भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
उत्तर क्षेत्रीय विद्युत समिति
Northern Regional Power Committee

दिनांक: 14.01.2025

सेवा में : संरक्षण उप-समिति के सदस्य (सूची के अनुसार) ।
To: Members of Protection Sub-Committee (As per mail list)

विषय: संरक्षण उप-समिति की 56 वीं बैठक की कार्यसूची |
Subject: Agenda for 56th Protection Sub-Committee Meeting.

संरक्षण उप-समिति की **56 वीं बैठक, दिनांक 20.01.2025 को 11:00 बजे** से **एनआरपीसी सचिवालय, कटवारिया सराय, नई दिल्ली** में आयोजित की जाएगी | उक्त बैठक की कार्यसूची संलग्न है । यह उत्तर क्षेत्रीय विद्युत् समिति की वेबसाइट (http://164.100.60.165/) पर भी उपलब्ध है | कृपया बैठक मे उपस्थिति सुनिश्चित करें ।

The **56th meeting** of Protection Sub-Committee is scheduled to be held on **20.01.2025** at **11:00 Hrs** at **NRPC Secretariat, Katwaria Sarai, New Delhi**. The agenda for the meeting is attached herewith. The same is also available on NRPC website (http://164.100.60.165/). Kindly make it convenient to attend the same.

Signed by Dharmendra Kumar Meena
Date: 14-01-2025 12:07:02

डी. के. मीना
निदेशक (संरक्षण)

Agenda of 56th Protection Sub-Committee Meeting (20th January, 2025)

Contents

Agenda for 56th Meeting of Protection Sub-Committee (PSC) of Northern Regional Power Committee

Date and time of meeting	***:***	***20.01.2025 11.00 Hrs.***
Venue	***:***	***NRPC Secretariat, Katwaria Sarai, New Delhi***

Part-A: Agenda by NRPC Secretariat

A.1. Confirmation of minutes of 55th meeting of Protection Sub-Committee

A.1.1 55th PSC meeting was held on 20.12.2024. Minutes of the meeting were issued vide letter dt. 10.01.2025. No comment has been received till the date.

Decision required from Forum:

Forum may approve the minutes of 55th PSC meeting.

A.2. Status of action taken on decisions of 55th Protection Sub-Committee meeting (agenda NRPC Secretariat)

A.2.1 Status of action taken on the decisions of 55th PSC meeting is attached as **Annexure-A.I.**

Decision taken by Forum

Status may be deliberated.

A.3. Submission of protection performance indices along with reason and corrective action taken for indices less than unity to NRPC Secretariat on monthly basis (agenda by NRPC Secretariat)

A.3.1 *As per clause 15 (6) of IEGC 2023;*

- *Users shall submit the protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system, which shall be reviewed by the RPC:*

a) *The **Dependability Index** defined as* $D = Nc/Nc+Nf$

b) *The **Security Index** defined as* $S = Nc/Nc+Nu$

c) *The **Reliability Index** defined as* $R = Nc/Nc+Ni$

where,

Nc is the number of correct operations at internal power system faults,

Nf is the number of failures to operate at internal power system faults,

Nu is the number of unwanted operations,

Ni is the number of incorrect operations and is the sum of Nf and Nu

- *Each user shall also submit the reasons for performance indices less than unity of individual element wise protection system to the respective RPC and action plan for corrective measures. The action plan will be followed up regularly in the respective RPC.*

A.3.2 In earlier PSC meeting, it was decided that each utility shall submit the Performance **indices of previous month by 7th day of next month.**

A.3.3 Accordingly, the status of the indices reported for the month of **December-2024** is attached as **Annexure-A.II.**

A.3.4 Further, based on submitted data by the utilities as on date, the summary of events of that caused indices less than unity is also attached as **Annexure-A.III.**

A.3.5 **Submitted data has following issues:**

i. Some Utilities have not submitted data for Dec-2024.
ii. Utilities have submitted date for some plants but not all.
iii. Utilities have not mentioned corrective action taken for indices less than unity.
iv. Some utilities have sent data after cut-off date of 7th.

The same is highlighted in Annexure-A.II.

Decision required from Forum:

i. Forum may discuss cases where indices are less than 1.

ii. Forum may direct utilities to submit the performance indices of previous month by 7th day of next month element wise along with the reason for indices less than unity and corrective action taken.

A.4. Annual protection audit plan for FY 2024-25 (agenda by NRPC Secretariat)

A.4.1 As per clause 15 of IEGC 2023;

- *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.*

A.4.2 Starting from 48th PSC, in every PSC meetings, all utilities were requested to submit the annual protection audit plan.

A.4.3 In view of above, some utilities have submitted their annual audit plans (enclosed as **Annexure- A.IV**).

Decision required from Forum:

Utilities may submit annual audit plan and reports of audit in FY 2024-25. Compliance report for the audited substation may be submitted.

A.5. Annual protection audit plan for FY 2025-26 (agenda by NRPC Secretariat)

A.5.1 As per clause 15 of IEGC 2023;

- *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.*

A.5.2 In view of above, all utilities were requested to submit the annual protection audit plan for FY-2025-26 latest by 31st October 2024 in the 53rd PSC meeting. Further, concerned utilities were requested in 54th and 55th PSC meeting to submit the same at the earliest.

A.5.3 Accordingly, some utilities have submitted their annual audit plans (enclosed as **Annexure- A.V**).

Decision required from Forum:

Forum may direct utilities who have not submitted audit plan for FY 2025-26 as deadline of 31st October 2024 has already passed.

A.6. Third-party protection audit plan (agenda by NRPC Secretariat)

A.6.1 As per clause 15 of IEGC 2023:

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.

A.6.2 In view of above, some utilities have submitted their third-party protection audit plans enclosed as **Annexure-A.VI**.

Decision required from Forum:

Forum may direct utilities to update the status of 3rd party protection audit as per the submitted audit plans. Subsequently, the audit reports along with compliance status may be submitted to NRPC Secretariat regularly.

A.7. Compliance of recommendations of protection audit (agenda by NRPC Secretariat)

A.7.1 As per clause 15 (1) of IEGC 2023*;*

- *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).*

A.7.2 As per clause 15 (4) of IEGC 2023*;*

The third-party protection audit report shall contain information sought in the format enclosed as Annexure–1 (IEGC). The protection audit reports, along with **action plan for rectification of deficiencies detected, if any, shall be submitted to the respective RPC and RLDC or SLDC, as the case may be, within a month of submission of third-party audit report.** The necessary compliance to such protection audit report shall be followed up regularly in the respective RPC.

A.7.3 Following utilities have submitted the internal audit report for the year 2024-25 based

on the audit done at their substations:

S.N.	Utility	Stations
1	HPPTCL	Gumma, Lahal, Phozal
2	Prayagraj Power Generation Company Limited	3X660MW STPP
3	RVPN	220 kV Chaksu 220 kV Mansarovar 765 kV Anta 220 kv Mandalgarh 220 kV Pratapgarh
4	RVUN	Ramgarh Gas Sutargarh Supercritical
5	Nabha Power Limited	400 kV NPL Sub-station

A.7.4 Following utilities have submitted reports of 3rd Party audit:

S.N.	Utility	Stations
1	UJVN	220kV Substation at 304 MW MB-II Power House, Dharasu
2	M/s Adani Power	2x660 MW Kawai Plant

A.7.5 **The submitted reports are available at NRPC website: http://164.100.60.165/meetings/prsub.html**

A.7.6 Status of compliance has been reported by Koteshwar HEP as below:

Recommendations: Upgradation of Line Protection from Distance to Differential Protection may be expedited for resolving issue of time synchronization of Line Protection Relays.

Compliance: MOU for Upgradation of Line Protection from Distance to Differential Protection has already been signed with POWERGRID and material required for said purpose has also reached site. The work is expected to be completed by Jan'25.

Decision required from Forum:

Forum may discuss audit report as well as action taken by utilities on recommendations of audit. Further, other utilities may be directed to submit the protection audit report (for audited S/s as per submitted plan) to NRPC Secretariat and may update the compliance status regularly.

Part-B: Agenda by NRLDC

B.1 Status of remedial actions recommended during previous PSC meeting (agenda by NRLDC)

B.1.1 As per the discussion in pervious PSC meetings, necessary remedial actions were recommended based on the analysis and discussion of the grid events. It is expected that necessary actions would have taken place. In view of the same, constituents are requested to share the status of remedial actions taken. List of points to be discussed in 56th PSC meeting is attached as **Annexure-B.I**. Constituents can email the details via mail to NRLDC and NRPC.

B.1.2 Timeline of replacement of breakers at 220kV Khodri & Chibro HEP S/s are not received yet. Multiple events of blackout of 220kV Khodri & Chibro HEP S/s occurred during September 2024. In December 2024 also, two incidents (5th & 6th Dec'24) occurred due to unit breaker stuck incident. Generation and loas loss also occurred during the event. UJVUNL is requested to take expeditious actions for replacement of unit breakers to avoid such events in future.

Decision required from Forum:

Members may like to discuss.

B.2 Multiple elements tripping events in Northern region in the month of December 2024 (agenda by NRLDC)

B.2.1 A total of 15 grid events occurred in the month of December'24 of which 05 are of GD-1 category, 03 are of GI-2 Category and 07 are of GI-1 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.II.**

B.2.2 Maximum delayed clearance of fault observed in event of multiple elements tripping at 220/132kV CB Ganj(UP) and 220KV Tanakpur HEP on 29th December, 2024 (As per PMU at Bareilly(PG), Y-B phase to phase fault with delayed fault clearing time of 920ms is observed).

B.2.3 Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total 05 events out of 15 grid events occurred in the month. In 04 (no.) of grid event, there was no fault in the grid.

B.2.4 Remedial actions taken by constituents to avoid such multiple elements tripping may be shared.

B.2.5 As per IEGC clause 37.2 (c), Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) shall be submitted within 24 hrs of the event and as per IEGC clause 37.2 (e), the user shall submit a detailed report in the case of grid disturbance or grid incidence within one (1) week of the occurrence of event to RLDC and RPC.

B.2.6 Members may take necessary preventive measures to avoid such grid incidents / disturbances in future and report actions taken by respective utilities in OCC & PSC forum. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & Detailed Report of the events to RLDC in line with the regulations.

Decision required from Forum:

Members may like to discuss.

B.3 Analysis of the tripping events occurred during December-2024 and status of remedial action taken (agenda by NRLDC)

a) Frequent elements tripping during December 2024:

B.3.1 The following transmission elements were frequently tripping during the month of **December'24**:

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	10	NPCIL/Raj
2	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	5	NPCIL/Raj
3	400 KV Akal-Jodhpur (RS) Ckt-1	3	Raj
4	400 KV Anpara_B(UPUN)-Mau(UP) (UP) Ckt-1	3	UP
5	400 KV Anpara_B(UPUN)-Sarnath(UP) (UP) Ckt-2	3	UP
6	400 KV Muradnagar_2-Mathura (UP) Ckt-1	3	UP
7	765 KV Agra-Aligarh (PG) Ckt-1	3	PG
8	500 KV HVDC Balia-Bhiwadi (PG) Ckt-1	2	PG

220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1 already tripped two times in January 2025 till 09.01.2025.

List of tripping is attached as **Annexure-B.III**.

B.3.2 It may be noted that frequent tripping of such elements affects the reliability and security of the grid. Hence, utilities are requested to analyse the root cause of the tripping and share the remedial measures taken/being taken in this respect.

b) Protection related issues in multiple elements tripping, detailed analysis of the events and status of remedial measures:

B.3.3 The list of major tripping events occurred during **December 2024** is attached as **Annexure-B.IV**. Concerned constituents/utilities are requested to share the detailed analysis of the tripping elements along with status of remedial action taken/to be taken.

B.3.4 **Utilities are requested to prepare detailed analysis report and present the event details during 56th PSC meeting. Events involving more than one utility may be jointly prepared and presented.**

Decision required from Forum:

Members may like to discuss.

B.4 Details of tripping of Inter-Regional lines from Northern Region for December'24

B.4.1 A total of 8 inter-regional lines tripping occurred in the month of December'24. The list is attached at **Annexure-B.V.** The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is violation of regulation 37.2(c) of IEGC and regulation 15(3) of CEA Grid Standards.

B.4.2 As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

B.4.3 Members may please note and advise the concerned for taking corrective action to avoid such tripping as well as timely submission of the information.

Decision required from Forum:

Members may like to discuss.

B.5 Mock testing of System Protection Schemes (SPS) in Northern Region

B.5.1 As per IEGC clause 16.2

''For the operational SPS, RLDC or NLDC, as the case may be, in consultation with the concerned RPC(s) shall perform regular load flow and dynamic studies and mock

testing for reviewing SPS parameters & functions, at least once in a year. RLDC or NLDC shall share the report of such studies and mock testing including any short comings to respective RPC(s). The data for such studies shall be provided by CTU to the concerned RPC, RLDC and NLDC.''

B.5.2 As per IEGC clause 16.3

''The users and SLDCs shall report about the operation of SPS immediately and detailed report shall be submitted within three days of operation to the concerned RPC and RLDC in the format specified by the respective RPCs.''

B.5.3 There are 53 numbers of System Protection Scheme (SPS) approved in Northern Region out of which 05 number of SPS are under implementation stage. These SPS are implemented at major generation complexes, important evacuating transmission lines and ICTs which are N-1 non-complaint. Details of SPS in Northern Region is available on NRLDC website at link **https://nrldc.in/download/nr-sps-2024/?wpdmdl=13255&lang=en**

B.5.4 SPS is designed to detect abnormal system conditions and take predetermined, corrective action to preserve system integrity and provide acceptable system performance. Therefore, correct operation of SPS as per designed logic is important to serve its purpose. To ensure this, mock testing of SPS needs to be conducted at a regular period. Clause 16.2 of IEGC 2023 also mandates the mock testing of SPS for reviewing SPS parameters & functions, at least once a year.

B.5.5 In view of the above, concerned constituents / utility were requested to share the tentative schedule plan for conducting mock testing of SPS in their respective control area during 2024-25 in format attached as Annexure-B.VI. In this regard, communication has already been sent to constituents through NRLDC letter dated 01.05.2024 and continuous follow up is being done in OCC & PSC meeting since May 2024.

B.5.6 Update in this regard received from Uttarakhand, Rajasthan & UP only.

B.5.7 Members are requested to conduct the mock testing of SPS in their respective control area, share the tentative schedule of mock testing of SPS and share the report of the same.

Decision required from Forum:

Members may like to discuss.

B.6 Corrective action for healthiness of 500kV Mundra-Mahindergarh SPS

B.6.1 On 17th May 2024 on outage of both pole (carrying total ~1500MW), SPS of 500kV HVDC Mundra-Mahindergarh inter regional link didn't operate. This issue was discussed during 51st PSC meeting and ADANI was requested to share the details w.r.t. SPS operation during the meeting.

B.6.2 Further, NRLDC in coordination with NLDC conducted an online discussion meeting with concerned stakeholders (SLDCs, ADANI and POWERGRID) on 12th August 2024, for further remedial actions required to make this SPS healthy.

Following actions were decided during the meeting:

i. POWERGRID, ADANI and concerned states were requested to identify the issue in communication links and take expeditious actions to make the all the communication link healthy. POWERGRID & ADANI shall review the healthiness of SPS system at different load centres and communication path between them in coordination with the SLDCs.

ii. States were requested to go through the details of load feeders mentioned in SPS document and share the changes / modifications as per present scenario and share the inputs w.r.t. unavailability in identified load feeders and load shedding. SLDCs shall share the revised updated feeder details (radial) along with expected average/peak load relief through respective feeders.

iii. SLDCs in coordination with their transmission and protection team shall share the status and healthiness of existing SPS system along with details of availability of communication path for incorporation of proposed revised/additional feeders.

B.6.3 Load end details have been received from UP, Haryana, Punjab Rajasthan & Delhi. Details are attached as **Annexure-B.VII.**

B.6.4 ADANI via mail dated 29.08.2024 has submitted the status of healthiness of communication network and hardware system at different locations on the basis of preliminary inspection. As per details submitted, counter status was found OFF at Alwar, Ratangarh, Gobindgarh, Malerkotla, Bamnauli, Shamli and Dhanonda.

B.6.5 Details of nodal officer of different substation involved in SPS scheme has already been shared with ADANI team for coordination and further remedial actions.

B.6.6 During 53rd PSC meeting, ADANI was requested to coordinate with the respective

states to rectify the issues in the SPS system and share the status of remedial action taken / planned to be taken. Desired remedial actions need to be expedited.

B.6.7 ADANI agreed for the same and stated that update would be given within 01 week. However, no detail received yet from ADANI.

B.6.8 During discussion in 55th PSC meeting it was decided that ADANI shall take lead in rectification work as this SPS scheme was commissioned by them. Protection nodal officers from States will provide possible necessary assistance from their end. Further, states were also requested to ensure incorporation of revised decided feeders during work at their stations.

B.6.9 ADANI agreed to take expeditious actions and to share the action plan at the earliest.

B.6.10 ADANI is requested to apprise the forum about identified issues at various stations, action plan and progress in rectification work.

Decision required from Forum:

Members may like to discuss.

B.7 Confirmation of implemented protection settings at site in line with the approved NRPC protection philosophy

B.7.1 After due deliberation of NRPC PSC forum, protection settings of Transmission line, ICTs and Shunt Reactors have already been finalised and same is available on NRPC website with link http://164.100.60.165/protection/Annexure-XIV(finalized_ICT_Reactor_Philosophy_22.10.2024).pdf

B.7.2 Protection philosophy was made to ensure uniform implementation of protection settings throughout the Northern Region and it is also being used by all the NR constituents as a reference. Uniform protection philosophy ensures coordinated operation of protection system and enhances grid security.

B.7.3 However, sometimes deviation from the protection philosophy is being observed during analysis of grid events and during FTC applications. Majorly deviation such as keeping phase overcurrent protection in line, improper protection coordination, non-operation of A/R or carrier aided scheme, incorrect protection settings have been observed. Recently a grid disturbance occurred in Eastern Region at 400kV Barh S/s (Thermal Power Station) in which multiple lines tripped on overcurrent protection. Complete generation of Barh TPS (1790 MW) affected due to loss of evacuation path. If overcurrent protection wouldn't have there in lines, this grid disturbance would have

not occurred.

B.7.4 In view of above, all the constituents are requested to ensure that all the protection system in their respective control area are in line with the NRPC approved protection philosophy. Members are requested to review the protection system of their control area and share the confirmation.

Decision required from Forum:

Members may like to discuss.

Part-C: Agenda for final approval of protection settings by PSC Forum for FTCs which have been provisionally allowed by NRLDC/SLDCs

C.1. First Time Charging of transmission lines/Bays/Transformer/Reactor etc. by NRLDC in month of December-2024

C.1.1 NRLDC has submitted the FTCs allowed in month of Dec-2024. The same may be found on NRPC website: http://164.100.60.165/meetings/prsub.html

C.1.2 As per approved procedure of NRPC, utilities have to put up agenda in PSC forum for final approval of settings. However, none of the following utilities have submitted agenda:

i. RVPNL
ii. PATRAN
iii. POWERGRID SIKAR TRANSMISSION LTD
iv. AMP Energy Green Four Private Limited
v. AYANA RENEWABLE POWER THREE PRIVATE LIMITED (ARP3PL)
vi. Serentica Renewables India 5 Pvt Ltd (SRI5PL)
vii. PBTSL
viii. Juniper_GCPL

C.1.3 It is highlight that as per decisions of 54th PSC meeting:

Quote

NRLDC shall give provisional protection clearance during FTC on conditional basis subject to submission of agenda in next Protection Sub-Committee meetings (not later than 2nd next PSC meeting). If utility does not put up the agenda within time, further FTC clearance would not be granted to the concerned.

Unquote

Decision required from Forum:

Members may like to discuss.

C.2. Final approval of protection settings of new element of HPPTCL charged in Dec-2024 (agenda by HPPTCL)

C.2.1 HPPTCL vide letter dated 08.01.2025 has intimated that FTC has been accorded by HPSLDC for following elements:

Sr. No.	Element Name	FTC accorded by
1.	220 kV Lahal Heiling ckt. from 400/220/33 kV GIS S/stn. at Lahal to 220/66 kV GIS S/stn. of HPPTCL at Heiling	HPSLDC (in Dec, 2024)
2.	220 kV Heiling- Holi ckt. from 220/66 kV GIS S/stn. of HPPTCL at Heiling to GMR Bajoli Holi (3x60 MW HEP) at Holi	
3.	220/66 kV Power Transformer at Heiling S/stn. of HPPTCL	
4.	132 kV Sunda-Tangnu ckt. from 220/132/66 kV GIS S/stn. of HPPTCL at Sunda **(Anti theft charging on no load)**	

C.2.2 Settings received from HPPTCL is available at NRPC website: http://164.100.60.165/meetings/prsub.html

Decision required from Forum:

Members may like to discuss and approve settings accordingly.

C.3. Approval of protection setting of UHL Stage-III (100 MW) HEP of HPSEBL (agenda by HPSLDC)

C.3.1 HPSLDC vide mail dated 10.01.2025 has informed that HPSEBL has proposed for first time charging of UHL Stage-III (100 MW) HEP during January-2025.

C.3.2 Settings received from HPSLDC is available at NRPC website: http://164.100.60.165/meetings/prsub.html

Decision required from Forum:

Members may like to discuss and approve settings accordingly.

Members of Protection Sub-Committee (FY 24-25)

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41	Apraava Energy Private Limited*	GM-Electrical	navin.chaturvedi@apraava.com
42	Talwandi Sabo Power Ltd. *	COO	Vibhav.Agarwal@vedanta.co.in
43	Nabha Power Limited*	CEO	sk.narang@larsentoubro.com
44	MEIL Anpara Energy Ltd	COO & WTD, Executive Director	anandkumar.singh@meilanparapower.com arun.tholia@meilanparapower.com
45	Rosa Power Supply Company Ltd	GM-ELECTRICAL	kesarinandan.pandey@relianceada.com
46	Lalitpur Power Generation Company Ltd	Head of Maintenance, GM Electrical	alokkumar.ltp@lpgcl.com, aupadhyay.ltp@lpgcl.com
47	MEJA Urja Nigam Ltd.	AGM-EMD	SPSPUNDIR@NTPC.CO.IN
48	Adani Power Rajasthan Limited*	GM	Ashish.Baviskar@adani.com
49	JSW Energy Ltd. (KWHEP)*	Head Regulatory & Power Sales	jyotiprakash.panda@jsw.in
50	TATA POWER RENEWABLE*	Zonal Head, NR	dhmahabale@tatapower.com
51	UT of J&K*	Chief Engineer, JKPCL	cejkpcl2@gmail.com
52	UT of Ladakh*	Chief Engineer, LPDD	cepdladakh@gmail.com
53	UT of Chandigarh	Executive Engineer	elop2-chd@nic.in
54	Noida Power Company Limited	Head – Power Purchase	ssrivastava@noidapower.com
55	Fatehgarh Bhadla Transmission Limited	Head-Protection, AESL	Sunil.Raval@adani.com
56	NTPC Vidyut Vyapar Nigam Ltd.	CEO	ceonvvn@ntpc.co.in
57	ReNew Power Private Limited*	CEO	sumant@renew.com
58	NTPC Green Energy Limited*	CEO, Sr. Mgr	rajivgupta@ntpc.co.in, sandeepdahiya@ntpc.co.in
59	Azure Power India Pvt. Limited*	CEO	sunil.gupta@azurepower.com
60	Avaada Energy Private Limited*	CEO	kishor.nair@avaada.com
61	Adani Green Energy Limited	AVP	sanjay.bhatt@adani.com
*	*Organizations from where nominations are not received for PSC, memebers of NRPC have been mentioned. Nomination for PSC forum may be sent at the earliest.*		

Status of action taken on decision of 55th PSC

S.N.	Agenda No.	Agenda	Decision of 55th PSC	Status of action taken
1	A.3	Submission of protection performance indices along with reason and corrective action taken for indices less than unity to NRPC Secretariat on monthly basis (agenda by NRPC Secretariat)	i. BBMB representative conveyed that indices will be submitted shortly. ii. PSTCL was requested to send the performance indices timely. PSTCL representative agreed to ensure the same. iii. NTPC was again requested to communicate Meja Urja Nigam Limited for submitting the protection performance indices.	i. Indices awaited from BBMB still. ii. PSTCL has sent indices for Oct and Dec-24. iii. Indices awaited from Meja as well as some stations of NTPC.
2	A.4	Annual protection audit plan for FY 2024-25 and third-party protection audit plan (agenda by NRPC Secretariat)	Utilities were requested to submit the Annual Internal Protection Audit plan for FY 2024-25 and third-party protection audit plan at the earliest	Agenda has been taken in 56th PSC.

Status of action taken on decision of 55th PSC

3	A.13	Tripping of Rihand Stage-3 Units, during Monopole Ground Return Mode Operation of Rihand Dadri HVDC line (agenda by NTPC)	Forum was of view that there is no further deliberation required as a committee has been formed.	Committee meeting is being planned.
4	B.1	Status of remedial actions recommended during previous PSC meetings	Forum requested members to take necessary preventive measures to avoid such grid incidents / disturbances in future and report actions taken by respective utilities in OCC & PSC forum. Moreover, utilities may impress upon all concerned for providing the Preliminary Report, DR/EL & detailed report of the events to RLDC in line with the regulations.	Agenda has been taken in 56th PSC.

Status of action taken on decision of 55th PSC

5	B.8	Corrective action for healthiness of 500kV Mundra-Mahindergarh SPS (agenda by NRLDC)	M/s ADANI was requested to take the lead, coordinate with the respective states to rectify the issues in the SPS system and share action plan along with the status of remedial action taken / planned to be taken.	Agenda has been taken in 56th PSC.

Annexure-A.II

Status of perfomance indices report of December 2024 (Last date of submission 07.01.2025)							
S. No.	Utility		Received Status (Yes/No)	Vide mail dated	Remarks	Indices less than 1 (Yes/No)	Reason submitted and corrective action taken
1	PGCIL	Central Government owned Transmission Company	NO		NR-1		
			NO		NR-2		
			Yes	13.01.2025	NR-3	No	NA
2	NTPC	Central Generating Company	No		Anta		
			No		Auriya		
			No		Dadri		
			Yes	08.01.2025	Koldam	No	NA
			Yes	07.01.2025	Rihand	No	NA
			No		Singrauli		
			Yes	07.01.2025	Unchahar	No	NA
			Yes	07.01.2025	Tanda	No	NA
3	BBMB		No		Bhakhra		
			No		Dehar		
			No		Pong		
4	THDC		No				
5	SJVN		Yes	07.01.2025	RHPS	No	
6	NHPC		No				
7	NPCIL		Yes	06.01.2025	RAPS-5&6	No	NA
			Yes	09.01.2025	RAPS-B	No	NA
8	DTL	State Transmission Utility	Yes	09.01.2025		Yes	Yes
9	HVPNL		Yes	07.01.2025		No	NA
10	RRVPNL		Yes	09.01.2025		Yes	Yes
11	UPPTCL		Yes	03.01.2025	Meerut Circle	Yes	Yes
			No		Ghaziabad Circle		
			No		Moradabad Circle		
			Yes	04.01.2025	Agra Circle	No	NA
			Yes	07.01.2025	Jhansi Circle	No	NA
			No		Aligarh Circle		
			No		Kanpur Circle		
			Yes	07.01.2025	Prayagraj Circle	No	NA
			Yes	07.01.2025	Gorakhpur Circle	Yes	Yes
			No		Azamgarh Circle		
			No		Varanasi Circle		
			Yes	07.01.2025	Lucknow Circle	No	NA
			No		Lucknow-I		
			No		Lucknow-II		
			Yes	07.01.2025	Sultanpur Circle	No	NA
			No		Bareilly Circle		
12	PTCUL		Yes	09.01.2025		No	
13	PSTCL		Yes	12.01.2025		Yes	Yes
14	HPPTCL		Yes	08.01.2025		No	
15	IPGCL	State Generating Company	Yes	04.01.2025		No	
16	HPGCL		No				
17	RRVUNL		No				
18	UPRVUNL		Yes	03.01.2025	Parichha 400 kV	Yes	Yes
			Yes	07.01.2025	Parichha 220 kV	No	NA
			Yes	06.01.2025	DTPS Anpara	No	NA
			Yes	07.01.2025	Obra 765 kV	No	NA
			Yes	07.01.2025	Obra 400 kV	No	NA
			Yes	07.01.2025	Harduaganj 400 kV	No	NA
			Yes	07.01.2025	Ghatampur 765 kV	No	NA
			Yes	07.01.2025	Anpara-A&B	No	NA
			No		Tanda		
			No		Rihand		
19	UJVNL		Yes	03.01.2025	Dharasu and Tiloth Power House	No	NA
20	HPPCL		No				
21	PSPCL	State Generating Company & State owned Distribution Company	Yes	01.01.2025	RSD	No	NA
			Yes	09.01.2025	GGSTPS, Rupnagar	No	NA
					GHSTPS, Lehra Mohabbat		
22	HPSEBL	Distribution company having Transmission connectivity ownership	Yes	08.01.2025	Hamirpur Circle	No	NA
			No		Shimla Circle		
23	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Yes	03.01.2025		No	
24	Aravali Power Company Pvt. Ltd		No				
25	Apraava Energy Private Limited		No				
26	Talwandi Sabo Power Ltd.		Yes	09.01.2025		No	
27	Nabha Power Limited		No				
28	MEIL Anpara Energy Ltd		Yes	03.01.2025		No	
29	Rosa Power Supply Company Ltd		Yes	07.01.2025	No	NA	
30	Lalitpur Power Generation Company Ltd		Yes	07.01.2025	No	NA	
31	MEJA Urja Nigam Ltd.		No				
32	Adani Power Rajasthan Limited		No				
33	JSW Energy Ltd. (KWHEP)		Yes	06.01.2025		No	
34	RENEW Power Pvt Ltd	RE Generating Company having more than 1000 MW installed capacity	No				
35	NTPC Green Energy Limited		No				
36	Azure Power India Pvt. Ltd.		No				
37	Avaada Energy Private Limited		No				
38	Adani Green Energy Limited		No				
39	Tata Power Renewable Energy Ltd.	IPP having less than 1000 MW installed capacity (alphabetical rotaional basis)	No				
40	UT of J&K	UT of Northern Region	No				
41	UT of Ladakh		No				
42	UT of Chandigarh		No				
	Non-Member Utilities		No				
43	INDIGRID		Yes	13.01.2025		Yes	Yes
44	POWERLINK		No				
45	ADHPL		Yes	07.01.2025		No	
46	Sekura Energy Limited		No				
47	Adani Energy Solution Limited		Yes	06.01.2025		No	
	State Utilities						
48	Vishnuprayag Hydro Electric Plant (J.P.)		Yes	07.01.2025		No	
49	Alaknanda Hydro Electric Plant (GVK)		Yes	07.01.2025		Yes	No
50	Khara Power House (Khara)		Yes	07.01.2025		No	
51	WUPPTCL		Yes	03.01.2025		No	
52	SEUPPTCL		Yes	07.01.2025		No	
53	Obra-C Badaun Transmission Ltd		Yes	06.01.2025		No	

Reason for Performance Indices less than Unity- December 2024 (RVPN)

Case-1 400 KV Jodhpur-Rajwesrt line, 400 KV Jodhpur-Kankani-II line, 400 KV Jodhpur-Kankaroli line at 400KV GSS Jodhpur on 01.12.2024

No. of Unwanted operation – 3

Reason of unwanted operation –

During busbar testing (BUS-B) for pre commissioning of 400KV, 125 MVAR bus reactor.

Corrective Action taken – YES

DC link which caused the tripping removed.

Case-2 400 KV Merta-Bikaner Line at 400 KV GSS MERTA on 08.12.2024

No. of Unwanted operation – 1

Reason of unwanted operation –

Tripping occurred during work in panel

Corrective Action taken – YES

Person working in panel asked to be more careful.

Case-3 400 KV JAISALMER II- BARMER-2 LINE at 400 KV GSS Jaisalmer on 11.12.2024

No. of Unwanted operation – 1

Reason of unwanted operation –

LBB relay wiring problem.

Corrective Action taken – YES

LBB relay wiring problem rectified and tested.

Case-4 400 KV Merta- Bikaner and 400 kV Merta- Kota LINE at 400 KV GSS MERTA on 26.12.2024

No. of Unwanted operation – 2

Reason of unwanted operation –

Wiring issue in carrier panel.

Corrective Action taken – NO

Wiring issue shall be rectified soon.

Case-5 220KV Tinwari-Phalodi Line, 220KV Dechu-Phalodi-I and 220KV Dechu-Phalodi-II at 220 KV GSS Phalodi on 12.12.2024

No. of Unwanted operation – 3

Reason of unwanted operation –

Interruption occurred due to failure of 132 KV line CB due to Time grading issue of backup relays.

Corrective Action taken – YES

Time grading revised and tested.

Case-6 220KV IG Nagar- HEERAPURA LINE at 220 KV GSS IG Nagar on 20.12.2024

No. of Unwanted operation – 1

Reason of unwanted operation –

Due to VT selection issue.

Corrective Action taken – YES

VT selection issue rectified.

Case-7 220 KV DCCPP- Dholpur line at 220 KV GSS Dholpur on 26.12.2024

No. of Unwanted operation – 1

Reason of unwanted operation –

Due to DC problem.

Corrective Action taken – YES

DC problem detected and rectified.

Case-8 220/132, 100MVA Power transformer at 220KV GSS on 11.12.2024

No. of Unwanted operation – 1

Reason of unwanted operation –

Buchholz relay defective.

Corrective Action taken – YES

Buchholz relay replaced.

Case-9 220/132 KV 100 MVA Telk Make Transformer - I at 220 kV GSS Hindaun on 26.12.2024

No. of Unwanted operation – 1

Reason of unwanted operation –

Differential relay defective.

Corrective Action taken – YES

Differential relay replaced.

S.No.	Substation	Element name	Total number of tripping	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index(S)	Reliability Index(R)
1	400 KV ALAKNANDA	400 KV ALAKNANDA - SRINGAR line -1	NIL							
		400 KV ALAKNANDA - SRINGAR line -2	NIL							
		400 KV ALAKNANDA - VISHNUPRAYAG line -3	NIL							
		400 KV ALAKNANDA - MUZAFFARNAGAR line -4	NIL	0	1	0	1	0	0	0

The Dependability Index defined as (D) = Nc/(Nc+Nf)
The Security Index defined as (S) = Nc/(Nc+Nu)
The Reliability Index defined as (R) = Nc/(Nc+Ni)
Nc is the number of correct operations at internal power system faults.
Nf is the number of failures to operate at internal power system faults.
Nu is the number of unwanted operations.
Ni is the number of incorrect operations and the sum of Nf and Nu.
*** PPI (Protection Performance indices) should be submitted only for tripped elements of any sub station (Example 1,2 & 3)**
*** In case of no tripping of any element in a sub station it is should be submitted as "Nil" (Example 4)**
*** In case of single tripping which is Nf or Nu, PPI will be "Zero" (Example 1)**
*** In case of PPI less than one, details for that tripping should be submitted seperately (Example "Remarks for less than one sheet")**

Format No.-PI-01

Reporting of performance indices for protection system

(for elements connected at 220 kV and above

Name of Utility: Delhi Transco Ltd

Month: December 2024

S. No.	Substation	Unit (SPS/Line/ICT/GT etc)	Nc	Nf	Nu	Ni	Dependability Index (D=Nc/(Nc+Nf))	Security Index (S=Nc/(Nc+Nu))	Reliability Index (R=Nc/(Nc+Ni))	Remedial Action Taken (if applicable)
1	220kV Okhla	100MVA (220/33kV) Transformer-V	1	0	0	0	1	1	1	
2	400kV Harsh Vihar	315MVA (400/220kV) ICT-III	1	0	1	1	1	0.5	0.5	Faulty Buchholz relay of 220kV side cable end box replaced.
		400kV Dadri Ckt-1	1	0	0	0	1	1	1	
3	220kV Peeragarhi	100MVA (220/33kV) Transformer-II	1	0	0	0	1	1	1	
4	220kV Shalimar Bagh	100MVA (220/33kV) Transformer-III	1	0	0	0	1	1	1	
5	220kV South of Wazirabad	220kV Kashmere Gate Ckt-II	2	0	0	0	1	1	1	
		220kV Geeta Colony Ckt-I	1	0	0	0	1	1	1	
		220kV Kashmere Gate Ckt-I	1	0	0	0	1	1	1	
6	400kV Bamnauli	400kV Jhatikara Ckt-2	1	0	0	0	1	1	1	
		400kV Dwarka	1	0	0	0	1	1	1	
7	220kV Maharani Bagh	220kV Sarita Vihar	1	0	0	0	1	1	1	
8	220kV BTPS	220kV Okhla Ckt-1	2	0	0	0	1	1	1	
		220kV Alwar Ckt-1	1	0	0	0	1	1	1	
9	220kV Geeta Colony	220kV Patparganj Ckt-2	1	0	0	0	1	1	1	
10	220kV Patparganj	220kV Geeta Colony Ckt-2	1	0	0	0	1	1	1	
11	220kV Gopalpur	220kV Mandola Ckt-1	1	0	0	0	1	1	1	
12	220kV Sarita Vihar	220kV Maharani Bagh	1	0	0	0	1	1	1	
		220kV Pragati Ckt-1	1	0	0	0	1	1	1	
13	220kV Pragati	220kV Sarita Vihar Ckt-1	1	0	0	0	1	1	1	
14	400kV Bawana	400kV Maharani Bagh Ckt-1	0	0	1	1	0	0	0	Implemented settings were Phase-phase. Over-voltage occurred due to floating neutral (loose star point earthing). The settings now changed to phase-earth. Also, star point earthing issue has been resolved.

Justification for less than one index may be attached separately.

Nc is the number of correct operations at internal power system faults

Nf is the number of failures to operate at internal power system faults

Nu is the number of unwanted operations

Ni is the number of incorrect operations and is the sum of Nf and Nu

Office of Superintending Engineer
Electy. Test & Commissioning Circle
U.P. Power Trans. Corporation Ltd.
Pareshan Bhawan ,Mohaddipur,
Gorakhpur-273008
E-mail: setncgkp@upptcl.org

(U.P. Government Undertaking)
GSTIN : 09AAACU8823E1Z9

कार्यालय
अधीक्षण अभियन्ता
विद्युत परीक्षण एवं परिचालन मण्डल
उ0प्र0 पावर ट्रांसमिशन कारपोरेशन लि0
पारेषण भवन, मोहददीपुर,
गोरखपुर–273008

L.N:- 20 **/ET&CC(G)/Performance indices** **Date:-** 04.01.2025

Sub:- **Calculation of protection performance indices for the month of December-2024.**

Chief Engineer, (North-East) **(By E-mail)**
U.P. Power Transmission Corporation Ltd.,
Mohaddipur-Gorakhpur.

Kindly find enclosed herewith the **calculation of protection performance indices** under Electricity Test & Commissioning Circle-Gorakhpur for the month of December-2024.

This is for your kind information & necessary action.

Encl: As above.

(Sanjay Singh)
Superintending Engineer

(By E-mail) L.N:- 20 **/ET&CC(G)/ Performance indices/Date:-** 04.01.2025

Copy forwarded for kind information and necessary action.

1. Director (Operation), UPPTCL, Lucknow.
2. Chief Engineer (PSO), UPSLDC, Lucknow.
3. Superintending Engineer (R&A), UPSLDC, Lucknow.
4. Executive Engineer, ET&C Division-Azamgarh/Basti/Gorakhpur.

(Sanjay Singh)
Superintending Engineer

Reporting of performance indices for protection system (For elements connected at 220 KV and above)

under Electricity Test & Commissioning Circle-Gorakhpur for the Month of December-2024

ET&CD, AZAMGARH

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability index (D) D=(Nc/(Nc+Nf))	Security Index (S) S=(Nc/(Nc+Nu))	Relibality Index (R) R=(Nc/(Nc+Ni))	REMARK
1	400KV S/S Kasara, Mau	400KV Mau-Anpara Line	3	0	0	0	1	1	1	
2	220 kV S/S Azamgarh-1	220 kV Jaunpur Line	0	0	2	0	0	0	0	1. PLCC Malfunctioning at Azamgarh End. 2. While checking event in relay, it found temporary DT command due to cable fault between PLCC panel and relay panel at Azamgarh end. Fault has been Rectified & Isolated.
3	220 kV S/S Azamgarh-2	220 kV Machhali Shahar (Jaunpur) Line	1	0	0	0	1	1	1	
		TOTAL	**4**	**0**	**2**	**2**	**1**	**0.67**	**0.67**	

ET&CD, BASTI

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability index (D) D=(Nc/(Nc+Nf))	Security Index (S) S=(Nc/(Nc+Nu))	Relibality Index (R) R=(Nc/(Nc+Ni))	REMARK
1	400 kV S/S GIS Basti	400 kV Tanda Ckt-1	0	0	1	0	0	0	0	On date 12.12.2024 400 kV Lucknow-2 Ckt & 400 kV Gorakhpur-2 Ckt were in shutdown and 400 kV Bus Coupler was in open condition for testing and solving previoius spurious operation of Bus bar Protection GE Engineer were also onsite to rectify aforesaid problem & in parallel CB timing testing of 400kV Lucknow-2 bay was also going on by firm Engineer. After event flag found on Lucknow-2 LCC Panel-89A, R,Y,B-ph, GD-2, Compressor Gas pressure low second stage Alram block out (<0.45MPA). How ever, actual gas pressure was found normal (0.55MPA). CB timing testing was being done at Lucknow-2 Ckt. During repeated operation of CB C-O testing positive DC supply taken for CB. Analyser was accidentally extended to K605 wire of KGD-2 contractor which gave annunciation of 2nd stage low gas leakage contact of 89A of 400kV Lucknow-2 Line and gave command to the busbar relay protection and all the bays installed on busbar 1 opened. (According to the scheme 89A is connected to Bus-1)
		400 kV Tanda Ckt-2	0	0	1	0	0	0	0	
		400 kV Lucknow Ckt-1	0	0	1	0	0	0	0	
		400 kV PGCIL-Gorakhpur Ckt-1	0	0	1	0	0	0	0	
		500 MVA ICT-1	0	0	1	0	0	0	0	
		500 MVA ICT-2	0	0	1	0	0	0	0	
		125 MVAR Bus Reactor	0	0	1	0	0	0	0	
		TOTAL	**0**	**0**	**7**	**7**	**0**	**0**	**0**	

ET&CD, GORAKHPUR

NIL

ET&C Circle-Gorakhpur	**GRAND TOTAL**	**4**	**0**	**9**	**9**	**1**	**0.31**	**0.31**	As above.

PERFORMANCES INDICES FROM TNE ZONE UPPTCL		
	Dependability index (D) D=(Nc/(Nc+Nf))	**1**
	Security Index (S) S=(Nc/(Nc+Nu))	**0.31**
	Relibality Index (R) R=(Nc/(Nc+Ni))	**0.31**

NOTE:- (i) Reason for performance indices less than unity is mentioned in above particular element remark.

Nc - No. of correct operations at internal power system faults
Nf - No. of failures to operate at internal power system faults
Nu - No. of unwanted operations
Ni - No. of incorrect operations. (Ni=Nf+Nu)

(Sanjay Singh)
Superintending Engineer

EE(A)

Reporting of performance indices for protection system
(For element connected at 220kV and above)
Name of Utility : ET&CC,UPPTCL,MEERUT
Month : December-24

ET&CD, Ghaziabad

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliability Index (R)	REMARK
1	400 kV Muradnagar-I	400 kV Hapur Line	0	0	1	1	NA	0	0	False DT received from PLCC CH-I at Muradnagar end. **Action taken:-** DT send & DT receive of channel-I has been disabled by M/s PGCIL for the time being.
2		220 kV Sahibabad Line	1	0	0	0	1	1	1	
3	400 kV -II MURADNAGAR	400kV MATHURA LINE	17	0	0	0	1	1	1	
4		400kV SIMBHAOLI CKT-2	1	0	0	0	1	1	1	
5		400/220kV 240MVA ICT-3	1	0	0	0	1	1	1	
6		220/132kV 100MVA T/F-1	1	0	0	0	1	1	1	
7		220/132kV 100MVA T/F-2	1	0	0	0	1	1	1	
8	220kV Sahibabad	220kV Muradnagar Line CB NO.84	1	0	0	0	1	1	1	

ET&CD, Moradabad-I

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliability Index (R)	REMARK
1	220 kV Chandausi	220kV Chandausi- Badaun Line	1	0	0	0	1	1	1	

ET&CD, Moradabad-II

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliability Index (R)	REMARK
1	220 kV Nehtaur	220 kV Nehtaur-Mataur(PGCIL) line	3	0	0	0	1	1	1	

ET&CD, Muzaffarnagar

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliability Index (R)	REMARK
1	220 kV SHAMLI	220 kV NIRPURA LINE	1	0	0	0	1	1	1	
2	400kV GIS SHAMLI	400 kV ALIGARH CKT-2	1	0	0	0	1	1	1	
3	220kV NARA	220kV Nara-Mator LINE	1	0	0	0	1	1	1	

ET&CD, Noida

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliability Index (R)	REMARK
1	400 kV Sec-123 Noida	400 kV Sec-123 to 400 kV Atour Ckt	1	0	0	0	1	1	1	
2	220 kV Sec-62 Noida	220/132 kV 160 MVA TF-II	1	0	0	0	1	1	1	

ET&CD, Gr. Noida

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliability Index (R)	REMARK
1	220 kV Simbhaoli	220 kV Matore Line	2	0	0	0	1	1	1	
		765 kV Hapur line ckt-II	1	0	0	0	1	1	1	
		40 MVA T/F	1	0	0	0	1	1	1	
		60 MVA T/F -I	1	0	0	0	1	1	1	

ET&CD, MEERUT

S.N.	Sub-station	Unit (SPS/Line/ICT/GT/etc)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliability Index (R)	REMARK
1	220kV S/S Partapur (J.V.)	220kV Partapur (J.V.) - Hapur-1st Line	1	0	0	0	1	1	1	
2	220 KV S/S Baraut	200 MVA T/F-1 CB NO. 884/784	1	0	0	0	1	1	1	
3	220kV S/S Nirpura	220kV Nirpura - Shamli	1	0	0	0	1	1	1	
		GRAND TOTAL	**40**	**0**	**1**	**1**				

PERFORMANCES INDICES FROM TW ZONE UPPTCL

Dependability index (D) D=(Nc/(Nc+Nf))	1
Security Index (S) S=(Nc/(Nc+Nu))	0.98
Relibality Index (R) R=(Nc/(Nc+Ni))	0.98

NOTE:- (i) Reason for performance indices less than unity is mentioned in respective element remark.

Nc - No. of correct operations at internal power system faults
Nf - No. of failures to operate at internal power system faults
Nu - No. of unwanted operations
Ni - No. of incorrect operations, (Ni=Nf+Nu)

(Pramod Kumar Mishra)
Superintending Engineer

Reporting of Performance Indices for IndiGrid Assets In NR-Region
Month: December'24

S. No.	Name of Utility	Elements (Line/ICT/BR/LR)	Nc	Nf	Nu	Ni	Dependability Index (D=Nc/(Nc+Nf))	Security Index (S=Nc/(Nc+Nu))	Reliability Index (R=Nc/(Nc+Ni))	Remark
25	NRSS-XXIX TRANSMISSION LTD	Sambha-Amargarh -2	2.00	-	2.00	2.00	1	0.5	0.5	On 30-10-2024, 400kV A-5 Ckt-02 A/R operated due to R-phase to earth faults at 04:19 Hrs and 07:07 Hrs. In both instances, A/R operated successfully from the Amargarh end while tripping occurred at the Samba end, confirming correct A/R operation from the Amargarh end
42	PATRAN TRANSMISSION COMPANY LTD	KAITHAL-PATRAN-I	2.00	-	2.00	2.00	1	0.5	0.5	1.The 400kV Patran-Kaithal Circuit-01 tripped at 13:07 Hrs on 13-12-2024 due to a relay maloperation at the PTCL Patran substation. 2. Tripped at 13:28 Hrs on 26-12-2024 due to Relay Maloperation

S.No.	Substation	Element name	Total number of tripping	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index(S)	Reliability Index(R)
1	400KV PARICHHA	400KV PARICHHA-ORAI LINE 1	1	1	0	1	1	1	0.5	0.5
		400KV PARICHHA-ORAI LINE 2	NIL	0	0	0	0			

The Dependability Index defined as (D) = Nc/(Nc+Nf)
The Security Index defined as (S) = Nc/(Nc+Nu)
The Reliability Index defined as (R) = Nc/(Nc+Ni)
Nc is the number of correct operations at internal power system faults.
Nf is the number of failures to operate at internal power system faults.
Nu is the number of unwanted operations.
Ni is the number of incorrect operations and the sum of Nf and Nu.
*** PPI (Protection Performance indices) should be submitted only for tripped elements of any sub station (Example 1,2 & 3)**
*** In case of no tripping of any element in a sub station it is should be submitted as "Nil" (Example 4)**
*** In case of single tripping which is Nf or Nu, PPI will be "Zero" (Example 1)**
*** In case of PPI less than one, details for that tripping should be submitted seperately (Example "Remarks for less than one sheet")**

Performance Indices for Protection System

Punjab State Transmission Corporation Limited

December-2024

S.N.	Sub-Station	Unit (SPS/Line/ICT/GT/etc.)	Nc	Nf	Nu	Ni	Dependability Index (D)	Security Index (S)	Reliabilty Index (R)
1	220 kV S/S Wadala Granthian	100 MVA, 220/132 kV P.T/F t-4	0	0	1	0	0	0	0
2	220 kV S/S Wadala Granthian	100 MVA, 220/132 kV P.T/F T-1	0	0	1	0	0	0	0
3	400 kV S/S Makhu	500 MVA, 400/220 kV ICT-3	0	0	1	0	0	0	0
4		220 kV Jamsher-Rehana Jattan ckt.	1	0	0	0	1	1	1
5		220 kV Bassi Pathana-RTP ckt.	1	0	0	0	1	1	1
6		220 kV G-1-RTP ckt.III	1	0	0	0	1	1	1
7		220 kV G-1-RTP ckt.I	1	0	0	0	1	1	1
8		220 kV Mohali-Ganguwal ckt.	1	0	0	0	1	1	1
9		220 kV Katorewala-Abohar ckt.	1	0	1	1	1	0.5	0.5
10		220 kV Dhandari-PGCIL ckt.I	0	0	0	0	0	0	0
11		220 kV Dhanolla-Lehra Mohabbat ckt.	1	0	0	0	1	1	1
12		220 kV Muktsar(400)-Abohar ckt. I	0	1	0	1	0	0	0
13	220 kV S/S Passiana	100 MVA, 220/66 kV P.T/F T-4	1	0	0	0	1	1	1
14		400 kV Ropar-Ludhiana(P.G.) ckt.	0	0	1	0	0	0	0
15		220 kV Dera-Bassi-Railway ckt.	1	0	0	0	1	1	1
16		220 kV Rajpura-Rajpura(400) ckt.I	0	0	3	0	0	0	0
17		220 kV Rajpura-Rajpura(400) ckt.II	0	0	3	0	0	0	0
18		220 kV Rajpura-Banur ckt.	0	0	2	0	0	0	0
19		220 kV Rajpura-UltraTech ckt.	0	0	1	0	0	0	0
20		400 kV Rajpura-Bhiwani ckt.	1	0	0	0	1	1	1
21		220 kV Sarna-Udhampur ckt.	0	1	0	1	0	0	0
22		220 kV Sarna-Hiranagar ckt.	0	1	0	1	0	0	0
23		220 kV Mehalkalan-Pakhowal ckt.I	1	0	0	0	1	1	1
	PSTCL OVERALL		**11**	**3**	**14**	**17**	**0.785714286**	**0.44**	**0.392857143**

Status of Internal Protection Audit Plan for FY 2024 -25

S. No.	NRPC Member	Category	Status
1	PGCIL	Central Government owned Transmission Company	Received
2	NTPC	Central Generating Company	Received
3	BBMB		Received
4	THDC		Received
5	SJVN		Received
6	NHPC		Received
7	NPCIL		
8	Delhi SLDC	SLDC	
9	Haryana SLDC		
10	Rajasthan SLDC		
11	Uttar Pradesh SLDC		Vishnuprayag, WUPPTCL
12	Uttarakhand SLDC		
13	Punjab SLDC		
14	Himachal Pradesh SLDC		
15	DTL	State Transmission Utility	Received
16	HVPNL		Received
17	RRVPNL		Received
18	UPPTCL		Received for Jhansi, Lucknow, Meerut, Gorakhpur, Prayagraj, Agra zone)
19	PTCUL		Received
20	PSTCL		Received
21	HPPTCL		Received
22	IPGCL	State Generating Company	Received (PPCL-I,III)
23	HPGCL		
24	RRVUNL		Received
25	UPRVUNL		Received (obra -B, Anpara-B,D switch yard, Harduganj-C,D,E))
26	UJVNL		Received (Khodri, Chibro, Vyasi, Dharasu , Tiloth)
27	HPPCL		
28	PSPCL	State Generating Company & State owned Distribution Company	Received (Ranjet sagar dam, GHTP, GGSSTP, GATP)
29	HPSEBL	Distribution company having Transmission connectivity ownership	Received
30	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Received
31	Aravali Power Company Pvt. Ltd		Received
32	Apraava Energy Private Limited		Received
33	Talwandi Sabo Power Ltd.		
34	Nabha Power Limited		Received
35	MEIL Anpara Energy Ltd		Received
36	Rosa Power Supply Company Ltd		Received
37	Lalitpur Power Generation Company Ltd		Received
38	MEJA Urja Nigam Ltd.		
39	Adani Power Rajasthan Limited		Received
40	JSW Energy Ltd. (KWHEP)		Received
41	AESL	Other transmission licensee	Received (ATIL -400kV Mohindergarh S/s, OBTL, FBTL, MTSCL, ATSCL, HPTSL, BKTL, GTL)
42	Tata Power Renewable Energy Ltd.		Recevied (TPGEL, BTPSL)
43	UT of J&K	UT of Northern Region	
44	UT of Ladakh		
45	UT of Chandigarh		
46	INDIGRID		Received
47	ADHPL		Received
48	Sekura Energy Limited		

Status of Internal Protection Audit Plan for FY 2025 -26

S. No.	NRPC Member	Category	Status
1	PGCIL	Central Government owned Transmission Company	Received (NR-1,2
2	NTPC	Central Generating Company	Received
3	BBMB		
4	THDC		Received (Tehri)
5	SJVN		Received (NJHPS)
6	NHPC		Received
7	NPCIL		
8	Delhi SLDC	SLDC	
9	Haryana SLDC		
10	Rajasthan SLDC		
11	Uttar Pradesh SLDC		Received (Jaypee Vishnuprayag, WUPPTCL, SEUPPTCL)
12	Uttarakhand SLDC		
13	Punjab SLDC		
14	Himachal Pradesh SLDC		
15	DTL	State Transmission Utility	Received
16	HVPNL		Received
17	RRVPNL		Received
18	UPPTCL		Received (All zones)
19	PTCUL		
20	PSTCL		
21	HPPTCL		Received
22	IPGCL	State Generating Company	Received (PPS-III, I)
23	HPGCL		
24	RRVUNL		Received
25	UPRVUNL		Received (Obra- A, B)
26	UJVNL		Received (Dharashu, Tiloth)
27	HPPCL		
28	PSPCL	State Generating Company & State owned Distribution Company	Received (GHTP, GGSSTP, GATP, RSD)
29	HPSEBL	Distribution company having Transmission connectivity ownership	Received
30	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Received
31	Aravali Power Company Pvt. Ltd		
32	Apraava Energy Private Limited		
33	Talwandi Sabo Power Ltd.		
34	Nabha Power Limited		Received
35	MEIL Anpara Energy Ltd		
36	Rosa Power Supply Company Ltd		Received
37	Lalitpur Power Generation Company Ltd		Received
38	MEJA Urja Nigam Ltd.		
39	Adani Power Rajasthan Limited		
40	JSW Energy Ltd. (KWHEP)		
41	AESL	Other transmission licensee	
42	Tata Power Renewable Energy Ltd.		
43	UT of J&K	UT of Northern Region	
44	UT of Ladakh		
45	UT of Chandigarh		
46	INDIGRID		
47	ADHPL		
48	Sekura Energy Limited		

Status of 3rd Party Protection Audit Plan

S. No.	NRPC Member	Category	Status	Schedule submitted as per utililty	Present Status Comlpleted (yes/no)
1	PGCIL	Central Government owned Transmission Company	Received (7 S/s of NR-1, 1 S/s of NR-2, 4 S/s of Nr-3)	By Jan 2025	
2	NTPC	Central Generating Company	Received (Singrauli, Rihand, Unchahar, Dadri, Dadri Gas, Auraiya Gas, Faridabad Gas, Anta Gas Power Station)	By Oct 2028	
			Received (Tanda)	By 17.07.2025	
3	BBMB				
4	THDC		Received	March 2026-Tehri, F.Y. 2025-26- Koteshwar	
5	SJVN		Received	Nov-Dec 2025 for RHPS, Nov 24- March 25 for NJHPS	
6	NHPC		Received	FY-2025-26	
7	NPCIL				
8	Delhi SLDC	SLDC			
9	Haryana SLDC				
10	Rajasthan SLDC				
11	Uttar Pradesh SLDC		Alaknanda	March 2025	
			Received (Tanda extension)	17.07.2025	
			Received (Tanda)	17.07.2025	
			SEUPPTCL	Conducted (Oct 2024)	
12	Uttarakhand SLDC				
13	Punjab SLDC				
14	Himachal Pradesh SLDC				
15	DTL	State Transmission Utility	Received		
16	HVPNL				
17	RRVPNL				
18	UPPTCL		Received	2025	Under tendering
19	PTCUL		Received	By Jan 2025	
20	PSTCL				
21	HPPTCL				
22	IPGCL	State Generating Company	Received (PPS-III)	FY 25-26	
23	HPGCL				
24	RRVUNL		Received		
25	UPRVUNL		Received (Obra-B)	2026-27	
			Anpara D	2025	Under tendering
			Anpara B	2025	Under tendering
			Harduaganj	2025	Under tendering
			Harduaganj D	2025	Under tendering
			Parichha	2025	Under tendering
			Parichha Ext	2025	Under tendering
			Jawaharpur	2025	Under tendering
26	UJVNL				
27	HPPCL				
28	PSPCL	State Generating Company & State owned Distribution Company	Reeceived (GHTP)	Dec. 2025	
			Received (GATP)	May 2025	
			GGSSTP		
			RSD/ Sahapur Kandi		
29	HPSEBL	Distribution company having Transmission connectivity ownership			
30	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Received	Dec-24	
31	Aravali Power Company Pvt. Ltd				
32	Apraava Energy Private Limited		Received	By May, 2025	
33	Talwandi Sabo Power Ltd.				
34	Nabha Power Limited		Received	By December, 2025	
35	MEIL Anpara Energy Ltd		Received	* Feb 2025	
36	Rosa Power Supply Company Ltd		Conducted	By 30.09.2024	Report is to be submitted
37	Lalitpur Power Generation Company Ltd		Conducted	26.03.2024	
38	MEJA Urja Nigam Ltd.				
39	Adani Power Rajasthan Limited		Conducted	November, 2024	
40	JSW Energy Ltd. (KWHEP)		Received	December 2024 to March 2025	
41	AESL	Other Transmission Licensee	Received (ATIL -400kV Mohindergarh S/s.)	400kV Mohindergarh SS- Q2 , FY 2025-26	
			Received (OBTL)	OBTL-Q1 , FY 2025-26	
			Received (FBTL)	FBTL-Q3 , FY 2025-26	
			Received (MTSCL)	MTSCL-Q4 , FY 2025-26	
			Received (ATSCL)	ATSCL-Q1 , FY 2026-27	
			Received (HPTSL)	HPTSL- Q2 , FY 2026-27	
			Received (BKTL)	BKTL-Q3 , FY 2026-27	
			Received (GTL)	GTL- Q3 & Q4, FY 2026-27	
42	Tata Power Renewable Energy Ltd.	IPP having less than 1000 MW installed capacity (alphabetical rotaional basis)			
43	UT of J&K	UT of Northern Region			
44	UT of Ladakh				
45	UT of Chandigarh				
46	INDIGRID		Received (NRSS 29)	FY 24-25	
47	ADHPL		Received	* September 2026	
48	Sekura Energy Limited				

* Revised Schedule

State Utilities			
Uttar Pradesh			
Vishnuprayag		Not received	
Alaknanda		Received	Mar-25
WUPPTCL		No schedule provided	
SEUPPTCL		Completed on Oct 2024	
OCBTL		Q1 , FY 2025-26	
GTL		Q3 & Q4 , FY 2026-27	

Annexure-B.I

Status of actions points recommended during previous PSC meetings (to be discussed in 56th PSC meeting)

S. No	Agenda	Remdial actions recommended during PSC meeting	55th PSC (20.12.2024)	56th PSC (20.01.2025)
1	Frequent multiple elements tripping at 220kV Kunihar, Baddi, Upperla Nangal complex and load loss event in HP control area	**51 PSC:** PSC Forum requested HP to complete the protection audit as per mentioned timelines (protection audit of 220kV Kunihar has been awarded and it would be completed within next 15-20 days. In next phase, by 15th September, protection audit of substations in downstream and upstream of 220kV Kunihar S/s would be completed.) and resolve the protection related issues. HP was also requested to share the reports of protection audit to NRPC & NRLDC after completion of audits.	Compliance report submitted by HPSEBL was discussed during the meeting. NRLDC representatibe highlighted that there are number on protection related non-compliance mentioned in 3rd party protection audit report. HPSEBL was requested to share the timeline for rectification of all the issues. HPSEBL represenatives were not present in the meeting. SLDC-HP was requested to further follow-up with HPSEBL for expedited corrective actions at their end. Protection audit of other remeianing stations (Baddi, Upperla Nangal etc) also need to be completetd on priority.	Compliance report submitted by HPSEBL was discussed during the meeting. NRLDC representatibe highlighted that there are number on protection related non-compliance mentioned in 3rd party protection audit report. HPSEBL was requested to share the timeline for rectification of all the issues. HPSEBL represenatives were not present in the meeting. SLDC-HP was requested to further follow-up with HPSEBL for expedited corrective actions at their end. Protection audit of other remeianing stations (Baddi, Upperla Nangal etc) also need to be completetd on priority.
2	Multiple elements tripping at 220kV Hissar(BBMB) 07th May 2024, 11:16 hrs	**51 PSC:** a) Expedite the implementation of differential protection in short lines to avoid undesired operation of distance protection.	HVPNL representative informed that availability of OPGW has been confirmed. Design team of HVPNL shall put up the case for purchase of differential relay. *PSC forum recommended HVPNL to expedite the implementation of differential protection in short lines.*	HVPNL representative informed that availability of OPGW has been confirmed. Design team of HVPNL shall put up the case for purchase of differential relay. *PSC forum recommended HVPNL to expedite the implementation of differential protection in short lines.*
3	Multiple elements tripping at 400/220kV Akal (RS) on 08th Jun 2024, 19:53 hrs	**51 PSC:** a) Bus bar protection at 220kV bus at 400/220kV Akal shall be made operational at the earliest. b) Time synchronization of recording instruments (DR/EL) need to be ensured.	RVPNL representative stated that work hasn't completed yet due to manpower issue because of parallel work at Pachpadra S/s (newly commissioned) and issue of bus bar at Akal S/s shall be resolved by the end of January 2025.	RVPNL representative stated that work hasn't completed yet due to manpower issue because of parallel work at Pachpadra S/s (newly commissioned) and issue of bus bar at Akal S/s shall be resolved by the end of January 2025.
4	Multiple elements tripping at 400kV Sainj (HP), 400kV Parbati2 & Parbti3 (NHPC) Stations on 07th May 2024, 16:17 hrs	**51 PSC:** a) NHPC shall follow up with the relay engineer and taken necessary remedial actions to ensure proper operation of A/R scheme at Parbati2 end. b) NHPC and HPPTCL shall review the healthiness of PLCC at Parbati3 and Sainj end and take necessary actions to ensure their proper operation. c) Expedite the implementation of differential protection in 400kV Parbati2-Sainj line. d) Standardisation of recording instruments (DR/EL) need to be ensured.	NHPC representative informed that they will receive differential relay in January 2025 and laying of OPGW on 400kV Parbati2-Sainj line (length 700-800m) will take ~2 months(Feb25). Visit of GE engineer is also scheduled in January 2025. Representatives of Sainj HEP were not present in the meeting. PSC forum recommended NHPC to expedite the process at their end and HPPTCL was requested to follow up with HPPCL for necessary actions required at Sainj HEP.	NHPC representative informed that they will receive differential relay in January 2025 and laying of OPGW on 400kV Parbati2-Sainj line (length 700-800m) will take ~2 months(Feb25). Visit of GE engineer is also scheduled in January 2025. Representatives of Sainj HEP were not present in the meeting. PSC forum recommended NHPC to expedite the process at their end and HPPTCL was requested to follow up with HPPCL for necessary actions required at Sainj HEP.
5	Multiple elements tripping at 400kV Khedar(RGTPS) Station at 10th May 2024, 19:35 hrs	**51 PSC:** a) Revised corrected protection settings of Main-2 Micome P4442 distance protection relay and A/R scheme at Khedar(RGTPS) end need to implemented at the earliest.	RGTPS representative informed that shutdown is planned in January 2025, issue will be resolved during that period. PSC forum requested RGTPS & HVPNL to ensure the desired correction in logic of A/R function at Khedar TPS at the earliest.	RGTPS representative informed that shutdown is planned in January 2025, issue will be resolved during that period. PSC forum requested RGTPS & HVPNL to ensure the desired correction in logic of A/R function at Khedar TPS at the earliest.
6	Multiple elements tripping at 400kV Koteshwar(PG) on 17th May 2024, 17:21 hrs	**51 PSC:** a) In view of short line length of 400KV Koteshwar(PG)-Tehri D/C, POWERGRID shall plan for the differential protection in the line on priority in near future to avoid overreach of distance protection.	POWERGRID(NR-1) representative informed that, materials have been received and work has been started. It will get completed by the end of January 2025. PSC forum requested POWERGRID(NR-1) to expedite the process of implementation of differential protection at Koteshwar HEP	POWERGRID(NR-1) representative informed that, materials have been received and work has been started. It will get completed by the end of January 2025. PSC forum requested POWERGRID(NR-1) to expedite the process of implementation of differential protection at Koteshwar HEP
7	Multiple elements tripping at 220kV Sarna (PS) on 04th May 2024, 07:10 hrs	**51 PSC:** a) Punjab shall expedite the commissioning of new bus scheme. B) POWERGRID shall revise the Z-4 time delay setting of Kishenpur lines at Sarna (PS) end as 160msec till bus bar get operational.	PSTCL representatives were not present in the meeting.	PSTCL representatives were not present in the meeting.

8	Multiple elements tripping at 400/132kV Masoli(UP) on 29th May 2024, 15:57 hrs	**51 PSC:** a) Up shall implement the bus bar protection at 132kv level at 400/132kV Masoli S/s.	UPPTCL representative informed that bus bar protection has been arranged for Masoli(UP) station. Shutdown has been planned after 24th February (after Kumbh Mela) and it is expected that bus bar commissioning at 132kV Masoli(UP) will get completed by the end of March 2025. *PSC forum requested UPPTCL to expedite the process of bus bar protection implementation at 400/132kV Masoli(UP) and such other stations.*	UPPTCL representative informed that bus bar protection has been arranged for Masoli(UP) station. Shutdown has been planned after 24th February (after Kumbh Mela) and it is expected that bus bar commissioning at 132kV Masoli(UP) will get completed by the end of March 2025. *PSC forum requested UPPTCL to expedite the process of bus bar protection implementation at 400/132kV Masoli(UP) and such other stations.*
9	Multiple elements tripping at 220kV KTPS (RVUN) on 21st June 2024, 11:37 hrs	**51 PSC:** a) Commissioning of bus coupler between 220kV Bus-3 & 5 need to be expedited.	RVUNL representatives were not present in the meeting.	RVUNL representatives were not present in the meeting.
10	Frequent tripping of 220 KV Anta(NT)-Sakatpura(RS) (RS) Ckt-1	**52 & 53 PSC:** RVPN was requested to expedite the process of relay replacement and rectification of issues related to A/R operation.	RVPNL representative informed that civil work has not been completed yet. Implementation of duplex panels will be started after completion of civil work. *PSC forum requested RVPNL to expedite the process.*	RVPNL representative informed that civil work has not been completed yet. Implementation of duplex panels will be started after completion of civil work. *PSC forum requested RVPNL to expedite the process.*
11	Frequent tripping of 220 KV Khara(UP)-Saharanpur(PG) (UP) Ckt-1	**52 & 53 PSC:** UP was requested to expedite the process of relay replacement at Khara end. POWERGRID shall review and ensure the A/R operation at their end.	UPPTCL representative informed that work of relay replacement has been started and all the line protection electromechanical relays at Khara(UP) will be replaced with numerical relays by the end of December 2024. *PSC forum requested UPPTCL to expedite the replacement of relay at Khara(UP) end.*	UPPTCL representative informed that work of relay replacement has been started and all the line protection electromechanical relays at Khara(UP) will be replaced with numerical relays by the end of December 2024. *PSC forum requested UPPTCL to expedite the replacement of relay at Khara(UP) end.*
12	Multiple elements tripping event at Patiala(PG)	**52 & 53 PSC:** POWERGRID was requested to expedite the process of commissioning of new bus bar scheme.	POWERGRID(NR-2) representative informed that status is same and implementation of new bus bar protection at Patiala(PG) will be completed by the end of January 2025. *PSC forum requested POWERGRID(NR-2) to expedite the process.*	POWERGRID(NR-2) representative informed that status is same and implementation of new bus bar protection at Patiala(PG) will be completed by the end of January 2025. *PSC forum requested POWERGRID(NR-2) to expedite the process.*
13	Frequent tripping of 220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	**53 PSC:** PTCUL was requested to analyse the tripping events and take necessary remedial action to avoid undesired tripping.	PTCUL representatives were not present in the meeting.	PTCUL representatives were not present in the meeting.
14	Multiple elements tripping at 220kV Khodri HEP & Chibro HEP on 5th, 11th & 19th September 2024	**53 PSC:** a)Timely submission of disturbance recorder (DR) and event logger (EL) files need to be ensured. As per IEGC clause 37.2 (c), Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) shall be submitted within 24 hrs of the event. b)HPPTCL shall taken necessary actions to rectify the protection related issue in 220kV Khdori-Majri ckt-2. c)OV protection needs to be disabled in 220kV lines at the earliest. d)Over frequency and over current protection operation in units at Khodri HEP need to be reviewed. e)A/R should be made operational in Sarsawan line at the earliest. f)UJVNL shall share the CPRI audit report and details of remedial action taken within one week. g)Replacement of Units breakers need to be expedited.	UJVUNL representative informed following during the meeting: •Over frequency & overcurrent protection in generating units are yet to be reviewed. It will be done at the earliest. •There are wiring related issues which have to be corrected to enable the A/R operation in Sarsawan line. Visit of OEM is being planned as per shutdown availability. •Replacement of Unit breakers is also planned. Follow ups are being done with OEM. •Isolator selection relay is also planned to be replaced within next 2 months(Feb25). After this, bus bar protection will be made operational. HPSEBL representatives were not present in the meeting. *PSC forum recommended following actions to UJVUNL:* *•Expedite the necessary corrective actions to ensure all the protection compliance mentioned in CPRI audit report.* *•Submit the action plans w.r.t. all the desired remedial actions at Khodri HEP* *•HPSEBL shall take corrective actions to ensure proper operation of protection system in 220kV Khodri-Mazri ckt-2.*	UJVUNL representative informed following during the meeting: •Over frequency & overcurrent protection in generating units are yet to be reviewed. It will be done at the earliest. •There are wiring related issues which have to be corrected to enable the A/R operation in Sarsawan line. Visit of OEM is being planned as per shutdown availability. •Replacement of Unit breakers is also planned. Follow ups are being done with OEM. •Isolator selection relay is also planned to be replaced within next 2 months(Feb25). After this, bus bar protection will be made operational. HPSEBL representatives were not present in the meeting. *PSC forum recommended following actions to UJVUNL:* *•Expedite the necessary corrective actions to ensure all the protection compliance mentioned in CPRI audit report.* *•Submit the action plans w.r.t. all the desired remedial actions at Khodri HEP* *•HPSEBL shall take corrective actions to ensure proper operation of protection system in 220kV Khodri-Mazri ckt-2.*

15	Multiple elements tripping at 400/220kV Jaisalmer(RS) on 20th September 2024	**53 PSC:** RVPNL shall share the detailed analysis of the event within one week.	RVPNL representative informed that issue is not resolved yet. Continuous follow is being done with OEM however no response is received from OEM. Relay will have to be replaced if no support from OEM will receive. Necessary actions will be taken on priority. *PSC forum requested RVPNL to resolve the issue with the LBB relay at Akal S/s at the earliest.*	RVPNL representative informed that issue is not resolved yet. Continuous follow is being done with OEM however no response is received from OEM. Relay will have to be replaced if no support from OEM will receive. Necessary actions will be taken on priority. *PSC forum requested RVPNL to resolve the issue with the LBB relay at Akal S/s at the earliest.*
16	Frequent tripping of 220 KV Nanauta(UP)-Saharanpur(PG) (UP) Ckt-1 & 220 KV Sarsawan(UP)-Khodri(UK) (UP) Ckt-1:	**54 PSC:** PSC forum requested UPPTCL to ensure resolution of issue with the Main-2 relay configuration at Nanauta(UP) & Sarsawan(UP) at the earliest.	UPPTCL representative informed that issue hasn't been resolved yet. As a precautionary measure Z-1 time delay in Main-2 relay has been kept 100msec. In case of Ph-N fault, Main-1 relay would be able to facilitate A/R operation. Issue in relay configuration in mnain-2 relay will be resolved during next available shutdown.	UPPTCL representative informed that issue hasn't been resolved yet. As a precautionary measure Z-1 time delay in Main-2 relay has been kept 100msec. In case of Ph-N fault, Main-1 relay would be able to facilitate A/R operation. Issue in relay configuration in mnain-2 relay will be resolved during next available shutdown.
17	Multiple elements tripping at 400/220kV Obra_A(UP) on 9th October 2024	**54 PSC Recommendations:** a)UPPTCL & Obra_A(UP) shall ensure the implementation of LBB protection at the earliest at 220kV side. b)GPS scheme shall be implemented at Obra_B(UP) by the **end of January 2025** and time sync of recording devices will be ensured.	UPPTCL representative informed that Bus bar protection relay is of electromechanical type, and it has to be replaced with numerical relay. Around 6-month (June25) time will be required for this work. Issue of time sync will be resolved by the end of January 2025.	UPPTCL representative informed that Bus bar protection relay is of electromechanical type, and it has to be replaced with numerical relay. Around 6-month (June25) time will be required for this work. Issue of time sync will be resolved by the end of January 2025.
18	Multiple elements tripping at 220/132kV Obra_A(UP) on 9th October 2024	**54 PSC Recommendations:** Commissioning and Implementation of numerical relays in 132kV ICT-1&2 at Obra_A(UP) need to be expedited. Timely commissioning of the same need to be ensured.	UPPTCL representative informed that Commissioning and Implementation of numerical relays in 132kV ICT-1&2 at Obra_A(UP) is expected to get completed by 1st week of February 2025.	UPPTCL representative informed that Commissioning and Implementation of numerical relays in 132kV ICT-1&2 at Obra_A(UP) is expected to get completed by 1st week of February 2025.
19	Multiple elements tripping at 400kV Muradnagar_2(UP) on 17th October 2024	**54 PSC Recommendations:** a)UPPTCL shall ensure the necessary correction in ZIV make bus bar protection at 400kV Muradnagar_2(UP) by the **end of December 2024.** b)Time synchronisation and standardisation of recording instrument need to be ensured.	UPPTCL representative informed that it will get completed within next one week(by the end of Dec24) and testing of the same will be done at the earliest.	UPPTCL representative informed that it will get completed within next one week(by the end of Dec24) and testing of the same will be done at the earliest.
20	Multiple elements tripping at 400/220kV Kashipur(Utt) on 10th October 2024	**54 PSC Recommendations:** a)PTCUL shall review the SPS scheme at 400/220kV Kashipur S/s. b)Overcurrent protection setting (IDMT) need to be revised in line with the approved protection philosophy.	PTCUL representaitve were not present in the meeting.	PTCUL representaitve were not present in the meeting.
21	Multiple elements tripping at 220kV Dausa(RS) on 21st October 2024	**54 PSC Recommendations:** a)RVPNL will expedite the replacement of all the static relays at 220kV Dausa S/s with numerical relays. b)Time synchronization of all the recording instruments need to be ensured.	RVPNL representative informed that total 5 electromechanical have to be replaced with numerical relays. 3 no. of relays have been allotted, remaining 2 relay will get allotted in next phase. It is expected that work of relay replacement will get completed by the end of January 2025.	RVPNL representative informed that total 5 electromechanical have to be replaced with numerical relays. 3 no. of relays have been allotted, remaining 2 relay will get allotted in next phase. It is expected that work of relay replacement will get completed by the end of January 2025.
22	Multiple elements tripping at 400kV Alwar(RS) on 30th October 2024	**54 PSC Recommendations:** RVPNL shall design a suitable SPS for 400/220kV Alwar S/s a propose the same in next OCC/PSC meeting for discussion.	RVPNL representative informed that proposal of SPS at Alwar has been sent to planning team and agenda of the same is expected to be submitted in next meeting. NRLDC representative suggested to submit the proposed scheme by mail for preliminary review further it can be put up in OCC for discussion.	RVPNL representative informed that proposal of SPS at Alwar has been sent to planning team and agenda of the same is expected to be submitted in next meeting. NRLDC representative suggested to submit the proposed scheme by mail for preliminary review further it can be put up in OCC for discussion.
23	Frequent tripping of 220 KV Auraiya(NT)-Mehgaon(MP) (MPSEB) Ckt-1	**54 PSC Recommendations:** PSC forum recommended NTPC to take necessary actions to minimise the tripping and ensure proper operation of A/R in line	NTPC representative stated that as informed by the site there are no protection related issues at Auraiya end. NRLDC representative stated that DR files submitted from Auraiya end shows A/R block after few msec of A/R start. Reason of the same need to be identified. NTPC was requested to further review the tripping incidents.	NTPC representative stated that as informed by the site there are no protection related issues at Auraiya end. NRLDC representative stated that DR files submitted from Auraiya end shows A/R block after few msec of A/R start. Reason of the same need to be identified. NTPC was requested to further review the tripping incidents.
24	Frequent tripping of 220 KV RAPS_A(NP)-Sakatpura (RS) (RS) Ckt-1 &2	**55 PSC Recommendations: E**xpeditious corrective actions to minimise frequent faults in line.	Installation of bird guard throughout the line, replacement of earth wire throughout the line and replacement of damaged disc insulators are being done in lines evacuating from Sakatpura(RS). Work is almost completed in line connected to RAPP_A and in line connected to RAPP_B, it will get completed with in next 35-40 days. (by the end of january 2025)	Installation of bird guard throughout the line, replacement of earth wire throughout the line and replacement of damaged disc insulators are being done in lines evacuating from Sakatpura(RS). Work is almost completed in line connected to RAPP_A and in line connected to RAPP_B, it will get completed with in next 35-40 days. (by the end of january 2025)

25	Frequent tripping of 400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-1 & 400 KV Talwandi Saboo(PSG)-Nakodar (PSG) (PS) Ckt-1	**55 PSC Recommendations:** PSTCL was requested to plan replacement of porcelain insulators with polymer type.		
26	Multiple element tripping event at 400kV Aligarh(UP) on 02nd November, 2024	**55 PSC Recommendations:** UPPTCL shall ensure the healthiness of carrier communication and A/R operation at Muradnagar_1(UP) end.		
27	Multiple element tripping event at 400kV Aligarh(UP) on 02nd November, 2024	**55 PSC Recommendations:** UPPTCL shall ensure the healthiness of carrier communication and A/R operation at Muradnagar_1(UP) end.		
28	Multiple element tripping event at 765/400kV Jawaharpur(UP) on 11th November, 2024	**55 PSC Recommendations:** UPPTCL shall submit the root cause analysis of the grid event before next PSC meeting.		
29	Multiple element tripping event at 400/220kV Merta(RS) on 11th November, 2024	**55 PSC Recommendations:** a)RVPNL shall share the further analysis of this grid event within one week. b)RVPNL shall take necessary remedial actions to ensure timely collection of DRs from site after any grid incidents.		
30	Multiple element tripping event at 400/220kV Hinduan(RS) on 16th November, 2024	**55 PSC Recommendations:** a)RVPNL shall share the further analysis of this grid event within one week. b)RVPNL shall review the protection system at Hinduan S/s (specifically TEED protection) and take necessary remedial actions to ensure proper operation of protection system.		
31	Multiple element tripping event at 400/220kV Bhadla(PG) at 22:11 hrs on 23rd November, 2024	**55 PSC Recommendations:** RVPNL shall review the back up impedance protection settings at Bhadla end and take necessary remedial actions to ensure proper operation of protection system.		
32	Multiple element tripping event at 220kV Pong(BB) on 06th November, 2024	**55 PSC Recommendations:** BBMB shall share the event analysis and details of remedial action taken within one week.		

Annexure-B.II

Grid Event summary for December 2024

S.No.	Category of Grid Incident/ Disturbance	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Loss of generation / loss of load during the Grid Disturbance		Fault Clearance time (in ms)	Compliance of Protection Protocol/Standard		
	(GI-1 to GD-V)				Date	Time		Generation Loss(MW)	Load Loss (MW)		Flash Report Submission (Y/N)	DR/EL Submission (Y/N)	Detail Tripping Report Submission (Y/N)
1	GI-1	i)220KV/132KV 100 MVA ICT-1 at Haldwani(UK) ii)220KV/132KV 100 MVA ICT-2 at Haldwani(UK) iii)132KV Haldwani-Bazpur(UK) ckt-1	Uttarakhand	PTCUL	2-Dec-24	10:09	i)As reported, at 10:09 hrs, B-N fault occurred in 132KV Haldwani – Bazpur Ckt-1 with fault distance of 7.8km from Haldwani end. As per DR, fault current was approx. 5.72 kA from Haldwani end and the fault clearing time was approx. 210msec (exact reason of fault yet to be shared). ii)Due to delay in fault clearance, directional overcurrent protection of 220/132 KV 100 MVA ICT-1 and 2 at Haldwani(UK) operated tripping both ICT-1 & 2. iii)As per PMU, B-N phase to earth fault with delayed fault clearing time of 240ms was observed in the system. iv)As per SCADA, change in demand of approx. 176 MW in Uttarakhand control area was observed. But, as reported, load loss of approx. 72MW occurred at Uttarakhand.	0	72	240	Y(d)	Y(d)	Y(d)
2	GI-1	i)220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 ii)220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt-1 iii)220 KV Khodri - Chhibro (UK) Ckt-1 iv)30 MW Khodri - UNIT 2 v)60MW Chhibro – UNIT 2 vi)60MW Chhibro – UNIT 3	Uttarakhand	PTCUL	5-Dec-24	20:02	i)During antecedent condition, three 30MW units of Khodri (Unit 1,2 & 4) and three 60 MW units of Chhibro (Unit 2,3 & 4) were running and total active power generation of Khodri and Chhibro was approx. 75 MW and 123 MW (as per SCADA). ii)As reported, at 20:02 hrs, while stopping of 30MW Khodri Unit-2, its 220kV CB malfunctioned and pole discrepancy operated. This led to LBB protection operation resulting in tripping of 220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 and 220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt, 220 KV Khodri-Chhibro (UK) Ckt-1 and 30MW Khodri Unit-2. iii)As per SCADA, two 60 MW units of Chhibro Unit 2 & 3 also tripped at the same time which caused generation loss of 103 MW (exact reason yet to be shared). iv)As per PMU, no fault was observed in the system. v)As per SCADA, change in demand and generation of approx. 83 MW and 223 MW respectively in Uttarakhand control area were observed. vi)As remedial action taken, over hauling & testing of generator CB has been performed and found satisfactory.	223	83	NA	Y(d)	Y	N (Partial details received)
3	GI-1	i)220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 ii)220 KV Khodri-Chhibro (UK) Ckt-1 iii)220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt iv)30 MW Khodri - UNIT 2	Uttarakhand	PTCUL	6-Dec-24	21:01	i)During antecedent condition, only one 30MW unit of Khodri (Unit 2) and one 60 MW unit of Chhibro (Unit 4) were running and total active power generation of Khodri and Chhibro was approx. 21 MW and 49 MW (as per SCADA). ii)As reported, at 21:01 hrs, while stopping of 30MW Khodri Unit-2, its 220kV CB malfunctioned and pole discrepancy operated. This led to LBB protection operation resulting in tripping of 220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 and 220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt, 220 KV Khodri-Chhibro (UK) Ckt-1 and 30MW Khodri Unit-2 . iii)As per SCADA, change in demand and generation of approx. 74 MW and 21 MW respectively in Uttarakhand control area were observed. iv)As reported by SLDC-UK, testing of Generator CB of Unit -2 by expert service engineer is under progress.	21	74	NA	Y(d)	Y	N (Partial detail received)
4	GI-2	i)400/220 kV 500 MVA ICT 1 at Jaisalmer(RS) ii)400/220 kV 500 MVA ICT 3 at Jaisalmer(RS) iii)400 KV Jaisalmer-Barmer (RS) Ckt-2 iv)220KV Jaisalmer(RS)-Renew Solar Ckt v)220KV Jaisalmer(RS)-Fortum Solar Ckt vi)220kV Jaisalmer(RS)-Akal Ckt-1 vii)220kV Jaisalmer(RS)-Akal Ckt-2	Rajasthan	RVPNL	11-Dec-24	12:13	i)400/220kV Jaisalmer(RS) has one and half breaker scheme at 400kV level and double main and transfer bus scheme at 220kV level. ii)During antecedent condition, Renew Solar, Fortum Solar, ACME Aklera and Clean solar was injecting approx. 109 MW, 236 MW, 267 MW and 245 MW respectively to Jaisalmer(RS) at 220kV level. Active power was going out to Akal(RS) through 220kV Jaisalmer(RS)-Akal Ckt-1 & 2 carrying approx. 253 MW each. 400/220 kV 500 MVA ICT 1 & 3 at Jaisalmer(RS) were carrying approx. 261 MW and 248 MW respectively from 220kV level to 400kV level. iii)As reported, at 12:13 hrs, 400/220 kV 500 MVA ICT 1 & 3 tripped along with 220KV lines of Renew Solar, Fortum Solar, ACME Aklera and Clean solar connected from 220KV Jaisalmer(Exact reason for tripping needs to be shared). iv)As per PMU at Fatehgarh3(PG), no fault is observed. v)During this event, as per SCADA, solar generation loss of approx. 835 MW is observed in Rajasthan control area. vi)As per SCADA, no change in demand is observed in Rajasthan control area.	835	0	NA	N	N	N (Partial detail received)
5	GD-1	i)220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt	Rajasthan	Azure, Powergrid	12-Dec-24	12:25	i)Generation of 220kV Azure 41(IP) station evacuates through 220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt. During antecedent condition, Azure 41(IP) station was generating approx. 294 MW (as per PMU). ii)As reported, at 12:25hrs, 220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt tripped on B-N phase to earth fault due to differential protection operation (exact reason and location of fault yet to be shared). iii)Due to tripping of 220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt, Azure 41(IP) S/s lost its connectivity from grid and blackout occurred at 220kV Azure 41(IP) S/s. iv)As per PMU at Bhadla(PG), B-N phase to earth fault (voltage dipped upto 0.716 p.u.) followed by Y-N phase to earth fault (voltage dipped upto 0.678 p.u.) is observed with fault clearing time of 80ms. After the fault clearance voltage increased upto 1.076 p.u. v)As per PMU at Bassi(PG), a sharp drop in frequency is observed from 49.995 Hz to 49.750 Hz and frequency recovered to 49.988 Hz within 1 min. vi)As per PMU, solar generation loss of approx. 294 MW, 150 MW, 68 MW, 89 MW and 167 MW are observed respectively at Azure 41(IP), Avaada Pooling(IP), ABCRL(IP), ESURL(IP) and ASEPL(IP). vii)As per SCADA, dip in NR total solar generation of approx. 1860 MW is observed with change in Rajasthan solar generation of approx. 170 MW.	1860	0	80	Y(d)	Y(d)	N (Partial detail received)
6	GI-2	i)400 KV Gorakhpur (PG)-Basti(UP) (PG) Ckt-1 ii)400/220 kV 500 MVA ICT 1 at Basti(UP) iii)400 KV Tanda(NT)-Basti(UP) (UP) Ckt-2 iv)400 KV Lucknow_1(PG)-Basti(UP) (PG) Ckt-1 v)400/220 kV 500 MVA ICT 2 at Basti(UP) vi)400 KV Tanda(NT)-Basti(UP) (UP) Ckt-1 vii)125 MVAR BUS REACTOR NO 1 AT 400 KV BASTI(UP)	Uttar Pradesh	UPPTCL	12-Dec-24	12:02	i)During antecedent condition, 400/220 kV 500 MVA ICT 1 and ICT 2 at Basti was carrying approx. 97 MW each. 400KV Gorakhpur (PG)-Basti(UP) (PG) Ckt-2 and 400 KV LUCKNOW_1(PG)-BASTI(UP) (PG) CKT-2 was in open condition and site engineers were checking wiring of LBB and carrying out Circuit Breaker at Basti end . ii)As reported, at 12:02 hrs, during CB timing testing of 400 KV LUCKNOW_1(PG)-BASTI(UP) (PG) CKT-2 (Z1) Bus-Bar protection operated due to malfunction of 89A Gas density Monitor. iii)This led to the tripping of both 400KV Bus-I & II and the elements connected with them. iv)As per PMU at 400KV Lucknow(PG), no fault in system is observed. v)SCADA data of 400/220 kV 500 MVA ICT 3 was in suspected condition before and tripping the tripping incident. vi)As per SCADA, change in demand of approx. 140MW is observed in UP control area.	0	140	NA	Y	N	Y (Partial details received)
7	GI-1	i)220 KV Bhiwani-Charkhi Dadri (BB) Ckt-4 ii)220 KV Bhiwani-Charkhi Dadri (BB) Ckt-2 iii)220 KV Bhiwani (HV)-Bhiwani (BB) (HVPNL) Ckt-2 iv)220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-2 v)220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-1	Haryana	HVPNL, BBMB	13-Dec-24	10:41	i)During antecedent condition, 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-4, 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-2 and 220 KV Bhiwani (HV)-Bhiwani (BB) (HVPNL) Ckt-2 were carrying appx. 18MW, 17MW and 186 MW respectively . ii)As reported, at 10:41 hrs, load shifting from 220KV Bus-2 to Bus-1 at 400/220KV Bhiwani was being done to avail shutdown of 220KV Bus-2 under annual maintenance. During load shifting Bus Bar protection operated causing tripping of 220KV Bus-2 and all the elements connected to it. iii)At the same time, 220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-1 also tripped which was connected to 220kV Bus-1 (exact nature of protection operated yet to be shared). Detailed report of the tripping is yet to be furnished from SLDC end. iv)As per PMU at Bhiwani (BBMB), Y-B phase to phase fault is observed with fault clearing time of ~120 ms. v) As per SCADA, 40MW loss occurred in Haryana control area.	0	40	120	N	N	N
8	GI-2	i)400/220 kV 315 MVA ICT 1 at Bikaner(RS) ii)400/220 kV 315 MVA ICT 2 at Bikaner(RS) iii)125 MVAR BUS REACTOR NO 2 AT 400KV BIKANER(RS)	Rajasthan	RVPNL	14-Dec-24	18:05	i)During antecedent condition, 400/220 kV 315 MVA ICT 1 and ICT 2 at Bikaner(RS) was carrying approx. 240MW each. 400KV Bikaner-Sikar(PG) Ckt-2 and 220kV Bikaner-Dungargarh (RS) line were in open condition. ii)As reported, at 18:35 hrs, Y phase isolator on 220KV side of 400/220 kV 315 MVA ICT 2 at Bikaner(RS) burnt and tripped. iii)As per PMU at Bhadla(PG), R-Y fault in system is observed with delayed fault clearance of 760ms . iv)Due to tripping of ICT-2, SPS implemented at Bikaner(RS) S/s related to overloading of remaining ICTs after tripping of any ICT operated. As per SPS scheme, 220kV Bikaner-Nokha (RS) line and 220kV Bikaner-Dungargarh (RS) line should open. However, 220KV Bikaner-Dungargarh (RS) line was already in open condition. v)During the event, both 400/220kV 315MVA ICT-1&2 tripped. At the same time, 125 MVAR BUS REACTOR NO 2 AT 400KV BIKANER(RS) also tripped due to Backup Impedance protection operation. vi)As per SCADA, change in demand of approx. 400MW is observed in Rajasthan control area. vii)As observed, the SCADA data remained frozen upto 18:10 hrs and subsequently became unavailable after 18:10hrs.	0	400	760	Y(d)	Y(d)	N
9	GD-1	i)220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt ii)130 MVA 220/33KV ICT at 220kV Azure 34	Rajasthan	Azure, Powergrid	15-Dec-24	11:35	i)Generation of 220kV Azure 41(IP) station evacuates through 220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt. which was generating approx. 294 MW (as per PMU). Similarly, 220kV Azure 34(IP) station evacuates through 220 KV BHADLA(PG)-AZURE POWER 34 SOLAR(APTFL) (APTFL) CKT-1 which was generating 121MW (as per PMU). ii)As reported, at 11:35hrs, 220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt tripped on B-N phase to earth fault due to differential protection operation on account of broken jumper at tower location 50. At the same time 130 MVA 220/33KV ICT at 220kV Azure 34 also tripped on account of Differential relay protection (exact reason yet to be shared) iii)Due to tripping of 220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt and 130 MVA 220/33KV ICT, Azure 41(IP) and Azure 34 S/s lost its connectivity from grid and blackout occurred at 220kV Azure 41(IP) and 220kV Azure 34(IP) S/s. iv)As per PMU at Bhadla(PG), B-N phase to earth fault (voltage dipped upto 0.63 p.u.) is observed with fault clearing time of 120ms. After the fault clearance voltage increased upto 1.08 p.u. v)As per PMU at Bassi(PG), a sharp drop in frequency is observed from 49.995 Hz to 49.803 Hz and frequency recovered to 49.97 Hz within 1 min. vi)As per PMU, solar generation loss of approx. 294 MW, 160 MW, 131 MW, 24 MW and 181 MW are observed respectively at Azure 41(IP), ESURL(IP), DVKOT_NT, ASHPL(IP) and ASEPL(IP). vii)As per SCADA, dip in NR total solar generation of approx. 1066 MW is observed with change in Rajasthan solar generation of approx. 126 MW. Demand change of 436 MW was observed in Punjab. viii)As reported by SLDC-Punjab, reduction in demand was due to operation of df/dt stage-1 operation. (Exact feeder wise details of df/dt operation is yet to be received from Punjab) ix)As per DR (Bhadla end) of 220 KV AzurePSS41 SL_BHD_PG (APFOL)-Bhadla(PG) (Azure) Ckt, A/R closing attempt was not observed after dead time. POWERGRID has been communicated to resolve the issue related to A/R operation.	1066	0	120	YPartial details received)	YPartial details received)	N
10	GD-1	i)220 KV MOGA(PG)-MEHAL- KALAN(PS) (PSTCL) CKT-1 ii)220 KV MOGA(PG)-MEHAL- KALAN(PS) (PSTCL) CKT-2 iii)220 KV PAKHOWAL(PSTCL)- MEHAL- KALAN(PS) (PSTCL) CKT-1 iv)220 KV PAKHOWAL(PSTCL)- MEHAL- KALAN(PS) (PSTCL) CKT-2	Punjab	PSTCL	27-Dec-24	13:48	i)220/66kV Mehal_Kalan has double main bus scheme at 220kV level. ii)As reported at 13:48 hrs, Bus Bar protection operated due to the damage in B-phase Circuit Breaker limb of 220 KV PAKHOWAL(PSTCL)- MEHAL- KALAN(PS) (PSTCL) CKT-1 (details yet to be furnished). iii)Due to the operation of Bus Bar protection all the elements connected in the 220KV system tripped. Complete blackout occurred at 220kV Mehal_Kalan S/s. iv)As per PMU at Moga (PG), R-N phase to earth fault with fault clearing time of 120ms is observed. v)As per SCADA, change in demand of approx. 20 MW is observed in Punjab control area.	0	25	120	N	N	N

S.No.	Category of Grid Incident/ Disturbance	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Loss of generation / loss of load during the Grid Disturbance		Fault Clearance time (in ms)	Compliance of Protection Protocol/Standard		
	(GI-I to GD-V)				Date	Time		Generation Loss(MW)	Load Loss (MW)		Flash Report Submission (Y/N)	DR/EL Submission (Y/N)	Detail Tripping Report Submission (Y/N)
11	GD-1	i)220 KV TANAKPUR(NH)-CBGANJ(UP) (PG) CKT-1 ii)31.4 MW TANAKPUR HPS - UNIT 3 iii)31.4 MW TANAKPUR HPS - UNIT 2 iv)220 KV TANAKPUR(NH)-SITARGANJ(PG) (PG) CKT-1 v)220 kv Bareilly-CB Ganj (UP) ckt-1 vi)220 kv Bareilly-CB Ganj (UP) ckt-2 vii)220 KV CB Ganj-Dohna viii)132kV Tanakpur- Mahindernagar ckt	Uttar Pradesh	UPPTCL, NHPC,POWERGRID	29-Dec-24	15:56	i)220/132kV CB Ganj(UP) has double main and transfer bus scheme at 220kV level. 220KV Rosa – CB Ganj line was not in service. ii)During the antecedent condition, 2 generators at Tanakpur were generating 19MW (Unit-2) and 16MW (Unit-3). iii)As reported at 15:56 hrs, 220kV CB Ganj-Dohna ckt tripped on Y-B phase to phase fault, fault distance was ~7.23km (Z-1) from CB Ganj end. At the same time, all the other lines connected to 220 CB Ganj (except 220kV CB Ganj-Sitarganj) and 220kV Tanakpur-Sitarganj ckt also tripped. 220 KV TANAKPUR(NH)-SITARGANJ(PG) (PG) CKT tripped due to Y-B phase to phase fault with fault current of 1.14KA. The fault was in Zone-3. i)Further, 132kV Tanakpur-Mahindernagar ckt was hand tripped for safety purpose leading to tripping of 31.4 MW Unit-2&3 at Tanakpur HEP due to loss of evacuation path. ii)As per PMU at Bareilly(PG), Y-B phase to phase fault with delayed fault clearing time of 920ms is observed. iii)As per SCADA, change in demand of approx. 27 MW is observed in Uttar Pradesh control area.	35	27	920	Y(d)	Y(d)	N (Partial detail received)
12	GD-1	i)220 KV BASSI(PG)-DAUSA(RS) (PG) CKT-1 ii)220 KV BASSI(PG)-DAUSA(RS) (PG) CKT-2 iii)220 KV SAWAIMADHOPUR(RS)- DAUSA(RS) (PG) CKT-1 iv)220 KV Sikarai - Dausa(RS) Ckt	Rajasthan	RVPNL and POWERGRID	29-Dec-24	11:30	i)220/132kV Dausa(RS) has double main and transfer bus scheme at 220kV level. ii)During antecedent condition, 220 kV Alwar(RS)-Dausa(RS) Ckt and 220 kV Lalsot(RS)-Dausa(RS) Ckt were not in service. iii)As reported, at 11:30 hrs, heavy sparking in the isolator of the 220 KV BASSI(PG)-DAUSA(RS) (PG) CKT-1 resulted into snapping of conductor and line tripped. iv)At the same time, all the elements connected to both the 220kV buses tripped and there was no source of supply at 132kV level, complete blackout occurred at 220/132kV Dausa(RS) S/s. v)As per PMU at Bassi(PG), R-B phase to phase fault with delayed fault clearing time of 480ms is observed. vi)As per SCADA, change in demand of approx. 308 MW is observed in Rajasthan control area.	0	305	480	Y(PG) N(Raj)	Y(PG) N(Raj)	N
13	GI-1	i)220 KV Amargarh(NRSS XXIX)-Delina(PDD) (PDD JK) Ckt-1 ii)220 KV Amargarh(NRSS XXIX)-Delina(PDD) (PDD JK) Ckt-2	Jammu & Kashmir	INDIGRID and JKPDD	31-Dec-24	05:57	i)400/220kV Amargarh S/s have two bus at 220kV side i.e., main bus & reserve bus. ii)During antecedent condition, 220 KV Amargarh (NRSS XXIX)-Delina(PDD) (PDD JK) Ckt-1 and Ckt-2 were carrying 105 and 107 MW respectively and feeding Delina load. iii)As reported, at 05:57 hrs, 220 KV Amargarh (NRSS XXIX)-Delina(PDD) (PDD JK) D/C tripped from both ends on B-N phase to earth fault. iv)As per PMU at Amargarh(PG), two successive B-N phase to earth fault which cleared within 120 msec is observed. v)As per SCADA, change in demand of approx. 225MW is observed in J&K control area.	0	225	120	Y(INDIGRID) N(Raj)	Y(INDIGRID) N(J&K)	N
14	GI-1	i)220 KV SAMBA(PG)-BISHNAH(JK) (PDD JK) CKT-1 ii)132KV/33KV 50MVA ICT-1 BISHNAH	Jammu & Kashmir	JKPDD	31-Dec-24	13:33	i)220/132/33kV Bisnah S/s have two bus at 220kV side i.e., main bus & reserve bus. ii)During antecedent condition, 220 KV SAMBA(PG)-BISHNAH(JK) (PDD JK) CKT-1 was carrying 76 MW load and feeding Bisnah load. iii)As reported, at 13:33 hrs, 132KV/33KV 50MVA ICT-1 BISHNAH tripped on account of fire incident. At the same time 220 KV SAMBA(PG)-BISHNAH(JK) (PDD JK) CKT-1 also tripped. The tripping details are still awaited. iv)As per PMU at Amargarh(INDIGRID), Y-N phase to earth fault with delayed fault clearing time of 880 msec is observed. v)As per SCADA, change in demand of approx. 78 MW is observed in J&K control area.	0	78	880	Y(PG) N(J&K)	Y(PG) N(J&K)	N
15	GI-1	i)220 KV Amargarh (INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 ii)220 KV Amargarh (INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2	Jammu & Kashmir	INDIGRID and JKPDD	31-Dec-24	19:47	i)220/132kV Ziankote S/s have two bus at 220kV side i.e., main bus & reserve bus. 220kV Amargarh-Ziankote ckt-1&2 are on the same tower (D/C tower) and line length is ~21.4km. ii)During antecedent condition, 220kV Amargarh (INDIGRID) –Ziankote(JK) D/C was carrying 157 MW each and feeding Ziankote load. iii)As reported, at 19:47 hrs, 220 KV Amargarh (INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 tripped on R-N phase to earth fault with fault distance of 13.18 km and fault current of Ir=~1.199 kA from Ziankote end. Fault sensed in zone-1 at Ziankote end. iv)This led to overloading of 220 KV Amargarh (INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2 and this line tripped from Ziankote end only on over-current protection operation. v)As per PMU at Amargarh(INDIGRID), R-N phase to earth fault with fault clearing time of 80 msec is observed. vi)As per SCADA, change in demand of approx. 235 MW is observed in J&K control area.	0	235	80	Y(INDIGRID) N(Raj)	Y(INDIGRID) N(J&K)	N

Annexure-B.III

Sr No	Element Name	Outage Date	Outage Time	Reason
1	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	21-Dec-24	02:31	Phase to earth fault Y-N.As per PMU, Y-N fault was observed with delayed fault clearence of 640msec. DR file not received from both ends.
		21-Dec-24	06:57	Phase to earth fault Y-N.As per PMU, Y-N fault was observed with delayed fault clearence of 680msec. DR file not received from both ends.
		23-Dec-24	01:39	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from both ends.
		23-Dec-24	22:29	Phase to earth fault R-N. As per PMU, Y-N fault was observed with delayed fault clearence of 640msec. DR file not received from both ends.
		27-Dec-24	20:56	Transient fault. As per PMU, Y-N fault with no A/R operation is observed. DR file not received from both ends.
		28-Dec-24	05:16	Transient fault. As per PMU, Y-N fault with no A/R operation is observed. DR file not received from both ends.
		28-Dec-24	22:16	Phase to earth fault Y-N. As per PMU, Y-N fault was observed with delayed fault clearence of 640msec. DR file not received from both ends.
		31-Dec-24	02:01	Transient fault. As per PMU, Y-N fault with no A/R operation is observed. DR file not received from both ends.
		31-Dec-24	02:37	Transient fault. As per PMU, Y-N fault with no A/R operation is observed. DR file not received from both ends.
2	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	05-Dec-24	01:59	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from RAPP.
		09-Dec-24	06:24	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from both ends.
		17-Dec-24	08:36	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from RAPP.
		19-Dec-24	05:58	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from both ends.
		19-Dec-24	20:35	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from both ends.
3	400 KV Akal-Jodhpur (RS) Ckt-1	06-Dec-24	03:28	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from both ends.
		16-Dec-24	01:49	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from Jodhpur.
		28-Dec-24	07:03	Transient fault. As per PMU, R-N fault with no A/R operation is observed. DR file not received from both ends.
4	400 KV Anpara_B(UPUN)-Mau(UP) (UP) Ckt-1	16-Dec-24	05:45	Earth fault. As per PMU & DR, B-N fault and unsuccessful auto-reclosing observed.
		22-Dec-24	06:28	Phase to earth fault R-N. As per PMU & DR, R-N fault and unsuccessful auto-reclosing observed.
		29-Dec-24	21:40	Phase to earth fault B-N. As per PMU & DR, B-N fault and unsuccessful auto-reclosing observed.
5	400 KV Anpara_B(UPUN)-Sarnath(UP) (UP) Ckt-2	15-Dec-24	12:14	Phase to Phase Fault R-Y. As per PMU, R-Y fault is observed.
		18-Dec-24	03:36	Earth fault. As per PMU, B-N fault with delayed fault clearence of 440msec from one end and unsuccessful A/R operation from other end is observed.
		28-Dec-24	23:43	Phase to earth fault B-N. As per PMU & DR, Y-N fault and unsuccessful auto-reclosing observed.
6	400 KV Muradnagar_2-Mathura (UP) Ckt-1	07-Dec-24	19:13	Phase to Ground Fault R-N. As per PMU & DR, R-N fault and unsuccessful auto-reclosing observed.
		26-Dec-24	23:05	Phase to earth fault R-N. As per PMU & DR, R-N fault and unsuccessful auto-reclosing observed.
		26-Dec-24	12:52	Phase to earth fault B-N. As per PMU & DR, B-N fault and unsuccessful auto-reclosing observed.
7	765 KV Agra-Aligarh (PG) Ckt-1	03-Dec-24	13:02	Over Voltage. As per DR, voltage observed at Aligarh end is 471kV in R-ph (Vline=815kV, 1.066pu).
		04-Dec-24	13:08	Over Voltage. As per DR, voltage observed at Aligarh end is 465kV in R-ph (Vline=804kV, 1.05pu).
		13-Dec-24	13:06	High Voltage. As per DR, voltage observed at Aligarh end is 471kV in R-ph (Vline=815kV, 1.066pu).
8	765 KV Agra-Gwalior (PG) Ckt-1	05-Dec-24	19:51	Phase to Ground Fault Y-N. As per PMU & DR, Y-N fault and unsuccessful auto-reclosing observed.
		23-Dec-24	04:11	Phase to Ground Fault Y-N. As per PMU & DR, Y-N fault and unsuccessful auto-reclosing observed.
		27-Dec-24	21:25	Phase to Ground Fault Y-N. As per PMU & DR, Y-N fault and unsuccessful auto-reclosing observed.

Annexure-B.IV

Grid Event summary for December 2024

S.No.	Category of Grid Incident/ Disturbance	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Loss of generation / loss of load during the Grid Disturbance		Fault Clearance time (in ms)	Points of discussion
	(GI-I to GD-V)				Date	Time		Generation Loss(MW)	Load Loss (MW)		
1	GI-1	i)220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 ii)220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt-1 iii)220 KV Khodri - Chhibro (UK) Ckt-1 iv)30 MW Khodri - UNIT 2 v)60MW Chhibro – UNIT 2 vi)60MW Chhibro – UNIT 3	Uttarakhand	PTCUL	5-Dec-24	20:02	i)During antecedent condition, three 30MW units of Khodri (Unit 1,2 & 4) and three 60 MW units of Chhibro (Unit 2,3 & 4) were running and total active power generation of Khodri and Chhibro was approx. 75 MW and 123 MW (as per SCADA). ii)As reported, at 20:02 hrs, while stopping of 30MW Khodri Unit-2, its 220kV CB malfunctioned and pole discrepancy operated. This led to LBB protection operation resulting in tripping of 220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 and 220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt, 220 KV Khodri-Chhibro (UK) Ckt-1 and 30MW Khodri Unit-2. iii)As per SCADA, two 60 MW units of Chhibro Unit 2 & 3 also tripped at the same time which caused generation loss of 103 MW (exact reason yet to be shared). iv)As per PMU, no fault was observed in the system. v)As per SCADA, change in demand and generation of approx. 83 MW and 223 MW respectively in Uttarakhand control area were observed. vi)As remedial action taken, over hauling & testing of generator CB has been performed and found satisfactory.	223	83	NA	Root cause behind breaker stuck and remedial action taken to avoid such event in future.
2	GI-1	i)220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 ii)220 KV Khodri-Chhibro (UK) Ckt-1 iii)220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt iv)30 MW Khodri - UNIT 2	Uttarakhand	PTCUL	6-Dec-24	21:01	i)During antecedent condition, only one 30MW unit of Khodri (Unit 2) and one 60 MW unit of Chhibro (Unit 4) were running and total active power generation of Khodri and Chhibro was approx. 21 MW and 49 MW (as per SCADA). ii)As reported, at 21:01 hrs, while stopping of 30MW Khodri Unit-2, its 220kV CB malfunctioned and pole discrepancy operated. This led to LBB protection operation resulting in tripping of 220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 and 220 KV Saharanpur(UP)-Khodri(UK) (UP) Ckt, 220 KV Khodri-Chhibro (UK) Ckt-1 and 30MW Khodri Unit-2 . iii)As per SCADA, change in demand and generation of approx. 74 MW and 21 MW respectively in Uttarakhand control area were observed. iv)As reported by SLDC-UK, testing of Generator CB of Unit -2 by expert service engineer is under progress.	21	74	NA	
3	GI-2	i)400/220 kV 500 MVA ICT 1 at Jaisalmer(RS) ii)400/220 kV 500 MVA ICT 3 at Jaisalmer(RS) iii)400 KV Jaisalmer-Barmer (RS) Ckt-2 iv)220kV Jaisalmer(RS)-Renew Solar Ckt v)220kV Jaisalmer(RS)-Fortum Solar Ckt vi)220kV Jaisalmer(RS)-Akal Ckt-1 vii)220kV Jaisalmer(RS)-Akal Ckt-2	Rajasthan	RVPNL	11-Dec-24	12:13	i)400/220kV Jaisalmer(RS) has one and half breaker scheme at 400kV level and double main and transfer bus scheme at 220kV level. ii)During antecedent condition, Renew Solar, Fortum Solar, ACME Aklera and Clean solar was injecting approx. 109 MW, 236 MW, 267 MW and 245 MW respectively to Jaisalmer(RS) at 220kV level. Active power was going out to Akal(RS) through 220kV Jaisalmer(RS)-Akal Ckt-1 & 2 carrying approx. 253 MW each. 400/220 kV 500 MVA ICT 1 & 3 at Jaisalmer(RS) were carrying approx. 261 MW and 248 MW respectively from 220kV level to 400kV level. iii)As reported, at 12:13 hrs, 400/220 kV 500 MVA ICT 1 & 3 tripped along with 220KV lines of Renew Solar, Fortum Solar, ACME Aklera and Clean solar connected from 220KV Jaisalmer(Exact reason for tripping needs to be shared). iv)As per PMU at Fatehgarh3(PG), no fault is observed. v)During this event, as per SCADA, solar generation loss of approx. 835 MW is observed in Rajasthan control area. vi)As per SCADA, no change in demand is observed in Rajasthan control area.	835	0	NA	Details analysis of the event and remedial action taken details.
4	GI-2	i)400 KV Gorakhpur (PG)-Basti(UP) (PG) Ckt-1 ii)400/220 kV 500 MVA ICT 1 at Basti(UP) iii)400 KV Tanda(NT)-Basti(UP) (UP) Ckt-2 iv)400 KV Lucknow_1(PG)-Basti(UP) (PG) Ckt-1 v)400/220 kV 500 MVA ICT 2 at Basti(UP) vi)400 KV Tanda(NT)-Basti(UP) (UP) Ckt-1 vii)125 MVAR BUS REACTOR NO 1 AT 400 KV BASTI(UP)	Uttar Pradesh	UPPTCL	12-Dec-24	12:02	i)During antecedent condition, 400/220 kV 500 MVA ICT 1 and ICT 2 at Basti was carrying approx. 97 MW each. 400KV Gorakhpur (PG)-Basti(UP) (PG) Ckt-2 and 400 KV LUCKNOW_1(PG)-BASTI(UP) (PG) CKT-2 was in open condition and site engineers were checking wiring of LBB and carrying out Circuit Breaker at Basti end . ii)As reported, at 12:02 hrs, during CB timing testing of 400 KV LUCKNOW_1(PG)-BASTI(UP) (PG) CKT-2 (Z1) Bus-Bar protection operated due to malfunction of 89A Gas density Monitor. iii)This led to the tripping of both 400KV Bus-I & II and the elements connected with them. iv)As per PMU at 400KV Lucknow(PG), no fault in system is observed. v)SCADA data of 400/220 kV 500 MVA ICT 3 was in suspected condition before and tripping the tripping incident. vi)As per SCADA, change in demand of approx. 140MW is observed in UP control area.	0	140	NA	Details analysis of the event and remedial action taken details.
5	GI-1	i)220 KV Bhiwani-Charkhi Dadri (BB) Ckt-4 ii)220 KV Bhiwani-Charkhi Dadri (BB) Ckt-2 iii)220 KV Bhiwani (HV)-Bhiwani (BB) (HVPNL) Ckt-2 iv)220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-2 v)220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-1	Haryana	HVPNL, BBMB	13-Dec-24	10:41	i)During antecedent condition, 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-4, 220 KV Bhiwani-Charkhi Dadri (BB) Ckt-2 and 220 KV Bhiwani (HV)-Bhiwani (BB) (HVPNL) Ckt-2 were carrying appx. 18MW, 17MW and 186 MW respectively . ii)As reported, at 10:41 hrs, load shifting from 220KV Bus-2 to Bus-1 at 400/220KV Bhiwani was being done to avail shutdown of 220KV Bus-2 under annual maintenance. During load shifting Bus Bar protection operated causing tripping of 220KV Bus-2 and all the elements connected to it. iii)At the same time, 220 KV Bhiwani(HV)-Bhiwani(BB) (HVPNL) Ckt-1 also tripped which was connected to 220kV Bus-1 (exact nature of protection operated yet to be shared). Detailed report of the tripping is yet to be furnished from SLDC end. iv)As per PMU at Bhiwani (BBMB), Y-B phase to phase fault is observed with fault clearing time of ~120 ms. v) As per SCADA, 40MW loss occurred in Haryana control area.	0	40	120	Details analysis of the event and remedial action taken details.
6	GI-2	i)400/220 kV 315 MVA ICT 1 at Bikaner(RS) ii)400/220 kV 315 MVA ICT 2 at Bikaner(RS) iii)125 MVAR BUS REACTOR NO 2 AT 400KV BIKANER(RS)	Rajasthan	RVPNL	14-Dec-24	18:05	i)During antecedent condition, 400/220 kV 315 MVA ICT 1 and ICT 2 at Bikaner(RS) was carrying approx. 240MW each. 400KV Bikaner-Sikar(PG) Ckt-2 and 220kV Bikaner-Dungargarh (RS) line were in open condition. ii)As reported, at 18:35 hrs, Y phase isolator on 220KV side of 400/220 kV 315 MVA ICT 2 at Bikaner(RS) burnt and tripped. iii)As per PMU at Bhadla(PG), R-Y fault in system is observed with delayed fault clearance of 760ms . iv)Due to tripping of ICT-2, SPS implemented at Bikaner(RS) S/s related to overloading of remaining ICTs after tripping of any ICT operated. As per SPS scheme, 220kV Bikaner-Nokha (RS) line and 220kV Bikaner-Dungargarh (RS) line should open. However, 220kV Bikaner-Dungargarh (RS) line was already in open condition. v)During the event, both 400/220kV 315MVA ICT-1&2 tripped. At the same time, 125 MVAR BUS REACTOR NO 2 AT 400KV BIKANER(RS) also tripped due to Backup Impedance protection operation. vi)As per SCADA, change in demand of approx. 400MW is observed in Rajasthan control area. vii)As observed, the SCADA data remained frozen upto 18:10 hrs and subsequently became unavailable after 18:10hrs.	0	400	760	Details analysis of the event and remedial action taken details.
7	GD-1	i)220 KV MOGA(PG)-MEHAL- KALAN(PS) (PSTCL) CKT-1 ii)220 KV MOGA(PG)-MEHAL- KALAN(PS) (PSTCL) CKT-2 iii)220 KV PAKHOWAL(PSTCL)- MEHAL- KALAN(PS) (PSTCL) CKT-1 iv)220 KV PAKHOWAL(PSTCL)- MEHAL- KALAN(PS) (PSTCL) CKT-2	Punjab	PSTCL	27-Dec-24	13:48	i)220/66kV Mehal_Kalan has double main bus scheme at 220kV level. ii)As reported at 13:48 hrs, Bus Bar protection operated due to the damage in B-phase Circuit Breaker limb of 220 KV PAKHOWAL(PSTCL)- MEHAL- KALAN(PS) (PSTCL) CKT-1 (details yet to be furnished). iii)Due to the operation of Bus Bar protection all the elements connected in the 220KV system tripped. Complete blackout occurred at 220kV Mehal_Kalan S/s. iv)As per PMU at Moga (PG), R-N phase to earth fault with fault clearing time of 120ms is observed. v)As per SCADA, change in demand of approx. 20 MW is observed in Punjab control area.	0	25	120	Details analysis of the event and remedial action taken details.
8	GD-1	i)220 KV TANAKPUR(NH)-CBGANJ(UP) (PG) CKT-1 ii)31.4 MW TANAKPUR HPS - UNIT 3 iii)31.4 MW TANAKPUR HPS - UNIT 2 iv)220 KV TANAKPUR(NH)-SITARGANJ(PG) (PG) CKT-1 v)220 kv Bareilly-CB Ganj (UP) ckt-1 vi)220 kv Bareilly-CB Ganj (UP) ckt-2 vii)220 KV CB Ganj-Dohna viii)132kV Tanakpur- Mahindernagar ckt	Uttar Pradesh	UPPTCL, NHPC,POWERGRID	29-Dec-24	15:56	i)220/132kV CB Ganj(UP) has double main and transfer bus scheme at 220kV level. 220KV Rosa – CB Ganj line was not in service. ii)During the antecedent condition, 2 generators at Tanakpur were generating 19MW (Unit-2) and 16MW (Unit-3). iii)As reported at 15:56 hrs, 220kV CB Ganj-Dohna ckt tripped on Y-B phase to phase fault, fault distance was ~7.23km (Z-1) from CB Ganj end. At the same time, all the other lines connected to 220 CB Ganj (except 220kV CB Ganj-Sitarganj) and 220kV Tanakpur-Sitarganj ckt also tripped. 220 KV TANAKPUR(NH)-SITARGANJ(PG) (PG) CKT tripped due to Y-B phase to phase fault with fault current of 1.14KA. The fault was in Zone-3. i)Further, 132kV Tanakpur-Mahindernagar ckt was hand tripped for safety purpose leading to tripping of 31.4 MW Unit-2&3 at Tanakpur HEP due to loss of evacuation path. ii)As per PMU at Bareilly(PG), Y-B phase to phase fault with delayed fault clearing time of 920ms is observed. iii)As per SCADA, change in demand of approx. 27 MW is observed in Uttar Pradesh control area.	35	27	920	Details analysis of the event and remedial action taken details.
9	GD-1	i)220 KV BASSI(PG)-DAUSA(RS) (PG) CKT-1 ii)220 KV BASSI(PG)-DAUSA(RS) (PG) CKT-2 iii)220 KV SAWAIMADHOPUR(RS)- DAUSA(RS) (PG) CKT-1 iv)220 KV Sikarai - Dausa(RS) Ckt	Rajasthan	RVPNL and POWERGRID	29-Dec-24	11:30	i)220/132kV Dausa(RS) has double main and transfer bus scheme at 220kV level. ii)During antecedent condition, 220 kV Alwar(RS)-Dausa(RS) Ckt and 220 kV Lalsot(RS)-Dausa(RS) Ckt were not in service. iii)As reported, at 11:30 hrs, heavy sparking in the isolator of the 220 KV BASSI(PG)-DAUSA(RS) (PG) CKT-1 resulted into snapping of conductor and line tripped. iv)At the same time, all the elements connected to both the 220kV buses tripped and there was no source of supply at 132kV level, complete blackout occurred at 220/132kV Dausa(RS) S/s. v)As per PMU at Bassi(PG), R-B phase to phase fault with delayed fault clearing time of 480ms is observed. vi)As per SCADA, change in demand of approx. 308 MW is observed in Rajasthan control area.	0	305	480	Details analysis of the event and remedial action taken details.

Annexure.B.V

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	# Fault Clearance Time (>100 ms for 400 kV and 160 ms for 220 kV)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Other Protection Issues and Non Compliance (inference from PMU, utility details)	Suggestive measures	Remarks
			Date	Time									
1	765 KV Agra-Gwalior (PG) Ckt-1	POWERGRID	05-Dec-24	19:51	Nil	Phase to Ground Fault Y-N	NA	80 msec	YES	YES	NA		As per PMU, Y-N fault with unsuccessful A/R operation is observed.
2	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	11-Dec-24	10:34	Nil	Transient fault	NA	-	YES	YES	NA		As per PMU, no fault was observed. As per DR (Rihand UP), B-N phase to earth fault occurred. Fault distance was 56.2 KM(55.2%) from Rihand (UP) end.
3	220 KV Modak(RS)-Bhanpura(MP) (MPSEB) Ckt-1	MPSEB	11-Dec-24	23:51	Nil	Transient fault	NA	NA	Yes (After 24 hours)	NO	NA	DR/EL needs to be shared	No fault was observed as per PMU. As reported by SLDC-RS, Line tripped from Bhanpura end only due to bus bar protection operation at Bhanpura end.
4	765 KV Agra-Gwalior (PG) Ckt-1	POWERGRID	23-Dec-24	04:11	Nil	Phase to earth fault Y-N	NA	80	Yes	Yes (After 24 hours)	NA		As per PMU, Y-N fault with unsuccessful A/R operation is observed.
5	765 KV Agra-Gwalior (PG) Ckt-2	POWERGRID	27-Dec-24	21:25	Nil	Phase to earth fault Y-N	NA	80	Yes	Yes (After 24 hours)	NA		As per PMU, Y-N fault is observed with successful auto reclosure. Then after ~200msec line tripped on R-N fault in reclaim time.
6	765 KV Agra-Gwalior (PG) Ckt-1	POWERGRID	27-Dec-24	21:25	Nil	Phase to earth fault Y-N	NA	80	Yes	Yes (After 24 hours)	NA		As per PMU, Y-N fault is observed with successful auto reclosure. Then after ~14sec line tripped on R-N fault in reclaim time.
7	765 KV Phagi(RS)-Gwalior(PG) (PG) Ckt-1	POWERGRID	27-Dec-24	22:14	Nil	Phase to earth fault R-N	NA	80	No	No	NA		As per PMU, R-N fault is observed with successful auto reclosure. Then after ~2sec line tripped on R-N fault in reclaim time.
8	220 KV Ranpur(RS)-Bhanpura(MP) (RS) Ckt-1	RRVPNL	31-Dec-24	00:46	Nil	Transient fault	NA	-	No	No	NA	DR/EL needs to be shared	No fault was observed as per PMU. DR/EL & tripping details not received.

 # Fault Clearance time has been computed using PMU Data from nearest node available and/or DR provided by respective utilities (*Annexure-* ***II)***

****Yes, if written Preliminary report furnished by constituent(s)***

R-Y-B phase sequencing (Red, Yellow, Blue) is used in the list content.All information is as per Northern Region unless specified.

^^ tripping seems to be in order as per PMU data, reported information. However, further details may be awaited.

Reporting of Violation of Regulation for various issues for above tripping

1	Fault Clearance time(>100ms for 400kV and >160ms for 220kV)	1. CEA Grid Standard-3.e 2. CEA Transmission Planning Criteria
2	DR/EL Not provided in 24hrs	1. IEGC 37.2(c) 2. CEA Grid Standard 15.3
3	FIR Not Furnished	1. IEGC 37.2(b) 2. CEA Grid Standard 12.2 (Applicable for SLDC, ALDC only)
4	Protection System Mal/Non Operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.A 2. CEA (Technical Standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)
5	A/R non operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.C 2. CEA Technical Planning Criteria

Annexure-B.VI

Sr. No.	Scheme Name	Responsible agency for conducting Mock Test exercise	Date of review of SPS	Last date on which Mock testing carried out	Tentaitve schedule of SPS Mock testing during 2024-25	Remarks
1	SPS for WR-NR corridor - 765kV Agra-Gwalior D/C	POWERGRID/NRLDC		12-03-2024		
2	SPS for contingency due to tripping of HVDC Mundra-Mahendergarh	ADANI/NRLDC				
3	SPS for high capacity 400 kV Muzaffarpur-Gorakhpur D/C Inter-regional tie-line related contingency	POWERGRID/NRLDC				
4	SPS for 1500 MW HVDC Rihand-Dadri Bipole related contingency	POWERGRID/NRLDC				
5	System Protection Scheme (SPS) for HVDC Balia-Bhiwadi Bipole	POWERGRID/NRLDC				
6	SPS for contingency due to tripping of multiple lines at Dadri(NTPC)	NTPC				
7	SPS for reliable evacuation of power from NJPS, Rampur, Sawra Kuddu, Baspa, Sorang, Naitwar Mori and Karcham Wangtoo HEP	SJVN/HPPTCL/JSW/NRLDC			counducted on 19-12-2024	
8	SPS for Reliable Evacuation of Ropar Generation	Punjab				
9	SPS for Reliable Evacuation of Rosa Generation	Uttar Pradesh		07-05-2022	counducted on 20-04-2024	
10	SPS for contingency due to tripping of evacuating lines from Narora Atomic Power Station	NAPS				
11	SPS for evacuation of Kawai TPS, Kalisindh TPS generation complex	Rajasthan				
12	SPS for evacuation of Anpara Generation Complex	Uttar Pradesh		06-07-2020		
13	SPS for evacuation of Lalitpur TPS Generation	Uttar Pradesh		14-07-2018	counducted on 21.05.2024	
14	SPS for Reliable Evacuation of Bara TPS Generation	Uttar Pradesh				
15	SPS for Lahal Generation	Himachal Pradesh		08-07-2020		
16	SPS for Transformers at Ballabhgarh (PG) substation	POWERGRID				
17	SPS for Transformers at Maharanibagh (PG) substation	POWERGRID				
18	SPS for Transformers at Mandola (PG) substation	POWERGRID				
19	SPS for Transformers at Bamnauli (DTL) Substation	Delhi				
20	SPS for Transformers at Moradabad (UPPTCL) Substation	Uttar Pradesh			counducted on 20-04-2024	
21	SPS for Transformers at Muradnagar (UPPTCL) Substation	Uttar Pradesh		07-02-2023	counducted on 20-04-2024	
22	SPS for Transformers at Muzaffarnagar(UPPTCL) Substation	Uttar Pradesh			counducted on 20-04-2024	
23	SPS for Transformers at Greater Noida(UPPTCL) Substation	Uttar Pradesh			SPS Unhealthy	
24	SPS for Transformers at Agra (UPPTCL) Substation	Uttar Pradesh		12-07-2023		
25	SPS for Transformers at 400kV Sarojininagar (UPPTCL) Substation	Uttar Pradesh		17-05-2023		
26	SPS for Transformers at 220kV Sarojininagar (UPPTCL) Substation	Uttar Pradesh		18-05-2022		
27	SPS for Transformers at 400kV Unnao (UPPTCL) Substation	Uttar Pradesh		19-05-2023	SPS Unhealthy	
28	SPS for Transformers at 220kV Unnao (UPPTCL) Substation	Uttar Pradesh				
29	SPS for Transformers at 400kV Sultanpur (UPPTCL) Substation	Uttar Pradesh			SPS Unhealthy	
30	SPS for Transformers at 400kV Bareilly (UPPTCL) Substation	Uttar Pradesh				
31	SPS for Transformers at 400kV Azamgarh (UPPTCL) Substation	Uttar Pradesh		14-05-2023	counducted on 06-05-2024	
32	SPS for Transformers at 400kV Mau (UPPTCL) Substation	Uttar Pradesh		17-01-2019	counducted on 27-04-2024	
33	SPS for Transformers at 400kV Gorakhpur (UPPTCL) Substation	Uttar Pradesh		14-05-2023	counducted on 27-04-2024	
34	SPS for Transformers at 400kV Sarnath (UPPTCL) Substation	Uttar Pradesh		19-05-2023	counducted on 23-05-2024	
35	SPS for Transformer at 400kV Rajpura (PSTCL) Substation	Punjab				
36	SPS for Transformers at 400kV Mundka (DTL) Substation	Delhi		19-06-2023		
37	SPS for Transformers at 400kV Deepalpur (JKTPL) Substation	Haryana				
38	SPS for Transformers at 400kV Ajmer (RVPN) Substation	Rajasthan			Condcuted on 10.09.2024	
39	SPS for Transformers at 400kV Merta (RVPN) Substation	Rajasthan			Condcuted on 12.09.2024	
40	SPS for Transformers at 400kV Chittorgarh (RVPN) Substation	Rajasthan			Condcuted on 31.08.2024 & 05.09.2024	
41	SPS for Transformers at 400kV Jodhpur (RVPN) Substation	Rajasthan			Condcuted on 24.09.2024	
42	SPS for Transformers at 400kV Bhadla (RVPN) Substation	Rajasthan			Condcuted on 27.09.2024	
43	SPS for Transformers at 400kV Ratangarh (RVPN) Substation	Rajasthan			Condcuted on 20.09.2024	
44	SPS for Transformers at 400kV Nehtaur(UPPTCL) Substation	Uttar Pradesh		05-07-2022		
45	SPS for Transformers at Obra TPS	Uttar Pradesh			counducted on 20-05-2024	
46	SPS for Transformers at 400KV Kashipur (PTCUL) substation	Uttarakhand		03-09-2023	Septemeber 2024	
47	SPS for Transformers at 400KV Fatehgarh Solar Park (AREPRL)	ADANI				
48	SPS to relive transmission congestion in RE complex (Bhadla2)	POWERGRID				
49	SPS for Transformers at 400kV Bikaner (RVPN) Substation	Rajasthan			Condcuted on 26.09.2024	
50	SPS for Transformers at 400kV Bawana (DTL) Substation	Delhi		06-09-2023		
51	SPS for Transformers at 400kV Bhilwara (RVPN) Substation	Rajasthan			Condcuted on 09.07.2024 & 10.07.2024	
52	SPS for Transformers at 400kV Hinduan (RVPN) Substation	Rajasthan			Condcuted on 26.09.2024	
53	SPS for Transformers at 400kV Suratgarh (RVPN) Substation	Rajasthan				During frequent actual operation of SPS scheme. All alarm & tripping status found OK

Annexure-B.VII

RE: Mock testing of SPS of 500kV HVDC Mundra-Mahindergarh link

Thu 8/29/2024 7:29 PM

To:NRLDC SO 2 <nrldcso2@grid-india.in>; CPCC1 <rtamc.nr1@powergrid.in>;

Cc:seo-nrpc <seo-nrpc@nic.in>; Somara Lakra (सोमारा लाकरा) <somara.lakra@grid-india.in>; Mahavir Prasad Singh (महावीर प्रसाद सिंह) <mahavir@grid-india.in>; Arunkumar P <Arunkumar.P@adani.com>; Sugata Bhattacharya (सुगाता भट्टाचार्या) <sugata@grid-india.in>; Deepak Kumar <deepak.kr@grid-india.in>; AMIT SHARMA <amsharma@grid-india.in>; Bikas Kumar Jha (बिकास कुमार झा) <bikaskjha@grid-india.in>; Manas Ranjan Chand (मानस रंजन चंद) <manas@grid-india.in>; Aman Gautam (अमन गौतम) <amangautam@grid-india.in>; Gnanaguru . <Gnanaguru.1@adani.com>; Sumeet Sharma <Sumeet.Sharma@adani.com>; Naman Vyas <Namany.Vyas@adani.com>; Milan Popat <Milan.Popat@adani.com>; Nihar Raj <nihar.raj@adani.com>; Abhishek Kukreja <Abhishek.Kukreja@adani.com>;

5 attachments (9 MB)

Counter (2).jpg; Counter.jpg; TPS (2).jpg; TPS.jpg; 220KV Alwar ss.jpg;

Dear Sir,

Please find the attached Photos. on 28-08-2024, a representative from M/s. Commtel Networks visited the Mahendragarh site and confirmed the healthiness of the SDH and TPS, along with their associated cards.

All SPS System equipment are functioning properly. The 15 TPS installed in the remote substation.

The details and status of TPS and Counter at Mahendragarh End.

S.No	TPS	TPS Status	Counter	Counter Status
1	PG Hissar	ON	17	OKAY
2	Bhiwani	ON	17	OKAY
3	Dadari	ON	17	OKAY
4	Alwar	ON	-	OFF
5	Bhilwara	ON	12	OKAY
6	Merta	ON	14	OKAY
7	Ratangarh	ON	-	OFF
8	Gobinugarg	ON	-	OFF
9	Malerkotla	ON	-	OFF
10	Laton Kalan	ON	6	OKAY
11	Mandula	ON	12	OKAY
12	Bamnauli	ON	-	OFF
13	Shamli	ON	-	OFF
14	Bahadurgarh	ON	10	OKAY

15	Dhanonda	ON	-	OFF

There alarms on the system are due to the following reasons.

1. Equipment Failure/ card failure/ power failure at Remote Sites.
2. Cable connectivity break between the remote System and cable coming from Field.
3. E1 connectivity outage at remote Sites.

Our team, with support from Commtel Networks, visited the nearest TPS installed at the 220/132 kV Alwar Substation to check its healthiness. However, during the inspection, the panel was found to be de-energized, necessitating an end-to-end test. (Photo Attached) Similarly, each substation needs to be ensured the healthiness of the TPS by respective Substation owner.

We request you to please confirm the healthiness of the Sr no 1 and 2 .

Thanks and Regards,

Kalicharan Sahu
(O&M) HVDC & EHV Substations,
Adani Energy Solutions Limited
| ±500kV HVDC Mahendragarh Terminal Sub Station I
Village-Kheri- Aghiyar, Taluka- Kanina, Mahendragarh 123 029, Haryana, India
Mob +91 9764006167| Off +91 1285 277326

From: NRLDC SO 2 <nrldcso2@grid-india.in>
Sent: Tuesday, August 27, 2024 10:07 AM
To: SLDC Punjab <se-sldcprojects@pstcl.org>; PC PSTCL SLDC PUNJAB <pcpstcl@gmail.com>; Haryana <sldcharyanacr@gmail.com>; Delhi <sldcmintoroad@gmail.com>; UP <sera@upsldc.org>; Rajasthan <SE.LDRVPNL@RVPN.CO.IN>; ce.ld@rvpn.co.in; CPCC1 <rtamc.nr1@powergrid.in>; neerajk@powergrid.in; setncmrt@upptcl.org; bharatlalgujar@gmail.com; akashdeep3433786@gmail.com; xenemtcbhpp2@bbmb.nic.in; PC Control Room <pccont@bbmb.nic.in>; se.prot.engg@rvpn.co.in; Arunkumar P <Arunkumar.P@adani.com>; Kali Charan Sahu <Kalicharan.Sahu@adani.com>; rajbir-walia79@yahoo.com; ase-sldcop@pstcl.org; sesldcop@hvpn.org.in; cepso@upsldc.org; se-sldcop <se-sldcop@pstcl.org>; SICHVDC Controlroom <SICHVDC.Controlroom@adani.com>
Cc: seo-nrpc <seo-nrpc@nic.in>; somara.lakra <somara.lakra@grid-india.in>; Mahavir Prasad Singh (महावीर प्रसाद सिंह) <mahavir@grid-india.in>; Sugata Bhattacharya (सुगाता भट्टाचार्या) <sugata@grid-india.in>; deepak.kr <deepak.kr@grid-india.in>; AMIT SHARMA <amsharma@grid-india.in>; bikaskjha <bikaskjha@grid-india.in>; Manas Ranjan Chand (मानस रंजन चंद) <manas@grid-india.in>; Aman Gautam (अमन गौतम) <amangautam@grid-india.in>
Subject: Re: Mock testing of SPS of 500kV HVDC Mundra-Mahindergarh link

Sir,

उत्तर प्रदेश राज्य भार प्रेषण केन्द्र लि०
यू०पी०एस०एल०डी०सी०परिसर, विभूति
खण्ड II,गोमती नगर, लखनऊ–226010
ई मेल : sera@upsldc.org

U.P. State Load Despatch Centre Ltd.
UPSLDC Complex, Vibhuti Khand II
Gomti Nagar, Lucknow- 226010
E-mail: sera@upsldc.org

No: - 2661 /SE(R&A)/EE-II/SPS Dated:- 07/08/ 2024

General Manager, NRLDC18-A,
SJSS Marg, Katwaria Sarai,
New Delhi – 110016

Subject- Regarding SPS of HVDC Mundra-Mahendargarh line

Kindly refer to SE (ETC) Muzaffarnagar letter no/062/E.T.C./MZN/400 kV S/S Shamli dated 05.05.2024. (copy enclosed) regarding feeder wise load of Shamli area. As per the letter, at present complete load relief (i.e. 300MW) may not be provided by 220 kV Shamli, so that alternatively feeder and load details of 400 kV Shamli has also been provided. Also it is informed that at present SPS system at 220 kV Shamli is not healthy which is being maintained by PGCIL.

It is therefore requested to kindly instruct the concerned to incorporate 132 kV feeders of 220 kV Shamli & 400 kV Shamli in SPS of HVDC Mundra-Mahendargarh line so that appropriated load relief may be provided from UP Control area and take necessary action regarding healthiness of SPS system

Sangeet
(Sangeeta)
Superintending Engineer (R&A)

No: - /SE(R&A)/EE-II/SPS Dated: - 2024

Copy forwarded to following via e-mail for kind information and necessary action:-

1. Director, UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.
2. Director (Operation), UPPTCL, 11th Floor, Shakti Bhawan Extn., Lucknow.
3. Chief Engineer (PSO), Vibhuti Khand – II, Gomti Nagar, Lucknow.
4. Chief Engineer (Trans. West),PareshanBhawan, 130D, Hydel Colony, Victoria Park, Meerut 250001.
5. SE (Operations), 18 – A SJSS Marg, Katwaria Sarai, New Delhi, 110016.

(Sangeeta)
Superintending Engineer (R&A)

कार्यालय
अधीक्षण अभियन्ता
विद्युत पारेषण मण्डल
उ०प्र०पावर ट्रांसमिशन कारपोरेशन लि०
132 के०वी० भोपारोड उपकेन्द्र
मुजफ्फरनगर-251001

OFFICE OF THE
SUPERINTENDING ENGINEER
Electricity Transmission Circle
U.P. Power Transmission Corporation Ltd.
132 KV Bhopa Road Sub-station
Muzaffarnagar-251001

दूरभाष : 0131-2608038 Ph. 0131-2608038
E-mail : seetcmzn@upptcl.org, seetcmzn@gmail.com

संख्या / No. 1062 /E.T.C./MZN/400 KV S/S Shamli दिनांक / DATED 05/08/24

Subject: - Regarding SPS of HVDC Mundra-Mahendargarh.

Superintending Engineer (R & A)
U.P State Load Despatch Centre Ltd.
UPSLDC Complex, Vibhuti Khand-II
Gomti Nagar, Lucknow.
Email. sera@upsldc.org

Please refer to your office letter no. 2187 dt. 01.07.2024, forwarded to this office by SE (T&C), Meerut vide endorsement no. 2237/CE(TW)/MT/SPS dt. 23.07.2024 vide which it has been requested to provide details of 132 KV feeders for planned relief to HVDC Mundra-Mahendargarh SPS.

In this reference, it is to apprise that following is the details of 132 KV feeders being fed from 220 KV Sub-Station Shamli.

S.No.	Name of feeder	Connected Load (MVA)	Maximum Load (MW)	Average Load (MW)
1	132 KV Lalukheri	63+63	72	47
2	132 KV Jhinjhana	63+40+40	80	52
3	132 KV Kairana-I/II	63+63	41	27
4	132 KV Jasala	63+40	58	38
	Total		251	164

1. Following Case wise Trippings of 132 KV Feeders at 220 KV Sub-Station, Shamli for tripping of HVDC Mundra-Mahendergarh Line may be used.

(A) In Maximum Load Condition:-

S. No.	State.L.S quantum	Name of feeding substation	Feeder/line/ equipment	MW	Case-1 50 MW	Case-2 100 MW	Case-3 200MW	Case-4 300 MW
1	Uttar Pradesh Case-1 =50 MW Case-2 =100 MW Case-3 =200 MW Case-4 =300 MW	220 KV Subsatatio n, Shamli	132 KV Jasala	58	1	1	1	1
2			132 KV Kairana-I	20.5		1		1
3			132 KV Kairana-II	20.5	-	1		1
4			132 KV Lalukheri	72	-	-	1	1
5			132 KV Jinjhana	80	-		1	1
			Total Relief	251	58	99	210	251

(B) In Average Load Condition :-

S. No.	State.L.S quantum	Name of feeding substation	Feeder/line/ equipment	MW	Case-1 50 MW	Case-2 100 MW	Case-3 200MW	Case-4 300 MW
1	Uttar Pradesh Case-1 =50 MW Case-2 =100 MW Case-3 =200 MW Case-4 =300 MW	220 KV Subsatatio n, Shamli	132 KV Jasala	38	1		1	1
2			132 KV Kairana-I	13.5	1		1	1
3			132 KV Kairana-II	13.5	-		1	1
4			132 KV Lalukheri	47	-	1	1	1
5			132 KV Jinjhana	52	-	1	1	1
			Total Relief	164	51.5	99	164	164

Alternatively HVDC Mundra-Mahendargarh SPS may be shifted to 400 KV Sub-Station Shamli, details of 132 KV feeders from 400 KV Sub-Station Shamli with its Maximum and Average load is as follows :

S.No.	Name of feeder	Connected Load (MVA)	Maximum Load (MW)	Average Load (MW)
1	132 KV Budhana	63+40	82	53
2	132 KV Kharad	63+40	78	51
3	132 KV Jalalpur	40+40	41	27
4	132 KV Thanabhawan	63+63+40	74	48
5	132 KV Kaniyan	40+40	35	23
	Total		310	202

2. Following Case wise Trippings of 132 KV Feeders at 400 KV Sub-Station, Shamli for tripping of HVDC Mundra-Mahendergarh Line is hereby recommended

(A). In Maximum Load Condition :-

S. No.	State.L.S quantum	Name of feeding substation	Feeder/line/ equipment	MW	Case-1 50 MW	Case-2 100 MW	Case-3 200MW	Case-4 300 MW
1	Uttar Pradesh Case-1 =50 MW Case-2 =100 MW Case-3 =200 MW Case-4 =300 MW	400 KV Subsatation, Shamli	132 KV Budhana	82	-	-	1	1
2			132 KV Kharad	78	-	-	1	1
3			132 KV Jalalpur	41	1	-	1	1
4			132 KV Thanabhawan	74	-	1	-	1
5			132 KV Kaniyan	35	1	1	-	1
			Total Relief	310	76	109	201	310

(B). In Average Load Condition :-

S. No.	State.L.S quantum	Name of feeding substation	Feeder/line/ equipment	MW	Case-1 50 MW	Case-2 100 MW	Case-3 200MW	Case-4 300 MW
1	Uttar Pradesh Case-1 =50 MW Case-2 =100 MW Case-3 =200 MW Case-4 =300 MW	400 KV Subsatation, Shamli	132 KV Budhana	53	-	1	1	1
2			132 KV Kharad	51	1	1	1	1
3			132 KV Jalalpur	27	-	-	1	1
4			132 KV Thanabhawan	48	-	-	1	1
5			132 KV Kaniyan	23	-	-	1	1
			Total Relief	202	51	104	202	202

Submitted for information and necessary action

(Nikhil Kumar)
Superintending Engineer

संख्या / No. /E.T.C./MZN/ दिनांक / DATED

Copy forwarded to the following for information and necessary action :

1. Chief Engineer (TW) UPPTCL Meerut.
2. Superintending Engineer, Electricity (T&C) Circle, UPPTCL Meerut.
3. Executive Engineer Electricity Transmission Division, Shamli

(Nikhil Kumar)
Superintending Engineer

कार्यालय
अधीक्षण अभियन्ता
विद्युत परीक्षण एवं परिचालन मण्डल
उ0प्र0 पावर ट्रांसमिशन कारपोरेशन लि0
प्रथम तल पारेषण भवन, 130–डी, विक्टोरिया पार्क
मेरठ– 250 003
मोबाइल: 9412749817

OFFICE OF THE
SUPERINTENDING ENGINEER
Electricity Test & Commissioning Circle
U.P. POWER TRANSMISSION CORPORATION LTD.
1st Floor Pareshan Bhawan, 130-D, Victoria Park,
Meerut 250 003
Mobile: 9412749817

No. 82 / ETCC-MT / Dated- 30/05/24

Sub :- SPS related to HVDC Mundra-Mahendargarh.

Superintending Engineer (R&A) **(By e-mail)**
UPSLDC Vibhuti Khand ,
Gomti Nagar,
Lucknow.

In reference to the above cited subject, UPSLDC via email on 22.05.2024 informed that on 17.05.2024 at 16:20 hrs, Case-3 of SPS related to HVDC Mundra - Mahendergarh operated. As per action in case-3 operation of this line SPS, 200MW load relief at 220kV Shamli (UP) is desired. However, no load relief at 220kV Shamli was observed at given date and time. It is to bring in your notice that due to commissioning of 400kV Shamli S/s entire power flow scenario has been changed. Current situation is summarized as below.

At 220kV Shamli S/s feeders shown in the list	Planned load relief (MW)	Current situation
Thana Bhawan -1	25	The only line cateting Thana Bhawan has been made LILO at 132kV Jalalpur. Now Jalalpur is fed from 220kV Shamli S/s while load of Thana Bhawan is fed from 400kV Shamli S/s.
Thana Bhawan -2	25	
Jasala-1	25	Only one line exists.
Jasala-2	25	
Kharad-1	50	Only one line exists which is normally kept open at Kharad and load of Kharad is normally fed from 400kV Shamli S/s.
Kharad-2	50	
Baraut-1	150 (case-4)	No such line exist at 220kV Shamli S/s.
Baraut-2	150 (case-4)	

In view of the above facts, entire load relief strategy needs to be reviewed and redesigned for SPS. On 17.05.2024 at 16:20 hrs, no tripping observed at 220kV S/S Shamli as SPS system is unhealthy, which is being maintained by M/s PGCIL.

Hence it is requested to you to kindly coordinate with M/s PGCIL for modification of the scheme and rectification of the fault in SPS.

(Pramod Kumar Mishra)
Superintending Engineer

No. 82 /ETCC-MT/ Dated/– 30/05/24

Copy forwarded to the following for information & necessary action:-

1. Chief Engineer (TW), UPPTCL Victoria Park, Meerut.
2. Executive Engineer, Electricity Test & Commissioning Div., Muzaffarnagar.

(Pramod Kumar Mishra)
Superintending Engineer

SK/SENew/NewEngLetter01

Rajasthan Details

Revised updated feeder details (radial) along with expected average Load Relief

S.No.	Name of Sub- Station	Feeder name as per existing detail	Revised name of Existing Feeder /Line/Equipment	Average Load relief (MW)	Remark
1	220 kV GSS Alwar	132 kV GSS Mundawar	132 kV GSS Pinan	25	
		132 kv GSS Bansoor	132 kV GSS Telco	45	
		132 kV GSS Ramgarh	132 kV GSS Ramgarh	65	
		132 kV GSS Malakhera	132 kV GSS Malakhera	50	
		132 kV Alwar (LOCAL)	132 kV GSS Alwar (LOCAL)	120	
2	220 kV GSS Ratangarh	132 kV Sardar Sher			Generally Feed from 220 kV Halasar
3	220 kV GSSV Bhilwara	132 kV GSS Gangapur	132 kv GSS Karoi	15	
		132 kV GSS Danta	132 kV GSS Danta	30	
		132 kV GSS Devgarh	132 kV GSS Bankali	18	
		132 kV GSS Kareda			
4	400 kV GSS Merta	132 kV GSS Kuchera	132 kV GSS Dhawa	25	
		132 kV GSS Lamba	132 kV GSS Lamba jatan	55	
		132 kV GSS Gotan			

Email **Control Room CONTROL ROOM SLDC**

Re: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

From : Executive Engineer TS Rewari <xentsrwr@hvpn.org.in> Thu, Aug 29, 2024 01:20 PM

Subject : Re: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

To : Control Room CONTROL ROOM SLDC <controlroomsldc@hvpn.org.in>

Cc : SE TS GGN <setsggn@hvpn.org.in>, Executive Engineer Executive Engineer <xen400kvdhanoda@hvpn.org.in>, Substation Engineer <sse220kvlulaahir@hvpn.org.in>

In continuation of trailing email and discussion held today telephonically, it is gathered that desired load relief shall not get as load of 220 kV Lula Ahir shall be fed through 220 kV Dadri-Lula Ahir line being synchronized. Therefore, it is proposed that in the existing scheme SPS, the tripping of 220 kV D/C Lula Ahir line at 400 kV Dhanonda end may be removed and tripping of all incomers (2 no. 132 kV Incomers of 100 MVA 220/132 kV TFs and one no. 33 kV incomer of 100 MVA 220/33 kV TF) at 220 kV Lula Ahir substation may be added.

The maximum load (for FY 2023-24) on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 53.46 MVA, 86.26 MVA and 87.02 MVA

The average load on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 50 MVA, 70 MVA and 70 MVA

From: "Executive Engineer TS Rewari" <xentsrwr@hvpn.org.in>
To: "Control Room CONTROL ROOM SLDC" <controlroomsldc@hvpn.org.in>
Cc: "SE TS GGN" <setsggn@hvpn.org.in>, "Executive Engineer Executive Engineer" <xen400kvdhanoda@hvpn.org.in>, "Substation Engineer" <sse220kvnarnaul@hvpn.org.in>
Sent: Wednesday, August 28, 2024 12:46:13 PM
Subject: Re: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

In reference of trailing email it is submitted that 220 kV Lula Ahir is connected with 400 kV Dhanonda through 220kV D/C line and with 220 kV Dadri through 220kV S/C line and with 220 kV Rewari with 220kV S/C line.
In general circuits of 400 kV Dhanonda and 220 kV Dadri runs in synchronization. The maximum load (for FY 2023-24) on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 53.46 MVA, 86.26 MVA and 87.02 MVA. It is further added that in general 220 kV Dadri takes load from 220 kV Lula Ahir substation and thus act as sink.

In case of operation of SPS at 400 kV Dhanonda, the desired load relief as mentioned in trailing email (90+95 MW) can be achieved through existing scheme (by outage of three no. 100 MVA TFs and 220 kV Dadri (acting as sink)).

Regards
XEN/TS Division
HVPNL Rewari.

From: "Control Room CONTROL ROOM SLDC" <controlroomsldc@hvpn.org.in>
To: "Executive Engineer TS Rewari" <xentsrwr@hvpn.org.in>, "Executive Engineer TS Rohtak" <xentsrtk@hvpn.org.in>, "Executive Engineer Ts Bhiwani" <xentsbhw@hvpn.org.in>, "Executive Engineer Executive Engineer" <xen400kvdhanoda@hvpn.org.in>, xendhanonda@gmail.com
Cc: "Chief Engineer SO Commercial" <cesocomml@hvpn.org.in>, "Chief Engineer TS Panchkula" <cetspkl@hvpn.org.in>, "Chief Engineer TS Hisar" <cetshsr@hvpn.org.in>, "Superintending Engineer SLDC OP" <sesldcop@hvpn.org.in>, "SE TS Rohtak" <setsrtk@hvpn.org.in>, "SE TS GGN" <setsggn@hvpn.org.in>, "Superintending Engineer TS Hisar" <setshsr@hvpn.org.in>, "Superintending Engineer MP CC Dhulkote" <sempccdkt@hvpn.org.in>, "Superintending Engineer MP CC Delhi" <sempccdelhi@hvpn.org.in>, "Executive Engineer MP Rohtak" <xenmpccrtk@hvpn.org.in>, "XEN MP Hisar" <xenmpcchsr@hvpn.org.in>, "XEN MP CC" <xenmpccggn@hvpn.org.in>
Sent: Wednesday, August 21, 2024 11:57:59 AM
Subject: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

Sir,

Please see the attachments.

--
Regards,
SCE (पाली प्रभारी अभियंता)/SLDC Control room,
HVPNL Panipat
Contact No- 9053090722,9053090721,0180-2664095

Fwd: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

Control Room CONTROL ROOM SLDC <controlroomsldc@hvpn.org.in>

Fri 8/30/2024 12:44 PM

To:NRLDC SO 2 <nrldcso2@grid-india.in>; NRLDC SO-II <nrldcso2@gmail.com>; Deepak Kumar <deepak.kr@grid-india.in>;

Cc:Superintending Engineer SLDC OP <sesldcop@hvpn.org.in>;

2 attachments (209 KB)

Email SPS Rewari.pdf; Regarding SPS Bhiwani.pdf;

Sir,

In reference to the SPS installed for 500kV HVDC Munda - Mahindergarh link the information received from TS wing (copy attached) is as under:

1. At 400kV Dhanonda through Lula Ahir substation:- It is proposed that in the existing scheme SPS, the tripping of 220 kV D/C Lula Ahir line at 400 kV Dhanonda end may be removed and tripping of all incomers (2 no. 132 kV Incomers of 100 MVA 220/132 kV TFs and one no. 33 kV incomer of 100 MVA 220/33 kV TF) at 220 kV Lula Ahir substation may be added. The maximum load (for FY 2023-24) on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 53.46 MVA, 86.26 MVA and 87.02 MVA. The average load on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 50 MVA, 70 MVA and 70 MVA.

2. At 400/220kV Bhiwani BBMB: It is proposed that in the existing scheme SPS, the tripping of 220 kV Bapora (Bhiwani HVPNL) D/C line at Bhiwani BBMB end may be removed and tripping of all incomers (2 no. 132 kV Incomers of 100 MVA 220/132 kV T-1 & T-2 TFs) at 220 kV Bapora (Bhiwani HVPNL) substation may be added. The maximum load on two no. 100 MVA TFs installed at 220kV Bhiwani HVPNL is 80 MW and 85 MW respectively. The average load on two no. 100 MVA TFs installed at 220kV Bhiwani HVPNL is 70 MW and 70 MW respectively.

3. At 132kV Charkhi Dadri: It is proposed that in the existing scheme SPS, the tripping of 132kV Kalanaur line at Dadri BBMB end may be removed and tripping of 132kV Haluwas & 132kV Dadri old at Dadri BBMB may be added. The maximum load on 132kV Haluwas & 132kV Dadri old line is 45 MW and 50 MW respectively. The average load on 132kV Haluwas & 132kV Dadri old line is 40 MW and 40 MW respectively.

Rest information kept unchanged. It is also added here that the fiber connectivity is also available on all the above substations.
It is also pertinent to mention here that 700 MW load relief is expected from Haryana. Rest of the states have been allotted with a relative less amount of relief as compared to Haryana for 500kV HVDC Mundra - Mahendargarh link. The Haryana share from APL Mundra has also been reduced now. In view of the above, the expected load relief from the NR states is required to be reviewed accordingly. The same was also pointed out by this office during the online meeting held on dated 20.08.2024.

This is for information & further necessary action please.

From: "Executive Engineer TS Rewari" <xentsrwr@hvpn.org.in>
To: "Control Room CONTROL ROOM SLDC" <controlroomsldc@hvpn.org.in>
Cc: "SE TS GGN" <setsggn@hvpn.org.in>, "Executive Engineer Executive Engineer" <xen400kvdhanoda@hvpn.org.in>, "Substation Engineer" <sse220kvlulaahir@hvpn.org.in>
Sent: Thursday, August 29, 2024 1:20:08 PM
Subject: Re: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

In continuation of trailing email and discussion held today telephonically, it is gathered that desired load relief shall not get as load of 220 kV Lula Ahir shall be fed through 220 kV Dadri-Lula Ahir line being synchronized. Therefore, it is proposed that in the existing scheme SPS, the tripping of 220 kV D/C Lula Ahir line at 400 kV Dhanonda end may be removed and tripping of all incomers (2 no. 132 kV Incomers of 100 MVA 220/132 kV TFs and one no. 33 kV incomer of 100 MVA 220/33 kV TF) at 220 kV Lula Ahir substation may be added.

The maximum load (for FY 2023-24) on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 53.46 MVA, 86.26 MVA and 87.02 MVA
The average load on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 50 MVA, 70 MVA and 70 MVA

From: "Executive Engineer TS Rewari" <xentsrwr@hvpn.org.in>
To: "Control Room CONTROL ROOM SLDC" <controlroomsldc@hvpn.org.in>
Cc: "SE TS GGN" <setsggn@hvpn.org.in>, "Executive Engineer Executive Engineer" <xen400kvdhanoda@hvpn.org.in>, "Substation Engineer" <sse220kvnarnaul@hvpn.org.in>
Sent: Wednesday, August 28, 2024 12:46:13 PM
Subject: Re: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

In reference of trailing email it is submitted that 220 kV Lula Ahir is connected with 400 kV Dhanonda through 220kV D/C line and with 220 kV Dadri through 220kV S/C line and with 220 kV Rewari with 220kV S/C line.
In general circuits of 400 kV Dhanonda and 220 kV Dadri runs in synchronization. The maximum load (for FY 2023-24) on three no. 100 MVA TFs installed at 220 kV Lula Ahir is 53.46 MVA, 86.26 MVA and 87.02 MVA. It is further added that in general 220 kV Dadri takes load from 220 kV Lula Ahir substation and thus act as sink.

In case of operation of SPS at 400 kV Dhanonda, the desired load relief as mentioned in trailing email (90+95 MW) can be achieved through existing scheme (by outage of three no. 100 MVA TFs and 220 kV Dadri (acting as sink)).

Regards
XEN/TS Division
HVPNL Rewari.

From: "Control Room CONTROL ROOM SLDC" <controlroomsldc@hvpn.org.in>
To: "Executive Engineer TS Rewari" <xentsrwr@hvpn.org.in>, "Executive Engineer TS Rohtak" <xentsrtk@hvpn.org.in>, "Executive Engineer Ts Bhiwani" <xentsbhw@hvpn.org.in>, "Executive Engineer Executive Engineer" <xen400kvdhanoda@hvpn.org.in>, xendhanonda@gmail.com
Cc: "Chief Engineer SO Commercial" <cesocomml@hvpn.org.in>, "Chief Engineer TS Panchkula" <cetspkl@hvpn.org.in>, "Chief Engineer TS Hisar" <cetshsr@hvpn.org.in>, "Superintending Engineer SLDC OP" <sesldcop@hvpn.org.in>, "SE TS Rohtak" <setsrtk@hvpn.org.in>, "SE TS GGN" <setsggn@hvpn.org.in>, "Superintending Engineer TS Hisar" <setshsr@hvpn.org.in>, "Superintending Engineer MP CC Dhulkote" <sempccdkt@hvpn.org.in>, "Superintending Engineer MP CC Delhi" <sempccdelhi@hvpn.org.in>, "Executive Engineer MP Rohtak" <xenmpccrtk@hvpn.org.in>, "XEN MP Hisar" <xenmpcchsr@hvpn.org.in>, "XEN MP CC" <xenmpccggn@hvpn.org.in>
Sent: Wednesday, August 21, 2024 11:57:59 AM
Subject: Review of SPS installed for 500kV HVDC Mundra - Mahindergarh.

Sir,

Please see the attachments.

--
Regards,
SCE (पाली प्रभारी अभियंता)/SLDC Control room,
HVPNL Panipat
Contact No- 9053090722,9053090721,0180-2664095

--
Regards,
SCE (पाली प्रभारी अभियंता)/SLDC Control room,
HVPNL Panipat
Contact No- 9053090722,9053090721,0180-2664095

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HARYANA VIDYUT PRASARAN NIGAM LIMITED

Regd. Office: Shakti Bhawan, Plot No. C-4, Sector-6, Panchkula, 134109.
Corporate Identity Number: U40101HR1997SGC033683
Website: www.hvpn.org.in, E-mail - xentsbhw@hvpn.org.in
Phone No: 01664-242797(O)

To

The Executive Engineer,
LDPC, HVPNL,
Panipat.

Memo No.Ch-116/OMBE-7 Dated: 29.08.2024

Subject: SPS scheme at HVPNL substations for getting load relief due to tripping of 500Kv HVDC Mundra – Mahendargarh

Please refer to this O/Memo No. 108/OMBE-7 dated 27.08.2024 and O/Email dated 09.08.2024 on the subject cited matter.

In this continuation to above, the details of SPS under TS division, HVPNL, Bhiwani is as under:

S No.	Name of feeding S/Stn	Feeder/Line/Equipment	SPS Installed	Max. Load	Load Relief (Avg Load)	Remarks
1	220KV S/Stn Bhiwani	132KV IA Bhiwani Line	UFR	50MW	40 MW	SPS (UFR)Installed and healthy
2	220KV S/Stn Bhiwani	132KV Bhiwani Ckt 2	UFR	50MW	40 MW	SPS (UFR)Installed and healthy
3	220KV S/Stn Bhiwani	132KV Tosham	UFR	-	-	SPS (UFR) Installed and healthy but line is running on No load as 2nd source to 132KV Tosham
4	220KV S/Stn Bhiwani	132KV Incomer of Transformer 100MVA Transformer T2	-	85MW	70 MW	SPS may be provided for load relief as mentioned on subject above.
5	220KV S/Stn Bhiwani	132KV Incomer of 100MVA Transformer T1	-	80MW	70 MW	SPS may be provided for load relief as mentioned on subject above.
6	132kV substation Dadri-2	132kV Dadri-kalanaur ckt	Yes		Nil	SPS Installed and healthy but line is running on No load as 2nd source to 132KV Kalanaur
7	132kV substation Dadri-2	132kV Dadri-Makrani ckt	Yes		Nil	SPS Installed and healthy but line is running on No load as 2nd source to 132KV Makrani
8	132kV substation Dadri-2	132kV Dadri-Haluwas ckt	-	45MW	40MW	SPS may be provided for load relief as mentioned on subject above.
9	132kV substation Dadri-2	132kV Dadri-Dadri old	-	50MW	40MW	SPS may be provided for load relief as mentioned on subject above.

This is for kind information and necessary action please.

Executive Engineer,
Transmission System Division,
HVPNL, Bhiwani

CC to:

1. SE/TS Circle, HVPNL, Hisar for kind information, please.

Delhi Details

Re: Mock testing of SPS of 500kV HVDC Mundra-Mahindergarh link

SLDC, DELHI <sldcmintoroad@gmail.com>

Wed 8/28/2024 3:48 PM

To:NRLDC SO 2 <nrldcso2@grid-india.in>;

Cc:sinha.surendra <sinha.surendra@yahoo.com>; dgmsodelhisldc@gmail.com <dgmsodelhisldc@gmail.com>; Manager (T) SO <managersogd@gmail.com>;

In reference to trailing mail, the maximum load on 220kV feeders covered under SPS of 500kV HVDC Mundra-Mahindergarh link are as under:

S. No.	Name of the Element	MW
1	220 KV BAMNAULI-PAPANKALAN-I CKT.-I	120
2	220 KV BAMNAULI-PAPANKALAN-I CKT.-II	120
3	220 KV MANDAULA- GOPALPUR CKT.-I	212
4	220 KV MANDAULA- GOPALPUR CKT.-II	214

Regards,
SLDC Delhi

On Tue, Aug 27, 2024 at 10:07 AM NRLDC SO 2 <nrldcso2@grid-india.in> wrote:

> Sir,
>
> In reference of the trailing mail, it is to be mentioned that inputs have received from Rajasthan only. Members agreed to shared the details by 22nd August 2024, however no further details received from Haryana, Punjab, Delhi, UP & ADANI.
>
> Kindly share the details as discussed during the meeting held on 20th August 2024, so that further remedial actions can be initiated on the basis of those details.
>
> सादर धन्यवाद/ Thanks & Regards
> प्रणाली संचालन-II/ System Operation-II
> उ॰क्षे॰भा॰प्रे॰के॰/ NRLDC
> ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड/ Grid Controller of India Limited
> Formerly known as
> पोसोको / POSOCO

Punjab Details

	Name of S/S	66kV Feeders	Average Demand(Amp.)	Maximum Demand(Amp.)
Punjab Control Area	220/66kV Gobindgarh	66kV Talwara-19(ADANI SPS)	375	430
		66kV Talwara-2(ADANI SPS)	375	430
	220/66kV Lalton kalan	66kV Gill road-1(DADRI SPS)	543	610
		66kV Gill Road-2(DADRI SPS)	518	692
		66kV Dugri(DADRI SPS)	325	450
	220/66kV Malerkotla	66kV Malerkotla(ADANI SPS)	213	403
		66kV Amargarh(ADANI SPS)	238	405
		66kV Malaud ckt 1(DTPC SPS)	257	356

Note: 66kV Malaud at 220kV S/S Malerkotla was bifurcated into two circuits in the month of July 2024.

Nodal officers details

Control Area	Station Name	Nodal Person (SPS, communication system)	Contact details	Email Id
Rajasthan	220/132kV Alwar	Sh. Vijaypal Yadav XEN (Prot.) Ms. Pooja Verma AEN (Comm)	9413361407 9413375366	xen.prot.alwar@rvpn.co.in aen.comm.alwar@rvpn.co.in
	220/132kV Ratangarh	Sh. Mukesh Somra AEN (MPT&S) , Sh. Dharmender Singh (Comm.)	9414061442 9413383246	aen.mpt&s.rtg@rvpn.co.in aen.comm.ratangarh@rvpn.co.in
	220/132kV Bhilwara	Sh. Madhusudan Sharma, AEN (SLDC-comm Sh. Suresh Garg, XEN (MPT&S)	9413383176 9414061424	aen.subsldc.bhl@rvpn.co.in xen.mpts.bhl@rvpn.co.in
	220/132kV Merta	Mukesh Kumar (AEN Prot.) Mahip Singh (Aen) Comm)	7734806466 9413362995	aen.prot.mertacity@RVPN.CO.IN aen.comm.merta@RVPN.CO.IN
BBMB	400/220kV Bhiwani(BBMB)			
POWERGRID	400/220kV Hissar(PG)			
	Bhiwani(PG)			
	400/220kV Bahadurgarh(PG)			
Haryana	400/220kV Dhanonda	Gautam / SSE, 400kV Dhanonda	9313472669	dhanonda400kv@gmail.com
	220kV Lulahir	Er. Subhash Chander	9416373135	sse220kvlulaahir@hvpn.org.in
	220kV Rewari	Er. Kavinder Yadav	9315315649	sse220kvrwr@hvpn.org.in
	132kV Charkhi Dadri	Vivek Sangwan	9034459489	sse132kvdadri@hvpn.org.in
Punjab	220/66kV Gobindgarh	Er. Harwinder Singh	96461-18184	ae-220kvg1-mgg@pstcl.org
	220/66kV Laltokalan	Er. Supinder Singh	96461-24495	sse-pm-lalton@pstcl.org
	220/66kV Malerkotla	Er. Sanju Bala	96461-64007	sse-pm-mlrk@pstcl.org
UP	Shamli	Er. Krishna Nand	9412756631	eeetdshamli@upptcl.org,
	400kV Muradnagar	Er. D.S. Sengar	9412748666	ee400mrd2@upptcl.org
Delhi	400/220kV Bamnauli			
	400/220kV Mandola			