT brust at Pratapsasan and bus bar protection operated.			No	Yes	PG Odisha	OPTCL	

49	220KV-PANDIABILI-PRATAPSASAN-1	23-07-2024	00:19	B-Earth	100	Bus PT brust at PRATAPSASAN,led to bus bar operation.			No	Yes	PG Odisha	OPTCL	
50	400KV-KOLAGHAT-NEW CHANDITALA-1	23-07-2024	12:25	Y-Earth	100	A/R failed after 1 second			No	Yes	WBPDCL	WBSETCL	
51	220KV-MAITHON-DHANBAD-1	23-07-2024	22:34	R-Earth	100	A/r successful from Dhanbad. Three phase tripping at Maithon.			Yes	No	PG ER-2	DVC	Bay is in TBC due to main CB replacement works. TBC has old static type AR relay (Model: RAAM). AR failed due to failure of static relays. It will be replaced at the earliest.
52	400KV-ALIPURDUAR (PG)-JIGMELLING-2	24-07-2024	09:00	No fault	NA	Line Tripped from Jigmelling end only due to some fault in Generator at Mangdechu. No fault in line.			NA	No	PG ER-2	Bhutan	
53	400KV-MALBASE-BINAGURI-1	25-07-2024	04:16	B-Earth	100	A/R failed after 1 second			Yes	Yes	Bhutan	PG ER-2	
54	220KV-CHANDIL-RANCHI-1	25-07-2024	17:36	B-Earth	100	Three phase tripping at Chandil. A/r attempt failed afte 1 second from Ranchi.	DR is not time synchron		Yes	Yes	JUSNL	PG ER-1	Line tripped due to persistant fault after 1 sec while attempting A/R
55	220KV-RANCHI-MTPS(DVC)-1	25-07-2024	21:47	R-Earth	100	A/r succesful from Ranchi. A/r kept disabled at Mejia			Yes	No	PG ER-1	DVC	
56	400KV-ALIPURDUAR (PG)-JIGMELLING-2	26-07-2024	11:36	R-Earth	100	Zone-3 picked at Alipurduar and later DT received. Bhutan may explain.			Yes	Yes	PG ER-2	Bhutan	Only Z3 started at Alipurduar end. Fault is beyond line & DT received at Alipurduar SS due to Bhutan end issue.
57	220KV-MAITHON-DHANBAD-1	26-07-2024	17:47	R-Earth	100	3 phase tripping for 1 phase fault			Yes	No	PG ER-2	DVC	Bay is in TBC due to main CB replacement works. TBC has old static type AR relay (Model: RAAM). AR failed due to failure of static relays. It will be replaced at the earliest.

58	220KV-MAITHON-DHANBAD-1	27-07-2024	12:34	B-Earth	400	Tripped from Maithon End in zone 2 , Successful A/R from Dhanbad end			Yes	No	PG ER-2	DVC	Carrier not received from remote end. PLCC belongs to DVC.
59	220KV-DARBHANGA (DMTCL)-MOTIPUR-2	27-07-2024	17:09	Y-B-Earth	100	phase to phase fault			No	Yes	DMTCL	BSPTCL	
60	220KV-KATAPALLI-BOLANGIR(PG)-1	28-07-2024	21:55	R-Earth	100	A/r couldn't be ascertained from PMU. OPTCL/PG Odisha may explain.			No	No	OPTCL	PG Odisha	
61	400KV-MEERAMUNDALI-JSPL-1	29-07-2024	09:41	B-Earth	100	A/r failed after 1 second	The Time need to increase to 3 sec in DR		Yes	No	OPTCL	Jindal Steel	
62	220KV-CHUKHA-BIRPARA-2	29-07-2024	16:00	Y-B-Earth	100	phase to phase fault			Yes	Yes	Bhutan	PG ER-2	
63	220KV-CHUKHA-BIRPARA-1	29-07-2024	16:00	Y-B-Earth	100	phase to phase fault			Yes	Yes	Bhutan	PG ER-2	
64	400KV-ARAMBAGH-NEW CHANDITALA-1	29-07-2024	17:41	R-Earth	100	A/r kept in non-auto mode for OPGW work			Yes	Yes	WBSETCL	WBSETCL	
65	400KV-MOTIHARI-BARH-2	30-07-2024	17:44	No fault	NA	DT received at Motihari end. NTPC may explain.			Yes	Yes	DMTCL	NTPC	While availing emergency shutdown of main bay 21 (due to air leakage from compressor) DT was sent to remote end upon selecting main breaker icon from SAS HMI. Analysis:On 25.07.2024, SAS maintenance job was undertaken which was perfromed by SAS engineer and necessary database updations were done. 'DT send' logic by manual tripping has been checked thoroughly and no problem has been found.Problem is suspected in SAS soft-logic for the mentioned tripping. Follow-up action:SAS upgradation job at NTPC Barh has been awarded to M/s GE T&D which is expected to commence from October 2024. Problem rectification will be addressed thereafter. For purpose of checking, Motihari-2 line shutdown has been applied for month of September 2024 in OCC. Presently for manually tripping the main breaker, TNC switched installed in BCU panel is being used.

66	220KV-DALTONGUNJ-GARWAH (NEW)-2	31-07-2024	10:24	R-Earth	100	A/R Successful , Tripped in reclaim time			Yes	Yes	JUSNL	PG ER-1	
67	220KV-RANCHI-MTPS(DVC)-1	31-07-2024	13:07	R-Earth	100	A/r succesful from Ranchi. A/r kept disabled at Mejia			Yes	No	PG ER-1	DVC	
68	220KV-PUSAULI-NADHOKAR-1	31-07-2024	14:22	No fault	NA	Tripped only at Pusauli (PG) end upon receipt of DT from Nadhokar end . BSPTCL and Powergrid may explain			Yes	No	PG ER-1	BSPTCL	Line tripped due to receipt of DT from Nadhokar end
69	220KV-PATNA-FATUHA-1	31-07-2024	16:12	R-Earth	100	Three phase tripping at Fatuah. A/r successful from both ends. However, during A/r at Fatuah Y_ph breaker didn't close.			Yes	No	PG ER-1	BSPTCL	
70	220KV-JSPL-JAMSHEDPUR(DVC)-1	31-07-2024	17:29	R-Earth	100	A/r failed after 1 second			No	No	OPTCL	DVC	
71	220KV-RAJARHAT-BARASAT-1	31-07-2024	18:06	No fault	NA	No fault observed from PMU. WBSETCL may explain.			No	Yes	PG ER-2	WBSETCL	Line fault was not observed in DR. DT received at Rajarhat end & CB opened.

Internal Protection Audit plan for different S/S of POWERGRID ER1 and PMTL

Sl. No.	Month	Proposed sub-stations for Protection audit
1	April, 2024	Kishanganj
2	May, 2024	Purnea & New Purnea
3	June, 2024	Banka
4	July, 2024	Lakhisrai & Gaya
5	August, 2024	Patna & Ara
6	September, 2024	Sitamarhi & Chaibasa
7	October, 2024	Biharsharif & Muzaffarpur
8	November, 2024	Chandauti & Jamshedpur
9	December, 2024	Saharsa & Daltonganj
10	January, 2025	New Ranchi & Chandwa
11	February, 2025	Pusauli
12	March, 2025	Ranchi

18/06/24

सूर्य प्रकाश / SURYA PRAKASH
महाप्रबंधक (परि. प्र.) / General Manager (AM)
पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
POWER GRID CORPORATION OF INDIA LIMITED
पूर्वी क्षेत्र पारेषण प्रणाली -I / Eastern Region Transmission System-I
बोर्ड कॉलोनी, शास्त्री नगर, पटना -800 023 / Board Colony, Shastri Nagar, Patna - 800 023

Protection Audit Plan of PG ER-II for FY:24-25 & Onwards

SL No	Name of the SS	Plan Date	Remarks
1	Rajarhat	April'24	Completd
2	New Melli	May'24	Completd
3	Gangtok	June'24	Completd
4	Malda	July'24	Completd
5	Rangpo	Aug'24	Completd
6	Alipurduar	Sept'24	
7	Dalkhola	Oct'24	
8	Maithon	Nov'24	
9	Berhampore	Dec'24	
10	Binaguri	Jan'25	
11	Birpara	Feb'25	
12	New Jeerat	Mar'25	
13	Medinipur	April'25	
14	Subhasgram	May'25	
15	Siliguri	June'25	
16	Durgapur	July'25	

Protection Audit Plan for Powergrid(Odisha)

Region	Station Name	Date of protection Audit
Odisha	Sundergarh	April'24
	Angul	March'24
	Bolangir	June'24
	Jeypore	Dec'24
	Indravati	May'24
	Rourkela	Sept'24
	Baripada	Jan'25
	Pandiabili	Aug'24
	HVDC,Talcher	Oct'24
	Rengali	July'24
	Keonjhar	Nov'24

Tentative Schedule for Internal protection audit Planning of GSSs of BSPTCL as per direction of ERPC

Sl. No.	Name of GSS	Tentative date
1.	Khagaul	18.04.24-19.04.24
2.	Bihta new	29.04.24- 30.04.24
3.	Fatuha	14.05.24-15.05.24
4.	Sampatchak	29.05.24-30.05.24-
5.	Karmnasha New	12.06.24-13.06.24
6.	Pusauli	20.06.24-21.06.24
7.	Motipur	15.04.24-16.04.24
8.	Musahri	06.05.24-07.05.24
9.	Raxaul New	12.06.24-13.06.24
10.	Khagaria New	07.05.24-09.05.24
11.	Kishanganj New	11.06.24-13.06.24
12.	Begusarai	09.07.24-11.07.24
13.	Madhepura	22.04.24-24.04.24
14.	Laukahi	20.05.24-22.05.24
15.	Darbhanga	03.06.24-05.06.24
16.	Hajipur(New)	10.04.2024
17.	Goraul	16.04.2024
18.	Ujjiyarpur	02.05.2024
19.	Gopalganj	14.05.2024
20.	Sonenagar(new)	03.04.24-05.04.24
21.	Bodhgaya	08.04.24-10.04.24
22.	Dehri	25.04.24-26.04.24
23.	Asthawa	22.04-24-23.04.24
24.	Biharsharif	10.06.24-14.06.24

Jharkhand Urja Sancharan Nigam Limited

Office of the General Manager (CRITL & Operation Efficiency)
Transmission Division Shed, Kusai Colony, Doranda, Ranchi-834002
Mail –cecritl.jusnl@rediffmail.com, Phone – 0651 2491132

Letter No:...10...../Ranchi
GM,CRTIL RANCHI/64/2023-24

Dated.02.02.24

From,

GM (CRITL / Operations Efficiency)
Kusai Colony, Ranchi.

To,

Member Secretary, ERPC
14, Golf Club Road, Tollygunge
Kolkata-700033

Sub:- **Internal Protection Audit plan of Substation for the FY. 2024-25.**

Ref:- Item no.- C/21 of 131st PCC agenda.

Sir,

With reference to subject above, in compliance of clause (5) of regulation 15 of IEGC regulations 2023, the annual tentative audit plan for the substations 220 kV and above voltage level for the FY. 2024-25 is being submitted as mentioned below:-

Sl. No.	Name of Sub-Station	Date
1	220/132 kV Chandil	02.04.2024 to 05.04.2024
2	220/132 kV Ramchandrapur	
3	220/132/33 kV Chaibasa -I (Ulijhari)	
4	220/132 kV Hatia-II	09.04.2024
5	220/132 kV Bhagodih	23.04.2024 to 24.04.2024
6	400/220/132 kV Latehar	
7	220/132 kv Itkhori	29.04.2024
8	220/132/33 kV Govindpur	2nd to 3rd week of May 2024
9	220/132/ kv Dumka-II (Madanpur)	
10	220/132/33 kV Godda	
11	220/132/33 kv Jasidih	
12	220/132/33 kV Giridih	
13	400/220 kv Patratu	29.05.2024

This is for kind information and necessary action.

Yours faithfully,

02-02-24

General Manager,
CRITL/O.E, JUSNL, Ranchi

Protection audit plan for DVC

S.No.	Name of Switchyard	Audit date
1	MTPS	03.06.2024
2	CTPS	07.06.2024
3	RTPS	10.06.2024
4	KTPS	14.06.2024
5	BTPS	17.06.2024
6	DSTPS	21.06.2024
7	DTPS	28.06.2024
8	KALYANESHWARI	02.07.2024
9	BURDWAN	05.07.2024
10	DURGAPUR	09.07.2024
11	BARJORA	12.07.2024
12	PARULIA	16.07.2024
13	RAMGARH	19.07.2024
14	GIRIDIH	23.07.2024
15	DHANBAD	26.07.2024
16	BURNPUR	29.07.2024
17	JAMSHEDPUR	02.08.2024

WBSETCL

WEST BENGAL STATE ELECTRICITY TRANSMISSION COMPANY LIMITED

(AGovt. Of West Bengal enterprise)

OFFICE OF THE CHIEF ENGINEER, CENTRAL TESTING DEPARTMENT

Abhikshan, Block- BN, Bidhannagar, Kolkata- 700 091, Phone- 033 2367 1494, Fax: 033 2367 3578

E-mail Id: cectdwbsetcl@gmail.com

Schedule for Internal Protection Audit for the financial year 2024-25 :

As per clause (5) of Regulation 15 of IEGC Regulation . 2023 , the schedule for internal audit plan for financial year 2024-2025 is as follows :

Sl.No.	Month	Name of the Sub-station
1	April-24	Kharagpur 400 KV substation and Subhasgram 220 KV substation
2	May-24	Gokarna 400 KV substation and Kasba 220 KV substation
3	June-24	Krishnanagar 220 KV Substation
4	July-24	Satgachia 220 KV Substation
5	August-24	PPSP 400 KV substation and Hura 220 KV substation
6	Septembar-24	Durgapur 400 KV substation
7	October-24	NIL
8	November-24	Newchanditala 400 KV substation and Howrah 220 KV substation
9	December-24	Jeerat 400 KV substation and Rishrah 220 KV substation
10	January-25	Dalkhola 220 KV Sub-station and Gazole 220 KV Substation
11	February-25	New Bishnupur 220 KV and Domjure 220 KV Substation
12	March-25	Arambag 400 KV substation and Lakshikantapur 220 KV substation

This is the tentative schedule for this financial year subject to availability of the protection team.

11/03/2024

(G. Nayak)

Chief Engineer

Central Testing Department

WBSETCL

CESC Station Protection Audit Plan of GS/RS/SS for Fy 24-25					
Sl. No	**Station Name**	**Station Type**	**Voltage**	**Audit Month**	**Remarks**
1	Budge- Budge Generating Station	GS	220kV	August '24 - January '25	
2	Southern Generating Station	GS	33kV		
3	EMSS	SS	220kV		
4	EM(South) SS	SS	220kV		
5	Princep St. SS	SS	220kV		
6	NCSS	SS	220kV		

Note : GS - Generating Station ; SS - Substation

एनएचपीसी लिमिटेड
(भारत सरकार का उद्यम)
NHPC Limited
(A Govt. of India Enterprise)

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NHPC OFFICE COMPLEX
SECTOR-33, FARIDABAD
HARYANA- 121003
Ph. 91-129-2250846
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एनएचपीसी/ओ&एम/2023/157.

दिनांक: 13/11/2023

सदस्य सचिव
पूर्वी क्षेत्रीय विद्युत समिति
14, गोल्फ क्लब रोड,
टोलीगंज
कोलकाता-700032

विषय: वित्तीय वर्ष 2024-25 के लिए वार्षिक Protection Audit प्लान।

संदर्भ:- 130वीं ईआरपीसी पीसीसी बैठक का एजेंडा बिंदु C1 के संबंध में।

महोदय,

यह ईआरपीसी की 130वीं पीसीसी बैठक के एजेंडा बिंदु C1 के संदर्भ मे है जिसके द्वारा वित्त वर्ष 2024-25 के लिए 220/400 KV स्टेशनों की वार्षिक Protection Audit प्लान प्रस्तुत करने का अनुरोध किया गया था।। इस संदर्भ में, FY 2024-25 के लिए सभी एनएचपीसी के eligible स्टेशनों का tentative वार्षिक Protection Audit प्लान निम्न प्रकार है:-

Sl No	Power Station	Voltage Level(KV)	Tentative Month of Audit
1	Teesta-V	400	April'24
2	TLD-III	220	April'24
3	TLD-IV	220	April'24

यह आपकी जानकारी के लिए प्रस्तुत है।

धन्यवाद।

भवदीय

सूरज 13/11/23
(सूरज धीमान)
महाप्रबंधक (ओ एंड एम)

List of Critical Substations for carrying out third party protection audit on priority basis for 2024-25

1) NTPC Kahalgaon
2) NTPC Farakka
3) NTPC Barh
4) Jorethang
5) Tashiding
6) Ramchandrapur
7) Tenughat
8) Chatra
9) Hatia
10) Garhwa
11) Chandil
12) Bantala (KLC)
13) Budhipadar
14) Lapanga
15) Rengali (OPTCL)
16) Rengali (PH)
17) Therubali
18) Balimela
19) Darbhanga (BH)
20) Biharsharif (BH)
21) Purnea Old (PG)
22) Kishanganj (PG)
23) Meramundali

ANNEXURE C.4

Sl No.	Name of the incidence	PCC Recommendation	Latest status
137th PCC Meeting			
1.	Disturbance at 220 kV Budhipadar(OPTCL) S/s and 220 kV Ib-TPS (OPGC) S/s on 05.06.2024 at 04:11 Hrs	PCC advised SLDC Odisha to coordinate with CPPs and share islanding scheme details to ERPC/ERLDC. OPTCL representative replied that due to non availability of shutdown & testing kit, testing of auto-recloser was not done however it is expected to be completed within 10 days and report will be shared to ERPC/ERLDC. PCC advised OPTCL to test relays at earliest and submit observation to ERPC/ERLDC. PCC advised OPTCL to conduct testing of breaker also and submit observation to ERPC/ERLDC. PCC advised OPTCL representative to review zone 3 time & reach settings of relay at Budhipadar end for 132 k V Budhipadar- Lapanga. PCC advised OPTCL representative to increase in DR length to 3 seconds. It further advised OPTCL representative to prepare annual maintenance plan and outage plan of each S/s and share to ERPC/ERLDC.	*OPTCL representative had shared tentative program of checking and testing of 220 kV feeders vide email dated 2nd Aug 2024.* *OPTCL representative replied that testing had been completed for 5 bays as per below schedule-* • *Testing of relay and breaker for IBTPS-3 on 1st Aug 2024* • *Testing of relay for IBTPS-4 on 6th Aug 2024* • *Testing of relay and breaker for IBTPS-2 on 13th Aug 2024* • *Testing of relay and breaker for IBTPS-1 on 23rd Aug 2024* • *Testing of bus coupler on 27th Aug 2024* *He further added that report had been shared to ERPC/ERLDC regarding issues observed during testing.* *He informed that testing for Korba-1 and Raigarh is planned in 4th and 5th Sep 2024.* *ERPC representative enquired OPTCL representative about review of zone 3 time and reach settings of relay at Budhipadar end for 132 k V Budhipadar- Lapanga. for which OPTCL reprsentative replied that zone 3 time settings was set to 1 second with reach settings of 150 % of line length however it is being reviewed as 120 % of (line*

			length + adjacent longest line length). *Regarding DR length, OPTCL representative replied that it had been increased to 3 seconds for ALSTOM make relays however for Siemens relays they are facing difficulty.* *Regarding testing of auto-recloser he informed that testing had been completed.* *PCC advised OPTCL representative to share further plan of testing with ERPC/ERLDC.*
2.	Disturbance at 220 kV Budhipadar(OPTCL) S/s and 220 kV Ib-TPS (OPGC) S/s on 13.06.2024 at 19:11 Hrs	OPTCL representative informed that delay of around 160 ms was observed in opening of breaker for which testing of breaker is planned in order to find reason behind delayed opening and taking remedial measures. PCC advised OPTCL to restore circuit breaker within a week. OPTCL was further advised to share their long term plan for resolving the issues associated at Budhipadar S/s.	
3.	Disturbance at 220 kV New Meli (PG) S/s, 220 kV Jorethang HEP and 220 kV Tashiding HEP on 19.06.2024 at 06:38 Hrs	PCC advised Powergrid representative to share relay settings at New Melli end to ERPC/ERLDC for further review if required. ERLDC representative replied that as per DR file shared by PG, tripping of 220 kV Jorethang-New Melli-2 was observed at New Meli end therefore he advised PG	*ERPC representative informed that settings had been received from New Melli, Jorethang and Tashiding. He further added that settings will be shared to PRDC for review of these settings.* *ERLDC representative informed that they have*

		representative to recheck DR and submit confirmation to ERPC/ERLDC. ERLDC representative requested Jorethang HEP to share settings to ERPC/ERLDC. PCC advised Tashiding HEP & Jorethang HEP to submit internal protection audit plan to ERPC/ERLDC and advised for relay testing also in annual maintenance schedule. PCC advised ERPC representative to communicate with PRDC in reviewing & updating relay settings at Jorethang /Tashiding / New Melli in PDMS.	*observation related to Jorethang.* *As Jorethang HEP representative was not available in the meeting, PCC advised ERLDC representative to resolve issue bilaterally.*
4.	Disturbance at 400 kV Meeramundali B (OPTCL) S/ s and 400 kV GMR S/s on 20.06.2024 at 19:18 Hrs	PCC advised OPTCL & GMR to carry out testing of the carrier communication jointly and submit observation to ERPC/ERLDC.	*OPTCL representative informed that testing of carrier communication had not been done due to non availability of shutdown of GMR unit.*
5.	Repeated tripping of 400kV-KHSTPP-BARH-1	She further informed that shutdown of bus 2 is also planned on 31st July 2024 to revive tie bay for Banka -1 as Barh and Banka are in same tie subsequently no issue will occur further. ERLDC representative further enquired that auto-reclose is not getting successful from their end for barh circuit -2 for which she replied that issue will be checked in planned shutdown of line.	*NTPC representative was not available in the meeting.*

		NTPC representative replied that they are planning to replace faulty relays by Oct 2024 subsequently these issues will be resolved. PCC advised NTPC representative to resolve auto-recloser & DR issue at earliest	
6.	SPS Scheme for 220 k V Maithon Dumka D/C	PCC advised JUSNL representative to share details of feeder identified for providing load relief of 160 MW to ERPC/ERLDC within a week.	*JUSNL representative informed that feeders had been identified for providing load relief in which Godda feeder can provide load relief of 40 MW and Pakur feeder can provide relief of 100 MW.* *ERLDC representative replied that whether it is possible to segregate load relief of 100 MW of Pakur feeder in two stages for providing relief of 80 MW in stage 1 and stage 2 for which JUSNL representative replied that both lines of Pakur feeder has average load for 50 MW.* *PCC advised JUSNL representative to share complete load relilef feeder details with ERPC/ERLDC so that SPS can be reviewed accordingly.* *JUSNL representative further added that PLCC for Godda end is not healthy however from local end feeder can be tripped therfore carrier is not required.* *JUSNL representative further enquired ERLDC representative whether SPS can be set up on downstream*

			S/s like 220 k V Jasidih S/s i.e. not at Dumka end for which ERLDC representative replied that SPS can be implemented at downstream S/s however signal needs to be extended and communication(PLCC/OPGW) should be healthy. *PCC advised JUSNL representative to explore possibilities for SPS implementation considering downstream S/s also with healthiness of communication system so that SPS can function effectively and share identified feeders details along with proposed SPS site and healthiness of communication system details to ERPC/ERLDC.* *ERPC representative requested Powergrid representative to help JUSNL in technical issues in implementing SPS.*
136th PCC Meeting			
7.	Disturbance at 765/400 kV Jharsuguda (Powergrid) S/s and tripping of units at Darlipalli STPP (NTPC) and OPGC on 21.05.2024 at 17:02 Hrs	NTPC representative replied that already team is deployed for reviewing settings and OEM support is also required for review of these settings for which communication is already made with OEM and updates will be shared with ERPC/ERLDC. PCC advised OPGC representative to coordinate with OEM (M/s BHEL and M/s Siemens) to review LSR settings (slope, time delay etc) and update status to ERPC/ERLDC.	*No representative was present from NTPC Darlipalli.* *No representative was present from OPGC.*

		PCC further advised to share slope of LSR ramp settings and protection scheme to ERPC/ERLDC.	
8.	Disturbance at 400 kV Haldia (HEL) S/s on 29.05.2024 at 12:38 Hrs	PCC advised Powergrid representative to coordinate with OEM in order to find root cause behind tripping of zone 2 fault in zone 1 and share the analysis received from OEM to ERPC/ERLDC. PCC further advised PG representative to share DR of the event to ERPC/ERLDC. PCC advised HEL representative to coordinate with OEM in order to find reason behind operation of DEF protection.	*Powergrid representative inforemd that already matter was communicated to OEM M/s GE however no comments had been received.* *HEL representative was not available in the meeting.* *HEL representative replied that issue for DEF operation during the disturbance was discussed with OEM however no comments had been received.* *PCC advised Powergrid and HEL represetative to coordinate with respective OEM and share details to ERPC/ERLDC at earliest.* *In 138th PCC Meeting, No representative was present from HEL.*
9.	Disturbance at 220 kV Tenughat (TVNL) S/s on 29.05.2024 at 12:57 Hrs	PCC advised JUSNL representative to rectify auto-reclose issue at Govindpur end by next week and intimate to ERPC/ERLDC. TVNL representative informed that settings at their end had been implemented by CRITL, JUSNL team and he further assured that O/C E/F settings will be revised at the earliest after consultation with CRITL, JUSNL team. PCC advised CRITL, JUSNL team to test auto-reclose and carrier at both Govindpur as well as Tenughat end.	*TVNL representative was not available in the meeting.* *CRITL JUSNL representative replied that they are facing issue in engaging third party agency for testing of auto-recloser.* *PCC advised ERPC/ERLDC to send letter to higher authority of SLDC Jharkhand/ JUSNL to rectify auto-recloser issue at Govindpur end Tenughat end by engaging third party agency at earliest.* *In 138th PCC, JUSNL representative informed that*

			work order for auto-reclose had been placed for Govindpur end and will be done for Tenughat end and Dumka end soon.
10.	Total Power Failure at 220 kV Chandiposh (OPTCL)S/s and 220 kV Barkot (OPTCL) S/s on 21.05.2024 at 18:09 Hrs	OPTCL representative informed that regarding tripping of 220 kV Rengali- Deogarh in zone 2 from Deogarh end before 250 ms, already communication had been made to site to test relay and review the settings and further revision of settings will be done accordingly. PCC opined those issues like restoration of bus bar, bus bar protection etc at Rengali S/s are very important for reliability of grid. PCC also advised OPTCL representative to share target date and plan to ERPC/ERLDC for resolving mentioned issues. PCC advised SLDC Odisha representative to coordinate with concerned utilities for submission of disturbance report on time.	*OPTCL representative infomed that proposal of installation of new bus bar protection is already given to management. He further informed that updation of old bus bar protection is also included in stamp project.* *In 138th PCC Meeting, ERPC representative informed that issues like restoration of bus bar, bus bar protection etc at Rengali S/s are very important for reliability of grid hence it will be discussed in 52nd TCC meeting.*
11.	Disturbance at 220 kV Dalkhola (WBSETCL) S/s on 31.05.2024 at 02:42 Hrs	PCC suggested Powergrid representative to implement group setting at Kishangunj end so that settings may be selected as per bus coupler configuration at Dalkhola. Powergrid representative submitted that they will discuss the with their corporate and will intimate accordingly to ERLDC/ERPC.	*PG representative informed that proposal for revising zone 3 settings to 1 second had been shared to corporate team.* *PCC advised PG representative to update status for proposal given to ERPC/ERLDC by 31st July*

		PCC advised PG representative to revise time settings at Kishangunj end to 1 second.	*2024 and revise settings at earliest.* *In 138th PCC, Powergrid representative informed that settings had been revised to 1 second on 6th Aug 2024 and it will be shared to ERPC/ERLDC.* *Regarding group settings at Dalkhola end, PG representative replied that corporate team is not being agreed for these settings. Since bus coupler configuration is changed rarely at S/s so settings can be revised at that time of changing bus coupler configuration.*
135th PCC Meeting			
12.	Total Power Failure at 220 kV Chatra (JUSNL) S/s on 06.04.2024 at 14:05 Hrs	JUSNL was advised following: ➢ Disturbance Recorders of all the relays at Chatra end may be reconfigured as per the PCC guidelines and compliance of the same shall be intimated to ERLDC/ERPC at the earliest. ➢ The relays at Chatra end may be tested for their healthiness in phased manner. ➢ Submit the event analysis report after site visit of CRITL team	*Regarding disturbance recorders, JUSNL representative replied that configuration had been done as per PCC guidelines.* *Regarding healthiness of relays at Chatra end, JUSNL representative informed that main 2 relay was not present at chatra end,for which order has been placed and it will be installed by July-24.* *Regarding event analysis report, he replied that CRITL team had visited site however due to isue in DR configuration, DR could not be extracted.* *In 137th PCC, JUSNL representative replied that implementation of relay had not been done.*

			PCC advised JUSNL representative to coordinate with site and share target date of relay implementation to ERPC/ERLDC. *In 138th PCC, JUSNL representative submitted that material had been received at site & relay implementation will be done by first week of Sep 2024.*
13.	Total Power Failure at 220 kV Pratapsasan (OPTCL)S/s on 23.04.2024 at 14:22 Hrs	PCC opined that blocking of isolator and CB status should not cause busbar relay operation and suggested that this event of mal-opertaion of busbar relay shall be consulted with relay OEM and logic of busbar relay may be reviewed. PCC advised the issue may be resolved within a month.	*No further update on this issue. OPTCL was advised to take the matter with the OEM.* *OPTCL representative informed that communication had been already made with OEM and engineer had also visited site however he was unable to find reasong behind maloperation of bus bar protection at Pratapsasan.He further added that experts from OEM are likely to visit site by 10-15 days so it is expected that issue will be resolved.* *PCC advised OPTCL representative to share DR/EL details to OEM and try to expedite in rectification of issue.* *In 138th PCC, OPTCL representative replied that communication had been already made with OEM however no response had been received from OEM.* *PCC advised OPTCL representative to share update to ERPC/ERLDC after communicating with OEM.*
133rd PCC Meeting			

14.	Review of SPS at Sterlite (Vedanta)	SLDC Odisha representative informed that the meeting to discuss the modalities of implementation of proposed SPS scheme will be convened within a week.	*SLDC Odisha representative informed that Vedanta has sough some additional time for implementation of the SPS. PCC advised SLDC to coordinate with Vedanta for early implementation of the SPS.* *SLDC Odisha representative informed that internal approval had been taken for SPS however around one and half month will be required to implement scheme.* *In 137th PCC Meeting, SLDC Odisha representative informed that as per discussion held with Vedanta, it is expected that SPS scheme will be implemented by 31st Aug 2024.* *In 138th PCC, SLDC representative replied that as per discussion held with Vedanta, SPS scheme will be implemented by end of Sep 2024.*