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

दिनांक:23.04.2026

सेवा में

As per attached list of Members and Other invitees

**विषय: संरक्षण उप-समिति की 67 वीं बैठक की कार्यवृत्त |**

**Subject: Minutes for 67th Protection Sub-Committee Meeting-reg**

संरक्षण उप-समिति की **67 वीं बैठक, दिनांक 18.03.2026 को 10:30 बजे** से **एनआरपीसी सचिवालय, कटवारिया सराय, नई दिल्ली** में आयोजित की गयी थी | उक्त बैठक की कार्यवृत्त संलग्न है I यह उत्तर क्षेत्रीय विद्युत् समिति की वेबसाइट (**https://nrpc.gov.in/meetings/prsub.html**) पर भी उपलब्ध है |

The **67th meeting** of Protection Sub-Committee was held on **18.03.2026** at **10:30 Hrs** at **NRPC Secretariat, Katwaria Sarai, New Delhi**. The minutes of the meeting is attached herewith. The same is also available on NRPC website **(https://nrpc.gov.in/meetings/prsub.html).**

DHARMENDER KUMAR MEENA
Digitally signed by DHARMENDER KUMAR MEENA
Date: 2026.04.24 16:53:13 +05'30'

(डी.के. मीना)

(D.K. Meena)

निदेशक (संरक्षण)

# *67th Protection Sub-Committee Meeting (18th March, 2026)-MoM*

## Contents

Part-A: NRPC....4

A.1. Confirmation of minutes of 66th meeting of Protection Sub-Committee (agenda by NRPC Secretariat)....4

A.2. Status of action taken on decisions of 66th Protection Sub-Committee meeting (agenda by NRPC Secretariat)....4

A.3. Submission of protection performance indices along with reason and corrective action taken for indices less than unity to NRPC Secretariat for the months of January- February 2026 (agenda by NRPC Secretariat)....5

A.4. Reporting of protection performance indices of SPS by SLDCs/RLDC (agenda by NRPC Secretariat)....10

A.5. Annual protection audit plan for FY 2026-27 (agenda by NRPC Secretariat)....12

A.6. Third-party protection audit plan (agenda by NRPC Secretariat)....15

A.7. Discussion on audit reports submitted by utilities and compliance of recommendations of protection audit (agenda by NRPC Secretariat)....18

A.8. Tripping of 400kV Rosa-Badaun #2 and Busbar Operation of Bus#1 on 16.02.2026 (agenda by Rosa Power Supply Co. Ltd.)....22

A.9. Persistent Delay in Completion of OPGW Communication Network by POWERGRID/INDIGRID Affecting Commissioning of Line Differential Protection and AGC System at Parbati Complex (agenda by NHPC)....24

A.10. Implementation of Special Protection Scheme (SPS) for Load Shedding on Tripping of ICT at 400 kV Substation BBMB Panipat (agenda by Haryana SLDC)....26

A.11. Installation of Special Protection Scheme (SPS) at 400kV GSS Bikaner in power step up condition and modification in already implemented SPS in step down condition (agenda by Rajasthan SLDC) 27

A.12. SPS for 400kV S/Stn Harsh Vihar (agenda by DTL)....29

Part-B: Agenda by NRLDC....29

B.1 Status of remedial actions recommended during previous PSC meetings (agenda by NRLDC) 29

B.2 Multiple elements tripping events in Northern region in the month of January-February 2026 (agenda by NRLDC)....30

B.3 Frequent elements tripping during January-February 2026 (agenda by NRLDC)....38

B.4 Details of tripping of Inter-Regional lines from Northern Region for January-February 2026 (agenda by NRLDC)....40

B.5 Status of Bus bar protection (agenda by NRLDC)....41

B.6 Recent SPS Operations in the Rajasthan control area during solar hours (agenda by NRLDC) 42

B.7 Mock testing of System Protection Schemes (SPS) in Northern Region (agenda by NRLDC) 44

B.8 Confirmation regarding implementation of proposed Overvoltage protection setting by committee (agenda by NRLDC).....50

B.9 Status of connected load relief quantum of UFR and df/dt (agenda by NRLDC).....52

Part-C: Agenda for final approval of protection settings by PSC Forum for FTCs which have been provisionally allowed by NRLDC/SLDCs.....53

C.1. First Time Charging of transmission lines/Bays/Transformer/Reactor etc. by NRLDC.....53

C.2. First Time Charging of transmission Lines/Bays/Transformer/Reactor etc. by SLDCs.....54

Part-D: Agenda for approval of protection settings of elements by PSC Forum for which revision in protection settings have been done by utilities.....56

D.1. Approval of Revised Zone-3 Settings of 400 kV Koteshwar–Tehri Circuit-3 (Line W-3) of Tehri PSP (agenda by THDC).....56

# *Minutes of*
# *67th Meeting of Protection Sub-Committee (PSC) of*
# *Northern Regional Power Committee*

***Date and time of meeting*** : ***18.03.2026 10.30 Hrs.***

***Venue*** : ***Conference Hall, NRPC Secretariat, Katwaria Sarai, New Delhi***

MS, NRPC welcomed all the participants. List of participants is attached as **Annexure-P.**

## Part-A: NRPC

### A.1. Confirmation of minutes of 66th meeting of Protection Sub-Committee (agenda by NRPC Secretariat)

A.1.1 AEE (P), NRPC apprised that 66th PSC meeting was held on 28.01.2026. Minutes of the meeting were issued vide letter dtd. 25.02.2026. No comment has been received till the date.

***Decision of the Forum:***

*Forum approved the issued minutes of 66th PSC meeting.*

### A.2. Status of action taken on decisions of 66th Protection Sub-Committee meeting (agenda by NRPC Secretariat)

A.2.1 Status of action taken on the decisions of 66th PSC meeting were informed to the Forum.

A.2.2 Concerned utilities submitted the status of action taken. Updated status of action taken is attached as **Annexure-A.I**.

***Decision of the Forum***

*Forum instructed utilities to take necessary action on pending issues.*

## A.3. Submission of protection performance indices along with reason and corrective action taken for indices less than unity to NRPC Secretariat for the months of January- February 2026 (agenda by NRPC Secretariat)

A.3.1 AEE (P), NRPC apprised that as per clause 15 (6) of IEGC 2023;

- *Users shall submit the following 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*

Further, as per clause 15 (7) of IEGC 2023;

- *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 **January- February 2026** were presented before Forum as attached as **Annexure-A.II.** Utilities from where, indices were pending, were asked to submit it timely in future.

A.3.4 Following issues were highlighted by AEE (P):

i. Some Utilities have not submitted data.
ii. Utilities have submitted date for some plants but not all.
iii. Some utilities have sent data after cut-off date of 7th.

A.3.5 **Forum observed that following utilities are non-compliant as indices (January, 2026) have not been received in NRPC Secretariat:**

1. **NTPC (Dadri, Rihand, Singrauli)**
2. **Meja Urja Nigam Ltd**
3. **IndiGrid**
4. **Kishtwar Transmission Limited**
5. **ACME Chittorgarh Solar Energy Pvt Ltd (Ayana)**
6. **Azure Power Forty One Pvt limited**
7. **Azure Power Forty Three Pvt. Ltd._RSS**
8. **Azure Maple Pvt. Ltd.**
9. **AZURE POWER INDIA Pvt. Ltd., Bhadla**
10. **Azure Power Thirty Four Pvt. Ltd.**
11. **Mahindra Renewable Private Limited**
12. **Renew Sun Bright Pvt. Ltd. (sembcrop)**
13. **Rising Sun Energy-K Pvt. Ltd.**
14. **Thar Surya Pvt. Ltd.**
15. **TRANSITION ENERGY SERVICES PRIVATE LIMITED**
16. **Transition Green Energy Private Limited**
17. **Transition Sustainable Energy Services Private Limited**

A.3.6 **Similarly, Forum observed that following utilities are non-compliant as indices (February, 2026) have not been received in NRPC Secretariat:**

1. **THDC (Khurja)**
2. **HPPCL**
3. **Kishtwar Transmission Limited**
4. **ACME Chittorgarh Solar Energy Pvt Ltd (Ayana)**
5. **Ambuja Cements Limited_300MW (AGEL)**
6. **AMP Energy Green Four Pvt. Ltd.**
7. **AMP Energy Green Five Pvt. Ltd.**
8. **AMP Energy Green Six Pvt. Ltd.**
9. **Azure Power Forty Three Pvt. Ltd._RSS**
10. **Azure Power Forty Three Pvt. Ltd._PSS**
11. **Azure Maple Pvt. Ltd.**

12. **AZURE POWER INDIA Pvt. Ltd., Bhadla**
13. **Azure Power Thirty Four Pvt. Ltd.**
14. **Eden Renewable Alma Pvt. Ltd.**
15. **Energizent Power Private Limited**
16. **Juniper Green Cosmic Private Limited**
17. **Juniper Nirjara Energy Private Limited**
18. **Megasolis Renewables Pvt Ltd (MSRPL)**
19. **Renew Sun Bright Pvt. Ltd. (sembcrop)**
20. **Rising Sun Energy-K Pvt. Ltd.**
21. **SJVN Green Energy Limited**
22. **Thar Surya Pvt. Ltd.**
23. **Adept Renewable Technologies Pvt. Ltd.**
24. **Transition Cleantech Services Private Limited**
25. **Transition Energy Services Private Limited**
26. **Transition Green Energy Private Limited**
27. **Transition Sustainable Energy Services Private Limited**
28. **Transition Sustainable Energy Services One Pvt Ltd**

A.3.7 EE (P), NRPC informed that a letter has already been issued for non-compliant utilities as decided in the 65th PSC meeting.

A.3.8 NTPC representative apprised that indices for Solar plants associated with conventional Plants have also been taken into consideration during submission of performance indices of the plant.

A.3.9 Incidents, where indices were found less than one, were discussed (**Annexure-A.III**). It was found that utilities have already taken corrective action except few. Utilities were directed to take corrective action wherever it was pending.

A.3.10 ACME representative informed that 89C bypass Isolator was used for charging the PTR-2. During charging, the Remote end relay tripped of 220 kV Badisidd -Bhadla-2 due to DT received. No fault was present at our end and suspecting malfunctioning

Which is under review. Forum directed ACME to share the further remedial action in this regard.

A.3.11 Regarding, tripping of 765kV, 240MVAR Line Reactor-1 at Bikaner (PGCIL) in January, 2026 month on earth fault during auto reclosure operation, AESL shared that due to incorrect timing of reactor earth fault protection, reactor got tripped. AESL had submitted that Earth fault protection of reactor (derived) revised to 1.2 sec for allowing AR of line. AEE (P), NRPC mentioned that no such earth fault protection has been kept in finalized protection philosophy of NR. Forum was also of view that reactor cannot provide huge current during line fault. Therefore, AESL may review its line reactor protection settings.

A.3.12 Regarding, tripping of 220KV Sec-69 Gurugram to Sohna Road Ckt-1 on 11.01.2026, HVPN representative asked Indigrid to provide update about rectifying wiring of Carrier signals at 400 kV Sohna Road (IndiGrid) end for 220 kV Sohna Road-Sec 69 Ckt. IndiGrid representative submitted to share the update shortly.

A.3.13 Regarding, trippings of 220KV Sec-72 to Sec-72_PG GGN Ckt-1, 220KV Sec-72 to Sec-72_PG GGN Ckt-2 & 220KV Sec-72 to Sec-72_PG GGN Ckt-3 on 11.01.2026 on low time setting at PGCIL end, PGCIL representative updated that these lines of around 200-300mtr having differential protection along with non-directional IDMT overcurrent protection as backup. For fault outside the differential zone of line, time delay has now been coordinated such that, it will trip after zone-2 delay and before ICT tripping at PGCIL end. Testing is yet to be done.

A.3.14 Regarding, tripping of 400KV KISHENPUR- KISHTWAR-1 on 23.01.2026, POWERGRID representative informed that line got tripped due to cable issue which has been rectified.

A.3.15 Regarding, tripping of 765 KV Line 1 Bara -Mainpuri due to unsuccessful A/R operation, PPGCL representative informed that main breaker was already out and A/R operation of tie breaker was coordinated with operation of main breaker which did not happen successful. Shutdown of line will be required for implementation of

independent A/R operation of both main and tie breaker. Matter has already been taken up with OEM.

A.3.16 Regarding, tripping of 400 kV Muktsar-Talwandi ckt.I on 10.01.2026 due to tripping of tie CB on fault in associated line of one and half breaker scheme. PSCTL representative apprised that main breaker of line is not operational. AEE (P), NRPC mentioned that similar event was also discussed in previous PSC meeting. PSCTL representative replied that main breaker is yet to be commissioned. Forum requested to expedite the same.

A.3.17 Regarding, tripping of 765kV Bikaner (PGCIL) - Khetri New (PGCIL) Ckt-1 on 28.02.2026, AESL shared that line tripped due to a Mal-operation of the 86 relay caused by DC mixing or an earth fault in the main DC supply. POWERGRID representative updated that issue of DC mixing has been corrected at POWERGRID end.

A.3.18 Regarding, tripping of 220KV Palli- Kadarpur Ckt-2 on 22.02.2026 on the operation of E/F relay at 220kV Pali end, HVPN representative mentioned that DPS relay of 220kV Pali –kadarpur Ckt-II is having PT supply issue due to which the relay even though sensed the fault but did not trip. He added that HVPN uses bus selection scheme in Distance protection relay. In the extant case, bus selection by auxiliary contact could not take place properly lead to non-operation of distance protection.

A.3.19 Regarding, tripping of 220KV G1-G2 on 03.02.2026 on distance from one end and E/F on other end, AEE (P), NRPC asked about the differential protection on the above line as line is short (<10km). PSTCL representative replied that differential protection is implemented however not operational due to communication link issue. He added that distance relay did not sense the fault at other end. Similarly, he added that line differential is not working on the 220KV G2-G3 and will be made operational at the earliest.

A.3.20 Regarding, tripping of 220kV Sahnewal - PGCIL Ckt.1 on 21.02.2026 on SOTF in zone-4, PSTCL representative informed that Sahnewal end read the fault of 220kV Sahnewal-Kohra line in zone-4 and enabled SOTF caused the 220kV Sahnewal -

PGCIL Ckt.1 line tripped without any delay even fault was cleared from both end in zone-1 for 220kV Sahnewal-Kohra. He added that SOTF has now been kept in zone-1, 2 only. UPPTCL representative was of view that SOTF will not get enabled in operational line as SOTF comes on closing of breaker after any event. PSTCL representative highlighted that CB status was inverted which caused SOTF enabled. He added that CB close logic and status have now been corrected.

A.3.21 Regarding, tripping of 220 KV STPS-BHADRA Line at 220 KV GSS BHADRA on 27.02.02026, RVPN submitted that O/C current relay was found defective, its tripping contact make. Forum recommended RVPN to keep over current disabled.

***Decision of the Forum:***

*Utilities were asked to submit the Protection performance indices timely by 7th day of month element wise along with corrective action taken for indices less than unity. Non-compliant utilities were asked to take necessary action for reporting data.*

## A.4. Reporting of protection performance indices of SPS by SLDCs/RLDC (agenda by NRPC Secretariat)

A.4.1 AEE (P), NRPC apprised that as per clause 16 of IEGC 2023;

- *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.*
- *The performance of SPS shall be assessed as per the protection performance indices specified in these Regulations. In case, the SPS fails to operate, the concerned User shall take corrective actions and submit a detailed report on the corrective actions taken to the concerned RPC within a fortnight.*

A.4.2 He added that the agenda has been discussed in previous PSC meeting and following was decided:

- Utilities 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.
- SLDCs/NRLDC may submit protection performance indices for SPS on a monthly basis by 7th date of each month. All utilities shall report their indices to concerned RLDC/SLDCs, then, after verifying SPS operation from all points, SLDC/RLDCs shall report performance indices to the NRPC Secretariat.
- Prescribed format shall be used for submission of protection performance indices of SPSs by SLDCs/NRDLC after verifying SPS operation from all points in their control area.

A.4.3 Only UPSLDC & HPSLDC have shared the protection performance indices for the SPS. for the month of January, 2026. Further, UPSLDC, Rajasthan SLDC, HPSLDC, and SJVN shared the same for the month of February, 2026.

A.4.4 Delhi SLDC, Punjab SLDC, Uttarakhand SLDC, Rajasthan SLDC & NRLDC have not shared the indices of SPS for month of January, 2026.

A.4.5 Delhi SLDC, Punjab SLDC, Uttarakhand SLDC & NRLDC have not shared the indices of SPS for month of February, 2026.

A.4.6 However, NRLDC vide email dated 13.04.2026 informed the SPS operations till March 2026 attached as **Annexure-A.IV.**

A.4.7 DTL representative apprised that SPS indices were shared by DTL for February, 2026 month. However, have not been considered in the list. AEE (P), NRPC replied that indices of SPSs are to be shared by Delhi SLDC after reviewing the details submitted by DTL. He added that the same was communicated to DTL & Delhi SLDC vide email dated 09.03.2026. Thereafter, no response has been received from DTL or Delhi SLDC.

A.4.8 Based on submission by SLDCs', the status of protection performance indices of SPS for the months of January, 2026 & February, 2026 is attached as **Annexure-A.V**.

A.4.9 AEE (P), NRPC highlighted that Rajasthan SLDC has shared the indices for SPS for the month of February, 2026. However shared details were incomplete. Rajasthan SLDC was asked to submit the verification part of its end of indices as highlighted in annexure-A.V also.

A.4.10 Accordingly, Forum emphasized that SLDCs and NRLDC may share the protection performance indices for the SPSs in their control area after verifying operation.

A.4.11 Utilities were requested to report indices even if its operation is NIL so that actual operation logic can be checked whether it is correct or not.

A.4.12 EE (P), NRPC highlighted following decision of past PSC meetings:

i) Utilities 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.

ii) SLDCs/NRLDC may submit protection performance indices for SPS on monthly basis by 7th date of each month. All utilities shall report their indices to concerned RLDC/SLDCs, then after verifying SPS operation from all points, SLDCs/RLDC shall report performance indices to NRPC Secretariat.

iii) **Prescribed format (*Annexure-A.V*) shall be used for submission of protection performance indices of SPSs by SLDCs/NRDLC after verifying SPS operation from all points in their control area.**

***Decision of the Forum:***

*Forum directed utilities/SLDCs/NRLDC for timely reporting and compliance of* protection performance indices of *of SPS.*

## A.5. Annual protection audit plan for FY 2026-27 (agenda by NRPC Secretariat)

A.5.1 AEE (P), NRPC apprised that 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-2026-27 latest by 31st October 2025 in 63rd, 64th, 65th, 66th PSC & in the 56th TCC & 81st NRPC meeting (held on 29-30 October, 2025).

A.5.3 MS, NRPC asked about the audit plan to be shared by SLDCs. EE (P), NRPC replied that SLDCs are required to share the audit plan for the substations under their purview which are not listed. He also mentioned that there is no need to keep Delhi SLDC in the list as there is no other substation which has not been included in the status. Accordingly, it has been removed.

A.5.4 Accordingly, annual audit plans submitted by utilities have been compiled (enclosed as **Annexure- A.VI**).

A.5.5 It was observed that following utilities have not submitted their audit plans and thus are non-compliant:

1. **NTPC**
2. **NPCIL (except RAP C)**
3. **RRVUNL**
4. **PSPCL (except GHSTPS)**
5. **HPSEBL**
6. **Talwandi Sabo Power Ltd.**
7. **Nabha Power Limited**
8. **MEJA Urja Nigam Ltd.**
9. **Adani Power Rajasthan Limited**
10. **JSW Energy Ltd. (KWHEP)**
11. **CPDL**
12. **INDIGRID**
13. **ADHPL**
14. **Kishtwar Transmission Limited**
15. **STSL (AESL)**
16. **ABC Renewable Energy (RJ-02) Pvt. Ltd.**
17. **ACME Chittorgarh Solar Energy Pvt Ltd**

18. **Ambuja Cements Limited_300MW**
19. **Altra Xergi Pvt. Ltd.**
20. **XL Xergi Power Pvt. Ltd.**
21. **AMP Energy Green Four Pvt. Ltd.**
22. **AMP Energy Green Five Pvt. Ltd.**
23. **AMP Energy Green Six Pvt. Ltd.**
24. **Ayana Renewable Power Three Private Limited**
25. **Ayaana Renewable Power One Pvt. Ltd.**
26. **Azure Power Forty One Pvt limited**
27. **Azure Power Forty Three Pvt. Ltd._RSS**
28. **Azure Power Forty Three Pvt. Ltd._PSS**
29. **Azure Maple Pvt. Ltd.**
30. **AZURE POWER INDIA Pvt. Ltd., Bhadla**
31. **Azure Power Thirty Four Pvt. Ltd.**
32. **Eden Renewable Cite Private Limited**
33. **Eden Renewable Alma Pvt. Ltd.**
34. **Energizent Power Private Limited**
35. **Juniper Green Cosmic Private Limited**
36. **Juniper Nirjara Energy Private Limited**
37. **Karinsar Solar Plant NHPC Ltd**
38. **Megasolis Renewables Pvt Ltd(MSRPL)**
39. **Mega Surya Urja Pvt. Ltd. (MSUPL)**
40. **ReNew Solar Urja Private Limited (IndiGrid)**
41. **Renew Surya Ayaan Pvt. Ltd. (IndiGrid)**
42. **Renew Surya Vihan Pvt. Ltd.**
43. **Renew Solar Photovoltaic Pvt Ltd**
44. **Renew Hans Urja Pvt Ltd**
45. **ReNew Dinkar Urja Pvt. Ltd.**
46. **Rising Sun Energy-K Pvt. Ltd.**
47. **SJVN Green Energy Limited**
48. **Adept Renewable Technologies Pvt. Ltd.**
49. **Transition Cleantech Services Private Limited**
50. **Transition Energy Services Private Limited**

51. **Transition Green Energy Private Limited**
52. **Transition Sustainable Energy Services Private Limited**
53. **Transition Sustainable Energy Services One Pvt Ltd**
54. **Gorbea Solar Pvt Ltd (GSPL)**
55. **Prerak Greentech Private Limited (PGPL)**

A.5.6 AEE (P) stressed upon the fact that 31st October deadline has already passed but audit plan is pending from above 55 entities.

A.5.7 Non-compliant utilities were requested to submit the sub-station wise audit plan at the earliest.

***Decision of the Forum:***

*Non-compliant utilities were asked to submit annual audit plan for sub-station wise audit date without any further delay. Subsequently, the audit reports along with compliance.*

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

A.6.1 AEE (P), NRPC apprised that 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, third-party protection audit plans received from utilities were apprised to forum and the same is enclosed as **Annexure-A.VII**.

A.6.3 It was also apprised that two different states may do mutual third party audit as decided in the 58th PSC meeting.

A.6.4 Further, as per received information, third party protection audit has been planned as below by utilities-

| **Organization** | **Organizations finalized for performing audit** | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **where audit is to** | DT | RVP | HVP | UPPTC | PSTC | HPPTC | PTCU | POWERGR | External |

| be done | L | N | N | L | L | L | L | ID | Vendor |
|---|---|---|---|---|---|---|---|---|---|
| DTL | - | - | ✓ | - | - | - | - | - | - |
| RVPN | - | - | ✓ | - | - | - | - | - | - |
| HVPN | - | ✓ | - | - | - | - | - | - | - |
| UPPTCL | - | - | - | - | - | - | - | - | ERDA |
| PSTCL | - | - | - | - | - | - | - | - | ✓ |
| HPPTCL | - | - | - | - | - | - | - | ✓ | - |
| PTCUL | - | - | - | - | - | - | - | - | CBIP |
| UT of J&K | - | - | - | - | - | - | - | ✓ | - |
| UT of Ladakh | - | - | - | - | - | - | - | ✓ | - |
| UT of Chandigarh | - | - | - | - | - | - | - | - | - |
| POWERGRID | - | - | - | - | - | ✓ | - | - | ✓ |

A.6.5 It was observed that audit plan has not been received from following, and thus are non-compliant:

1. **POWERGRID NR-3**
2. **DTL**
3. **PSTCL**
4. **UJVNL (Tiloth, Vyasi)**
5. **HPPCL (Sainj)**
6. **Talwandi Sabo Power Ltd**
7. **UT of J&K**
8. **UT of Chandigarh (CPDL)**
9. **IndiGrid (FBTL, PrKTCL)**
10. **Kishtwar Transmission Limited**
11. **STSL (AESL)**
12. **ABC Renewable Pvt. Ltd**
13. **ABC Renewable Energy (RJ-02) Pvt. Ltd.**
14. **ACME Chittorgarh Solar Energy Pvt Ltd**
15. **Ambuja Cements Limited_300MW**
16. **XL Xergi Power Pvt. Ltd.**

17. **Azure Power Forty One Pvt limited**
18. **Azure Power Forty Three Pvt. Ltd._RSS**
19. **Azure Power Forty Three Pvt. Ltd._PSS**
20. **Azure Maple Pvt. Ltd.**
21. **AZURE POWER INDIA Pvt. Ltd., Bhadla**
22. **Azure Power Thirty Four Pvt. Ltd.**
23. **Energizent Power Private Limited**
24. **Juniper Green Cosmic Private Limited**
25. **Juniper Nirjara Energy Private Limited**
26. **Karinsar Solar Plant NHPC Ltd**
27. **Megasolis Renewables Pvt Ltd(MSRPL)**
28. **Mega Surya Urja Pvt. Ltd. (MSUPL)**
29. **ReNew Solar Urja Private Limited**
30. **Renew Surya Ayaan Pvt. Ltd.**
31. **Renew Solar Photovoltaic Pvt Ltd**
32. **ReNew Hans Urja Pvt Ltd.**
33. **RENEW SOLAR POWER Pvt. Ltd. Bikaner**
34. **ReNew Dinkar Urja Pvt. Ltd.**
35. **Rising Sun Energy-K Pvt. Ltd.**
36. **SJVN Green Energy Limited**
37. **Thar Surya Pvt. Ltd.**
38. **Adept Renewable Technologies Pvt. Ltd.**
39. **Transition Cleantech Services Private Limited**
40. **Transition Energy Services Private Limited**
41. **Transition Green Energy Private Limited**
42. **Transition Sustainable Energy Services Private Limited**
43. **Transition Sustainable Energy Services One Pvt Ltd**
44. **Prerak Greentech Private Limited (PGPL)**

A.6.6 DTL representative conveyed that 3rd Party Protection will be started from April 2026. EE (P), NRPC asked DTL to share the same.

A.6.7 MS, NRPC directed to display the table of substations for which audit was planned in

previous month to get update whether concerned utility has performed audit or not. AEE (P), NRPC was of view that the same may be done for internal audit also.

A.6.8 MS, NRPC was of view that audit observations are required to be closed with in time period as early as possible. Therefore, she suggested to keep a sheet wherein tracking of compliance actions may be done. Accordingly, separate agenda may be taken for this.

***Decision of the Forum:***

*Forum directed utilities to submit Third Party Audit Plan. Subsequently, the audit reports along with compliance status may be submitted to NRPC Secretariat within one month of completion of audit.*

## A.7. Discussion on audit reports submitted by utilities and compliance of recommendations of protection audit (agenda by NRPC Secretariat)

A.7.1 AEE (P), NRPC apprised that as per clause 15 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 **internal audit reports** were discussed in the meeting and observations

(attached as **Annexure-A.VIII)** were given considering approved protection philosophy of Northern Region:

| S.N. | FY (Audit Date) | Utility | Stations |
|---|---|---|---|
| 1 | 2025-26 | RVPN | 26 Substations<br>(400kV – Ramgarh, Kankani, Surpura (Jodhpur), Merta)<br>(220kV- Tinwari, Sheo, Sayala, Raodar, Pali, NPH Jodhpur, Jalore, Dhorimanna, Bhinmal, Bhawad, Basni Jodhpur, Barli, Bali, Baithwasia, Dechu, Bhopalgarh, Phalodi, Aau, Boranada, Banar, Danta, Makrana) |
| 2 | 2025-26 | JSW Hydro | KWHEP |
| 3 | 2025-26 | JSW Energy | Barmer |
| 4 | 2025-26 | THDC | Tehri |
| 5 | 2025-26 | RPSCL | Shahjahapur |
| 6 | 2025-26 | AGEL | 2 plants<br>(Adani Solar Energy RJ Two Private Limited<br>Adani Green Twenty-Five Limited) |
| 7 | 2025-26 | ReNew | 3 Plants<br>(Renew Solar Power Pvt Ltd<br>Renew Surya Ravi Pvt Ltd<br>Renew Solar Energy Jharkhand 3 Pvt Ltd) |
| 8 | 2025-26 | Tata Power | 3 Plants<br>(TPGEL Noorsar |

| | | | |
|---|---|---|---|
| | | | TPREL Chhayan (300MW)<br>TPTCL Bhanipura (300MW)) |

A.7.4 Following third party audit report was discussed in the meeting and observations (attached as **Annexure-A.IX)** were given considering approved protection philosophy of Northern Region:

| **S.N.** | **Utility** | **Stations** |
|---|---|---|
| 1 | NHPC | 7 Plants (Uri-1, Kishanganga, Chamera-II, Chamera-III, Dhauliganga, Tanakpur, Uri-II) |
| 2 | NPL | Nabha (Rajpura) |
| 3 | THDC India Ltd | Koteshwar HEP |

A.7.5 Following utility have submitted action plan on recommendation of audit team for Internal (FY25-26) audit:

| **S.N.** | **Utility** | **Plant/Substation** |
|---|---|---|
| 1 | IPGCL | PPS-I, III |

A.7.6 Following utilities have submitted action plan on recommendation of audit team for external audit:

| **S.N.** | **Utility** | **Plant/Substation** |
|---|---|---|
| 1 | HVPN | Dhanonda |
| 2 | JSW Hydro | KWHEP |

| | | |
|---|---|---|
| 3 | THDC India Ltd | Koteshwar HEP |
| 4 | SJVN | NJHPS |

A.7.7 AGEL representative submitted that 220 kV Switchyard and 33 kV SWGR of Adani Solar Energy RJ One Pvt. Ltd. (SB Energy Six Pvt. Ltd.- Bhadla) is owned by M/S ESUCRL and Solar Blocks are owned by ADANI. Various data were asked from M/S ESUCRL for Internal Protection Audit. The audit has been completed and observations have been shared with the M/S ESUCRL for arranging compliance. Accordingly, Forum directed M/S ESUCRL for completing the compliance action as recommended by AGEL in its internal audit report.

A.7.8 MS, NRPC told to discuss only major observations in the meeting, if any found in the audit reports. She directed to attach the all observations in the minutes of meeting.

A.7.9 EE (P), NRPC stated that most of audit observations are common in all audit reports. Therefore, the same may be attached in the minutes. Accordingly, AEE (P), NRPC highlighted the certain points of observations found in audit reports including below.

A.7.10 AEE (P), NRPC highlighted that Zone-4 time delay of 400kV line has been kept at 1 sec. as per internal protection audit report of Renew Solar Power Private Limited (400kV) which was deliberated and Forum was of view that zone-4 setting may be kept at .35-.5 sec. AEE (P), NRPC mentioned that 1 sec. delay in zone-4 will clear the fault much delayed while line will get open from other end with delay of zone-2. Therefore, Forum recommended to review the zone-4 time delay setting.

A.7.11 Further, AEE (P), NRPC highlighted that Earth fault stage -2 protection enabled on lines (VTS enabled, 200A, 1.5sec. delay DT) as per 3rd party audit report of (Koteshwar HEP). POWERGRID representative agreed for the above setting because time delay is greater than auto recloser dead time and fault current will not be there after auto recloser success. However, Forum decided that it can be discussed in the upcoming meeting of sub group formed for overcurrent protection on VT fuse failure.

A.7.12 AEE (P), NRPC highlighted that low set B/U O/C E/F is directional for transformer as

per finalized protection philosophy of Northern Region. However, it has been found that Low set O/C and E/F protection has been kept non directional in Generator Transformer of SJVN, NHPC. NHPC representative mentioned that it is better to have non directional because it may work for fault between GT and Generator. AEE (P), NRPC was of view that protection philosophy for Generator plants is yet to be prepared. The same may be taken into consideration at that time.

A.7.13 Subsequently, MS, NRPC highlighted that protection settings of GT mentioned in the audit reports may not be compared with available finalized protection philosophy of Northern Region.

A.7.14 Accordingly, Forum recommended that Conventional Generating plants may have protection settings for Generator and GT in line with CBIP manual till protection philosophy is finalized. **All generators were requested to share the protection philosophy used at their end within one week to NRPC Secretariat to prepare a draft.**

**Decision of the Forum:**

i. *Forum discussed the audit report and directed utilities to submit compliance report. Protection settings may be aligned with NRPC philosophy. Further, other utilities were directed to submit the protection audit report (for audited S/s as per submitted plan) to NRPC Secretariat and to update the compliance status regularly.*
ii. *Forum recommended that Conventional Generating plants may have protection settings for Generator and GT in line with CBIP manual till protection philosophy is finalized. Review of Protection settings of Generator and GT mentioned in audit reports may be done after preparation of protection philosophy for Generating plant.*
iii. *All generators were requested to share the protection philosophy used at their end within one week to NRPC Secretariat to prepare a draft.*

## A.8. Tripping of 400kV Rosa-Badaun #2 and Busbar Operation of Bus#1 on 16.02.2026 (agenda by Rosa Power Supply Co. Ltd.)

A.8.1 RPSCL representative apprised that on 16.02.2026 there was tripping of U#3 because bus bar operation due to tripping of 400kV Rosa-Badaun Circuit #2.

A.8.2 Further he added that the bus bar operated due to current being sensed by Relays and PUs of 400 KV Rosa-Badaun Circuit #1, which was under shut down, taken by M/s OCBTL for faulty insulator replacement**.**

A.8.3 Tripping report of the event shared by RPSCL is attached as **Annexure-A.X** having following observation points as below-

I. 400kV Rosa-Badaun Circuit#2 was also tripped on 14/02/2026, Z2 protection. Faulted phase A-B, distance 77 KMs from our end while 400kV Rosa-Badaun Circuit#1 was under shutdown.

II. Line patrolling was done by M/s OCBTL team. On 10th Feb, their representative also came to our end for same.

III. 400kV Rosa-Badaun Circuit#2 trip logged twice in relay (once trip & then AR acted), same fault was sensed in relay of 400kV Rosa-Badaun Circuit#1.

IV. All 03 different relays (Main 1, main2, PUs) of 400kV Rosa-Badaun Circuit#1 had sensed the same fault in C phase whereas line was under shutdown which triggered the differential protection of busbar#1 (87BB-Z1).

V. Time of incidence of 400kV Rosa-Badaun Circuit#2 tripping & differential protection of bus bar-1 acting is matching means incident occurred while Circuit#2 tripping only.

VI. Enquired with M/s OCBTL for any incident at the line/tower end but they reported cause of tripping as tree touching in the charged line. Tree touching is the transient nature fault but line AR also failed at both ends which is not justifying the reason stated by M/s OCBTL.

VII. Probable cause suspected by RPSCL that something touched/ came in vicinity of the shutdown line-1 from charged line-2. (Conductor broken/faulty insulator/Heavy arcing/Human error etc. since work is going on at the tower) Both lines are in single tower, double circuit system.

A.8.4 RPSCL representative requested to arrange necessary remedial measures to avoid such trippings so that no generation loss may be ensured.

A.8.5 There was no representative present from OCBTL in the meeting.

A.8.6 PGCIL representative asked the status of bus isolator of line that was under shutdown (400kV Rosa-Badaun Circuit#1). RPSCL replied that bus isolator was in closed condition as it is standard practice to open the line isolator and keep bus isolator as it is in charged condition.

A.8.7 PGCIL representative mentioned that tripping of bus bar would have been avoided if bus isolator of 400kV Rosa-Badaun Circuit#1 had been in open condition during shutdown because PU would have got current from CT but status of bus isolator would not have been clear for assigning tripping of bus bar. RPSCL representative also agreed to keep bus isolator open in case of line shutdown to avoid such scenario.

A.8.8 However, RPSCL representative raised the concern that current should not come in line that is under shutdown from the other circuit which is charged. The exact reason of fault current to come in shutdown circuit have not yet been told by OCBTL team as line is under ownership of OCBTL.

A.8.9 MS, NRPC stressed that human safety is also at stake in above conditions as both (charged and shutdown) circuits are on same tower.

A.8.10 UPPTCL representative highlighted that local earthing is required to be done at location of tower where maintenance work is being carried out in order to reduce induction effect.

A.8.11 MS, NRPC asked RPSCL to take up the matter with OCBTL mutually as it involves human safety also. RPSCL representative informed that DRs of other end were also asked from OCBTL. However, same have not been arranged yet.

A.8.12 EE (P), NRPC asked UPSLDC to take up the same with OCBTL.

***Decision of the Forum:***

*RPSCL was requested to take up the matter with OCBTL to prevent disturbances from a healthy feeder to the feeder that is under shutdown. OCBTL is required to investigate and implement necessary measures to avoid tripping of the 400 kV Rosa–*

*Badaun circuits. Additionally, OCBTL may furnish relevant details of previous such instances to RPSCL for analysis and corrective action.*

## A.9. Persistent Delay in Completion of OPGW Communication Network by POWERGRID/INDIGRID Affecting Commissioning of Line Differential Protection and AGC System at Parbati Complex (agenda by NHPC)

A.9.1 NHPC representative apprised that in reference to MoM of the 66th PSC Meeting, wherein the representative of INDIGRID had informed that the delay in OPGW laying was due to non-availability of vendors and work was expected to be completed by March 2026.

A.9.2 However, despite repeated assurances in various Forums, no tangible progress or confirmed completion status of the OPGW work has been communicated so far. Consequently, the installation and commissioning of Line Differential Protection for the 400 kV Parbati-II - Sainj transmission line remains pending due to non-availability of the OPGW communication network, which is critical for reliable protection operation.

A.9.3 It is pertinent to mention that the issue has been under continuous discussion since the 51st PSC Meeting held on 12.07.2024. NHPC has consistently raised the matter in various regional operational forums, including the last 239th OCC Meeting. However, despite prolonged deliberations and repeated follow-ups, no firm timeline or progress update has been provided. Further, non-participation of the INDIGRID representative in certain meetings has also hindered meaningful deliberation, thereby delaying resolution. The continued delay in establishing the communication infrastructure is adversely impacting the commissioning of critical protection and control systems and communication link at the Parbati Complex.

A.9.4 He also highlighted that the AGC (Automatic Generation Control) system commissioning is pending at Parbati-II HEP, despite material being available at site. Further, the approval granted by CERC for AGC implementation (valid up to 31.12.2025) is being impacted due to non-availability of the communication network, thereby affecting regulatory compliance and operational readiness.

A.9.5 Further, in proposed 30th TEST Sub-Committee Meeting of NRPC (Agenda Point No.

12), POWERGRID has indicated the requirement of an additional LILO portion (2.23 km) at Parbati-III, stating that the same was not part of the originally approved scheme. However, the implications of this additional requirement on the overall completion timeline of the OPGW communication network, as well as connectivity to Parbati-II and Parbati-III projects, have not been clearly brought out. The introduction of such additional requirements at this advanced stage, despite the issue being under deliberation for several years, is a matter of serious concern.

A.9.6 In view of the above, NHPC requested Forum to deliberate and direct POWERGRID/INDIGRID to:

I. Provide the latest status along with a firm completion schedule of the pending OPGW work.

II. Clarify the impact of the proposed additional LILO portion (2.23 km) at Parbati-III on the overall completion timeline and connectivity to Parbati-II /Parbati-III projects.

III. Expedite completion of OPGW work on priority and ensure availability of the communication network well before the ensuing high inflow/monsoon season, enabling commissioning of Line Differential Protection and AGC system along with a reliable communication channel.

A.9.7 INDIGRID representative stated that work was delayed due to non-availability of vendors for small quantum of work. Now, contract has been placed and resources have been mobilized for OPGW work. It will be completed by April, 2026.

A.9.8 MS, NRPC asked INDIGRID to expedite the work as there are commercial loss to NHPC due to not functioning of AGC.

***Decision of the Forum:***

*Forum requested INDIGRID to expedite the OPGW completion work so that NHPC may proceed for AGC and line differential protection implementation.*

## A.10. Implementation of Special Protection Scheme (SPS) for Load Shedding on Tripping of ICT at 400 kV Substation BBMB Panipat (agenda by Haryana SLDC)

A.10.1 Haryana SLDC representative apprised that a joint VC meeting was held on 02.01.2026 with NRPC / NRLDC, attended by representatives from DTL, BBMB, HVPNL, and Haryana SLDC. The meeting deliberated the installation of SPS at 400/220 kV ICTs at Panipat (BBMB substation), involving coordination among BBMB, DTL, and Haryana Utilities.

A.10.2 Further, the agenda was discussed in the 239th OCC meeting held on 16.01.2026. As informed by NRPC vide email dated 02.02.26 that the SPS proposal for Panipat BBMB was discussed in the 66th PSC meeting held on 28.01.2026. In the meeting, the justification for the proposed delay timings was sought from HVPNL.

A.10.3 Further, vide email dated 09.03.2026, Logic for implementation of SPS at Panipat BBMB was shared by Haryana SLDC attached as **Annexure-A.XI**

A.10.4 Further, vide email dated 16.03.2026, Haryana SLDC proposed the final SPS logic along with calculations of transformers B/U O/C settings at BBMB Panipat substation. The same is attached as **Annexure-A.XII.**

A.10.5 BBMB representative mentioned that B/U O/C settings are such that SPS will operate effectively before operation of B/U O/C protection of transformer.

A.10.6 AEE (P), NRPC highlighted that stage-1 HV side back up over current protection setting of ICT of 500MVA is kept at 1.798 times rated current which is not as per philosophy. Same may be reviewed. POWERGRID representative agreed to review.

A.10.7 Further, Forum concurred the proposal of SPS of Haryana SLDC on ICTs at BBMB Panipat Substation.

A.10.8 NRLDC representative asked timeline for implementation of SPS. BBMB representative replied that SPS is to be implemented by Haryana SLDC. Haryana SLDC stated that SPS will be implemented within 8-10 days.

***Decision of the Forum:***

*Forum approved the proposal of SPS of Haryana SLDC on ICTs at BBMB Panipat Substation. POWERGRID may review stage-1 HV side back up over current protection setting of 500MVA ICT.*

## A.11. Installation of Special Protection Scheme (SPS) at 400kV GSS Bikaner in power step up condition and modification in already implemented SPS in step down condition (agenda by Rajasthan SLDC)

A.11.1 Rajasthan SLDC submitted the proposal of installation of Special Protection Scheme (SPS) at 400kV GSS Bikaner in power step up condition and modification in already implemented SPS in step down condition vide letter dated 18.03.2026 attached as **Annexure-A.XIII.**

A.11.2 Rajasthan SLDC representative apprised that SPS has been implemented as per NRPC approval and is presently in operation. However, it requires modification to make it directional, in view of the tripping incident that occurred on 11.03.2026 at 11:41 hrs under power step-up conditions. On 11.03.2026, the 400/220 kV transformers at 400 kV GSS Bikaner were overloaded. Consequently, the SPS operated and tripped the 220 kV Bikaner (400 kV GSS)- Nokha and 220 kV Bikaner (400 kV GSS)-Sri Dungargarh lines. These lines were evacuating approximately 350 MW of solar power injected at the 220 kV bus of 400 kV GSS Bikaner through the 220 kV D/C Gajner- Bikaner (400 kV GSS) line and two 220 kV interconnecting lines between 220 kV GSS Bikaner and 400 KV GSS Bikaner.

A.11.3 He added that tripping of these lines resulted in further overloading of the 400/220 kV transformers, ultimately leading to tripping of both transformers. This caused a total loss of approximately 1097 MW of solar generation connected to 220 kV GSS Gajner (441.63 MW), 220 kV GSS Chhattargarh(350 MW), 132 kV GSS Kolayat( 89.37 MW), 132 kV GSS Nokha Daiya(16 MW) and 220 kV GSS Badnu( 200 MW). Further, it is observed that during solar generation hours, significant overloading (power step-up condition) is occurring daily on the 400/220 kV transformers at 400 kV GSS Bikaner.

A.11.4 In view of above, Rajasthan SLDC proposed that existed approved and implemented SPS needs to be reviewed. Additionally, an SPS for power step up is required to be implemented.

A.11.5 SE (P), NRPC asked Rajasthan SLDC & NRLDC that SPS is not only solution. NRLDC & Rajasthan SLDC should focus on system strengthening rather than stressing upon SPS implementation.

A.11.6 NRLDC representative added that SPS proposal is required to be studied first.

A.11.7 EE (P), NRPC asked about feeder details which are to be tripped for SPS operation.

A.11.8 As per shared SPS proposal, RE generating feeders will be tripped during SPS operation for power step up condition which will hamper RE generation of plants.

A.11.9 MS, NRPC was of view that it is issue of transmission system planning as here load is not sufficient for evacuating RE generation. Connectivity should not have been given by Rajasthan SLDC if there was problem in the evacuation. It could have been managed during planning stage.

A.11.10 Rajasthan SLDC representative replied that there is no other option available with us except SPS.

A.11.11 MS, NRPC asked Rajasthan SLDC to take up Transformer commissioning planning.

A.11.12 Rajasthan SLDC representative mentioned that new 500MVA ICT is about to be commissioned at 400kV GSS Bikaner by April, 2026 in addition to 2x315MVA ICT available.

A.11.13 Rajasthan SLDC highlighted that due to tripping of ICT in step up condition, there is RE curtailment. Forum was of view that RE curtailment is required to be discussed and consents are required from concerned RE plants.

A.11.14 Accordingly, it was decided that matter may be taken up in upcoming RE Sub-Committee meeting.

***Decision of the Forum:***

*Forum recommended Rajasthan SLDC to take up the proposal of installation of Special Protection Scheme (SPS) at 400kV GSS Bikaner in power step up condition and modification in already implemented SPS in step down condition in upcoming RE Sub-Committee meeting as the proposal includes RE curtailment.*

## A.12. SPS for 400kV S/Stn Harsh Vihar (agenda by DTL)

A.12.1 DTL submitted the proposal of SPS for 400kV S/Stn Harsh Vihar vide email dated 17.03.2026 attached as **Annexure-A.XIV.**

A.12.2 DTL representative apprised that SPS for 400kV S/Stn Harsh Vihar is designed to take care of N-1 contingency of 2 nos. 315MVA ICTs running in parallel. SPS scheme is implemented to prevent the cascaded tripping of the 315MVA ICTs in case of contingency by providing load relief on 220kV level. SPS scheme is implemented on 220kV side of 315 MVA transformers using numerical relays.

A.12.3 NRLDC representative confirmed that shared SPS proposal has been reviewed and may be allowed to approve. He added that it is very much needed for summer season.

A.12.4 Accordingly, Forum approved the same and directed to implement the same. DTL representative mentioned that SPS will be implemented within 1 month.

***Decision of the Forum:***

*Forum concurred the SPS proposal of DTL for 400kV S/Stn Harsh Vihar.*

## Part-B: Agenda by NRLDC

### B.1 Status of remedial actions recommended during previous PSC meetings (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. In view of the same, a mail dt 11.03.2026 has also been sent from NRLDC to constituents requesting to share the status of remedial actions taken. It is expected that necessary actions would have taken place.

B.1.2 NRLDC representative presented all the points and discussion was held with all the respective constituents. Constituents were requested to apprise the status of the remedial actions. Updated status on the basis of discussion held in 67th PSC meeting is attached as **Annexure-B.I**. Further, concerned members were requested to take expeditious corrective actions and resolve the issues at the earliest.

**Decision of the Forum:**

*Forum requested all the concerned utilities to take necessary corrective actions at their end. Actions need to be expedited, and healthiness of protection & control system need to be ensured.*

## B.2 Multiple elements tripping events in Northern region in the month of January-February 2026 (agenda by NRLDC)

B.2.1 A total of 22 grid events occurred in the month of January 2026 of which 17 are of GD-1 Category and 05 are of GI-2 Category. Further, a total of 14 grid events occurred in the month of February 2026 of which 12 are of GD-1 Category and 01 is of GI-2 Category and 01 is of GI-1 Category. The tripping report of all the events have been issued from NRLDC.

B.2.2 Maximum delayed clearance of fault observed in event of tripping event at Rajasthan RE Complex, 400/220kV RAPP_D(NP) and 400kV Tehri PSP(TH) at 11:33 hrs on 16th February 2026 (As per PMU at RAPP-C(NP), consecutive three 3-phase voltage dips were observed with voltage recovery time of 80 ms, 4360 ms and 80 ms).

B.2.3 Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total 11 events out of 36 grid events occurred in the months. In 08 (no.) of grid event, there was no fault in the grid.

B.2.4 ***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.2.5 NRLDC requested utilities share DR/EL and the detailed report of the tripping events as per timeline mentioned in IEGC 2023 and share the same with NRLDC, NRPC and PSC forum. Remedial actions taken by constituents to avoid such multiple elements tripping may also be included in the detailed report.

B.2.6 Members stated that delay occurred due to non-submission of DR/EL & tripping details from site however they are taking continuous follow up actions to ensure timely completion of tripping analysis within stipulated timeline.

B.2.7 Further, NRLDC highlighted the major tripping events occurred during January-

February 2026 (attached as **Annexure-B.II**). Concerned constituents/utilities were requested to share the detailed analysis of the tripping elements along with status of remedial action taken/to be taken.

B.2.8 Utilities were requested to prepare detailed analysis report and present the event details during 67th PSC meeting. Events involving more than one utility may be jointly prepared and presented.

B.2.9 Discussion during the meeting:

**Tripping Events**

**A. Multiple elements tripping at 400/132kV Anpara TPS(UP) at 08:01 hrs on 08.01.2026**

NRLDC representative shared the following observations w.r.t. tripping event:

i. Reason of delayed fault clearance need to be shared.
ii. Healthiness of busbar protection at 132kV level of Anpara TPS need to be ensured at the earliest.
iii. SCADA data of 400/132kV Anpara TPS(UP) was freezed during the event. Availability and healthiness of SCADA data need to be ensured.
iv. Remedial action taken report to be shared.

**UPPTCL representative informed the following points:**

i. At 08:01 hrs on 08.01.2026 LA (Lightening Arrestor) of Y phase of 132 KV BUS-A damaged causing earth fault of BUS A. There was heavy dense fog at the time of above incident.
ii. Suspected Cause of failure of LA- Heavy dense fog may be the main cause for failure of LA.
iii. All connected elements of 132 KV BUS A and BUS B tripped on over current/Earth fault.
iv. Bus Bar protection Zone-A electromechanical differential (87) relay operated due to fault on BUS-A , but Check zone differential (87CZ) relay did not operate. Due to non- operation of check zone relay bus bar protection did not give commands to Bus Coupler & all elements connected to BUS-A.
v. 51R & 51N Electro-mechanical relay of Bus Coupler breaker operated, but breaker did not trip . There is a timer in tripping circuit before lockout relay operation (86) which operated with delay of 2 seconds. All the elements of 132KV BUS-A & BUS-B tripped before 2 sec.
vi. Probable Cause of Non-operation of Check Zone Relay: Existing Bus Bar Protection system is high impedance electro-mechanical which is not reliable at the time of fault due to CT saturation, aging effects of stabilizing

Resistor & Metrosil. It is not possible to analyze real time data at the time of fault due to electromechanical relays.

vii. It is practically not possible to test check zone electromechanical relay in running condition as both 132 KV BUS always remain in live condition for feeding supply to critical auxiliaries e.g. Station & CW system of all five Units.

viii. Commissioning work of new numerical low impedance BUS BAR protection scheme for 132 KV is under progress.

ix. Erection Work of new numerical Busbar scheme has been completed & M/s GE have been requested to deploy the commissioning team at the earliest. Expected schedule is April 2026. Commissioning work will be completed within three months.

x. All LAs more than 10 years old will be replaced in a phase manner. Requirement has been processed.

xi. Electromechanical Relay of BUS Coupler will be changed with new numerical relay. Replacement is expected in first week of April 2026.

***PSC Recommendations:***

- Commissioning work of new numerical low impedance Busbar scheme need to be expedited. (Action: UPPTCL)
- LA replacement work need to be expedited. (Action: UPPTCL)
- Electromechanical Relay of Bus Coupler need to be changed with new numerical relay. (Action: UPPTCL)

**B. Multiple elements tripping at 400kV Uri-I & Uri-II, 400/220kV Amargarh(INDIGRID) and Sambha(PG) at 15:22 hrs on 24.01.2026**

**NRLDC representative shared the following observations w.r.t. tripping event**:

i. Why did 400kV Uri-I-Amargarh ckt-2 not trip from Amargarh end on B-N fault. SOTF protection at Amargarh end should have operated. INDIGRID may review the protection settings at Amargarh end and take necessary corrective actions to avoid such protection non-operation in future.

ii. Remedial action taken report to be shared.

**NHPC representative informed the following points:**

i. Uri–Amargarh Line #2 was under breakdown since 07:18 hrs (23.01.2026) and Uri-II–Wagoora Line #1 was under breakdown since 10:04 hrs (23.01.2026).

ii. Distance protection relay of Uri–Amargarh Line #1 (Uri end) recorded: B-phase voltage dropped to 138.8 kV, B-phase current increased to 1555 A, Zone-3 (B–N) fault detected at 15:21:55.936 hrs, reset within 560 ms, Line

CB remained closed at Uri end. However, as per relay EL, Line CB opened at Amargarh end at 15:22:00.150 hrs.

iii. Unit#1 & Unit#3 of Uri-I and Unit#3 of Uri-II tripped on over speed protection as no evacuation path was available.

INDIGRID representative informed that SOTF protection at Amargarh end did not operate as due to induction of parallel ckt voltage was coming above auto dead line detection threshold and relay sensed that line is already charged and blocked SOTF though line was not in service. Necessary remedial actions are already taken in this regard and this issue is resolved now.

***PSC Recommendations:***

- *INDIGRID may review the protection settings at Amargarh end and take necessary corrective actions within one week. (Action: INDIGRID)*
- *INDIGRID will share a detailed report along with remedial action taken within one week. (Action: INDIGRID)*

**C. Multiple elements tripping at 400/220kV Bawana(DTL) & 220/66kV Rohini-I (DTL) at 10:13 hrs on 27.01.2026**

**NRLDC representative shared the following observations w.r.t. tripping event:**

i. Why did isolators status were not correct due to which LBB protection couldn't operate?
ii. Exact sequence of tripping of all the elements needs to be shared.
iii. How did fault get clear as only ICT-1, 2, 4 & 6 tripped on back up protection?
iv. DR/EL(.dat/.cfg) file of all the tripped elements along with the tripping report need to be shared.
v. Remedial action taken to avoid such event in future need to be shared.

**DTL representative informed the following points:**

i. 220kV Bawana-Rohini 1 Ckt 1 (connected on Bus-III) tripped indicating Differential trip by Main 2 Differential relay, Red-phase fault due to OPGW snap at a location outside 400kV Bawana Substation. Fault values Va=57.2kV, Ia=22.8kA, but R-pole CB of the line got struck.
ii. LBB initiation was sent to 220kV Bus Bar Sec-2 relay. 220 KV Bus-I Isolator status of the line was in error during the fault due to which LBB trip selection in 220kV Bus Bar relay was impacted. The fault continued to feed through the R pole struck breaker of 220kV Rohini1 Ckt 1.
iii. The fault current in red phase continued to fed through struck R pole CB of 220 KV Rohini 1 ckt-1 resulting in terminal flash at R phase Bus side

Primary terminal of CT thereafter causing oil leakage through terminal body. It evolved into 220 KV Bus –III fault.

iv. 220 KV Bus –III Fault at Red phase CT of 220kV Bawana-Rohini1 Ckt 1 resulted in operation of Bus bar differential trip at 400 KV Bawana Substation, causing tripping 220 KV Bus Section –I (Bay 11), 220 KV Bus Section –III (Bay 224), 220 KV Bus coupler-II (Bay 219) and 220 KV Bawana Shalimar Bagh Circuit 1 &2. Shalimar Bagh Ckt-2 also tripped on Bus fault due to its isolator auxiliary switching on both bus. Operation of Bus – III Trip by 87 Bus Bar Relay cleared the faulty section within 50 ms.

v. Both Primary and LBB backup protection operated, CB Pole struck condition caused LBB operation but Zone switching could not be done due to isolator contact problem which continued and fault was cleared by delayed backup protection on E/F trip of 220kV IC-1,2,4,6 and later the fault resulted in CT terminal flash leading to Bus-3 trip by Bus Bar Differential relay.Bus-3 trip caused isolation of fault by tripping of 220kV Bus Section-1&3 along with B/C-2.

vi. Isolator status at 220kV Bus Bar relay was not correct due to isolator auxiliary contacts malfunction from switchyard isolator box. Contact was not perfectly in close position i.e Chattering ON/OFF position at the time of fault.

vii. After tripping of 220kV IC-1,2,4&6 , Fault got cleared by operation of 220kV Bus Bar-3 trip resulting tripping of B/S-1,B/S-3 & B/C-2 thereby leading to isolation of fault from 220kV I/C-3&5 also.

viii. In the event of said fault, primary protection operated in desired time and LBB backup protections also operated after 200mSec. on CB Fail condition but the delayed clearance was due to non-switching of LBB trip due to isolator contact problem in the field.

ix. As remedial action taken, Isolator auxiliary contacts checked and set in proper position & function. Now all isolator auxiliary contacts are working normal and there is no error in switching of Bus Bar protection relay. CB maintenance done by maintenance team and restored to healthy state.

***PSC Recommendations:***

- *Healthiness of CBs and Isolator auxiliary contacts need to be ensured. (Action: DTL)*

**D. Multiple elements tripping at 400/220kV Bareilly(UP) at 13:07 hrs on 04.02.2026**

**NRLDC representative shared the following observations w.r.t. tripping event:**

i. Healthiness of of LV backup relay of 400/220kV 315 MVA ICT-2 at Bareilly(UP) and 400kV bus bar protection relay need to be ensured at the earliest.
ii. Healthiness of protection system along with auxiliaries and protection co-ordination at Bareilly(UP) need to be ensured.
iii. Remedial action taken report to be shared.

**UPPTCL representative informed the following points:**

i. During antecedent condition, ICT-1 at Bareilly(UP) was under shutdown.
ii. 400 kV Y phase Bus-2 fault occurred at 400 kV Bareilly due to metallic kite thread at Y phase of 400 kV Main Bus-2.
iii. 400 kV Static Bus Bar protection did not operate during 400 kV Bus Fault at 400 kV S/S Bareilly.
iv. Due to which 400 kV lines connected to 400 kV Bus Tripped in Z4 at Bareilly end and in Z2 from other end and 315 MVA ICT-3 tripped on LV Side on Directional E/F.
v. 315 MVA ICT-2 LV Backup relay not operated during 400 kV Bus Fault at 400 kV S/S Bareilly due to PT selection issue.
vi. Due to which all 220 kV lines tripped in Z3/ Directional Earth fault from other end and some 220/132kV transformers also tripped at remote substations except 220 kV CB Ganj ckt-2 and Pilibhit Ckt-2.
vii. As remedial action taken, in 400 kV bus bar protection relay all running currents & isolator status checked and found OK & relay will be tested after availability of shut down of 400 kV bus. Numerical Bus Bar relay to be install at 400 kV Bus Bar & requirement already sent. Healthiness of LV Backup relay of 315 MVA ICT-2 checked, PT selection issue was found and corrected.

***PSC Recommendations:***

- *Healthiness of relays, CBs and Isolator auxiliary contacts need to be ensured. (Action: UPPTCL)*
- *Numerical busbar relay need to be installed at 400kV Bareilly(UP). (Action: UPPTCL)*

**E. Multiple elements tripping at Rajasthan RE Complex, 400/220kV RAPP_D(NP) and 400kV Tehri PSP(TH) at 11:33 hrs on 16.02.2026**

**NRLDC representative shared the following observations w.r.t. tripping event:**

i. Exact reason of tripping of 700MW RAPS-D - UNIT 1 and 250 MW (PSP) TEHRI HPS - UNIT 6 need to be analysed and RCA report need to be shared from NPCIL and THDC respectively.

ii. SCADA data issue at A43RS(IP) need to be addressed at the earliest.
iii. DR along with tripping report need to be shared for 700 MW RAPS-D - UNIT 1 and 250 MW (PSP) TEHRI HPS - UNIT 6 by NPCIL and THDC respectively.
iv. Remedial action taken report to be shared.

**NPCIL representative informed the following points:**

i. The fluctuations in the grid resulted in large variation in Generator power and excitation current.
ii. This led to Generator power going beyond the capability curve region and tripping of the TG.
iii. The corrective actions recommended by designers & OEM / Vendor in DVR controller and the Speed Acceleration Logic in TG controls have been implemented in the unit.
iv. As per designer recommendation, excitation system DVR controller time delay for LOF trip has been increased from 2 sec to 3 sec.
v. Also the time delay in generating LOF alarm, that alerts the operator when the generator operating point approaches the limits in leading MVAR region, has been reduced from 2.0 sec to 0.5 sec.
vi. The averaging time for Speed Acceleration Logic (df/dt setting provided in TG control) has been increased from 40 mS to 200 mS as per designer recommendation.
vii. This will prevent large variation in TG MW during minor grid variations, as observed during this event.

**Tehri PSP representative informed that** 250 MW (PSP) TEHRI HPS - UNIT 6 was starting pumping according to its schedule. During ramp up, due to hydraulic transients machine went into synchronous deadband zone (rotor current increased) and VSI system detected this and initiated QSD. Tripping of Unit is purely coincidental and not related to this event. However, this was a unique event and all the data was already shared with GE Global experts team for further RCA.

***PSC Recommendations:***

- *RCA report need to be shared from Tehri PSP to NRLDC and NRPC (Action: Tehri PSP).*

**F. Multiple elements tripping at 400/220kV Bikaner2(PG) at 17:08 hrs on 22.02.2026**

**NRLDC representative shared the following observations w.r.t. tripping event:**

i. Exact reason of tripping of 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt need to be shared by PG.
ii. Over-voltage protection in all 220kV lines need to be disabled as per NRPC protection philosophy.
iii. KSP(NHPC) and RDUPL(IP) need to check the exact reason of huge MW fluctuation exhibited by their inverters (SINENG and SUNGROW make respectively). RCA of the same need to be shared at the earliest.

**POWERGRID (NR-1) representative informed the following points:**

i. 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) Ckt-1 & 2 were taken under planned outage for LILO of the 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) D/C lines at 400 kV Bikaner-III substation.
ii. After opening of these lines, oscillations observed in the System Frequency.
iii. 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1, 2, 3 & 4 tripped on over-voltage stage-1 protection operation whereas 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt tripped on over-voltage stage-2 protection operation.
iv. Due to tripping of all four 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1, 2, 3 & 4 (with 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) Ckt-1 & 2 under outage), all 220kV RE plants connected at Bikaner2(PG) also tripped due to loss of evacuation path which led to complete blackout of 400/220kV Bikaner2(PG) along with all RE plants connected at 400kV and 220kV level of Bikaner2(PG).

**NHPC representative informed that** 220kV Bikaner2-KSP Ckt tripped on over-voltage stage-1 protection operation. NRLDC representative highlighted that over-voltage protection in all 220kV lines need to be disabled as per NRPC protection philosophy. NHPC agreed for the same. NHPC further informed that RCA for exact reason of huge MW fluctuation exhibited by inverters is already been taken up with Inverter OEM and will be updated shortly.

**RENEW representative informed that** that RCA for exact reason of huge MW fluctuation exhibited by inverters is already been taken up with Inverter OEM and will be updated shortly.

***PSC Recommendations:***

- *Exact reason of tripping of 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt need to be shared to NRLDC. (Action: POWERGRID)*
- *Over-voltage protection Stage-1 need to be disabled in 220kV Bikaner2-Karnisar Ckt. (Action: NHPC)*
- *RCA for exact reason of huge MW fluctuation exhibited by inverters need to be shared within one week to NRLDC. (Action: KSP NHPC and RDUPL)*

**Grid event analysis details of all the aforementioned grid incidents is attached as Annexure-B.II (A).**

***Decision of the Forum:***

*PSC forum requested members to take necessary preventive measures to avoid such grid incidents / disturbances in future and report the actions taken by respective utilities in 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.*

## B.3 Frequent elements tripping during January-February 2026 (agenda by NRLDC)

B.3.1 The following transmission elements were frequently tripping during the month of **January-February 2026**:

| S. NO. | Element Name | No. of forced outages | Utility/SLDC |
|---|---|---|---|
| 1 | 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1 | 8 | Rajasthan/ NPCIL |
| 2 | 220 KV Sitarganj(PG)-CBGanj(UP) (PG) Ckt-1 | 8 | UP/PGCIL |
| 3 | 220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1 | 7 | Rajasthan/ NPCIL |
| 4 | 400 KV Anpara_B(UPUN)-Sarnath(UP) (UP) Ckt-2 | 6 | UP |
| 5 | 400 KV Uri_1(NH)-Amargarh(NRSS XXIX) (NRSS XXIX) Ckt-1 | 6 | NHPC/ INDIGRID |
| 6 | 250 MW (PSP) TEHRI HPS - UNIT 7 | 6 | Tehri PSP |
| 7 | 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 | 5 | Rajasthan/ NPCIL |
| 8 | 250 MW (PSP) TEHRI HPS - UNIT 6 | 5 | Tehri PSP |
| 9 | 400 KV Shree Cement(SCL)-Merta(RS) (PG) Ckt-1 | 5 | SCL/ Rajasthan/ PGCIL |
| 10 | 400 KV Suratgarh(RVUN)-Bikaner(RS) (RS) Ckt-1 | 4 | Rajasthan |

B.3.2 List of tripping is attached as **Annexure-B.III**.

B.3.3 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.3.4 **Discussion during the meeting:**

- **220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1:** RVPNL representative informed that 4 tripping incidents occurred due to jumper snapping (permanent fault) and rest 4 tripping incidents occurred on transient fault as A/R was disabled at RAPS A end, A/R was successful at Debari end. NPCIL informed that study report from their design team is already sent to OEM for feasibility study. A/R can be enabled only after OEM clearance.
- **220 KV Sitarganj(PG)-CBGanj(UP) (PG) Ckt-1:** POWERGRID (NR-3) representative was not present during discussion.
- **220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1:** RVPNL representative informed that most of the faults are due to fog and A/R operation need to be checked.
- **400 KV Anpara_B(UPUN)-Sarnath(UP) (UP) Ckt-2:** UPPTCL representative informed that most of the faults are due to kite threads. Incident of PLCC maloperation will be rechecked.
- **400 KV Uri_1(NH)-Amargarh(NRSS XXIX) (NRSS XXIX) Ckt-1:** INDIGRID representative informed that fault was of permanent nature or fault occurred within reclaim time. NHPC informed that in one case of over-voltage, DT was received at Uri end. In all other cases of permanent fault, A/R was unsuccessful from Uri end.
- **250 MW (PSP) TEHRI HPS - UNIT 7:** Tehri PSP representative informed that cable was loose in VSI which was tightened. Communication failure was the main reason for most events. All issues were attended.
- **220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2:** RVPNL representative informed that one incident was due to disc failure. Rest 4 tripping incidents occurred on transient fault during fog as A/R was disabled at RAPS A end.
- **250 MW (PSP) TEHRI HPS - UNIT 6:** Tehri PSP representative informed that tripping incidents occurred due to Generator RTU controller fault (cable loose) and field network controller fault. SPMAX controller software was reloaded and issues were resolved now.
- **400 KV Shree Cement(SCL)-Merta(RS) (PG) Ckt-1**: RVPNL representative informed that one tripping occurred during PGCIL OPGW work. One tripping occurred due to protection maloperation during testing work.
- **400 KV Suratgarh(RVUN)-Bikaner(RS) (RS) Ckt-1:** : RVPNL representative informed that most of the tripping occurred due to fog and A/R was healthy.

B.3.5 NRLDC representative emphasized that A/R (auto re-closer) issue was found in many

of these tripping. All the utilities were sensitized to ensure the healthiness of A/R as well as whether the A/R is in service in 220 kV and above transmission lines in compliance to CEA Grid Standards. It was further informed that most of the tripping were of transient in nature but due to non-operation of A/R, it resulted into tripping of the transmission element thus reducing the reliability of the grid.

B.3.6 It was requested that all the utilities shall endeavour to keep auto re-closer in service and healthy condition of 220 kV and above voltage level transmission line. The issue of time syncing of DR/EL at many of the stations was also highlighted, constituents were requested to ensure the time syncing of DR/EL. In addition, utilities were requested to take necessary actions to ensure the Right of Way and other operation & maintenance issues to minimize the frequent faults in the line. All the utilities agreed for the same.

***Decision of the Forum***

*Forum reiterated that frequent outages of transmission elements affect the reliability and security of the grid. Members were requested to investigate such frequent outages and share the suitable remedial measures taken/being taken in this respect.*

## B.4 Details of tripping of Inter-Regional lines from Northern Region for January-February 2026 (agenda by NRLDC)

B.4.1 A total of 18 inter-regional lines tripping occurred in the month of January-February 2026. The list is attached at **Annexure-B.IV**. The status of receipt of preliminary reports, DR/EL within 24 hrs 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 24 hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 37.2(c) of IEGC and regulation 15(3) of CEA Grid Standards. 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.4.2 Regarding tripping of 800 KV HVDC Kurukshetra(PG) Poles, POWERGRID (NR-1) informed that tripping mainly occurred due to 5008 card failure, Pentium card malfunction, DCCT sensitivity issue, filter unavailability etc. During shutdown in Dec'25, OEM changed DCCT settings to reduce its sensitivity, but it rather increased which led

to such tripping events. Hence previous settings (before Dec'25) was restored again.

B.4.3 Regarding 400 KV Gorakhpur(PG)-Muzaffarpur(PG) (POWERLINK) Ckt-1, POWERGRID (NR-3) informed that A/R lockout operated as both PLCC channels were out. Cables were replaced and now A/R is healthy.

***Decision of the Forum***

*Forum recommended members to take necessary actions to minimise the tripping on inter regional line and ensure proper operation of protection system. Further utilities were requested to share DR/EL and the detailed report of the tripping events as per timeline mentioned in IEGC 2023.*

## B.5 Status of Bus bar protection (agenda by NRLDC)

B.5.1 Clause - 4 in schedule - V of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2022 reads as *"Bus bar protection and local breaker backup protection shall be provided in 220kV and higher voltage interconnecting sub- stations as well as in all generating station switchyards".*

B.5.2 During analysis of many grid incidents/disturbances, it has been found that the Busbar protection at the affected substation was not present or non-operational which resulted in considerable increase in both the number of affected elements and fault clearance time. Accordingly, it becomes critical to monitor and keep Busbar protection at all the 220 kV and above voltage level substations healthy and operational.

B.5.3 Continuous follow-ups is being been done at OCC & PSC forum to expedite the commissioning of bus bar protection at 220kV & above stations and to ensure their healthiness. On the basis of details received till date, it is observed that status of bus bar protection has been improved however, further improvement is desired.

B.5.4 Constituent wise status of bus bar protection where bus bar protection is either not installed or installed but not operational along with present status as per detail received from constituents is attached as **Annexure-B.V**.

B.5.5 Constituents were requested to share the present status of remedial action taken/to be

taken regarding commissioning and healthiness of bus bar protection at 220kV & above substations and also expedite the implementation of bus bar protection.

B.5.6 Members were requested to appraise the status of bus bar protection in their respective control areas.

B.5.7 NRLDC representative stated that details have been received from Rajasthan, UP & Haryana. Members are requested to share the updated status details by mail. An updated sheet based on detail received is attached as **Annexure-B.V(A)**.

***Decision of the Forum***

*Forum requested all the constituents to update the status of bus bar protection at S/s of their control area and expedite the commissioning and implementation work of bus bar protection system. Members agreed for the same.*

## B.6 Recent SPS Operations in the Rajasthan control area during solar hours (agenda by NRLDC)

B.6.1 In the recent past, three events of SPS operations occurred in Rajasthan control area during solar hours. As reported, brief descriptions of the events are as follows:

i) **On 09.03.2026 at 14:27 hrs**, 400 kV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1 tripped due to R-N phase to ground fault (Relay indication: Hindaun end-Z-2, Distance 269.7KM, Fault current 1.266kA,/CTPP END-Z-I, Distance-27.4KM, Fault current-8.6kA) which further resulted into tripping of 250 MW Chhabra Unit-4 on SPS operation, as the 400 kV Bhilwara (RS) – Chhabra (RVUN) Ckt-1 was already under planned shutdown since 11:29 hrs. However, as per SPS logic, two units at Chhabra TPS should have tripped (Why did the other unit at Chhabra TPS not trip on SPS operation?). As per SCADA, approx. 161MW of generation loss was observed.

- SLDC Rajasthan representative informed that in case of N-1-1/N-2 contingency of 400 kV Chhabra-Hindaun & Chhabra-Bhilwara, if total generation at Chhabra TPS is >550 MW but <750 MW, then only one unit of Chhabra TPS will trip and if total generation at Chhabra TPS is >750

MW, then two units of Chhabra TPS will trip. During this event, total generation at Chhabra TPS was 605 MW. Hence only one unit tripped.

- NRLDC representative requested SLDC Rajasthan to share this detailed SPS logic through mail as the same is not available with NRLDC.

ii) **On 11.03.2026 at 14:45 hrs**, fault observed on 220 KV Ajmer- Beawar Line and line got trip on Distance Protection. CB Tripped on Zone-I Fault, from Beawar end only meanwhile SPS also operated at 400 KV GSS Ajmer resulting the tripping of following elements: 220 KV Ajmer- Kishangarh, 220 KV Ajmer - Bherunda-I &II Ckts, 220 KV Ajmer-Ajmer I &II Ckts, 400/220KV 315 MVA ICT-I (Alstom) at Ajmer(RS). As per SCADA, approx. 559 MW load loss occurred (Why such large quantum of load loss occurred even after SPS operation.

- SLDC Rajasthan representative informed that at 14:44 hrs, 220kV KTPS-Bundi(RS) Ckt-1 & 2 tripped on B-N phase to earth fault. Consequently, 220 KV GSS Bundi(RS) was left with a single power source i.e. 220 KV Gulabpura(RS). 220 KV Gulabpura was being supplied by 220 KV Beawar and 220 KV Jethana, both of which were connected to the 400 KV GSS Ajmer(RS). This led to over-loading of 400/220 kV 315 MVA ICT 1 & 3 at Ajmer(RS) triggering the SPS for Transformers at 400KV Ajmer(RVPNL) substation. Due to SPS operation, 220 kV Ajmer-Beawer Ckt, 220 kV Ajmer-Kishangarh Ckt and 220 kV Ajmer-Bherunda Ckt-1 & 2 tripped (as per logic). However, the load from 220 KV GSS Bundi(RS), 220 KV Gulabpura(RS) and 220 KV Jethana along with 220kV GSS Ajmer(RS) continued to persist on both 400/220 kV 315 MVA ICT 1 & 3 at Ajmer(RS) and ultimately both the ICTs tripped on overloading.

- NRLDC representative requested SLDC Rajasthan to share DR of 220kV KTPS-Bundi(RS) Ckt-1 & 2.

iii) **On 11.03.2026 at 11:41 hrs**, both the 315 MVA ICT's at 400/220kV Bikaner (RS) s/s tripped on overload during ramp up of solar generation. Accordingly,

SPS has operated resulting in tripping of load feeding lines namely 220kV Bikaner- Nokhra and 220KV BKN-Sridungargarh. Moreover, the solar generation from 220KV Interconnector-I Line, 220kv Interconnector-II Line, 220KV Bikaner-Gajner Line-I, and 220KV Bikaner-Gajner Line-II could not be evacuated due to tripping of ICT's. per SCADA generation loss 590 MW and load loss 140 MW was observed (SPS tripping logic was based on "tripping" of transformer; logic need to be modified based on "loading" of transformer in place of "tripping" of transformer).

- SLDC Rajasthan representative informed that at 11:41 hrs, there was an immediate surge in generation due to tripping of 220 kV Badnu-Tehandesar Ckt. The generation from 220 kV GSS Badnu was diverted via 220 kV GSS Bikaner(RS) to 400 kV GSS Bikaner(RS) which led to overloading of 400/220 KV 315 MVA ICT 1 & 2 at Bikaner(RS). Due to overloading of ICTs at Bikaner(RS), "SPS for Transformers at 400KV Bikaner (RVPNL)" operated and load feeders, e.g., 220KV Bikaner(RS)-Nokha Ckt & 220KV Bikaner(RS)-Sri Dungargarh Ckt tripped on SPS operation as per logic. Tripping of 220KV Bikaner(RS)-Nokha Ckt & 220KV Bikaner(RS)-Sri Dungargarh Ckt further caused overloading of 400/220 KV 315 MVA ICT 1 & 2 at Bikaner(RS) and both the ICTs tripped due to overloading.

- NRLDC representative requested SLDC Rajasthan to review SPS logic based on overloading of ICTS in case of solar generation ramp up (active power flow from 220kV to 400kV level).

B.6.2 In view of the above, SLDC Rajasthan was also requested to present detailed tripping report of the above three events along with remedial action taken.

***Decision of the Forum:***

- *SLDC Rajasthan need to share detailed SPS logic for N-1-1/N-2 contingency of 400 kV Chhabra-Hindaun & Chhabra-Bhilwara. (Action: SLDC Rajasthan)*

- *DR need to be shared for 220kV KTPS-Bundi(RS) Ckt-1 & 2 from both ends. (Action: SLDC Rajasthan)*
- *SPS logic need to be reviewed based on overloading of ICTS in case of solar generation ramp up (active power flow from 220kV to 400kV level). (Action: SLDC Rajasthan)*
- *Detailed tripping report of the above three events along with remedial action taken need to be shared. (Action: SLDC Rajasthan)*

## B.7 Mock testing of System Protection Schemes (SPS) in Northern Region (agenda by NRLDC)

B.7.1 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.7.2 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.7.3 There are 60 numbers of System Protection Scheme (SPS) approved in Northern Region. These SPS are implemented at major generation complexes, important evacuating transmission lines and ICTs which are N-1 non-complaint. System Protection Scheme Document of Northern Region has been revised/updated on 31st January, 2026.

B.7.4 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.7.5 In this regard, communication has already been sent to constituents through NRLDC letter dated 01.05.2024, 21.02.2025, 05.03.2025, 04.04.2025 & 28.05.2025 and continuous follow up is being done in OCC & PSC meeting since May 2024.

B.7.6 Status of mock testing of all the SPS in NR is attached as **Annexure-B.VI**.

B.7.7 Status of follow-up actions w.r.t. some of the SPS are as follows:

i. **SPS of HVDC Rihand-Dadri:** During mock testing of SPS of HVDC Rihand-Dadri on 20.03.2025, issues i.e., faulty SPS hardware at Singrauli TPS (NTPC) and no receipt of SPS signal at 220/132kV Ratangarh(RS) were identified. Further, during recent operation of SPS on 21.05.2025 in incident of outage of both poles, desired SPS actions i.e., generation backdown at Singrauli TPS and load relief in UP, Delhi, Haryana & Punjab were not observed. Desired load / generation relief is important to ensure the security and reliability of grid during such contingency. As per details received, SPS signal was sent to all the mapped stations from POWERGRID end however either due to non receipt of signal or error in SPS system at load / generation, SPS action didn't occur. NRLDC vide letter dated 02.07.2025, requested POWERGRID and Singrauli NTPC to take necessary remedial measures and make complete SPS system healthy.

- During 233rd OCC meeting, POWERGRID representative stated that the equipment's at Singrauli TPS end is owned by NTPC and need to be revived by them. SPS system at Rihand(PG) is healthy and operational. NTPC representative stated that as per details received from site, NTPC Singrauli team have initiated necessary actions in coordination with the POWERGRID. SPS operation is crucial as it is planned for special contingencies, and its unavailability may lead to cascade tripping or major grid disturbance especially in case of high demand period.

- Discussion during 237th OCC meeting:

a) NRLDC requested NTPC Singrauli and POWERGRID to share the details of necessary corrective actions taken / planned to be taken to ensure healthiness of SPS system at Singrauli TPS and load stations.

b) Representative from NTPC informed that existing SPS system at Singrauli TPS is defective, procurement work has been initiated. NRLDC requested NTPC to share the tentative timeline for completion of work and to expedite the remedial actions for early restoration of SPS system at Singrauli TPS.

c) Regarding issues at load stations, POWERGRID agreed to take necessary actions in coordination with the site stations.

d) Further, NRLDC also informed that mock testing of SPS of HVDC Rihand-Dadri has been scheduled tentatively on 19.11.2025. Concerned members were requested to ensure the readiness and share the details of coordinators.

- SPS mock testing of HVDC RIhand-Dadri was conducted successfully on 19.11.2025. SPS command didn't receive at 220kV Muradnagar(UP), 220kV Merta(RS), 220kV Kota Sakatpura(RS), 220kV Dhanonda(HR) and Singrauli TPS(NTPC). SPS system at Rihand HVDC, Dadri HVDC and at remaining load and generating stations are healthy.

- During 66th PSC meeting, POWERGRID(NR-1) representative informed that action is being taken and issues will be resolved by 15.02.2026. NTPC representative informed that communication card is faulty at Singrauli end and procurement is in progress, however this issue will be resolved by Dec'26. NRLDC representative emphasized that it is essential to make SPS healthy before peak summer season 2026.

- POWERGRID, Singrauli(NTPC) and other concerned were requested to share the details of actions taken / planned to be taken to rectify the issues in HVDC Rihand-Dadri SPS system.
- During 67th PSC meeting, POWERGRID(NR-1) representative informed that link is ready however card is faulty in several stations which need further procurement. Hence work is expected to complete within 3-4 months.

- NRLDC representative requested POWERGRID to share the list of stations where card issue is present currently at the earliest.

ii. **SPS of Anta, Kawai, Chhabra generation complex:** In one of the SPS cases i.e., N-1-1/ N-2 of 765kV Anta-Phagi 1 & 2, instantaneous generation backdown of ~2100 MW is designed as SPS action. In such scenario, to avoid overloading of WR-NR corridor and over drawl by Rajasthan, it was agreed that RVPNL shall implement the automatic load shedding of ~750 MW by 28.02.2018. However, as per details available, implementation of automatic load shedding as per SPS hasn't been done yet. This matter has already been discussed in PSC as well as OCC meetings on regular basis. The concern of grid security and reliability was also raised during request of shutdown of 765kV Anta-Phagi line. is requested to expedite implementation of the automatic load shedding of ~750 MW as per SPS (N-1-1/ N-2 contingency of 765kV Anta-Phagi-1 & 2).

- During 235th OCC meeting, SLDC-Rajasthan representative informed that automatic load shedding of ~750 MW has been implemented.
- During 236th OCC meeting, SLDC-Rajasthan confirmed that mock testing of automatic load shedding part of the SPS has been conducted.
- Discussion during 237th OCC meeting:

a) NRLDC representative requested Rajasthan to share the mock test report of the automatic load shedding part of the SPS.
b) RVPNL agreed to share the mock test report w.r.t. automatic load shedding part of the SPS at the earliest.

- Details haven't been received yet. Rajasthan was requested to share the details at the earliest possible.
- During 67th PSC meeting, SLDC Rajasthan informed that mock test was conducted for 11 no. of load feeders. Exact details will be collected regarding the same.
- NRLDC representative requested SLDC Rajasthan to share the details with confirmation through mail at the earliest.

iii. **SPS of 765kV Agra-Gwalior D/C:** Mock testing of the SPS was conducted on 10.10.2025. During the testing, it was observed that there is communication issue at Bhiwadi(PG), Bamnauli(DTL), Kota, Debari, Chittorgarh, Ratangarh, Nunamajra, Safidon, Ajitwal, Dandhari-II, Ablowal substations.

- NRLDC requested all the concerned states to submit the mock test report of their respective control area. Details have been received from Delhi, Rajasthan and Punjab. UP, BBMB, Haryana and POWERGRID have shared the partial details.
- Further, POWERGRID was requested to share the details of actions taken / planned to be taken to resolve the issues in SPS system.
- During 237th OCC meeting, POWERGRID was requested to take expeditious corrective actions to rectify the issues and make the SPS healthy and operational at all the stations.
- NRLDC has also sent a letter dated 28.11.2025 to POWERGRID for expeditious corrective actions and make complete SPS system healthy and operational.
- During 66th PSC meeting, POWERGRID(NR-1) representative informed that communication issue at Bhiwadi(PG) was already addressed. Action is being taken and issues will be resolved by 15.02.2026.

- POWERRGID was requested to share the details of actions taken / planned to be taken to rectify the issues in 765kV Agra-Gwalior D/C SPS system.
- During 67th PSC meeting, POWERGRID(NR-1) representative informed that status is same as “SPS of HVDC Rihand-Dadri”.

iv. **SPS of 500kV Mundra-Mahindergarh:** Mock testing of the SPS was conducted on 11.03.2026. During the testing, communication links were found to be healthy. Further, deliberation needs to be done regarding wiring of load to be tripped.

- An online meeting was held on 17.04.2026 for finalization of further action plan w.r.t. complete restoration and healthiness of SPS of HVDC Mundra-

Mahindergarh.

- In view of the above, members were requested to take following actions:

i. Concerned constituents / utility shall conduct the mock testing of pending SPS (whose mock testing was not conducted in FY 2025-26) at the earliest.

ii. In compliance with IEGC clause 16.2, users shall ensure that mock testing along with the review of SPS logic of all the SPS is conducted at least once a year. Hence utilities are also requested to share the tentative schedule and conduct the mock testing of SPS schemes in their respective control area w.r.t. FY 2026-27.

iii. Further In compliance with IEGC clause 16.3, users shall also share the detailed report of SPS operation in their respective control area within 3 days of its operation. Presently, no such report is being received.

- During 60th PSC meeting, it was decided that the SPS which are not required from constraint point of view will not be disabled for keeping the assets associated with SPS healthy and will be treated as “reserve SPS”, as may be required during prolonged outages of any system element. In case of reserve SPS for transformers (where logic was based on “tripping” of transformer) logic need to be modified based on “loading” of transformer in place of “tripping” of transformer.

- During 64th PSC meeting, MS-NRPC suggested that assets of “reserve SPS” can be used in new SPS to be commissioned and hence they may be removed from existing SPS list. PSC forum suggested to remove the above mentioned 06 ”reserve SPS” schemes.

- During 238th OCC meeting, SLDC UP informed that SPS for Transformers at 400KV Sultanpur (UPPTCL) and Gorakhpur(UPPTCL) is required as loading exceeded (N-1) limit during summer of 2025, hence SPS may be kept in service. SLDC Delhi informed that SPS for Transformers at Bamnauli (DTL) may be kept in service until 315 MVA ICT is revived which currently is not in service.

- During 65th & 66th PSC meeting, it was decided to disable and remove the following SPS:

i. SPS for Transformers at Ballabhgarh (PG)
ii. SPS for Transformers at 400KV Muzaffarnagar (UP)
iii. SPS for Transformers at 400KV Greater Noida (UPPTCL)
iv. SPS for Reliable Evacuation of Ropar Generation
v. SPS for contingency due to tripping of evacuating lines from Narora Atomic Power Station

- On the basis of inputs received from utilities during discussion in PSC meeting, updated status of SPS mock testing is attached as **Annexure-B.VI(A)**.

**v. Implementation of SPS in POWERGRID substations in Rajasthan control area:**

- SPS stage wise logic (received from Rajasthan) for SPS of ICTs at POWERGRID stations in Rajasthan control area was discussed in 64th PSC meeting. The time delay logic proposed by Rajasthan was found OK and POWERGRID was requested to start the implementation process of the SPS at designated stations.
- Time delay for stage-1&2 of SPS was decided as:

  Stage-1: 105% loading with 1 sec delay

  Stage-2: 105% loading with 1.5 sec delay
- NRLDC through mail dated 02.12.2025 requested POWERGRID to implement the SPS at designated stations i.e., 400/220kV Kankroli(PG), Bassi(PG), Neemrana(PG), Kotputli(PG), Bhiwadi(PG), Jaipur South(PG) and Sikar(PG) at the earliest possible.
- POWERGRID representative informed that SPS (case-1 & 2) at designated stations i.e., 400/220kV Kankroli(PG), Bassi(PG), Neemrana(PG), Kotputli(PG), Bhiwadi(PG) and Sikar(PG) will be installed by 15.02.2026. Case 3 & 4 of 400/220kV Bassi(PG), Kotputli(PG), and Sikar(PG) will need time. SPS at Jaipur South is not required and SLDC Rajasthan may review the same.
- During 67th PSC meeting, SLDC Rajasthan confirmed that SPS at Jaipur South is not required. POWERGRID representative informed that mock testing

was done for 400/220kV Bassi(PG), Neemrana(PG), Kotputli(PG) and Bhiwadi(PG). Wiring work is completed for 400/220kV Kankroli(PG) and Sikar(PG) and mock test of the same will be conducted within one week.

***Decision of the Forum:***

*Forum requested members 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 after conducting mock test.*

## B.8 Confirmation regarding implementation of proposed Overvoltage protection setting by committee (agenda by NRLDC)

B.8.1 A committee was formed by NRPC during 52nd PSC meeting held on 20th September 2024 to review the Overvoltage Protection settings of 400kV and 765kV transmission lines in the Northern Region. This committee was formed for compliance of the recommendation given by the committee formed by CEA for analysis of Grid incident that occurred on 17th June 2024. The committee reviewed the Overvoltage Protection settings of 400kV and 765kV transmission lines in the Northern Region, finalized the protection settings for overvoltage protection and proposed the revised overvoltage protection settings. The proposed Overvoltage protection settings were discussed and approved in 58th Protection Sub-Committee (PSC) meeting held on 26th March 2025. The PSC forum requested all to implement the proposed overvoltage protection settings in 400kV and 765kV transmission lines in their respective control area.

B.8.2 Status of the revised overvoltage protection setting to be implemented is attached as **Annexure-B.VII**.

B.8.3 Further, the agenda in this regard was again discussed in 230th OCC meeting and 60th, 61st, 62nd , 63rd, 64th , 65th & 66th PSC meeting.

B.8.4 Status of confirmation received from BBMB, Rajasthan, UP, Haryana, Punjab, Delhi, NHPC, POWERGRID, Uttarakhand, HP, NUPPL, SJVN, APCPL, NTPC & INDIGRID.

B.8.5 However, status of confirmation from J&K only is yet to be received (4 lines pending out of 683 lines).

B.8.6 All members were requested to ensure the implementation of proposed overvoltage settings in their control area at the earliest to avoid any unwanted tripping. In this regard, e-mail communication was also sent dated 07.05.2025 & 03.06.2025 to all

members.

B.8.7 The status of implementation of proposed Overvoltage protection setting in transmission lines is attached as **Annexure-B.VII**.

B.8.8 The winter season in Northern region begins from mid-October onwards and remains till February, and the challenges faced during these months are well known to all the utilities. During winter with NR load reducing significantly, the lines become lightly loaded leading to high voltages in Grid. Hence, vide NRLDC letter dated 17.09.2025, it was advised to ensure timely implementation of revised approved overvoltage protection settings in all the 400 & 765kV transmission lines to avoid any unwanted tripping of transmission lines on over-voltage.

***Decision of the Forum:***

*Forum requested all the members to share the confirmation regarding implementation of revised overvoltage protection setting in 400kV and 765kV transmission lines in their respective control area at the earliest and send a confirmation regarding this to NRPC and NRLDC.*

## B.9 Status of connected load relief quantum of UFR and df/dt (agenda by NRLDC)

B.9.1 UFRs and df/dt are envisaged to take care of sudden contingencies arising out of the outage of generation stations or the separation of inter-regional lines. UFRs settings are for steady state operation of the Grid at a considerably low frequency and df/dt settings are for dynamic change when frequency falls suddenly with jerks.

B.9.2 As per IEGC 2023 Clause 29.(13)(d),

*"SLDC shall ensure that telemetered data of feeders (MW power flow in real time and circuit breaker status) on which UFR and df/dt relays are installed is available at its control centre. SLDC shall monitor the combined load in MW of these feeders at all times. SLDC shall share the above data with the respective RLDC in real time and submit a monthly exception report to the respective RPC…"*

B.9.3 In view of the above, NRLDC requested SLDCs to share the list of feeders mapped for UFR and df/dt along with feeder-wise planned load relief quantum. SLDCs were also requested to share details of mapped/telemetered stage-wise quantum of load relief on UFR and df/dt operation against the planned quantum.

B.9.4 During 64th PSC meeting, SLDC Rajasthan informed that telemetry is being done and will be completed by Dec'25. They had already taken up the matter and sent the list to SCADA. Feeder-wise mapped/telemetered data will be made available by Jan'26.

B.9.5 During 66th PSC meeting, PSC forum requested SLDCs to share the above data latest by 15th Feb'26. However no update is received so far from any SLDC.

B.9.6 During 67th PSC meeting, SLDC UP informed that a mail was sent on 26.02.2026 regarding the same. However, no mail was received at NRLDC end regarding the same.

B.9.7 Data is to be furnished in the format attached as **Annexure-B.VIII**.

B.9.8 As per IEGC 2023 Clause 30.(1),

*"The National Reference Frequency shall be 50.000 Hz and the allowable band of frequency shall be 49.900-50.050 Hz. The frequency shall be measured with a resolution of +/-0.001 Hz…."*

B.9.9 NRLDC stated that in view of recent events due to UFR operation, major review of UFR and df/dt settings is required to avoid unwanted tripping of feeders and load loss in states. SLDCs were requested to review UFR settings of the relays (whether frequency settings can be done upto three decimal places or not). SLDCs were also advised to look into any issue in transducer etc to avoid any unwanted tripping on UFR operation in future.

B.9.10 It was also highlighted that no time delay should be kept in UFR relay operation.

***Decision taken by Forum:***

*Forum requested constituents to ensure the telemetry of UFR and df/dt feeders of their respective control area at the earliest. Further, UFR & df/dt relay also need to be tested to ensure its proper operation.*

## 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

C.1.1 AEE (P), NRPC apprised that NRLDC has submitted the list of FTCs for month of **January, 2026 & February, 2026** wherein protection settings have been allowed provisionally as per NRPC procedure. The same was uploaded on NRPC website for

access of members of the forum.

C.1.2 NRLDC representative informed that an undertaking was given by PPGCL during FTC approval of 330MVAr Switchable Non-Convertible LINE_REACTOR of 765 kV Bara-Mainpuri ckt.1 at Bara (UP) as back up impedance protection is not available in reactor.

C.1.3 PPGCL representative stated that back up impedance relay function is not available in commissioned relays of line reactor. All other protections are functioning as per philosophy. New relay would be needed to be procured for back up impedance.

C.1.4 MS, NRPC asked time for procurement of new relay. PPGCL representative updated that 2 relays would be required to be procured as back up impedance protection is not available in line reactors of both circuits.

C.1.5 Forum gave 6 months' time for implementation of backup impedance relays in both line reactors. If requires, extension may be sought by PPGCL.

C.1.6 AEE (P), NRPC highlighted that unrestrained operation level in differential protection of reactor is taken at 8 pu by PGCIL while as per philosophy, it should be 2pu. Forum directed POWERGRID to submit its reasoning behind keeping on higher side so that the same may be discussed in next PSC meetings and philosophy may be modified accordingly.

C.1.7 Certain observations were also identified in the FTC settings available in the NRLDC portal. However, MS, NRPC suggested discussing the same with NRLDC prior to presenting them in the meeting. Accordingly, the same were reviewed with NRLDC representative and final observations requiring compliance are attached as **Annexure-C.I.**

C.1.8 AEE (P), NRPC raised concern regarding the lack of clarity in the NRLDC portal protection settings, as the final versions are not explicitly mentioned. NRLDC was requested for providing only final provisionally approved FTC settings.

C.1.9 AGEL representative raised size concern during uploading of settings in FTC portal. NRLDC representative ensured that matter will be taken up with portal developer.

C.1.10 After deliberations, protection settings (of the elements listed in **Annexure-C.II)** were finally approved by forum on basis of provisional acceptance granted by NRLDC subject to compliance of stated observations (mentioned as Annexure-C.I).

***Decision of the Forum:***

*Forum approved the settings for elements attached as Annexure-C.II subject to compliance of stated observations (mentioned as Annexure-C.I) .*

## C.2. First Time Charging of transmission Lines/Bays/Transformer/Reactor etc. by SLDCs

C.2.1 AEE (P), NRPC apprised that UPSLDC shared the list of elements (≥220kV) charged in the month of February, 2026 along with settings for which Provisional approval given for FTC from UPSLDC level. The same may be found on NRPC website: **https://nrpc.gov.in/meetings/prsub.html.**

C.2.2 AEE (P), NRPC highlighted the points observed in submitted settings of all elements for which FTC given by UPSLDC. The same are attached as **Annexure-C.III**

C.2.3 UPPTCL representative confirmed that % impedance of the 220 kV/33 kV, 60 MVA T/F-I & 2 at 220kV GIS TRANSGANGA CITY is 12.73% instead of 25% as mentioned in the settings of differential protection relay (87T).

C.2.4 In view of above, it was decided that UPSLDC may review observations. Forum did not approve the FTC for all proposed elements.

C.2.5 Similarly, HPSLDC has shared the list and protection settings of elements (≥220kV) for which Provisional approval given for FTC from HPSLDC level in the month of **January, 2026.** The same may be found on NRPC website:

https://nrpc.gov.in/meetings/prsub.html

C.2.6 AEE (P), NRPC highlighted that following points were observed in submitted settings of below elements as below-

**A. 220/132kV 200MVA (3*66.67) Transformer at Kangoo**

i. Thermal overload protection provided with pick up at 1.05 times rated current, DT, 3sec. delay (may confirm whether tripping or not?). Forum was of view that tripping should not be enabled.

ii. Time grading of HV/LV side O/C & E/F protection has been taken as (.55+.2) & (.35+.2) which may be coordinated with zone-3 time setting of line.

**B. 220kV Kangoo (HPPTCL)- Kangoo (HPSEBL) Ckt-2**

iii. Zone-3 reach has been taken as 200% of protected line while as per philosophy, Zone-3 should overreach the remote terminal of the longest adjacent line by an acceptable margin (typically 20% of highest impedance seen) for all fault conditions.

C.2.7 On the above, HPPTCL representative submitted to share the details later. There was no representative from HPSLDC in the meeting.

C.2.8 MS, NRPC directed HPSLDC to review the FTC settings and share the settings accordingly.

***Decision of the Forum:***

*i. SLDCs were requested to send list of elements for which provisionally approved settings has been granted (if any) in previous month along with compiled settings.*

*ii. Forum did not approve the settings of all elements for which Provisional approval given for FTC by UPSLDC in the month of **February, 2026**. UPSLDC*

*may review the settings as per Northern Region Protection Philosophy.*

iii. *Forum did not approve the settings of all elements for which Provisional approval given for FTC by HPSLDC in the month of **January, 2026**. HPSLDC may review the settings as per Northern Region Protection Philosophy.*

## Part-D: Agenda for approval of protection settings of elements by PSC Forum for which revision in protection settings have been done by utilities

### D.1. Approval of Revised Zone-3 Settings of 400 kV Koteshwar–Tehri Circuit-3 (Line W-3) of Tehri PSP (agenda by THDC)

D.1.1 Tehri PSP (THDC ltd.) apprised that consequent upon charging of the 400 kV Koteshwar (PG)–Rishikesh line (38.5 km), POWERGRID requested for revision of the Zone-3 distance protection settings of 400 kV Koteshwar–Tehri Circuit-3 (Line W-3) at the THDC PSP end.

D.1.2 Accordingly, the following revised setting values of Zone-3 impedance provided by THDC EM Design deptt have been implemented at site on 19.02.2026, while keeping all other setting parameters unchanged:

| **Previous Settings** | **Updated Settings** | **Relay** |
|---|---|---|
| Z3: 5.334 Ohm | Z3: 9.962 Ohm | Micom P444 |
| Z3 Gnd. Reach: 5.330 Ohm | Z3 Gnd. Reach: 9.960 Ohm | Micom P443 |
| Z3 Ph. Reach: 5.330 Ohm | Z3 Ph. Reach: 9.960 Ohm | Micom P443 |

D.1.3 The revised relay setting file, as downloaded from the relay after implementation at site (with the revised changes marked in yellow), is enclosed herewith as **Annexure-**

**D.1.** The calculation sheet shared by THDC has also been made available in the same annexure.

D.1.4 Accordingly, the same was deliberated in the meeting and approved by the Forum.

***Decision of the Forum:***

*Forum approved the revised Zone-3 Settings of 400 kV Koteshwar–Tehri Circuit-3 (Line W-3) of Tehri PSP.*

*****

**Members of Protection Sub-Committee (FY 25-26)**

| S. No. | NRPC Member Organization | Designation | Email-ID |
|---|---|---|---|
| 1 | Member (GO&D), CEA | Director, NPC Division | skdotancea@nic.in |
| 2 | NTPC Vidyut Vyapar Nigam Ltd. | CEO | ceonvvn@ntpc.co.in |
| 3 | CTUIL | Sr.GM | schakraborty@powergrid.in |
| 4 | PGCIL | CGM | R.K.Dash@powergrid.in, gsrrao@powergrid.in, ahmed.shafat@powergrid.in, pankajsharma@powergrid.in, spandey@powergrid.in |
| 5 | NLDC* | Executive Director | susha@grid-india.in |
| 6 | NRLDC | CGM(SO) | ashokkr@grid-india.in |
| 7 | NTPC | AGM(OS-NR), DGM (OS-NR) | vipulsrivastava@ntpc.co.in, rameshsingh@ntpc.co.in |
| 8 | BBMB | Director (P&C) | dirpc@bbmb.nic.in |
| 9 | THDC* | AGM (O&M) ,Tehri | ravindrasrana@thdc.co.in |
| 10 | SJVN | General Manager | sjvn.cso@sjvn.nic.in |
| 11 | NHPC | General Manager (O&M) | hod-om-co@nhpc.nic.in |
| 12 | NPCIL* | Technical Services Superintendent (TSS) | tss.naps@npcil.co.in, rvoza@npcil.co.in, singhp@npcil.co.in, mmehta@npcil.co.in, awdheshsingh@npcil.co.in, ajayarora@npcil.co.in, rkmisra@npcil.co.in |
| 13 | Delhi SLDC | General Manager | gmsldc@delhisldc.org |
| 14 | Haryana SLDC | Chief Engineer (SO&C) | cesocomml@hvpn.org.in |
| 15 | Rajasthan SLDC | Chief Engineer (LD) | ce.ld@rvpn.co.in |
| 16 | Uttar Pradesh SLDC | Superintending Engineer (R&A) | sera@upsldc.org |
| 17 | Uttarakhand SLDC | Chief Engineer | anupam_singh@ptcul.org |
| 18 | Punjab SLDC | Chief Engineer | ce-sldc@punjabsldc.org |
| 19 | Himachal Pradesh SLDC | Chief Engineer | cehpsldc@gmail.com |
| 20 | DTL | AGM-Protection | bharatgujardtl@gmail.com |
| 21 | HVPNL | Chief Engineer (TS) | cetspkl@hvpn.org.in |
| 22 | RRVPNL | CE (M&P) | ce.mps@rvpn.co.in |
| 23 | UPPTCL* | Managing Director | md@upptcl.org |
| 24 | PTCUL | SE(T&C) | setandchld@gmail.com |
| 25 | PSTCL | Chief Engineer (P&M) | ce-pm@pstcl.org |
| 26 | HPPTCL* | Managing Director | md.tcl@hpmail.in |
| 27 | IPGCL | DGM (Protection) | arif.ipgcl@gmail.com |
| 28 | HPGCL | SE/M&T RGTPP | semt.rgtpp@hpgcl.org.in |
| 29 | RRVUNL* | CMD | cmd@rrvun.com |
| 30 | UPRVUNL | Chief Engineer, (L-2) | ce.ppmm@uprvunl.org |
| 31 | UJVNL* | Managing Director | mdujvnl@ujvnl.com |
| 32 | HPPCL* | Managing Director | md@hppcl.in |
| 33 | PSPCL | Chief Engineer/GHTP | ce-ghtp@pspcl.in |
| 34 | DHBVN | Chief Engineer | ctorapdrp@dhbvn.org.in semp@dhbvn.org.in |
| 35 | Ajmer Vidyut Vitran Nigam Ltd. | Managing Director | MD.AVVNL@RAJASTHAN.GOV.IN |
| 36 | Purvanchal Vidyut Vitaran Nigam Ltd. | Managing Director | md@puvvnl.in |
| 37 | UPCL* | Managing Director | md@upcl.org |
| 38 | HPSEB* | Managing Director | md@hpseb.in |
| 39 | Prayagraj Power Generation Co. Ltd.* | Head (Commercial & Regulatory), DGM - Elect | sanjay.bhargava@tatapower.com dhananjay.singh@ppgcl.co.in |
| 40 | Aravali Power Company Pvt. Ltd* | CEO | brahmajig@ntpc.co.in |
| 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@reliancegroupindia.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 | Transition Cleantech Services Private Limited* | Deputy Manager | kswamidoss@evrenenergy.com |
| 51 | UT of J&K* | MD, JKPTCL CE, JKPCL | mdjkptcl1@gmail.com, cejkpcl2@gmail.com |
| 52 | UT of Ladakh* | Chief Engineer, LPDD | cepdladakh@gmail.com |
| 53 | UT of Chandigarh | Executive Engineer | elop2-chd@nic.in |
| 54 | Tata Power Delhi Distribution Limited* | HOG-PMG | sandeep.k@tatapowerddl.com |
| 55 | Gurgaon Palwal Transmission Limited* | Lead-Regulatory Operations | abhishek.kukreja@indigrid.com; pranav.rathore@indigrid.com |
| 56 | PTC India Limited* | AVP | bibhuti.prakash@ptcindia.com |
| 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.* | | |

**List of Members of Rnenewable Energy Sub-committee**

| S. No. | Members of RE Sub-committiee | Representative Email ID |
|---|---|---|
| 1 | Ministy of New and Renewable Energy | anindya.parira@nic.in; |
| 2 | National Load Despatch Center | suhasd@grid-india.in; |
| 3 | Northern Regional Load Despatch Center | ashokkr@grid-india.in; |
| 4 | Central Transmission Utility | sandeepk@powergrid.in |
| 5 | Powergrid Corporation of India Ltd. | yashpal@powergrid.in; r.k.dash@powergrid.in; |
| 6 | Rajasthan Rajya Vidyut Prasaran Nigam Ltd. | se.pp@rvpn.co.in; |
| 7 | Rajasthan State Load Despatch Center | se.ldrvpnl@rvpn.co.in; |
| 8 | Solar Energy Corporation of India | sanjaysharma@seci.co.in; vkumar@seci.co.in; |
| 9 | National Solar Energy Federation of India | ankur.kumar@nsefi.in; ceooffice@nsefi.in; |
| 10 | Indian Wind Power Association | ceo@indianwindpower.com; |
| 11 | ABC Renewable Pvt. Ltd | aman.chaturvedi@petronas.com; deepak.asopa@petronas.com; urvika.acharya@petronas.com; |
| 12 | ABC Renewable Energy (RJ-02) Pvt. Ltd. | |
| 13 | ACME Heeragarh powertech Pvt. Ltd | prachi.chauhan@acme.in; planthead.badisidd.solar@acme.in; ashutosh.singh@acme.in; htoperations1.ho.solar@acme.in; |
| 14 | ACME Phalodi | dhruba.chhetri@acme.in; |
| 15 | ACME Deogarh | deepak1.singh@acme.in; |
| 16 | ACME Raisar | dhruba.chhetri@acme.in; |
| 17 | ACME Dhaulpur | balaji.r@acme.in; |
| 18 | ACME Sikar | nitish.kumar@acme.in; |
| 19 | ACME Chittorgarh Solar Energy Pvt Ltd | sandeeptak@ayanapower.com; yogesh@ayanapower.com; |
| 20 | Adani Hybrid Energy Jaisalmer One Ltd. | kailash.nagora@adani.com; sanjay.bhatt@adani.com; |
| 21 | Adani Hybrid Energy Jaisalmer Two Ltd. | |
| 22 | Adani Hybrid Energy Jaisalmer Three Ltd. | |
| 23 | Adani Hybrid Energy Jaisalmer Four Ltd. | |
| 24 | Adani Renewable Energy (RJ) limited Rawara | |
| 25 | Adani Solar Energy Jaisalmer One Pvt. Ltd._450MW (Solar) | |
| 26 | Adani Solar Enegry Four Private Limited | |
| 27 | Adani Solar Energy Jaisalmer Two Private Limited | |
| 28 | Adani Solar Energy Jaisalmer Two Private Limited Project Two | |
| 29 | SB ENERGY FOUR PRIVATE LIMTED, Bhadla | |
| 30 | SB Energy Six Private Limited, Bhadla | |
| 31 | Adani Solar Enegry Jodhpur Two Limited, Rawara | |
| 32 | Adani Solar Energy RJ Two Pvt. Ltd. (Devikot) | |
| 33 | Adani Solar Energy RJ Two Pvt. Ltd. (Phalodi) | |
| 34 | Adani Green Energy Twenty Four Limited | |
| 35 | ADANI GREEN ENERGY TWENTY FIVE LIMITED | |
| 36 | Adani Solar Energy Jodhpur Six Pvt. Ltd. | |
| 37 | Ambuja Cements Limited_300MW | |

| | | |
|---|---|---|
| 38 | Altra Xergi Pvt. Ltd. | mahendra.kumar@O2power.in; |
| 39 | XL Xergi Power Pvt. Ltd. | yudhister@o2power.in; ka.vishwanath@o2power.in; |
| 40 | AMP Energy Green Four Pvt. Ltd. | vbhattacharya@ampenergyindia.com; |
| 41 | AMP Energy Green Five Pvt. Ltd. | |
| 42 | AMP Energy Green Six Pvt. Ltd. | |
| 43 | Amplus Ages Private Limited | manish.tak@amplussolar.com; |
| 44 | Avaada RJHN_240MW | alpesh.prajapati@avaada.com; |
| 45 | Avaada sunce energy Pvt limited | |
| 46 | Avaada Sunrays Pvt. Ltd. | |
| 47 | Avaada Sustainable RJ Pvt. Ltd. | |
| 48 | Ayana Renewable Power Three Private Limited | Venkatraman@ayanapower.com; rajeshshukla@ayanapower.com; |
| 49 | Ayaana Renewable Power One Pvt. Ltd. | |
| 50 | Azure Power Forty One Pvt limited | sourin.nandi@azurepower.com; |
| 51 | Azure Power Forty Three Pvt. Ltd._RSS | manohar.reddy@azurepower.com; |
| 52 | Azure Power Forty Three Pvt. Ltd._PSS | manohar.reddy@azurepower.com; |
| 53 | Azure Maple Pvt. Ltd. | sourin.nandi@azurepower.com; |
| 54 | AZURE POWER INDIA Pvt. Ltd., Bhadla | yogesh.kumar@adani.com; |
| 55 | Azure Power Thirty Four Pvt. Ltd. | manohar.reddy@azurepower.com; |
| 56 | Clean Solar Power (Jodhpur) Pvt. Ltd. | simhadri.kesapragada@herofutureenergies.com; |
| 57 | Clean Solar Power (Bhadla) Pvt. Ltd | atul.tomar@herofutureenergies.com; sushant.sinha@herofutureenergies.com; |
| 58 | Eden Renewable Cite Private Limited | dejendra.sharma@eden-re.com; operation.ERCPL@eden-re.com; |
| 59 | Eden Renewable Alma Pvt. Ltd. | |
| 60 | Energizent Power Private Limited | Bhawya.chauhan@o2power.in; |
| 61 | Grian Energy private limited | mehul.sharma@amplussolar.com; |
| 62 | Juna Renewable Energy Pvt. Ltd. | rusharma@acciona.com; npalakshaiah@acciona.com |
| 63 | Juniper Green Cosmic Private Limited | ashok.sharma@junipergreenenergy.com |
| 64 | Juniper Nirjara Energy Private Limited | om.cosmic@junipergreenenergy.com |
| 65 | Karinsar Solar Plant NHPC Ltd | bikanerspp@nhpc.nic.in |
| 66 | Mega Surya Urja Pvt. Ltd. (MSUPL) | pankaj.vaidya@seit.co.in; niraj.shah@seit.co.in; |
| 67 | Megasolis Renewables Pvt Ltd(MSRPL) | dhirendra.bhati@seit.co.in |
| 68 | AURAIYA Solar | rajivgupta@ntpc.co.in; |
| 69 | DADRI SOLAR | |
| 70 | SINGRAULI SOLAR | |
| 71 | Anta Solar | |
| 72 | Unchahar Solar | |
| 73 | NTPC Devikot Solar plant_240MW | |
| 74 | NTPC Kolayat_400kV | |
| 75 | Nedan Solar NTPC | |
| 76 | NTPC Nokh Solar | |
| 77 | NTPC Nokhra_300MW | |
| 78 | One Volt energy Pvt. Ltd. | amarjeet.thakur@amplussolar.com; |
| 79 | ReNew Solar Energy (Jharkhand Three) Private Limited | purnendu.chaubey@renew.com; kailash.pandey@renew.com; |
| 80 | RENEW SOLAR POWER Pvt. Ltd. Bhadla | |
| 81 | Renew Surya jyoti Pvt. Ltd. | |
| 82 | Renew Surya Partap Pvt. Ltd. | |
| 83 | Renew Surya Ravi Pvt. Ltd. | |
| 84 | Renew Surya Roshni Pvt. Ltd. | |
| 85 | Renew Surya Vihan Pvt. Ltd. | |
| 86 | Renew Hans Urja Pvt Ltd. | |
| 87 | RENEW SOLAR POWER Pvt. Ltd. Bikaner | |

| | | |
|---|---|---|
| 88 | Neemba Solar Plant Renew Surya Vihaan Pvt. Ltd. | |
| 89 | Renew Sun Bright Pvt. Ltd. (RSBPL) (sembcorp) | |
| 90 | Solzen Urja Private Limited | Neeraj.Verma@energy-sel.com |
| 91 | ReNew Solar Urja Private Limited | anilbhai.chaudhari@indigrid.com, rohit.kashav@indigrid.com, |
| 92 | Renew Surya Ayaan Pvt. Ltd. | hiteshbhai.shiyal@indigrid.com |
| 93 | Rising Sun Energy-K Pvt. Ltd. | tushar.gahlot@risingsunenergy.in; |
| 94 | Serentica Renewables India 4 Private Limited | rajendra.gupta@serenticaglobal.com, regulatory@serenticaglobal.com, Serentica_Asset_NR@sterlitepower.com, kunal.kaistha@serenticaglobal.com, atul.pachauri@serenticaglobal.com, lalit.shukla@serenticaglobal.com, ashwary.sharma@serenticaglobal.com; |
| 95 | Serentica Renewables India 5 Private Limited | |
| 96 | Khidrat Renewable energy Pvt ltd. | |
| 97 | SJVN Green Energy Limited | cso.sgel@sjvn.nic.in |
| 98 | Tata Power Green Energy Ltd. (TPGEL) | vinod.kumar@tatapower.com; |
| 99 | Tata Power Renewable Energy Ltd. (TPREL) | dhmahabale@tatapower.com; imran.khan@tatapower.com; |
| 100 | Thar Surya Pvt. Ltd. | vivek.reddy2@enel.com; mahendra.vishnoi2@enel.com |
| 101 | TP Surya Pvt. Ltd. | sivanarayana@tatapower.com; sagar.potdar@tatapower.com; |
| 102 | Banderwala Solar Plant TP Surya Ltd. | arun.sahoo@tatapower.com; |
| 103 | Adept Renewable Technologies Pvt. Ltd. | kak@evrenenergy.com; |
| 104 | Transition Cleantech Services Private Limited | |
| 105 | Transition Energy Services Private Limited | |
| 106 | Transition Green Energy Private Limited | |
| 107 | Transition Sustainable Energy Services Private Limited | |
| 108 | Transition Sustainable Energy Services One Pvt Ltd | |
| 109 | Gorbea Solar Pvt Ltd | richpal.singh@zelestra.energy; kalpesh.umaretia@zelestra.energy; varun.nadarajan@zelestra.energy; selva.kumar@zelestra.energy; |
| 110 | Prerak Greentech Private Limited | ikumpawat@evrenenergy.com |

## Address List of ISTS Transmission Licensees (other than NRPC members)

| S. N. | TBCB/ Licensee Name | Owner Company | E-mail ID |
|---|---|---|---|
| 1 | Gurgaon Palwal Transmission Ltd | INDIGRID | abhishek.kukreja@indigrid.com<br>pranav.rathore@indigrid.com |
| 2 | NRSS-XXIX Transmission Ltd | | |
| 3 | Parbati Koldam Transmission Company Limited | | |
| 4 | Patran Transmission Company Ltd | | |
| 5 | NRSS-XXXI(B) Transmission Ltd | SEKURA | neeraj.verma@energy-sel.com |
| 6 | NRSS XXXVI Transmission Ltd | TATA POWER | rajnishmehrotra@tatapower.com<br>rajnishm1963@yahoo.co.in |
| 7 | AD Hydro Power Limited | - | sumitgarg@lnjbhilwara.com |
| 8 | Aravali Power Company Private Limited | | amit.hooda01@apcpl.co.in |
| 9 | POWERLINKS TRANSMISSION LIMITED (PTL) | - | sandeep.shukla@tatapower.com |
| 10 | Adani Transmission India Limited | ADANI | Sunil.Raval@adani.com,<br>Sumeet.Sharma@adani.com<br>enocaesloutage@adani.com<br>enocenergysolutions@adani.com |
| 11 | Bikaner Khetri Transmission Limited | | |
| 12 | Fatehgarh Bhadla Transmission Limited | | |
| 13 | Kishtwar Transmission Limited | RESONIA | Secretarial.grid@sterlite.com |

Annexure-P

| 67th Protection Sub-Committee Meeting on 18.03.2026 (10:30 AM) | | | | |
|---|---|---|---|---|
| **S. No.** | **Name** | **Designation** | **Organization** | **E-mail** |
| 1 | Rishika Sharan | MS | NRPC | ms-nrpc@nic.in |
| 2 | D.K. Meena | SE, NRPC | NRPC | seo-nrpc@nic.in |
| 3 | Reeturaj Pandey | EE | NRPC | pandeyr.cea@gov.in |
| 4 | Lokesh Agarwal | AEE | NRPC | lokesh.cea@gov.in |
| 5 | Rajat Dixit | AEE | NRPC | dixit.rajat@gov.in |
| 6 | Akash Jain | AE | NRPC | akashjain.cea@gov.in |
| 7 | Samriddri Gogoi | Assistant. Manager | INDIGRID | samriddhi.gogoi@indigrid.com |
| 8 | Santosh Kumar | Dy. Manager | Renew Power | santosh.kumar2@renew.com |
| 9 | Sahil Aneja | Manager | Clean Solar badla (HEE) | sahil.aneja@herofutureenergies.com |
| 10 | Jaswant Singh | Manager | Serentica Renewable India.Pvt. Ltd. | jaswant.singh2@serenticaglobal.com |
| 11 | Jitendra Kr. Muduli | AM | ACME | htoperations1.ho.solan@acme.in |
| 12 | Ashwini Kumar | EE | PTCUL | ee_tandc_ddun@ptcul.org |
| 13 | Abhishek Puri | AE (E) | HPPTCL | abhishek.ptcl@hpmail.in |
| 14 | Amit Kumar | XEN | HVPNL | xenmpccggn@hvpn.org.in |
| 15 | Neeraj Chawora Patel | AGM | AGEL ADANI Green | neerajv.patel@adani.com |
| 16 | Manish Chaudhary | DGM (E) | HPPCL, Sainj HEP | dgm.e.sainj@gmail.com |
| 17 | Anuj Tiwari | AE UJVNL | UJVNL | aetest2dph@gmail.com |
| 18 | Sanjeet Singh Parmar | Mgr.(Elect.) | SJVN Ltd. | ss_parmar@sjvn.nic.in |
| 19 | Parveen Kumar | Manager (T) | DTL | kumarparveendtl@gmail.com |
| 20 | Paritosh Joshi | DGM (T) | DTL | paritoshjoshi2013@gmail.com |
| 21 | Ankur Kumar | Associate Director | NSEFI | ankur.kumar@nsefi.in |
| 22 | Virendera Yadav | Scientific Officer | NPCIL | virendrayadav@npcil.co.in |
| 23 | Harshit Shukla | Manager | PPGCL | harshit.shukla@ppgcl.co.in |
| 24 | Sushil | DGM | POWERGRID NR-II | sushil.sharma@powergrid.in |
| 25 | Pankaj Kumar Jha | Chief Manager | POWERGRID NR-I | pankaj.jha@powergrid.in |
| 26 | Kesari Nandan Pandey | AVP | Rosa Power Supply Company Ltd. | Kesarinandan.pandey@reliancegroupindia.com |
| 27 | P.K. Mishra | SE(T&C) | UPPTCL | setncmrt@upptcl.org |
| 28 | Pinki Debnath | DGM | NRLDC,Grid-India | pinkidebnath@grid-india.in |
| 29 | Sunil Agarwal | GM | NRLDC | skaharwal@grid-india.in |
| 30 | Deepak Kumar | Dy. Manager | NRLDC | deepakkumar@gmail.com |
| 31 | Sugata Battacharya | Dy. Manager | NRLDC | sugata@grid-india.in |
| 32 | Jaganath Pani | Sr. Manager | NHPC | jaganathpani@nhpc.nic.in |
| 33 | Manish Kr. Singh | Manager(E) | NHPC | manishkumarsingh@nhpc.nic.in |
| 34 | Er. Vivek Mahajan | Director(P&C) | BBMB | dirpc@bbmb.nic.in |
| 35 | Manish | AD | BBMB | ddpntbwn@bbmb.nic.in |
| 36 | Rahul Sharma | Sr. XEN | HPSEBL | pnt.srlan2020@gmail.com |
| 37 | Rohit K. Jain | A. Engineer | SLDC Rajasthan | se.sold@rvpm.co.in |
| 38 | Hanuman Gupta | XEN | SLDC Rajasthan | se.sold@rvpm.co.in |
| 39 | Raghavendra Tiwari | AEN | RVPN Rajasthan | ce.mpts.ajmer@rvpn.co.in |
| 40 | Dinal Singh Rataan | AEN | RVPNL | aen.xenmpty.jpr@rvpn.co.in |
| 41 | Sunandan Kumar | Sr. XEN | HPSEBL | xenesjas@gmail.com |
| 42 | Baljinder Singh | ASE | PSPCL | xen-pm-om-ghtp@pspcl.in |
| 43 | Pradeep Kumar | AEE | HPGLL | xensyd.rgtpp@hpgll.org.in |
| 44 | Ashish Kiran Lakra | Manager | THDC | aklakra@thde.co.in |
| 45 | Mayank Gupta | Manager | THDIL | mayankgupta@thdc.co.in |
| 46 | Arvind Bahuguna | AE | UJVNL | arvind.anvi222@gmail.com |
| 47 | Mukesh Kumar | Manager | PGCIL | mkumar1@powergrid.in |

Participants who attended meeting online are as below-

| Sr. No. | Display Name on webex | Organization |
|---|---|---|
| 1 | ABHISHEK KUKREJA | IndiGrid |
| 2 | Alok Verma (Sr.Xen/P&OS) | PSTCL |
| 3 | Anoop Dutta Mishra | POWERGRID NR-3 |
| 4 | Bhavesh Macwan | AESL |
| 5 | Himanshu Tiwari | THDC |
| 6 | INDIGRID | |
| 7 | INDIGRID | |
| 8 | JKPTCL, Jammu | |
| 9 | M P SHARMA | Rajasthan SLDC |
| 10 | Manoj prasad | |
| 11 | NRLDC-IT | |
| 12 | PGCIL NR-III | |
| 13 | Punjab SLDC | |
| 14 | Ramesh Kumar Singh NTPC | |
| 15 | SLDC Haryana | |
| 16 | SLDC RAJASTHAN | |
| 17 | Sumeet Sharma | IndiGrid |
| 18 | Sushant Gaurav | |
| 19 | UPSLDC | |
| 20 | Yogesh | |
| 21 | manoj | |

# Status of action taken on decisions of 66th PSC

| S.N. | Agenda No. | Agenda/ Issue | Decision of 66th PSC | Status of action Taken |
|---|---|---|---|---|
| 1 | A4 | Reporting of protection performance indices of SPS by SLDCs/RLDC (agenda by NRPC Secretariat) | SLDCs/NRLDC may submit protection performance indices for SPS on monthly basis by 7th date of each month. All utilities shall report their indices to concerned NRLDC/SLDCs, then after verifying SPS operation from all points, SLDCs/NRLDC shall report performance indices to NRPC Secretariat.<br><br>Prescribed format (Annexure-A.IV) shall be used for submission of protection performance indices of SPSs by SLDCs/NRDLC after verifying SPS operation from all points in their control area. | 1. Only UPSLDC and HPSLDC shared the same for the month of January, 2026.<br><br>2. Only UPSLDC, Rajasthan SLDC, HPSLDC, SJVN shared the same for the month of February, 2026. |
| 2 | A12 | Recognition of Protection Pioneers in Northern Region (agenda by NRPC Secretariat) | A Committee having members from NRPC Secretariat, and NRLDC may be constituted under Chairmanship of Director (Protection), NRPC for finalizing selection criteria, application format, scrutiny of applications, recommendation for recognition etc. for both categories i.e. individual as well as utility. | Nominations have been asked from the NRLDC vide email dated 09.03.2026 in order to proceed for further. Still response is awaited. |

| | | | | |
|---|---|---|---|---|
| 3 | B2 | Multiple elements tripping events in Northern region in the month of December 2025 (agenda by NRLDC) | ***Multiple elements tripping at 220/132kV Raebareilly(PG) at 12:25 hrs on 02.12.2025-*** Forum recommended that third party protection audit need to be done at Unchahar(NTPC) for a thorough review. (Action: NTPC) | NTPC was requested to update. |
| 4 | B2 | Multiple elements tripping events in Northern region in the month of December 2025 (agenda by NRLDC) | ***Multiple elements tripping at 765kV Obra_C TPS(UP) at 06:34 hrs on 16.12.2025*** Forum recommended that third party protection audit need to be done at 765kV Obra C TPS (UP) for a thorough review. (Action: UPPTCL) | UPSLDC informed that third party protection audit of Obra C TPS is under tendering process. |
| 5 | B5 | Frequent multiple elements tripping event at 400/220kV Kanpur (PG) (agenda by NRLDC) | A Committee may be formed under EE (P), NRPC for analysis of the event and recommendations for avoiding future trappings. Members may be taken from NRLDC, and UPPTCL. Committee may visit Kanpur s/s for understanding the issue. | Nominations were asked from the NRLDC, UPPTCL vide email dated 09.03.2026 in order to proceed for further. NRLDC has shared the nominations vide email dated 25.03.2026. Visit has been done by committee on 10.04.2026. |
| 6 | B7 | Multiple elements tripping events in Rajasthan | A committee may be formed under EE (P), NRPC for recommendation on drop off to pick up ratio for over voltage | Nominations have been asked from the NRLDC, POWERGRID & RVPN vide email dated |

| | | | | |
|---|---|---|---|---|
| | | RE complex on 14.01.2026 (agenda by NRLDC) | protection in general and particularly RE zone.<br><br>Committee may look into suitability of available relay model having limitation of drop off to pick up ratio setting. Members may be taken from NRLDC, POWERGRID, and RVPN. | 10.03.2026 in order to proceed for further. RVPN has shared the nominations vide email dated 10.03.2026. NRLDC has shared the nominations vide email dated 25.03.2026. |

| Status of perfomance indices reporting of January 2026 (Last date of submission 07.02.2026) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **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 | Y | 07.02.2026 | NR-1 | No | NA |
| | | | Y | 06.02.2026 | NR-2 | Yes | Yes |
| | | | Y | 06.02.2026 | NR-3 | No | NA |
| 2 | NTPC | Central Generating Company | Y | 17.02.2026 | Anta (Gas & Solar) | No | NA |
| | | | Y | 05.02.2026 | Auriya (Thermal & Solar) | No | NA |
| | | | Y | 09.02.2026 | Dadri (Gas) | No | NA |
| | | | | | Dadri (Thermal & Solar) | | |
| | | | Y | 16.02.2026 | Koldam | No | NA |
| | | | | | Rihand | | |
| | | | | | Singrauli (Thermal & Solar) | | |
| | | | Y | 03.02.2026 | Unchahar (Thermal & Solar) | No | NA |
| | | | Y | 04.02.2026 | Tanda | No | NA |
| 3 | BBMB | | Y | 09.02.2026 | | No | NA |
| 4 | THDC | | Y | 04.02.2026 | Tehri | No | NA |
| | | | Y | 03.02.2026 | Tehri PSP | No | NA |
| | | | Y | 04.02.2026 | Koteshwar | No | NA |
| 5 | SJVN | | Y | 07.02.2026 | RHPS | No | NA |
| | | | Y | 04.02.2026 | NJHPS | No | NA |
| 6 | NHPC | | Y | 02.02.2026 | - | Yes | Yes |
| 7 | NPCIL | | Y | 03.02.2026 | RAPS-A | No | NA |
| | | | Y | 05.02.2026 | RAPS-B | No | NA |
| | | | Y | 05.02.2026 | RAPS-C(5&6) | No | NA |
| | | | Y | 05.02.2026 | RAP -D (7 & 8) | No | NA |
| | | | Y | 04.02.2026 | NAPS-1&2 | No | NA |
| 8 | DTL | State Transmission Utility | Y | 09.02.2026 | | No | NA |
| 9 | HVPNL | | Y | 17.02.2026 | - | Yes | Yes |
| 10 | RRVPNL | | Y | 05.02.2026 | - | Yes | Yes |
| 11 | UPPTCL | | Y | 04.02.2026 | Meerut Circle | Yes | Yes |
| | | | Y | 04.02.2026 | Agra Circle | No | NA |
| | | | Y | 04.02.2026 | Jhansi Circle | No | NA |
| | | | Y | 04.02.2026 | Prayagraj Circle | Yes | Yes |
| | | | Y | 04.02.2026 | Gorakhpur Circle | Yes | Yes |
| | | | Y | 04.02.2026 | Lucknow Circle | No | NA |
| 12 | PTCUL | | Y | 07.02.2026 | Kumaon | No | NA |
| 13 | PSTCL | | Y | 06.02.2026 | | Yes | Yes |
| 14 | HPPTCL | | Y | 04.02.2026 | - | No | NA |
| 15 | JKPTCL | UT | Y | 05.02.2026 | Jammu | No | NA |
| | | UT | Y | 05.02.2026 | Kashmir | No | NA |
| 16 | Chandigarh Power Distribution Ltd | RPSG Group | Y | 09.02.2026 | 220 Kv Kishangarh | No | NA |
| 17 | IPGCL | State Generating Company | Y | 06.02.2026 | PPS-I | No | NA |
| | | | Y | 06.02.2026 | PPS-III, Bawana | No | NA |
| 18 | HPGCL | | Y | 05.02.2026 | PTPS, Panipat | No | NA |
| | | | Y | 05.02.2026 | DCRTPP, Yamunanagar | No | NA |
| | | | Y | 05.02.2026 | RGTPP (Khedar) | No | NA |
| 19 | RRVUNL | | Y | 05.02.2026 | KTPS | No | NA |
| | | | Y | 05.02.2026 | kATPP, Jhalawar | No | NA |
| | | | Y | 05.02.2026 | CSCTPP Chhabra | No | NA |
| | | | Y | 05.02.2026 | RGTPP, Ramgarh | No | NA |
| | | | Y | 02.02.2026 | Ctpp,Chhabra | No | NA |
| | | | Y | 05.02.2026 | DCCPP, Dholpur | No | NA |
| | | | Y | 05.02.2026 | STPS Suratgarh | No | NA |
| | | | Y | 05.02.2026 | SSCTPS Suratgarh | No | NA |
| 18 | UPRVUNL | | Y | 07.02.2026 | Parichha B (220 kV) | No | NA |
| | | | Y | 04.02.2026 | Parichha C (400 kV) | No | NA |
| | | | Y | 03.02.2026 | DTPS Anpara | No | NA |
| | | | Y | 07.02.2026 | Obra A & B | No | NA |
| | | | Y | 07.02.2026 | Obra C | No | NA |
| | | | Y | 07.02.2026 | Harduaganj 220 kV | No | NA |
| | | | Y | 10.02.2026 | Harduaganj 400 kV | No | NA |
| | | | Y | 07.02.2026 | Anpara-A&B | No | NA |
| | | | Y | 07.02.2026 | Panki TPS | No | NA |
| | | | Y | 10.02.2026 | Jawaharpur | No | NA |
| | NUPPL | | Y | 06.02.2026 | Ghatampur 765 kV | No | NA |
| 19 | UJVNL | | Y | 03.02.2026 | Dharasu | No | NA |
| | | | Y | 03.02.2026 | Tiloth | No | NA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Y | 10.02.2026 | Khodri | No | NA |
| | | | Y | 10.02.2026 | Chibro | No | NA |
| | | | Y | 10.02.2026 | Vyasi | No | NA |
| 20 | HPPCL | | Y | 06.03.2026 | Kashang HEP | No | NA |
| | | | Y | 06.03.2026 | Sawara Kuddu | No | NA |
| | | | Y | 06.03.2026 | Sainj | No | NA |
| 21 | PSPCL | State Generating Company & State owned Distribution Company | Y | 02.02.2026 | RSD | No | NA |
| | | | Y | 09.02.2026 | GGSTPS, Rupnagar | No | NA |
| | | | Y | 02.02.2026 | GVK Power Goindwal Shahib Ltd. | No | NA |
| | | | Y | 05.02.2026 | GHSTPS, Lehra Mohabbat | No | NA |
| 22 | HPSEBL | Distribution company having Transmission | Y | 06.02.2026 | Hamirpur Circle | No | NA |
| | | | Y | 07.02.2026 | Shimla Circle | No | NA |
| 23 | Prayagraj Power Generation Co. Ltd. | | Y | 07.02.2026 | | Yes | No |
| 24 | Aravali Power Company Pvt. Ltd | | Y | 10.02.2026 | | No | NA |
| 25 | Apraava Energy Private Limited | | Y | 10.02.2026 | | No | NA |
| 26 | Talwandi Sabo Power Ltd. | | Y | 03.02.2026 | | No | NA |
| 27 | Nabha Power Limited | | Y | 02.02.2026 | | No | NA |
| 28 | MEIL Anpara Energy Ltd (Anpara-C) | | Y | 04.02.2026 | | Yes | Yes |
| 29 | Rosa Power Supply Company Ltd | | Y | 03.02.2026 | | No | NA |
| 30 | Lalitpur Power Generation Company Ltd | | Y | 05.02.2026 | | No | NA |
| 31 | MEJA Urja Nigam Ltd. | | | | | | |
| 32 | Adani Power Rajasthan Limited | | Y | 05.02.2026 | | No | NA |
| 33 | JSW Energy Ltd. (KWHEP) | | Y | 03.02.2026 | | No | NA |
| | | | | | | | |
| | **ISTS Transmission Utilities** | | | | | | |
| 34 | INDIGRID | | | | | | |
| 35 | ADHPL | | Y | 06.02.2026 | | No | NA |
| 36 | Adani Transmission Limited | AESL | Y | 17.02.2026 | | Yes | Yes |
| 37 | Bikaner Khetri Transmission Limited | | Y | 17.02.2026 | | Yes | Yes |
| 38 | Fatehgarh Bhadla Transmission Limited | | Y | 17.02.2026 | | No | NA |
| 39 | Kishtwar Transmission Limited | RESONIA | | | | | |
| | | | | | | | |
| | **State Utilities** | | | | | | |
| | **Uttar Pradesh** | | | | | | |
| 40 | Vishnuprayag Hydro Electric Plant (J.P.) | | Y | 02.02.2026 | | No | NA |
| 41 | Alaknanda Hydro Electric Plant (GVK) | | Y | 05.02.2026 | | No | NA |
| 42 | Khara Power House (Khara) | | Y | 03.02.2026 | | No | NA |
| 43 | WUPPTCL | MEIL | Y | 05.02.2026 | | No | NA |
| 44 | SEUPPTCL | Resurgent Power | Y | 07.02.2026 | | No | NA |
| 45 | GTL | **AESL** | Y | 17.02.2026 | | No | NA |
| 46 | OCBTL | **AESL** | Y | 17.02.2026 | | No | NA |
| | | | | | | | |
| | **Rajasthan** | | | | | | |
| 47 | Barsingsar Plant | **NLC** | Y | 06.02.2026 | | No | NA |
| 48 | Rajwest Plant | **JSW** | Y | 06.02.2026 | | No | NA |
| 49 | ATSCL | **AESL** | Y | 17.02.2026 | | No | NA |
| 50 | HPTSL | **AESL** | Y | 17.02.2026 | | No | NA |
| 51 | STSL | **AESL** | Y | 17.02.2026 | | Yes | Yes |
| 52 | MTSCL | **AESL** | Y | 17.02.2026 | | No | NA |
| | **RE Utilities** | | | | | | |
| 53 | ABC Renewable Pvt. Ltd | ABC R Rj01 | Y | 18.02.2026 | | No | NA |
| 54 | ACME Heeragarh powertech Pvt. Ltd | **ACME** | Y | 05.02.2026 | | Yes | No |
| 55 | ACME Phalodi | **ACME** | Y | 05.02.2026 | | No | NA |
| 56 | ACME Deogarh | **ACME** | | | | | |
| 57 | ACME Raisar | **ACME** | | | | | |
| 58 | ACME Dhaulpur | **ACME** | | | | | |
| 59 | ACME Sikar | **ACME** | Y | 05.02.2026 | | No | NA |
| 60 | ACME Chittorgarh Solar Energy Pvt Ltd (Ayana) | **AYANA** | | | | | |
| 61 | AHEJOL-Hybrid-1 Madhopura | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 62 | AHEJ3L - Hybrid-2B 300MW | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 63 | AHEJFL(AEML_250) | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 64 | AHEJ4L(AEML-350) | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 65 | ASEJ2PL(Hapasar 300MW) SPC11PL | ADANI GREEN | Y | 05.02.2026 | | No | NA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 66 | Adani Renewable Energy (RJ) Limited Rawra 200 | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 67 | Adani Solar Energy Four Limited SECI 50 | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 68 | Adani Solar Energy Jodhpur Two Limited Merchant 50 | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 69 | ASEJ05PL (RJ200) | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 70 | ASERJ2PL - Phalodi 150 MW | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 71 | ASERJ01PL-Pokhran 300 MW (SB energy six) | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 72 | AGE25L(Badi Sid) | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 73 | Bhadla park - South block | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 74 | AGE24L (Bhimsar) | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 75 | AHEJ2L - Hybrid-2A 300MW | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 76 | ASERJ2PL - Devikot 180 MW | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 77 | ASEJOPL-Hybrid 450 MW | ADANI GREEN | Y | 05.02.2026 | | No | NA |
| 78 | Altra Xergi Pvt. Ltd. | | Y | 05.02.2026 | | No | NA |
| 79 | XL Xergi Power Pvt. Ltd. | | Y | 06.04.2026 | | NO | NA |
| 80 | AMP Energy Green Four Pvt. Ltd. | AMPIN ENERGY | Y | 05.02.2026 | | No | NA |
| 81 | AMP Energy Green Five Pvt. Ltd. | AMPIN ENERGY | | | | | |
| 82 | AMP Energy Green Six Pvt. Ltd. | AMPIN ENERGY | | | | | |
| 83 | Amplus Ages Private Limited | GENTARI | Y | 02.02.2026 | | No | NA |
| 84 | Avaada RJHN_240MW | AVAADA | Y | 05.02.2026 | | No | NA |
| 85 | Avaada sunce energy Pvt limited | | | | | | |
| 86 | Avaada Sustainable RJ Project Pvt. Ltd. | | | | | | |
| 87 | Avaada Sunrays Pvt. Ltd. | | Y | 05.02.2026 | | No | NA |
| 88 | Ayana Renewable Power Three Private Limited | | Y | 02.03.2026 | | No | NA |
| 89 | Ayaana Renewable Power One Pvt. Ltd. | | Y | 02.03.2026 | | No | NA |
| 90 | Azure Power Forty One Pvt limited | | | | | | |
| 91 | Azure Power Forty Three Pvt. Ltd._RSS | | | | | | |
| 92 | Azure Maple Pvt. Ltd. | | | | | | |
| 93 | AZURE POWER INDIA Pvt. Ltd., Bhadla | | | | | | |
| 94 | Azure Power Thirty Four Pvt. Ltd. | | | | | | |
| 95 | Clean Solar Power (Jodhpur) Pvt. Ltd. | Hero Future Energies | Y | 02.02.2026 | | No | NA |
| 96 | Eden Renewable Cite Private Limited | | Y | 23.03.2026 | | NO | NA |
| 97 | Grian Energy private limited | GENTARI | Y | 02.02.2026 | | No | NA |
| 97 | Juna Renewable Energy Pvt. Ltd. | | Y | 18.03.2026 | | No | NA |
| 98 | Mahindra Renewable Private Limited | | | | | | |
| 99 | Mega Surya Urja Pvt. Ltd. (MSUPL) | | Y | 13.02.2026 | | No | NA |
| 100 | NTPC Devikot Solar plant-1 | NGEL | Y | 05.02.2026 | | No | NA |
| 101 | NTPC Devikot Solar plant-2 | | Y | 05.02.2026 | | No | NA |
| 102 | SKB NTPC -1 (250MW) | NGEL | Y | 05.02.2026 | | No | NA |
| 103 | SKB NTPC-2 (300MW) | | Y | 05.02.2026 | | No | NA |
| 104 | NTPC Nokhra_300MW | | Y | 05.02.2026 | | No | NA |
| 105 | NTPC Fatehgarh 296MW | | Y | 05.02.2026 | | No | NA |
| 106 | One Volt energy Pvt. Ltd. | GENTARI | Y | 02.02.2026 | | No | NA |
| 107 | ReNew Solar Urja Private Limited | IndiGrid | Y | 23.03.2026 | | NO | NA |
| 108 | ReNew Solar Energy (Jharkhand Three) Private Limited | | Y | 04.02.2026 | | No | NA |
| 109 | Neemba Renew Surya Vihan Pvt. Ltd. | | Y | 04.02.2026 | | No | NA |
| 110 | Renew Sun Bright Pvt. Ltd. (RSBPL) | | | | | | |
| 111 | Renew Surya Partap Pvt. Ltd. | | Y | 04.02.2026 | | No | NA |
| 112 | Renew Surya jyoti Pvt. Ltd. | ReNew | Y | 04.02.2026 | | No | NA |
| 113 | Renew Surya Ravi Pvt. Ltd. | | Y | 04.02.2026 | | No | NA |
| 114 | Renew Surya Roshni Pvt. Ltd. | | Y | 04.02.2026 | | No | NA |
| 115 | Renew Surya Vihan Pvt. Ltd. | | Y | 04.02.2026 | | No | NA |
| 116 | Renew Solar Photovoltaic Pvt Ltd | | Y | 04.02.2026 | | No | NA |
| 117 | Renew Hans Urja Pvt Ltd. | | Y | 04.02.2026 | | No | NA |
| 118 | RENEW SOLAR POWER Pvt. Ltd. Bikaner | | Y | 04.02.2026 | | No | NA |
| 119 | ReNew Dinkar Urja Pvt. Ltd. | | Y | 04.02.2026 | | No | NA |
| 120 | Renew Surya Ayaan Pvt. Ltd. | IndiGrid | Y | 23.03.2026 | | NO | NA |
| 121 | Rising Sun Energy-K Pvt. Ltd. | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 122 | Serentica Renewables India 4 & 5 Private Limited | Serentica | Y | 02.02.2026 | | No | NA |
| 123 | Khidrat Renewable energy Pvt ltd. | | Y | 06.02.2026 | | No | NA |
| 124 | Solzen Urja Private Limited | Sekura | Y | 06.02.2026 | | No | NA |
| 125 | Tata Power Green Energy Ltd. (TPGEL) | TATA POWER | Y | 02.02.2026 | | No | NA |
| 126 | Tata Power Renewable Energy Ltd. (TPREL) | | Y | 02.02.2026 | | No | NA |
| 127 | Banderwala Solar Plant TP Surya Ltd. | | Y | 02.02.2026 | | No | NA |
| 128 | Thar Surya Pvt. Ltd. | | | | | | |
| 129 | TRANSITION ENERGY SERVICES PRIVATE LIMITED | | | | | | |
| 130 | Transition Green Energy Private Limited | | | | | | |
| 131 | Transition Sustainable Energy Services Private Limited | | | | | | |
| 132 | GSPL_BHDL2 (Gorbea Solar Pvt Ltd) | Zelestra | Y | 06.02.2026 | | No | NA |
| 136 | Prerak Greentech Pvt Limited | | Y | 12.02.2026 | | No | NA |
| 137 | Megasolis Renewables Pvt Ltd(MSRPL) | | Y | 13.02.2026 | | No | NA |

| Status of perfomance indices reporting of February 2026 (Last date of submission 07.03.2026) | | | | | | | |
|---|---|---|---|---|---|---|---|
| **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 | Y | 07.03.2026 | NR-1 | NO | NA |
| | | | Y | 09.03.2026 | NR-2 | NO | NA |
| | | | Y | 03.03.2026 | NR-3 | NO | NA |
| 2 | NTPC | Central Generating Company | Y | 11.03.2026 | Anta (Gas& Solar) | Yes | Yes |
| | | | Y | 10.03.2026 | Auriya (Thermal & Solar) | NO | NA |
| | | | Y | 06.03.2026 | Dadri (Gas) | NO | NA |
| | | | Y | 12.03.2026 | Dadri (Thermal & Solar) | NO | NA |
| | | | Y | 12.03.2026 | Koldam | NO | NA |
| | | | Y | 12.03.2026 | Rihand | NO | NA |
| | | | Y | 12.03.2026 | Singrauli (Thermal & Solar) | NO | NA |
| | | | Y | 11.03.2026 | Unchahar (Thermal & Solar) | NO | NA |
| | | | Y | 12.03.2026 | Tanda | NO | NA |
| | | | Y | 12.03.2026 | Faridabad (Gas) | NO | NA |
| 3 | BBMB | | Y | 12.03.2026 | | NO | NA |
| 4 | THDC | | Y | 02.03.2026 | Tehri | NO | NA |
| | | | Y | 06.03.2026 | Tehri PSP | NO | NA |
| | | | Y | 05.03.2026 | Koteshwar | NO | NA |
| | | | | | Khurja | | |
| 5 | SJVN | | Y | 02.03.2026 | RHPS | NO | NA |
| | | | Y | 03.03.2026 | NJHPS | NO | NA |
| 6 | NHPC | | Y | 02.03.2026 | - | Yes | Yes |
| 7 | NPCIL | | Y | 02.03.2026 | RAPS-A | NO | NA |
| | | | Y | 05.03.2026 | RAPS-B | NO | NA |
| | | | Y | 05.03.2026 | RAPS-C(5&6) | NO | NA |
| | | | Y | 03.03.2026 | RAP -D (7 & 8) | NO | NA |
| | | | Y | 07.03.2026 | NAPS-1&2 | NO | NA |
| 8 | DTL | State Transmission Utility | Y | 06.03.2026 | | NO | NA |
| 9 | HVPNL | | Y | 10.03.2026 | - | Yes | Yes |
| 10 | RRVPNL | | Y | 06.03.2026 | - | Yes | Yes |
| 11 | UPPTCL | | Y | 05.03.2026 | Meerut Circle | Yes | Yes |
| | | | Y | 07.03.2026 | Agra Circle | Yes | Yes |
| | | | Y | 06.03.2026 | Jhansi Circle | NO | NA |
| | | | Y | 07.03.2026 | Prayagraj Circle | NO | NA |
| | | | Y | 07.03.2026 | Gorakhpur Circle | Yes | Yes |
| | | | Y | 07.03.2026 | Lucknow Circle | Yes | Yes |
| 12 | PTCUL | | Y | 06.03.2026 | Kumaon | NO | NA |
| 13 | PSTCL | | Y | 09.03.2026 | | Yes | Yes |
| 14 | HPPTCL | | Y | 03.03.2026 | - | NO | NA |
| 15 | JKPTCL | UT | Y | 05.03.2026 | Jammu | NO | NA |
| | | UT | Y | 05.03.2026 | Kashmir | NO | NA |
| 16 | Chandigarh Power Distribution Ltd | RPSG Group | Y | 10.03.2026 | 220 Kv Kishangarh | NO | NA |
| 17 | IPGCL | State Generating Company | Y | 06.03.2026 | PPS-I | NO | NA |
| | | | Y | 06.03.2026 | PPS-III, Bawana | NO | NA |
| 18 | HPGCL | | Y | 05.03.2026 | PTPS, Panipat | NO | NA |
| | | | Y | 05.03.2026 | DCRTPP, Yamunanagar | NO | NA |
| | | | Y | 05.03.2026 | RGTPP (Khedar) | NO | NA |
| 19 | RRVUNL | | Y | 06.03.2026 | KTPS | NO | NA |
| | | | Y | 06.03.2026 | kATPP, Jhalawar | NO | NA |
| | | | Y | 06.03.2026 | CSCTPP Chhabra | NO | NA |
| | | | Y | 04.03.2026 | RGTPP, Ramgarh | NO | NA |
| | | | Y | 04.03.2026 | Ctpp,Chhabra | NO | NA |
| | | | Y | 06.03.2026 | DCCPP, Dholpur | NO | NA |
| | | | Y | 06.03.2026 | STPS Suratgarh | NO | NA |
| | | | Y | 06.03.2026 | SSCTPS Suratgarh | NO | NA |
| 18 | UPRVUNL | | Y | 18.03.2026 | Parichha B (220 kV) | NO | NA |
| | | | Y | 18.03.2026 | Parichha C (400 kV) | Yes | Yes |
| | | | Y | 06.03.2026 | DTPS Anpara | NO | NA |
| | | | Y | 07.03.2026 | Obra A & B | NO | NA |
| | | | Y | 07.03.2026 | Obra C | NO | NA |
| | | | Y | 10.03.2026 | Harduaganj 220 kV | NO | NA |
| | | | Y | 17.03.2026 | Harduaganj 400 kV | NO | NA |
| | | | Y | 13.03.2026 | Anpara-A&B | NO | NA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | Y | 10.03.2026 | Panki TPS | NO | NA |
| | | | Y | 07.03.2026 | Jawaharpur | NO | NA |
| | NUPPL | | Y | 17.03.2026 | Ghatampur 765 kV | NO | NA |
| 19 | UJVNL | | Y | 02.03.2026 | Dharasu | NO | NA |
| | | | Y | 02.03.2026 | Tiloth | NO | NA |
| | | | Y | 02.03.2026 | Khodri | NO | NA |
| | | | Y | 02.03.2026 | Chibro | NO | NA |
| | | | Y | 02.03.2026 | Vyasi | NO | NA |
| 20 | HPPCL | | | | Kashang HEP | | |
| | | | | | Sawara Kuddu | | |
| | | | | | Sainj | | |
| 21 | PSPCL | State Generating Company & State owned Distribution Company | Y | 02.03.2026 | RSD | NO | NA |
| | | | Y | 12.03.2026 | GGSTPS, Rupnagar | Yes | Yes |
| | | | Y | 02.03.2026 | GVK Power Goindwal Shahib Ltd. | NO | NA |
| | | | Y | 05.03.2026 | GHSTPS, Lehra Mohabbat | NO | NA |
| 22 | HPSEBL | Distribution company having Transmission | Y | 06.03.2026 | Hamirpur Circle | NO | NA |
| | | | Y | 05.03.2026 | Shimla Circle | NO | NA |
| 23 | Prayagraj Power Generation Co. Ltd. | | Y | 05.03.2026 | | Yes | Yes |
| 24 | Aravali Power Company Pvt. Ltd | | Y | 11.03.2026 | | NO | NA |
| 25 | Apraava Energy Private Limited | | Y | 01.04.2026 | | NO | NA |
| 26 | Talwandi Sabo Power Ltd. | | Y | 02.03.2026 | | NO | NA |
| 27 | Nabha Power Limited | | Y | 01.03.2026 | | NO | NA |
| 28 | MEIL Anpara Energy Ltd (Anpara-C) | | Y | 10.03.2026 | | NO | NA |
| 29 | Rosa Power Supply Company Ltd | | Y | 07.03.2026 | | NO | NA |
| 30 | Lalitpur Power Generation Company Ltd | | Y | 09.03.2026 | | NO | NA |
| 31 | MEJA Urja Nigam Ltd. | | Y | 12.03.2026 | | NO | NA |
| 32 | Adani Power Rajasthan Limited | | Y | 05.03.2026 | | NO | NA |
| 33 | JSW Energy Ltd. (KWHEP) | | Y | 10.03.2026 | | NO | NA |
| | | | | | | | |
| | **ISTS Transmission Utilities** | | | | | | |
| 34 | INDIGRID | | Y | 12.03.2026 | | NO | NA |
| 35 | ADHPL | | Y | 07.03.2026 | | NO | NA |
| 36 | Adani Transmission Limited | AESL | Y | 09.03.2026 | | Yes | Yes |
| 37 | Bikaner Khetri Transmission Limited | | Y | 09.03.2026 | | Yes | Yes |
| 38 | Fatehgarh Bhadla Transmission Limited | | Y | 09.03.2026 | | NO | NA |
| 39 | Kishtwar Transmission Limited | RESONIA | | | | | |
| | | | | | | | |
| | **State Utilities** | | | | | | |
| | **Uttar Pradesh** | | | | | | |
| 40 | Vishnuprayag Hydro Electric Plant (J.P.) | | Y | 06.03.2026 | | NO | NA |
| 41 | Alaknanda Hydro Electric Plant (GVK) | | Y | 03.03.2026 | | NO | NA |
| 42 | Khara Power House (Khara) | | Y | 07.03.2026 | | NO | NA |
| 43 | WUPPTCL | MEIL | Y | 06.03.2026 | | NO | NA |
| 44 | SEUPPTCL | Resurgent Power | Y | 16.03.2026 | | NO | NA |
| 45 | GTL | **AESL** | Y | 09.03.2026 | | NO | NA |
| 46 | OCBTL | **AESL** | Y | 09.03.2026 | | NO | NA |
| | | | | | | | |
| | **Rajasthan** | | | | | | |
| 47 | Barsingsar Plant | **NLC** | Y | 07.03.2026 | | NO | NA |
| 48 | Rajwest Plant | **JSW** | Y | 07.03.2026 | | NO | NA |
| 49 | ATSCL | **AESL** | Y | 09.03.2026 | | NO | NA |
| 50 | HPTSL | **AESL** | Y | 09.03.2026 | | NO | NA |
| 51 | STSL | **AESL** | Y | 09.03.2026 | | NO | NA |
| 52 | MTSCL | **AESL** | Y | 09.03.2026 | | NO | NA |
| | **RE Utilities** | | | | | | |
| 53 | ABC Renewable Pvt. Ltd | ABC R Rj01 | Y | 11.03.2026 | | NO | NA |
| 54 | ABC Renewable Energy (RJ-02) Pvt. Ltd. | | | | | | |
| 55 | ACME Heeragarh powertech Pvt. Ltd | **ACME** | Y | 05.03.2026 | | Yes | Yes |
| 56 | ACME Phalodi | **ACME** | Y | 05.03.2026 | | Yes | Yes |
| 57 | ACME Deogarh | **ACME** | | | | | |
| 58 | ACME Raisar | **ACME** | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 59 | ACME Dhaulpur | **ACME** | | | | | |
| 60 | ACME Sikar | **ACME** | Y | 05.03.2026 | | Yes | No |
| 61 | ACME Chittorgarh Solar Energy Pvt Ltd (Ayana) | **AYANA** | | | | | |
| 62 | AHEJOL-Hybrid-1 Madhopura | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 63 | AHEJ3L - Hybrid-2B 300MW | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 64 | AHEJFL(AEML_250) | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 65 | AHEJ4L(AEML-350) | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 66 | ASEJ2PL(Hapasar 300MW) SPC11PL | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 67 | Adani Renewable Energy (RJ) Limited Rawra 200 | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 68 | Adani Solar Energy Four Limited SECI 50 | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 69 | Adani Solar Energy Jodhpur Two Limited Merchant 50 | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 70 | ASEJ05PL (RJ200) | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 71 | ASERJ2PL - Phalodi 150 MW | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 72 | ASERJ01PL-Pokhran 300 MW (SB energy six) | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 73 | AGE25L(Badi Sid) | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 74 | Bhadla park - South block | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 75 | AGE24L (Bhimsar) | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 76 | AHEJ2L - Hybrid-2A 300MW | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 77 | ASERJ2PL - Devikot 180 MW | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 78 | ASEJOPL-Hybrid 450 MW | ADANI GREEN | Y | 09.03.2026 | | NO | NA |
| 79 | Ambuja Cements Limited_300MW | ADANI GREEN | | | | | |
| 80 | Altra Xergi Pvt. Ltd. | | Y | 06.03.2026 | | NO | NA |
| 81 | XL Xergi Power Pvt. Ltd. | | Y | 06.04.2026 | | NO | NA |
| 82 | AMP Energy Green Four Pvt. Ltd. | AMPIN ENERGY | | | | | |
| 83 | AMP Energy Green Five Pvt. Ltd. | AMPIN ENERGY | | | | | |
| 84 | AMP Energy Green Six Pvt. Ltd. | AMPIN ENERGY | | | | | |
| 85 | Amplus Ages Private Limited | GENTARI | Y | 06.03.2026 | | NO | NA |
| 86 | Avaada RJHN_240MW | AVAADA | Y | 11.03.2026 | | NO | NA |
| 87 | Avaada sunce energy Pvt limited | | | | | | |
| 88 | Avaada Sustainable RJ Project Pvt. Ltd. | | | | | | |
| 89 | Avaada Sunrays Pvt. Ltd. | | Y | 11.03.2026 | | NO | NA |
| 90 | Ayana Renewable Power Three Private Limited | | Y | 02.03.2026 | | NO | NA |
| 91 | Ayaana Renewable Power One Pvt. Ltd. | | Y | 02.03.2026 | | NO | NA |
| 92 | Azure Power Forty One Pvt limited | | Y | 13.03.2026 | | NO | NA |
| 93 | Azure Power Forty Three Pvt. Ltd._RSS | | | | | | |
| 94 | Azure Power Forty Three Pvt. Ltd._PSS | | | | | | |
| 95 | Azure Maple Pvt. Ltd. | | | | | | |
| 96 | AZURE POWER INDIA Pvt. Ltd., Bhadla | | | | | | |
| 97 | Azure Power Thirty Four Pvt. Ltd. | | | | | | |
| 98 | Clean Solar Power (Jodhpur) Pvt. Ltd. | Hero Future Energies | Y | 02.03.2026 | | NO | NA |
| 99 | Eden Renewable Cite Private Limited | | Y | 23.03.2026 | | NO | NA |
| 100 | Eden Renewable Alma Pvt. Ltd. | | | | | | |
| 101 | Energizent Power Private Limited | | | | | | |
| 102 | Grian Energy private limited | GENTARI | Y | 06.03.2026 | | NO | NA |
| 103 | Juna Renewable Energy Pvt. Ltd. | | Y | 18.03.2026 | | NO | NA |
| 104 | Juniper Green Cosmic Private Limited | | | | | | |
| 105 | Juniper Nirjara Energy Private Limited | | | | | | |
| 106 | Karinsar Solar Plant NHPC Ltd | NHPC | Y | 02.03.2026 | | NO | NA |
| 107 | Megasolis Renewables Pvt Ltd(MSRPL) | | | | | | |
| 108 | Mega Surya Urja Pvt. Ltd. (MSUPL) | | Y | 02.03.2026 | | NO | NA |
| 109 | NTPC Devikot Solar plant-1 | NGEL | Y | 06.03.2026 | | NO | NA |
| 110 | NTPC Devikot Solar plant-2 | | Y | 06.03.2026 | | NO | NA |
| 111 | SKB NTPC -1 (250MW) | NGEL | Y | 06.03.2026 | | NO | NA |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 112 | SKB NTPC-2 (300MW) | | Y | 06.03.2026 | | NO | NA |
| 113 | NTPC Nokhra_300MW | | Y | 06.03.2026 | | NO | NA |
| 114 | NTPC Fatehgarh 296MW | | Y | 06.03.2026 | | NO | NA |
| 115 | One Volt energy Pvt. Ltd. | GENTARI | Y | 06.03.2026 | | NO | NA |
| 116 | ReNew Solar Urja Private Limited | IndiGrid | Y | 23.03.2026 | | NO | NA |
| 117 | ReNew Solar Energy (Jharkhand Three) Private Limited | ReNew | Y | 05.03.2026 | | NO | NA |
| 118 | Neemba Renew Surya Vihan Pvt. Ltd. | | Y | 05.03.2026 | | NO | NA |
| 119 | Renew Surya Partap Pvt. Ltd. | | Y | 05.03.2026 | | NO | NA |
| 120 | Renew Surya jyoti Pvt. Ltd. | | Y | 05.03.2026 | | NO | NA |
| 121 | Renew Surya Ravi Pvt. Ltd. | | Y | 05.03.2026 | | NO | NA |
| 122 | Renew Surya Roshni Pvt. Ltd. | | Y | 05.03.2026 | | NO | NA |
| 123 | Renew Surya Vihan Pvt. Ltd. | | Y | 05.03.2026 | | NO | NA |
| 124 | Renew Solar Photovoltaic Pvt Ltd | | Y | 05.03.2026 | | NO | NA |
| 125 | Renew Hans Urja Pvt Ltd. | | Y | 05.03.2026 | | NO | NA |
| 126 | RENEW SOLAR POWER Pvt. Ltd. Bikaner | | Y | 05.03.2026 | | NO | NA |
| 127 | ReNew Dinkar Urja Pvt. Ltd. | | Y | 05.03.2026 | | NO | NA |
| 128 | Renew Sun Bright Pvt. Ltd. (RSBPL) | Sembcorp | | | | | |
| 129 | Renew Surya Ayaan Pvt. Ltd. | IndiGrid | Y | 23.03.2026 | | NO | NA |
| 130 | Rising Sun Energy-K Pvt. Ltd. | | | | | | |
| 131 | Serentica Renewables India 4 & 5 Private Limited | Serentica | Y | 03.03.2026 | | NO | NA |
| 132 | Khidrat Renewable energy Pvt ltd. | | Y | 07.03.2026 | | NO | NA |
| 133 | SJVN Green Energy Limited | | | | | | |
| 134 | Solzen Urja Private Limited | Sekura | Y | 09.03.2026 | | NO | NA |
| 135 | Tata Power Green Energy Ltd. (TPGEL) | TATA POWER | Y | 03.03.2026 | | NO | NA |
| 136 | Tata Power Renewable Energy Ltd. (TPREL) | | Y | 03.03.2026 | | NO | NA |
| 137 | Banderwala Solar Plant TP Surya Ltd. | | Y | 03.03.2026 | | NO | NA |
| 138 | Thar Surya Pvt. Ltd. | | | | | | |
| 139 | Adept Renewable Technologies Pvt. Ltd. | | | | | | |
| 140 | Transition Cleantech Services Private Limited | | | | | | |
| 141 | Transition Energy Services Private Limited | | | | | | |
| 142 | Transition Green Energy Private Limited | | | | | | |
| 143 | Transition Sustainable Energy Services Private Limited | | | | | | |
| 144 | Transition Sustainable Energy Services One Pvt Ltd | | | | | | |
| 145 | GSPL_BHDL2 (Gorbea Solar Pvt Ltd) | Zelestra | Y | 05.03.2026 | | NO | NA |
| 146 | Prerak Greentech Pvt Limited | | Y | 17.03.2026 | | NO | NA |

**Reporting of performance indices for protection System**
**(for element connected at 220kV and above)**
**Name of Utility : ACME Heergarh- MSEDCL2 Badisidd - 300 MW**
**Month : January-26**

| 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 | 300 MW MSEDCL2 Badisidd | 220 kV Badisidd -Bhadla-2 | 1 | 0 | 1 | 1 | 1 | 0.5 | 0.5 | **25-Jan-2026:** Female contact of 89T Isolator of PTR 2 has melted. Therefore we have used 89C bypass Isolator. During charging the Remote end relay tripped due to DT received. No fault was present at our end and we are suspecting malfunctioning. Which is under review. |
| | | 150 MVA PTR-1 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |
| | | 150 MVA PTR-2 | 1 | 0 | 0 | 0 | 1 | 1.0 | 1 | **25-Jan-2026: Manual Shutdown of Transformer.** 89T isolator of ICT02 (B-Phase) busbar melted due to overheat therefore isolator arching horn also melted so the total length of isolator shorted & start the burning of 89T isolator in B Phase after that jumper malted from clamp so manually trip the ICT02 |
| | | Bus coupler Bay | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |
| | | 220 kV Main BUS -1 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |
| | | 220 kV Main BUS -2 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |

| | | |
|---|---|---|
| PERFORMANCES INDICES FORM ACME Heergarh- MSEDCL2 Badisidd - 300 MW | **Dependability Index (D) D=(Nc/(Nc+Nf))** | 0 |
| | **Security Index (S) S=(Nc/(Nc+Nu))** | 0 |
| | **Reliability Index ( R ) R=(Nc/(Nc+Ni))** | 0 |

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

Nc - Number of correct operations at internal power system Faults.
Nf - Number of Failures to operations at internal power system Faults.
Nu - Number of unwanted operations.
Ni - Number of incorrect operations, (Ni= Nf+Nu)

| S.No. | Substation | Element name | Date of tripping | Time of tripping | Categorization (F/U) F = Failures to operate at internal power system faults U = Unwanted operations | Reason for failures/Unwanted operation | Corrective action taken/ to be taken |
|---|---|---|---|---|---|---|---|
| 1 | 500KV Mahindragarh HVDC SS | 500kV Mundra - Mohindergarh HVDC Pole-2 | 15-Jan-26 | 5:05:00 | U | Bucchholz relay operated due to low oil level in the converter transformer conservator & wrong MOG indication | Oil topup done & faulty MOG indicator replaced, system is now healthy |
| 2 | 765KV Bikaner (PGCIL) SS | 765kV, 240MVAR Line Reactor-1 at Bikaner (PGCIL) | 20-Jan-26 | 6:59:00 | U | Line reactor tripped on earth fault during auto reclosure operation, due to incorrect timing of reactor earth fault protection | Earth fault protection of reactor (derived) revised to 1.2 sec for allowing AR |
| 3 | 400/220/132KV Sangod SS | 500 MVA ICT-1 | 23-Jan-26 | 12:30:00 | U | ICT-1 got tripped due to incorrect BCU logic of bay transfer | OEM (GE) is called for correction in logic during planned S/D in Mar-26 |

**Annexure-X**

**Format No.-PI-01**

**Reporting of performance indices for protection system**

**(for elements connected at 220 kV and above)**

**Name of Utility: HVPNL**

**Month: January, 2026**

| S.N. | Substation | Name of Line | Nc | Nf | Nu | Ni | Dependability Index (D=Nc/Nc+Nf) | Security Index (S=Nc/Nc+Nu) | Reliability Index (R=Nc/Nc+Ni) |
|---|---|---|---|---|---|---|---|---|---|
| **M&P Division Gurugram** | | | | | | | | | |
| 1 | 400KV Daultabad | 400KV Daultabad-Sec-72_PG Ckt-1 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 2 | 220KV Sec-65 GGN | 220KV Sec-65 to Kadarpur Ckt-2 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 3 | 220KV Palli | 220KV Palli-Kadarpur Ckt-1 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 4 | 400KV Dhanonda | 220/132KV 100MVA T-2 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 5 | 220KV Sec-72 Gurugram | 220KV Sec-72 to Sec-72_PG GGN Ckt-1 | **0** | **0** | **1** | **1** | **0** | **0** | **0** |
| 6 | 220KV Sec-72 Gurugram | 220KV Sec-72 to Sec-72_PG GGN Ckt-2 | **0** | **0** | **1** | **1** | **0** | **0** | **0** |
| 7 | 220KV Sec-72 Gurugram | 220KV Sec-72 to Sec-72_PG GGN Ckt-3 | **0** | **0** | **1** | **1** | **0** | **0** | **0** |
| 8 | 220KV Sec-72 Gurugram | 220KV Sec-72 to Sec-69 GGN Ckt-1 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 9 | 220KV Sec-69 Gurugram | 220KV Sec-69 Gurugram to Sohna Road Ckt-1 | **0** | **0** | **1** | **1** | **0** | **0** | **0** |
| 10 | 220KV Sec-65 Gurugram | 220KV Sec-65 Gurugram to Kadarpur Ckt-2 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 11 | 220KV LulaAhir | 220KV BBMB Dadri-LulaAhir line | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| | | | | | | | | | |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **M&P Division Dhulkote** | | | | | | | | | |
| 1 | 220 KV Tepla | 220 kV Abdullapur- Tepla Ckt-2 (05.01.2026) | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 2 | 220 KV Jorian | 220 kV Abdullapur- Jorian Ckt-2 (17.01.2026) | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 3 | 220 KV Raiwali | 220KV Panchkula-PG-Raiwali Ckt.-2(23.01.2026) | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 4 | 220 KV Pinjore | 220KV Panchkula-PG-Pinjore Ckt.-2(27.01.2026) | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| **M&P Division Rohtak** | | | | | | | | | |
| 1 | 220 kV Mohana | 220kV Sonipat_PG - Mohana Ckt.-1 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 2 | 220 kV Chajjpur | 220kV BBMB Sewah Panipat -Chajjpur CKT-2 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 3 | 220 kV Chajjpur | 220kV Chajjpur - BBMB Sewah Panipat Ckt.-1 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 4 | 220 kV Sampla | 220kV Sampla - Kabulpur line | **1** | **0** | **0** | **0** | **1** | **1** | **1** |
| 5 | 220 kV PTPS | 220kV BBMB Sewah - PTPS Ckt.-1 | **1** | **0** | **0** | **0** | **1** | **1** | **1** |

**Note: 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.

**Reason for Performance Indices less than Unity- January 2026 (HVPN)**

**Case-1** 220KV Sec-69 Gurugram to Sohna Road Ckt-1 on 11.01.2026

No. of Unwanted operation –1

Reason of unwanted operation – The fault occurred in the B-Ph of line due to electrocution of peacock. Logic of carrier send signal was not as per the Wiring done on the panel at Sohna road (Indigrid) end due to which it took 356 msec to clear the fault in the Zone II from Sec 69 end.

Corrective Action to be taken – Indigrid has been requested to correct wiring of Carrier signals at 400 kV Sohna Road (Indigrid) end for 220 kV Sohna Road-Sec 69 Ckts.

**Case-2** 220KV Sec-72 to Sec-72_PG GGN Ckt-1, 220KV Sec-72 to Sec-72_PG GGN Ckt-2 & 220KV Sec-72 to Sec-72_PG GGN Ckt-3 on 11.01.2026

No. of Unwanted operation –3

Reason of unwanted operation – Fault occurred due to low time setting on Sec-72 (PGCIL) Gurugram end.

Corrective Action taken – PGCIL has been requested to increase TMS setting as per time grading of lines

| S.No. | Substation | Element name | Total number of tripping | Nc | Nf | Nu | Ni | Dependability Index (D) | Security Index(S) | Reliability Index(R) |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 765kV/400 kV Anpara C | 765 kV Anpara C - Unnao Line | 1 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 2 | 765kV/400 kV Anpara C | 1000 MVA ICT#2 (765 kV/400 kV) | After routine testing of ICT#2 when it was charged on 26.11.2025 it got tripped on HV REF protection. Once DGA test conducted for the same, R Phase Acetylene C2H2 was 25 ppm. The same has been refered to OEM and its inspection has been planned on 30th Jan'26.Internal inspection carried out but nothing find out. Since at Anpara C TPP has 2 nos ICT 0f 1000 MVA & 2 Nos 765 KV Line, therefore no power evacuation issue. Now we are planning to charge it with close monitoring of C2H2 through frequent DGA. | | | | | | | |

## Reporting of Performance Indices for NHPC Power Stations In NR-Region
## Month-JANUARY '2026

| Sl No | Name of Utility | Name of PS | Elements (Line/ Unit) | From | | To | | Total Outage | Outage Reason | Nc | Nf | Nu | Ni | Dependability Index (D=Nc/(Nc+Nf)) | Security Index (S=Nc/(Nc+Nu)) | Reliability Index (R=Nc/(Nc+Ni)) | Reason for wrong operation | Action Taken |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | NHPC Ltd | Dulhasti | 400 KV Dulhasti-Kishtwar Line#1 | 3-Jan-26 | 16:34:00 | 3-Jan-26 | 17:32:00 | 0:58 | LBB protection operated due to initiation from Unit#2 | 1 | 0 | 1 | 1 | 1 | 0.5 | 0.5 | Auxiliary contact of Unit#2 master trip relay was stuck | Master Trip relay of Unit#2 replaced with spare one. |
| 2 | NHPC Ltd | Tanakpur | 132 KV Tanakpur-Mahendranagar Line#3 | 13-Jan-26 | 12:28:00 | 13-Jan-26 | 13:51:00 | 1:23 | Over Current Protection Operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 3 | NHPC Ltd | Parbati-II | 400 KV Parabati-II-Banala Line#1 | 14-Jan-26 | 12:47:00 | 14-Jan-26 | 15:27:00 | 2:40 | DT receive from remote end | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 4 | NHPC Ltd | Parbati-II | 400 KV Parabati-II-Sainj Line#2 | 14-Jan-26 | 12:47:00 | 14-Jan-26 | 17:33:00 | 4:46 | Line CB remained in closed condition | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 5 | NHPC Ltd | Tanakpur | 220 KV Tanakpur-CB Ganj Line#1 | 15-Jan-26 | 19:49:00 | 15-Jan-26 | 21:29:00 | 1:40 | Z4 protection operated | 1 | 0 | 1 | 1 | 1 | 0.5 | 0.5 | Malfunction of REL 650 Relay | Matter is taking up with Relay OEM |
| 6 | NHPC Ltd | Bairasuil | 220 KV Bairasuil-Pong Line#1 | 15-Jan-26 | 17:30:00 | 15-Jan-26 | 21:16:00 | 3:46 | Line CB remained in closed condition | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 7 | NHPC Ltd | Uri | 400 KV Uri-Amargarh Line#1 | 21-Jan-26 | 12:19:00 | 21-Jan-26 | 14:56:00 | 2:37 | DPR operated in Z1 at Y-N phase fault and sucessfully reclosed from Uri End.However due to persistent of fault, SOTF/ TOR protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 8 | NHPC Ltd | Bairasuil | 220 KV Bairasuil-Pong Line#1 | 22-Jan-26 | 22:49:00 | 23-Jan-26 | 6:59:00 | 8:10 | Over Voltage Stage-1 Protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 9 | NHPC Ltd | Bairasuil | 220 KV Bairasuil-Jessure Line#2 | 22-Jan-26 | 22:49:00 | 23-Jan-26 | 7:05:00 | 8:16 | Over Voltage Stage-1 Protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 10 | NHPC Ltd | Salal | 220 KV Salal-Jammu Line#1 | 22-Jan-26 | 22:50:00 | 23-Jan-26 | 1:10:00 | 2:20 | Over Voltage Stage-1 Protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 11 | NHPC Ltd | Sewa-II | 132 KV Sewa-II-Hiranagar Line#3 | 22-Jan-26 | 23:02:00 | 23-Jan-26 | 12:31:00 | 13:29 | Over Coltage Stage-1 protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 12 | NHPC Ltd | Sewa-II | 132 KV Sewa-II-Hiranagar Line#4 | 22-Jan-26 | 23:02:00 | 23-Jan-26 | 13:19:00 | 14:17 | Over Coltage Stage-1 protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 13 | NHPC Ltd | Uri | 400 KV Uri-Amargarh Line#2 | 22-Jan-26 | 22:20:00 | 23-Jan-26 | 6:08:00 | 7:48 | Over Voltage Stage-1 Protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 14 | NHPC Ltd | Uri | 400 KV Uri-Amargarh Line#1 | 22-Jan-26 | 23:02:00 | 23-Jan-26 | 1:19:00 | 2:17 | Direct Trip (DT) received from remote end | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |

(J. Paul)
SM (E)
02.02.26

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | NHPC Ltd | Uri | 400 KV Uri-Amargarh Line#1 | 23-Jan-26 | 6:53:00 | 23-Jan-26 | 9:21:00 | 2:28 | DPR operated in Z1 at R-N phase fault and sucessfully reclosed from Uri End.However within reclaim time again Z1 operated. | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 16 | NHPC Ltd | Uri | 400 KV Uri-Amargarh Line#2 | 23-Jan-26 | 7:17:00 | 26-Jan-26 | 16:36:00 | 81:19 | DPR operated in Z1 at B-N phase fault and sucessfully reclosed from Uri End.However due to persistent of fault, SOTF/ TOR protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 17 | NHPC Ltd | Uri | 400 KV Uri-Amargarh Line#1 | 23-Jan-26 | 12:43:00 | 23-Jan-26 | 17:55:00 | 5:12 | DPR operated in Z1 at R-N phase fault and sucessfully reclosed from Uri End.However within reclaim time again Z1 operated. | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 18 | NHPC Ltd | Uri-II | 400 KV Uri-II-Woogora Line#1 | 23-Jan-26 | 10:04:00 | 25-Jan-26 | 12:18:00 | 50:14 | DPR operated in Z1 at B-N phase fault and sucessfully reclosed from Uri End.However due to persistent of fault, SOTF/ TOR protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 19 | NHPC Ltd | Salal | 220 KV Salal-Jammu Line#1 | 23-Jan-26 | 4:53:00 | 23-Jan-26 | 6:58:00 | 2:05 | Over Voltage Stage-1 Protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 20 | NHPC Ltd | Tanakpur | 220 KV Tanakpur-Sitaraganj Line#2 | 27-Jan-26 | 23:59:07 | 28-Jan-26 | 3:00:00 | 3:00 | Over Voltage Stage-1 Protection operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| **No Line tripping has been observed from other Power Stations of NHPC of NR region for Month of January'2026** | | | | | | | | | | | | | | | | | | | | |

| Sr No | 0 | Outage date | Restoration date | Outage category | category | Details | Remarks | |
|---|---|---|---|---|---|---|---|---|
| NR240118 | 601547 | 400KV PARBATI2-BANALA LILO PORTION | 1/14/2026 12:46 | 1/14/2026 15:27 | OMSU | Line tripped on B-N fault due to fault in Indigrid portion of the Line. Fault data Banala: 5.4kM whereas POWERGRID portion is only 0.8kM from Banala (PG). Therefore, transient fault is only in INDIGRID portion of the Line.<br>For reference, following documents attached:<br>1. Banala (PG) end DR and Event<br>2. Relay snap showing transient fault distance as 5.4km from Banala (PG) | NC | |
| NR222002 | 601591 | 220KV BAIRASIUL-PONG | 1/15/2026 17:30 | 1/15/2026 21:16 | SBBU | Line tripped from Pong(BBMB) end only on operation of 220KV Busbar protection at Pong(BBMB) resulting in outage of all Lines connected to Bus . Line remain charged from Bairasuil(NHPC).<br>DR Pong showing Busbar opration and Email from BBMB regarding Busbar tripping is attached for reference. | NC | |
| NR222011 | 601592 | 220KV JESSORE-PONG | 1/15/2026 17:30 | 1/15/2026 20:40 | SBBU | Line tripped from Pong(BBMB) end only on operation of 220KV Busbar protection at Pong(BBMB) resulting in outage of all Lines connected to Bus . Line remain charged from Bairasuil(NHPC).<br>DR Pong showing Busbar opration and Email from BBMB regarding Busbar tripping is attached for reference. | NC | |
| NR240125 | 601791 | 400KV URI 1 - AMARGARH - I | 1/21/2026 12:19 | 1/21/2026 14:56 | OMSU | Line tripped on Y-G fault due to forest fire at LOC No 49-50. Fault Data Amargarh end: 45.5 kM, 3.5 kA.<br>Following documents has been attached for reference<br>1.GPS tagged tower Name plate photo<br>2.GPS tagged photo showing line tripping due to fire.<br>3.Amargarh end Relay fault location<br>4.Tower schedule and KMZ file. | NC | |
| NR240074 | 601793 | 400KV WAGOORA-NEW WANPOH-II | 1/21/2026 13:17 | 1/22/2026 14:10 | LPPT | Line tripped Y-B ph fault due to snapping of Y ph Conductor snapping at LOC No 302-303. Fault Data Wagoora end -50.91 kM, 3.194 kA and New wanpoh end -6.66 kM, 7 kA. | NC | |
| NR240125 | 601839 | 400KV URI 1 - AMARGARH - I | 1/22/2026 23:02 | 1/23/2026 1:19 | GOVC | System voltage was very high due to sudden load through-off in the area due to heavy snowfall caused by western disturbances in the area resulting in high system voltage. Line tripped on operation of Over voltage protection.<br>1. Mail from Indigrid regaing tripping on OV has been attached. | NC | |
| NR240127 | 601840 | 400KV URI 1 - AMARGARH - II | 1/22/2026 22:26 | 1/23/2026 6:08 | GOVC | System voltage was very high due to sudden load through-off in the area due to heavy snowfall caused by western disturbances in the area resulting in high system voltage<br>Line tripped on Over voltage protection at URI and DT received at Amargarh<br>DR shoiwng OV operated at URI has been attached. Mail from Indigrid of DT receive has been attached. | NC | |
| NR240126 | 601841 | 400KV AMARGARH - WAGOORA- I | 1/22/2026 22:26 | 1/23/2026 0:16 | GOVC | System voltage was very high due to sudden load through-off in the area due to heavy snowfall caused by western disturbances in the area resulting in high system voltage<br>Line tripped on operation of Over voltage protection at Wagoora. DR showing Over voltage opereted at Wagoora has been attached. | NC | |
| NR240128 | 601843 | 400KV AMARGARH - WAGOORA - II | 1/22/2026 23:02 | 1/23/2026 0:17 | SRMU | Line tripped on Direct trip receive due to malopertion at Amargarh SS(Indigrid).<br>Event & DR showing Direct trip receive are attached for reference. | NC | |
| NR222002 | 601845 | 220KV BAIRASIUL-PONG | 1/22/2026 22:49 | 1/23/2026 6:59 | SRMU | Line remains charged from Pong but tripped from NHPC Bairasuil only due to mal-operation of Over voltage protection at NHPC Bairasuil.<br>1.DR from Bairasul showing Over voltage has been attached for reference. | NC | |
| NR240137 | 601847 | 400KV KISHENPUR-KISHTWAR-1 | 1/22/2026 23:02 | 1/23/2026 1:35 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban and Doda area of J&K. Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 220-221 due to heavy ice loading of OPGW. followed by significant sagging and galloping.<br>Fault data Kishtwar :78km,2.16kA.<br>Following documents has been attached for refrence.<br>1.GPS tagged Tower Name plate photo<br>2.GPS tagged Snapped OPGW photo due to heavy snowfall.<br>3.Relay fault location Kishtwar matching the location<br>4.Tower Schedule and KMZ file.<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240138 | 601849 | 400KV KISHENPUR-KISHTWAR-2 | 1/22/2026 23:02 | 1/23/2026 1:13 | GOVC | System voltage was very high due to sudden load through-off in the area due to heavy snowfall caused by western disturbances in the area resulting in high system voltage<br>Line tripped on Over voltage protection.<br>Following annexure has been attached for reference:<br>1.DR Kishtwar shoiwng OV operated and Mail from Kishtwar (Resonia) regardng OV operated.<br>2.DR Kishenpur(PG) showing DT receive. | NC | |
| NR222046 | 601850 | 220KV JAMMU-CHOWADI | 1/22/2026 22:50 | 1/23/2026 0:13 | SRMU | Line remains charged from Jammu but tripped from Chowadi (JKPTCL due to maloperation of Over voltage protection at Chowadi | NC | |
| NR222016 | 601851 | 220KV SALAL-JAMMU-I | 1/22/2026 22:50 | 1/23/2026 1:10 | SRMU | Line remains charged from Jammu but tripped from Salal(NHPC) due to maloperation of Over voltage protection at Salal NHPC.<br>Copy of email from Salal has been attached for reference. | NC | |
| NR222019 | 601853 | 220KV SALAL-KISHENPUR-II | 1/22/2026 22:50 | 1/23/2026 1:50 | SRMU | Line remains charged from Kishenpur but tripped from Salal(NHPC) due to maloperation of Over voltage protection at Salal NHPC.<br>Copy of email from Salal has been attached for reference. | NC | |
| NR240132 | 601855 | 400 KV BAGLIHAR-NEW WANPOH-1 | 1/23/2026 0:56 | 1/23/2026 1:56 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban and Doda area of J&K. Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 260-261 due to heavy ice loading of OPGW followed by significant sagging and galloping.<br>Fault details New Wanpoh: 14.622km, 5.621 kA.Line charging was delayed by JKPTCL baglihar due to no communication from Baglihar.<br>Following documents has been attached for refrence.<br>1.GPS tagged Tower Name plate photo<br>2.GPS tagged Snapped OPGW photo due to heavy snowfall.<br>3.Relay fault location<br>4.Tower Schedule and KMZ file.<br>5.Mail to JKPTCLin correspondence to NRLDC has been attached for reference | NC | |
| NR240131 | 601857 | 400 KV KISHENPUR-BAGLIHAR-III | 1/23/2026 0:56 | 1/23/2026 1:56 | SRMU | There was Fault in 400KV Baglihar Wanpoh Line but protection at Baglihar failed to operate resulting in tripping of 400KV Kishenpur baglihar 3 in Z3.<br>Line cleared for charging at 01:56 Hrs of 23.01.2026 but there was no response from JKPTCL as no official was avaialble in JKSPDC control Room.<br>Following docments has been attached for refrence:<br>1.DR kishenpur shoiwng fault in Z-3 which is outsisde the line.<br>2. Kishenpur relay Fault Location.<br>2.Copy of email sent to JKSPDC with copy to NRLDC is attached for reference has been attached for reference: | NC | |
| NR2ICT80 | 601859 | AMRITSAR 500 MVA ICT-IV | 1/23/2026 4:23 | 1/23/2026 6:46 | GOFC | ICT tripped on operation of over flux protection (LV Site as system voltage was beyond set value | NC | |
| NR213203 | 601860 | 132KV SEWA2 - HIRANAGAR -I | 1/22/2026 23:02 | 1/23/2026 12:31 | SRMU | Line remains charged from Hiranagar but tripped on Over voltage protection at Sew2 NHPC due to maloperation of over voltage protection at SEWA NHPC<br>Documents attcahed for reference:-<br>1. DR from Sewa2(NHPC) showing Over voltage opeartion.<br>2. Sewa 2(NHPC) report | NC | |
| NR213201 | 601861 | 132KV SEWA2 - HIRANAGAR -II | 1/22/2026 23:02 | 1/23/2026 13:19 | GOVC | Line remains charged from Hiranagar but tripped from NHPC SEWA due to maloperation of Over voltage protection at Sewa2 end.<br>Documents attcahed for reference:-<br>1. DR from Sewa2(NHPC) showing Over voltage opeartion.<br>2. Sewa 2(NHPC) report | NC | |
| NR240080 | 601862 | 400KV RAMPUR-NALAGARH-I | 1/23/2026 5:55 | 1/24/2026 20:55 | LNCC | Line passes through Hilly terrain of Kinnore in HP. Line tripped on R-Y Fault due Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire/Conductors resulting in heavy ice loading of OPGW & conductors thereby leading to significant sagging, galloping and hence Ph to Ph clearance violation in span No 230-231 folowed by snapping of conductor. Fault data Nalagarh: 52.62kM, 7.5KA whereas actual fault found at 54.3km, matching the fault location<br>Following documents has been attached for reference:<br>1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of snapped conductor.<br>3.Realy fault location Nalagarh end matching the fault location.<br>4.Tower Schedule and kMZ file<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR222016 | 601875 | 220KV SALAL-JAMMU-I | 1/23/2026 4:53 | 1/23/2026 6:58 | SRMU | Line remains charged from Jammu but tripped from Salal(NHPC) due to maloperation of Over voltage protection at Salal NHPC.<br>Copy of email from Salal has been attached for reference. | NC | |
| NR240125 | 601876 | 400KV URI 1 - AMARGARH - I | 1/23/2026 6:53 | 1/23/2026 9:21 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ganderbal area of Kashmir.Line tripped on R-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in heavy ice loading of OPGW thereby leading to significant sagging, galloping and hence clearance violation with Top conductor in span No 143-144. Fault data amargarh 12.3km, 4.38kA<br>Following document has been attached for refrence.<br>1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photos of OPGW heavily ice loading of OPGW.<br>3.Tower Schedule and kMZ file | NC | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NR240127 | 601878 | 400KV URI 1 - AMARGARH - II | 1/23/2026 7:17 | 1/25/2026 18:18 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ganderbal area of Kashmir.<br>Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 107-108 -109 due to heavy ice loading of OPGW followed by significant sagging and galloping. Fault data amargarh: 20.9km, 4.1kA.<br>Following document has been attached for refrence.<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of snapped OPGW<br>3.Realy snap Amargarh<br>4.Tower Schedule and kMZ file | NC | |
| NR240051 | 601883 | 400KV URI 2- WAGOORA | 1/23/2026 10:04 | 1/24/2026 20:32 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ganderbal area of Kashmir. Line tripped due OPGW snapped due to failure of Tower peak at LOC No 72 & 73 caused by snow avalanches especially from steep terrain. Copy of DRDO report indicating highly unsafe condition in Gandarwal hilly terrain is attached for reference. Fault data Wagoora: M-1: 2.7 kA,75.24 km.<br>Following documents has been attached for reference.<br>1.Copy of DRDO report indicating Highly critical Snaow avalanche in the area<br>2.GPS tagged Tower Name plate photo.<br>3.GPS tagged photo of affected tower location.<br>4.Geo tagged video indicating<br>5.Realy fault location Wagoora(PG) end.<br>6.Tower Schedule and kMZ file<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240121 | 601888 | 400KV KISHENPUR-NEW WANPOH-IV | 1/23/2026 8:36 | 1/26/2026 20:10 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban area of Kashmir. During charging of the Line at 08:36hrs of 23.01.2026 (Line was open on LVRD), it tripped on SOTF.<br>During patrolling, it was found that a large tree has fallen from outside line corridor from uphill and resting on Span No 266-267 resulting in Line tripping.<br>Snapping of OPGW also reported due to heavy ice loading of OPGW in span 364-365 leading to significant sagging and Galloping followed by galloping resulting in OPGW snapping. Thereafter line taken under emergency shutdown above rectification. Charging delayed as approach road including NH remains closed due to heavy snowfall at multiple locations.<br>Line cleared for charging at 20:10 Hrs of 26.01.2026 but line charging was not allowed by NRLDC due to system conmstraints.<br>Following document has been attached for refrence (02 Set for tree/ OPGW)<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of affected fallen on Span 266-267<br>3.Relay snap Wanpoh<br>4.Tower Schedule and kMZ file | NC | |
| NR240054 | 601889 | 400KV NALAGARH-KOLDAM-II | 1/23/2026 11:18 | 1/23/2026 16:39 | LNCC | Line tripped on B-N Fault due to heavy rain,wind and thunderstorm with lightning at loc 11. Fault details Nalagarh: 6.34KA, 42.89KM.Actual fault found at 43.91km which is matching the fault location<br>Following documents has been attached for reference:<br>1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of affected tower location.<br>3.Realy fault location Nalagarh end matching the fault location.<br>4.Tower Schedule and kMZ file | NC | |
| NR240112 | 601893 | 400KV DEHAR (BBMB) - RAJPURA (PSTCL) LILO PORTION | 1/23/2026 10:56 | 1/24/2026 17:56 | OMSU | Line tripped on Y-N fault due to fault in the BBMB portion of the Line. Fault data Rajpura: 55.03km whereas POWERGRID portion is only 14.4KM from Rajpura. Therefore, fault is in BBMB portion of the Line.<br>Following documents attached for reference:<br>1.Relay fault location (Rajpura end)<br>2. Mail from BBMB. | NC | |
| NR240075 | 601895 | 400KV KISHENPUR-NEW WANPOH-I | 1/23/2026 12:37 | 1/25/2026 18:18 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban area of Kashmir.Line tripped on R-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No L30-261 followed by Bending of Tower peak at LOC No L30. Heavy ice loading of Earthwire sulted in significant sagging in Earthwire and hence high pressure during galloping .<br>Line cleared for charging at 18:18 Hrs of 25.01.2026 but line charging not allowed by NRLDC at that time due to system constraints.<br>Following document has been attached for refrence.<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of affected Snapped Earthwire.<br>3.Offline fault locator snaps Kishnepur end<br>4.Tower Schedule and kMZ file<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240132 | 601897 | 400 KV BAGLIHAR-NEW WANPOH-1 | 1/23/2026 12:53 | 1/25/2026 18:40 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban and Doda area of J&K. Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 166-167 due to heavy ice loading of OPGW followed by significant sagging and galloping. Fault data New Wanpoh 48.2 km, 3.74 kA.<br>Following documents has been attached for reference.<br>1.GPS tagged Tower Name plate photo<br>2.GPS tagged Snapped OPGW photo due to heavy snowfall.<br>3.Relay fault location<br>4.Tower Schedule and KMZ file.<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240125 | 601901 | 400KV URI 1 - AMARGARH - I | 1/23/2026 12:43 | 1/23/2026 17:55 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ganderbal area of Kashmir. Line tripped on R-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in heavy ice loading of OPGW thereby leading to significant sagging, galloping and hence clearance violation with Top conductor in span No 143-144. Fault data amargarh: 12.5km, 4.2kA<br>Following document has been attached for refrence.<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photos of OPGW heavily ice loading of OPGW.<br>3.Tower Schedule and kMZ file | NC | |
| NR222035 | 601903 | 220KV KISHANGANGA (NHPC) - DELINA (JKPDD) - II | 1/23/2026 10:51 | 1/23/2026 18:17 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ganderbal area of Kashmir. Line tripped on R-B fault in span No 122-123 due to Heavy snow accompanied by freezing rain accumulated on E/W and conductors resulting in heavy ice loading leading to significant sagging, galloping and hence clearance violation. Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. Fault data Kishenganga: 35km, 2.0kA<br>Following Documents has been attached for refrence.<br>1.GPS tagged Tower Name Plate photo<br>2.GPS tagged conductor photo shwoing flashover marks due to Galloping.<br>3.Tower Schedule and KMZ file.<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240120 | 601906 | 400KV KISHENPUR-NEW WANPOH-III | 1/23/2026 14:07 | 1/24/2026 18:45 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban area of Kashmir.Line tripped on R-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in heavy ice loading of OPGW thereby leading to significant sagging, galloping and hence clearance violation with Top conductor in span No 275-276. Fault data New Wanpoh:- 33.64km, 1.4kA.<br>Following document has been attached for refrence.<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of affected Earthwire<br>3.Relay snap Kishnepur end<br>4.Tower Schedule and kMZ file<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240131 | 601908 | 400 KV KISHENPUR-BAGLIHAR-III | 1/23/2026 14:20 | 1/24/2026 21:27 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban and Doda area of J&K. Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 109-110 due to heavy ice loading of OPGW followed by significant sagging and galloping<br>Fault data Kishenpur : 5.36kA, 42.4kM.<br>Following document has been attached for refrence.<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of snapped OPGW<br>3.Realy fault snaps Kishenpur<br>4.Tower Schedule and kMZ file | NC | |
| NR240084 | 601910 | 400KV RAMPUR-NALAGARH-II | 1/23/2026 15:06 | 1/24/2026 20:41 | LNCC | Line passes through Hilly terrain of Kinnore in HP. Line tripped on Y-N Fault due Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire/Conductors resulting in heavy ice loading of OPGW & conductors thereby leading to significant sagging, galloping and hence clearance violation in span No 230-231 followed by snapping of OPGW.<br>Fault data Nalagarh: 47.9km & 57.9KM (Offline fault locator)<br>Following documents has been attached for reference:<br>1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of snapped conductor.<br>3.Offline from Nalagarh .<br>4.Tower Schedule and kMZ file | NC | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| NR213201 | 601912 | 132KV SEWA2 - HIRANAGAR -II | 1/23/2026 14:16 | 1/23/2026 20:00 | SBBU | Line tripped from Sewa2(NHPC) end only on operation of LBB protection at SEWA(NHPC) during synchronization of Unit #1. Line remain charged from Hiranagar SS.<br>Bay and protection at Sewa2 is owned and maintained by NHPC.<br>Sewa 2 report has been attached for reference. | NC | |
| NR213203 | 601913 | 132KV SEWA2 - HIRANAGAR -I | 1/23/2026 14:16 | 1/23/2026 18:56 | SBBU | Line tripped from Sewa2(NHPC) end only on operation of LBB protection at SEWA(NHPC) during synchronization of Unit #1. Line remain charged from Hiranagar SS.<br>Bay and protection at Sewa2 is owned and maintained by NHPC.<br>Sewa 2 report has been attached for reference. | NC | |
| NR213205 | 601914 | 132KV SEWA2 - KATHUA | 1/23/2026 14:16 | 1/23/2026 16:44 | SBBU | Line tripped from Sewa2(NHPC) end only on operation of LBB protection at SEWA(NHPC) during synchronization of Unit #1. Line remain charged from Kathua SS.<br>Bay and protection at Sewa2 is owned and maintained by NHPC.<br>Sewa 2 report has been attached for reference. | NC | |
| NR240130 | 601925 | 400KV GUMMA-NATHPA JHAKRI - II | 1/23/2026 18:30 | 1/24/2026 22:29 | LNCC | Line passes through Hilly terrain of Kinnore in HP. Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 127-128 due to heavy ice loading of OPGW followed by significant sagging and galloping.<br>Fault Data Gumma:- 2.1km, 8.8kA<br>Following document has been attached for refrence.<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of snapped OPGW<br>3.Relay snaps Gumma<br>4.Tower Schedule and kMZ file | NC | |
| NR240133 | 601927 | 400KV GUMMA-NATHPA JHAKRI - I | 1/23/2026 18:52 | 1/23/2026 21:36 | LNCC | Line tripped on RB-N fault due to Heavy snow accompanied by freezing rain accumulated on earthwire resulting in clearance violation between earthwire and conductors in span No 88-89 due to heavy ice loading of earthwire and conductors followed by significant sagging and galloping.<br>Excessive accumulation of Snow on Conductors in span section 88-89 casuing Ph -ph fault Fault Data Gumma:- 16.9km, Ir-7.03kA, Ib-5.5kA<br>Following doucments has been attached for refrence:<br>1.GPS tagged Tower Name plate<br>2.Tower and Conductor photos showing Snow<br>3.Gumma end Relay fault location<br>4.Tower Schedule and KMZ file. | NC | |
| NR240137 | 601930 | 400KV KISHENPUR-KISHTWAR-1 | 1/23/2026 21:38 | 1/24/2026 2:04 | SRMT | Line tripped due to maloperation of over voltage Stage protection | NU | Maloperation at Kishenpur |
| NR222047 | 601932 | 220KV CHOWADI-SAMBA | 1/23/2026 21:50 | 1/23/2026 23:18 | SRMU | Line Auto reclosed successfully from Samba(PG) but tripped from Chowadi JKPTCL due to maloperation of A/R scheme at JKPTCL S/S Chowadi.<br>Following Documents has been attached for reference:<br>1.Samba end DR Showing successfull Autoreclosure<br>2.Voltage Graph Samba showing Line in charged condition from Samba. | NC | |
| NR240074 | 601938 | 400KV WAGOORA-NEW WANPOH-II | 1/24/2026 2:52 | 1/24/2026 13:09 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban area of Kashmir.Line tripped on R-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in heavy ice loading of OPGW thereby leading to significant sagging, galloping and hence clearance violation with Top conductor in span No 371-372. Fault data Wagoora:23.5km,3.64kA.<br>Following documents has been attached for reference.<br>1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of affected OPGW damaged and galopping 371-372<br>3.Realy fault location Wagoora(PG) end.<br>4.Tower Schedule and kMZ file<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240137 | 601940 | 400KV KISHENPUR-KISHTWAR-1 | 1/24/2026 5:05 | 1/24/2026 6:37 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban and Doda area of J&K.. Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 220-221 due to heavy ice loading of OPGW followed by significant sagging and galloping. Fault details Kishenpur: 41.7km, 7.1 kA.<br>Following documents has been attached for refrence.<br>1.GPS tagged Tower Name plate photo<br>2.GPS tagged Snapped OPGW photo due to heavy snowfall.<br>3.Relay fault location Kishenpur matching the location<br>4.Tower Schedule and KMZ file.<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240132 | 601995 | 400 KV BAGLIHAR-NEW WANPOH-1 | 1/25/2026 20:53 | 1/26/2026 18:06 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban and Doda area of J&K. Line tripped on B-N fault due to Heavy snow accompanied by freezing rain accumulated on Optical Ground Wire (OPGW) resulting in snapping of OPGW in span No 240-241 due to heavy ice loading of OPGW followed by significant sagging and galloping.<br>Fault data New Wanpoh: 26.89 km, 4.6 kA.<br>Following documents has been attached for refrence.<br>1.GPS tagged Tower Name plate photo<br>2.GPS tagged Snapped OPGW photo due to heavy snowfall.<br>3.Relay fault location<br>4.Tower Schedule and KMZ file.<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240131 | 601997 | 400 KV KISHENPUR-BAGLIHAR-III | 1/25/2026 20:53 | 1/26/2026 11:08 | SRMU | There was fault in 400KV Baglihar Wanpoh Line but protection at Baglihar failed to operate resulting in outage of line on operation of distance protectionn in Z2.<br>Line was cleared for charging at 01:56 Hrs of 23.01.2026 but Charging not allowed by NRLDC due to system constraints.<br>Following docments has been attached for refrence:<br>1.DR kishenpur shoiwng fault in Z-3 which is outsisde the line.<br>2. Kishenpur relay Fault Location.<br>2.Copy of email sent to JKSPDC with copy to NRLDC is attached for reference has been attached for reference:<br>Copy of Email indicating request for charging is attached. | NC | Maloperation at Baglihar |
| NR240075 | 602041 | 400KV KISHENPUR-NEW WANPOH-I | 1/27/2026 4:06 | 1/27/2026 13:53 | LNCC | Line passes through avalanche Zone in Hilly terrain of Ramban area of Kashmir.Line tripped on Y-N fault due to Heavy snow accompanied by freezing rain accumulated on Ground Wire resulting in its snapping in span No L26-27 followed by Bending of Tower peak at LOC No L26. Heavy ice loading of OPGW resulted in significant sagging in OPGW and hence high pressure during galloping .<br>Fault data New Wanpoh: 11.81 km, 7.3kA.<br>Following document has been attached for refrence.<br>1.1.GPS tagged Tower Name plate photo.<br>2.GPS tagged photo of affected Snapped Earthwire<br>3.Relay snaps Kishnepur end<br>4.Tower Schedule and kMZ file<br>Copy of DRDO report indicating highly unsafe condition in the area is attached for reference. | NC | |
| NR240027 | 602055 | 400KV Nalagarh Patiala - II | 1/27/2026 11:03 | 1/27/2026 11:13 | LWHT | Line tripped from Patiala end on B-N Fault due to snapping of jumper at LOC No 33. Fault data Patiala: 27KA, 0.9KM . | NC | |
| NR240085 | 602123 | 400KV PANIPAT (BBMB) - PANCHKULA (PGCIL) LILO PORTION | 1/29/2026 9:32 | 1/29/2026 12:45 | SRMU | Line remain charged from Panchkula end but tripped from Panipat end only due to relay maloperation at Panipat(BBMB).<br>Bay at Panipat is owned and maintained by BBMB.<br>Panipat (BBMB) tripping report is attached for reference.<br>Panchkula end Voltage graph showing persistant voltage is attached for reference | NC | |

| | | |
|---|---|---|
| | Total tripping including LNCC & successful autoreclosures | 49 |
| NC | Nc is the number of correct operations at internal power system faults | 48 |
| NF | Nf is the number of failures to operate at internal power system faults, | 0 |
| NU | Nu is the number of unwanted operations, | 1 |
| NI | Ni is the number of incorrect operations and is the sum of Nf and Nu | 0 |
| | | |
| | The Dependability Index defined as $D = Nc/(Nc+Nf)$ | 100.00% |
| | The Security Index defined as $S = Nc/(Nc+Nu)$ | 97.96% |
| | The Reliability Index defined as $R = Nc/(Nc+Ni)$ | 100.00% |

| S.No. | Substation | Element name | Date & Time of the tripping | Categorization (F/U) F = Failures to operate at internal power system faults U = Unwanted operations | Reason for failures/Unwanted operation | Corrective action taken/ to be taken |
|---|---|---|---|---|---|---|
| 1 | BARA | 765 KV Line 1 Bara - Mainpuri | 28.01.2026 & 23:59 Hrs | Unwanted operation | AR operation was unsuccessful | The DR and event files have been shared with the OEM for analysis and corrective action in the AR. |
| | | | | | | |
| | | | | | | |

| Tripping Details | | | | | | Reason of tripping & remedial action | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Punjab State Transmission Corporation Limited | | | | | | | | | | | | | |
| January-2026 | | | | | | | | | | | | | |
| **S.N.** | **Sub-Station** | **Unit (SPS/Line/ICT/GT/etc.)** | **Date on which Power System Fault occurred** | **Local End Indications** | **Remote End Indications** | | **Nc** | **Nf** | **Nu** | **Ni** | **Dependability Index (D)** | **Security Index (S)** | **Reliabilty Index (R)** |
| 1 | 400 kV S/S Dhanansu | 500 MVA, 400/220 kV ICT-2 | 23-01-2026 at 10.35 Hrs | OLTC PRD, Master Relay | | Moisture ingress in OLTC Y-ph PRD, Now relay has been properly covered to avoid such condition in future. | 0 | 0 | 1 | 1 | #DIV/0! | 0 | 0 |
| 2 | 400 kV S/S Makhu | 100 MVA, 220/66 kV P.T/F T-3 | 10-01-2026 at 07.38 Hrs | Bucchholz Relay (Trip Stage-I), Master Relay | | Due to no oil in conservator tank, Now oil has been topped up in conserevator and ICT is in operation | 0 | 0 | 1 | 1 | #DIV/0! | 0 | 0 |
| | | 400 kV Makhu-Amritsar ckt.I | 07-01-2026 at 07.46 Hrs | Zone-I, R-ph, Fault distance-39.02 km | R-ph, Fault distance-26.3 km | R-ph insulator disc strings flashed on Tower No.101 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| | | 400 kV Makhu-Muktsar ckt.I | 10-01-2026 at 05.40 Hrs | Zone-I, B-ph, Fault Distance-36.09 km | Zone-I, B-ph, Fault Distance-51.4 km | B-ph insulator Disc strings flashed on Tower No.151 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 3 | 400 kV S/S Nakodar | 400 kV Nakodar-Rajpura ckt.II | 23-01-2026 at | Zone-I, R-ph, Fault Distance-8.5 km | R-ph, Fault Distance-130 km | Due to bad weather (rain) | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 4 | 400 kV S/S Muktsar | 400 kV Muktsar-Makhu ckt.I | 10-01-2026 at 05.40 Hrs | Zone-I, B-ph, Fault Distance-51.4 km | Zone-I, B-ph, Fault Distance-36.09 km | B-ph insulator Disc strings flashed on Tower No.151 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| | | 400 kV Muktsar-Talwandi ckt.I | 10-01-2026 at 05.40 Hrs | Tie ckt. CB tripped due to fault in 400 kV Muktsar-Makhu ckt.I | Not tripped | Main CB of the line is not operational, due to which line tripped when Tie CB tripped | 0 | 0 | 1 | 1 | #DIV/0! | 0 | 0 |
| 5 | 400 kV S/S Rajpura | 400 kV Rajpura-Dehar ckt. | 23-01-2026 at 10.56 Hrs | Zone-I, B-ph, Fault Distance-108.2 km | Zone-I, Y-ph, Fault Distance-24.30 km | Due to bad weather | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| | | 400 kV Rajpura-Dehar ckt. | 23-01-2026 at 16.43 Hrs | Zone-I, R-ph, Fault Distance-55.03 km | No indications as line tripped while charging from Rajpura end | Earth wire break between tower no. 204 & 205 | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| | | 400 kV Rajpura-Bhiwani ckt. | 27-01-2026 at 16.16 Hrs(A/R optd.) | Zone-I, R-ph, Fault Distance-39.66 km(A/R optd.) | B-ph, Fault Distance-154.1 km(A/R optd.) | A/R Operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| | | 220 kV Rajpura(400)-MGG ckt.I | 27-01-2026 at 16.42 Hrs(A/R optd.) | Zone-I, R-ph, Fault Distance-6.139 km(A/R optd.) | Zone-I(A/R optd.) | A/R Operated | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

# Reason for Performance Indices less than Unity- January 2026 (RVPN)

**Case-1** **400 KV AKAL- JODHPUR LINE at 400KV GSS AKAL on 21.01.2026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

Line tripped due to ongoing relay testing on the associated 400 kV 50 MVAR Line Reactor at 400 KV Akal end.

**Corrective Action taken – YES**

Testing personnel were asked to work carefully.

**Case-2** **80 MVAR STPS - BABAI CKT- I Line Reactor at 400 KV GSS BABAI, 400 KV 50 MVAR Kankani Line Reactor & 400 KV 50 MVAR Kankani Line Reactor at 400KV GSS AKAL on 04.01.2026**

No. of Unwanted operation – 3

**Reason of unwanted operation –**

Due to low oil level.

**Corrective Action taken – YES**

Oil top up done and level maintained. GSS incharge was asked to get the MOG repaired.

**Case-3** **400/220KV, 315 MVA, ICT-III at 400KV GSS BABAI on 15.01.2026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

May be a temporary DC fault.

**Corrective Action taken – Partial**

Complete DC circuit checked and nothing abnormal observed.

**Case-4** **220KV Badisid-Aau-I Line & 220KV Badisid-Aau-II Line at 220 KV GSS BADISID on 14.01.02026**

No. of Unwanted operation – 1

No. of Failures to operate -1

**Reason of unwanted operation –**

220KV Badisid-Aau-I Line tripped due to cable damaged by reptiles, load shifted to 220KV Badisid-Aau-II Line & its jumper from BUS snapped. Relay operated in Z4 but CB stuck. .

**Corrective Action taken – YES**

Damaged cable repaired and CB attended.

**Case-5** **220 KV Bhopalgarh-Khinvsar Line & 220 KV Barsingsar-Khinvsar Line at 220 KV GSS KHINVSAR on 17.01.2026**

No. of incorrect operation – 2

**Reason of unwanted operation –**

Over current setting was enabled.

**Corrective Action taken – YES**

Over current setting disabled.

**Case-6** **220 KV GSS VATIKA-KTPS LINE at 220KV GSS VATIKA on 27.01.2026**

No. of Failures to operate – 1

**Reason of unwanted operation –**

CB at VATIKA end failed to operate

**Corrective Action taken – YES**

CB attended.

**Case-7** **220 KV GSS MANDAWAR- HINDAUN LINE at 400 kV GSS HINDAUN on 30.01.2026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

DC fault due to defective cable.

**Corrective Action taken – Partial**

Cable to be replaced during next shutdown.

**Case-8** **220/132KV TR-II 160 MVA EMCO Make at 220 KV MANSAROVAR on 28.01.2026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

HS-OC-NOD relay optd which was enable in NDR relay.

**Corrective Action taken –YES**

High Set O/C Non directional element disabled.

मुख्य अभियन्ता (सं0)
निदेशक (आपरेशन)

**U.P. Power Transmission Corporation Ltd.**
**Shakti Bhawan Extn.**
**14 Ashok Marg, Lucknow–** 226001
**Tel/Fax:** 0522–2287833/2286476
**Email: director_op@upptcl.org**

**No:** 549 **/Dir (Op)/ NRPC** **Date:** 03/02/2026

**Subject:** **Protection performance indices of protection system for the month of 01/2026.**

SEO
NRPC
New Delhi.

**Through E- Mail**

Mail ID – seo-nrpc@nic.in

Kindly find enclosed herewith copy of compiled Protection performance indices along with the reports obtained from all 06 Zonal offices of UPPTCL for the month of January, 2026.

3/2/26

**(Md. Reza Ahmad)**
Chief Engineer (A)

**No:** **/Dir (Op)/** **Date:**

**Copy to :-**

1 Director (Operation) UPPTCL, Lucknow for information.
2 Chief Engineer, TC/TW/TSW/TSC/TSE/TNE, UPPTCL, Lucknow/Meerut/ Agra/Jhansi/ Prayagraj/Gorakhpur.
3 Superintending Engineer (RA), UPSLDC, Lucknow.

**(Md. Reza Ahmad)**
Chief Engineer (A)

# Protection Perfomance Indices

**January, 2026**

| S.No. | Transmission Zone | Dependability index | Security index | Reliability index | Remark |
|---|---|---|---|---|---|
| 1 | TC, Lucknow | 1 | 1 | 1 | --- |
| 2 | TSC, Jhansi | 1 | 1 | 1 | --- |
| 3 | TW, Meerut | 0.98 | 0.95 | 0.94 | 1. **At 400 kV-II, Muradnagar S/S :** On dated 31.01.2026 400 kV Mathura line trip at 11:56 hrs but unfortunately the Y-phase pole of Tie breaker stuck due to this Y-phase pole damage and Simbhaoli ckt-I tripped on o/v-stage-2 and ICT-II and ICT-III tripped on E/F.<br>2. **At 220 kV Mawana (GIS) :** Tripping due to relay auxilary card damaged which is replace and T/F is charged. |
| 4 | TNE, Gorakhpur | 1 | 0.58 | 0.58 | **At 220 kV S/S Maharajganj (Gopala) :**<br>1. Due to maloperation of 220 kV PGCIL line Distance Relay (main-1 Siemens Siprotec 7SA611) LBB protection initiated/operated on date 29.01.2026 at 06:00 hrs.<br>2. Again PGCIL Line tripped at 09:05 hrs on dated 29.01.2026 due to maloperation of 220 kV PGCIL line Distance Relay (main-1) (Bus bar protection panel supply off at this time)<br>**Corrective action :** LBB Protection has been disabled in 220 kV PGCIL line Main-1 Distance Relay, LBB Protection of Main-2 Distance Relay in healthy and operative. |
| 5 | TSW, Agra | 1 | 1 | 1 | --- |
| 6 | TSE, Prayagraj | 1 | 0.9375 | 1 | **1. At 400 kV S/S Sarnath :** 400 kV Sarnath-Azamgarh Line tripped due to malfunctioning DT (Direct Trip) received from Azamgarh end.<br>**Remedy Action :** During petroling of line nothing has been found. DT Received issue has been Troubleshooted by 400 kV Azamgarh End. |
| **Total indices value** | | **0.997** | **0.911** | **0.920** | --- |

| S.No. | Substation | Element name | Date & Time of the tripping | Categorization (F/U)<br>F = Failures to operate at internal power system faults<br>U = Unwanted operations | Reason for failures/Unwanted operation | Corrective action taken/ to be taken |
|---|---|---|---|---|---|---|
| 1 | 400 KV Parichha | 400KV PARICHHA-ORAI CIRCUIT 1 | 2/3/2026 6:41 | U | During a single-phase transient fault, Auto reclose failed at Parichha end because of continuously persisting COS (carrier out of service) alarm. | UPPTCL Microwave division need to address the issue of healthy carrier feedback signal to relay panel originating from teleprotection panel (DTPC) .We have already communicated to concerned wing for rectification. |

**Reporting of performance indices for protection System**
**(for element connected at 400kV and above)**
**Name of Utility : ACME 1200 MW PSS 400KV - Deogarh,Phalodi,Dholpur & RAISAR - Sanawara - Pokhran.**
**Month : Feb.2026**

| 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 | 1200 MW ISTS POKARAN | 400 kV ISTS - FBTL Line | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 315 MVA PTR-1 (DHAULPUR) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 315 MVA PTR-2 (PHALODI) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 315 MVA PTR-3 (RAISAR) | 0 | 0 | 1 | 1 | 0 | 0 | 0 | **03-Feb-2026:** PTR tripped in Differential Protection due to Banana clip left connecetd at CT secondary terminals after testing, which lead to tripping when load reached upto 100MW. |
| | | 315 MVA PTR-4 (DEOGHAR) | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 400 kV BUSBAR -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 400 kV BUSBAR -2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

| | | |
|---|---|---|
| PERFORMANCES INDICES FORM ACME 1200 MW Pooling Station Sanawara-Pokhran | **Dependability Index (D) D=(Nc/(Nc+Nf))** | |
| | **Security Index (S) S=(Nc/(Nc+Nu))** | |
| | **Reliability Index ( R ) R=(Nc/(Nc+Ni))** | |

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

Nc - Number of correct operations at internal power system Faults.

Nf - Number of Failures to operations at internal power system Faults.

Nu - Number of unwanted operations.

Ni - Number of incorrect operations, (Ni= Nf+Nu)

**Reporting of performance indices for protection System**
**(for element connected at 220kV and above)**
**Name of Utility : ACME Heergarh- MSEDCL2 Badisidd - 300 MW**
**Month : February-26**

| 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 | 300 MW MSEDCL2 Badisidd | 220 kV Badisidd -Bhadla-2 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |
| | | 150 MVA PTR-1 | 1 | 0 | 1 | 1 | 1 | 0.5 | 0.5 | **28-Feb-2026:** Tripped in Differential Protection due to Wrong CT core selection of newly commissioned BESS system. Correct core selected and system restored. |
| | | 150 MVA PTR-2 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |
| | | Bus coupler Bay | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |
| | | 220 kV Main BUS -1 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |
| | | 220 kV Main BUS -2 | 0 | 0 | 0 | 0 | 0 | 0.0 | 0 | |

| | | |
|---|---|---|
| PERFORMANCES INDICES FORM ACME Heergarh- MSEDCL2 Badisidd - 300 MW | **Dependability Index (D) D=(Nc/(Nc+Nf))** | 0 |
| | **Security Index (S) S=(Nc/(Nc+Nu))** | 0 |
| | **Reliability Index ( R ) R=(Nc/(Nc+Ni))** | 0 |

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

Nc - Number of correct operations at internal power system Faults.

Nf - Number of Failures to operations at internal power system Faults.

Nu - Number of unwanted operations.

Ni - Number of incorrect operations, (Ni= Nf+Nu)

**Reporting of performance indices for protection System**
**(for element connected at 220kV and above)**
**Name of Utility : ACME Sikar Solar Pvt Ltd-300 MW**
**Month : Feb-26**

| 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 | 300 MW Sikar Nokha | 220 kV Sikar -Bikaner-2 | 2 | 0 | 0 | 0 | 1 | 1 | 1 | **22-Feb-2026:** Grid Fail<br>**17-Feb-2026:** Grid Fail from remote end due to remote end Isolator Y phase female contact melt. |
| | | 150 MVA PTR-1 | 1 | 0 | 1 | 1 | 1 | 0.5 | 0.5 | **28-Feb-2026:** PTR Manual trip due to abnormal noise from LV box. Loose 630 Sq mm cable found which is connected to BESS. |
| | | 150 MVA PTR-2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | Bus coupler Bay | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 220 kV Main BUS -1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |
| | | 220 kV Main BUS -2 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | |

| | | |
|---|---|---|
| PERFORMANCES INDICES FORM ACME Sikar Solar Pvt Ltd-300 MW | **Dependability Index (D) D=(Nc/(Nc+Nf))** | 0 |
| | **Security Index (S) S=(Nc/(Nc+Nu))** | 0 |
| | **Reliability Index ( R ) R=(Nc/(Nc+Ni))** | 0 |

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

Nc - Number of correct operations at internal power system Faults.

Nf - Number of Failures to operations at internal power system Faults.

Nu - Number of unwanted operations.

Ni - Number of incorrect operations, (Ni= Nf+Nu)

| S.No. | Substation | Element name | Date of tripping | Time of tripping | Categorization (F/U) F = Failures to operate at internal power system faults U = Unwanted operations | Reason for failures/Unwanted operation | Corrective action taken/ to be taken |
|---|---|---|---|---|---|---|---|
| 1 | 500KV HVDC Mohindergarh | 500kV Mundra - Mohindergarh HVDC Pole-1 | 22-Feb-26 | 14:29 | U | Pole-1 tripped from Mahindragarh on External protection trip operated | Issue escalated to OEM (M/s Siemens) along with TFR record for identifying of root caused & CA for future |
| 2 | 765KV Khetri SS (PGCIL) | 765kV Bikaner (PGCIL) - Khetri New (PGCIL) Ckt-1 | 28-Feb-26 | 11:45 | U | The line tripped due to a Mal-operation of the 86 relay caused by DC mixing or an earth fault in the main DC supply. At the time of the incident, maintenance work was being carried out by PGCIL on the charger | DC voltage source mixing & fault is notified to PGCIL Khetri team for further correction, Action status is awaited from PGCIL |

# Performance Indices of Anta Gas Power Station for Feb 2026

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

| Index. No. | Number of correct operations at internal power system faults( Nc) | Number of unwanted operations (Nu) | The Security Index(S=Nc/(Nc+Nu) |
|---|---|---|---|
| 2 | 1 | 1 | 0.5 |

| Index. No. | Number of correct operations at internal power system faults( Nc) | Number of incorrect operations (Ni=Nf+Nu) | The Reliability Index (R=Nc/(Nc+Ni) |
|---|---|---|---|
| 3 | 1 | 1 | 0.5 |

**Remark** : On 17 February 2026, the Main #1 relay of the Sawai Madhopur line maloperated. After analyzing the incident, the relay was checked online and was found to be faulty, showing a significant variation in current and voltage readings.

An emergency shutdown was taken to facilitate detailed inspection. The relay was thoroughly checked and tested, confirming that it was defective.

A new relay was then configured, tested, and subsequently installed in place of the faulty Main #1 relay. The system was restored to normal operation after successful testing.

# Fwd: Performance indices for the month of Feb 2026.

**D K Meena** < seo-nrpc@nic.in >
Fri, 13 Mar 2026 9:40:14 AM +0530

To "Reeturaj Pandey"<pandeyr.cea@gov.in>,"Lokesh Agrawal"<lokesh.cea@gov.in>

महोदय / महोदया,

**भवदीय,**
**डी.के. मीना**
**निदेशक (प्रचालन एवं संरक्षण),**
**उत्तर क्षेत्रीय विद्युत समिति**
**विद्युत् मंत्रालय**
**१८-शहीद जीत सिंह मार्ग, कटवरिया सराय**
**नई दिल्ली - १६**

========== Forwarded message ==========
From: ggsstp ropar <ggsstp220kv@gmail.com>
To: <seo-nrpc@nic.in>
Date: Thu, 12 Mar 2026 15:10:10 +0530
Subject: Performance indices for the month of Feb 2026.
========== Forwarded message ==========

**Reporting of performance indices for protection system**

**(for elements connected at 220 kV and above)**

**Name of Utility: PSPCL, GGSSTP Rupnagar**

**Month : February 2026**

| S.N. | Sub-station | Dependability Index (D) | Security Index (S) | Reliability Index (R) |
|---|---|---|---|---|
| 1 | 220 kV S/S PSPCL, GGSSTP Rupnagar | 1.000 | 0.5 | 0.5 |

**Remarks** : Security & Reliability index less than unity because there was tripping due to malfunctioning of Bus Bar differential relay during testing by an Engineer of GE firm on dtd. 20.02.26. Due to this all the feeders of the grid tripped.

Thanks and Regards
AE/ EM-4
GGSSTP, Rupnagar

| Sr. No. | Dated | Divn. | Name of sub/ station | Tripping /Breakdown element | Length of line | Duration of Tripping /Break down | | | Relays Operated along with Relay Data | | Reasons of Tripping /break-down | Area Affected if any | Analysis of Tripping/Break down by designated committee. | Remarks if any. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | From (Hrs.) | To (Hrs.) | Total (Hrs.) | This end (Reporting Substation) | Other end (in case of line) | | | | |
| 1 | 21.02.26 | XEN TS Gurugram | 220KV Palli | 220KV Palli-Kadarpur Ckt-2 | 19.19Km | 19:28 | 02:29 22.02.26 | | E/F & MR-86 | DPR, Z-1, Y-Ph& D=5.2Km | Transient Fault | NIL | The 220kV Pali-Kaderpur Ckt-II tripped from both ends.<br>At 400kV S/Stn. Kaderpur end: DPS Main1<br>Y - Phase, Location 3.088KM, Zone 1, Fault Current 6.925kA.<br>DPS Main 2<br>Y-phase, Zone 1, Location 5.2KM, Fault Current 6.188kA.<br>At 220kV S/Stn. Pali: E/F relay and Master relay trip with carrier received channel 1 & 2 Relay. The DPS relay of 220kV Pali kaderpur Ckt-II was checked by M&P team and found that even though the DPS Main-I relay sensed that fault , it did not trip which lead to the operation of E/F relay at 220kV Pali end. The line was patrolled by SDO TL Gurugram and no visible fault was | The DPS relay of 220kV Pali – kaderpur Ckt-II is havng PT supply issue due to which the relay even though sensed the fault but did not trip. PT supply issue to be resolved urgently by taking shutdown on the 220kV Bus under intimation to the M&P team. |

| | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | detected. The line was successfully charged on dated 22.02.2026 at 02.29Hrs | |

## Reporting of Performance Indices for NHPC Power Stations In NR-Region
## Month-FEBRUARY '2026

| Sl No | Name of Utility | Name of PS | Elements (Line/ Unit) | From | | To | | Total Outage | Outage Reason | Nc | Nf | Nu | Ni | Dependability Index (D=Nc/(Nc+Nf)) | Security Index (S=Nc/(Nc+Nu)) | Reliability Index (R=Nc/(Nc+Ni)) | Reason for wrong operation | Action Taken |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | NHPC Ltd | Kishanganga | 220 KV Kishanganga-Delina Line#1 | 3-Feb-26 | 15:09:00 | 3-Feb-26 | 15:49:00 | 0:40 | Direct Trip received from Delina end. | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 2 | NHPC Ltd | Kishanganga | 220 KV Kishanganga-Delina Line#2 | 3-Feb-26 | 15:09:00 | 3-Feb-26 | 15:49:00 | 0:40 | Direct Trip received from Delina end. | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 3 | NHPC Ltd | Chamera-I | 400 KV Chamera-I-Chamera-II Line#3 | 23-Feb-26 | 14:21:00 | 23-Feb-26 | 16:06:00 | 1:45 | Directional Earth Fault Protection operated | 1 | 0 | 1 | 1 | 1 | 0.5 | 0.5 | Loose connection observed in measurement card of P443 relay | Tightness of the CT card was checked and ensured. |
| 4 | NHPC Ltd | Chamera-II | 400 KV Chamera-II-Chamera-I Line#2 | 23-Feb-26 | 14:21:00 | 23-Feb-26 | 16:06:00 | 1:45 | Direct Trip received from Chamera-I end. | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| 5 | NHPC Ltd | Uri | 400 KV Uri-Amargarh Line#1 | 27-Feb-26 | 17:27:00 | 28-Feb-26 | 12:41:00 | 19:14 | DPR operated in Z1 at R-N Phase fault and successfully reclosed from Uri end. However within reclaim time again Z1 protection operated and three phase tripping occurred | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA |
| No Line tripping has been observed from other Power Stations of NHPC of NR region for Month of February'2026 | | | | | | | | | | | | | | | | | | |

(J. Pani)
SM(E)
02.03.26

| S.No. | Substation | Element name | Date & Time of the tripping | Categorization (F/U)<br>F = Failures to operate at internal power system faults<br>U = Unwanted operations | Reason for failures/Unwanted operation | Corrective action taken/ to be taken |
|---|---|---|---|---|---|---|
| 1 | BARA | 765 KV Line 1 Bara - Mainpuri | 26.02.2026 | Unwanted operation | DT sent remote end | During checking it is found , there is no alarm in SCADA or relay , and no increment in DT Send counter of FOTE, however in PLCC DT send counter has advanced. We suspect a fault in DT circuit cable of 710 CB(out of service) and same has been isolated. We have checked all the circuit and confirmed healthiness. Line charged from remote end. |

## *Tripping Details of Feb-2026*

## *Punjab State Transmission Corporation Limited*

| *S.N.* | *Sub-Station* | *Unit (SPS/Line/ICT/GT/etc.)* | *Date on which Power System Fault occurred* | *Local End Indications* | *Remote End Indications* | *Reason & Corrective Action* | *Nc* | *Nf* | *Nu* | *Ni = Nf + Nu* | **Dependability** | **Security** | **Reliability** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | **Index (D)** | **Index (S)** | **Index (R)** |
| 1 | 220 kV G-1 | 220/66 KV, 160 MVA T/F T-5 | 02.02.2026 | HV Side -REF RYB phase<br>LV Side -O/C - HSU RYB phase, Backup O/C operated | | Due to fault of 66 KV Aman Alloy feeder | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 2 | 220 kV G-1 | 220/66 KV, 100 MVA T/F T-6 | 02.02.2026 | HV Side -REF, OLTC, PRV<br>LV Side -O/C RYB phase, REF, Master | | Due to fault of 66 KV Aman Alloy feeder | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 3 | 220 kV G-1 | 220KV G1-G2 | 03.02.2026 | Main 1, Started B N phase<br>Trip phase A B C<br>Zone-2<br>Fault Location - 8.087 KM<br>Ia- 902.9 A, Ib- 10.45 kA, Ic- 544.6 A, Master, DEF operated | Directional E/F, LH, RH | Faulty 220 KV G1-G2 circuit has been patrolled from tower no. 219 to 243, Tower no.220,224, 225,227,228,230,231,232,233,235,237,238,239,240 and 241 top patrolled, No visible fault found. | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 4 | 220kv s/s G2 | G2-Bhari line | 3-2-2026 | O/C ,E/F ,No ZONE,Relay type VAJ operated,Ir-0 A,Iy=5.387 Ma,Ib=0 A | DPR Zone-1,Ir-0.27 KA,Iy=0.3 KA,Ib=0.7 kA | line charged with the concent of PC Patiala | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 5 | 220kv s/s G2 | G2-G3 line | 3-2-2026 | DPR relay operated, Zone-1,Ir=29.66 A,Iy=29.85 A,Ib=23.66 A | Br. ON at G3 end | line charged with the concent of PC Patiala | 0 | 0 | 1 | 1 | 0 | 0 | 0 |
| 6 | 220 KV S/S Ghulal | 220kv Ghulal(PST)-GGSSTP(PSP) ckt 1 | 05.02.2026 | R-372 A Y-233 A B 2274 A | R-387 A Y-246 A B- 29.99 kA Zone 1 Distance : 584.8 Mtr | Due to Disc String Flashed | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 7 | 220 KV S/S Bassi Pathana | 220 KV RTP - Bassi | 07.02.2026 | Breaker Off, DPR Zone-1 B Phase= 1800.03A, Distance= 50.670km | Breaker Off, DPR Zone-1 B Phase= 20.35kA, Distance= 4.429km | Damage wave trap of B- Phase of 220 KV RTP to Bassi circuit has been removed and as per DPR indication line patrolled from tower no.1 to 22, nothing found | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 8 | 220 KV S/S Ghulal | 220kv Ghulal(PST)-GGSSTP(PSP) ckt 1 | 20.02.2026 | R-4056 A Y- 231 A B- 361 A Dist- 13.6 KM Zone-1 | R-3.3 kA Y-206 A B-356 A Dist-41.97 KM | Line TRipped Due to Transient Fault | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 9 | 220KV S/S G2,MGG | 220/66kV T/F T5 MGG G2 | 21/02/2026 | O/C RYB-phase E/F REF relay | | due to Blast in 66kv Capacitor Bank | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 10 | 220 kV G-1 | 220kv G-1 - RTP Ckt. No.2 | 27.02.2026 | P442 Any Trip-C , Zone-1, F.L- 47.38 KM, Ic- 2.142 kA | P442 F.L- 9.42 KM, Zone-1, Ic- 26.67 kA | ckt. checked with Fault Locating Machine with PTW no.58, result found ok | 1 | 0 | 0 | 0 | 1 | 1 | 1 |

**Name of the office: 220/132kV Protection Division, PSTCL, Ludhiana**

**Tripping Details of February 2026**

**Punjab State Transmission Corporation Limited**

| Sr.No. | Sub-Station | Unit (SPS/Line/ICT/GT/etc.) | Date and time when Power System Fault occurred | Local End Indications | | Remote End Indications | | Corrective action | Nc | Nf | Nu | Ni = Nf + Nu | Dependability Index (D) | Security Index (S) | Reliabilty Index (R) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Indications | Tripping Justification/Reason/ Detail | Indications | Tripping Justification/Reason/ Detail | | | | | | | | |
| 1 | 220kV Sahnewal | 220kV Sahnewal - Kohara Ckt. | 21/2/2026 AT 18:57 | Zone - 1, Fault Location - 5.095 Km, RY-Phase, Auto Reclose Blocked | Due to transient fault | Zone - 1, Fault Location - 8.446 Km, RY-Phase, Auto Reclose Blocked | Due to transient fault | | 1 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 |
| 2 | | 220kV Sahnewal - Ghulal Ckt. | 20/2/2026 AT 9:02 | Zone - 2, Fault Location - 32.81 Km, R-Phase, Auto Reclose Blocked | | CB ON | | Relay will be checked at Ghulal end | 0 | 0 | 1 | 1 | 0.00 | 0.00 | 0.00 |
| 3 | | 220kV Sahnewal - PGCIL Ckt. 1 | 21/2/2026 AT 18:57 | Zone - 4, Fault Location - (- 678.5 m), RY-Phase, Auto Reclose Blocked, SOTF operated | SOTF trip was set to ALL ZONES | CB ON | | SOTF settings revised | 0 | 0 | 1 | 1 | 0.00 | 0.00 | 0.00 |
| 4 | 220kV Doraha | 220kV Doraha - Sahnewal Ckt. 2 | 21/2/2026 AT 18:57 | E/F | | CB ON | | Earth fault relay was in default mode and hence settings of the relay has been rectified | 0 | 0 | 1 | 1 | 0.00 | 0.00 | 0.00 |
| 5 | 220kV Dhandari 2 | 220kV Dhandari 2 - Jamalpur | 7/2/2026 AT 13:07 | Zone - 1, Fault Location - 2.032 Km, YB-Phase, Auto Reclose Blocked | Due to transient fault | Zone - 1, Fault Location - 1.212 Km, YB-Phase, Auto Reclose Blocked | Due to transient fault | | 1 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 |
| 6 | | 220kV Dhandari 2 - PGCIL Ckt. 2 | 14/2/2026 AT 14:56 | Zone - 1, Fault Location - 6.995 Km, B-Phase, Auto Reclose Blocked | Some unknown vehicle came in range between tower No. 25 and tower No. 26 | Zone - 1, Fault Location - 7.00 Km, B-Phase, Auto Reclose Blocked | Some unknown vehicle came in range between tower No. 25 and tower No. 26 | | 1 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 |
| 7 | 220kV Kohara | 220kV Kohara - Sahnewal ckt. | 21/2/2026 AT 18:57 | Zone - 1, Fault Location - 8.446 Km, RY-Phase, Auto Reclose Blocked | Due to transient fault | Zone - 1, Fault Location - 5.095 Km, RY-Phase, Auto Reclose Blocked | Due to transient fault | | 1 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 |
| 8 | 220kV Himmatpura | 220kV Himmatpura - Badhni Kalan | 16/2/2026 AT 4:25 | Zone - 1, Fault Location - 1.481 Km, R-Phase, Auto Reclose Operated | Due to single phase E/F DPR has given single pole tripping and auto reclosed afterwards from Himmatpura end | Zone - 2, Fault Location - 20.78 Km, R-Phase, Auto Reclose Blocked | Due to non provision of Carrier aided protection it is not possible to provide tripping justification from Badhni end | | 1 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 |
| 9 | | 220kV Himmatpura - GHTP Ckt. 2 | 16/2/2026 AT 4:25 | E/F | | CB ON | | E/F settings will be revised | 0 | 0 | 1 | 1 | 0.00 | 0.00 | 0.00 |
| 11 | 220kV Badhni Kalan | 220kV Badhni Kalan - Himmatpura | 16/2/2026 AT 4:25 | Zone - 2, Fault Location - 20.78 Km, R-Phase, Auto Reclose Blocked | Due to non provision of Carrier aided protection it is not possible to provide tripping justification from Badhni end | Zone - 1, Fault Location - 1.481 Km, R-Phase, Auto Reclose Operated | Due to single phase E/F DPR has given single pole tripping and auto reclosed afterwards from Himmatpura end | | 1 | 0 | 0 | 0 | 1.00 | 1.00 | 1.00 |

| Tripping Details | | | | | | Remarks | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Punjab State Transmission Corporation Limited | | | | | | | | | | | | | |
| February-2026 | | | | | | | Nc | Nf | Nu | Ni | Dependability Index (D) | Security Index (S) | Reliabilty Index (R) |
| S.N. | Sub-Station | Unit (SPS/Line/ICT/GT/etc.) | Date on which Power System Fault occurred | Local End Indications | Remote End Indications | | | | | | | | |
| 1 | 400 kV S/S Behman Jassa Singh | 400 kV Bus Bar No.2 | 24-02-2026 at 20.41 Hrs | Bus Bar Protection Optd. | | Wrongly CFC logic made by Relay engg. During comissioning work of 2 No. ICTs(Tripping with DC fail of PU), Now same has set right | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 2 | 400 kV S/S Behman Jassa Singh | 400 kV Bus Bar No.2 | 25-02-2026 at 14.29 Hrs | Bus Bar Protection Optd. | | Wrongly CFC logic made by Relay engg. During comissioning work of 2 No. ICTs(Tripping with DC fail of PU), Now same has set right | 0 | 1 | 0 | 1 | 0 | #DIV/0! | 0 |
| 3 | 400 kV S/S Dhuri | 220 kV Dhuri(400)-Dhuri ckt.I | 16-02-2026 at 03.10 Hrs | Zone-I, R-ph, Fault distance-6.0 km | Zone-I, R-ph, Fault distance-15.79 km | Flashed insulator found at T.No 53/23.R phase | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 4 | 400 kV S/S Muktsar | 220 kV Muktsar(400)-Abohar ckt.I | 24-02-2026 at 18.52 Hrs | Zone-I, B-ph, Fault Distance-16.0 km(A/R optd.) | Zone-I, B-ph, Fault Distance-21.58 km | | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 5 | 400 kV S/S Rajpura | 220 kV Rajpura(400)-MGG ckt.II | 16-02-2026 at 04.36 Hrs | Zone-I, B-ph, Fault Distance-19.3 km(A/R optd.) | Zone-I, B-ph, Fault Distance-8.16 km(A/R optd.) | | 1 | 0 | 0 | 0 | 1 | 1 | 1 |
| 6 | 400 kV S/S Ropar | 500 MVA, 400/220 kV ICT-2 | 12-02-2026 at 10.26 Hrs | SPR optd. | | Due to mal-functioning of SPR relay | 0 | 1 | 0 | 1 | 0 | 0 | 0 |
| 7 | 400 kV S/S Ropar | 500 MVA, 400/220 kV ICT-2 | 12-02-2026 at 10.26 Hrs | SPR optd. | | Due to mal-functioning of SPR relay, Now put out of ckt. by CGL engineer & CGL will replace it. | 0 | 1 | 0 | 1 | 0 | 1 | 0 |

# Reason for Performance Indices less than Unity- February 2026 (RVPN)

**Case-1** **765KV Phagi –Gwaliar-2 LINE at 765KV GSS PHAGI on 13.02.2026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

Line tripped due to wrong CT selection of spare reactor, REF Operated

**Corrective Action taken – YES**

CT selection corrected.

**Case-2** **220 KV D/C SAWA-NIMBAHERA LINE at 220 KV GSS SAWA & 220 KV Chittorgarh - Nimbahera Line at 400KV GSS CHITTORGARH on 10.02.2026**

No. of Unwanted operation – 2

**Reason of unwanted operation –**

Over current setting found enabled.

**Corrective Action taken – YES**

Over current setting disabled.

**Case-3** **220 KV Chittorgarh- Pratapgarh Line at 400KV GSS CHITTORGARH on 10.02.2026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

Relay coordination (grading) of 220/132KV transformer problem.

**Corrective Action taken – YES**

Backup relay grading recalculated and implemented.

**Case-4** **220 KV STPS-BHADRA Line at 220 KV GSS BHADRA on 27.02.02026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

O/C current relay defective, its tripping contact make.

**Corrective Action taken – YES**

Defective Relay removed.

**Case-5** **220/132 KV, 160 MVA Trf-I, BBL Make at 220KV GSS BANSUR on 06.02.2026**

No. of incorrect operation – 1

**Reason of unwanted operation –**

Tripping occurred during DC earth fault detection.

**Corrective Action taken – YES**

Workmen asked to work carefully.

**Case-6** **220/132 KV, 100 MVA TRF No. 2 at 220 KV GSS MODAK on 14.02.2026**

No. of Failures to operate – 1

**Reason of unwanted operation –**

External LBB relay operated. The relay is defective.

**Corrective Action taken – YES**

Defective LBB relay removed from system. LBB feature enabled in BUS BAR protection.

**Case-7** **220/132KV, 100MVA, TRF-II at 220 KV GSS RATANGARH on 15.02.2026**

No. of Unwanted operation – 1

**Reason of unwanted operation –**

Temperature meter fell down and tripping contact make.

**Corrective Action taken – YES**

Temperature refixed.

मुख्य अभियन्ता (सं0)
निदेशक (आपरेशन)

**U.P. Power Transmission Corporation Ltd.**
**Shakti Bhawan Extn.**
**14 Ashok Marg, Lucknow**– 226001
**Tel/Fax:** 0522–2287833/2286476
**Email: director_op@upptcl.org**

**No:** 997 **/Dir (Op)/ NRPC** **Date:** 07/03/2026

**Subject: Protection performance indices of protection system for the month of 02/2026.**

SEO
NRPC
New Delhi.

**Through E- Mail**

Mail ID – seo-nrpc@nic.in

Kindly find enclosed herewith copy of compiled Protection performance indices along with the reports obtained from all 06 Zonal offices of UPPTCL for the month of February, 2026.

7/3/26

**(Md. Reza Ahmad)**
Chief Engineer (A)

**No:** **/Dir (Op)/** **Date:**

**Copy to :-**

1 Director (Operation) UPPTCL, Lucknow for information.
2 Chief Engineer, TC/TW/TSW/TSC/TSE/TNE, UPPTCL, Lucknow/Meerut/ Agra/Jhansi/ Prayagraj/Gorakhpur.
3 Superintending Engineer (RA), UPSLDC, Lucknow.

**(Md. Reza Ahmad)**
Chief Engineer (A)

# Protection Perfomance Indices

**February, 2026**

| S.No. | Transmission Zone | Dependability index | Security index | Reliability index | Remark |
|---|---|---|---|---|---|
| 1 | TC, Lucknow | 1 | 0.88 | 1 | **At 400 kV Bareilly** : SOTF Protection malfunctioning in Main 1 distance protection relay & will be resolved soon after taking shhutdown. |
| 2 | TSC, Jhansi | 1 | 1 | 1 | --- |
| 3 | TW, Meerut | 1 | 0.96 | 0.96 | **At 400 kV S/S-II, Muradnagar :** Fault in Test Terminal block (TTB), later rectified. |
| 4 | TNE, Gorakhpur | 1 | 0.83 | 0.83 | **1. At 400 kV S/S Gorakhpur :** 400 kV Bus Bar protection operated on dated 23.02.2026 time 12:51:00 hrs due to damage of R-ph disc string of 400 kV Main Bus-II and according to DR, 400 kV Main Bus-I also optd due to per sistent Bus coupler current after Bus coupler/Bus-II CB-operation.<br>Connected Elements On Main Bus-I : 400 kV Gorakhpur-PGCIL Ckt-I, 400 kV Gorakhpur- Azamgarh Ckt, 500 MVA ICT-I<br>On Main Bus-II : 400 kV Gorakhpur- PGCIL Ckt-II, 500 MVA ICT-II, 315 MVA ICT-III<br>2. **At 400 kV S/S Gorakhpur :** 400 kV Bus Bar protection operated on dated 28.02.2026 time 15:30:00 hrs due to damage of B-ph disc string of 400 kV Main Bus-I. According to Disturbance recorder In Pre fault Condition-I diff current if more than set value in Zone-I but relay respond delayed that's caused main Bus-II also tripped.<br>Connected Elements On Main Bus-I : 400 kV Gorakhpur-PGCIL Ckt-I, 400 kV Gorakhpur- Azamgarh Ckt, 500 MVA ICT-I<br>On Main Bus-II : 400 kV Gorakhpur- PGCIL Ckt-II, 500 MVA ICT-II, 315 MVA ICT-III<br>**Corrective action :** CB52D01 Coupler 1 Status Dropout delay (cyc) in Bus Bar Protection relay (SEL 487B) setting has been changed from 1 cycle to 3 cycle on dated 28.02.2026.<br>2. To overrule any other issue matter also referred to M/S SEL. |

| | | | | | |
|---|---|---|---|---|---|
| 5 | TSW, Agra | 1 | 0.90 | 0.90 | **At 220 kV S/S Tundla** : While taking approved shutdown of 220 kV Tundla-Firozabad (PJFTL) line at 10:37 hrs 220 kV Tundla-Agra (PG) line tripped from Agra (PG) end due to DT send, which led to blackout of 220 kV Tundla. Charging attempt of the 220 kV Tundla-Agra (PG) line was made at 11:24 hrs but line did not hold and tripped again on DT received. Load was restored after charging 220 kV Firozabad (PJFTL)- Tundla line at 11:58 hrs. The tripping of 220 kV Tundla-Agra (PG) line was due to erroneous DT command sent from 220 kV S/S Tundla to 220 kV S/S Agra (PG) due to following reasons : 1)- 48 V DC source looping of PLCC cabinets was cut by rodents. 2) The NO contact of TNC switch was found shorted.<br>**Corrective action taken :** The 48V DC source have been made independent of both 220 kV Tundla-Firozabad (PJFTL) line and 220 kV Tundla-Agra (PG) line.<br>The TNC switch of 220 kV Tundla-Agra (PG) line has been replaced at 220 kV S/S Tundla end.<br>Control eable from relay panel to PLCC panel of 220 kV Tundla-Agra (PG) line was found earthed and has been replaced. |
| 6 | TSE, Prayagraj | 1 | 1 | 1 | --- |
| **Total indices value** | | **1.000** | **0.928** | **0.948** | --- |

| Sl. No. | Month | SPS Operated | Details of SPS operated | No. of times operated in Month | No. of correct operations | No. of mal-operation | No. of times failed to operate | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 | May'25 | SPS for safe evacuation of Lalitpur TPS Generation | 1.<br>i) At 15:32:37 hrs, B-N fault occurred on 765 KV Agra Fatehabad(UP)-Lalitpur(LPG) (UP) Ckt-1 and A/R started. At the same instant, 765 KV Agra Fatehabad(UP)-Lalitpur(LPG) (UP) Ckt-2 tripped on operation of OV stage-2 protection. As per DR of line, voltage of R-ph of 765kV Lalitpur-Agra Fatehabad line-II increased from 441kV to ~845kV for ~140msec.<br>ii)Further, after dead time of A/R operation, 765 KV Agra Fatehabad(UP)-Lalitpur(LPG) (UP) Ckt-1 also tripped due to permanent nature of fault.<br>iii)As per PMU at Agra765(PG), B-N phase to earth fault with delayed clearance of ~560msec is observed.<br>iv)Due to tripping of both the 765kV evacuating lines, case-3 for SPS for safe evacuation of Lalitpur generation operated. As per SPS case-3, in case of tripping of both the 765kV lines, one 660MW unit, in this case unit-3 shall come to house load and remaining unit shall trip. 220kV lines to Lalitpur and Jhansi shall also trip.<br>v)However, as 100MVA ST-2 already tripped at 15:26 hrs during LBB operation of 220kV Bus-1, BFP for Unit-3 was not available and therefore, 660MW Unit-3 also tripped along with 660MW Unit-1&2. 220kV line to Lalitpur(2nd ckt) also tripped on SPS operation.<br>vi)Due to tripping of both the units and all the 220kV feeders on loss of evacuation path and SPS operation, complete 765/220kV Lalitpur S/s got blackout.<br>vii)As per SCADA, generation loss of 1040MW at Lalitpur TPS (UP) and change in UP demand of ~90MW is observed.<br><br>2.<br>i)At 13:49 hrs, 765 KV Agra Fatehabad(UP)-Lalitpur(LPG) (UP) Ckt-2 tripped on R-B phase to phase fault.<br>ii)Further at 13:56hrs, 765 KV Agra Fatehabad(UP)-Lalitpur(LPG) (UP) Ckt-1 tripped on R-N phase to earth fault.<br>iii)Due to tripping of both the 765kV evacuating lines, case-3 for SPS for safe evacuation of Lalitpur generation operated. As per SPS case-3, in case of tripping of both the 765kV lines, one 660MW unit (in this case unit-3 shall come to house load and remaining unit shall trip. 220kV lines to Lalitpur and Jhansi shall also trip.<br>iv)As a result, 660 MW Lalitpur Unit-1 & Unit-2 tripped alongwith, 220 KV Lalitpur –Jhansi (UP) CKT, 220kV Lalitpur-Lalitpur220 ckt-2, 220kV Lalitpur-Lalitpur220 ckt-1 and 220 KV Lalitpur –Babina (UP) CKT tripped on SPS.<br>v)As per SPS, the generation of 660MW Unit-3 reduced to 70MW for house load operation.<br>vi)As per PMU at 765KV Agra(PG), two consecutive R-N phase to phase faults with fault clearing time of 120ms is observed. | 1<br>03.05.2025 at 15:32hrs<br><br>2<br>11.05.2025 at 13:49hrs | 2 | 0 | 0 | **During 1st event:**<br>As 100MVA ST-2 already tripped at 15:26 hrs during LBB operation of 220kV Bus-1, BFP for Unit-3 was not available and therefore, 660MW Unit-3 also tripped along with 660MW Unit-1&2. 220kV line to Lalitpur(2nd ckt) also tripped on SPS operation. |
| 2 | May'25 | HVDC Rihand-Dadri SPS | i)As reported at 20:21 hrs, during multiple elments tripping event in Dadri, Meerut complex on subsequent line faults,500 kV HVDC Rihand-Dadri (PG) Ckt-1 and Ckt-2 tripped due to commutation failure. At the time of tripping 500 kV HVDC Rihand-Dadri (PG) Ckt-1 and Ckt-2 were carrying total ~1150 MW. As a result of tripping of both the ckt, SPS condition 2 operated.<br>ii)As per details received from POWERGRID, as per logic if commutation failure persists for more than 2600 ms then the Protection shall issue a Y Trip to the converters. Since starting from 20:20:58:2785 Hrs. 12 successive commutation failures were detected at a gap of less than 500ms, at 20:21:00:8782 both Poles of the Rihand Dadri HVDC Link tripped on Commutation failure protection from HVDC Dadri S/s.<br>iii)As per SPS case-2 operation, there should be load shed in load group-A, B, C & D and generation back down of total ~500 MW at Rihand & Singrauli TPS. As per SCADA data, generation backdown of ~335MW is observed in Rihand Stage I and Stage II. However, there wasn't any significant generation back down (only ~30MW) in Singrauli observed. At load stations also, no signifiicatn load relief was observed as per SCADA. As per status received from sites, SPS signal was sent from POWERGRID (Dadri S/s) however SPS action didn't occur at multiple stations due to issue in SPS system at load stations end. | 1<br>21.05.2025 at 20:21hrs | 1 | 0 | 0 | As per details received from SLDCs and POWERGRID, SPS signal was sent from POWERGRID (Dadri S/s) however SPS action didn't occur at multiple stations due to issue in SPS system at load stations end. Non-operation of SPS at Singrauli, Malerkotla, Muzaffarnagar, Modipuram, Panipat(HR). Confirmation from some of the load stations not received yet. |
| 3 | Jul'25 | SPS for reliable evacuation of power from N. Jhakri, Rampur, Karcham Wangtoo, Sawra Kuddu, Baspa, Sorang and Naitwar Mori HEP | At 06:25 hrs, case-1 of "SPS for reliable evacuation of power from N. Jhakri, Rampur, Karcham Wangtoo, Sawra Kuddu, Baspa, Sorang and Naitwar Mori HEP" operated. As per SPS logic, condition for SPS case-1 operation is "Load on any of the lines at Jhakri, Rampur or Gumma towards Nallagarh or Panchkula exceeds 900 MW". However, loading on all the evacuating lines were within permissiable limit (<900MW). | 1<br>14.07.2025 at 06:25hrs | 0 | 1 | 0 | As confirmed, SPS operated due to faulty transducer of the 400kV Rampur–Nalagarh transmission line at the Rampur end and faulty transducer has been successfully replaced by the RHPS team |
| 4 | Aug'25 | SPS for Transformers at 400KV Kashipur (PTCUL) substation to avoid overloading of Transformers | i)As reported, at 04:39 hrs, Y-N fault occurred on 220kV Kashipur-Jafarpur line. Due to non clearance of fault from Kashipur end due relay issue, 400/220kV ICTs at Kashipur tripped on overcurrent protection operation. At the same time, case-2 of SPS for ICTs at Kashipur also operated. This further led to tripping of 220kV Kashipur-Jafarpur line CB at Kashipur end and 132kV Kashipur-Jaspur line. | 1<br>18.08.2025 at 04:39hrs | 1 | 0 | 0 | |
| 5 | Sept'25 | SPS for Transformers at 220KV Sarojininagar (UPPTCL) substation | As reported at 19:57 hrs, multiple elements tripped at 220/132kV Bijnore(UP). This has further led to overloading of ICTs at Sarojininagar(UP) leading to operation of SPS for transformer at Sarojininagar(UP). On operation of SPS, 132kV Kundan Road, 132kV TRT line-I&II, 33kV Nadarganj-2, Gehru, Uttretia, Lesa-I&II tripped. | 1<br>27.09.2025 at 19:57 hrs | 1 | 0 | 0 | |
| 6 | Oct'25 | SPS for Transformers at 400/220KV Agra(UPPTCL) substation | As reported at 19:16 hrs, multiple elements tripped at 400/220kV Agra(UP). 400/220kV 500MVA ICT-2 and 315 MVA ICT-3 tripped during the event. After tripping of ICT-2&3, case-5 of SPS of transformers at Agra(UP) triggerred leading to tripping of 220kV feeder to Agra220kV-II, IOCL-II and 132kV feeders to Foundry Nagar, Sadabad, Agra Taj, Dayalbagh-I & Bhimnagri. 220kV feeder to Shamsabad and Mitai didn't trip on SPS. During inspection, it was found that CB status of both the feeders was not showing in SPS system. | 1<br>21.10.2025 at 19:16 hrs | 1 | 0 | 0 | 220kV feeder to Shamsabad and Mitai didn't trip on SPS. During inspection, it was found that CB status of both the feeders was not showing in SPS system. |
| 7 | Feb'26 | SPS for safe evacuation of Lalitpur TPS Generation | 1.<br>As reported, at 06:57:40 hrs, Case 5 of SPS scheme for safe evacuation of Lalitpur TPS Generation operated leading to generation backdown of ~200 MW of Unit-3 at Lalitpur TPS. Case-5 of SPS oeprated due to overloading of 400 kV Fatehabad-Agra PG line above 800 MW.<br>2.<br>i)At 13:49 hrs, 765 KV Agra Fatehabad(UP)-Lalitpur(LPG) (UP) Ckt-2 tripped on R-B phase to phase fault.<br>ii)Further at 13:56hrs, 765 KV Agra Fatehabad(UP)-Lalitpur(LPG) (UP) Ckt-1 tripped on R-N phase to earth fault.<br>iii)Due to tripping of both the 765kV evacuating lines, case-3 for SPS for safe evacuation of Lalitpur generation operated. As per SPS case-3, in case of tripping of both the 765kV lines, one 660MW unit (in this case unit-3 shall come to house load and remaining unit shall trip. 220kV lines to Lalitpur and Jhansi shall also trip.<br>iv)As a result, 660 MW Lalitpur Unit-1 & Unit-2 tripped alongwith, 220 KV Lalitpur –Jhansi (UP) CKT, 220kV Lalitpur-Lalitpur220 ckt-2, 220kV Lalitpur-Lalitpur220 ckt-1 and 220 KV Lalitpur –Babina (UP) CKT tripped on SPS.<br>v)As per SPS, the generation of 660MW Unit-3 reduced to 70MW for house load operation.<br>vi)As per PMU at 765KV Agra(PG), two consecutive R-N phase to phase faults with fault clearing time of 120ms is observed. | 1<br>27.02.2026 at 06:57 hrs<br><br>2<br>11.05.2025 at 13:49hrs | 2 | 0 | 0 | **During 1st event:**<br>As 100MVA ST-2 already tripped at 15:26 hrs during LBB operation of 220kV Bus-1, BFP for Unit-3 was not available and therefore, 660MW Unit-3 also tripped along with 660MW Unit-1&2. 220kV line to Lalitpur(2nd ckt) also tripped on SPS operation. |
| 8 | Mar'26 | SPS related to Safe evacuation of generation of Chhabra/ Chhabra Super Critical/ Kawai/ Kalisindh Complex | As reported, at 14:37 hrs, 400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1 tripped on R-N Phase to earth fault. Further, 400 kV Bhilwara (RS) – Chhabra (RVUN) Ckt-1 was already under planned shutdown.<br>Due to tripping of 400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1 with 400 kV Bhilwara (RS) – Chhabra (RVUN) Ckt-1 under outage, 250 MW Chhabra Unit-4 tripped on SPS operation as per SPS logic related to Safe evacuation of generation of Chhabra TPS (Case-3).<br>As per SPS logic w.r.t. this case, 2 units at Chhbra TPS should trip however, as reported by SLDC Rajasthan, in case of N-1-1/N-2 contingency of 400 kV Chhabra-Hindaun & Chhabra-Bhilwara, if total generation at Chhabra TPS is >550 MW but <750 MW, then only one unit of Chhabra TPS will trip and if total generation at Chhabra TPS is >750 MW, then two units of Chhabra TPS will trip. | 1<br>09.03.2026 at 14:37 hrs | 1 | 0 | 0 | As reported by SLDC Rajasthan, in case of N-1-1/N-2 contingency of 400 kV Chhabra-Hindaun & Chhabra-Bhilwara, if total generation at Chhabra TPS is >550 MW but <750 MW, then only one unit of Chhabra TPS will trip and if total generation at Chhabra TPS is >750 MW, then two units of Chhabra TPS will trip. |
| 9 | Mar'26 | SPS for Transformers at 400/220KV Ajmer(RS) substation | During antecedent condition, 400/220 kV 315 MVA ICT 1 & 3 at Ajmer(RS) were carrying approx. 217 MW and 226 MW respectively.<br>As reported by SLDC Rajasthan, at 14:44 hrs, 220kV KTPS-Bundi(RS) Ckt-1 & 2 tripped on B-N phase to earth fault. Consequently, 220 KV GSS Bundi(RS) was left with a single power source i.e. 220 KV Gulabpura(RS). 220 KV Gulabpura was being supplied by 220 KV Beawar and 220 KV Jethana, both of which were connected to the 400 KV GSS Ajmer(RS).<br>This led to over-loading of 400/220 kV 315 MVA ICT 1 & 3 at Ajmer(RS) triggering the SPS for Transformers at 400KV Ajmer(RVPNL) substation. Due to SPS operation, 220 kV Ajmer-Beawer Ckt, 220 kV Ajmer-Kishangarh Ckt and 220 kV Ajmer-Bherunda Ckt-1 & 2 tripped (as per logic).<br>However, the load from 220 KV GSS Bundi(RS), 220 KV Gulabpura(RS) and 220 KV Jethana along with 220kV GSS Ajmer(RS) continued to persist on both 400/220 kV 315 MVA ICT 1 & 3 at Ajmer(RS) and ultimately both the ICTs tripped on overloading. This led to complete blackout at 220 kV Kishangarh, 220 kV Bherunda, 220 kV Beawar, 220 KV Bundi(RS), 220 KV Gulabpura(RS) and 220 KV Jethana S/s. | 1<br>10.03.2026 at 14:44 hrs | 1 | 0 | 0 | |
| 10 | Mar'26 | SPS related to Safe evacuation of generation of Chhabra/ Chhabra Super Critical/ Kawai/ Kalisindh Complex | As reported, at 13:55 hrs, 400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1 tripped on R-N Phase to earth fault. Further, 400 kV Bhilwara (RS) – Chhabra (RVUN) Ckt-1 was already under planned shutdown.<br>Due to tripping of 400 KV Hindaun(RS)-Chhabra(RVUN) (RS) Ckt-1 with 400 kV Bhilwara (RS) – Chhabra (RVUN) Ckt-1 under outage, 250 MW Chhabra Unit-4 tripped on SPS operation as per SPS logic related to Safe evacuation of generation of Chhabra TPS (Case-3).<br>As per SPS logic w.r.t. this case, 2 units at Chhbra TPS should trip however, as reported by SLDC Rajasthan, in case of N-1-1/N-2 contingency of 400 kV Chhabra-Hindaun & Chhabra-Bhilwara, if total generation at Chhabra TPS is >550 MW but <750 MW, then only one unit of Chhabra TPS will trip and if total generation at Chhabra TPS is >750 MW, then two units of Chhabra TPS will trip. | 1<br>10.03.2026 at 13:56 hrs | 1 | 0 | 0 | As reported by SLDC Rajasthan, in case of N-1-1/N-2 contingency of 400 kV Chhabra-Hindaun & Chhabra-Bhilwara, if total generation at Chhabra TPS is >550 MW but <750 MW, then only one unit of Chhabra TPS will trip and if total generation at Chhabra TPS is >750 MW, then two units of Chhabra TPS will trip. |
| 11 | Mar'26 | SPS for Transformers at 400/220KV Bikaner(RS) substation | As reported, at 11:41 hrs, there was an immediate surge in generation due to tripping of 220 kV Badnu-Tehandesar Ckt. The generation from 220 kV GSS Badnu was diverted via 220 kV GSS Bikaner(RS) to 400 kV GSS Bikaner(RS) which led to overloading of 400/220 KV 315 MVA ICT 1 & 2 at Bikaner(RS).<br>Due to overloading of ICTs at Bikaner(RS), "SPS for Transformers at 400KV Bikaner (RVPNL)" operated and load feeders, e.g., 220KV Bikaner(RS)-Nokha Ckt & 220KV Bikaner(RS)-Sri Dungargarh Ckt tripped on SPS operation as per logic.<br>Tripping of 220KV Bikaner(RS)-Nokha Ckt & 220KV Bikaner(RS)-Sri Dungargarh Ckt further caused overloading of 400/220 KV 315 MVA ICT 1 & 2 at Bikaner(RS) and both the ICTs tripped due to overloading. | 1<br>11.03.2026 at 11:41 hrs | 1 | 0 | 0 | |
| | **Total** | | | **13** | **12** | **1** | **0** | |

## Status of perfomance indices reporting of SPS

**Month-January 2026**

| Sr. No. | Scheme Name | Owner / Agency | Controlling SLDC/ NRLDC | Reporting by Owner / Agency to Concerned SLDC/NRLDC (Latest by 07.02.2026) | | | | | | | | | Verification by NRLDC/SLDC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Nc | Nu | Nf | Ni | Dependability Index | Security Index | Reliability Index | Reason for indices less than 1 | Corrective action taken | Date of Receiving date from owner/agency (DD:MM:YYYY) | Verification of indices as per actual grid condition (Yes/No) | Remarks | NRLDC/SLDC reporting date |
| 1 | SPS for WR-NR corridor - 765kV Agra-Gwalior D/C | POWERGRID | **NRLDC** | | | | | | | | | | | | | |
| 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 reliable evacuation of power from NJPS, Rampur, Sawra Kuddu, Baspa Sorang and Karcham Wangtoo HEP | SJVN | NRLDC | | | | | | | | | | | | | |
| | | HPPTCL | | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | | | | |
| | | JSW | | | | | | | | | | | | | | |
| | | POWERGRID | | | | | | | | | | | | | | |
| | | SORANG | | | | | | | | | | | | | | |
| 7 | SPS for Transformers at Maharanibagh (PG) substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 8 | SPS for Transformers at Mandola (PG) substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 9 | SPS for Transformers at 400KV Fatehgarh Solar Park (AREPRL) | ADANI | NRLDC | | | | | | | | | | | | | |
| 10 | SPS to relive transmission congestion in RE complex (Bhadla2) | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 11 | SPS for Transformers at 765kV Jhatikara(PG) Substation (Bamnauli section) | POWERGRID | NRLDC | | | | | | | | | | | | | |
| | SPS for Transformers at 765kV Jhatikara(PG) Substation (Mundka section) | | NRLDC | | | | | | | | | | | | | |
| 12 | SPS for Transformers at 765kV Bhiwani(PG) Substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 13 | SPS for Transformers at 400kV Agra(PG) Substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| | | UPPTCL | | | | | | | | | | | | | | |
| 14 | SPS for Transformers at Bamnauli (DTL) substation | DTL | **Delhi SLDC** | | | | | | | | | | | | | |
| 15 | SPS for Transformers at 400kV Mundka (DTL) Substation | DTL | Delhi SLDC | | | | | | | | | | | | | |
| 16 | SPS for Transformers at 400kV Bawana (DTL) Substation | DTL | Delhi SLDC | | | | | | | | | | | | | |
| 17 | SPS for Reliable Evacuation of Rosa Generation | UPPTCL | **UPSLDC** | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 03.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 18 | SPS for evacuation of Anpara Generation Complex | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 03.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 19 | SPS for evacuation of Lalitpur TPS Generation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 03.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 20 | SPS for Reliable Evacuation of Bara TPS Generation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 21 | SPS for Transformers at Moradabad (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 22 | SPS for Transformers at Muradnagar (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 23 | SPS for Transformers at Agra (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 07.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 24 | SPS for Transformers at 400kV Sarojininagar (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 25 | SPS for Transformers at 220kV Sarojininagar (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 26 | SPS for Transformers at 400kV Unnao (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 27 | SPS for Transformers at 400kV Sultanpur (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 28 | SPS for Transformers at 400kV Bareilly (UPPTCL) Substation | UPPTCL | UPSLDC | SPS not commissioned yet | | | | | | | | | | | | 07.02.2026 |
| 29 | SPS for Transformers at 400kV Azamgarh (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 30 | SPS for Transformers at 400kV Mau (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 31 | SPS for Transformers at 400kV Gorakhpur (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 32 | SPS for Transformers at 400kV Sarnath (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 33 | SPS for Transformers at 400kV Nehtaur(WUPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 34 | SPS for Transformers at Obra TPS | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 35 | SPS for Transformers at 400kV Allahabad(PG) Substation | UPPTCL | UPSLDC | To be submitted by PGCIL | | | | | | | | | | | | 07.02.2026 |
| 36 | SPS for Transformers at 400kV Jaunpur(UP) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 04.02.2026 | YES | No SPS Operation | 07.02.2026 |
| 37 | SPS for Transformers at 400kV Panki (UPPTCL) Substation | UPPTCL | UPSLDC | SPS not commissioned yet | | | | | | | | | | | | 07.02.2026 |
| 38 | SPS for Transformer at 400kV Rajpura (PSTCL) Substation | PSTCL | **Punjab SLDC** | | | | | | | | | | | | | |
| 39 | SPS for Lahal Generation | HPPTCL | **HPSLDC** | | | | | | | | | | | | | |
| 40 | SPS for Transformers at 400KV Kashipur (PTCUL) substation | PTCUL | **Uttrakhand SLDC** | | | | | | | | | | | | | |
| 41 | SPS for Transformers at 400kV Ajmer (RVPN) Substation | RVPNL | **Rajasthan SLDC** | | | | | | | | | | | | | |
| 42 | SPS for Transformers at 400kV Merta (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 43 | SPS for Transformers at 400kV Chittorgarh (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 44 | SPS for Transformers at 400kV Jodhpur (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 45 | SPS for Transformers at 400kV Bhadla (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 46 | SPS for Transformers at 400kV Ratangarh (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 47 | SPS for evacuation of Kawai TPS, Kalisindh TPS generation complex | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 48 | SPS for Transformers at 400kV Bikaner (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 49 | SPS for Transformers at 400kV Bhilwara (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 50 | SPS for Transformers at 400kV Hinduan (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 51 | SPS for Transformers at 400kV Suratgarh (RVPN) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |
| 52 | SPS for Transformers at 400kV Babai(RS) Substation | RVPNL | Rajasthan SLDC | | | | | | | | | | | | | |

**Note- Any other SPS details (if implemented and not mentioned above) may be added in this format by Concerned Utility/SLDC/NRLDC**

## Status of perfomance indices reporting of SPS

# Month-February 2026

| Sr. No. | Scheme Name | Owner / Agency | Controlling SLDC/ NRLDC | Reporting by Owner / Agency to Concerned SLDC/NRLDC (Latest by 07.03.2026) | | | | | | | | | Verification by NRLDC/SLDC | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | Nc | Nu | Nf | Ni | Dependability Index | Security Index | Reliability Index | Reason for indices less than 1 | Corrective action taken | Date of Receiving date from owner/agency (DD:MM:YYYY) | Verification of indices as per actual grid condition (Yes/No) | Remarks | NRLDC/SLDC reporting date |
| 1 | SPS for WR-NR corridor - 765kV Agra-Gwalior D/C | POWERGRID | **NRLDC** | | | | | | | | | | | | | |
| 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 reliable evacuation of power from NJPS, Rampur, Sawra Kuddu, Baspa Sorang and Karcham Wangtoo HEP | SJVN | NRLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 05.03.2026 | | | |
| | | HPPTCL | | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 05.03.2026 | | | |
| | | JSW | | | | | | | | | | | | | | |
| | | POWERGRID | | | | | | | | | | | | | | |
| | | SORANG | | | | | | | | | | | | | | |
| 7 | SPS for Transformers at Maharanibagh (PG) substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 8 | SPS for Transformers at Mandola (PG) substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 9 | SPS for Transformers at 400KV Fatehgarh Solar Park (AREPRL) | ADANI | NRLDC | | | | | | | | | | | | | |
| 10 | SPS to relive transmission congestion in RE complex (Bhadla2) | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 11 | SPS for Transformers at 765kV Jhatikara(PG) Substation (Bamnauli section) | POWERGRID | NRLDC | | | | | | | | | | | | | |
| | SPS for Transformers at 765kV Jhatikara(PG) Substation (Mundka section) | | NRLDC | | | | | | | | | | | | | |
| 12 | SPS for Transformers at 765kV Bhiwani(PG) Substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| 13 | SPS for Transformers at 400kV Agra(PG) Substation | POWERGRID | NRLDC | | | | | | | | | | | | | |
| | | UPPTCL | | | | | | | | | | | | | | |
| 14 | SPS for Transformers at Bamnauli (DTL) substation | DTL | **Delhi SLDC** | | | | | | | | | | | | | |
| 15 | SPS for Transformers at 400kV Mundka (DTL) Substation | DTL | Delhi SLDC | | | | | | | | | | | | | |
| 16 | SPS for Transformers at 400kV Bawana (DTL) Substation | DTL | Delhi SLDC | | | | | | | | | | | | | |
| 17 | SPS for Reliable Evacuation of Rosa Generation | UPPTCL | **UPSLDC** | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 07.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 18 | SPS for evacuation of Anpara Generation Complex | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 19 | SPS for evacuation of Lalitpur TPS Generation | UPPTCL | UPSLDC | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NA | NA | 09.03.2026 | YES | SPS operated on 08.02.2026 and 27.02.2026 under the condition that the loading of any 400 kV line emanating from Fatehabad Substation exceeded 800 MW | 10.03.2026 |
| 20 | SPS for Reliable Evacuation of Bara TPS Generation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 05.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 21 | SPS for Transformers at Moradabad (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 05.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 22 | SPS for Transformers at Muradnagar (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 05.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 23 | SPS for Transformers at Agra (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 01.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 24 | SPS for Transformers at 400kV Sarojininagar (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 25 | SPS for Transformers at 220kV Sarojininagar (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 26 | SPS for Transformers at 400kV Unnao (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 27 | SPS for Transformers at 400kV Sultanpur (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 28 | SPS for Transformers at 400kV Bareilly (UPPTCL) Substation | UPPTCL | UPSLDC | SPS not commissioned yet | | | | | | | | | | | | 07.03.2026 |
| 29 | SPS for Transformers at 400kV Azamgarh (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 30 | SPS for Transformers at 400kV Mau (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 31 | SPS for Transformers at 400kV Gorakhpur (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 32 | SPS for Transformers at 400kV Sarnath (UPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 02.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 33 | SPS for Transformers at 400kV Nehtaur(WUPPTCL) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 06.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 34 | SPS for Transformers at Obra TPS | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 02.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 35 | SPS for Transformers at 400kV Allahabad(PG) Substation | UPPTCL | UPSLDC | To be submitted by PGCIL | | | | | | | | | | | | |
| 36 | SPS for Transformers at 400kV Jaunpur(UP) Substation | UPPTCL | UPSLDC | 0 | 0 | 0 | 0 | NA | NA | NA | NA | NA | 02.03.2026 | YES | No SPS Operation | 07.03.2026 |
| 37 | SPS for Transformers at 400kV Panki (UPPTCL) Substation | UPPTCL | UPSLDC | SPS not commissioned yet | | | | | | | | | | | | 07.03.2026 |
| 38 | SPS for Transformer at 400kV Rajpura (PSTCL) Substation | PSTCL | **Punjab SLDC** | | | | | | | | | | | | | |
| 39 | SPS for Lahal Generation | HPPTCL | **HPSLDC** | | | | | | | | | | | | | |
| 40 | SPS for Transformers at 400KV Kashipur (PTCUL) substation | PTCUL | **Uttrakhand SLDC** | | | | | | | | | | | | | |
| 41 | SPS for Transformers at 400kV Ajmer (RVPN) Substation | RVPNL | **Rajasthan SLDC** | 3 | 0 | 0 | 0 | 1 | 1 | 1 | NIL | NA | To be provided by Rajasthan SLDC | | | 09.03.2026 |
| 42 | SPS for Transformers at 400kV Merta (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 43 | SPS for Transformers at 400kV Chittorgarh (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 44 | SPS for Transformers at 400kV Jodhpur (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 45 | SPS for Transformers at 400kV Bhadla (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 46 | SPS for Transformers at 400kV Ratangarh (RVPN) Substation | RVPNL | Rajasthan SLDC | 1 | 0 | 0 | 0 | 1 | 1 | 1 | NIL | NA | | | | 09.03.2026 |
| 47 | SPS for evacuation of Kawai TPS, Kalisindh TPS generation complex | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 48 | SPS for Transformers at 400kV Bikaner (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 49 | SPS for Transformers at 400kV Bhilwara (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 50 | SPS for Transformers at 400kV Hinduan (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 51 | SPS for Transformers at 400kV Suratgarh (RVPN) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |
| 52 | SPS for Transformers at 400kV Babai(RS) Substation | RVPNL | Rajasthan SLDC | 0 | 0 | 0 | 0 | 0 | 0 | 0 | | | | | | 09.03.2026 |

**Note- Any other SPS details (if implemented and not mentioned above) may be added in this format by Concerned Utility/SLDC/NRLDC**

Annexure-A.VI

| Status of Internal Protection Audit Plan for FY 2026 -27 | | | | |
|---|---|---|---|---|
| **S. No.** | **NRPC Member** | **Category** | **Status** | **Schedule submitted as per utililty** |
| 1 | PGCIL | Central Government owned Transmission Company | Received (NR-2) (24 Substations), Received (NR-1) (20+16 Substations), Received (NR-3) (14 Substations) | |
| 2 | NTPC | Central Generating Company | | |
| 3 | BBMB | | Received | |
| 4 | THDC | | Received (Tehri HPP) | Feb-27 |
| | | | Received (Koteshwar) | Dec-26 |
| | | | Received (Tehri PSP) | Feb-27 |
| 5 | SJVN | | Received (NJHPS) | December 2026- March 2027 |
| | | | Received (RHPS) | October 2026- December 2026 |
| 6 | NHPC | | Received (13 stations) | |
| 7 | NPCIL | | RAP A | |
| | | | RAP B | |
| | | | Received (RAP C) | 20-07-2026-25-07-2026 |
| | | | RAP D | |
| | | | NAP | |
| 8 | Haryana SLDC | SLDC ( to share the audit plan for the substations under their purview which are not listed here) | | |
| 9 | Rajasthan SLDC | | | |
| 10 | Uttar Pradesh SLDC | | | |
| 11 | Uttarakhand SLDC | | | |
| 12 | Punjab SLDC | | | |
| 13 | Himachal Pradesh SLDC | | | |
| 14 | DTL | State Transmission Utility | Received (47 Substations) | |
| 15 | HVPNL | | Received (91 Substations) | |
| 16 | RRVPNL | | Received | 31.03.2027 |
| 17 | UPPTCL | | Meerut Zone | 10/1/2027 -15/3/2027 |
| | | | Agra Zone | 10/1/2027 -30/3/2027 |
| | | | Lucknow Zone | 1/1/2027-10/3/2027 |
| | | | Jhansi Zone | 5/1/2027 -30/3/2027 |
| | | | Prayagraj Zone | 1/1/2027- 10/3/2027 |
| | | | Gorakhpur Zone | 10/1/2027-30/3/2027 |
| 18 | PTCUL | | Received | |
| 19 | PSTCL | | Received | |
| 20 | HPPTCL | | Received (12 Substations) | |
| 21 | IPGCL | State Generating Company | Received (PPS-I) | 15.11.2026 |
| | | | Received (PPS-III) | 30.10.2026 |
| 22 | HPGCL | | Received | Apr-26 |
| 23 | RRVUNL | | | |
| 24 | UPRVUNL | | Anpara B | October 2026 |
| | | | Obra A & B | October 2026 |
| | | | Panki | October 2026 |
| | | | Anpara D | May 2026 |
| | | | Harduaganj | May 2026 |
| | | | Harduaganj D | May 2026 |
| | | | Harduaganj E | May 2026 |
| | | | Parichha | August 2026 |
| | | | Parichha Ext | August 2026 |
| | | | Obra C | October 2026 |
| | | | Jawaharpur | October 2026 |
| 25 | UJVNL | | Dharashu | December, 2026 |
| | | | Tiloth | December, 2026 |
| | | | Khodri | Nov-26 |
| | | | Chibro | Oct-26 |
| 26 | HPPCL | | Vyasi | Dec-26 |
| 27 | PSPCL | State Generating Company & State owned Distribution Company | RSD | |
| | | | GGSTPS, Rupnagar | |
| | | | GVK Power Goindwal Shahib Ltd. | |
| | | | GHSTPS, Lehra Mohabbat | Nov-26 |
| 28 | HPSEBL | Distribution company having Transmission connectivity ownership | | |
| 29 | Prayagraj Power Generation Co. Ltd. | IPP having more than 1000 MW installed capacity | Received | Sep-26 |
| 30 | Aravali Power Company Pvt. Ltd | | Received | Mar-27 |
| 31 | Apraava Energy Private Limited | | Received | May-26 |
| 32 | Talwandi Sabo Power Ltd. | | | |
| 33 | Nabha Power Limited | | | |
| 34 | MEIL Anpara Energy Ltd | | Received | Aug-26 |
| 35 | Rosa Power Supply Company Ltd | | Received | Jan-27 |
| 36 | Lalitpur Power Generation Company Ltd | | Received | Sep-26 |
| 37 | MEJA Urja Nigam Ltd. | | | |
| 38 | Adani Power Rajasthan Limited | | | |
| 39 | JSW Energy Ltd. (KWHEP) | | | |
| 40 | UT of J&K | UT of Northern Region | Received (Jammu) | |
| | | | Received (Kashmir) | |
| 41 | UT of Chandigarh (CPDL) | | | |

| | | | | |
|---|---|---|---|---|
| | **ISTS Transmission Utilities** | | | |
| 42 | INDIGRID | | | |

| | | | | |
|---|---|---|---|---|
| 43 | ADHPL | | | |
| 44 | Adani Transmission Limited | | Received | Oct-26 |
| 45 | Bikaner Khetri Transmission Limited | | Received | Oct-26 |
| 46 | Fatehgarh Bhadla Transmission Limited | | Received | Sep-26 |
| 47 | Kishtwar Transmission Limited | RESONIA | | |
| | | | | |
| | **State Utilities** | | | |
| | **Uttar Pradesh** | | | |
| 48 | Vishnuprayag Hydro Electric Plant (J.P.) | | Received | March, 2027 |
| 49 | Alaknanda Hydro Electric Plant (GVK) | | Received | Nov-26 |
| 50 | Ghatampur TPS | | Received | Feb-27 |
| 51 | Khara Power House (Khara) | | Received | Dec-26 |
| 52 | WUPPTCL | | Received | Oct-26 |
| 53 | SEUPPTCL | | Received | Dec-26 |
| 54 | ATSCL | **AESL** | Received | Sep-26 |
| 55 | GTL (765 kV Hapur extension bays) | **AESL** | Received | Nov-26 |
| 56 | GTL (765 kV Agra and Gr. Noida extension bays) | **AESL** | Received | Nov-26 |
| 57 | HPTSL | **AESL** | Received | Aug-26 |
| 58 | MTSCL | **AESL** | Received | Aug-26 |
| 59 | OBTL | **AESL** | Received | Dec-26 |
| 60 | STSL | **AESL** | | |
| | **Rajasthan** | | | |
| 61 | Barsingsar Plant | **NLC** | Received | 31-03-2027 |
| 62 | Rajwest Plant | **JSW** | Received | Aug-26 |
| | | | | |
| | **RE Utilities** | | | |
| 63 | ABC Renewable Pvt. Ltd | | Received | 20-09-2026 |
| 64 | ABC Renewable Energy (RJ-02) Pvt. Ltd. | | | |
| 65 | ACME Heeragarh powertech Pvt. Ltd | ACME | Received | Jan-27 |
| 66 | ACME Pholidi | ACME | Received | Jan-27 |
| 67 | ACME Deagarh | ACME | | |
| 68 | ACME Raisar | ACME | | |
| 69 | ACME Dhoulpar | ACME | | |
| 70 | ACME Sikar | ACME | Received | Jan-27 |
| 71 | ACME Chittorgarh Solar Energy Pvt Ltd | AYANA | | |
| 72 | Adani Hybrid Energy Jaisalmer One Ltd. | AGEL | Received | 7/16/2026 |
| 73 | Adani Hybrid Energy Jaisalmer Two Ltd. | AGEL | Received | 7/25/2026 |
| 74 | Adani Hybrid Energy Jaisalmer Three Ltd. | AGEL | Received | 8/8/2026 |
| 75 | Adani Hybrid Energy Jaisalmer Four Ltd. (AEML 1 -350) | AGEL | Received | 8/15/2026 |
| 76 | Adani Hybrid Energy Jaisalmer Four Ltd. (AEML 2 -250) | AGEL | Received | 9/11/2026 |
| 77 | Adani Renewable Energy (RJ) limited Rawara | AGEL | Received | 9/26/2026 |
| 78 | Adani Solar Enegry Four Private Limited | AGEL | Received | 9/26/2026 |
| 79 | Adani Solar Energy Jaisalmer Two Private Limited Project Two | AGEL | Received | 10/17/2026 |
| 80 | SB Energy Six Private Limited, Bhadla | AGEL | Received | 10/28/2026 |
| 81 | Adani Solar Enegry Jodhpur Two  Limited, Rawara | AGEL | Received | 9/26/2026 |
| 82 | Adani Solar Energy Jaisalmer One Ltd. (Hybrid450) | AGEL | Received | 10/3/2026 |
| 83 | Adani Solar Energy RJ Two Pvt. Ltd. (Devikot) | AGEL | Received | 11/7/2026 |
| 84 | Adani Solar Energy RJ Two Pvt. Ltd. (Phalodi) | AGEL | Received | 11/14/2026 |
| 85 | Adani Green Energy 24 Limited (Bhimsar) | AGEL | Received | 11/26/2026 |
| 86 | Adani Green Twenty-Five Limited (Badisid) | AGEL | Received | 12/4/2026 |
| 87 | Bhadla park - South block | AGEL | Received | 12/16/2026 |
| 88 | AEML-250 WIND (Hybrid-2A) | AGEL | Received | 9/16/2026 |
| 89 | AEML-260 WIND (Hybrid-2B) | AGEL | Received | 9/20/2026 |
| 90 | Hybrid450-WIND (SBE Hybrid 450 ) | AGEL | Received | 10/7/2026 |
| 91 | Ambuja Cements Limited_300MW | AGEL | | |
| 92 | Altra Xergi Pvt. Ltd. | | | |
| 93 | XL Xergi Power Pvt. Ltd. | | | |
| 94 | AMP Energy Green Four Pvt. Ltd. | | | |

| | | | | |
|---|---|---|---|---|
| 95 | AMP Energy Green Five Pvt. Ltd. | | | |
| 96 | AMP Energy Green Six Pvt. Ltd. | | | |
| 97 | Amplus Ages Private Limited | Gentari | Received | 31-12-2026 |
| 98 | Avaada RJHN_240MW | Avaada | Received | Aug-26 |
| 99 | Avaada sunce energy Pvt limited | Avaada | Received | Aug-26 |
| 100 | Avaada Sunrays Pvt. Ltd. | Avaada | Received | Aug-26 |
| 101 | Avaada Sustainable RJ Pvt. Ltd. | Avaada | Received | Aug-26 |
| 102 | Ayana Renewable Power Three Private Limited | | | |
| 103 | Ayaana Renewable Power One Pvt. Ltd. | | | |
| 104 | Azure Power Forty One Pvt limited | | | |
| 105 | Azure Power Forty Three Pvt. Ltd. RSS | | | |
| 106 | Azure Power Forty Three Pvt. Ltd. PSS | | | |
| 107 | Azure Maple Pvt. Ltd. | | | |
| 108 | AZURE POWER INDIA Pvt. Ltd., Bhadla | | | |
| 109 | Azure Power Thirty Four Pvt. Ltd. | | | |
| 110 | Clean Solar Power (Jodhpur) Pvt. Ltd. | Hero Future Energies | Received | May, 2026 |
| 111 | Eden Renewable Cite Private Limited | | | |
| 112 | Eden Renewable Alma Pvt. Ltd. | | | |
| 113 | Energizent Power Private Limited | | | |
| 114 | Grian Energy private limited | Gentari | Received | 31-12-2026 |
| 115 | Juna Renewable Energy Pvt. Ltd. | | Received | 20-07-2026 |
| 116 | Juniper Green Cosmic Private Limited | | | |
| 117 | Juniper Nirjara Energy Private Limited | | | |
| 118 | Karinsar Solar Plant NHPC Ltd | NHPC | | |
| 119 | Megasolis Renewables Pvt Ltd(MSRPL) | | | |
| 120 | Mega Surya Urja Pvt. Ltd. (MSUPL) | | | |
| 121 | NTPC Devikot Solar plant 240MW | NGEL | Received | 15-05-2026 |
| 122 | NTPC Kolayat (SKB -1) | NGEL | Received | 31-05-2026 |
| 123 | NTPC Kolayat (SKB-2) | NGEL | Received | 30-11-2026 |
| 124 | Nedan Solar NTPC | NGEL | Received | 15-05-2026 |
| 125 | NTPC Nokhra_300MW | NGEL | Received | 31-08-2026 |
| 126 | One Volt energy Pvt. Ltd. | Gentari | Received | 31-12-2026 |
| 127 | ReNew Solar Urja Private Limited (IndiGrid) | IndiGrid | | |
| 128 | Renew Surya Ayaan Pvt. Ltd. (IndiGrid) | IndiGrid | | |
| 129 | ReNew Solar Energy (Jharkhand Three) Private Limited | ReNew | Received | 24/11/2026 |
| 130 | RENEW SOLAR POWER Pvt. Ltd. Bikaner | ReNew | Received | 17/11/2026 |
| 131 | Renew Surya Partap Pvt. Ltd. | ReNew | Received | 21/11/2026 |
| 132 | Renew Surya Ravi Pvt. Ltd. | ReNew | Received | 18/11/2026 |
| 133 | Renew Surya Roshni Pvt. Ltd. | ReNew | Received | 24/11/2026 |
| 134 | Renew Surya Vihan Pvt. Ltd. | ReNew | | |
| 135 | Renew Solar Photovoltaic Pvt Ltd | ReNew | | |
| 136 | Renew Hans Urja Pvt Ltd | ReNew | | |
| 137 | Renew Surya Jyoti Pvt Ltd | ReNew | Received | 15/10/2026 |
| 138 | Neemba Renew Surya Vihan Pvt Ltd | ReNew | Received | 15/10/2026 |
| 139 | ReNew Dinkar Urja Pvt. Ltd. | ReNew | | |
| 140 | Renew Sun Bright Pvt. Ltd. (RSBPL) | Sembcorp | Received (submitted by ReNew) | 19/11/2026 |
| 141 | Rising Sun Energy-K Pvt. Ltd. | | | |
| 142 | Serentica Renewables India 4 Private Limited | Serentica | Received | Sep-26 |
| 143 | Serentica Renewables India 5 Private Limited | Serentica | Received | Sep-26 |
| 144 | Khidrat Renewable energy Pvt ltd. | Serentica | Received | Jun-26 |
| 145 | SJVN Green Energy Limited | SJVN | | |
| 146 | Solzen Urja Private Limited | Sekura | Received | November, 2026 |
| 147 | Tata Power Green Energy Ltd. (TPGEL) (225MW) | Tata Power | Received | 31-03-2027 |
| 148 | Tata Power Renewable Energy Ltd. (TPREL) (300MW) | Tata Power | Received | 31-03-2027 |
| 149 | Thar Surya Pvt. Ltd. | | | |
| 150 | TP Surya Ltd., Noorsar (110MW) | Tata Power | Received | 31-03-2027 |
| 151 | Banderwala Solar Plant TP Surya Ltd. (300MW) | Tata Power | Received | 31-03-2027 |
| 152 | Adept Renewable Technologies Pvt. Ltd. | | | |
| 153 | Transition Cleantech Services Private Limited | | | |
| 154 | Transition Energy Services Private Limited | | | |
| 155 | Transition Green Energy Private Limited | | | |
| 156 | Transition Sustainable Energy Services Private Limited | | | |
| 157 | Transition Sustainable Energy Services One Pvt Ltd | | | |
| 158 | Gorbea Solar Pvt Ltd (GSPL) | | Received | Oct-26 |
| 159 | Prerak Greentech Private Limited (PGPL) | | | |

| Status of 3rd Party Protection Audit Plan | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| S. No. | NRPC Member | Category | Status | Schedule submitted as per utililty | Present Status Comlpeted (yes/no) | Report Submission Date by audit party | Discussion held in PSC meeting number | Compliance status |
| 1 | PGCIL | Central Government owned Transmission Company | Received (26 S/s of NR-1, 24 S/s of NR-2) | NR-1 - 2026, NR-2 - 2026-2027 | | | | |
| 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 | | Received | Feb-27 | | | | |
| 4 | THDC | | Received | March 2026-Tehri, F.Y. 2025-26- Koteshwar, December 2029 - Tehri PSP | Completed (Koteshwar) | | 67 | 67 |
| 5 | SJVN | | Received (RHPS) | Nov-Dec 2025 | Completed | 4/11/2025 | 66 | |
| | | | Received (NJHPS) | Nov 24- March 25 | Completed | 26-05-2025 | 65 | 67 |
| 6 | NHPC | | Received | FY-2025-26 | Completed (Dulhasti) | Sep-25 | 64 | |
| | | | | | Completed (Salal) | Jul-25 | 64 | |
| | | | | | Completed (Bairasul) | Aug-25 | 64 | |
| | | | | | Completed (Chamera-I) | Oct-25 | 64 | |
| | | | | | Completed (Parbati-III) | Sep-25 | 64 | |
| | | | | | Completed (Uri-1) | Jan-26 | 67 | |
| | | | | | Completed (Kishanganga) | Feb-26 | 67 | |
| | | | | | Completed (Chamera-II) | Nov-25 | 67 | |
| | | | | | Completed (Chamera-III) | Nov-25 | 67 | |
| | | | | | Completed (Dhauliganga) | Nov-25 | 67 | |
| | | | | | Completed (Tanakpur) | Nov-25 | 67 | |
| | | | | | Completed (Uri-II) | Nov-25 | 67 | |
| 7 | NPCIL | | Completed (220kV) (NAPS) | Jan'25 | Completed | 18.01.2025 | 57 | |
| | | | RAP A | | Completed | 24.06.2025 | 64 | |
| | | | RAP B | | Completed | | 64 | |
| | | | RAPS-C (6&5) | - | Completed | 05.12.2024 | 64 | |
| 8 | Haryana SLDC | | | | | | | |
| 9 | Rajasthan SLDC | | | | | | | |
| 10 | Uttar Pradesh SLDC | | Received (Tanda extension) | 17.07.2025 | | | | |
| | | | Received (Tanda) | 17.07.2025 | | | | |
| 11 | Uttarakhand SLDC | | | | | | | |
| 12 | Punjab SLDC | | | | | | | |
| 13 | Himachal Pradesh SLDC | | | | | | | |
| 14 | DTL | State Transmission Utility | | | | | | |
| 15 | HVPNL | | Received (5 Substations) | June-Oct 2025 | Conducted (Dhanoda) | 22.08.2025 | 62 | 67 |
| 16 | RRVPNL | | Received (40 Substations) | Mar-26 | | | | |
| 17 | UPPTCL | | Received | 2025; | going on | | | |
| 18 | PTCUL | | Received | By Dec 2025 | Completed (10 Substations) | | 55 | |
| 19 | PSTCL | | | | | | | |
| 20 | HPPTCL | | Received | FY 25-26 | | | | |
| 21 | IPGCL | | Received (PPS-I) | November-December 2025 | Completed | | audi report to be submitted | |
| | | | Received (PPS-III) | FY 25-26 | Completed | | audi report to be submitted | |
| 22 | HPGCL | | PTPS, Panipat | Nov-25 | completed | | audi report to be submitted | |
| | | | DCRTPP, Yamunanagar | Aug-25 | Completed | 22.08.2025 | 64 | |
| | | | RGTPP (Khedar) | Oct'25 | completed | | 68 | |
| 23 | RRVUNL | | CTPP, Chhabra | 2029 | CTPP-Completed | Feb-24 | 51 | |
| | | | CSCTPP, Chhabra | 2027-28 | | | | |
| | | | STPS, suratgarh | Sep-27 | | | | |
| | | | SSCTPP, suratgarh | 2028-29 | SSCTPS-completed | | 55 | |
| | | | KTPS, Kota | 2025-2026 | KTPS -Completed | Aug-25 | 63 | |
| | | | KaTPP, Jhalawar | 2027 | | | | |
| | | | RGTPP, Ramgarh | Jun-26 | | | | |
| | | | DCCPP, Dholpur | Jun-26 | | | | |
| 24 | UPRVUNL | | Obra-B | 2026-27 | | | | |
| | | | Obra-C | Feb-26 | | | | |
| | | | Anpara D | 2025 | Under tendering | | | |
| | | | Anpara R | 2025 | Under tendering | | | |
| | | | Harduaganj | 2025 | Under tendering | | | |
| | | | Harduaganj D | 2025 | Under tendering | | | |
| | | | Harduaganj E | 2025 | Under tendering | | | |
| | | | Parichha | 2025 | Under tendering | | | |
| | | | Parichha Ext | 2025 | Under tendering | | | |
| | | | Jawaharpur | 2025 | Under tendering | | | |
| | | | Panki | 2025 | | | | |
| 25 | UJVNL | | Dharasu | | Completed in Nov, 2024 | | 56 | submitted |
| | | | Tiloth | Dec-28 | | | | |
| | | | Vyasi | | | | | |
| | | | Chibro | | Completed | Nov-23 | 55 | |
| | | | Khodri | | Completed | Nov-23 | 55 | |
| 26 | HPPCL | | Swara Kuddu | 2026 | | | | |
| | | | Sainj | | | | | |
| | | | Kashang HEP | FY 2025-26 | | | | |
| 27 | PSPCL | State Generating Company & State owned Distribution Company | Reeceived (GHTP) | Dec, 2025 | | | | |
| | | | Received (GATP) | May 2025 | | | | |
| | | | GGSSTP | 2026 | | | | |
| | | | RSD/ Sahapur Kandi | Mar'26 | | | | |
| 28 | HPSEBL | Distribution company having Transmission connectivity ownership | Kunihar | Conducted | 19.10.2024 | 20.11.2024 | 55 | |
| | | | Upper Nangal | Conducted | 13.02.2025 | | 61 | |
| | | | Kango | Conducted | Report not submitted | | | |
| | | | Mattansidh | Conducted | Report not submitted | | | |
| | | | Nehrain | Conducted | Report not submitted | | | |
| | | | Baddi | Conducted | 04.03.2025 | | 61 | |
| 29 | Prayagraj Power Generation Co. Ltd. | IPP having more than 1000 MW installed capacity | Received | Dec-24 | Januray 2025 | 08.01.2025 | 59 | |
| 30 | Aravali Power Company Pvt. Ltd | | Received | Sep-26 | | | | |
| 31 | Apraava Energy Private Limited | | Received | By May, 2025 | Completed | Jun-25 | 63 | |
| 32 | Talwandi Sabo Power Ltd. | | | | | | | |
| 33 | Nabha Power Limited | | Received | By December, 2025 | Completed | 9/1/2026 | 67 | |
| 34 | MEIL Anpara Energy Ltd | | Received | * May 2025 | | | | |
| 35 | Rosa Power Supply Company Ltd | | Conducted | By 30.09.2024 | 08.08.2024 | 13.01.2025 | 57 | |
| 36 | Lalitpur Power Generation Company Ltd | | Conducted | | 26.03.2024 | June, 2024 | 54 | |
| 37 | MEJA Urja Nigam Ltd. | | Conducted | | Completed in Oct, 2024 | Nov-24 | 59 | |
| 38 | Adani Power Rajasthan Limited | | Conducted | November, 2024 | Kawai | 04.12.2024 | 56 | Pending |
| 39 | JSW Energy Ltd. (KWHEP) | | Received | December 2024 to March 2025 | Completed | 29.01.2025 | 57 | 67 |
| 40 | UT of J&K (JKPTCL) | UT of Northern Region | | | | | | |
| 41 | UT of Chandigarh (CPDL) | | | | | | | |
| | | | | | | | | |
| | **ISTS Transmission Utilities** | | | | | | | |
| 42 | INDIGRID | | Received (PTCL) | FY 25-26 | | | | |
| | | | FBTL | | | | | |
| | | | PrKTCL | | | | | |
| | | | Received (NRSS 29) | FY 24-25 | | | | |
| 43 | ADHPL | | Received | * September 2026 | | | | |
| 44 | Adani Transmission Limited | | Received (400kV Mohindergarh SS) | October, 2025 | | | | |
| 45 | Bikaner Khetri Transmission Limited | | Received (765 kV Bikaner and Khetri extension bays) | September, 2025 | | | | |
| 46 | Fatehgarh Bhadla Transmission Limited | | Received (400 kV Fatehgarh SS) | September, 2025 | | | | |
| 47 | Kishtwar Transmission Limited | RESONIA | | | | | | |
| | | | | | | | | |
| | **State Utilities** | | | | | | | |
| | **Uttar Pradesh** | | | | | | | |
| 48 | Vishnuprayag Hydro Electric Plant (J.P.) | | Received | December, 2028 | | | | |
| 49 | Alaknanda Hydro Electric Plant (GVK) | | Received | Mar-25 | | | | |
| 50 | Ghatampur TPS | | Received | FY 27-28 | | | | |
| 51 | Khara Power House (Khara) | | Received | Dec-25 | | | | |
| 52 | WUPPTCL | | Conducted | | Completed | 20.03.2025 | 59 | |
| 53 | SEUPPTCL | | Completed | | Completed | October, 2024 | 59 | |
| 54 | ATSCL | AESL | Received (400/220KV Alwar SS) | September, 2025 | | | | |
| 55 | GTL | AESL | Received (765 kV Hapur extension bays) | September, 2025 | | | | |
| 56 | GTL | AESL | Received (765 kV Agra and Gr. Noida extension bays) | September, 2025 | | | | |
| 57 | HPTSL | AESL | Received (220kV Ranpur SS) | August, 2025 | | | | |
| 58 | MTSCL | AESL | Received (400/220/132KV Deedwana SS) | August, 2025 | | | | |
| 59 | OCBTL | AESL | Received (400/220/132KV Badaun SS) | Jan-25 | Completed (report not shared) | | | |
| 60 | STSL | AESL | | | | | | |
| | **Rajasthan** | | | | | | | |
| 61 | Barsingsar Plant | NLC | Received | by 31-03-2027 | | | | |
| 62 | Rajwest Plant | JSW | Received | Aug-26 | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | **RE Utilities** | | | | | | | |
| 63 | ABC Renewable Pvt. Ltd | | | | | | | |
| 64 | ABC Renewable Energy (RJ-02) Pvt. Ltd. | | | | | | | |
| 65 | ACME Heeragarh powertech Pvt. Ltd | ACME | Received | 2027 | | | | |
| 66 | ACME Pholidi | ACME | Received | 2028 | | | | |
| 67 | ACME Deagarh | ACME | | | | | | |
| 68 | ACME Raisar | ACME | | | | | | |
| 69 | ACME Dhoulpar | ACME | | | | | | |
| 70 | ACME Sikar | ACME | Received | 2028 | | | | |
| 71 | ACME Chittorgarh Solar Energy Pvt Ltd | Ayana | | | | | | |
| 72 | Adani Hybrid Energy Jaisalmer One Ltd. | | 5 years have not completed since commissiong | | | | | |
| 73 | Adani Hybrid Energy Jaisalmer Two Ltd. | | 5 years have not completed since commissiong | | | | | |
| 74 | Adani Hybrid Energy Jaisalmer Three Ltd. | | 5 years have not completed since commissiong | | | | | |
| 75 | Adani Hybrid Energy Jaisalmer Four Ltd. (AEML 1 - 350) | | 5 years have not completed since commissiong | | | | | |
| 76 | Adani Hybrid Energy Jaisalmer Four Ltd. (AEML 2 - 250) | | 5 years have not completed since commissiong | | | | | |
| 77 | Adani Renewable Energy (RJ) limited Rawara | | Received | 1/15/2026 | | | | |
| 78 | Adani Solar Energy Four Private Limited | | 5 years have not completed since commissiong | | | | | |
| 79 | Adani Solar Energy Jaisalmer Two Private Limited Project Two | | 5 years have not completed since commissiong | | | | | |
| 80 | SB Energy Six Private Limited, Bhadla | AGEL | 5 years have not completed since commissiong | | | | | |
| 81 | Adani Solar Energy Jodhpur Two Limited, Rawara | | 5 years have not completed since commissiong | | | | | |
| 82 | Adani Solar Energy Jaisalmer One Ltd. (Hybrid450) | | 5 years have not completed since commissiong | | | | | |
| 83 | Adani Solar Energy RJ Two Pvt. Ltd. (Devikot) | | 5 years have not completed since commissiong | | | | | |
| 84 | Adani Solar Energy RJ Two Pvt. Ltd. (Phalodi) | | 5 years have not completed since commissiong | | | | | |
| 85 | Adani Green Energy 24 Limited (Bhimsar) | | 5 years have not completed since commissiong | | | | | |
| 86 | Adani Green Twenty-Five Limited (Badisid) | | 5 years have not completed since commissiong | | | | | |
| 87 | Bhadla park - South block | | Received | 1/28/2026 | | | | |
| 88 | AEML-250 WIND (Hybrid-2A) | | 5 years have not completed since commissiong | | | | | |
| 89 | AEML-260 WIND (Hybrid-2B) | | 5 years have not completed since commissiong | | | | | |
| 90 | Hybrid450-WIND (SBE Hybrid 450 ) | | 5 years have not completed since commissiong | | | | | |
| 91 | Ambuja Cements Limited 300MW | | | | | | | |
| 92 | Altra Xergi Pvt. Ltd. | | Conducted | | Completed | 04.02.2025 | 60 | |
| 93 | XL Xergi Power Pvt. Ltd. | | | | | | | |
| 94 | AMP Energy Green Four Pvt. Ltd. | | | | Completed for common substation | | | |
| 95 | AMP Energy Green Five Pvt. Ltd. | | Received | Nov-27 | | | | |
| 96 | AMP Energy Green Six Pvt. Ltd. | | Received | Nov-27 | | 02.09.2025 | 63 | |
| 97 | Amplus Ages Private Limited | | Received | 31-12-2028 | | | | |
| 98 | Avaada RJHN_240MW | | Received | Aug-26 | | | | |
| 99 | Avaada sunce energy Pvt limited | | Received | Aug-26 | | | | |
| 100 | Avaada Sunrays Pvt. Ltd. | | Received | Aug-27 | | | | |
| 101 | Avaada Sustainable RJ Pvt. Ltd. | | Received | Aug-26 | | | | |
| 102 | Ayana Renewable Power Three Private Limited | | Conducted | | 24.05.2025 | | 61 | |
| 103 | Ayaana Renewable Power One Pvt. Ltd. | | Conducted | | | | 59 | |
| 104 | Azure Power Forty One Pvt limited | | | | | | | |
| 105 | Azure Power Forty Three Pvt. Ltd. RSS | | | | | | | |
| 106 | Azure Power Forty Three Pvt. Ltd. PSS | | | | | | | |
| 107 | Azure Maple Pvt. Ltd. | | | | | | | |
| 108 | AZURE POWER INDIA Pvt. Ltd., Bhadla | | | | | | | |
| 109 | Azure Power Thirty Four Pvt. Ltd. | | | | | | | |
| 110 | Clean Solar Power (Jodhpur) Pvt. Ltd. | Hero Future Energies | Received | Dec-26 | | | | |
| 111 | Eden Renewable Cite Private Limited | | Received | Aug-26 | | | | |
| 112 | Eden Renewable Alma Pvt. Ltd. | | Received | Jul-30 | | | | |
| 113 | Energizent Power Private Limited | | | | | | | |
| 114 | Grian Energy private limited | | Received | 31-12-2028 | | | | |
| 115 | Juna Renewable Energy Pvt. Ltd. | | Received | Jun-30 | | | | |
| 116 | Juniper Green Cosmic Private Limited | | | | | | | |
| 117 | Juniper Nirjara Energy Private Limited | | | | | | | |
| 118 | Karinsar Solar Plant NHPC Ltd | NHPC | | | | | | |
| 119 | Megasolis Renewables Pvt Ltd(MSRPL) | | | | | | | |
| 120 | Mega Surya Urja Pvt. Ltd. (MSUPL) | | | | | | | |
| 121 | NTPC Devikot Solar plant 240MW | | Received | Aug-26 | | | | |
| 122 | NTPC Kolayat 400kV | | Received | May-26 | | | | |
| 123 | Nedan Solar NTPC | | Received | Jul-26 | | | | |
| 124 | NTPC Nokhra 300MW | | Received | Jun-26 | | | | |
| 125 | One Volt energy Pvt. Ltd. | | Received | 31-12-2028 | | | | |
| 126 | ReNew Solar Urja Private Limited | IndiGrid | | | | | | |
| 127 | Renew Surya Ayaan Pvt. Ltd. | IndiGrid | | | | | | |
| 128 | ReNew Solar Energy (Jharkhand Three) Private Limited | ReNew | Received | 29-01-2027 | | | | |
| 129 | RENEW SOLAR POWER Pvt. Ltd. Bhadla | ReNew | Not Applicable as Plant running on 33kV | | | | | |
| 130 | Renew Surya Partap Pvt. Ltd. | ReNew | Received | 22-07-2029 | | | | |
| 131 | Renew Surya Ravi Pvt. Ltd. | ReNew | Received | 24-07-2027 | | | | |
| 132 | Renew Surya Roshni Pvt. Ltd. | ReNew | Received | 4/9/2029 | | | | |
| 133 | Renew Surya Vihan Pvt. Ltd. | ReNew | Received | 27-08-2029 | | | | |
| 134 | Neemba Renew Surya Vihan Pvt Ltd | ReNew | Received | 30-09-2030 | | | | |
| 135 | ReNew Surya Jyoti Pvt. Ltd | ReNew | Received | 11/10/2030 | | | | |
| 136 | Renew Solar Photovoltaic Pvt Ltd | ReNew | STU-connected projects | | | | | |
| 137 | ReNew Hans Urja Pvt Ltd. | ReNew | STU-connected projects | | | | | |
| 138 | RENEW SOLAR POWER Pvt. Ltd. Bikaner | ReNew | awarded the PO | | | | | |
| 139 | ReNew Dinkar Urja Pvt. Ltd. | ReNew | | | | | | |
| 140 | Renew Sun Bright Pvt. Ltd. (RSBPL) | Sembcorp | Received (submitted by ReNew) | 16-04-2027 | | | | |
| 141 | Rising Sun Energy-K Pvt. Ltd. | | | | | | | |
| 142 | Serentica Renewables India 4 Private Limited | | Received | Mar-29 | | | | |
| 143 | Serentica Renewables India 5 Private Limited | | Received | Mar-29 | | | | |
| 144 | Khidrat Renewable energy Pvt ltd. | | Received | Jun-30 | | | | |
| 145 | SJVN Green Energy Limited | SJVN | | | | | | |
| 146 | Solzen Urja Private Limited | | Received | Oct-26 | | | | |
| 147 | Tata Power Green Energy Ltd. (TPGEL) (225MW) | | Received | 31-03-2027 | | | | |
| 148 | Tata Power Renewable Energy Ltd. (TPREL) (300MW) | | Received | 31-03-2027 | | | | |
| 149 | Thar Surya Pvt. Ltd. | | | | | | | |
| 150 | TP Surya Ltd., Noorsar (110MW) | | Received | 31-03-2027 | | | | |
| 151 | Banderwala Solar Plant TP Surya Ltd. (300MW) | | Received | 31-03-2027 | | | | |
| 152 | Adept Renewable Technologies Pvt. Ltd. | | | | | | | |
| 153 | Transition Cleantech Services Private Limited | | | | | | | |
| 154 | Transition Energy Services Private Limited | | | | | | | |
| 155 | Transition Green Energy Private Limited | | | | | | | |
| 156 | Transition Sustainable Energy Services Private Limited | | | | | | | |
| 157 | Transition Sustainable Energy Services One Pvt Ltd | | | | | | | |
| 158 | Gorbea Solar Pvt Ltd (GSPL) | | Received | Dec-28 | | | | |
| 159 | Prerak Greentech Private Limited (PGPL) | | | | | | | |

## RVPN (internal 2025-26)

### 1. 400kV Merta

1. REF for HV side of 400kV/220kV Transformer has pick up current as 20% while as per philosophy, it should be 10-15% of full load current.
2. For 220/132kV, 100MVA Transformer-1, Low set over current protection is kept at 106%, for 220/132kV, 100MVA Transformer-2, Low set over current protection is kept at 100% while as per philosophy, pick is to be kept between 110%-150% of full load.
3. Over flux protection setting for power transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
4. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
5. Back up over current protection is enabled in 220kV Merta Makrana line, 220kV Merta-Kuchera line, 220kV Merta -Bhopalgarh line, 220kV Merta-Jethana line.
6. Main -1 & 2 are of same make and same model (7SA522) for 220kV Merta - Jethana line.
7. SOTF disabled.

### 2. 220kV Substation Makrana

1. Over flux protection setting for transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
2. For 220/132kV, 100MVA Transformers, Low set over current protection is kept at 100% while as per philosophy, pick is to be kept between 110%-150% of full load.
3. Over current protection is enabled in 220kV transmission lines in 220kV Merta Makrana line, 220kv Makrana -Phulera line, 220kV Makrana-Kuchman line.
4. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
5. Main -1 & 2 are of same make and same model (P442) for 220kV Makrana - Phulera line.
6. SOTF disabled.

## 3. 220kV Substation Danta

1. For 220/132kV, 100MVA Transformers, Low set over current protection is kept at 100% while as per philosophy, pick is to be kept between 110%-150% of full load.
2. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
3. SOTF disabled.

## 4. 220kV Substation Aau

1. Over flux protection setting for transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
4. SOTF disabled.

## 5. 220kV Substation Phalodi

1. Main -1 & 2 are of same make and same model (P442) for 220kV Phalodi - Amarsagar, 220kV Phalodi-Tinwari line.
2. Main -2 relay of 220kV Phalodi-Dechu-2 line is defective as mentioned in the audit report.
3. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
4. Functionality of Bus Bar protection has not been mentioned in the audit report.
5. SOTF disabled.

## 6. 220kV Substation Banar

1. Over flux protection setting for transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. Second slope (range as per philosophy 60-80%) for the differential protection of transformers has been kept at 100% which is not as per philosophy.
4. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
5. SOTF disabled.

## 7. 220kV Substation Bhopalgarh

1. Over flux protection setting for transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. Functionality of Bus Bar protection & Auto recloser has not been mentioned in the audit report.
4. SOTF disabled.

## 8. 220kV Substation Boranda

1. Over flux protection setting for transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. High set over current time delay for the transformers has been kept at 100msec. while as per philosophy, it should be between 0-50msec.
5. Main -1 & 2 are of same make and same model (7SR52) for 220kV Boranda Pachpadra line.
6. Functionality of Bus Bar protection & Auto recloser has not been mentioned in the audit report.
7. SOTF disabled.

## 9. 220kV Substation Dechu

1. Over flux protection setting for transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. High set over current time delay for the transformers has been kept at 100msec. while as per philosophy, it should be between 0-50msec.
4. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
5. SOTF disabled.

## 10. 400kV Substation Kakani

1. Over flux protection setting for transformers, may be kept as per capability curve provided by OEM curve or as per philosophy.
2. For HV side, high set over current time delay for the ICTs has been kept at 100msec. while as per philosophy, it should be between 0-50msec.
3. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
4. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
5. SOTF disabled.

## 11. 400kV Substation Surpura

1. For 400/220 kV, 315 MVA ICT-1 (BHEL), I2/I1= 20% has been taken which is not as per philosophy.
2. Pick up for REF of ICTs has been kept at .2pu while as per philosophy, it should be 10-15% of full load current.
3. For 400kV 125MVAR bus reactor, I2/I1= 32% has been taken in differential protection which is not as per philosophy.

4. For 400kV 50MVAR bus reactor-1,2 & 3, I2/I1= 20% has been taken in differential protection which is not as per philosophy.
5. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
6. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
7. SOTF disabled.

## 12. 220kV Substation Barli

1. Pick up for REF of 160MVA Transformer has been kept at .2pu while as per philosophy, it should be 10-15% of full load current.
2. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
3. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
4. SOTF disabled.

## 13. 220kV Substation Basni

1. Pick up for REF of Transformers has been kept at .2pu while as per philosophy, it should be 10-15% of full load current.
2. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
3. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
4. Relay settings have not been mentioned for 220kV Basni-NPH ckt-2.
5. SOTF disabled.

## 14. 220kV Substation Bhawad

1. Main -1 & 2 are of same make and same model (P442) for 220kV Bhawad-Baithwasia ckt-1,2.

2. Pick up for REF of Transformers has been kept at .2pu while as per philosophy, it should be 10-15% of full load current.
3. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
4. Functionality of Bus Bar protection & Auto recloser has not been mentioned in the audit report.
5. SOTF disabled.

## 15. 220kV Substation Pali

1. Pick up for REF of Transformers has been kept at .2pu while as per philosophy, it should be 10-15% of full load current.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
4. SOTF disabled.

## 16. 220kV Substation Sayala

1. Pick up for REF of Transformers has been kept at 20% while as per philosophy, it should be 10-15% of full load current.
2. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
3. SOTF disabled.

## 17. 220kV Substation Tinwari

1. Pick up for REF of Transformers has been kept at 20% while as per philosophy, it should be 10-15% of full load current.
2. No other protection settings have been mentioned in the audit report.

3. SOTF disabled.

## 18. 400kV Substation Ramgarh

1. Pick up for REF of ICTs has been kept at 20% while as per philosophy, it should be 10-15% of full load current.
2. For 400kV 125MVAR bus reactor, I2/I1= 20% has been taken in differential protection which is not as per philosophy.
3. Impedance protection time delay has been taken as 1 sec. for 400kV 125MVAR bus reactor while as per philosophy, it should be 1.2sec.
4. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
5. SOTF disabled.

## 19. 220kV Substation Baithwasia

1. Pick up for REF of transformers has been kept at 20% while as per philosophy, it should be 10-15% of full load current.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
4. SOTF disabled.

## 20. 220kV Substation Bali

1. Pick up for REF of transformers has been kept at 20% while as per philosophy, it should be 10-15% of full load current.

2. For 220/132kV, 100MVA Transformer-1, Low set over current protection is kept at 100% while as per philosophy, pick is to be kept between 110%-150% of full load.
3. Main -1 & 2 are of same make and same model (7SA522) for 220kV Bali-Sirohi -1 line & 220kV Bali-Bamantukda line.
4. Main- 1 relay is non functional of 220kV Bali-Sirohi -2 line.
5. Bus Bar protection functional has been mentioned in the audit report. Still zone-4 time setting has been kept as 160msec.
6. SOTF disabled.

## 21. 220kV Substation Bhinmal

1. Main -1 & 2 are of same make and same model for 220kV Bhinmal-PGCIL Ckt-1 & 2.
2. No protection settings have been mentioned in the audit report.
3. SOTF disabled.

## 22. 220kV Substation Dhorimanna

1. Main -1 & 2 are of same make and same model (P442) for 220kV Dhorimanna-Barmer line & 220kV Dhorimanna-Bhinmal line.
2. No protection settings have been mentioned in the audit report.
3. SOTF disabled.

## 23. 220kV Substation Jalore

1. Pick up for REF of transformers has been kept at 20% while as per philosophy, it should be 10-15% of full load current.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.

3. Functionality of Bus Bar protection & Auto recloser has not been mentioned in the audit report.
4. SOTF disabled.

## 24. 220kV Substation NPH Ju

1. Pick up for REF of transformers has been kept at 20% while as per philosophy, it should be 10-15% of full load current.
2. Over current protection pick up settings for transformers could not be verified due to unavailability of CT ratio in the report.
3. Main-1 & 2 Relay is non functional of 220kV NPH Ju-Basni-II line.
4. Functionality of Bus Bar protection & Auto recloser has not been mentioned in the audit report.
5. SOTF disabled.

## 25. 220kV Substation Reodar

1. Main -1 & 2 are of same make and same model (P442) for 220kV Reodar-PGCIL Bhinmal line, 220kV Reodar-Sirohi line.
2. No protection settings have been mentioned in the audit report.
3. SOTF disabled.

## KWHEP (JSW Hydro) (internal 2025-26)

1. Implemented Protection settings have not been included in the report. However, no deviation from the RPC protection philosophy has been reported in the audit report.

## ReNew (internal 2025-26)

## 1. Renew Solar Power Private Limited (400kV)

1. Breaker failure protection is not active in 400kV ReNew Bikaner PG Line.
2. 125MVA ICT-1 & 2, cross blocking is disabled in the differential protection.
3. For ICT 1 & 2, I5/I=30% has been taken which is not as per philosophy.
4. For ICT-1 & 2, earth fault protection settings are not as per philosophy.
5. Back up O/C protection settings are not included in the audit report.
6. Zone-4 time delay of 400kV line has been kept at 1 sec.

## 2. Renew Surya Ravi Private Limited (400kV)

1. 150MVA ICT-1 & 2, cross blocking is disabled in the differential protection.
2. For ICT 1 & 2, I5/I=1% has been taken which is not as per philosophy.
3. For ICT 1 & 2, Earth fault high set time on HV side is 150msec which is not as per philosophy.
4. For ICT 1 & 2, HV side REF pick up current is higher than philosophy.
5. Back up O/C protection settings are not included in the audit report.

## 3. ReNew Solar Energy Jharkhand Three Pvt. Ltd. (220kV)

1. Pick up for High set Back-up directional O/C for 220kV/33kV, 150MVA transformer-1,2 is not as per philosophy. (Adopted-500% Ib while as per philosophy, 100-110% of through fault level). Time delay has been kept at .4 sec. while as per philosophy, it should be 0-50msec.
2. Pick up for High set Back-up directional E/F for 220kV/33kV, 150MVA transformer-1,2 is not as per philosophy. (Adopted-50% Ib while as per philosophy, 100-110% of through fault level). Time delay has been kept at .4 sec. while as per philosophy, it should be 0-50msec.
3. Over voltage protection enabled for 220kV/33kV, 150MVA transformers-1,2 along with over flux protection.
4. Zone -2 reach for transmission line has been kept at 150% of protected line though line is single circuit.

# TATA POWER (internal 2025-26)

## 1. TPGEL, NOORSAR

1. Tripping on Power swing is to be kept blocked for all zones as per philosophy.
2. Differential protection, REF protection settings of Transformers, Distance protection settings of line have not been included in the audit report.

## 2. TPREL Chhayan

1. Distance protection settings of line have not been included in the audit report.

## 3. TPTCL Bhanipura (300MW)

1. Differential protection, REF protection settings of Transformers, Distance protection settings of line have not been included in the audit report.

## JSW Energy Barmer (internal 2025-26)

1. Main -1 & 2 are of same make and same model (REL 670) for 220kV Barmer-1,2 & Dhorimanna lines and 400kV Pachpadra, Jodhpur & Barmer lines.
2. Implemented Protection settings of all lines have not been included in the report.

## ASERJ2PL_POKHRAN_212.5MW (internal 2025-26)

1. Main Bus 1& 2: LBB trip time is mentioned as 150 msec. However as per NRPC protection Philosophy, the LBB time delay shall be 200 msec.
2. Power Transformer (125 MVA 220/33 KV)- 87T Cross blocking is disabled. Need to be enabled.

## RPSCL (internal 2025-26)

1. Zone-3 time setting in 220 KV Badaun-Ckt-1 &2 is 600 msec. However, as per NRPC philosophy it should be between 800 -1000 msec.
2. Ih(5%)>35% for ICT

# External 2025

## NHPC (Kishanganga)

1. Two stage over voltage protection is enabled in both Main I and Main II protections of distance relays for all 220 kV four lines.
2. The auto reclosure built in feature is available in both Main I and Main II relays of the four lines but only enabled in Main I relays of Delina line -1, line -2 only and Main II relays of Wagoora line -1, line -2 only.
3. Other observations including above may be complied as identified in internal audit.

## NHPC (Uri-I)

1. Main I (MiCOM P442) and Main II (MiCOM P442) relays of Areva make are used for 400kV Uri-II line. Both are of same make.
2. Auto recloser & LBB is disabled in main -1 (MiCOM P442) relays of 400kV Uri-1 to Amargarh -1, 2. Auto recloser is disabled in main -2 (MiCOM P442) relay of 400kV Uri-1 to Uri-II line.
3. Zone-2 reach has been taken as 120% of protected line for 400kV Uri-1 to Amargarh -1, 2 while as per philosophy, it should be 150% of protected line for double circuit.
4. For 400kV Uri-1 to Uri-2 line time settings may be aligned with Philosophy.
5. Earth fault protection on 400kV Uri-1 to Uri-2 line has been set as DT instead of IEC SI.
6. Other observations including above may be complied as identified in internal audit.

## NHPC (Chamera-II)

1. Trip time delay for the Zone 3 can be set as 1.0 sec as Zone 3 reach is encroaching to next voltage level at Kishanpur. However as per philosophy, time may be taken as 1.5 sec.
2. Other observations including above may be complied as identified in internal audit.

## NHPC (Chamera-III)

1. Trip time delay for the Zone 3 can be set as 1 sec as Zone 3 reach is encroaching to next voltage level at Mazra. However as per philosophy, time may be taken as 1.5 sec.
2. Main I (MiCOM P442) and Main II (MiCOM P442) relays of Alstom make are used for 220kV Chamera-III to Budhil Lanco line. Both are of same make.
3. Auditor proposed to keep over voltage stage -1 & 2 protection for 220kV Chamera-III-Chamba line.
4. Earth fault stage 2 protection enabled on lines (VTS enabled, .11A (.11*1800), 1.5sec. delay DT) which is not particularly mentioned in the philosophy.
5. Other observations including above may be complied as identified in internal audit.

## NHPC (Dhauliganga)

1. Two stage over voltage protection is enabled for both 220 kV lines.
2. Auto recloser has been disabled in lines.
3. Other observations including above may be complied as identified in internal audit

## NHPC (Tanakpur)

1. Two stage over voltage protection is provided for all 220 kV lines the same has also been recommended by auditor which is not as per philosophy.
2. Auditor has recommended for A/R disabled which is not as per philosophy.
3. Other observations including above may be complied as identified in internal audit.

## NHPC (Uri-II)

1. Main I (MiCOM P442) and Main II (MiCOM P442) relays of Areva make are used for 400kV Wagoora and Uri-II lines.

2. Auto recloser is not active in Main-2 relay of 400kV Wagoora line.
3. Other observations including above may be complied as identified in internal audit.

## THDC (Koteshwar HEP)

1. Earth fault stage -2 protection enabled on lines (VTS enabled, 200A, 1.5sec. delay DT) which is not particularly mentioned in the philosophy.
2. Unrestrained operation level in the differential protection of reactor has been taken as 8 pu which is not as per philosophy.

# Rosa Power Supply Co. Ltd.

## Trip Report

**Date of tripping: 16.02.2026, 13.52.54 Hrs and 13.52.56 Hrs**

**Tripping of 400kV Rosa-Badaun #2 and Busbar Operation of Bus#1(Tripping of U#3,ST#3,ICT#1,Bus Coupler and PG#1)**

**Pre incident Conditions:** 400kV Rosa-Badaun Circuit#1 was under shut down for insulator replacement work. The shutdown was take by M/s OCBTL team.
400kV Rosa-Badaun Circuit#2 was in charged condition and connected to 400kV Bus#2. Both lines are in single tower, double circuit. Following bays were connected with 400kV Bus#1. SLD for same is as shown:

1. GT#3
2. ST#3
3. ICT#1
4. Bus Coupler
5. PG#1

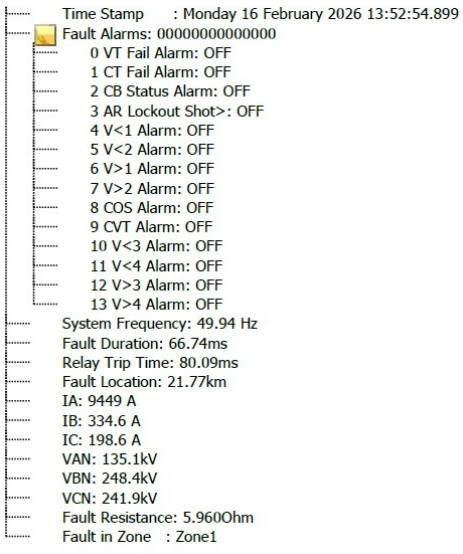
**Incident:** 400kV Rosa Badaun Ckt#2 tripped at 13.52Hrs, at the same time U#3,ST#3,ICT#1,Buscoupler and 400kV PG#1 also got tripped.

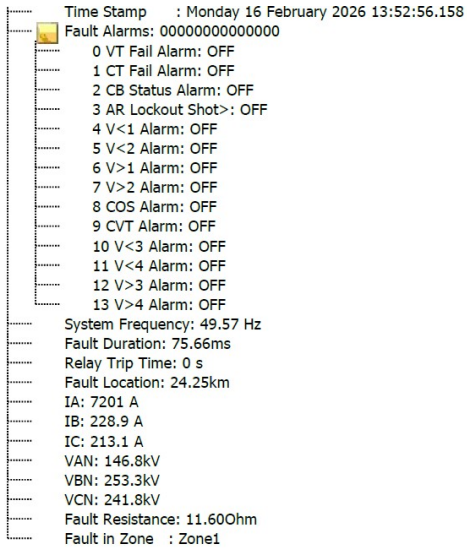
**Following were the initial observations:**

1. 400kV Rosa Badaun ckt#2 tripped in Z1 fault at 13.52.54.899 Hrs. The fault was in A-phase at a distance of about 22KMs from our end. The line auto reclosed and tripped again at 13.52.56.158 Hrs and AR Lockout occurred.
2. All the bays connected to Bus#1 got tripped and 400kV Bus#1 got dead.
3. 87BB Bus-bar differential protection operated leading to tripping of all the bays in Bus#1.

**Reason for tripping of 400kV Rosa Badaun Ckt#2:**

As per the relay records, there was fault in Phase-A of 400kV Rosa Badaun Ckt #2. The line was auto reclosed by the system but the fault was permanent in nature, so it tripped again and AR lockout occurred.
As per the information received from M/s OCBTL team, the fault occurred due to touching of tree.



**Reason of 87 BB Operation in Bus#1 (Why Bus # 1 tripped while the faulty line was in Bus#2?):**

400kV Rosa-Badaun Circuit#1 was under shut down for insulator replacement work. The shutdown was take by M/s OCBTL team and was isolated at our end too.

While checking it was observed that the Main 1 and Main 2 relays of 400kV Rosa-Badaun ckt#1 also had the trip indications (Picture attached).There were Z1 trip and SOTF trip indications.







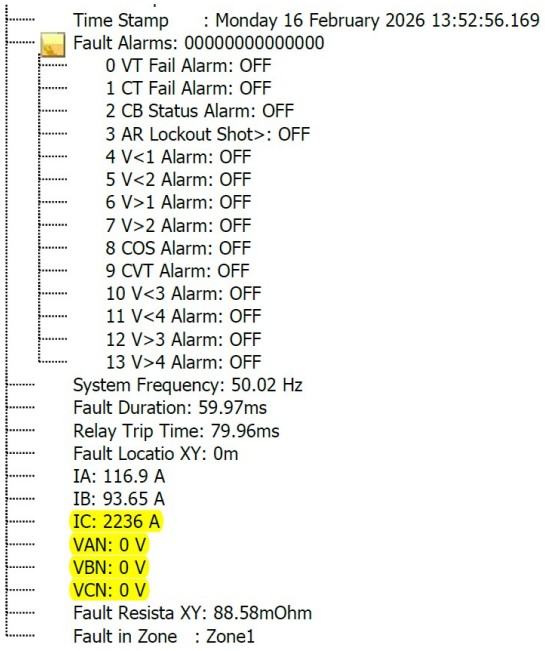
This line was under shut-down and the breakers were opened at both ends. Line isolator was also in open condition and line side earth switch was connected (closed) at both ends. M/s OCBTL team has taken up the job of insulator replacement in this line and were working using the local earthing also.

The fault records of these relays (400kv Rosa-Badaun Ckt#1) were checked and following are observations:

1. It was found that the relay has read the current in C-phase. As visible from the screenshot of fault record from Main #1 relay , Micom P442, the current in phase C is Ic=2738 A (2.7kA) and the voltages in A,B and C phase are also highlighted. As the line was under shutdown, “Zero” voltage in Phase A&B and very less voltage in C phase. The time stamp of this is same as the time stamp of first tripping event of 400kv Rosa-Badaun Ckt#2.

Time Stamp : Monday 16 February 2026 13:52:54.903
Fault Alarms: 00000000000000
System Frequency: 50.02 Hz
Fault Duration: 64.97ms
Relay Trip Time: 79.96ms
Fault Locatio XY: 0m
IA: 243.3 A
IB: 24.49 A
IC: 2738 A
VAN: 0 V
VBN: 0 V
VCN: 432.9 V
Fault Resista XY: 96.74mOhm
Fault in Zone : Zone1

2. There was another fault record in Main #1 relay , Micom P442. Screenshot of same is attached. This fault recording is similar to above and the time stamp is very close to the second tripping of 400kv Rosa-Badaun Ckt#2




3. Fault was also sensed by Main2 REL670 relay of 400kV Rosa Badaun Ckt#1.
Screenshots of fault records, Main #2 Relay REL 670. There is silimar observations here too.

| No. | Name | RMS | Angle | No. | Name | RMS | Angle |
|---|---|---|---|---|---|---|---|
| 1 | LINE_A_IL1 | 126.385(A) | 57.5° | 1 | LINE_UL1 | 191.079(V) | 349.1° |
| 2 | LINE_A_IL2 | 6.096(A) | 324.2° | 2 | LINE_UL2 | 134.785(V) | 314.6° |
| 3 | LINE_A_IL3 | 1368.393(A) | 53.0° | 3 | LINE_UL3 | 533.672(V) | 326.9° |
| 4 | LINE_A_IN | 1498.988(A) | 53.0° | | | | |

**Events List**

| Channel Number | Name | Status | Time |
|---|---|---|---|
| 1 | TRIP | On | 16-02-2026 13:52:18.458 |
| 2 | TRIP-R | On | 16-02-2026 13:52:18.458 |
| 3 | TRIP-Y | On | 16-02-2026 13:52:18.458 |
| 4 | TRIP-B | On | 16-02-2026 13:52:18.458 |
| 17 | SOTF-TRIP | On | 16-02-2026 13:52:18.458 |
| 17 | SOTF-TRIP | Off | 16-02-2026 13:52:18.527 |
| 1 | TRIP | Off | 16-02-2026 13:52:18.611 |
| 2 | TRIP-R | Off | 16-02-2026 13:52:18.611 |
| 3 | TRIP-Y | Off | 16-02-2026 13:52:18.611 |
| 4 | TRIP-B | Off | 16-02-2026 13:52:18.611 |

Recording File Name:C:\ProgramData\ABB\PCMDataBasesABB\DisturbanceRecordings\400KV BDN-1 17.02.2026\Substation_AA1\Voltage Level_J1\Bay_Q01\REL670_A2\A220260216e4

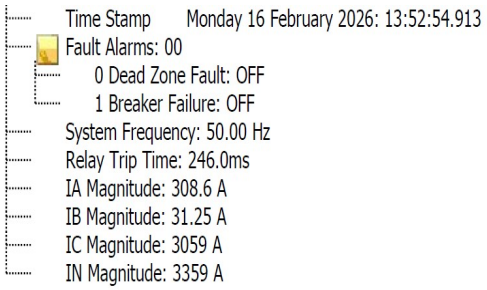
| No. | Name | RMS | Angle | No. | Name | RMS | Angle |
|---|---|---|---|---|---|---|---|
| 1 | LINE_A_IL1 | 63.947(A) | 147.8° | 1 | LINE_UL1 | 174.885(V) | 85.8° |
| 2 | LINE_A_IL2 | 38.04(A) | 331.9° | 2 | LINE_UL2 | 143.985(V) | 5.7° |
| 3 | LINE_A_IL3 | 1141.912(A) | 140.9° | 3 | LINE_UL3 | 423.424(V) | 50.7° |
| 4 | LINE_A_IN | 1170.728(A) | 141.0° | | | | |

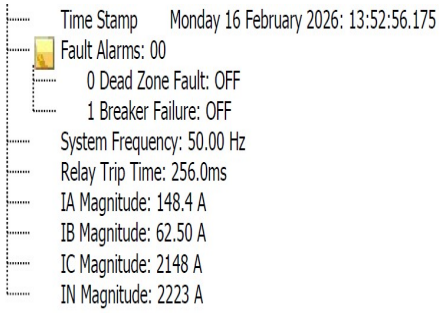
**Events List**

| Channel Number | Name | Status | Time |
|---|---|---|---|
| 1 | TRIP | On | 16-02-2026 13:52:19.724 |
| 2 | TRIP-R | On | 16-02-2026 13:52:19.724 |
| 3 | TRIP-Y | On | 16-02-2026 13:52:19.724 |
| 4 | TRIP-B | On | 16-02-2026 13:52:19.724 |
| 17 | SOTF-TRIP | On | 16-02-2026 13:52:19.724 |
| 17 | SOTF-TRIP | Off | 16-02-2026 13:52:19.790 |
| 1 | TRIP | Off | 16-02-2026 13:52:19.874 |
| 2 | TRIP-R | Off | 16-02-2026 13:52:19.874 |
| 3 | TRIP-Y | Off | 16-02-2026 13:52:19.874 |
| 4 | TRIP-B | Off | 16-02-2026 13:52:19.874 |

Recording File Name:C:\ProgramData\ABB\PCMDataBasesABB\DisturbanceRecordings\400KV BDN-1 17.02.2026\Substation_AA1\Voltage Level_J1\Bay_Q01\REL670_A2\A220260216e5

4. Data of peripheral unit PU B- Micom P743 of 400kV Rosa Badaun Ckt#1 was downloaded and there also the current in C-phase was visible. Also the time stamps and no. of incidents were matching to the tripping times and the no. of incidents of tripping in 400kV Rosa Badaun Ckt#2.




5. **DR summary** of PU A and PU B of 400kV Rosa Badaun Ckt 1 is attached below which is also records/shows the current in C-phase.

File: C:\Program Files (x86)\Schneider Electric\MiCOM S1 Studio\WaveWin\WAVESUMM.DTB Page: 1

```
* File Information::
* ------------------
            Station: MAIN-1 PUA
             Device: 14
          File Name: C:\USERS\ELM\DOCUMENTS\SE S1 STUDIO\400KV ROSA PU 16FEB26_SESTUDIO\P743 BDN1 PU A\1\DR\Monday 16 Febru
          File Size: 98497 Bytes
     Prefault Time: 16/02/2026 13:52:54.442000
        Fault Time: 16/02/2026 13:52:54.927000
         Save Time: 02-17-1980 17:37:30
      Process Time: 02-17-2026 15:27:20
Start Date && Time: 16/02/2026 13:52:54.442000
  End Date && Time: 16/02/2026 13:52:55.960637
     File Duration: 1  Sec(s) - 518 Mils(s) - 637 Mics(s)
Sampling Frequency: 599.880024, 1667.000  Microsecond Rate
    Line Frequency: 50.000000

* Maximum/Minimum Analog Summary:
* -------------------------------
>  Max-Inst      Min-Inst       Max-RMS      Min-RMS     One-Bit    Inst-Diff     RMS-Diff   pUnits     Description
    425.425      -436.475       304.097        8.736      5.5250       11.050      295.361    A          1-IA
     49.725       -38.675        28.664        4.220      5.5250       11.050       24.445    A          2-IB
   4171.375     -4331.600      3020.306        9.702      5.5250      160.225     3010.604    A          3-IC
   4563.650     -4745.975      3309.047       11.050      5.5250      182.325     3297.997    A          4-IN

* Events/Sensors Activity Summary:
* ---------------------------------
>Fst  Lst  Fst-Change        Lst-Change       Changes    Description
  N    N    13:52:54.927097  13:52:55.083795  002          3-L3-LBB INIT R-PH
  N    N    13:52:54.927097  13:52:55.085462  002          4-L4-LBB INIT Y-PH
  N    N    13:52:54.927097  13:52:55.082128  002          5-L5-LBB INIT B-PH
  A    A    xx:xx:xx.xxxxxx  xx:xx:xx.xxxxxx  000          6-L6-LBB INIT 3-PH
  A    A    xx:xx:xx.xxxxxx  xx:xx:xx.xxxxxx  000         15-Ext. 3 ph Trip

* Events/Sensors Activity Log:
* -----------------------------
> State   Trigger-Time                Description
    A     16/02/2026 13:52:54.927097    3-L3-LBB INIT R-PH
    A     16/02/2026 13:52:54.927097    4-L4-LBB INIT Y-PH
    A     16/02/2026 13:52:54.927097    5-L5-LBB INIT B-PH
N         16/02/2026 13:52:55.082128    5-L5-LBB INIT B-PH
N         16/02/2026 13:52:55.083795    3-L3-LBB INIT R-PH
N         16/02/2026 13:52:55.085462    4-L4-LBB INIT Y-PH
```

```
* File Information::
* ------------------
           Station: BDN-1  PU B
            Device: 14
         File Name: C:\USERS\ELM\DOCUMENTS\SE S1 STUDIO\400KV ROSA PU 16FEB26_SESTUDIO\P743 BDN1 PU B\1\DR\Monday 16 Febru
         File Size: 99793 Bytes
     Prefault Time: 16/02/2026 13:52:54.422000
        Fault Time: 16/02/2026 13:52:54.917000
        Save Time: 02-17-1980 17:46:12
     Process Time: 02-17-2026 15:06:15
Start Date && Time: 16/02/2026 13:52:54.422000
  End Date && Time: 16/02/2026 13:52:55.960641
    File Duration: 1  Sec(s) - 538 Mils(s) - 641 Mics(s)
Sampling Frequency: 599.880024, 1667.000  Microsecond Rate
    Line Frequency: 50.000000

* Maximum/Minimum Analog Summary:
* -------------------------------
>  Max-Inst     Min-Inst      Max-RMS     Min-RMS    One-Bit   Inst-Diff    RMS-Diff   pUnits    Description
    419.900     -430.950      303.142       6.177     5.5250      11.050     296.965    A         1-IA
     44.200      -44.200       28.709       0.000     5.5250       0.000      28.709    A         2-IB
   4187.950    -4320.550     3023.281       8.440     5.5250     132.600    3014.842    A         3-IC
   4563.650    -4745.975     3310.207      11.050     5.5250     182.325    3299.157    A         4-IN

* Events/Sensors Activity Summary:
* ---------------------------------
>Fst  Lst  Fst-Change       Lst-Change       Changes    Description
  N    N    13:52:54.917099  13:52:55.162148  002         2-Any Trip
  N    N    13:52:54.928768  13:52:55.085466  002         3-L3-LBB INIT R-PH
  N    N    13:52:54.928768  13:52:55.085466  002         4-L3-LBB INIT R-PH
  N    N    13:52:54.928768  13:52:55.087133  002         5-L4-LBB INIT Y-PH
  N    N    13:52:54.928768  13:52:55.087133  002         6-L5-LBB INIT B-PH
  N    N    13:52:54.917099  13:52:55.160481  002         7-R5-BB/LBB 96A OP
  N    N    13:52:54.917099  13:52:55.160481  002         8-Relay condit 06
  N    N    13:52:54.917099  13:52:55.160481  002         9-R7-BB/LBB 96B OP
  N    N    13:52:54.917099  13:52:55.160481  002        10-R8- BBD/TSEND-2
  N    N    13:52:54.917099  13:52:55.160481  002        11-R10-BB/LBB 96BOP
  N    N    13:52:54.917099  13:52:55.160481  002        12-R11-BBD/T SEND-2
  N    N    13:52:54.917099  13:52:55.160481  002        14-R13-BBD/T SEND-1
  N    N    13:52:54.917099  13:52:55.160481  002        15-R16-BBD/T SEND-1
  N    N    13:52:54.917099  13:52:55.160481  002        16-Trip 87BB
  A    A    жж:жж:жж.жжжжж  жж:жж:жж.жжжжж  000        18-Ext. 3 ph Trip

* Events/Sensors Activity Log:
* -----------------------------
> State   Trigger-Time                Description
    A     16/02/2026 13:52:54.917099   2-Any Trip
    A     16/02/2026 13:52:54.917099   7-R5-BB/LBB 96A OP
    A     16/02/2026 13:52:54.917099   8-Relay condit 06
    A     16/02/2026 13:52:54.917099   9-R7-BB/LBB 96B OP
    A     16/02/2026 13:52:54.917099  10-R8- BBD/TSEND-2
    A     16/02/2026 13:52:54.917099  11-R10-BB/LBB 96BOP
    A     16/02/2026 13:52:54.917099  12-R11-BBD/T SEND-2
    A     16/02/2026 13:52:54.917099  14-R13-BBD/T SEND-1
    A     16/02/2026 13:52:54.917099  15-R16-BBD/T SEND-1
    A     16/02/2026 13:52:54.917099  16-Trip 87BB
    A     16/02/2026 13:52:54.928768   3-L3-LBB INIT R-PH
    A     16/02/2026 13:52:54.928768   4-L3-LBB INIT R-PH
    A     16/02/2026 13:52:54.928768   5-L4-LBB INIT Y-PH
    A     16/02/2026 13:52:54.928768   6-L5-LBB INIT B-PH
N         16/02/2026 13:52:55.085466   3-L3-LBB INIT R-PH
N         16/02/2026 13:52:55.085466   4-L3-LBB INIT R-PH
N         16/02/2026 13:52:55.087133   5-L4-LBB INIT Y-PH
N         16/02/2026 13:52:55.087133   6-L5-LBB INIT B-PH
N         16/02/2026 13:52:55.160481   7-R5-BB/LBB 96A OP
N         16/02/2026 13:52:55.160481   8-Relay condit 06
N         16/02/2026 13:52:55.160481   9-R7-BB/LBB 96B OP
N         16/02/2026 13:52:55.160481  10-R8- BBD/TSEND-2
N         16/02/2026 13:52:55.160481  11-R10-BB/LBB 96BOP
N         16/02/2026 13:52:55.160481  12-R11-BBD/T SEND-2
N         16/02/2026 13:52:55.160481  14-R13-BBD/T SEND-1
N         16/02/2026 13:52:55.160481  15-R16-BBD/T SEND-1
N         16/02/2026 13:52:55.160481  16-Trip 87BB
N         16/02/2026 13:52:55.162148   2-Any Trip
```

```
* File Information::
* ------------------
           Station: BDN-1  PU B
            Device: 14
         File Name: C:\USERS\ELM\DOCUMENTS\SE S1 STUDIO\400KV ROSA PU 16FEB26_SESTUDIO\P743 BDN1 PU B\1\DR\Monday 16 Febru
         File Size: 98497 Bytes
     Prefault Time: 16/02/2026 13:52:55.966000
        Fault Time: 16/02/2026 13:52:56.178000
        Save Time: 02-17-1980 17:45:50
      Process Time: 02-17-2026 15:10:35
 Start Date && Time: 16/02/2026 13:52:55.966000
   End Date && Time: 16/02/2026 13:52:57.484637
      File Duration: 1  Sec(s) - 518 Mils(s) - 637 Mics(s)
 Sampling Frequency: 599.880024, 1667.000  Microsecond Rate
     Line Frequency: 50.000000

* Maximum/Minimum Analog Summary:
* -------------------------------
>  Max-Inst     Min-Inst      Max-RMS     Min-RMS    One-Bit   Inst-Diff    RMS-Diff   pUnits    Description
    226.525     -795.600      418.033       3.568     5.5250     569.075     414.465     A        1-IA
     82.875     -784.550      409.556       3.566     5.5250     701.675     405.989     A        2-IB
   3315.000    -3105.050     2294.873       3.809     5.5250     209.950    2291.063     A        3-IC
   3375.775    -3187.925     2352.692       4.526     5.5250     187.850    2348.166     A        4-IN

* Events/Sensors Activity Summary:
* ---------------------------------
>Fst  Lst  Fst-Change       Lst-Change       Changes    Description
  N    N    13:52:56.177709  13:52:56.432760  002          2-Any Trip
  N    N    13:52:56.194379  13:52:56.347743  002          3-L3-LBB INIT R-PH
  N    N    13:52:56.194379  13:52:56.347743  002          4-L3-LBB INIT R-PH
  N    N    13:52:56.194379  13:52:56.349410  002          5-L4-LBB INIT Y-PH
  N    N    13:52:56.194379  13:52:56.349410  002          6-L5-LBB INIT B-PH
  N    N    13:52:56.177709  13:52:56.431093  002          7-R5-BB/LBB 96A OP
  N    N    13:52:56.177709  13:52:56.431093  002          8-Relay condit 06
  N    N    13:52:56.177709  13:52:56.431093  002          9-R7-BB/LBB 96B OP
  N    N    13:52:56.177709  13:52:56.431093  002         10-R8- BBD/TSEND-2
  N    N    13:52:56.177709  13:52:56.431093  002         11-R10-BB/LBB 96BOP
  N    N    13:52:56.177709  13:52:56.431093  002         12-R11-BBD/T SEND-2
  N    N    13:52:56.177709  13:52:56.431093  002         14-R13-BBD/T SEND-1
  N    N    13:52:56.177709  13:52:56.431093  002         15-R16-BBD/T SEND-1
  N    N    13:52:56.177709  13:52:56.431093  002         16-Trip 87BB
  A    A    xx:xx:xx.xxxxxx  xx:xx:xx.xxxxxx  000         18-Ext. 3 ph Trip

* Events/Sensors Activity Log:
* -----------------------------
> State   Trigger-Time                Description
    A     16/02/2026 13:52:56.177709    2-Any Trip
    A     16/02/2026 13:52:56.177709    7-R5-BB/LBB 96A OP
    A     16/02/2026 13:52:56.177709    8-Relay condit 06
    A     16/02/2026 13:52:56.177709    9-R7-BB/LBB 96B OP
    A     16/02/2026 13:52:56.177709   10-R8- BBD/TSEND-2
    A     16/02/2026 13:52:56.177709   11-R10-BB/LBB 96BOP
    A     16/02/2026 13:52:56.177709   12-R11-BBD/T SEND-2
    A     16/02/2026 13:52:56.177709   14-R13-BBD/T SEND-1
    A     16/02/2026 13:52:56.177709   15-R16-BBD/T SEND-1
    A     16/02/2026 13:52:56.177709   16-Trip 87BB
    A     16/02/2026 13:52:56.194379    3-L3-LBB INIT R-PH
    A     16/02/2026 13:52:56.194379    4-L3-LBB INIT R-PH
    A     16/02/2026 13:52:56.194379    5-L4-LBB INIT Y-PH
    A     16/02/2026 13:52:56.194379    6-L5-LBB INIT B-PH
N         16/02/2026 13:52:56.347743    3-L3-LBB INIT R-PH
N         16/02/2026 13:52:56.347743    4-L3-LBB INIT R-PH
N         16/02/2026 13:52:56.349410    5-L4-LBB INIT Y-PH
N         16/02/2026 13:52:56.349410    6-L5-LBB INIT B-PH
N         16/02/2026 13:52:56.431093    7-R5-BB/LBB 96A OP
N         16/02/2026 13:52:56.431093    8-Relay condit 06
N         16/02/2026 13:52:56.431093    9-R7-BB/LBB 96B OP
N         16/02/2026 13:52:56.431093   10-R8- BBD/TSEND-2
N         16/02/2026 13:52:56.431093   11-R10-BB/LBB 96BOP
N         16/02/2026 13:52:56.431093   12-R11-BBD/T SEND-2
N         16/02/2026 13:52:56.431093   14-R13-BBD/T SEND-1
N         16/02/2026 13:52:56.431093   15-R16-BBD/T SEND-1
N         16/02/2026 13:52:56.431093   16-Trip 87BB
N         16/02/2026 13:52:56.432760    2-Any Trip
```

File: C:\Program Files (x86)\Schneider Electric\MiCOM S1 Studio\WaveWin\WAVESUMM.DTB Page: 1

```
* File Information::
* ------------------
            Station: MAIN-1 PUA
             Device: 14
          File Name: C:\USERS\ELM\DOCUMENTS\SE S1 STUDIO\400KV ROSA PU 16FEB26_SESTUDIO\P743 BDN1 PU A\1\DR\Monday 16 Febru
          File Size: 98497 Bytes
     Prefault Time: 16/02/2026 13:52:55.966000
        Fault Time: 16/02/2026 13:52:56.193000
         Save Time: 02-17-1980 17:37:10
      Process Time: 02-17-2026 15:28:10
 Start Date && Time: 16/02/2026 13:52:55.966000
   End Date && Time: 16/02/2026 13:52:57.484637
      File Duration: 1  Sec(s) - 518 Mils(s) - 637 Mics(s)
 Sampling Frequency: 599.880024, 1667.000  Microsecond Rate
     Line Frequency: 50.000000

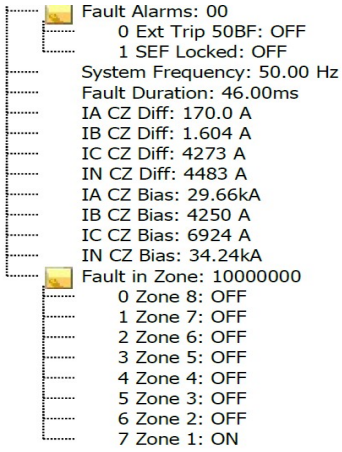
* Maximum/Minimum Analog Summary:
* -------------------------------
>  Max-Inst      Min-Inst       Max-RMS      Min-RMS     One-Bit    Inst-Diff     RMS-Diff   pUnits     Description
    215.475      -795.600       414.446        5.291      5.5250      580.125      409.154    A          1-IA
     88.400      -790.075       407.604        3.189      5.5250      701.675      404.415    A          2-IB
   3303.950     -3110.575      2290.810        2.887      5.5250      193.375     2287.923    A          3-IC
   3392.350     -3187.925      2353.044        3.694      5.5250      204.425     2349.349    A          4-IN

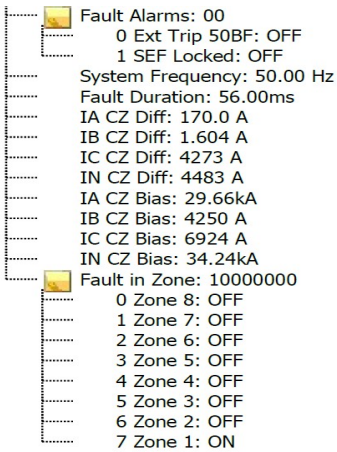
* Events/Sensors Activity Summary:
* ---------------------------------
>Fst  Lst  Fst-Change        Lst-Change       Changes    Description
  N    N    13:52:56.192712  13:52:56.347743   002          3-L3-LBB INIT R-PH
  N    N    13:52:56.192712  13:52:56.344409   002          4-L4-LBB INIT Y-PH
  N    N    13:52:56.192712  13:52:56.346076   002          5-L5-LBB INIT B-PH
  A    A    xx:xx:xx.xxxxxx  xx:xx:xx.xxxxxx   000          6-L6-LBB INIT 3-PH
  A    A    xx:xx:xx.xxxxxx  xx:xx:xx.xxxxxx   000         15-Ext. 3 ph Trip

* Events/Sensors Activity Log:
* -----------------------------
> State   Trigger-Time               Description
    A     16/02/2026 13:52:56.192712   3-L3-LBB INIT R-PH
    A     16/02/2026 13:52:56.192712   4-L4-LBB INIT Y-PH
    A     16/02/2026 13:52:56.192712   5-L5-LBB INIT B-PH
N         16/02/2026 13:52:56.344409   4-L4-LBB INIT Y-PH
N         16/02/2026 13:52:56.346076   5-L5-LBB INIT B-PH
N         16/02/2026 13:52:56.347743   3-L3-LBB INIT R-PH
```

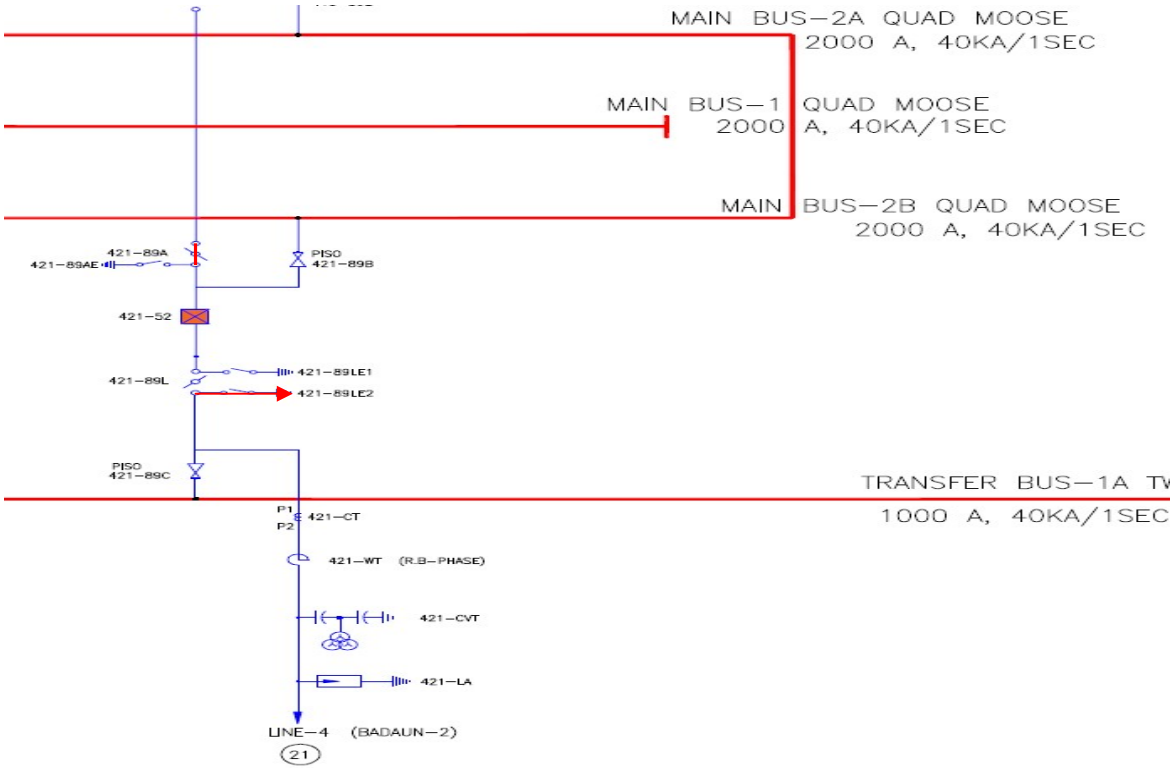
All these observations indicate that during the fault in 400kV Rosa Badaun Ckt#2, actual current has somehow flown in C-phase primary to ground in 400kV Rosa-Badaun Ckt#1(which was under SD). This current was refelcted in CT secondary cores of 400kV Rosa Badaun Ckt#1. The current read by relays of Ckt#1 caused the tripping indications in relays (M1 and M2 relay).
The current read by PU (P743) of Ckt#1 reported the differential current to Central unit (CU)(P741), which gave the busbar tripping command in zone 1.All the bays connected to bus#1 got tripped.

Screenshot of Fault record of CU is attached below.



**SLD Showing the Location of CT in Line:**




**Observations-**

1. 400kV Rosa-Badaun Circuit#2 was also tripped on 14/02/2026, Z2 protection. Faulted phase A-B, distance 77 KMs from our end while 400kV Rosa-Badaun Circuit#1 was under shutdown.
2. Line patrolling was done by M/s OCBTL team. On 10th Feb, their representative also came to our end for same.
3. 400kV Rosa-Badaun Circuit#2 trip logged twice in relay (once trip & then AR acted) ,same fault was sensed in relay of 400kV Rosa-Badaun Circuit#1.
4. All 03 different relays (Main 1, main2 ,PUs ) of 400kV Rosa-Badaun Circuit#1 had sensed the same fault in C phase whereas line was under shutdown which triggered the differential protection of bus bar#1 (87BB-Z1).
5. Time of incidence of 400kV Rosa-Badaun Circuit#2 tripping & differential protection of bus bar-1 acting is matching means incident occurred while Circuit#2 tripping only.
6. Enquired with M/s OCBTL for any incident at the line/tower end but they reported cause of tripping as tree touching in the charged line. Tree touching is the transient nature fault but line AR also failed at both ends which is not justifying the reason stated by M/s OCBTL.
7. Probable cause suspected by us that something touched/ came in vicinity of the shutdown line-1 from charged line-2.( conductor broken/faulty insulator/Heavy arcing/Human error etc since work is going on at the tower ) Both lines are in single tower, double circuit system.

**Subject-Implementation of Special Protection Scheme (SPS) for Load Shedding on Tripping of ICT at 400 kV Substation BBMB Panipat.**

On dated 05.03.2026, Xen M&P Rohtak along with SDO M&P Rohtak visited 400KV BBMB Panipat to check the relay settings of ICTSs. BBMB representative share the settings and as per the settings shared by **BBMB**, the transformer can withstand this overload condition for a **maximum duration of 3.9 seconds**. Therefore, **load shedding must be initiated before the transformer trips due to overload**.

The **maximum loading on both the transformer (T/F)** is **850 MW** as per data shared in the NRPC meeting. In the event of tripping of one transformer, the entire **850 MW load will be transferred to the remaining transformer**.

The following case for SPS operation may be considered

| Sr No | Condition | Delay in tripping of 220 KV Ckts | Cases | Action | Load Relief | Remarks |
|---|---|---|---|---|---|---|
| 1 | ICT-1/2 tripped | 1500 ms | Case-1 | 220KV Chajjpur ckt-I&2 will be opened. | 250 MW | As per data shared by BBMB the ICTs will bear overloading for a period of 3.9 seconds in case of tripping of one ICT. |
| 2 | ICT-1/2 tripped | 2500 ms | Case-2 | 220/33KV ICTs will be open. | 50 MW | |
| 3 | ICT-1/2 tripped | 3500 ms | Case-3 | 220KV Panipat-Pipli line will be opened. | 130 MW | |

The above **graded SPS operation** ensures that load shedding is carried out in stages within **3.5 seconds**, which is within the **3.9-second overload withstand capability** of the transformer as specified by BBMB. This scheme will prevent **tripping of the healthy ICT due to overload** and enhance the reliability and stability of the power system.

| Sr.No. | Breaker Status | Full Load current LV side (A) | 110% of full load current | Condition | Tripping Delay in ms | Tripping command issue by SPS to | Feeder & Line Breaker Status |
|---|---|---|---|---|---|---|---|
| 1 | 1. Check ICT-2 Breaker Status is Open & 2. Check ICT-1 Breaker Status is Close | ICT-1: 1180 | 1298 | If ICT-2 Tripped, ICT-1 Load >= 1298 | 1500 | 220 KV Chajjpur-1 & 2 | Breaker Status is Close |
| | | | | | 2500 | 220/33KV 60MVA TF -1&2 | Breaker Status is Close |
| | | | | | 3500 | 220 KV Pipli line | Breaker Status is Close |
| 2 | 1. Check ICT-1 Breaker Status is Open & 2. Check ICT-2 Breaker Status is Close | ICT-2: 1312 | 1443 | If ICT-1 Tripped, ICT-2 Load >= 1443 | 1500 | 220 KV Chajjpur-1 & 2 | Breaker Status is Close |
| | | | | | 2500 | 220/33KV 60MVA TF -1&2 | Breaker Status is Close |
| | | | | | 3500 | 220 KV Pipli line | Breaker Status is Close |
| Note: If the feeder's breaker status is open, SPS will not issue a tripping command to that feeder because it will consider that the feeder is already tripped. | | | | | | | |

ICT - I → 450 MVA 400/220 KV

HV = 650A full load - connected CT = 600/1A

LV = 1180A full load — connected CT = 2000/1A

HV Side

400KV

PSM = 1.2 × In = 720 A

TMS = 0.300

Curve = IDMT (NI)

220KV

LV Side

PSM = 0.66 × In = 1320 A

TMS = 0.45

Curve = IDMT (NI)

overload 850 MW →
- 1226 A (HV) → will trip in 3.9 sec.
- 2230 A (LV) → will trip in 5.9 sec

ICT-2 → 500 MVA → 400/220 KV

HV = 721A full load → connected CT → 1200/1A

LV = 1312 full load → Connected CT → 1600/1A

HV Side (400KV)

PSM = 1.08 × In = 1296A

TMS = 0.130

Curve = IDMT (NI)

220KV

PSM - 1.23 × In = 1968A

TMS - 0.45

Curve - NI (IDMT)

Overloading 850 MW →
- 1226 A (HV) → will not trip
- 2230 A (LV) → At this current CB will open in 25.17 sec

Annexure-A.XIII


**RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED**
[Corporate Identity Number (CIN): U40109RJ2000SGC016485]
Regd. Office: Vidyut Bhawan, Janpath, Jyoti Nagar, Jaipur-302005

RVPN
An ISO 9001:2015 Certified Company

**OFFICE OF THE CHIEF ENGINEER (LD)**
New Prasaran Bhawan, TCC Building, Heerapura, Jaipur Tel. No. 0141-2948293
E-mail: ce.ld@rvpn.co.in website: www.http://energy.rajasthan.gov.in/rvpnl


No.RVPN/CE(LD)/SE(SOLD)/XEN-I/A-1/F./D. 2154 dt. 18/03/2026

The Member Secretary
NRPC, New Delhi

Sub: - Table agenda for inclusion in the 67th PSC meeting scheduled on 18.3.2026- Installation of Special Protection Scheme (SPS) at 400 kV GSS Bikaner in power step-up condition and modification in already implemented SPS in step down condition

In reference to the above subject, the following is submitted:

1. The 400 kV transformers at 400 kV GSS Bikaner are observed to be fully loaded/overloaded during the morning and evening peak hours (non-solar generation period) under power step-down conditions.
2. The said transformers are also experiencing full loading/overloading during solar generation hours under power step-up conditions.

Approximately 897 MW of solar generation capacity is connected at 220 kV GSS Chhatargarh and Gajner, and the generated power is being evacuated through 400 kV GSS Bikaner. The Special Protection Scheme (SPS) for the step-down condition has already been implemented and made directional (to operate only during power step-down condition) w.e.f. 13.03.2026.

In order to avoid tripping of 400 kV transformers at GSS Bikaner due to overloading under step-up conditions during solar generation hours, an SPS scheme has been prepared by Rajasthan SLDC. Accordingly, an table agenda item is enclosed herewith for inclusion of the above issue in the 67th PSC Meeting scheduled on 18.03.2026 for discussion and approval, so as to avoid any disturbance during solar generation hours.

Encl: As above

(Sudhir Jain)
Chief Engineer (LD)
RVPN, Jaipur

Validity unknownSignature valid
Digitally signed by S[illegible]ir Jain
Designation : Chief[illegible]gineer
Date: 2026.03[illegible]:33:29 IST
Reason: Approv[illegible]

RajKaj Ref No.: 21118895

Copy submitted/ forwarded to the following for information and necessary action:

1. The Director (Operation/Tech), RVPN, Jaipur
2. The Chief Engineer (PP&D/Communication), RVPN, Jaipur
3. The Chief Engineer(T&C/MPT&S), RVPN, Jodhpur
4. The Superintending Engineer, TA to the MD, RVPN, for kind perusal of MD, RVPN, Jaipur
5. The Superintending Engineer (P&P), RVPN Jaipur
6. The Superintending Engineer (T&C/MPT&S), RVPN, Bikaner
7. The Superintending Engineer (Communication), RVPN, Jodhpur.
8. The Superintending Engineer (Prot. Engg.), RVPN, Jaipur.
9. The Executive Engineer, Shift Incharge, SLDC, Control Room.

Encl:- As above

Chief Engineer (LD)

Copy also forwarded to the following for information and necessary action:

1. The General Manager, NRLDC, 18A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016.

Encl:- As above

Chief Engineer (LD)

Validity unknownSignature valid

Digitally signed by S[illegible]ir Jain
Designation : Chief [illegible]ngineer
Date: 2026.0[illegible]:33:29 IST
Reason: Approv[illegible]

RajKaj Ref No.:
21118895

**Agenda:** Installation of Special Protection Scheme (SPS) at 400 kV GSS Bikaner in power step-up condition and modification in already implemented SPS in step down condition

**1.0 BACK GROUND**

It is submitted that:

1. The 400 kV transformers at 400 kV GSS Bikaner are fully loaded/overloaded during the morning and evening peak hours (non-solar generation period) under power step-down condition.
2. The 400 kV transformers at 400 kV GSS Bikaner are also fully loaded/overloaded during the solar generation period under power step-up condition.

Following Special Protection Scheme (SPS) was approved in 60th NRPC meeting held on 30.11.2022 to avoid tripping of the 400 kV transformers at 400kV GSS, Bikaner in power step-down over load condition : -

I. SPS logic : SPS signal is generated in the condition of 110% overloading of the ICTs in all three phases simultaneously for 3 seconds continuously

II. Tripping of following 220 kV lines on SPS Signal :
   - 220 kV Bikaner (400 kV GSS)-Nokha line
   - 220 kV Bikaner (400 kV GSS)-Sri Dungargarh line

The aforesaid SPS has been implemented as per NRPC approval and is presently in operation. However, it requires modification to make it directional, in view of the tripping incident that occurred on 11.03.2026 at 11:41 hrs under power step-up conditions. On 11.03.2026, the 400/220 kV transformers at 400 kV GSS Bikaner were overloaded. Consequently, the SPS operated and tripped the 220 kV Bikaner (400 kV GSS)-Nokha and 220 kV Bikaner (400 kV GSS)-Sri Dungargarh lines. These lines were evacuating approximately 350 MW of solar power injected at the 220 kV bus of 400 kV GSS Bikaner through the 220 kV D/C Gajner-Bikaner (400 kV GSS) line and two 220 kV interconnecting lines between 220 kV GSS Bikaner and 400 kV GSS Bikaner.

The tripping of these lines resulted in further overloading of the 400/220 kV transformers, ultimately leading to tripping of both transformers. This caused a total loss of approximately 1097 MW of solar generation connected to 220 kV GSS Gajner (441.63 MW), 220 kV GSS Chhattargarh(350 MW), 132 kV GSS Kolayat( 89.37 MW), 132 kV GSS Nokha Daiya(16 MW) and 220 kV GSS Badnu( 200 MW) . Further, it is observed that during solar generation hours, significant overloading (power step-up condition) is occurring daily on the 400/220 kV transformers at 400 kV GSS Bikaner. The 220 kV transmission lines/GSS and solar projects in the vicinity of 400 kV GSS Bikaner are depicted in Figure-1 below.

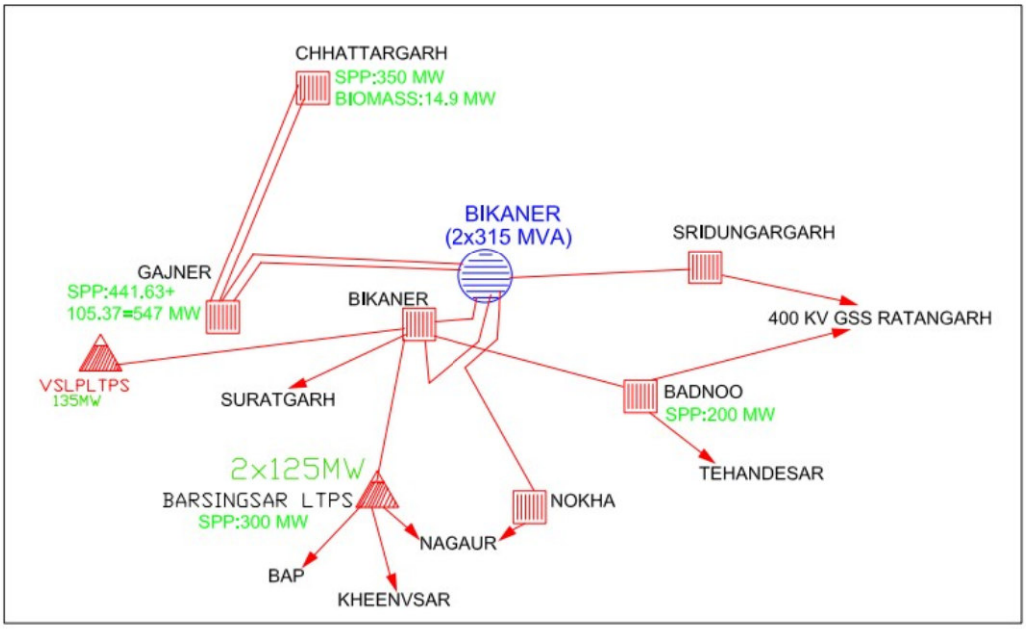



Fig-1 : 220 kV transmission lines/GSS and solar projects in the vicinity of 400 kV GSS Bikaner

Validity unknownSignature valid
Digitally signed by S[illegible]hir Jain
Designation : Chief [illegible]gineer
Date: 2026.03.[illegible]:32:34 IST
Reason: Approv[illegible]
RajKaj Ref No.: 21118888

## 2.0 Proposal for Review and Augmentation of SPS at 400 kV GSS Bikaner

In view of the above, the existing approved and implemented SPS needs to be reviewed. Additionally, an SPS scheme for power step-up condition is required to be implemented.

### 2.1 Proposal of SPS under Power Step-Up Condition

In order to avoid tripping of 400 kV transformers at 400 kV GSS Bikaner due to overloading under step-up condition, the following SPS scheme is proposed based on PSSE load flow studies:

**Table-1: SPS Solar Feeders**

| Stage-1 SPS feeder | Stage-2 SPS feeder | Stage-3 SPS feeder | PSSE LFS Plot reference |
|---|---|---|---|
| Tripping of 220 kV S/C Gajner-Mahindra Susten line at 220 kV GSS Gajner end (200 MW solar feeder) | Tripping of 132 kV S/C Chhattargarh-NTPC line at 220 kV GSS Chhattargarh end (150 MW solar feeder) | Tripping of 220 kV S/C Chhattargarh-Mahindra Solren line at 220 kV GSS Chhattargarh end (200 MW solar feeder) | Base Case:Exhibit-1<br>Stage-1 : Exhibit-2<br>Stage-2 : Exhibit-3<br>Stage-3 : Exhibit-4 |

Load flow study results in Base Case and after SPS operation of Stage-1, Stage-2 and Stgae-3 are placed at respective Exhibits and tabulated hereunder :-

Table-2 : Load on 400/220 kV transformers(MW) after SPS operation

| Base Case | After Stage1 SPS operation | After Stage2 SPS operation | After Stage3 SPS operation | PSSE Load Flow results reference |
|---|---|---|---|---|
| 2x240 MW | 2x183 MW | 2x145 MW | 2x89 MW | Base Case:Exhibit-1<br>Stage-1 : Exhibit-2<br>Stage-2 : Exhibit-3<br>Stage-3 : Exhibit-4 |

**Proposed SPS Logic :**

i. **Stage-1 Operation** : Trip commands for Stage-1 SPS shall be generated with a **time delay of 5 seconds (DT) when all three phases** of any one of the 400/220 kV ICT/transformers at 400 kV GSS Bikaner is overloaded beyond **110% (only in step-up condition).**

ii. **Stage-2 Operation**: Trip commands for Stage-2 SPS shall be generated with a **time delay of 8 seconds (DT) when all three phases** of any one of the 400/220 kV ICT/transformers at 400 kV GSS Bikaner is overloaded beyond **110% (only in step-up condition).**

iii. **Stage-3 Operation:** Trip commands for Stage-3 SPS shall be generated with a **time delay of 10 seconds (DT)** when all three phases of any one of the 400/220 kV ICT/ transformers at 400 kV GSS Bikaner is overloaded beyond **110% (only in step-up condition).**

### 2.2 Modification in Implemented SPS under Power Step-Down Condition

i. The implemented SPS at 400 kV GSS Bikaner needs to be made directional in view of the tripping incident that occurred on 11.03.2026 at 11:41 hrs under step-up condition.

ii. Following the above incident, and upon request of SLDC Rajasthan, RVPN has made the SPS directional on 13.03.2026 .

iii. The PSC forum is requested to ratify the aforesaid modification carried out by RVPN on 13.03.2026 based on the recommendation of SLDC Rajasthan.

Validity unknownSignature valid
Digitally signed by S[illegible]ir Jain
Designation : Chief [illegible]gineer
Date: 2026.03.[illegible]:32:34 IST
Reason: Approv[illegible]

RajKaj Ref No.:
21118888

### 3.0 Approval of PSC Forum

i. The PSC forum is requested to consider and approve the following SPS scheme under power step-up condition at 400 kV GSS Bikaner for 2 × 315 MVA, 400/220 kV transformers:

Table-3 : SPS solar feeders and logic

| S. No. | SPS particulars | SPS feeder | SPS logic |
|---|---|---|---|
| 1 | Stage-1 of the SPS | Tripping of 220 kV S/C Gajner-Mahindra Susten line at 220 kV GSS Gajner end (200 MW solar feeder) | Trip commands for Stage-1 SPS shall be generated with a **time delay of 5 seconds (DT) when all three phases** of any one of the 400/220 kV ICT/transformers at 400 kV GSS Bikaner is overloaded beyond **110% (only in step-up condition).** |
| 2 | Stage-2 of the SPS | Tripping of 132 kV S/C Chhattargarh-NTPC line at 220 kV GSS Chhattargarh end (150 MW solar feeder) | Trip commands for Stage-2 SPS shall be generated with a time delay of 8 seconds (DT) when all three phases of any one of the 400/220 kV ICT/transformers at 400 kV GSS Bikaner is overloaded beyond 110% (only in step-up condition). |
| 3 | Stage-3 of the SPS | Tripping of 220 kV S/C Chhattargarh-Mahindra Solren line at 220 kV GSS Chhattargarh end (200 MW solar feeder) | Trip commands for Stage-3 SPS shall be generated with a time delay of 10 seconds (DT) when all three phases of any one of the 400/220 kV ICT/ transformers at 400 kV GSS Bikaner is overloaded beyond 110% (only in step-up condition). |

ii. The implemented SPS at 400 kV GSS Bikaner has already been made directional (i.e., SPS signals are generated only when overloading occurs under power step-down condition). The PSC forum is requested to consider and ratify the aforesaid modification carried out by RVPN on 13.03.2026.

Validity unknownSignature valid

Digitally signed by S[illegible]ir Jain
Designation : Chief [illegible]gineer
Date: 2026.03.[illegible]:32:34 IST
Reason: Approv[illegible]

RajKaj Ref No.:
21118888

Annexure-1

List of EHV LINES for installation of Special Protection Scheme (SPS) to avoid over loading tripping of 400/220 kV transformers at 400 kV GSS Bikaner in MW power Step-up condition

| S. No. | Name of 400 kV GSS | 400/220 kV transformers capacity(MVA) | Proposed SPS Transmission Lines | | | |
|---|---|---|---|---|---|---|
| | | | Stage-1 | Stage-2 | Stage-3 | PSSE LFS Plot reference |
| 1 | Bikaner | 2x315 MVA | Tripping of 220 kV S/C Gajner-Mahindra Susten line at 220 kV GSS Gajner end | Tripping of 132 kV S/C Chhattargarh-NTPC line at 220 kV GSS Chhattargarh end | Tripping of 220 kV S/C Chhattargarh-Mahindra Solren line at 220 kV GSS Chhattargarh end | Base Case:Exhibit-1<br>Stage-1 : Exhibit-2<br>Stage-2 : Exhibit-3<br>Stage-3 : Exhibit-4 |

Annexure-2

Load flow study results in Base Case and after SPS operation of Stage-1, Stage-2 and Stgae-3

| S. No. | Name of 400 kV GSS | Capacity of 400/220 kV Transformers (MVA) | Load on 400/220 kV transformers(MW) | | | | |
|---|---|---|---|---|---|---|---|
| | | | Base Case | After Stage1 SPS operation | After Stage2 SPS operation | After Stage3 SPS operation | PSSE Load Flow results reference |
| 1 | Bikaner | 2x315 MVA | 2x240 MW | 2x183 MW | 2x145 MW | 2x89 MW | Base Case:Exhibit-1<br>Stage-1 : Exhibit-2<br>Stage-2 : Exhibit-3<br>Stage-3 : Exhibit-4 |

Annexure-3

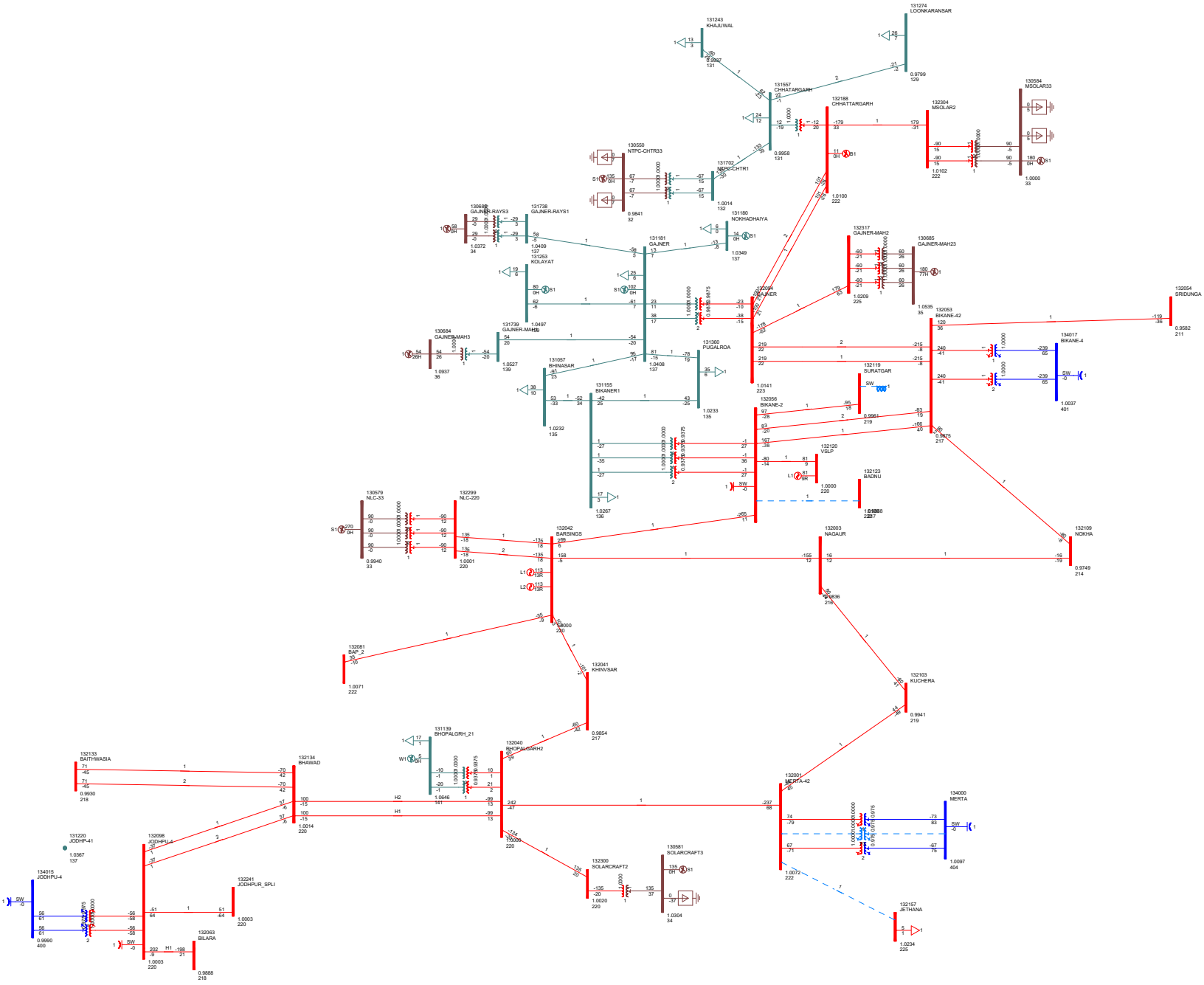
Load flow study results in Base Case and after SPS operation of Stage-1, Stage-2 and Stgae-3

| S. No. | Name of 400 kV GSS | Capacity of 400/220 kV Transformers (MVA) | Load relief on 400/220 kV transformers(MW) at 400 kV GSS Bikaner | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Base Case | Load relief on the 400/220 kV Transformers after Stage-1 SPS operation | Further Load relief on the 400/220 kV Transformers after Stage-2 SPS operation | Further Load relief on the 400/220 kV Transformers after Stage-3 SPS operation | Total load relief after SPS operation of Stage-1 , Stage-2, Stage-3 and Stage-4 | PSSE Load Flow results reference |
| 1 | Bikaner | 2x315 MVA | 2x240 MW | 114 | 76 | 112 | 302 | Base Case:Exhibit-1<br>Stage-1 : Exhibit-2<br>Stage-2 : Exhibit-3<br>Stage-3 : Exhibit-4 |

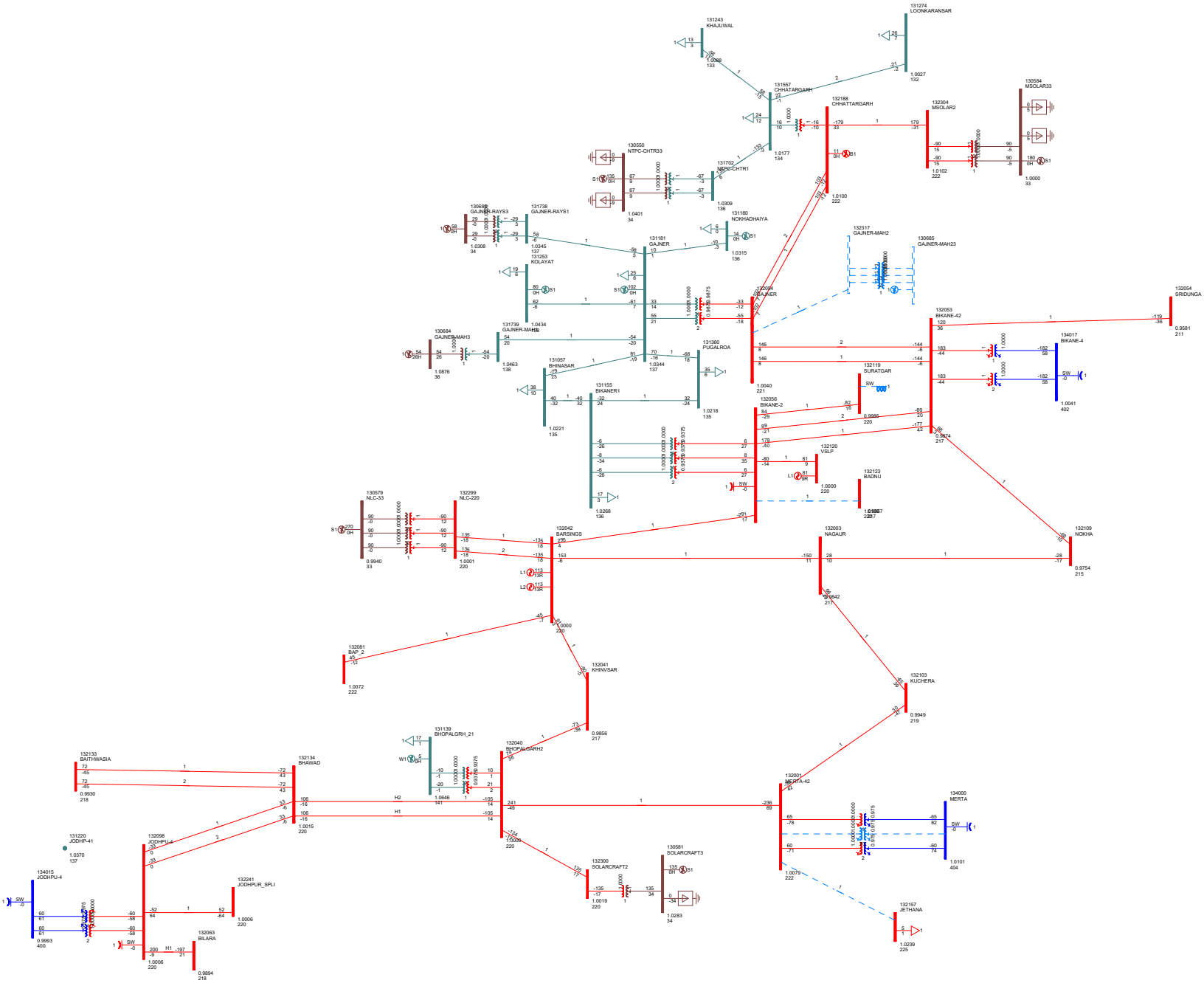
Annexure-4

| Installed capacity of Solar Power Projects connected to 220 kV GSS Gajner, Chhattargarh, Kolayat and Nokha Daiya | | | |
|---|---|---|---|
| SR.NO. | STU | Particulars of Solar feeders | TOTAL CAPACITY (MW) |
| 1 | 220 KV GSS GAJNER | 132 KV Mahindra susten | 60 |
| | | 220 kv Mahindra Susten Pvt. Ltd | 200 |
| | | 132 KV RAYS SOLAR PARK | 64.05 |
| | | 33 kV RAYS Line-II | 23.6 |
| | | 33 kV FONROCHE | 5 |
| | | 33 kV FONROCHE (Hinduja Renwables) | 15 |
| | | 33 kV BMD | 5 |
| | | 33 kV RAYS Line-I | 24 |
| | | 33 kV RAJ PATRIKA | 11 |
| | | 33 KV RISHABH | 10 |
| | | 33 kV RAYS Line-III | 23.98 |
| | | TOTAL | 441.63 |
| | 220 KV CHHATARGARH | 132 KV Martial SOLREN | 200 |
| 2 | | 132 KV NTPC SOLAR | 150 |
| | | TOTAL | 350 |
| 3 | 132 KV GSS KOLAYAT | Green Tech (33 KV ) | 5 |
| | | Rays Power 1(33 KV ) | 12.35 |
| | | NVR (33 KV ) | 10 |
| | | Sai Maithali (33 KV ) | 10 |
| | | Sanjeev Prakashan (33 KV ) | 2 |
| | | Chandram (33 KV ) | 4.75 |
| | | Rays Power 2 (33 KV ) | 18.3 |
| | | Oswal (33 KV ) | 5 |
| | | Topaz (33 KV )/Godawat Reality Pvt. Ltd. | 7 |
| | | Wellspun/WALWHAN SOLAR RJ LTD. (33 KV ) | 5 |
| | | Rays power export (Vaibhav) | 3.97 |
| | | Saraf (feeder no 21)33 KV | 6 |
| | | TOTAL | 89.37 |
| 4 | 132 KV GSS NOKHA DHAIYA | Future Grow Spectrum Radition Pvt.ltd.(Amplus Solar) (33 KV ) | 5 |
| | | U P Ceremic (33 KV ) | 2 |
| | | Trimex (33 KV ) | 9 |
| | | TOTAL | 16 |
| | | G. Total | 897 |

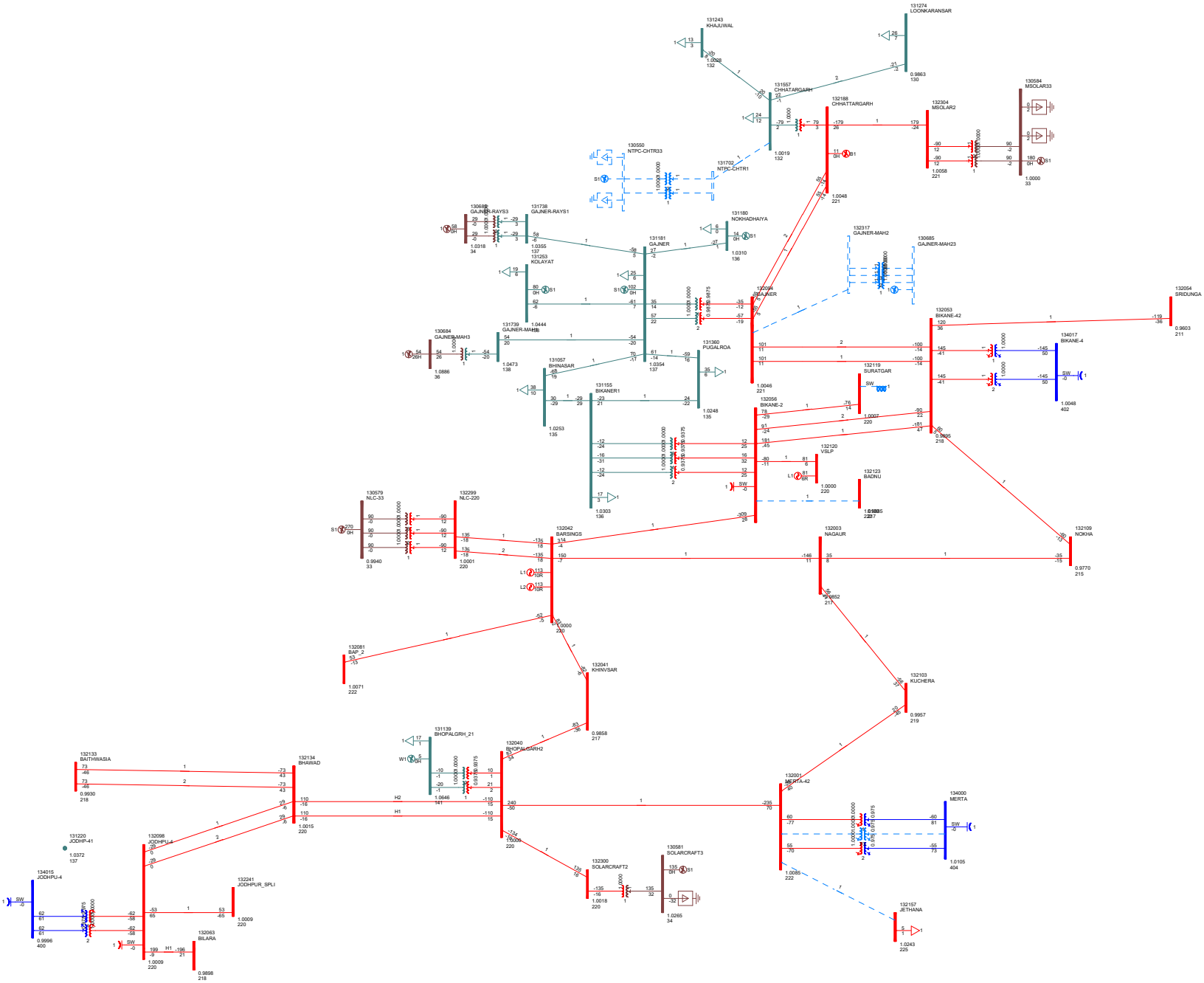
BASE CASE SPS OPERATION (EXHIBIT-1): LOAD FLOW SRUDY FOR PEAK SOLAR GENERATION CONDITION



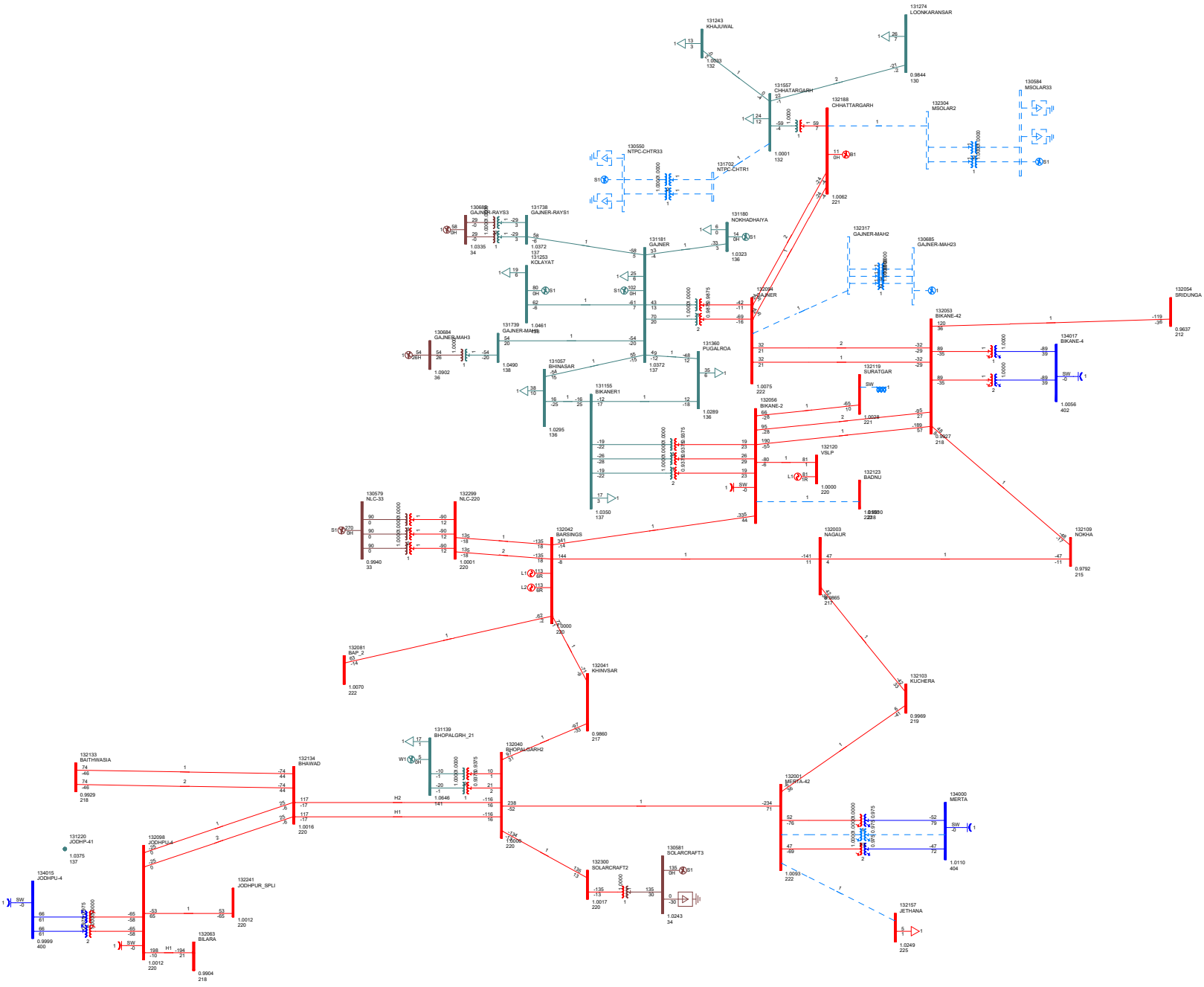
CASE-1 STATGE-1 SPS OPERATION (EXHIBIT-2): OUTAGE OF 220 KV S/C GAJNER-MAHINDRA SUSTEN LINE



CASE-2 STATGE-2 SPS OPERATION (EXHIBIT-3): OUTAGE OF 132 KV S/C CHHATTARGARH-NTPC LINE



CASE-3 STATGE-3 SPS OPERATION (EXHIBIT-4): OUTAGE OF 220 KV S/C CHHATTARGARH-MAHINDRA SOLREN LINE



# SPS for 400kV S/Stn Harsh Vihar

The SPS for 400kV S/Stn Harsh Vihar is designed to take care of N-1 contingency of 2 nos. 315MVA ICTs running in parallel. SPS scheme is implemented to prevent the cascaded tripping of the 315MVA ICTs in case of contingency by providing load relief on 220kV level. SPS scheme is implemented on 220kV side of 315 MVA transformers using numerical relays.

There are 2nos. 315MVA ICTs running in parallel at 400kV S/Stn Harsh Vihar. These two ICTs are feeding 220kV Preet Vihar S/Stn. The load of 66kV is also fed from these ICTs through 3 Nos. 160MVA Transformers. The SLD of 400kV Harsh Vihar Substation is attached as Annexure-A.

Total expected maximum load on 315MVA Transformers is around 500MW (250MW each).

Other Important values considered for SPS are as under:

Rating of each Transformer= 315 MVA
Full Load Current on 315MVA Transformer at 220kV level= 827A
Back-up Over-current setting on Transformerat 220kV level= 1040A (1.25p.u)

**Triggering Criteria for SPS:**

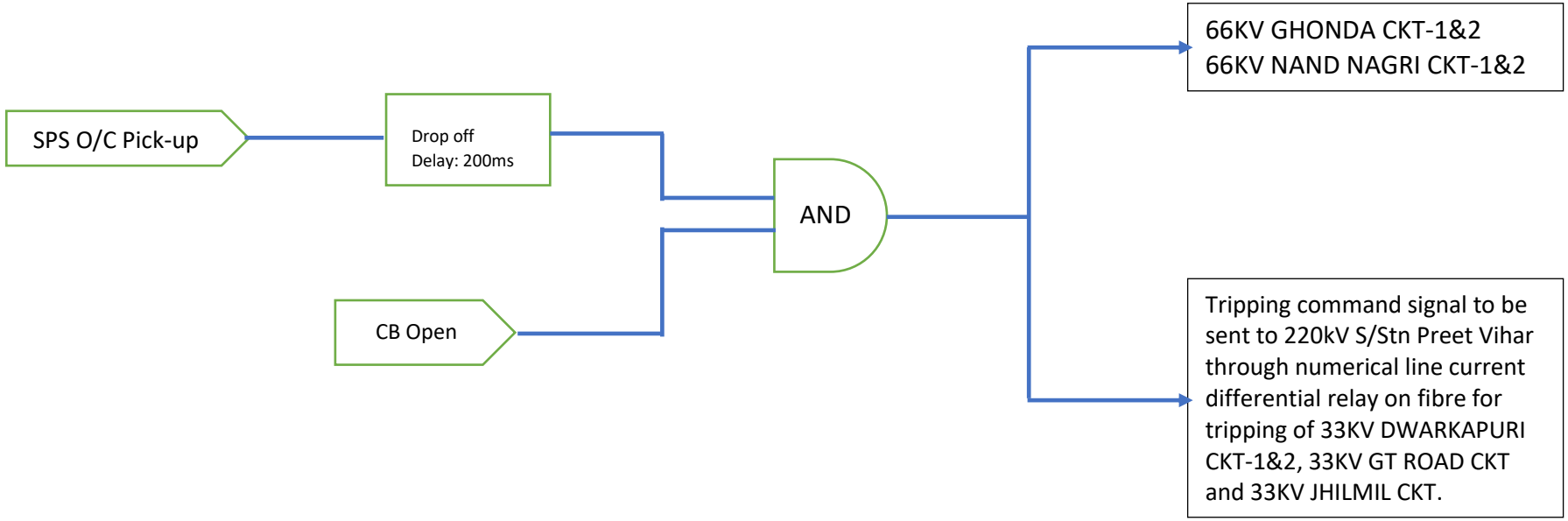
1) Current on a 315MVA Transformer > 480A (i.e 58% loading on 220kV Side), the SPS relay picks up and becomes vigilant to act promptly in case of any contingency.
2) And, if the same transformer trips on a fault or is switched off manually for maintenance purpose, SPS relay receives the status of LV side Circuit Breaker and SPS is triggered.

**SPS Actions:**

1. Tripping of 66KV GHONDA CKT-1&2 (Approx. load 80 MW) and 66KV NAND NAGRI CKT-1&2 (Approx. load 80 MW) at 400kV S/Stn Harsh Vihar, thus providing load relief of about 160MW at peak load.
2. Tripping of 33KV DWARKAPURI CKT-1&2 (Approx. load 60 MW), 33KV GT ROAD CKT(Approx. load 30 MW) and 33KV JHILMIL CKT (Approx. load 30 MW) at 220kV S/Stn Preet Vihar, thus providing load relief of about 120MW at peak load.

   The tripping command from 400kV S/Stn Harsh Vihar to 220kV S/Stn Preet Vihar will be sent through numerical current line differential relay on fibre.

**Logic in SPS Relay of 315MVA ICT-2 & 3:**

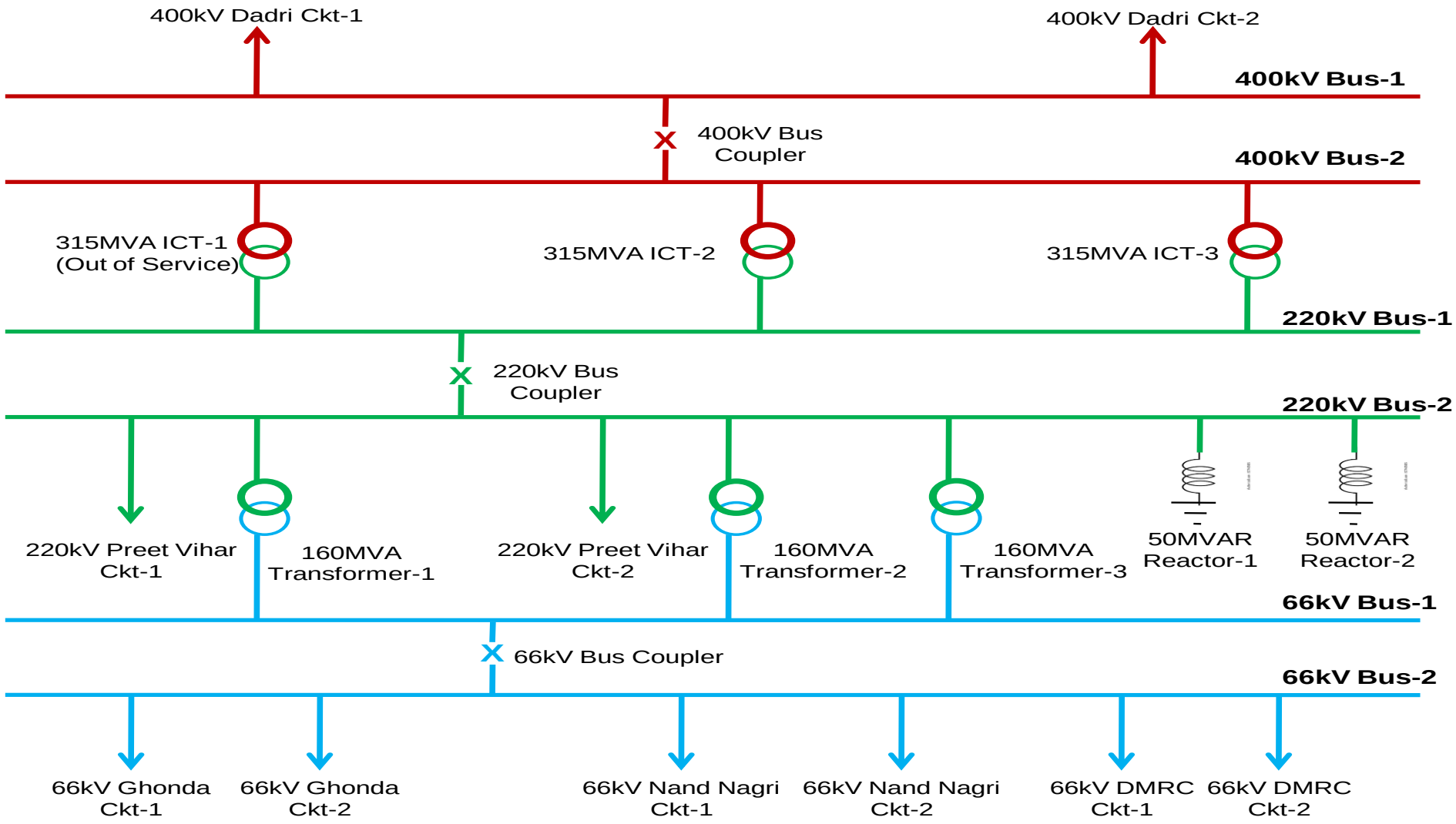


# Overview of SPS implemented at 400kV DTL S/Stn Harsh Vihar

| S.No. | Name of the Bays identified for SPS implementation | Relay Details for SPS Operation | | | | Name of the bays identified for Load Shedding |
|---|---|---|---|---|---|---|
| | | Relay Location | Relay Make& Model | Type of Characteristics | Pick-up Setting in Ampere | |
| 1 | 315MVA ICT-2 | 315MVA ICT-2 HV Panel | Siemens 7UT633 | DT (1500ms) | 480A | *At Harsh Vihar:*<br>66KV GHONDA CKT-1&2<br>66KV NAND NAGRI CKT-1&2<br>*At Preet Vihar:*<br>33KV DWARKAPURI CKT-1&2, 33KV GT ROAD CKT and 33KV JHILMIL CKT. |
| 2 | 315MVA ICT-3 | 315MVA ICT-3 HV Panel | Siemens 7UT633 | DT (1500ms) | 480A | *At Harsh Vihar:*<br>66KV GHONDA CKT-1&2<br>66KV NAND NAGRI CKT-1&2<br>*At Preet Vihar:*<br>33KV DWARKAPURI CKT-1&2, 33KV GT ROAD CKT and 33KV JHILMIL CKT. |

**ANNEXURE-A**

# SLD of 400kV S/Stn Harsh Vihar



Annexure B.I

# Status of actions points recommended during previous PSC meetings

| S. No | Agenda | Remdial actions recommended during PSC meeting | Status of remdial action taken | |
|---|---|---|---|---|
| | | | 66th PSC (28.01.2026) | 67th PSC (18.03.2026) |
| 1 | Frequent multiple elements tripping at 220kV Kunihar, Baddi, Upperla Nangal complex and load loss event in HP control area | **51 PSC:**<br>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. | No repsonse received from HPSEBL in this regard during this discussion in the meeting.<br><br>*PSC forum suggested to resolve protection related issues at the earliest and requested HPSEBL to submit the compliance report mentioning details of action taken and planned to be taken with tentative temiline. Further, these stations to be kept under observation and necessary actions need to be taken to minimise the tripping incidents.* | HPSEBL stated that work could not be completed due to financial issue (not getting fund).<br><br>*PSC forum suggested to resolve protection related issues at the earliest and requested HPSEBL to submit the compliance report mentioning details of action taken and planned to be taken with tentative temiline. Further, these stations to be kept under observation and necessary actions need to be taken to minimise the tripping incidents.* |
| 2 | Multiple elements tripping at 220kV Hissar(BBMB) 07th May 2024, 11:16 hrs | **51 PSC:**<br>a) Expedite the implementation of differential protection in short lines to avoid undesired operation of distance protection. | No representative from HVPNL was present during this discussion in the meeting. | HVPNL representative stated that tender float is yet not done and approval is pending from state govt.<br>*PSC forum raised concern over long pending action and requested HVPNL to expedite the process of implementation of differential protection in short lines and also share the expected timeline.* |
| 3 | Multiple elements tripping at 400kV Sainj (HP), 400kV Parbati2 & Parbti3 (NHPC) Stations on 07th May 2024, 16:17 hrs | **51 PSC:**<br>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.<br>b) NHPC and HPPTCL shall review the healthiness of PLCC at Parbati3 and Sainj end and take necessary actions to ensure their proper operation.<br>c) Expedite the implementation of differential protection in 400kV Parbati2-Sainj line.<br>d) Standardisation of recording instruments (DR/EL) need to be ensured. | NHPC representative stated that OPGW laying has not yet been completed.<br>NHPC has taken up the issue in 239th OCC meeting, however, no update/confirmation on completion of OPGW was given due to absence of INDIGRID representative. Due to the non-availability of OPGW, the AGC system is also awaiting commissioning, although the material has already reached the site.<br>INDIGRID representative stated that work is delayed due to non-availability of vendors. Now, contract has been placed and work is expected to be completed by March'26.<br>HPPCL representative stated that there was issue in PLCC card received and same will be installed by Feb'26.<br><br>*PSC forum recommended NHPC, INDIGRID & HPPCL to take expeditious action at their end and ensure healthiness of protection system.* | INDIGRID representative stated that tender is placed by INDIGRID in Dec'25. Work is expected to be completed by Apr'26.<br>*PSC forum recommended NHPC, INDIGRID & HPPCL to take expeditious action at their end and ensure healthiness of protection system.* |
| 4 | Multiple elements tripping at 400kV Koteshwar(PG) on 17th May 2024, 17:21 hrs | **51 PSC:**<br>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 stated that PO was already placed on 10th Jan'26. Work is expected to get completed within 6 months.<br><br>*PSC forum requested POWERGRID(NR-1) to expedite the process of implementation of differential protection at Koteshwar HEP.* | POWERGRID(NR-1) representative stated that status is same and work is expected to get completed by June'26.<br>*PSC forum requested POWERGRID(NR-1) to expedite the process of implementation of differential protection at Koteshwar HEP.* |
| 5 | Multiple elements tripping at 220kV Sarna (PS) on 04th May 2024, 07:10 hrs | **51 PSC:**<br>a) Punjab shall expedite the commissioning of new bus scheme.<br>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 representative informed that budget is approved and new panel for busbar scheme (Hitachi make) was already drawn from store. The same will be installed by Mar'26.<br><br>*PSC forum requested PSTCL to expedite the work related to implementation of bus bar protection at Sarna S/s.* | PSTCL representative informed that separate tender will be done for commissioning of busbar protection and work will be completed within 3 months.<br>PSC forum requested PSTCL to expedite the work related to implementation of bus bar protection at Sarna S/s. |
| 6 | Multiple elements tripping at 220kV KTPS (RVUN) on 21st June 2024, 11:37 hrs | **51 PSC:**<br>a) Commissioning of bus coupler between 220kV Bus-3 & 5 need to be expedited. | No representative from RVUNL was present during the meeting. | No representative from RVUNL was present during the meeting. |
| 7 | Frequent tripping of 220 KV Anta(NT)-Sakatpura(RS) (RS) Ckt-1 | **52 & 53 PSC:**<br>RVPN was requested to expedite the process of relay replacement and rectification of issues related to A/R operation. | RVPNL representative informed that work started and is expected to be completed by Apr'26.<br><br>*PSC forum requested RVPNL to expedite the actions at their end.* | RVPNL representative informed that work will be completed by Apr'26.<br><br>*PSC forum requested RVPNL to expedite the actions at their end.* |
| 8 | Frequent tripping of 220 KV Khara(UP)-Saharanpur(PG) (UP) Ckt-1 | **52 & 53 PSC:**<br>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. | SLDC UP informed that status is same and Unit -3 relay replacement work will be completed by Feb'26.<br><br>*PSC forum requested UPPTCL to expedite the replacement of relays at Khara(UP) end.* | SLDC UP informed that Unit 3 relay replacement work has been delayed due to non-visit of site engineer and work will be completed by Apr'26.<br><br>*PSC forum requested UPPTCL to expedite the replacement of relays at Khara(UP) end.* |
| 9 | Multiple elements tripping at 220kV Khodri HEP & Chibro HEP on 5th, 11th & 19th September 2024; 15th & 20th July 2025, 17th August 2025 and 02nd &18th October 2025 | **53 & 62 PSC:**<br>a)Timely submission of disturbance recorder (DR) and event logger (EL) files need to be ensured.<br>b)HPPTCL shall taken necessary actions to rectify the protection related issue in 220kV Khdori-Majri ckt-2.<br>c)OV protection needs to be disabled in 220kV lines at the earliest.<br>d)Over frequency and over current protection operation in units at Khodri HEP need to be reviewed.<br>e)A/R should be made operational in Sarsawan line at the earliest.<br>f)UJVNL shall share the CPRI audit report and details of remedial action taken within one week.<br>g)Replacement of Units breakers need to be expedited.<br>**63 PSC:**<br>a) UJVNL shall review and share the complete protection settings of Khodri HEP to NRLDC/NRPC within a week.<br>b) HPSEBL in coordination with UJVNL shall review the protection setting of 220kV Khodri-Majri line-II and Majri S/s<br>**64 PSC:**<br>a) Zone-2 settings of 220 KV Saharanpur(UP)- Saharanpur(PG) Ckt need to be reviewed | HPSEB stated that relay replacement work will be done by Feb'26 and UJVUNL will support in case of any panel issues during work.<br><br>*PSC forum requested HPSEBL and UJVUNL to expedite the relay replacement work in co-ordination.* | HPSEB and UJVUNL representative stated that protection related issues are resolved now. |
| 10 | Multiple elements tripping at 400/220kV Obra_A(UP) on 9th October 2024 | **54 PSC Recommendations:**<br>a)UPPTCL & Obra_A(UP) shall ensure the implementation of LBB protection at the earliest at 220kV side.<br>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 status is same; time sync work will be completed by Mar'26 and approval of LBB relay work is pending from headquarters.<br><br>*PSC forum requested UPPTCL to follow up with headquarters for expedited corrective actions.* | UPPTCL representative informed that time sync work is completed and approval of LBB relay work is pending from headquarters.<br><br>*PSC forum requested UPPTCL to follow up with headquarters for expedited corrective actions.* |
| 11 | 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. | NPCIL representative stated that A/R is not installed at RAPS end of 220 KV RAPS_A(NP)-Sakatpura (RS) (RS) Ckt-1 &2 as OEM has denied to install A/R as torsional stress on turbine may lead to blade failure.<br><br>*PSC forum requested NPCIL to take up this issue with OEM and explore any other possibility to avoid frequent unwanted tripping of line.* | NPCIL representative stated that NPCIL design team has submitted a study report to OEM. OEM will do a feasibility study and response from OEM in this regard is awaited.<br><br>*PSC forum requested NPCIL to take up this issue with OEM and explore any other possibility to avoid frequent unwanted tripping of line.* |
| 12 | 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. | PSTCL representative informed that status is same and work will be done before next winter season. NRLDC representative emphasized that frequent tripping of 400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-1 is observed recently due to string failures, hence PSTCL was requested to complete insulator replacement work at the earliest.<br><br>*PSC forum requested PSTCL for expeditious actions to avoid frequent trippings of lines due to string failures/during fog.* | PSTCL representative informed that work will be done by Oct'26.<br><br>*PSC forum requested PSTCL for expeditious actions to avoid frequent trippings of lines due to string failures/during fog.* |
| 13 | 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. | UPPTCL representative informed that status is same and work will be completed by Jan'26.<br><br>*PSC forum requested UPPTCL to expedite the corrective actions.* | UPPTCL representative informed that, PLCC is available for replacement, however Hitachi team is delaying the work.<br><br>*PSC forum requested UPPTCL to expedite the corrective actions.* |
| 14 | Frequent tripping of 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1 | **58 PSC Recommendations: E**xpeditious corrective actions to minimise frequent faults in line. | RVPNL representative informed that inspection work is going on.<br><br>*PSC forum requested NPCIL and RVPNL to resolve the issue of A/R at RAPS end and to take expeditious corrective action to minimise frequent faults in line.* | RVPNL representative informed that work will start from April'26.<br><br>*PSC forum requested NPCIL and RVPNL to resolve the issue of A/R at RAPS end and to take expeditious corrective action to minimise frequent faults in line.* |
| 15 | Multiple elements tripping at 400 kV Uri-II HEP (NHPC) at 21:35 hrs on 18th May, 202 | **61 PSC Recommendation:**<br>NHPC in coordination with the POWERGRID(NR-2) shall review the healthiness of carrier protection in 400kV Uri_2-Wagoora line | NHPC representaitve stated that the shutdown of the 400 kV Uri-II-Wagoora line has been approved in the 239th OCC meeting for 19/02/2026 for diagnostic testing and maintenance of the GIS. During this shutdown period, the healthiness of the PLCC system at the Uri-IIend will also be checked.<br><br>*PSC forum requested to complete the work within the stipulated time.* | NHPC representaitve stated that work is completed on 19.02.2026. |

| | | | | |
|---|---|---|---|---|
| 16 | Multiple elements tripping at 220/132kV Pampore(J&K) at 23:25 hrs on 20.06.2025 | **62 PSC Recommendation:**<br>a) DR/EL along with detailed tripping report along with remedial action taken details need to be shared within one week.<br>b) Healthiness of protection system and other auxiliary equipments need to be ensured at 220/132kV Pampore(J&K).<br>c) Line protection settings at 220/132kV Pampore(J&K) need to be reviewed in line with NRPC Protection philosophy. | J&K representative stated that numerical relays were already installed, but they face problem in extarcting the DR from relay.<br><br>*PSC forum suggested to appoint nodal officer for DR/EL extraction work after each event and also proposed that training may be organised by POWERGRID NR-2 if needed.* | No representative from J&K was present during the meeting. |
| 17 | Multiple elements tripping at 220/132kV Moga(PS), 220 kV /66kV Badhni kalan(PS) & 220/66 kV Himmatpura(PS) at 11:06 hrs on 01.07.2025 | **62 PSC Recommendation:**<br>a) Healthiness of bus bar protection need to be ensured at Baghapurana and Ajitwal S/s.<br>b) New busbar protection need to be installed at Moga PSTCL at the earliest.<br>c) Line protection settings at 220/132kV Moga(PS), 220 kV /66kV Badhni kalan(PS) & 220/66 kV Himmatpura(PS) need to be reviewed in line with NRPC Protection philosophy.<br>d) CT mismatch issue at both the ends of 220 kV Moga PSTCL – Moga ckt-2 need to be addressed and differential protection need to be installed at the earliest by PSTCL in co-ordination with PGCIL. | PSTCL representative stated that status is same and budget approval is in process.<br><br>*PSC forum requested PSTCL to complete the bus bar protection installation work within the stipulated time.* | PSTCL representative stated that busbar commissioning will be done within 3 months.<br><br>*PSC forum requested PSTCL to complete the bus bar protection installation work within the stipulated time.* |
| 18 | Multiple elements tripping at 220/132kV Ziankote(J&K) at 10:18 hrs on 24.07.2025 | **62 PSC Recommendation:**<br>a) DR/EL along with detailed tripping report along with remedial action taken details need to be shared within one week.<br>b) Zone-2 settings need to be revised to 160ms at Amargarh end of 220kV Amargarh-Ziankote D/C.<br>c) Healthiness of protection system and other auxiliary equipments need to be ensured at 220/132kV Ziankote(J&K).<br>d) Line protection settings at 220/132kV Ziankote(J&K) need to be reviewed in line with NRPC Protection philosophy. | J&K representative stated that internal audit was completed at Ziankote(JK).<br><br>*PSC forum requested JKPTCL to address other protection related issues at Ziankote(JK) and share internal audit report at the earliest.* | No representative from J&K was present during the meeting. |
| 19 | Multiple elements tripping at 765/400kV Bara TPS(UP) at 21:33 hrs on 08.08.2025 | **63 PSC Recommendation:**<br>a) UPPTCL shall review and correct the DEF protection setting at Mainpuri end of 765kV Bara-Mainpuri line-2 to avoid unwanted tripping of the line.<br>b) UPPTCL and Bara TPS shall review the logic of SPS operation (breaker status of both ends may be taken for desired decision) to ensure its proper operation in future events. | UPPTCL representative stated that SPS needs to be revised due to new 765kV Bara- Mainpuri circuit-I commissioned on 17.01.2026.<br><br>*PSC forum requested UPPTCL to expedite the corrective actions.* | UPPTCL representative stated that SPS logic has been discussed in last 240th OCC meeting and will be revised.<br><br>*PSC forum requested UPPTCL to expedite the corrective actions and send a mail regarding the same.* |
| 20 | Multiple elements tripping at 220/66kV Laltokalan(PS) at 04:35 hrs on 30.08.2025 | **63 PSC Recommendation:**<br>a) PSTCL shall ensure the bus bar protection at 220/66kV Laltokalan(PS) at the earliest possible.<br>b) Timely submission of DR/EL & tripping report need to be ensured. | PSTCL representative informed that no response received from OEM regarding relay is repairable or not.<br><br>*PSC forum requested PSTCL to ensure healthiness of busbar protection at the earliest.* | PSTCL representative informed that as per communication received from OEM relay is not repairable and relay replacement will be done within 2 months.<br><br>*PSC forum requested PSTCL to ensure healthiness of busbar protection at the earliest.* |
| 21 | Multiple elements tripping at 400kV Kishenpur(PG) & Baglihar stage-I HEP at 21:58 hrs on 05.09.2025 | **64 PSC Recommendation:**<br>a) DT was not sent to remote end on TEED protection operation at Kishenpur end. PLCC/DTPC system needs to be reviewed and DT scheme needs to be configured if not available.<br>b) Overreach of distance protection in 400kV Kishenpur-New Wanpoh line-IV needs to be reviewed.<br>c) Protection settings of units at Baglihar need to be reviewed. | POWERGRID(NR-2) representative informed that status is same and PLCC will be made healthy by Mar'26.<br><br>*PSC forum requested JKPTCL and POWERGRID to expedite the corrective actions.* | POWERGRID(NR-2) representative informed that there is no issue from PG end and JKPTCL need to address this issue. However no response received fom JKPTCL.<br><br>*PSC forum requested JKPTCL to expedite the corrective actions.* |
| 22 | Multiple elements tripping at 400/220kV at Daulatabad(HR) at 06:02 hrs on 31.10.2025 | **64 PSC Recommendation:**<br>a) Bus bar protection need to be restored at the earliest. | HVPNL representative informed that as no response was received from OEM so far regarding internal fault of busbar relay (Sifang), third party option is being explored.<br><br>*PSC forum requested HVPNL to restore bus bar protection at 220kV Daulatabad(HR) at the earliest.* | HVPNL representative informed that busbar was taken in service on 16.03.2026. |
| 23 | Multiple element tripping event at 220/33kV Chowadhi(JK) at 19:44 hrs on 22.11.2025 | **65 PSC Recommendation:**<br>a) Carrier communication issue at Chowadhi(JK) end need to be resolved at the earliest. | No update received from J&K regarding carrier communication issue at Chowadhi(JK) end.<br><br>*PSC forum requested J&K to resolve carrier communication issue at Chowadhi(JK) end at the earliest.* | No representative from J&K was present during the meeting. |

Annexure-B.II

# Grid Event summary for January-February 2026

| S.No. | Category of Grid Incident/ Disturbance ( GI-I to GD-V) | Name of Elements (Tripped/Manually opened) | Affected Area | Owner/ Agency | Outage | | Revival | | Duration (hh:mm) | Event (As reported) | Loss of generation / loss of load during the Grid Disturbance | | Fault Clearance time (in ms) | Points of Discussion |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Date | Time | Date | Time | | | Generation Loss(MW) | Load Loss (MW) | | |
| 1 | GI-2 | 1) 132KV Anpara-Rihand (UP) Ckt-1<br>2) 132KV Anpara-Rihand (UP) Ckt-2<br>3) 132KV Anpara(UP)-Bina Ckt<br>4) 210 MW Anpara TPS - UNIT 1<br>5) 210 MW Anpara TPS - UNIT 2<br>6) 210 MW Anpara TPS - UNIT 3<br>7) 500 MW Anpara TPS - UNIT 4<br>8) 500 MW Anpara TPS - UNIT 5 | Uttar Pradesh | UPPTCL | 8-Jan-26 | 08:01 | 8-Jan-26 | 09:19 | 01:18 | i)400/132kV Anpara(UP) S/s have double main and transfer bus arrangement at 400kV level and double main bus arrangement at 132kV level.<br>ii)During antecedent condition, 132kV Anpara-Morwa Ckt was under shutdown and 132kV Bus coupler was in ON position. 210 MW UNIT 1, 2 & 3 and 500 MW UNIT 4 & 5 at Anpara TPS were in running condition and were generating approx. 187 MW, 176 MW, 153 MW, 392 MW and 466 MW respectively (as per SCADA).<br>iii)As informed by SLDC UP, 132kV CWTF11 and CWTF22 were supplying power to Cooling water pumps for 210 MW Anpara TPS - UNIT 1, 2 & 3 and 132kV CWTF33 was supplying power to Cooling water pumps for 500 MW Anpara TPS - UNIT 4 & 5. Similarly, 132kV STNX11 and STNX22 were supplying auxiliary power to 210 MW Anpara TPS - UNIT 1, 2 & 3 and 132kV STNX33 and STNX44 were supplying auxiliary power to 500 MW Anpara TPS - UNIT 4 & 5.<br>iv)As reported, at 08:01 hrs, Y-ph LA of 132kV Bus-A at Anpara TPS blasted causing fault in 132kV Bus-A at Anpara TPS. Bus bar protection of 132kV did not operated on this fault due to non-operation of check zone relay.<br>v)Due to this, 132KV Anpara-Rihand (UP) Ckt-1 & 2, 132KV Anpara(UP)-Bina Ckt and all other 132 kV elements (station transformes supplying auxiliaries and CWTF supplying cooling water pumps) connected to Bus-A and B tripped on over-current earth fault protection operation and both the 132kV buses at Anpara TPS became dead.<br>vi)Due to tripping of auxiliary supply to units, 210 MW UNIT 1, 2 & 3 and 500 MW UNIT 4 & 5 at Anpara TPS tripped.<br>vii)At the same time, 220 KV Zainkote – Alusteng (JKPDD) Ckt-2 also tripped due to over-loading from Zainkote end.<br>viii)As per PMU at Varanasi(PG), R-Y phase to phase fault is observed with delayed fault clearing time of 1120ms.<br>ix)As per SCADA, generation loss of approx. 1375 MW occured at Anpara TPS(UP).<br>x)As reported by SLDC UP, no load loss was observed in UP control area.<br>xi)As reported by Anpara TPS, new numerical busbar protection scheme at 132kV level of Anpara TPS will be commissioned within six months. | 1375 | 0 | 1120 | i)Reason of delayed fault clearance need to be shared.<br>ii)Healthiness of busbar protection at 132kV level of Anpara TPS need to be ensured at the earliest.<br>iii)SCADA data of 400/132kV Anpara TPS(UP) and Alusteng(JK) S/s were freezed during the event. Availability and healthiness of SCADA data need to be ensured.<br>iv)Remedial action taken report to be shared. |
| 2 | GD-1 | 1) 400 KV Amargarh (INDIGRID)-Samba(PG) (INDIGRID) Ckt-1<br>2) 400 KV Amargarh (INDIGRID)-Samba(PG) (INDIGRID) Ckt-2<br>3) 120 MW Unit-1 at Uri-I HEP(NHPC)<br>4) 120 MW Unit-3 at Uri-I HEP(NHPC)<br>5) 60 MW Unit-3 at Uri-II HEP(NHPC) | Jammu and Kashmir | INDIGRID, PGCIL, NHPC | 24-Jan-26 | 15:22 | 24-Jan-26 | 16:12 | 00:50 | i)During antecedent condition, Kashmir valley and Leh network (220kV Zainkote, Alusteng, Pampore, Delina, Kishenganga, Drass, Kargil, khalasti and 220kV Leh) were being fed from 400kV Uri-I HEP, 400kV Uri-II HEP through 400kV Uri-I-Amargarh ckt-1 and 400kV Samba-Amargarh D/C.<br>400 kV Uri-2 (NH) – Wagoora (PG) (PG) Ckt-1, 400kV Uri-I-Amargarh ckt-2, 400 kV Kishenpur – New Wanpoh (PG) Ckt-1, 3 & 4, 400 kV Baglihar (JK) – Kishenpur (PG) Ckt-3 and 400 kV New Wanpoh (PG) – Baglihar (JK) Ckt-1 were already under tripped condition. The aforementioned lines tripped on faults during heavy snowfall.<br>ii)As reported, at 15:22 hrs, charging attempt of 400kV Uri-I-Amargarh ckt-2 was taken from Amargarh end. At the same time, B-N fault occurred on the line. During patrolling, it was found that OPGW fell on B-ph conductor. On this fault, SOTF protection at Amargarh end didn't operate.<br>iii)As fault didn't clear from Amargarh end, 400kV Samba-Amargarh D/C tripped from Samba(PG) end. As per DR of Samba(PG) end, B-N fault in Z-2 with fault current of ~1.37kA is observed in each circuit.<br>iv)As per PMU at Kishenpur(PG) and DR files of Samba(PG), B-N fault with delayed clearance of ~560 msec is observed.<br>v)As per SCADA, change in demand of ~1180 MW is observed in J&K control area out of which ~1135 MW change in load is observed in Kashmir Valley Region.<br>vi)400 kV Samba–Amargarh D/C were restored by 16:22 hrs and 200 MW load was picked up to manage the load of the Srinagar. Further, 400 kV Amargarh-Wagoora D/C, 400 kV Wagoora–New Wanpoh D/C and ICTs at Wagoora(PG) charged. Subsequently load of Kashmir Valley and Leh was restored by charging 220 kV Zainkote-Alustang-Drass-Kargil-Khalsti- Leh. | 297 | 1180 | 560 | i)Why did 400kV Uri-I-Amargarh ckt-2 not trip from Amargarh end on B-N fault. SOTF protection at Amargarh end should have operated. INDIGRID may review the protection settings at Amargarh end and take necessary corrective actions to avoid such protection non-operation in future.<br>ii)Remedial action taken report to be shared. |
| 3 | GD-1 | 1)220kV Bawana-Rohini-I line-I<br>2)220kV Bawana-Rohini-I line-II<br>3)400/220kV 315 MVA ICT-1 at Bawana(DTL)<br>4)400/220kV 315 MVA ICT-2 at Bawana(DTL)<br>5)400/220kV 315 MVA ICT-4 at Bawana(DTL)<br>6)400/220kV 315 MVA ICT-6 at Bawana(DTL)<br>7)220kV Bawana-Rohini-II line-II<br>8)220kV Bawana-Shalimarbagh line-I<br>9)220kV Bawana-Shalimarbagh line-II<br>10)220/33kV 100 MVA ICT-1 at Shalimarbagh(DTL)<br>11)220/66kV 160 MVA ICT-1 at Rohini-II(DTL)<br>12)220/66kV 160 MVA ICT-2 at Rohini-II(DTL) | Delhi | DTL | 27-Jan-26 | 10:13 | 27-Jan-26 | 10:40 | 00:27 | i)400kV Bawana(DTL) S/s has one and half breaker bus scheme at 400kV level and double main & transfer bus scheme at 220kV level.<br>ii)During antecedent condition, loading on 400/220kV 315 MVA ICT-1, 2, 3, 4, 5 & 6 at Bawana(DTL) were 154 MW, 155 MW, 147 MW, 150 MW, 130 MW & 130 MW respectively.<br>iii)As reported, at 10:13 hrs, R-N fault occurred on 220kV Bawana-Rohini-I line-I & II due to snapping of OPGW. On this fault distance protection at both the ends operated and line tripped however R-ph pole at Bawana end of Rohini-I line-I (connected at 220kV bus-1) got stuck. This further led to LBB operation however due to error in isolator status of Rohini-I line-I feeder, desired operation of LBB protection didn't occur.<br>iv)As the fault was persisting, oil leakage in R-ph CT of 220kV Bawana-Rohini-I line-I also started and created bus fault. This led to operation of 220kV bus bar protection resulted into tripping of 220kV Bawana-Shalimarbagh line-I & II and 220kV Bawana-Rohini-II line-II.<br>v)At the same time, 400/220kV 315 MVA ICT-1, 2, 4 & 6 at Bawana(DTL) also tripped on overcurrent protection operation. 220/33kV 100 MVA ICT-1 at Shalimarbagh(DTL) and 220/66kV 160 MVA ICT-1 & 2 at Rohini-II(DTL) also tripped due to overcurrent earth fault protection.<br>vi)As per PMU at Bawana(DTL), R-N phase to earth fault with delayed clearance of ~1480 msec is observed.<br>vii)As per SCADA, change in demand of ~560MW is observed in Delhi control area and as reported by SLDC-Delhi, load of ~846 MW affected in Delhi control area during the event. | 0 | 846 | 1480 | i)Why did isolators status were not correct due to which LBB protection couldn't operate.<br>ii)Exact sequence of tripping of all the elements needs to be shared.<br>iii)How did fault get clear as only ICT-1, 2, 4 & 6 tripped on back up protection?<br>iv)DR/EL(.dat/.cfg) file of all the tripped elements along with the tripping report need to be shared.<br>v)Remedial action taken to avoid such event in future need to be shared. |
| 4 | GD-1 | 1) 400 kV Bareilly-Unnao (UP) Ckt-1<br>2) 400 kV Bareilly-Unnao (UP) Ckt-2<br>3) 400 kV Bareilly(UP)-Bareilly(PG) (PG) Ckt-1<br>4) 400 kV Bareilly(UP)-Bareilly(PG) (PG) Ckt-2<br>5) 400/220kV 315 MVA ICT-3 at Bareilly(UP)<br>6) 220kV Bareilly(UP)-Dohna Ckt-1<br>7) 220kV Bareilly(UP) -Dohna Ckt-2<br>8) 220kV Bareilly(UP) -CB Ganj Ckt-1<br>9) 220kV Bareilly(UP)-Pilbhit Ckt-1<br>10) 220kV Bareilly(UP)-Pantnagar Ckt-1<br>11) 220kV Bareilly(UP)-Faridpur Ckt-1 | Uttar Pradesh | UPPTCL, PGCIL, PTCUL | 4-Feb-26 | 13:07 | 4-Feb-26 | 13:47 | 00:40 | i)400/220kV Bareilly(UP) has double main and transfer bus scheme at both 400kV level and 220kV level.<br>ii)During antecedent condition, 400/220KV 315 MVA ICT-1 at Bareilly(UP) was already under planned shutdown.<br>iii)As reported, at 13:07 hrs, fault occurred on 400kV Y-ph of Bus-2 at Bareilly(UP) due to a metallic kite thread. On this fault, 400kV static bus bar protection at Bareilly(UP) did not operate.<br>iv)This led to tripping of all 400kV lines connected to both the buses on zone-2 protection operation from remote end (as confirmed from DR).<br>v)On this fault, 400/220kV 315 MVA ICT-3 at Bareilly(UP) tripped on LV side backup directional earth fault relay operation. However, 400/220kV 315 MVA ICT-2 at Bareilly(UP) didn't trip as backup relay did not operate.<br>vi)Due to this, all 220kV lines connected to Bareilly(UP) tripped on zone-3 or directional E/F protection operation from remote end except 220kV Bareilly(UP) -CB Ganj Ckt-2 and 220kV Bareilly(UP)-Pilbhit Ckt-2 and complete blackout occurred at 400/220kV Bareilly(UP).<br>vii)As per SCADA SOE, 220/132kV 160 MVA ICT-1 & 2 at Dohna also tripped during the same time. As confirmed by SLDC UP, 220/132kV 160 MVA ICT-1 & 2 at Dohna tripped due to directional E/F protection operation.<br>viii)As per DR and PMU at Bareilly(PG), Y-N phase to earth fault was observed with delayed fault clearing time of 400 ms.<br>ix)As per SCADA, no change in demand is observed in UP control area.<br>x)As informed by SLDC UP, healthiness of LV backup relay of 400/220kV 315 MVA ICT-2 at Bareilly(UP) and 400kV bus bar protection relay will be checked during shutdown proposed on 10.02.2026 and 11.02.2026 respectively. | 0 | 180 | 400 | i)Healthiness of of LV backup relay of 400/220kV 315 MVA ICT-2 at Bareilly(UP) and 400kV bus bar protection relay need to be ensured at the earliest.<br>ii)Healthiness of protection system along with auxiliaries and protection co-ordination at Bareilly(UP) need to be ensured.<br>iii)Remedial action taken report to be shared. |
| 5 | GI-2 | 1) 700MW RAPS-D - UNIT 1<br>2) 250 MW (PSP) TEHRI HPS - UNIT 6 | Rajasthan | RAPP-D, Tehri PSP | 16-Feb-26 | 11:33 | 16-Feb-26 | 11:57 | 00:24 | i)During antecedent condition, 700MW RAPS-D - UNIT 1 was generating approx. 650 MW and 250 MW (PSP) TEHRI HPS - UNIT 5 & 7 were pumping approx. 265 MW each. 250 MW (PSP) TEHRI HPS - UNIT 6 started pumping at around 11:30 hours and was gradually increasing pumping. Just before tripping, it was pumping approx. 221 MW. NR total solar generation was approx. 28642 MW among which Rajasthan solar generation was approx. 6544 MW.<br>ii)As reported, at 11:33 hrs, 250 MW (PSP) TEHRI HPS - UNIT 6 tripped on QSD (Quick Shut down) due to deadband timeout (exact reason yet to be shared).<br>iii)During the same time, 700MW RAPS-D - UNIT 1 also tripped due to Turbine-Generator (TG) trip on reverse power during MW hunting (exact reason yet to be shared).<br>iv)As per SCADA, Line CB at A43RS(IP) end of 400 KV AzurePS43 SL_BKN_PG-AzureR543 SL_BKN_PG (Azure) Ckt opened at 11:34:11.929 hrs and again closed at 11:34:50.173 hrs. However, Azure43 verbally reported that there was data issue at A43RS(IP) during that time, no tripping or auto-reclosing occurred during that time (written confirmation yet to be received from Azure43).<br>v)As per SCADA SOE, 33kV Feeder and Block tripping was detected at A43RS_IP, ASPS2_IP and AVDAS_IP.<br>vi)As per PMU at RAPP-C(NP), consecutive three 3-phase voltage dips were observed with voltage recovery time of 80 ms, 4360 ms and 80 ms.<br>vii)As per SCADA, dip of approx. 2062 MW occurred in NR total solar generation among which approx. 1093 MW recovered within 1 minute (dip of approx. 686 MW in Rajasthan solar generation among which approx. 381 MW recovered within 1 minute).<br>viii)As per SCADA, generation loss of approx. 650 MW at RAPP-D and pumping loss of approx. 221 MW at Tehri PSP was observed. | 2491 | 0 | 4360 | i)Exact reason of tripping of 700MW RAPS-D - UNIT 1 and 250 MW (PSP) TEHRI HPS - UNIT 6 need to be analysed and RCA report need to be shared from NPCIL and THDC respectively.<br>ii)SCADA data issue at A43RS(IP) need to be addressed at the earliest.<br>iii)DR along with tripping report need to be shared for 700MW RAPS-D - UNIT 1 and 250 MW (PSP) TEHRI HPS - UNIT 6 by NPCIL and THDC respectively.<br>iv)Remedial action taken report to be shared. |
| 6 | GD-1 | 1) 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt<br>2) 220 KV Bikaner_2 (PBTSL)-KSP_NHPC_BKN2 (KSP_NHPC_LTD) Ckt<br>3) 500 KV HVDC Balia-Bhiwadi (PG) Ckt-1 & 2<br>4) 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1, 2, 3 & 4<br>5) 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_BKN2 (SJVNGEL_BKN2) Ckt<br>6) 220 KV ASSPL_SL_BKN2-Bikaner_2 (PBTSL) (ASSPL_BKN2) Ckt<br>7) 220 KV Renew_Dinkar_SL_Bik2-Bikaner_2 (PBTSL) (Renew Dinkar_UPL) Ckt<br>8) 220 KV SRI4PL_SL_BIK2_PG-Bikaner_2 (PBTSL) (SERENTICA_RI4PL_Bik2) Ckt<br>9) 220 KV Bikaner_2 (PBTSL)-KHIDRAT_REPL_SL_BKN2 (KHIDRAT_REPL) Ckt<br>10) 220KV Grian_BIK2_(AMPLUS)-Bikaner_2 (PBTSL) (GRIAN ENERGY PRIVATE LIMITED) Ckt<br>11) 220 KV Bikaner_2 (PBTSL)-Juna_REPL_SL_BKN2 (Juna_REPL) Ckt<br>12) 220 KV BTPSL_SL_BIK2_PG-Bikaner_2 (PBTSL) (BANDERWALA_TPSL) Ckt<br>13) 220 KV PGPL_SL_BIK2_PG-Bikaner_2 (PBTSL) (PRERAK GREENTECH PVT LTD) Ckt | Rajasthan | PGCIL, SGEL, JGCPL, KSP_NHPC, ASSPL, RDUPL, SRI4PL, KREPL, GEPL, JREPL, BTPSL & PGPL | 22-Feb-26 | 17:08 | 22-Feb-26 | 19:07 | 01:59 | i)Generation of 400kV SGEL(SJVN) and 220kV JGCPL(IP), KSP(NHPC), ASSPL(IP), RDUPL(IP), SRI4PL(IP), KREPL(IP), GEPL(IP), JREPL(IP), BTPSL(IP) & PGPL(IP) stations evacuate through individual single circuit lines from plants to Bikaner2(PG).<br>ii)400 kV Bikaner_2 (PBTSL) – Bikaner (PG) Ckt-1 & 2 were taken under planned outage from 16:00 hrs on 22.02.2026 to 05.03.2026 for LILO of the 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) D/C lines at 400 kV Bikaner-III substation. The outage code was issued by NRLDC at 16:21 hrs. Subsequently, the lines were opened at 16:40 hrs. ISTS solar generation at that time was ~11,600 MW and Bikaner 2 generation at that time was ~1800 MW. After opening of these lines, oscillations observed in the System Frequency from 16:44 hrs onward as per PMU frequency plots. However, no corresponding fluctuation was observed in the PMU voltage plots. Immediately after opening of 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) D/C lines at 16:41 hrs, huge fluctuation in active power started in 300MW Karnisar NHPC and 200MW Renew Dinkar at 16:44 hrs.<br>iii)With triggering of active power fluctuation in 300MW Karinsar NHPC and 200MW Renew Dinkar at 16:44 hrs, other RE plants also exhibited the continuous active power fluctuation but magnitude in other plants were comparatively lesser.<br>iv)As reported, at 16:24 hrs, 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt tripped from Bikaner2 end only (exact reason yet to be shared by PG).<br>v)Further, at 16:58 hrs, 220 KV Bikaner_2 (PBTSL)-KSP_NHPC_LTD_SL_BKN2 (KSP_NHPC_LTD) Ckt tripped on over-voltage (over-voltage protection in 220kV lines need to be disabled as per NRPC protection philosophy).<br>vi)Followed by this, huge active power fluctuation started at 17:00 hrs almost in all plants connected at Bikaner2(PG).<br>vii)As reported, at 17:08 hrs, 500 KV HVDC Balia-Bhiwadi (PG) Ckt-1 & 2 tripped on sub-synchronous resonance 81 SSR block operation (as per EL) followed by tripping of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1, 2, 3 & 4 (over-voltage stage-1) and 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt (over-voltage stage-2).<br>viii)Due to tripping of all four 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1, 2, 3 & 4 (with 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) Ckt-1 & 2 under outage), all 220kV RE plants connected at Bikaner2(PG), i.e., JGCPL(IP), KSP(NHPC), ASSPL(IP), RDUPL(IP), SRI4PL(IP), KREPL(IP), GEPL(IP), JREPL(IP), BTPSL(IP) & PGPL(IP) also tripped due to loss of evacuation path which led to complete blackout of 400/220kV Bikaner2(PG) along with all RE plants connected at 400kV and 220kV level of Bikaner2(PG).<br>ix)As per PMU, no fault was observed in the system. As per SCADA, reduction in NR total Solar Generation of approx. 525 MW was observed at around 17:08 hrs. | 525 | 0 | NA | i) Exact reason of tripping of 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt need to be shared by PG.<br>ii)Over-voltage protection in all 220kV lines need to be disabled as per NRPC protection philosophy.<br>iii)KSP(NHPC) and RDUPL(IP) need to check the exact reason of huge MW fluctuation exhibited by their inverters (SINENG and SUNGROW make respectively). RCA of the same need to be shared at the earliest. |

# Multiple elements tripping at 400/132kV Anpara TPS(UP) at 08:01 hrs on 08.01.2026

# Tripped Elements

| S. No | Name of Elements | Outage Time | Revival Time | Reason of tripping |
|---|---|---|---|---|
| 1. | 132KV Anpara-Rihand (UP) Ckt-1 | 08:01 hrs | 19:14 hrs on 09th Jan'26 | Y-ph LA of 132kV Bus-A blast at Anpara TPS |
| 2. | 132KV Anpara-Rihand (UP) Ckt-2 | | 19:17 hrs on 09th Jan'26 | |
| 3. | 132KV Anpara(UP)-Bina Ckt | | 09:19 hrs | |
| 4. | 210 MW Anpara TPS - UNIT 1 | | 15:31 hrs on 09th Jan'26 | Tripping of auxiliary supply due to over-current earth fault |
| 5. | 210 MW Anpara TPS - UNIT 2 | | 01:58 hrs on 10th Jan'26 | |
| 6. | 210 MW Anpara TPS - UNIT 3 | | 14:54 hrs on 09th Jan'26 | |
| 7. | 500 MW Anpara TPS - UNIT 4 | | 13:38hrs | |
| 8. | 500 MW Anpara TPS - UNIT 5 | | 15:17hrs | |

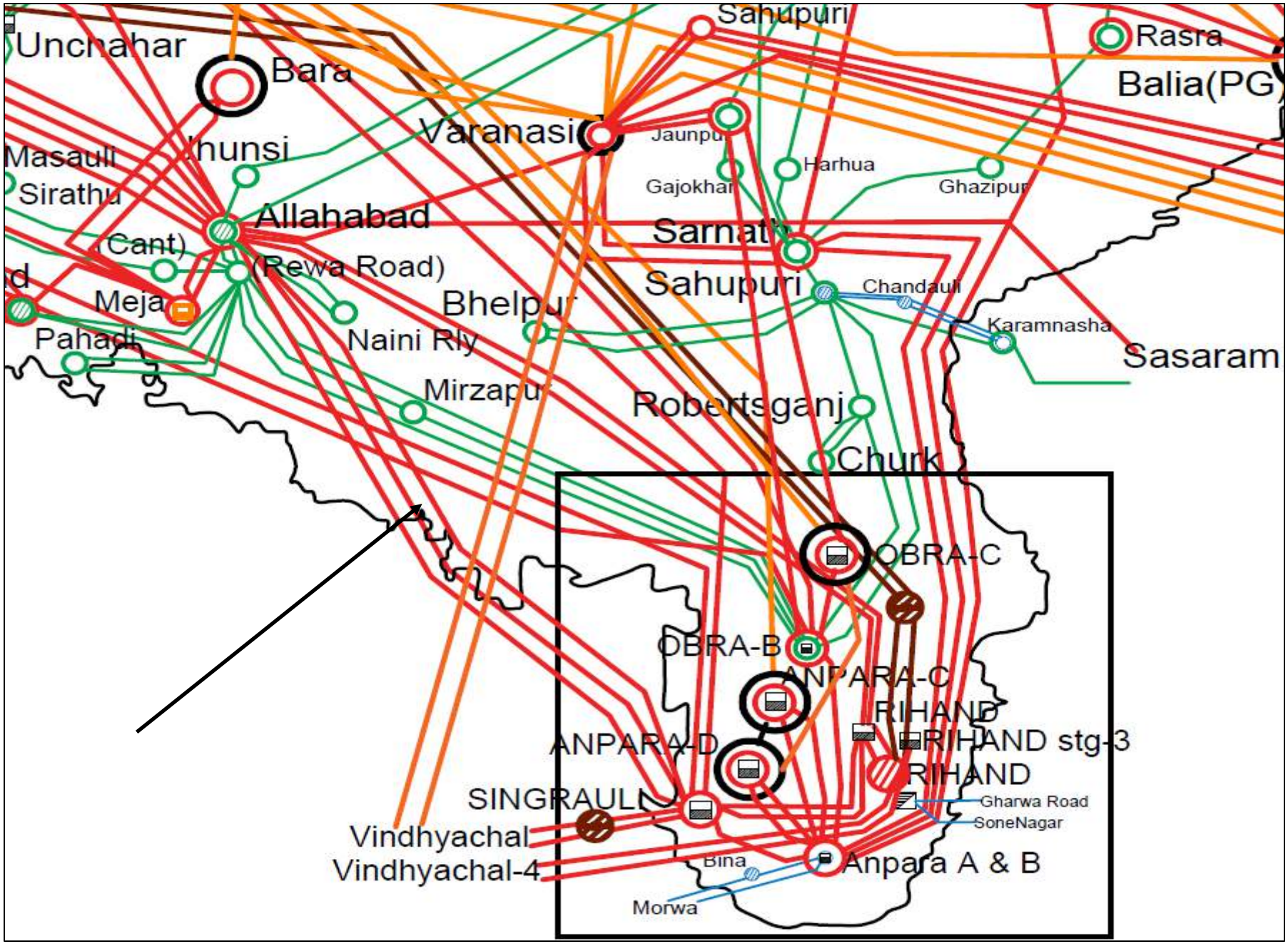
# Brief details of the event

- 400/132kV Anpara(UP) S/s have double main and transfer bus arrangement at 400kV level and double main bus arrangement at 132kV level.
- During antecedent condition, 132kV Anpara-Morwa Ckt was under shutdown and 132kV Bus coupler was in ON position. 210 MW UNIT 1, 2 & 3 and 500 MW UNIT 4 & 5 at Anpara TPS were in running condition and were generating approx. 187 MW, 176 MW, 153 MW, 392 MW and 466 MW respectively (as per SCADA).
- As informed by SLDC UP, 132kV CWTF11 and CWTF22 were supplying power to Cooling water pumps for 210 MW Anpara TPS - UNIT 1, 2 & 3 and 132kV CWTF33 was supplying power to Cooling water pumps for 500 MW Anpara TPS - UNIT 4 & 5. Similarly, 132kV STNX11 and STNX22 were supplying auxiliary power to 210 MW Anpara TPS - UNIT 1, 2 & 3 and 132kV STNX33 and STNX44 were supplying auxiliary power to 500 MW Anpara TPS - UNIT 4 & 5.
- As reported, at 08:01 hrs, Y-ph LA of 132kV Bus-A at Anpara TPS blasted causing fault in 132kV Bus-A at Anpara TPS. Bus bar protection of 132kV did not operated on this fault due to non-operation of check zone relay.
- Due to this, 132KV Anpara-Rihand (UP) Ckt-1 & 2, 132KV Anpara(UP)-Bina Ckt and all other 132 kV elements (station transformes supplying auxiliaries and CWTF supplying cooling water pumps) connected to Bus-A and B tripped on over-current earth fault protection operation and both the 132kV buses at Anpara TPS became dead.
- Due to tripping of auxiliary supply to units, 210 MW UNIT 1, 2 & 3 and 500 MW UNIT 4 & 5 at Anpara TPS tripped.

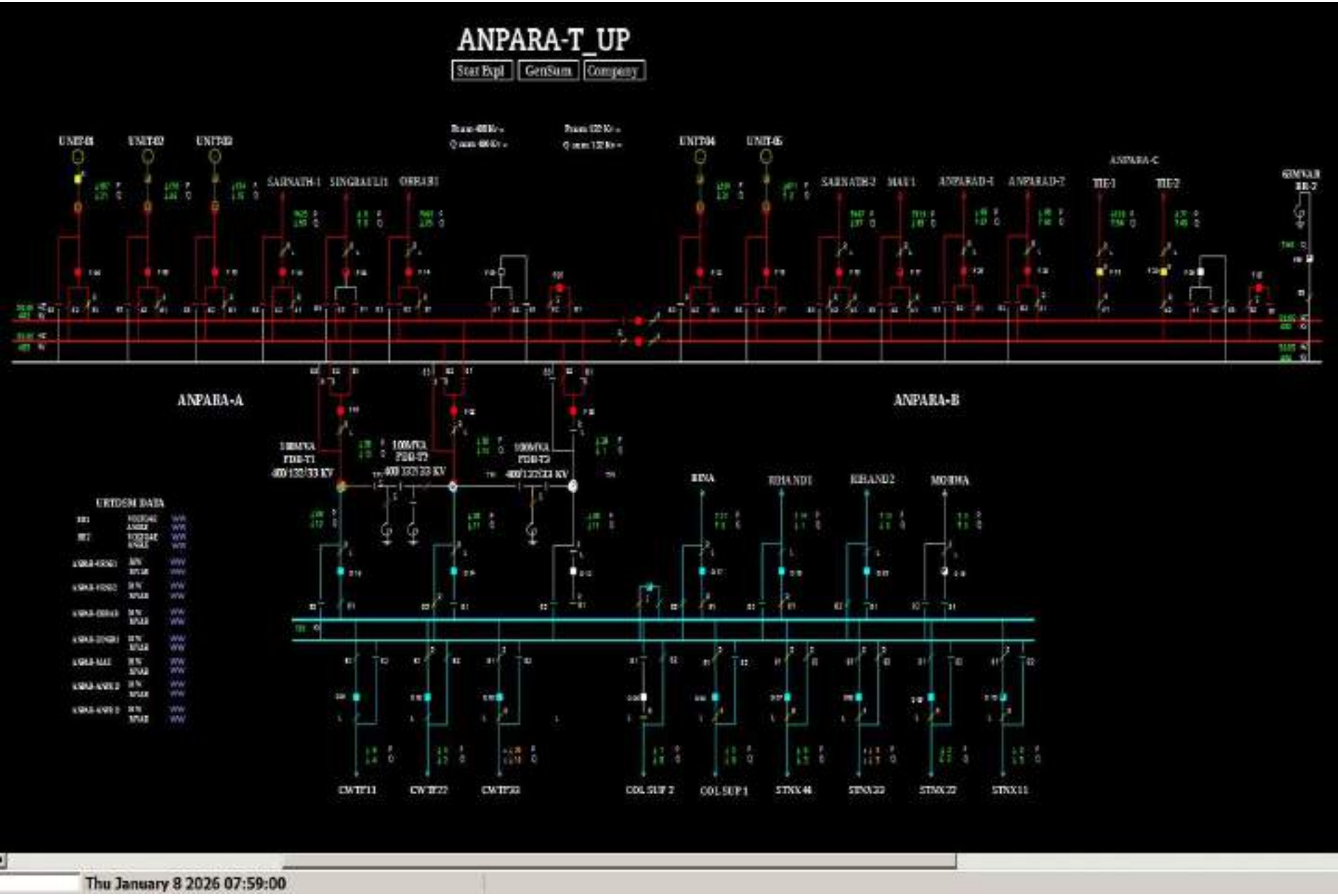
# Brief details of the event

- As per PMU at Varanasi(PG), R-Y phase to phase fault is observed with delayed fault clearing time of 1120ms.
- As per SCADA, generation loss of approx. 1375 MW occurred at Anpara TPS(UP).
- As reported by SLDC UP, no load loss was observed in UP control area.
- As reported by Anpara TPS, new numerical busbar protection scheme at 132kV level of Anpara TPS will be commissioned within six months.

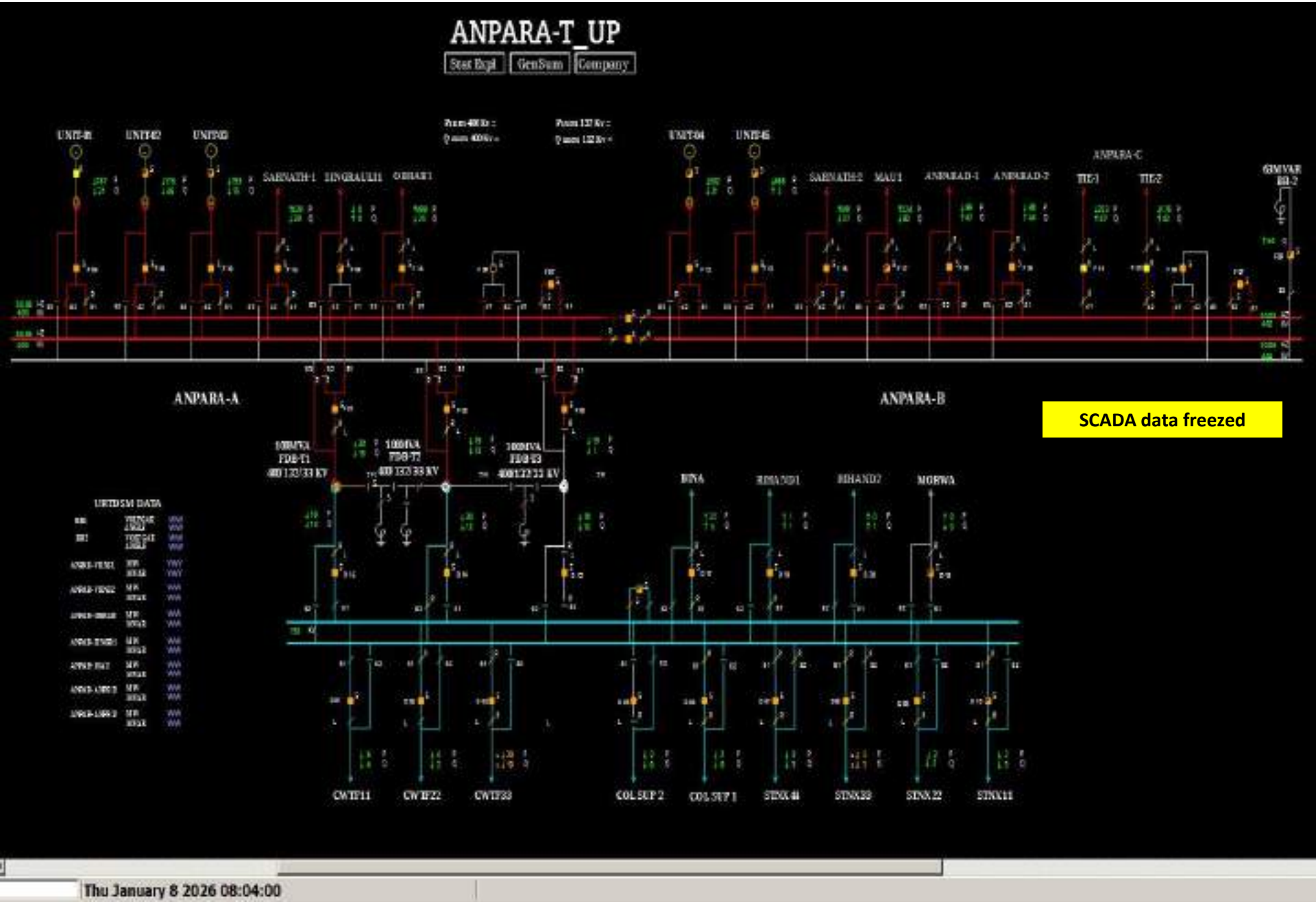
# Network Diagram



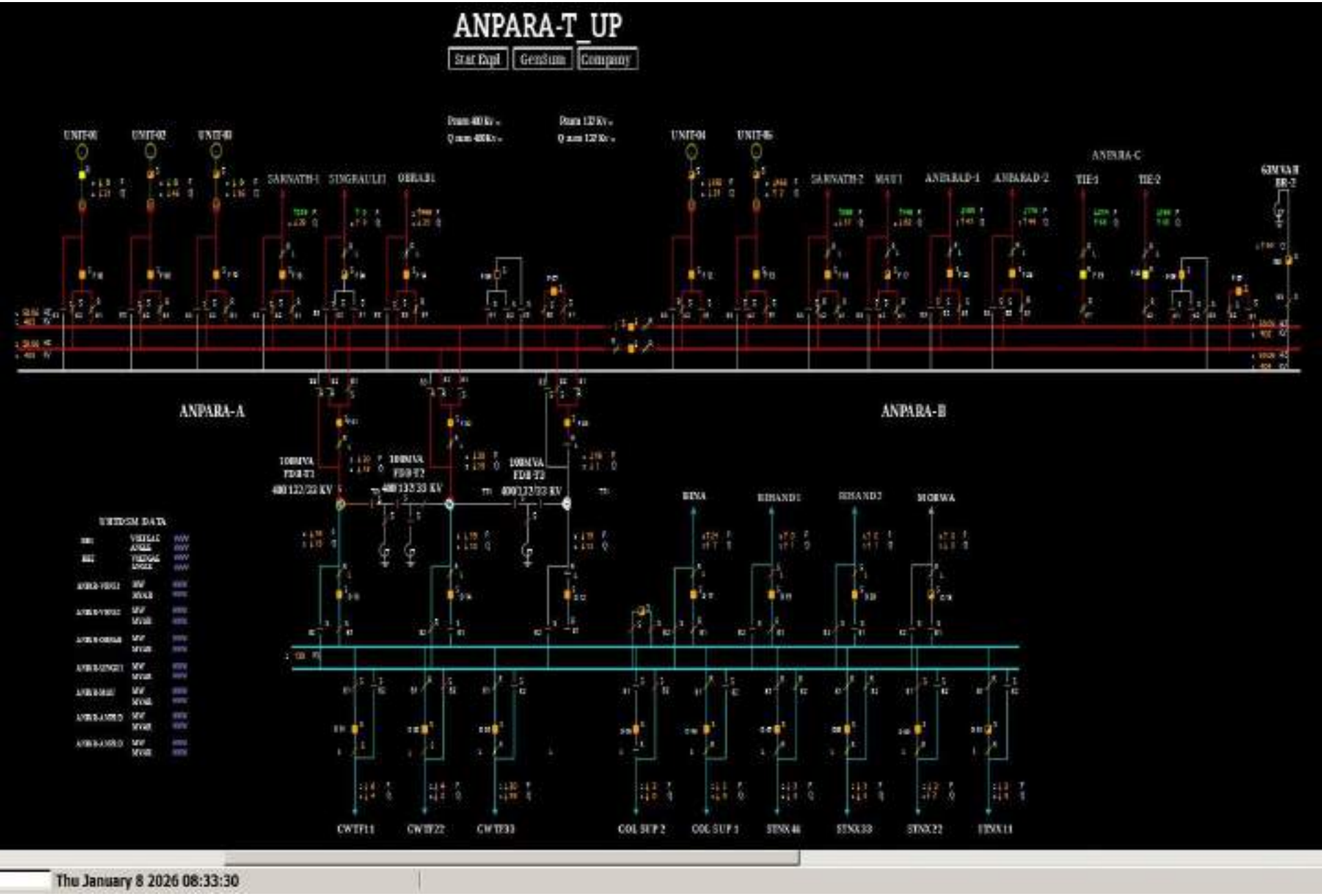
# SLD of 400/132kV Anpara TPS(UP) before the event @07:59hrs



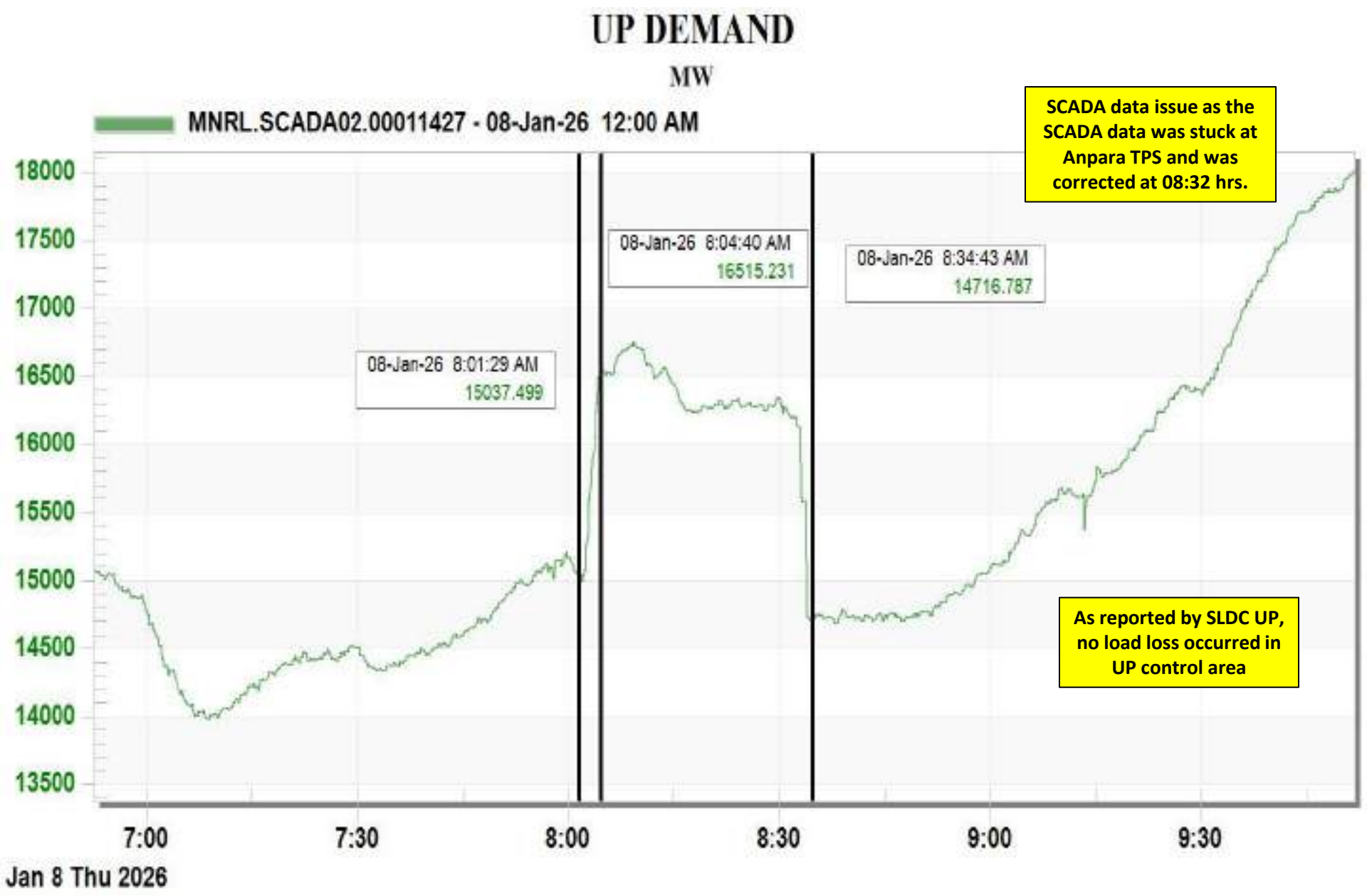
# SLD of 400/132kV Anpara TPS(UP) after the event @08:04hrs



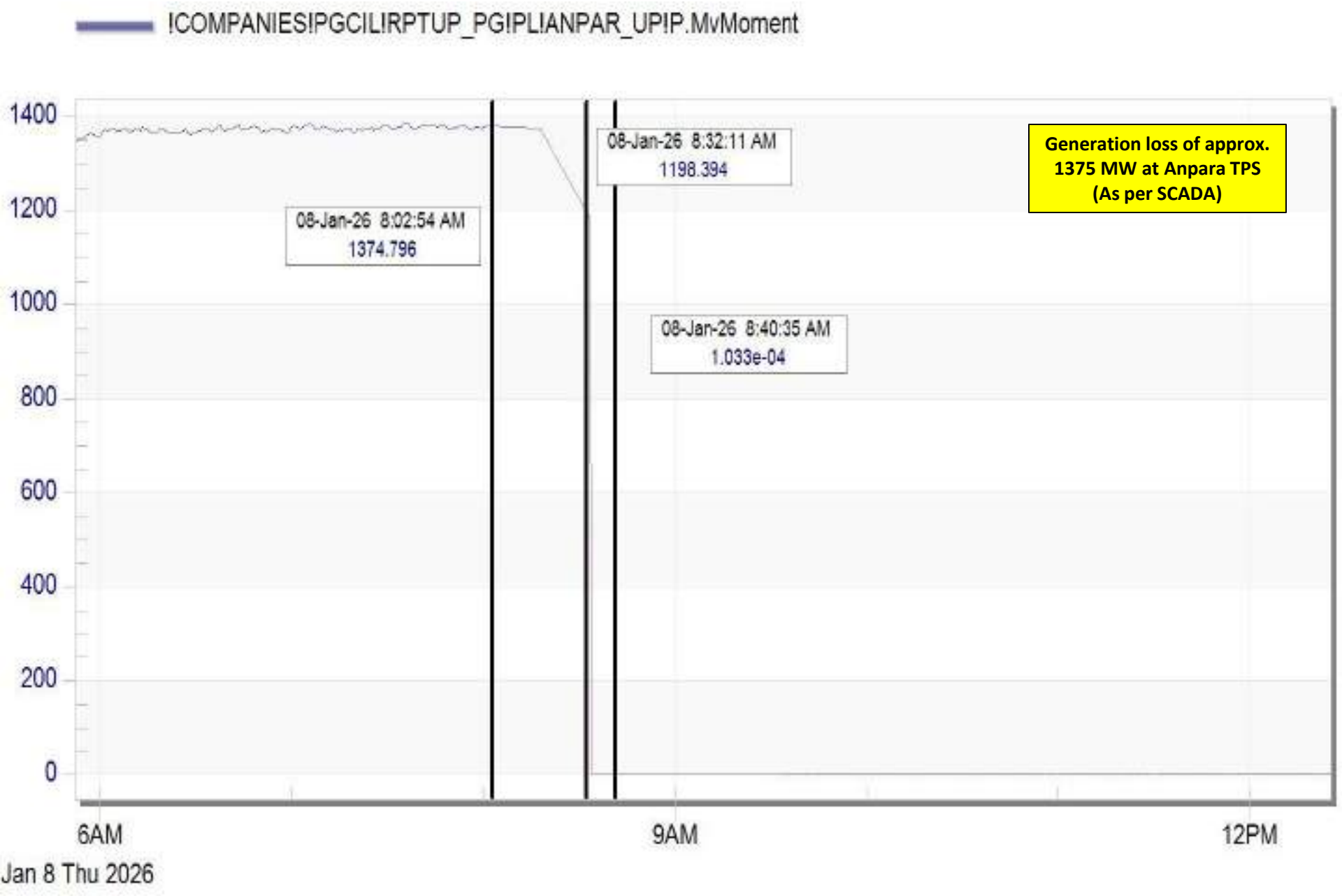
# SLD of 400/132kV Anpara TPS(UP) after the event @08:33hrs



# UP demand during the event

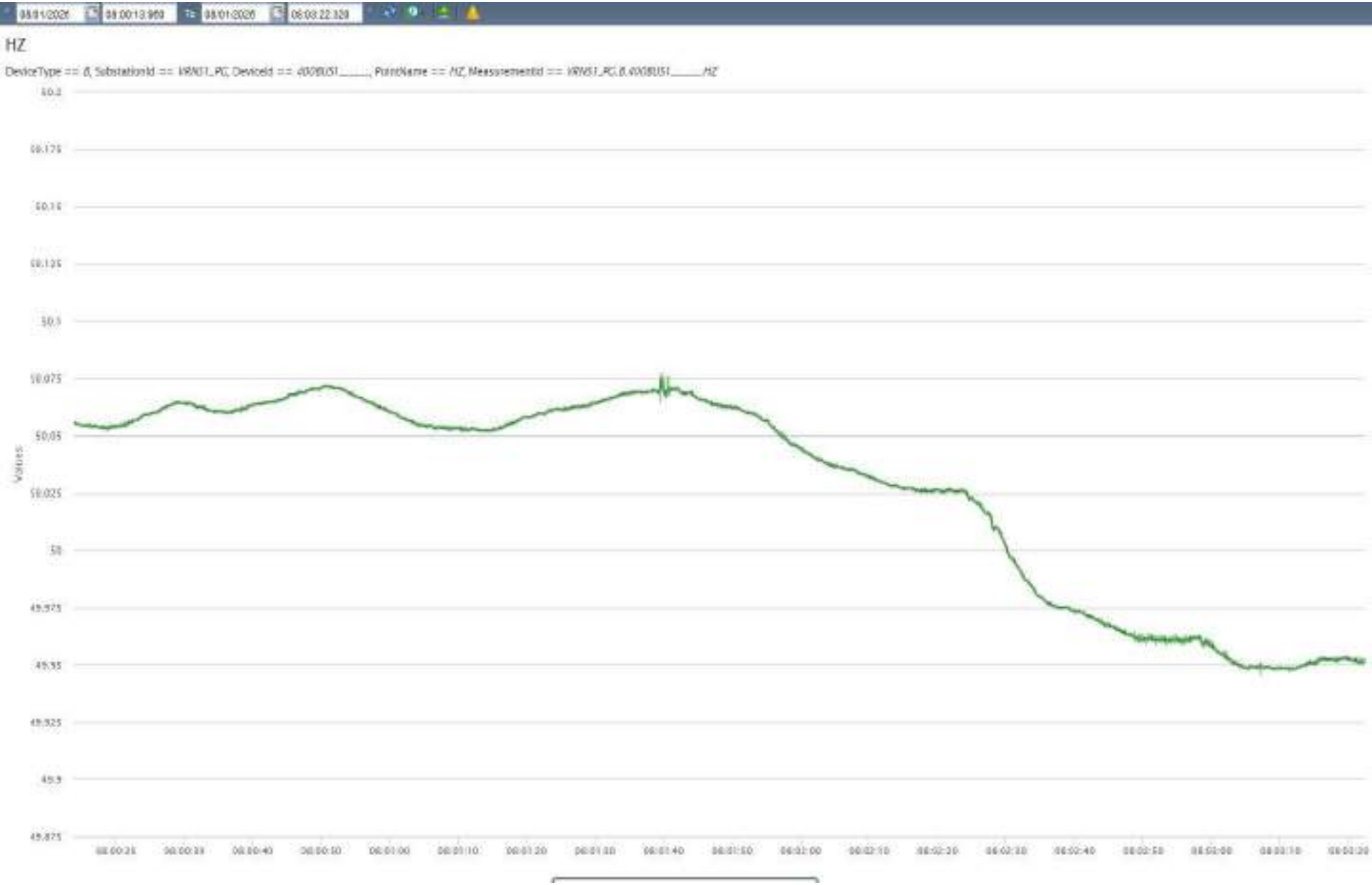


# Anpara TPS generation during the event



# PMU Plot of frequency at Varanasi(PG)

## 08:01hrs/08-Jan-26



# PMU Plot of phase voltage magnitude at Varanasi(PG)

## 08:01hrs/08-Jan-26



# Points of Discussion

i. Reason of delayed fault clearance need to be shared.
ii. Healthiness of busbar protection at 132kV level of Anpara TPS need to be ensured at the earliest.
iii. SCADA data of 400/132kV Anpara TPS(UP) was freezed during the event. Availability and healthiness of SCADA data need to be ensured.
iv. Remedial action taken report to be shared.

# Tripping Report of Units and 132 KV feeders at 08:01 hrs on 08.01.2026 of Anpara A & B TPS

**Incident**- At 08:01hrs on 08.01.2026, 132KV Lightning Arrester of Y-phase, BUS-A damaged causing tripping of all elements on BUS-A & B & failure of 132KV supply to Station transformers & C.W. Transformers of all units of A & B TPS.

**Status of Various elements of 132KV Just prior to incident was as under:**

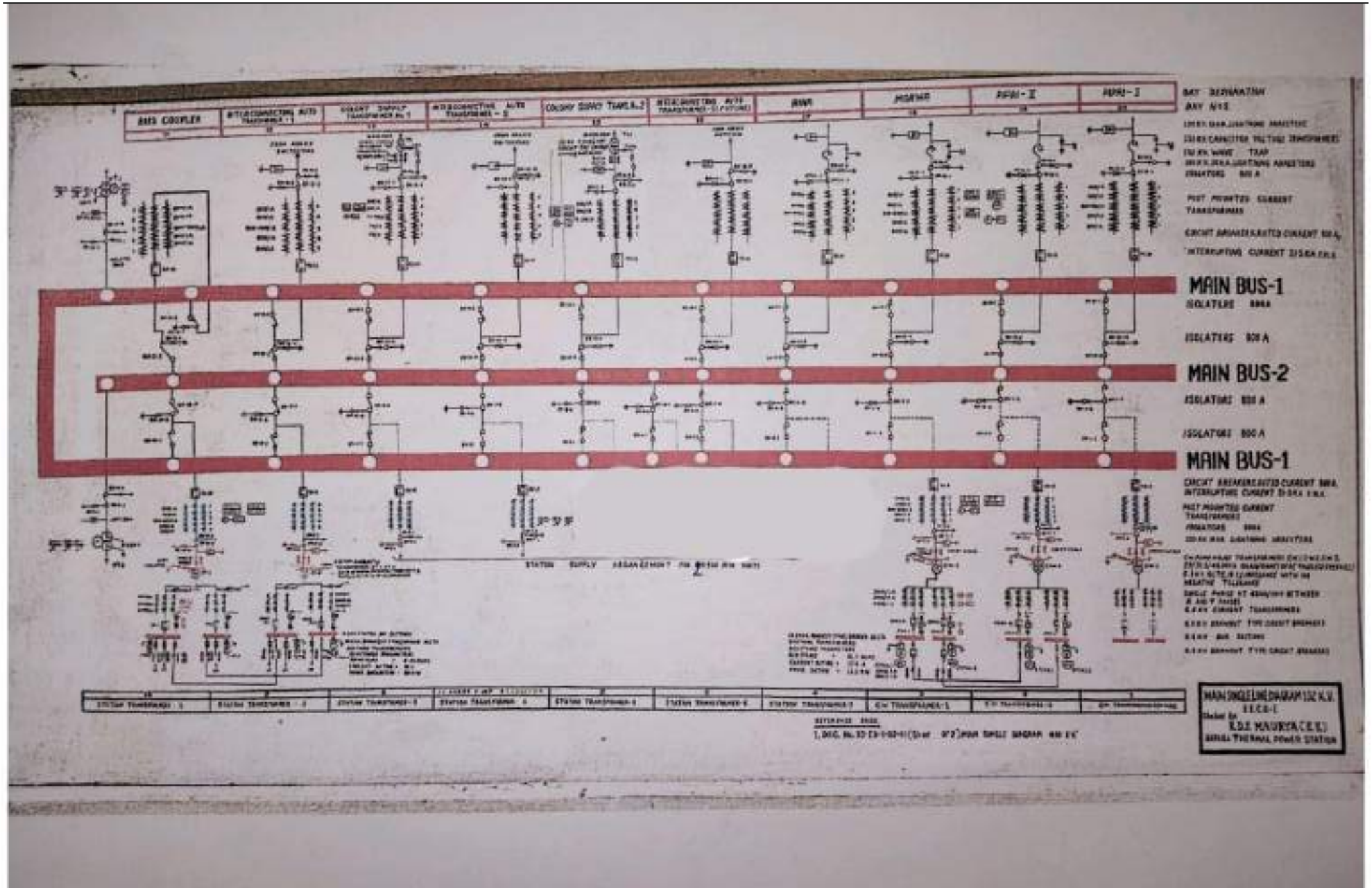
**Elements connected at Bus A:**

1. ICT-I
2. ICT-III
3. ST-2
4. ST-4
5. CW-1
6. CS-1
7. Anpara-Pipri ckt-I

**Elements connected at Bus B:**

1. ICT-II
2. ST-I
3. ST-3
4. CW-2
5. CW-3
6. CS2
7. Anpara-Pipri-II CKT
8. Anpara-Bina Line

# SLD OF 132KV SYSTEM OF A&B TPS ANPARA



# Description of tripping of feeders with cause:

| Sr no | Name of Element | Relay Flag | Tripping Time |
|---|---|---|---|
| 1 | 132KV side ICT-I | Tripped over current | 08.01 |
| 2 | 132KV ICT-III | Tripped over current | 08.01 |
| 3 | ST-2 | Earth Fault Tripped | 08.01 |
| 4 | ST-4 | Earth Fault Tripped, 86 ST | 08.01 |
| 5 | Anpara-Pipri ckt-I | Main-I start, Trip , Earth Fault trip | 08.01 |
| 6 | ICT-II | 67N, POC-1, EF-1 286 AT | 08.01 |
| 7 | ST-I | Earth Fault Tripped | 08.01 |
| 8 | ST-3 | Earth Fault Tripped | 08.01 |
| 9 | CW-3 | Earth fault tripped.86 | 08.01 |
| 10 | Anpara-Pipri-II CKT | Main-I Strat, Trip , Earth Fault trip | 08.01 |
| 11 | Anpara-Bina Line | Main-I Strat, Trip, Earth Fault trip | 08.01 |

132 KV both BUS tripped due to outage of All the three ICTs. These ICTs (ICT1, ICT2, ICT3) tripped within 1.2 seconds.

# SOE of Events log at 08:01 hrs, 08.01.2026

| Date/Time | Service Detail | Tag | Status |
|---|---|---|---|
| 8-1-2026 12:3:43:812 | CS-II | M664_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 9:23:14:392 | CW-III | M710_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 9:23:14:192 | CW-III | M709_Protection_Circuit_Faulty_ | Reset |
| 8-1-2026 9:19:42:208 | ST-III | M701_Transf_OLTC_AVR_Supply_Fail | Reset |
| 8-1-2026 9:19:42:208 | ST-III | M700_Transf_Cooler_Trouble | Reset |
| 8-1-2026 9:19:42:208 | BINA | M573_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 9:15:58:653 | CS-I | M654_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 9:7:42:645 | ST-I | M635_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 9:5:53:59 | ICT-III | M623_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 9:4:1:781 | ICT-II | M619_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 9:3:27:809 | ICT-I | M587_Circuit_Breaker_Tripped | Reset |
| 8-1-2026 8:51:45:464 | CW-III | M709_Protection_Circuit_Faulty_ | Protection_Circuit_Faulty_ |
| 8-1-2026 8:47:2:210 | ICT-I | M585_Protection_Circuit_Faulty_ | Reset |
| 8-1-2026 8:46:56:8 | ICT-I | M585_Protection_Circuit_Faulty_ | Protection_Circuit_Faulty_ |
| 8-1-2026 8:45:56:161 | ICT-I | M585_Protection_Circuit_Faulty_ | Reset |
| 8-1-2026 8:44:22:378 | ICT-I | M585_Protection_Circuit_Faulty_ | Protection_Circuit_Faulty_ |
| 8-1-2026 8:36:16:697 | BINA | M564_Breaker_Auto_Reclosed | Reset |
| 8-1-2026 8:25:41:109 | MORWA | M544_Breaker_Auto_Reclosed | Reset |
| 8-1-2026 8:9:20:284 | Bus Coupler - BC | M541_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:50:327 | ST-III | M701_Transf_OLTC_AVR_Supply_Fail | Transf_OLTC_AVR_Supply_Fail |
| 8-1-2026 8:1:45:729 | ST-III | M700_Transf_Cooler_Trouble | Transf_Cooler_Trouble |
| 8-1-2026 8:1:40:529 | ICT-I | M587_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:40:435 | ICT-III | M623_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:39:949 | BINA | M564_Breaker_Auto_Reclosed | Breaker_Auto_Reclosed |
| 8-1-2026 8:1:39:949 | BINA | M573_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:39:949 | ICT-II | M619_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:39:450 | PIPRI LINE-II | M579_Breaker_SF6_PR_Low | Breaker_SF6_PR_Low |
| 8-1-2026 8:1:39:450 | ST-I | M635_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:39:450 | CS-I | M654_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:39:450 | CS-II | M664_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:39:450 | CW-III | M710_Circuit_Breaker_Tripped | Circuit_Breaker_Tripped |
| 8-1-2026 8:1:39:450 | MORWA | M544_Breaker_Auto_Reclosed | Breaker_Auto_Reclosed |

| Date/Time | Service Detail |
|---|---|
| 8-1-2026 12:3:43:812 | CS-II |
| 8-1-2026 9:23:14:392 | CW-III |
| 8-1-2026 9:23:14:192 | CW-III |
| 8-1-2026 9:19:42:208 | ST-III |
| 8-1-2026 9:19:42:208 | ST-III |
| 8-1-2026 9:19:42:208 | BINA |
| 8-1-2026 9:15:58:653 | CS-I |
| 8-1-2026 9:7:42:645 | ST-I |
| 8-1-2026 9:5:53:59 | ICT-III |
| 8-1-2026 9:4:1:781 | ICT-II |
| 8-1-2026 9:3:27:809 | ICT-I |
| 8-1-2026 8:51:45:464 | CW-III |
| 8-1-2026 8:47:2:210 | ICT-I |
| 8-1-2026 8:46:56:8 | ICT-I |
| 8-1-2026 8:45:56:161 | ICT-I |
| 8-1-2026 8:44:22:378 | ICT-I |
| 8-1-2026 8:36:16:697 | BINA |
| 8-1-2026 8:25:41:109 | MORWA |
| 8-1-2026 8:9:20:284 | Bus Coupler - BC |
| 8-1-2026 8:1:50:327 | ST-III |
| 8-1-2026 8:1:45:729 | ST-III |
| 8-1-2026 8:1:40:529 | ICT-I |
| 8-1-2026 8:1:40:435 | ICT-III |
| 8-1-2026 8:1:39:949 | BINA |
| 8-1-2026 8:1:39:949 | BINA |
| 8-1-2026 8:1:39:949 | ICT-II |
| 8-1-2026 8:1:39:450 | PIPRI LINE-II |
| 8-1-2026 8:1:39:450 | ST-I |
| 8-1-2026 8:1:39:450 | CS-I |
| 8-1-2026 8:1:39:450 | CS-II |
| 8-1-2026 8:1:39:450 | CW-III |
| 8-1-2026 8:1:39:450 | MORWA |

# Tripping Analysis :

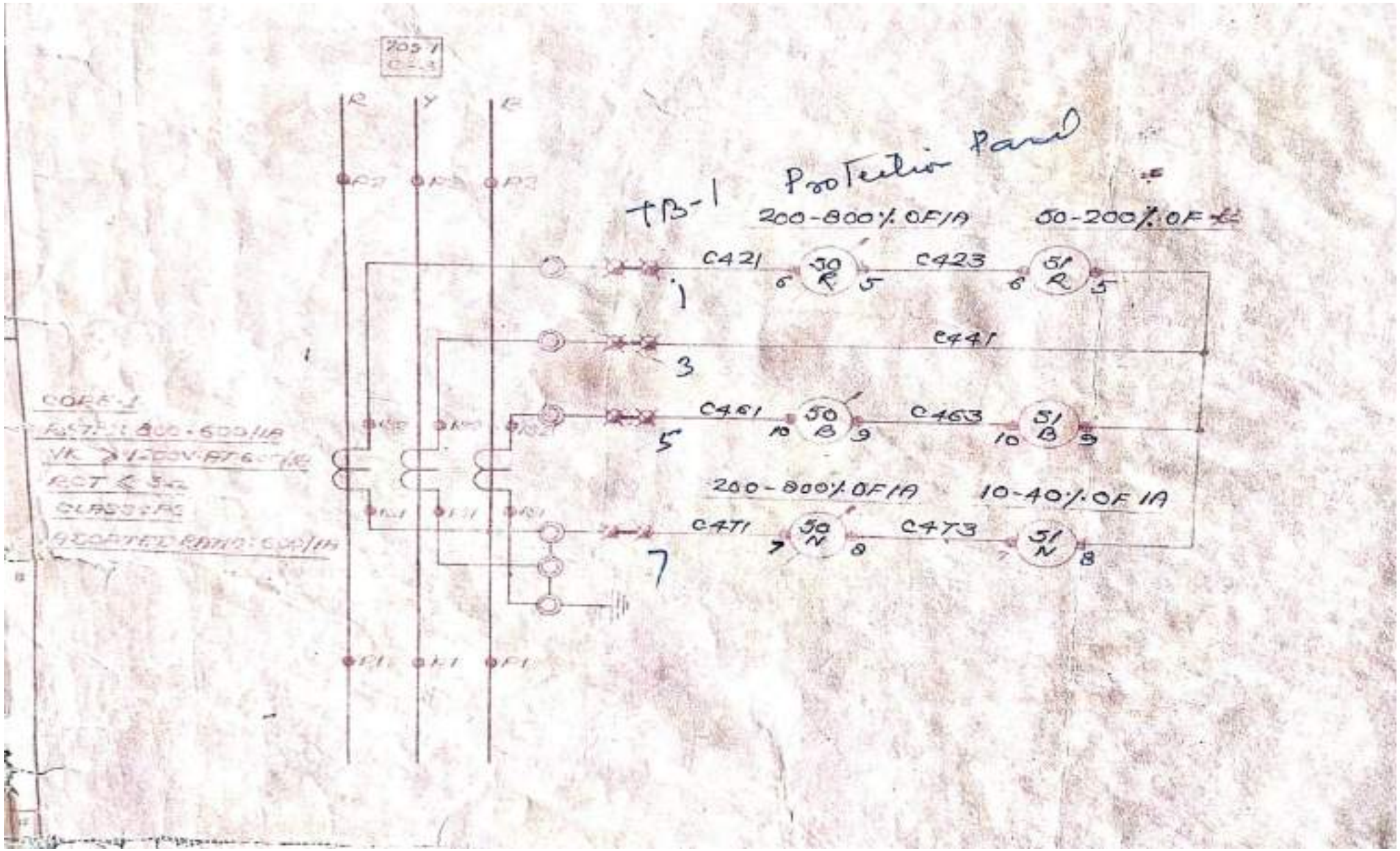
1. At 08:01 hr on 08.01.2026 LA (Lightening Arrestor) of Y phase of 132 KV BUS-A damaged causing earth fault of BUS A. **Weather Condition**: There was heavy dense fog at the time of above incident. **Suspected Cause of failure of LA**- Heavy dense fog may be the main cause for failure of LA. **Previous Test Report**- LA of BUS-A was tested on 21.02.2025 & I.R. value was found 42 GΩ, 38 GΩ & 43 GΩ for R, Y & B Phases respectively. LCM of these LA was done on 16.07.2025 & their I3t values was within acceptable limit (Rph-9.5μA, Yph-12.3 μA,Bph-10.2 μA).
2. All connected elements of 132 KV BUS A and BUS B tripped on over current/Earth fault as mentioned above.
3. Bus Bar protection Zone-A electromechanical differential (87) relay operated due to fault on BUS-A , but Check zone differential (87CZ) relay did not operate. Due to non- operation of check zone relay bus bar protection did not give commands to Bus Coupler & all elements connected to BUS-A.
4. 51R & 51N Electro-mechanical relay of Bus Coupler breaker operated, but breaker did not trip . There is a timer in tripping circuit before lockout relay operation (86) which operated with delay of 2 seconds. All the elements of 132KV BUS-A & BUS-B tripped before 2 sec.

**Probable Cause of Non-operation of Check Zone Relay**: Existing Bus Bar Protection system is high impedance electro-mechanical which is not reliable at the time of fault due to CT saturation, aging effects of stabilizing Resistor & Metrosil. It is not possible to analyze real time data at the time of fault due to electromechanical relays.

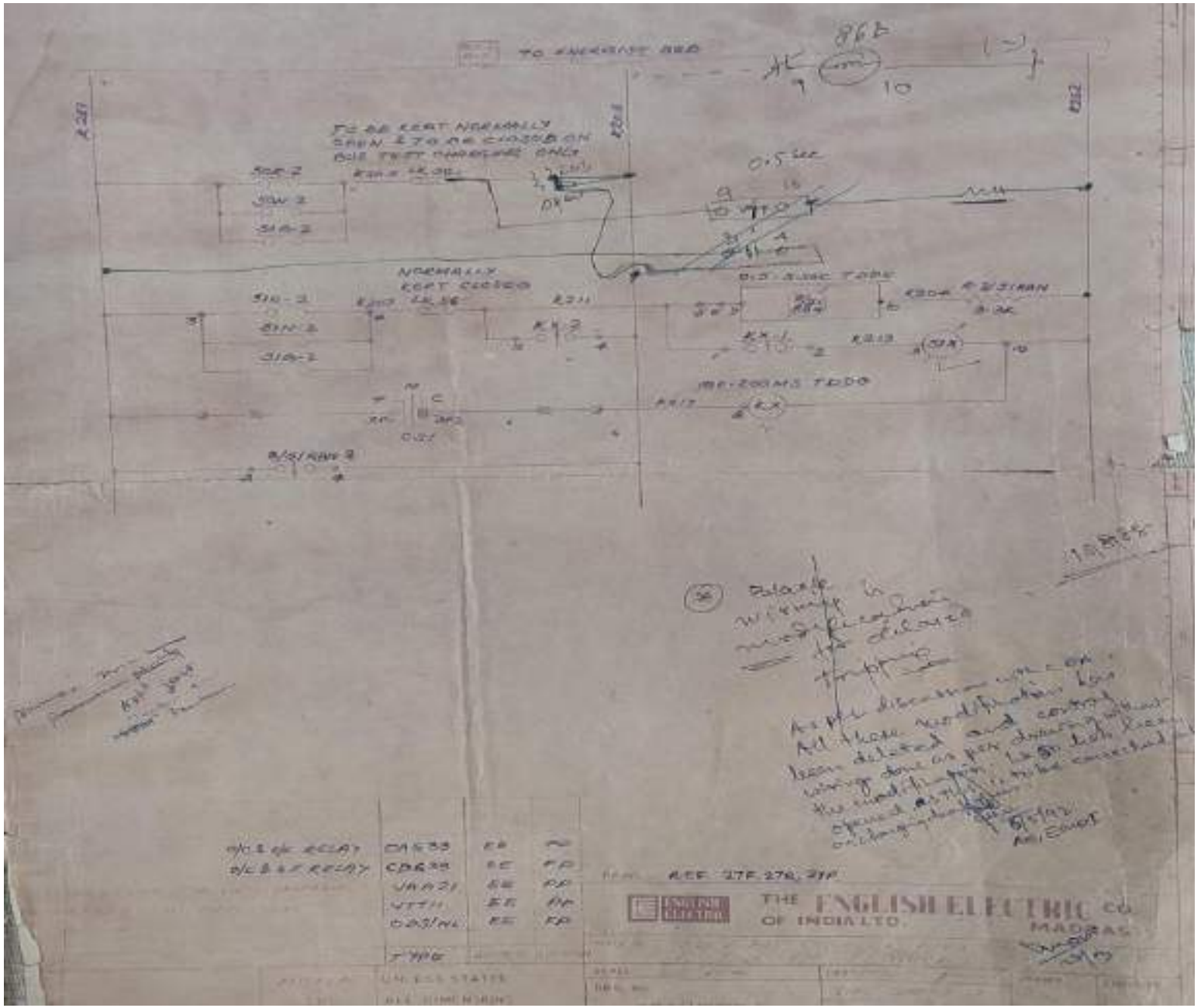
**It is practically not possible to test check zone electromechanical relay in running condition as both 132 KV BUS always remain in live condition for feeding supply to critical auxiliaries e**.g. Station & CW system of all five Units.

Commissioning work of new numerical low impedance BUS BAR protection scheme for 132 KV is under progress.

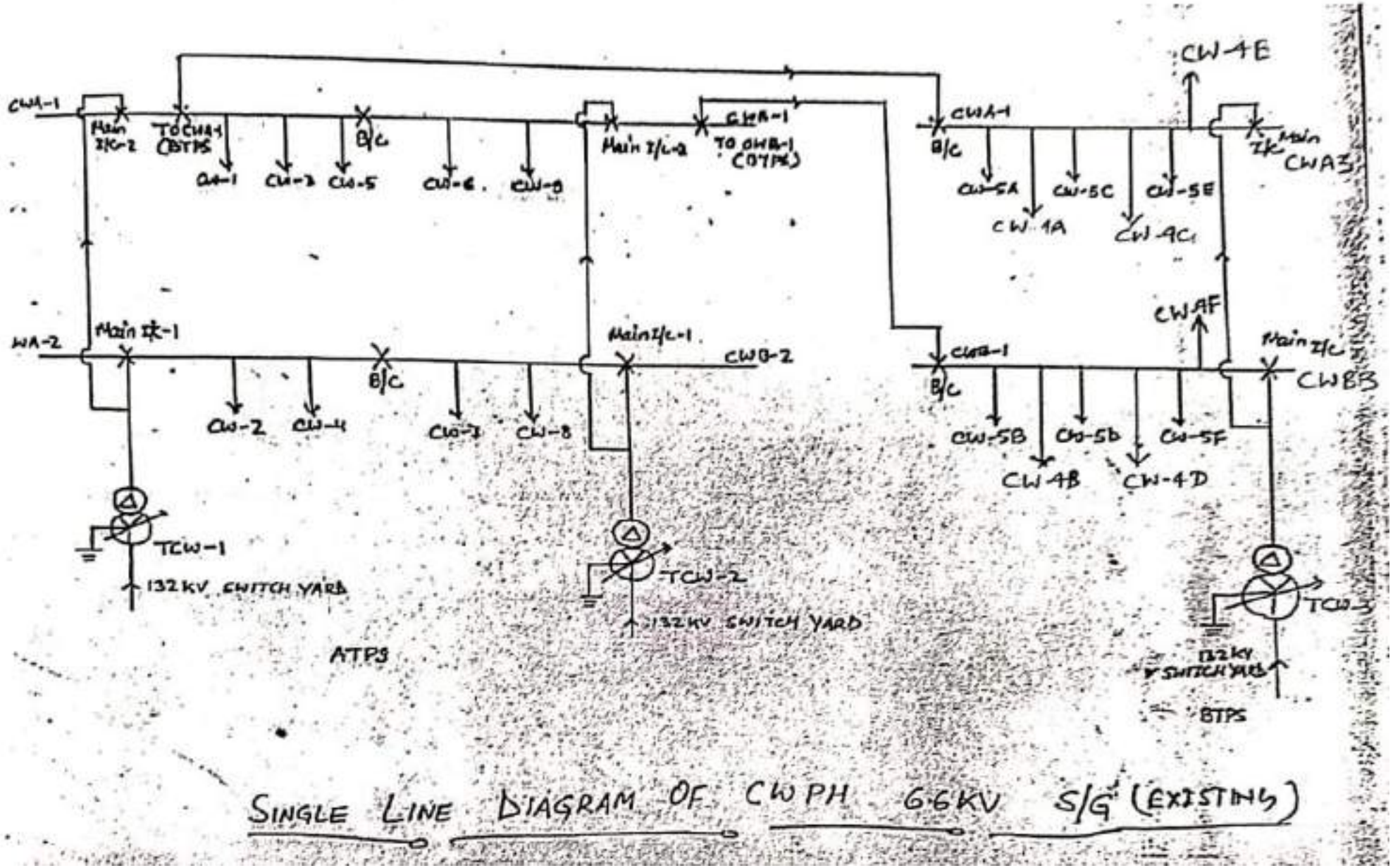
Existing Drawing of protection scheme of bus coupler as mentioned below:



# BUS COUPLER OVERCURRENT/EARTH FAULT TRIPPING SCHEME



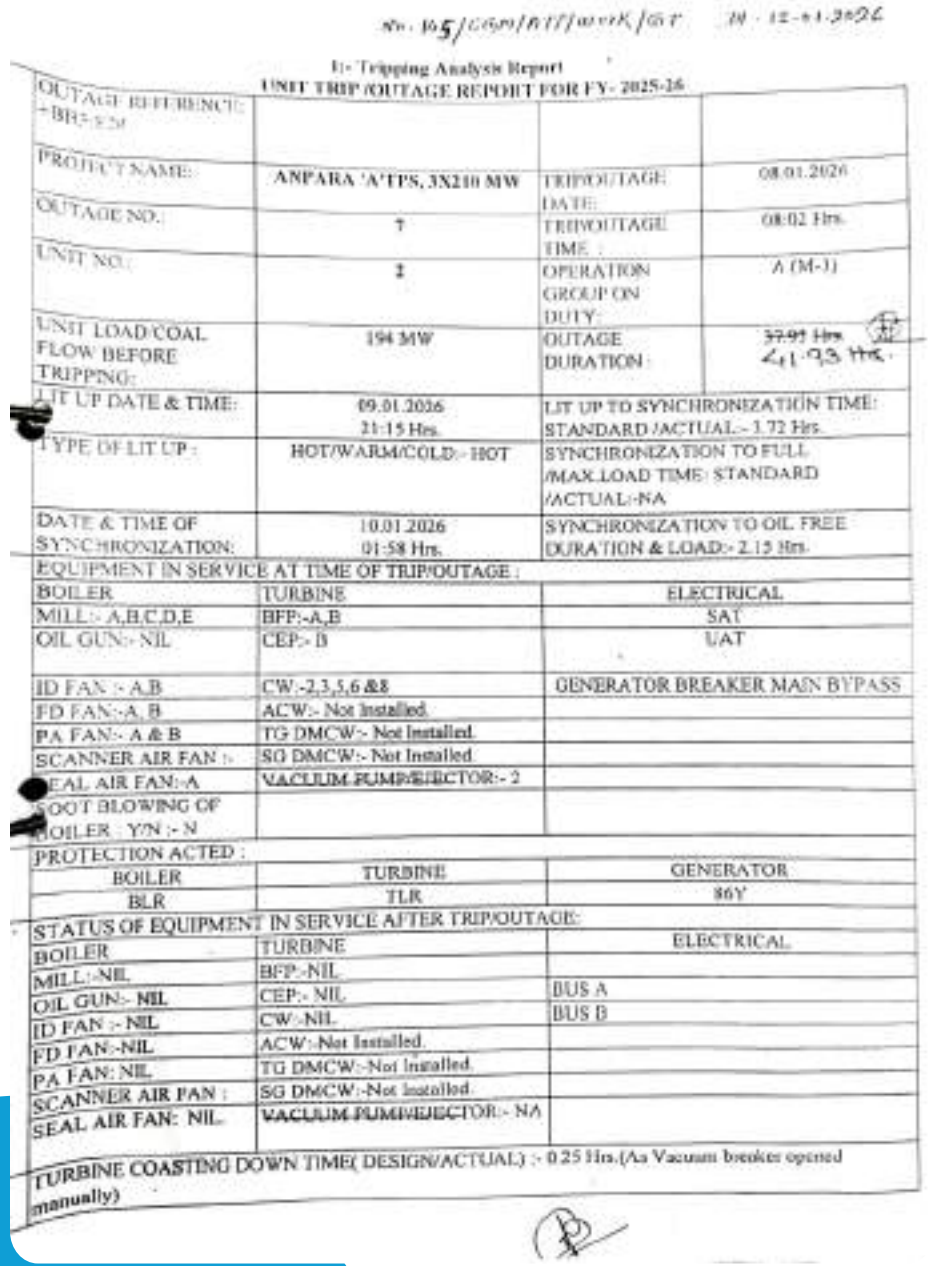
# SLD OF SUPPLY OF CW PUMP SYSTEM FOR A & BTPS SWITCHYARD



# Tripping details of Units of A & B TPS

| S. N. | UNIT NO. | TIME OF TRIPPING (Hr.: Min.) | REASON OF TRIPPING |
|---|---|---|---|
| 1. | 01 | 08:02 | Turbine trip on low condense Vacuum due to tripping of all CW pump |
| 2 | 02 | 08:02 | Turbine trip on low condense Vacuum due to tripping of all CW pump |
| 3 | 03 | 08:02 | Turbine trip on low condense Vacuum due to tripping of all CW pump |
| 4 | 04 | 08:02 | Turbine trip on low condense Vacuum due to tripping of all CW pump |
| 5 | 05 | 08:02 | Turbine trip on low condense Vacuum due to tripping of all CW pump |

# Tripping analysis report of Unit No.-2 is attached below for reference:



No. 105/CGM/ATTP/Work/GT dt. 14-01-2026

1:- Tripping Analysis Report

UNIT TRIP /OUTAGE REPORT FOR FY- 2025-26

| | | | |
|---|---|---|---|
| OUTAGE REFERENCE +BH:XXX | | | |
| PRODUCT NAME: | ANPARA 'A'TPS, 3X210 MW | TRIP/OUTAGE DATE: | 08.01.2026 |
| OUTAGE NO. | 7 | TRIP/OUTAGE TIME : | 08:02 Hrs. |
| UNIT NO.: | 2 | OPERATION GROUP ON DUTY: | A (M-1) |
| UNIT LOAD/COAL FLOW BEFORE TRIPPING: | 194 MW | OUTAGE DURATION : | ~~37.97 Hrs~~ 41.93 Hrs. |
| LIT UP DATE & TIME: | 09.01.2026 21:15 Hrs. | LIT UP TO SYNCHRONIZATION TIME: STANDARD /ACTUAL:- 1.72 Hrs. | |
| TYPE OF LIT UP : | HOT/WARM/COLD:- HOT | SYNCHRONIZATION TO FULL /MAX.LOAD TIME: STANDARD /ACTUAL:-NA | |
| DATE & TIME OF SYNCHRONIZATION: | 10.01.2026 01:58 Hrs. | SYNCHRONIZATION TO OIL FREE DURATION & LOAD:- 2.15 Hrs. | |

EQUIPMENT IN SERVICE AT TIME OF TRIP/OUTAGE :

| | | |
|---|---|---|
| BOILER | TURBINE | ELECTRICAL |
| MILL:- A,B,C,D,E | BFP:-A,B | SAT |
| OIL GUN:- NIL | CEP:- B | UAT |
| ID FAN :- A,B | CW:-2,3,5,6 &8 | GENERATOR BREAKER MAIN BYPASS |
| FD FAN:-A, B | ACW:- Not Installed. | |
| PA FAN:- A & B | TG DMCW:- Not Installed. | |
| SCANNER AIR FAN :- | SG DMCW:- Not Installed. | |
| SEAL AIR FAN:-A | VACUUM PUMP/EJECTOR:- 2 | |
| SOOT BLOWING OF BOILER : Y/N :- N | | |

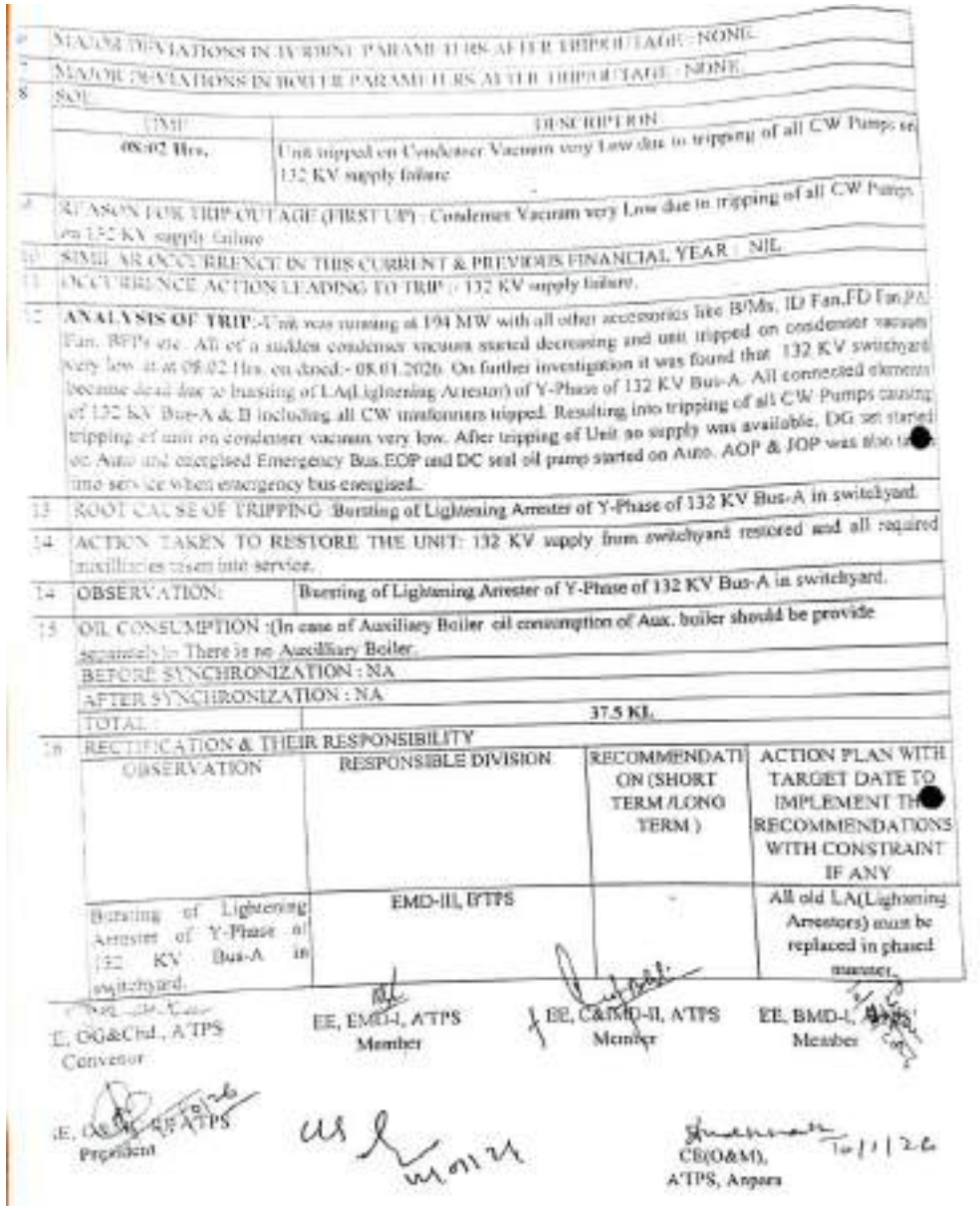
PROTECTION ACTED :

| BOILER | TURBINE | GENERATOR |
|---|---|---|
| BLR | TLR | 86Y |

STATUS OF EQUIPMENT IN SERVICE AFTER TRIP/OUTAGE:

| | | |
|---|---|---|
| BOILER | TURBINE | ELECTRICAL |
| MILL:-NIL | BFP:-NIL | |
| OIL GUN:- NIL | CEP:- NIL | BUS A |
| ID FAN :- NIL | CW:-NIL | BUS B |
| FD FAN:-NIL | ACW:-Not Installed. | |
| PA FAN: NIL | TG DMCW:-Not Installed. | |
| SCANNER AIR FAN : | SG DMCW:-Not Installed. | |
| SEAL AIR FAN: NIL | VACUUM PUMP/EJECTOR:- NA | |

TURBINE COASTING DOWN TIME( DESIGN/ACTUAL) :- 0.25 Hrs.(As Vacuum breaker opened manually)



4 STATUS DEVIATIONS IN TURBINE PARAMETERS AFTER TRIP/OUTAGE :- NONE

5 MAJOR DEVIATIONS IN BOILER PARAMETERS AFTER TRIP/OUTAGE :- NONE

6 SOE

| TIME | DESCRIPTION |
|---|---|
| 08:02 Hrs. | Unit tripped on Condenser Vacuum very Low due to tripping of all CW Pumps on 132 KV supply failure |

7 REASON FOR TRIP/OUTAGE (FIRST UP) : Condenser Vacuum very Low due to tripping of all CW Pumps on 132 KV supply failure

8 SIMILAR OCCURRENCE IN THIS CURRENT & PREVIOUS FINANCIAL YEAR : NIL

11 OCCURRENCE ACTION LEADING TO TRIP : 132 KV supply failure.

12 **ANALYSIS OF TRIP**:-Unit was running at 194 MW with all other accessories like B/Mls, ID Fan,FD Fan,PA Fan, BFPs etc. All of a sudden condenser vacuum started decreasing and unit tripped on condenser vacuum very low at 08:02 Hrs. on dtod:- 08.01.2026. On further investigation it was found that 132 KV switchyard became dead due to bursting of LA(Lightening Arrestor) of Y-Phase of 132 KV Bus-A. All connected elements of 132 KV Bus-A & B including all CW motorsets tripped. Resulting into tripping of all CW Pumps causing tripping of unit on condenser vacuum very low. After tripping of Unit no supply was available, DG set started on Auto and energised Emergency Bus.EOP and DC seal oil pump started on Auto. AOP & JOP was also taken into service when emergency bus energised.

13 ROOT CAUSE OF TRIPPING :Bursting of Lightening Arrester of Y-Phase of 132 KV Bus-A in switchyard.

14 ACTION TAKEN TO RESTORE THE UNIT: 132 KV supply from switchyard restored and all required auxiliaries taken into service.

14 OBSERVATION: Bursting of Lightening Arrester of Y-Phase of 132 KV Bus-A in switchyard.

15 OIL CONSUMPTION :(In case of Auxiliary Boiler oil consumption of Aux. boiler should be provide separately) There is no Auxiliary Boiler.

BEFORE SYNCHRONIZATION : NA

AFTER SYNCHRONIZATION : NA

TOTAL : 37.5 KL

16 RECTIFICATION & THEIR RESPONSIBILITY

| OBSERVATION | RESPONSIBLE DIVISION | RECOMMENDATION (SHORT TERM /LONG TERM ) | ACTION PLAN WITH TARGET DATE TO IMPLEMENT THE RECOMMENDATIONS WITH CONSTRAINT IF ANY |
|---|---|---|---|
| Bursting of Lightening Arrester of Y-Phase of 132 KV Bus-A in switchyard. | EMD-II, BTPS | | All old LA(Lightening Arresters) must be replaced in phased manner. |

E, OG&Cnd., ATPS Convenor — EE, EMD-I, ATPS Member — EE, C&MD-II, ATPS Member — EE, BMD-I, ATPS Member

E, O&M, ATPS President

CE(O&M), ATPS, Anpara

# Restoration of 132 KV supply & charging of all elements on 132KV Bus was done as mentioned below:

| Sr no | Name of Element | Charging Time |
|---|---|---|
| 1 | ICT-I | 09:00 |
| 2 | ICT-III | 09:06 |
| 3 | ST-2 | 09:13 |
| 4 | ST-4 | 09:10 |
| 5 | CW-1 | 09:21 |
| 6 | CS-1 | 09:16 |
| 7 | Anpara-Pipri ckt-I | 19:14 |
| 8 | ICT-II | 09:04 |
| 9 | ST-I | 09:07 |
| 10 | ST-3 | 09:09 |
| 11 | CW-2 | 09:25 |
| 12 | CW-3 | 09:23 |
| 13 | CS2 | 12:03 |
| 14 | Anpara-Pipri-II CKT | 19:15 |
| 15 | Anpara-Bina Line | 09:19 |

**Action for Restoration:**

- 132KV BUS-B charged isolating faulty BUS-A section. BUS-A charged after replacing damaged LA.

**Future Action Plan :**

- Erection Work of new numerical Busbar scheme has been completed & M/s GE have been requested to deploy the commissioning team at the earliest. Expected schedule is April 2026. Commissioning work will be completed within three months.
- All LAs more than 10 years old will be replaced in a phase manner. Requirement has been processed.
- Electromechanical Relay of BUS Coupler will be changed with new numerical relay. Replacement is expected in first week of April 2026.

# Multiple elements tripping at 400kV Uri-I & Uri-II, 400/220kV Amargarh(INDIGRID) and Sambha(PG) at 15:22 hrs on 24.01.2026

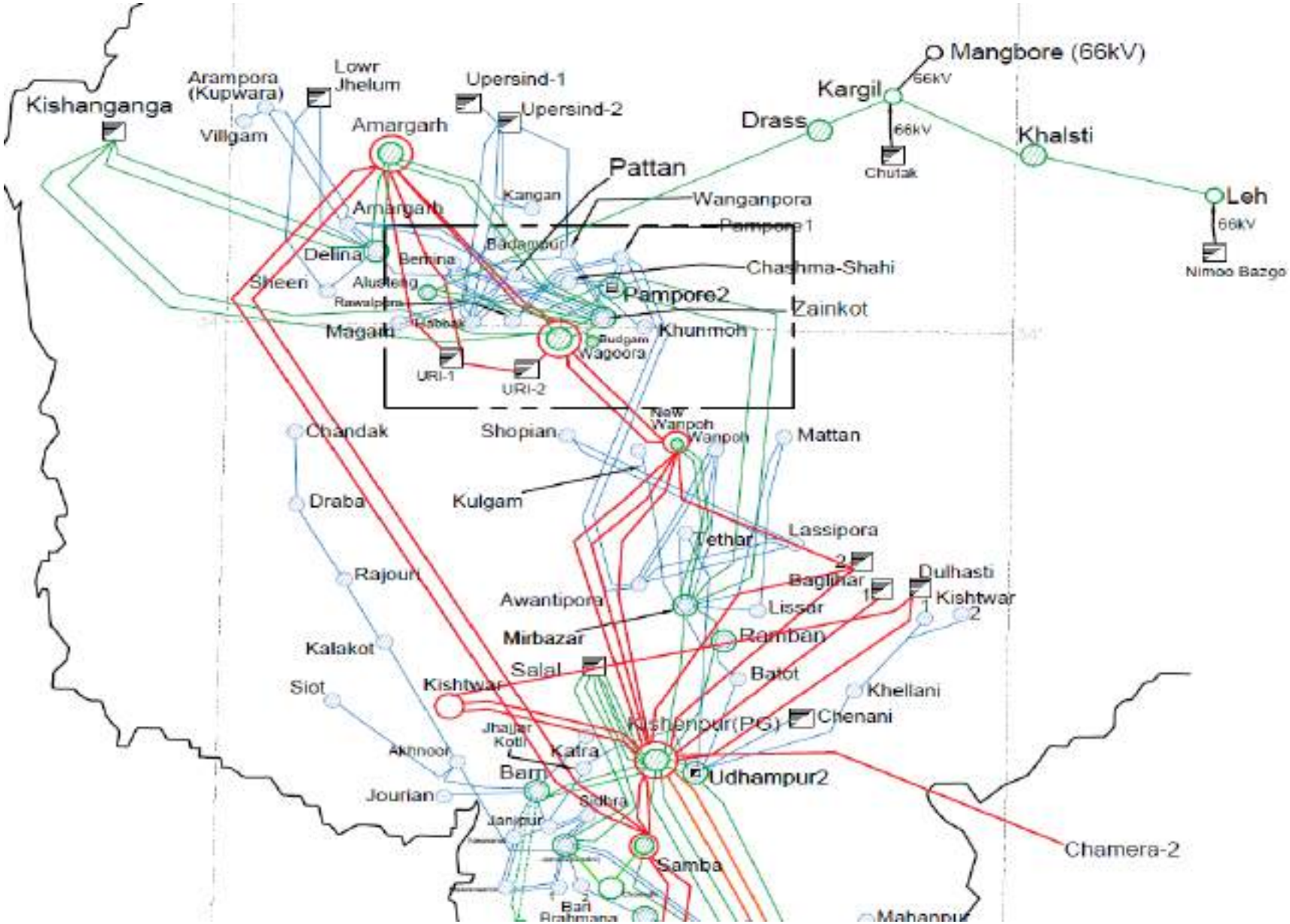
# Tripped Elements

| S. No | Name of Elements | Outage Time | Revival Time | Reason of tripping |
|---|---|---|---|---|
| 1. | 400 KV Amargarh (INDIGRID)-Samba(PG) (INDIGRID) Ckt-1 | 15:22 hrs | 16:12 hrs | During charging of 400kV Uri-I-Amargarh line-II, B-N phase to earth fault occurred on the line. 400kV Amargarh-Sambha D/C tripped in Z-2. |
| 2. | 400 KV Amargarh (INDIGRID)-Samba(PG) (INDIGRID) Ckt-2 | | 16:22 hrs | |
| 3. | 120 MW Unit-1 at Uri-I HEP(NHPC) | | 20:23 hrs | Tripped due to loss of evacuation path |
| 4. | 120 MW Unit-3 at Uri-I HEP(NHPC) | | 19:56 hrs | |
| 5. | 60 MW Unit-3 at Uri-II HEP(NHPC) | | 07:57 hrs, 25.01.2026 | |

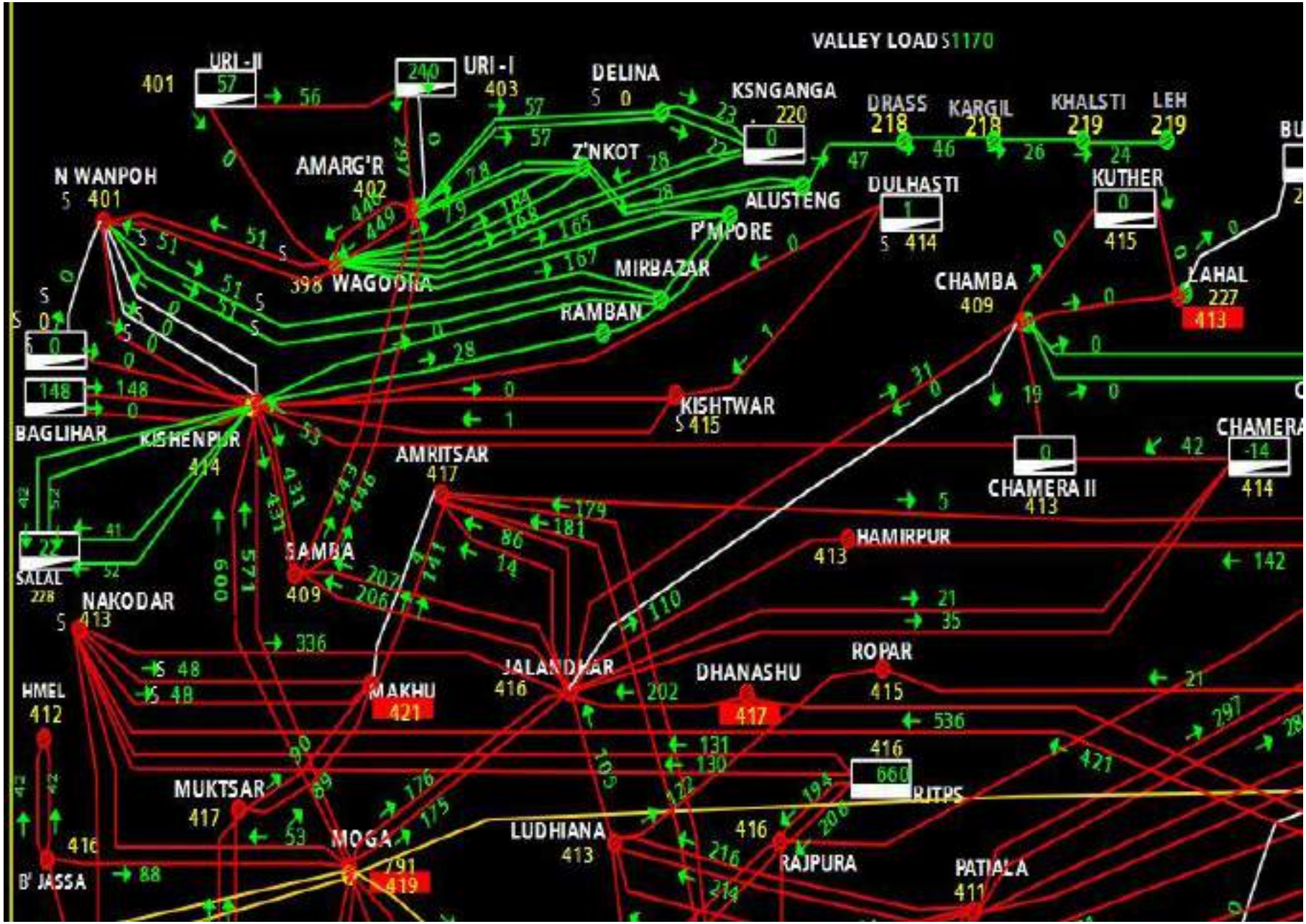
# Brief details of the event

- During antecedent condition, Kashmir valley and Leh network (220kV Zainkote, Alusteng, Pampore, Delina, Kishenganga, Drass, Kargil, khalasti and 220kV Leh) were being fed from 400kV Uri-I HEP, 400kV Uri-II HEP through 400kV Uri-I-Amargarh ckt-1 and 400kV Sambha-Amargarh D/C. 400 kV Uri-2 (NH) – Wagoora (PG) (PG) Ckt-1, 400kV Uri-I-Amargarh ckt-2, 400 kV Kishenpur – New Wanpoh (PG) Ckt-1, 3 & 4, 400 kV Baglihar (JK) – Kishenpur (PG) Ckt-3 and 400 kV New Wanpoh (PG) – Baglihar (JK) Ckt-1 were already under tripped condition. The aforementioned lines tripped on faults during heavy snowfall.
- As reported, at 15:22 hrs, charging attempt of 400kV Uri-I-Amargarh ckt-2 was taken from Amargarh end. At the same time, B-N fault occurred on the line. During patrolling, it was found that OPGW fell on B-ph conductor. On this fault, SOTF protection at Amargarh end didn't operate.
- As fault didn't clear from Amargarh end, 400kV Sambha-Amargarh D/C tripped from Sambha(PG) end. As per DR of Sambha(PG) end, B-N fault in Z-2 with fault current of ~1.37kA is observed in each circuit.
- As per PMU at Kishenpur(PG) and DR files of Sambha(PG), B-N fault with delayed clearance of ~560 msec is observed.
- As per SCADA, change in demand of ~1180 MW is observed in J&K control area out of which ~1135 MW change in load is observed in Kashmir Valley Region.
- 400 kV Samba–Amargarh D/C were restored by 16:22 hrs and 200 MW load was picked up to manage the load of the Srinagar. Further, 400 kV Amargarh-Wagoora D/C, 400 kV Wagoora–New Wanpoh D/C and ICTs at Wagoora(PG) charged. Subsequently load of Kashmir Valley and Leh was restored by charging 220 kV Ziankote-Alustang-Drass-Kargil-Khalsti- Leh.

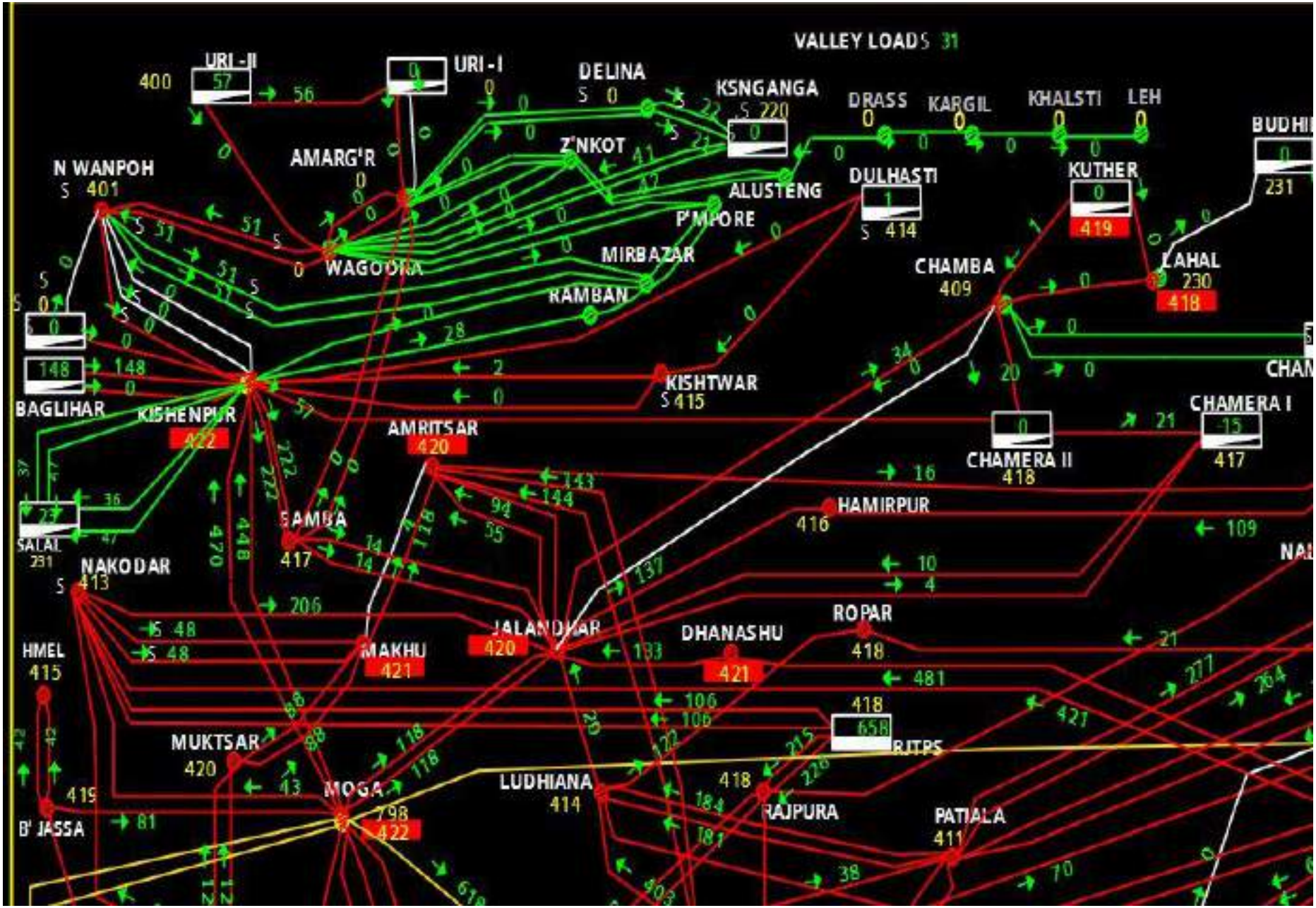
# Network Diagram



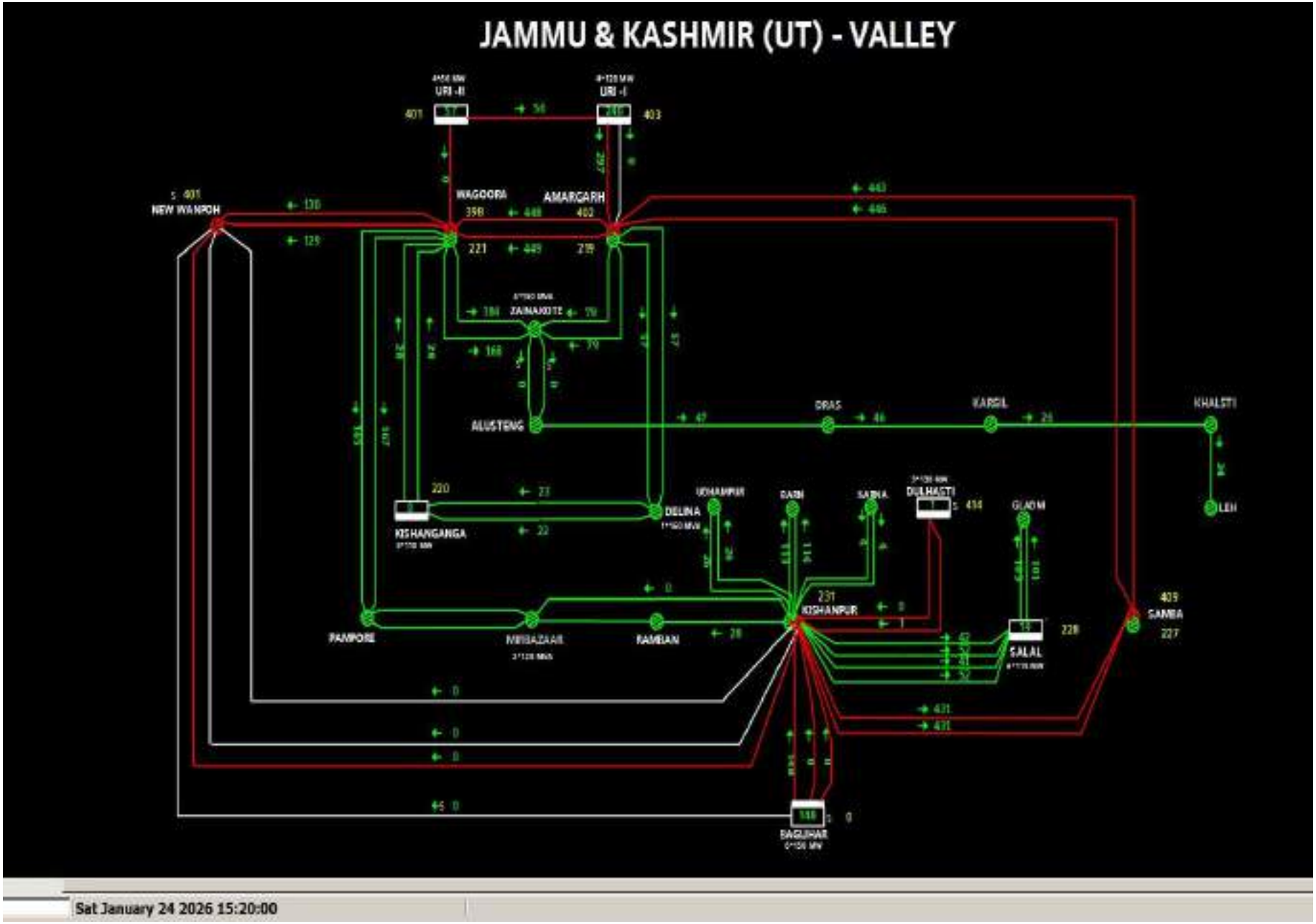
# Network Diagram before the event



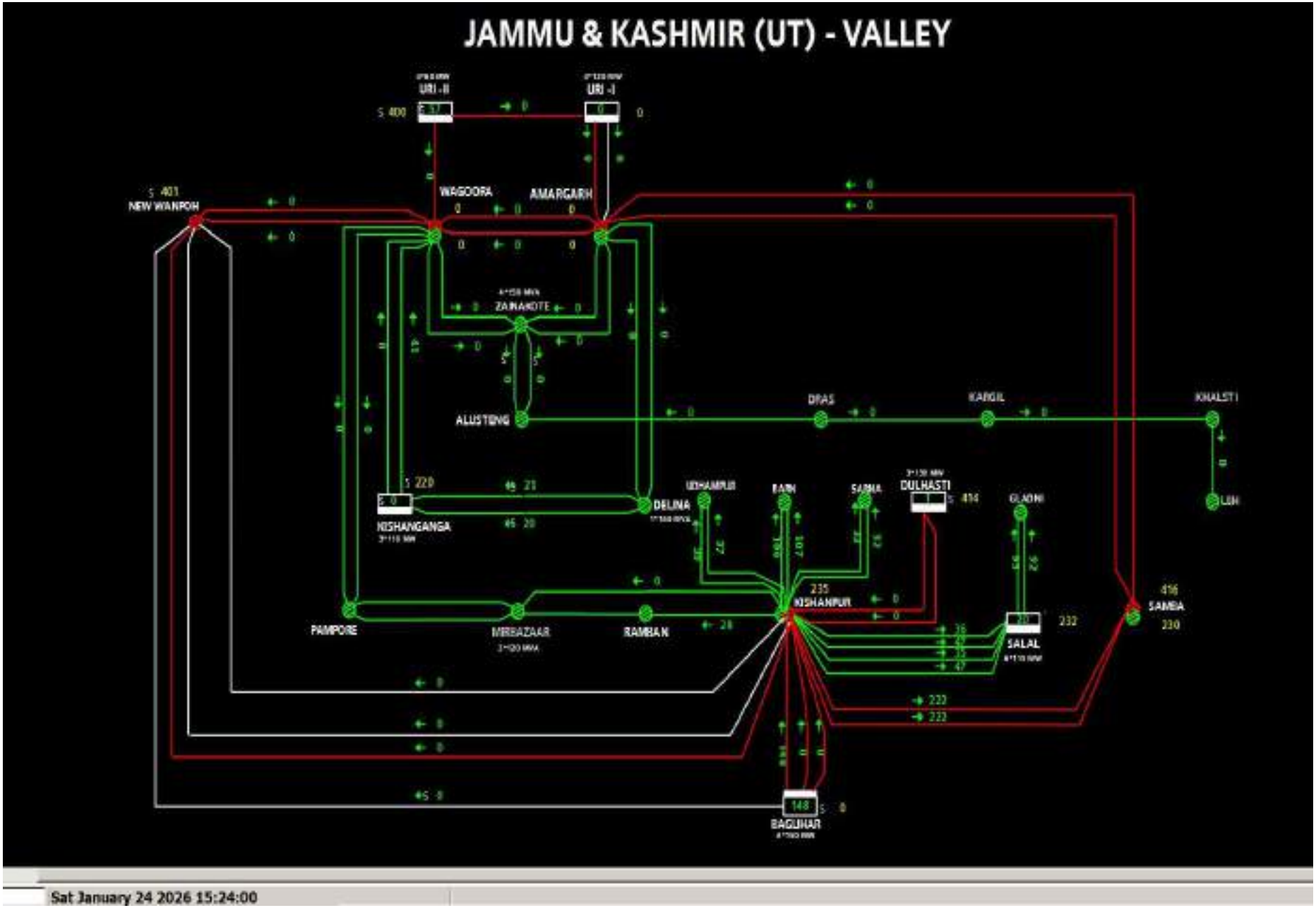
# Network Diagram after the event



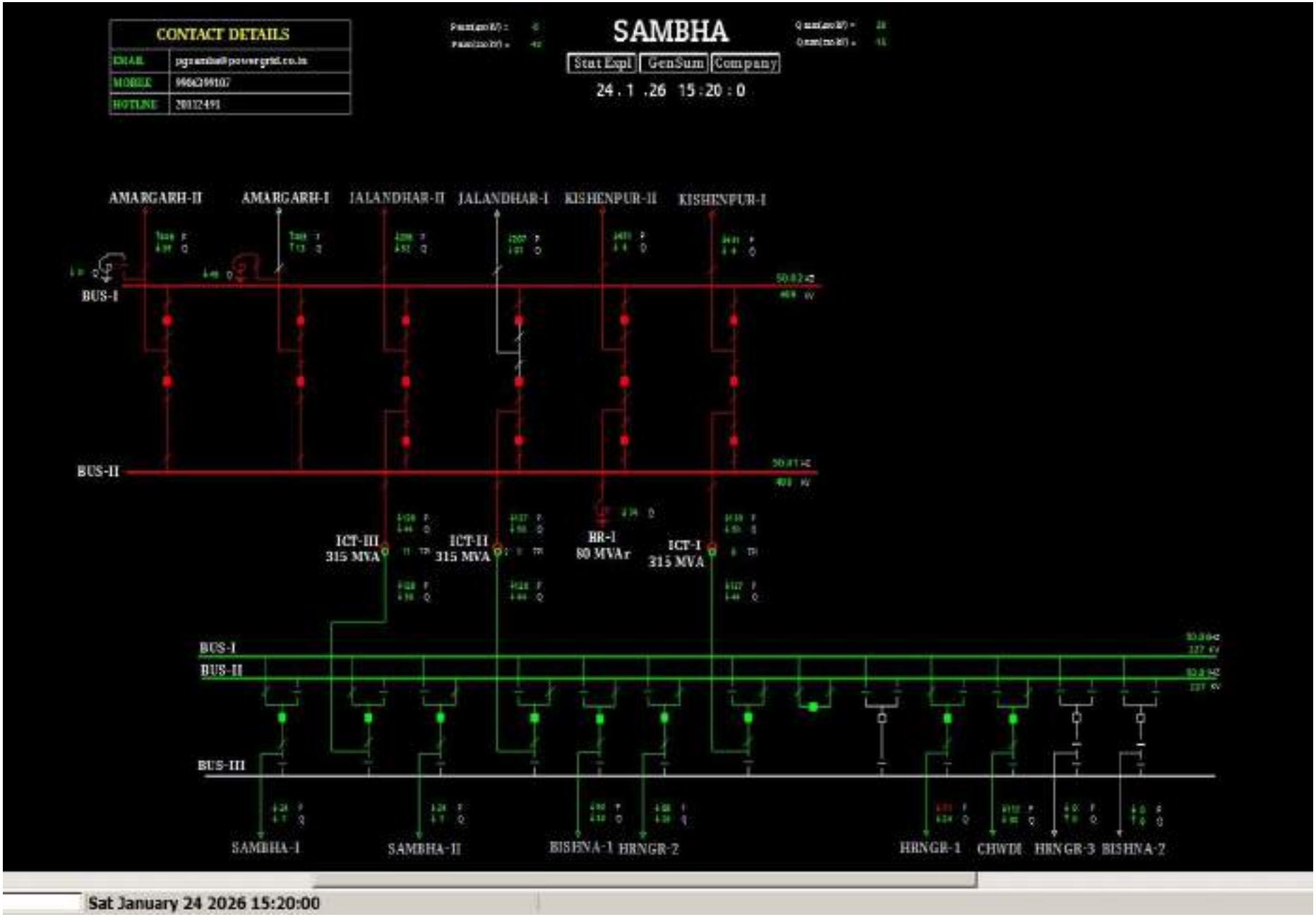
# J&K Valley Network Diagram before the event



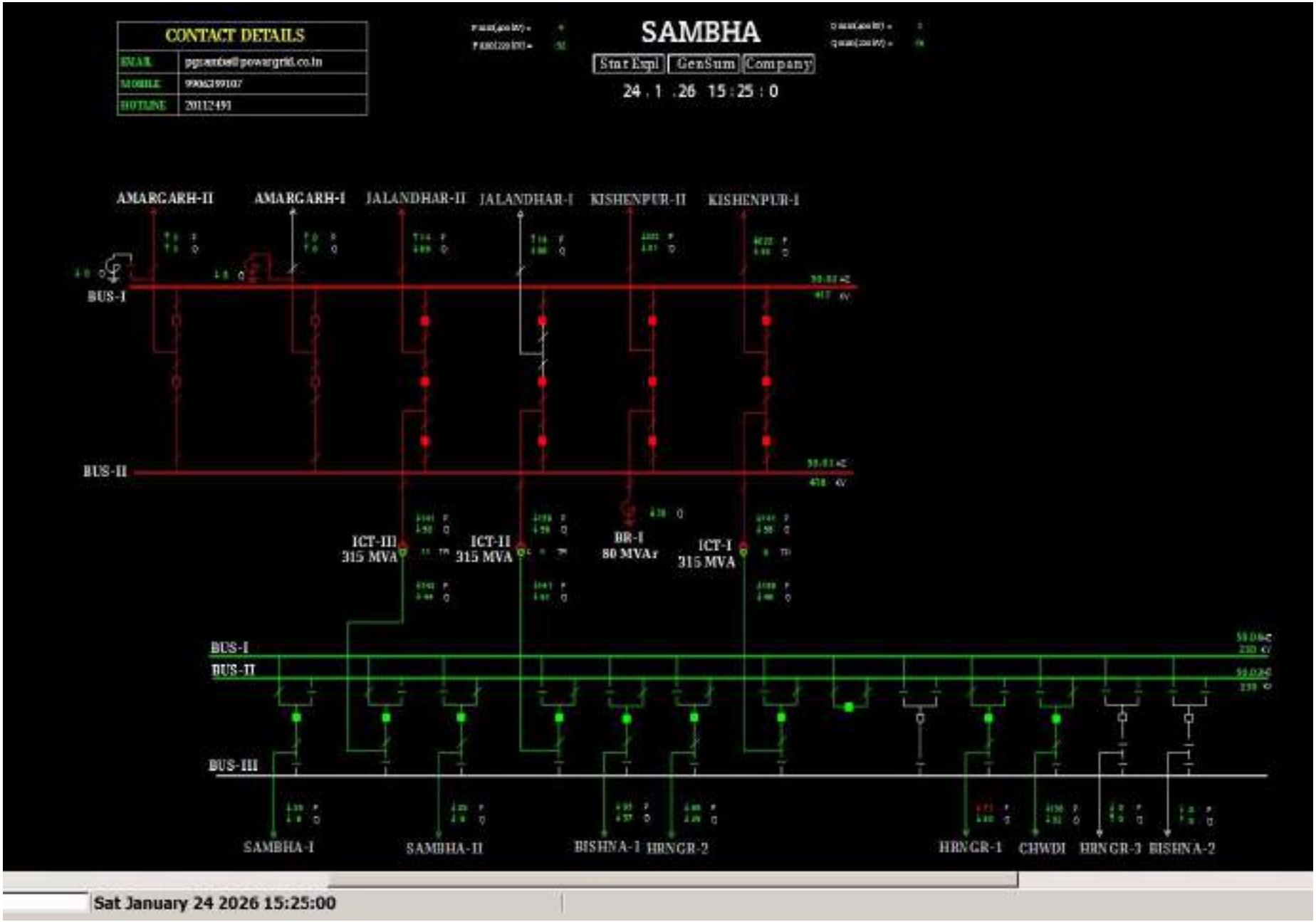
# J&K Valley Network Diagram after the event



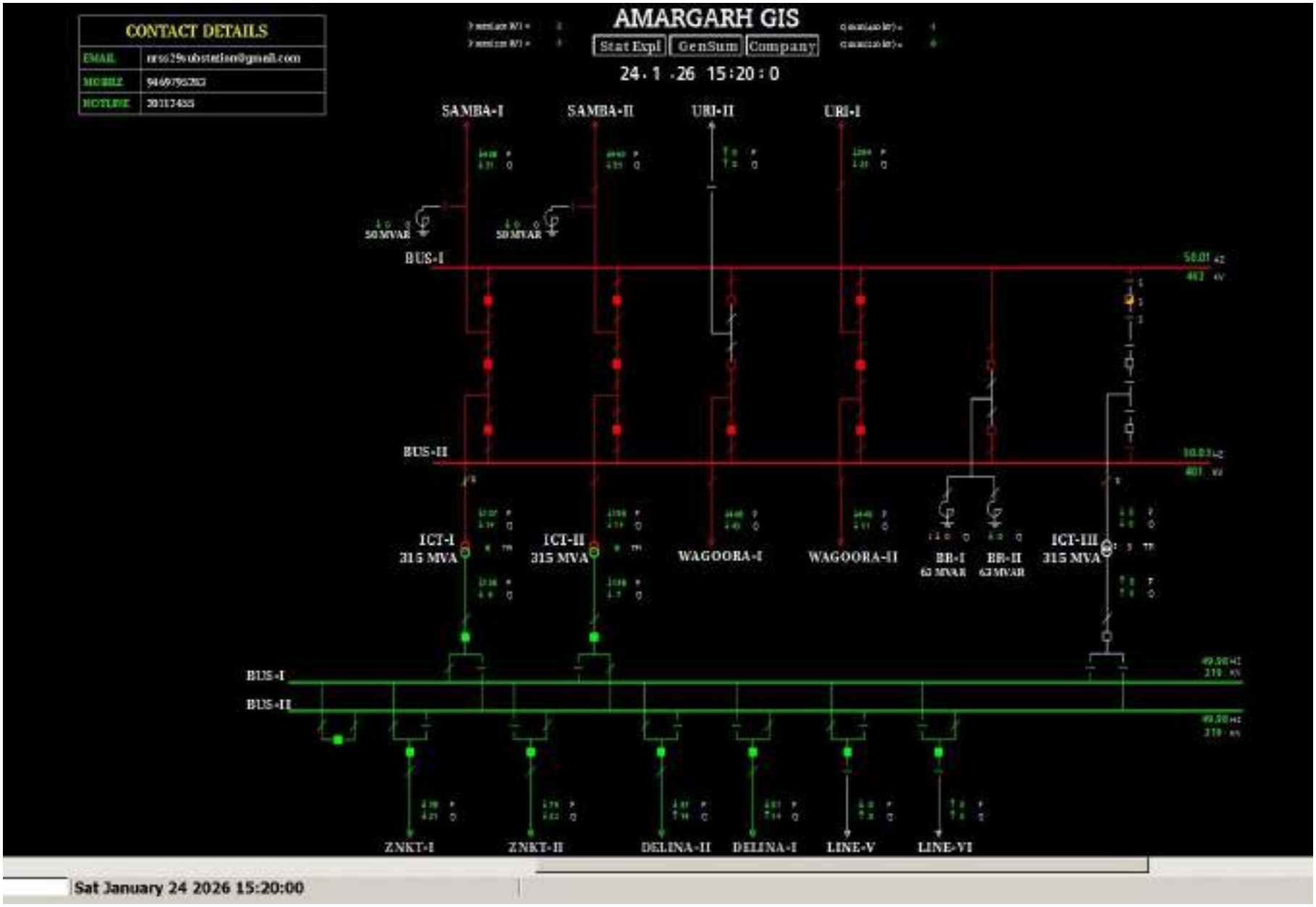
# SLD of 400/220kV Sambha(PG) before the event



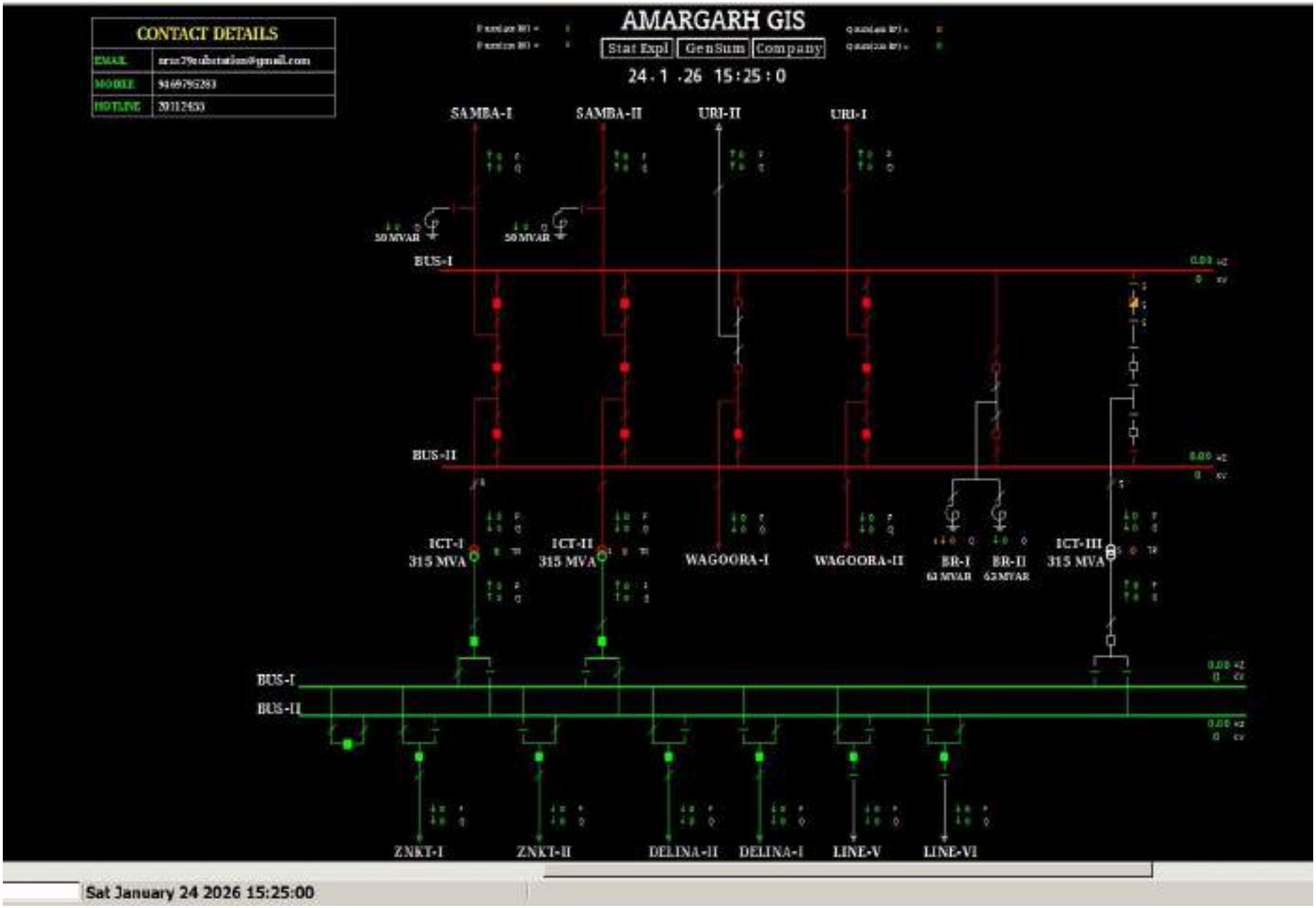
# SLD of 400/220kV Sambha(PG) after the event



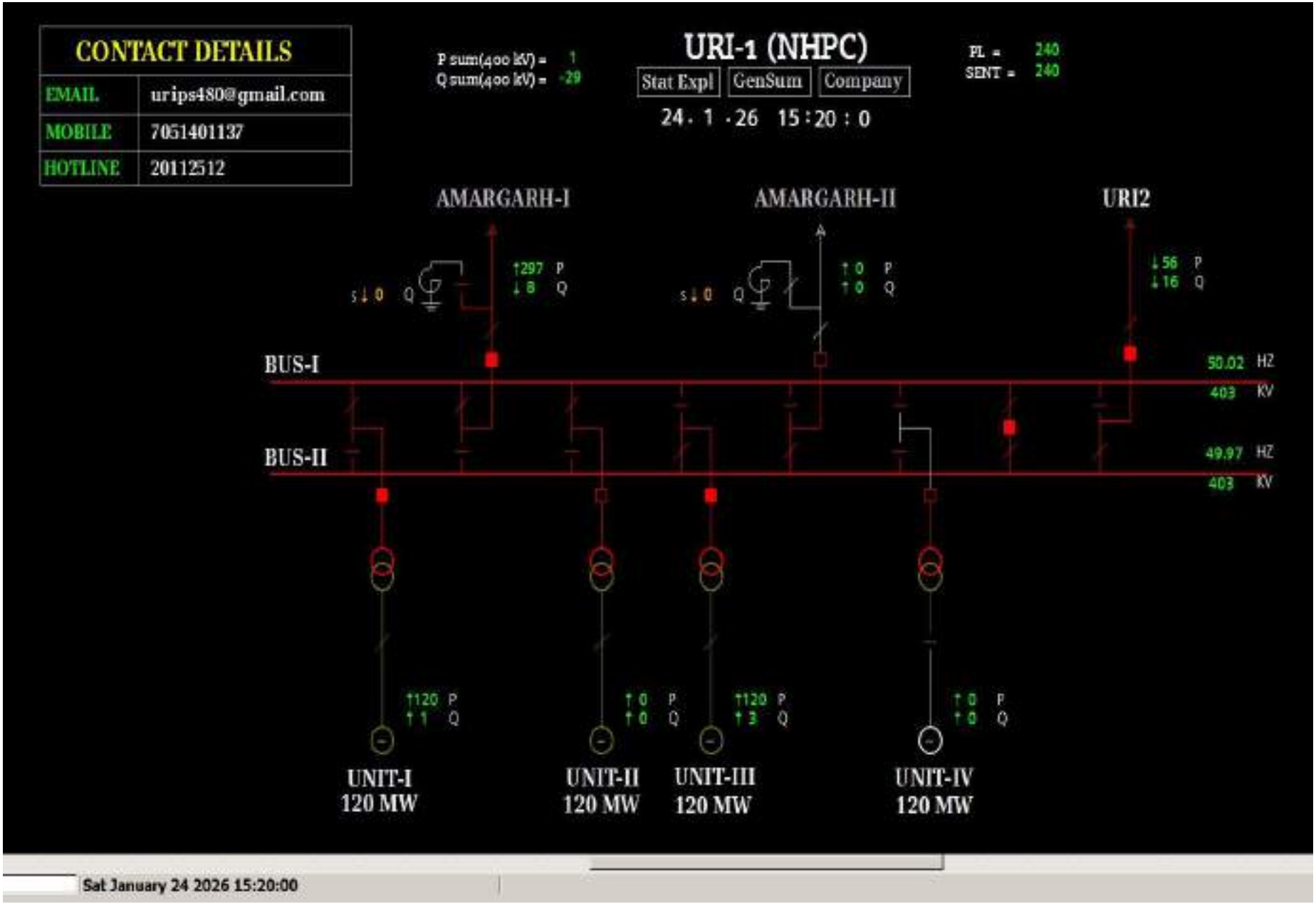
# SLD of 400/220kV Amargarh(INDIGRID) before the event



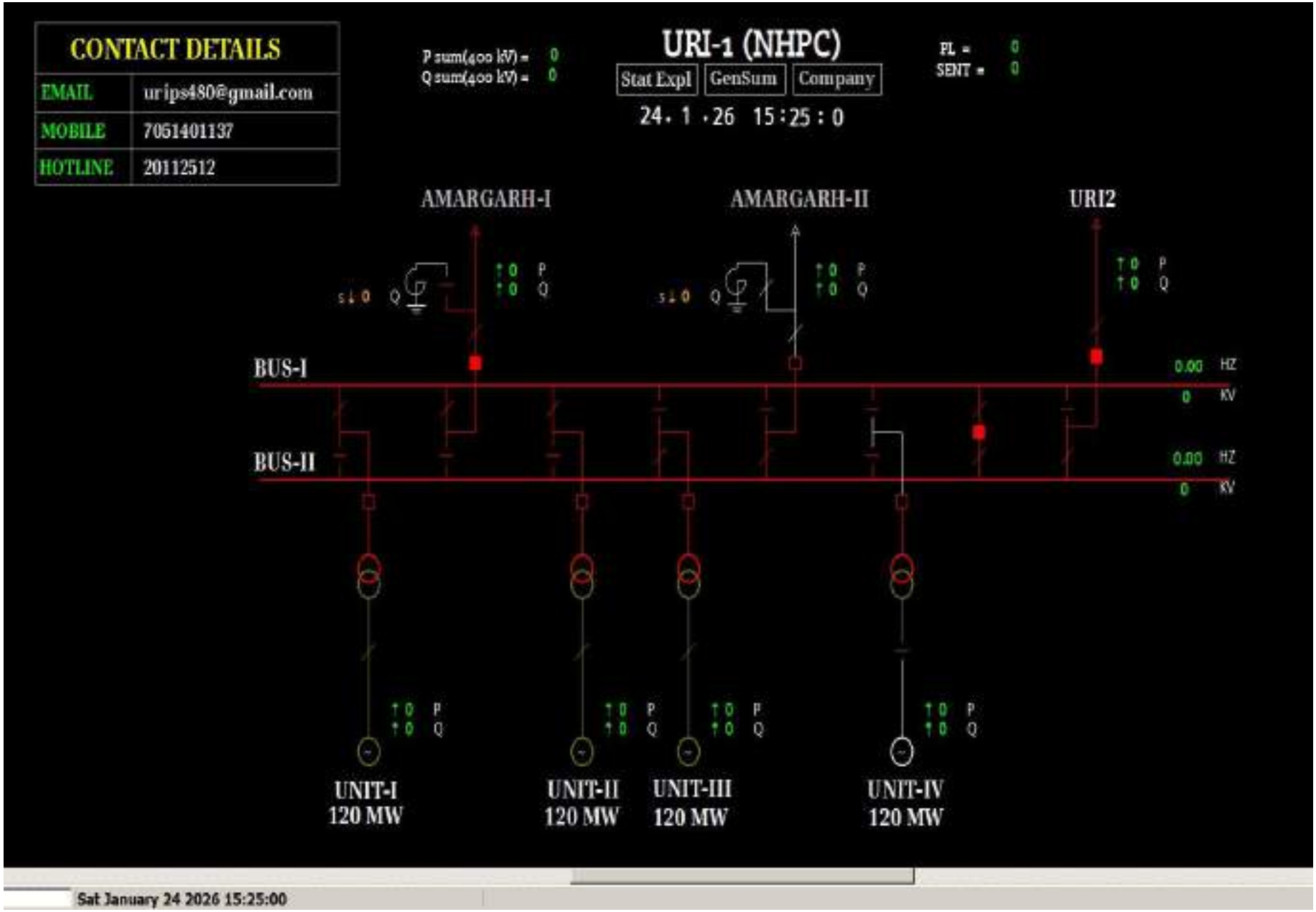
# SLD of 400/220kV Amargarh(INDIGRID) after the event



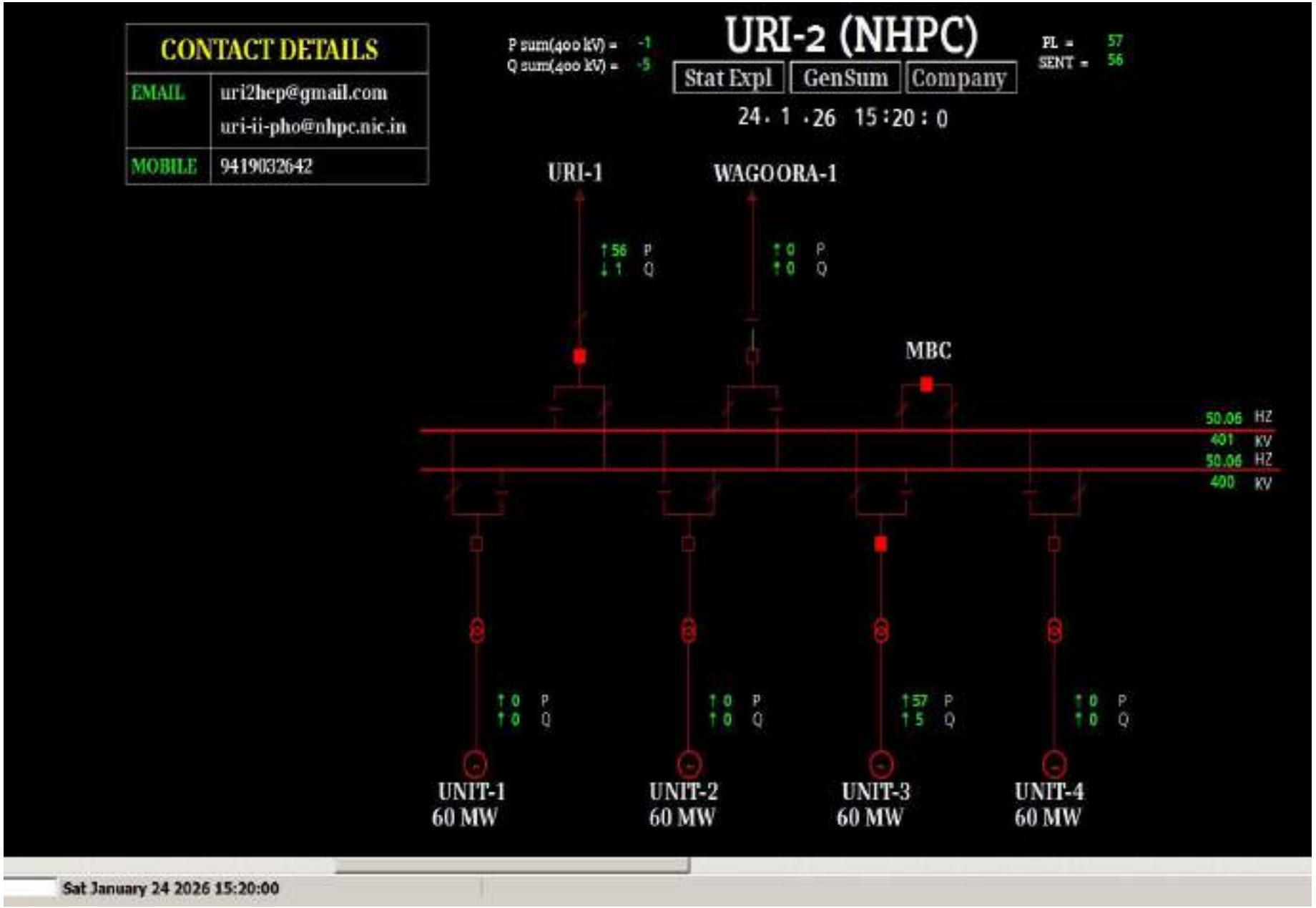
# SLD of 400kV Uri-1 HEP before the event



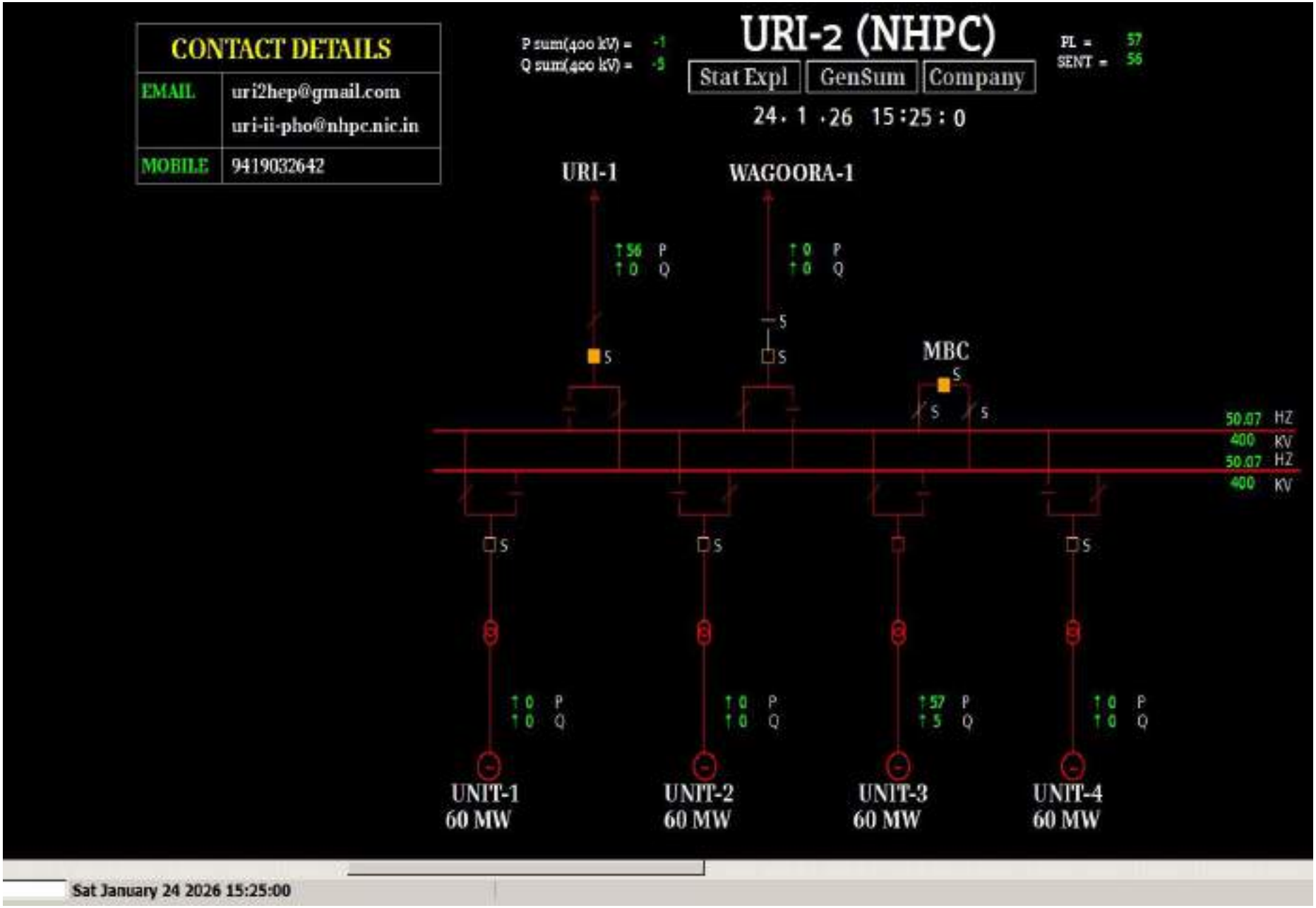
# SLD of 400kV Uri-1 HEP after the event



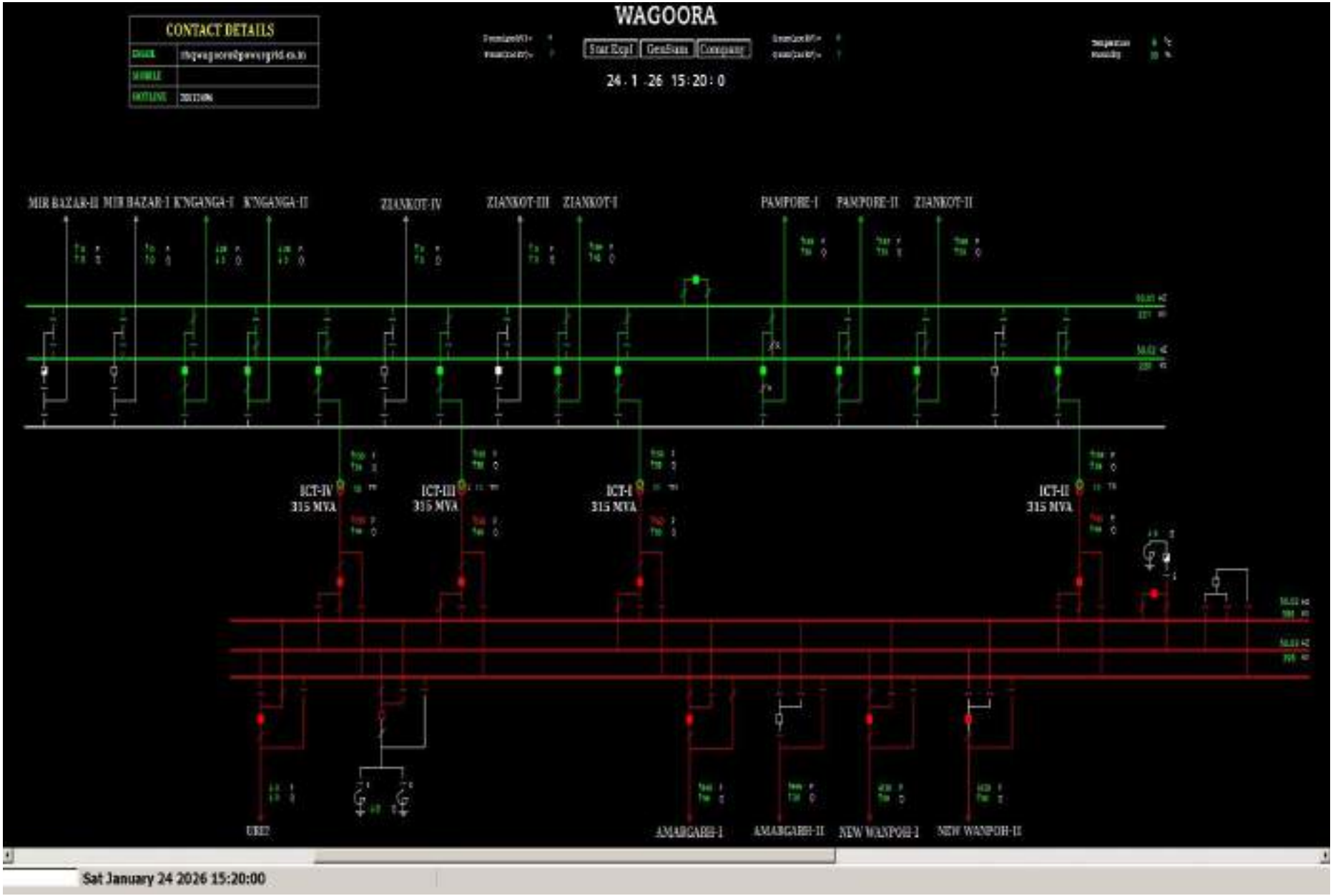
# SLD of 400kV Uri-2 HEP before the event



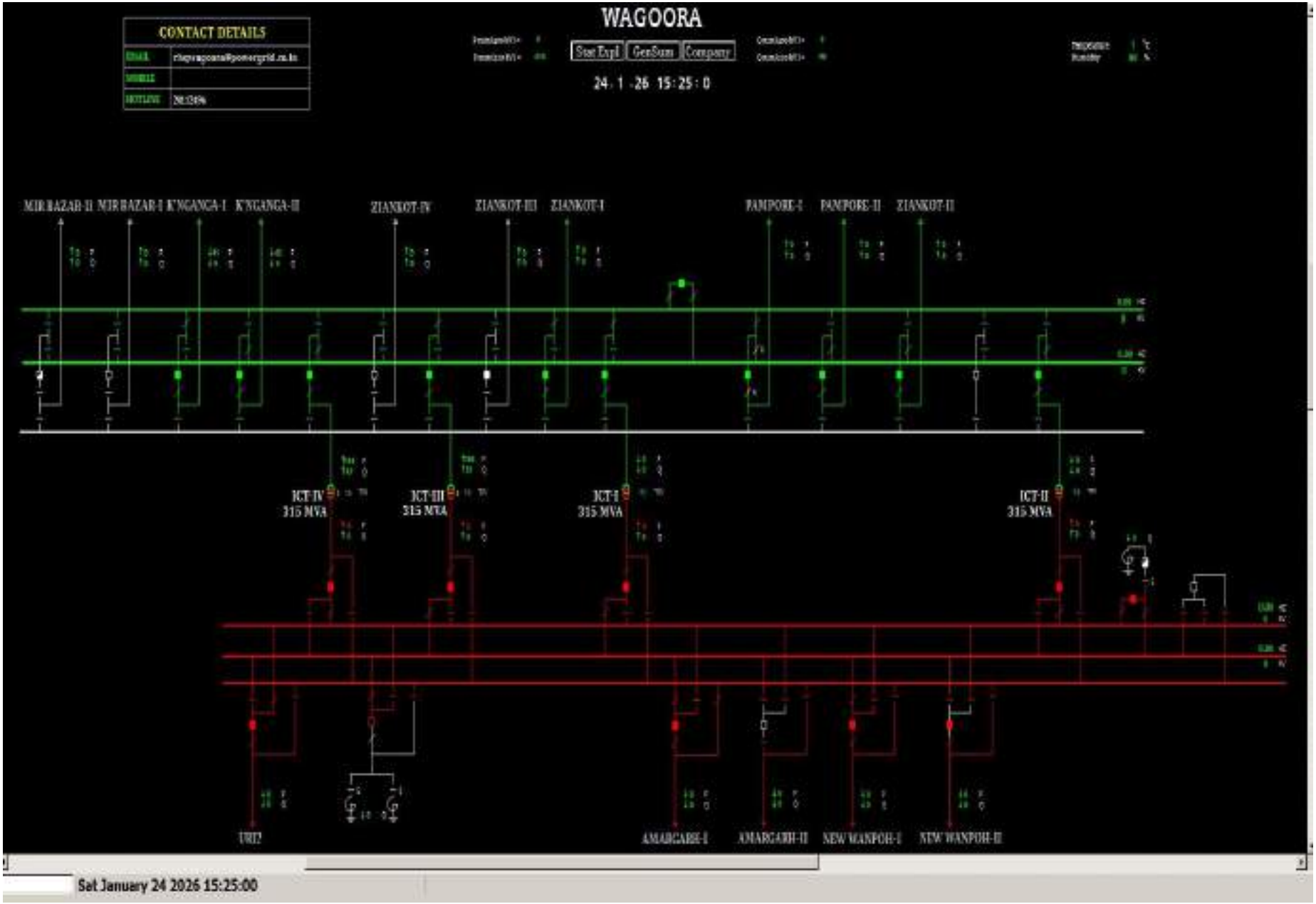
# SLD of 400kV Uri-2 HEP after the event



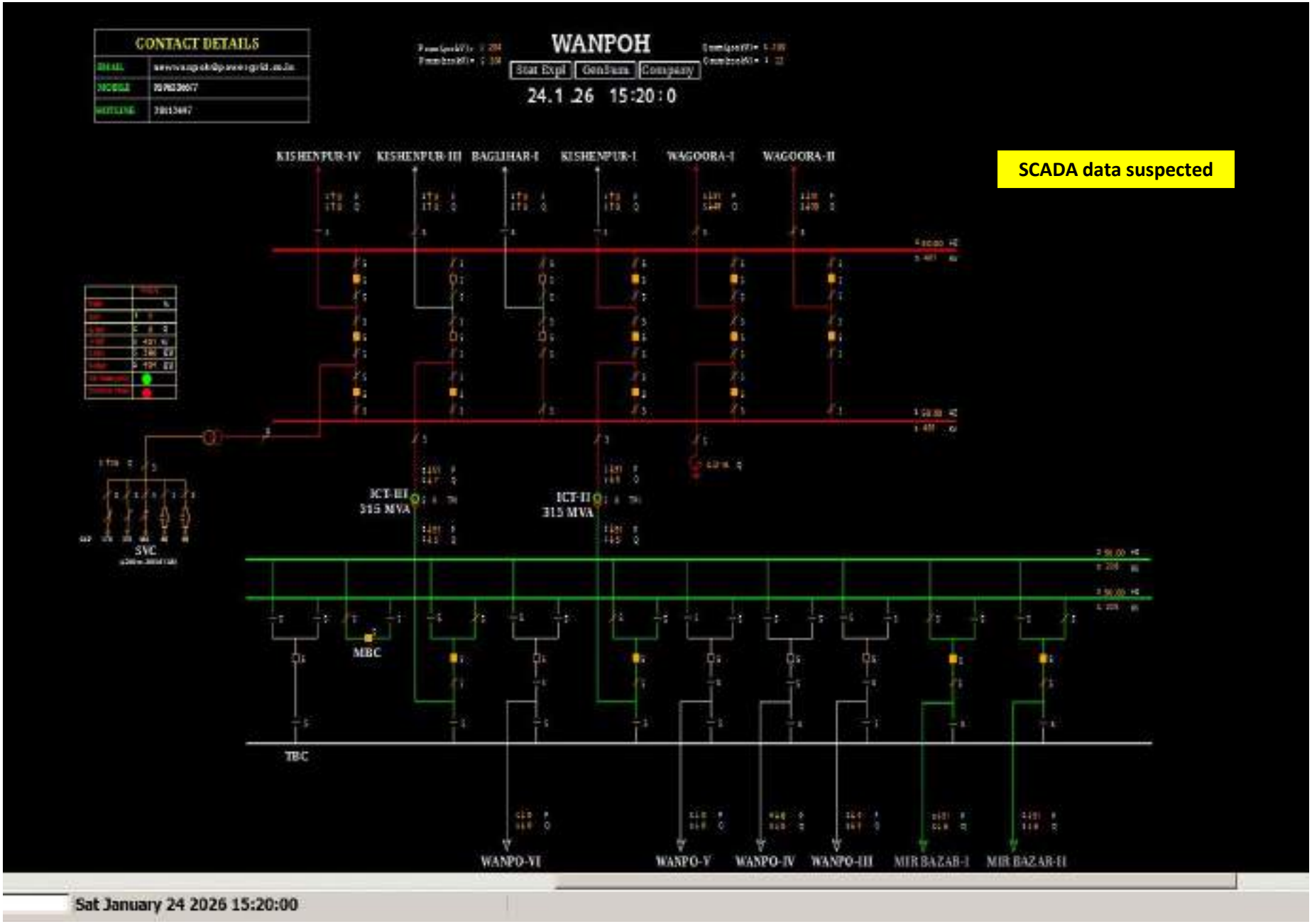
# SLD of 400/220kV Wagoora(PG) before the event



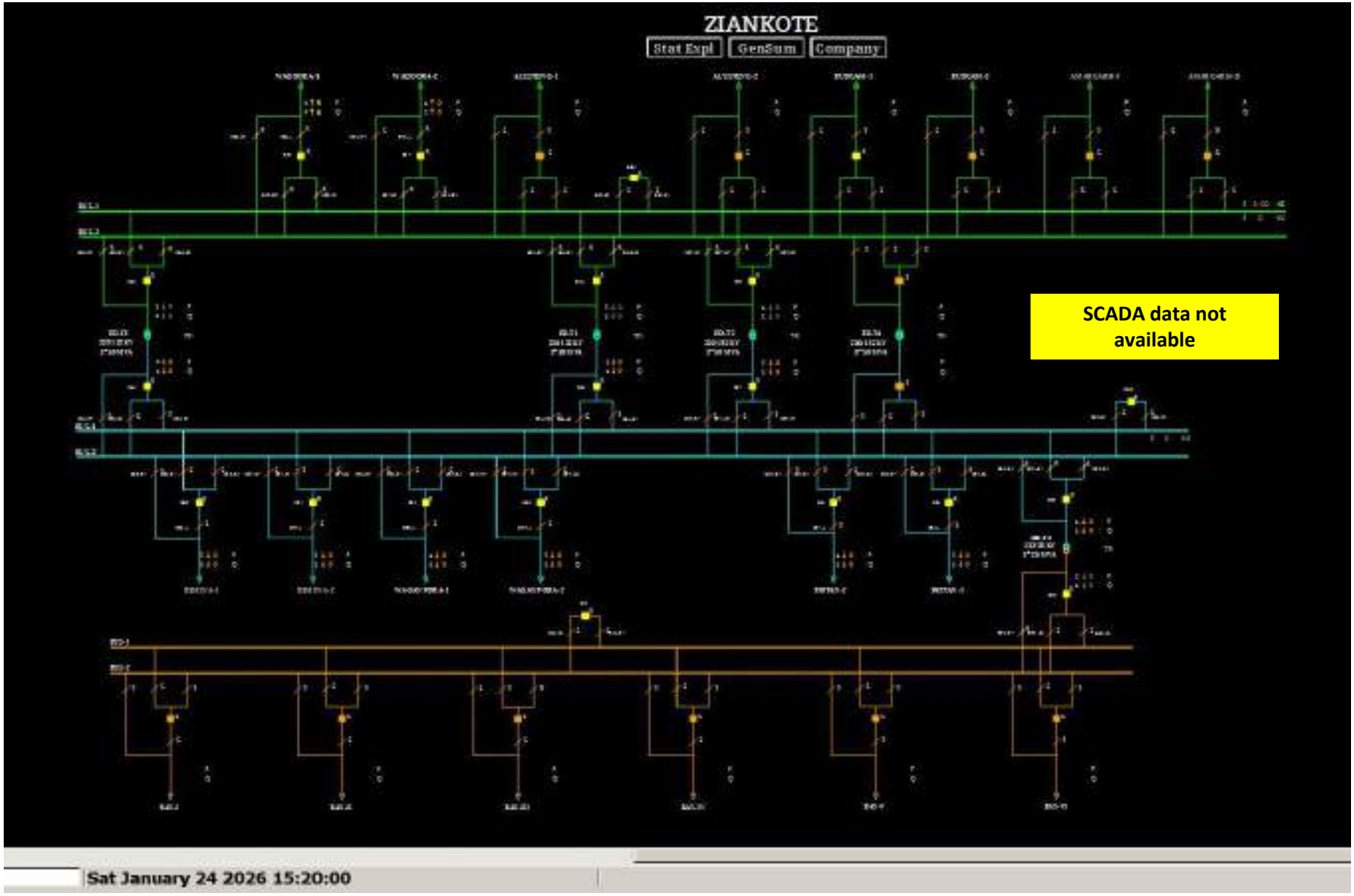
# SLD of 400/220kV Wagoora(PG) after the event



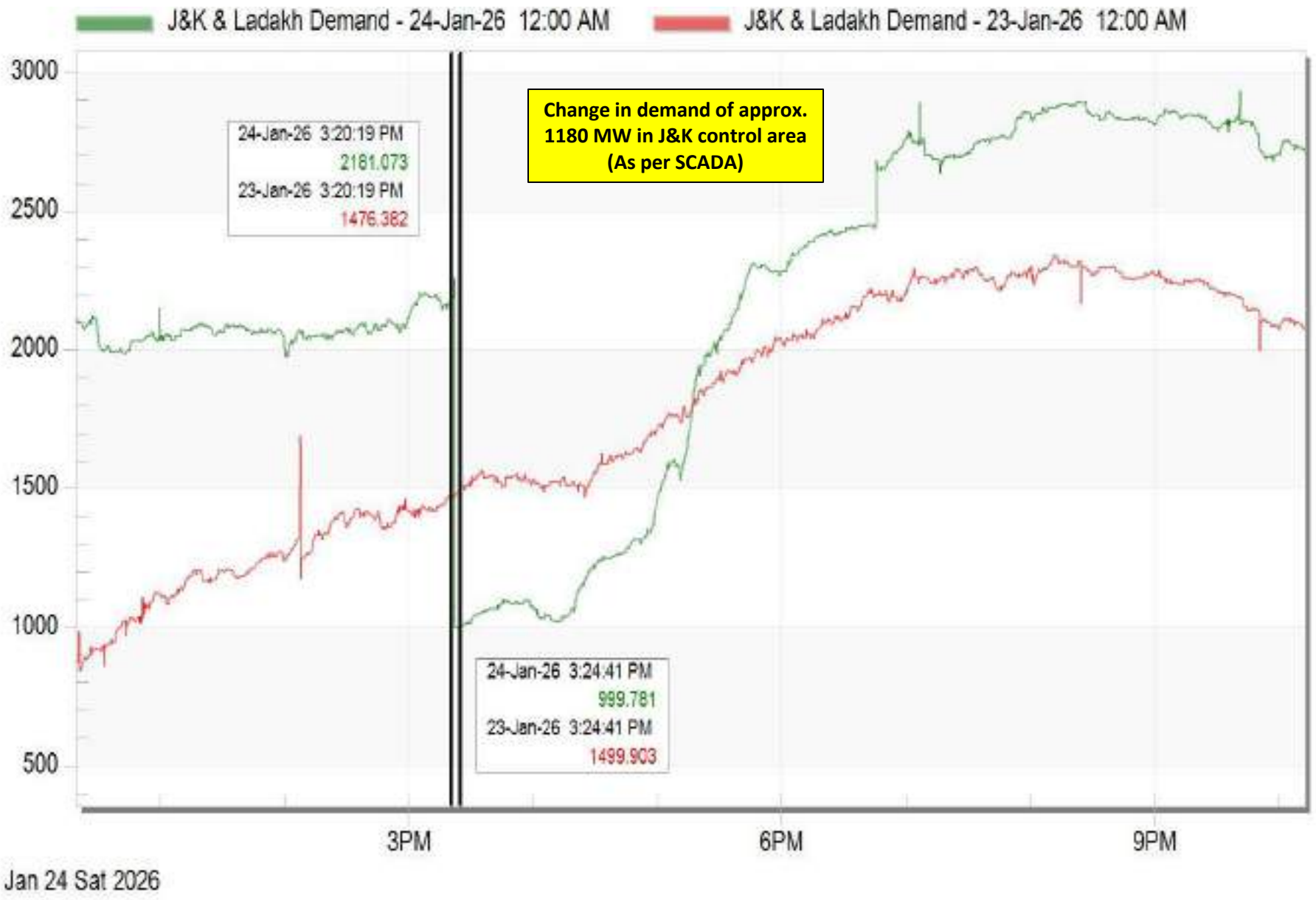
# SLD of 400/220kV New Wanpoh(PG) before the event



# SLD of 220/132kV Ziankote(J&K) before the event



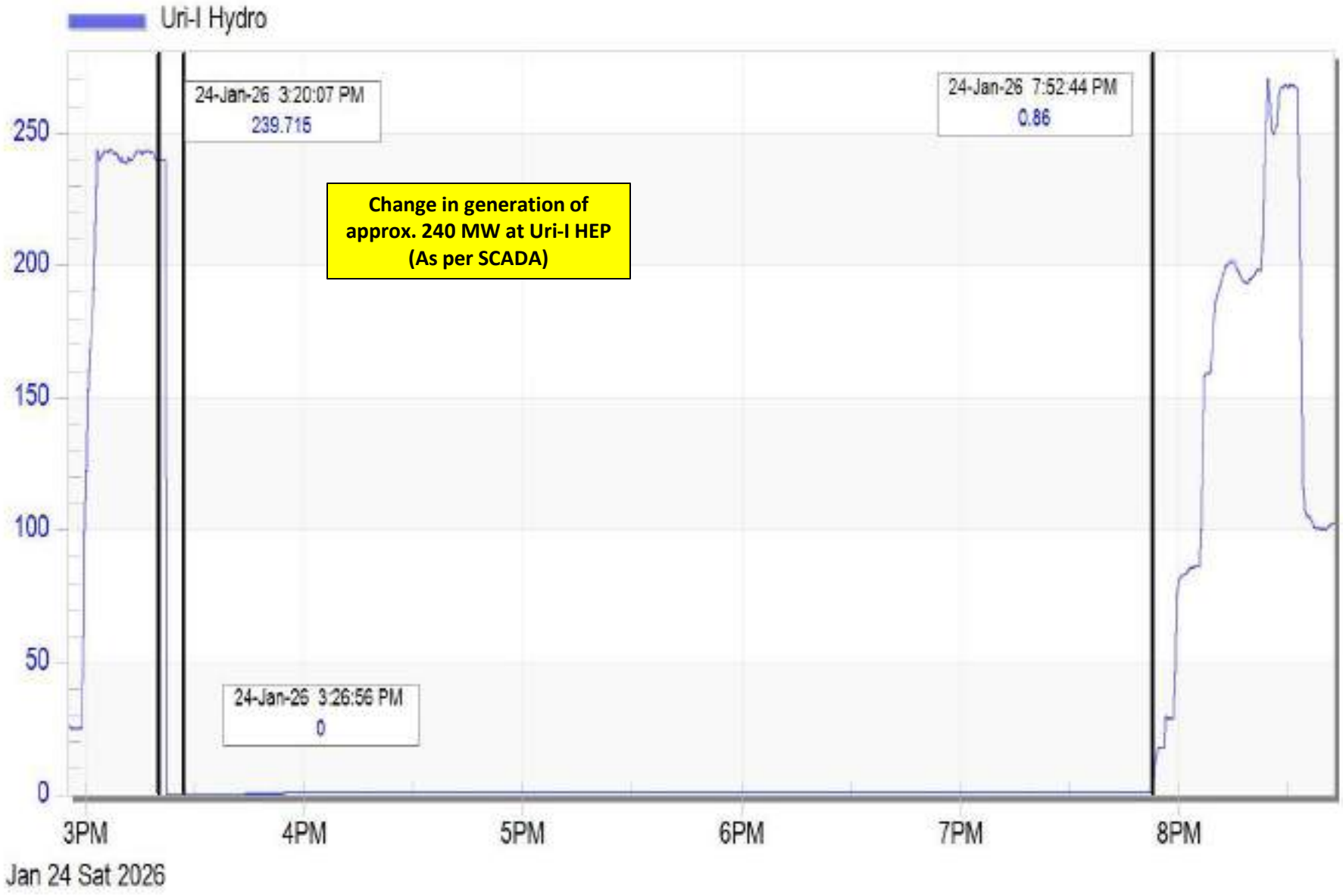
# J&K demand during the event



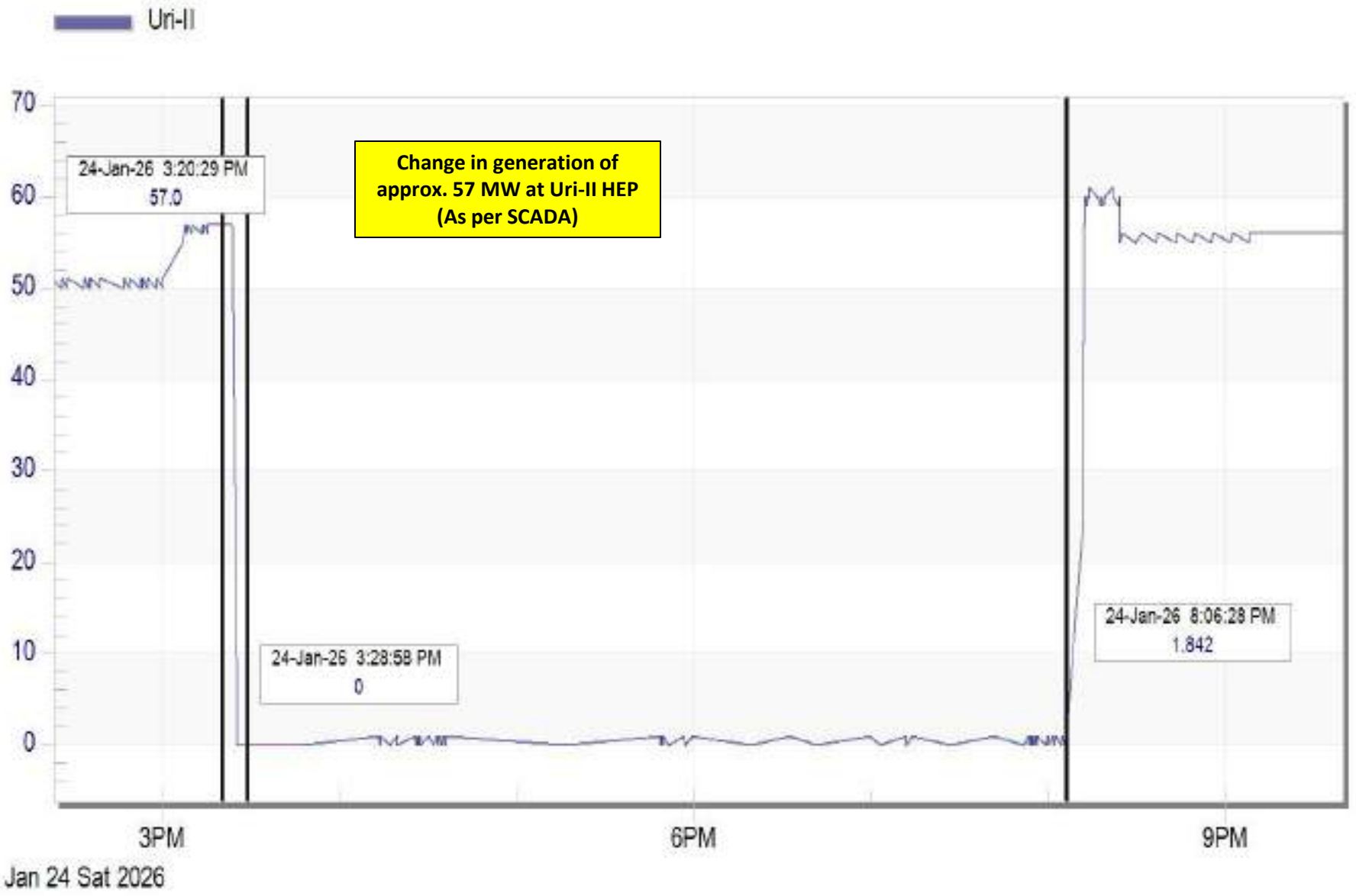
# Kashmir Valley demand during the event



# Uri-I HEP generation during the event



# Uri-II HEP generation during the event



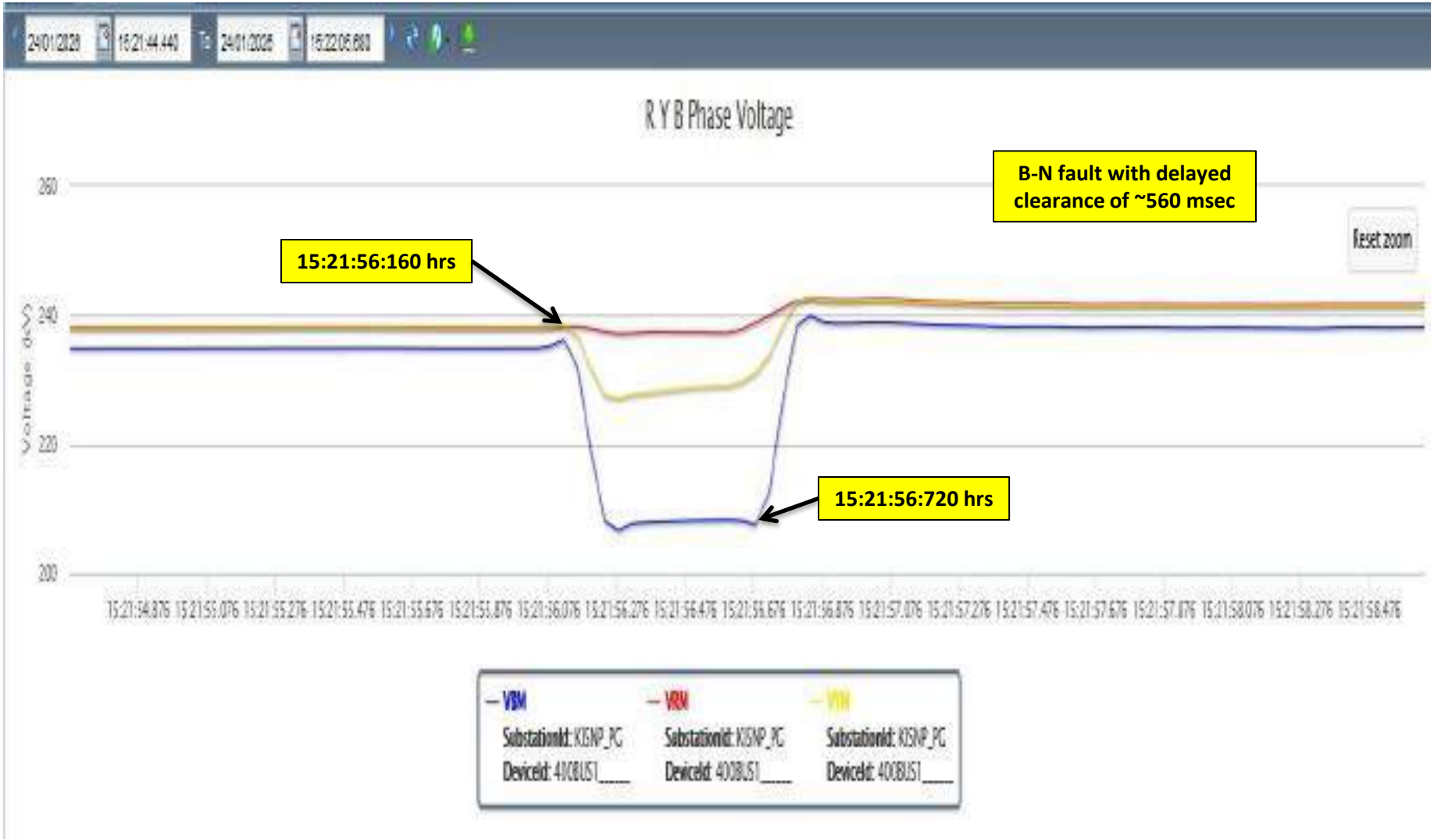
# PMU Plot of frequency at Kishenpur(PG)

## 15:22hrs/24-Jan-26



# PMU Plot of phase voltage magnitude at Kishenpur(PG)

## 15:22hrs/24-Jan-26

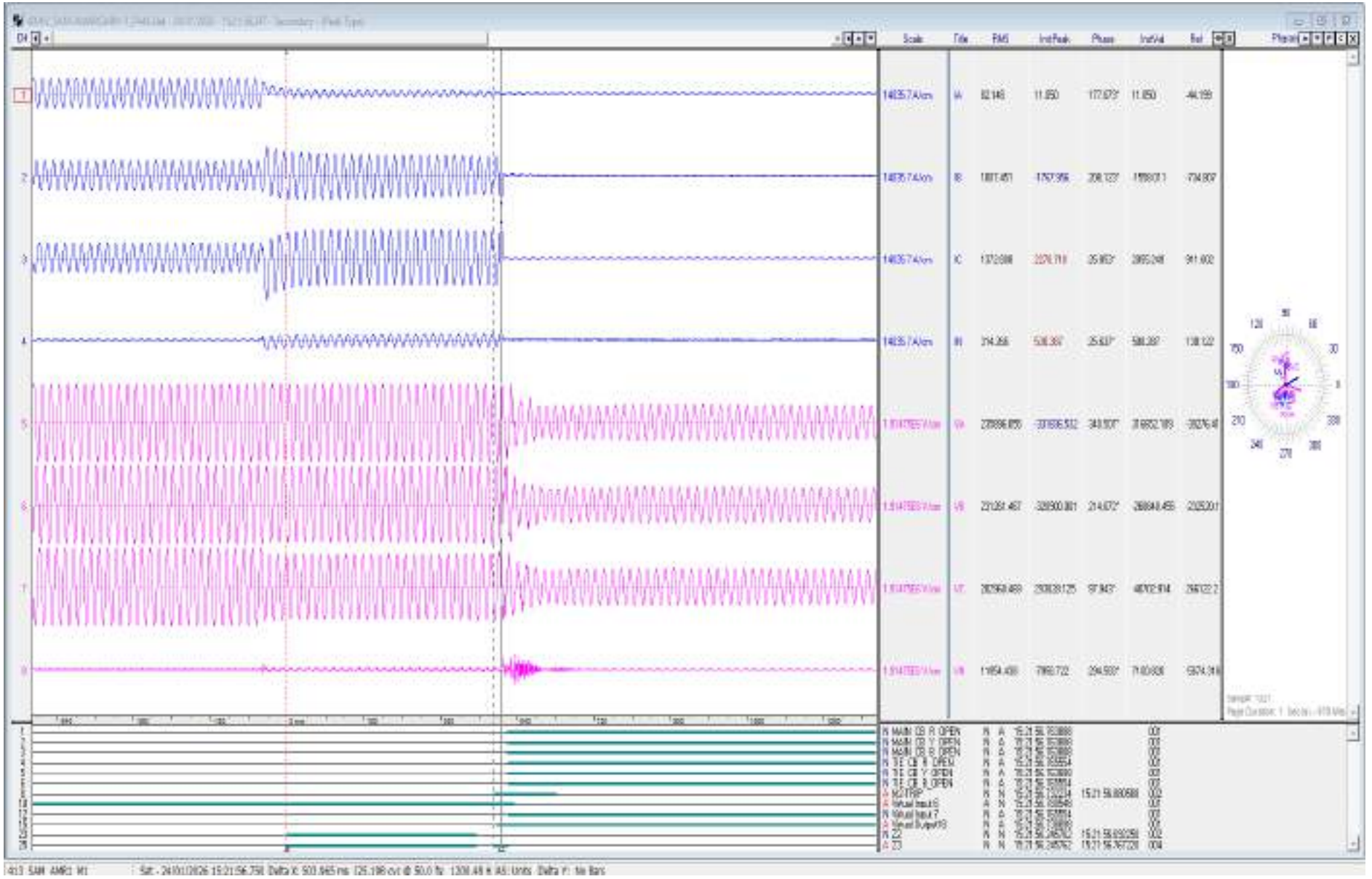


# PMU Plot of phase voltage magnitude at Amargarh(INDIGRID)

## 15:22hrs/24-Jan-26

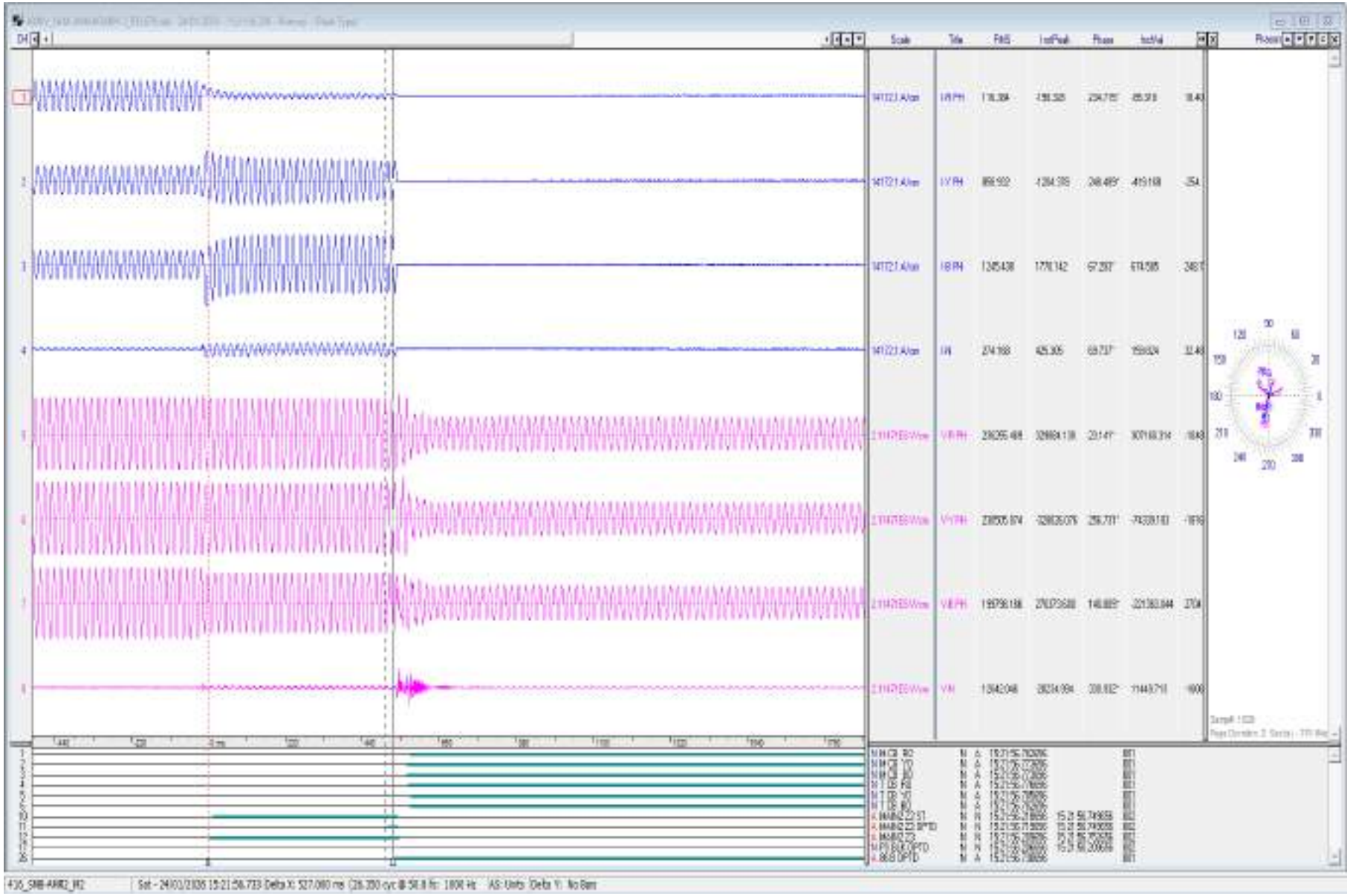


# DR of 400kV Sambha(end)-Amargarh line-I



B-N fault, Ib=1.372kA, Z-2 from Sambha end, Fault clearance time:~500 msec

# DR of 400kV Sambha(end)-Amargarh line-II



B-N fault, Ib=1.245kA, Z-2 from Sambha end, Fault clearance time:~540 msec

# SCADA SOE

| Time | Station Name | Voltage | Element name | Element Type | Element Status | Remarks |
|---|---|---|---|---|---|---|
| 15:21:56,753 | SAMBHA | 400kV | 16AMRGR2 | Circuit Breaker | Open | Main CB at Sambha end of 400kV Sambha-Amargarh line-II opened |
| 15:21:56,756 | SAMBHA | 400kV | 17AR2T4 | Circuit Breaker | Open | Tie CB at Sambha end of 400kV Sambha-Amargarh line-II opened |
| 15:21:56,759 | SAMBHA | 400kV | 14AR1BR2 | Circuit Breaker | Open | Tie CB at Sambha end of 400kV Sambha-Amargarh line-I opened |
| 15:21:56,771 | SAMBHA | 400kV | 13AMRGR1 | Circuit Breaker | Open | Main CB at Sambha end of 400kV Sambha-Amargarh line-I opened |
| 15:21:56 *** | URI | 400kV | 05G3 | Circuit Breaker | Open | CB of 120 MW Unit-3 at Uri-I opened |
| 15:22:00 *** | URI | 400kV | 03G1 | Circuit Breaker | Open | CB of 120 MW Unit-1 at Uri-I opened |
| 15:22:00 | URI | 400kV | 03G3 | Circuit Breaker | Open | CB of 60 MW Unit-3 at Uri-II opened |

# Points of Discussion

i. Why did 400kV Uri-I-Amargarh ckt-2 not trip from Amargarh end on B-N fault. SOTF protection at Amargarh end should have operated. INDIGRID may review the protection settings at Amargarh end and take necessary corrective actions to avoid such protection non-operation in future.

ii. Remedial action taken report to be shared.

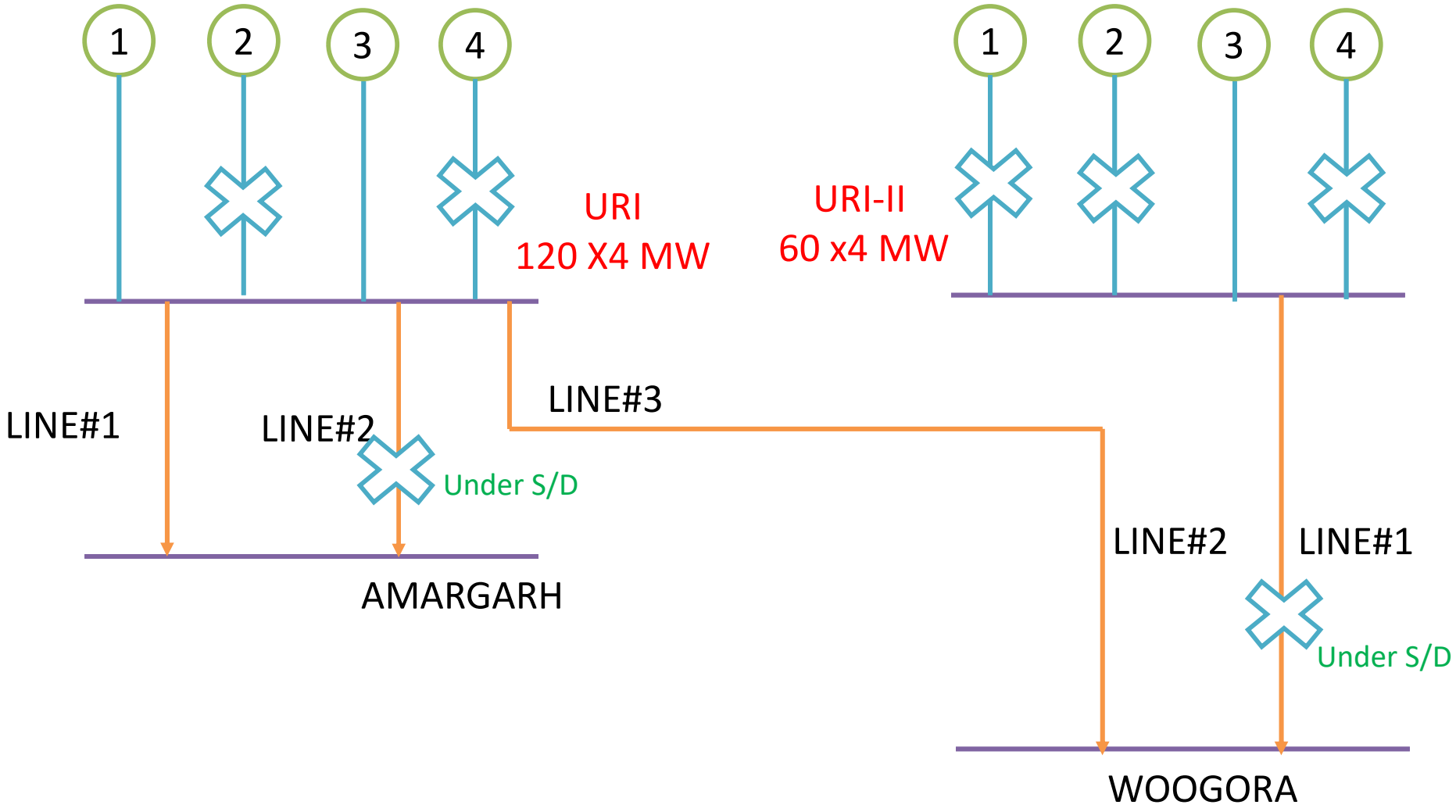
# 61st PCC Meeting of NRPC

NHPC Limited

# Agenda Point No.2

- Complete outage of Uri & Uri-II Power Station(NHPC) at 15:22 hrs on 24-01-2026

# SLD of Uri & Uri-II



# Elements Tripped on 24/01/2026

| क्रम सं | यूनिट / लाइन नाम | से | | तक | | कुल आउटेज समय | आउटेज के कारण | ऊर्जा नुकसान (मेगावाट) |
|---|---|---|---|---|---|---|---|---|
| | | तारीख | समय | तारीख | समय | | | |
| URI Power Station | | | | | | | | |
| 1 | 400 KV Uri-Amargarh Line#1 | 24-Jan-26 | 15:22:00 | 24-Jan-26 | 19:51:00 | 4:29 | CB remained in Closed Condition from Uri End | 0 |
| 2 | 400 KV Uri-Uri-II Line#3 | 24-Jan-26 | 15:22:00 | 24-Jan-26 | 19:52:00 | 4:30 | CB remained in Closed Condition from Uri End | 0 |
| 3 | Unit#01 | 24-Jan-26 | 15:22:00 | 24-Jan-26 | 20:23:00 | 5:01 | Over Speed protection operated | 15 |
| 4 | Unit#03 | 24-Jan-26 | 15:22:00 | 24-Jan-26 | 19:56:00 | 4:34 | Over Speed protection operated | 15 |
| URI-II Power Station | | | | | | | | |
| 5 | Unit#03 | 24-Jan-26 | 15:22:00 | 25-Jan-26 | 7:57:00 | 16:35 | Over Speed protection operated | 45 |

# Detail Analysis

## Disturbance Analysis – Uri System

Distance protection relay of Uri–Amargarh Line #1 (Uri end) recorded:

- B-phase voltage dropped to 138.8 kV
- B-phase current increased to 1555 A
- Zone-3 (B–N) fault detected at 15:21:55.936 hrs, reset within 560 ms
- Line CB remained closed at Uri end
- However, as per relay EL, Line CB opened at Amargarh end at 15:22:00.150 hrs

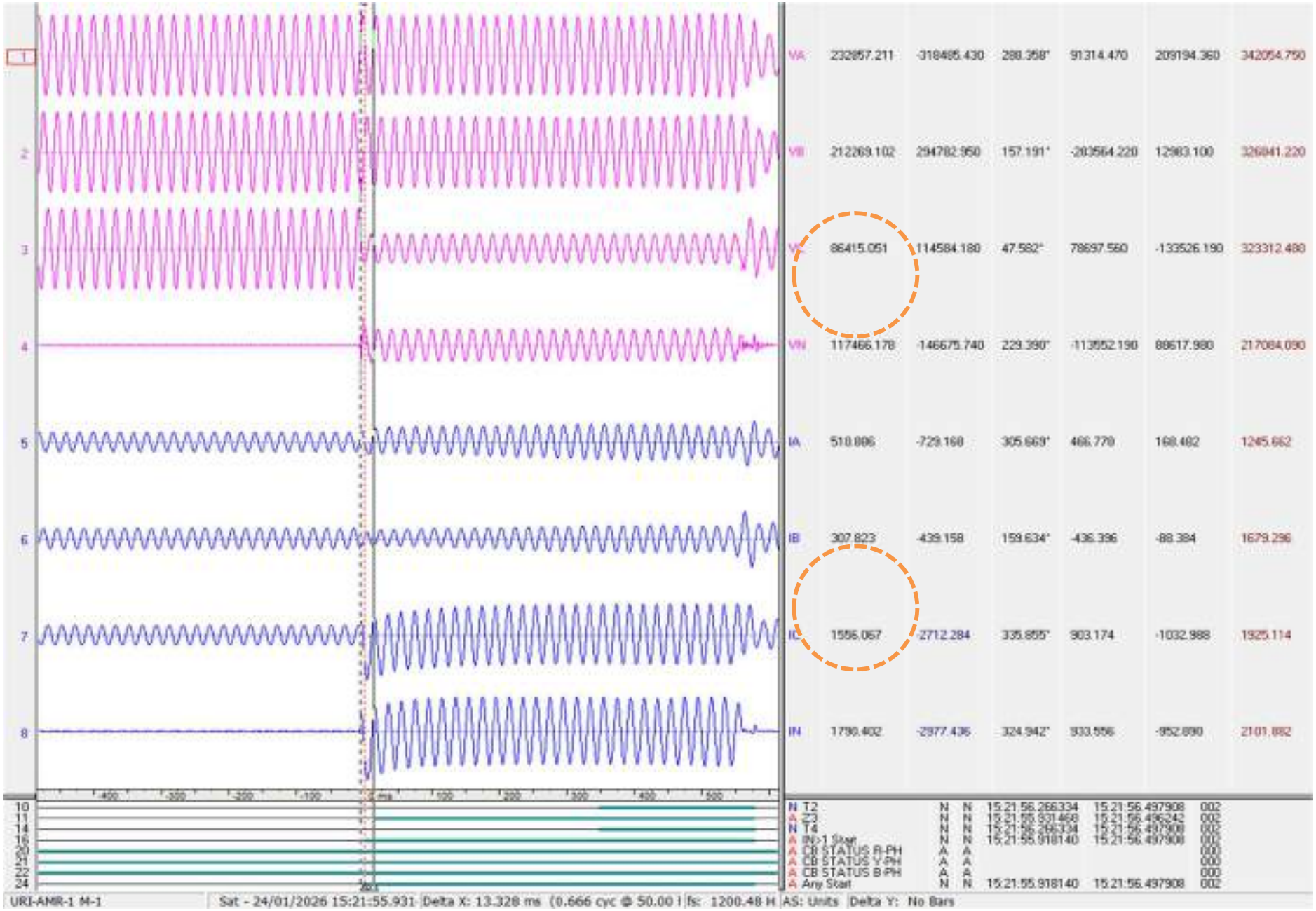
## System constraints:

- Uri–Amargarh Line #2 under breakdown since 07:18 hrs (23.01.2026)
- Uri-II–Woogora Line #1 under breakdown since 10:04 hrs (23.01.2026)

## Impact:

- **No power evacuation path available**
- Unit #1 & Unit #3 of Uri tripped on overspeed protection
- Unit#3 of Uri-II Tripped on overspeed protection

# Uri-Amargarh Line#1 DR



# EL of Uri-Amargarh Line#1

| | |
|---|---|
| Saturday 24 January 2026 15:23:50.147 | TOR Enable OFF |
| Saturday 24 January 2026 15:23:50.147 | SOTF Enable ON |
| Saturday 24 January 2026 15:22:00.337 | TOR Enable ON |
| Saturday 24 January 2026 15:22:00.150 | All Pole Dead ON |
| Saturday 24 January 2026 15:22:00.144 | Any Pole Dead ON |
| Saturday 24 January 2026 15:21:56.705 | Fault Recorded |
| Saturday 24 January 2026 15:21:56.498 | IN>1 Start OFF |
| Saturday 24 January 2026 15:21:56.498 | Any Start OFF |
| Saturday 24 January 2026 15:21:56.498 | Output Contacts1 |
| Saturday 24 January 2026 15:21:56.496 | Z3 OFF |
| Saturday 24 January 2026 15:21:56.496 | Dist Start N OFF |
| Saturday 24 January 2026 15:21:56.496 | DIST Start C OFF |
| Saturday 24 January 2026 15:21:56.496 | DIST Fwd OFF |
| Saturday 24 January 2026 15:21:55.970 | DIST Fwd ON |
| Saturday 24 January 2026 15:21:55.958 | DIST Fwd OFF |
| Saturday 24 January 2026 15:21:55.932 | Z3 ON |
| Saturday 24 January 2026 15:21:55.927 | DIST Fwd ON |
| Saturday 24 January 2026 15:21:55.923 | Dist Start N ON |
| Saturday 24 January 2026 15:21:55.923 | DIST Start C ON |
| Saturday 24 January 2026 15:21:55.918 | Output Contacts1 |
| Saturday 24 January 2026 15:21:55.918 | IN>1 Start ON |
| Saturday 24 January 2026 15:21:55.918 | Any Start ON |
| Saturday 24 January 2026 09:02:15.075 | Indication Reset |

# Multiple elements tripping at 400/220kV Bawana(DTL) & 220/66kV Rohini-I(DTL) at 10:13 hrs on 27.01.2026

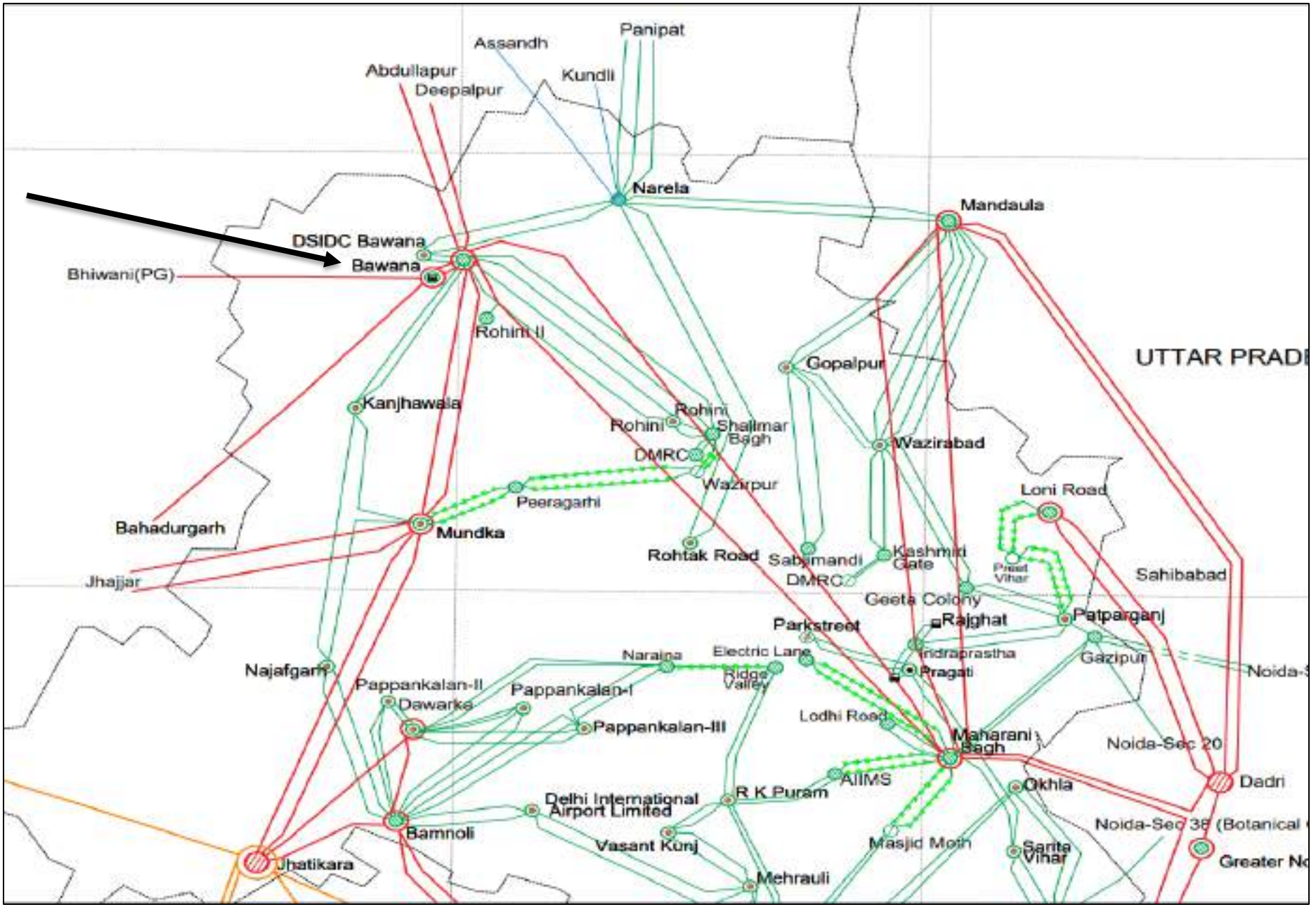
# Tripped Elements

| S. No | Name of Elements | Outage Time | Revival Time | Reason of tripping |
|---|---|---|---|---|
| 1. | 220kV Bawana-Rohini-I line-I | 10:13 hrs | | R-N fault due to snapping of OPGW |
| 2. | 220kV Bawana-Rohini-I line-II | | | |
| 3. | 400/220kV 315 MVA ICT-1 at Bawana(DTL) | | 10:43 hrs | Tripped on overcurrent earth fault (IDMT) |
| 4. | 400/220kV 315 MVA ICT-2 at Bawana(DTL) | | 12:38 hrs | |
| 5. | 400/220kV 315 MVA ICT-4 at Bawana(DTL) | | 10:40 hrs | |
| 6. | 400/220kV 315 MVA ICT-6 at Bawana(DTL) | | 11:17 hrs | |
| 7. | 220kV Bawana-Rohini-II line-II | | 10:49 hrs | |
| 8. | 220kV Bawana-Shalimarbagh line-I | | 10:44 hrs | |
| 9. | 220kV Bawana-Shalimarbagh line-II | | 10:44 hrs | |
| 10. | 220/33kV 100 MVA ICT-1 at Shalimarbagh(DTL) | | 11:37 hrs | Tripped on earth fault protection |
| 11. | 220/66kV 160 MVA ICT-1 at Rohini-II(DTL) | | 11:05 hrs | |
| 12. | 220/66kV 160 MVA ICT-2 at Rohini-II(DTL) | | 11:17 hrs | |

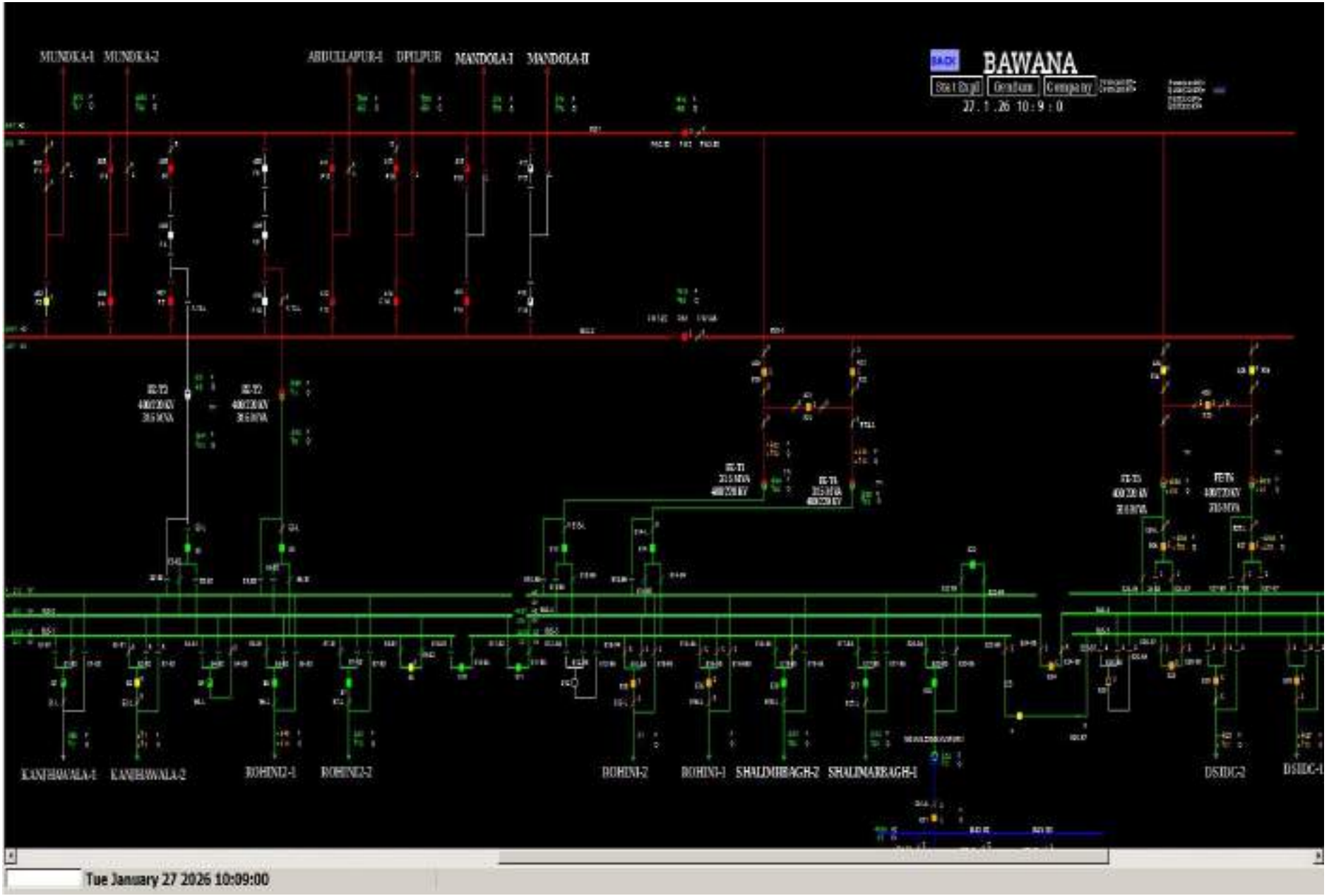
# Brief details of the event

- 400kV Bawana(DTL) S/s has one and half breaker bus scheme at 400kV level and double main & transfer bus scheme at 220kV level.
- During antecedent condition, loading on 400/220kV 315 MVA ICT-1, 2, 3, 4, 5 & 6 at Bawana(DTL) were 154 MW, 155 MW, 147 MW, 150 MW, 130 MW & 130 MW respectively.
- As reported, at 10:13 hrs, R-N fault occurred on 220kV Bawana-Rohini-I line-I & II due to snapping of OPGW. On this fault distance protection at both the ends operated and line tripped however R-ph pole at Bawana end of Rohini-I line-I (connected at 220kV bus-1) got stuck. This further led to LBB operation however due to error in isolator status of Rohini-I line-I feeder, desired operation of LBB protection didn't occur.
- As the fault was persisting, oil leakage in R-ph CT of 220kV Bawana-Rohini-I line-I also started and created bus fault. This led to operation of 220kV bus bar protection resulted into tripping of 220kV Bawana-Shalimarbagh line-I & II and 220kV Bawana-Rohini-II line-II.
- At the same time, 400/220kV 315 MVA ICT-1, 2, 4 & 6 at Bawana(DTL) also tripped on overcurrent protection operation. 220/33kV 100 MVA ICT-1 at Shalimarbagh(DTL) and 220/66kV 160 MVA ICT-1 & 2 at Rohini-II(DTL) also tripped due to overcurrent earth fault protection.
- As per PMU at Bawana(DTL), R-N phase to earth fault with delayed clearance of ~1480 msec is observed.
- As per SCADA, change in demand of ~560MW is observed in Delhi control area and as reported by SLDC-Delhi, load of ~846 MW affected in Delhi control area during the event.

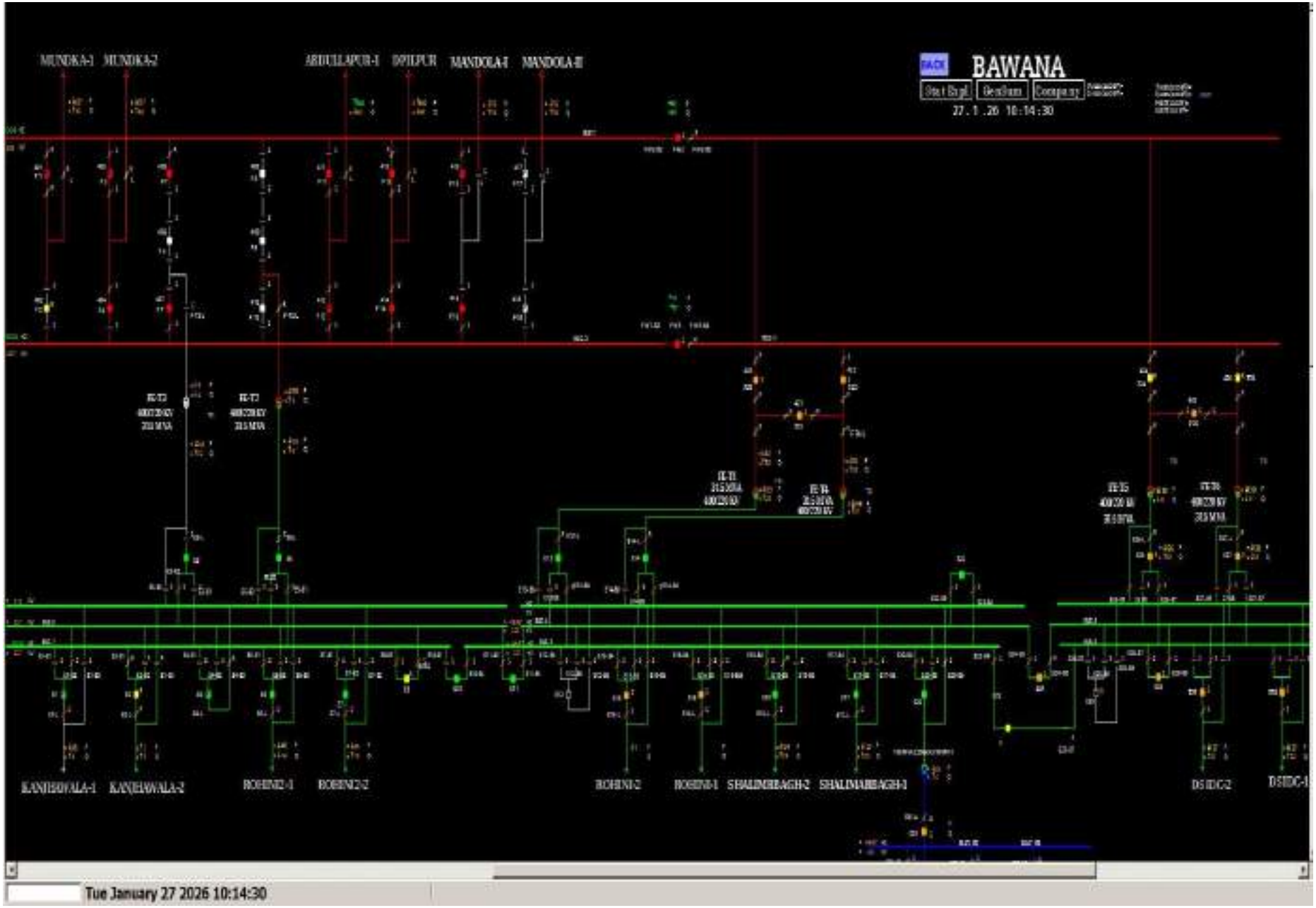
# Network Diagram



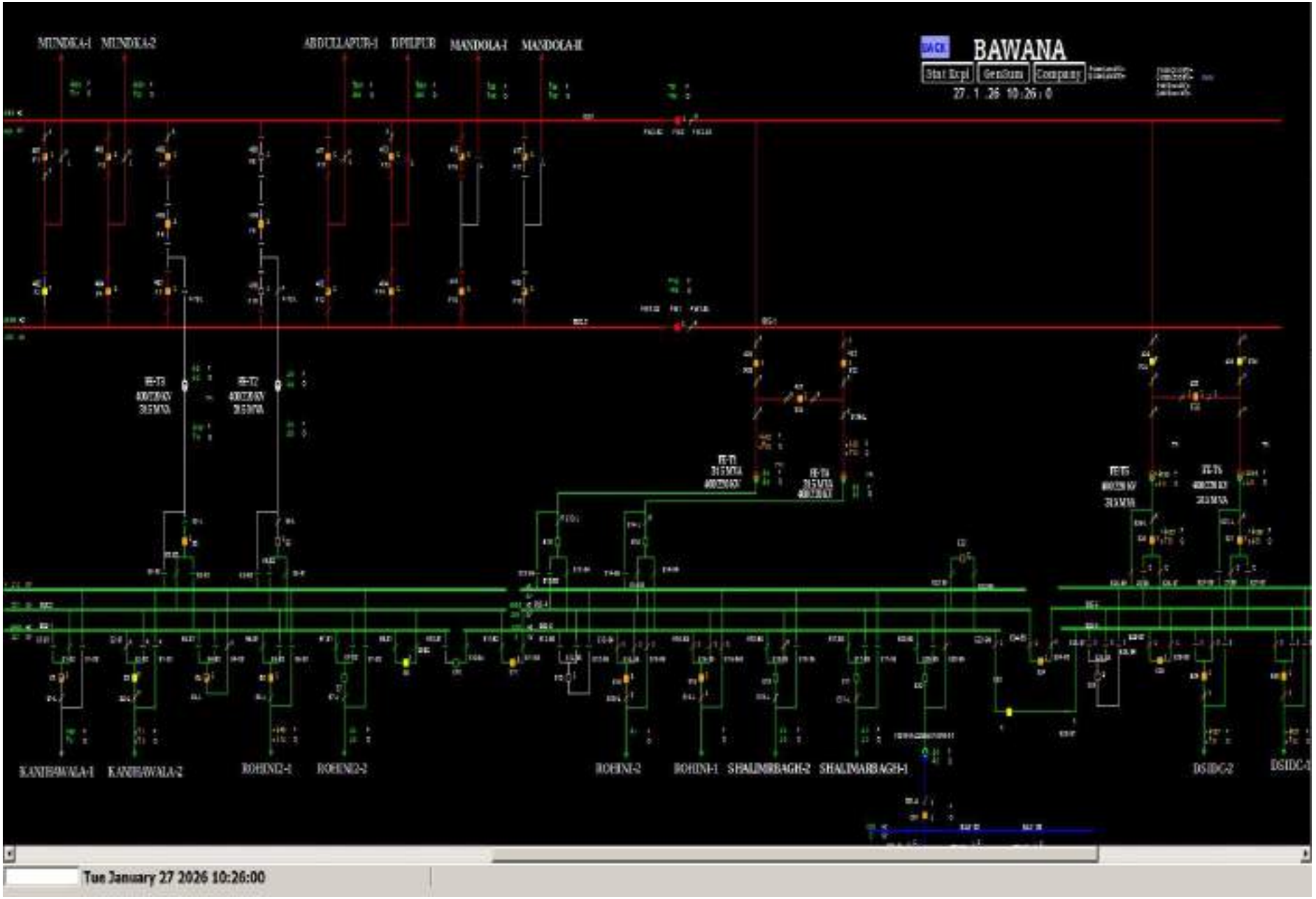
# SLD of 400/220/66kV Bawana(DTL) before the event



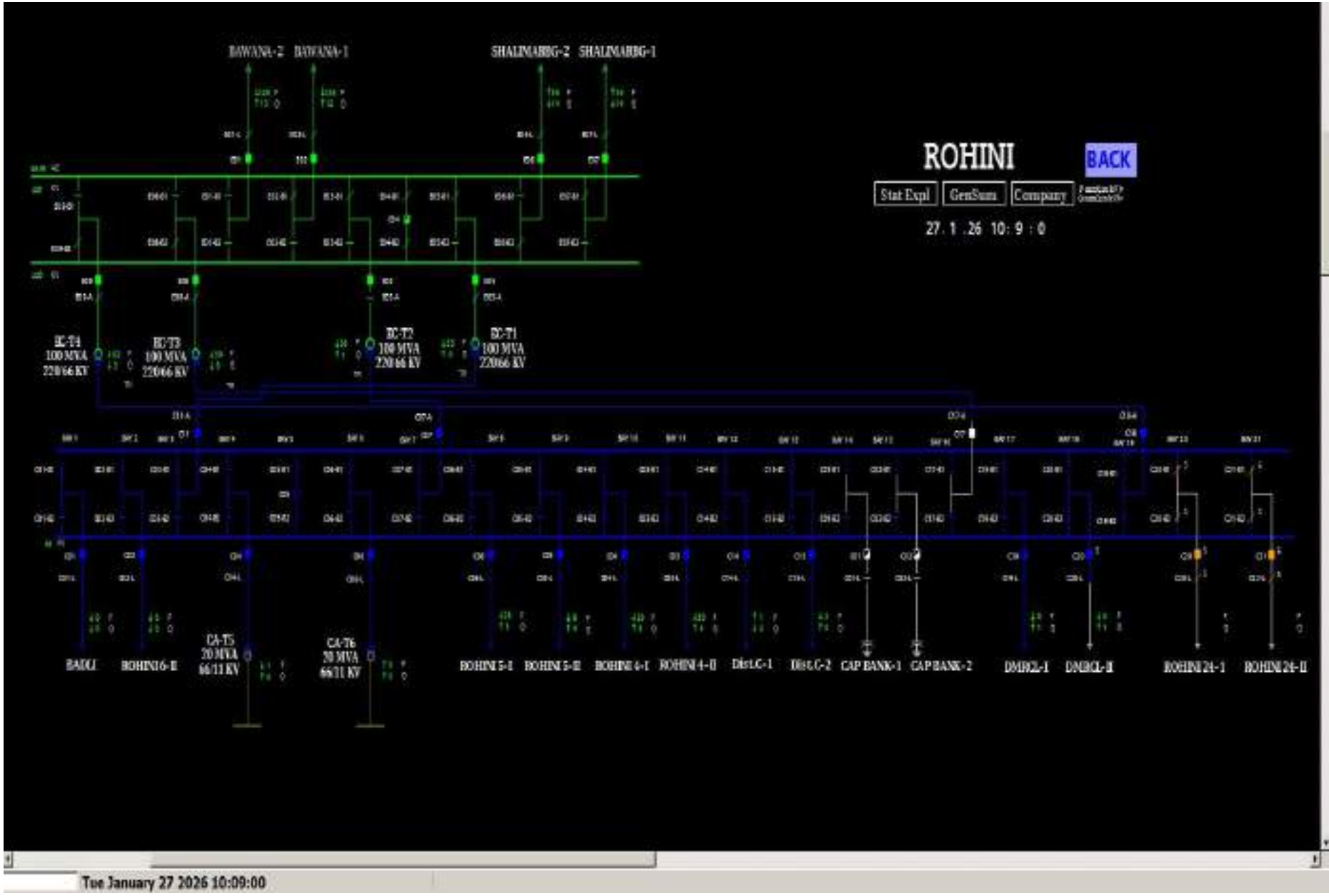
# SLD of 400/220/66kV Bawana(DTL) after the event



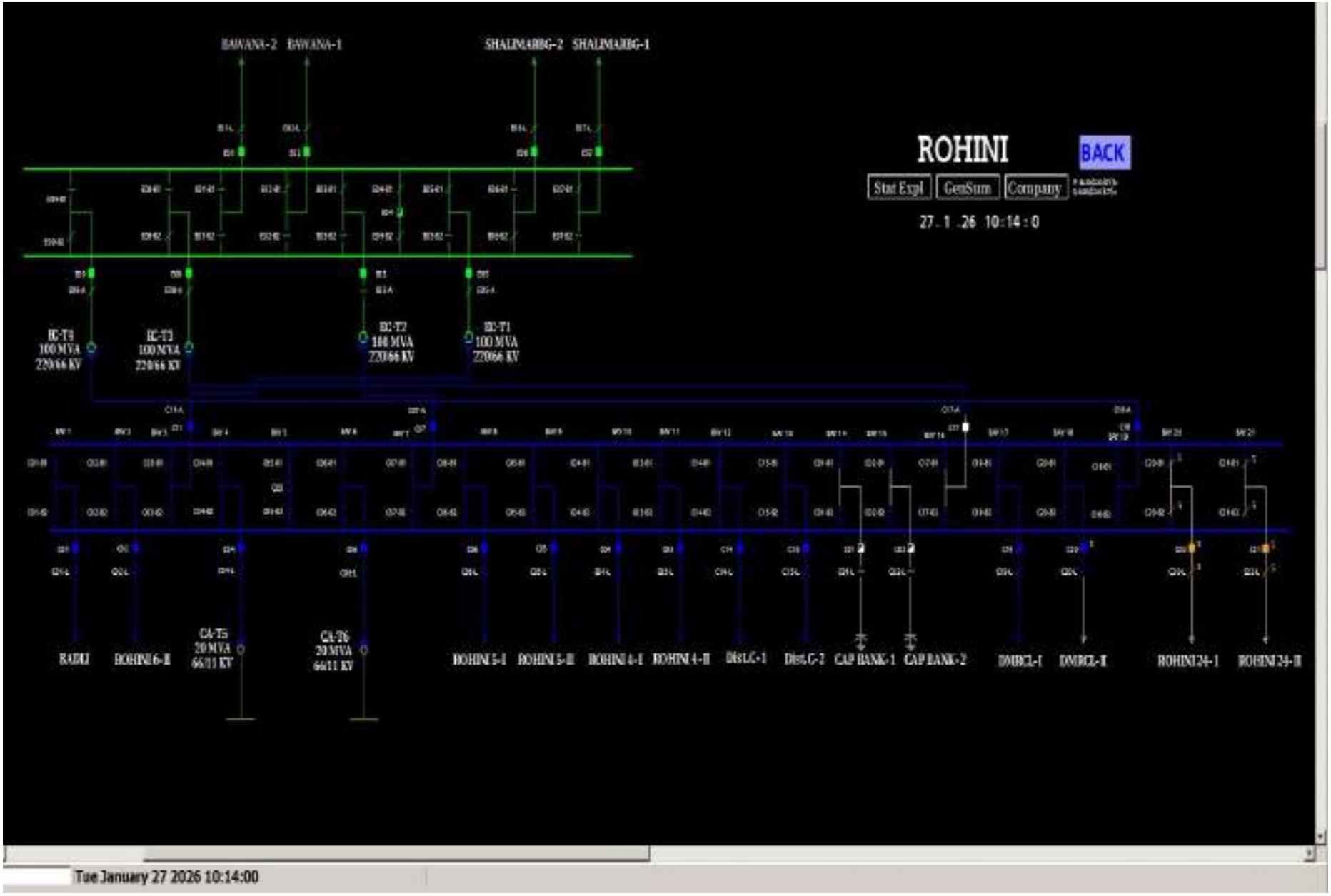
# SLD of 400/220/66kV Bawana(DTL) after the event



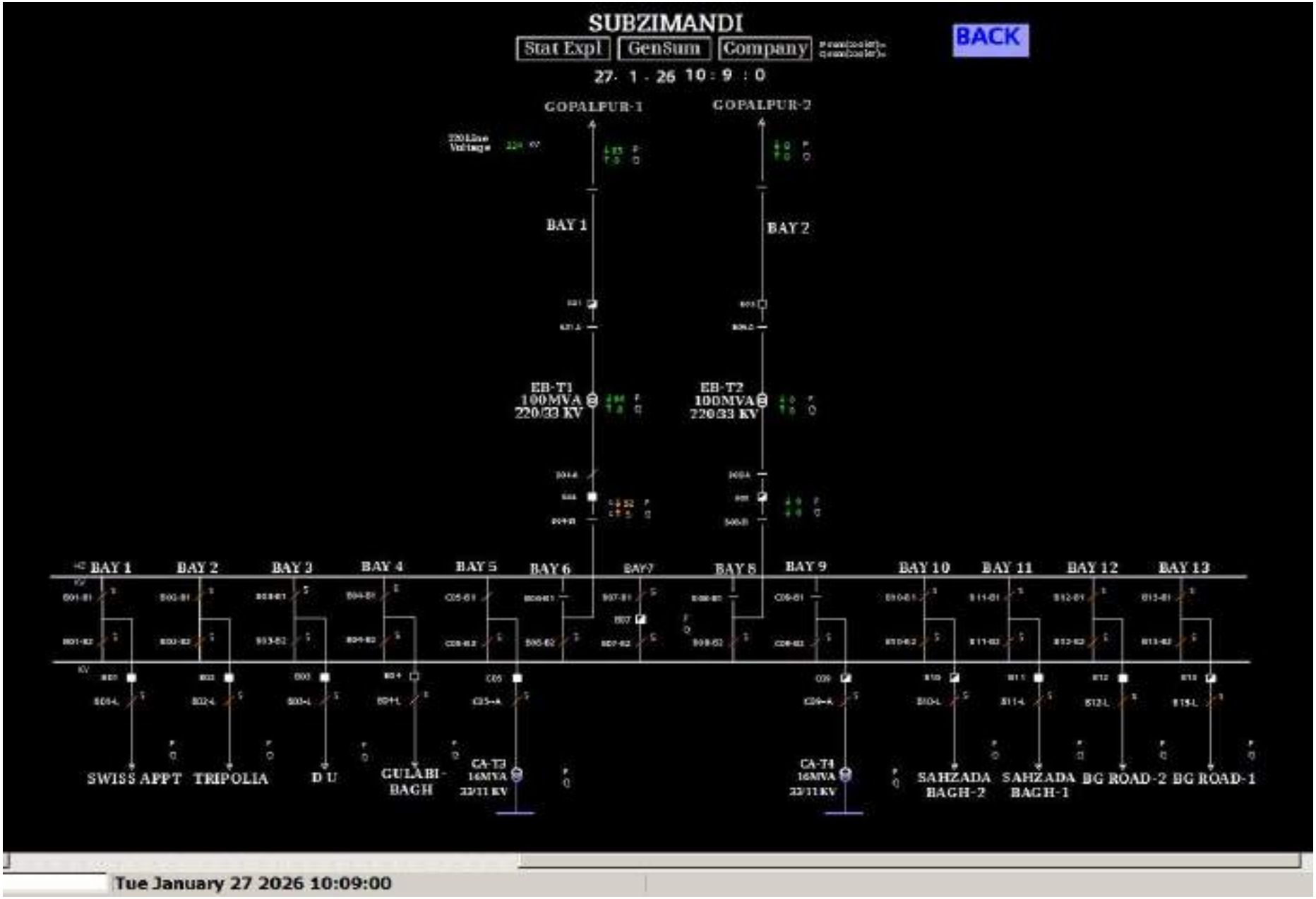
# SLD of 220/66kV Rohini-I(DTL) before the event



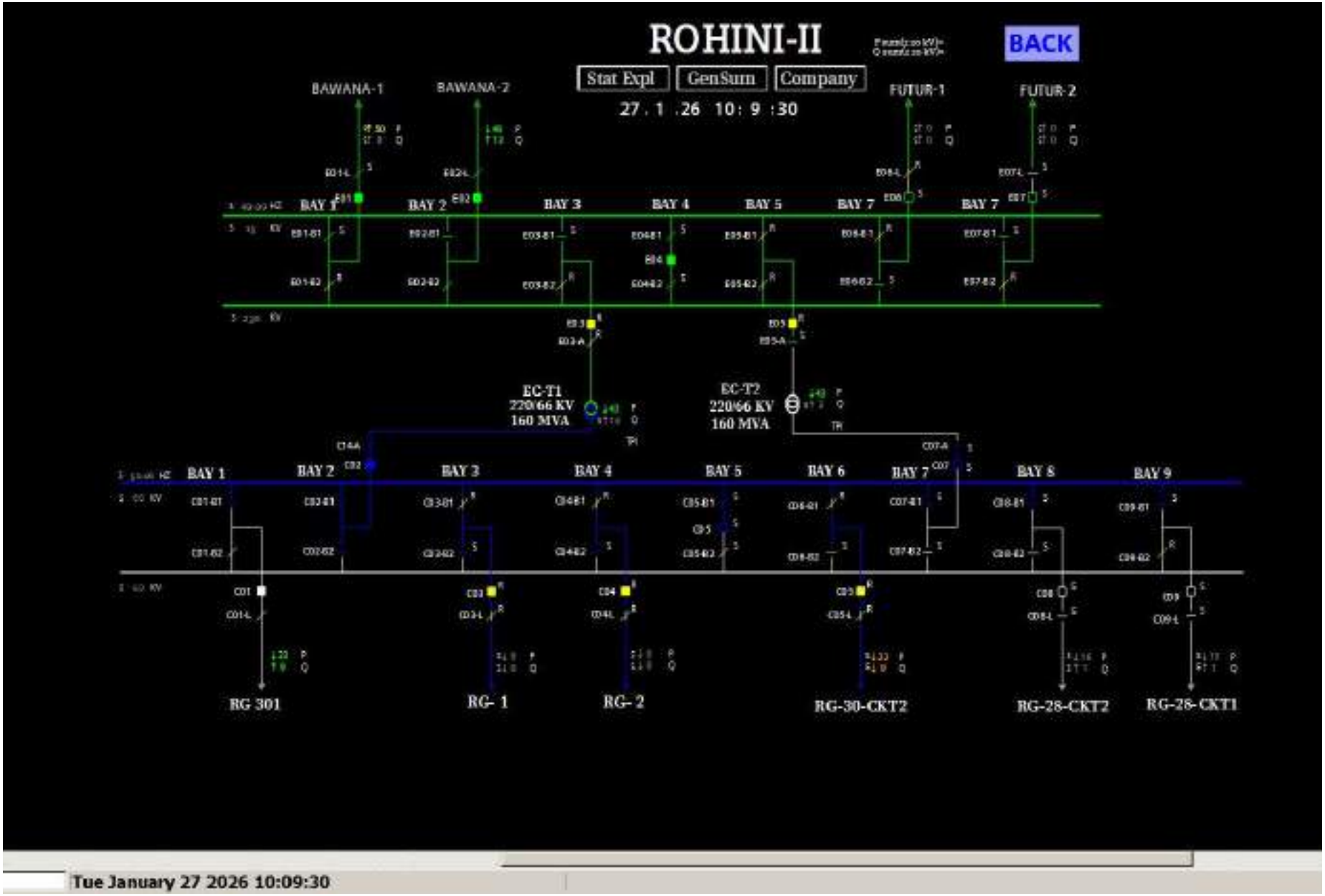
# SLD of 220/66kV Rohini-I(DTL) after the event



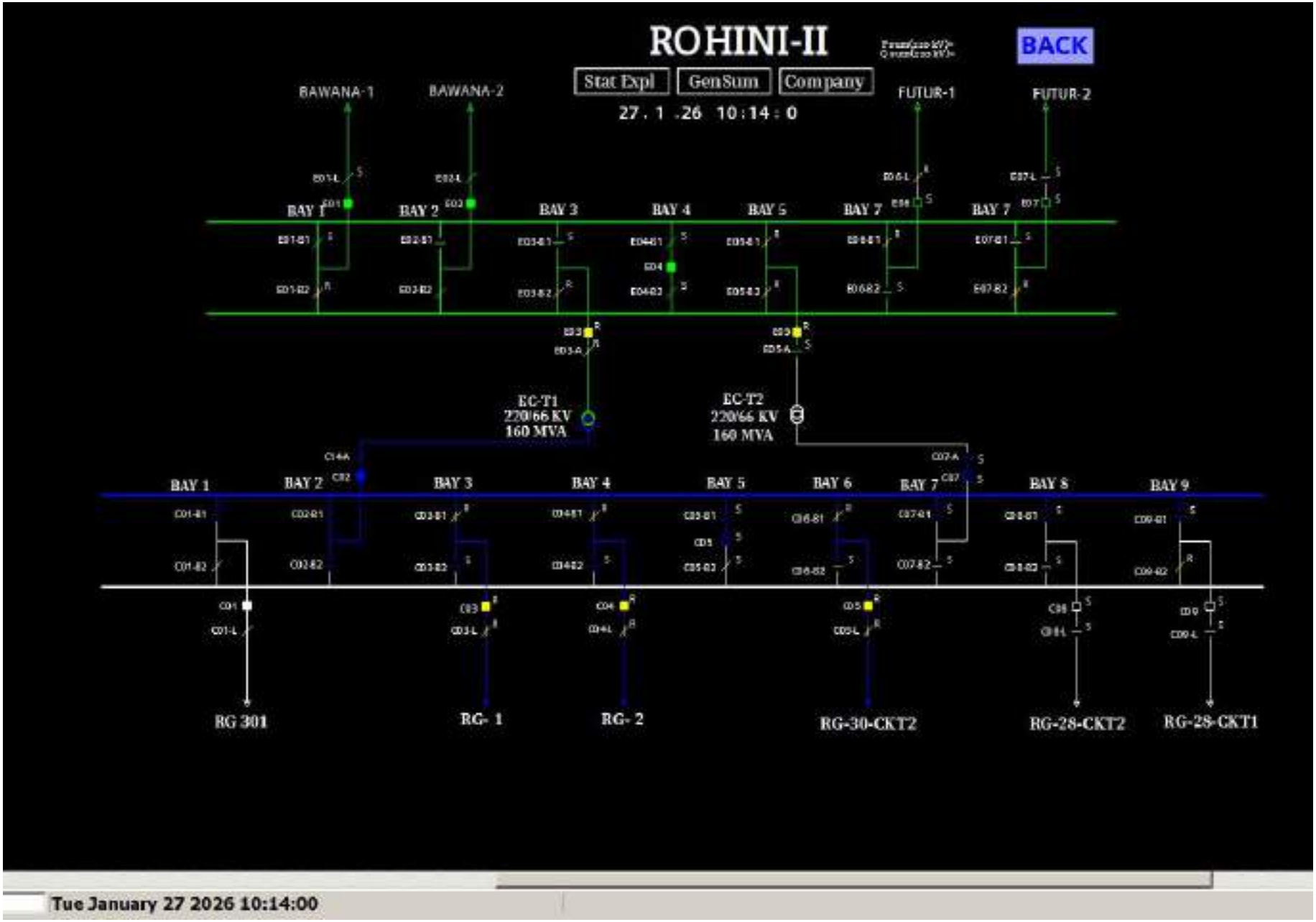
# SLD of 220/33kV Sabzimandi(DTL) before the event



# SLD of 220/66kV Rohini-II(DTL) before the event

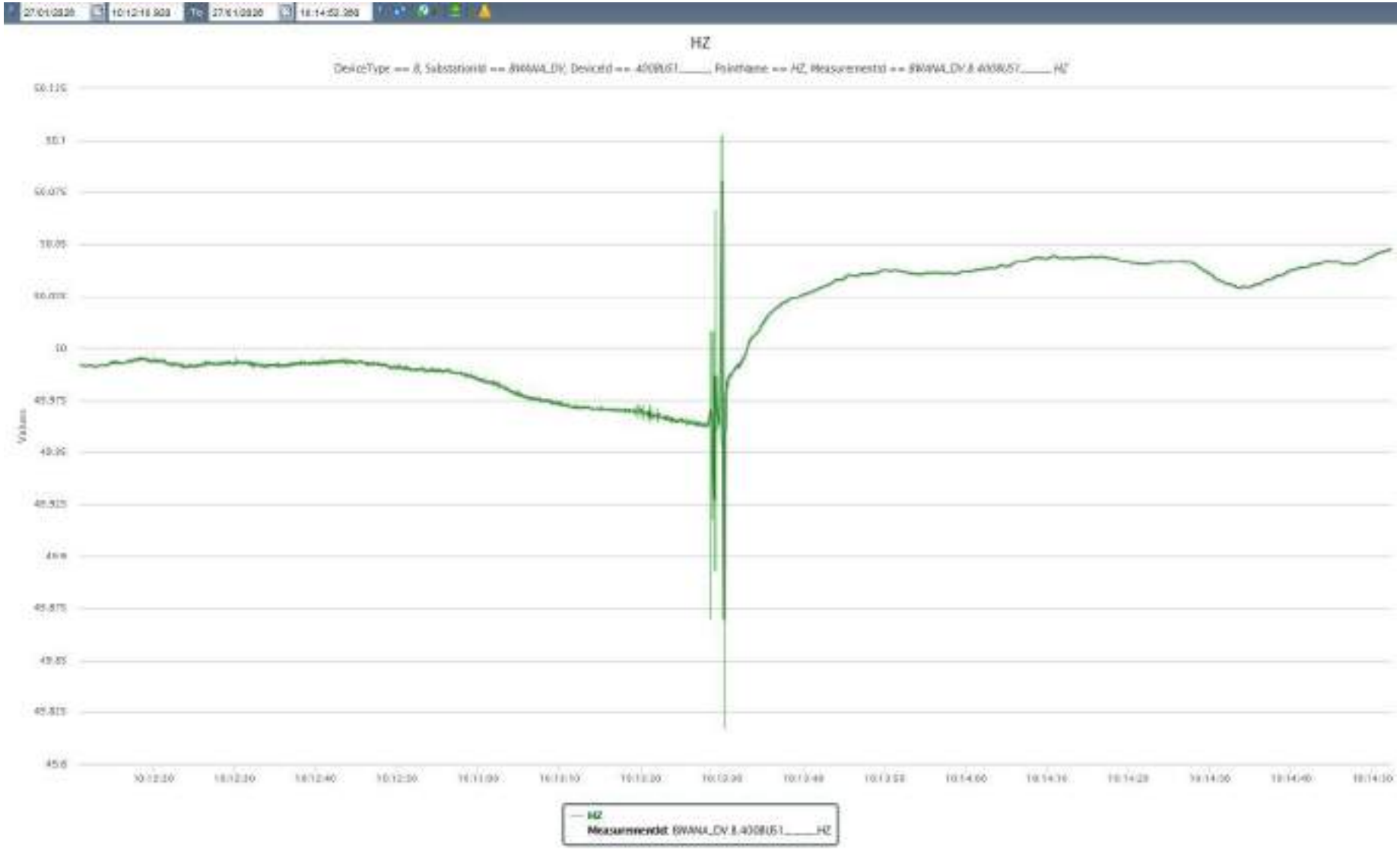


# SLD of 220/66kV Rohini-II(DTL) after the event



# PMU Plot of frequency at Bawana(DV)

## 10:13hrs/27-Jan-25

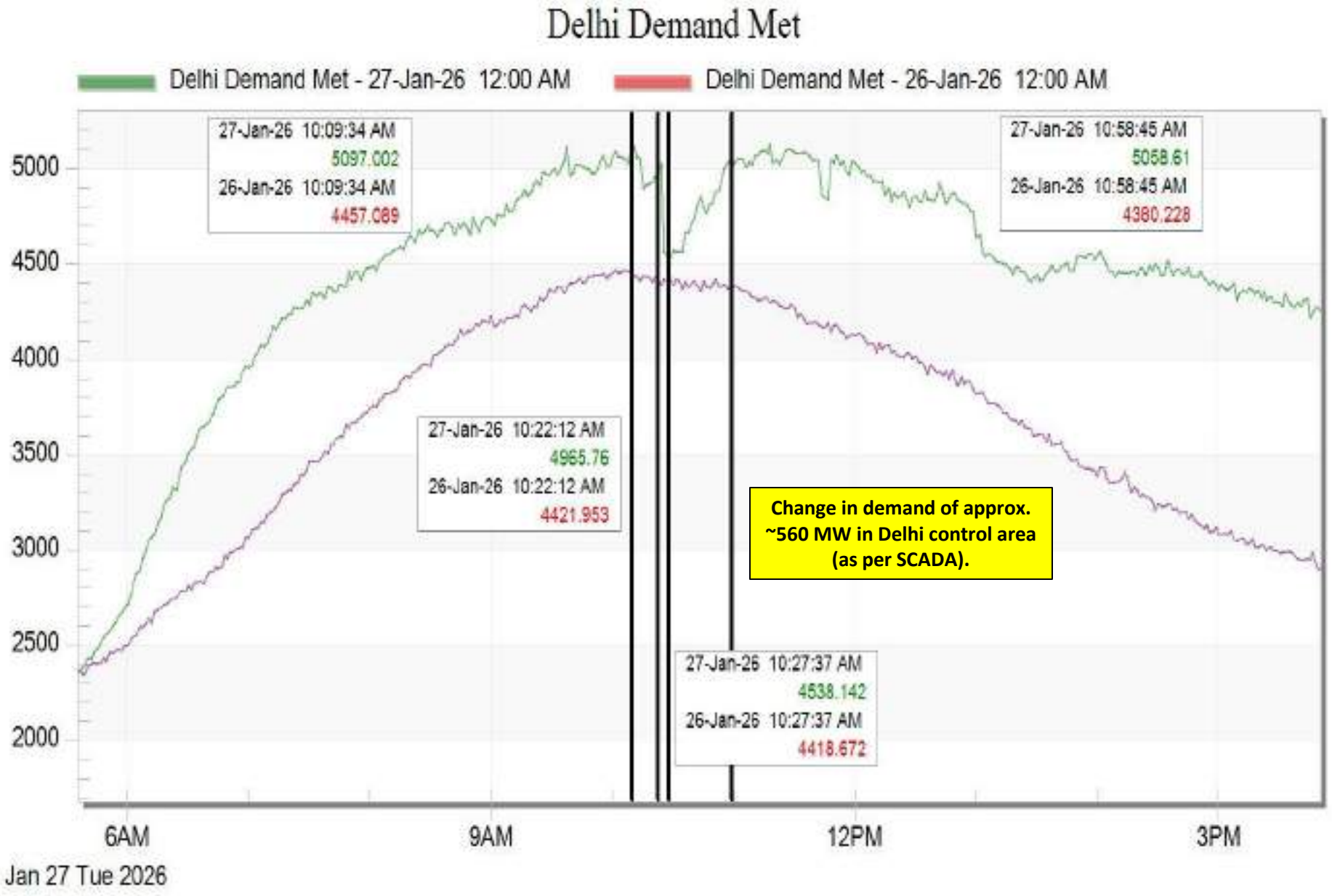


# PMU Plot of phase voltage magnitude at Bawana(DV)

## 10:13hrs/27-Jan-25



# Delhi demand during the event



# SCADA SOE

| Time | Station Name | Voltage | Element Name | Element Type | Element Status | Remarks |
|---|---|---|---|---|---|---|
| 10:12:34,249 | ROHINI | 220kV | 02SHALI2 | Circuit Breaker | Open | Line CB at Rohini-I-Shalimarbagh line-II opened |
| 10:12:34,249 | ROHINI | 220kV | 08T4 | Circuit Breaker | Open | CB at 220kV side of 220/66kV 100 MVA ICT-4 at Rohini-I opened |
| 10:12:34,249 | ROHINI | 220kV | 10T3 | Circuit Breaker | Open | CB at 220kV side of 220/66kV 100 MVA ICT-3 at Rohini-I opened |
| 10:12:34,249 | ROHINI | 220kV | 04MBC | Circuit Breaker | Open | |
| 10:12:34,276 | ROHINI | 220kV | 07BWANA2 | Circuit Breaker | Open | Line CB at Rohini-I end of 220kV Rohini-I-Bawana line-II opened |
| 10:13:16,052 | SUBZIMANDI | 33kV | 08T2 | Circuit Breaker | disturbe | |
| 10:13:28,482 | SHALIMARBG | 33kV | 14T4 | Circuit Breaker | Open | |
| 10:13:29,432 | SHALIMARBG | 220kV | 03BWANA1 | Circuit Breaker | Open | Line CB at Shalimarbagh end of 220kV Shalimarbagh-Bawana line-I opened |
| 10:13:29,452 | SHALIMARBG | 220kV | 06T1 | Circuit Breaker | Open | CB at 220kV side of 220/33kV ICT-1 at Shalimarbagh opened |
| 10:13:29,476 | SHALIMARBG | 33kV | 10T1 | Circuit Breaker | Open | CB at 33kV side of 220/33kV ICT-1 at Shalimarbagh opened |
| 10:13:29,546 | SHALIMARBG | 33kV | 14T4 | Circuit Breaker | Open | CB at 33kV side of 220/33kV ICT-4 at Shalimarbagh opened |
| 10:13:29,785 | ROHINI2 | 66kV | 02T1 | Circuit Breaker | Open | CB at 220kV side of 220/66kV 100 MVA ICT-1 at Rohini-II opened |
| 10:24:03,581 | BAWANA | 400kV | 08T2 | Circuit Breaker | Open | CB at 400kV side of 400/220kV ICT-2 at Bawana opened |
| 10:24:03,622 | BAWANA | 400kV | 10T2 | Circuit Breaker | Open | |
| 10:24:03,745 | BAWANA | 220kV | 05T2 | Circuit Breaker | Open | CB at 220kV side of 400/220kV ICT-2 at Bawana opened |
| 10:24:03,748 | BAWANA | 220kV | 07ROHN22 | Circuit Breaker | Open | Line CB at Bawana end of 220kV Bawana-Rohini2 line-II opened |
| 10:24:03,791 | BAWANA | 220kV | 09ST1 | Circuit Breaker | Open | |
| 10:24:03,792 | BAWANA | 220kV | 10BS1 | Circuit Breaker | Open | |
| 10:24:03,821 | BAWANA | 220kV | 13T1 | Circuit Breaker | Open | CB at 220kV side of 400/220kV ICT-1 at Bawana opened |
| 10:24:03,822 | BAWANA | 220kV | 14T4 | Circuit Breaker | Open | CB at 220kV side of 400/220kV ICT-4 at Bawana opened |
| 10:24:03,868 | BAWANA | 220kV | 17SHALI1 | Circuit Breaker | Open | Line CB at Bawana end of 220kV Bawana-Shalimarbagh line-I opened |
| 10:24:03,869 | BAWANA | 220kV | 18SHALI2 | Circuit Breaker | Open | Line CB at Bawana end of 220kV Bawana-Shalimarbagh line-II opened |
| 10:24:03,869 | BAWANA | 220kV | 22MBC2 | Circuit Breaker | Open | |

# Points of Discussion

i. Why did isolators status were not correct due to which LBB protection couldn't operate?
ii. Exact sequence of tripping of all the elements needs to be shared.
iii. How did fault get clear as only ICT-1, 2, 4 & 6 tripped on back up protection?
iv. DR/EL(.dat/.cfg) file of all the tripped elements along with the tripping report need to be shared.
v. Remedial action taken to avoid such event in future need to be shared.

# Presentation on DTL Tripping analysis for tripping dated 27 January 2026 in North Delhi Area

**INTRODUCTION**

1. Time & Date of Event: - 10:13 Hrs. 27-01-2026

2. Substation affected along with voltage level: - 400 kV Bawana, DTL.

**3. Brief event summary: -**

**Pre-fault system configuration:**

**400kV S/Stn. Bawana:**

All 315MVA ICT-1,2,3,4,5&6 were connected in parallel with all three Bus Coupler and four Bus Section breakers closed at 220kV level . 220kV Rohini1Ckt-1& Shalimar Bagh Ckt1 on Bus-3 and 220kV Rohini1Ckt-2 & Shalimar Bagh Ckt2 on Bus-4.

**220kV S/Stn. Shalimar Bagh:**

220kV Bus-1: 220kV Bawana Ckt-1, 220kV Rohini-1 Ckt-1, 220kV Wazirpur Ckt-1, 220kV SGTN Ckt-1&2

220kV Bus-2: 220kV Bawana Ckt-2, 220kV Rohini-1 Ckt-2, 220kV Wazirpur Ckt-2, 220kV/66kV 100MVA Tx-2, 220kV/33kV 100MVA Tx-1&3.

220kV Bus Coupler was ON

**220kV S/Stn. Rohini-1:**

220kV Bus-1: 220kV Bawana Ckt-1, 220kV Shalimar Bagh Ckt-1, 100MVA Tx-1&2

220kV Bus-2: 220kV Bawana Ckt-2, 220kV Shalimar Bagh Ckt-2, 100MVA Tx-3&4

220kV Bus Coupler was ON

**220kV DSIIDC S/Stn. :**

220kV Bus-1: 220kV Bawana Ckt-1, 220kV Bawana Ckt-2 ,160MVA Tx-1& 100MVA Tx-2

220kV Bus-2: 220kV Narela Ckt-1, 220kV Narela Ckt-2, 100MVA Tx-3 & 160MVA Tx-4

220kV Bus Coupler was ON

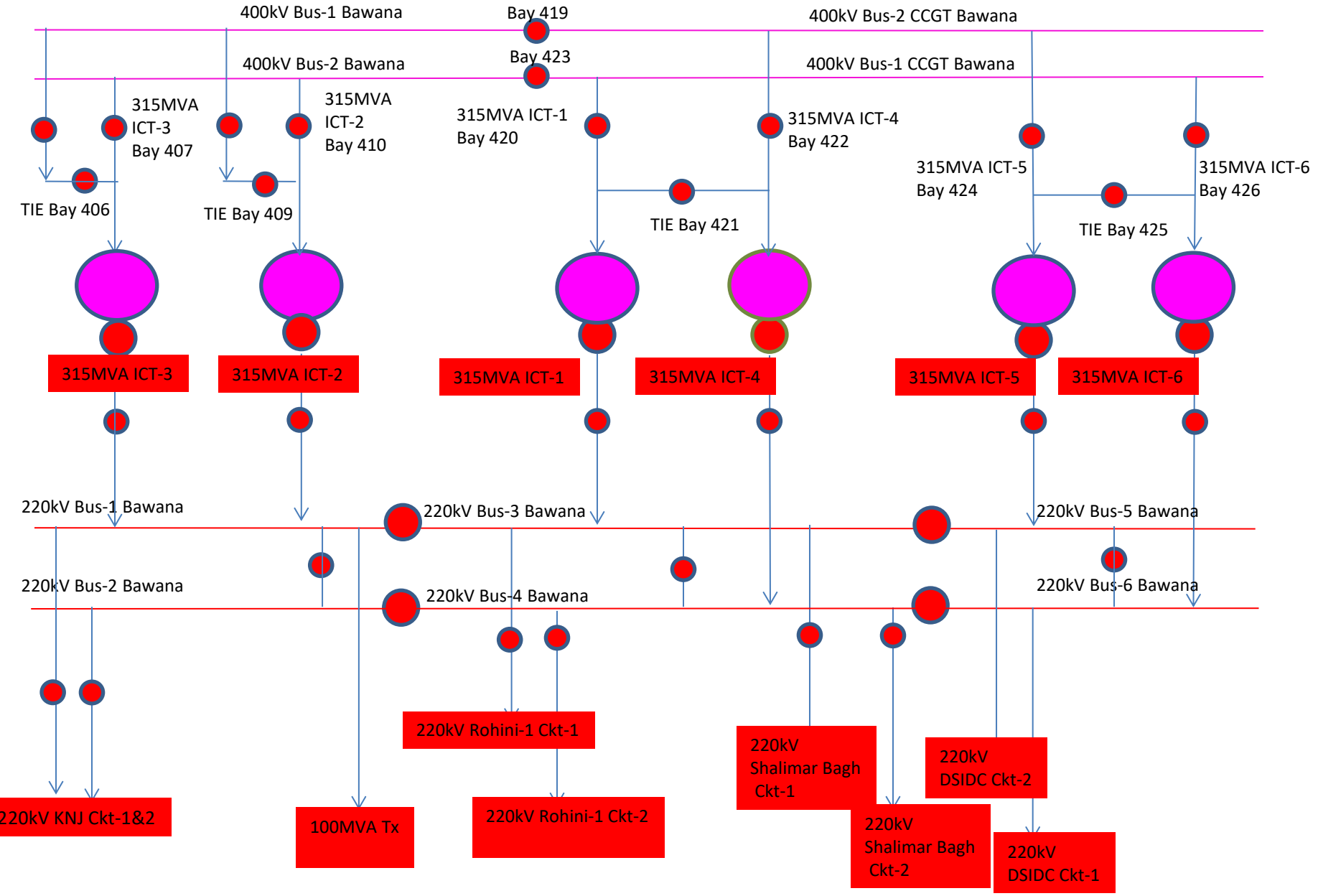
**220kV Rohini2 S/Stn.:**

220kV Bus-1: 220kV Bawana Ckt-1, 160MVA Tx-1

220kV Bus-2: 220kV Bawana Ckt-2, 160MVA Tx-2

220kV Bus Coupler was ON

# Pre fault configuration of system at 400kV Bawana at 10:13 Hrs. on 27/01/2026



# Brief description of sequence of events and tripping :

- **1. 220kV Bawana_Rohini1 Ckt 1 Trip, Time 10.13 Hrs at 400kV Bawana Sub Station:**
- 220kV Bawana_Rohini 1 Ckt 1 (connected on Bus-III) tripped indicating Differential trip by Main 2 Differential relay, Red-phase fault due to OPGW snap at a location outside 400kV Bawana Sub station. Fault values Va=57.2kV, Ia=22.8kA, but R-pole CB of the line got struck.
- **220kV Bus Bar Relay LBB Operation at Bawana**
- LBB initiation was sent to 220kV Bus Bar Sec-2 relay. 220 KV Bus-I Isolator status of the line was in error during the fault due to which LBB trip selection in 220kV Bus Bar relay was impacted. The fault continued to feed through the R pole struck breaker of 220kV Rohini1 Ckt 1**.**
- **2. Meanwhile the following elements also tripped on E/F before tripping of 220kV Bawana_Rohini 1 Ckt 2 due to CB Fail on 220kV Bawana_Rohini1 Ckt 1**
- **a) 220kV IC-1 at 400kV Bawana Sub Station :**
- Tripped on E/F
- **b) 100MVA Tx Bawana**
- Tripped on E/F
- **c) 220kV Bawana_Rohini 2 Ckt 2**
- Tripped on E/F
- **d) Tripping of 220kV Bawana_Rohini 1 Ckt 2 , Trip Time 10.13 Hrs at 400kV Bawana Sub Station:**
- Further**,** 220kV Bawana_Rohini 1 Ckt 2 (connected on Bus-IV) also tripped indicating Blue phase Differential trip by Main 2 Differential relay, Fault values Vc=57.8kV, Ic=22.8kA which was immediately cleared with in 60 ms.
- **e) 160MVA Tx-2 at Rohini 2 Sub Station:**
- Tripped on E/F
- **f) 220kV IC-2 at 400kV Bawana Sub Station :**
- Tripped on E/F

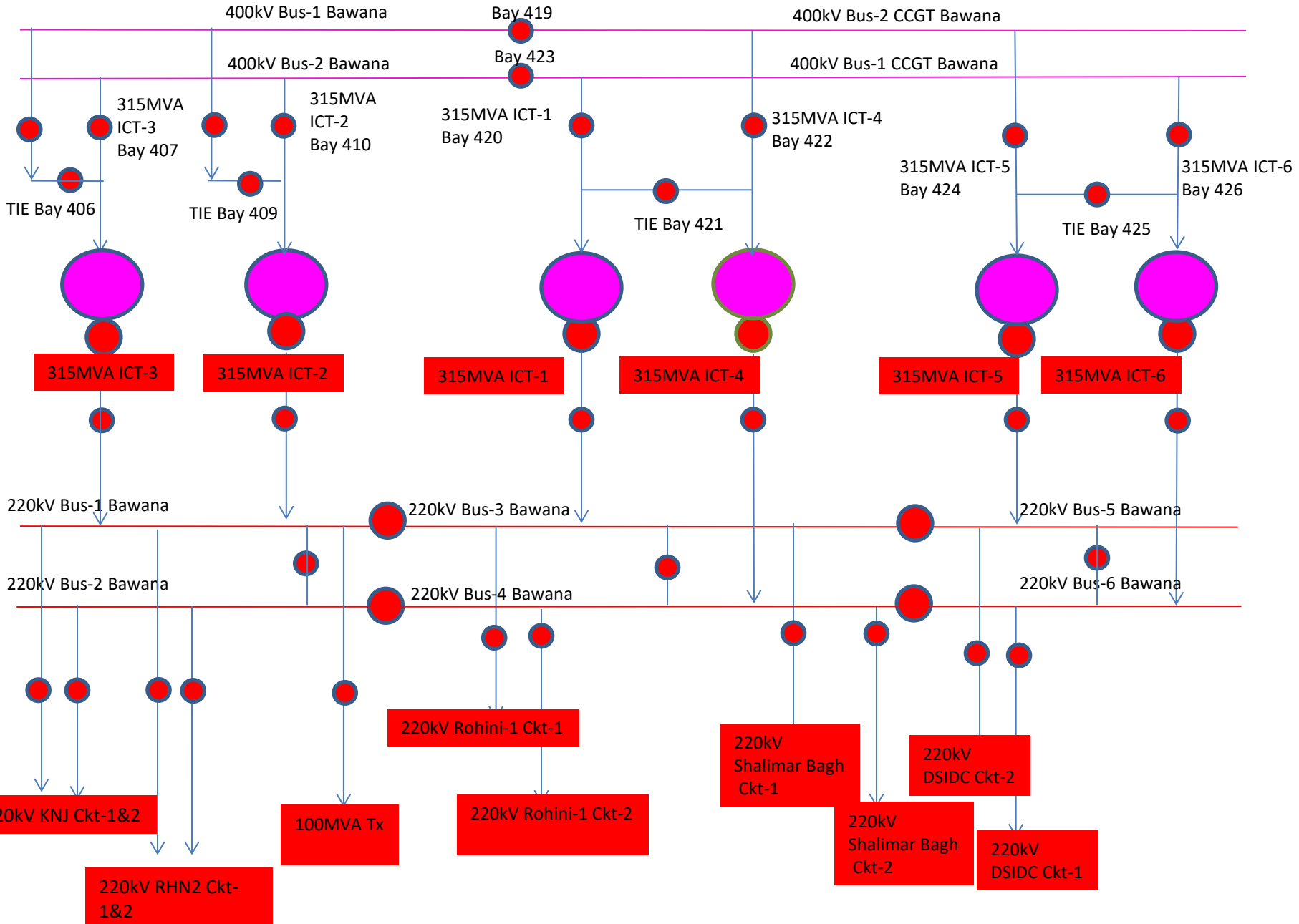
# Sequence of Events Continued…

- **g) 160MVA Tx-1 at Rohini 2 Sub Station:**
- Tripped on E/F
- **h) 220kV IC-4 at 400kV Bawana Sub Station :**
- Tripped on E/F
- **i) 220 KV DSIDC Bawana ckt-2 at 220 KV DSIDC Substation :**
- Tripped on E/F
- **j) 220 KV Bawana DSIDC ckt-1 at 400 KV Bawana Substation :**
- Tripped on E/F
- **k) 220kV IC-6 at 400kV Bawana Sub Station :**
- Tripped on E/F
- **3. Fault on 220kV Bawana_Rohini1 Ckt 1 Red phase CT terminal towards 220 KV Bus –III side, Trip time 10.13 Hrs at 400kV Bawana Sub Station:**
- The fault current in red phase continued to fed through struck R pole CB of 220 KV Rohini 1 ckt-1 resulting in terminal flash at R phase Bus side Primary terminal of CT thereafter causing oil leakage through terminal body. It evolved into 220 KV Bus –III fault.
- 220 KV Bus –III Fault at Red phase CT of 220kV Bawana_Rohini1 Ckt 1 resulted in operation of Bus bar differential trip at 400 KV Bawana Substation, causing tripping 220 KV Bus Section –I (Bay 11), 220 KV Bus Section –III (Bay 224), 220 KV Bus coupler-II (Bay 219) and 220 KV Bawana Shalimar Bagh Circuit 1 &2. Shalimar Bagh Ckt-2 also tripped on Bus fault due to its isolator auxiliary switching on both bus. Operation of Bus – III Trip by 87 Bus Bar Relay cleared the faulty section with in 50 mSec.

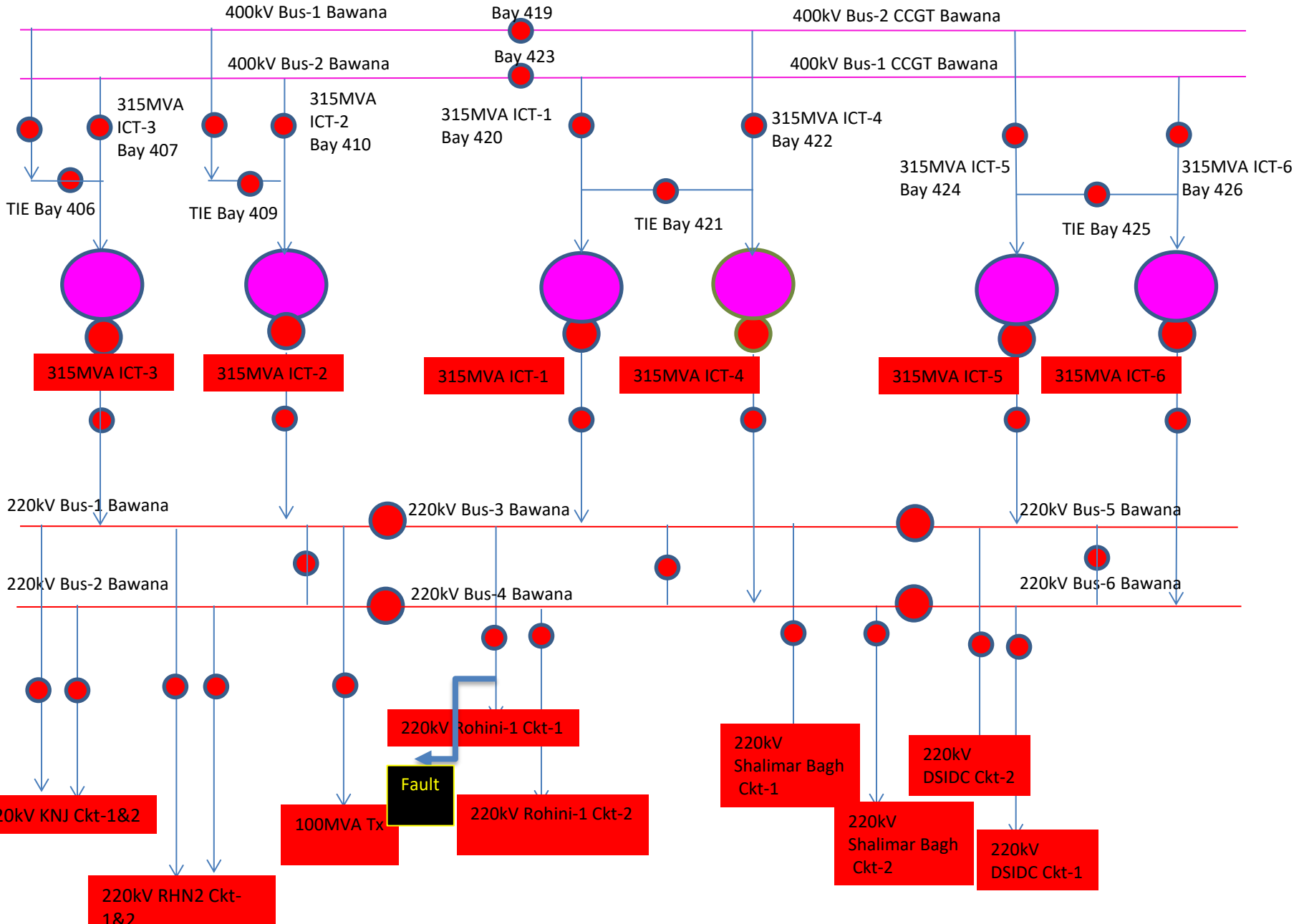
**220 KV SMB substation**

- 100 MVA transformer –I tripped on earth fault

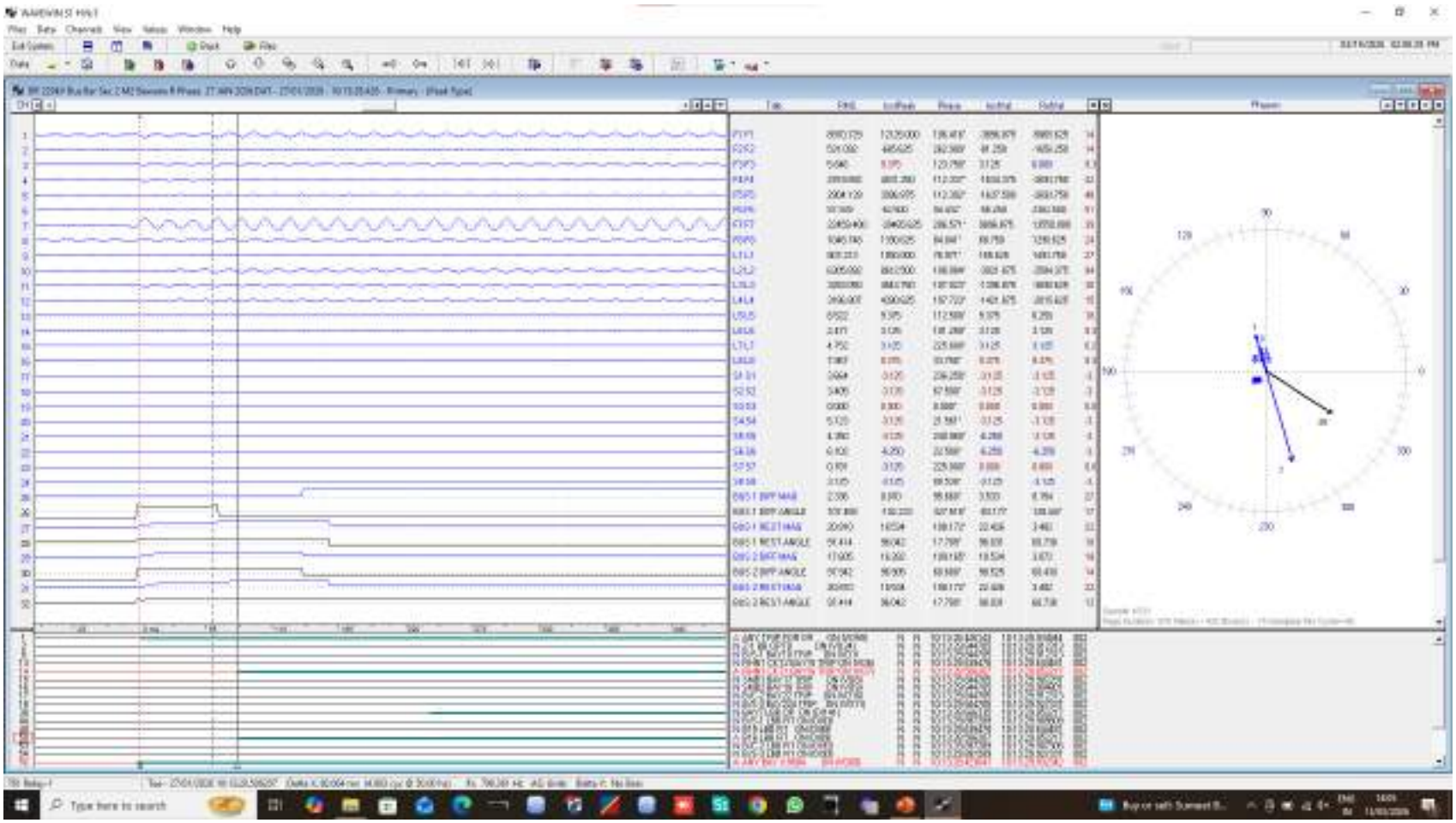
# Pre fault configuration of system at 400kV Bawana at 10:13 Hrs. on 27/01/2026



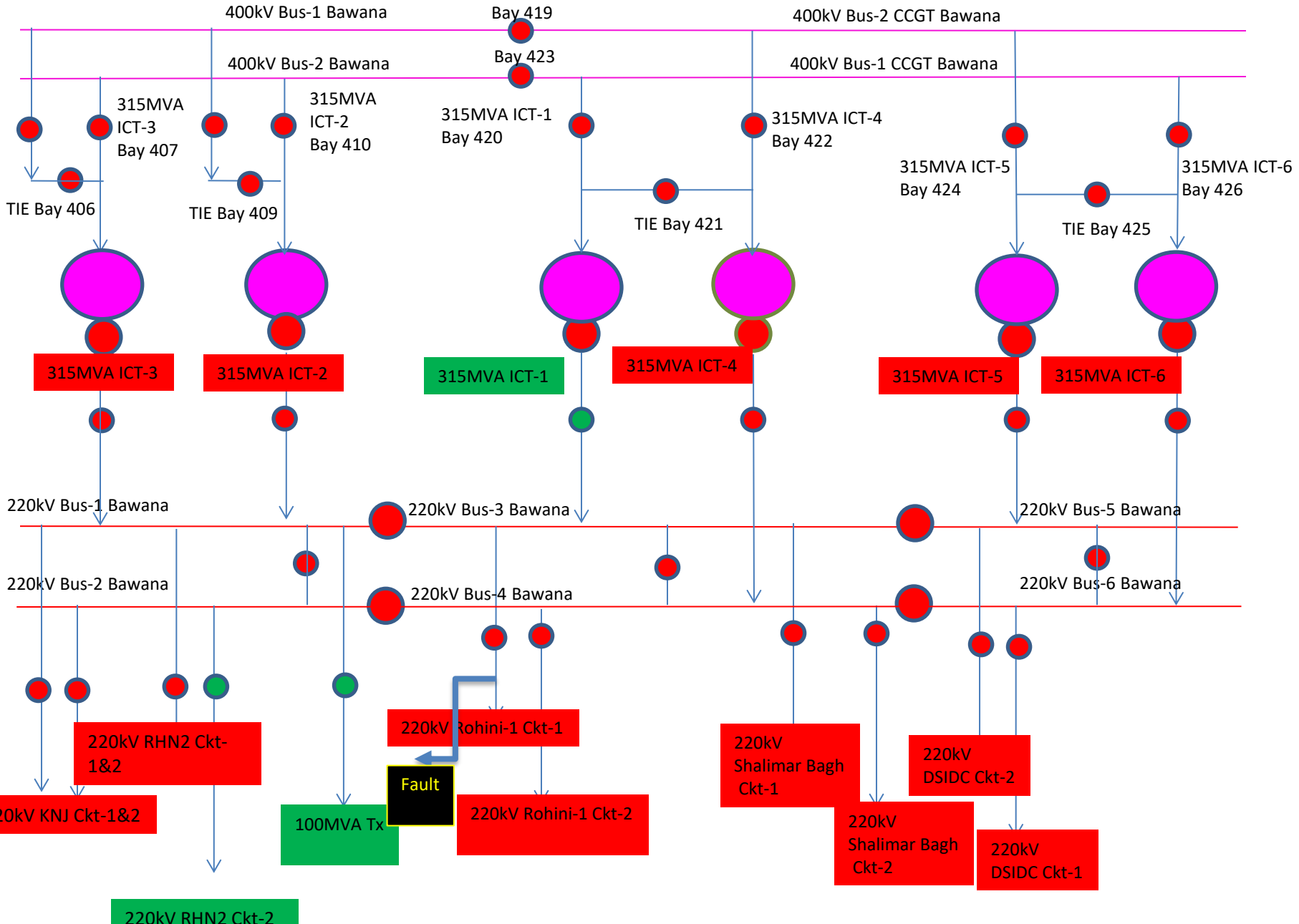
# System configuration of system at 400kV Bawana at 10:13 Hrs. on 27/01/2026 at the time of initiation of fault



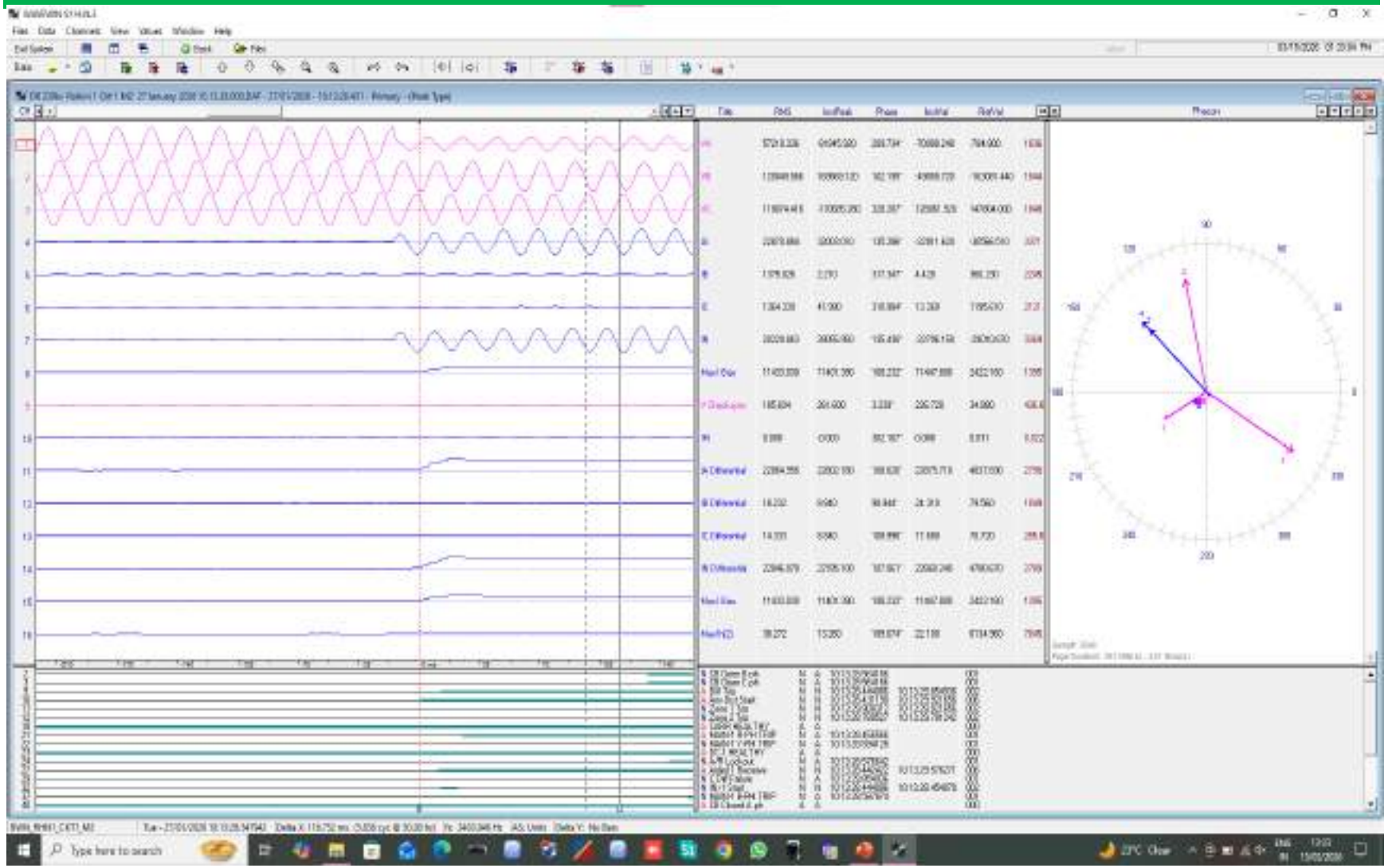
# 220kV Bus Bar M2 Section-2 relay DR Bawana



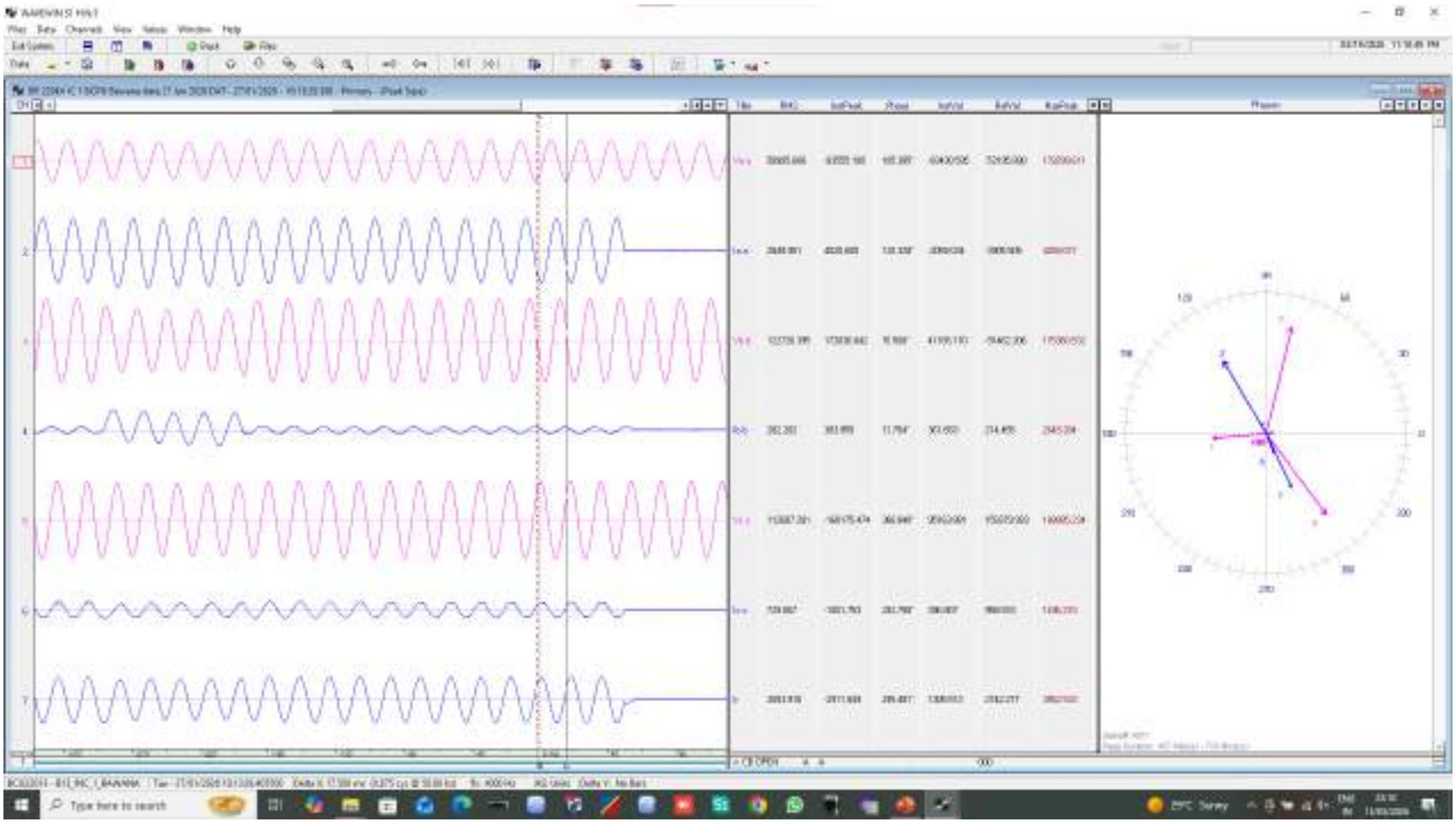
# System configuration 400kV Bawana at 10:13 Hrs. on 27/01/2026 after Rohini1 Ckt 1 fault



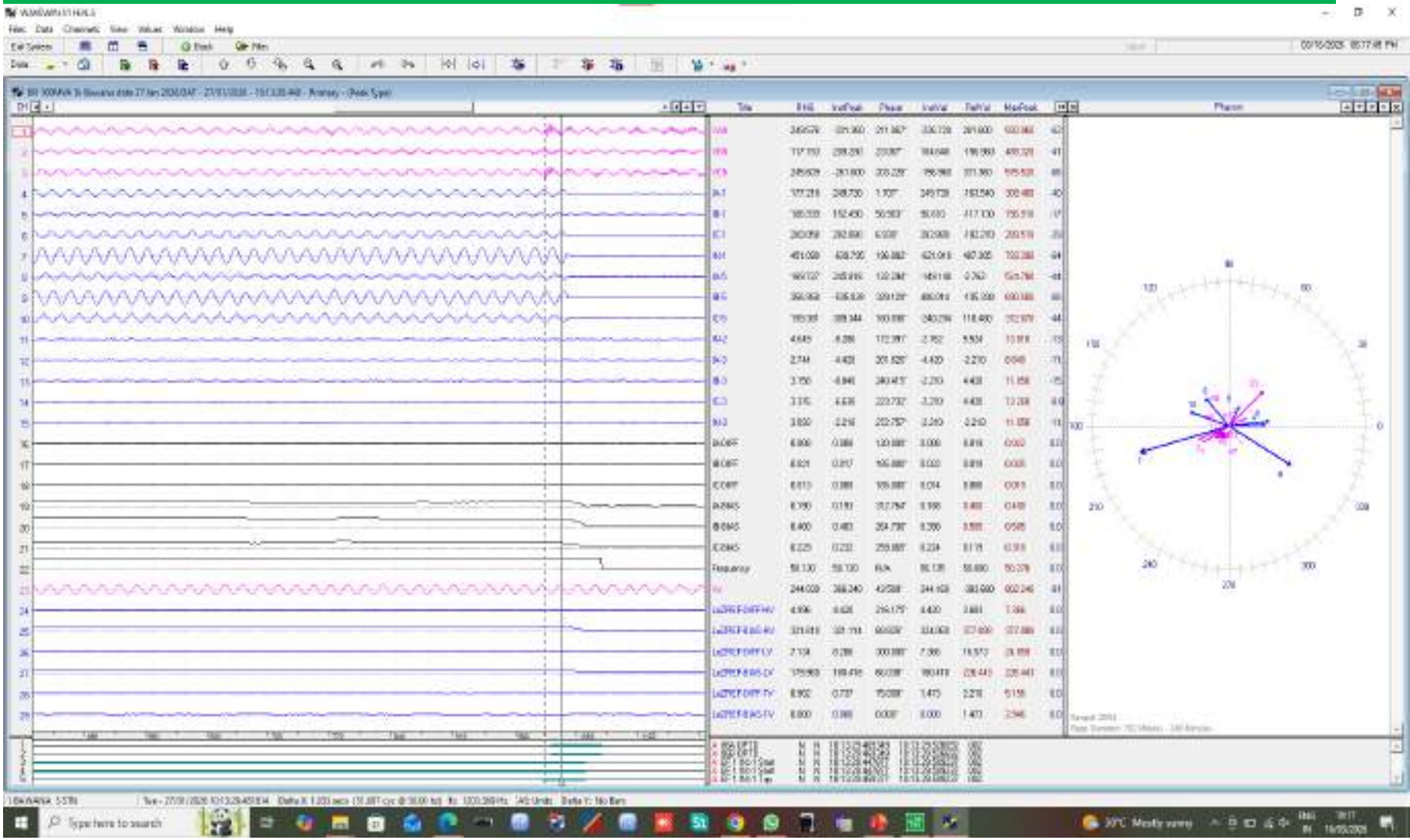
# DR 220kV Bawana_Rohini1 Ckt. 1_M2



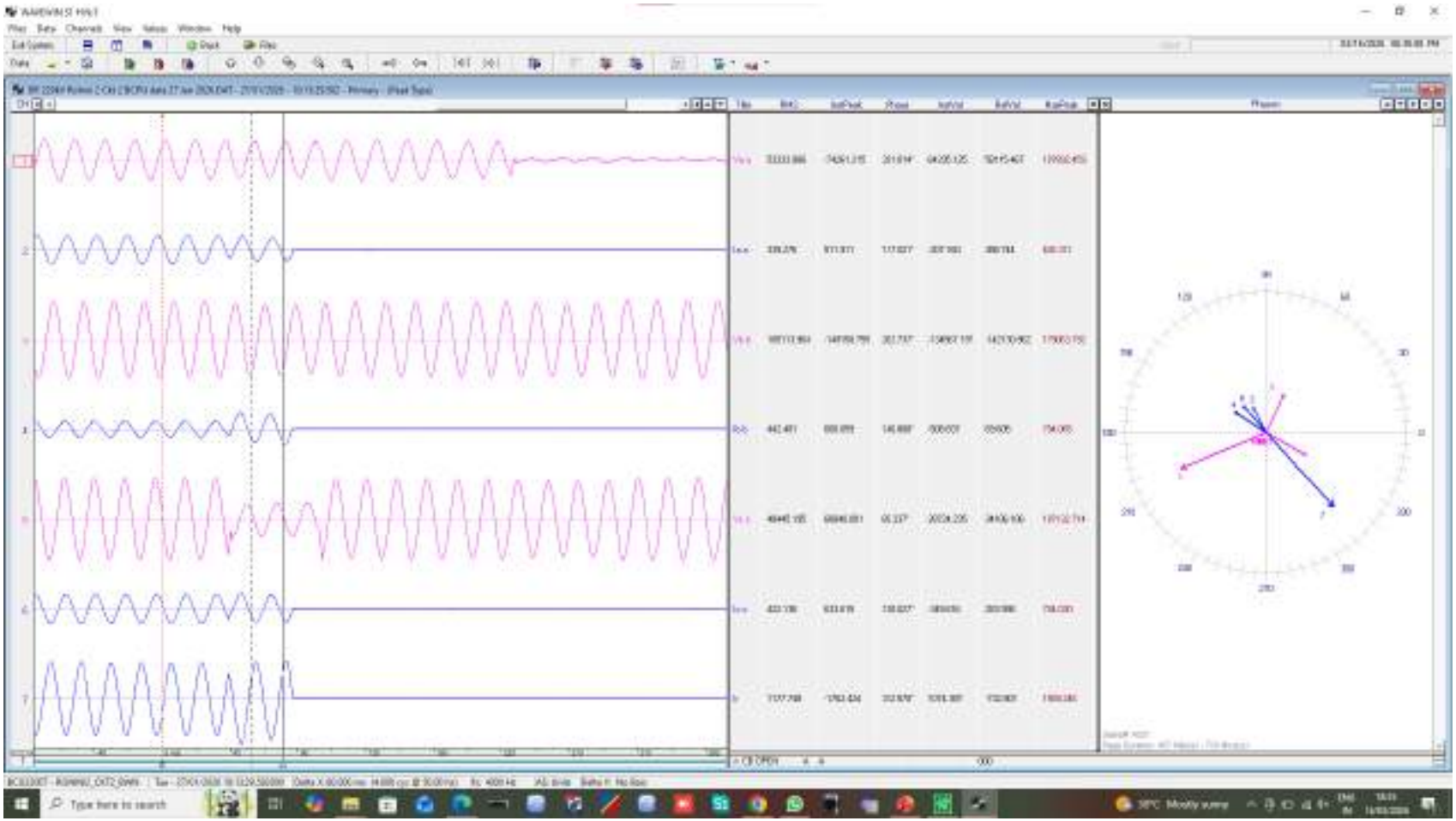
# 220kV IC-1 DR Bawana



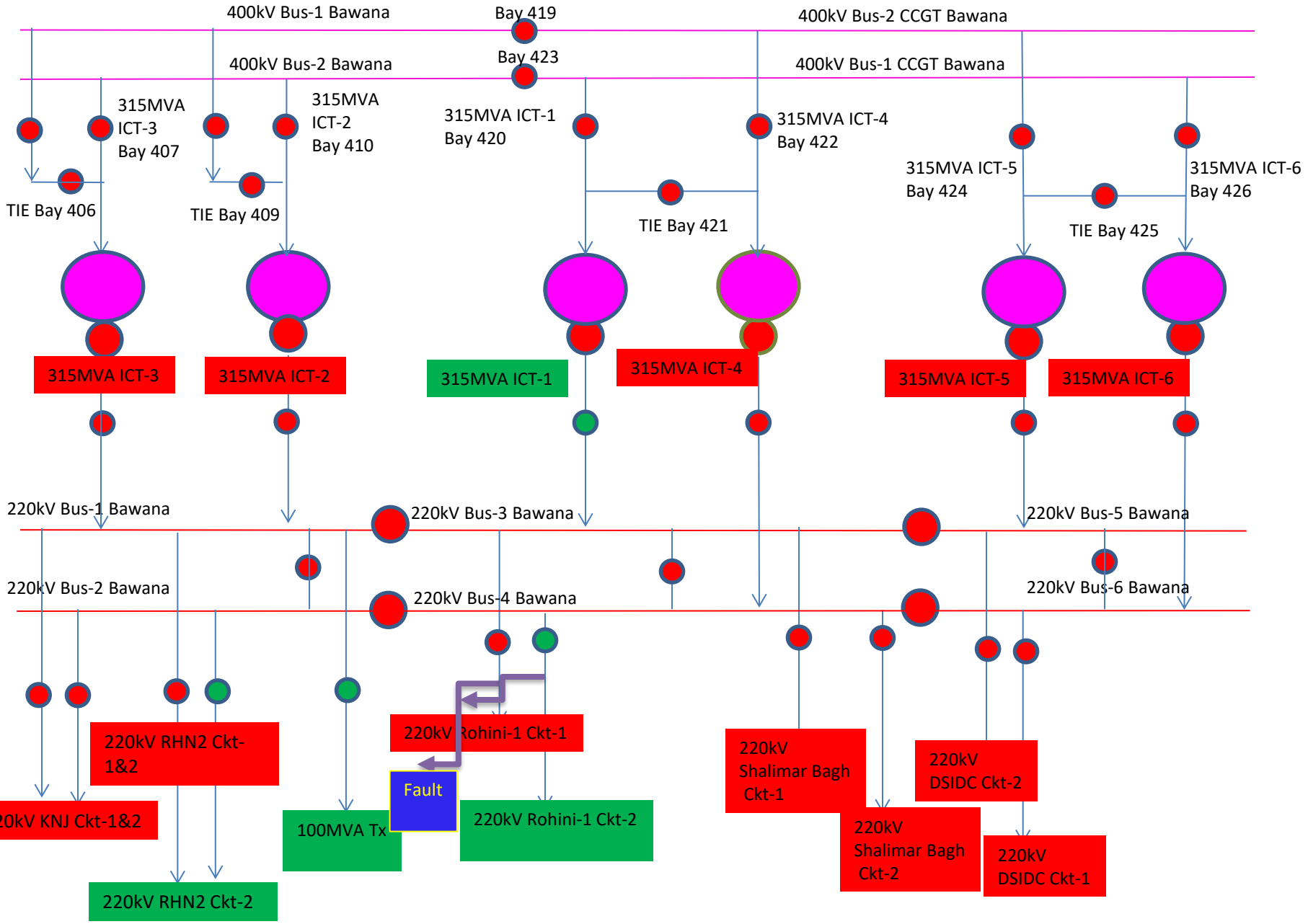
# DR 100MVA Tx Bawana



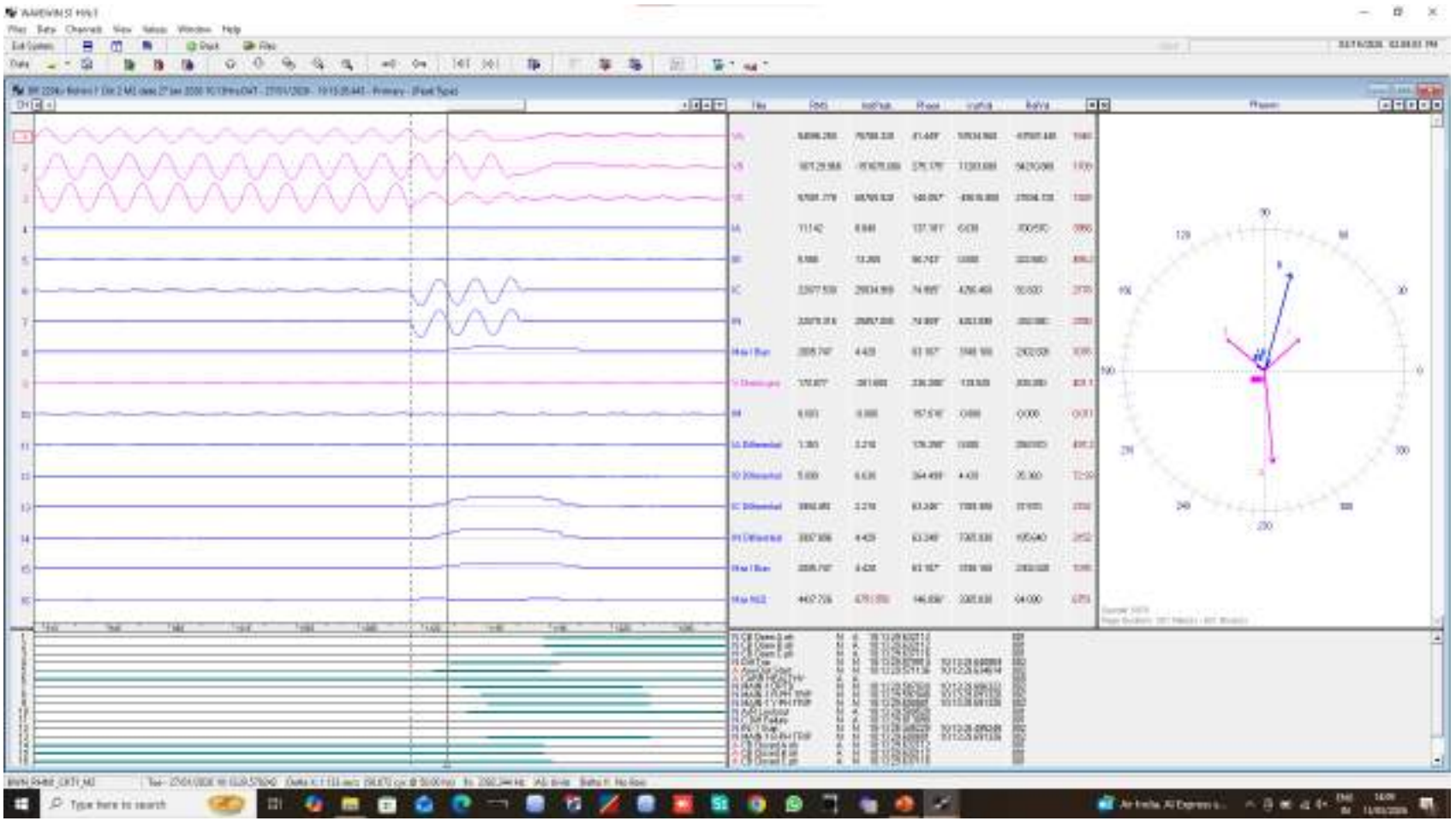
# DR 220kV Bawana_Rohini2 Ckt 2 BCPU



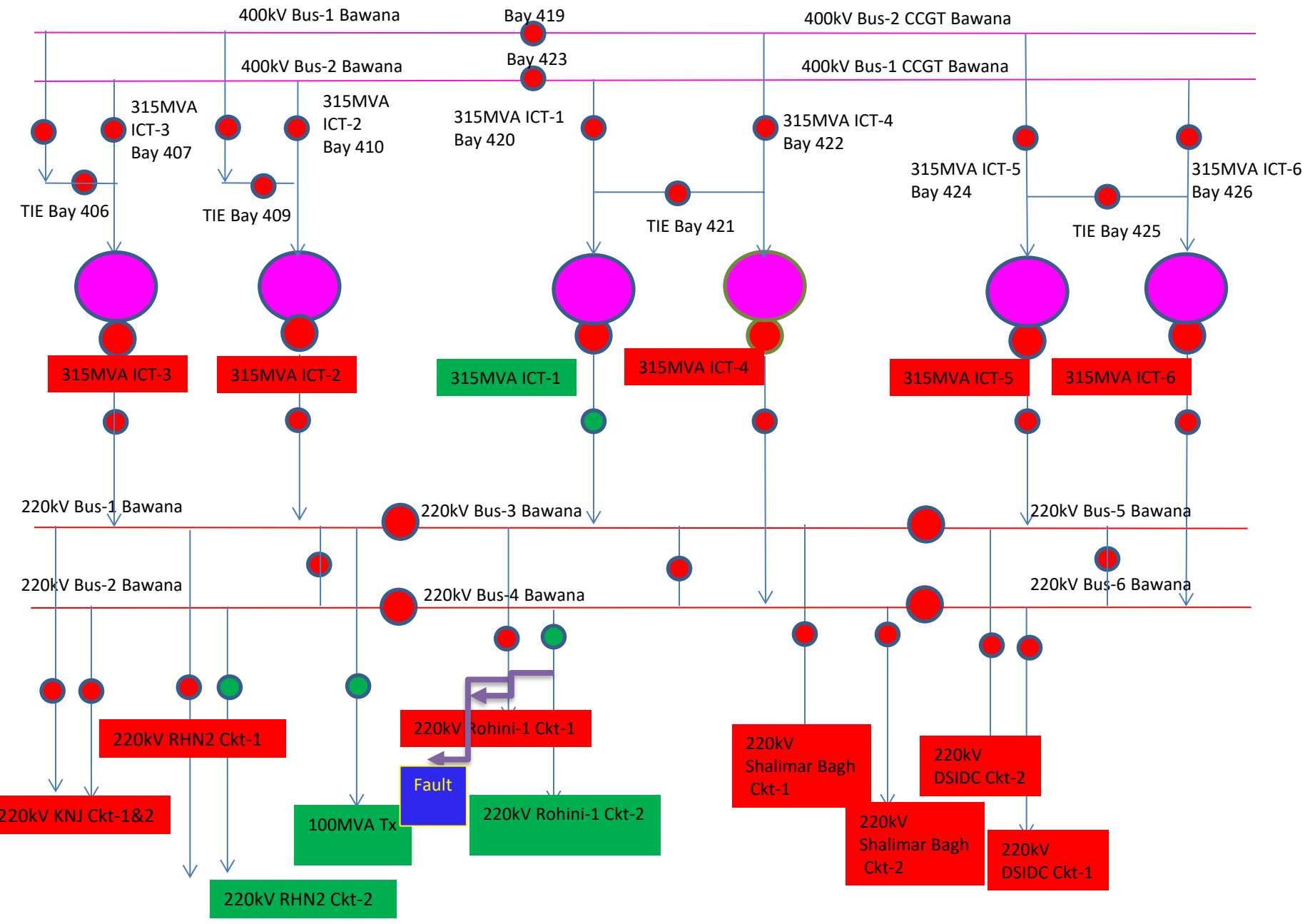
# System configuration of system at 400kV Bawana at 10:13 Hrs. on 27/01/2026 during 220kV Bawana_Rohini1 Ckt 2 fault



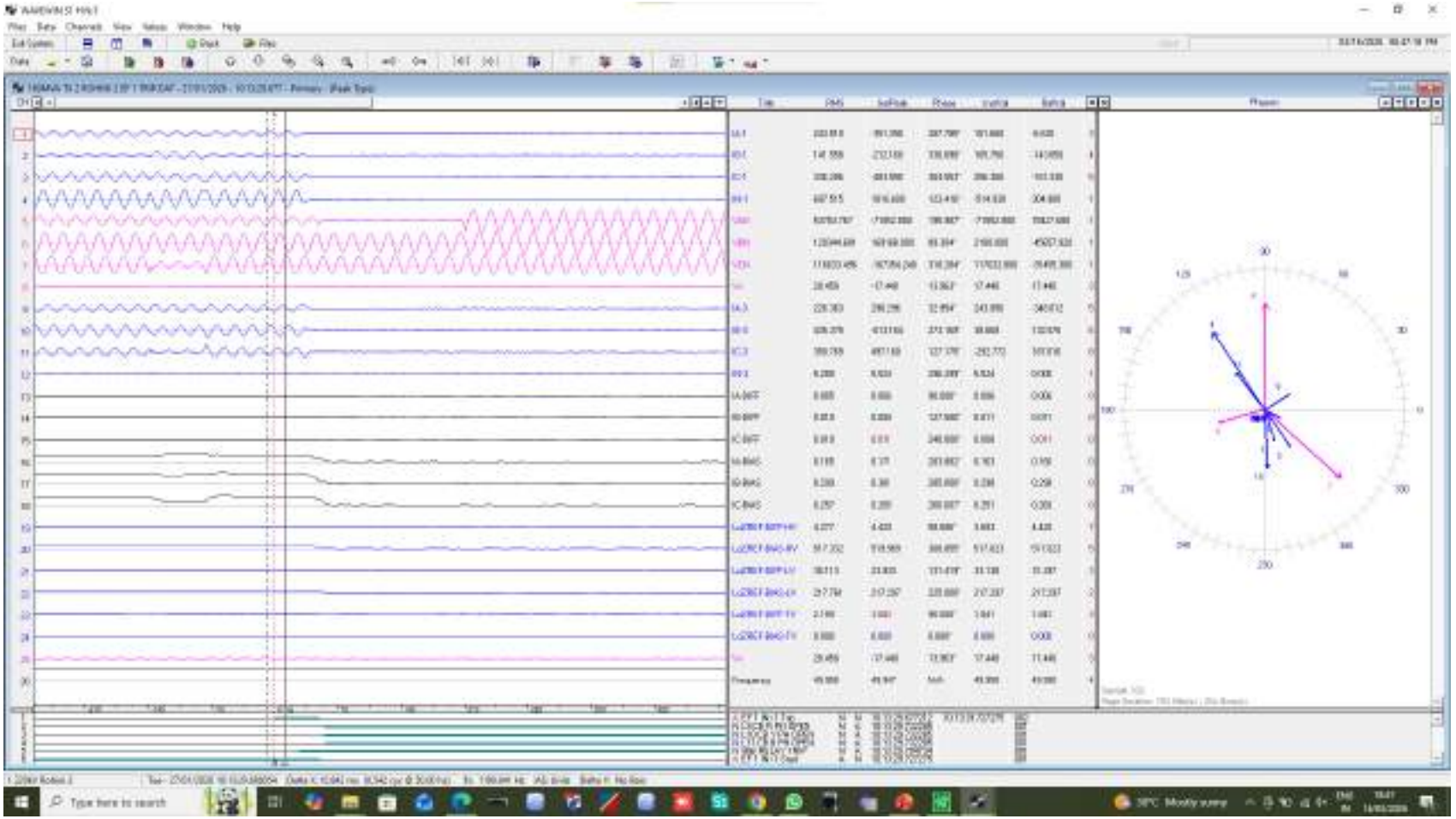
# DR 220kV Bawana_Rohini1 Ckt. 2_M2



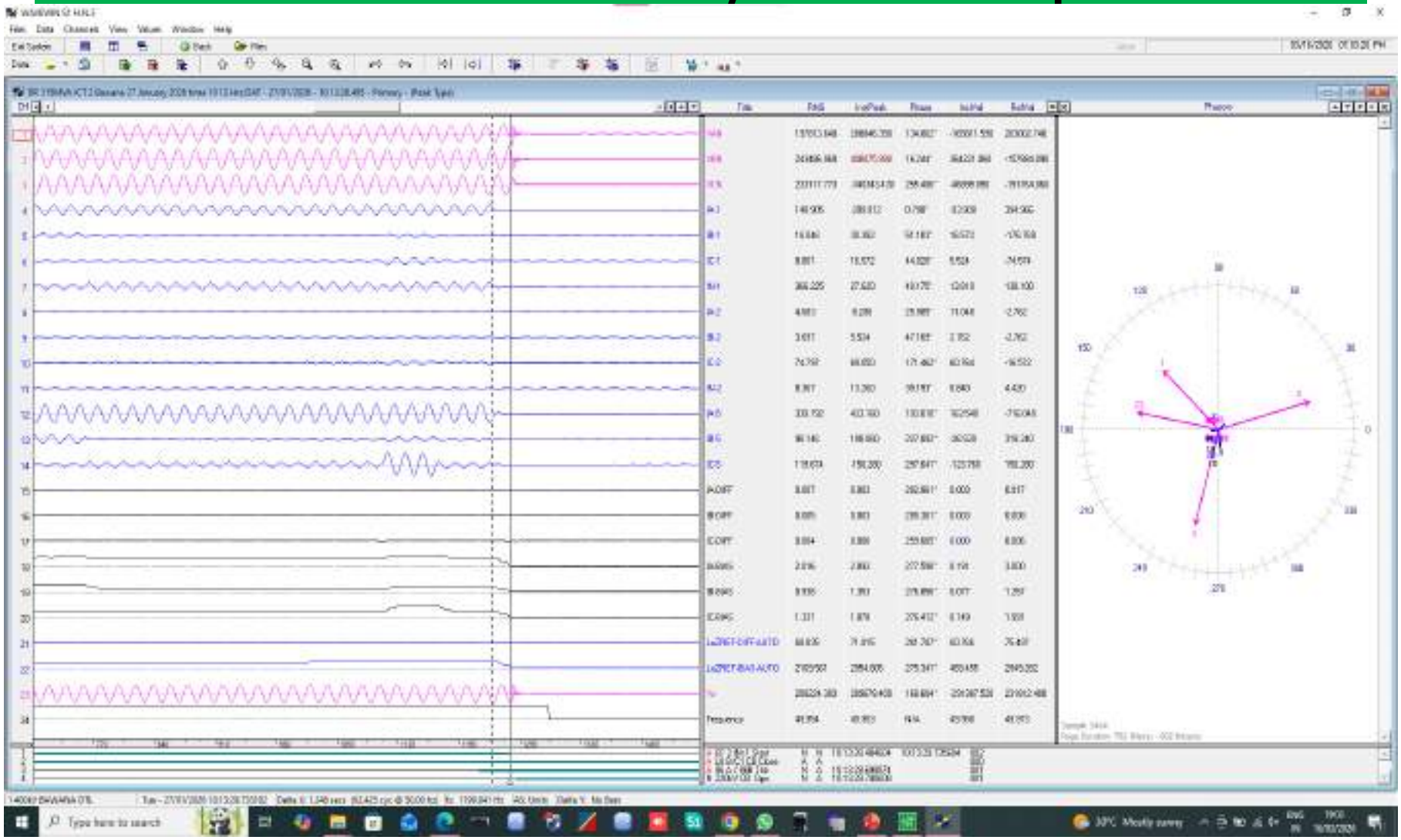
# System configuration at 400kV Bawana at 10:13 Hrs. on 27/01/2026 after Bawana_Rohini Ckt-1&2 fault



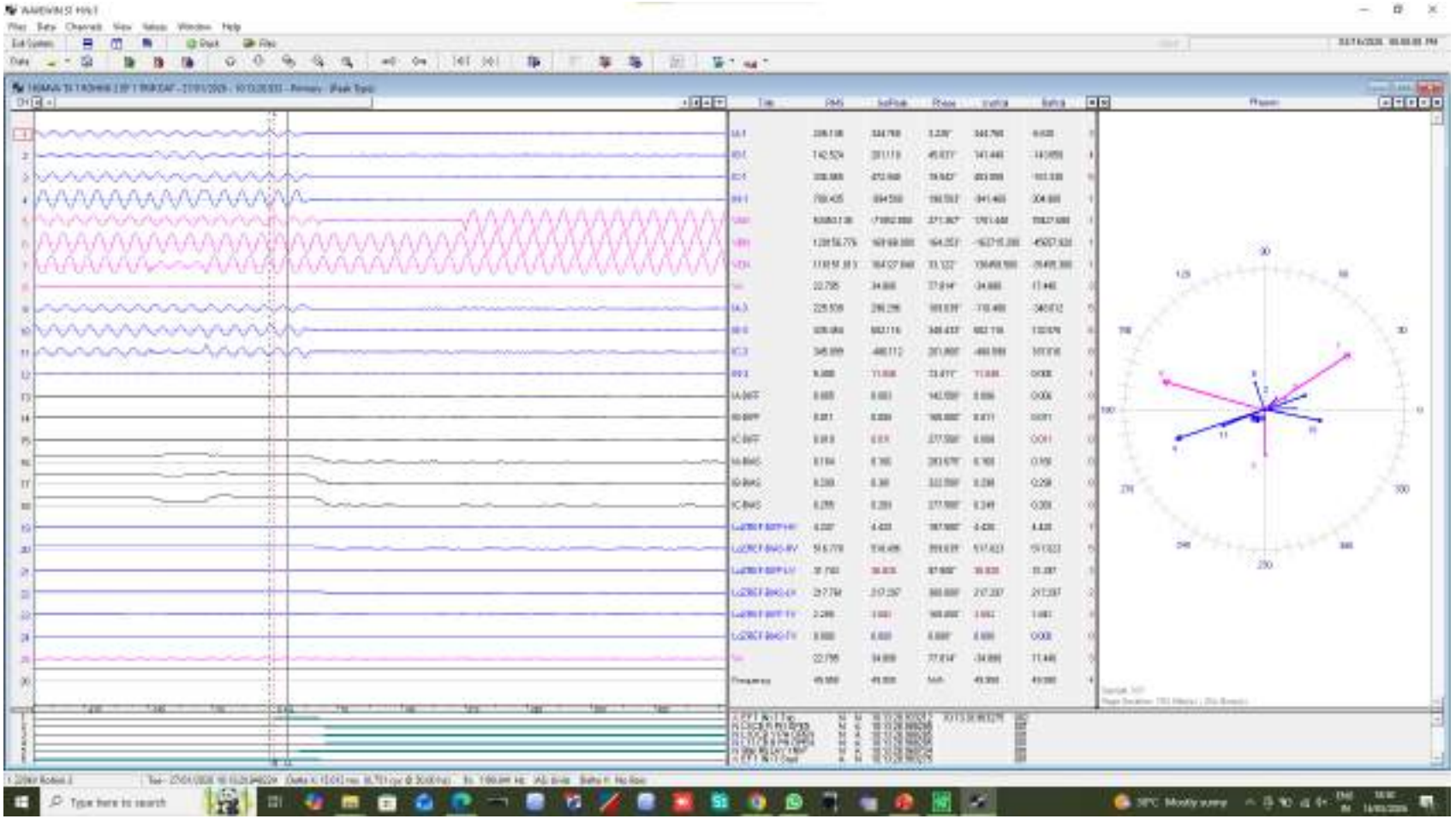
# DR 160MVA Tx2 at Rohini2 Sub Station



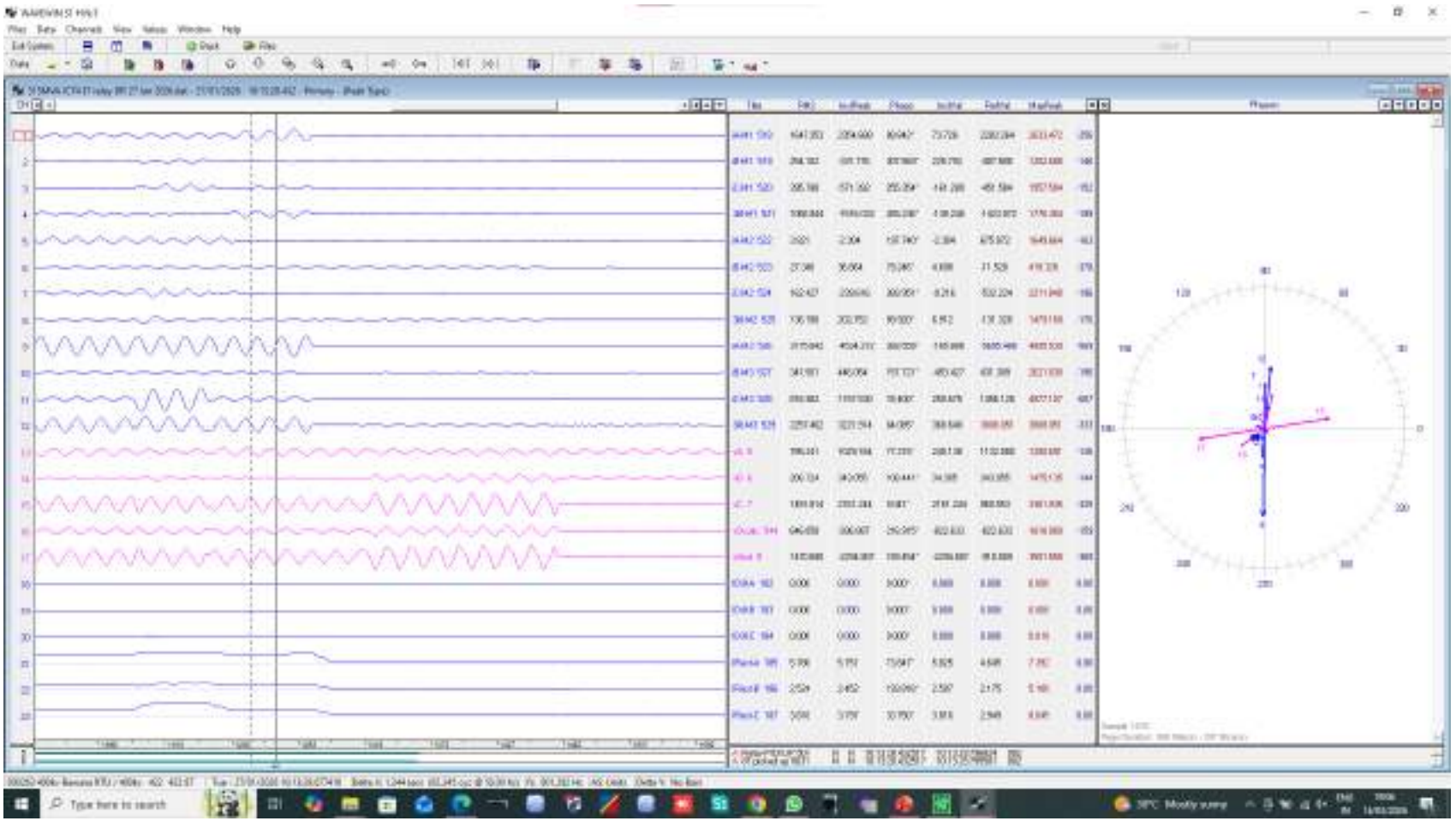
# DR 315MVA ICT-2 Bawana trip due to 220kV IC-2 E/F intertrip



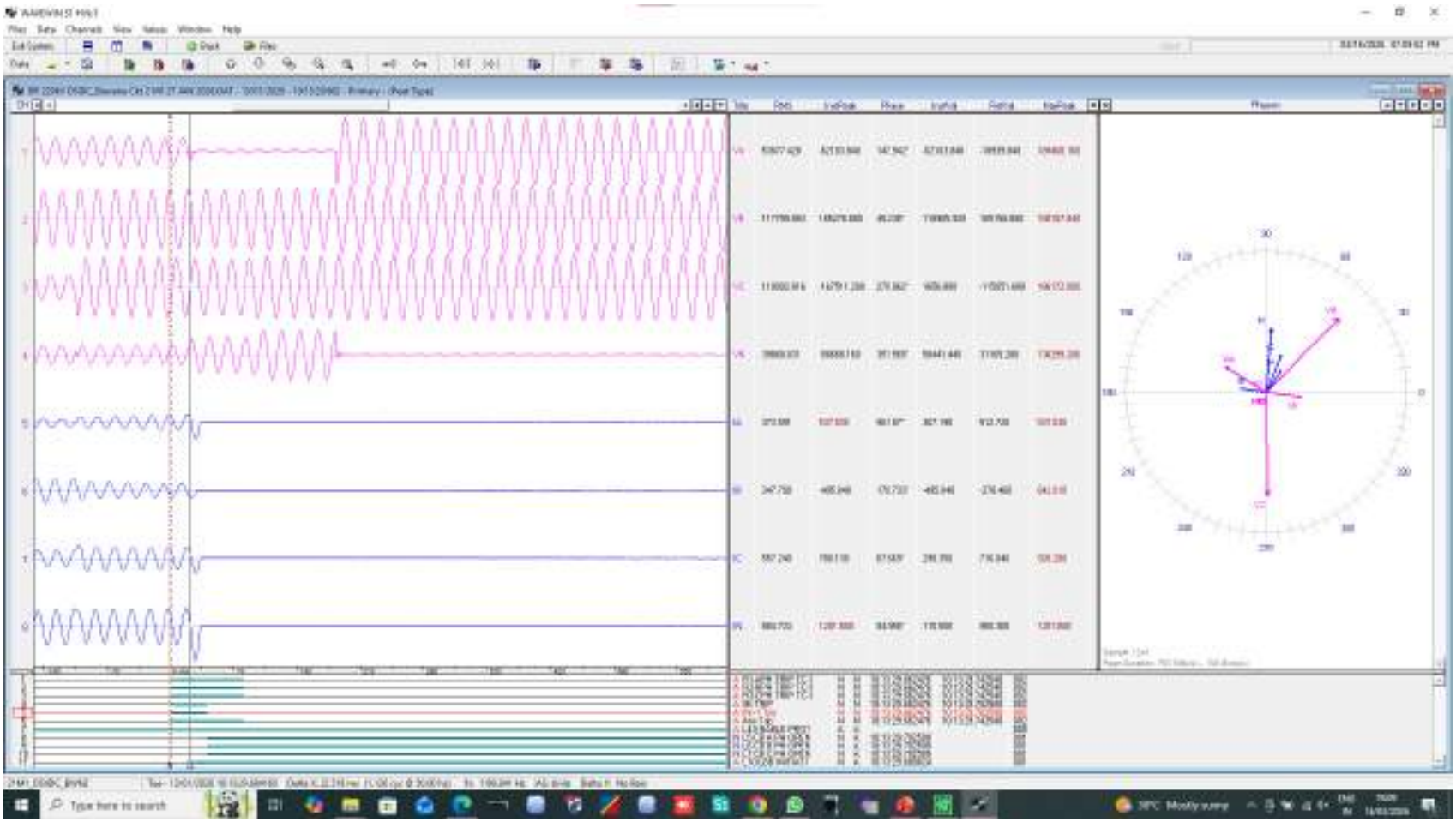
# DR 160 MVA Tx1 Rohini 2 Sub Station



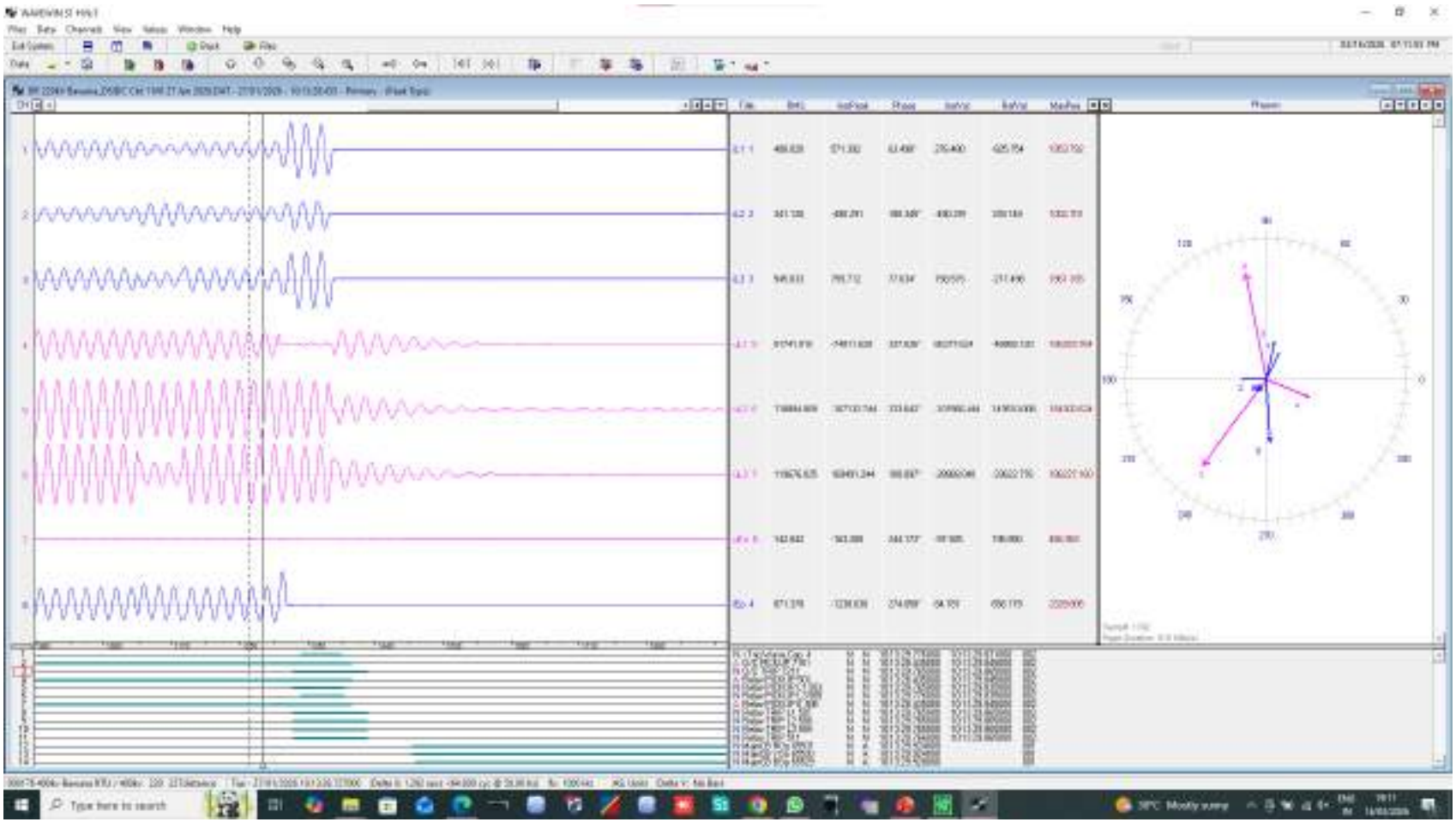
# DR 315MVA ICT 4 Bawana



# DR 220kV DSIDC_Bawana Ckt 2



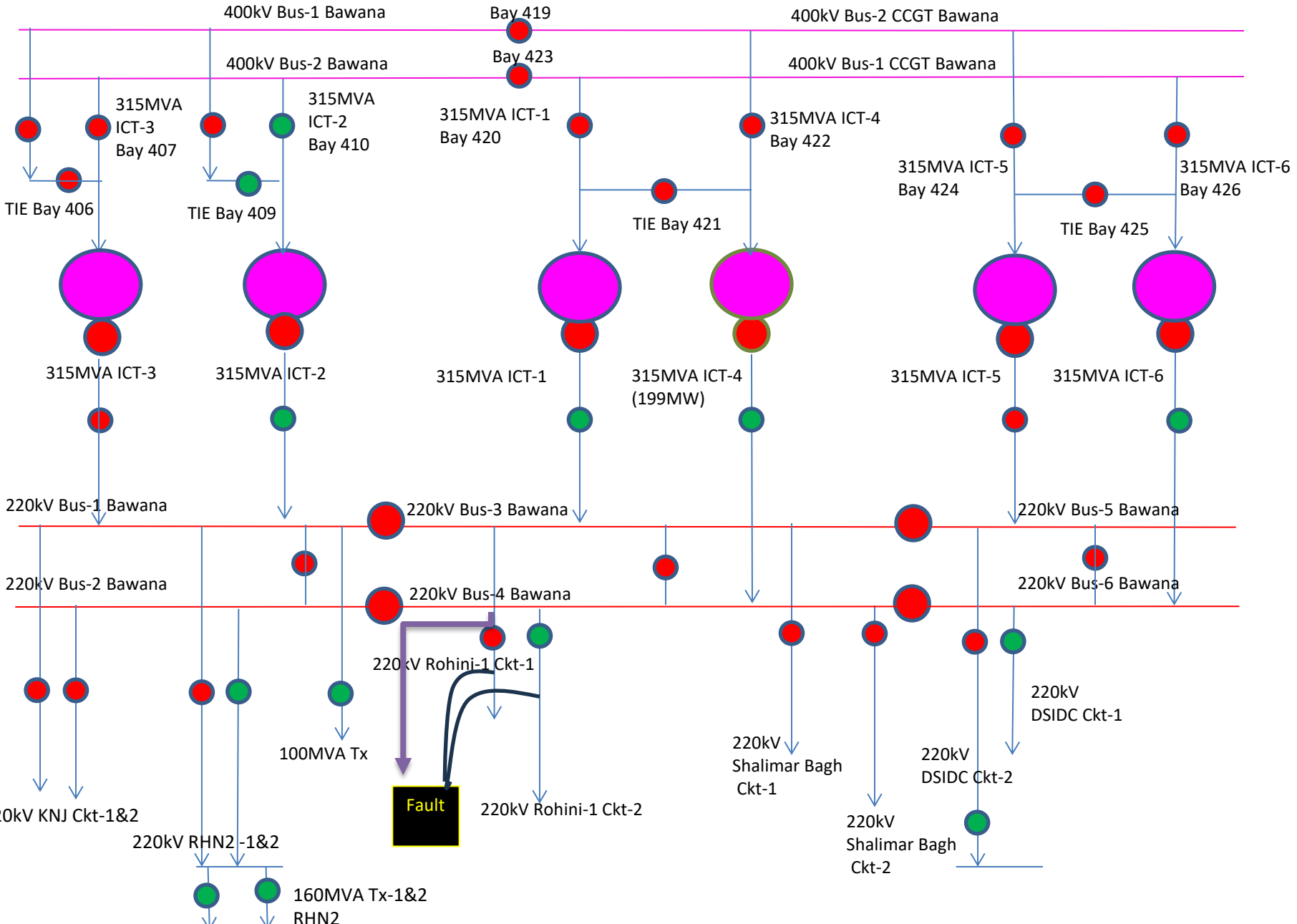
# DR 220kV Bawana_DSIIDC Ckt 1



# 220kV IC 6 Relay



# Configuration of system at 400kV Bawana at 10:13 Hrs. on 27/01/2026 at the time of 220kV Bus-3 fault at R-Ph CT terminal

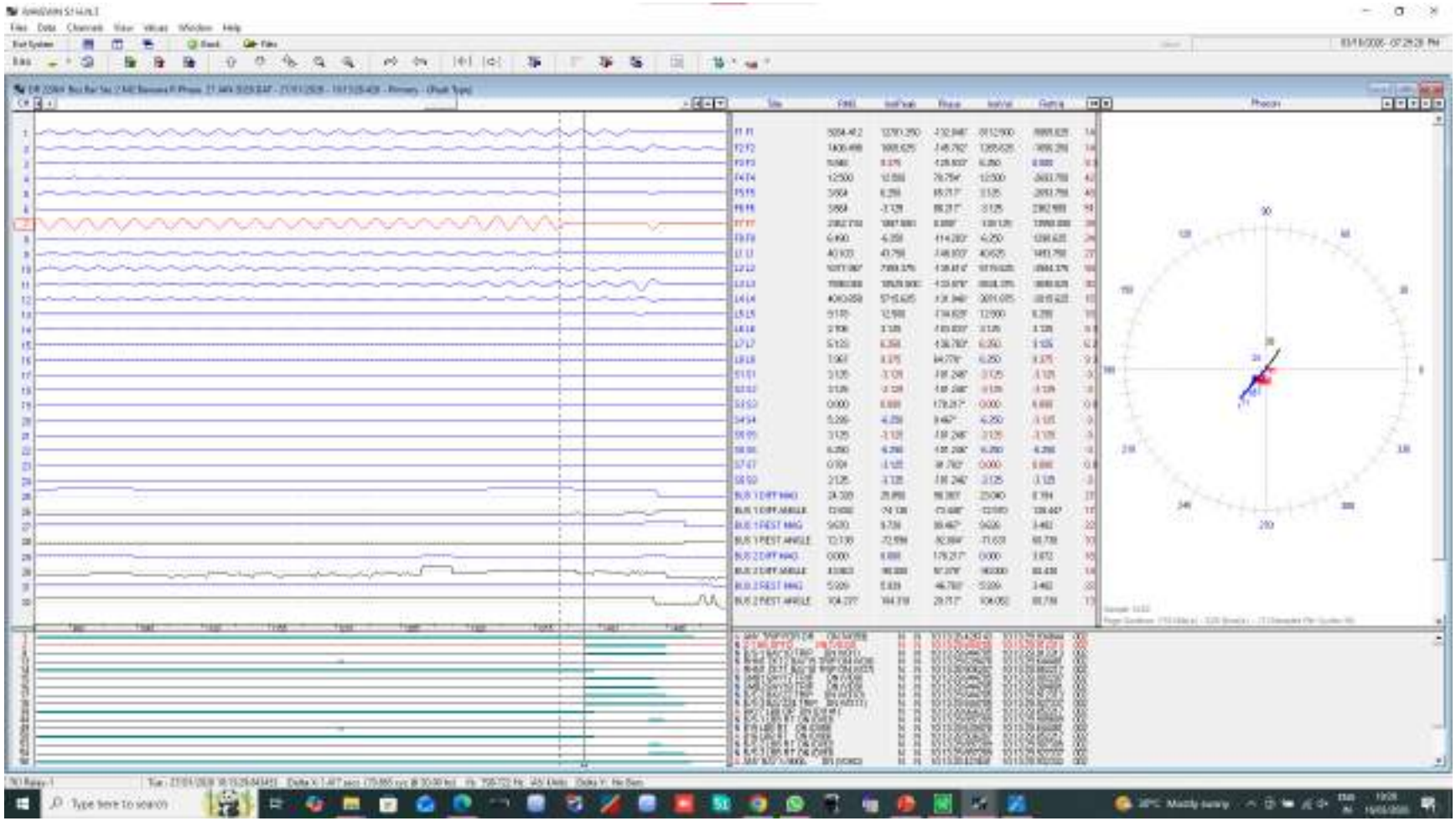


# 220 KV Bus –III Trip Fault on 220kV Bawana_Rohini1 Ckt 1 Red phase CT on 10.13 Hrs at 400kV Bawana Sub Station:

The fault current in red phase of Rohini 1 line continued to fed through struck R pole CB of 220 KV Rohini 1 ckt-1 resulting in terminal flash at R phase Bus side Primary terminal of CT thereafter causing oil leakage in CT. It evolved into 220 KV Bus –III fault.

220 KV Bus –III Fault at Red phase CT of 220kV Bawana_Rohini1 Ckt 1 resulted bus bar differential Zone-1 trip at 400 KV Bawana Substation. Thereby tripping 220 KV Bus Section –I (Bay 11), 220 KV Bus Section –III (Bay 224), 220 KV Bus coupler-II (Bay 219) and 220 KV Bawana Shalimar Bagh Circuit 1 &2. Operation of Bus – III Trip by 87 Bus Bar Relay cleared the faulty section in further 50 mSec.

# DR Bus Bar Trip Bus-3 Bawana



# R phase CT terminal flash at 220kV Bawana_Rohini 1 Ckt 1



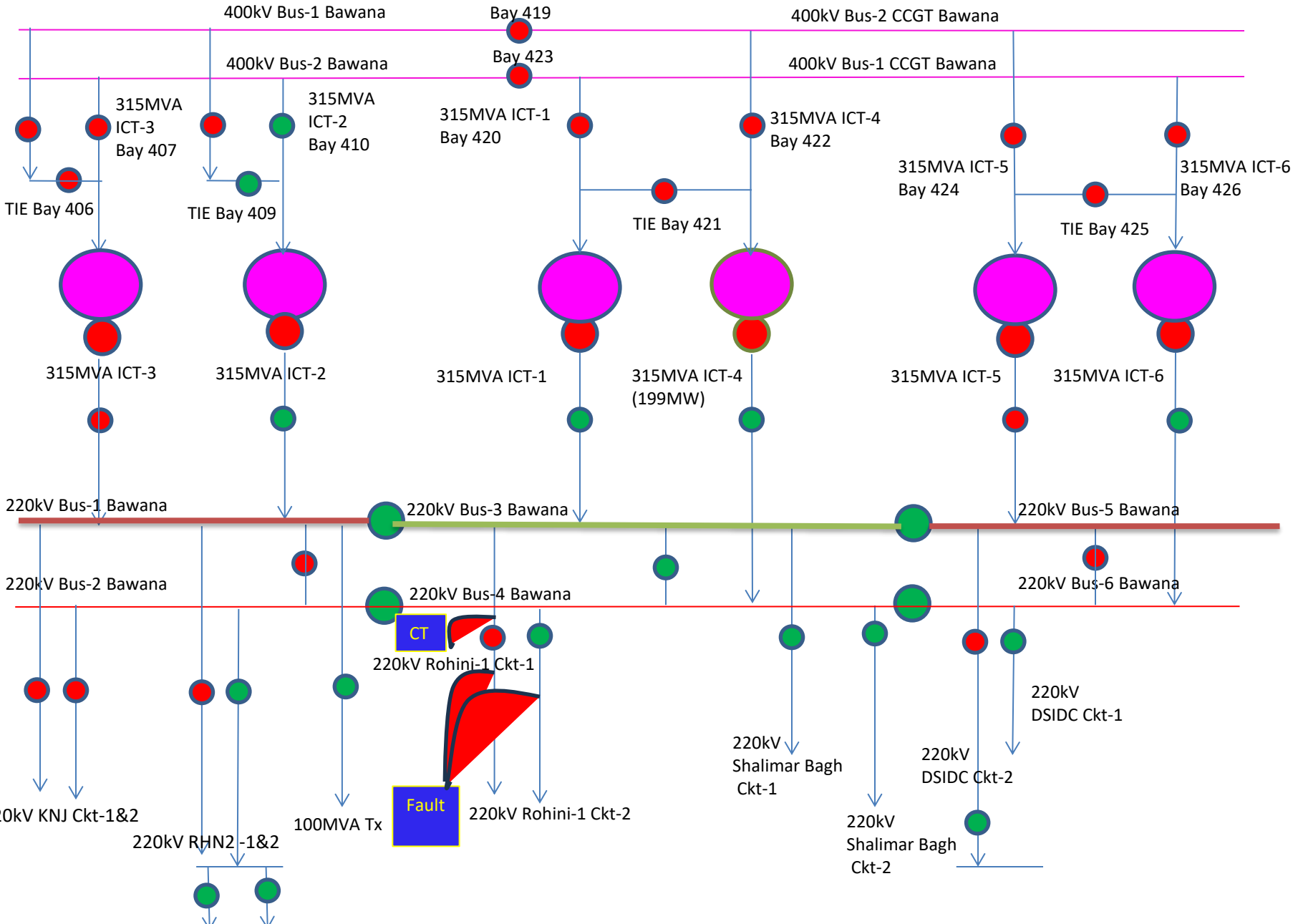
# Point of location flash at R-Phase CT terminal (after cleaning)



# Oil leakage (R Phase CT)



# Configuration of system at 400kV Bawana at 10:13 Hrs. on 27/01/2026 after 220kV Bus-3 fault at R-Ph CT terminal



# Restoration of Supply:-

- 27.01.2026 at 10.44 Hrs 220 KV Shalimar bagh Ciruit - - I
- 27.01.2026 at 10.44 Hrs 220 KV Shalimar bagh Ciruit - – II
- 27.01.2026 at 12.07 Hrs 220 KV DSIDC Ciruit - I
- 27.01.2026 at 10.49 Hrs 220 KV Rohini –II Ciruit - II
- 27.01.2026 at 12.39 Hrs 315 MVA ICT-II at 400 KV BAWANA S/s
- 27.01.2026 at 10.43 Hrs 220 KV I/C-I at 400 KV BAWANA S/s
- 27.01.2026 at 10.40 Hrs 220 KV I/C IV at 400 KV BAWANA S/s
- 27.01.2026 at 11.17 Hrs 220 KV I/C VI at 400 KV BAWANA S/s
- 27.01.2026 at 21.10 Hrs 220 KV Rohini-I Ciruit - - I
- 27.01.2026 at 21.10 Hrs 220 KV Rohini-I Ciruit - – II
- 27.01.2026 at 11.05 Hrs 220 KV Rohini –II 160MVA Tx-1
- 27.01.2026 at 11.17 Hrs 220 KV Rohini –II 160MVA Tx-2
- 27.01.2026 at 12.39 Hrs 220 KV I/C-2 at 400 KV BAWANA S/s
-

# Reasons

1. Isolator status at 220kV Bus Bar relay was not correct due to isolator auxiliary contacts malfunction from switchyard isolator box. Contact was not perfectly in close position i.e Chattering ON/OFF position at the time of fault.

2. After tripping of 220kV IC-1,2,4&6 , Fault got cleared by operation of 220kV Bus Bar-3 trip resulting tripping of B/S-1,B/S-3 & B/C-2 thereby leading to isolation of fault from 220kV I/C-3&5 also.

In the event of said fault, primary protection operated in desired time and LBB backup protections also operated after 200mSec. on CB Fail condition but the delayed clearance was due to non-switching of LBB trip due to isolator contact problem in the field.

# Action taken:

- Isolator auxiliary contacts checked and set in proper position & function. Now all isolator auxiliary contacts are working normal and there is no error in switching of Bus Bar protection relay.
- CB maintenance done by maintenance team and restored to healthy state.

# Multiple elements tripping at 400/220kV Bareilly(UP) at 13:07 hrs on 04.02.2026

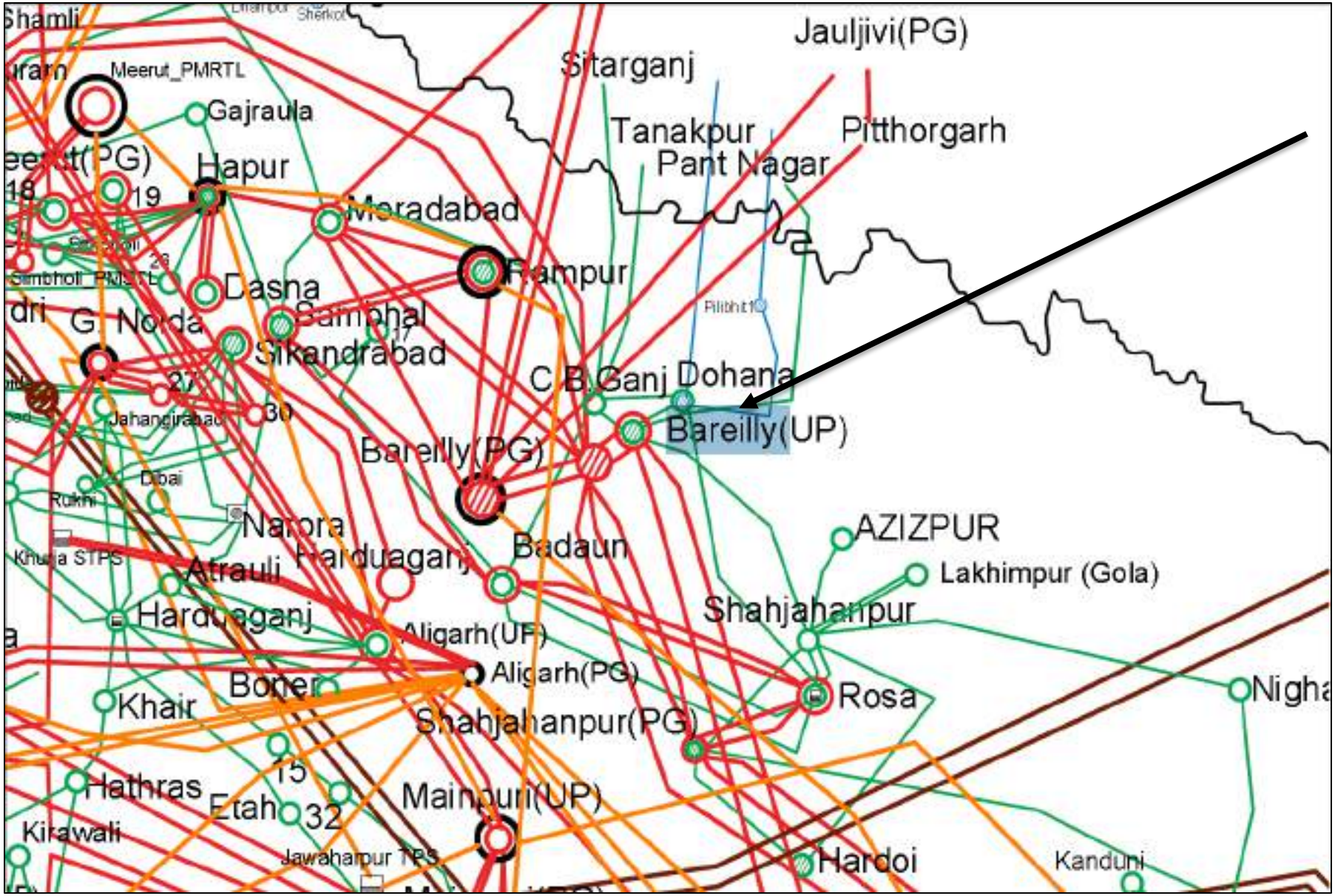
# Tripped Elements

| S. No | Name of Elements | Outage Time | Revival Time | Reason of tripping |
|---|---|---|---|---|
| 1. | 400 kV Bareilly-Unnao (UP) Ckt-1 | 13:07 hrs | 13:47 hrs | Tripped on zone-2 from remote end |
| 2. | 400 kV Bareilly-Unnao (UP) Ckt-2 | | 13:48 hrs | |
| 3. | 400 kV Bareilly(UP)-Bareilly(PG) (PG) Ckt-1 | | 14:28 hrs | |
| 4. | 400 kV Bareilly(UP)-Bareilly(PG) (PG) Ckt-2 | | 14:28 hrs | |
| 5. | 400/220kV 315 MVA ICT-3 at Bareilly(UP) | | 14:23 hrs | Directional E/F relay operated |
| 6. | 220kV Bareilly(UP)-Dohna Ckt-1 | | 14:44 hrs | Tripped from Dohna end on zone-3 |
| 7. | 220kV Bareilly(UP) -Dohna Ckt-2 | | 14:45 hrs | |
| 8. | 220kV Bareilly(UP) -CB Ganj Ckt-1 | | 14:05 hrs | Tripped from remote end on backup earth fault protection operation |
| 9. | 220kV Bareilly(UP)-Pilbhit Ckt-1 | | 14:05 hrs | |
| 10. | 220kV Bareilly(UP)-Pantnagar Ckt-1 | | 14:48 hrs | Tripped from Pantnagar end on zone-3 |
| 11. | 220kV Bareilly(UP)-Faridpur Ckt-1 | | 14:51 hrs | Tripped from Faridpur end on zone-1 |

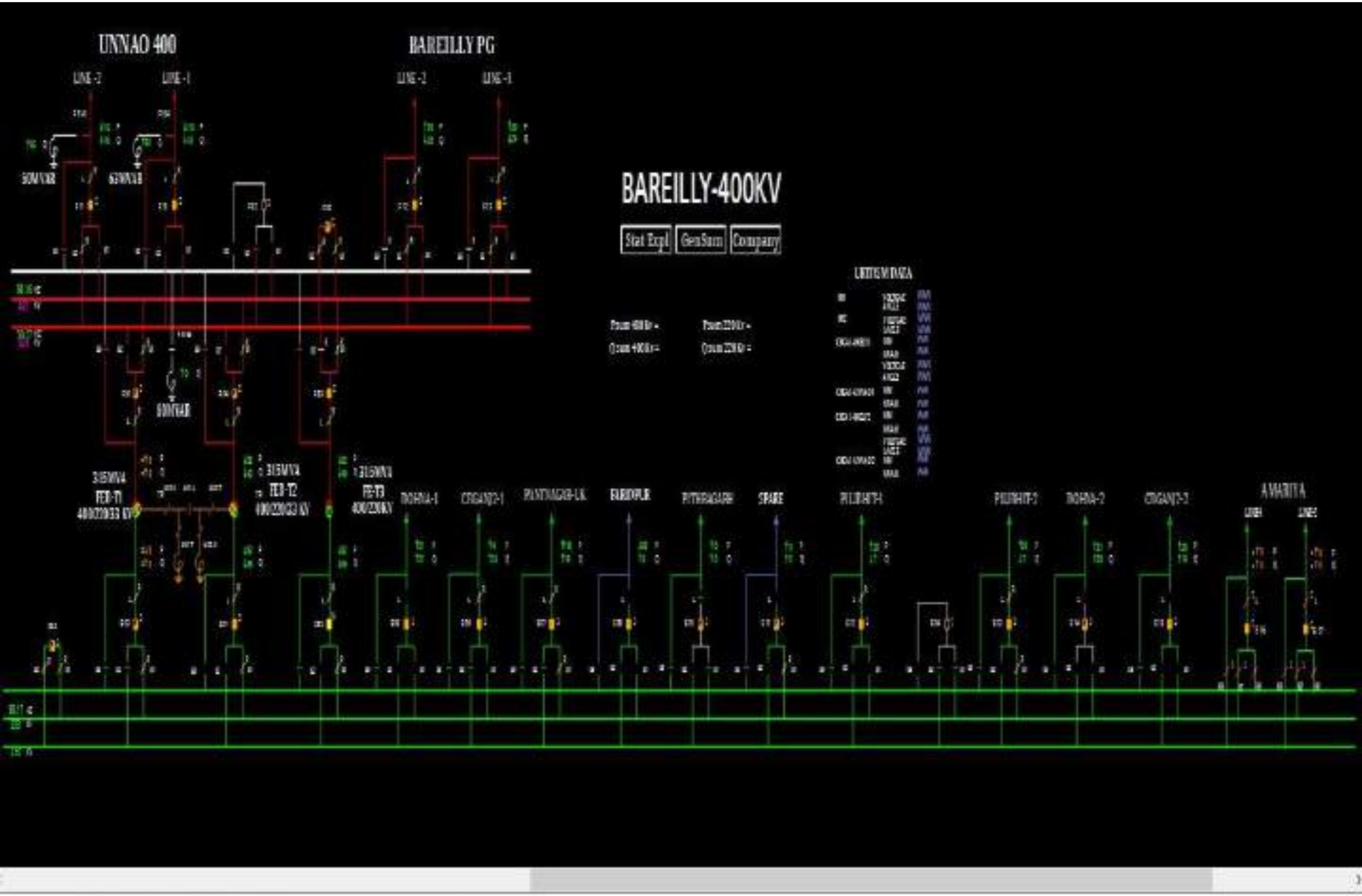
# Brief details of the event

- 400/220kV Bareilly(UP) has double main and transfer bus scheme at both 400kV level and 220kV level.
- During antecedent condition, 400/220KV 315 MVA ICT-1 at Bareilly(UP) was already under planned shutdown.
- As reported, at 13:07 hrs, fault occurred on 400kV Y-ph of Bus-2 at Bareilly(UP) due to a metallic kite thread. On this fault, 400kV static bus bar protection at Bareilly(UP) did not operate.
- This led to tripping of all 400kV lines connected to both the buses on zone-2 protection operation from remote end (as confirmed from DR).
- On this fault, 400/220kV 315 MVA ICT-3 at Bareilly(UP) tripped on LV side backup directional earth fault relay operation. However, 400/220kV 315 MVA ICT-2 at Bareilly(UP) didn't trip as backup relay did not operate.
- Due to this, all 220kV lines connected to Bareilly(UP) tripped on zone-3 or directional E/F protection operation from remote end except 220kV Bareilly(UP) -CB Ganj Ckt-2 and 220kV Bareilly(UP)-Pilbhit Ckt-2 and complete blackout occurred at 400/220kV Bareilly(UP).
- As per SCADA SOE, 220/132kV 160 MVA ICT-1 & 2 at Dohna also tripped during the same time. As confirmed by SLDC UP, 220/132kV 160 MVA ICT-1 & 2 at Dohna tripped due to directional E/F protection operation.
- As per DR and PMU at Bareilly(PG), Y-N phase to earth fault was observed with delayed fault clearing time of 400 ms.
- As per SCADA, no change in demand is observed in UP control area.
- As informed by SLDC UP, healthiness of LV backup relay of 400/220kV 315 MVA ICT-2 at Bareilly(UP) and 400kV bus bar protection relay will be checked during shutdown proposed on 10.02.2026 and 11.02.2026 respectively.

# Network Diagram

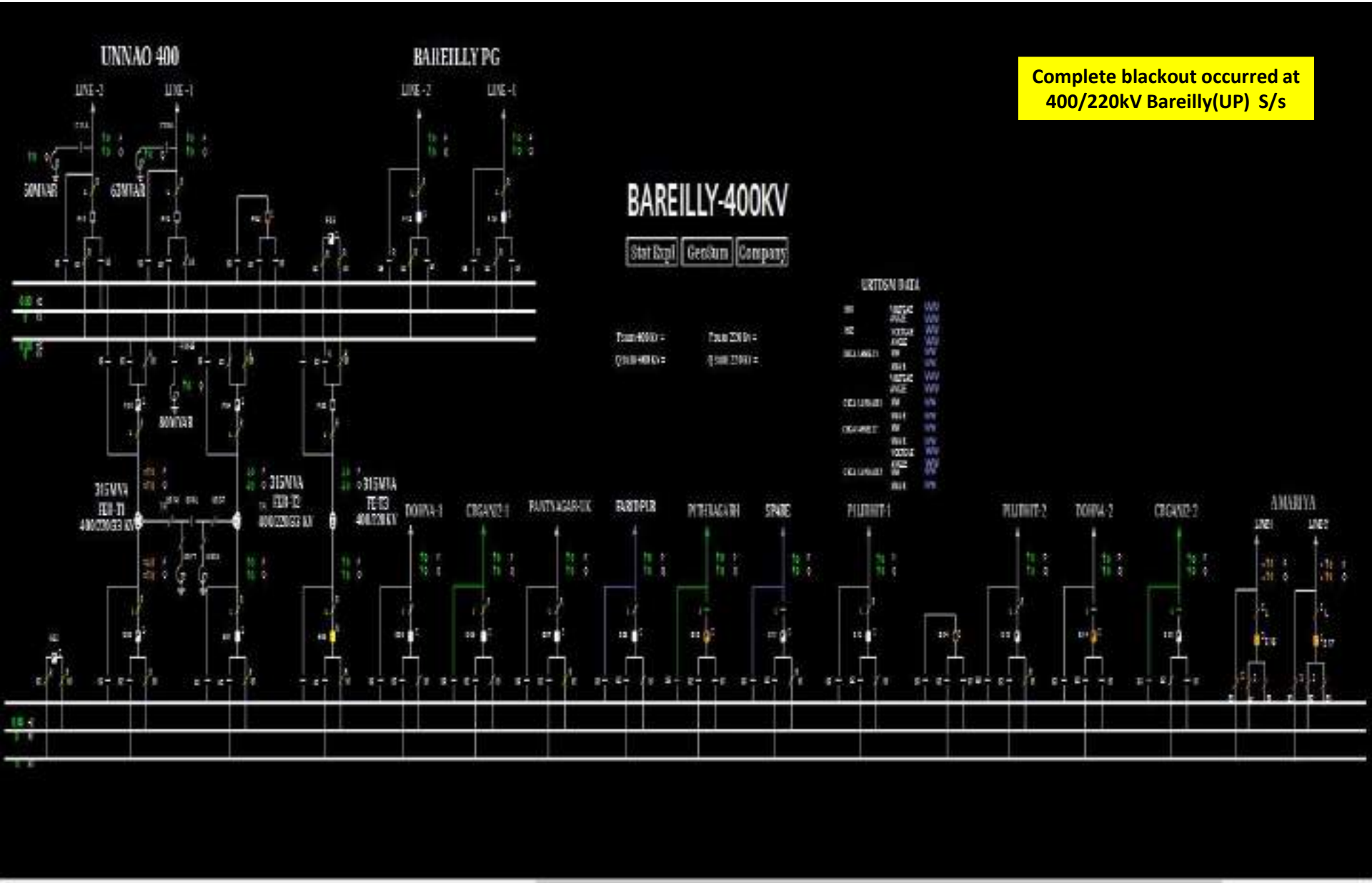


# SLD of 400/220kV Bareilly(UP) before the event

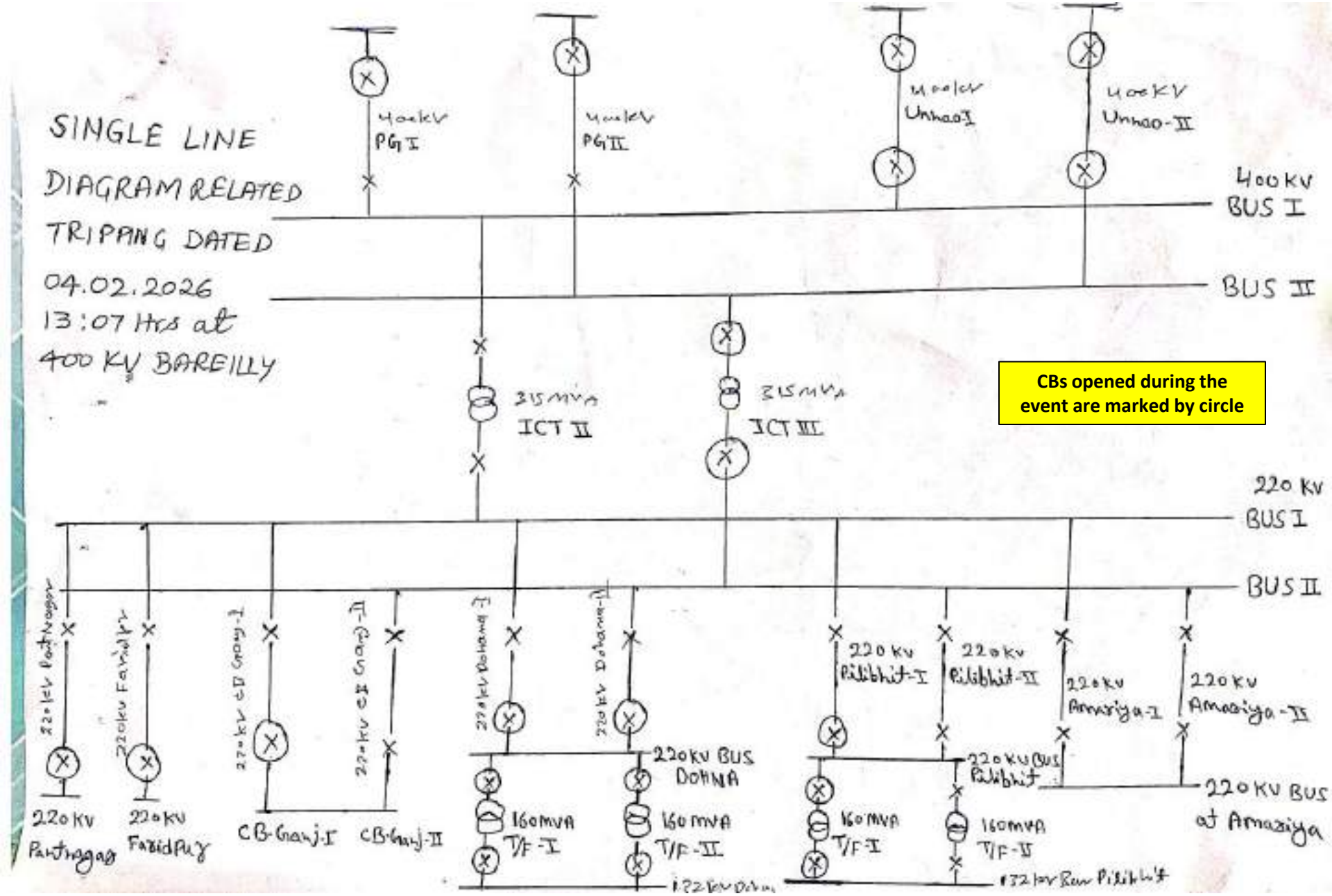



Wed February 4 2026 13:05:00

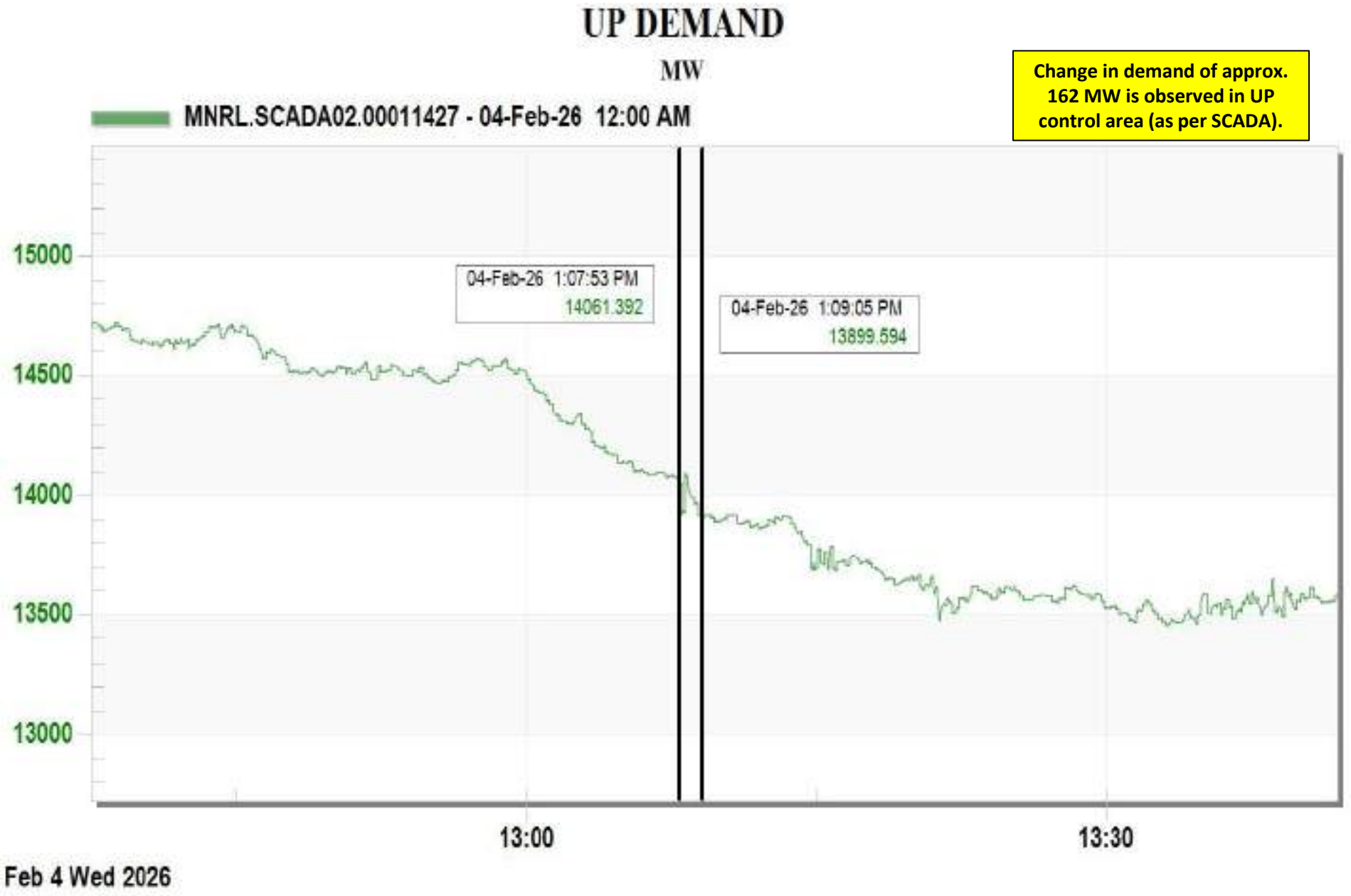
# SLD of 400/220kV Bareilly(UP) after the event



# SLD of 400/220kV Bareilly(UP) as shared by SLDC UP

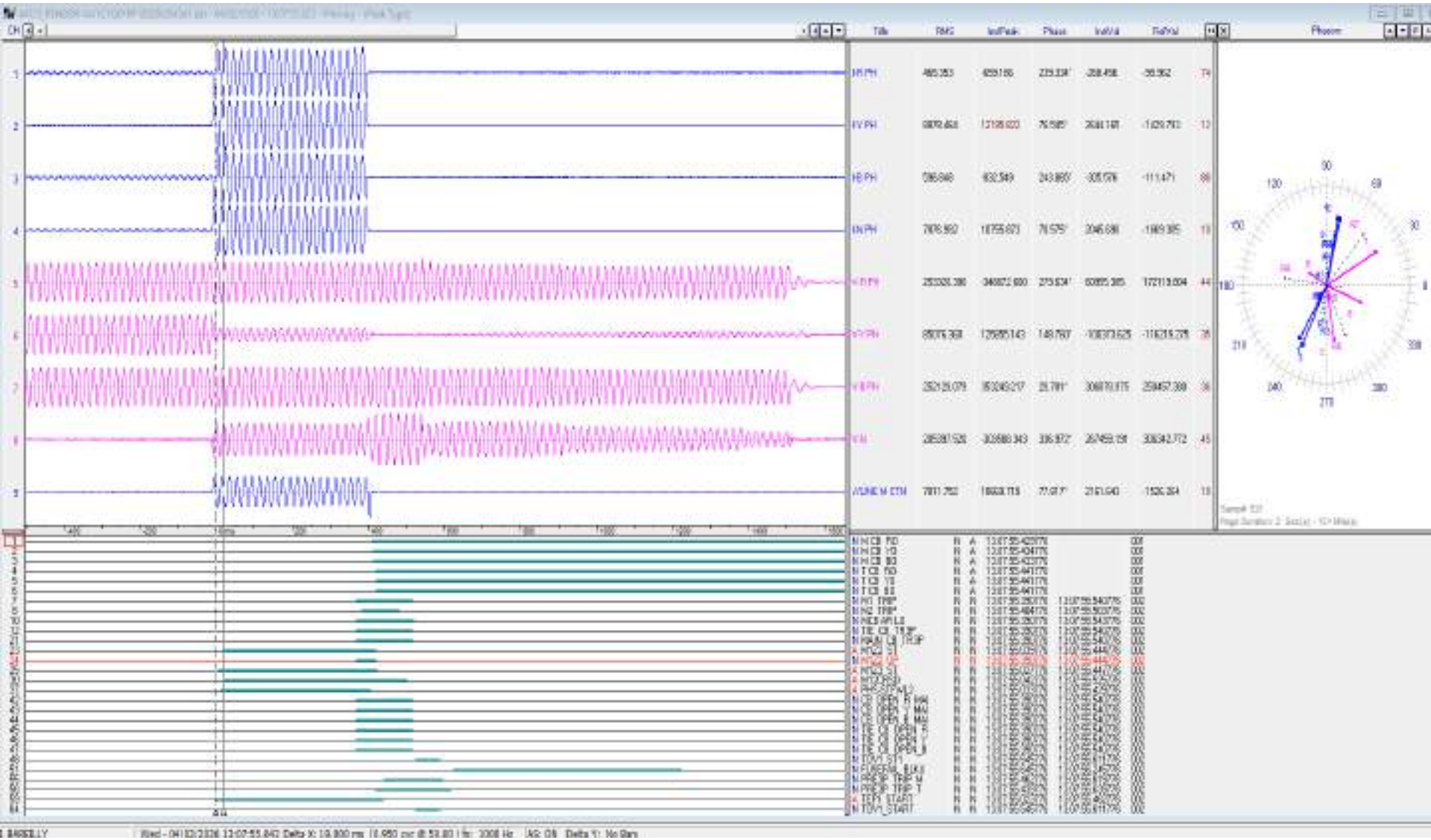


# UP demand during the event



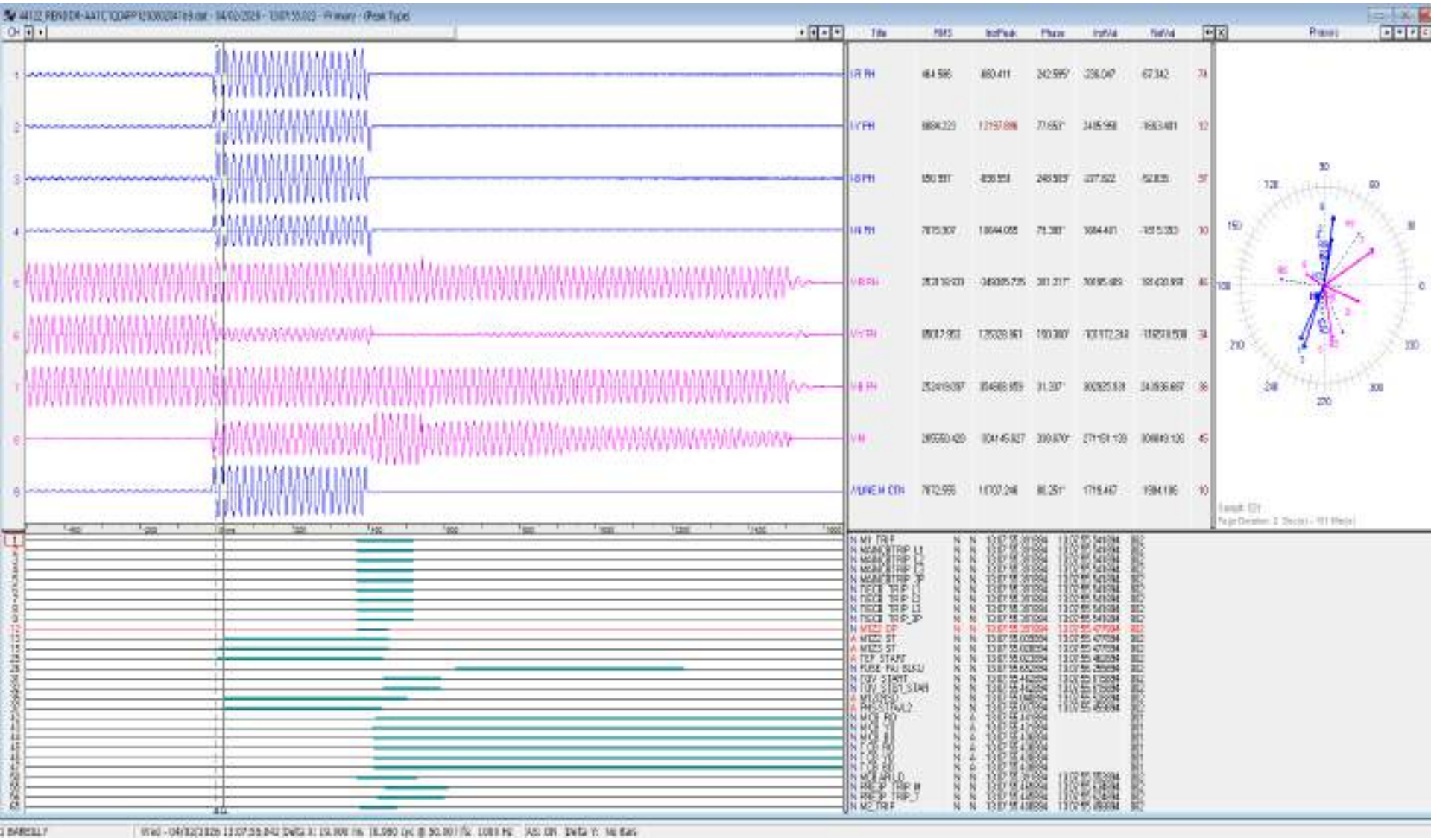

**Change in demand of approx. 162 MW is observed in UP control area (as per SCADA).**

# DR Of 400 KV Bareilly(UP)-Bareilly(PG) (end) (PG) Ckt-1



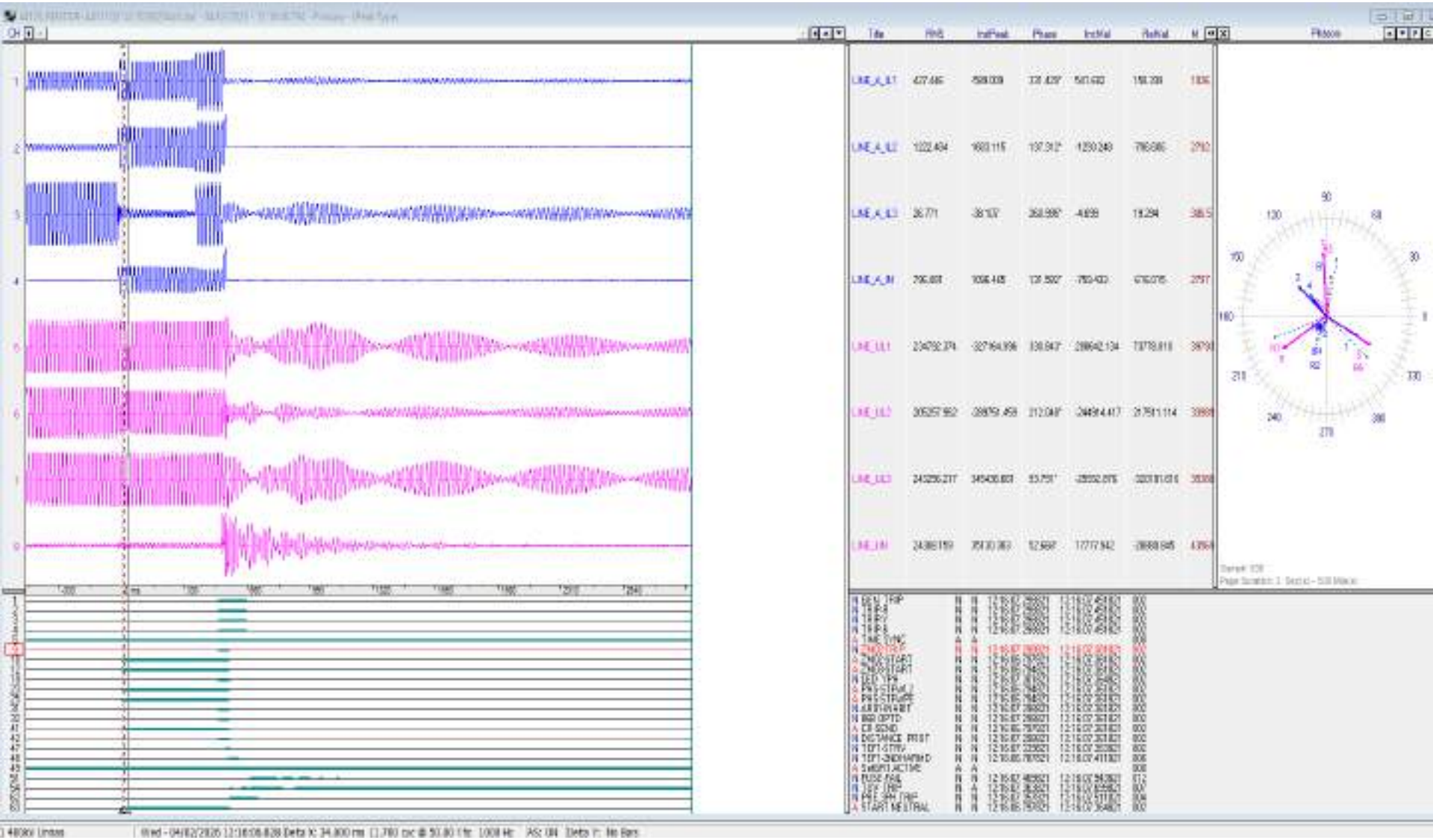
- ✓ Y-N phase to earth fault; fault current: Iy=~8.878kA
- ✓ Fault clearing time=~400ms
- ✓ Zone-2 protection operated at Bareilly(PG) end.

# DR Of 400 KV Bareilly(UP)-Bareilly(PG) (end) (PG) Ckt-2



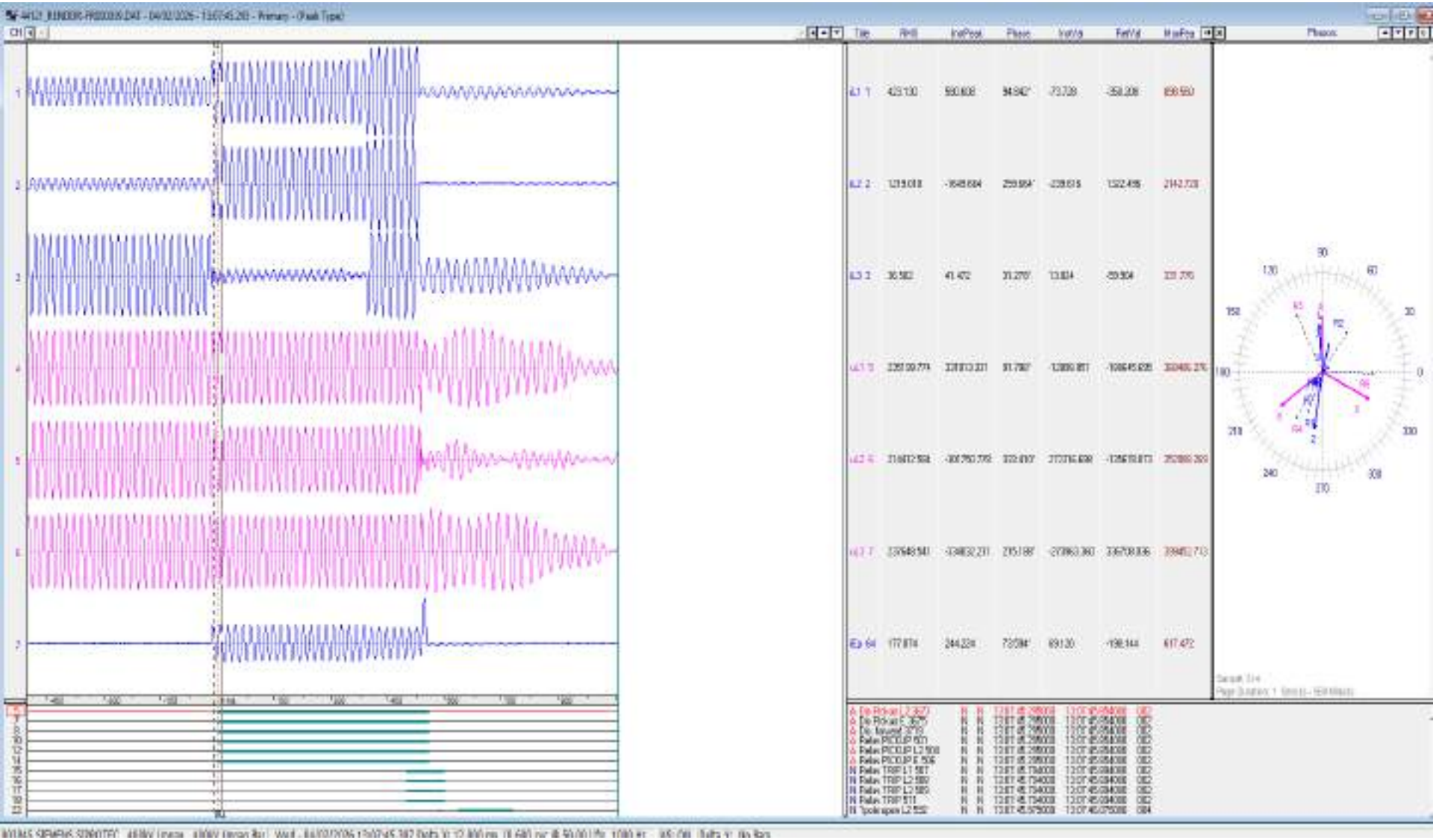
- ✓ Y-N phase to earth fault; fault current: Iy=~8.884kA
- ✓ Fault clearing time=~400ms
- ✓ Zone-2 protection operated at Bareilly(PG) end.

# DR of 400 KV Bareilly-Unnao (end) (UP) Ckt-1



- ✓ Y-N phase to earth fault; fault current: Iy=~1.222kA
- ✓ Fault clearing time=~540ms
- ✓ Zone-2 protection operated at Unnao(UP) end.

# DR of 400 KV Bareilly-Unnao (end) (UP) Ckt-2



- ✓ Y-N phase to earth fault; fault current: Iy=~1.219kA
- ✓ Fault clearing time=~540ms
- ✓ Zone-2 protection operated at Unnao(UP) end.

# PMU Plot of frequency at Bareilly(PG)

## 13:07hrs/04-Feb-25



# PMU Plot of phase voltage magnitude at Bareilly(PG)

## 13:07hrs/04-Feb-25



# SCADA SOE

| Time | Station Name | Voltage Level | Element Name | Element Type | Element Status | Remarks |
|---|---|---|---|---|---|---|
| 13:07:55,271 | CBGA2_UP | 220kV | 01BADAU | Circuit Breaker | Open | Line CB at CB Ganj(UP) end of 220kV CB Ganj-Badaun Ckt opened |
| 13:07:55,376 | CBGA1_UP | 220kV | 15CBGA22 | Circuit Breaker | disturbe | |
| 13:07:55,401 | UNNAO_UP | 400kV | 03CBGA12 | Circuit Breaker | Open | Line CB at Unnao(UP) end of 400 KV Bareilly-Unnao (UP) Ckt-2 opened |
| 13:07:55,413 | UNNAO_UP | 400kV | 02CBGA11 | Circuit Breaker | Open | Line CB at Unnao(UP) end of 400 KV Bareilly-Unnao (UP) Ckt-1 opened |
| 13:07:55,425 | BRELY_PG | 400kV | 5CBG1LU1 | Circuit Breaker | Open | Tie CB at Bareilly(PG) end of 400 KV Bareilly(UP)-Bareilly(PG) (PG) Ckt-1 opened |
| 13:07:55,436 | BRELY_PG | 400kV | 2CBG2MO1 | Circuit Breaker | Open | Tie CB at Bareilly(PG) end of 400 KV Bareilly(UP)-Bareilly(PG) (PG) Ckt-2 opened |
| 13:07:55,436 | BRELY_PG | 400kV | 1CBGA12 | Circuit Breaker | Open | Main CB at Bareilly(PG) end of 400 KV Bareilly(UP)-Bareilly(PG) (PG) Ckt-2 opened |
| 13:07:55,442 | BRELY_PG | 400kV | 4CBGA11 | Circuit Breaker | Open | Main CB at Bareilly(PG) end of 400 KV Bareilly(UP)-Bareilly(PG) (PG) Ckt-1 opened |
| 13:07:55,449 | CBGA1_UP | 400kV | 11UNNAO2 | Circuit Breaker | Open | Line CB at Bareilly(UP) end of 400 KV Bareilly-Unnao (UP) Ckt-2 opened |
| 13:07:55,472 | CBGA1_UP | 400kV | 10UNNAO1 | Circuit Breaker | Open | Line CB at Bareilly(UP) end of 400 KV Bareilly-Unnao (UP) Ckt-1 opened |
| 13:07:55,486 | CBGA1_UP | 400kV | 83T3 | Circuit Breaker | Open | CB at 400kV side of 400/220kV 315 MVA ICT-3 at Bareilly(UP) opened |
| 13:07:55,521 | DOHNA_UP | 220kV | 03CBGA1 | Circuit Breaker | Open | Line CB at Dohna(UP) end of 220kV Bareilly(UP)-Dohna Ckt-1 opened |
| 13:07:55,761 | CBGA2_UP | 220kV | 51CBGA1 | Circuit Breaker | Open | Line CB at CB Ganj(UP) end of 220kV Bareilly(UP) - CB Ganj Ckt-1 opened |
| 13:07:56,057 | CBGA1_UP | 220kV | 13PLBT22 | Circuit Breaker | disturbe | |
| 13:07:56,068 | DOHNA_UP | 220kV | 04T1 | Circuit Breaker | Open | CB at 220kV side of 220/132kV 160 MVA ICT-1 at Dohna opened |
| 13:07:56,068 | DOHNA_UP | 132kV | 13T1 | Circuit Breaker | Open | CB at 132kV side of 220/132kV 160 MVA ICT-1 at Dohna opened |
| 13:07:56,177 | DOHNA_UP | 132kV | 14T2 | Circuit Breaker | Open | CB at 132kV side of 220/132kV 160 MVA ICT-2 at Dohna opened |
| 13:07:56,186 | DOHNA_UP | 220kV | 07CBGA12 | Circuit Breaker | Open | Line CB at Dohna(UP) end of 220kV Bareilly(UP)-Dohna Ckt-2 opened |

# Points of Discussion

i. Healthiness of of LV backup relay of 400/220kV 315 MVA ICT-2 at Bareilly(UP) and 400kV bus bar protection relay need to be ensured at the earliest.
ii. Healthiness of protection system along with auxiliaries and protection co-ordination at Bareilly(UP) need to be ensured.
iii. Remedial action taken report to be shared.

# 400kV Bareilly Sub-Station, UPPTCL

**Tripping report**

**04.02.2026 at 13:07 Hrs**

**Tripping of 400 kV & 220 kV elements at 400 kV S/S Bareilly**

# 400 kV BAREILLY :Tripping of 400/220 kV ICTs and 400/220 kV Feeders at 400 Bareilly 04.02.2026 13:07 Hrs

- **Date & Time of event**: 04.02.2026 13:07Hrs
- **Sub-Station affected**: 400kV BAREILLY
- **Date & Time of restoration**:

| | |
|---|---|
| 400 kV Unnao CKT-1 | 04.02.2026 13:47 |
| 400 kV Unnao CKT-2 | 04.02.2026 13:48 |
| 400 kV PGCIL Ckt-1 | 04.02.2026 14:28 |
| 400 kV PGCIL Ckt-2 | 04.02.2026 14:28 |
| 315 MVA ICT-3 | 04.02.2026 14:23 |
| 220 kV Dohna Ckt-1 | 04.02.2026 14:44 |
| 220 kV Dohna Ckt-2 | 04.02.2026 14:45 |
| 220 kV CB Ganj Ckt-1 | 04.02.2026 14:05 |
| 220 kV Pilibhit Ckt-1 | 04.02.2026 14:05 |
| 220 kV Pantnagar | 04.02.2026 14:48 |
| 220 kV Faridpur | 04.02.2026 14:51 |
| 160 MVA T/F-1 at 220 S/S kV Dohna | 04.02.2026 13:46 |
| 160 MVA T/F-2 at 220 kV S/S Dohna | 04.02.2026 13:46 |

# Antecedents condition

- Antecedents condition at 400 kV Bareilly at 400/220 kV level

| Load at 13:00Hrs dated 04.02.2026 13:00 Hrs | | | | | |
|---|---|---|---|---|---|
| 400 kV Bareilly | | | | | |
| | Name of feeder/ T/F | Remark | | | |
| 400 kV Bus | | | | | |
| | | Bus-1 | Bus-2 | Transfer | Load in MW |
| 1 | 400 kV Unnao -1 | Y | - | - | 134(import) |
| 2 | 400 kV Unnao -2 | - | **Y** | - | 132(import) |
| 3 | 400 kV PGCIL-1 | Y | - | - | **42** |
| 4 | 400 kV PGCIL-2 | - | **Y** | - | **42** |
| 5 | 315 MVA ICT-1 440 kV side | - | - | - | - |
| 6 | 315 MVA ICT-2 400 kV side | Y | - | - | 91 |
| 7 | 315 MVA ICT-3 400 kV side | - | **Y** | - | 90 |
| 8 | 400 kV Transfer Bus Bus reactor | Y | - | - | - |
| 9 | 400 kV Bus Coupler | Y | Y | - | - |
| 220 kV Bus | | | | | |
| 10 | 220kV DOHNA-1 | Y | - | - | 23 |
| 11 | 220kV DOHNA-2 | - | **Y** | - | 22 |
| 12 | 220kV C.B.GANJ-1 | Y | - | - | 2 |
| 13 | 220kV C.B.GANJ-2 | - | **Y** | - | 22 |
| 14 | 220kV PBT-1 | Y | - | - | 25 |
| 15 | 220kV PBT-2 | - | **Y** | - | 25 |
| 16 | 220kV Faridpur | Y | - | - | 88 (import) |
| 17 | 220kV PANTNGAR | Y | - | - | 124 |
| 18 | Amariya-1 | Y | - | - | 8 |
| 19 | Amariya-2 | - | **Y** | - | 8 |
| 20 | 220kV Transfer Bus | _ | _ | - | - |
| 21 | 220 kV Bus Coupler | Y | Y | - | - |
| 22 | 315 MVA ICT-1 220 kV side | - | - | - | - |
| 23 | 315 MVA ICT-2 220 kV side | Y | - | - | 91 |
| 24 | 315 MVA ICT-3 220 kV side | - | **Y** | - | 90 |

# Report

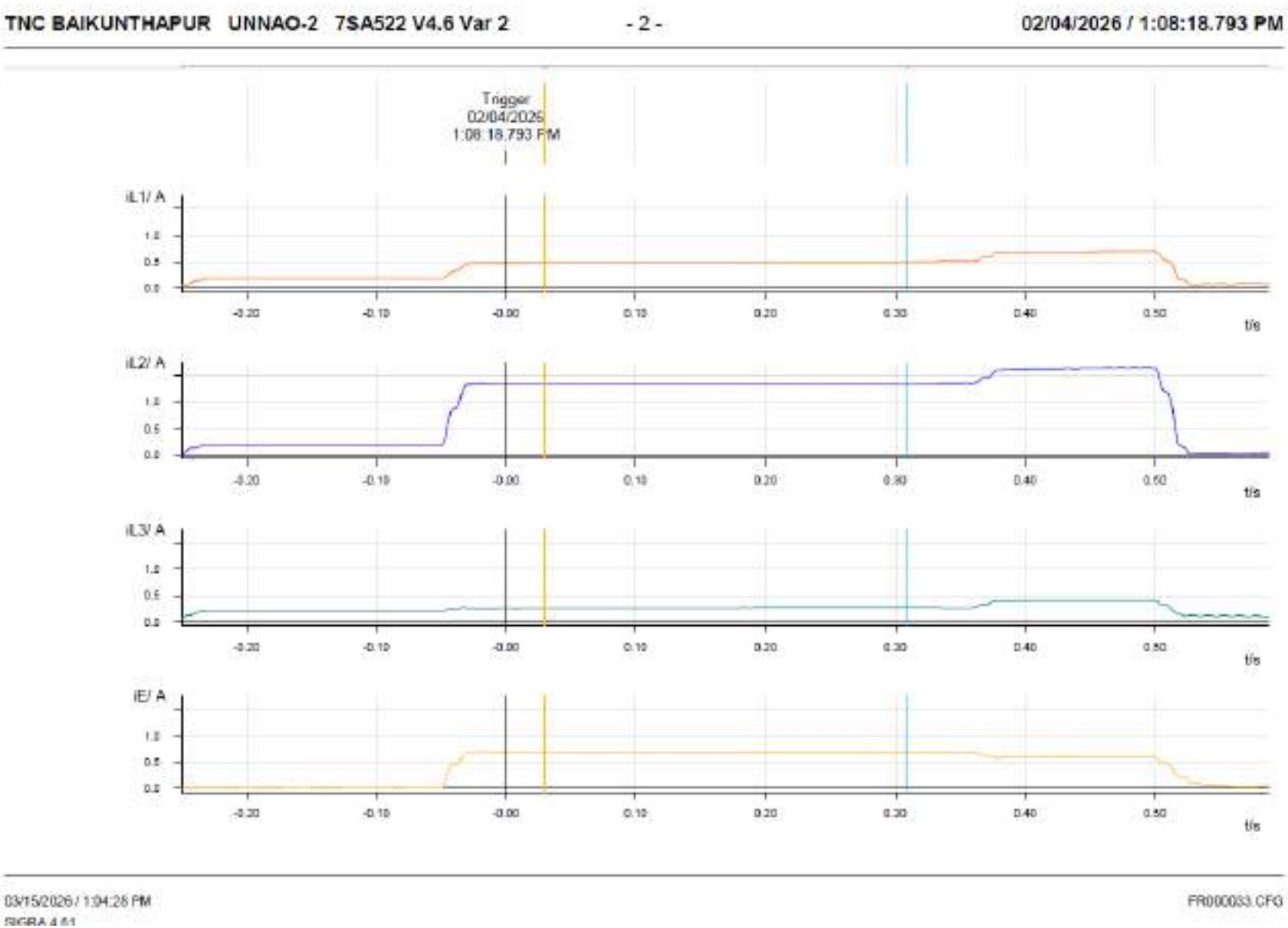
Details of Tripping of feeders under Transmission Central ZONE(TRIPPING DETAILS UNDER TEST & COMMISSIONG DIVISION , BAREILLY) 31.05.2025

| SL. NO. | NAME OF SUB STATION | TRIPPING DATE/ TIME | CLOSING DATE/ TIME | C.B. NO/ DIRECTION | TYPE OF PROTECTION SCHEME | FLAGS OBSERVED<br>THIS END<br>RELAY FLAGS | ANALYSIS |
|---|---|---|---|---|---|---|---|
| 1 | 400 kV BLY | 04.02.2026 13:07 | 04.02.2026 13:47 | CB N0-91 Unnao CKT-1 | Siemens / ABB | CP-Main-1DPT, Main2 DPT .<br>RP- Main1- Gen trip,Y, earth,Z4, -0.4Km, -0.2%.<br>GR-A Trip relay- RXME -18 (R,Y,B)<br>OTHER END<br>Gen trip, Y, Z2, 337.3 km, 124.5%, 1.53KA | 1a) Tripped due to 400 kV Y phase Bus-2 fault occurred at 400 kV Bareilly (kite thread at Y phase of 400 kV Main Bus-2)<br><br>1b) 400 kV Static Bus Bar protection not operated during 400 kV Bus Fault at 400 kV S/S Bareilly.<br><br>1c) Due to which 400 kV lines connected to 400 kV Bus Tripped in Z4 at Bareilly end and in Z2 from other end and 315 MVA ICT-3 tripped on LV Side on Directional E/F.<br><br>2a) 315 MVA ICT-2 LV Backup relay not operated during 400 kV Bus Fault at 400 kV S/S Bareilly.<br><br>2b) Due to which all 220 kV lines tripped in Z3/ Directional Earth fault from other end and some 220/132 transformers also tripped at remote substations except 220 kV CB Ganj ckt-2 and Pilibhit Ckt-2. |
| | | 04.02.2026 13:07 | 04.02.2026 13:48 | CB N0-92 Unnao CKT-2 | Siemens / ABB | CP- Main 2 DPT, Main 1/2 carrier Receive, CB Trip CKT-1/2 faulty .<br>RP-Main1- Y, Earth, 1349.21A, -0.9km, -0.3%.<br>AUX main1- Carrier Recive<br>Main2-Gen trip, y, Z4<br>GR B Trip Relays-RXME-18(R,Y,B)<br>Unnao end flags<br>Gen trip, Y, Z2, 338.2 km, 124.8%, 1.51KA | |
| | | 04.02.2026 13:07 | 04.02.2026 14:28 | CB N0-93 PGCIL Ckt-1 | ABB/ SIEMENS | Bareilly end flags-<br>NIL<br>PGCIL end flags<br>Main1- Y, N Z2, 14.3km, 7.8kA<br>Main2- Y,N, Z2, 19.0Km 8.48kA | |
| | | 04.02.2026 13:07 | 04.02.2026 14:28 | CB N0-94 PGCIL Ckt-2 | ABB/ SIEMENS | Bareilly end flags-<br>NIL<br>PGCIL end flags<br>Main1- Y-N, Zone 2 14.3km, 7.8kA<br>Main2- Y-N, Z1, 18.9Km, 8.48kA | |
| | | 04.02.2026 13:07 | 04.02.2026 14:23 | CB N0-983/883 315 MVA ICT-3 | Micom / CSC-211 | HV Side-<br>86A, 86B<br>LV side flags<br>LV Directional E/F operated, Ia=0.793A, Ib=2.688A, Ic=0.334A, In=3.594A | |
| | | 04.02.2026 13:07 | 04.02.2026 14:44 | CB N0-81 220 kV Dohna Ckt-1 | Micom / REL-650 | tripped from remote end.<br>Dohna end flags<br>86A, 86B, 53.55 Km, Z3, IR=586.2A, IY=1.015 kA, IB=503.5A | |
| | | 04.02.2026 13:07 | 04.02.2026 14:45 | 220 kV Dohna Ckt-2 | Micom / REL-650 | Tripped from remote end.<br>Dohna end flags<br>Distance Protection Trip, B/U E/F Relay Optd. 117 Km, Z-3<br>IR [416 A], IY[783 A], IB [730A].<br>Y phase, E/F, C/R Send | |

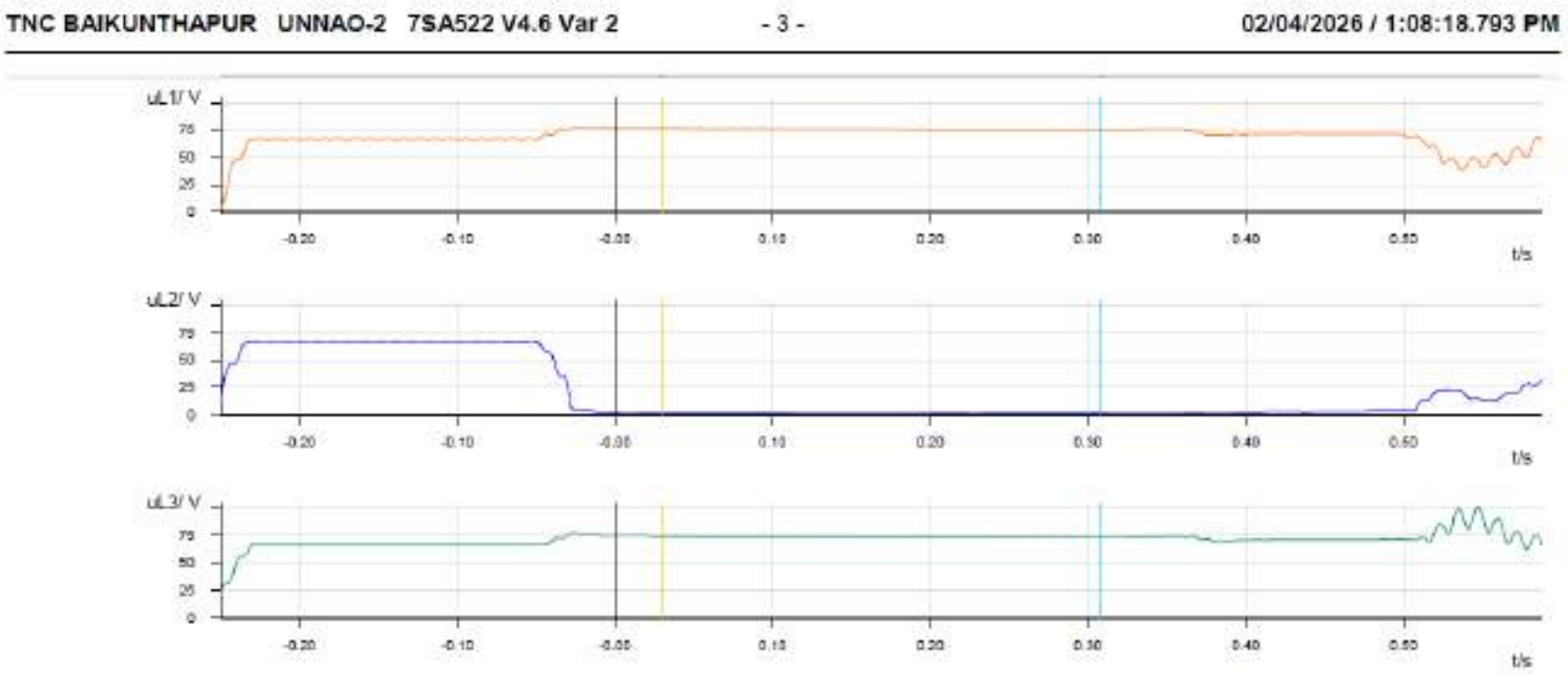
# Events Description at 400 kV S/S Bareilly

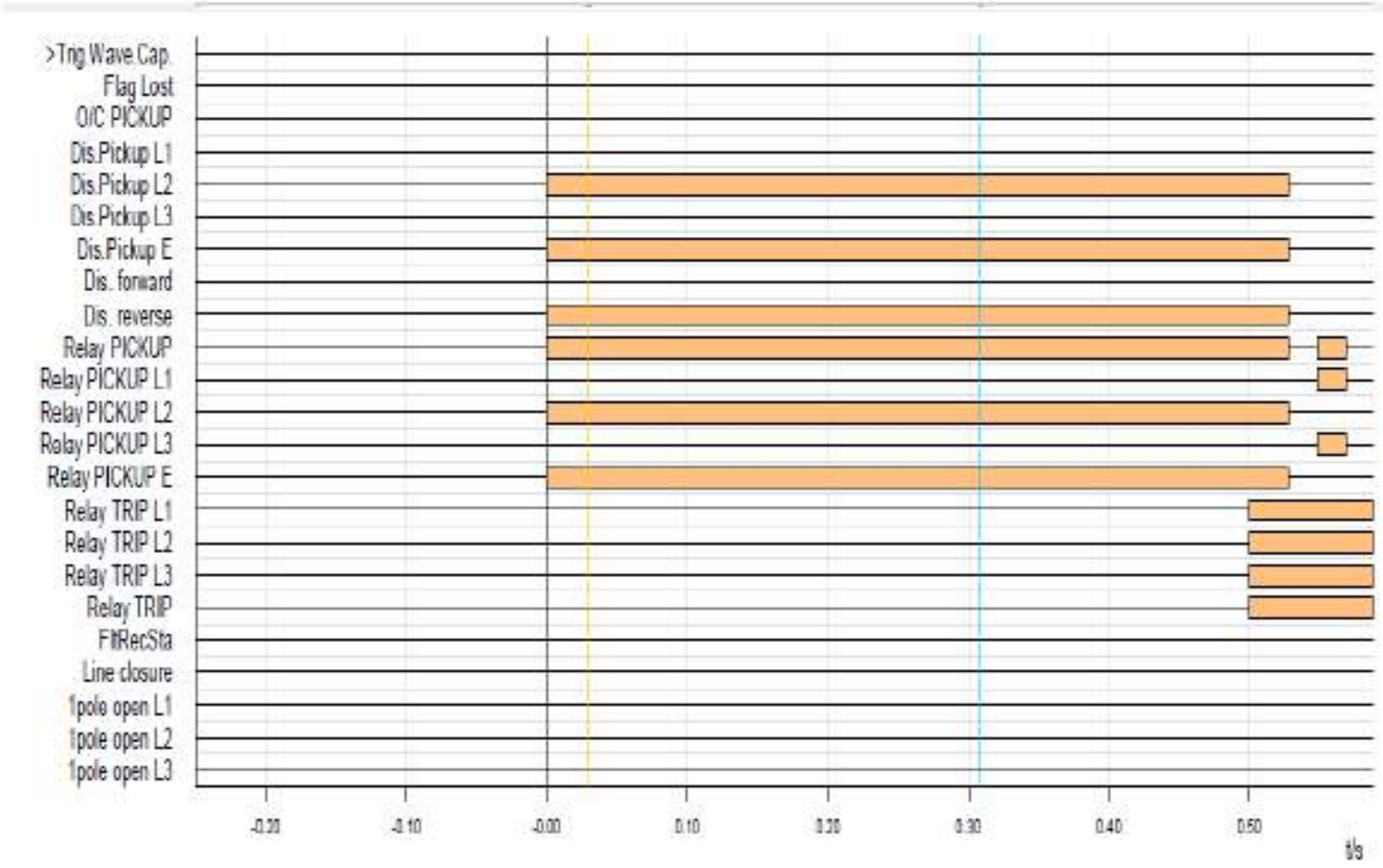
- A metallic kite thread fell on 400 kV Y phase Bus-2.
- 400 kV static Bus Bar protection failed to operate.
- All 400 kV lines connected to 400 kV Bus tripped in zone-4 at Bareilly end or in zone-2 from other end.
- 315 MVA ICT-3 tripped on LV side directional E/F.
- 315 MVA ICT-2 did not trip on LV backup as PT selection was wrong due to trouble in isolator auxiliary contact.
- All 220 kV lines tripped in Z3 or on directional earth fault from other end  some 220/132 kV transformers also tripped at remote end 220 kV S/S.

# DR of 400 kV UNNAO Ckt-2

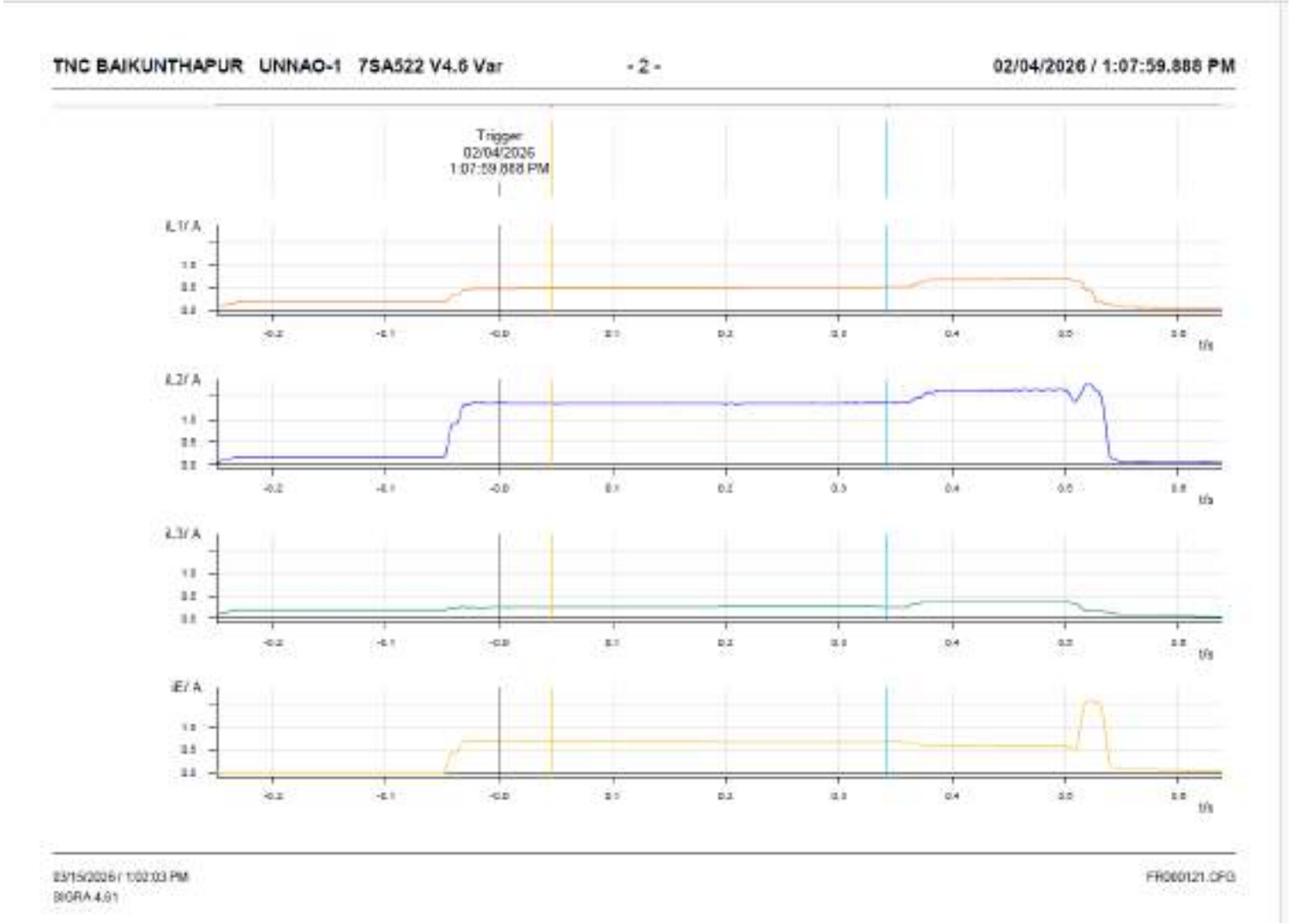


# DR of 400 kV UNNAO Ckt-2

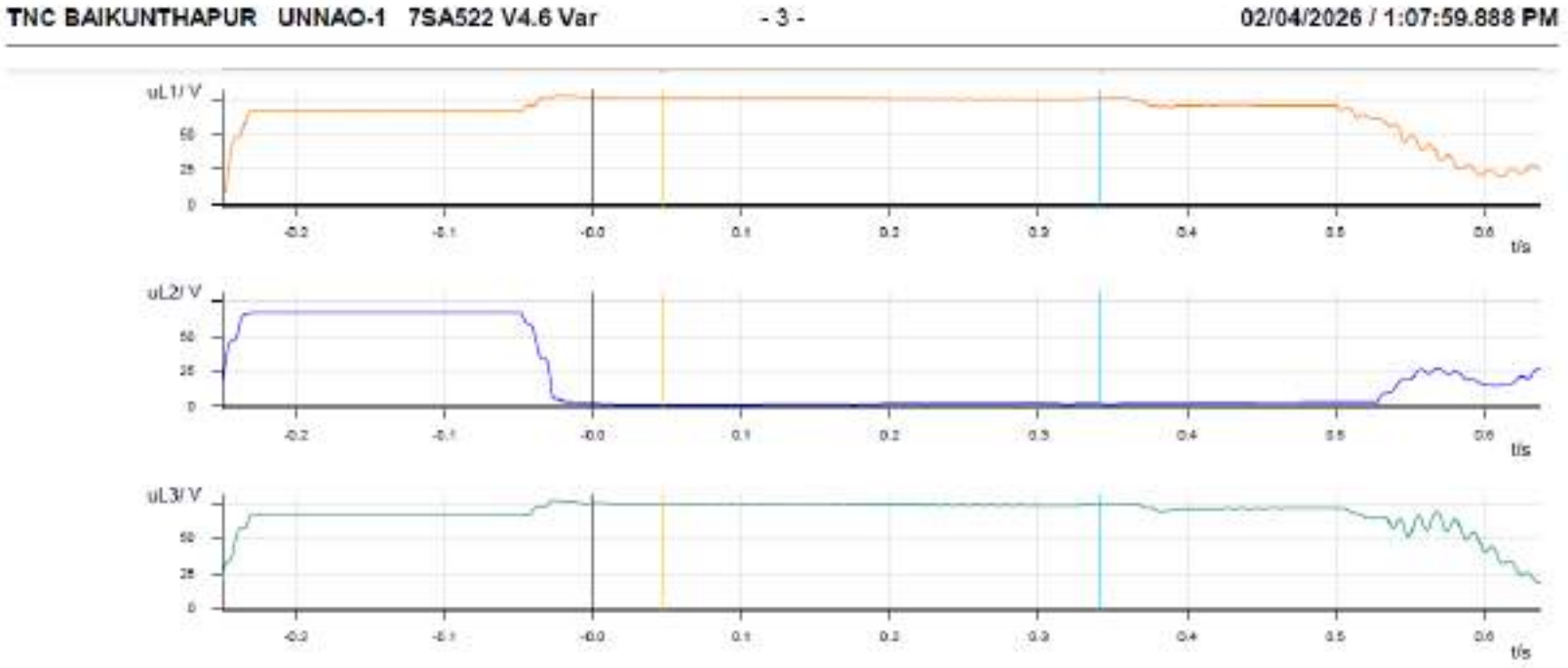



>Trig.Wave.Cap.
Flag Lost
O/C PICKUP
Dis.Pickup L1
Dis.Pickup L2
Dis.Pickup L3
Dis.Pickup E
Dis. forward
Dis. reverse
Relay PICKUP
Relay PICKUP L1
Relay PICKUP L2
Relay PICKUP L3
Relay PICKUP E
Relay TRIP L1
Relay TRIP L2
Relay TRIP L3
Relay TRIP
FltRecSta
Line closure
1pole open L1
1pole open L2
1pole open L3
-0.20
-0.10
-0.00
0.10
0.20
0.30
0.40
0.50
s

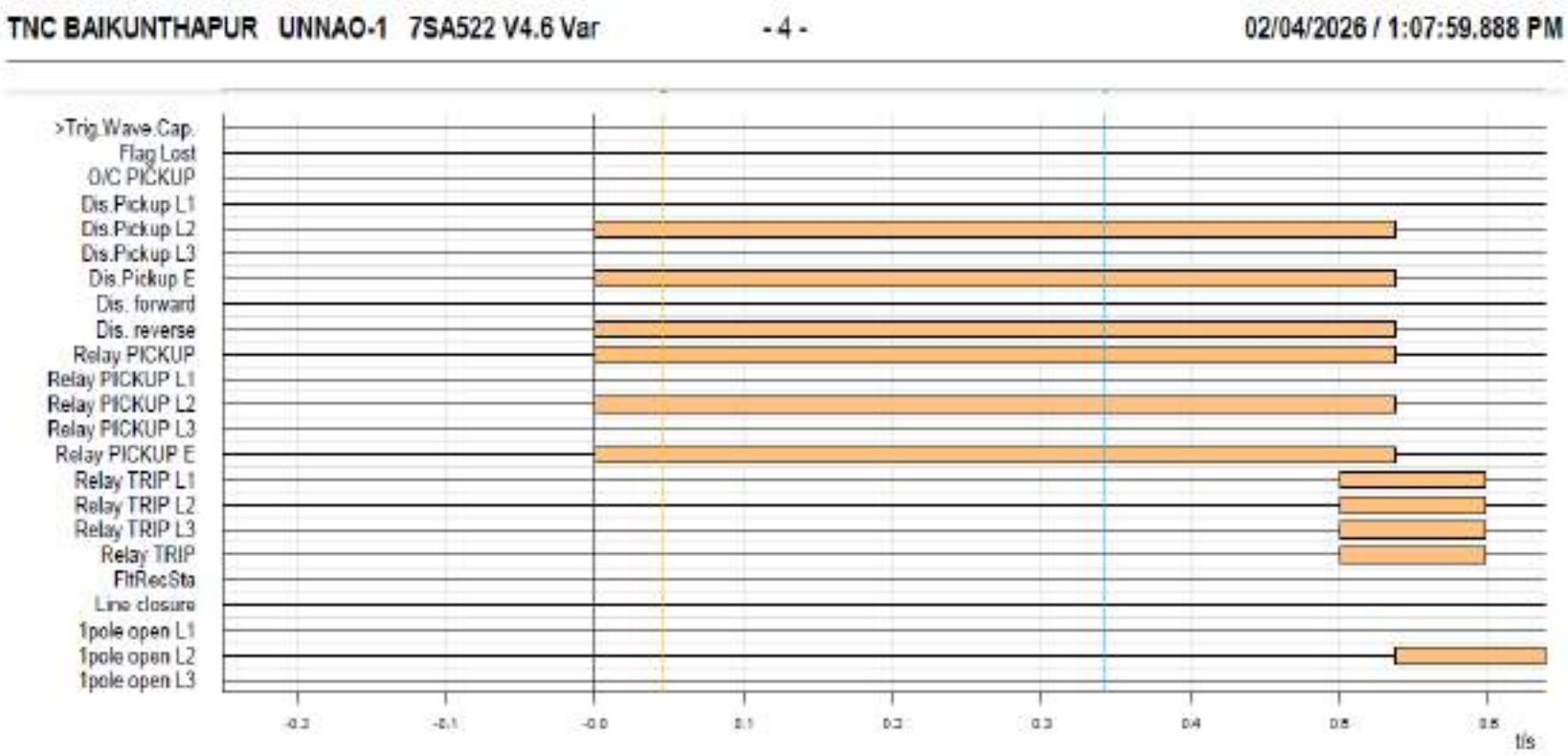
# DR of 400 kV Unnao Ckt-1



# DR of 400 kV Unnao Ckt-1



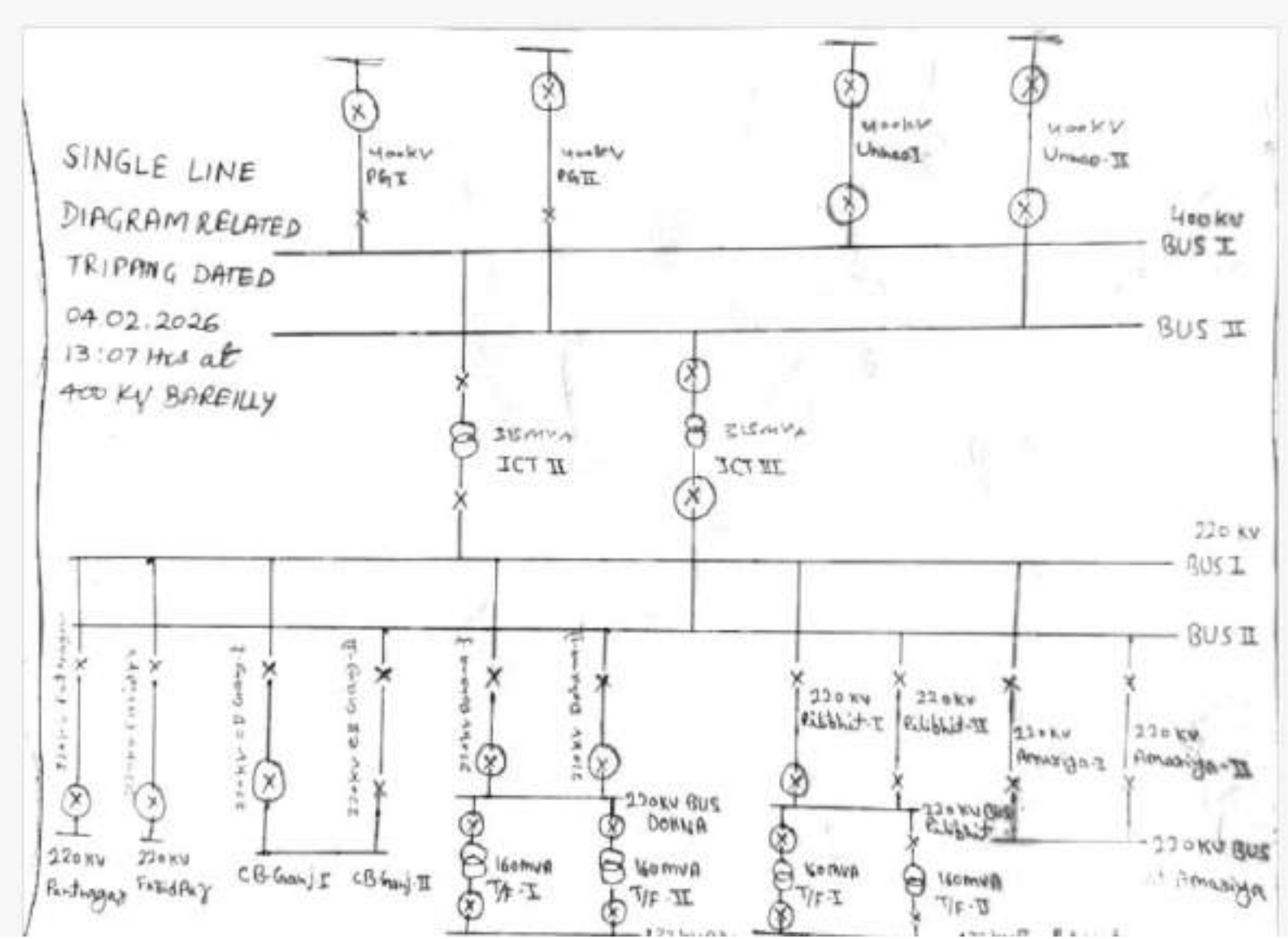
# DR of 400 kV Unnao Ckt-1



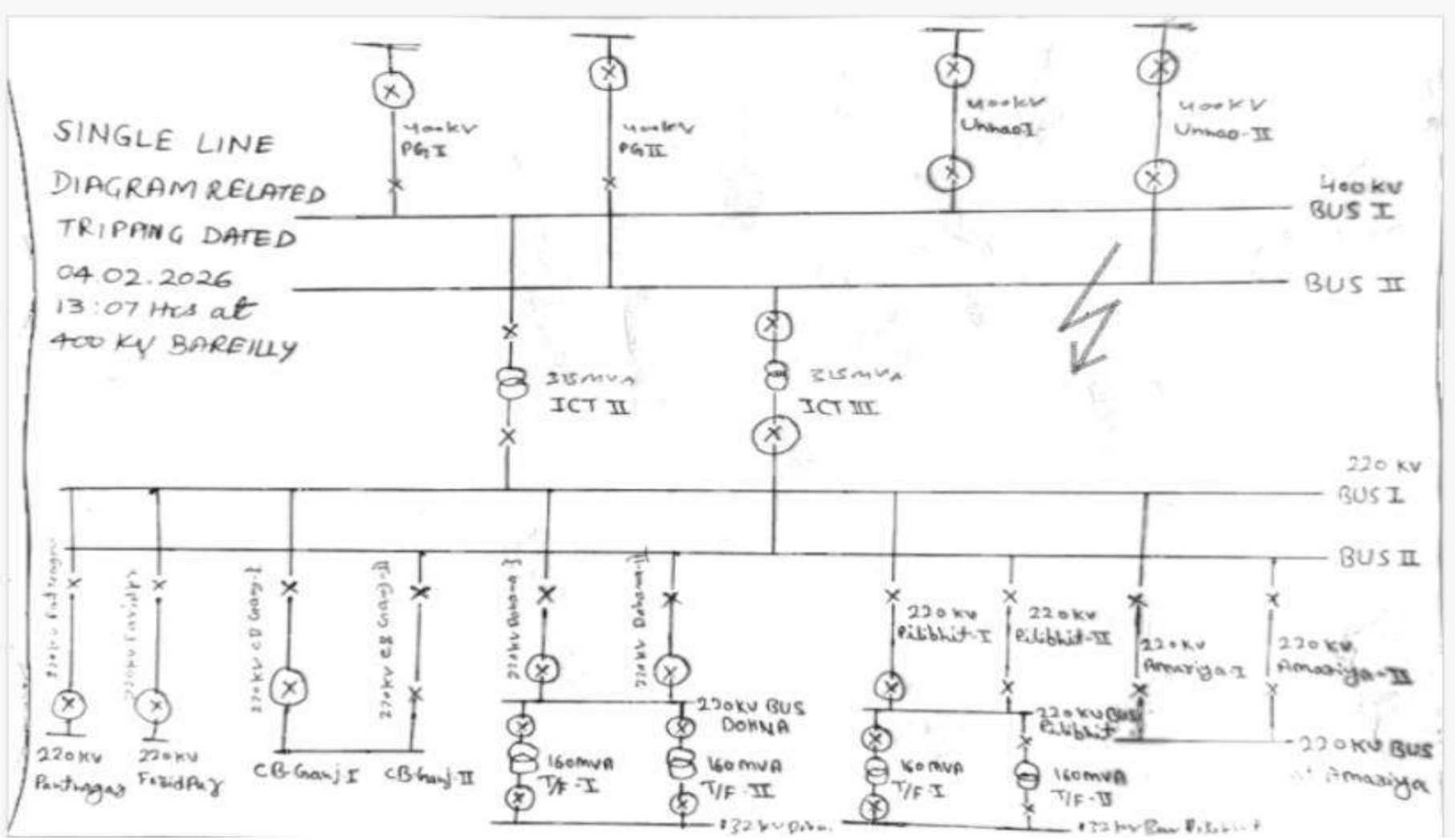
# REMEDIAL ACTION TAKEN

- In 400 kV bus bar protection relay all running currents & isolator status checked and found OK & relay will be tested after availability of shut down of 400 kV bus.
- Numerical Bus Bar relay to be install at 400 kV Bus Bar & requirement already sent.
- Healthiness of LV Backup relay of 315 MVA ICT-2 checked & found OK.

# Single line diagram



# Single line diagram



***THANK YOU.***

# Event of tripping in Rajasthan RE Complex, 400/220kV RAPP_D(NP) and 400kV Tehri PSP(TH) at 11:33 hrs on 16.02.2026

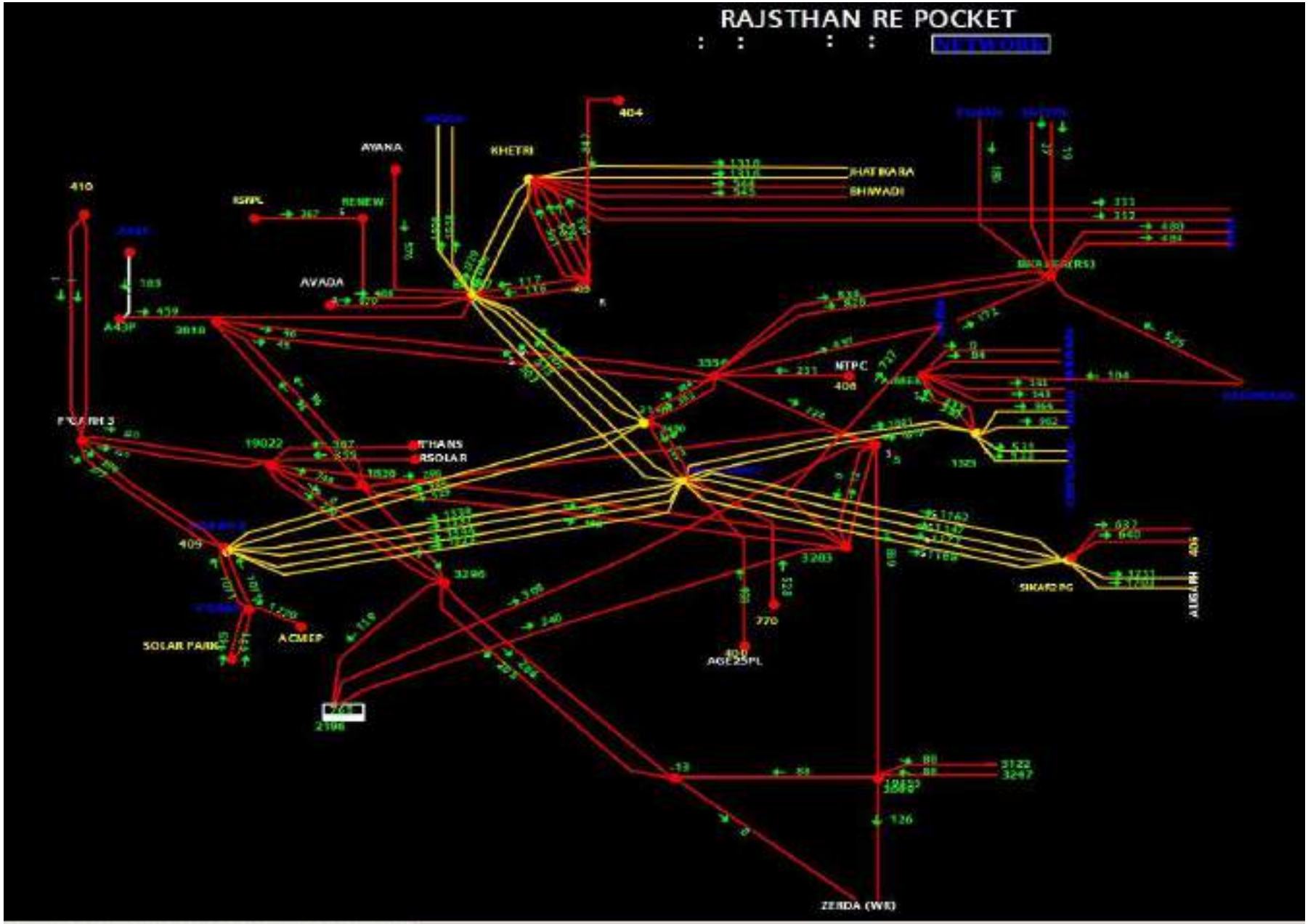
# Tripped Elements

| S. No | Name of Elements | Outage Time | Revival Time | Reason of tripping |
|---|---|---|---|---|
| 1. | 700MW RAPS-D - UNIT 1 | 11:33 hrs | 11:57 hrs | TG trip on reverse power during MW hunting |
| 2. | 250 MW (PSP) TEHRI HPS - UNIT 6 | | 12:20 hrs | QSD due to deadband timeout |

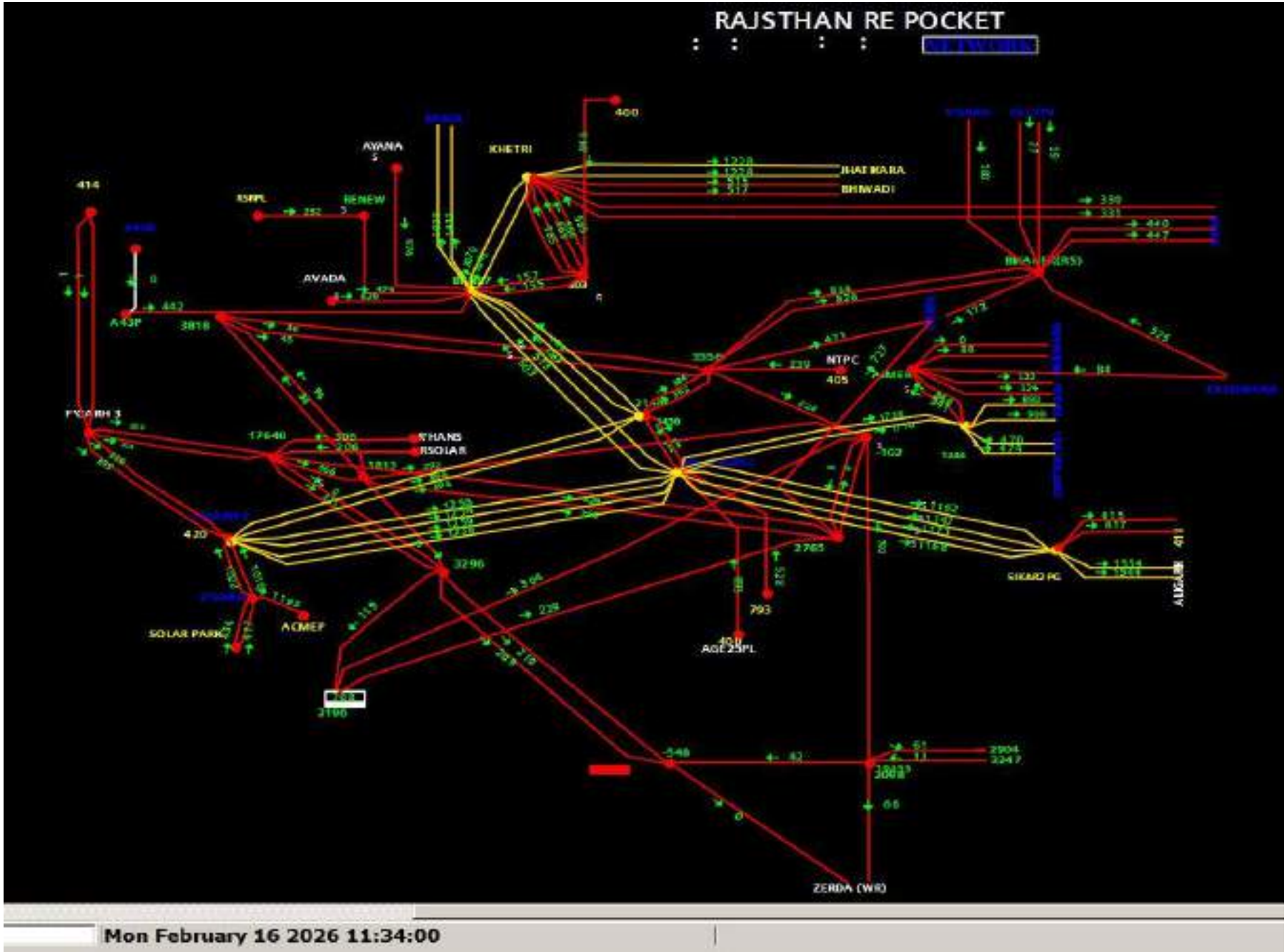
# Brief details of the event

- During antecedent condition, 700MW RAPS-D - UNIT 1 was generating approx. 650 MW and 250 MW (PSP) TEHRI HPS - UNIT 5 & 7 were pumping approx. 265 MW each. 250 MW (PSP) TEHRI HPS - UNIT 6 started pumping at around 11:30 hours and was gradually increasing pumping. Just before tripping, it was pumping approx. 221 MW. NR total solar generation was approx. 28642 MW among which Rajasthan solar generation was approx. 6544 MW.
- As reported, at 11:33 hrs, 250 MW (PSP) TEHRI HPS - UNIT 6 tripped on QSD (Quick Shut down) due to deadband timeout (exact reason yet to be shared).
- During the same time, 700MW RAPS-D - UNIT 1 also tripped due to Turbine-Generator (TG) trip on reverse power during MW hunting (exact reason yet to be shared).
- As per SCADA, Line CB at A43RS(IP) end of 400 KV AzurePSS43 SL_BKN_PG-AzureRS43 SL_BKN_PG (Azure) Ckt opened at 11:34:11.929 hrs and again closed at 11:34:50.173 hrs. However, Azure43 verbally reported that there was data issue at A43RS(IP) during that time, no tripping or auto-reclosing occurred during that time (written confirmation yet to be received from Azure43).
- As per SCADA SOE, 33kV Feeder and Block tripping was detected at A43RS_IP, ASPS2_IP and AVDAS_IP.
- As per PMU at RAPP-C(NP), consecutive three 3-phase voltage dips were observed with voltage recovery time of 80 ms, 4360 ms and 80 ms.
- As per SCADA, dip of approx. 2062 MW occurred in NR total solar generation among which approx. 1093 MW recovered within 1 minute (dip of approx. 686 MW in Rajasthan solar generation among which approx. 381 MW recovered within 1 minute).
- As per SCADA, generation loss of approx. 650 MW at RAPP-D and pumping loss of approx. 221 MW at Tehri PSP was observed.

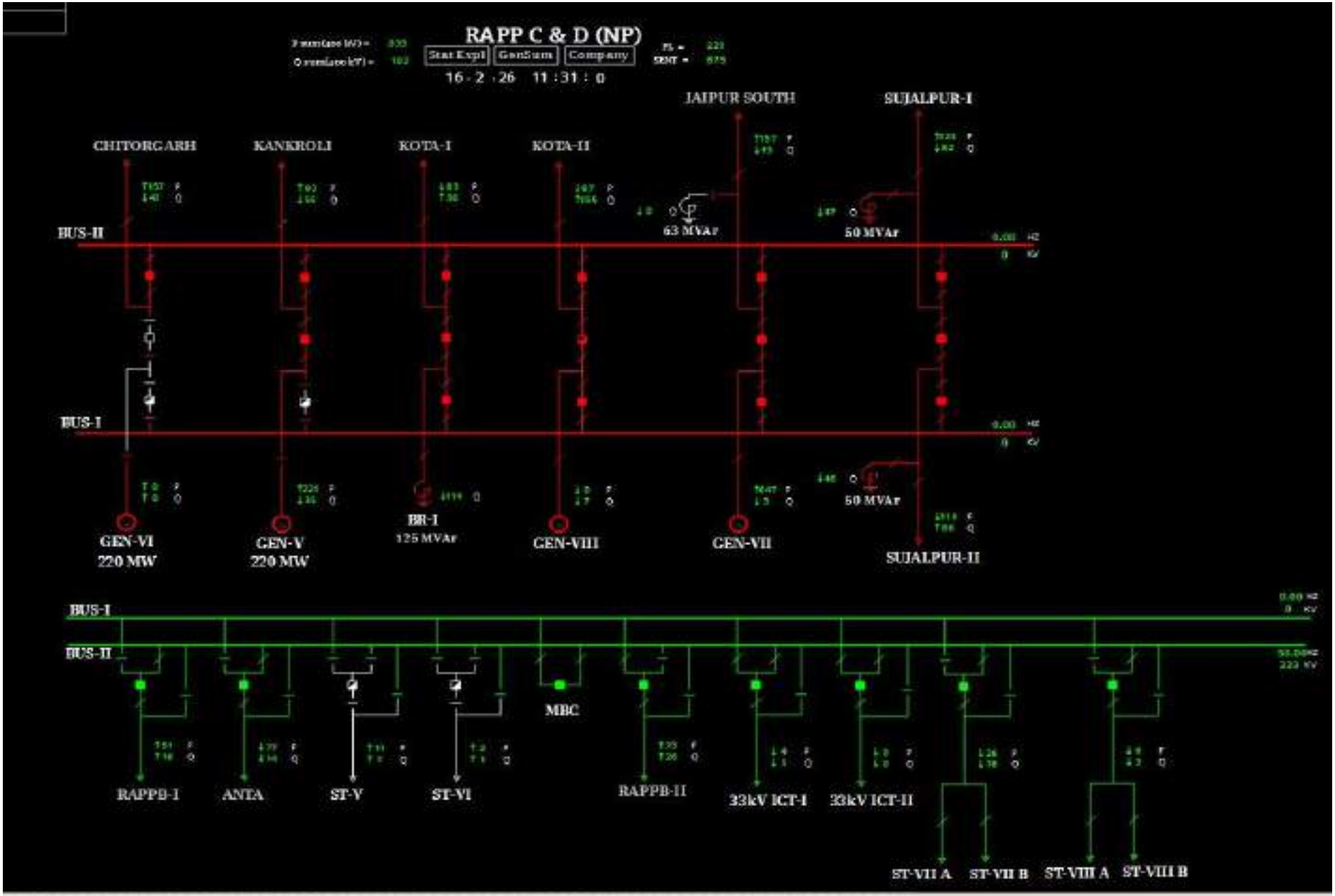
# Rajasthan RE Pocket Network Diagram before the event



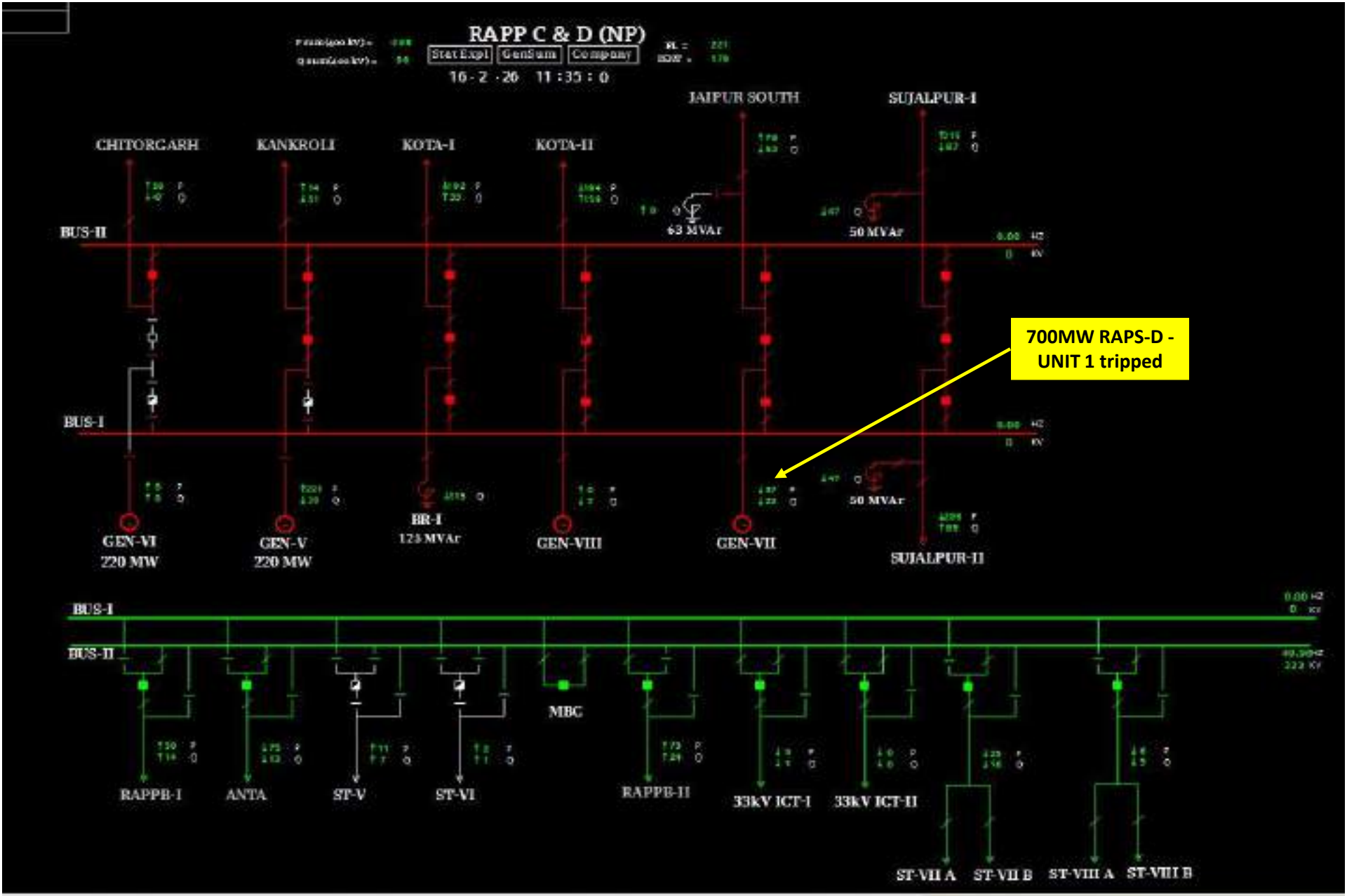
# Rajasthan RE Pocket Network Diagram after the event



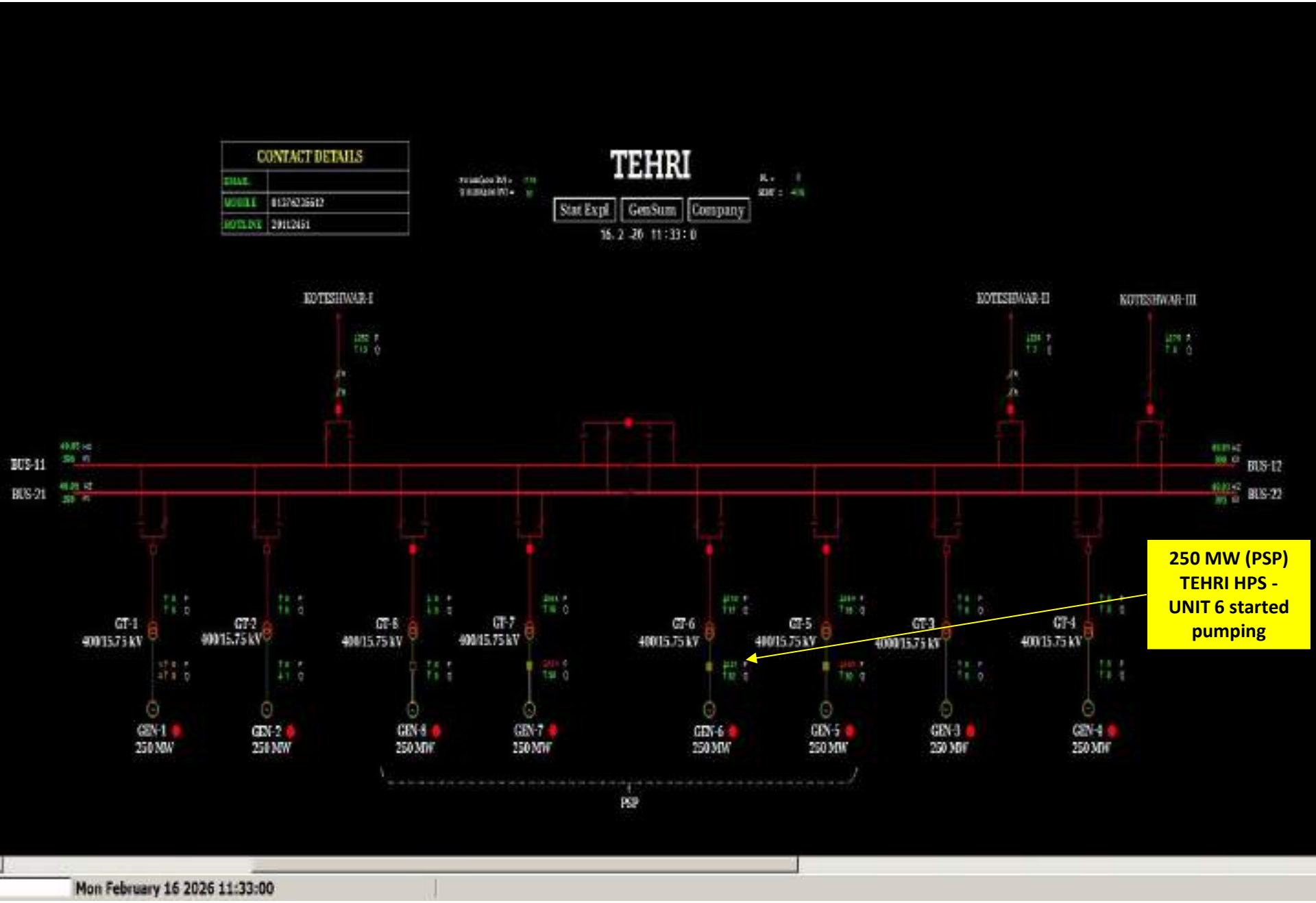
# SLD of 400/220kV RAPP C&D(NPCIL) before the event



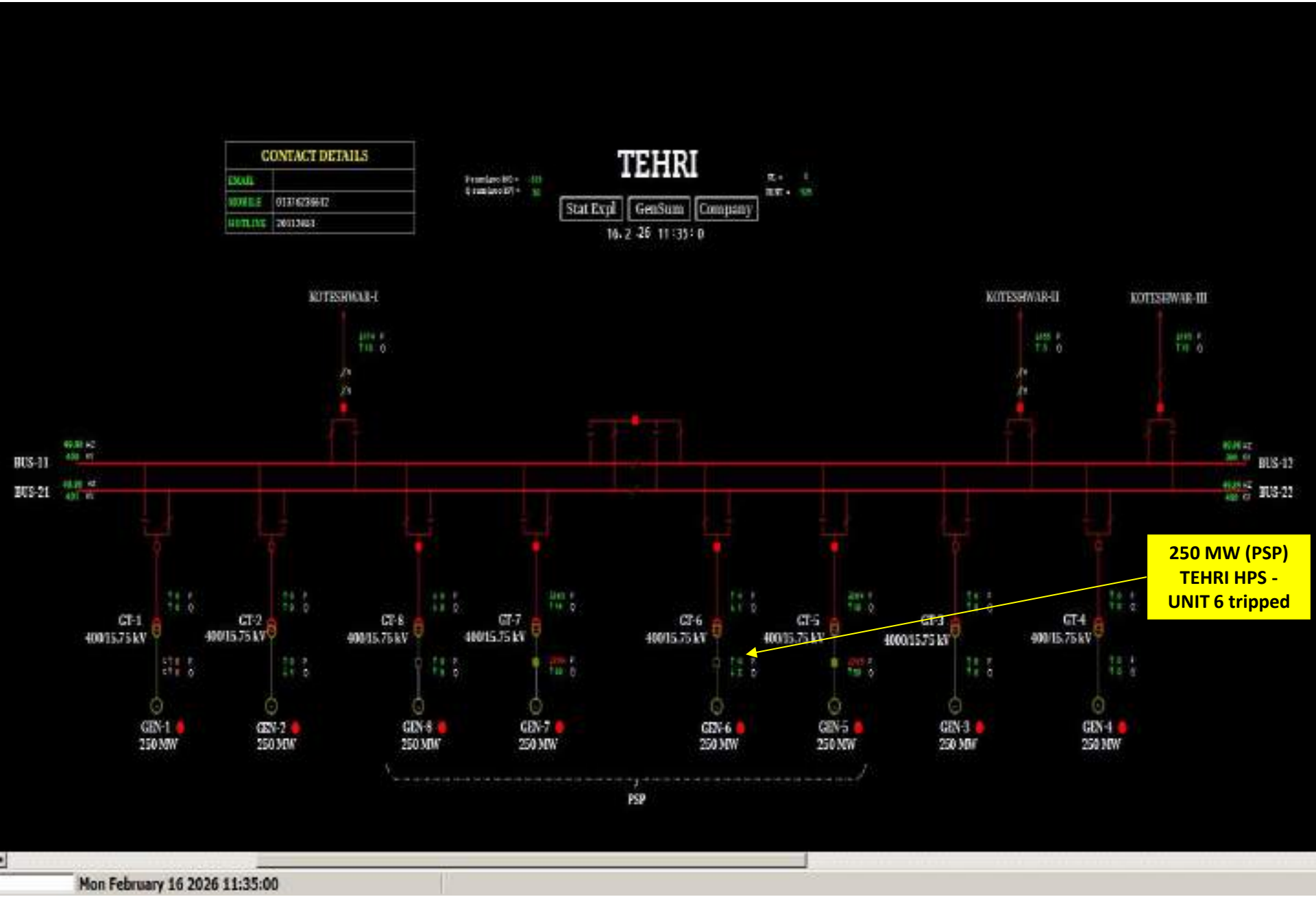
# SLD of 400/220kV RAPP C&D(NPCIL) after the event



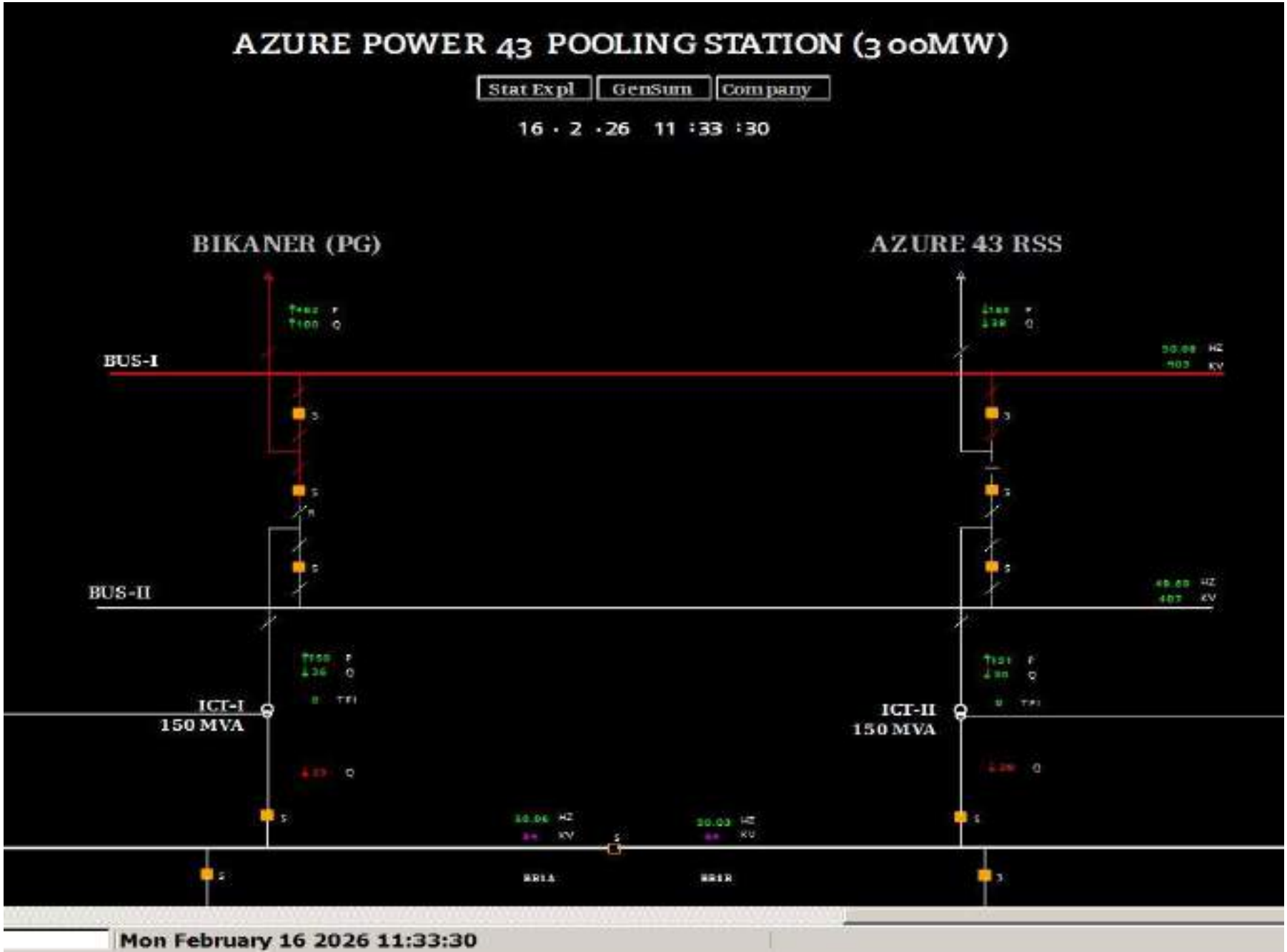
# SLD of 400kV Tehri(THDC) before the event



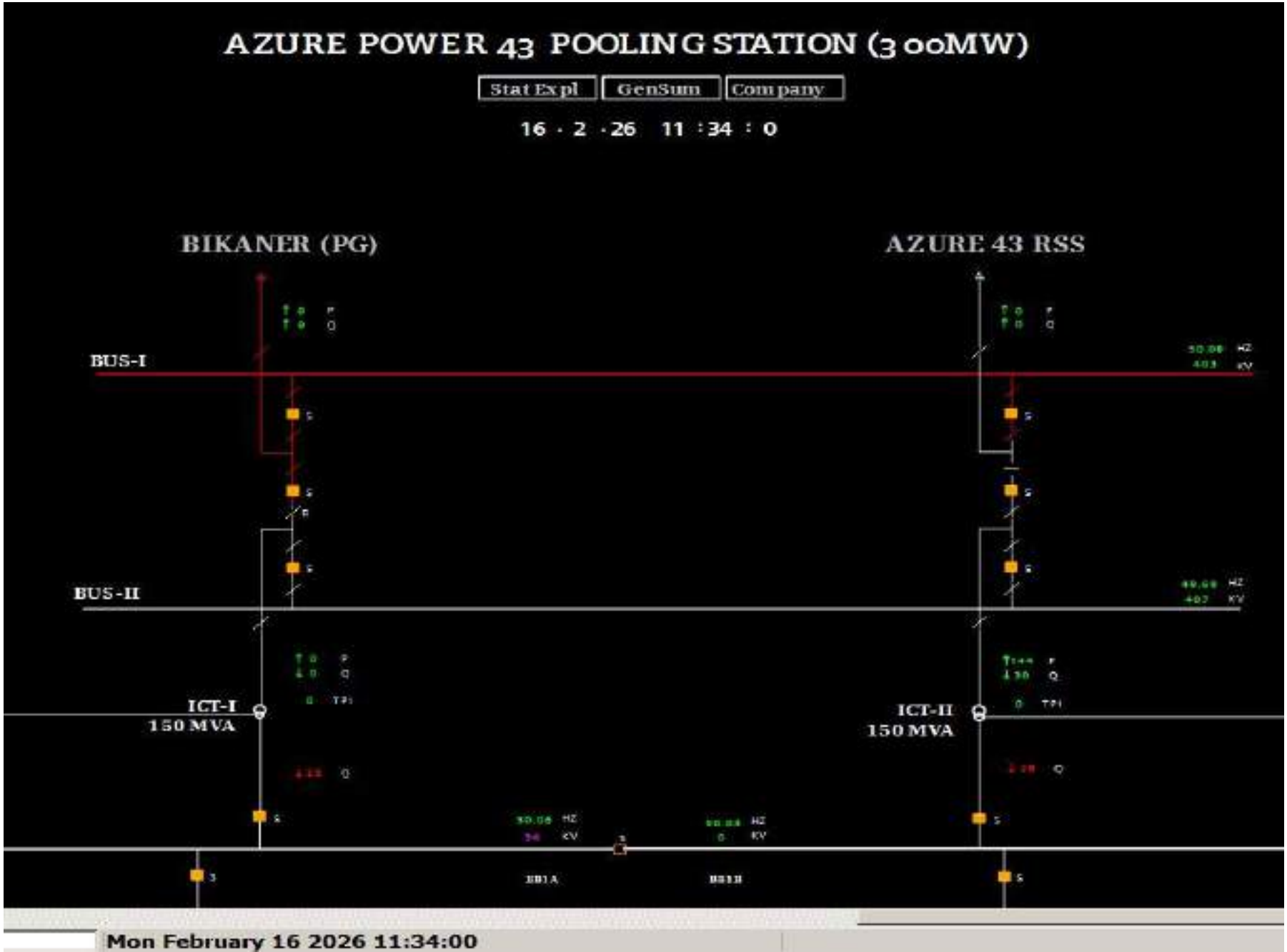
# SLD of 400kV Tehri(THDC) after the event



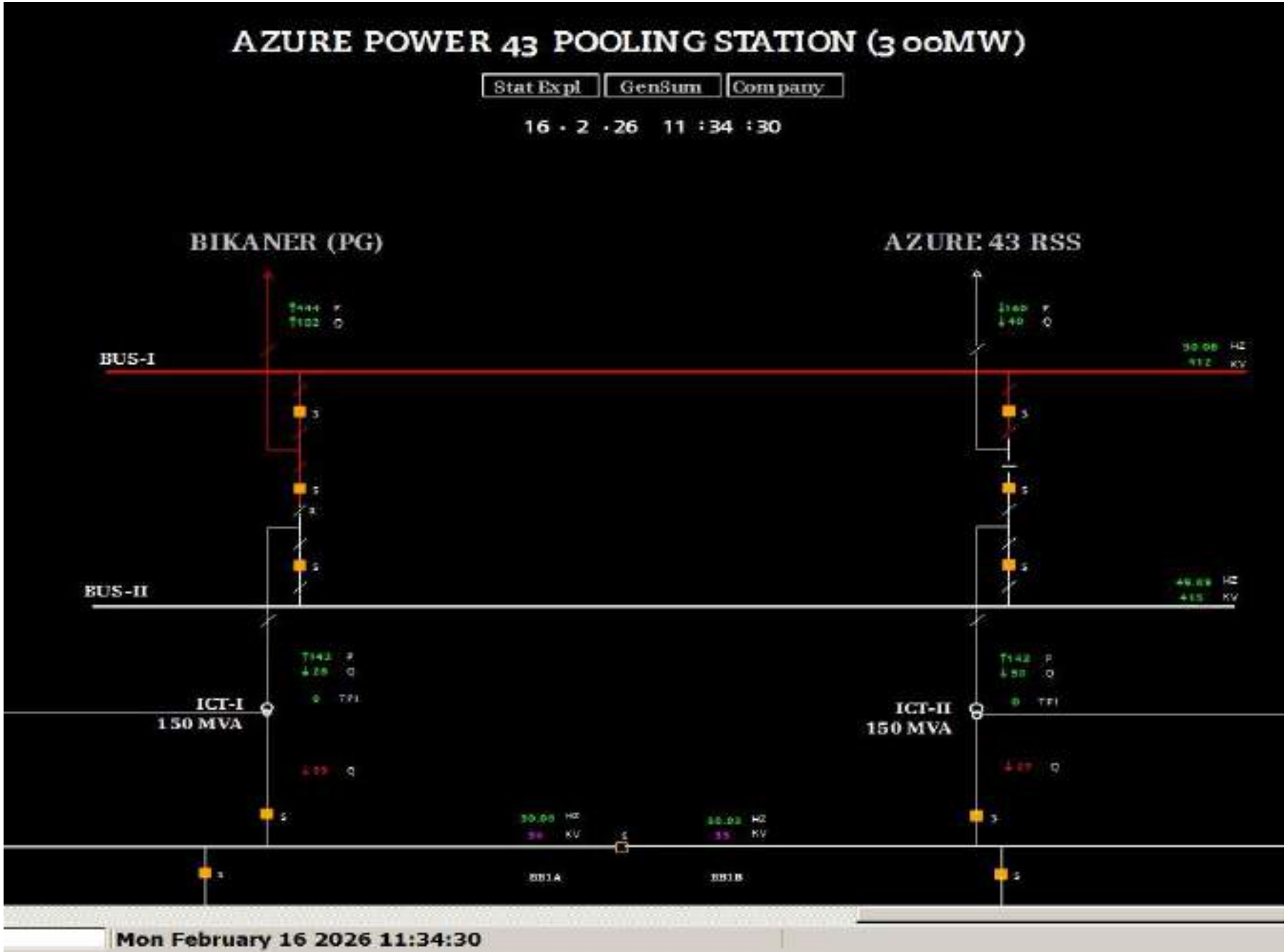
# SLD of 400/33kV Azure43PSS(IP) @11:33:30 hrs



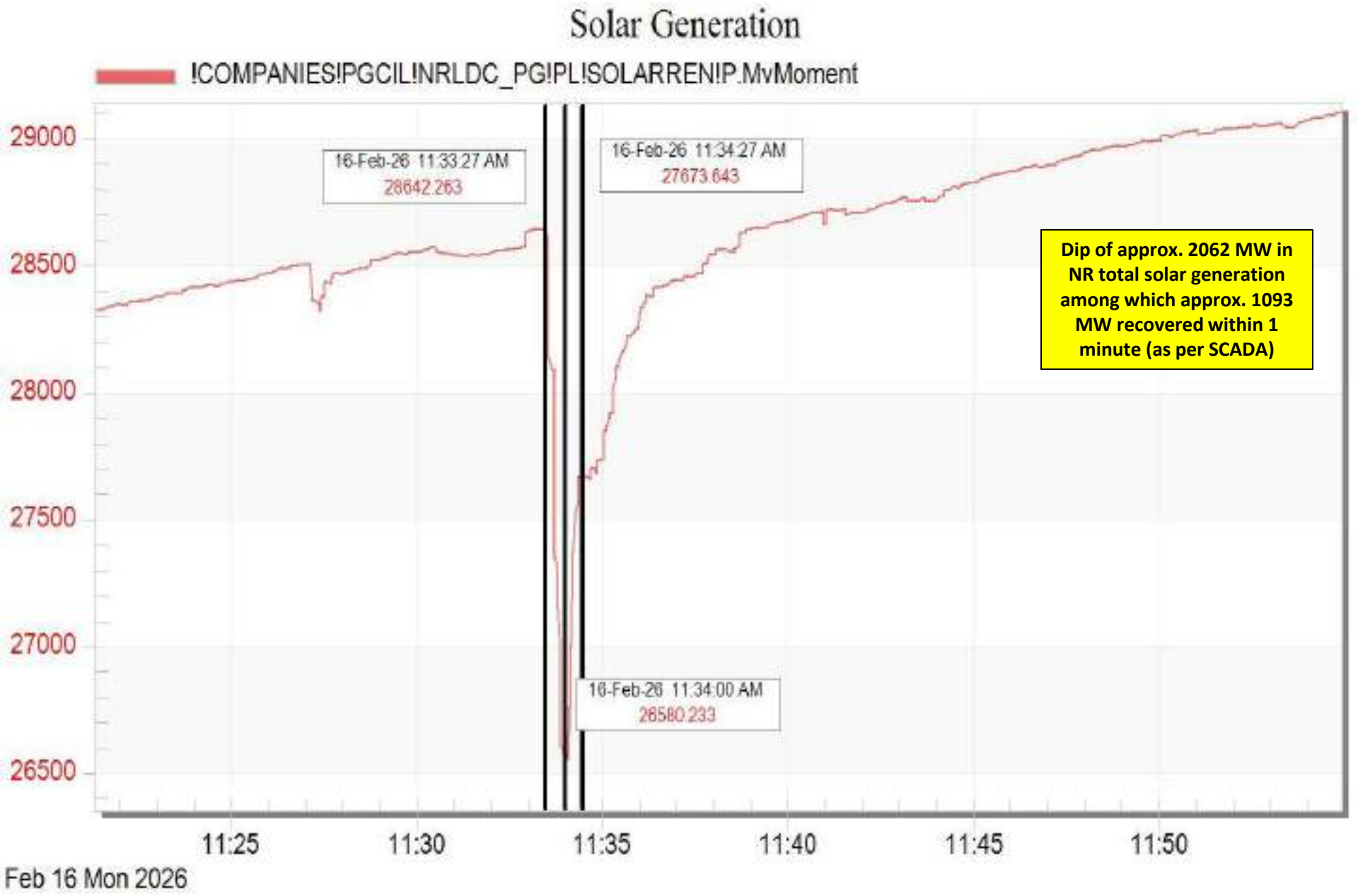
# SLD of 400/33kV Azure43PSS(IP) @11:34:00 hrs



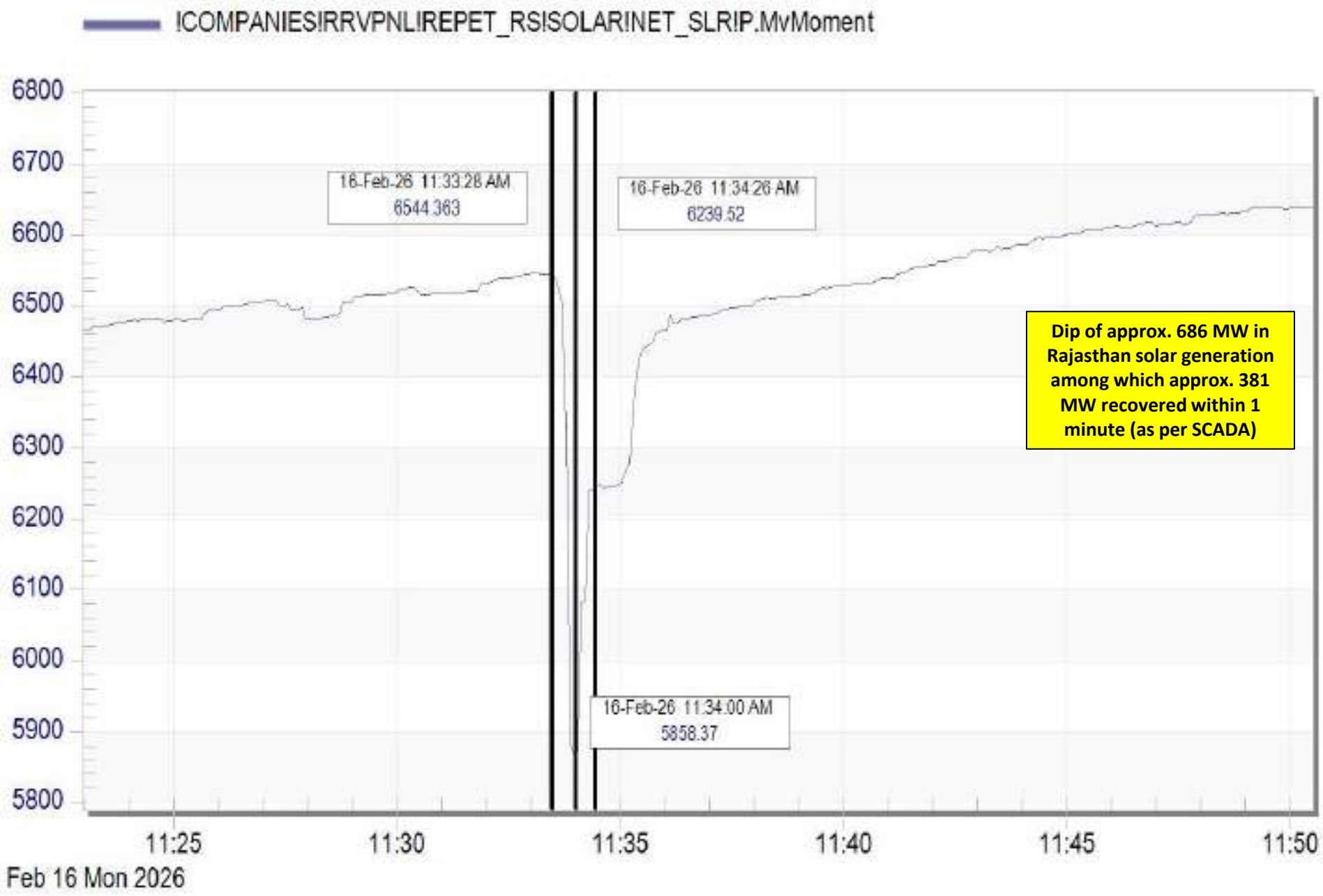
# SLD of 400/33kV Azure43PSS(IP) @11:34:30 hrs



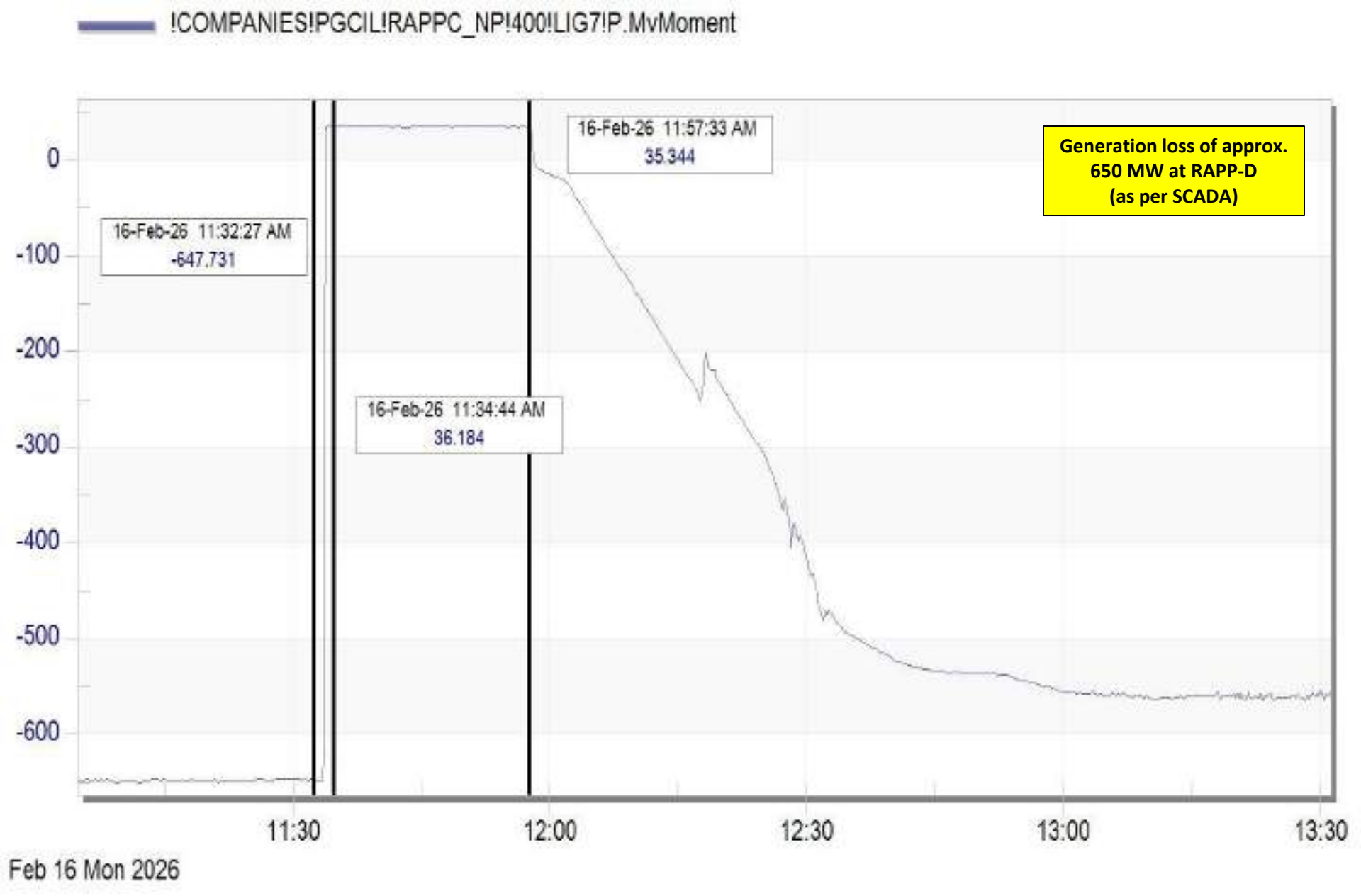
# NR total Solar Generation during the event



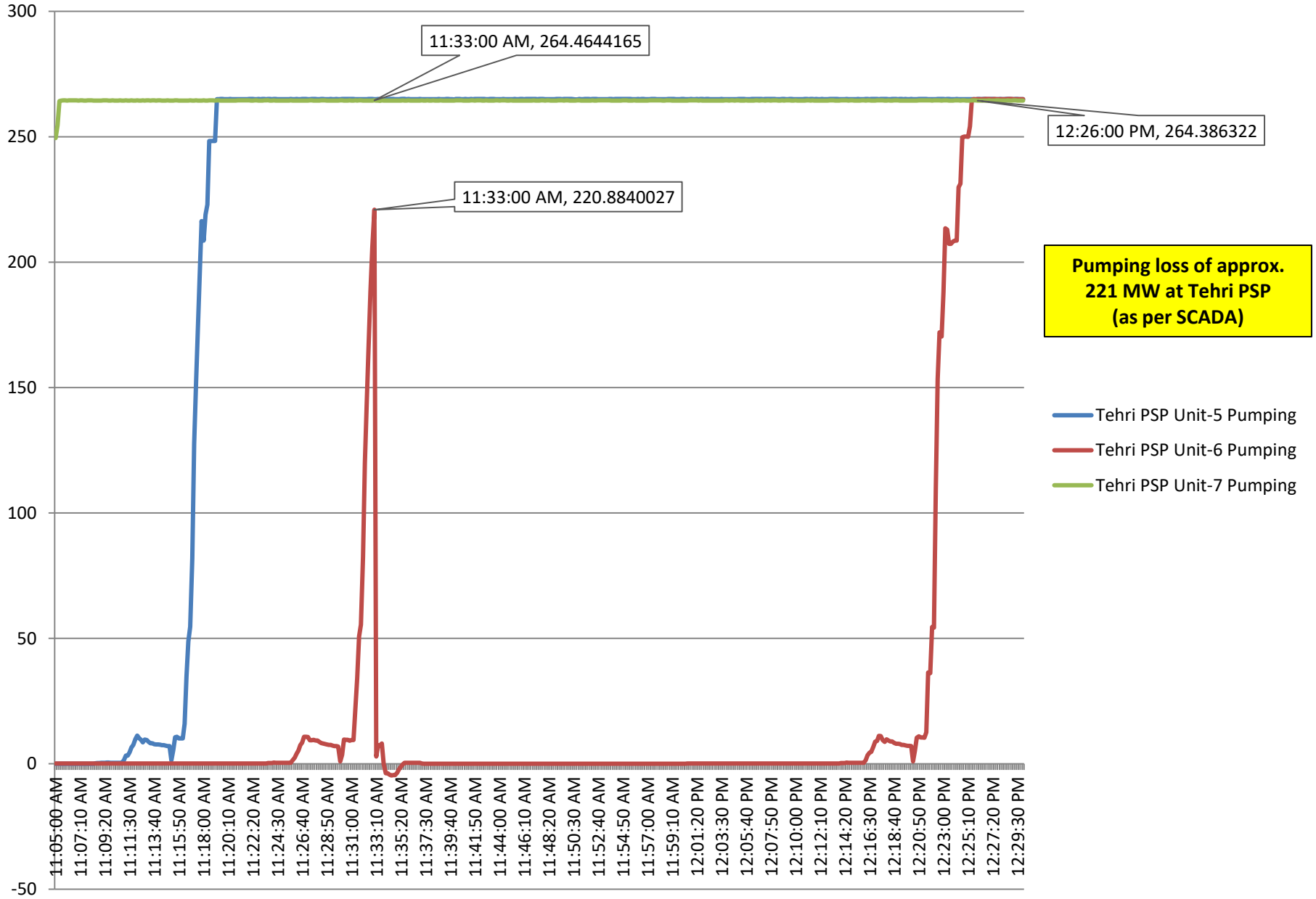
# Rajasthan Solar Generation during the event



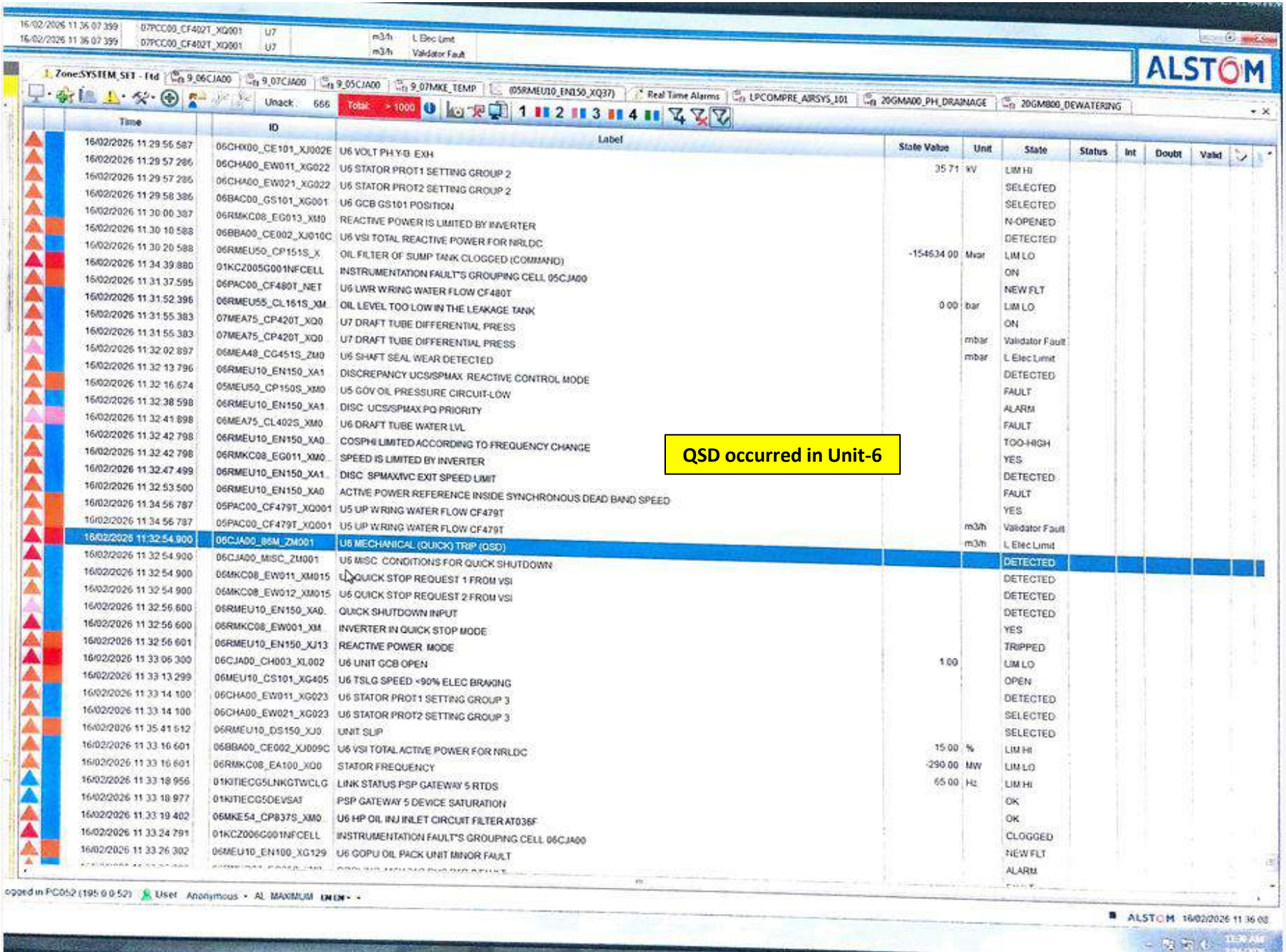
# RAPP-D Generation during the event



# Tehri PSP Pumping during the event



# Station Event Logger details of Tehri PSP



# PMU Plot of frequency at RAPP-C(NP)

## 11:33hrs/16-Feb-26



# PMU Plot of Phase Voltage Magnitude at RAPP-C(NP)

## 11:33hrs/16-Feb-26



# SCADA SOE

| Time | Station Name | Voltage (in kV) | Element Name | Element Type | Element Status | Remarks |
|---|---|---|---|---|---|---|
| 11:33:06,300 | TEHRI_TH | 11 | PSP_G6 | Circuit Breaker | Open | CB at 11kV side of 250 MW (PSP) TEHRI HPS - UNIT 6 opened |
| 11:33:24,717 | A43RS | 400 | 01AFTPS1 | Circuit Breaker | disturbe | |
| 11:33:25,779 | ASPS2_IP | 33 | BLOCK47 | Circuit Breaker | Open | 33kV Feeder and Block tripping detected at ASPS2_IP and AVDAS_IP |
| 11:33:50,260 | AVDAS_IP | 33 | ICS08S09 | Circuit Breaker | Open | |
| 11:33:50,260 | AVDAS_IP | 33 | 16FDR16 | Circuit Breaker | Open | |
| 11:33:50,260 | AVDAS_IP | 33 | BLOCKS08 | Circuit Breaker | Open | |
| 11:34:11,929 | A43RS | 400 | 01AFTPS1 | Circuit Breaker | Open | Line CB at A43RS(IP) end of 400 KV AzurePSS43 SL_BKN_PG-AzureRS43 SL_BKN_PG (Azure) Ckt opened |
| 11:34:20,132 | A43RS | 33 | YARD22 | Circuit Breaker | Open | 33kV Feeder tripping detected at A43RS_IP |
| 11:34:50,173 | A43RS | 400 | 01AFTPS1 | Circuit Breaker | Close | Line CB at A43RS(IP) end of 400 KV AzurePSS43 SL_BKN_PG-AzureRS43 SL_BKN_PG (Azure) Ckt closed |

# Points of Discussion

i. Exact reason of tripping of 700MW RAPS-D - UNIT 1 and 250 MW (PSP) TEHRI HPS - UNIT 6 need to be analysed and RCA report need to be shared from NPCIL and THDC respectively.
ii. SCADA data issue at A43RS(IP) need to be addressed at the earliest.
iii. DR along with tripping report need to be shared for 700MW RAPS-D - UNIT 1 and 250 MW (PSP) TEHRI HPS - UNIT 6 by NPCIL and THDC respectively.
iv. Remedial action taken report to be shared.

# Tripping of RAPP-7 on 16.02.2026 due to grid Disturbance.

**Event Date : 16.02.2026**

**Event Location: NPCIL-RAPP-D(7&8)**

**Facilities : RAPS-7**

On 16/02/2026 Unit-7 was operating at 97%FP generating 699 MWe.
At 11:32:33 Hrs, TG tripped on “STP Trip” following grid disturbance alarm. Reactor setback appeared on ASDV not fully closed. Generator Class-B/BG protection actuated followed by opening of Generator CB & Field CB (FCB).

Reactor Setback persisted up to power 62.4 %FP and stopped after ASDVs got closed. CSDV opened on Auto and Unit was maintained in steam dumping mode.

On Generator MOSP relay panel, Generator Class-B trip relays i.e. 86B, 86BG and 86BGX were observed flagged. After confirmation of no abnormality in grid, turbine rolling was started and TG synchronized back with grid at 12:01 Hrs. Reactor power was increased in steps up to 90% FP.

Electrical Protection trip appeared due to Loss of excitation.

As per recording on ESCADA the generator MW and MVAR were 694 MWe & 90 respectively prior to the event.

During the event, MW dipped down to 67.2 MWe in a period of 8 second and MVAR fluctuated between (-)456 – (+)484 MVAR as per grid demand.

No substantial change is observed in grid voltage although slight change in voltage was observed in 400 KV Bus-1 & Bus-2. Voltage dip in Bus-1 was observed from 405.6 kV to 384.75 KV, again recovered to 405 KV and Voltage dip in Bus-2 was observed from 410 KV to 391 KV, again recovered to 409 KV.

# Corrective Action taken by utility -

1-The tuning of CSDV controls has earlier been recommended by the designers based on review of NLR & GLR test reports.

2-The actuation of Loss of Field (LOF) trip is undesired during minor grid disturbance. Hence as per designer recommendation, excitation system DVR controller time delay for LOF trip has been increased from 2 sec to 3 sec also the time delay in generating LOF alarm, that alerts the operator when the generator operating point approaches the limits in leading MVAR region, has been reduced from 2.0 sec to 0.5 sec.

3-Speed Acceleration Logic df/dt setting provided in TG control. The averaging time for this logic has been increased from 40 mS to 200 mS as per designer recommendation. This will prevent large variation in TG MW during minor grid variations, as observed during this event.

## Conclusion:

The fluctuations in the grid resulted in large variation in Generator power and excitation current. This led to Generator power going beyond the capability curve region and tripping of the TG.

The corrective actions recommended by designers & OEM / Vendor in DVR controller and the Speed Acceleration Logic in TG controls have been implemented in the unit. The disturbances observed during minor variation in grid voltage & frequency are expected to be taken care through modification.

# Thanks

# Multiple Element tripping event at 400/220kV Bikaner2(PG) at 17:08 hrs on 22.02.2026

# Tripped Elements

| S. No | Name of Elements | Outage Time | Revival Time | Reason of tripping |
|---|---|---|---|---|
| 1. | 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt | 16:24 hrs | 20:48 hrs | Tripped from Bikaner2 end only (exact reason yet to be shared by PG) |
| 2. | 220 KV Bikaner_2 (PBTSL)-KSP_NHPC_LTD_SL_BKN2 (KSP_NHPC_LTD) Ckt | 16:58 hrs | 20:21 hrs | Over-voltage |
| 3. | 500 KV HVDC Balia-Bhiwadi (PG) Ckt-1 | 17:08 hrs | 19:07 hrs | Sub synchronous resonance 81 SSR block operated |
| 4. | 500 KV HVDC Balia-Bhiwadi (PG) Ckt-2 | | | |
| 5. | 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 | | 19:40 hrs | Over-voltage stage-1 operated at Bikaner2 end |
| 6. | 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-2 | 17:08 hrs | 19:38 hrs | |
| 7. | 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-3 | 17:09 hrs | 20:01 hrs | |
| 8. | 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-4 | 17:10 hrs | 18:50 hrs | |
| 9. | 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt | | 19:13 hrs | Over-voltage stage-2 operated at Bikaner2 end |
| 10. | 220 KV ASSPL_SL_BKN2-Bikaner_2 (PBTSL) (ASSPL_BKN2) Ckt | | 19:44 hrs | Due to loss of evacuation path |
| 11. | 220 KV Renew_Dinkar_SL_Bik2-Bikaner_2 (PBTSL) (Renew Dinkar_UPL) Ckt | | 20:19 hrs | |
| 12. | 220 KV SRI4PL_SL_BIK2_PG-Bikaner_2 (PBTSL) (SERENTICA_RI4PL_Bik2) Ckt | | 19:34 hrs | |
| 13. | 220 KV Bikaner_2 (PBTSL)-KHIDRAT_REPL_SL_BKN2 (KHIDRAT_REPL) Ckt | | 20:43 hrs | |
| 14. | 220KV Grian_BIK2_(AMPLUS)-Bikaner_2 (PBTSL) (GRIAN ENERGY PRIVATE LIMITED) Ckt | | 20:38 hrs | |
| 15. | 220 KV Bikaner_2 (PBTSL)-Juna_REPL_SL_BKN2 (Juna_REPL) Ckt | | 20:15 hrs | |
| 16. | 220 KV BTPSL_SL_BIK2_PG-Bikaner_2 (PBTSL) (BANDERWALA_TPSL) Ckt | | 20:15 hrs | |
| 17. | 220 KV PGPL_SL_BIK2_PG-Bikaner_2 (PBTSL) (PRERAK GREENTECH PVT LTD) Ckt | | 19:32 hrs | |

# Brief details of the event

- Generation of 400kV SGEL(SJVN) and 220kV JGCPL(IP), KSP(NHPC), ASSPL(IP), RDUPL(IP), SRI4PL(IP), KREPL(IP), GEPL(IP), JREPL(IP), BTPSL(IP) & PGPL(IP) stations evacuate through individual single circuit lines from plants to Bikaner2(PG).
- 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) Ckt-1 & 2 were taken under planned outage from 16:00 hrs on 22.02.2026 to 05.03.2026 for LILO of the 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) D/C lines at 400 kV Bikaner-III substation. The outage code was issued by NRLDC at 16:21 hrs. Subsequently, the lines were opened at 16:40 hrs. ISTS solar generation at that time was ~11,600 MW and Bikaner 2 generation at that time was ~1800 MW.
- After opening of these lines, oscillations observed in the System Frequency from 16:44 hrs onward as per PMU frequency plots. However, no corresponding fluctuation was observed in the PMU voltage plots.
- Immediately after opening of 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) D/C lines at 16:41 hrs, huge fluctuation in active power started in 300MW Karnisar NHPC and 200MW Renew Dinkar at 16:44 hrs.
- With triggering of active power fluctuation in 300MW Karinsar NHPC and 200MW Renew Dinkar at 16:44 hrs, other RE plants also exhibited the continuous active power fluctuation but magnitude in other plants were comparatively lesser.
- As reported, at 16:24 hrs, 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt tripped from Bikaner2 end only (exact reason yet to be shared by PG).
- Further, at 16:58 hrs, 220 KV Bikaner_2 (PBTSL)-KSP_NHPC_LTD_SL_BKN2 (KSP_NHPC_LTD) Ckt tripped on over-voltage (over-voltage protection in 220kV lines need to be disabled as per NRPC protection philosophy).
- Followed by this, huge active power fluctuation started at 17:00 hrs almost in all plants connected at Bikaner2(PG).

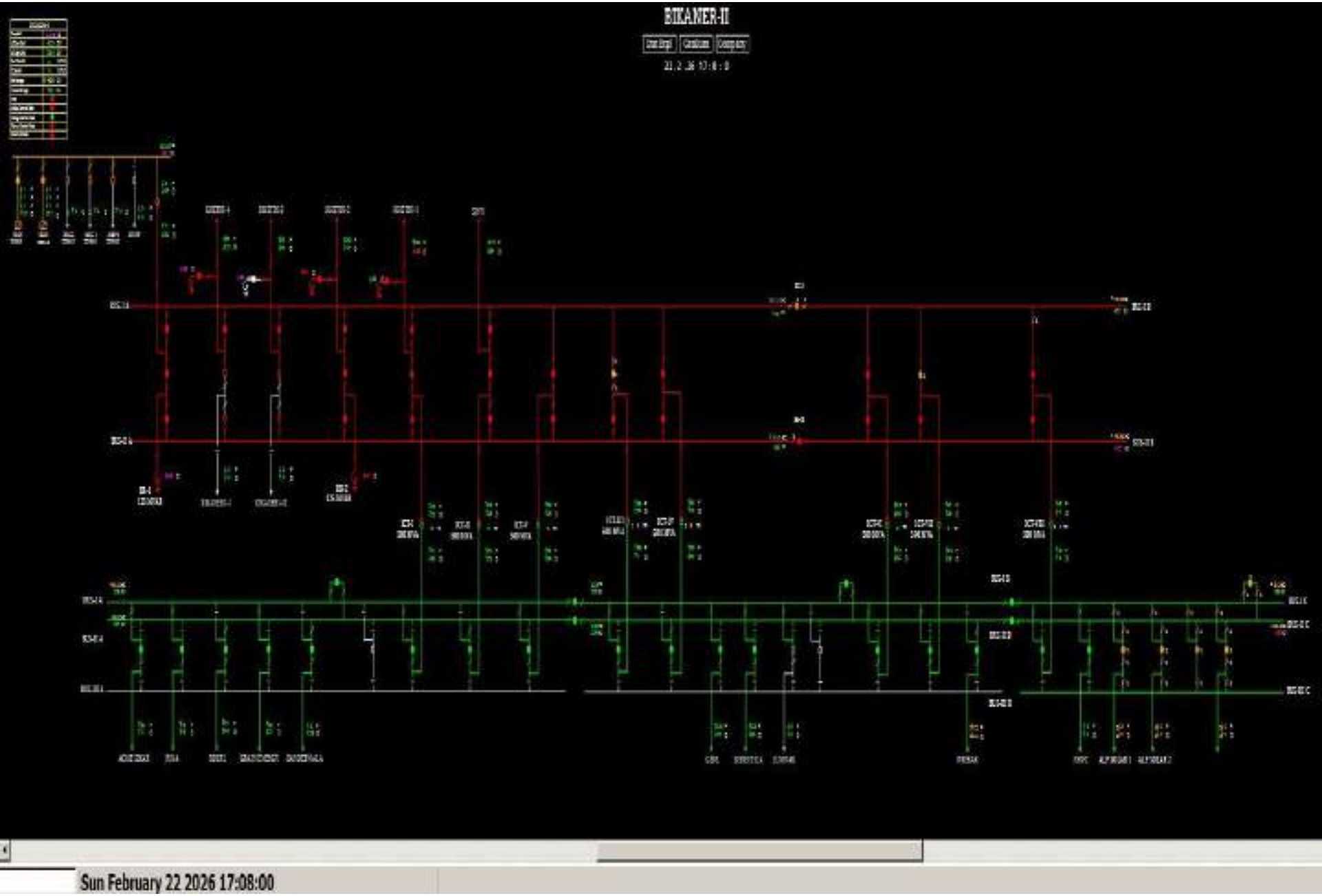
# Brief details of the event

- As reported, at 17:08 hrs, 500 KV HVDC Balia-Bhiwadi (PG) Ckt-1 & 2 tripped on sub-synchronous resonance 81 SSR block operation (as per EL) followed by tripping of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1, 2, 3 & 4 and 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt.
- Sequence of the event as per DR, PMU and SCADA SOE is as follows:
  a) 17:08:05 hrs: 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 tripped on over-voltage stage-1 protection operation. As per DR, voltage went upto 1.14 pu at Bikaner2 end. As per EL, Over-voltage stage-1 operated with a time delay of 5 s and DT sent to Khetri end.
  b) 17:08:21 hrs: 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-2 tripped on over-voltage stage-1 protection operation. As per DR, voltage went upto 1.23 pu at Bikaner2 end. As per EL, Over-voltage stage-1 operated with a time delay of 6 s and DT sent to Khetri end.
  c) 17:09:16 hrs: 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-3 tripped on over-voltage stage-1 protection operation. As per DR, voltage went upto 1.16 pu at Bikaner2 end. As per EL, Over-voltage stage-1 operated with a time delay of 6 s and DT sent to Khetri end.
  d) 17:10:12 hrs; 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-4 tripped on over-voltage stage-1 protection operation. As per DR, voltage went upto 1.238 pu at Bikaner2 end. Over-voltage stage-1 operated and DT sent to Khetri end.
  e) 17:10:13 hrs: 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL) Ckt tripped on over-voltage stage-2 protection operation. As per DR, voltage went upto 1.38 pu at Bikaner2 end. As per EL, Over-voltage stage-2 operated at Bikaner2 end. DT received from SGEL end.

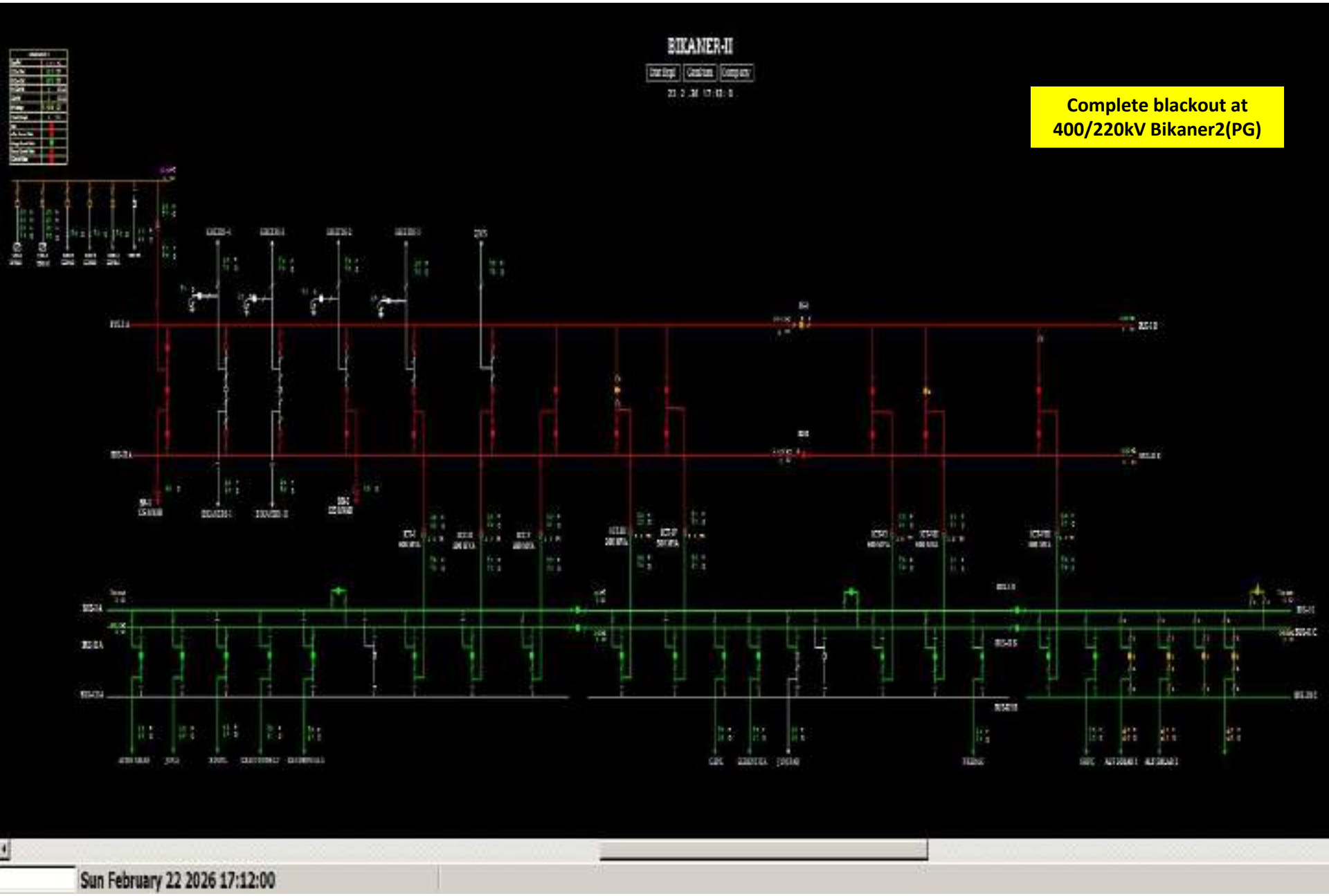
# Brief details of the event

- Due to tripping of all four 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1, 2, 3 & 4 (with 400 kV Bikaner_2 (PBTSL) – Bikaner (PG) Ckt-1 & 2 under outage), all 220kV RE plants connected at Bikaner2(PG), i.e., JGCPL(IP), KSP(NHPC), ASSPL(IP), RDUPL(IP), SRI4PL(IP), KREPL(IP), GEPL(IP), JREPL(IP), BTPSL(IP) & PGPL(IP) also tripped due to loss of evacuation path which led to complete blackout of 400/220kV Bikaner2(PG) along with all RE plants connected at 400kV and 220kV level of Bikaner2(PG).
- As per PMU, no fault was observed in the system.
- As per SCADA, reduction in NR total Solar Generation of approx. 525 MW was observed at around 17:08 hrs.

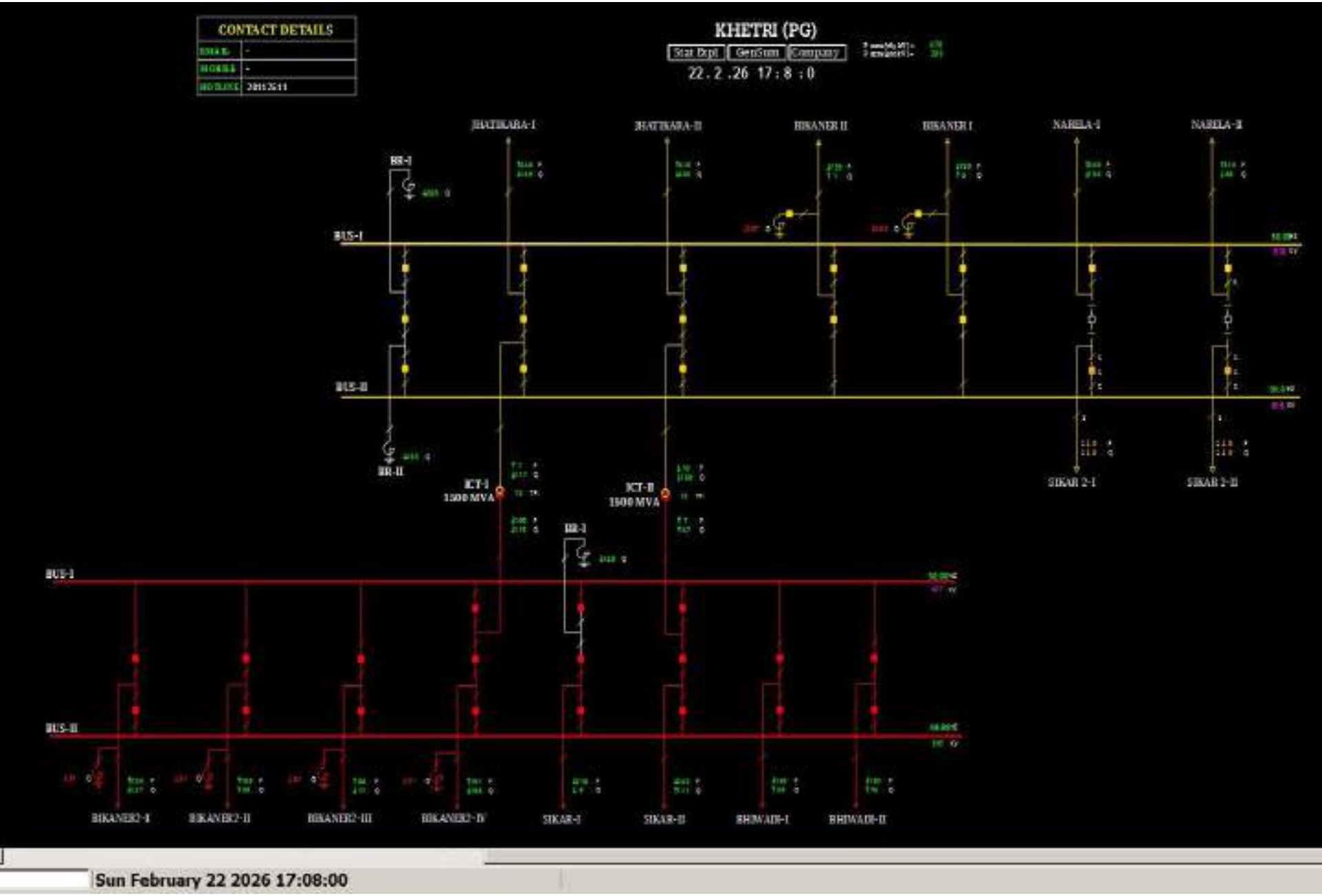
# SLD of 400/220kV Bikaner2(PG) before the event



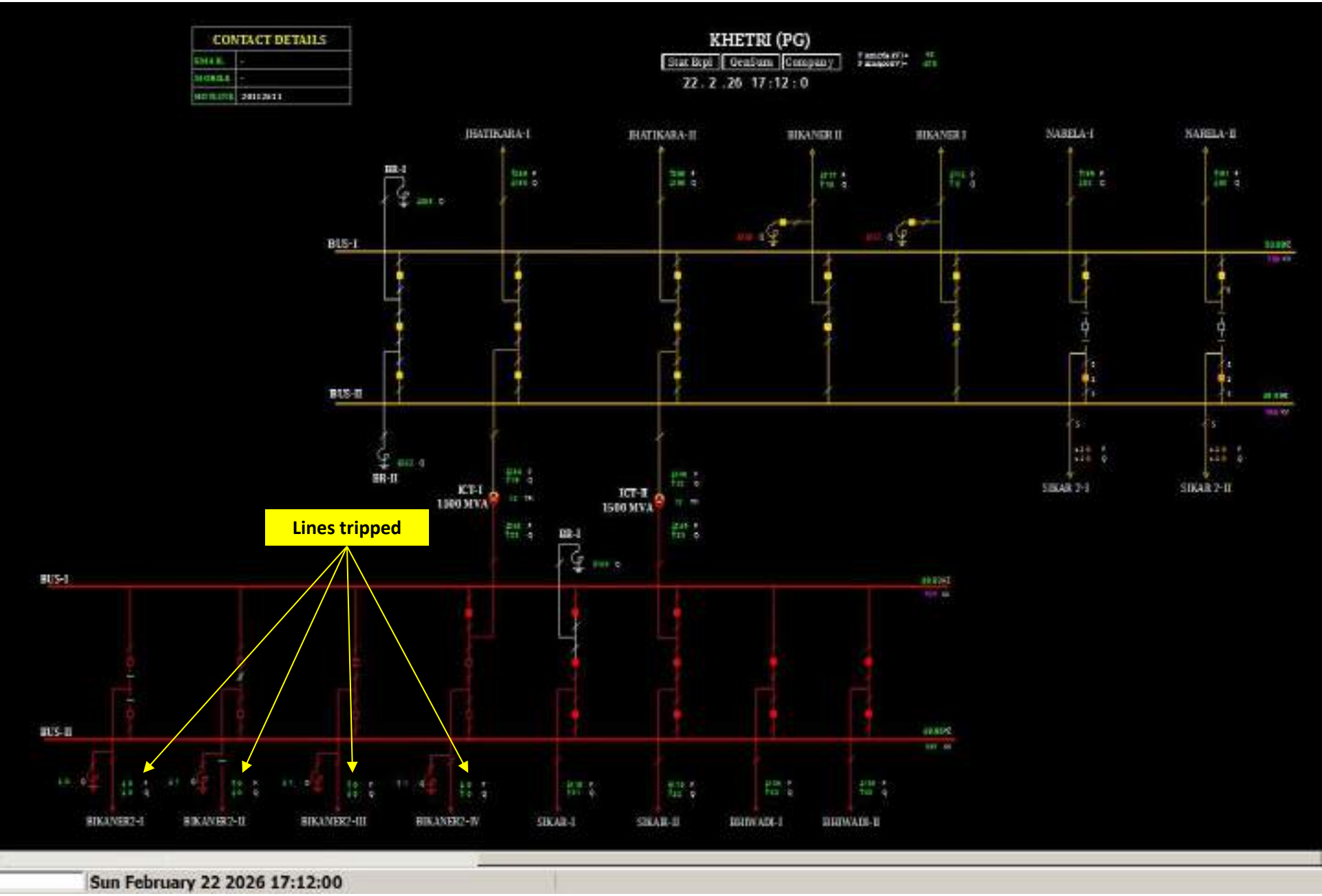
# SLD of 400/220kV Bikaner2(PG) after the event



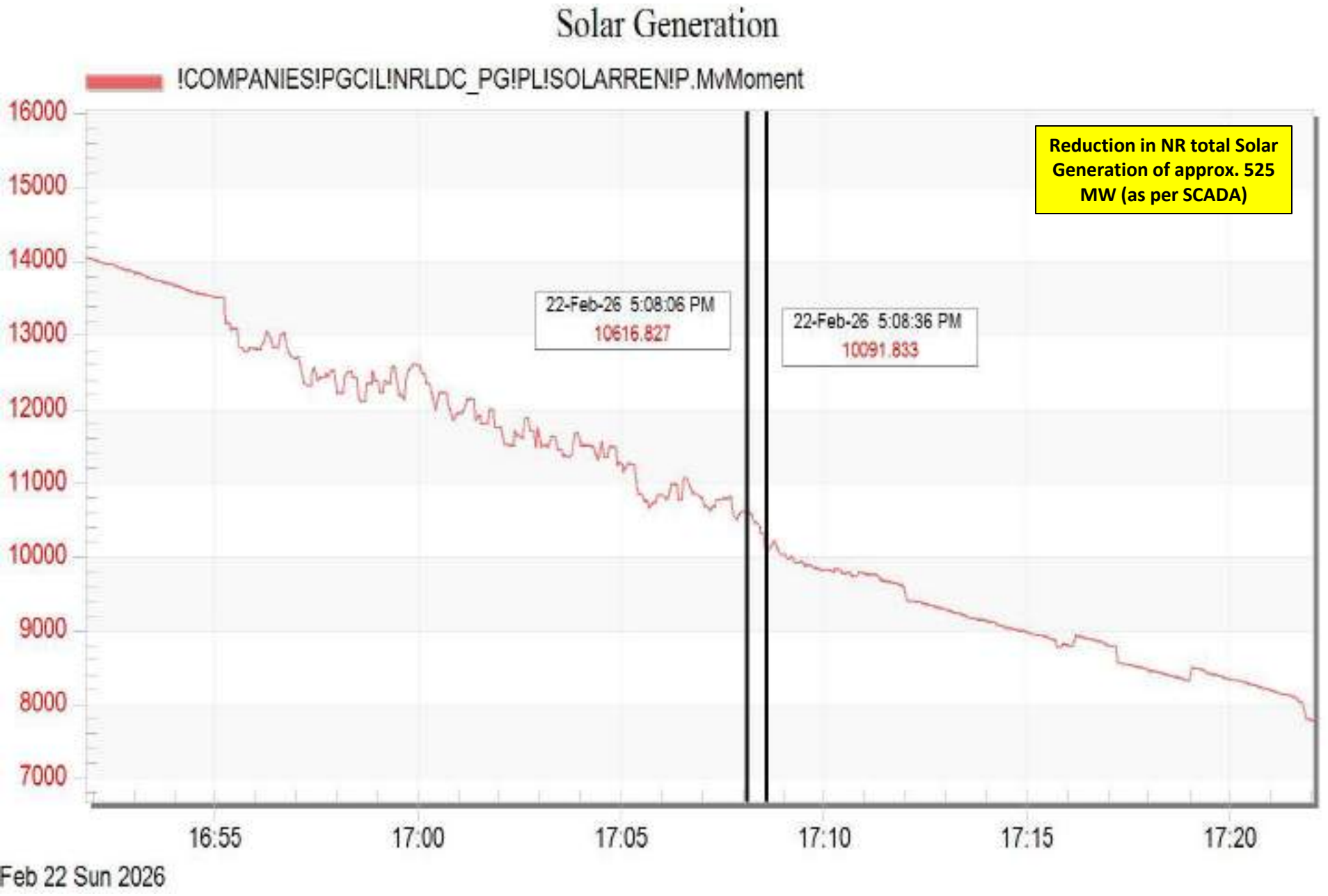
# SLD of 765/400kV Khetri(PG) before the event



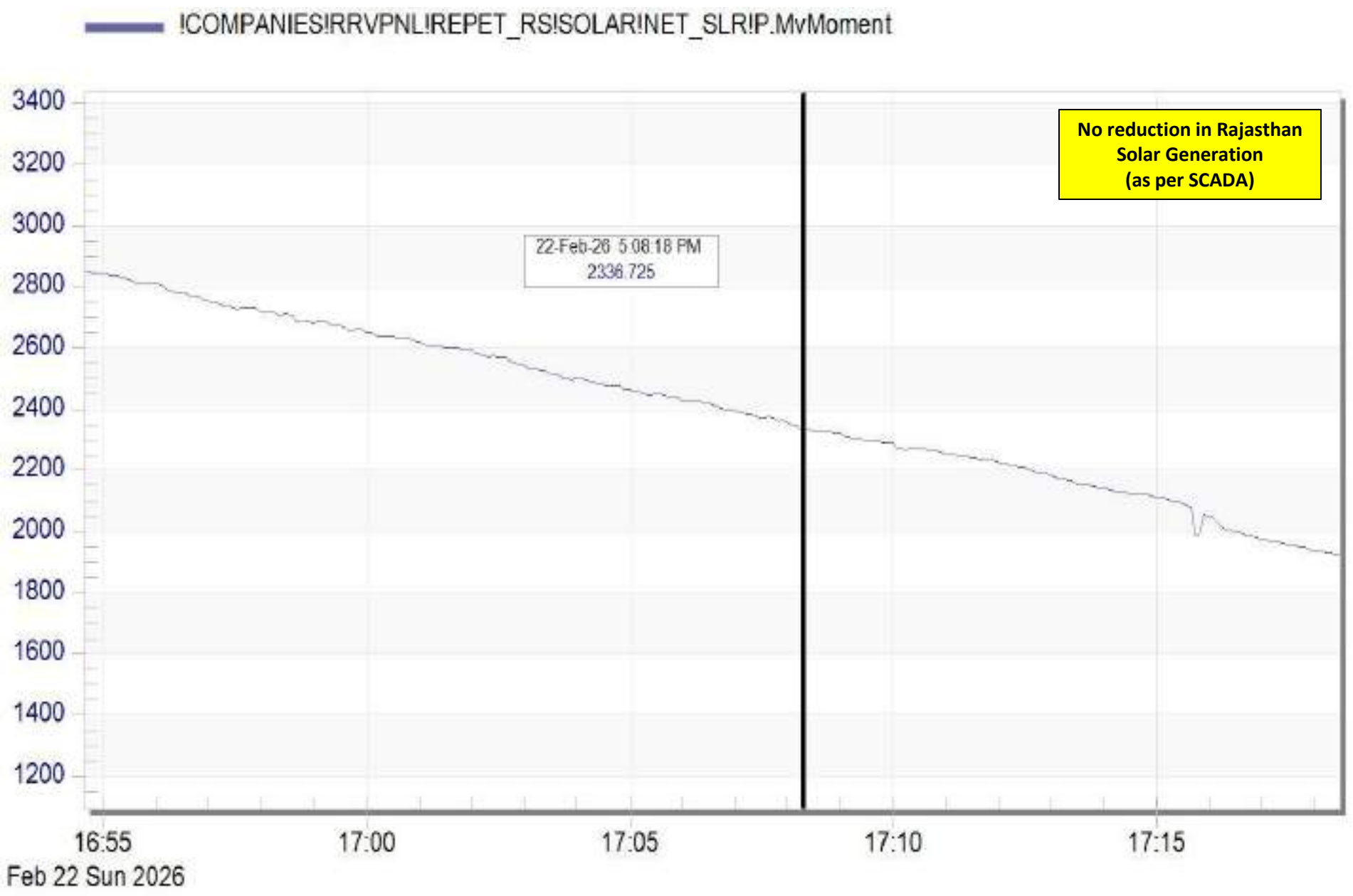
# SLD of 765/400kV Khetri(PG) after the event



# NR Total Solar Generation during the event



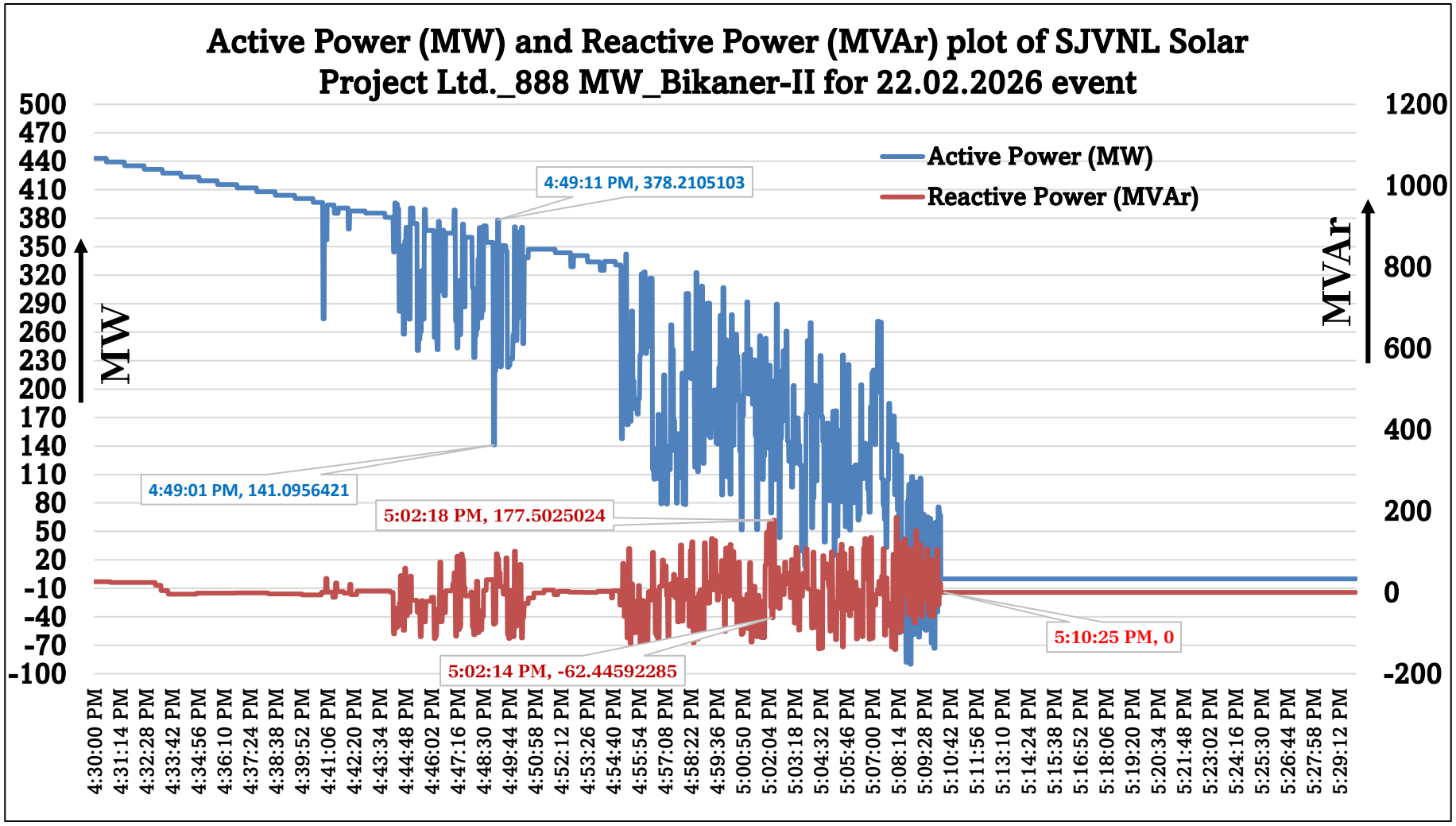
# Rajasthan Solar Generation during the event



# Details of % MW fluctuation, Starting time of Severe fluctuation in active power, Plant outage time, Inverters Make and model

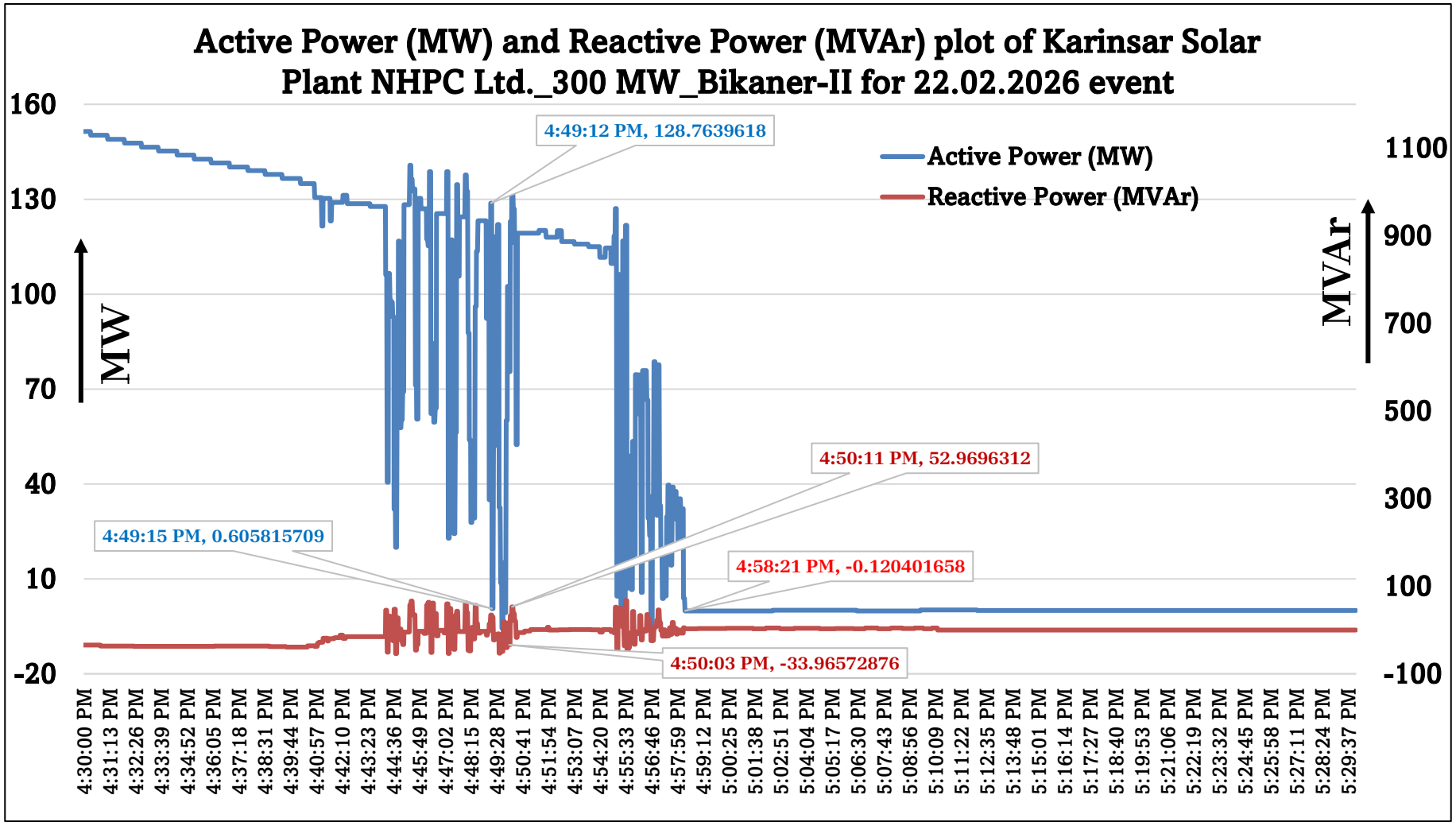
| Plant Name | Plant Capacity (MW) | Active Power before the event (16:41 hrs) (A) | Maximum Active power fluctuation (MW) (B) | % of Max. fluctuation w.r.t pre-event active power (B/A)*100 | Starting time of Severe fluctuation in active power | Maximum Reactive power fluctuation (MVAr) | Plant outage time | Inverters Make | Inverters Model | No. of Inverters |
|---|---|---|---|---|---|---|---|---|---|---|
| Karinsar Solar Plant NHPC Ltd. | 300 | 130 | 128 | 98% | 16:44 | 85 | 16:48 | SINENG | EP-3300-HB-UD | 112 |
| Renew Dinkar Urja Pvt. Ltd. | 200 | 71 | 68 | 96% | 16:46 | 59 | 17:08 | SUNGROW | SG4400 UD-20 | 50 |
| | | | | | | | | SUNGROW | SG3300 UD-20 | 8 |
| Banderwala Solar Plant TP Surya Ltd. | 300 | 128 | 100 | 78% | 16:53 | 69 | 17:10 | SUNGROW | SG4400 UD-20 | 81 |
| Juna Renewable Energy Pvt. Ltd. | 335 | 200 | 143 | 72% | 17:00 | Data suspected | 17:10 | SUNGROW | SG4400 UD-20 | 80 |
| SJVNL Solar Project Ltd. | 888 | 400 | 237 | 59% | 16:55 | 85 | 17:10 | SUNGROW | SG4400 UD-21 | 248 |
| Khidrat Renewable Energy Pvt. Ltd. | 300 | 131 | 70 | 53% | 17:00 | 66 | 17:10 | SUNGROW | SG320HX | 90 |
| | | | | | | | | SUNGROW | SG3300 UD-20 | 90 |
| Amplus Grian Onevolt | 300 | 189 | 100 | 53% | 17:01 | 96 | 17:10 | SUNGROW | SG3300 UD-20 | 89 |
| | | | | | | | | SUNGROW | SG4400 UD-20 | 13 |
| Juniper Green Cosmic + Nirjara Pvt. Ltd. | 150+41(BESS) | 190 | 67 | 35% | 17:01 | 86 | 17:10 | SUNGROW | SG4400 UD-20 | 36 |
| ACME Sikar Solar Pvt. Ltd. | 300 | 120 | 33 | 28% | Data suspected | 17 | 17:08 | SUNGROW | SG4400 UD-20 | 80 |
| Prerak Green Tech Pvt. Ltd. | 400 | 220 | 44 | 20% | Not observed | 93 | 17:09 | SUNGROW | SG3300 UD-20 | 144 |
| Serentica Renewables India Pvt. Ltd. | 400 | 270 | 51 | 19% | Not observed | 74 | 17:10 | SUNGROW | SG3300 UD-20 | 144 |

# Active Power (MW) and Reactive Power (MVAr) plot of SJVNL Solar Project Ltd._888 MW_Bikaner-II



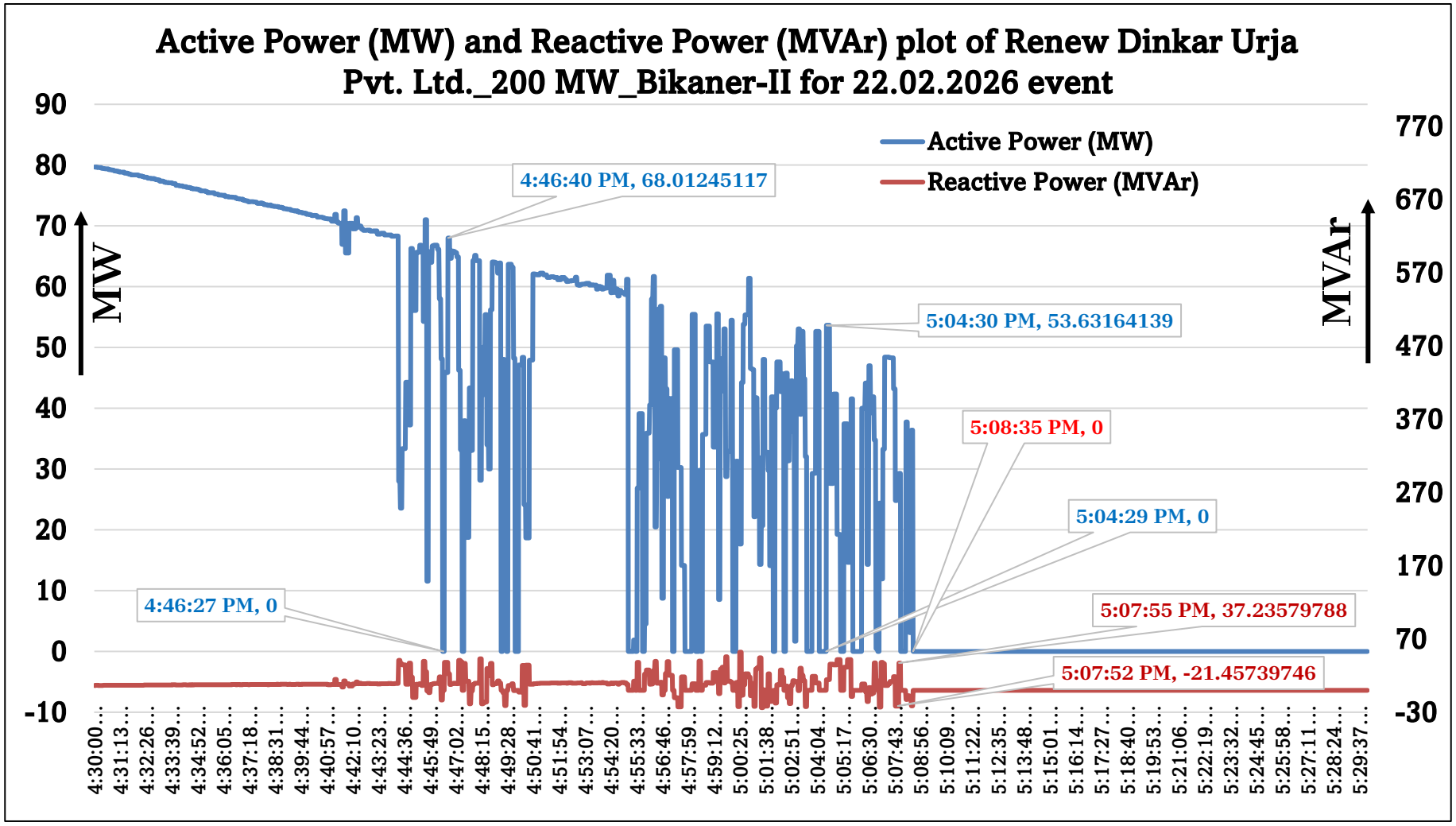

- ✓ Active Power fluctuation: 378 MW to 141 MW, ~237 MW fluctuation in active power
- ✓ Reactive Power fluctuation: 52 MVAr to -33 MVAr, ~85 MVAr fluctuation in reactive power
- ✓ Plant outage time: 17:10 hrs
- ✓ Severe fluctuation in active power started at: 16:55.

# Active Power (MW) and Reactive Power (MVAr) plot of Karnisar Solar Plant NHPC Ltd._300 MW_Bikaner-II



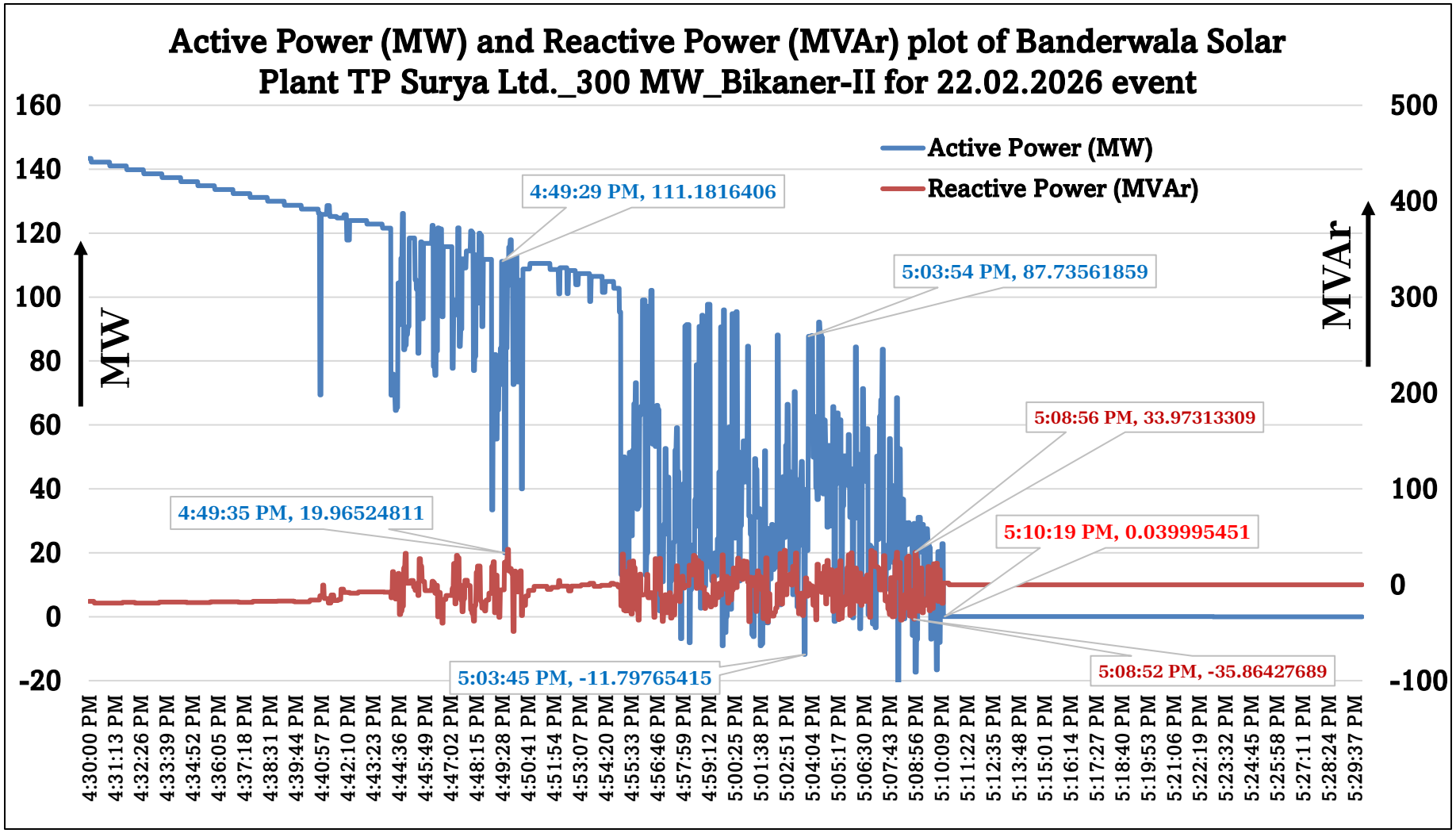

- ✓ Active Power fluctuation: 128 MW to 0 MW, ~128 MW fluctuation in active power
- ✓ Reactive Power fluctuation: 52 MVAr to -33 MVAr, ~85 MVAr fluctuation in reactive power
- ✓ Plant outage time: 16:58:21 hrs
- ✓ Severe fluctuation in active power started at: 16:44.

# Active Power (MW) and Reactive Power (MVAr) plot of Renew Dinkar Urja Pvt. Ltd._200 MW_Bikaner-II



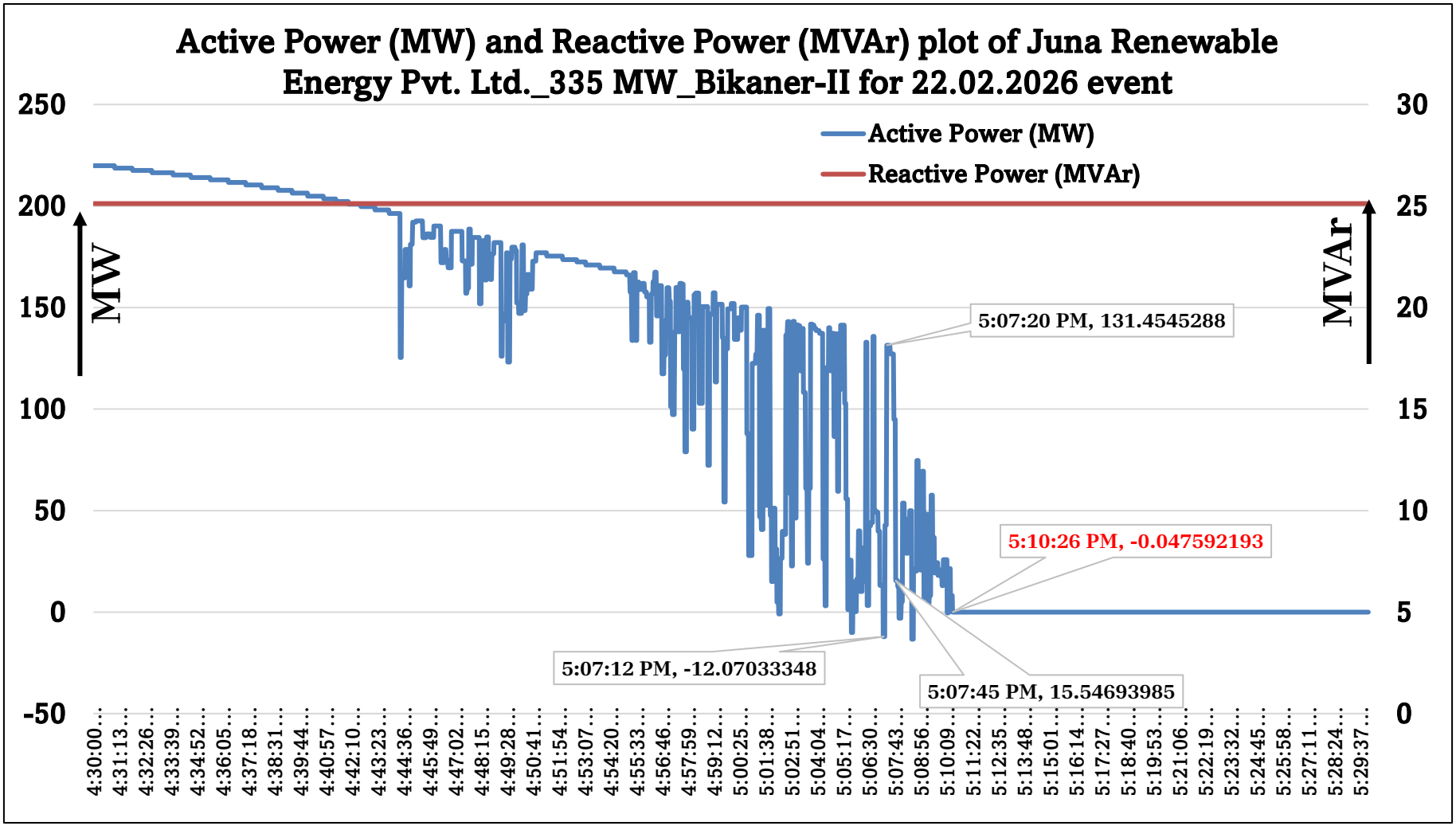

- ✓ Active Power fluctuation: 68 MW to 0 MW, ~68 MW fluctuation in active power
- ✓ Reactive Power fluctuation: 37 MVAr to -21 MVAr, ~59 MVAr fluctuation in reactive power
- ✓ Plant outage time: 17:08 hrs
- ✓ Severe fluctuation in active power started at: 16:46 hrs

# Active Power (MW) and Reactive Power (MVAr) plot of Banderwala Solar Plant TP Surya Ltd._300 MW_Bikaner-II



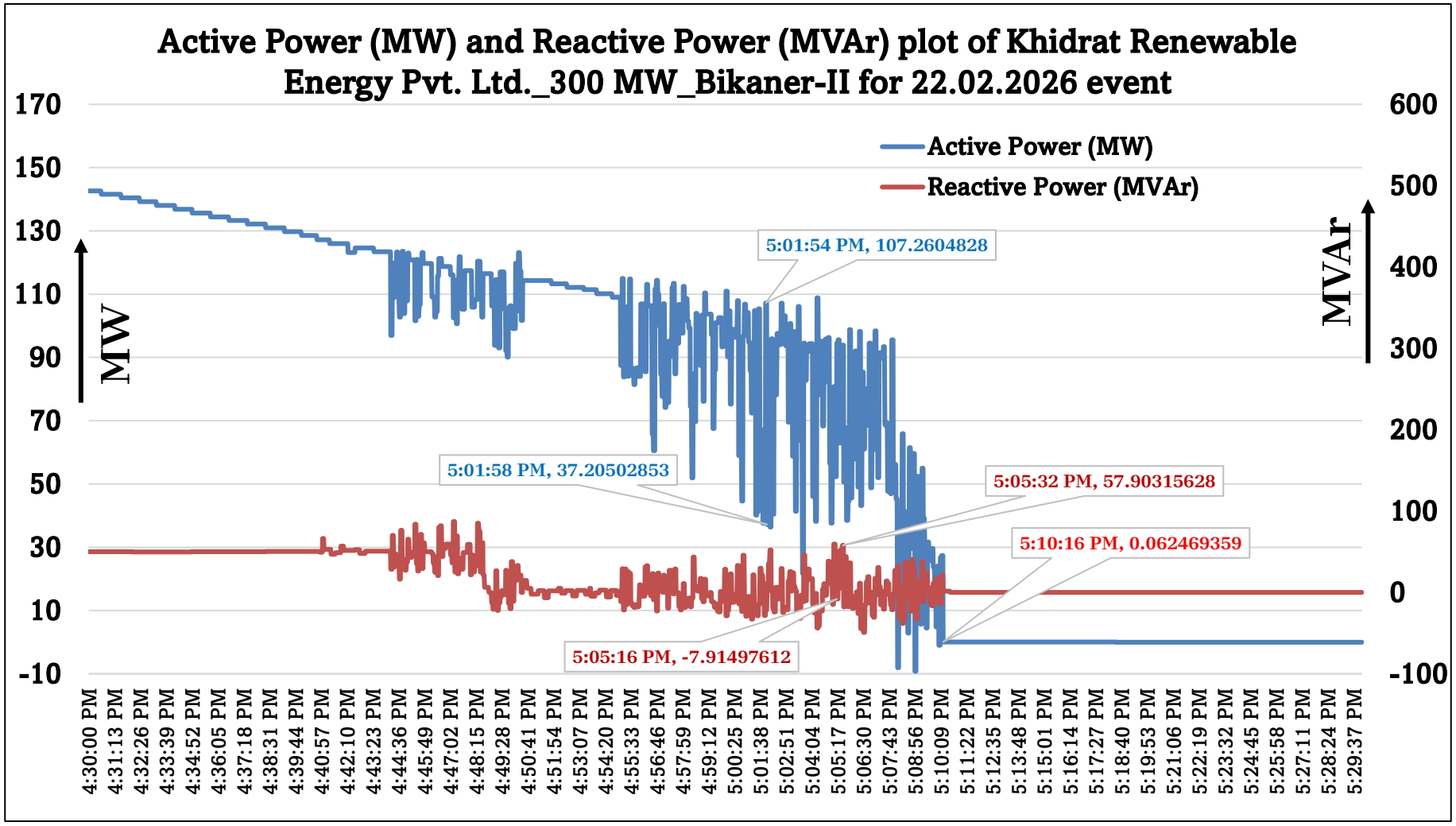

- ✓ Active Power fluctuation: 88 MW to -12 MW, **~100 MW** fluctuation in active power
- ✓ Reactive Power fluctuation: 34 MVAr to -35 MVAr, **~69 MVAr** fluctuation in reactive power
- ✓ Plant outage time: 17:10 hrs
- ✓ Severe fluctuation in active power started at: 16:53 hrs

# Active Power (MW) and Reactive Power (MVAr) plot of Juna Renewable Energy Pvt. Ltd._335 MW_Bikaner-II



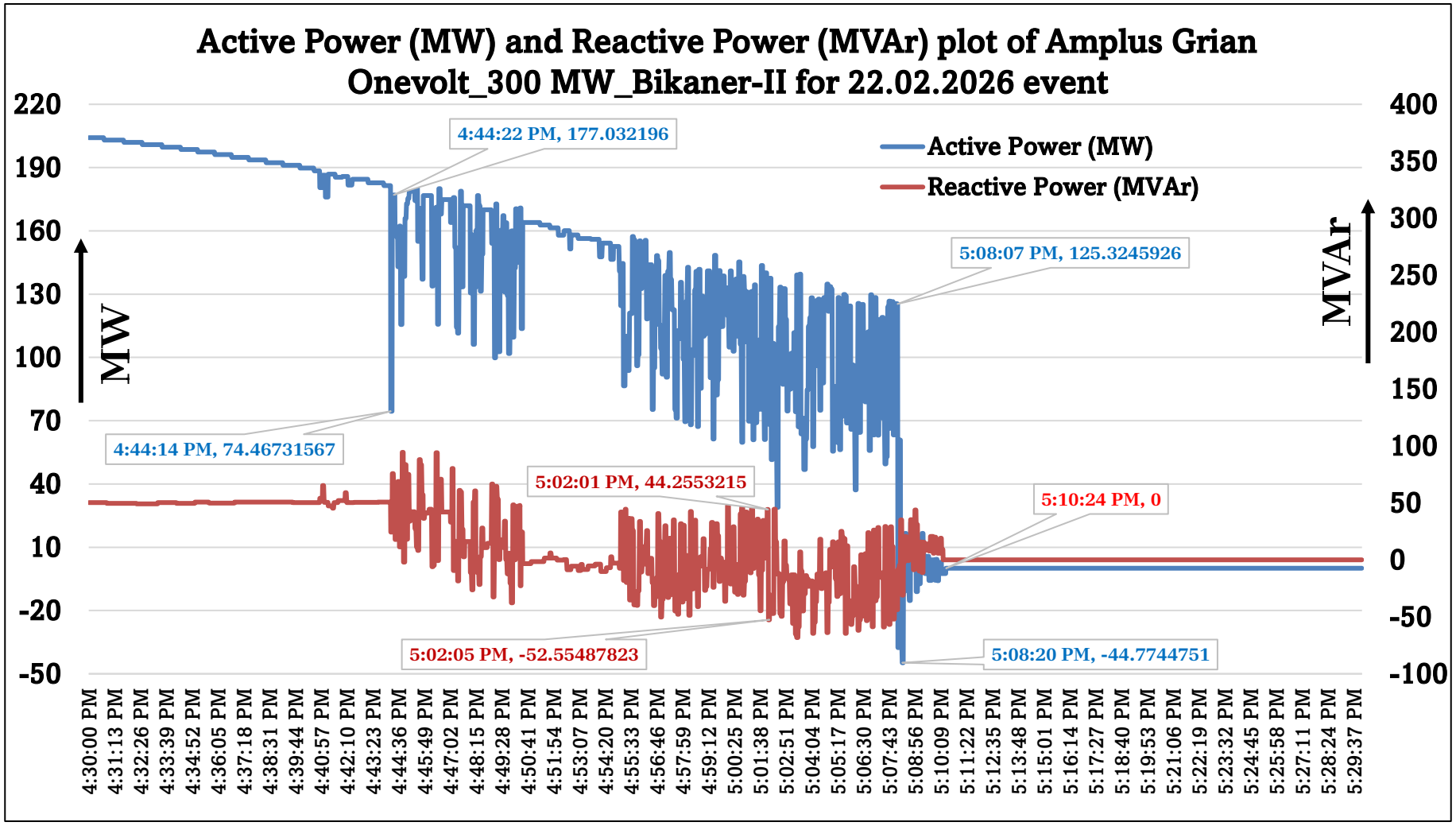

- ✓ Active Power fluctuation: 131 MW to -12 MW, ~143 MW fluctuation in active power
- ✓ Reactive Power fluctuation: Data freeze and suspected
- ✓ Plant outage time: 17:10 hrs
- ✓ Severe fluctuation in active power started at: 17:00 hrs

# Active Power (MW) and Reactive Power (MVAr) plot of Khidrat Renewable Energy Pvt. Ltd._300 MW_Bikaner-II



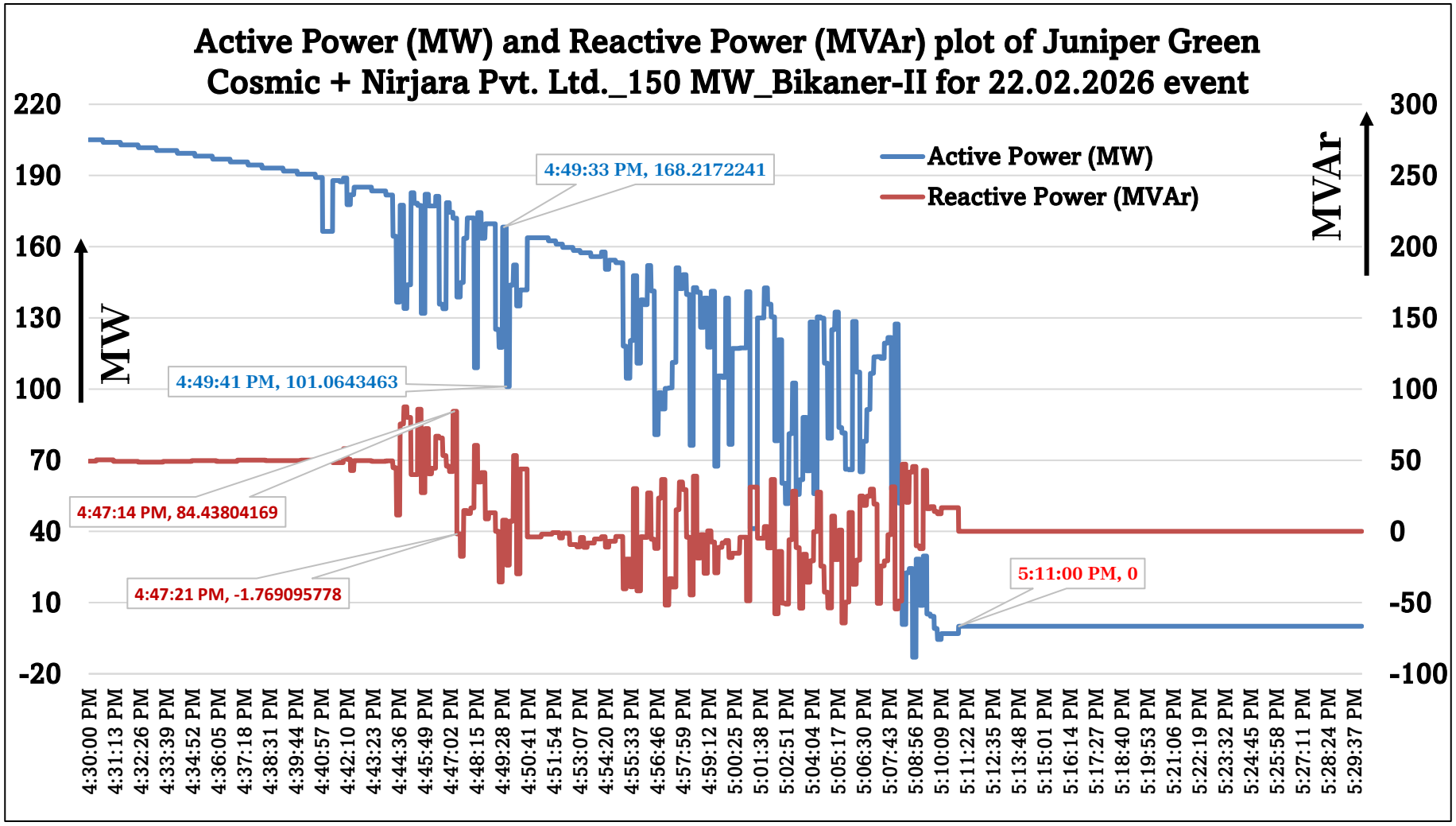

- ✓ Active Power fluctuation: 107 MW to 37 MW, **~70 MW** fluctuation in active power
- ✓ Reactive Power fluctuation: 58 MVAr to -8 MVAr, **~66 MVAr** fluctuation in reactive power
- ✓ Plant outage time: 17:10 hrs
- ✓ Severe fluctuation in active power started at: 17:00 hrs

# Active Power (MW) and Reactive Power (MVAr) plot of Amplus Grian Onevolt_300 MW_Bikaner-II



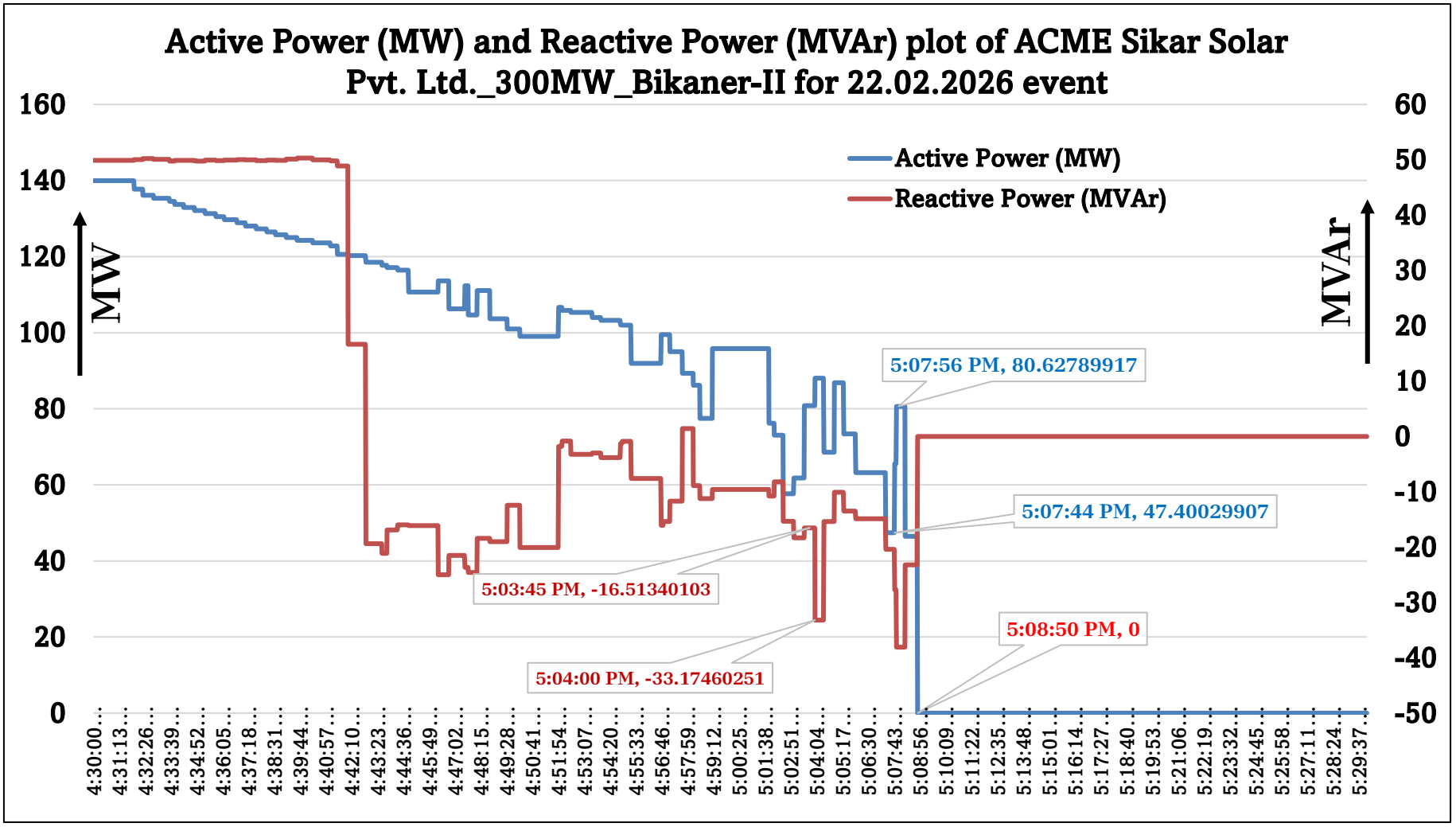

- ✓ Active Power fluctuation: 177 MW to 74 MW, **~100 MW** fluctuation in active power
- ✓ Reactive Power fluctuation: 44 MVAr to -52 MVAr, **~96 MVAr** fluctuation in reactive power
- ✓ Plant outage time: 17:10 hrs
- ✓ Severe fluctuation in active power started at: 17:01 hrs

# Active Power (MW) and Reactive Power (MVAr) plot of Juniper Green Cosmic + Nirjara Pvt. Ltd._150 MW_Bikaner-II



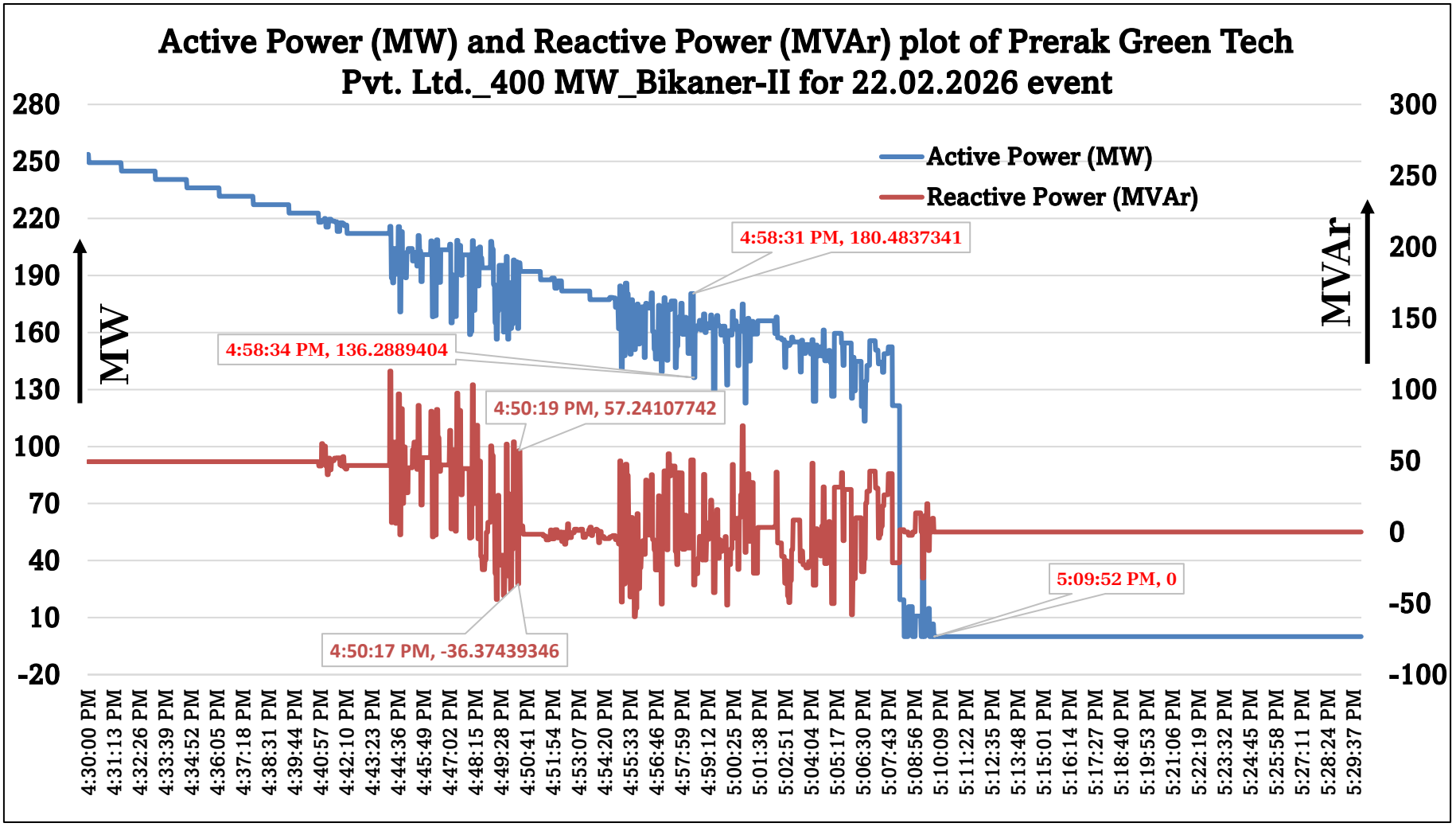

- ✓ Active Power fluctuation: 168 MW to 101 MW, **~67 MW** fluctuation in active power
- ✓ Reactive Power fluctuation: 84 MVAr to -2 MVAr, **~86 MVAr** fluctuation in reactive power
- ✓ Plant outage time: 17:10 hrs
- ✓ Severe fluctuation in active power started at: 17:01 hrs

# Active Power (MW) and Reactive Power (MVAr) plot of ACME Sikar Solar Pvt. Ltd._300MW_Bikaner-II



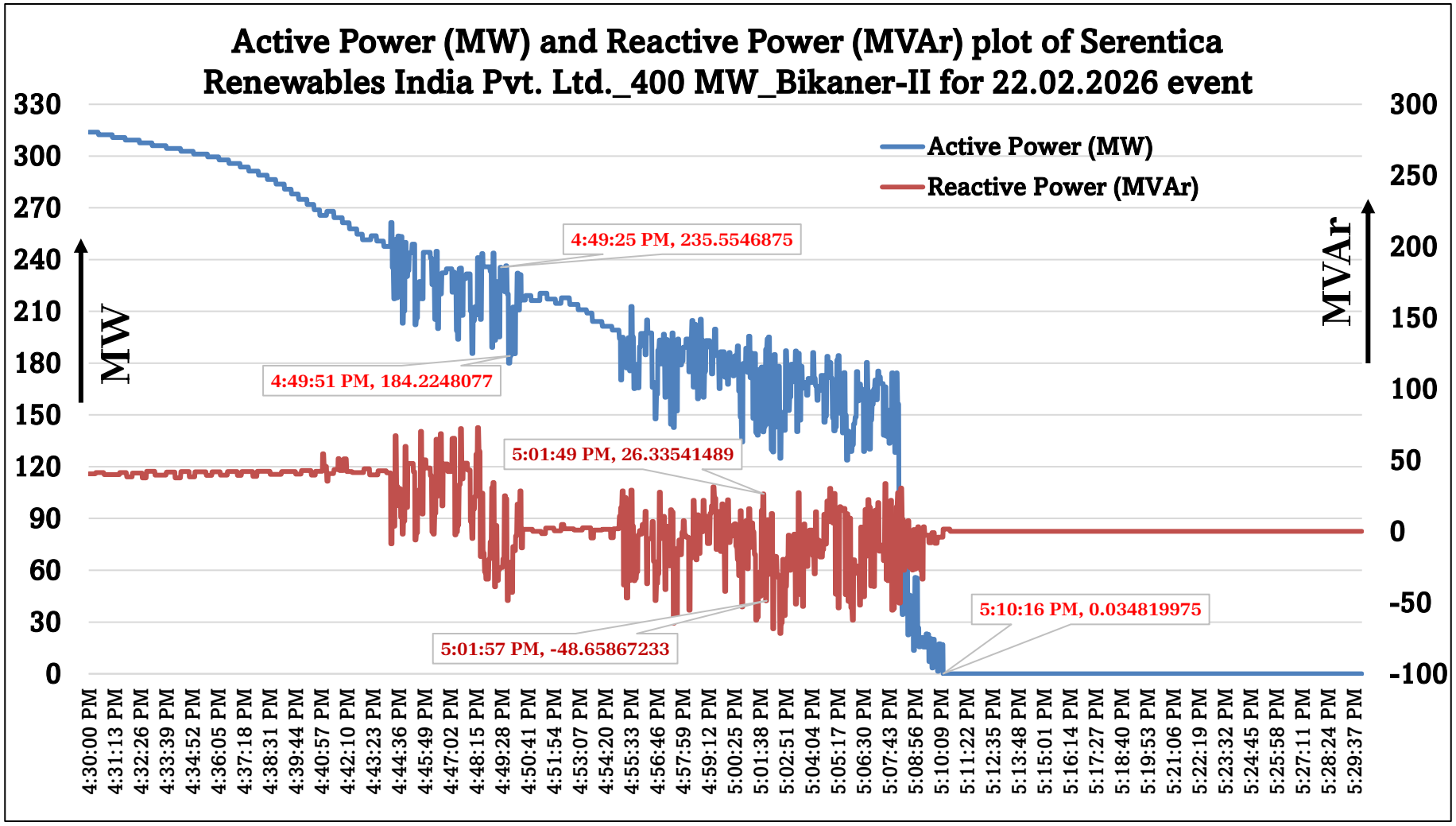

- ✓ Active Power fluctuation: 80 MW to 47 MW, **~33 MW** fluctuation in active power
- ✓ Reactive Power fluctuation: -16 MVAr to -33 MVAr, **17 MVAr** fluctuation in reactive power
- ✓ Plant outage time: 17:08:50 hrs
- ✓ Severe fluctuation in active power started at: **Data suspected.**

# Active Power (MW) and Reactive Power (MVAr) plot of Prerak Green Tech Pvt. Ltd._400 MW_Bikaner-II



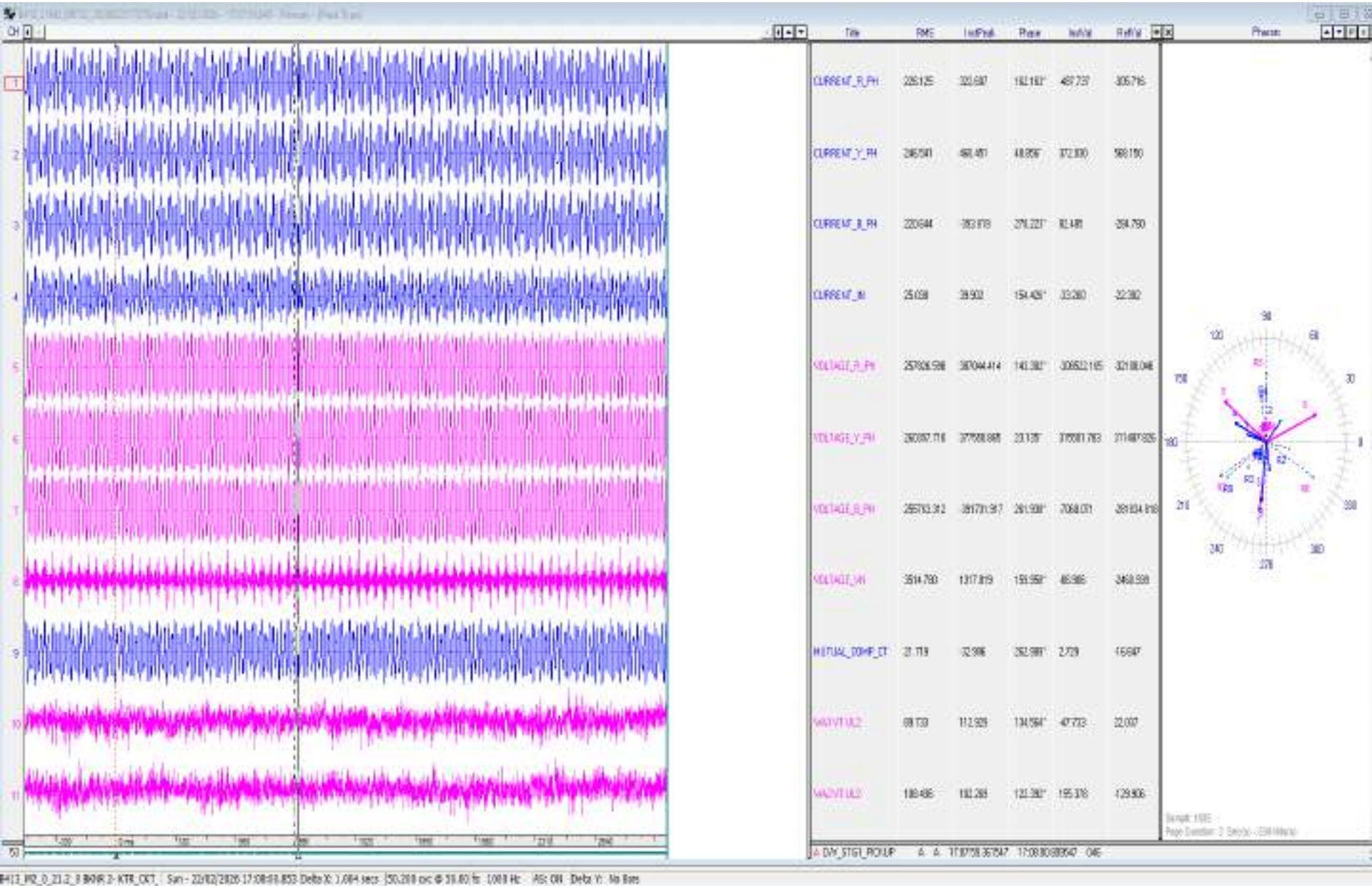

- ✓ Active Power fluctuation: 180 MW to 136 MW, **~44 MW** fluctuation in active power
- ✓ Reactive Power fluctuation: 57 MVAr to -36 MVAr, **~93 MVAr** fluctuation in reactive power
- ✓ Plant outage time: 17:09:52 hrs
- ✓ Severe fluctuation in active power started at: **Not observed.**

# Active Power (MW) and Reactive Power (MVAr) plot of Serentica Renewables India Pvt. Ltd._400 MW_Bikaner-II



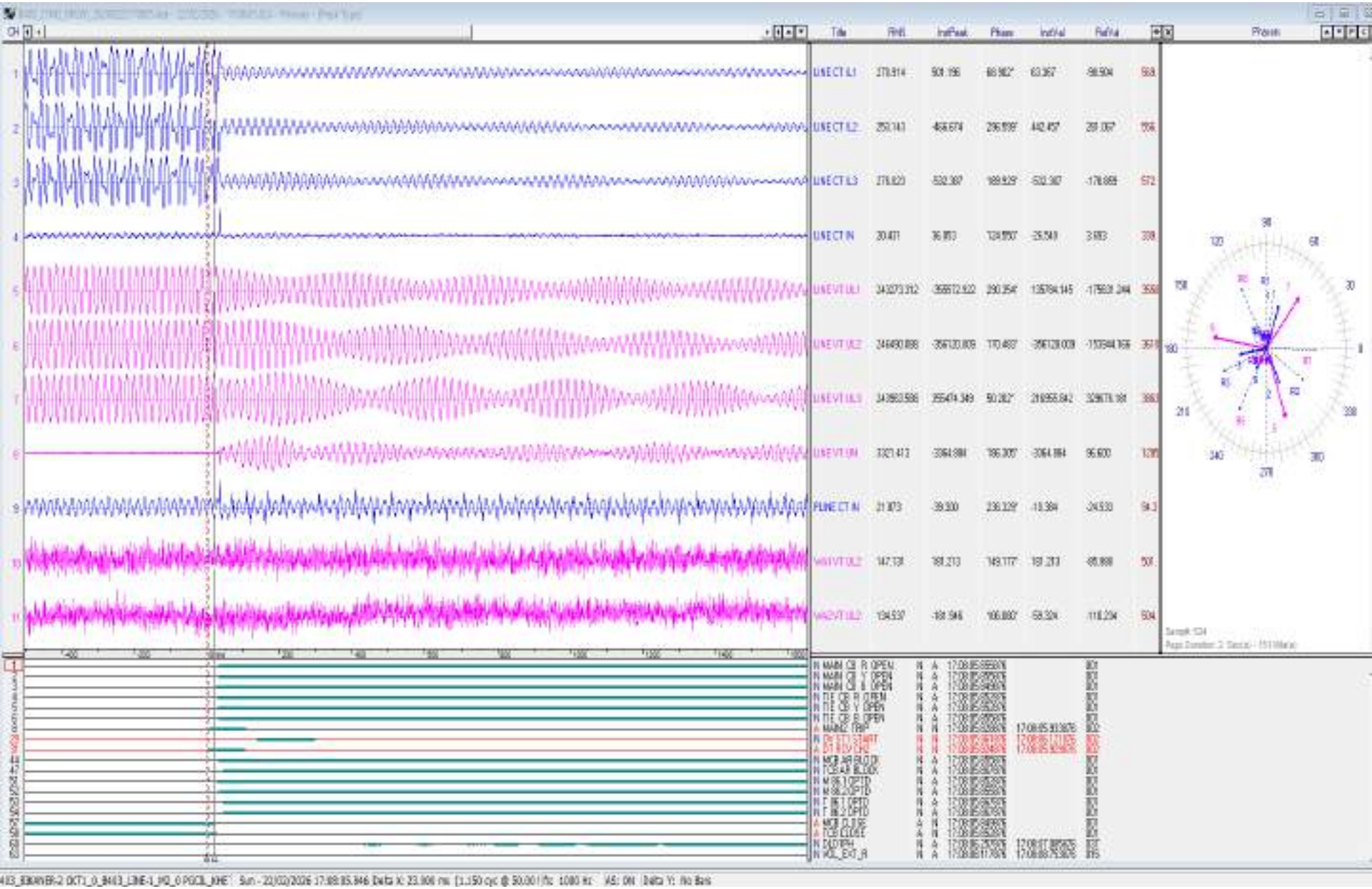

- ✓ Active Power fluctuation: 235 MW to 184 MW, **~51 MW** fluctuation in active power
- ✓ Reactive Power fluctuation: 26 MVAr to -48 MVAr, **~74 MVAr** fluctuation in reactive power
- ✓ Plant outage time: 17:10 hrs
- ✓ Severe fluctuation in active power started at: **Not observed.**

# DR of 400 KV Bikaner_2 (PBTSL) (end)-Khetri (PKTSL) (PBTSL) Ckt-1



- ✓ As per DR, voltage went upto 1.14 pu at Bikaner2 end.

# DR of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (end) (PBTSL) Ckt-1



- ✓ As per DR, DT received at Khetri end.

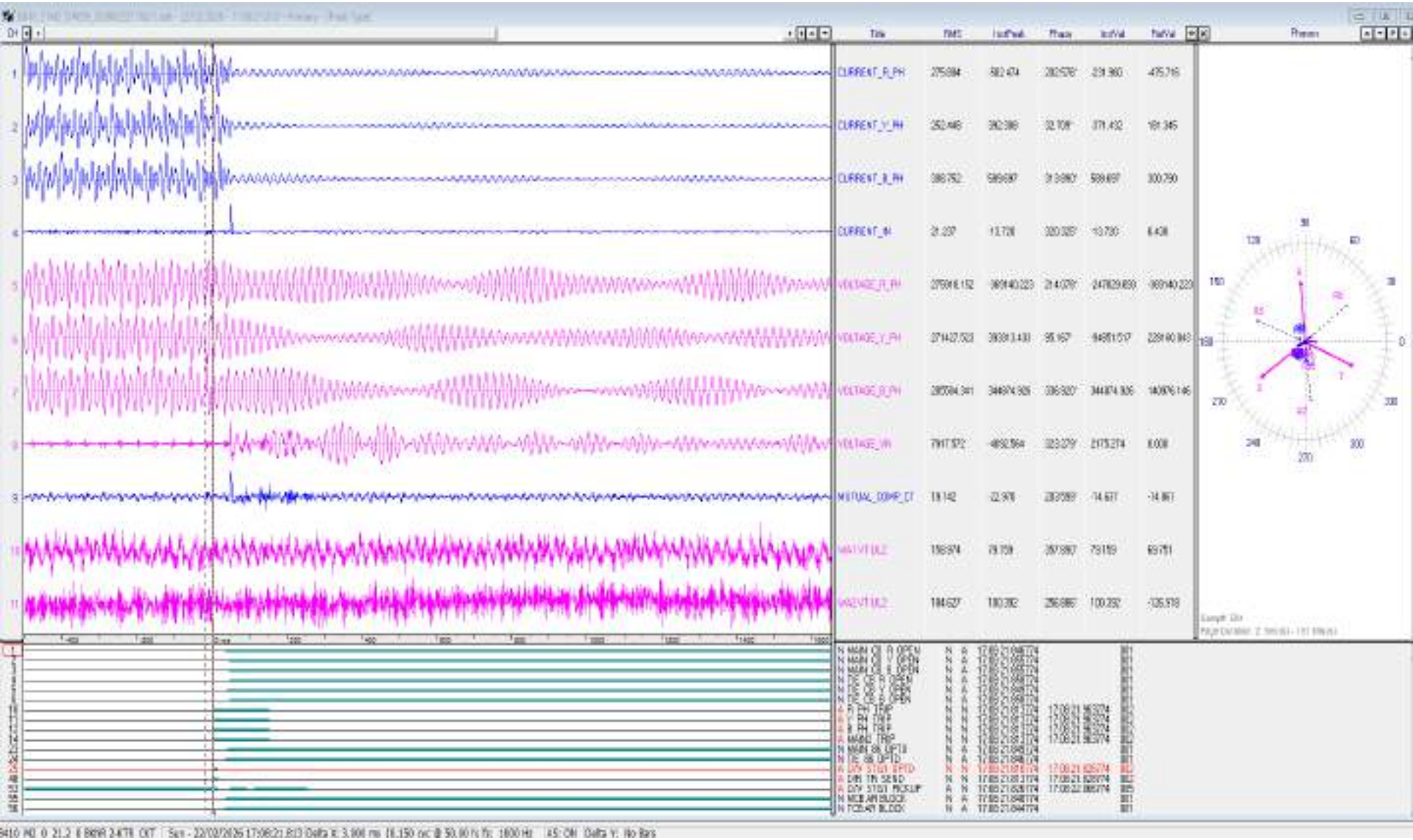
# EL of 400 KV Bikaner_2 (PBTSL) (end)-Khetri (PKTSL) (PBTSL) Ckt-1

| | | | |
|---|---|---|---|
| P | 2/22/2026 5:08:05 PM | B_PH_TRIP | Off |
| P | 2/22/2026 5:08:05 PM | MAIN2_TRIP | Off |
| P | 2/22/2026 5:08:05 PM | R_PH_TRIP | Off |
| P | 2/22/2026 5:08:05 PM | Y_PH_TRIP | Off |
| P | 2/22/2026 5:08:05 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:08:05 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:08:05 PM | TIE_CB_B_OPEN | On |
| P | 2/22/2026 5:08:05 PM | TIE_CB_Y_OPEN | On |
| P | 2/22/2026 5:08:05 PM | MAIN_CB_B_OPEN | On |
| P | 2/22/2026 5:08:05 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:08:05 PM | MAIN_CB_R_OPEN | On |
| P | 2/22/2026 5:08:05 PM | MAIN_CB_Y_OPEN | On |
| P | 2/22/2026 5:08:05 PM | TIE_CB_R_OPEN | On |
| P | 2/22/2026 5:08:05 PM | MAIN_86_OPTD | On |
| P | 2/22/2026 5:08:05 PM | MCB AR BLOCK | On |
| P | 2/22/2026 5:08:05 PM | TCB AR BLOCK | On |
| P | 2/22/2026 5:08:05 PM | TIE_86_OPTD | On |
| P | 2/22/2026 5:08:05 PM | DIR_TR_SEND | Off |
| P | 2/22/2026 5:08:05 PM | O/V_STG1_OPTD | Off |
| P | 2/22/2026 5:08:05 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:08:05 PM | B_PH_TRIP | On |
| P | 2/22/2026 5:08:05 PM | DIR_TR_SEND | On |
| P | 2/22/2026 5:08:05 PM | MAIN2_TRIP | On |
| P | 2/22/2026 5:08:05 PM | R_PH_TRIP | On |
| P | 2/22/2026 5:08:05 PM | Y_PH_TRIP | On |
| P | 2/22/2026 5:08:05 PM | O/V_STG1_OPTD | On |
| P | 2/22/2026 5:08:00 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:08:00 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:08:00 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:08:00 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:08:00 PM | O/V_STG1_PICKUP | On |

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | | Project: 5458_PGCIL_Bikaner-II(3) | Responsible department: ABB Ltd. | Technical ref. | Document kind: IED events | Doc. designation: B413_21M2 |
| | | | Repla... | 5458_PGCIL_Bikaner-II(3).Substation.400kV.KEC | ABB | Created by | Title: BIKA413M2DIS | Document id. |
| Re | Modification | Rel. | Created | Based | | Approved by | | Rev. / Rel. date / Lan... / 1 / 109 |

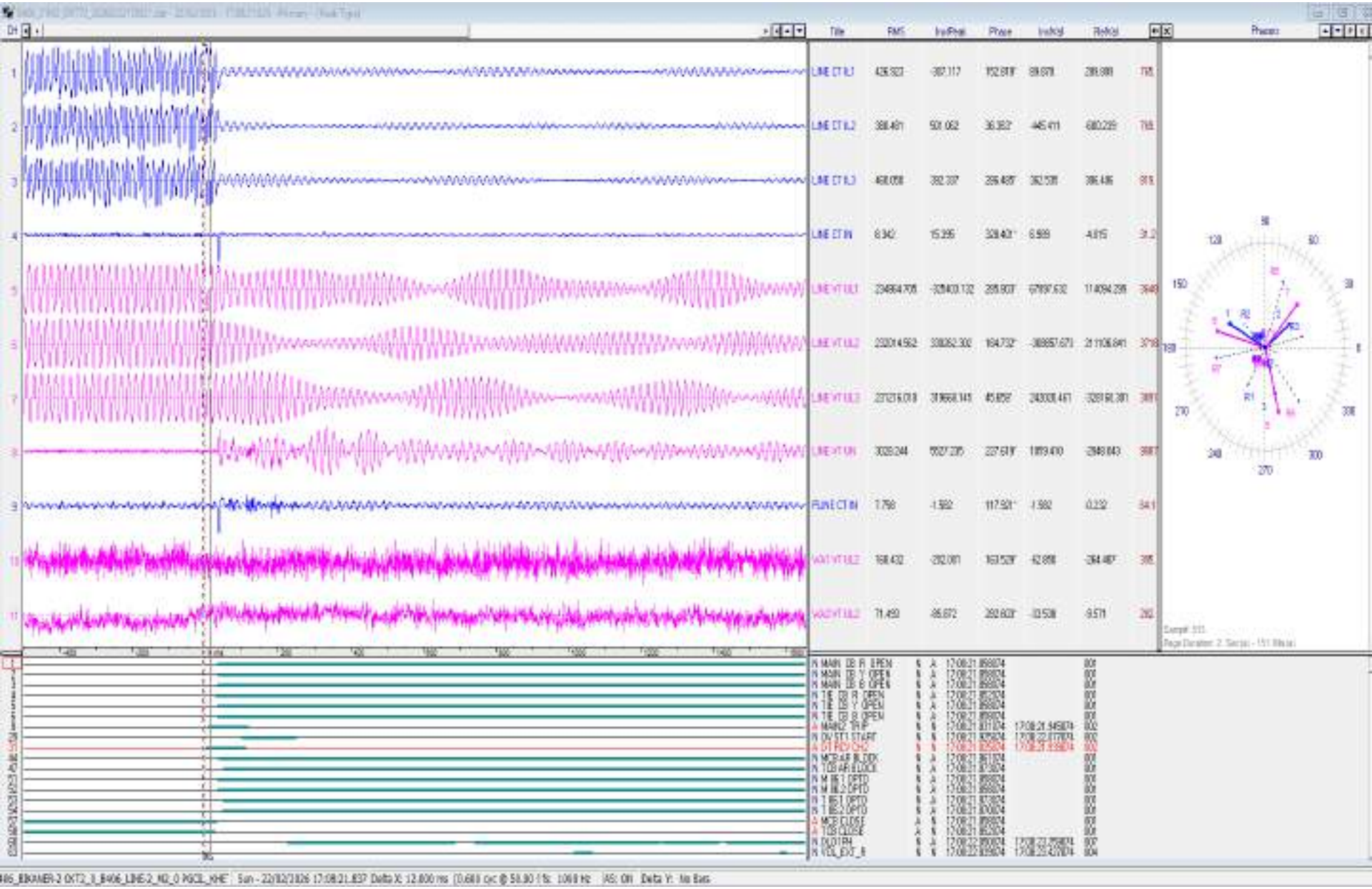
- ✓ As per EL, Over-voltage stage-1 operated with a time delay of 5 s and DT sent to Khetri end.

# DR of 400 KV Bikaner_2 (PBTSL) (end)-Khetri (PKTSL) (PBTSL) Ckt-2



- ✓ As per DR, voltage went upto 1.23 pu at Bikaner2 end.
- ✓ Over-voltage stage-1 operated at Bikaner2 end.
- ✓ DT sent to Khetri end

# DR of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (end) (PBTSL) Ckt-2



- ✓ As per DR, DT received at Khetri end.

# EL of 400 KV Bikaner_2 (PBTSL) (end)-Khetri (PKTSL) (PBTSL) Ckt-2

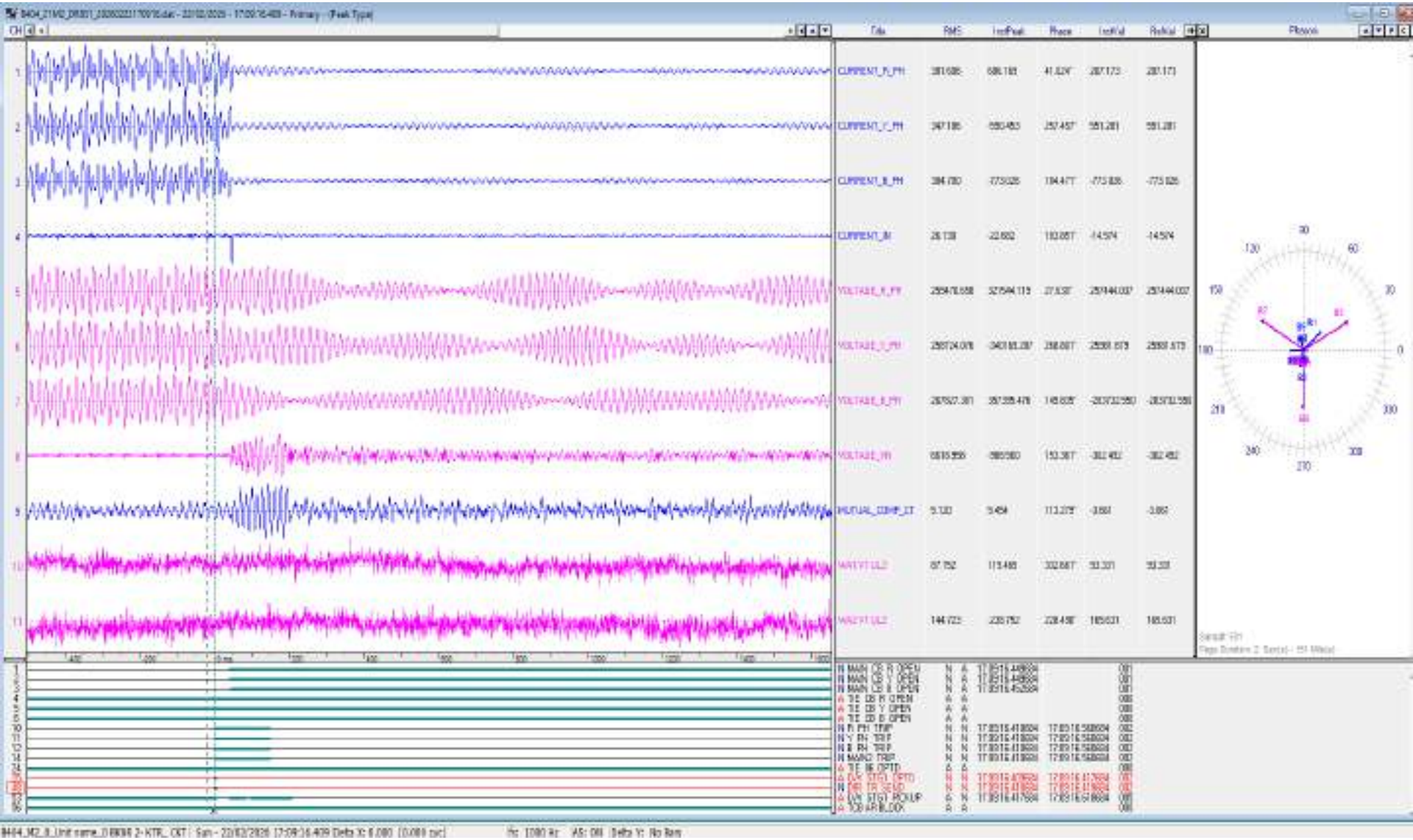
| | | | |
|---|---|---|---|
| P | 2/22/2026 5:08:21 PM | B_PH_TRIP | Off |
| P | 2/22/2026 5:08:21 PM | MAIN2_TRIP | Off |
| P | 2/22/2026 5:08:21 PM | R_PH_TRIP | Off |
| P | 2/22/2026 5:08:21 PM | Y_PH_TRIP | Off |
| P | 2/22/2026 5:08:21 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:08:21 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:08:21 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:08:21 PM | TIE_CB_B_OPEN | On |
| P | 2/22/2026 5:08:21 PM | TIE_CB_R_OPEN | On |
| P | 2/22/2026 5:08:21 PM | MAIN_CB_B_OPEN | On |
| P | 2/22/2026 5:08:21 PM | MAIN_CB_Y_OPEN | On |
| P | 2/22/2026 5:08:21 PM | MAIN_86_OPTD | On |
| P | 2/22/2026 5:08:21 PM | TIE_CB_Y_OPEN | On |
| P | 2/22/2026 5:08:21 PM | MCB AR BLOCK | On |
| P | 2/22/2026 5:08:21 PM | MAIN_CB_R_OPEN | On |

| | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Project: 5458_PGCIL_Bikaner-II(3) | Responsible department: ABB Ltd. | Technical ref.: | Document kind: IED events | Doc. designation: B410_21M2 | |
| | | | | Repla... | 5458_PGCIL_Bikaner-II(3).Substation.400kV.KEC | ABB | Created by: | Title: BIKA410M2DIS | Document id.: 0 | |
| Rev. | Modification | Rel. date | Created by | Based on | | | Approved by: | | Rev. / Rel. date / Lan. / 1 / 109 | |

| Type | Date & Time | Signal name | Status |
|---|---|---|---|
| P | 2/22/2026 5:08:21 PM | TIE_86_OPTD | On |
| P | 2/22/2026 5:08:21 PM | TCB AR BLOCK | On |
| P | 2/22/2026 5:08:21 PM | DIR_TR_SEND | Off |
| P | 2/22/2026 5:08:21 PM | O/V_STG1_OPTD | Off |
| P | 2/22/2026 5:08:21 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:08:21 PM | B_PH_TRIP | On |
| P | 2/22/2026 5:08:21 PM | DIR_TR_SEND | On |
| P | 2/22/2026 5:08:21 PM | MAIN2_TRIP | On |
| P | 2/22/2026 5:08:21 PM | R_PH_TRIP | On |
| P | 2/22/2026 5:08:21 PM | Y_PH_TRIP | On |
| P | 2/22/2026 5:08:21 PM | O/V_STG1_OPTD | On |
| P | 2/22/2026 5:08:15 PM | O/V_STG1_PICKUP | On |

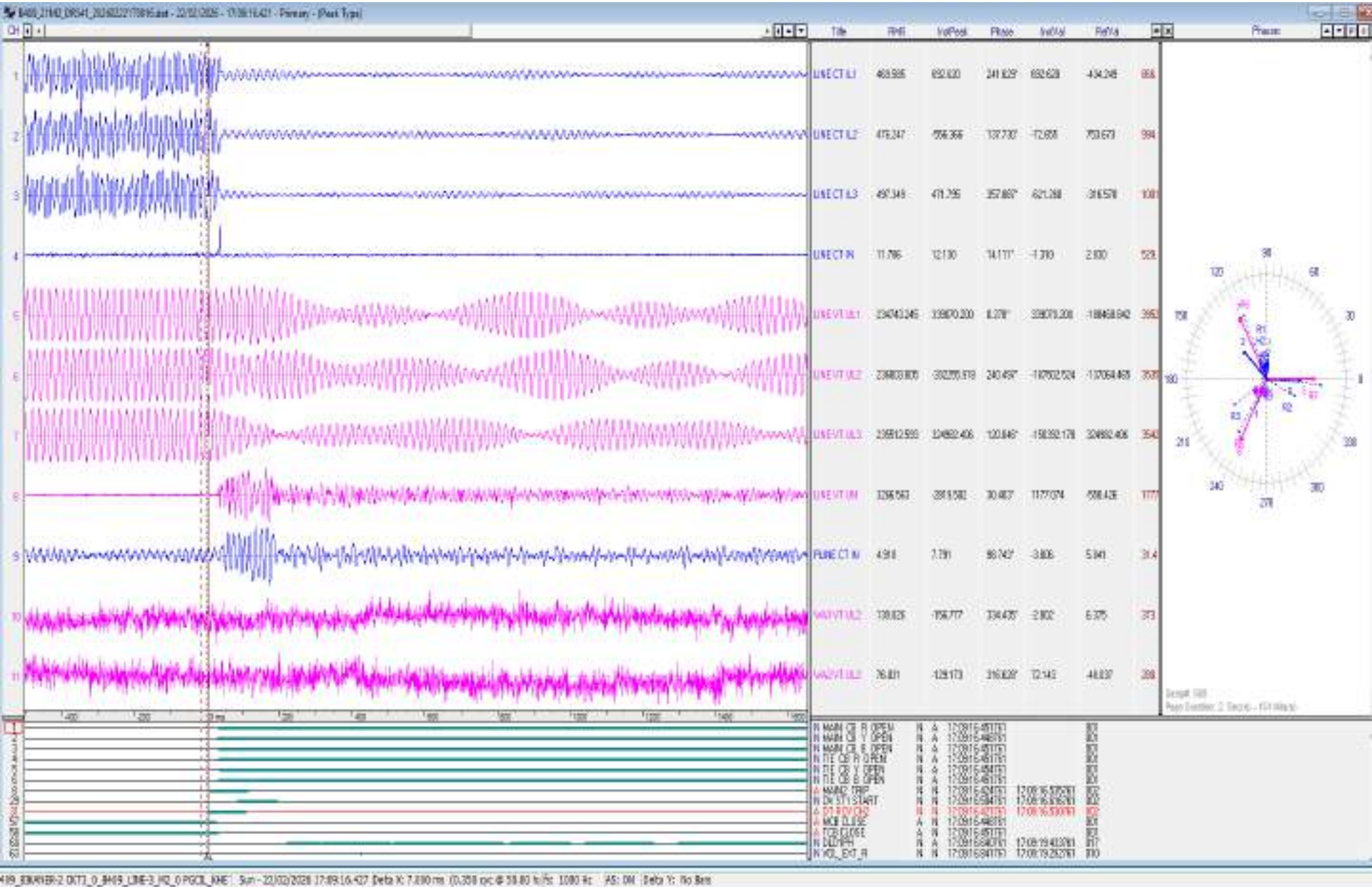
✓ As per EL, Over-voltage stage-1 operated with a time delay of 6 s and DT sent to Khetri end.

# DR of 400 KV Bikaner_2 (PBTSL) (end)-Khetri (PKTSL) (PBTSL) Ckt-3



- ✓ As per DR, voltage went upto 1.16 pu at Bikaner2 end.
- ✓ Over-voltage stage-1 operated at Bikaner2 end.
- ✓ DT sent to Khetri end.

# DR of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (end) (PBTSL) Ckt-3



- ✓ As per DR, DT received at Khetri end.

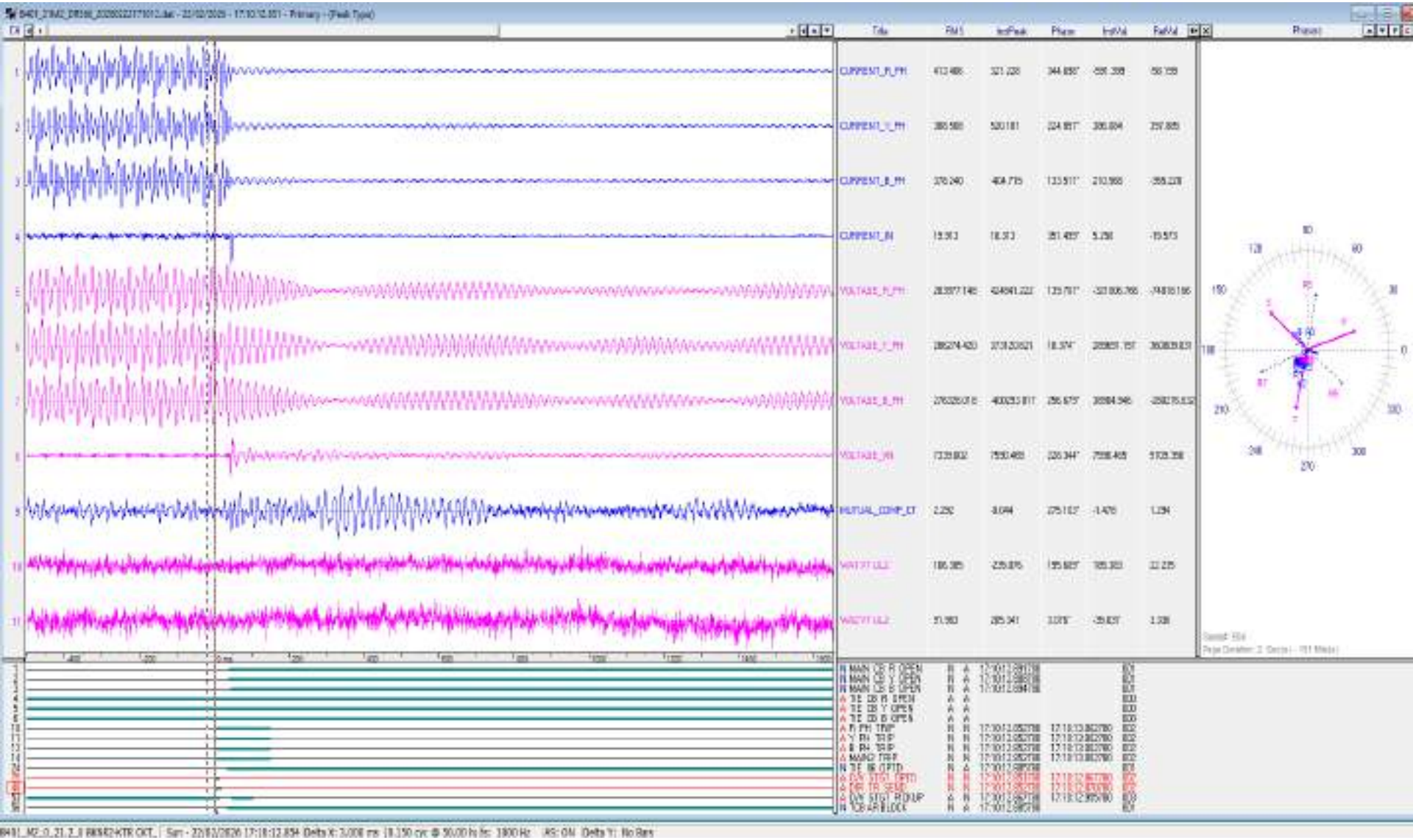
# EL of 400 KV Bikaner_2 (PBTSL) (end)-Khetri (PKTSL) (PBTSL) Ckt-3

| | | | |
|---|---|---|---|
| P | 2/22/2026 5:09:16 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:16 PM | B_PH_TRIP | Off |
| P | 2/22/2026 5:09:16 PM | MAIN2_TRIP | Off |
| P | 2/22/2026 5:09:16 PM | R_PH_TRIP | Off |
| P | 2/22/2026 5:09:16 PM | Y_PH_TRIP | Off |
| P | 2/22/2026 5:09:16 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:16 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:16 PM | MAIN_CB_B_OPEN | On |
| P | 2/22/2026 5:09:16 PM | MAIN_CB_R_OPEN | On |
| P | 2/22/2026 5:09:16 PM | MAIN_CB_Y_OPEN | On |
| P | 2/22/2026 5:09:16 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:16 PM | DIR_TR_SEND | Off |
| P | 2/22/2026 5:09:16 PM | O/V_STG1_OPTD | Off |
| P | 2/22/2026 5:09:16 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:16 PM | B_PH_TRIP | On |
| P | 2/22/2026 5:09:16 PM | DIR_TR_SEND | On |
| P | 2/22/2026 5:09:16 PM | MAIN2_TRIP | On |
| P | 2/22/2026 5:09:16 PM | R_PH_TRIP | On |
| P | 2/22/2026 5:09:16 PM | Y_PH_TRIP | On |
| P | 2/22/2026 5:09:16 PM | O/V_STG1_OPTD | On |
| P | 2/22/2026 5:09:10 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:10 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:05 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:05 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:04 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:04 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:03 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:03 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:00 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:00 PM | O/V_STG1_PICKUP | Off |
| P | 2/22/2026 5:09:00 PM | O/V_STG1_PICKUP | On |
| P | 2/22/2026 5:09:00 PM | O/V_STG1_PICKUP | Off |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Project: 5458_PGCIL_Bikaner-II(3) | Responsible department: ABB Ltd. | Technical ref.. | Document kind: IED events | Doc. designation: B404_21M2 |
| | | | | Repla... | 5458_PGCIL_Bikaner-II(3).Substation.400kV.KEC | ABB | Created by | Title: BIKA404M2DIS | Document id.: 0 |
| Rev. | Modification | Rel. date | Created by | Based on | | | Approved by | | Rev. / Rel. date / Lan. en / 1 / 68 |

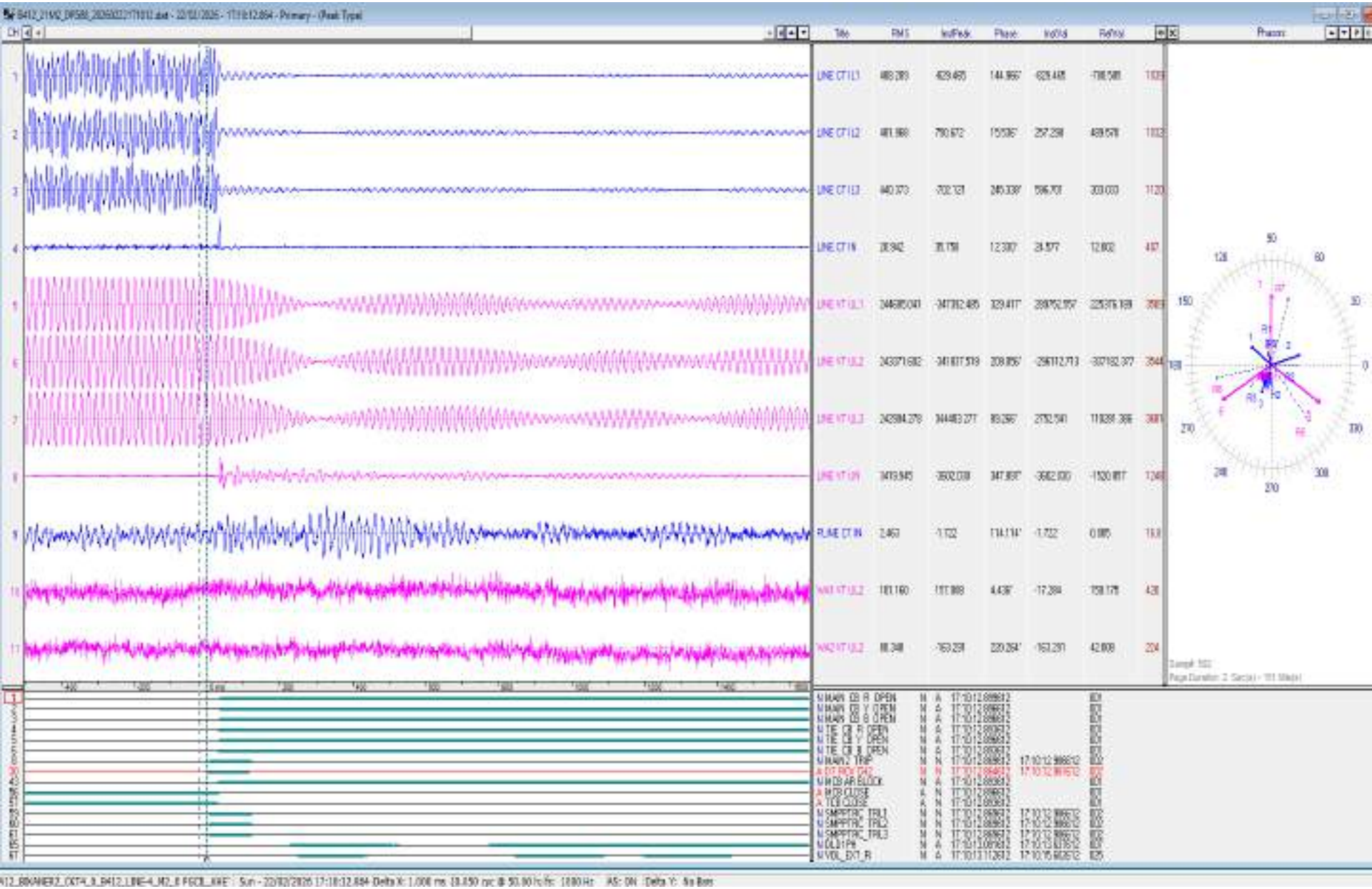
✓ As per EL, Over-voltage stage-1 operated with a time delay of 6 s and DT sent to Khetri end.

# DR of 400 KV Bikaner_2 (PBTSL) (end)-Khetri (PKTSL) (PBTSL) Ckt-4



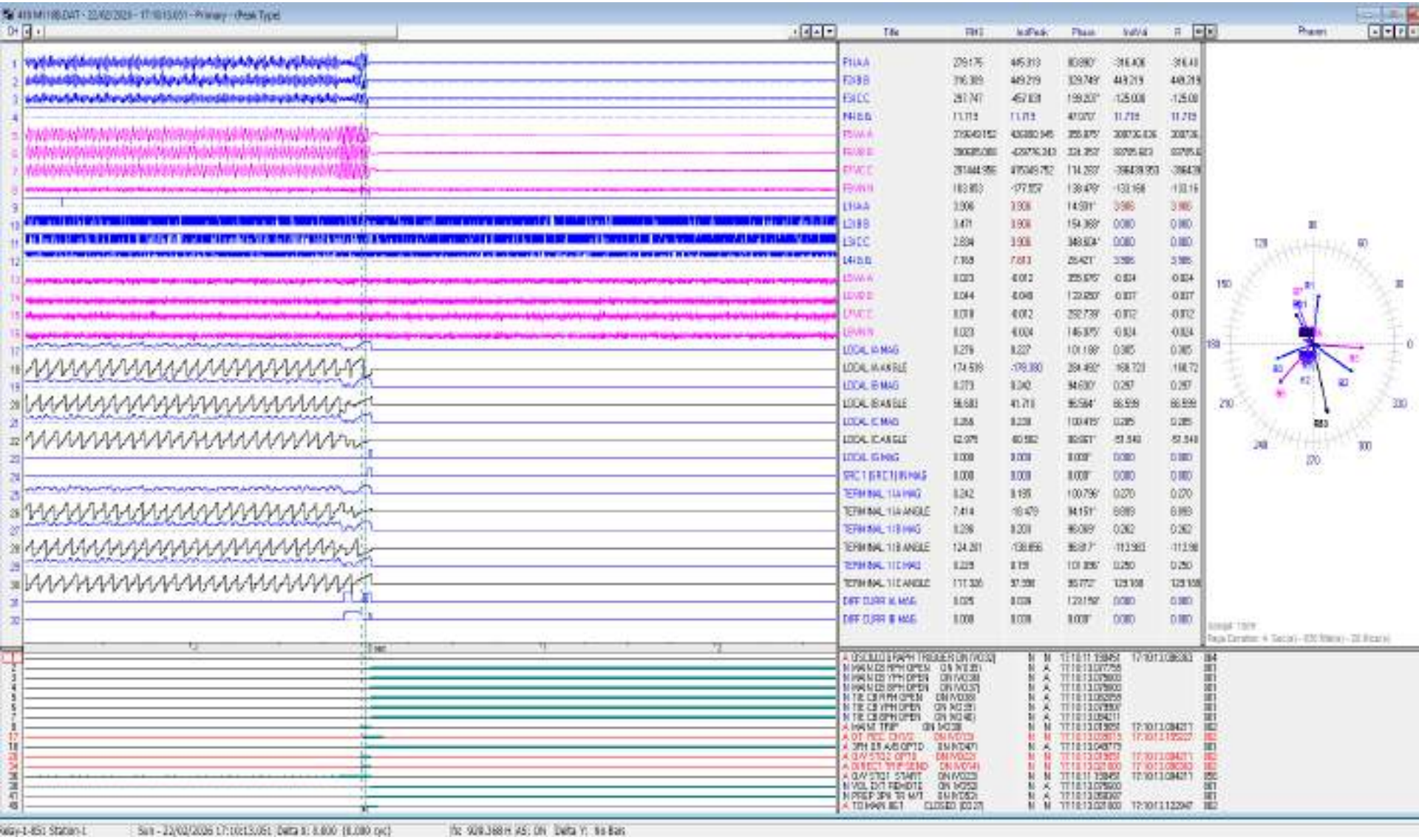
- ✓ As per DR, voltage went upto 1.238 pu at Bikaner2 end.
- ✓ Over-voltage stage-1 operated at Bikaner2 end.
- ✓ DT sent to Khetri end.

# DR of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (end) (PBTSL) Ckt-4



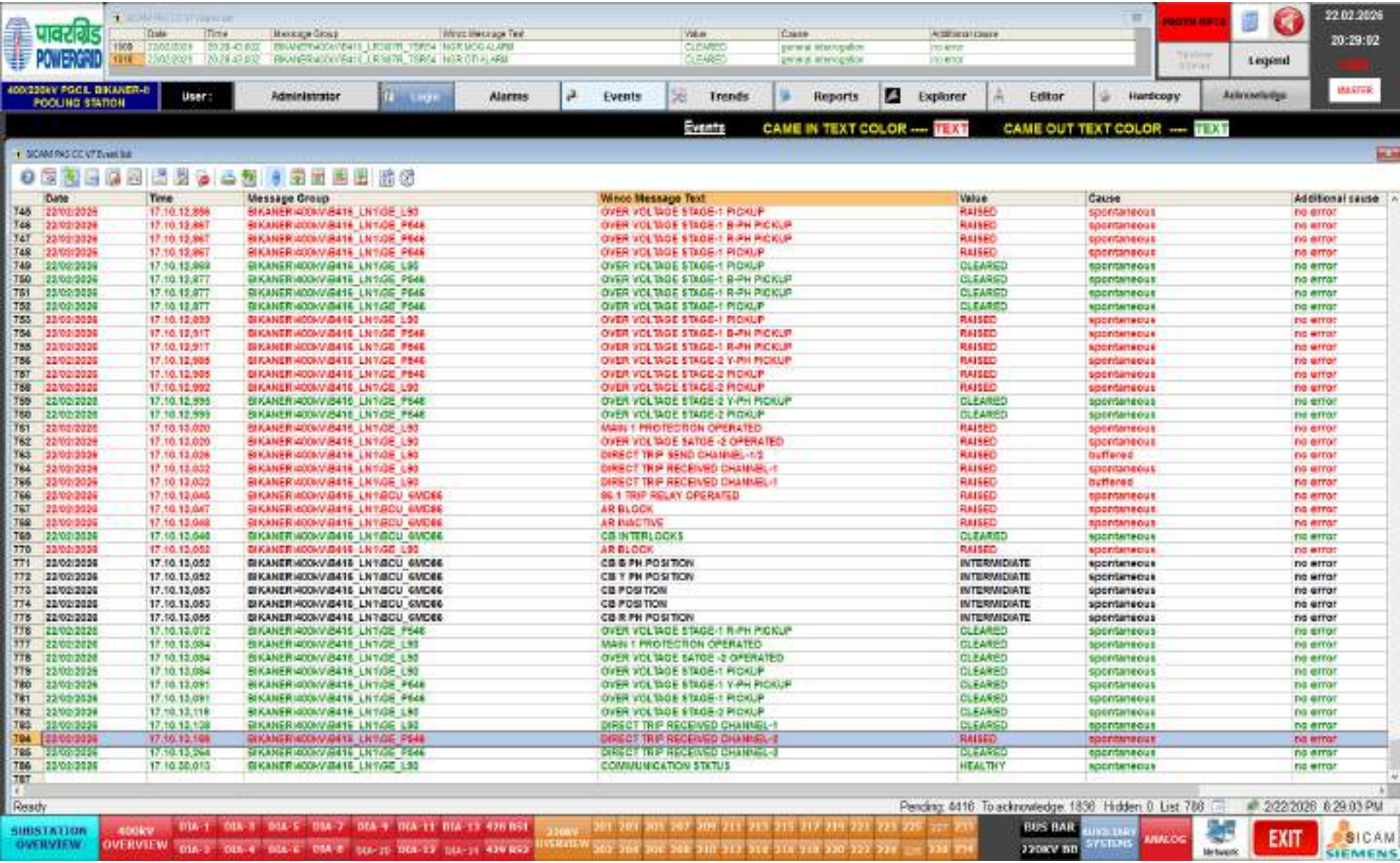
- ✓ As per DR, DT received at Khetri end.

# DR of 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SGEL_BKN2) Ckt



- ✓ As per DR, voltage went upto 1.38 pu at Bikaner2 end.
- ✓ Over-voltage stage-2 operated at Bikaner2 end.
- ✓ DT received from SGEL end as well as sent to SGEL end.

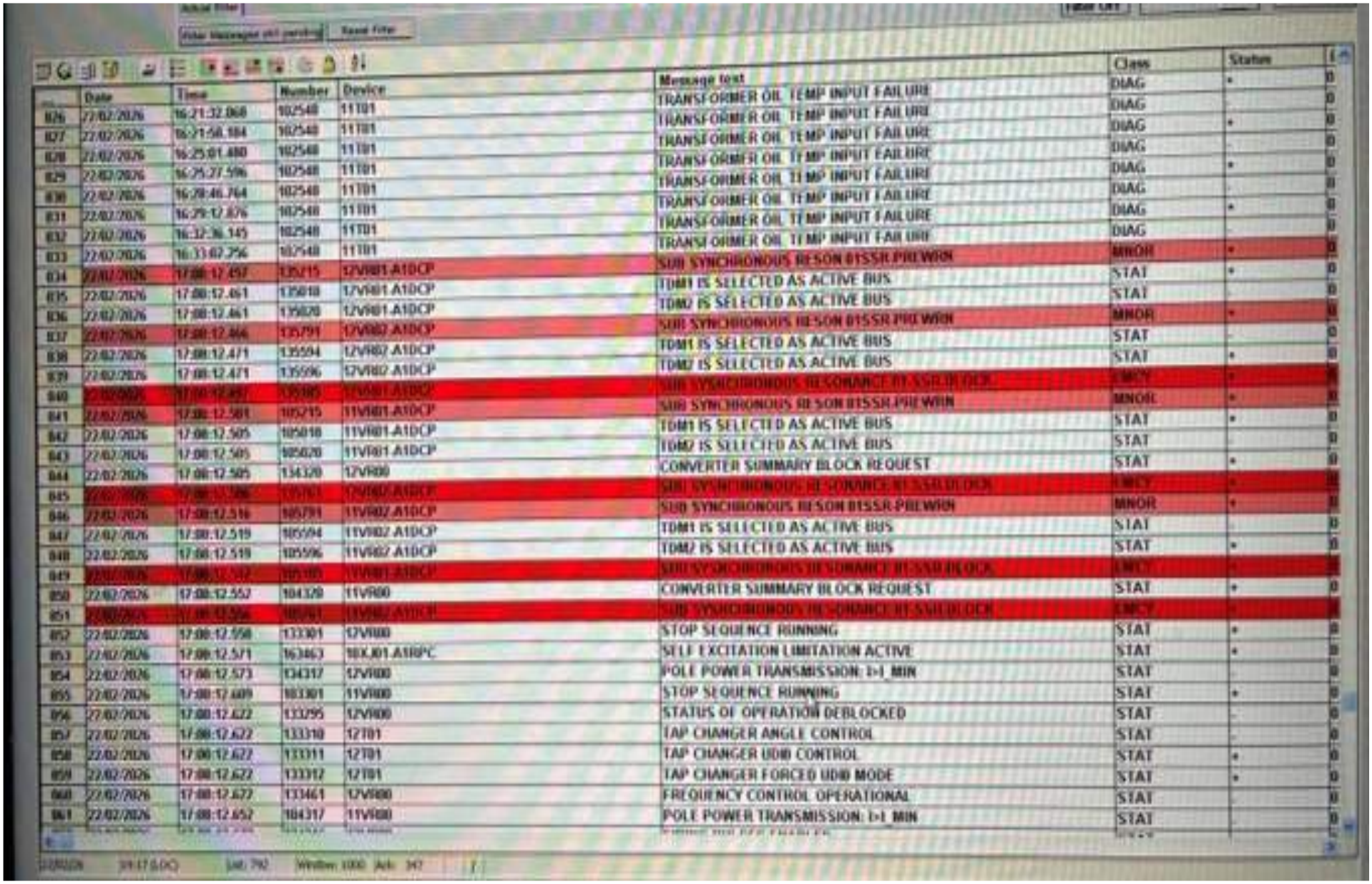
# EL of 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SGEL_BKN2) Ckt




| | Date | Time | Message Group | Wincc Message Text | Value | Cause | Additional cause |
|---|---|---|---|---|---|---|---|
| 745 | 22/02/2026 | 17.10.12,856 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE STAGE-1 PICKUP | RAISED | spontaneous | no error |
| 746 | 22/02/2026 | 17.10.12,867 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 B-PH PICKUP | RAISED | spontaneous | no error |
| 747 | 22/02/2026 | 17.10.12,867 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 R-PH PICKUP | RAISED | spontaneous | no error |
| 748 | 22/02/2026 | 17.10.12,867 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 PICKUP | RAISED | spontaneous | no error |
| 749 | 22/02/2026 | 17.10.12,869 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE STAGE-1 PICKUP | CLEARED | spontaneous | no error |
| 750 | 22/02/2026 | 17.10.12,877 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 B-PH PICKUP | CLEARED | spontaneous | no error |
| 751 | 22/02/2026 | 17.10.12,877 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 R-PH PICKUP | CLEARED | spontaneous | no error |
| 752 | 22/02/2026 | 17.10.12,877 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 PICKUP | CLEARED | spontaneous | no error |
| 753 | 22/02/2026 | 17.10.12,899 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE STAGE-1 PICKUP | RAISED | spontaneous | no error |
| 754 | 22/02/2026 | 17.10.12,917 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 B-PH PICKUP | RAISED | spontaneous | no error |
| 755 | 22/02/2026 | 17.10.12,917 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 R-PH PICKUP | RAISED | spontaneous | no error |
| 756 | 22/02/2026 | 17.10.12,985 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-2 Y-PH PICKUP | RAISED | spontaneous | no error |
| 757 | 22/02/2026 | 17.10.12,985 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-2 PICKUP | RAISED | spontaneous | no error |
| 758 | 22/02/2026 | 17.10.12,992 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE STAGE-2 PICKUP | RAISED | spontaneous | no error |
| 759 | 22/02/2026 | 17.10.12,995 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-2 Y-PH PICKUP | CLEARED | spontaneous | no error |
| 760 | 22/02/2026 | 17.10.12,999 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-2 PICKUP | CLEARED | spontaneous | no error |
| 761 | 22/02/2026 | 17.10.13,020 | BIKANER400KV/B416_LN1/GE_L90 | MAIN 1 PROTECTION OPERATED | RAISED | spontaneous | no error |
| 762 | 22/02/2026 | 17.10.13,020 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE SATGE -2 OPERATED | RAISED | spontaneous | no error |
| 763 | 22/02/2026 | 17.10.13,026 | BIKANER400KV/B416_LN1/GE_L90 | DIRECT TRIP SEND CHANNEL-1/2 | RAISED | buffered | no error |
| 764 | 22/02/2026 | 17.10.13,032 | BIKANER400KV/B416_LN1/GE_L90 | DIRECT TRIP RECEIVED CHANNEL-1 | RAISED | spontaneous | no error |
| 765 | 22/02/2026 | 17.10.13,022 | BIKANER400KV/B416_LN1/GE_L90 | DIRECT TRIP RECEIVED CHANNEL-1 | RAISED | buffered | no error |
| 766 | 22/02/2026 | 17.10.13,045 | BIKANER400KV/B416_LN1/BCU_6/VD66 | 86.1 TRIP RELAY OPERATED | RAISED | spontaneous | no error |
| 767 | 22/02/2026 | 17.10.13,047 | BIKANER400KV/B416_LN1/BCU_6/VD66 | AR BLOCK | RAISED | spontaneous | no error |
| 768 | 22/02/2026 | 17.10.13,048 | BIKANER400KV/B416_LN1/BCU_6/VD66 | AR INACTIVE | RAISED | spontaneous | no error |
| 769 | 22/02/2026 | 17.10.13,048 | BIKANER400KV/B416_LN1/BCU_6/VD66 | CB INTERLOCKS | CLEARED | spontaneous | no error |
| 770 | 22/02/2026 | 17.10.13,052 | BIKANER400KV/B416_LN1/GE_L90 | AR BLOCK | RAISED | spontaneous | no error |
| 771 | 22/02/2026 | 17.10.13,052 | BIKANER400KV/B416_LN1/BCU_6/VD66 | CB B PH POSITION | INTERMIDIATE | spontaneous | no error |
| 772 | 22/02/2026 | 17.10.13,052 | BIKANER400KV/B416_LN1/BCU_6/VD66 | CB Y PH POSITION | INTERMIDIATE | spontaneous | no error |
| 773 | 22/02/2026 | 17.10.13,053 | BIKANER400KV/B416_LN1/BCU_6/VD66 | CB POSITION | INTERMIDIATE | spontaneous | no error |
| 774 | 22/02/2026 | 17.10.13,053 | BIKANER400KV/B416_LN1/BCU_6/VD66 | CB POSITION | INTERMIDIATE | spontaneous | no error |
| 775 | 22/02/2026 | 17.10.13,055 | BIKANER400KV/B416_LN1/BCU_6/VD66 | CB R PH POSITION | INTERMIDIATE | spontaneous | no error |
| 776 | 22/02/2026 | 17.10.13,072 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 R-PH PICKUP | CLEARED | spontaneous | no error |
| 777 | 22/02/2026 | 17.10.13,084 | BIKANER400KV/B416_LN1/GE_L90 | MAIN 1 PROTECTION OPERATED | CLEARED | spontaneous | no error |
| 778 | 22/02/2026 | 17.10.13,084 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE SATGE -2 OPERATED | CLEARED | spontaneous | no error |
| 779 | 22/02/2026 | 17.10.13,084 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE STAGE-1 PICKUP | CLEARED | spontaneous | no error |
| 780 | 22/02/2026 | 17.10.13,091 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 Y-PH PICKUP | CLEARED | spontaneous | no error |
| 781 | 22/02/2026 | 17.10.13,091 | BIKANER400KV/B416_LN1/GE_P646 | OVER VOLTAGE STAGE-1 PICKUP | CLEARED | spontaneous | no error |
| 782 | 22/02/2026 | 17.10.13,118 | BIKANER400KV/B416_LN1/GE_L90 | OVER VOLTAGE STAGE-2 PICKUP | CLEARED | spontaneous | no error |
| 783 | 22/02/2026 | 17.10.13,128 | BIKANER400KV/B416_LN1/GE_L90 | DIRECT TRIP RECEIVED CHANNEL-1 | CLEARED | spontaneous | no error |
| 784 | 22/02/2026 | 17.10.13,198 | BIKANER400KV/B416_LN1/GE_P646 | DIRECT TRIP RECEIVED CHANNEL-2 | RAISED | spontaneous | no error |
| 785 | 22/02/2026 | 17.10.13,264 | BIKANER400KV/B416_LN1/GE_P646 | DIRECT TRIP RECEIVED CHANNEL-3 | CLEARED | spontaneous | no error |
| 786 | 22/02/2026 | 17.10.20,013 | BIKANER400KV/B416_LN1/GE_L90 | COMMUNICATION STATUS | HEALTHY | spontaneous | no error |
| 787 | | | | | | | |

- ✓ As per EL, Over-voltage stage-2 operated at Bikaner2 end.
- ✓ DT received from SGEL end.

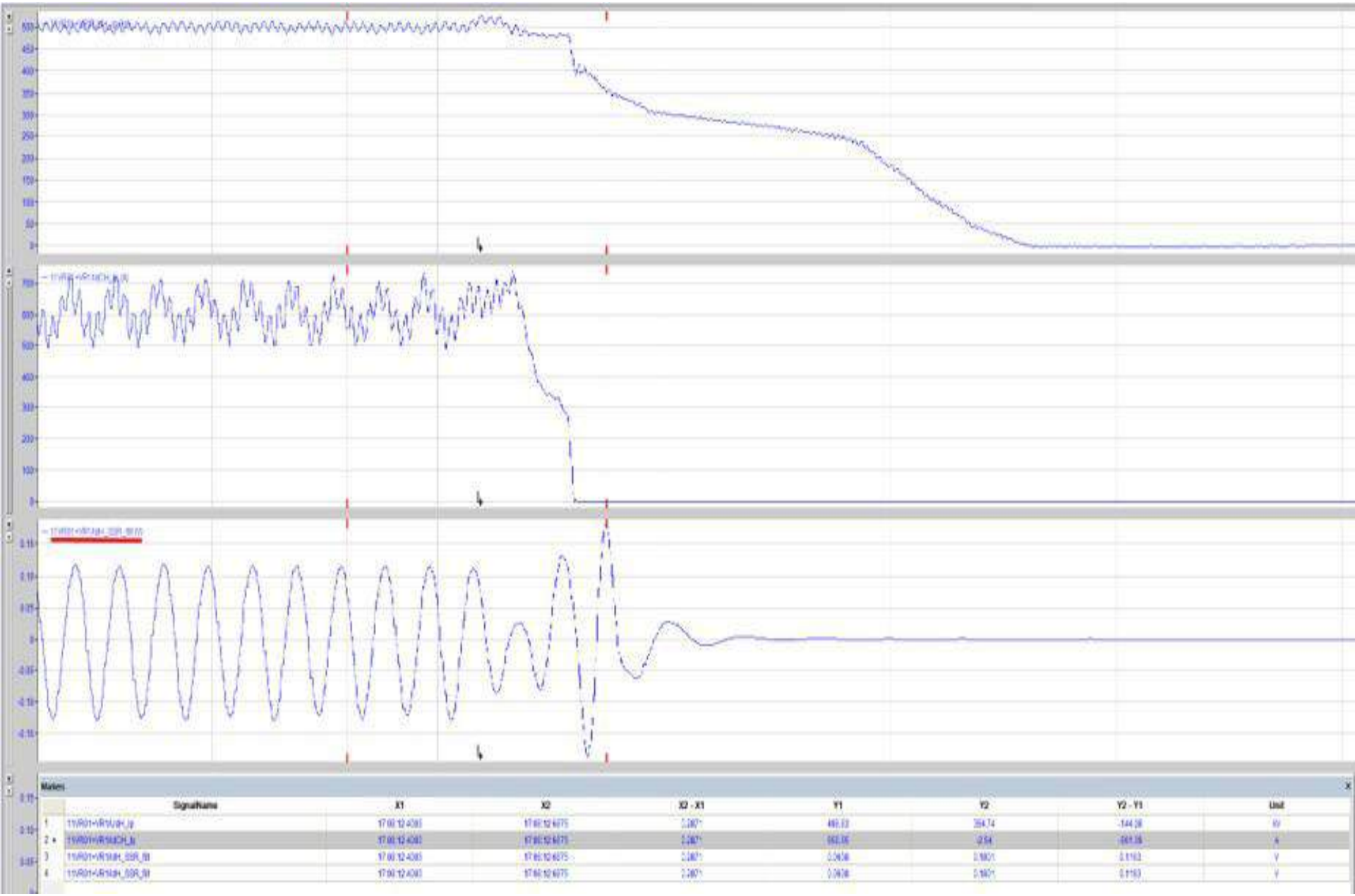
# Event Logger details at Balia end of 500 KV HVDC Balia-Bhiwadi (PG)



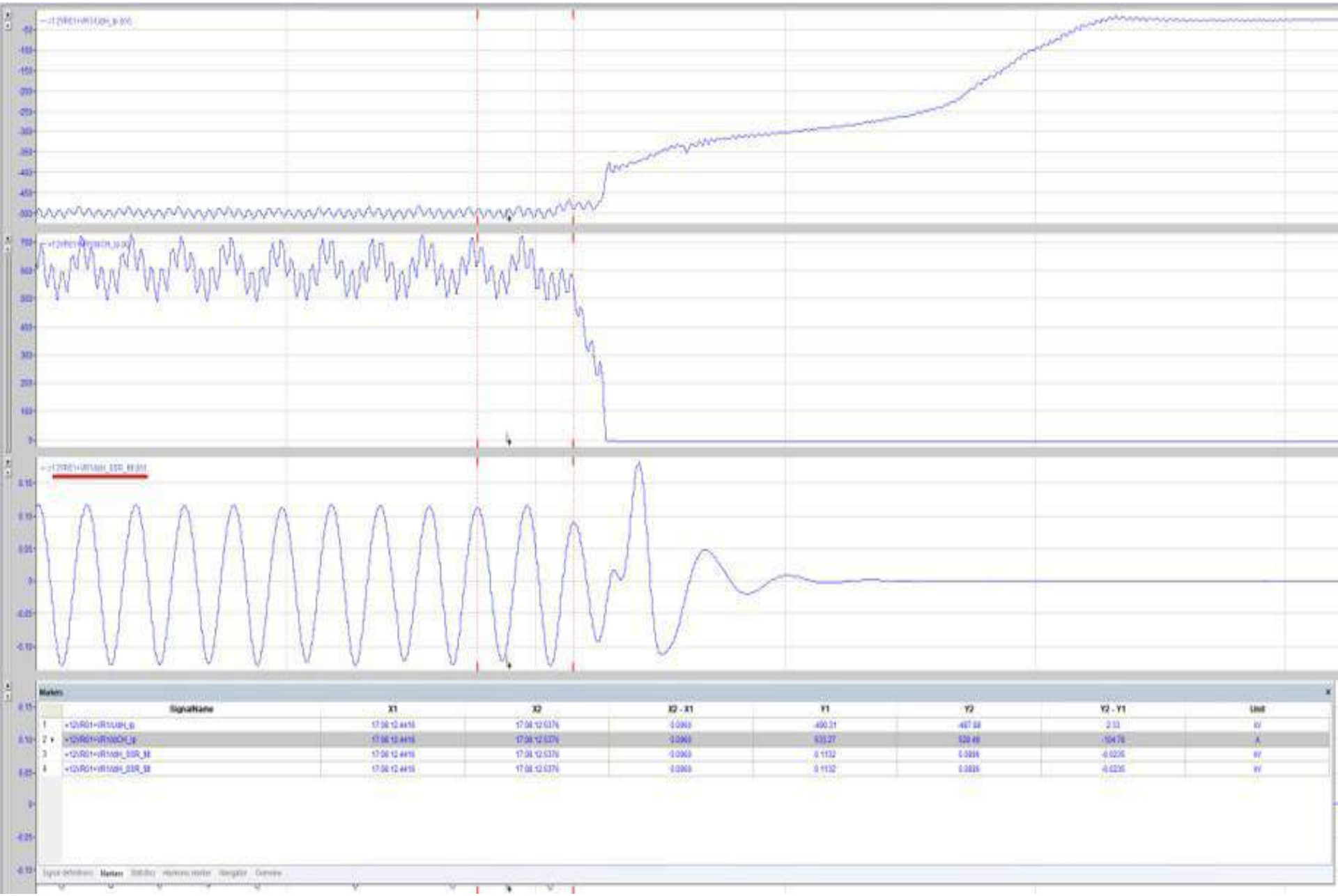
| | Date | Time | Number | Device | Message text | Class | Status |
|---|---|---|---|---|---|---|---|
| 826 | 22/02/2026 | 16:21:32.868 | 102548 | 11T01 | TRANSFORMER OIL TEMP INPUT FAILURE | DIAG | * |
| 827 | 22/02/2026 | 16:21:58.184 | 102548 | 11T01 | TRANSFORMER OIL TEMP INPUT FAILURE | DIAG | |
| 828 | 22/02/2026 | 16:25:01.480 | 102548 | 11T01 | TRANSFORMER OIL TEMP INPUT FAILURE | DIAG | * |
| 829 | 22/02/2026 | 16:25:27.596 | 102548 | 11T01 | TRANSFORMER OIL TEMP INPUT FAILURE | DIAG | |
| 830 | 22/02/2026 | 16:28:46.764 | 102548 | 11T01 | TRANSFORMER OIL TEMP INPUT FAILURE | DIAG | * |
| 831 | 22/02/2026 | 16:29:12.876 | 102548 | 11T01 | TRANSFORMER OIL TEMP INPUT FAILURE | DIAG | |
| 832 | 22/02/2026 | 16:32:36.145 | 102548 | 11T01 | TRANSFORMER OIL TEMP INPUT FAILURE | DIAG | * |
| 833 | 22/02/2026 | 16:33:02.256 | 102548 | 11T01 | SUB SYNCHRONOUS RESON 81SSR PREWRN | MINOR | * |
| 834 | 22/02/2026 | 17:08:12.457 | 135215 | 12VR01.A1DCP | TDM1 IS SELECTED AS ACTIVE BUS | STAT | * |
| 835 | 22/02/2026 | 17:08:12.461 | 135018 | 12VR01.A1DCP | TDM2 IS SELECTED AS ACTIVE BUS | STAT | |
| 836 | 22/02/2026 | 17:08:12.461 | 135020 | 12VR01.A1DCP | SUB SYNCHRONOUS RESON 81SSR PREWRN | MINOR | * |
| 837 | 22/02/2026 | 17:08:12.466 | 135791 | 12VR02.A1DCP | TDM1 IS SELECTED AS ACTIVE BUS | STAT | |
| 838 | 22/02/2026 | 17:08:12.471 | 135594 | 12VR02.A1DCP | TDM2 IS SELECTED AS ACTIVE BUS | STAT | * |
| 839 | 22/02/2026 | 17:08:12.471 | 135596 | 12VR02.A1DCP | [illegible] | EMCY | * |
| 840 | [illegible] | [illegible] | [illegible] | [illegible] | SUB SYNCHRONOUS RESON 81SSR PREWRN | MINOR | * |
| 841 | 22/02/2026 | 17:08:12.501 | 105215 | 11VR01.A1DCP | TDM1 IS SELECTED AS ACTIVE BUS | STAT | * |
| 842 | 22/02/2026 | 17:08:12.505 | 105018 | 11VR01.A1DCP | TDM2 IS SELECTED AS ACTIVE BUS | STAT | |
| 843 | 22/02/2026 | 17:08:12.505 | 105020 | 11VR01.A1DCP | CONVERTER SUMMARY BLOCK REQUEST | STAT | * |
| 844 | 22/02/2026 | 17:08:12.505 | 134320 | 12VR00 | [illegible] | EMCY | * |
| 845 | [illegible] | [illegible] | [illegible] | [illegible] | SUB SYNCHRONOUS RESON 81SSR PREWRN | MINOR | * |
| 846 | 22/02/2026 | 17:08:12.516 | 105791 | 11VR02.A1DCP | TDM1 IS SELECTED AS ACTIVE BUS | STAT | |
| 847 | 22/02/2026 | 17:08:12.519 | 105594 | 11VR02.A1DCP | TDM2 IS SELECTED AS ACTIVE BUS | STAT | * |
| 848 | 22/02/2026 | 17:08:12.519 | 105596 | 11VR02.A1DCP | [illegible] | EMCY | * |
| 849 | [illegible] | [illegible] | [illegible] | [illegible] | CONVERTER SUMMARY BLOCK REQUEST | STAT | * |
| 850 | 22/02/2026 | 17:08:12.552 | 104320 | 11VR00 | [illegible] | EMCY | * |
| 851 | [illegible] | [illegible] | [illegible] | [illegible] | STOP SEQUENCE RUNNING | STAT | * |
| 852 | 22/02/2026 | 17:08:12.558 | 133301 | 12VR00 | SELF EXCITATION LIMITATION ACTIVE | STAT | * |
| 853 | 22/02/2026 | 17:08:12.571 | 163463 | 10XJ01.A1RPC | POLE POWER TRANSMISSION: I>I_MIN | STAT | |
| 854 | 22/02/2026 | 17:08:12.573 | 134317 | 12VR00 | STOP SEQUENCE RUNNING | STAT | * |
| 855 | 22/02/2026 | 17:08:12.609 | 103301 | 11VR00 | STATUS OF OPERATION DEBLOCKED | STAT | |
| 856 | 22/02/2026 | 17:08:12.622 | 133295 | 12VR00 | TAP CHANGER ANGLE CONTROL | STAT | |
| 857 | 22/02/2026 | 17:08:12.622 | 133310 | 12T01 | TAP CHANGER UDID CONTROL | STAT | * |
| 858 | 22/02/2026 | 17:08:12.622 | 133311 | 12T01 | TAP CHANGER FORCED UDID MODE | STAT | * |
| 859 | 22/02/2026 | 17:08:12.622 | 133312 | 12T01 | FREQUENCY CONTROL OPERATIONAL | STAT | |
| 860 | 22/02/2026 | 17:08:12.677 | 133461 | 12VR00 | POLE POWER TRANSMISSION: I>I_MIN | STAT | |
| 861 | 22/02/2026 | 17:08:12.652 | 104317 | 11VR00 | [illegible] | [illegible] | [illegible] |

✓ As per EL, HVDC Balia-Bhiwadi both poles tripped on sub synchronous resonance 81 SSR block.

# DR at Balia end of 500 KV HVDC Balia-Bhiwadi (PG) Ckt-1

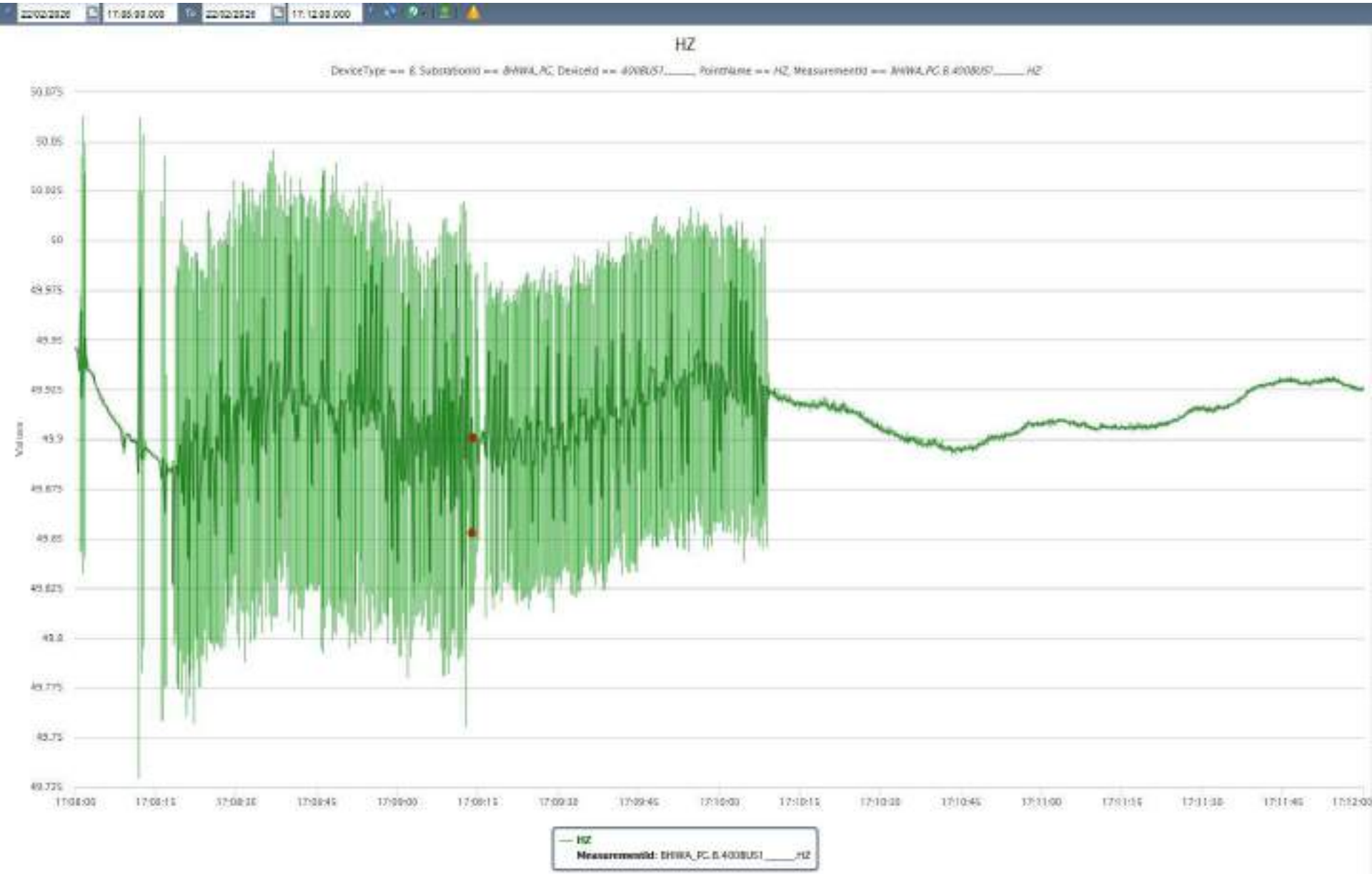


# DR at Balia end of 500 KV HVDC Balia-Bhiwadi (PG) Ckt-2



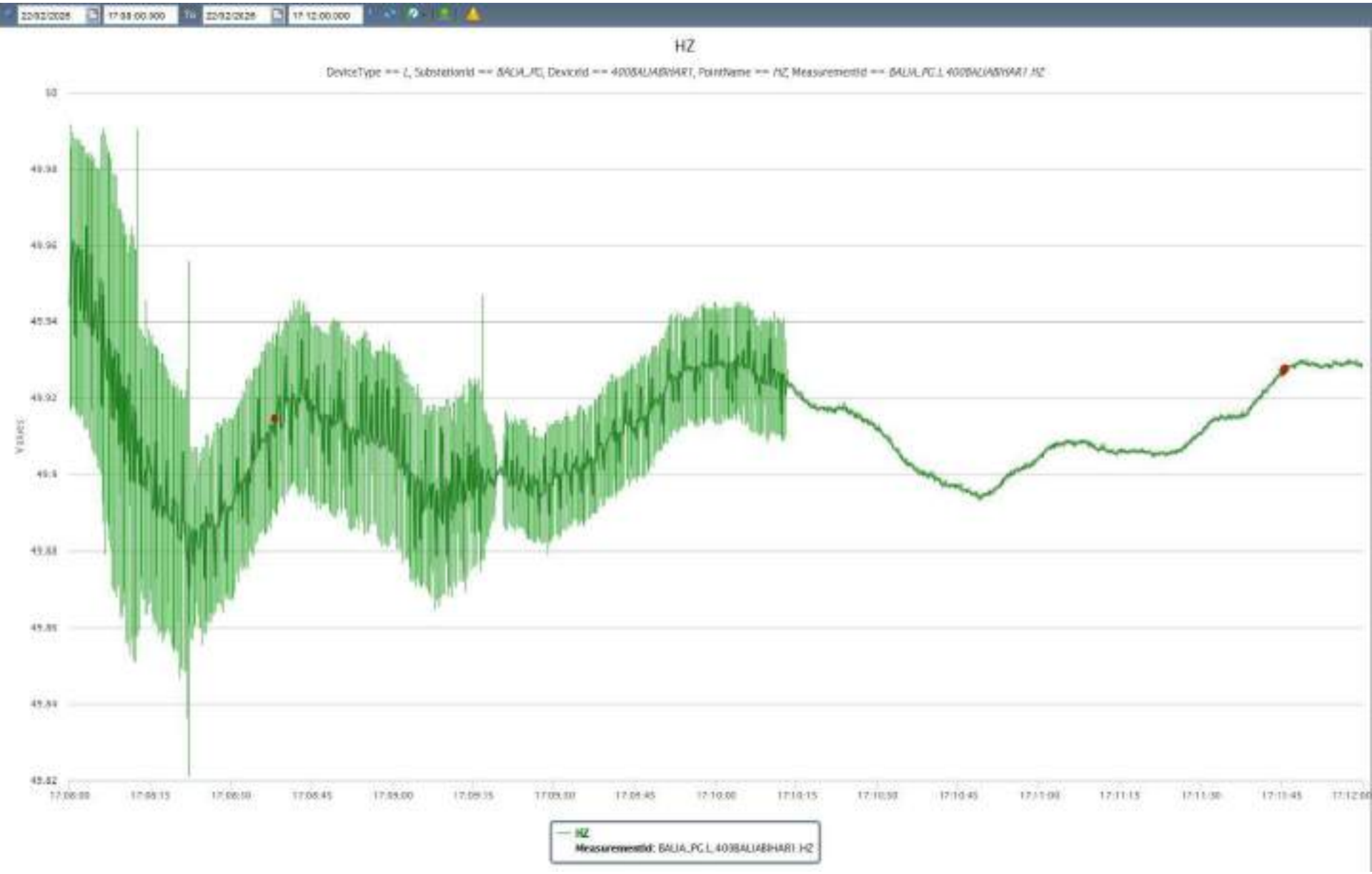
# PMU Plot of frequency at Bhiwadi(PG)

## 17:08hrs-17:10hrs/22-Feb-26



# PMU Plot of frequency at Balia(PG)

## 17:08hrs-17:10hrs/22-Feb-26



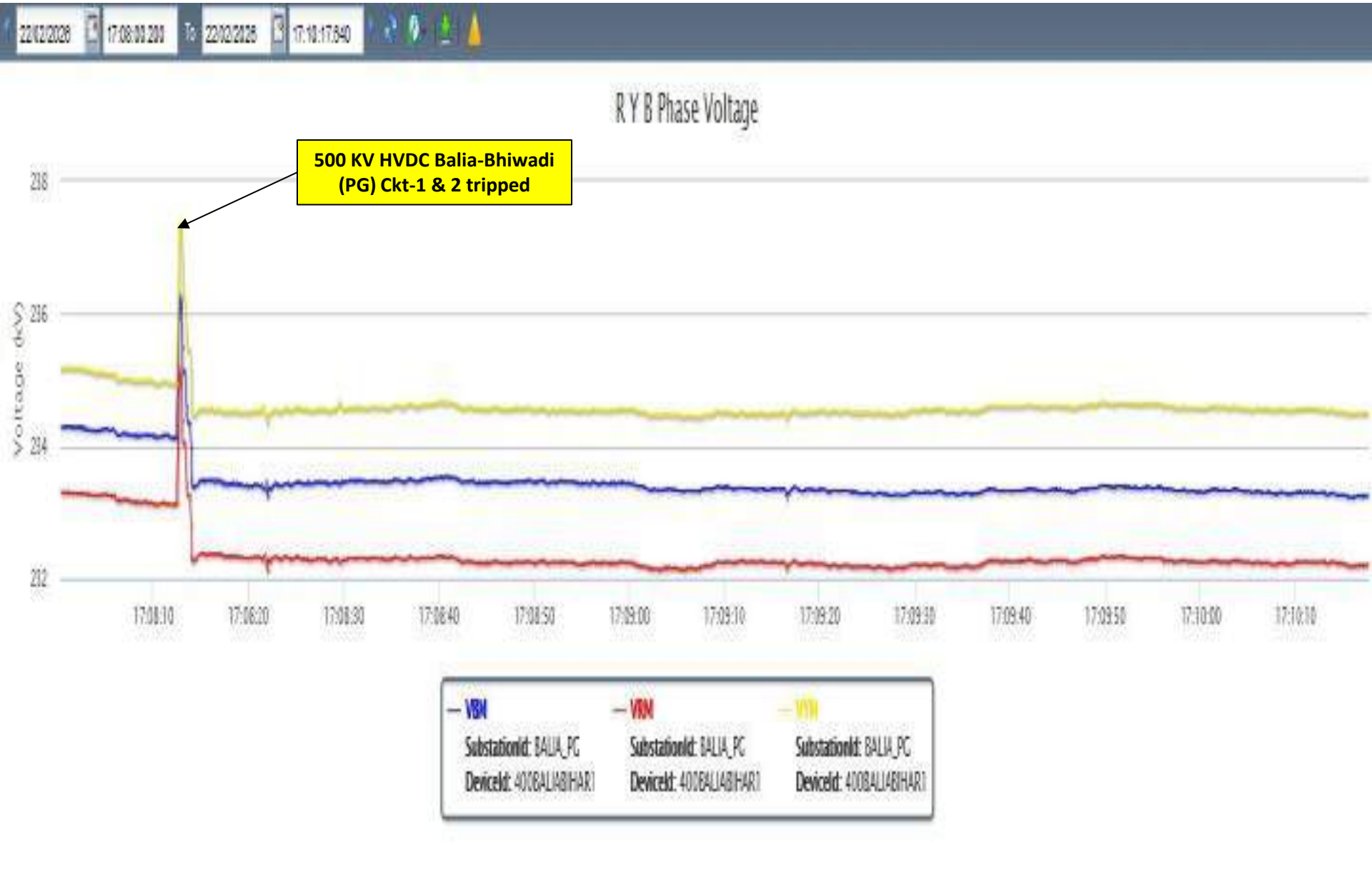
# PMU Plot of Phase Voltage Magnitude at Bhiwadi(PG)

## 17:08hrs-17:10hrs/22-Feb-26



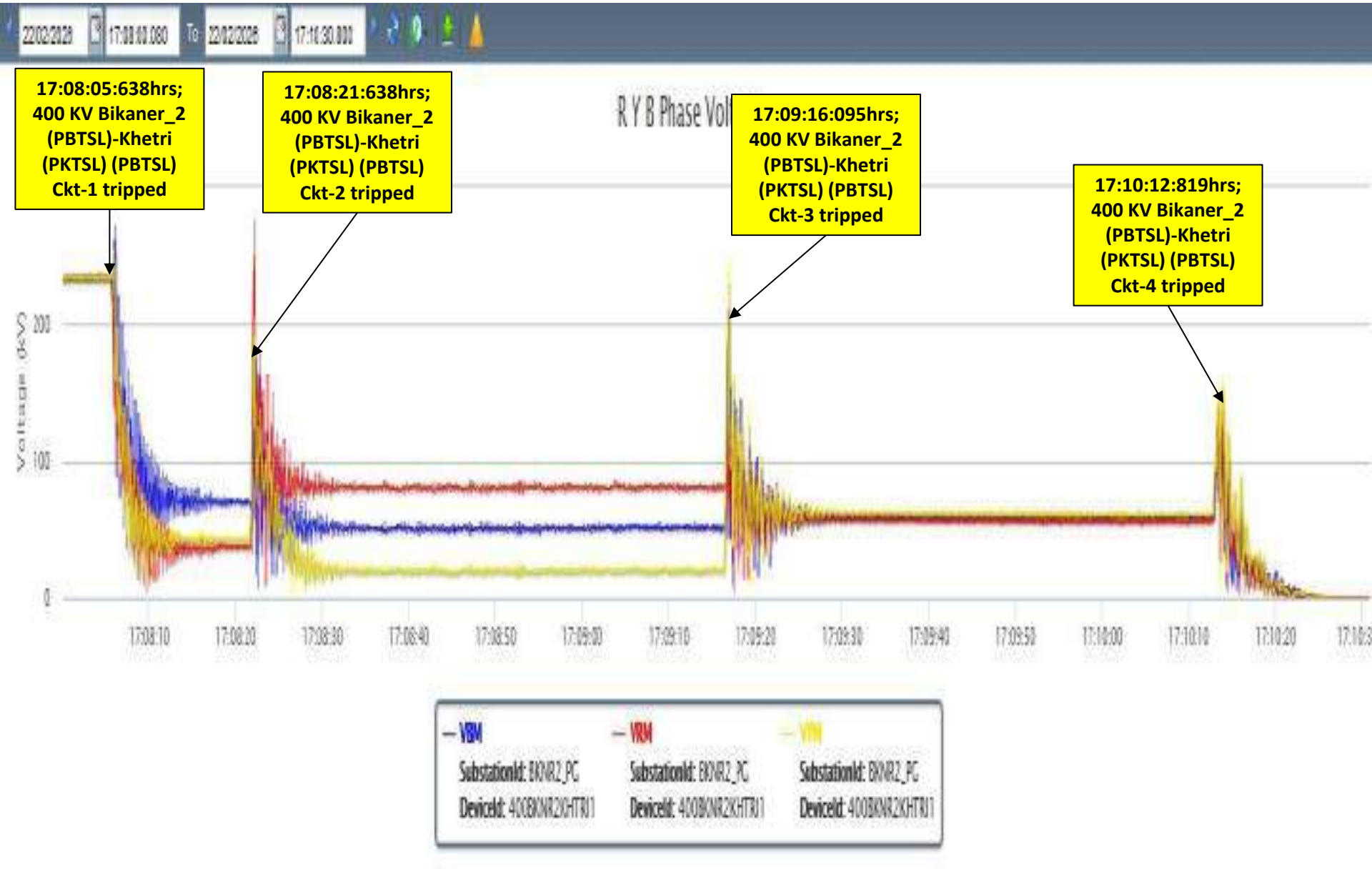
# PMU Plot of Phase Voltage Magnitude at Balia(PG)

## 17:08hrs-17:10hrs/22-Feb-26



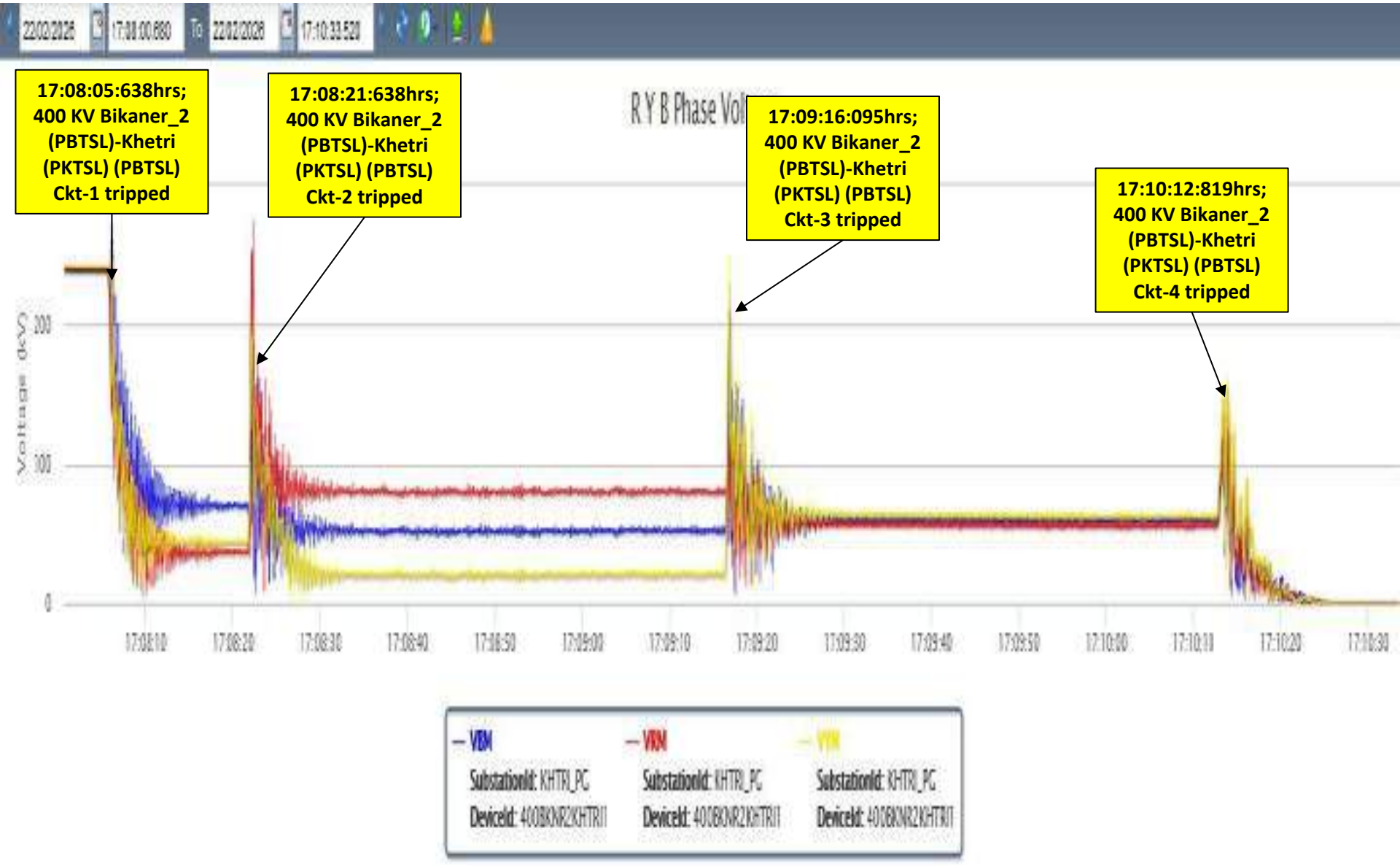
# PMU Plot of Phase Voltage Magnitude at Bikaner2(PG)

## 17:08hrs-17:10hrs/22-Feb-26



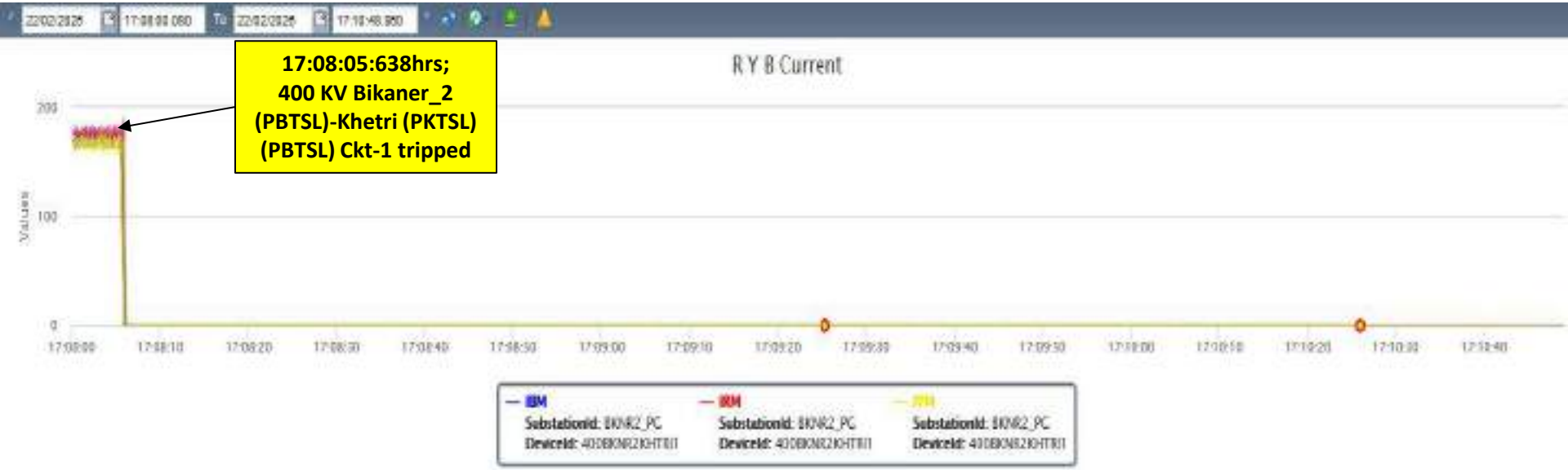
# PMU Plot of Phase Voltage Magnitude at Khetri(PG)

## 17:08hrs-17:10hrs/22-Feb-26



# PMU Plot of Phase Current Magnitude of both ends 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1

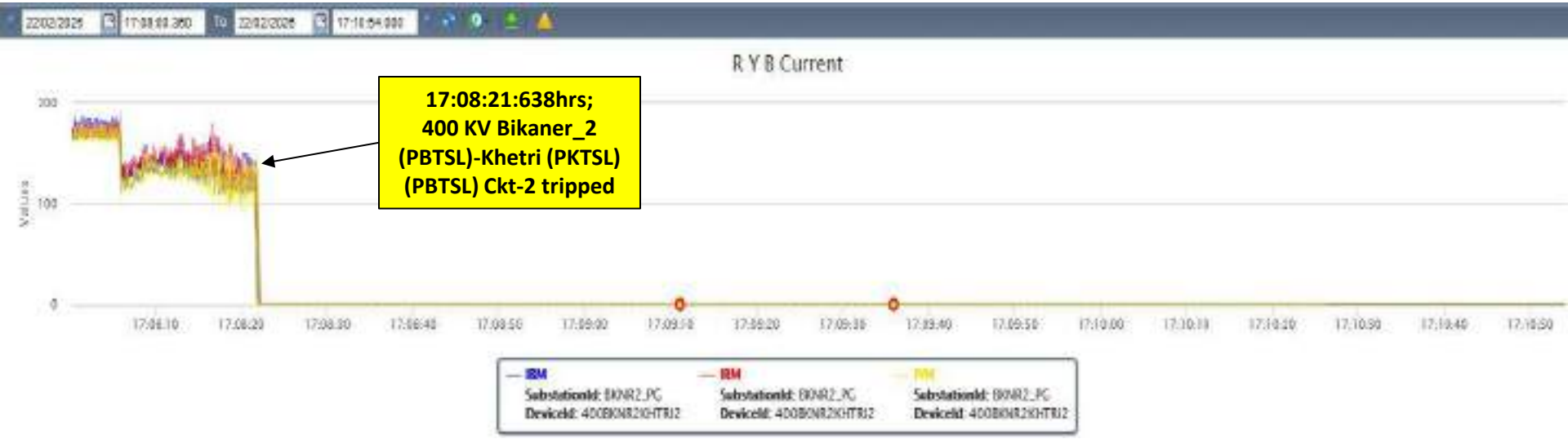
## 17:08hrs-17:10hrs/22-Feb-26

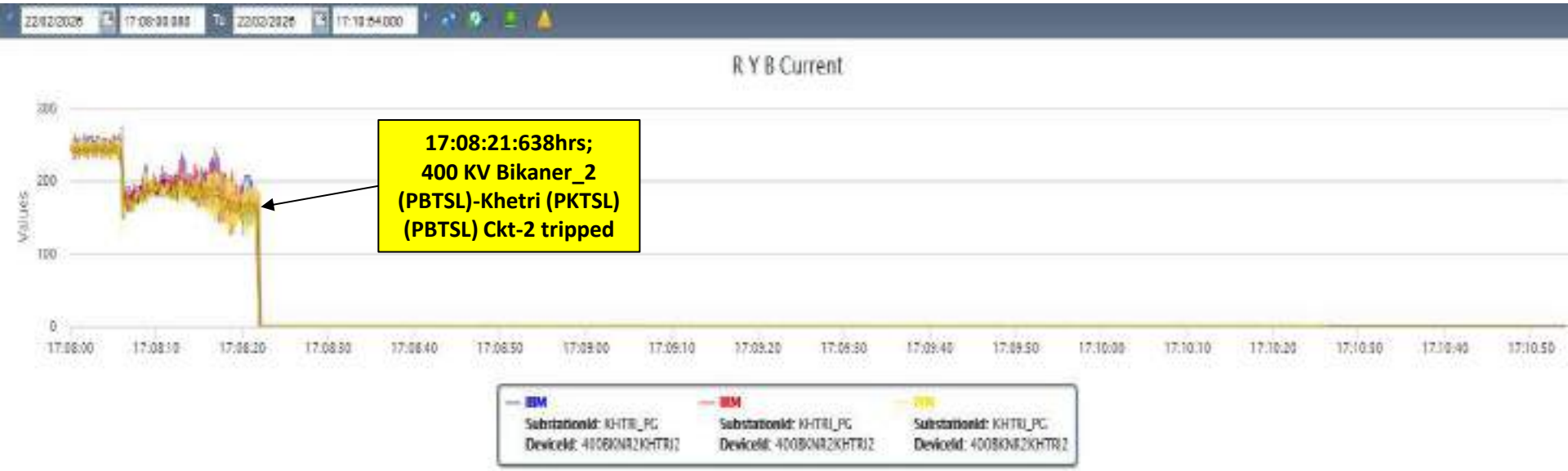





# PMU Plot of Phase Current Magnitude of both ends 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-2

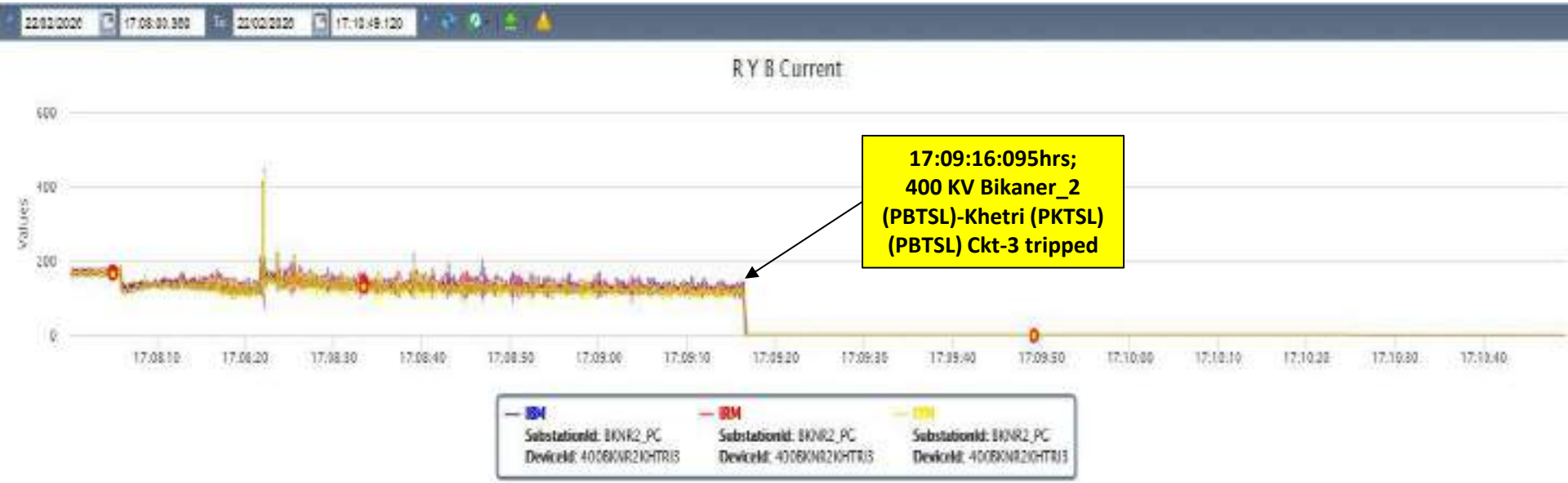
## 17:08hrs-17:10hrs/22-Feb-26

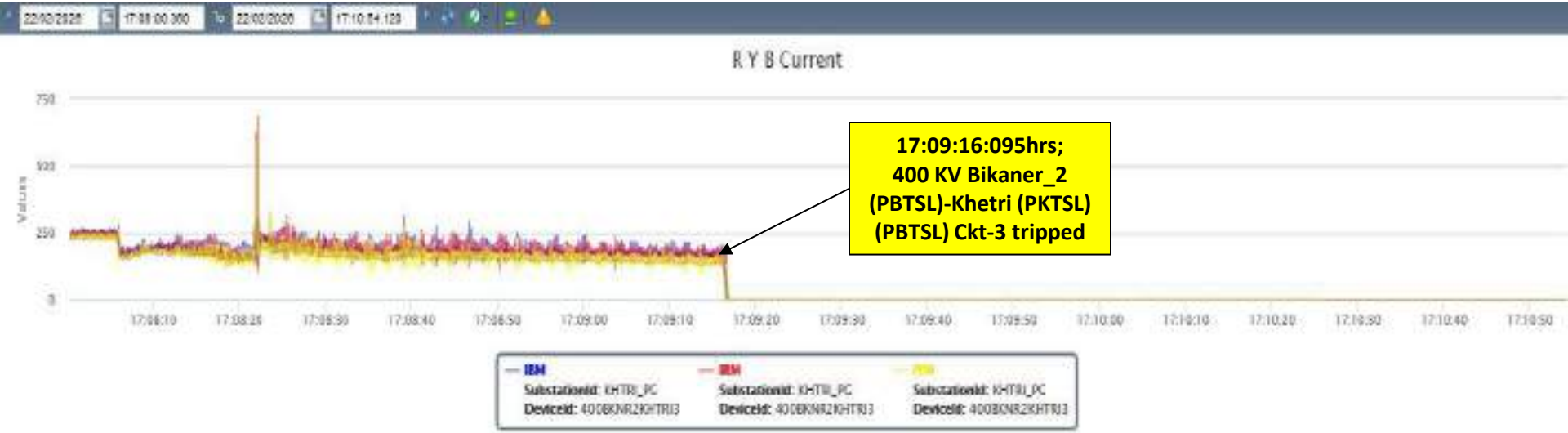


# PMU Plot of Phase Current Magnitude of both ends 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-3

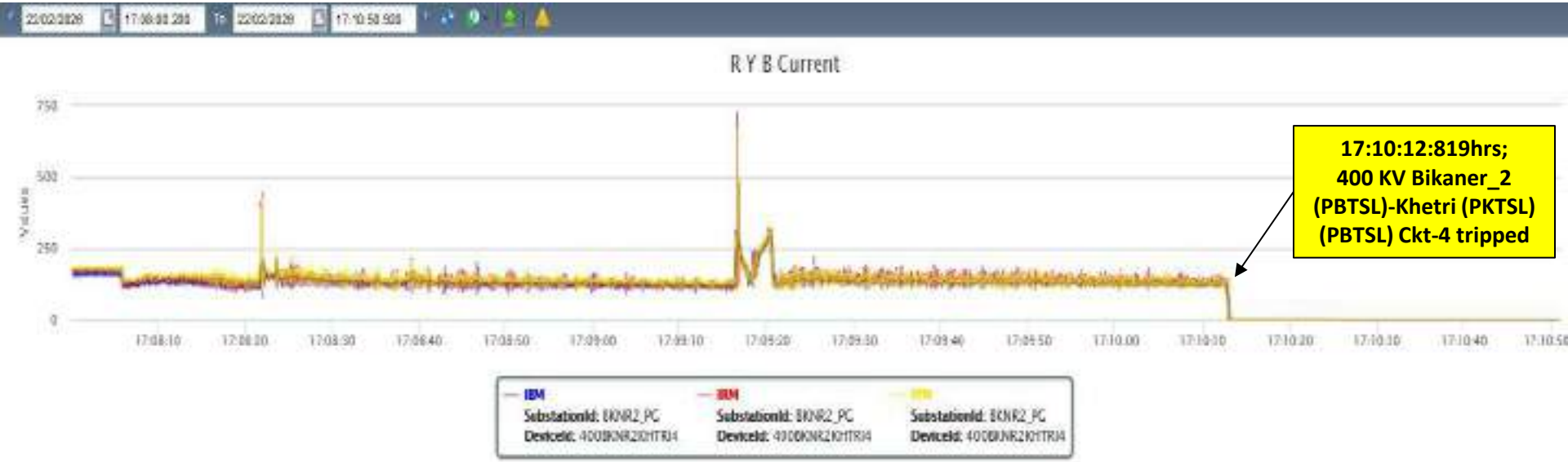
## 17:08hrs-17:10hrs/22-Feb-26

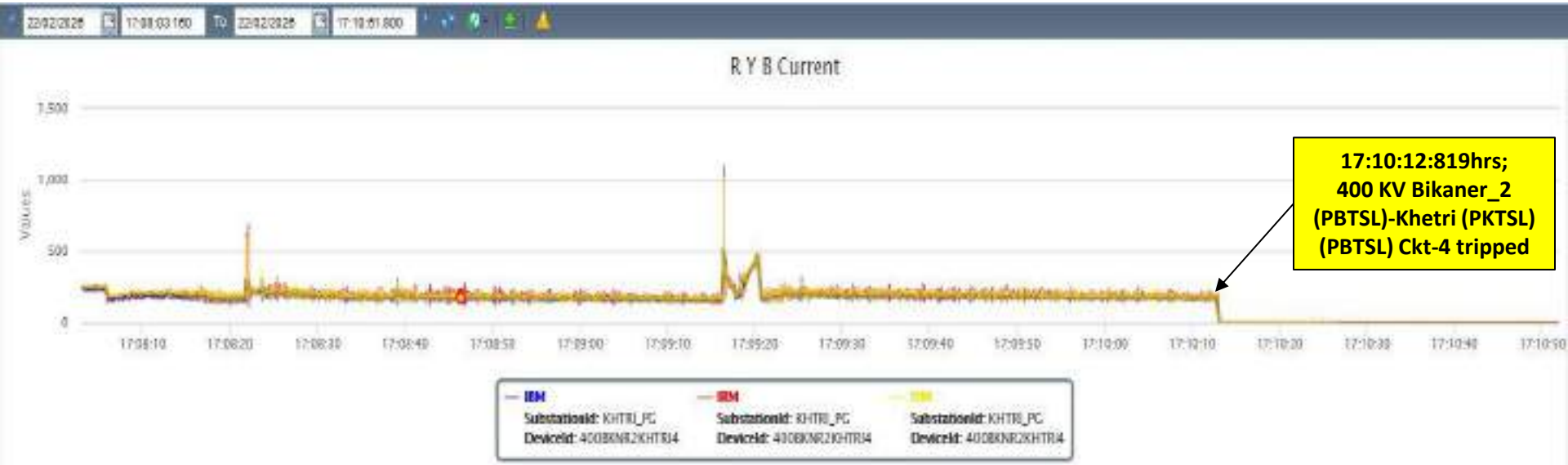


# PMU Plot of Phase Current Magnitude of both ends 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-4

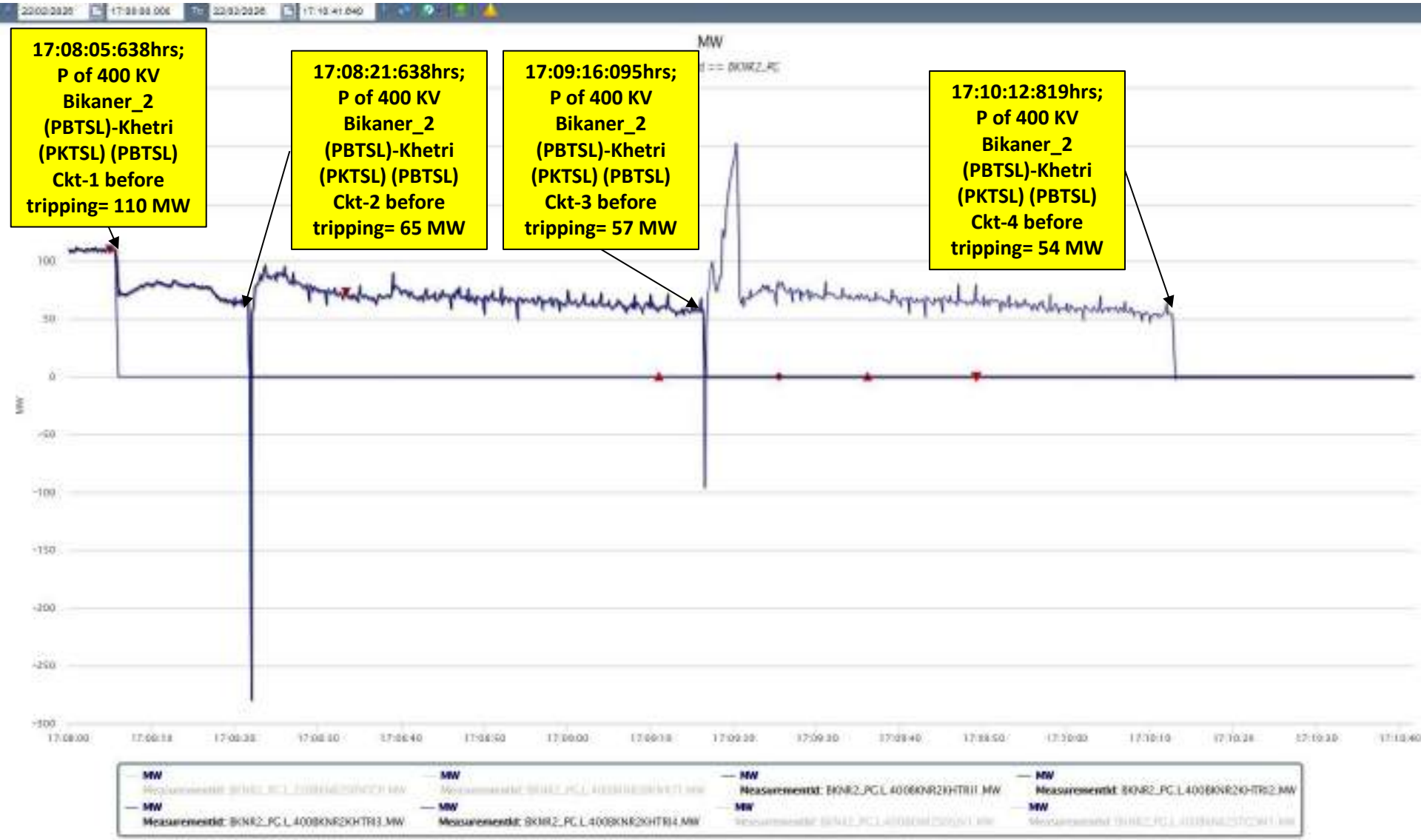
## 17:08hrs-17:10hrs/22-Feb-26



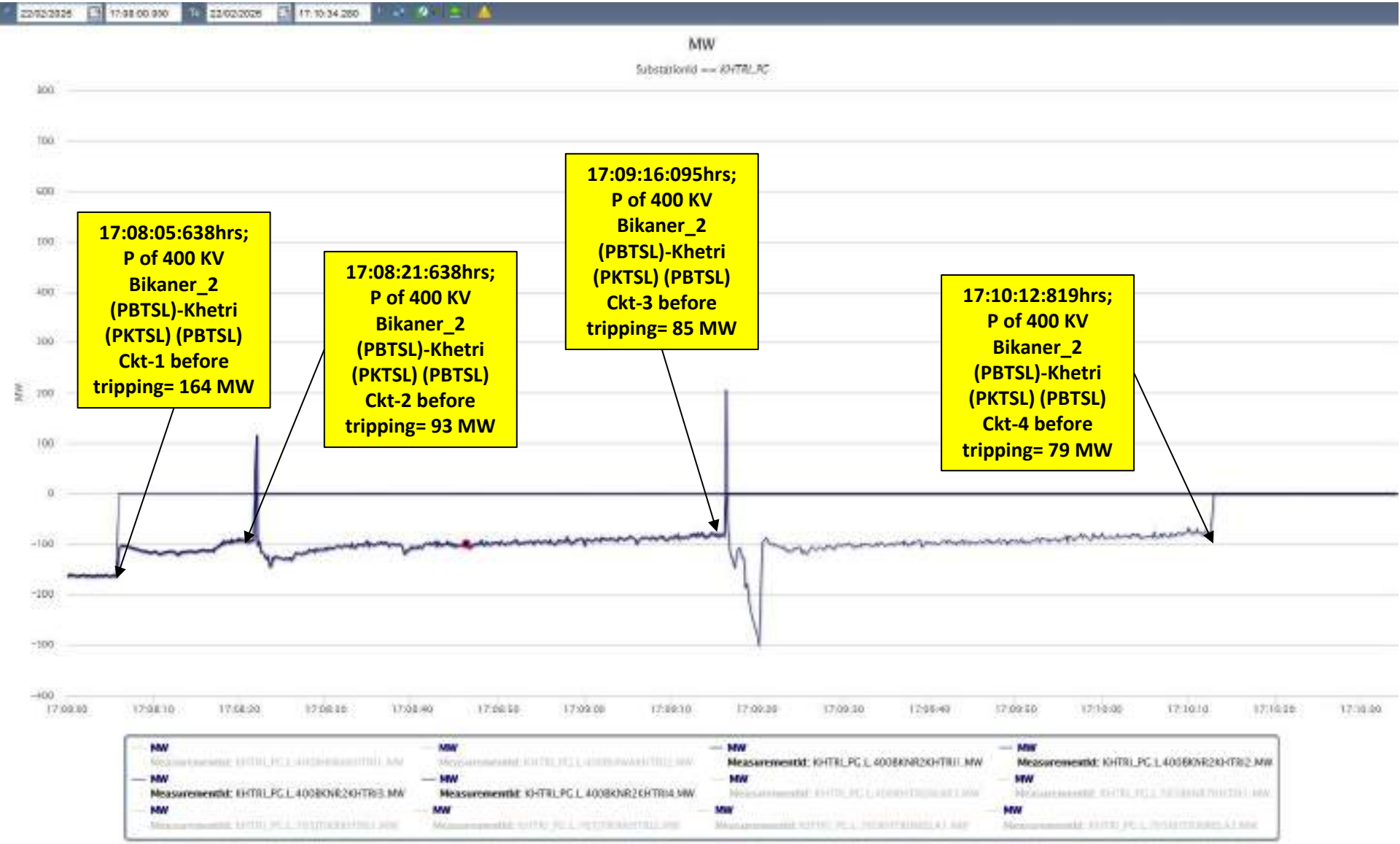
# PMU Plot of Active Power flow at Bikaner2(PG) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 , 2, 3 & 4

## 17:08hrs-17:10hrs/22-Feb-26



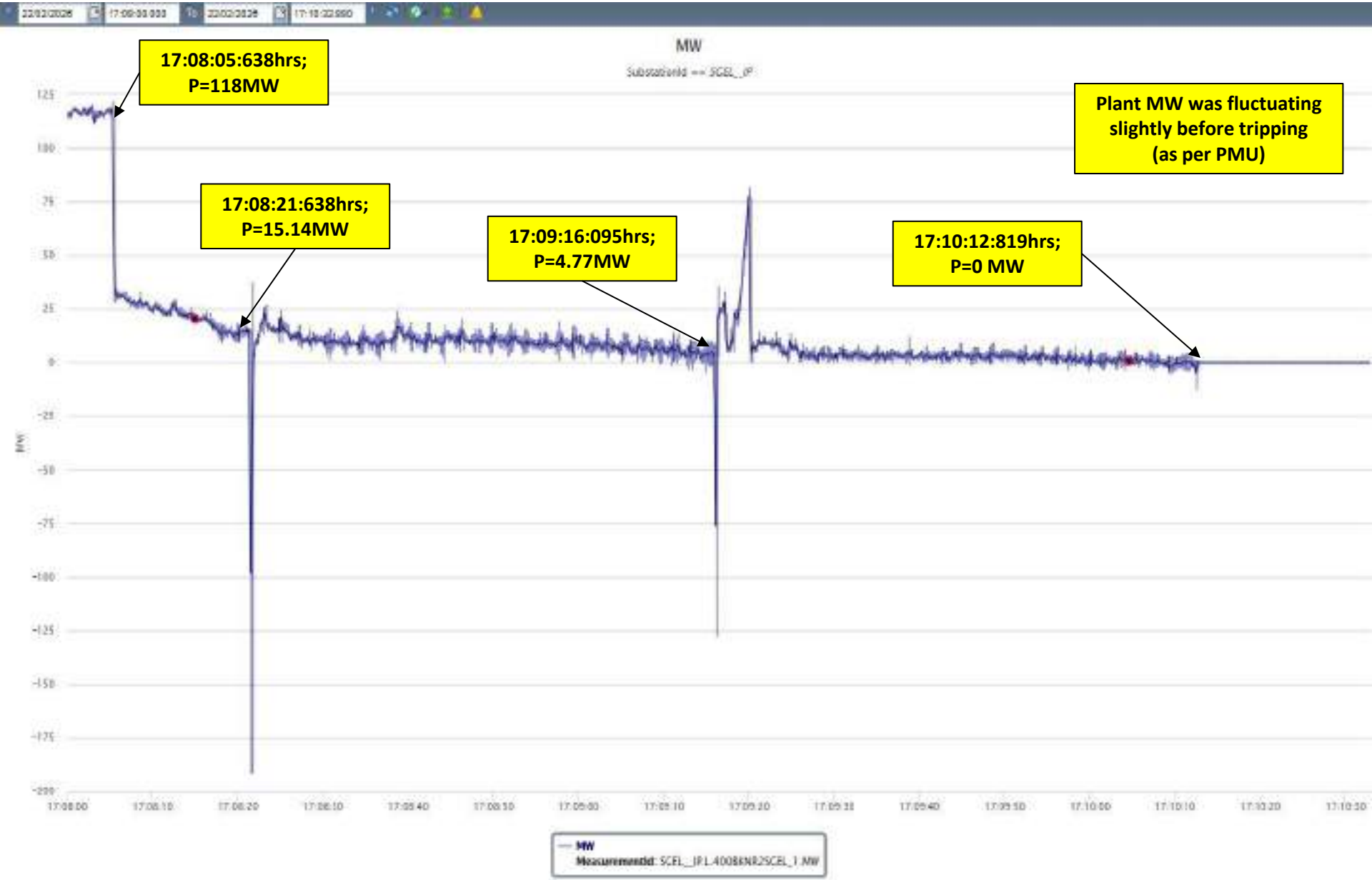
# PMU Plot of Active Power flow at Khetri(PG) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 , 2, 3 & 4

## 17:08hrs-17:10hrs/22-Feb-26



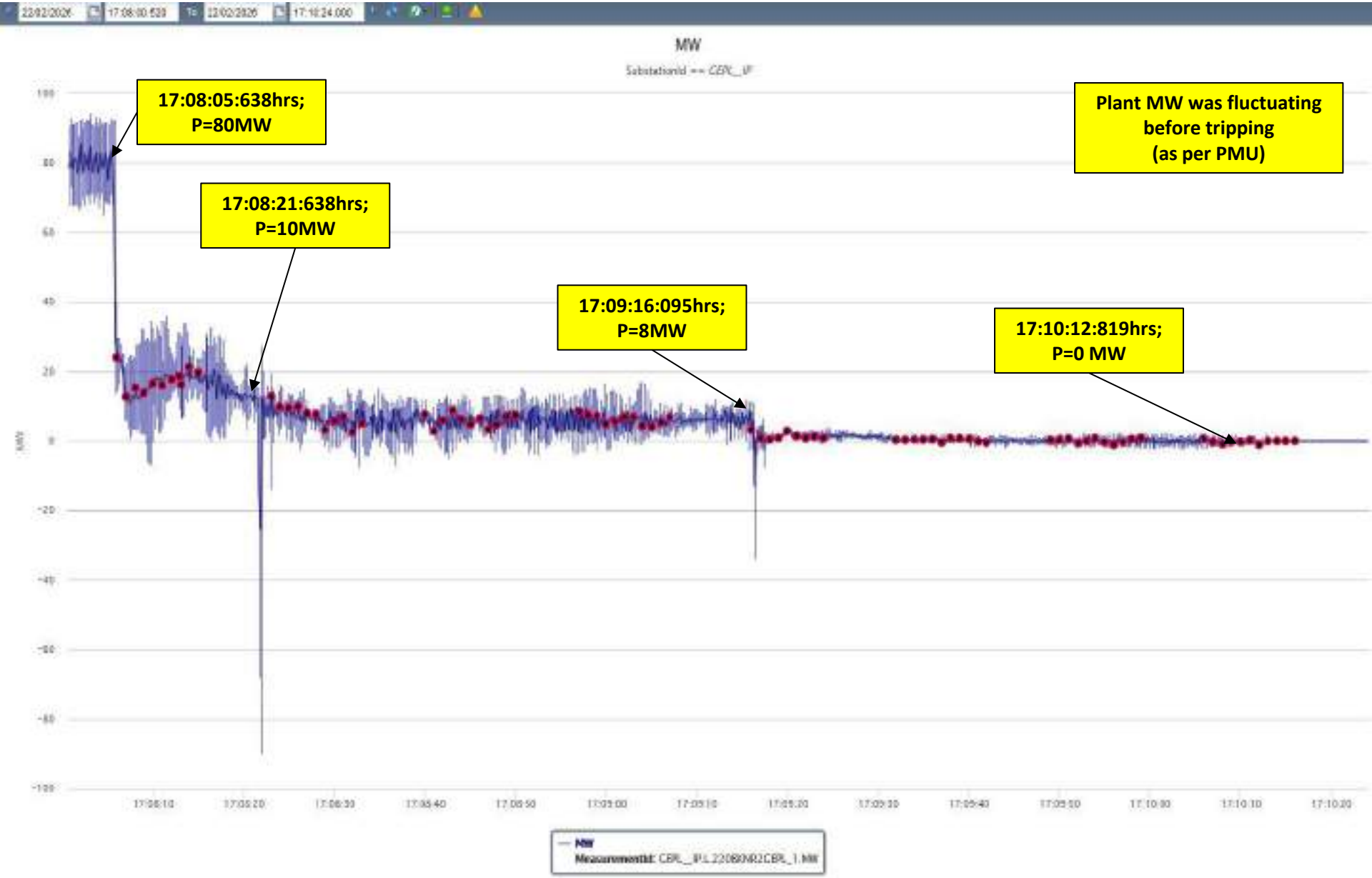
# PMU Plot of Active Power at SGEL(IP)

## 17:08hrs-17:10hrs/22-Feb-26



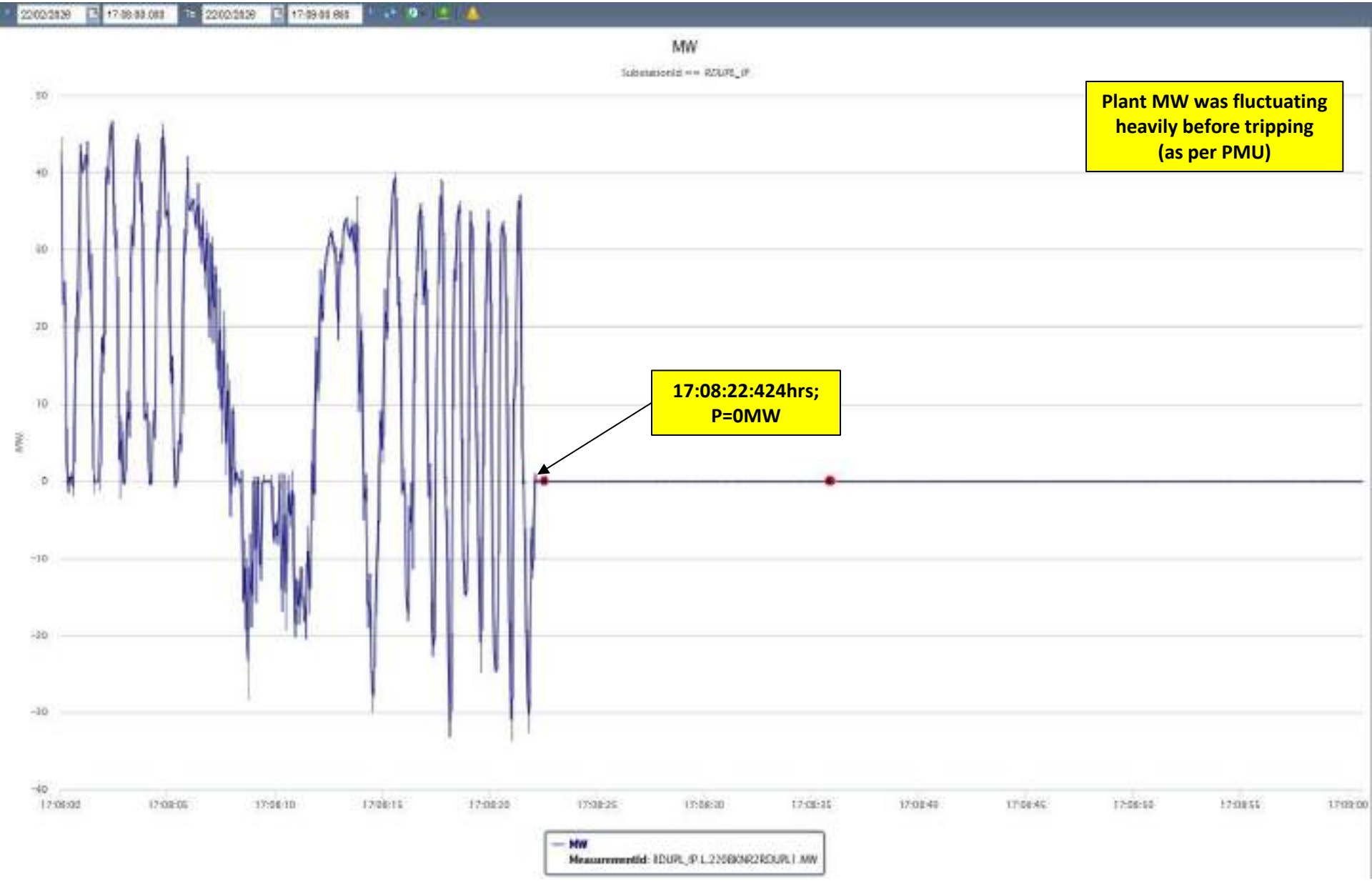
# PMU Plot of Active Power at GPEL(IP)

## 17:08hrs-17:10hrs/22-Feb-26



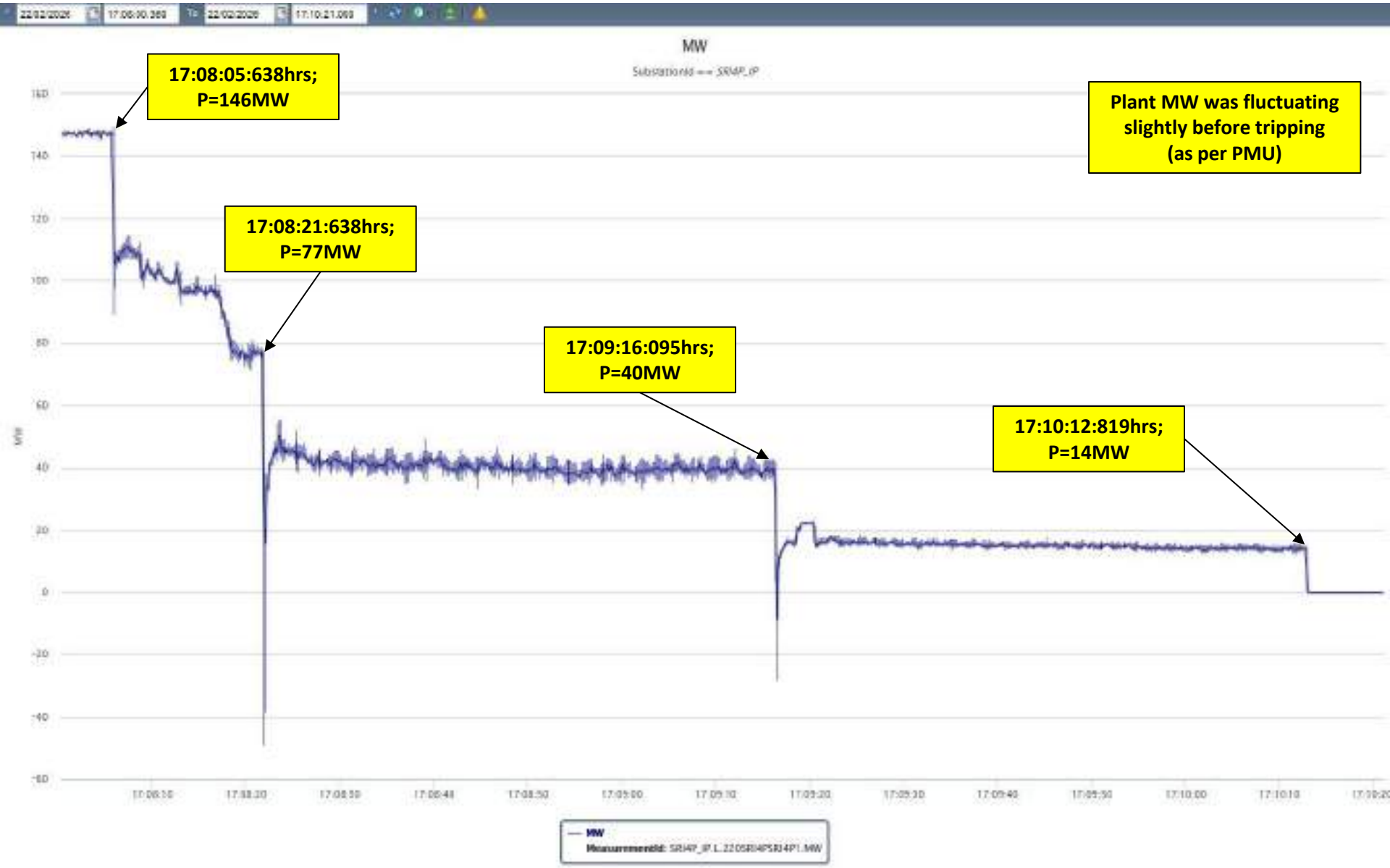
# PMU Plot of Active Power at RDUPL(IP)

## 17:08hrs-17:10hrs/22-Feb-26



# PMU Plot of Active Power at SRI4P(IP)

## 17:08hrs-17:10hrs/22-Feb-26



# PMU Plot of Voltage vs Reactive Power of STATCOM at Bikaner2(PG)

## 17:08hrs-17:10hrs/22-Feb-26



# SCADA SOE

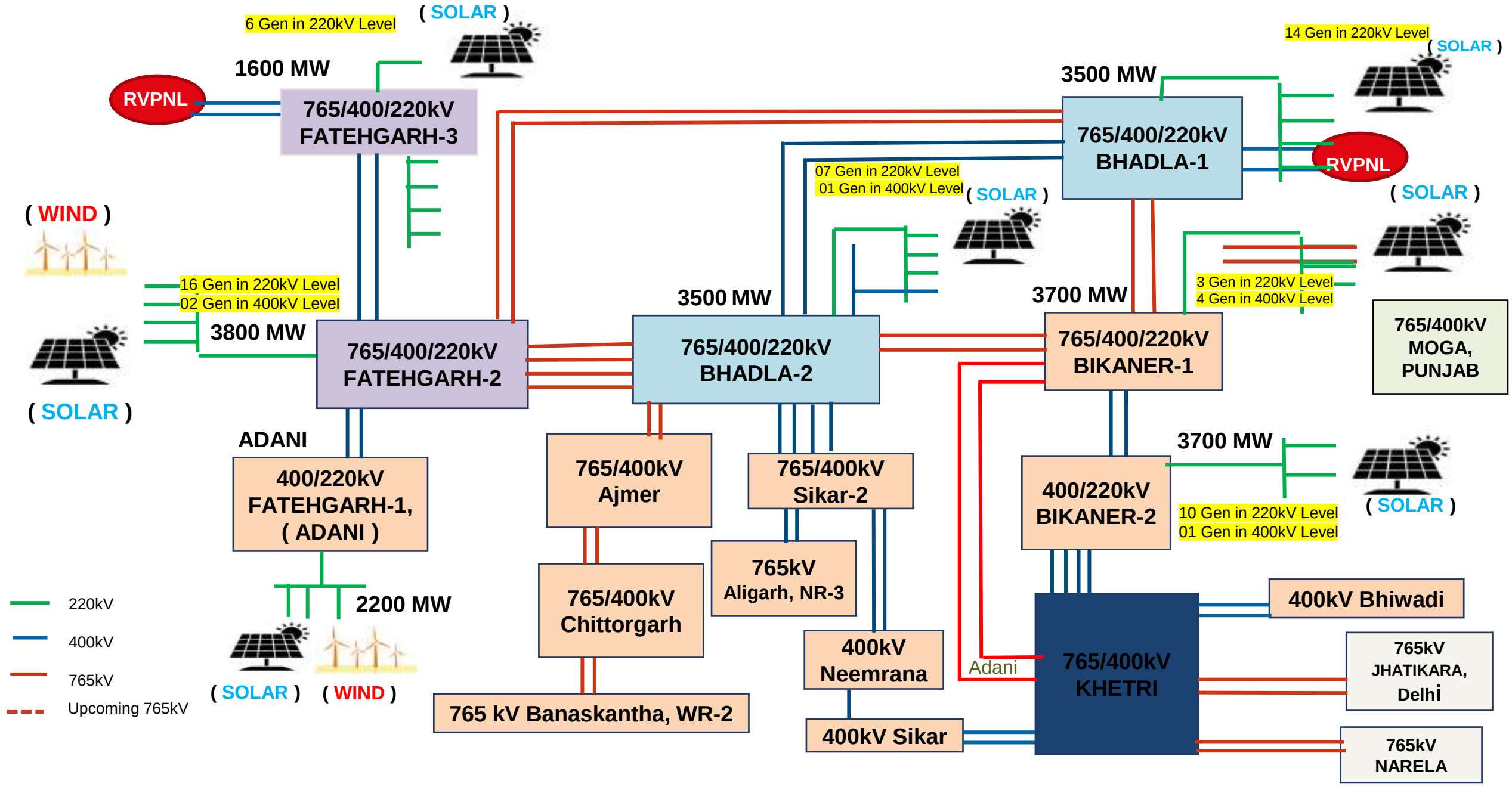
| Time | Station Name | Voltage (in kV) | Element Name | Element Type | Element Status | Remarks |
|---|---|---|---|---|---|---|
| 17:07:16,675 | BKNR2_PG | 34.5 | 1MSC1 | Circuit Breaker | Open | CB at 33kV side of MSC-1 at Bikaner2(PG) opened |
| 17:08:05,865 | BKNR2_PG | 400 | 13KTRI01 | Circuit Breaker | Open | Main CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 opened |
| 17:08:05,870 | KHTRI_PG | 400 | 03BKNR21 | Circuit Breaker | Open | Main CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 opened |
| 17:08:05,873 | KHTRI_PG | 400 | 02TIE | Circuit Breaker | Open | Tie CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 opened |
| 17:08:05,874 | BKNR2_PG | 400 | 14TIE | Circuit Breaker | Open | Tie CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-1 opened |
| 17:08:21,871 | BKNR2_PG | 400 | 10KTRI02 | Circuit Breaker | Open | Main CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-2 opened |
| 17:08:21,873 | KHTRI_PG | 400 | 06BKNR22 | Circuit Breaker | Open | Main CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-2 opened |
| 17:08:21,875 | BKNR2_PG | 400 | 11TIE | Circuit Breaker | Open | Tie CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-2 opened |
| 17:08:21,876 | KHTRI_PG | 400 | 05TIE | Circuit Breaker | Open | Tie CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-2 opened |
| 17:09:16,463 | KHTRI_PG | 400 | 09BKNR23 | Circuit Breaker | Open | Main CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-3 opened |
| 17:09:16,467 | BKNR2_PG | 400 | 4KTRI03 | Circuit Breaker | Open | Main CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-3 opened |
| 17:09:16,468 | KHTRI_PG | 400 | 08TIE | Circuit Breaker | Open | Tie CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-3 opened |
| 17:10:12,910 | BKNR2_PG | 400 | 1KTRI04 | Circuit Breaker | Open | Main CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-4 opened |
| 17:10:12,913 | KHTRI_PG | 400 | 11TIE | Circuit Breaker | Open | Tie CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-4 opened |
| 17:10:12,916 | KHTRI_PG | 400 | 12BKNR24 | Circuit Breaker | Open | Main CB at Khetri (PKTSL) end of 400 KV Bikaner_2 (PBTSL)-Khetri (PKTSL) (PBTSL) Ckt-4 opened |
| 17:10:13,065 | SGEL__IP | 400 | 03BKNR2 | Circuit Breaker | Open | Main CB at SGEL(IP) end of 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt opened |
| 17:10:13,066 | SGEL__IP | 400 | 02TIE | Circuit Breaker | Open | Tie CB at SGEL(IP) end of 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt opened |
| 17:10:13,074 | BKNR2_PG | 400 | 16SOSJVN | Circuit Breaker | Open | Main CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt opened |
| 17:10:13,080 | BKNR2_PG | 400 | 17TIE | Circuit Breaker | Open | Tie CB at Bikaner_2 (PBTSL) end of 400 KV Bikaner_2 (PBTSL)-SJVN_GEL_SL_BKN2 (SJVNGEL_BKN2) Ckt opened |

# Points of Discussion

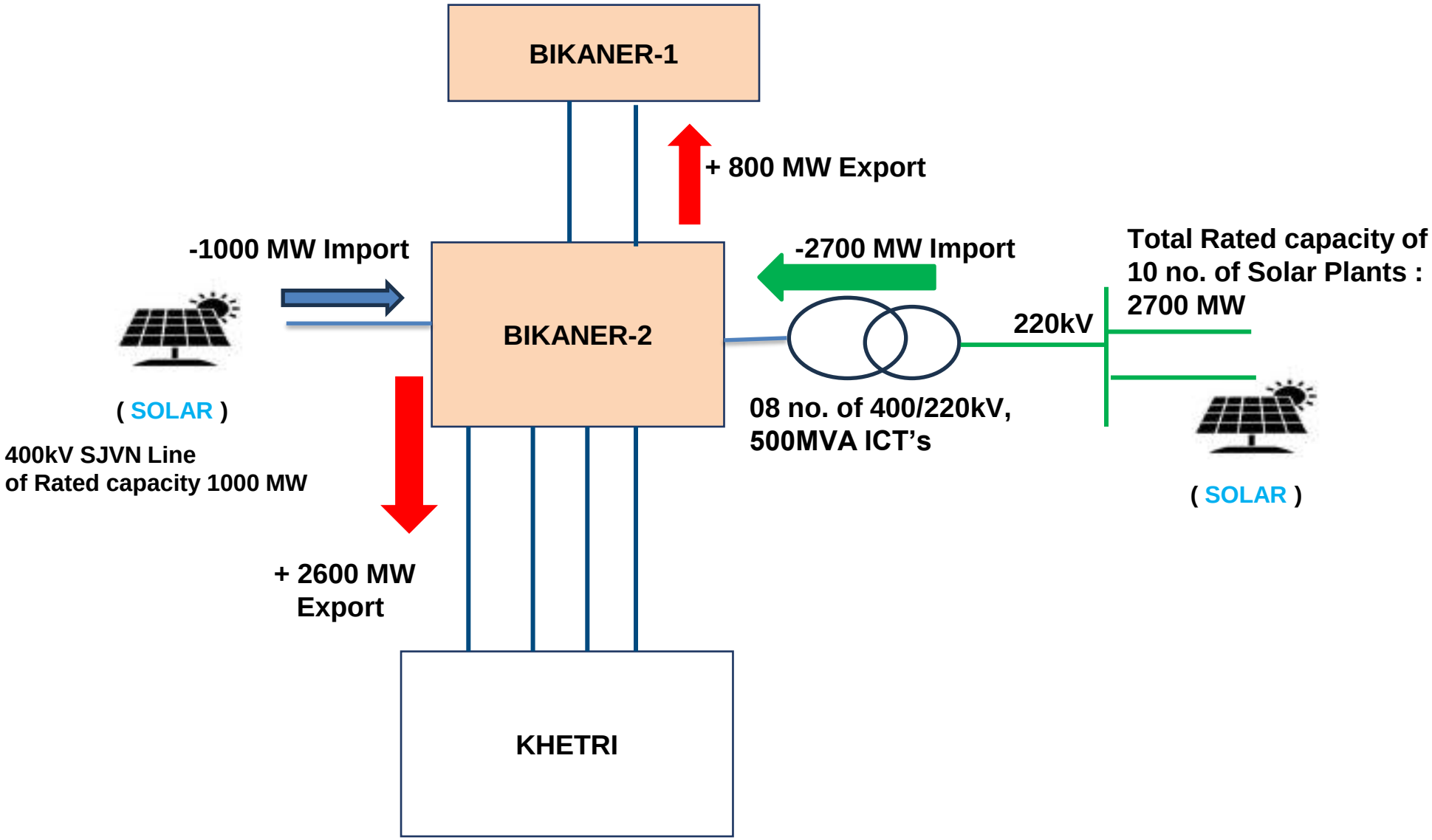
i. Exact reason of tripping of 220 KV Bikaner_2 (PBTSL)-JGCPL_SL_BIK2_PG (Juniper_NEPL) Ckt need to be shared by PG.
ii. Over-voltage protection in all 220kV lines need to be disabled as per NRPC protection philosophy.
iii. KSP(NHPC) and RDUPL(IP) need to check the exact reason of huge MW fluctuation exhibited by their inverters (SINENG and SUNGROW make respectively). RCA of the same need to be shared at the earliest.

# Report on Grid event in Rajasthan RE complex on 22/Feb/2026 at 17:08 hrs

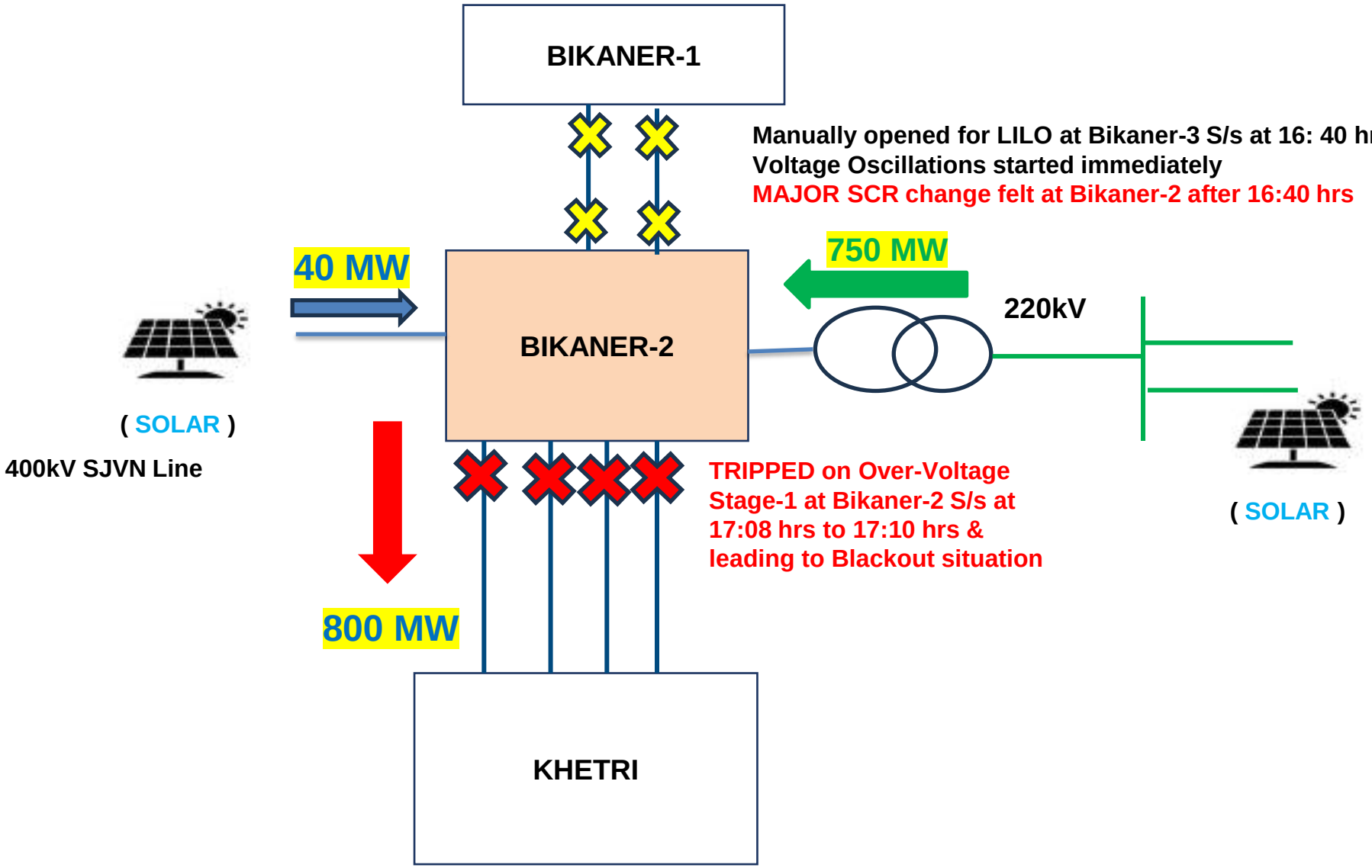
# Network for RE Power ( evacuation of 21.4 GW) in Group-2, NR-1 as on Feb-2026



# Power Flow during PEAK Solar Hour time period of 400kV Bikaner-2 Substation



# Scenario of Bikaner-2 S/s at 17:00 hrs, 22 FEB 2026



# Event Description

| SR. NO. | TIME STAMP | ELEMENT NAME | EVENT DETAILS AS PER SCADA/DR | REMARKS |
|---|---|---|---|---|
| 1 | 16:40:10.656 | 400KV BIKANER-2 | DT REC CH-1 & 2, MCB/TCB OPEN | MANUAL ISOLATION FOR LILO WORK. |
| 02 | 16:40:50.213 | 400KV BIKANER-1 | DT REC CH-1 & 2, MCB/TCB OPEN | MANUAL ISOLATION FOR LILO WORK. |
| 03 | 17:08:05.836 | 400KV KHERTI-1 | OV STAGE-1 OPTD, CB OPEN DT SEND | |
| 04 | 17:08:21.832 | 400KV KHERTI-2 | OV STAGE-1 OPTD, CB OPEN DT SEND | |
| 05 | 17:09:16.432 | 400KV KHERTI-3 | OV STAGE-1 OPTD, CB OPEN DT SEND | |
| 06 | 17:10:12.874 | 400KV KHERTI-4 | OV STAGE-1 OPTD, CB OPEN DT SEND | |
| 07 | 17:10:13:450 | 400KV SJVN | OV STAGE-1 OPTD, CB OPEN DT SEND | |
| 08 | 17:10:13:450 | 400KV BUS-1 & 2 | LOSS OF VOLTAGE | |

# Power Flow status before and after tripping :23.02.2026 at Bikaner-2 S/s

| Sr. No. | Element Name | Power Flow Before Tripping (MW) | Power Flow After Tripping (MW) |
|---|---|---|---|
| 01 | 400kV Bikaner-1 | Under Shutdown | 0 |
| 02 | 400kV Bikaner-2 | Under Shutdown | 0 |
| 03 | 400kV Khetri-1 | 147 | Tripped |
| 04 | 400kV Khetri-2 | 234 | Tripped |
| 05 | 400kV Khetri-3 | 152 | Tripped |
| 06 | 400kV Khetri-4 | 280 | Tripped |
| 07 | 400kV SJVN Line | -21 | Tripped |
| 08 | 400/220kV ICT-1 | -123 | 0 |
| 09 | 400/220kV ICT-2 | -123 | 0 |
| 10 | 400/220kV ICT-3 | -67 | 0 |
| 11 | 400/220kV ICT-4 | -79 | 0 |
| 12 | 400/220kV ICT-5 | -74 | 0 |
| 13 | 400/220kV ICT-6 | -69 | 0 |
| 14 | 400/220kV ICT-7 | -99 | 0 |
| 15 | 400/220kV ICT-8 | -68 | 0 |

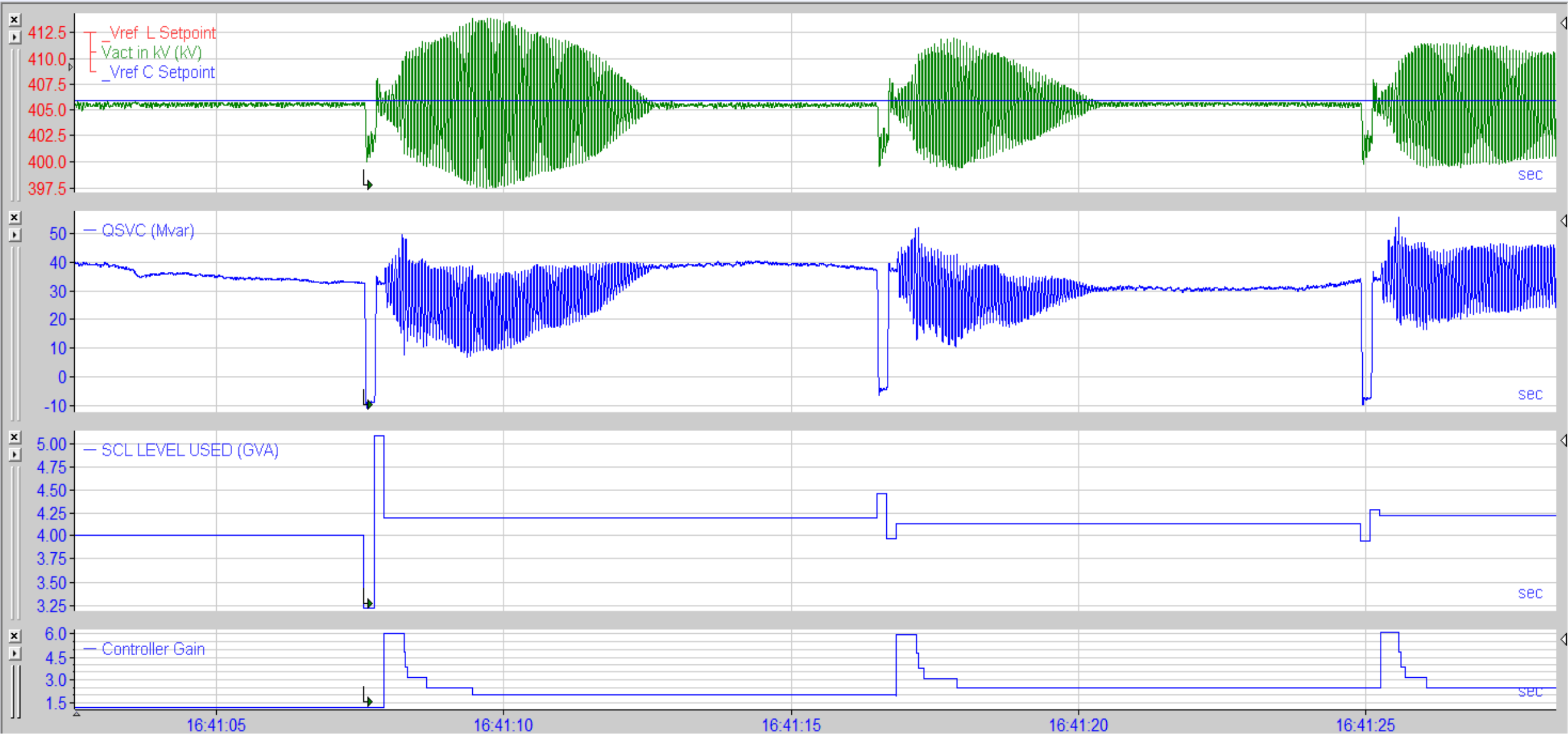
# Status of "IN SERVICE" BUS REACTOR's of RE COMPLEX SUBSTATIONS

| Sr. No. | SUBSTATION NAME | RATING OF REACTOR IN SERVICE | |
|---|---|---|---|
| 1 | 400 kV Bikaner-2 substation | 02 * 400 kV, 125 MVAr Bus Reactor-2 | Both in service |
| | | | |
| | | | |

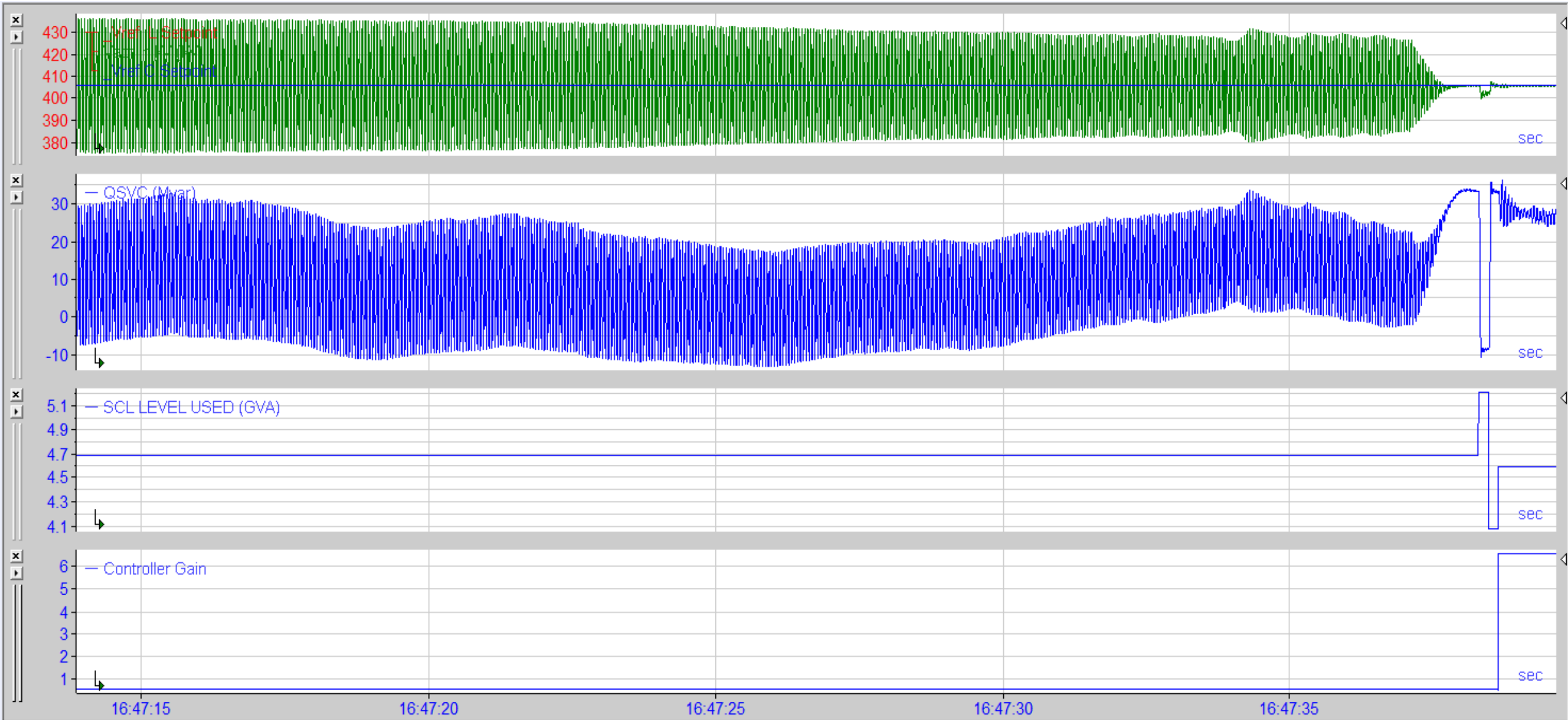
# Change of Mode of STATCOM on 22/Feb/2026 after start of Voltage Oscillation

| Name of STATCOM site | Time of change of Mode of operation from "Dead-band" mode to "Manual Fixed-Q" mode | Q set point of STACOM in "Manual Fixed-Q" mode |
|---|---|---|
| FATEHGARH-2 | 16:53 hrs , 22-Feb-2026 | -100 MVAR in STATCOM-1<br>-100 MVAR in STATCOM-2 |
| BHADLA-2 | 17:05 hrs , 22-Feb-2026 | -100 MVAR in STATCOM-1<br>-100 MVAR in STATCOM-2 |

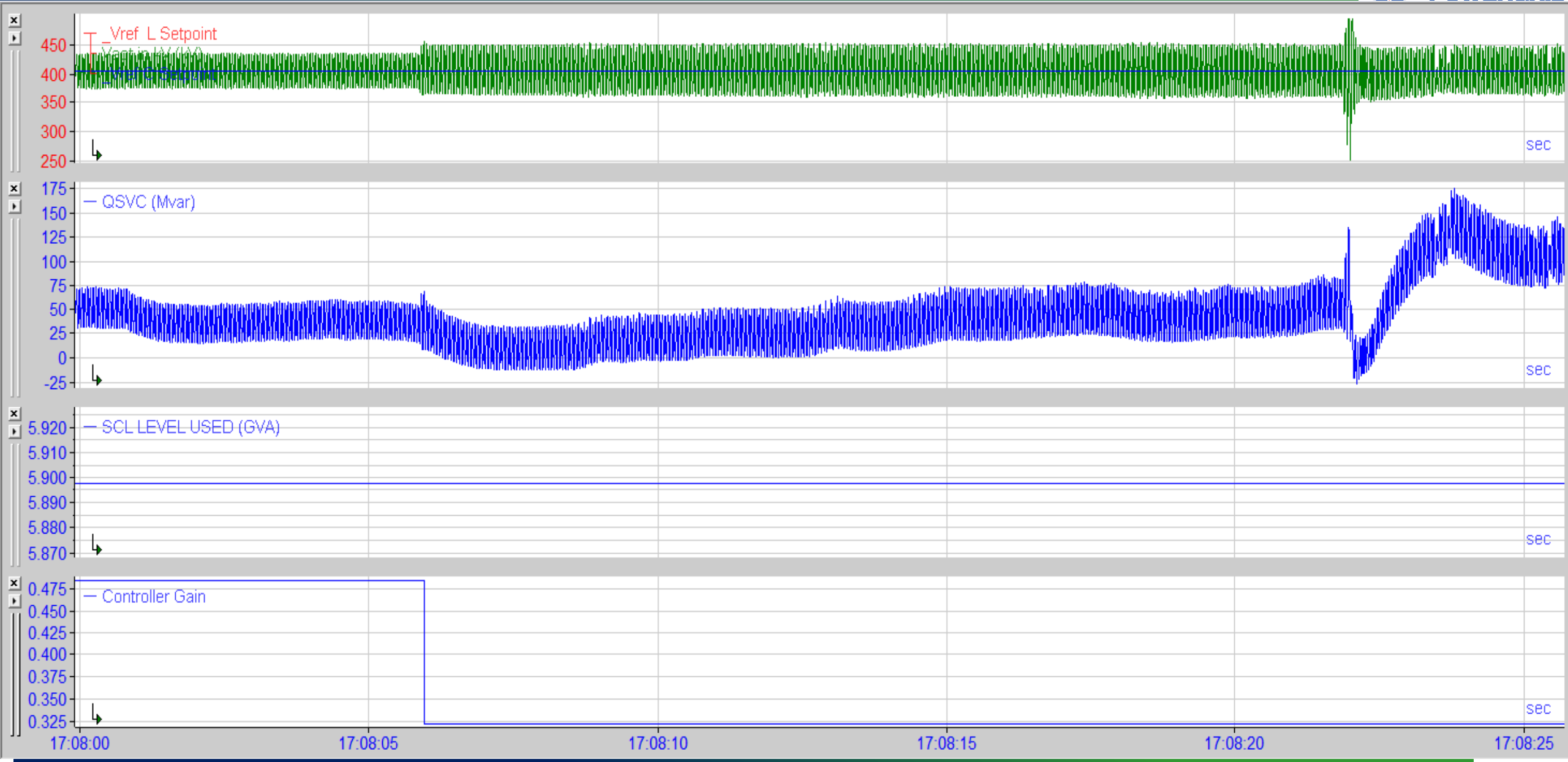
# Bikaner-2 STATCOM Response @ 16:41:05



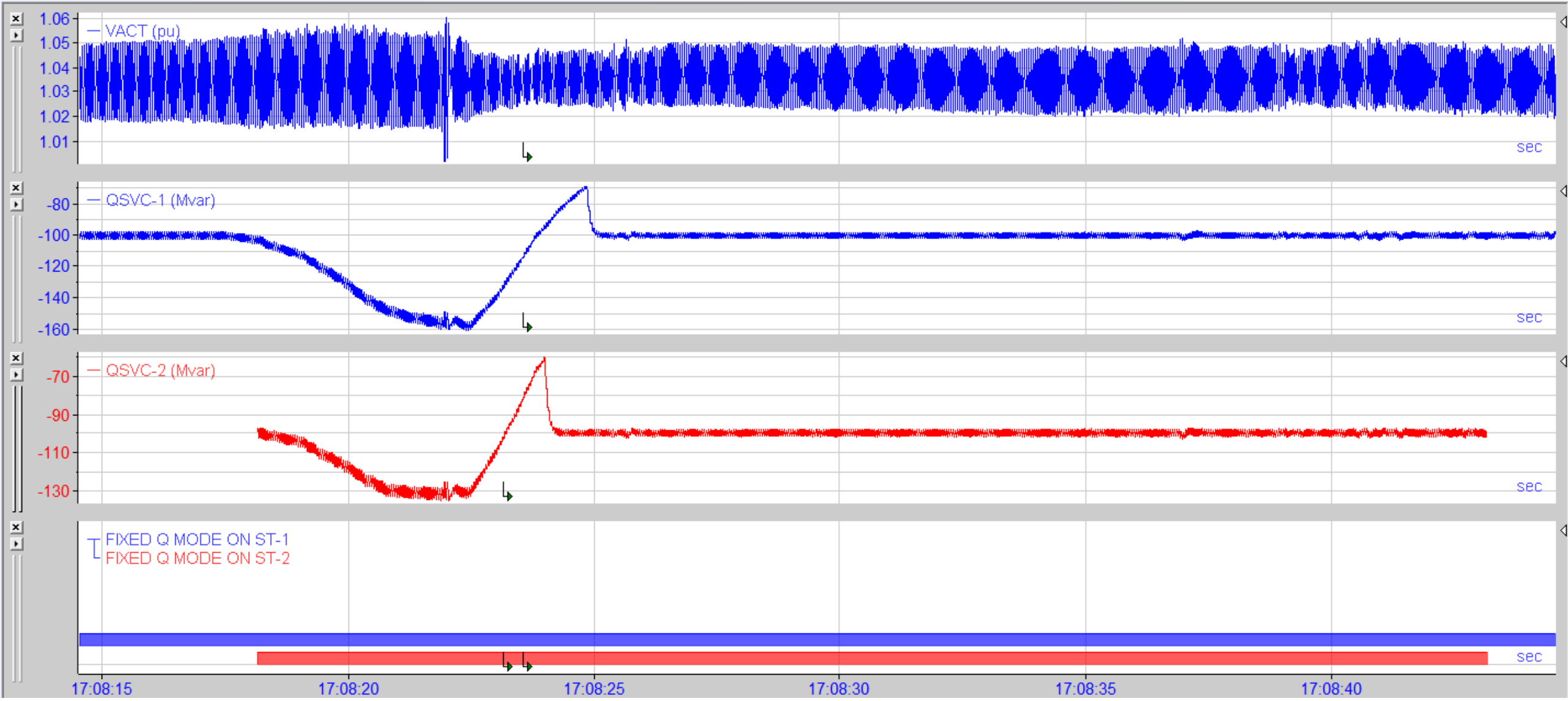
# STATCOM Response @16:47:14



# Bikaner-2 STATCOM Response @ 17:08:00



# Bhadla-2 STATCOM Response @ 17:08:23

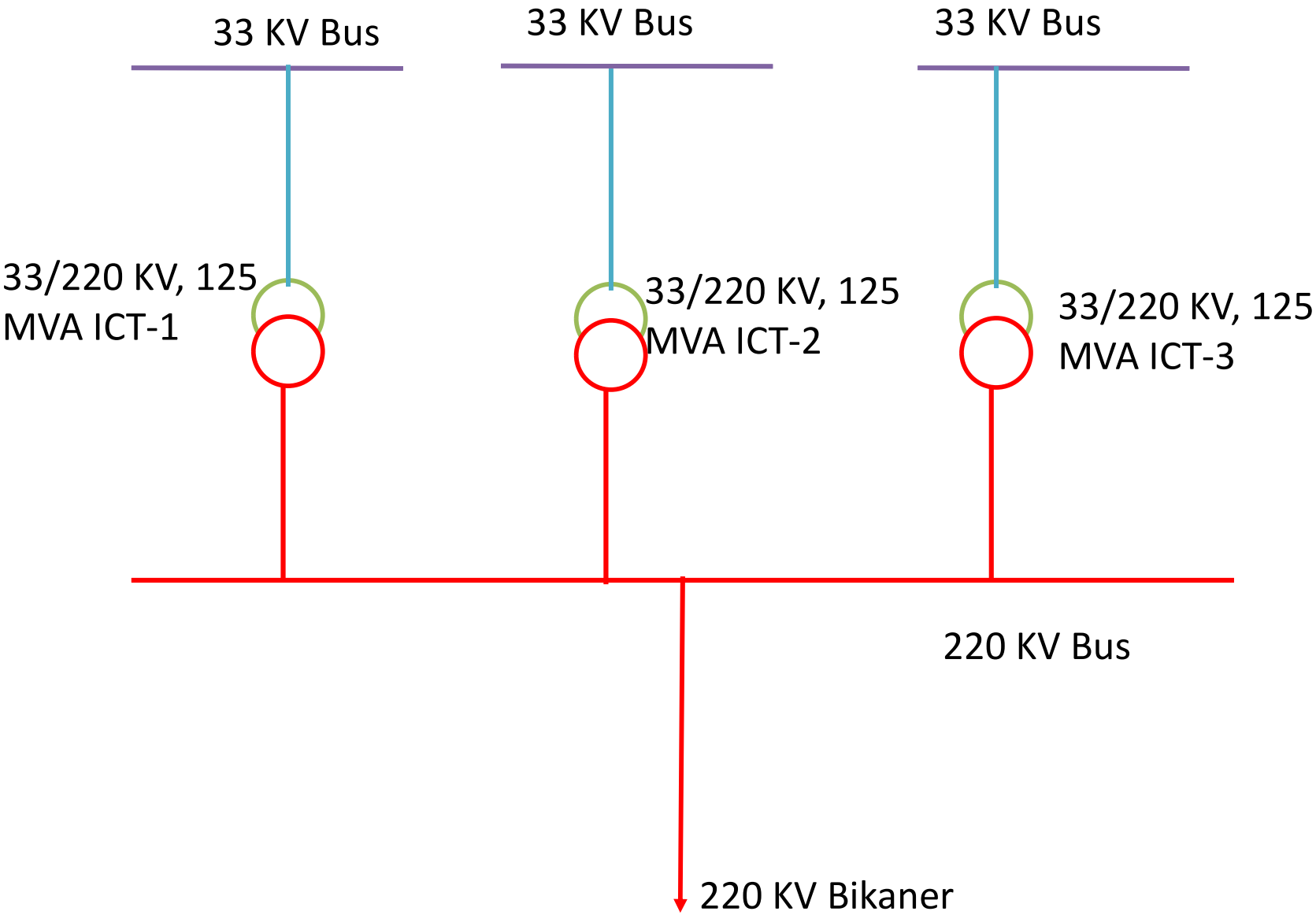



Thank You

# Agenda Point No.6

Tripping of 220 KV Bikaner_2 (PBTSL)-KSP_NHPC_BKN2 (KSP_NHPC_LTD) Ckt at 17:08 Hrs on 22-02-2026

# SLD of Karnishar Solar



# Elements Tripped on 22/02/2026

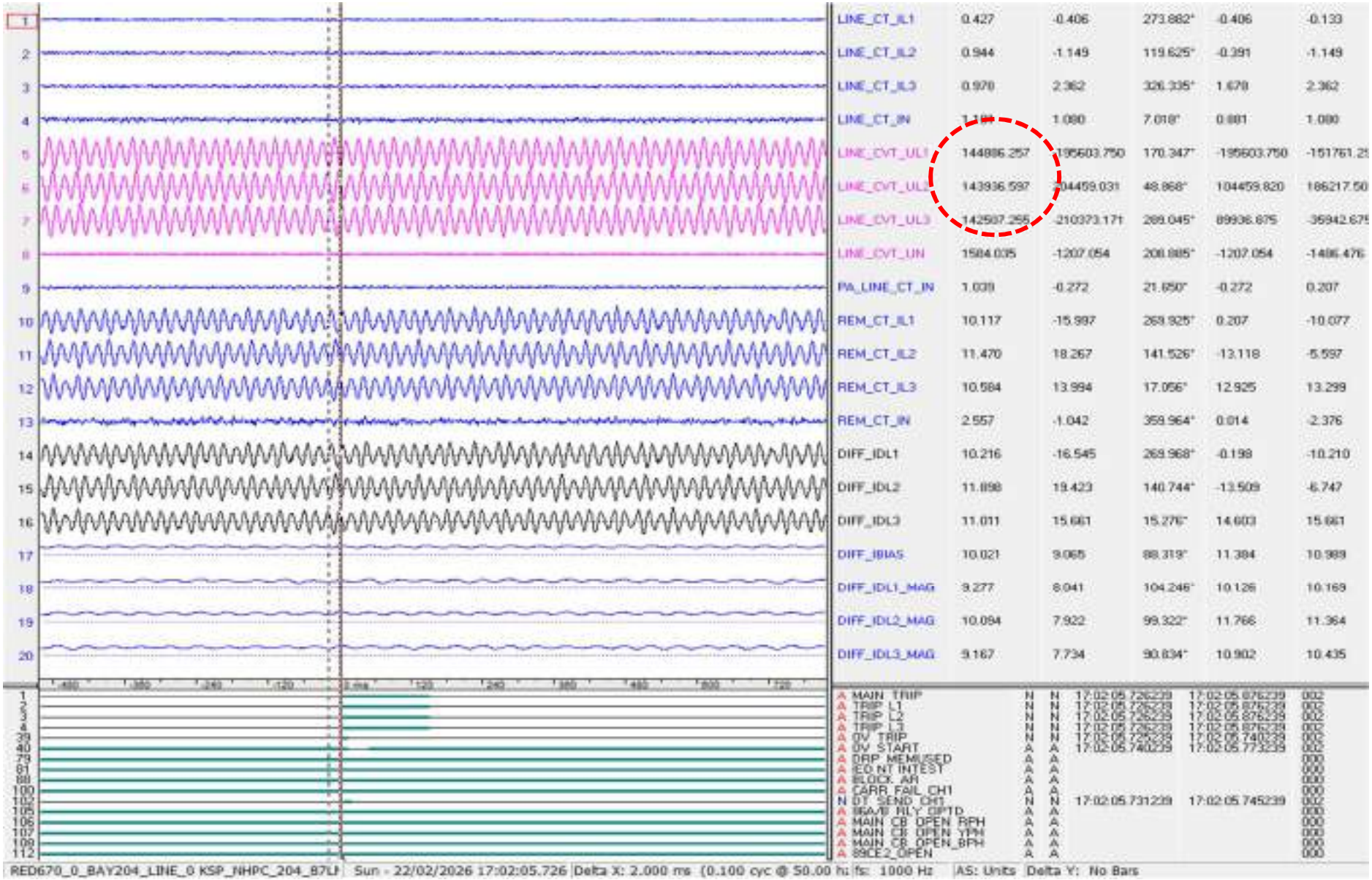
| क्रम सं | यूनिट / लाइन नाम | से | | तक | | कुल आउटेज समय | आउटेज के कारण | ऊर्जा नुकसान (मेगावाट) |
|---|---|---|---|---|---|---|---|---|
| | | तारीख | समय | तारीख | समय | | | |
| 1 | 220 KV Karnishar-Bikaner Li8ne | 22-Feb-26 | 17:02:00 | 22-Feb-26 | 20:25:00 | 3:23 | Over Voltage Stage-1 Protection operated | 55 |

# Detail Analysis

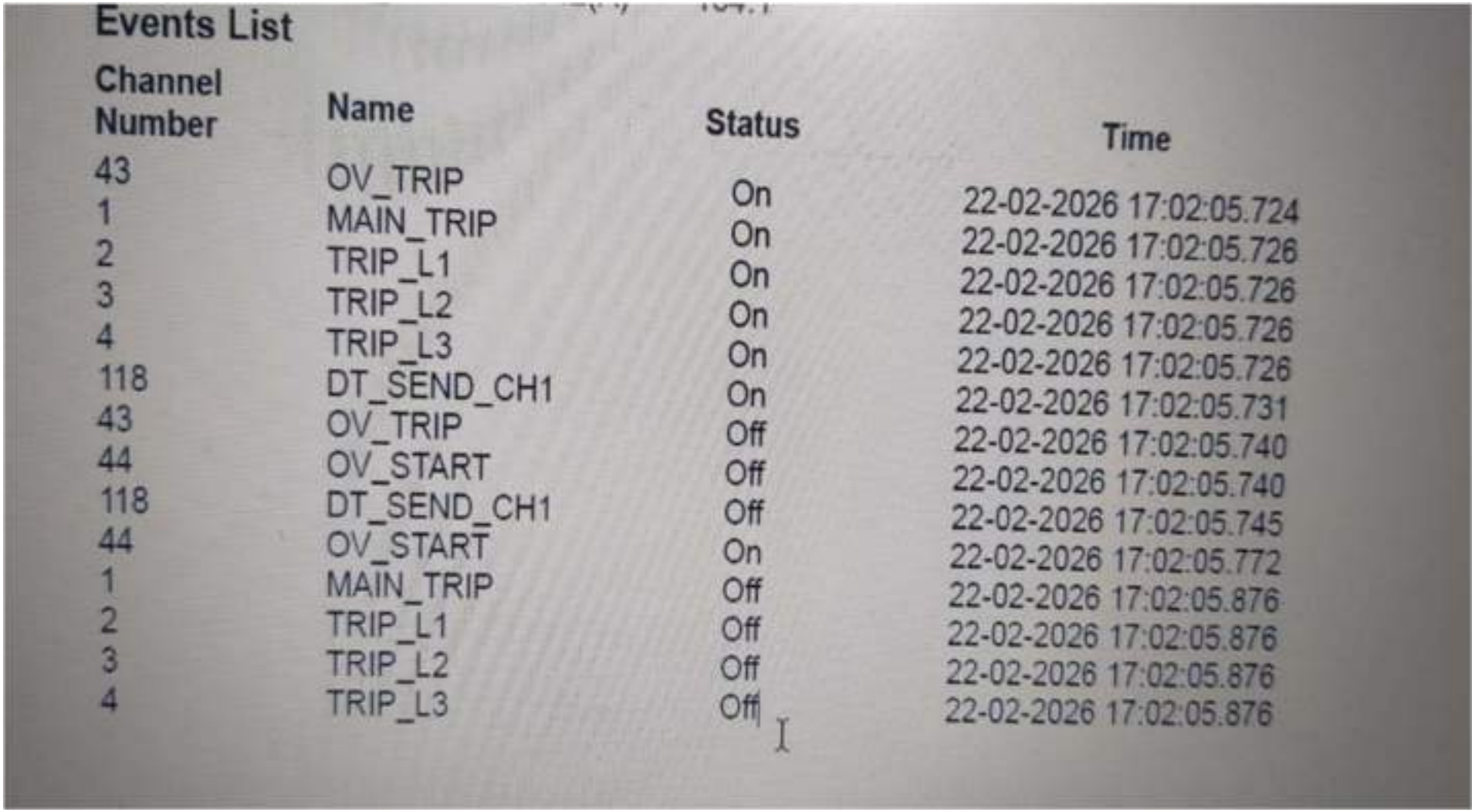
DR of Line Differential/Distance Relay indicates:

- R-Phase: **141.30 kV**
- Y-Phase: **145.18 kV**
- B-Phase: **141.33 kV**
- **Overvoltage Stage-1** initiated at **17:02:05.724 hrs**
- Trip occurred after the set time delay of 5 sec

# DR of 220 KV Line



# Relay EL



**Events List**

| Channel Number | Name | Status | Time |
|---|---|---|---|
| 43 | OV_TRIP | On | 22-02-2026 17:02:05.724 |
| 1 | MAIN_TRIP | On | 22-02-2026 17:02:05.726 |
| 2 | TRIP_L1 | On | 22-02-2026 17:02:05.726 |
| 3 | TRIP_L2 | On | 22-02-2026 17:02:05.726 |
| 4 | TRIP_L3 | On | 22-02-2026 17:02:05.726 |
| 118 | DT_SEND_CH1 | On | 22-02-2026 17:02:05.731 |
| 43 | OV_TRIP | Off | 22-02-2026 17:02:05.740 |
| 44 | OV_START | Off | 22-02-2026 17:02:05.740 |
| 118 | DT_SEND_CH1 | Off | 22-02-2026 17:02:05.745 |
| 44 | OV_START | On | 22-02-2026 17:02:05.772 |
| 1 | MAIN_TRIP | Off | 22-02-2026 17:02:05.876 |
| 2 | TRIP_L1 | Off | 22-02-2026 17:02:05.876 |
| 3 | TRIP_L2 | Off | 22-02-2026 17:02:05.876 |
| 4 | TRIP_L3 | Off | 22-02-2026 17:02:05.876 |

# Over Voltage Relay Setting

**7. Over Voltage Protection (59) / RED670**

| | | | | |
|---|---|---|---|---|
| Base Voltage (Ph-Ph) | $U_{base}$ | = | 220 | kV |
| VT Primary | Up | = | 220 | kV |
| VT Secondary | Us | = | 110 | V |

**Stage 1**

| | | | |
|---|---|---|---|
| U> Pick up | = | 110% | of $U_{base}$ |
| i.e. pick up Voltage (ph-ph) | = | 242 | kV |
| VT secondary Voltage (ph-ph) | = | 121 | V |
| i.e. pick up Voltage (ph-e) | = | 139.72 | kV |
| VT secondary Voltage (ph-e) | = | 69.86 | V |
| Operating time delay | = | 5 | Sec |

| | | | | |
|---|---|---|---|---|
| Reviewed by | Thiruvenkadam N | | Description<br>220kV Line relay setting and calculation<br>Pugal. | |
| Prepared by | Pranaty Nayak | | Order Ref<br>3100132951 | Rev<br>01 |
| Hitachi Energy | Issued by dept. | INPG– GAS | Document. No.<br>1MNS500848-PAAA | |
| | Date: | 14-Oct-23 | | |

# Points of Discussion

- KSP(NHPC) need to check the exact reason of huge MW fluctuation exhibited by their inverters (SINENG make respectively). RCA of the same need to be shared at the earliest.

Matter is already been taken with Inverter OEM and will be update accordingly

| Sr No | Element Name | Outage Date | Outage Time | Reason |
|---|---|---|---|---|
| 1 | 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1 | 03-Jan-26 | 02:15 | Phase to earth fault Y-N |
| | | 03-Jan-26 | 03:20 | Phase to earth fault Y-N |
| | | 04-Jan-26 | 06:04 | Phase to earth fault Y-N |
| | | 06-Jan-26 | 00:15 | Phase to earth fault Y-N |
| | | 18-Jan-26 | 04:58 | Transient fault |
| | | 20-Jan-26 | 06:06 | Transient fault |
| | | 02-Feb-26 | 06:29 | Transient fault |
| | | 11-Feb-26 | 05:04 | Transient fault |
| 2 | 220 KV Sitarganj(PG)-CBGanj(UP) (PG) Ckt-1 | 03-Jan-26 | 13:05 | Phase to Phase Fault R-Y |
| | | 10-Jan-26 | 20:09 | Phase to Phase Fault R-Y |
| | | 21-Jan-26 | 12:42 | Phase to Phase Fault Y-B |
| | | 04-Feb-26 | 18:08 | Phase to Phase Fault Y-B |
| | | 18-Feb-26 | 14:23 | Phase to Phase Fault R-Y |
| | | 18-Feb-26 | 18:06 | Phase to Phase Fault Y-B |
| | | 25-Feb-26 | 16:08 | Phase to Phase Fault Y-B |
| | | 27-Feb-26 | 12:32 | Phase to Phase Fault R-Y |
| 3 | 220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1 | 03-Jan-26 | 05:19 | Phase to earth fault B-N |
| | | 04-Jan-26 | 06:01 | Phase to earth fault Y-N |
| | | 05-Jan-26 | 06:01 | Phase to earth fault B-N |
| | | 09-Jan-26 | 12:05 | Transient fault |
| | | 12-Jan-26 | 07:34 | Transient fault |
| | | 21-Jan-26 | 06:05 | Transient fault |
| | | 23-Feb-26 | 02:30 | Transient fault |
| 4 | 400 KV Anpara_B(UPUN)-Sarnath(UP) (UP) Ckt-2 | 10-Jan-26 | 19:31 | Phase to Ground Fault R-N |
| | | 13-Jan-26 | 11:46 | Phase to Phase Fault R-Y |
| | | 24-Jan-26 | 13:30 | PLCC maloperation |
| | | 03-Feb-26 | 14:27 | Phase to Phase Fault Y-B |
| | | 04-Feb-26 | 16:12 | Phase to Phase Fault R-Y |
| | | 05-Feb-26 | 12:21 | Phase to Phase Fault R-Y |
| 5 | 400 KV Uri_1(NH)-Amargarh(NRSS XXIX) (NRSS XXIX) Ckt-1 | 21-Jan-26 | 12:19 | Phase to Ground Fault Y-N |
| | | 22-Jan-26 | 23:02 | Over Voltage |
| | | 23-Jan-26 | 06:53 | Phase to Ground Fault R-N |
| | | 23-Jan-26 | 12:43 | Phase to Ground Fault R-N |
| | | 27-Feb-26 | 17:27 | Phase to Ground Fault R-N |
| | | 27-Feb-26 | 17:27 | Phase to Ground Fault R-N |
| 6 | TEHRI HPS - UNIT 7 | 06-Jan-26 | 22:21 | VSI MC side communication failure between PIBE |
| | | 12-Jan-26 | 22:30 | Generator Fault |
| | | 29-Jan-26 | 23:30 | Generator Fault |
| | | 02-Feb-26 | 09:30 | Partial Outage |
| | | 09-Feb-26 | 19:44 | Generator Fault |
| | | 15-Feb-26 | 00:30 | Partial Outage |
| 7 | 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 | 05-Jan-26 | 03:45 | Phase to earth fault R-N |
| | | 31-Jan-26 | 20:45 | Transient fault |
| | | 05-Feb-26 | 18:01 | Transient fault |
| | | 22-Feb-26 | 20:16 | Transient fault |
| | | 23-Feb-26 | 00:11 | Transient fault |
| 8 | 250 MW (PSP) TEHRI HPS - UNIT 6 | 11-Jan-26 | 11:34 | Generator Fault |
| | | 08-Jan-26 | 01:08 | Generator Fault |
| | | 08-Jan-26 | 02:43 | Generator Fault |
| | | 16-Feb-26 | 11:33 | Partial Outage |
| | | 25-Feb-26 | 21:03 | Partial Outage |
| 9 | 400 KV Shree Cement(SCL)-Merta(RS) (PG) Ckt-1 | 04-Jan-26 | 01:17 | Phase to earth fault R-N |
| | | 05-Jan-26 | 06:40 | Phase to Phase Fault Y-B |
| | | 07-Jan-26 | 03:04 | Phase to Phase Fault R-Y |
| | | 04-Feb-26 | 14:15 | Transient fault |
| | | 06-Feb-26 | 11:16 | Transient fault |
| 10 | 400 KV Suratgarh(RVUN)-Bikaner(RS) (RS) Ckt-1 | 05-Jan-26 | 04:52 | Phase to earth fault Y-N |
| | | 12-Jan-26 | 23:15 | Transient fault |
| | | 14-Jan-26 | 22:45 | Phase to Ground Fault R-N |
| | | 22-Jan-26 | 04:13 | Transient fault |

| 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) | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Date | Time | | | | | | | | |
| 1 | 220 KV Ranpur(RS)-Bhanpura(MP) (RS) Ckt-1 | RRVPNL | 03-Jan-26 | 04:19 | Nil | Phase to earth fault R-N , Dist. 35.0km from Ranpur(RS) & Zone-1, Dist. 5.8km, Fault current 2.42kA from Bhanpura(MP). | NA | NA | Yes | No | DR/EL not received | As per PMU, no fault was observed in the system. |
| 2 | 220 KV Modak(RS)-Bhanpura(MP) (MPSEB) Ckt-1 | MPSEB | 03-Jan-26 | 04:38 | Nil | Line tripped due to 220kV Bus-Bar protection operated at Bhanpura(MP). No tripping at Modak end. | NA | 80 ms | Yes | NA | - | As per PMU, two consecutive Y-N faults followed by R-N fault were observed with fault clearing time of 80 ms each. |
| 3 | 800 KV HVDC Kurukshetra(PG) Pole-4 | POWERGRID | 03-Jan-26 | 08:23 | Nil | Pole-4 got tripped on DMR over current protection. | NA | NA | No | No | FIR/DR/EL not received | As per PMU, no fault was observed in the system; however, fluctuation in voltage was present. |
| 4 | 800 KV HVDC Kurukshetra(PG) Pole-2 | POWERGRID | 04-Jan-26 | 09:33 | Nil | Tripped due to CAT A1 alarm Pole DC Differential generated at Champa end. | NA | NA | No | No | FIR/DR/EL not received | As per PMU, no fault was observed in the system; however, fluctuation in voltage was present. |
| 5 | 70 KV Vindhyachal(PG) Pole-1 | POWERGRID | 09-Jan-26 | 04:21 | Nil | HVDC Block#1 tripped due to loss of 400KV Voltage of west bus#1B due to operation of LBB of 400KV Bus#1 at NTPC end along with tripping of Unit#3 & 5(210 MW each), 400 KV Vindhyachal(PG)-Vindhyachal(NT) (PG) Ckt-1 (AWL#1). | NA | NA | Yes | Yes | | As per PMU, no fault was observed in the system; however, fluctuation in voltage was present. As per EL, HVDC Block#1 tripped due to loss of 400KV Voltage of west bus#1B due to operation of LBB of 400KV Bus#1 at NTPC end along with tripping of Unit#3 & 5(210 MW each), 400 KV Vindhyachal(PG)-Vindhyachal(NT) (PG) Ckt-1 (AWL#1). |
| 6 | 70 KV Vindhyachal(PG) Pole-2 | POWERGRID | 09-Jan-26 | 04:21 | Nil | HVDC Block#2 tripped due Voltage of 6.6KV feeder B2LA & B2LB feeding to Block#2 become zero for 3 Seconds due to triping of Unit#3 & 5 feeding auxiliary power to HVDC Block#1 & 2 and resulted in tripping of HVDC Block#2 CWC System Main. | NA | NA | Yes | Yes | | As per PMU, no fault was observed in the system; however, fluctuation in voltage was present. As per EL, HVDC Block#2 tripped due Voltage of 6.6KV feeder B2LA & B2LB feeding to Block#2 become zero for 3 Seconds due to triping of Unit#3 & 5 feeding auxiliary power to HVDC Block#1 & 2 and resulted in tripping of HVDC Block#2 CWC System Main. |
| 7 | 400 KV Vindhyachal(PG)-Vindhyachal(NT) (PG) Ckt-1 | POWERGRID | 09-Jan-26 | 04:21 | Nil | HVDC Block#1 tripped due to loss of 400KV Voltage of west bus#1B due to operation of LBB of 400KV Bus#1 at NTPC end along with tripping of Unit#3 & 5(210 MW each), 400 KV Vindhyachal(PG)-Vindhyachal(NT) (PG) Ckt-1 (AWL#1). | NA | NA | Yes | Yes | | As per PMU, no fault was observed in the system; however, fluctuation in voltage was present. As per EL, HVDC Block#1 tripped due to loss of 400KV Voltage of west bus#1B due to operation of LBB of 400KV Bus#1 at NTPC end along with tripping of Unit#3 & 5(210 MW each), 400 KV Vindhyachal(PG)-Vindhyachal(NT) (PG) Ckt-1 (AWL#1). |
| 8 | 400 KV Gorakhpur(PG)-Muzaffarpur(PG) (POWERLINK) Ckt-1 | POWERLINK | 15-Jan-26 | 13:51 | Nil | Phase to earth fault B-N. 400 KV Gorakhpur - Muzaffarpur tripped only from Gorakhpur end . M1 details-86.1 KM Ib-6.7 KA | NA | 80 ms | Yes | Yes | A/R non-operation at Gorakhpur end | As per PMU & DR, B-N fault (zone-1 operated at Gorakhpur) was observed with fault clearing time of 80 ms and fault current of 7.458 kA from Gorakhpur end; no A/R observed at Gorakhpur end. |
| 9 | 800 KV HVDC Kurukshetra(PG)-Champa(PG) (PG) Ckt-4 | POWERGRID | 18-Jan-26 | 07:43 | Nil | Tripped due to Pole DC differential protection | NA | NA | No | No | FIR/DR/EL not received | As per PMU, no fault was observed in the system; however fluctuation in voltage was present. |
| 10 | 800 KV HVDC Kurukshetra(PG) Pole-2 | POWERGRID | 23-Jan-26 | 10:03 | Nil | Pole -2 tripped due to latched in Converter Differential & Pole DC Differential protection | NA | NA | No | No | FIR/DR/EL not received | As per PMU, no fault was observed in the system; however fluctuation in voltage was present. |
| 11 | 800 KV HVDC Kurukshetra(PG) Pole-4 | POWERGRID | 23-Jan-26 | 10:03 | | Blocked from Champa end | NA | NA | No | No | FIR/DR/EL not received | As per PMU, no fault was observed in the system; however fluctuation in voltage was present. |
| 12 | 800 KV HVDC Kurukshetra(PG) Pole-3 | POWERGRID | 23-Jan-26 | 10:57 | | Pole 3 tripped due to latched in Pole DC Differential & HV Bus differential protection | NA | 80 ms | No | No | FIR/DR/EL not received | As per PMU, R-N fault (with no A/R) was observed with fault clearing time of 80 ms. |
| 13 | 800 KV HVDC Kurukshetra(PG) Pole-3 | POWERGRID | 24-Jan-26 | 16:59 | | Relay maloperation. Blocked due to filter unbalanced protection operated | NA | NA | No | No | FIR/DR/EL not received | As per PMU, no fault was observed in the system; however fluctuation in voltage was present. |
| 14 | 800 KV HVDC Kurukshetra(PG) Pole-4 | POWERGRID | 24-Jan-26 | 16:59 | | Relay maloperation. Blocked due to filter unbalanced protection operated | NA | NA | No | No | FIR/DR/EL not received | As per PMU, no fault was observed in the system; however fluctuation in voltage was present. |
| 15 | 220 KV Auraiya(NT)-Malanpur(MP) (PG) Ckt-1 | POWERGRID | 27-Jan-26 | 21:39 | Nil | Phase to Ground Fault R-N. Auraiya End: Z-1, Dist.-91.62 km, Fault current-1.57 kA | NA | 80 ms | No | No | FIR/DR/EL not received | As per PMU, R-N fault (with no A/R) was observed with fault clearing time of 80 ms. |
| 16 | 500 KV HVDC Mahindergarh(APL)-Adani Mundra(APL) (ATIL) Ckt-1 | APL | 23-Feb-26 | 15:17 | Nil | VBE1 and VBE2 Communication fault at Mundra End. | NA | NA | Yes | Yes | | As per PMU, no fault was observed in the system. As reported, on investigation leakage was found in valve reactor at B1R |
| 17 | 800 KV HVDC Kurukshetra(PG)-Champa(PG) (PG) Ckt-2 | POWERGRID | 28-Feb-26 | 22:26 | Nil | Persistent Lower Bridge Commutation Failure | NA | NA | Yes | Yes | | As per PMU, no fault was observed in the system. As reported, Pole-2 detects Commutation failure (CF) due to control card failure in M1 of active Lane. DC Undercurrent latched in L1M1, L1M2, L2M1 & L2M2. This generate CAT A2 alarm and eventually blocked pole-4. |
| 18 | 800 KV HVDC Kurukshetra(PG)-Champa(PG) (PG) Ckt-4 | POWERGRID | | | Nil | DC undercurrent protection operated at Kurukshetra end | NA | NA | Yes | Yes | | |

| | | |
|---|---|---|
| ***# 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 |

| Status of Bus bar protection | | | | |
|---|---|---|---|---|
| **Constituent Name** | **Name of Station** | **Status of Bus bar protection(as reported)** | **Expected date of implementation (as reported in 51st PSC meeting)** | **Remarks** |
| **Uttarakhand** | 220 KV Substation, Ramnagar, Roorkee | Blocked due to more elements added at 220 KV Voltage level. | | |
| | 220 KV Sub Station, SIDCUL, Haridwar | | | |
| | 220kV Jhajhra, Dehradun | Not commissioned yet | | |
| | 400KV Kashipur (220kV side) | Available but Non operational | Revised date not received | Work is under process. |
| | 220kv Haldwani | Not Available | 31 December 2024 | Budget for FY 2023-24. |
| | 220kv Pantnagar | Available but Non operational | Revised date not received | Work is under process. |
| | 220kV Rishikesh | Available but Non operational | 31 December 2024 | It has been Taken in Budget for FY 2023-24. |
| | 220kV Chamba | Not commissioned yet | 31 December 2024 | It has been Taken in Budget for FY 2023-24. |
| **Haryana** | **220kV S/Stn Badshahpur** | **Installed and Operational** | | **Commissioned on 20.02.2023** |
| | 220kV S/Stn Sec-52A, Gurgaon | Not Installed | 31.12.2024 | Panel has been installed. Commissioning pending due to non- availability of shutdown. |
| | **220kV S/Stn Sec-1 Manesar** | **Installed and Operational** | | **Commissioned on 26.02.2023** |
| | 220kV S/Stn Panchgaon | **Installed and Operational** | | **Commissioned on 05.01.2024** |
| | 220kV S/Stn Rewari | Not Installed | 31.03.2025 | Material is not allocated so far. Installation will be carried out after allocation of material. |
| | 220kV S/Stn Narnaul | Not Installed | 31.12.2024 | Panel has been installed. Work in progress on turnkey basis. Isolators of 220 kV TFs have to be replaced thereafter the work shall be completed. |
| | **220kV S/Stn Mohinder Garh** | **Installed and Operational** | | **Commissioned on 28.10.2023** |
| | 220 KV S/Stn Palwal | Not Installed | 31.12.2024 | Panel has been installed. Commissioning is pending. |
| | **220 KV S/Stn Rangala Rajpur** | **Installed and Operational** | | **Commissioned on 22.06.2023** |
| | 220 kV Unispur | Installed but Non-Operational | 31.10.2024 | 5 Nos. Peripheral relay of bus bar protection are defective. The same shall be made operational by 31.03.2024. |
| | 220 kV Nissing | Installed but Non-Operational | 31.10.2024 | Existing Bus bar panel is of old and obsolete design. New Bus Bar protection scheme panel has been drawn from the store & Commissioning& installation are pending. The same shall be made operational by 31.03.2024. |
| | 220KV Pehowa | Installed but Non-Operational | 31.03.2025 | Old & Obsolete, Allocation of New BBP and allied material awaited. |
| | 220kV Kaithal | Not Installed | 31.03.2025 | Control Cable for Bus-Bar Protection Scheme has been drawn from DD Stores, 220kV Bus-Bar Protection panel is awaited. |
| | 220 KV Sonepat | Not Installed | 31.10.2024 | 220 KV Bus Bar Protection Scheme will be installed / commissioned within 45 days after the availability of the necessary material i.e 220kV Duplex, Directional, Bus Bar Cum Bus Coupler C and R Panel, Auxiliary Voltage 220V DC (without SAS) required for commissioning. It has been gathered from the P&M wing that the material is likely to be available in DD stores by April 2024. |
| | 220 KV REGC, Sonepat | Not Installed | 30.09.2024 | The 220KV C&R Panel for Bus Bar Protection has been drawn from DD Store on dated 20.04.2023 and the work for installation of Bus Bar protection scheme is under progress. Erection work & wiring work completed with all respect. Testing of relays is pending at the end of Firm M/s Shifang and Bus Bar protection scheme will be commissioned dt 15.03.2024. |
| | **220KV Jind** | **Installed and Operational** | | **Commissioned on dated 27.06.23.** |
| | **220 KV Fatehabad** | **Installed and Operational** | | **Commissioned on dated 22.07.23** |
| | 220 KV Hukmawali | Installed but Non-Operational | 30.10.2023 | Bus-coupler CB defective & new panel withdrawn from DD store. Errection work under progress & the same will be completed 31.08.23. |
| | 220 KV Bhuna | Installed but Non-Operational | 31.12.2024 | The Siemens make Bus Bar protection Scheme installed at the time of commissioning of the substation went out of order. The higher authority decided to replace with new one. M/s Schneider make new Scheme was then allocated and drawn from DDS Ballabgarh and installed at site, but while testing of same, three out of four relays of the Bus Bar Panel found faulty for which matter is under pursuance with firm. |
| | 220 KV Sirsa | Not Installed | | Not required being single source of supply |
| | 220 KV Rania | Not Installed | 31.03.2025 | Estimate for Bus Bar Protection is sanctioned but C&R panel is not available in store. |
| | 220 KV Bhiwani | Not Installed | 31.03.2025 | Bus Bar Protection scheme has been proposed in integrated planning meeting and requirement of material have been generated in PR. |
| | 220kV Madanpur | Not Installed | 30.11.2024 | Material is not allocated so far. Installation will be carried out after allocation of material. |
| | 220kV Tepla | Installed but Non-Operational | 30.11.2024 | material allocation is awaited. |
| | **220kV Rajokheri** | **Installed and Operational** | | **Made operational on dated 30.05.2024.** |
| **BBMB** | **220kV Charkhi Dadri** | **Installed and Operational** | | **commissioned on 31.01.2023** |
| | **220kV Samaypur** | **Installed and Operational** | | **made operational on 23.12.2023** |
| | 220kV Dhulkote | Not Installed | | Not feasible |
| | 220kV Jagadhari | Not Installed | | |
| | 220kV Barnala | Not Installed | | |
| | 220kV Parichha | Installed but Non-Operational | Revised date not received | |
| | **220kV Partapur** | **Installed and Operational** | | **made operational on 06.01.2023** |
| | 220kV Bareilly (400/220kV Bareilly) | Installed but Non-Operational | Revised date not received | Old panel capacity exhausted. New relay panel supplied & need to be |
| | **220kV Pilibhit** | **Installed and Operational** | | **commissioned on 28.10.2023** |
| | **220kV Amariya** | **Installed and Operational** | | **commissioned on 15th July 2023** |
| | **220kV Sultanpur** | **Installed and Operational** | | **commissioned on 02.03.2024** |

| | | | | |
|---|---|---|---|---|
| | 220kV New Tanda | Installed and Operational | | commissioned on 20.04.2024 |
| | 220kV Shahjhanpur | Installed but Non-Operational | Revised date not received | Cable partially received, work will start soon |
| | 220kV Ajijpur | Installed but Non-Operational | | 1. HV side 220kV CT of 160MVA T/F-I & II has bot proper ratio for bus bar |
| | 220kV Nirpura | Installed but Non-Operational | Revised date not received | |
| | 220kV IITGNL | Installed and Operational | | made operational on 19.02.2023 |
| | 220kV Rampur | Installed but Non-Operational | Revised date not received | |
| | 220kV Barahua | Installed and Operational | | made operational on 28.01.2024 |
| | 220kV Bansi | Installed and Operational | | commissioned on 10th August 2023 |
| | 220 KV S/S Azamgarh-2(Bargahan) | Installed and Operational | | made operational on 28.01.2024 |
| | 220kV Chandausi | Installed and Operational | | made operational on 13.10.2023 |
| | 220kV Rasara | Not Installed | | |
| | 220kV Rampur | Installed but Non-Operational | 31.10.2024 | Central unit of bus bar protection faulty. Expected to revive by November-24. |
| | 220kV Sec. - 148, Noida | Installed and Operational | | made operational on 27.01.2024 |
| | 220kV sec. 38A, Botanicla Garden | Not Installed | 31.11.2024 | Bus Bar protection panel awaited |
| | 220kV sec.-62, Noida | Installed and Operational | | made operational on 12.10.2023 |
| | 220kV Dadri | Installed and Operational | | made operational on 23.04.2024 |
| | 400kV S/S Agra | Installed and Operational | | commissioned on 13th September 2023 |
| | 220kV S/S Bah | Not Installed | | Requirement sent to design circle, awaited fro allotment. |
| UP | 220kV Sirsaganj | Not Installed | | Requirement sent to design circle, awaited fro allotment. |
| | 220kV S/S Farrukhabad (New) | Installed and Operational | | commissioned on 25th August 2023 |
| | 220kV Boner | Installed and Operational | | commissioned on 19.03.2024 |
| | 220kV Kasganj (Soron) | Installed and Operational | | |
| | 220kV Khair | Installed but Non-Operational | Revised date not received | New 160MVA transformer-3 is not configured with bus bar |
| | 220kV Kidwainagar | Installed but Non-Operational | | |
| | 220kV Chhata | Installed but Non-Operational | Revised date not received | New 160MVA transformer-3 is not configured with bus bar |
| | 220kV Harduaganj | Installed but Non-Operational | Revised date not received | |
| | 220kV Lalitpur | Installed and Operational | | commissioned on 09.02.2024 |
| | 220kV Mahoba | Installed but Non-Operational | | Relay is faulty since 29.01.2024 |
| | 220kV Sarnath | Installed but Non-Operational | Revised date not received | |
| | 220kV Sirathu, Kaushambi | Not Installed | Revised date not received | |
| | 220kV substation Fatehpur | Installed and Operational | | Operational |
| | 220kV S/S Bhelupur | Not Installed | | Radial feeder |
| | 220kV Hardoi Road, Lucknow | Installed and Operational | | commissioned on 08th October 2023 |
| | 220kV CG City, Lucknow | Installed but Non-Operational | 31.05.2024 | Agency M/s. Electro Power is decided. |
| | 220kV Barabanki | Installed but Non-Operational | 31.05.2024 | Agency M/s. Electro Power is decided. 02 no. Peripheral unit found defective. |
| | 220kV Kursi Road, Lucknow | Installed but Non-Operational | 31.05.2024 | Retrofitting work of auxilliary relay completed. Dut to non-functioning of new |
| | 220kV BKT, Lucknow | Installed but Non-Operational | 31.05.2024 | LOI issued on Dt. 28.02.24 |
| | 220kV Gomti Nagar, Lucknow | Installed but Non-Operational | 31.05.2024 | Agency M/s. Electro Power is decided. |
| | 400 KV Substation Sarnath | Installed and Operational | | Now operational |
| | 220kV S/S Raja Talab | Installed but Non-Operational | Revised date not received | Relay Defective, concern firm service engineer is awaited |
| | 20kV S/S Harahua | Installed but Non-Operational | Revised date not received | NOT COMMISSIONED |
| | 220kv Rewa Road | Installed but Non-Operational | Revised date not received | Due to Isolator & CB status not Proper. Informed to Transmission wing but |
| | 220kV S/S Sahupuri | Installed but Non-Operational | Revised date not received | Defective, Requirement for New panel has been raised, not received from |
| | 220kv Robertganj | partillay operational | Revised date not received | Line and bus coupler and T/F-I under cover but T/F-II not cover |
| | 220kV S/S Mirzapur | Not Installed | Revised date not received | Bubar Protection Panel has been Recived, construction of Transfer bus is on progress |
| | 220kV Chamba | Installed and Operational | | commissioned in Jan-2024 |
| | 220kV MattaSidh | Installed but Non-Operational | | |
| HP | 220kV kangoo | Installed but Non-Operational | 31.12.2024 | Work in under progress, issues are being taken up with ABB |
| | 220kV Nangal | Installed but Non-Operational | | |
| | 220kV Katha Baddi | Installed but Non-Operational | | |
| | 220 KV S/S Kotlisurat Malhi | Not Installed | | |
| | 220 KV S/S Maur | Not Installed | | |
| | 220 KV S/S Science city | Not Installed | | |
| | 220 KV S/S Banga | Not Installed | Dec-24 | Commissioning is in process. Material has arrived, commissioning shall be done as per shutdown availability. |
| Punjab | 220 KV S/S Hoshiarpur | Not Installed | | |
| | 220 KV S/S Goraya | Not Installed | | |
| | 220 KV S/S Bhawanigarh | Not Installed | | |
| | 220 KV S/S Badhni kalan | Installed and Operational | | Commissioned |
| | 220 KV S/S Bhari | Installed and Operational | | Commissioned |
| | 765 KV GSS Phagi | Installed but non operational | | CU of Alstom make Bus-Bar is defective. Purchas case will be taken up |
| | 220 kV GSS Vatika | Not installed | | As M/s ER did not finished the project, so it was awarded to M/s Kaycee infra on risk-cost basis , however the bus bar scheme has not been commissioned yet. Matter has been taken up with firm |
| | 220 kV GSS Niwana | Not installed | Sep-24 | Commissioning work started, to be commissioned shortly |
| | 220 kV GSS Alwar | Not installed | | Commissioning work started, to be commissioned shortly |
| | 220 kV GSS Bansur | Not installed | | Commissioning work started, to be commissioned shortly |
| | 220 kV GSS Behror | Not installed | | Commissioning work started, to be commissioned shortly |
| | 220KV GSS Hindaun | Not installed | | Commissioning work started, to be commissioned shortly |
| | 220KV GSS Dooni | Installed and Operational | | commissioned |
| | 220KV GSS Bhawanimandi | Installed and Operational | | commissioned |
| | 220 KV GSS Sakatpura, Kota | Installed and Operational | | commissioned on 09.07.2024 |
| | 400 KV GSS Ajmer (220 KV BUS) | Installed but non operational | Revised date not received | One number of PU is defective. Isolator status is OK. |
| | 220 kV GSS, Beawar | Installed and Operational | | commissioned |
| | 220 KV GSS Jethana | Installed and Operational | | commissioned |
| | 220 KV GSS Kuchaman City | Installed but non operational | Revised date not received | CU is defective. Purchase has been taken up with the firm |
| | 220 KV GSS Bherunda | Installed and Operational | | commissioned |
| | 220 KV GSS Kuchera | Installed and Operational | | commissioned |
| | 220 KV GSS Reengus | Installed and Operational | | commissioned |
| | 220 KV GSS Laxmangarh | Installed and Operational | | Commissioned |
| | 220KV GSS Khetri Nagar | Installed and Operational | | commissioned |
| Rajasthan | 400 KV GSS, Babai | Installed and Operational | | commissioned |
| | 220 KV GSS Chittorgarh | Installed and Operational | | commissioned |
| | 400 KV GSS BHILWARA(220 KV BUS) | Installed and Operational | | commissioned |
| | 220 KV GSS MANDALGARH | Installed and Operational | | commissioned |
| | 220KV GSS Debari | Installed and Operational | | commissioned |
| | 220KV GSS Amberi | Installed and Operational | | commissioned |
| | 220KV GSS Madri | Installed and Operational | | commissioned |
| | 400 KV GSS Surpura (Jodhpur) 220 KV | Installed but non operational | 30.09.2024 | Commissioning work started, to be commissioned shortly |

| | | | | |
|---|---|---|---|---|
| 400 KV GSS Akal (Jaisalmer) 220 KV | Installed but non operational | Revised date not received | One PU defective. Case has been taken up with firm |
| 220 KV GSS Jodhpur | Installed but non operational | Revised date not received | A&FS and TS issued. Case has been send for approval |
| 220 KV GSS NPH Jodhpur | Not installed | Revised date not received | Case file moved |
| **220 KV GSS Badisid** | **Installed and Operational** | | **commissioned** |
| 220 KV GSS Bhadla | Not installed | 25.09.2024 | Commissioning work started, to be commissioned shortly |
| **220 KV GSS Pali** | **Installed and Operational** | | **commissioned** |
| 220 KV GSS Ramgarh | Not installed | 05.09.2024 | Commissioning work started, to be commissioned shortly |
| **220 KV GSS Balotra** | **Installed and Operational** | | **commissioned** |
| **220 KV GSS Sayla** | **Installed and Operational** | | **commissioned** |
| 400 KV GSS Bikaner 400 KV BUS | Installed but non operational | Revised date not received | to be done with transformer work |
| **220 KV GSS Ratangarh** | **Installed and Operational** | | **commissioned** |
| **220 KV GSS Sujangarh** | **Installed and Operational** | | **commissioned** |
| **220 KV GSS Halasar** | **Installed and Operational** | | **commissioned** |
| 220 KV GSS Tehandesar | Not installed | 15.09.2024 | Commissioning work started, to be commissioned shortly |
| **220 KV GSS Rawatsar** | **Installed and Operational** | | **commissioned** |

Annexure B.V (A)

| Status of Bus bar protection | | | | |
|---|---|---|---|---|
| **Constituent Name** | **Name of Station** | **Status of Bus bar protection(as reported)** | **Expected date of implementation (as reported in 51st PSC meeting)** | **Remarks** |
| **Uttarakhand** | 220 KV Substation, Ramnagar, Roorkee | Blocked due to more elements added at 220 KV Voltage level. | | |
| | 220 KV Sub Station, SIDCUL, Haridwar | | | |
| | 220kV Jhajhra, Dehradun | Not commissioned yet | | |
| | 400KV Kashipur (220kV side) | Available but Non operational | Revised date not received | Work is under process. |
| | 220kv Haldwani | Not Available | 31 December 2024 | It has been Taken in Budget for FY 2023-24. |
| | 220kv Pantnagar | Available but Non operational | Revised date not received | Work is under process. |
| | 220kV Rishikesh | Available but Non operational | 31 December 2024 | It has been Taken in Budget for FY 2023-24. |
| | 220kV Chamba | Not commissioned yet | 31 December 2024 | It has been Taken in Budget for FY 2023-24. |
| **Haryana** | 220kV Badshahpur | Commissioned | - | Commissioned on 20.02.2023 |
| | 220kV Sec-52A Gurugram | Not Commissioned | 31.05.2026 | Panel has been installed. Commissioning pending due to non- availability of shutdown and some pending wiring work. |
| | 220kV Sec-1 IMT Manesar | Commissioned | - | Commissioned on 26.02.2023 |
| | 220kV Panchgaon | Commissioned | - | Commissioned on 05.01.2024 |
| | 220kV Rewari | Not Commissioned | 31.10.2026 | Material received at site. The work for installation, erection & wiring of 220KV C&R Panel for Bus Bar Protection is to be carried out. |
| | **220kV Narnaul** | **Commissioned** | - | **Commissioned on 25.02.2025** |
| | 220kV Mahendargarh | Commissioned | - | Commissioned on 28.08.2023 |
| | 220kV Palwal | Not Commissioned | 31.10.2026 | Panel has been installed. Commissioning is pending for want of control cables. |
| | 220kV Rangala Rajpur | Commissioned | - | Commissioned on dated 22.06.2023 |
| | 220KV Unispur Make: Siemens | Installed but not operational | 30.09.2026 | 2 Nos. Peripheral relay of bus bar protection are defective. The same shall be made operational by 30.09.2026. |
| | **220kV Nissing Make: ER** | **Installed and operational** | - | **220kV Busbar Protection scheme was successfully commissioned on 02.06.2025 at 220kV S/stn. Nissing.** |
| | 220KV Pehowa Make: ER | Not operational | 31.12.2026 | Old & Obsolete. Allocation of new BBP and allied material awaited. |
| | **220KV Kaithal** | **Installed and operational** | - | **220kV Busbar Protection scheme was successfully commissioned on 15.01.2025 at 220kV S/stn. Kaithal** |
| | **220 KV Sonipat** | **Installed and operational** | - | **220kV Busbar Protection scheme was successfully commissioned on 23.05.2025 at 220kV S/stn. Sonipat.** |
| | **220KV RGEC Sonipat** | **Installed and operational** | - | **220kV Busbar Protection scheme was successfully commissioned on 07.04.2025 at 220kV S/stn. RGEC Sonipat** |
| | 220kV Jind | Commissioned | - | Commissioned on dated 27.06.2023 |
| | 220kV Fatehabad | Commissioned | - | Commissioned on dated 22.07.2023 |
| | 220kV Hukumawali | Installed but Non-Operational | 30.04.2026 | Bus bar protection relay is non-operational for which matter is being taken up with the firm. |
| | 220kV Bhuna | Installed but not operational | 30.04.2026 | Busbar protection is out of service due to pending integration work of 160 MVA Transformer commissioned recently, wiring work is completed and integration work will be completed till 15.04.2026 The matter has been taken up with firm. |
| | 220kV Sirsa | Not Commissioned | - | Not required being radial. |
| | **220kV Rania** | **Commissioned** | **27.02.2025** | **Commissioned on dated 27.02.2025** |
| | 220kV Bhiwani | Not Commissioned | 31.05.2026 | Bus Bar Panel has been drawn from store of the Nigam. 220kV Bus Coupler bay is not available at the S/Stn. for which work order to be issued to the firm and the work will be executed post completion of the bus coupler bay on priority. |
| | **220KV Tepla Make: Siemens** | **Commissioned** | -- | **Made operational on dated 23.06.2025** |
| | 220KV Rajokheri Make: ZIV | Commissioned | -- | Made operational on dated 30.05.2024. |
| **BBMB** | **220kV Charkhi Dadri** | **Installed and Operational** | | **commissioned on 31.01.2023** |
| | **220kV Samaypur** | **Installed and Operational** | | **made operational on 23.12.2023** |
| | 220kV Dhulkote | Not Installed | | Not feasible |
| | 220kV Jagadhari | Not Installed | | |
| | 220kV Barnala | Not Installed | | |
| | **220kV Partapur** | **Installed and Operational** | | **made operational on 06.01.2023** |
| | **220kV Pilibhit** | **Installed and Operational** | | **commissioned on 28.10.2023** |
| | **220kV Amariya** | **Installed and Operational** | | **commissioned on 15th July 2023** |
| | **220kV Sultanpur** | **Installed and Operational** | | **commissioned on 02.03.2024. Mostly operational. Minor cable issue of isolator status .** |
| | **220kV New Tanda** | **Installed and Operational** | | **commissioned on 20.04.2024** |
| | **220kV IITGNL** | **Installed and Operational** | | **made operational on 19.02.2023** |
| | **220kV Barahua** | **Installed and Operational** | | **made operational on 28.01.2024** |
| | **220kV Bansi** | **Installed and Operational** | | **commissioned on 10th August 2023** |
| | **220 KV S/S Azamgarh-2(Bargahan)** | **Installed and Operational** | | **made operational on 28.01.2024** |
| | **220kV Chandausi** | **Installed and Operational** | | **made operational on 13.10.2023** |
| | **220kV Sec. - 148, Noida** | Installed but Non-Operational | | Requirement of Busbar Protectioon sent |
| | **220kV sec.-62, Noida** | **Installed and Operational** | | **made operational on 12.10.2023** |
| | **220kV Dadri** | **Installed and Operational** | | **made operational on 23.04.2024** |

| | | | | |
|---|---|---|---|---|
| | 400kV S/S Agra | Installed and Operational | | commissioned on 13th September 2023 |
| | 220kV S/S Farrukhabad (New) | Installed and Operational | | commissioned on 25th August 2023 |
| | 220kV Boner | Installed and Operational | | commissioned on 19.03.2024 |
| | 220kV Kasganj (Soron) | Installed and Operational | | |
| | 220kV Lalitpur | Installed and Operational | | commissioned on 09.02.2024 |
| | 220kV substation Fatehpur | Installed and Operational | | Operational |
| | 220kV Hardoi Road, Lucknow | Installed and Operational | | commissioned on 08th October 2023 |
| | 400 KV Substation Sarnath | Installed and Operational | | |
| | 220kV S/S Raja ka Talab | Installed and Operational | | Commissioned on 30.04.2024 |
| | 220kV S/S Mirzapur | Installed and Operational | | Commissioned on 17.07.2024 |
| | 400 KV Gorakhpur | Installed and Operational | | Commissioning awaited |
| | 220 KV Gorakhpur | Installed and Operational | | |
| | 220kV Parichha | Installed but Non-Operational | Revised date not received | |
| | 220kV Bareilly (400/220kV Bareilly) | Installed but Non-Operational | Revised date not received | Arrange of control cable is being done |
| | 220kV Shahjhanpur | Installed and Operational | | |
| | 220kV Ajijpur | Installed but Non-Operational | | S/S is under construction.<br>Working agency has been instructed to install the BUS BAR Protection, expected to be completed by June-26 |
| | 220kV Nirpura | Installed but Non-Operational | Revised date not received | |
| | 220kV Rampur | Installed but Non-Operational | Revised date not received | |
| | 220kV Rasara | Not Installed | | |
| | 220kV Rampur | Installed and Operational | | Main unit keypad and HMI unit sometimes hangs, peripheral units are working |
| | 220kV sec. 38A, Botanicla Garden | Installed but Non-Operational | Revised date not received | Panel received but not yet commissioned |
| | 220kV S/S Bah | Not Installed | | Requirement sent to design circle. |
| | 220kV Sirsaganj | Not Installed | | Requirement sent to design circle. |
| | 220kV Khair | Installed but Non-Operational | | PU has been received & Installation work in progress. |
| | 220kV Kidwainagar | Installed but Non-Operational | | |
| | 220kV Chhata | Installed and Operational | | 160 MVA TF-3 is Configured with bus bar protection |
| | 220kV Harduaganj | Installed but Non-Operational | Revised date not received | |
| UP | 220kV Khorabar | Installed but Non-Operational | Revised date not received | |
| | 220kV Phoolbagh | Not Installed | | |
| | 220kV Mahoba | Installed but Non-Operational | | Approval for the rectification is in progress vide e office comp no 101343 dated 20.02 2026 |
| | 220kV Sarnath | Installed and Operational | | |
| | 220kV Sirathu, Kaushambi | Installed and Operational | | |
| | 220kV S/S Bhelupur | Not Required | - | New Bus bar Protection panel received on Dated 18.12.2025. For Commissioning M/s CTR, has informed that team will arrive within three days at site. |
| | 220kV CG City, Lucknow | Installed and Operational | | |
| | 220kV Barabanki | Installed but Non-Operational | Revised date not received | Panel is obsolete. Requirement of new panels have been submitted to SE ESDC-I, UPPTCL, Lucknow 1360 dt 23.09.2025 and 2907 dt 30.10.2025 |
| | 220kV Kursi Road, Lucknow | Installed but Non-Operational | | Panel is obsolete. Requirement of new panels have been submitted to SE ESDC-I, UPPTCL, Lucknow 1360 dt 23.09.2025 and 2907 dt 30.10.2025 |
| | 220kV BKT, Lucknow | Installed but Non-Operational | Revised date not received | Panel is obsolete. Requirement of new panels have been submitted to SE ESDC-I, UPPTCL, Lucknow 1360 dt 23.09.2025 and 2907 dt 30.10.2025 |
| | 220kV Gomti Nagar, Lucknow | Installed and Operational | | |
| | 20kV S/S Harahua | Installed but Non-Operational | 28-Feb-25 | Busbar Protection is to be commissioned, for which case is being prepaired and moved for approval to invite tender. |
| | 220kv Rewa Road | Installed and Operational | | |
| | 220kV S/S Sahupuri | Installed but Non-Operational | 28-Feb-25 | New Bus bar Protection panel received on 19.12.2025. For Commissioning, L.N. 1341/ETD(S) Dated 31.12.2025 and L.N. 175/ETD(S) Dated 09.03.2026 written to M/s CTR for early commissioning. M/s CTR has informed that team will arrive within a week at site. |
| | 220 KV Deoria | Installed and Operational | | |
| | 220 KV Gopala Mahrajganj | Installed and Operational | | |
| | 220 KV Hata | Installed and Operational | | |
| | 220 KV Karkhi Anand Nagar | Installed and Operational | | |
| | 220 KV Gola | Installed and Operational | | |
| | 400 KV Azamgarh | Installed and Operational | | |
| | 400/132 KV Kasara, Mau | Installed and Operational | | |
| | 400 KV Rasara Ballia | Installed and Operational | | |
| | 400 KV Rasara Ballia | Installed and Operational | | |
| | 220 KV Azamgarh -1 | Installed and Operational | | |
| | 400KV Basti | Installed and Operational | | |
| | 220KV Basti | Installed and Operational | | |
| | 220KV Dulhipaar | Installed and Operational | | |
| | 220kV Hardoi Road | Installed and Operational | | |
| | 220 KV Bachhrawan | Installed and Operational | | |
| | 220kV Amethi | Installed and Operational | | |
| | 220 KV Dahi Chowki, Unnao | Installed and Operational | | |
| | 220 KV Trans Ganga City, Unnao | Installed and Operational | | |
| | 220kV Behat | Installed but Non-Operational | | Requirement of Busbar Protectioon sent to HQ |
| | 220kv Robertganj | Installed and partillay operational | 31.01.2025 | New panel has been received. Concerned firm service engineer is awaited for installation |
| | 220kV Chamba | Installed and Operational | | commissioned in Jan-2024 |
| | 220kV MattaSidh | Installed but Non-Operational | | |
| HP | 220kV kangoo | Installed but Non-Operational | 31.12.2024 | Work in under progress, issues are being taken up with ABB |
| | 220kV Nangal | Installed but Non-Operational | | |
| | 220kV Katha Baddi | Installed but Non-Operational | | |
| | 220 KV S/S Kotlisurat Malhi | Not Installed | | |
| | 220 KV S/S Maur | Not Installed | | |

| | | | | |
|---|---|---|---|---|
| **Punjab** | 220 KV S/S Science city | Not Installed | Dec-24 | Commissioning is in process. Material has arrived, commissioning shall be done as per shutdown availability. |
| | 220 KV S/S Banga | Not Installed | | |
| | 220 KV S/S Hoshiarpur | Not Installed | | |
| | 220 KV S/S Goraya | Not Installed | | |
| | **220 KV S/S Bhawanigarh** | **Installed and Operational** | | **Commissioned** |
| | **220 KV S/S Badhni kalan** | **Installed and Operational** | | **Commissioned** |
| | **220 KV S/S Bhari** | **Installed and Operational** | | **Commissioned** |
| **Rajasthan** | **220KV GSS Dooni** | **Installed and Operational** | | **commissioned** |
| | **220KV GSS Bhawanimandi** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Sakatpura, Kota** | **Installed and Operational** | | **commissioned on 09.07.2024** |
| | **220 kV GSS, Beawar** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Jethana** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Bherunda** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Kuchera** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Reengus** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Laxmangarh** | **Installed and Operational** | | **Commissioned** |
| | **220KV GSS Khetri Nagar** | **Installed and Operational** | | **commissioned** |
| | **400 KV GSS, Babai** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Chittorgarh** | **Installed and Operational** | | **commissioned** |
| | **400 KV GSS BHILWARA(220 KV BUS)** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS MANDALGARH** | **Installed and Operational** | | **commissioned** |
| | **220KV GSS Debari** | **Installed and Operational** | | **commissioned** |
| | **220KV GSS Amberi** | **Installed and Operational** | | **commissioned** |
| | **220KV GSS Madri** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Badisid** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Pali** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Balotra** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Sayla** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Ratangarh** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Sujangarh** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Halasar** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Rawatsar** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Tehandesar** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Bhadla** | **Installed and Operational** | | **commissioned** |
| | **400 KV GSS Bikaner 400 KV BUS** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Ramgarh** | **Installed and Operational** | | **commissioned** |
| | **400 KV GSS Surpura (Jodhpur) 220 KV** | **Installed and Operational** | | **commissioned** |
| | **400 KV GSS Akal (Jaisalmer) 220 KV** | **Installed and Operational** | | **commissioned** |
| | **220 KV GSS Jodhpur** | **Installed and Operational** | | **commissioned** |
| | 220 KV GSS NPH Jodhpur | Not installed | Revised date not received | Case file moved |
| | **220 KV GSS Kuchaman City** | **Installed and Operational** | | **commissioned** |
| | **400 KV GSS Ajmer (220 KV BUS)** | **Installed and Operational** | | **commissioned** |
| | **765 KV GSS Phagi** | **Installed and Operational** | | **commissioned** |
| | 220 kV GSS Vatika | Not installed | Revised date not received | As M/s ER did not finished the project, so it was awarded to M/s Kaycee infra on risk-cost basis , however the bus bar scheme has not been commissioned yet. Matter has been taken up with firm |
| | **220 kV GSS Niwana** | **Installed and Operational** | | **commissioned** |
| | **220 kV GSS Alwar** | **Installed and Operational** | | **commissioned** |
| | **220 kV GSS Bansur** | **Installed and Operational** | | **commissioned** |
| | **220 kV GSS Behror** | **Installed and Operational** | | **commissioned** |
| | **220KV GSS Hindaun** | **Installed and Operational** | | **commissioned** |

# Status of Mock Test of SPS in NR during 2025-26

| Sr. No. | Scheme Name | Owner / Agency | Commission Year | Last Review | Mock testing conducted before 2025-26 | Tentative Schedule of SPS Mock testing to be conducted during 2025-26 | Date of SPS Mock testing conducted during 2025-26 | Remarks |
|---|---|---|---|---|---|---|---|---|
| 1 | SPS for WR-NR corridor - 765kV Agra-Gwalior D/C | POWERGRID | | | 27-03-2025 | conducted | 10.10.2025 | Communication issue at Bhiwadi(PG), Bamnauli(DTL), Kota, Debari, Chittorgarh, Ratangarh, Nunamajra, Safidon, Ajitwal, Dandhari-II, Ablowal. |
| 2 | SPS for contingency due to tripping of HVDC Mundra-Mahendergarh | ADANI | | | | conducted | 11.03.2026 | As reported by ADANI, scheme has been made ready to be taken into service. During the testing, communication links were found to be healthy. |
| 3 | SPS for high capacity 400 kV Muzaffarpur-Gorakhpur D/C Inter-regional tie-line related contingency | POWERGRID | | | | SPS Under Review | | Not conducted in 2024-25 also. NRLDC Studies team advised to disable the same. NLDC input awaited. |
| 4 | SPS for 1500 MW HVDC Rihand-Dadri Bipole related contingency | POWERGRID | | | 19-03-2025 and 20-03-2025 | conducted | 19.11.2025 | SPS command didn't receive at 220kV Muradnagar(UP), 220kV Merta(RS), 220kV Kota Sakatpura(RS), 220kV Dhanonda(HR) and Singrauli TPS(NTPC) |
| 5 | System Protection Scheme (SPS) for HVDC Balia-Bhiwadi Bipole | POWERGRID | | | | SPS Under Review | | Not conducted in 2024-25 also |
| 6 | SPS for reliable evacuation of power from NJPS, Rampur, Sawra Kuddu, Baspa Sorang and Karcham Wangtoo HEP | SJVN/HPPTCL/JSW/POWERGRID/SORANG | | | 19-12-2024 | Dec-25 | 04-09-2025 (Partial: Case-1, 3 & 5 conducted) | Case-6(i) & (ii) has been implemented (as confimed by Karcham(JSW) via mail dated 08.12.2025). Communication card issue at Wangtoo(HP) |
| 7 | SPS for Reliable Evacuation of Rosa Generation | UPPTCL | | | 20-04-2024 | conducted | 12-04-2025 | Mock test report received (Review to be done in view of commissioning of 400kV Rosa-Badaun D/C in April 2021.) |
| 8 | SPS for evacuation of Kawai TPS, Kalisindh TPS generation complex | RVPNL | | | 14-03-2025 (Partial) | conducted | 26-04-2025 | As informed by RVPNL, automatic load shedding part of the SPS has been implemented and mock tested. Mock test report is yet to be received. |
| 9 | SPS for evacuation of Anpara Generation Complex | UPPTCL | | | 08-10-2024 (unit-7) and 19-10-2024 (unit-6) | conducted | 21-07-2025 | |
| 10 | SPS for evacuation of Lalitpur TPS Generation | UPPTCL | | | 21-05-2024 | conducted | 09-04-2025 | Mock test report received |
| 11 | SPS for Reliable Evacuation of Bara TPS Generation | UPPTCL | | | 20-11-2024 | conducted | 23-05-2025 | Mock test report received |
| 12 | SPS for Lahal Generation | HPPTCL | | | 08-07-2020 | SPS Under Review | | As reported by HPPTCL, SPS at Lahal not required now. |
| 13 | SPS for Transformers at Maharanibagh (PG) substation | POWERGRID | | | | conducted | Apr-25 | Mock test report received |
| 14 | SPS for Transformers at Mandola (PG) substation | POWERGRID | | | | conducted | Apr-25 | Mock test report received |
| 15 | SPS for Transformers at Bamnauli (DTL) Substation | DTL | | | | conducted | 19-01-2026 | N-1 compliant (To be removed). As reported by SLDC Delhi, scheme may be kept in service until 315 MVA ICT is revived which currently is not in service |
| 16 | SPS for Transformers at Moradabad (UPPTCL) Substation | UPPTCL | | | 20-04-2024 | conducted | 02-04-2025 | Mock test report received |
| 17 | SPS for Transformers at Muradnagar (UPPTCL) Substation | UPPTCL | | | 27-03-2025 | Mar-26 | | |
| 18 | SPS for Transformers at Agra (UPPTCL) Substation | UPPTCL | | | 21-03-2025 | Mar-26 | | |
| 19 | SPS for Transformers at 400kV Sarojininagar (UPPTCL) Substation | UPPTCL | | | 15-05-2024 | conducted | 23-07-2025 | Mock test report received |
| 20 | SPS for Transformers at 220kV Sarojininagar (UPPTCL) Substation | UPPTCL | | | 06-06-2024 | conducted | 23-07-2025 | Mock test report received |
| 21 | SPS for Transformers at 400kV Unnao (UPPTCL) Substation | UPPTCL | | | 19-05-2023 | SPS made healthy on 27.05.2025 | 27.05.2025 | Mock test report received |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 22 | **SPS for Transformers at 400kV Sultanpur (UPPTCL) Substation** | **UPPTCL** | | | | **SPS made healthy on 05.05.2025** | | **As reported by SLDC UP, scheme is required as loading exceeded (N-1) limit during summer of 2025** |
| 23 | SPS for Transformers at 400kV Bareilly (UPPTCL) Substation | UPPTCL | | | | **Revised SPS approved in 234 OCC** | | **SPS yet to be implemented** |
| 24 | **SPS for Transformers at 400kV Azamgarh (UPPTCL) Substation** | **UPPTCL** | | | **06-05-2024** | **conducted** | **19-04-2025** | **Mock test report received** |
| 25 | **SPS for Transformers at 400kV Mau (UPPTCL) Substation** | **UPPTCL** | | | **27-04-2024** | **conducted** | **21-04-2025** | **Mock test report received** |
| 26 | **SPS for Transformers at 400kV Gorakhpur (UPPTCL) Substation** | **UPPTCL** | | | **27-04-2024** | **conducted** | **21-04-2025** | **As reported by SLDC UP, scheme is required as loading exceeded (N-1) limit during summer of 2025** |
| 27 | **SPS for Transformers at 400kV Sarnath (UPPTCL) Substation** | **UPPTCL** | | | **23-05-2024** | **conducted** | **01-04-2025** | **Mock test report received** |
| 28 | SPS for Transformer at 400kV Rajpura (PSTCL) Substation | PSTCL | | | 31-01-2025 | Feb-26 | | |
| 29 | SPS for Transformers at 400kV Mundka (DTL) Substation | DTL | | | 03-02-2025 | Feb-26 | | |
| 30 | **SPS for Transformers at 400kV Deepalpur (JKTPL) Substation** | **HVPNL** | | | | **conducted** | **08-05-2025** | **Mock test report pending** |
| 31 | **SPS for Transformers at 400kV Ajmer (RVPN) Substation** | **RVPNL** | | | **10-09-2024** | **conducted** | **20-08-2025** | **Mock test report received.** |
| 32 | **SPS for Transformers at 400kV Merta (RVPN) Substation** | **RVPNL** | | | **12-09-2024** | **conducted** | **09-09-2025** | **Mock test report received.** |
| 33 | **SPS for Transformers at 400kV Chittorgarh (RVPN) Substation** | **RVPNL** | | | **31-08-2024 and 05-09-2024** | **conducted** | **11-09-2025 & 12-09-2025** | **Mock test report received.** |
| 34 | SPS for Transformers at 400kV Jodhpur (RVPN) Substation | RVPNL | | | 24-09-2024 | Dec-25 | | |
| 35 | **SPS for Transformers at 400kV Bhadla (RVPN) Substation** | **RVPNL** | | | **27-09-2024** | **conducted** | **27-09-2025** | |
| 36 | **SPS for Transformers at 400kV Ratangarh (RVPN) Substation** | **RVPNL** | | | **20-09-2024** | **conducted** | **25-09-2025** | |
| 37 | SPS for Transformers at 400kV Nehtaur(WUPPTCL) Substation | UPPTCL | | | 11-01-2025 | Dec-25 | | **SPS implemented in BCU. Shutdown required for mock testing.** |
| 38 | SPS for Transformers at Obra TPS | UPPTCL | | | 20-05-2024 | **Mock test will be conducted after revival of ICT** | | **ICTs failed during fire incident** |
| 39 | SPS for Transformers at 400KV Kashipur (PTCUL) substation | PTCUL | | | Septemeber 2024 | **conducted** | **05-10-2025** | |
| 40 | **SPS for Transformers at 400KV Fatehgarh Solar Park (AREPRL)** | **ADANI** | | | | **conducted** | **19-04-2025** | **Mock test report received.** |
| 41 | **SPS to relive transmission congestion in RE complex (Bhadla2)** | **POWERGRID** | | | | **conducted** | **26-08-2025** | **Mock test report pending** |
| 42 | **SPS for Transformers at 400kV Bikaner (RVPN) Substation** | **RVPNL** | | | **26-09-2024** | **conducted** | **13-09-2025 & 17-09-2025** | |
| 43 | SPS for Transformers at 400kV Bawana (DTL) Substation | DTL | | | 04-01-2025 | Feb-26 | | |
| 44 | **SPS for Transformers at 400kV Bhilwara (RVPN) Substation** | **RVPNL** | | | **09-07-2024 and 10-07-2024** | **conducted** | **19-09-2025 & 23-09-2025** | **Mock test report received.** |
| 45 | **SPS for Transformers at 400kV Hindaun (RVPN) Substation** | **RVPNL** | | | **26-09-2024** | **conducted** | **11-09-2025** | **Mock test report received.** |
| 46 | SPS for Transformers at 400kV Suratgarh (RVPN) Substation | RVPNL | | | 20-10-2024 | Dec-25 | | |
| 47 | **SPS for Transformers at 400kV Babai(RS) Substation** | **RVPNL** | | | **20-10-2024** | **conducted** | **07-08-2025** | **Mock test report received.** |
| 48 | **SPS for Transformers at 400kV Allahabad(PG) Substation** | **UPPTCL** | | | **25.07.2024** | **conducted** | **29-12-2025** | **SPS operated during real time (only one case is there in scheme)** |
| 49 | SPS for Transformers at 400kV Jaunpur(UP) Substation | UPPTCL | | | | **Schedule awaited** | | **Implemented on 08.10.2025** |
| 50 | **SPS for Transformers at 765kV Jhatikara(PG) Substation (Bamnauli section)** | **POWERGRID** | | | | **conducted** | **Jun-25** | **Mock test report received.** |
| | **SPS for Transformers at 765kV Jhatikara(PG) Substation (Mundka section)** | | | | | **conducted** | **Jun-25** | |
| 51 | **SPS for Transformers at 765kV Bhiwani(PG) Substation** | **POWERGRID** | | | | **SPS implemented** | | **Mock test report received.** |
| 52 | SPS for Transformers at 400kV Panki (UPPTCL) Substation | UPPTCL | | | | **Approved in 234 OCC** | | **Expected to be implemented by Mar-26** |
| 53 | SPS for Transformers at 400kV Agra(PG) Substation | POWERGRID/UPPTCL | | | | **Approved in 234 OCC** | | **Expected to be implemented by 15th Feb'26** |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 54 | **SPS for Transformers at 400kV Jaipur South(PG) Substation** | **POWERGRID/RVPNL** | | | | **Approved in 237 OCC** | | **Yet to be implemented (During 66th PSC, POWERGRID informed that SPS is not required, SLDC Rajasthan to review the same)** |
| 55 | SPS for Transformers at 400kV Bassi(PG) Substation | POWERGRID/RVPNL | | | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 56 | SPS for Transformers at 400kV Kankroli(PG) Substation | POWERGRID/RVPNL | | | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 57 | SPS for Transformers at 400kV Kotputli(PG) Substation | POWERGRID/RVPNL | | | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 58 | SPS for Transformers at 400kV Neemrana(PG) Substation | POWERGRID/RVPNL | | | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 59 | SPS for Transformers at 400kV Bhiwadi(PG) Substation | POWERGRID/RVPNL | | | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 60 | SPS for Transformers at 400kV Sikar(PG) Substation | POWERGRID/RVPNL | | | | **Approved in 237 OCC** | | **Yet to be implemented** |

# Status of Mock Test of SPS in NR during 2025-26

| Sr. No. | Scheme Name | Owner / Agency | Mock testing conducted before 2025-26 | Tentative Schedule of SPS Mock testing to be conducted during 2025-26 | Date of SPS Mock testing conducted during 2025-26 | Remarks |
|---|---|---|---|---|---|---|
| 1 | SPS for WR-NR corridor - 765kV Agra-Gwalior D/C | POWERGRID | 27-03-2025 | conducted | 10.10.2025 | Communication issue at Bhiwadi(PG), Bamnauli(DTL), Kota, Debari, Chittorgarh, Ratangarh, Nunamajra, Safidon, Ajitwal, Dandhari-II, Ablowal. |
| 2 | SPS for contingency due to tripping of HVDC Mundra-Mahendergarh | ADANI | | conducted | 11.03.2026 | As reported by ADANI, scheme has been made ready to be taken into service. During the testing, communication links were found to be healthy. |
| 3 | SPS for high capacity 400 kV Muzaffarpur-Gorakhpur D/C Inter-regional tie-line related contingency | POWERGRID | | SPS Under Review | | Not conducted in 2024-25 also. NRLDC Studies team advised to disable the same. NLDC input awaited. |
| 4 | SPS for 1500 MW HVDC Rihand-Dadri Bipole related contingency | POWERGRID | 19-03-2025 and 20-03-2025 | conducted | 19.11.2025 | SPS command didn't receive at 220kV Muradnagar(UP), 220kV Merta(RS), 220kV Kota Sakatpura(RS), 220kV Dhanonda(HR) and Singrauli TPS(NTPC) |
| 5 | System Protection Scheme (SPS) for HVDC Balia-Bhiwadi Bipole | POWERGRID | | SPS Under Review | | Not conducted in 2024-25 also |
| 6 | SPS for reliable evacuation of power from NJPS, Rampur, Sawra Kuddu, Baspa Sorang and Karcham Wangtoo HEP | SJVN/HPPTCL/JSW/POWERGRID/SORANG | 19-12-2024 | Dec-25 | 04-09-2025 (Partial: Case-1, 3 & 5 conducted) | Case-6(i) & (ii) has been implemented (as confimed by Karcham(JSW) via mail dated 08.12.2025). Communication card issue at Wangtoo(HP) resolved |
| 7 | SPS for Reliable Evacuation of Rosa Generation | UPPTCL | 20-04-2024 | conducted | 12-04-2025 | Mock test report received (Review to be done in view of commissioning of 400kV Rosa-Badaun D/C in April 2021.) |
| 8 | SPS for evacuation of Kawai TPS, Kalisindh TPS generation complex | RVPNL | 14-03-2025 (Partial) | conducted | 26-04-2025 | As informed by RVPNL, automatic load shedding part of the SPS has been implemented and mock tested. Mock test report is yet to be received. |
| 9 | SPS for evacuation of Anpara Generation Complex | UPPTCL | 08-10-2024 (unit-7) and 19-10-2024 (unit-6) | conducted | 21-07-2025 | |
| 10 | SPS for evacuation of Lalitpur TPS Generation | UPPTCL | 21-05-2024 | conducted | 09-04-2025 | Mock test report received |
| 11 | SPS for Reliable Evacuation of Bara TPS Generation | UPPTCL | 20-11-2024 | conducted | 23-05-2025 | Mock test report received |
| 12 | SPS for Lahal Generation | HPPTCL | 08-07-2020 | SPS Under Review | | As reported by HPPTCL, SPS at Lahal not required now. |
| 13 | SPS for Transformers at Maharanibagh (PG) substation | POWERGRID | | conducted | Apr-25 | Mock test report received |
| 14 | SPS for Transformers at Mandola (PG) substation | POWERGRID | | conducted | Apr-25 | Mock test report received |
| 15 | SPS for Transformers at Bamnauli (DTL) Substation | DTL | | conducted | 19-01-2026 | N-1 compliant (To be removed). As reported by SLDC Delhi, scheme may be kept in service until 315 MVA ICT is revived which currently is not in service |

| | | | | | | |
|---|---|---|---|---|---|---|
| 16 | **SPS for Transformers at Moradabad (UPPTCL) Substation** | **UPPTCL** | **20-04-2024** | **conducted** | **02-04-2025** | **Mock test report received** |
| 17 | SPS for Transformers at Muradnagar (UPPTCL) Substation | UPPTCL | 27-03-2025 | Mar-26 | | **Scheduled on 18-03-2026** |
| 18 | SPS for Transformers at Agra (UPPTCL) Substation | UPPTCL | 21-03-2025 | Mar-26 | | |
| 19 | **SPS for Transformers at 400kV Sarojininagar (UPPTCL) Substation** | **UPPTCL** | **15-05-2024** | **conducted** | **23-07-2025** | **Mock test report received** |
| 20 | **SPS for Transformers at 220kV Sarojininagar (UPPTCL) Substation** | **UPPTCL** | **06-06-2024** | **conducted** | **23-07-2025** | **Mock test report received** |
| 21 | **SPS for Transformers at 400kV Unnao (UPPTCL) Substation** | **UPPTCL** | **19-05-2023** | **SPS made healthy on 27.05.2025** | **27.05.2025** | **Mock test report received** |
| 22 | SPS for Transformers at 400kV Sultanpur (UPPTCL) Substation | UPPTCL | | Mar-26 | | As reported by SLDC UP, scheme is required as loading exceeded (N-1) limit during summer of 2025 |
| 23 | SPS for Transformers at 400kV Bareilly (UPPTCL) Substation | UPPTCL | | **Revised SPS approved in 234 OCC** | | **SPS yet to be implemented** |
| 24 | **SPS for Transformers at 400kV Azamgarh (UPPTCL) Substation** | **UPPTCL** | **06-05-2024** | **conducted** | **19-04-2025** | **Mock test report received** |
| 25 | **SPS for Transformers at 400kV Mau (UPPTCL) Substation** | **UPPTCL** | **27-04-2024** | **conducted** | **21-04-2025** | **Mock test report received** |
| 26 | **SPS for Transformers at 400kV Gorakhpur (UPPTCL) Substation** | **UPPTCL** | **27-04-2024** | **conducted** | **21-04-2025** | **As reported by SLDC UP, scheme is required as loading exceeded (N-1) limit during summer of 2025** |
| 27 | **SPS for Transformers at 400kV Sarnath (UPPTCL) Substation** | **UPPTCL** | **23-05-2024** | **conducted** | **01-04-2025** | **Mock test report received** |
| 28 | SPS for Transformer at 400kV Rajpura (PSTCL) Substation | PSTCL | 31-01-2025 | Mar-26 | | |
| 29 | **SPS for Transformers at 400kV Mundka (DTL) Substation** | **DTL** | **03-02-2025** | **conducted** | **29-01-2026** | |
| 30 | **SPS for Transformers at 400kV Deepalpur (JKTPL) Substation** | **HVPNL** | | **conducted** | **08-05-2025** | **Mock test report pending** |
| 31 | **SPS for Transformers at 400kV Ajmer (RVPN) Substation** | **RVPNL** | **10-09-2024** | **conducted** | **20-08-2025** | **Mock test report received.** |
| 32 | **SPS for Transformers at 400kV Merta (RVPN) Substation** | **RVPNL** | **12-09-2024** | **conducted** | **09-09-2025** | **Mock test report received.** |
| 33 | **SPS for Transformers at 400kV Chittorgarh (RVPN) Substation** | **RVPNL** | **31-08-2024 and 05-09-2024** | **conducted** | **11-09-2025 & 12-09-2025** | **Mock test report received.** |
| 34 | **SPS for Transformers at 400kV Jodhpur (RVPN) Substation** | **RVPNL** | **24-09-2024** | **conducted** | **Date need to be shared** | |
| 35 | **SPS for Transformers at 400kV Bhadla (RVPN) Substation** | **RVPNL** | **27-09-2024** | **conducted** | **27-09-2025** | |
| 36 | **SPS for Transformers at 400kV Ratangarh (RVPN) Substation** | **RVPNL** | **20-09-2024** | **conducted** | **25-09-2025** | |
| 37 | SPS for Transformers at 400kV Nehtaur(WUPPTCL) Substation | UPPTCL | 11-01-2025 | Mar-26 | | **SPS implemented in BCU. Shutdown required for mock testing.** |
| 38 | SPS for Transformers at Obra TPS | UPPTCL | 20-05-2024 | **Mock test will be conducted after revival of ICT** | | **ICTs failed during fire incident** |
| 39 | SPS for Transformers at 400KV Kashipur (PTCUL) substation | PTCUL | Septemeber 2024 | **conducted** | **05-10-2025** | |
| 40 | **SPS for Transformers at 400KV Fatehgarh Solar Park (AREPRL)** | **ADANI** | | **conducted** | **19-04-2025** | **Mock test report received.** |
| 41 | **SPS to relive transmission congestion in RE complex (Bhadla2)** | **POWERGRID** | | **conducted** | **26-08-2025** | **Mock test report pending** |
| 42 | **SPS for Transformers at 400kV Bikaner (RVPN) Substation** | **RVPNL** | **26-09-2024** | **conducted** | **13-09-2025 & 17-09-2025** | |
| 43 | SPS for Transformers at 400kV Bawana (DTL) Substation | DTL | 04-01-2025 | Feb-26 | | **Not required currently as submitted by SLDC Delhi** |
| 44 | **SPS for Transformers at 400kV Bhilwara (RVPN) Substation** | **RVPNL** | **09-07-2024 and 10-07-2024** | **conducted** | **19-09-2025 & 23-09-2025** | **Mock test report received.** |

| | | | | | | |
|---|---|---|---|---|---|---|
| 45 | **SPS for Transformers at 400kV Hindaun (RVPN) Substation** | **RVPNL** | **26-09-2024** | **conducted** | **11-09-2025** | **Mock test report received.** |
| 46 | SPS for Transformers at 400kV Suratgarh (RVPN) Substation | RVPNL | 20-10-2024 | Dec-25 | | |
| 47 | **SPS for Transformers at 400kV Babai(RS) Substation** | **RVPNL** | **20-10-2024** | **conducted** | **07-08-2025** | **Mock test report received.** |
| 48 | **SPS for Transformers at 400kV Allahabad(PG) Substation** | **UPPTCL** | **25.07.2024** | **conducted** | **29-12-2025** | **SPS operated during real time (only one case is there in scheme)** |
| 49 | SPS for Transformers at 400kV Jaunpur(UP) Substation | UPPTCL | | Mar-26 | **Scheduled on 20-03-2026** | **Implemented on 08.10.2025** |
| 50 | **SPS for Transformers at 765kV Jhatikara(PG) Substation (Bamnauli section)** | **POWERGRID** | | **conducted** | **Jun-25** | **Mock test report received.** |
| | **SPS for Transformers at 765kV Jhatikara(PG) Substation (Mundka section)** | | | **conducted** | **Jun-25** | |
| 51 | **SPS for Transformers at 765kV Bhiwani(PG) Substation** | **POWERGRID** | | **SPS implemented** | | **Mock test report received.** |
| 52 | SPS for Transformers at 400kV Panki (UPPTCL) Substation | UPPTCL | | **Approved in 234 OCC** | | **Expected to be implemented by Mar-26** |
| 53 | SPS for Transformers at 400kV Agra(PG) Substation | POWERGRID/UPPTCL | | **Approved in 234 OCC** | | **Implemented (date yet to be shared)** |
| 54 | **SPS for Transformers at 400kV Jaipur South(PG) Substation** | **POWERGRID/RVPNL** | | **Approved in 237 OCC** | | **Yet to be implemented (During 66th PSC, POWERGRID informed that SPS is not required, SLDC Rajasthan confirmed the same)** |
| 55 | SPS for Transformers at 400kV Bassi(PG) Substation | POWERGRID/RVPNL | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 56 | SPS for Transformers at 400kV Kankroli(PG) Substation | POWERGRID/RVPNL | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 57 | SPS for Transformers at 400kV Kotputli(PG) Substation | POWERGRID/RVPNL | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 58 | SPS for Transformers at 400kV Neemrana(PG) Substation | POWERGRID/RVPNL | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 59 | SPS for Transformers at 400kV Bhiwadi(PG) Substation | POWERGRID/RVPNL | | **Approved in 237 OCC** | | **Yet to be implemented** |
| 60 | SPS for Transformers at 400kV Sikar(PG) Substation | POWERGRID/RVPNL | | **Approved in 237 OCC** | | **Yet to be implemented** |

| S. No | Name of the Line | Circuit ID | Proposed Over Voltage protection setting by Committee | | | | | | | | Status of Implementation (Yes / NO) | Modified Over Voltage protection setting(if any) | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | End I | | | | End II | | | | | End I | | | | End II | | | |
| | | | stage I pick up(%) | time (s) | stage II pick up(%) | time (s) | stage I pick up(%) | time (s) | stage II pick up(%) | time (s) | | stage I pick up(%) | time (s) | stage II pick up(%) | time (s) | stage I pick up(%) | time (s) | stage II pick up(%) | time (s) |
| **1. 765kV Transmission Line** | | | | | | | | | | | | | | | | | | | |
| **A. POWERGRID** | | | | | | | | | | | Confirmation received from POWERGRID | | | | | | | | |
| 1 | Agra-Aligarh | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 2 | Agra-Fatehpur | 1 | 107 | 5 | 150 | 0.1 | 107 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 3 | Agra-Fatehpur | 2 | 108 | 9 | 150 | 0.1 | 108 | 9 | 150 | 0.1 | Y | | | | | | | | |
| 4 | Agra-Gwalior IR | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 5 | Agra-Gwalior IR | 2 | 109 | 9 | 150 | 0.1 | 109 | 9 | 150 | 0.1 | Y | | | | | | | | |
| 6 | Agra-Jhatikara | 1 | 106 | 5 | 140 | 0.1 | 106 | 5 | 140 | 0.1 | Y | 108 | 6 | 140 | 0.1 | 106 | 5 | 140 | 0.1 |
| 7 | Ajmer(PG)-Bhadla_2(PG) | 1 | 109 | 8 | 140 | 0.1 | 109 | 8 | 140 | 0.1 | Y | | | | | | | | |
| 8 | Ajmer(PG)-Bhadla_2(PG) | 2 | 110 | 15 | 140 | 0.1 | 110 | 15 | 140 | 0.1 | Y | | | | | | | | |
| 9 | Ajmer(PG)-Chittorgarh(PG) | 1 | 110 | 9 | 140 | 0.1 | 110 | 9 | 140 | 0.1 | Y | | | | | | | | |
| 10 | Ajmer(PG)-Chittorgarh(PG) | 2 | 110 | 15 | 140 | 0.1 | 110 | 15 | 140 | 0.1 | Y | | | | | | | | |
| 11 | Ajmer(PG)-Phagi(RS) | 1 | 108 | 7 | 140 | 0.1 | 108 | 7 | 140 | 0 | Y | | | | | | | | |
| 12 | Ajmer(PG)-Phagi(RS) | 2 | 110 | 12 | 140 | 0.1 | 110 | 12 | 140 | 0 | Y | | | | | | | | |
| 13 | Aligarh(PG) -Sikar_2(PSTL) | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 14 | Aligarh(PG) -Sikar_2(PSTL) | 2 | 108 | 9 | 150 | 0.1 | 108 | 9 | 140 | 0.1 | Y | | | | | | | | |
| 15 | Aligarh-Gr.Noida | 1 | 109 | 7 | 150 | 0.1 | 109 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 16 | Balia-Gaya IR | 1 | 108 | 7 | 150 | 0.1 | 108 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 17 | Balia-Lucknow_2(PG) | 1 | 108 | 9 | 150 | 0.1 | 108 | 9 | 150 | 0.1 | Y | | | | | | | | |
| 18 | Bhadla_II(PG)-Sikar_2(PG) | 1 | 109 | 6 | 150 | 0.1 | 109 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 19 | Bhadla_II(PG)-Sikar_2(PG) | 2 | 110 | 15 | 150 | 0.1 | 110 | 15 | 150 | 0.1 | Y | | | | | | | | |
| 20 | Bhiwani-Jhatikara | 1 | 109 | 10 | 140 | 0.1 | 109 | 10 | 140 | 0.1 | Y | | | | | | | | |
| 21 | Bhiwani-Meerut | 1 | 109 | 7 | 140 | 0.1 | 109 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 22 | Bhiwani-Phagi | 1 | 109 | 5 | 140 | 0.1 | 109 | 5 | 140 | 0 | Y | | | | | | | | |
| 23 | Bhiwani-Phagi | 2 | 109 | 7 | 140 | 0.1 | 109 | 7 | 140 | 0 | Y | | | | | | | | |
| 24 | Bikaner(PG) - Bhadla(PG) | 1 | 109 | 8 | 140 | 0.1 | 109 | 8 | 140 | 0.1 | Y | | | | | | | | |
| 25 | Bikaner(PG) - Bhadla(PG) | 2 | 110 | 15 | 140 | 0.1 | 110 | 15 | 140 | 0.1 | Y | | | | | | | | |
| 26 | Bikaner(PG)-Bhadla_2(PG) | 1 | 108 | 7 | 140 | 0.1 | 108 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 27 | Bikaner(PG)-Bhadla_2(PG) | 2 | 110 | 15 | 140 | 0.1 | 110 | 15 | 140 | 0.1 | Y | | | | | | | | |
| 28 | Bikaner(PG)-Moga | 1 | 108 | 5 | 140 | 0.1 | 108 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 29 | Bikaner(PG)-Moga | 2 | 110 | 13 | 140 | 0.1 | 110 | 13 | 140 | 0.1 | Y | | | | | | | | |
| 30 | Chittorgarh(PG)-Banaskantha IR | 1 | 110 | 9 | 140 | 0.1 | 110 | 9 | 140 | 0.1 | Y | | | | | | | | |
| 31 | Chittorgarh(PG)-Banaskantha IR | 2 | 110 | 15 | 140 | 0.1 | 110 | 15 | 140 | 0.1 | Y | | | | | | | | |
| 32 | Fatehpur- Sasaram IR | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 33 | Fatehgarh_2(PG)-Bhadla_2(PG) | 1 | 109 | 9 | 140 | 0.1 | 109 | 9 | 140 | 0.1 | Y | | | | | | | | |
| 34 | Fatehgarh_2(PG)-Bhadla_2(PG) | 2 | 110 | 15 | 140 | 0.1 | 110 | 15 | 140 | 0.1 | Y | | | | | | | | |
| 35 | Fatehgarh_2(PG)-Bhadla_2(PG) | 3 | 107 | 5 | 140 | 0.1 | 107 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 36 | Fatehgarh_2(PG)-Bhadla_2(PG) | 4 | 108 | 8 | 140 | 0.1 | 108 | 8 | 140 | 0.1 | Y | | | | | | | | |
| 37 | Jhatikara-Aligarh | 1 | 107 | 7 | 140 | 0.1 | 107 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 38 | Jhatikara(PG)-Khetri(PKTSL) | 1 | 108 | 5 | 140 | 0.1 | 108 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 39 | Jhatikara(PG)-Khetri(PKTSL) | 2 | 109 | 6 | 140 | 0.1 | 109 | 6 | 140 | 0.1 | Y | | | | | | | | |
| 40 | Kanpur(GIS)-Aligarh | 1 | 109 | 9 | 150 | 0.1 | 109 | 9 | 150 | 0.1 | Y | | | | | | | | |
| 41 | Lucknow_2(PG)-Bareilly_2(PG) | 1 | 109 | 5 | 150 | 0.1 | 109 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 42 | Meerut-G. Noida | 1 | 109 | 7 | 140 | 0.1 | 109 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 43 | Meerut-Koteshwar(PG) | 1 | 107 | 7 | 140 | 0.1 | 107 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 44 | Meerut-Koteshwar(PG) | 2 | 109 | 9 | 140 | 0.1 | 109 | 9 | 140 | 0.1 | Y | | | | | | | | |
| 45 | Moga-Bhiwani(PG) | 1 | 109 | 5 | 140 | 0.1 | 109 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 46 | Moga-Meerut | 1 | 108 | 5 | 140 | 0.1 | 108 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 47 | Orai-Aligarh | 1 | 107 | 5 | 150 | 0.1 | 107 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 48 | Orai-Aligarh | 2 | 108 | 7 | 150 | 0.1 | 108 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 49 | Orai-Jabalpur IR | 1 | 107 | 5 | 150 | 0.1 | 107 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 50 | Orai-Jabalpur IR | 2 | 109 | 5 | 150 | 0.1 | 109 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 51 | Orai-Satna IR | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 52 | Orai-Gwalior IR | 1 | 108 | 6 | 150 | 0.1 | 108 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 53 | Phagi-Gwalior IR | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | 109 | 5 | 140 | 0.1 | 109 | 5 | 140 | 0.1 |
| 54 | Phagi-Gwalior IR | 2 | 110 | 7 | 140 | 0.1 | 110 | 7 | 140 | 0.1 | Y | 110 | 12 | 140 | 0.1 | 110 | 12 | 140 | 0.1 |
| 55 | Varanasi-Balia | 1 | 109 | 5 | 150 | 0.1 | 109 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 56 | Varanasi-Fatehpur | 1 | 109 | 5 | 150 | 0.1 | 109 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 57 | Varanasi-Gaya IR | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 58 | Varanasi-Gaya IR | 2 | 109 | 9 | 150 | 0.1 | 109 | 9 | 150 | 0.1 | Y | | | | | | | | |
| 59 | Varanasi-Kanpur | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 60 | Varanasi-Kanpur | 2 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 61 | Varanasi-Vindhyachal Pooling | 1 | 108 | 5 | 150 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 62 | Varanasi-Vindhyachal Pooling | 2 | 109 | 9 | 150 | 0.1 | 109 | 9 | 150 | 0.1 | Y | | | | | | | | |
| **B. Adani Transmission India Ltd. (ATIL) (BKTL, FBTL)** | | | | | | | | | | | | | | | | | | | |
| 1 | Bikaner(PG)-Khetri(PKTSL) | 1 | 109 | 9 | 140 | 0.1 | 109 | 9 | 140 | 0.1 | Y | | | | | | | | |
| 2 | Bikaner(PG)-Khetri(PKTSL) | 2 | 110 | 15 | 140 | 0.1 | 110 | 15 | 140 | 0.1 | Y | | | | | | | | |
| 3 | Fatehgarh_II(PG)-Bhadla(PG) | 1 | 108 | 6 | 140 | 0.1 | 108 | 6 | 140 | 0.1 | Y | | | | | | | | |
| 4 | Fatehgarh_II(PG)-Bhadla(PG) | 2 | 110 | 12 | 140 | 0.1 | 110 | 12 | 140 | 0.1 | Y | | | | | | | | |
| **C. UPPTCL** | | | | | | | | | | | | | | | | | | | |
| 1 | Agra Fatehabad-Ghatampur | 1 | 108 | 7 | 140 | 0.1 | 108 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 2 | Agra Fatehabad-Gr. Noida | 1 | 109 | 5 | 140 | 0.1 | 109 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 3 | Anpara C-Anpara D | 1 | 108 | 5 | 140 | 0.1 | 108 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 4 | Anpara C-Unnao | 1 | 109 | 5 | 140 | 0.1 | 110 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 5 | Anpara D-Obra_C | 1 | 110 | 7 | 140 | 0.1 | 110 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 6 | Bara-Mainpuri | 2 | 108 | 7 | 140 | 0.1 | 108 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 7 | Ghatampur-Rampur_PRSTL | 1 | 109 | 5 | 140 | 0.1 | 109 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 8 | Hapur(UP)-Meerut_PMSTL | 1 | 110 | 7 | 140 | 0.1 | 110 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 9 | Hapur(UP)-Rampur_PRSTL | 1 | 108 | 5 | 140 | 0.1 | 108 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 10 | Hapur-Mainpuri | 1 | 109 | 7 | 140 | 0.1 | 109 | 7 | 140 | 0.1 | Y | | | | | | | | |
| 11 | Jawaharpur-Gr.NOIDA | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 12 | Lalitpur - Agra Fatehabad | 1 | 108 | 5 | 140 | 0.1 | 108 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 13 | Lalitpur - Agra Fatehabad | 2 | 110 | 9 | 140 | 0.1 | 110 | 9 | 140 | 0.1 | Y | | | | | | | | |
| 14 | Meerut_PMSTL-G.Noida | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 15 | Mainpuri(UP)-Jawaharpur | 1 | 110 | 9 | 140 | 0.1 | 110 | 9 | 140 | 0 | Y | | | | | | | | |
| 16 | Obra_C-Unnao | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| **D. Rajasthan** | | | | | | | | | | | | | | | | | | | |
| 1 | Anta-Phagi | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | 108 | 10 | 140 | 0.1 | 108 | 10 | 140 | 0.1 |
| 2 | Anta-Phagi | 2 | 110 | 7 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | 110 | 7 | 140 | 0.1 | 112 | 6 | 140 | 0.1 |
| **2. 765kV Transmission Line charged at 400kV** | | | | | | | | | | | | | | | | | | | |
| **A. POWERGRID** | | | | | | | | | | | Confirmation received from POWERGRID | | | | | | | | |
| 1 | Kishenpur-Moga | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 2 | Kishenpur-Moga | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 3 | Tehri(TH)-Koteshwar(PG) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 4 | Tehri(TH)-Koteshwar(PG) | 2 | 112 | 6 | 140 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| **B. Adani Transmission India Ltd. (ATIL) ( FBTL)** | | | | | | | | | | | | | | | | | | | |
| 1 | Fatehgarh Pooling-Fatehgarh_II | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 2 | Fatehgarh Pooling-Fatehgarh_II | 2 | 112 | 6 | 150 | 0.1 | 111 | 5 | 150 | 0.1 | Y | | | | | | | | |
| **3. 400kV HVAC Transmission Line** | | | | | | | | | | | | | | | | | | | |

| A. POWERGRID | | | | | | | | | | | Confirmation received from POWERGRID | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Abdullapur(PG)- Deepalpur(JHKT) | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 1 | Abdullapur(PG)- Bawana(DV) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 3 | Abdullapur- Kala Amb | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 4 | Abdullapur- Kala Amb | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 5 | Abdullapur-Kurukshetra | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 6 | Abdullapur-Kurukshetra | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 7 | Agra(PG)-Agra(UP) | 1 | 110 | 5 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 8 | Agra-Ballabgarh | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 9 | Agra-Bassi | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 10 | Agra-Bhiwadi | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 11 | Agra-Bhiwadi | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 12 | Agra PG-Fatehabad (765kV Agra UP) | 1 | 112 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 13 | Agra-Jaipur South | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 14 | Agra-Jaipur South | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 15 | Agra-Sikar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 16 | Agra-Sikar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 17 | Ajmer(RS)-Ajmer(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 18 | Ajmer(RS)-Ajmer(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 19 | Allahabad-Fatehpur | 3 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 20 | Allahabad-Fatehpur | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 21 | Allahabad-Fatehpur | 2 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 22 | Allahabad-Kanpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 23 | Allahabad-Kanpur_GIS(765/400kV) | 1 | 112 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 24 | Allahabad-Kanpur_GIS(765/400kV) | 2 | 110 | 5 | 150 | 0.1 | 111 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 25 | Allahabad(PG)-Meja(NT) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 26 | Allahabad(PG)-Meja(NT) | 2 | 112 | 6 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 27 | Allahabad-Sasaram IR | 1 | 110 | 5 | 150 | 0.1 | 110 | | | | Y | | | | | | | | |
| 28 | Allahabad-Varanasi | 1 | 110 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 29 | Amritsar-Jalandhar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 30 | Amritsar-Jalandhar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 31 | Amritsar-Parbati Pool Banala | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 32 | Auraiya(NT)-Agra(PG) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 33 | Auraiya(NT)-Agra(PG) | 2 | 112 | 5 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 34 | Baghpat-Kaithal | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 35 | Baghpat-Kaithal | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 36 | Baghpat-Saharanpur | 1 | 110 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 37 | Bahadurgarh(PG)-Kabulpur(HV) | 1 | 110 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 38 | Bahadurgarh-Sonepat | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 39 | Bahadurgarh-Sonepat | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 40 | Balia-Biharshariff IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 41 | Balia-Biharshariff IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 42 | Balia(PG)-Mau(UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 43 | Balia-Naubatpur IR | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 44 | Balia-Patna IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 45 | Balia-Patna IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 46 | Balia-Patna IR | 3 | 110 | 6 | 150 | 0.1 | 110 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 47 | Balia-Rasra | 1 | 112 | 6 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 48 | Balia-Sohawal | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 49 | Balia-Sohawal | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 50 | Ballabgarh-Gurgaon | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 51 | Ballabgarh(PG)-Nawada(HV) | 1 | 110 | 6 | 150 | 0.1 | 110 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 52 | Bamnoli(DV)-Dwarka(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 53 | Bareilly PG-Lucknow (UP) | 1 | 111 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 54 | Bareilly(PG)-Meerut | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 55 | Bareilly(PG)-Meerut | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 56 | Bareilly(PG)-Moradabad(UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 57 | Bareilly(PG)-Rampur_PRSTL | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 58 | Bareilly(UP)-Bareilly(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 59 | Bareilly(UP)-Bareilly(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 60 | Bareilly_2(765/400)(PG)-Bareilly(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 61 | Bareilly_2(765/400)(PG)-Bareilly(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 62 | Bareilly_2(765/400)(PG)-Jauljivi(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 63 | Bareilly_2(765/400)(PG)-Jauljivi(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 64 | Bareilly_2(765/400)(PG)-Kashipur(UK) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 65 | Bareilly_2(765/400)(PG)-Kashipur(UK) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 66 | Baspa-Karcham Wangtoo | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 67 | Baspa-Karcham Wangtoo | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | |
| 68 | Bassi-Bhiwadi | 1 | 110 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 69 | Bassi(PG)-Heerapura(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 70 | Bassi(PG)-Heerapura(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 71 | Bassi-Kotputli | 1 | 110 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 72 | Bassi(PG)-Phagi(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | |
| 73 | Bassi(PG)-Phagi(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | |
| 74 | Bassi-Sikar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 75 | Bassi-Sikar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 76 | Basti (UP)-Lucknow(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 77 | Basti (UP)-Lucknow(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 78 | Bawana(CCGTB)(DTL)-Bahadurgarh(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 79 | Bawana(CCGTB)(DTL)-Bhiwani(PG) | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 80 | Bhadla(PG)-Bhadla(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 81 | Bhadla(PG)-Bhadla(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 82 | Bhensra (Jaisalmer2)(RS)-Fatehgarh_III(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 83 | Bhensra (Jaisalmer2)(RS)-Fatehgarh_III(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 86 | Bhiwadi-Gurgaon | 1 | 110 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 87 | Bhiwadi-Hissar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 88 | Bhiwadi-Hissar | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 89 | Bhiwadi-Hissar | 3 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 90 | Bhiwadi-Neemrana(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 91 | Bhiwadi-Neemrana(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 92 | Bhiwani(PG)-Bhiwani(BB) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 93 | Bhiwani(BB)-Hissar(PG) | 1 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 94 | Bhiwani(PG)-Jind | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 95 | Bhiwani(PG)-Jind | 2 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 96 | Bhiwani(PG)-Kabulpur(HV) | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 97 | Bhiwani(PG)-Hissar-Moga(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 98 | Bikaner_2-Bikaner(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 99 | Bikaner_2-Bikaner(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 100 | Bikaner_2(PG)-Khetri(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 101 | Bikaner_2(PG)-Khetri(PG) | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 102 | Bikaner_2(PG)-Khetri(PG) | 3 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 103 | Bikaner_2(PG)-Khetri(PG) | 4 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | |
| 104 | Chamera-II - Chamba(GIS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | |
| 105 | Chamera-II-Chamera-I | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | |
| 106 | Chamera-II-Kishenpur | 1 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 107 | Chamera-I-Jalandhar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 108 | Chamera-I-Jalandhar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 109 | Chittorgarh(RS)-Kankroli | 2 | 110 | 6 | 150 | 0.1 | 110 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 110 | Chittorgarh(PG)-Chittorgarh(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 111 | Chittorgarh(PG)-Chittorgarh(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 112 | Dadri NCTPP-G. Noida | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 113 | Dadri(NT)-Maharanibagh(PG)-Ballabhgahr(PG) | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 114 | Dadri(NT)-Mandola | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 115 | Dadri(NT)-Mandola | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 116 | Dadri(NT)-Muradnagar_2(UP) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 117 | Dadri(NT)-Panipat(BB) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 118 | Dadri(NT)-Panipat(BB) | 2 | 112 | 7 | 140 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | | |
| 119 | Dadri(NT)-Kaithal | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 120 | Deepalpur(JHKT)-Bawana(DV) | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 121 | Dehradun(PG)-Abdullapur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 122 | Dehradun(PG)-Abdullapur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 123 | Dehradun-Baghpat | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 124 | Dehradun(PG)-Roorkee(PG) | 1 | 110 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 125 | Dulhasti-Kishenpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 126 | Dulhasti-Kishenpur | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 127 | Dwarka-Jhatikra | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 128 | Fatehabad-Hissar-Bhiwani | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 129 | Fatehgarh_II(PG)-Fatehgarh_III(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 130 | Fatehgarh_II(PG)-Fatehgarh_III(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 131 | Fatehpur-Kanpur-Panki | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 132 | Fatehpur-Kanpur-Panki | 2 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 133 | Fatehpur-Mainpuri (PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 134 | Fatehpur-Mainpuri (PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 135 | Fatehpur - Unchahar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 136 | Fatehpur - Unchahar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 137 | G.Noida-Nawada | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 138 | Gorakhpur(PG)-Gorakhpur(UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 139 | Gorakhpur(PG)-Gorakhpur(UP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 140 | Gorakhpur PG-Lucknow(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 141 | Gorakhpur PG-Lucknow(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 142 | Gorakhpur PG-LUCKNOW7 PG | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 143 | Gorakhpur PG-LUCKNOW7 PG | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 144 | Gorakhpur-Motihari IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 145 | Gorakhpur-Motihari IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 146 | Gorakhpur-Muzaffarpur IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 147 | Gorakhpur-Muzaffarpur IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 148 | Gorakhpur(PG)-Basti(UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 149 | Gorakhpur(PG)-Basti(UP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 150 | Gumma(HP)-Panchkula(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 151 | Gumma(HP)-Panchkula(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 152 | Gurgaon-Sohna Road | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 153 | Gurgaon-Sohna Road | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 154 | Hamirpur-Parbati Pool Banala | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 155 | Hamirpur-Jalandhar | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 156 | Jaipur South-Bassi | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 157 | Jaipur South-Bassi | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 158 | Jaipur South(PG)-RAPP D(NP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 159 | Jalandhar-Chamba(GIS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 160 | Jalandhar-Chamba(GIS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 161 | Jalandhar-Dhanansu(PS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 162 | Jalandhar-Nakodar | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 163 | Kaithal-Hissar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 164 | Kaithal-Hissar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 165 | Kankroli-Jodhpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 166 | Kankroli-Zerda IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 166 | Kankroli-Zerda IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 167 | Kanpur - Kanpur GIS(765/400) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 168 | Kanpur - Kanpur GIS(765/400) | 2 | 112 | 7 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 169 | Kanpur-Agra | 1 | 111 | 6 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 170 | Kanpur-Auraiya(NT) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 171 | Kanpur-Auraiya(NT) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 172 | Kanpur-Ballabgarh | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 173 | Kanpur-Ballabgarh | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 174 | Kanpur-Ballabgarh | 3 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | | |
| 175 | Karcham Wangtoo-Nathpa Jhaki | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 176 | Karcham Wangtoo-Nathpa Jhaki | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 177 | Karcham Wangtoo-Wangtoo(HP) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 178 | Karcham Wangtoo-Wangtoo(HP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 179 | Khetri- Bhiwadi | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 180 | Khetri- Bhiwadi | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 181 | Kishenpur-New Wanpoh | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 182 | Kishenpur-New Wanpoh | 3 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 183 | Kishenpur-New Wanpoh | 4 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 184 | Kishenpur-Samba | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 185 | Kishenpur-Samba | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 186 | Koldam-Nallagarh | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 187 | Kota-Jaipur South | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 188 | Kota-Merta(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 189 | Koteshwar(PG)-Koteswar(TH) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 190 | Koteshwar(PG)-Koteswar(TH) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 191 | Kotputli-Bhiwadi | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 192 | Kurukshetra-Dhanansu(PS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 193 | Kurukshetra-Jind | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 194 | Kurukshetra-Jind | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 195 | Kurukshetra-Nakodar(PS) | 1 | 110 | 6 | 150 | 0.1 | 110 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 196 | Kurukshetra-Sonipat | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 197 | Kurukshetra-Sonipat | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 198 | Lucknow(PG)-Lucknow UP | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 199 | Lucknow(PG)-Jehta | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 200 | Lucknow(PG)-Jehta | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 201 | Jehta-Unnao | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 202 | Jehta-Unnao | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 203 | Lucknow_2(765/400)(PG) - Lucknow(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 204 | Lucknow_2(765/400)(PG) - Lucknow(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 205 | Lucknow_2(765/400) - Kanpur GIS(765/400) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 206 | Lucknow_2(765/400) - Kanpur GIS(765/400) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 207 | Ludhiana-Jalandhar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 208 | Ludhiana-Malerkotla | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 209 | Ludhiana-Patiala | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 210 | Ludhiana-Patiala | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 211 | Mahendergarh-Bhiwani(PG)-Hissar | 3 | 111 | 5 | 150 | 0.1 | 111 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 212 | Mahendergarh-Bhiwani(PG)-Hissar | 4 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 213 | Mainpuri-Ballabgarh | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 214 | Mainpuri-Ballabgarh | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 215 | Malerkotla-Kaithal | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 216 | Malerkotla-Patiala | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 217 | Manesar-Sohna Road | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 218 | Manesar-Sohna Road | 2 | 112 | 6 | 150 | 0.1 | 112 | 7 | 140 | 0.1 | Y | | | | | | | | | |
| 219 | Meerut-Baghpat | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 220 | Meerut-Baghpat | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 221 | Meerut-Mandola | 1 | 112 | 5 | 150 | 0.1 | 112 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 222 | Meerut-Mandola | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 223 | Meerut-Mandola | 3 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 224 | Meerut-Mandola | 4 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 225 | Meerut(PG)-Muzzafarnagar(UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 226 | Moga-Fatehabad | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 227 | Moga-Hissar | 2 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 228 | Moga-Hissar | 3 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 229 | Moga-Jalandhar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 230 | Moga-Jalandhar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 231 | Moradabad(UP)-Hapur(UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 232 | Muradnagar(UP)-Hapur(UP) | 1 | 110 | 5 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 233 | Nallagarh-Patiala | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 234 | Nallagarh-Patiala | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 235 | Nathpa Jhakri(SJ)-Rampur(SJ) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 236 | Nathpa Jhakri(SJ)-Rampur(SJ) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 237 | Nathpa Jhakri(SJ)-Gumma(HP) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 238 | Nathpa Jhakri(SJ)-Gumma(HP) | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 239 | Neemrana(PG)-Manesar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 240 | Neemrana(PG)-Manesar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 241 | Neemrana(PG)-Dhanonda(HV)-Mohindergarh(APL) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 242 | Neemrana(PG)-Dhanonda(HV)-Mohindergarh(APL) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 243 | Neemrana(PG)-Sikar | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 244 | New Wanpoh-Wagoora | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 245 | New Wanpoh-Wagoora | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 246 | Orai(PG)-Orai (UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 247 | Orai(PG)-Orai (UP) | 2 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | | |
| 248 | Panchkula -Abdullapur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 249 | Panchkula -Abdullapur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 250 | Patiala-Panchkula | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 251 | Patiala-Panchkula | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 252 | Patiala-Patran | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 253 | Patiala-Patran | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 254 | Patran-Kaithal | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 255 | Patran-Kaithal | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 256 | Rampur(SJ)-Nallagarh(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 257 | Rampur(SJ)-Nallagarh(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 258 | Rampur_PRSTL-Moradabad(UP) | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 259 | RAPP-D(NP)-Kota(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 260 | RAPS-C(NP)-Chittorgarh(RS) | 2 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 261 | RAPS-C(NP)-Kankroli(PG) | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 262 | RAPS-C(NP)-Kota(PG) | 1 | 110 | 6 | 150 | 0.1 | 110 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 263 | Rihand(NT)-Allahabad(PG) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 264 | Rihand(NT)-Allahabad(PG) | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 265 | Rihand3-Vindhyachal IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 266 | Rihand3-Vindhyachal IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 267 | Roorkee(PG)-Kashipur(UK) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 268 | Roorkee(PG)-Kashipur(UK) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 269 | Roorkee-Saharanpur | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 270 | Sambhal(UP)-Rampur(PRSTL) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 271 | Sambhal(UP)-Rampur(PRSTL) | 2 | 112 | 6 | 150 | 0.1 | 112 | 7 | 140 | 0.1 | Y | | | | | | | | | |
| 272 | Sarnath(UP)-Varanasi(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 273 | Sarnath(UP)-Varanasi(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 274 | Shahjahanpur(PG)-Bareilly(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 275 | Shahjahanpur(PG)-Bareilly(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 276 | Shahjahanpur(PG)-Lucknow(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 277 | Shahjahanpur(PG)-Lucknow(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 278 | Shahjahanpur PG-Rosa | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 279 | Shahjahanpur PG-Rosa | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 280 | Shree Cement(SCL)-Kota(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 281 | Shree Cement-Merta | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 282 | Sikar-Khetri | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 283 | Sikar-Khetri | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 284 | Sikar(PG)-Ratangarh(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 285 | Sikar(PG)-Ratangarh(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 286 | Sikar_2(PSTL)-Neemrana(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 287 | Sikar_2(PSTL)-Neemrana(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 288 | Singrauli(NT)-Allahabad(PG) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 289 | Singrauli(NT)-Allahabad(PG) | 2 | 111 | 6 | 140 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 290 | Singrauli(NT)-Allahabad(PG) | 3 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | | |
| 291 | Singrauli(NT)-Anpara(UP) | 1 | 110 | 6 | 140 | 0.1 | 110 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 292 | Singrauli(NT)-Fatehpur(PG) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 293 | Singrauli(NT)-Lucknow(UP) | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 294 | Singrauli(NT)-Rihand(NT) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 295 | Singrauli(NT)-Rihand(NT) | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 296 | Singrauli(NT)-Vindhyachal(PG) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 297 | Singrauli(NT)-Vindhyachal(PG) | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 298 | Sohawal-Lucknow(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 299 | Sohawal-Lucknow(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 300 | Sorang(Greenko)-Kala Amb | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 301 | Tehri(THDC)-Koteshwar(PG) | 3 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | | |
| 302 | Uri-II(NH) - Uri-I(NH) | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 303 | Uri-II(NH) - Wagoora(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 304 | Uri-I(NH) - Amargarh(INDIGRID) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 305 | Uri-I(NH) - Amargarh(INDIGRID) | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 306 | Varanasi(PG)-Sahupuri(UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 307 | Varanasi(PG)-Sahupuri(UP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 308 | varanasi-Sasaram IR | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 309 | varanasi-Biharshariff IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 310 | varanasi-Biharshariff IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 311 | Wagoora-Amargarh | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 312 | Wagoora-Amargarh | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 313 | Wangtoo(HP)-Kala Amb | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 314 | Wangtoo(HP)-Sorang(Greenko) | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| **B. Adani Transmission India Ltd. (ATIL) (FBTL)** | | | | | | | | | | | | | | | | | | | | |
| 1 | Alwar(ATIL)-Hindaun(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Bhiwani(PG) -Mohindergarh(APL) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 3 | Bhiwani(PG) -Mohindergarh(APL) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | Bhadla(PG)-Bhadla_II | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 5 | Bhadla(PG)-Bhadla_II | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| **C. UPPTCL (Uttar Pradesh)** | | | | | | | | | | | | | | | | | | | | |
| 1 | Agra UP-Fatehabad (765kV Agra UP) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 2 | Agra UP-Fatehabad (765kV Agra UP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 3 | Agra Fatehabad(UP)-Firozabad | 1 | 110 | 6 | 150 | 0.1 | 110 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 4 | Agra UP-Unnao | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 5 | Alakhnanda-Vishnuprayag | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 6 | Aligarh-Mainpuri765 (UP) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 7 | Aligarh-Mainpuri765 (UP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 8 | Aligarh-Muradnagar | 1 | 110 | 6 | 150 | 0.1 | 110 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 9 | Aligarh-Panki | 1 | 110 | 6 | 140 | 0.1 | 110 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 10 | Aligarh(UP)-Khurja(THDC) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 11 | Khurja(THDC)-Shamli(UP) | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 12 | Aligarh(UP)-Shamli(UP) | 2 | 112 | 7 | 150 | 0.1 | 112 | 7 | 140 | 0.1 | Y | | | | | | | | | |
| 13 | Aligarh-Sikandrabad | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 14 | Aligarh-Harduaganj | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 15 | AnparaB-AnparaC | 1 | Only an Extension of Bus therefore overvoltage protection is not enable | | | | | | | | Y | | | | | | | | | |
| 16 | AnparaB-AnparaC | 2 | | | | | | | | | Y | | | | | | | | | |
| 17 | AnparaB-AnparaD | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 18 | AnparaB-AnparaD | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 19 | AnparaB-Mau | 1 | 110 | 6 | 140 | 0.1 | 110 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 20 | AnparaB-Obra | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 21 | AnparaB-Sarnath | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 22 | AnparaB-Sarnath | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 23 | Ataur-Indirapuram | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 24 | Ataur-Noida sec123 | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 25 | Azamgarh-Mau | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 26 | Azamgarh-Tanda Stage-II | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 27 | Badaun-Sambhal | 1 | 110 | 6 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 28 | Badaun-Sambhal | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 29 | Banda-Orai | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 30 | Banda-Orai | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 31 | Banda-Rewa Road | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 32 | Banda-Rewa Road | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 33 | Bareilly(UP)-Unnao | 1 | 112 | 6 | 145 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 34 | Bareilly(UP)-Unnao | 2 | 110 | 5 | 145 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 35 | Fatehabad(UP)-Agra(South)-I | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 36 | Fatehabad(UP)-Mathura | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 37 | Fatehabad(UP)-Mathura | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 38 | Firozabad-Agra(South) | 1 | 111 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 39 | Firozabad-Jawaharpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 40 | Firozabad-Jawaharpur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 41 | Gorakhpur UP-Azamgarh | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 42 | Gr.Noida4-Gr.Noida7 | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 43 | Gr.Noida4-Gr.Noida7 | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 44 | Gr.Noida7-Sikandrabad | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 45 | Gr.Noida7-Sikandrabad | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 46 | Gr.Noida(765kV)-Noida Sec 148 | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 47 | Gr.Noida(765kV)-Noida Sec 148 | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 48 | Hapur-Ataur | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 49 | Hapur-Ataur | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 50 | Hapur-Dasna | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 51 | Hapur-Dasna | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 52 | Harduaganj-Sikandrabad | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 53 | Jaunpur- Obra C | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 54 | Kanpur765-Ghatampur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 55 | Kanpur765-Ghatampur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 56 | Lucknow(PG)-Mohanlalganj(PGYTL) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 57 | Lucknow(UP)-Mohanlalganj(PGYTL) | 1 | 110 | 5 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 58 | Mainpuri(UP)-Mainpuri(PG) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 59 | Mainpuri(UP)-Mainpuri(PG) | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 60 | Mainpuri(UP)-Orai-I | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 61 | Mainpuri(UP)-Orai-2 | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 62 | Meja(NTPC)-Bara | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 63 | Meja(NTPC)-Bara | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 64 | Meja-Masauli | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 65 | Meja(NTPC)-Rewa Road | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 66 | Muradnagar-Ataur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 67 | Muradnagar New-Mathura | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 68 | Muzaffarnagar-Ataur | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 69 | Muzaffarnagar-Vishnuprayag | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 70 | Muzaffarnagar-Alakhnanda | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 71 | Noida sec123-Indirapuram | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 72 | Noida Sec 148-Noida Sec 123 | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 73 | Noida Sec 148-Noida Sec 123 | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 74 | Obra-B-Sultanpur | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 75 | Obra-B - Jaunpur | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 76 | Orai-Paricha | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 77 | Orai-Paricha | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 78 | Panki- Panki TPS | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 79 | Panki- Panki TPS | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 80 | Rasra-Mau | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 81 | Rewa Road-Masauli | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 82 | Rewa road-Obra | 1 | 110 | 6 | 140 | 0.1 | 110 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 83 | Rewa road-Panki | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 84 | Roorkee-Muzaffarnagar | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 85 | Rosa-Badaun | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 86 | Rosa-Badaun | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 87 | Sarnath-Azamgarh | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 88 | Simbholi-Muradnagar II | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 89 | Simbholi-Muradnagar II | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 90 | Simbholi-Meerut | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 91 | Simbholi-Meerut | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 92 | Sultanpur(UP)-Mohanlalganj(PGYTL) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 93 | Sultanpur-Tanda Stage II | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 94 | Tanda-Basti | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 95 | Tanda-Basti | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 96 | Unnao(UP)-Mohanlalganj(PGYTL) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 97 | Unnao-Panki | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 98 | Varanasi(PG)-Jaunpur | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 99 | Varanasi(PG)-Jaunpur | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 141.8 | 0.1 | Y | | | | | | | | | |
| **D. THDCIL** | | | | | | | | | | | | | | | | | | | | |
| 1 | Aligarh(PG)-Khurja STPP(TH) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 2 | Aligarh(PG)-Khurja STPP(TH) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| **E. Rajasthan** | | | | | | | | | | | | | | | | | | | | |
| 1 | Ajmer-Bhilwara-I | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Ajmer-Bhilwara-II | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 3 | Ajmer-Deedwana | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | Akal-Barmer | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 5 | Akal-Bhensra (Jaisalmer2) | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 6 | Akal-Jodhpur | 1 | 111 | 6 | 150 | 0.1 | 110 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 7 | Akal-Kankani (Jodhpur New) | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 8 | Akal-Ramgarh | 1 | 110 | 5 | 148 | 0.1 | 110 | 5 | 148 | 0.1 | Y | | | | | | | | | |
| 9 | Akal-Ramgarh | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 10 | Anta-Chhabra SCTPS | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 11 | Anta-Chhabra SCTPS | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 12 | Anta-Kalisindh | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 13 | Anta-Sangod | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 14 | Sangod-Kalisindh | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 15 | Anta-Kawai SCTPS | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 16 | Anta-Kawai SCTPS | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 17 | Babai - Suratgarh SCTPS | 1 | 106 | 3 | 150 | 0.1 | Both lines i.e. 400 KV Babai-SCTPS CKT-I &II CHARGED UP-TO 77 KM ON ANTI-THEFT BASIS FROM 400 KV GSS BABAI END ,SINCE DT. 06.01.2024. | | | | Y | | | | | | | | | |
| 18 | Babai - Suratgarh SCTPS | 2 | 106 | 4 | 150 | 0.1 | | | | | Y | | | | | | | | | |
| 19 | Barmer-Bhinmal (PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 20 | Barmer-Bhinmal (PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 21 | Barmer-Rajwest | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 22 | Barmer-Bhensra (Jaisalmer2) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 23 | Barmer-Bhensra (Jaisalmer2) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 24 | Bhadla(RS)-Jodhpur | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 25 | Bikaner(RS)-Bhadla(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 26 | Bikaner(RS)-Bhadla(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 27 | Bikaner(RS)-Sikar(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 28 | Bikaner(RS)-Deedwana | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 29 | Bikaner(RS)-Sikar(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 30 | Bikaner(RS)-Suratgarh SCTPP | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 31 | Bikaner(RS)-Suratgarh SCTPP | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 32 | Bhilwara-Chhabra | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 33 | Bhilwara-Chittorgarh(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 34 | Bhilwara-Chittorgarh(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 35 | Chhabra-Chhabra SCTPS | 1 | Only an Extension of Bus therefore overvoltage protection is not enabled | | | | | | | | Y | | | | | | | | | |
| 36 | Chhabra-Chhabra SCTPS | 2 | | | | | | | | | Y | | | | | | | | | |
| 37 | Chhabra-Kawai | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 38 | Chhabra-Anta (RS) -Kota (PG) | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 39 | Heerapura-Hindaun | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 40 | Hindaun-Chabra TPS | 1 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | Y | | | | | | | | | |
| 41 | Jaisalmer(RS)-Renew hans Urja Pvt Ltd | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 42 | Jaisalmer(RS)-Corneight Parks Pvt. Ltd | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 43 | Kankani (Jodhpur New)- Bhensra (Jaisalmer2) | 1 | 111 | 5 | 148 | 0.1 | 111 | 5 | 148 | 0.1 | Y | | | | | | | | | |
| 44 | Kankani (Jodhpur New)-Merta | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 45 | Kankani (Jodhpur New)-Jodhpur | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | 110 | 6 | 140 | 0.1 | | | | | |
| 46 | Kankani (Jodhpur New)-Jodhpur | 2 | 112 | 6 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | 112 | 6 | 140 | 0.1 | |
| 47 | Kankani (Jodhpur New)-Pachpadra | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 48 | Rajwest-Pachpadra | 1 | 111 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 49 | Merta-Bikaner(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 50 | Merta-Heerapura | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 51 | Merta-Bhadla(RS) | 1 | 112 | 5 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 52 | Merta-Ratangarh | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 53 | Phagi-Ajmer(RS) | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 54 | Phagi-Ajmer(RS) | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 55 | Phagi-Heerapura | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 56 | Phagi-Heerapura | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 57 | Rajwest-Jodhpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 58 | Ramgarh-Bhadla(RS) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 59 | Ramgarh-Bhadla(RS) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 60 | Suratgarh-Bikaner(RS) | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 61 | Suratgarh-Ratangarh | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 62 | Suratgarh-Ratangarh | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 63 | Suratgarh-Suratgarh SSCTPP | 1 | Only an Extension of Bus therefore overvoltage protection is not enabled | | | | | | | | Y | | | | | | | | | |
| 64 | Suratgarh-Suratgarh SSCTPP | 2 | | | | | | | | | Y | | | | | | | | | |
| **F. HVPNL (Haryana)** | | | | | | | | | | | | | | | | | | | | |
| 1 | CLP Jhajjar (MGSTPS) -Dhanonda | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 2 | CLP Jhajjar (MGSTPS) -Dhanonda | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 3 | CLP Jhajjar(MGSTPS)- Kabulpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | CLP Jhajjar(MGSTPS)- Kabulpur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 5 | Deepalpur-Kabulpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 6 | Deepalpur-Kabulpur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 7 | Dhanonda-Daulatabad | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 8 | Dhanonda-Daulatabad | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 9 | Gurgaon-Daulatabad | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 10 | Gurgaon-Daulatabad | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 11 | Jhajjar(IGSTPS)-Daulatabad | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 12 | Jhajjar(IGSTPS)-Daulatabad | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 13 | Jind-Kirori | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 14 | Jind-Kirori | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 15 | Khedar-Fathehabad | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 16 | Khedar-Kirori | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 17 | Khedar-Kirori | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 18 | Khedar-Nuhiyawali | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 19 | Nuhiawali-Fathehabad | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | |
| **G.APCPL** | | | | | | | | | | | | | | | | | | | | |
| 1 | Jhajjar (IGSTPS)-Mundka | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Jhajjar (IGSTPS)-Mundka | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| **H. DTL (Delhi)** | | | | | | | | | | | | | | | | | | | | |
| 1 | Ballabgarh(PG)-Tughlakabad(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Ballabgarh(PG)-Tughlakabad(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 3 | Bamnoli-Jhatikra | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | Bamnauli(PG)-Tughlakabad(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 5 | Bamnauli(PG)-Tughlakabad(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 6 | Bawana(DV)-Maharanibagh(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 7 | Bawana(DV)-Maharanibagh(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 8 | Jhatikra(PG)-Mundka(DV) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 9 | Jhatikra(PG)-Mundka(DV) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 10 | Mandola(PG)-Maharanibagh(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 11 | Mandola(PG)-Maharanibagh(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 12 | Bawana-Mundka | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 13 | Bawana-Mundka | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| **I. PDD (J&K)** | | | | | | | | | | | | | | | | | | | | |
| 1 | Baglihar-Kishenpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | N | | | | | | | | | |
| 2 | Baglihar-Kishenpur | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | N | | | | | | | | | |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | Baglihar-Kishenpur | 3 | 112 | 7 | 150 | 0.1 | 112 | 7 | 150 | 0.1 | N | | | | | | | | | |
| 4 | New Wanpoh-Baglihar(JK) | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | N | | | | | | | | | |
| **J. PSTCL (Punjab)** | | | | | | | | | | | | | | | | | | | | |
| 1 | Behman Jassa Singh-HMEL | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Behman Jassa Singh-HMEL | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 3 | Behman Jassa Singh-Moga | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Yes(Behman Jass) | | | | | | | | | |
| 4 | Makhu-Amritsar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Yes(Makhu) | | | | | | | | | |
| 5 | Makhu-Amritsar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Yes(Makhu) | | | | | | | | | |
| 6 | Makhu-Mukatsar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 7 | Makhu-Mukatsar | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Yes(Makhu) | | | | | | | | | |
| 8 | Nakodar-Makhu | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 9 | Nakodar-Makhu | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Yes(Makhu) | | | | | | | | | |
| 10 | Nakodar-Moga | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Yes(Nakodar) | | | | | | | | | |
| 11 | Rajpura-Rajpura TPS | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 12 | Rajpura-Dhuri | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 13 | Rajpura-Rajpura TPS | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Need to be reviewed | 115 | 5 | 150 | 0.1 | 115 | 5 | 150 | 0.1 | |
| 14 | Rajpura-Dhuri | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Yes(Rajpura) | | | | | | | | | |
| 15 | Rajpura TPS-Nakodar | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Need to be reviewed | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | |
| 16 | Rajpura TPS-Nakodar | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | Need to be reviewed | 110 | 3 | 140 | 0.1 | 110 | 3 | 150 | 0.1 | |
| 17 | Talwandi Sabo-Dhuri | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Yes(Dhuri) | | | | | | | | | |
| 18 | Talwandi Sabo-Dhuri | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | N | | | | | | | | | |
| 19 | Talwandi Sabo-Behman-Jassa | 1 | 111 | 6 | 140 | 0.1 | 111 | 6 | 150 | 0.1 | Yes(Behman Jass) | | | | | | | | | |
| 21 | Talwandi Sabo-Nakodar | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | N | | | | | | | | | |
| 22 | Talwandi Sabo-Mukatsar | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 150 | 0.1 | Yes(Muktsar) | | | | | | | | | |
| 23 | Talwandi Sabo-Mukatsar | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 150 | 0.1 | N | | | | | | | | | |
| **K. PTCUL (Uttrakhand)** | | | | | | | | | | | | | | | | | | | | |
| 1 | Muradabad-Kashipur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Rishikesh-Nehtaur | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 3 | Kashipur-Nehtaur | 1 | 110 | 5 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 4 | Roorkee-Muzaffarnagar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 5 | Roorkee-Rishikesh | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 6 | Srinagar-Alakhnanda (GVK) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 7 | Srinagar-Alakhnanda (GVK) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| **L. HPPTCL** | | | | | | | | | | | | | | | | | | | | |
| 1 | Chamba(PG)-Kuther(JSW) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Kuther(JSW)-Lahal(HP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | 111 | 6 | 150 | 0.1 | |
| 2 | Chamba(PG)-Lahal(HP) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | 112 | 7 | 150 | 0.1 | |
| **M. BBMB** | | | | | | | | | | | | | | | | | | | | |
| 1 | Bhiwani-Rajpura | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Dehar-Rajpura | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 3 | Dehar-Panchkula | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | Panchkula-Panipat | 1 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| **N. INDIGRID** | | | | | | | | | | | | | | | | | | | | |
| 1 | Amargarh-Samba | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Amargarh-Samba | 2 | 111 | 6 | 150 | 0.1 | 111 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 3 | Jalandhar-Samba | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | Jalandhar-Samba | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 5 | Koldam-Parbati Pooling Banala | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 6 | Ludhiana-Koldam | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 7 | Koldam-Ropar | 1 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 8 | Parbati Pool Banala-Nallagarh | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 9 | Parbati-II- Parbati Pooling Banala | 2 | 112 | 5 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 10 | Parbati-III- Parbati Pooling Banala | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 11 | Prithala(GPTL)-Kadarpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 12 | Prithala(GPTL)-Kadarpur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 13 | Prithala(GPTL)-Aligarh(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 14 | Prithala(GPTL)-Aligarh(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 15 | RAPPC-Shujalpur IR | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 16 | RAPPC-Shujalpur IR | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| 17 | Ropar(PS)-Ludhiana(PG) | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 18 | Sainj(HP)-Parbati II | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 19 | Sainj(HP)-Parbati III | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 20 | Sohna Road(GPTL)-Kadarpur | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 21 | Sohna Road(GPTL)-Kadarpur | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| **O. NTPC** | | | | | | | | | | | | | | | | | | | | |
| 1 | Dadri(NT)-Loni Road/ Harsh Vihar | 1 | 110 | 5 | 140 | 0.1 | 110 | 5 | 140 | 0.1 | Y | | | | | | | | | |
| 2 | Dadri(NT)-Loni Road/ Harsh Vihar | 2 | 112 | 6 | 140 | 0.1 | 112 | 6 | 140 | 0.1 | Y | | | | | | | | | |
| **P. NRSS36** | | | | | | | | | | | | | | | | | | | | |
| 1 | Babai(RS)-Bhiwani(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Babai(RS)-Bhiwani(PG) | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 3 | Babai(RS)-Neemrana(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | Babai(RS)-Sikar(PG) | 1 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | No, Presently end 1 set on 110% instead of 112% and directed to implemented as per NRPC | 111 | 6 | 150 | 0.1 | | | | | |
| **Q. NRSSXXXI(B) (Sekura Energy)** | | | | | | | | | | | | | | | | | | | | |
| 1 | Amritsar-Malerkotla | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 2 | Amritsar-Malerkotla | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| 3 | Kurukshetra-Malerkotla | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | Y | | | | | | | | | |
| 4 | Kurukshetra-Malerkotla | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | Y | | | | | | | | | |
| **R. RENEW Power Limited** | | | | | | | | | | | | | | | | | | | | |
| 1 | Bikaner(PG) - Bikaner (ReNew) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| 1 | Renew SuryaRavi SL_BKN_PG-Bikaner RENEW Solar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| **S. Azure** | | | | | | | | | | | | | | | | | | | | |
| 1 | Bikaner(PG)-Azure43 PSS | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| 2 | Azure43 PSS-Azure43 RSS | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| **T. AEPL** | | | | | | | | | | | | | | | | | | | | |
| 1 | Bikaner(PG)-Avada | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| **U. AYANA** | | | | | | | | | | | | | | | | | | | | |
| 1 | Ayana-ARP3PL | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| 2 | Bikaner(PG)-Ayana | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| **V. ADANI GREEN** | | | | | | | | | | | | | | | | | | | | |
| 1 | AGE25L-Bhadla2(PG) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| 2 | AREPRL-Fatehgarh Pooling | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| 3 | AREPRL-Fatehgarh Pooling | 2 | 112 | 6 | 150 | 0.1 | 112 | 6 | 150 | 0.1 | | | | | | | | | | |
| **W. NTPC GREEN** | | | | | | | | | | | | | | | | | | | | |
| 1 | Bhadla_2 (PG)-Kolayat Solar NTPC_1 | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| 2 | Kolayat Solar NTPC_1 Kolayat Solar NTPC_2 | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| **X. ACME** | | | | | | | | | | | | | | | | | | | | |
| 1 | Fatehgarh Pooling(FBTL)-ACME Deoghar | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |
| **Y. SJVNGEL** | | | | | | | | | | | | | | | | | | | | |
| 1 | 400kV SJVN_GEL_SL_BKN2-Bikaner_2 (PBTSL) | 1 | 110 | 5 | 150 | 0.1 | 110 | 5 | 150 | 0.1 | | | | | | | | | | |

| State Name | Defense Scheme | Planned Relief (MW) | Mapped Relief (MW) | No. of Main feeders Planned | No. of Main feeders Telemetered | No. of Alternate feeders Telemetered |
|---|---|---|---|---|---|---|
| UP | UFR | 5958.843 | | | | |
| | df/dt | 2561.92 | | | | |
| Rajasthan | UFR | 4055.282 | | | | |
| | df/dt | 776 | | | | |
| Punjab | UFR | 3008.19 | | | | |
| | df/dt | 1410 | | | | |
| Haryana | UFR | 2631.661 | | | | |
| | df/dt | 900 | | | | |
| Delhi | UFR | 1496.69 | | | | |
| | df/dt | 809.36 | | | | |
| HP | UFR | 486.231 | | | | |
| | df/dt | 190 | | | | |

| S.N. | Name of S/stn (including voltage level) | Name of feeder/transformer (including voltage level) | UFR Stage-wise Estimated Load relief (MW) | | | |
|---|---|---|---|---|---|---|
| | | | 49.4 Hz | 49.2 Hz | 49.0 Hz | 48.8 Hz |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

| S.N. | Name of S/stn (including voltage level) | Name of feeder/transformer (including voltage level) | df/dt Stage-wise Estimated Load relief (MW) | | |
|---|---|---|---|---|---|
| | | | 49.9 Hz; 0.1Hz/s | 49.9 Hz; 0.2Hz/s | 49.9 Hz; 0.3Hz/s |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

# Observations in FTC of January 2026

## PPGCL - 330 Switchable Non-Convertable LINE_REACTOR of 765 kV Bara-Mainpuri ckt.1 at Bara(UP)

1. Unrestrained operation level in differential protection of reactor has been taken at 6 pu while as per philosophy, it should be 2pu.

## SEUPPTCL- 765kV Mainpuri(UP)-Unnao-1

1. Zone-4 reach has been taken as 100% of protected line at Unnao end (main 2).

## PBDTL- 240 Switchable Convertable LINE_REACTOR of 765 kV Dausa-Gwalior ckt-1 at DAUSA(PBDTL)

1. Unrestrained operation level in differential protection of reactor has been taken at 8 pu while as per philosophy, it should be 2pu.

## 400/33/22kV, 315 MVA, 3-Phase, T&R, ICT - 2 at NTPC SL Bhadla(RS)

1. Cross blocking feature is off in differential protection.

## 220/33kV, 150 MVA, 3-Phase, ATLANTA ELECTRICALS, ICT - 2 at Ampin EG8PL Hyb W/S FTHG4

1. REF pick up current at .1amp (.1*600=60amp) ie. 60/157= 38% while as per philosophy it should be 10-15% of rated current.

# Observations in FTC of February, 2026

**220kV Khaba_REPL_SL_Ftg3-Fatehgarh_III(PG)-1:**

- Auto reclose Reclaim Time Setting: 10 sec. However, as per philosophy, it should have to be 25 sec.

**400kV Renew_Samir_SPL_SL_Ftg3-Renew_SS3PL_SL_Ftg3-1:**

- Power Swing Blocking: Allow Tripping for Zone 1. However, as per philosophy, Block tripping for all zones.

**765kV Bhadla_3(PB3TL)-Sikar_2(PSTL)-2:**

- Backup phase overcurrent stage 1 enabled.

**B207_87T_AEG10PL_ICT-1_140MVA-**

- Cross-blocking is disabled for Differential protection. Should be enabled.
- Maximum ratio of 5th harmonic to fundamental harmonic differential current in %- not mentioned.
- Earth Fault Protection- DT is used in place of IDMT.

**400/33kV, 200 MVA, 3-Phase, Meiden T&D (India) Ltd., Power Transformer - 2 at Renew_SS3PL_SL_Ftg3**

- Earth Fault Protection- Stage 1 is DT enabled and non-Directional with time delay 0f 1 sec.

# Bays Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Bay No | Bay Type | Substation | State |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119747 | Dec - 2025 | 400kV Main Bay Bay No. 9A of 400kV line from 400kV GSS Bhadla to 500MW NTPC solar park at Bhadla(RS) | RRVPNL | 400kV | Bay No. 9A | Main Bay | Bhadla(RS) | RAJASTHAN |
| 2 | 1119747 | Dec - 2025 | 400kV Tie Bay bay No. 9T of 400kV Line from 400kV GSS Bhadla to 500 MW NTPC solar park and Future bay at Bhadla(RS) | RRVPNL | 400kV | bay No. 9T | Tie Bay | Bhadla(RS) | RAJASTHAN |
| 3 | 1119755 | Dec - 2025 | 400kV Main Bay 403 of 400kV Bhadla (RS) Line at NTPC_SL_Bhadla(RS) | NTPC_REL | 400kV | 403 | Main Bay | NTPC_SL_Bhadla(RS) | RAJASTHAN |
| 4 | 1119755 | Dec - 2025 | 400kV Tie Bay 405 of 400/33kV, 315MVA Transformer 2 and Future at NTPC_SL_Bhadla(RS) | NTPC_REL | 400kV | 405 | Tie Bay | NTPC_SL_Bhadla(RS) | RAJASTHAN |
| 5 | 1119755 | Dec - 2025 | 400kV Main Bay 404 of 400/33kV, 315MVA Transformer 2 at NTPC_SL_Bhadla(RS) | NTPC_REL | 400kV | 404 | Main Bay | NTPC_SL_Bhadla(RS) | RAJASTHAN |
| 6 | 1119755 | Dec - 2025 | 400kV Main Bay 401 of 400/33kV, 315MVA Transformer 1 at NTPC_SL_Bhadla(RS) | NTPC_REL | 400kV | 401 | Main Bay | NTPC_SL_Bhadla(RS) | RAJASTHAN |
| 7 | 1119755 | Dec - 2025 | 400kV Tie Bay 402 of 400kV Bhadla (RS) line and 400/33kV, 315MVA Transformer 1 at NTPC_SL_Bhadla(RS) | NTPC_REL | 400kV | 402 | Tie Bay | NTPC_SL_Bhadla(RS) | RAJASTHAN |
| 8 | 1119540 | Jun - 2025 | 765kV Main Bay 703 of 765 kV Dausa-Phagi ckt-1 at DAUSA(PBDTL) | PB_DAUSA_TL,POWERGRID | 765kV | 703 | Main Bay | DAUSA(PBDTL) | RAJASTHAN |
| 9 | 1119683 | Nov - 2025 | 765kV Tie Bay 702 of 765 KV Gwalior Dausa Line 2 and 765 KV Jaipur ( Phagi) Line 1 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 702 | Tie Bay | DAUSA(PBDTL) | RAJASTHAN |
| 10 | 1119683 | Nov - 2025 | 765kV Main Bay 701 of Main bay of Gwalior Dausa ckt 2 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 701 | Main Bay | DAUSA(PBDTL) | RAJASTHAN |
| 11 | 1119541 | Jun - 2025 | 765kV Main Bay 706R of 240 MVAR Switchable Line Reactor of 765 kV Dausa-Gwalior ckt-1 at DAUSA(PBDTL) | PB_DAUSA_TL,POWERGRID | 765kV | 706R | Main Bay | DAUSA(PBDTL) | RAJASTHAN |
| 12 | 1119541 | Jun - 2025 | 765kV Main Bay 706 of 765 kV Dausa-Gwalior ckt-1 at DAUSA(PBDTL) | PB_DAUSA_TL,POWERGRID | 765kV | 706 | Main Bay | DAUSA(PBDTL) | RAJASTHAN |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 13 | 1119683 | Nov - 2025 | 765kV Tie Bay 705 of 765KVJaipur (Phagi) Line 2 and 765KV Gwalior Dausa Line 1 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 705 | Tie Bay | DAUSA(PBDTL) | RAJASTHAN |
| 14 | 1119683 | Nov - 2025 | 765kV Main Bay 704 of Jaipur (Phagi) Line 2 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 704 | Main Bay | DAUSA(PBDTL) | RAJASTHAN |
| 15 | 1119473 | Apr - 2025 | 400kV Tie Bay 425 of 500 MVA 400/220/33kV ICT-6 and 1500MVA 765/400/33kV ICT-2 at Fatehgarh_III(PG) | PRTL | 400kV | 425 | Tie Bay | Fatehgarh_III(PG) | RAJASTHAN |
| 16 | 1119712 | Dec - 2025 | 220kV Main Bay 204 of 220kV Ampin_EG8PL_Hyb_W2FS_FTHG4-Fatehgarh_IV(F4TL)-1 at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG8PL | 220kV | 204 | Main Bay | Ampin_EG8PL_Hyb_W/S_FTHG4 | RAJASTHAN |
| 17 | 1119716 | Dec - 2025 | 33kV Main Bay F8 of VCB at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG8PL | 33kV | F8 | Main Bay | Ampin_EG8PL_Hyb_W/S_FTHG4 | RAJASTHAN |
| 18 | 1119716 | Dec - 2025 | 33kV Main Bay F10 of 33kV at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG8PL | 33kV | F10 | Main Bay | Ampin_EG8PL_Hyb_W/S_FTHG4 | RAJASTHAN |
| 19 | 1119766 | Jan - 2026 | 220kV Main Bay 220 of 220kV Line-7 bay (220) at Fatehgarh_IV(F4TL) | F4TL | 220kV | 220 | Main Bay | Fatehgarh_IV(F4TL) | RAJASTHAN |
| 20 | 1119644 | Oct - 2025 | 400kV Tie Bay 408 of 315 MVA ICT-1 and Bus-2 at Gonda(UP) | SEUPPTCL | 400kV | 408 | Tie Bay | Gonda(UP) | UTTAR PRADESH |
| 21 | 1119644 | Oct - 2025 | 400kV Main Bay 406 of 400 kV Gonda-Shahjahanpur-2 line at Gonda(UP) | SEUPPTCL | 400kV | 406 | Main Bay | Gonda(UP) | UTTAR PRADESH |
| 22 | 1119638 | Sep - 2025 | 400kV Main Bay 412 of 80 MVAr Bus Reactor-1 at Gonda(UP) | SEUPPTCL | 400kV | 412 | Main Bay | Gonda(UP) | UTTAR PRADESH |
| 23 | 1119638 | Sep - 2025 | 400kV Tie Bay 411 of 80 MVAr Bus Reactor-1 and 315 MVA ICT-2 at Gonda(UP) | SEUPPTCL | 400kV | 411 | Tie Bay | Gonda(UP) | UTTAR PRADESH |
| 24 | 1119609 | Sep - 2025 | 220kV Main Bay 227 of 220 KV Khaba Renewable Energy Private Limited at Fatehgarh_III(PG) | PRTL | 220kV | 227 | Main Bay | Fatehgarh_III(PG) | RAJASTHAN |
| 25 | 1118426 | Jan - 2022 | 400kV Main Bay 403 of 400kV Dwarka(PG)-Jhatikara(PG) at Dwarka (PG) | POWERGRID | 400kV | 403 | Main Bay | Dwarka (PG) | DELHI |

## Bus Coupler Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Associated Transmission Element1 | Associated Transmission Element2 | Substation | State |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | |
| 1 | 1119697 | Nov - 2025 | 220kV Bus Coupler Bay 205 of A-10 and 202 at Kangoo(HP) | HPPTCL | 220kV | 202 | A-10 | Kangoo(HP) | HIMACHAL PRADESH |

## BUS REACTOR Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage LeveL | MVAR Capacity | Substation | Make | Configuration | Serial No | State |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |
| 1 | 1119638 | Sep - 2025 | 400kV, 80 Bus Reactor 1 at Gonda(UP) | SEUPPTCL | 400kV | 80 | Gonda(UP) | ABB | 3-Phase | 15017-0001 | UTTAR PRADESH |

# BUS SECTIONALIZER Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Associated Transmission Element1 | Associated Transmission Element2 | Substation | State |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119768 | Jan - 2026 | 220kV Bus Sectionalizer Bay 218 of MAIN BUS-3 and MAIN BUS-5 at Fatehgarh_IV(F4TL) | F4TL | 220kV | MAIN BUS-5 | MAIN BUS-3 | Fatehgarh_IV(F4TL) | RAJASTHAN |
| 2 | 1119768 | Jan - 2026 | 220kV Bus Sectionalizer Bay 219 of MAIN BUS-4 and MAIN BUS-6 at Fatehgarh_IV(F4TL) | F4TL | 220kV | MAIN BUS-6 | MAIN BUS-4 | Fatehgarh_IV(F4TL) | RAJASTHAN |
| 3 | 1119764 | Jan - 2026 | 400kV Bus Sectionalizer Bay 400A of 400KV BUS-1 and 400KV BUS-3 at Maharanibagh(PG) | POWERGRID | 400kV | 400KV BUS-3 | 400KV BUS-1 | Maharanibagh(PG) | DELHI |
| 4 | 1119621 | Sep - 2025 | 400kV Bus Sectionalizer Bay 429 of 400 kV Bus-2B (Bus-4) and 400 kV Bus-2 at Bikaner_2 (PBTSL) | PBTSL | 400kV | 400 kV Bus-2 | 400 kV Bus-2B (Bus-4) | Bikaner_2 (PBTSL) | RAJASTHAN |

## LILO Line Charging Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Voltage Level (in kV) | Name of Line to be LILOed | Line length of Line to be LILOed | Line Length of New Line after LILO (In Km) | LILO Portion Line Length (In Km) | Conductor Type | Circuit Type | Tower Configuration | Agency/Owner | Location |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119540 | Jun - 2025 | 765kV DAUSA(PBDTL)-Phagi(RS)-1(After LILO of 765 kV Gwalior-Phagi-1 at Dausa(PBDTL)) | 765kV | 765 kV Gwalior-Phagi-1 | | 91.37 KM | 34 KM | Hexa Zebra | | Double | PB_DAUSA_TL,POWER GRID | RAJASTHAN to RAJASTHAN |
| 2 | 1119541 | Jun - 2025 | 765kV DAUSA(PBDTL)-Gwalior(PG)-1(After LILO of 765 kV Gwalior-Phagi-1 at Dausa(PBDTL)) | 765kV | 765 kV Gwalior-Phagi-1 | | 282.95 KM | 34 KM | Hexa Zebra | | Double | PB_DAUSA_TL,POWER GRID | RAJASTHAN to MADHYA PRADESH |

## LINE REACTOR Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | MVAR Capacity | Line Name | Substation | Make | Configuration | Serial No | State |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 1 | 1119541 | Jun - 2025 | 240 Switchable Convertable LINE_REACTOR of 765 kV Dausa-Gwalior ckt-1 at DAUSA(PBDTL) | PB_DAUSA_TL,POWERGRID | 765kV | 240 | 765 kV Dausa-Gwalior ckt-1 | DAUSA(PBDTL) | T&R | 3x1-Phase | PM0200257/PM0200255/PM0200308 | RAJASTHAN |
| 2 | 1119763 | Jan - 2026 | 330 Switchable Non-Convertable LINE_REACTOR of 765 kV Bara-Mainpuri ckt.1 at Bara(UP) | PPGCL | 765kV | 330 | 765 kV Bara-Mainpuri ckt.1 | Bara(UP) | ALSTOM | 3x1-Phase | L-0247 L-0248 L-0249 | UTTAR PRADESH |

## New AC Lines Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Circuit No | Line Length | Conductor Type | Tower Configuration | State |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119755 | Dec - 2025 | 400kV NTPC_SL_Bhadla(RS)-Bhadla(RS)-1 | NTPC_REL | 400kV | 1 | 1.3 | Moose | Single | RAJASTHAN to RAJASTHAN |
| 2 | 1119757 | Dec - 2025 | 765kV Bhadla_2 (PG)-Sikar_2(PSTL)-3 | PBSTL | 765kV | 3 | 313 | Hexa Zebra | Double | RAJASTHAN to RAJASTHAN |
| 3 | 1119758 | Dec - 2025 | 765kV Bhadla_2 (PG)-Sikar_2(PSTL)-4 | PBSTL | 765kV | 4 | 313 | Hexa Zebra | Double | RAJASTHAN to RAJASTHAN |
| 4 | 1119712 | Dec - 2025 | 220kV Ampin_EG8PL_Hyb_W/S_FTHG4-Fatehgarh_IV(F4TL)-1 | Ampin_EG 8PL | 220kV | 1 | 10.2 | AL59 Moose | Multiple,Single | RAJASTHAN to RAJASTHAN |
| 5 | 1119624 | Sep - 2025 | 765kV Mainpuri(UP)-Bara(UP)-1 | SEUPPTCL | 765kV | 1 | 380.4 | Quad Bersimis | Single | UTTAR PRADESH to UTTAR PRADESH |
| 6 | 1119623 | Sep - 2025 | 765kV Mainpuri(UP)-Unnao(UP)-1 | SEUPPTCL | 765kV | 1 | 193.782 | Quad Bersimis | Single | UTTAR PRADESH to UTTAR PRADESH |

**SOLAR ICR/BLOCK Report from 01-01-2026 to 31-01-2026**

| S.No | CASE ID | Applicatio n Month | Plant Name | Capacity to be charged | Voltage LeveL | Total Installed Capacity of Plant | Type of RE | Feeder No | Solar ICR/Block No | IDT No | IDT Make | IDT MVA Rating | IDT Votage Rating(HV/LV) | Inverter Type | Inverter Make | Total No of Inverters | Inverter AC Rating | Agency/ Owner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119574 | Aug - 2025 | ABC RENEWABLE ENERGY (RJ02) PRIVATE LIMITED(ARERJ02PL) | 400 MW | 33kV | 400 MW | Solar | F-11 | 1 | 1 | Danish | 13.2 MVA | 33 kV/0.660 kV | Central Inveter | Sungrow | 4 | 3.3 MVA | ARERJ02PL |
| 2 | 1119574 | Aug - 2025 | ABC RENEWABLE ENERGY (RJ02) PRIVATE LIMITED(ARERJ02PL) | 400 MW | 33kV | 400 MW | Solar | F-14 | 2 | 2 | Danish | 13.2 MVA | 33 kV/0.660 kV | Central Inveter | Sungrow | 4 | 3.3 MVA | ARERJ02PL |
| 3 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 | Solar | F12 | 13 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sunarow | 2 | 4.4 MVA | Ampin EGBPL |
| 4 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 MVA | Solar | F12 | 1 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 5 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 | Solar | F13 | 6 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 6 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 | Solar | F13 | 10 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Wilson | 2 | 4.4 MVA | Ampin EGBPL |
| 7 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 | Solar | F13 | 5 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 8 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 MVA | Solar | F13 | 9 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 9 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 MVA | Solar | F12 | 11 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sunarow | 2 | 4.4 MVA | Ampin EGBPL |
| 10 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 MVA | Solar | F13 | 8 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 11 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 MVA | Solar | F12 | 12 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 12 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 MVA | Solar | F12 | 4 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 13 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 MVA | Solar | F12 | 3 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 14 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MVA | 33kV | 114.4 | Solar | F13 | 7 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EGBPL |
| 15 | 1119718 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEGBPL) | 8.8 MW | 33kV | 114.4 | Solar | F12 | 2 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sunarow | 2 | 4.4 MVA | Ampin EGBPL |
| 16 | 1119774 | Jan - 2026 | AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL) | 8.8 MVA | 33kV | 52.8 MW | Solar | F5 | 16 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG3PL |
| 17 | 1119774 | Jan - 2026 | AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL) | 8.8 MVA | 33kV | 52.8 MW | Solar | F5 | 15 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG3PL |
| 18 | 1119774 | Jan - 2026 | AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL) | 8.8 MVA | 33kV | 52.8 | Solar | F5 | 14 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG3PL |
| 19 | 1119774 | Jan - 2026 | AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL) | 8.8 MVA | 33kV | 52.8 MW | Solar | F5 | 18 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG3PL |
| 20 | 1119774 | Jan - 2026 | AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL) | 8.8 MVA | 33kV | 52.2 MW | Solar | F5 | 19 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG3PL |
| 21 | 1119774 | Jan - 2026 | AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL) | 8.8 MVA | 33kV | 52.8 MW | Solar | F5 | 17 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sunarow | 2 | 4.4 MVA | Ampin EG3PL |
| 22 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 309 | 24 | 24 | AUM | 7 MVA | 33/0.66 | Central Inveter | Sungrow Power Supply Co., Ltd. | 2 | 4.4 MVA | Renew Dinkar UPL |
| 23 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 310 | 26 | 26 | AUM | 7 MVA | 33/0.66 | Central Inveter | Sungrow Power Supply Co., Ltd. | 2 | 3.3 MVA | Renew Dinkar UPL |
| 24 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 309 | 23 | 23 | AUM | 7 MVA | 33/0.66 | Central Inveter | Sungrow Power Supply Co., Ltd. | 2 | 4.4 MVA | Renew Dinkar UPL |
| 25 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 310 | 27 | 27 | AUM | 7 MVA | 33/0.88 | Central Inveter | Sungrow Power Supply Co., Ltd | 2 | 3.3 MVA | Renew Dinkar UPL |
| 26 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 310 | 28 | 28 | AUM | 7 MVA | 33/0.66 | Central Inveter | Sungrow Power Supply Co., Ltd | 2 | 3.3 MVA | Renew Dinkar UPL |
| 27 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 309 | 22 | 22 | AUM | 7 MVA | 33/0.66 | Central Inveter | Sungrow Power Supply Co., Ltd. | 2 | 4.4 /3.3 MVA | Renew Dinkar UPL |
| 28 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 309 | 25 | 25 | AUM | 7 MVA | 33/0.66 | Central Inveter | Sungrow Power Supply Co., Ltd. | 2 | 4.4 MVA | Renew Dinkar UPL |
| 29 | 1119761 | Dec - 2025 | Renew Dinkar Urja Private Limited (RDUPL) | 200 | 33kV | 200 | Solar | 310 | 29 | 29 | AUM | 7 MVA | 33/0.66 | Central Inveter | Sungrow Power Supply Co., Ltd | 2 | 3.3MVA | Renew Dinkar UPL |

# Transformer Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (HV/LV/Tertiary) | MVA Capacity | Type of Transformer |
|---|---|---|---|---|---|---|---|
| 1 | 1119755 | Dec - 2025 | 400/33/22kV, 315 MVA, 3-Phase, T&R, ICT - 2 at NTPC_SL_Bhadla(RS) | NTPC_REL | 400/33/22kV | 315 | ICT |
| 2 | 1119755 | Dec - 2025 | 400/33/22kV, 315 MVA, 3-Phase, T&R, ICT - 1 at NTPC_SL_Bhadla(RS) | NTPC_REL | 400/33/22kV | 315 | ICT |
| 3 | 1119716 | Dec - 2025 | 220/33kV, 150 MVA, 3-Phase, ATLANTA ELECTRICALS , ICT - 2 at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG 8PL | 220/33/na | 150 | ICT |
| 4 | 1119716 | Dec - 2025 | 220/33kV, 60 MVA, 3-Phase, ATLANATA ELECTRICALS , ICT - 1 at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG 8PL | 220/33/na | 60 | ICT |
| 5 | 1119767 | Jan - 2026 | 33/.415kV, 1.5 MVA, 3-Phase, TRANSFIX (INDIA) PRIVATE LIMITED, Auxiliary Transformer - 2 at JGCPL_SL_BIK2_PG | Juniper_GC PL | 33/.415/na | 1.5 | Auxiliary Transformer |

## WTG Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Plant Name | Capacity to be charged | Voltage LeveL | Installed Capacity (in MW) | RE Type | Feeder No | WTGs No(s) as per SCADA/SLD | WTG Make |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119721 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEG8PL) | 22.05 MW | 33kV | 44.1 MW | Wind | F15 | GE22R1, GE73, GE98, GE87R, GE40, GE155, GE108R | Suzlon |
| 2 | 1119721 | Dec - 2025 | Ampin Energy Green Eight Private Limited (AEG8PL) | 22.05 MW | 33kV | 44.1 MW | Wind | F14 | GE15, GE16R, GE154, GE82, GE14R, GE165, GE51R1 | Suzlon |

# Capacitor Bank Report from 01-01-2026 to 31-01-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Type of Capacitor | Capacitor Bank No | Sub Capacitor Bank MVAR Rating | Capacitor MVAR Rating |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119725 | Dec - 2025 | 33kV, single tuned (12 nos of unit in capacitor bank), 3.85 MVAR(3.85 MVAR) Capacitor bank no-1 at Anta(NT) | Anta Solar Power Plant NTPC Ltd | 33kV | single tuned (12 nos of unit in capacitor bank) | 1 | 3.85 MVAR | 3.85 |
| 2 | 1119727 | Dec - 2025 | 33kV, C-Type Filter Bank , 12 MVAR(12 MVAR) Capacitor bank no-AM23694-649 TO 672 at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG 8PL | 33kV | C-Type Filter Bank | AM23694-649 TO 672 | 12 MVAR | 12 |
| 3 | 1119773 | Jan - 2026 | 33kV, C-Type Filter Bank, 6 MVAR(6 (Filter 2 on 33kV Yard-2 on MV side of 60MVA PTR-2 for phase 2 Projecfi 6MVAr C-type (240Hz))) Capacitor bank no-1VYN030125000161 at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG 3PL | 33kV | C-Type Filter Bank | 1VYN030125000161 | 6 (Filter 2 on 33kV Yard-2 on MV side of 60MVA PTR-2 for phase 2 Projecfi 6MVAr C-type (240Hz)) | 6 |

# Bays Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Bay No | Bay Type | Substation | State |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119776 | Jan - 2026 | 220kV Main Bay 205 of Transmission Line Ampin 10 to ampin 8 at Ampin_EG8PL_Hyb_W/S_FTHG4 | Ampin_EG 10PL,Ampi n_EG8PL | 220kV | 205 | Main Bay | Ampin_EG8PL_Hyb_W/ S_FTHG4 | RAJASTHAN |
| 2 | 1119776 | Jan - 2026 | 220kV Main Bay 206 of Transmission Line ampin 10 to ampin 8 at Ampin_EG10PL_Hyb_W/S_FTHG4 | Ampin_EG 10PL,Ampi n_EG8PL | 220kV | 206 | Main Bay | Ampin_EG10PL_Hyb_W /S_FTHG4 | RAJASTHAN |
| 3 | 1119630 | Sep - 2025 | 400kV Tie Bay 423 of 400/220kV ICT4 and Future at Bikaner_2 (PBTSL) | PBTSL | 400kV | 423 | Tie Bay | Bikaner_2 (PBTSL) | RAJASTHAN |
| 4 | 1119776 | Jan - 2026 | 220kV Main Bay 207 of ICT-1 at Ampin_EG10PL_Hyb_W/S_FTHG4 | Ampin_EG 10PL,Ampi n_EG8PL | 220kV | 207 | Main Bay | Ampin_EG10PL_Hyb_W /S_FTHG4 | RAJASTHAN |
| 5 | 1119748 | Dec - 2025 | 765kV Main Bay 701R of 330 MVAR Switchable Line Reactor at Bhadla_3(PB3TL) | PB3TL | 765kV | 701R | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 6 | 1119756 | Dec - 2025 | 765kV Main Bay 704 of 765 KV Bhadla_III Sikar_II CKT 1 at Bhadla_3(PB3TL) | PB3TL | 765kV | 704 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 7 | 1119756 | Dec - 2025 | 765kV Main Bay 704R of 330 MVAR Switchable Line Reactor at Bhadla_3(PB3TL) | PB3TL | 765kV | 704R | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 8 | 1119791 | Feb - 2026 | 400kV Main Bay 401 of 400 KV single circuit line to PGCIL Fatehgarh III and Main Bus 1 at Renew_SS3PL_SL_Ftg3 | Renew_SS3 PL | 400kV | 401 | Main Bay | Renew_SS3PL_SL_Ftg3 | RAJASTHAN |
| 9 | 1119771 | Jan - 2026 | 400kV Main Bay 423 of 400 KV Renew Dinkar Jyoti Private Limited Line at Fatehgarh_III(PG) | PRTL | 400kV | 423 | Main Bay | Fatehgarh_III(PG) | RAJASTHAN |
| 10 | 1119791 | Feb - 2026 | 400kV Main Bay 406 of Power Transformer-2 at Renew_SS3PL_SL_Ftg3 | Renew_SS3 PL | 400kV | 406 | Main Bay | Renew_SS3PL_SL_Ftg3 | RAJASTHAN |
| 11 | 1119791 | Feb - 2026 | 400kV Tie Bay 405 of Main Bus 1 and Main Bus 2 at Renew_SS3PL_SL_Ftg3 | Renew_SS3 PL | 400kV | 405 | Tie Bay | Renew_SS3PL_SL_Ftg3 | RAJASTHAN |
| 12 | 1119791 | Feb - 2026 | 400kV Main Bay 409 of Power Transformer 3 at Renew_SS3PL_SL_Ftg3 | Renew_SS3 PL | 400kV | 409 | Main Bay | Renew_SS3PL_SL_Ftg3 | RAJASTHAN |
| 13 | 1119791 | Feb - 2026 | 400kV Tie Bay 408 of Main Bus 1 and Main Bus 2 at Renew_SS3PL_SL_Ftg3 | Renew_SS3 PL | 400kV | 408 | Tie Bay | Renew_SS3PL_SL_Ftg3 | RAJASTHAN |
| 14 | 1119749 | Dec - 2025 | 765kV Main Bay 707 of 765 KV 330 MVAR Bus Reactor 1 at Bhadla_3(PB3TL) | PB3TL | 765kV | 707 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 15 | 1119756 | Dec - 2025 | 765kV Tie Bay 705 of 765 KV Bhadla_III Sikar_II CKT 1 and 765 KV Bhadla_III Ramgarh_II CKT 2 at Bhadla_3(PB3TL) | PB3TL | 765kV | 705 | Tie Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 16 | 1119730 | Dec - 2025 | 765kV Main Bay 704R of 765 KV Bhadla_III Ramgarh_II CKT 2 Line Reactor Bay at RAMGARH_II(PR2TL) | PR2TL | 765kV | 704R | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 17 | 1119730 | Dec - 2025 | 765kV Main Bay 704 of 765 KV Bhadla_III Ramgarh_II CKT 2 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 704 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 18 | 1119750 | Dec - 2025 | 765kV Main Bay 710 of 765 KV 330 MVAR Bus Reactor 2 at Bhadla_3(PB3TL) | PB3TL | 765kV | 710 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 19 | 1119730 | Dec - 2025 | 765kV Main Bay 706 of 765 KV Bhadla_III Ramgarh_II CKT 2 at Bhadla_3(PB3TL) | PR2TL | 765kV | 706 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 20 | 1119729 | Dec - 2025 | 765kV Main Bay 703 of 765 KV Bhadla_III Ramgarh_II CKT 1 at Bhadla_3(PB3TL) | PR2TL | 765kV | 703 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 21 | 1119729 | Dec - 2025 | 765kV Main Bay 701R of 765 KV Bhadla_III Ramgarh_II CKT 1 Line Reactor Bay at RAMGARH_II(PR2TL) | PR2TL | 765kV | 701R | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 22 | 1119729 | Dec - 2025 | 765kV Main Bay 701 of 765 KV Bhadla_III Ramgarh_II CKT 1 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 701 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 23 | 1119731 | Dec - 2025 | 765kV Main Bay 703 of 765 KV Bus Reactor 1 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 703 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 24 | 1119748 | Dec - 2025 | 765kV Tie Bay 702 of 765 KV Bhadla_III Sikar_II CKT 2 and 765 KV Bhadla_III Ramgarh_II CKT 1 at Bhadla_3(PB3TL) | PB3TL | 765kV | 702 | Tie Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 25 | 1119748 | Dec - 2025 | 765kV Main Bay 701 of 765 KV Bhadla_III Sikar_II CKT 2 at Bhadla_3(PB3TL) | PB3TL | 765kV | 701 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 26 | 1119753 | Dec - 2025 | 765kV Main Bay 709 of 765 KV 1500 MVA ICT 1 at Bhadla_3(PB3TL) | PB3TL | 765kV | 709 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 27 | 1119753 | Dec - 2025 | 765kV Tie Bay 708 of 765 KV 1500 MVA ICT 1 and 765 KV Bus Reactor 1 at Bhadla_3(PB3TL) | PB3TL | 765kV | 708 | Tie Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 28 | 1119800 | Feb - 2026 | 400kV Main Bay 401 of AC transmission line circuit at Renew_Samir_SPL_SL_Ftg3 | Renew_Samir_SPL | 400kV | 401 | Main Bay | Renew_Samir_SPL_SL_Ftg3 | RAJASTHAN |
| 29 | 1119801 | Feb - 2026 | 400kV Main Bay 404 of AC Tansmission line at Renew_SS3PL_SL_Ftg3 | Renew_Samir_SPL | 400kV | 404 | Main Bay | Renew_SS3PL_SL_Ftg3 | RAJASTHAN |
| 30 | 1119801 | Feb - 2026 | 400kV Main Bay 404 of AC Tansmission line at Renew_SS3PL_SL_Ftg3 | Renew_Samir_SPL | 400kV | 404 | Main Bay | Renew_SS3PL_SL_Ftg3 | RAJASTHAN |
| 31 | 1119800 | Feb - 2026 | 400kV Tie Bay 402 of Main Bus 1 and Main Bus 2 at Renew_Samir_SPL_SL_Ftg3 | Renew_Samir_SPL | 400kV | 402 | Tie Bay | Renew_Samir_SPL_SL_Ftg3 | RAJASTHAN |
| 32 | 1119800 | Feb - 2026 | 400kV Main Bay 403 of Power Transformer 1 at Renew_Samir_SPL_SL_Ftg3 | Renew_Samir_SPL | 400kV | 403 | Main Bay | Renew_Samir_SPL_SL_Ftg3 | RAJASTHAN |
| 33 | 1119735 | Dec - 2025 | 400kV Main Bay 409 of 400 KV 125 MVAR Bus Reactor 1 at RAMGARH_II(PR2TL) | PR2TL | 400kV | 409 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 34 | 1119754 | Dec - 2025 | 765kV Main Bay 712 of 765 KV 1500 MVA ICT 2 at Bhadla_3(PB3TL) | PB3TL | 765kV | 712 | Main Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 35 | 1119754 | Dec - 2025 | 765kV Tie Bay 711 of 765 KV 1500 MVA ICT 2 and 765 KV Bus reactor 2 at Bhadla_3(PB3TL) | PB3TL | 765kV | 711 | Tie Bay | Bhadla_3(PB3TL) | RAJASTHAN |
| 36 | 1119737 | Dec - 2025 | 400kV Main Bay 412 of 400 KV 500 MVA ICT 1 at RAMGARH_II(PR2TL) | PR2TL | 400kV | 412 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 37 | 1119737 | Dec - 2025 | 400kV Tie Bay 411 of 400 KV 500 MVA ICT 1 and Future at RAMGARH_II(PR2TL) | PR2TL | 400kV | 411 | Tie Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 38 | 1119475 | Apr - 2025 | 400kV Tie Bay 422 of 1500 MVA 765/400/33kV ICT-1 and Future Line at Fatehgarh_III(PG) | PRTL | 400kV | 422 | Tie Bay | Fatehgarh_III(PG) | RAJASTHAN |
| 39 | 1119736 | Dec - 2025 | 400kV Main Bay 415 of 400 KV 500 MVA ICT 2 at RAMGARH_II(PR2TL) | PR2TL | 400kV | 415 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 40 | 1119734 | Dec - 2025 | 765kV Main Bay 709 of 765 KV 1500 MVA ICT 2 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 709 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 41 | 1119734 | Dec - 2025 | 400kV Main Bay 413 of 765 KV 1500 MVA ICT 2 at RAMGARH_II(PR2TL) | PR2TL | 400kV | 413 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 42 | 1119740 | Dec - 2025 | 400kV Main Bay 420 of 400 KV 125 MVAR Bus Reactor 2 at RAMGARH_II(PR2TL) | PR2TL | 400kV | 420 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 43 | 1119740 | Dec - 2025 | 400kV Tie Bay 419 of 400 KV 125 MVAR Bus Reactor 2 and Future at RAMGARH_II(PR2TL) | PR2TL | 400kV | 419 | Tie Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 44 | 1119734 | Dec - 2025 | 765kV Tie Bay 708 of 765 KV 1500 MVA ICT 2 and 765 KV Bus Reactor 2 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 708 | Tie Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 45 | 1119737 | Dec - 2025 | 220kV Main Bay 201 of 400 KV 500 MVA ICT 1 at RAMGARH_II(PR2TL) | PR2TL | 220kV | 201 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |
| 46 | 1119736 | Dec - 2025 | 220kV Main Bay 205 of 400 KV 500 MVA ICT 2 at RAMGARH_II(PR2TL) | PR2TL | 220kV | 205 | Main Bay | RAMGARH_II(PR2TL) | RAJASTHAN |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 47 | 1119746 | Dec - 2025 | 400kV Main Bay 433 of 400/220/33 KV 500 MVA 3 PHASE ICT-4 at Allahabad(PG) | POWERGRID | 400kV | 433 | Main Bay | Allahabad(PG) | UTTAR PRADESH |
| 48 | 1119813 | Feb - 2026 | 765kV Main Bay 707R of 765 KV Dausa Beawar Line-1 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 707R | Main Bay | DAUSA(PBDTL) | RAJASTHAN |
| 49 | 1119812 | Feb - 2026 | 765kV Main Bay 710 R of 765 kV 3x80 MVAR Line Reactor of 765 KV Dausa Beawar Line-2 at Dausa SS. at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 710 R | Main Bay | DAUSA(PBDTL) | RAJASTHAN |
| 50 | 1119746 | Dec - 2025 | 220kV Main Bay 213 of 400/220/33 KV, 500 MVA 3 PHASE ICT-4 at Allahabad(PG) | POWERGRID | 220kV | 213 | Main Bay | Allahabad(PG) | UTTAR PRADESH |
| 51 | 1119777 | Jan - 2026 | 400kV Main Bay 404 of 400KV MAHEBA-ORAI LINE at Maheba(UP) | UPPTCL | 400kV | 404 | Main Bay | Maheba(UP) | UTTAR PRADESH |
| 52 | 1119777 | Jan - 2026 | 400kV Tie Bay 405 of 400KV MAHEBA-ORAI LINE and 125 MVAr BUS REACTOR at Maheba(UP) | UPPTCL | 400kV | 405 | Tie Bay | Maheba(UP) | UTTAR PRADESH |
| 53 | 1119777 | Jan - 2026 | 400kV Main Bay 406 of 125 MVAr BUS REACTOR at Maheba(UP) | UPPTCL | 400kV | 406 | Main Bay | Maheba(UP) | UTTAR PRADESH |
| 54 | 1119777 | Jan - 2026 | 400kV Main Bay 401 of 400KV MAHEBA-BANDA LINE at Maheba(UP) | UPPTCL | 400kV | 401 | Main Bay | Maheba(UP) | UTTAR PRADESH |
| 55 | 1119777 | Jan - 2026 | 400kV Tie Bay 402 of 400KV MAHEBA-BANDA LINE and 400 kV Main Bus -2 at Maheba(UP) | UPPTCL | 400kV | 402 | Tie Bay | Maheba(UP) | UTTAR PRADESH |
| 56 | 1119781 | Jan - 2026 | 220kV Main Bay 202 of Line Bay at Khaba_REPL_SL_Ftg3 | Khaba_REPL | 220kV | 202 | Main Bay | Khaba_REPL_SL_Ftg3 | RAJASTHAN |
| 57 | 1119781 | Jan - 2026 | 33kV Main Bay 204 of Power Transformer 2 Serial No WOI111240763/02/13/25/00807 at Khaba_REPL_SL_Ftg3 | Khaba_REPL | 33kV | 204 | Main Bay | Khaba_REPL_SL_Ftg3 | RAJASTHAN |
| 58 | 1119815 | Feb - 2026 | 765kV Main Bay 701R of 765 KV Dausa Gwalior Line-2 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 701R | Main Bay | DAUSA(PBDTL) | RAJASTHAN |
| 59 | 1119636 | Sep - 2025 | 400kV Main Bay 404 of 400 KV Basti line at Gonda(UP) | SEUPPTCL | 400kV | 404 | Main Bay | Gonda(UP) | UTTAR PRADESH |
| 60 | 1119636 | Sep - 2025 | 400kV Tie Bay 405 of 400 kV Basti line and 400 kV Shahjahanpur-II line at Gonda(UP) | SEUPPTCL | 400kV | 405 | Tie Bay | Gonda(UP) | UTTAR PRADESH |
| 61 | 1119781 | Jan - 2026 | 33kV Main Bay 202 of Power Transformer 1 Serial No WOI111240763/02/13/25/00809 at Khaba_REPL_SL_Ftg3 | Khaba_REPL | 33kV | 202 | Main Bay | Khaba_REPL_SL_Ftg3 | RAJASTHAN |
| 62 | 1119844 | Feb - 2026 | 400kV Main Bay 409 of HV SIDE 500MVA ICT-II at Maheba(UP) | UPPTCL | 400kV | 409 | Main Bay | Maheba(UP) | UTTAR PRADESH |
| 63 | 1119844 | Feb - 2026 | 400kV Tie Bay 408 of HV SIDE 500MVA ICT-II and 400KV FARRUKHABAD CKT1 at Maheba(UP) | UPPTCL | 400kV | 408 | Tie Bay | Maheba(UP) | UTTAR PRADESH |

## Bus Coupler Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Associated Transmission Element1 | Associated Transmission Element2 | Substation | State |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119776 | Jan - 2026 | 220kV Bus Coupler Bay 208 of BUS 1 and BUS 2 at Ampin_EG10PL_Hyb_W/S_FTHG4 | Ampin_EG10PL,Ampin_EG8PL | 220kV | BUS 2 | BUS 1 | Ampin_EG10PL_Hyb_W/S_FTHG4 | RAJASTHAN |
| 2 | 1119741 | Dec - 2025 | 220kV Bus Coupler Bay 202 of 220 KV Bus 1 and 220 KV Bus 2 at RAMGARH_II(PR2TL) | PR2TL | 220kV | 220 KV Bus 2 | 220 KV Bus 1 | RAMGARH_II(PR2TL) | RAJASTHAN |
| 3 | 1119781 | Jan - 2026 | 220kV Bus Coupler Bay 203 of BUSBAR 1 and BUSBAR 2 at Khaba_REPL_SL_Ftg3 | Khaba_REPL | 220kV | BUSBAR 2 | BUSBAR 1 | Khaba_REPL_SL_Ftg3 | RAJASTHAN |

## BUS REACTOR Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage LeveL | MVAR Capacity | Substation | Make | Configuration | Serial No | State |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119731 | Dec - 2025 | 765kV, 240 MVAR Bus Reactor 1 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 240 MVAR | RAMGARH_II(PR2TL) | GE T&D India Limited | 3x1-Phase | R Ph - GOP0204-80 L0863 , Y Ph - GOP0204-70 L 862, B- Ph GOP0204-90 L864 | RAJASTHAN |
| 2 | 1119735 | Dec - 2025 | 400kV, 125 Bus Reactor 1 at RAMGARH_II(PR2TL) | PR2TL | 400kV | 125 | RAMGARH_II(PR2TL) | Siemens India Limited | 3-Phase | I 300364/01 | RAJASTHAN |
| 3 | 1119740 | Dec - 2025 | 400kV, 125 MVAR Bus Reactor 2 at RAMGARH_II(PR2TL) | PR2TL | 400kV | 125 MVAR | RAMGARH_II(PR2TL) | SIEMENS | 3-Phase | I300364-02 | RAJASTHAN |
| 4 | 1119750 | Dec - 2025 | 765kV, 330 Bus Reactor 2 at Bhadla_3(PB3TL) | PB3TL | 765kV | 330 | Bhadla_3(PB3TL) | T&R | 3x1-Phase | R-Ph-PM0200333, Y-Ph : PM0200350, B-Ph : PM0200341 | RAJASTHAN |
| 5 | 1119777 | Jan - 2026 | 400kV, 125 Bus Reactor 1 at Maheba(UP) | UPPTCL | 400kV | 125 | Maheba(UP) | Siemens | 3-Phase | 1300369/02 | UTTAR PRADESH |

## BUS SECTIONALIZER Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Associated Transmission Element1 | Associated Transmission Element2 | Substation | State |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119739 | Dec - 2025 | 400kV Bus Sectionalizer Bay 416 of 400 Main Bus I and 400 Main Bus III at RAMGARH_II(PR2TL) | PR2TL | 400kV | 400 Main Bus III | 400 Main Bus I | RAMGARH_II(PR2TL) | RAJASTHAN |
| 2 | 1119739 | Dec - 2025 | 400kV Bus Sectionalizer Bay 417 of 400 Main Bus II and 400 Main Bus IV at RAMGARH_II(PR2TL) | PR2TL | 400kV | 400 Main Bus IV | 400 Main Bus II | RAMGARH_II(PR2TL) | RAJASTHAN |

**FILTER BANK Report from 01-02-2026 to 28-02-2026**

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage LeveL | MVAR rating | Type of Filter | Filter Bank No | Sub Filter Bank No | Assocaited Pole Name | Assocaited Pole No | Switchable/Non-Switchable | Substation | State |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | | | |
| 1 | 1119674 | Nov - 2025 | Filter Sub Bank No : Bay 317 of Harmonic Filter Bay 317 associated with Bay 317 5 MVAR at ARP3PL_SL_BIK_PG | Ayana_RP3PL | 33kV | 5 MVAR | Harmonic Filter | Bay 317 | 5 MVAR | Bay 317 | 5 MVAR | No | ARP3PL_SL_BIK_PG | RAJASTHAN |
| 2 | 1119674 | Nov - 2025 | Filter Sub Bank No : Bay 319 of Harmonic Filter Bay 319 associated with Bay 319 2 MVAR at ARP3PL_SL_BIK_PG | Ayana_RP3PL | 33kV | 2 MVAR | Harmonic Filter | Bay 319 | 2 MVAR | Bay 319 | 2 MVAR | No | ARP3PL_SL_BIK_PG | RAJASTHAN |
| 3 | 1119674 | Nov - 2025 | Filter Sub Bank No : Bay 319 of Harmonic Filter Bay 319 associated with Bay 319 4 MVAR at ARP3PL_SL_BIK_PG | Ayana_RP3PL | 33kV | 4 MVAR | Harmonic Filter | Bay 319 | 4 MVAR | Bay 319 | 4 MVAR | No | ARP3PL_SL_BIK_PG | RAJASTHAN |
| 4 | 1119674 | Nov - 2025 | Filter Sub Bank No : Bay 317 of Harmonic Filter Bay 317 associated with Bay 317 3 MVAR at ARP3PL_SL_BIK_PG | Ayana_RP3PL | 33kV | 3 MVAR | Harmonic Filter | Bay 317 | 3 MVAR | Bay 317 | 3 MVAR | No | ARP3PL_SL_BIK_PG | RAJASTHAN |

## LILO Line Charging Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Voltage Level (in kV) | Name of Line to be LILOed | Line length of Line to be LILOed | Line Length of New Line after LILO (In Km) | LILO Portion Line Length (In Km) | Conductor Type | Circuit Type | Tower Configuration | Agency/Owner | Location |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119777 | Jan - 2026 | 400kV Orai(UP)-Maheba(UP)-1(After LILO of 400KV ORAI-BANDA CIRCUIT-II at Maheba(UP)) | 400kV | 400KV ORAI-BANDA CIRCUIT-II | | 20.114 | 14.85 | Moose | | Double | UPPTCL | UTTAR PRADESH to UTTAR PRADESH |
| 2 | 1119777 | Jan - 2026 | 400kV Banda(UP)-Maheba(UP)-1(After LILO of 400KV ORAI-BANDA CIRCUIT-II at Maheba(UP)) | 400kV | 400KV ORAI-BANDA CIRCUIT-II | | 118.32 | 14.85 | Moose | | Double | UPPTCL | UTTAR PRADESH to UTTAR PRADESH |
| 3 | 1119636 | Sep - 2025 | 400kV Gonda(UP)-Basti(UP)-1(After LILO of 400 kV Tanda- Basti CKT-2 at 400 kV Gonda) | 400kV | 400 kV Tanda-Basti CKT-2 | | 80 km | 77.825 | HTLS | | Double | SEUPPTCL | UTTAR PRADESH to UTTAR PRADESH |
| 4 | 1119636 | Sep - 2025 | 400kV Tanda(NT)-Gonda(UP)-1(After LILO of 400 kV Tanda- Basti CKT-2 at 400 kV Gonda) | 400kV | 400 kV Tanda-Basti CKT-2 | | 124 | 77.825 | HTLS | | Double | SEUPPTCL | UTTAR PRADESH to UTTAR PRADESH |

## LINE REACTOR Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | MVAR Capacity | Line Name | Substation | Make | Configuration | Serial No | State |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119748 | Dec - 2025 | 330 Switchable Convertable LINE_REACTOR of 765 KV Bhadla_III Sikar_II CKT 2 at Bhadla_3(PB3TL) | PB3TL | 765kV | 330 | 765 KV Bhadla_III Sikar_II CKT 2 | Bhadla_3(PB3TL) | GE | 3x1-Phase | R Ph. - GOP0211-90/L-0938, Y Ph. - GOP0211-80/L-0937, B Ph. - GOP0211-70/L-0936 | RAJASTHAN |
| 2 | 1119756 | Dec - 2025 | 330 Switchable Convertable LINE_REACTOR of 765 KV Bhadla_III Sikar_II CKT 1 at Bhadla_3(PB3TL) | PB3TL | 765kV | 330 | 765 KV Bhadla_III Sikar_II CKT 1 | Bhadla_3(PB3TL) | GE | 3x1-Phase | R Ph.-GOP0211-50/L-0934, Y Ph.-GOP0211-40/L-0933 ,B Ph.-GOP0211-60/L-0935 | RAJASTHAN |
| 3 | 1119730 | Dec - 2025 | 3 X 80 MVAR Switchable Convertable LINE_REACTOR of 765 KV Bhadla_III Ramgarh_II CKT 2 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 3 X 80 MVAR | 765 KV Bhadla_III Ramgarh_II CKT 2 | RAMGARH_II(PR2TL) | Transformer and Rectifiers India Limited | 3x1-Phase | R Ph- PM0200289, Y Ph-PM0200307, B Ph-PM0200311 | RAJASTHAN |
| 4 | 1119729 | Dec - 2025 | 3X80 MVAR Switchable Convertable LINE_REACTOR of 765 KV Bhadla_III Ramgarh_II CKT 1 at RAMGARH_II(PR2TL) | PR2TL | 765kV | 3X80 MVAR | 765 KV Bhadla_III Ramgarh_II CKT 1 | RAMGARH_II(PR2TL) | GE T&D India Limited | 3x1-Phase | R Ph - GOP0204-120,L-0867 , Y Ph - GOP0204-100,L-0865, B- Ph GOP0204-100,L-0865 | RAJASTHAN |
| 5 | 1119813 | Feb - 2026 | 240 Switchable Convertable LINE_REACTOR of 765 KV Dausa Beawar Line-1 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 240 | 765 KV Dausa Beawar Line-1 | DAUSA(PBDTL) | T&R | 3x1-Phase | PM0200313, PM0200246, PM0200251 | RAJASTHAN |
| 6 | 1119812 | Feb - 2026 | 240 Switchable Convertable LINE_REACTOR of 765 KV Dausa Beawar Line-2 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 240 | 765 KV Dausa Beawar Line-2 | DAUSA(PBDTL) | T&R | 3x1-Phase | PM0200252, PM0200247, PM0200318 | RAJASTHAN |
| 7 | 1119815 | Feb - 2026 | 3X80 MVAR Switchable Convertable LINE_REACTOR of 765 KV Dausa Gwalior Line-2 at DAUSA(PBDTL) | PB_DAUSA_TL | 765kV | 3X80 MVAR | 765 KV Dausa Gwalior Line-2 | DAUSA(PBDTL) | T&R | 3x1-Phase | PM0200250, PM0200244, PM0200258 | RAJASTHAN |

## New AC Lines Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Circuit No | Line Length | Conductor Type | Tower Configuration | State |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119776 | Jan - 2026 | 220kV Ampin_EG10PL_Hyb_W/S_FTHG4-Ampin_EG8PL_Hyb_W/S_FTHG4-1 | Ampin_EG10PL,Ampin_EG8PL | 220kV | 1 | 10.3 | AL59 Moose | Single | RAJASTHAN to RAJASTHAN |
| 2 | 1119748 | Dec - 2025 | 765kV Bhadla_3(PB3TL)-Sikar_2(PSTL)-2 | PB3TL | 765kV | 2 | 325 | AL59 Zebra | Double | RAJASTHAN to RAJASTHAN |
| 3 | 1119756 | Dec - 2025 | 765kV Bhadla_3(PB3TL)-Sikar_2(PSTL)-1 | PB3TL | 765kV | 1 | 325 | AL59 Zebra | Double | RAJASTHAN to RAJASTHAN |
| 4 | 1119697 | Nov - 2025 | 220kV Dehar(BB)-Kangoo(HP)-2 | HPPTCL | 220kV | 2 | 3.207 | ZEBRA | Double | HIMACHAL PRADESH to HIMACHAL PRADESH |
| 5 | 1119791 | Feb - 2026 | 400kV Renew_SS3PL_SL_Ftg3-Fatehgarh_III(PG)-1 | Renew_SS3PL | 400kV | 1 | 28.9 | AL59 Quad Moose | Double | RAJASTHAN to RAJASTHAN |
| 6 | 1119730 | Dec - 2025 | 765kV Bhadla_3(PB3TL)-RAMGARH_II(PR2TL)-2 | PR2TL | 765kV | 2 | 186.147 | AL59 Zebra | Double | RAJASTHAN to RAJASTHAN |
| 7 | 1119729 | Dec - 2025 | 765kV Bhadla_3(PB3TL)-RAMGARH_II(PR2TL)-1 | PR2TL | 765kV | 1 | 186.147 | AL59 Zebra | Double | RAJASTHAN to RAJASTHAN |
| 8 | 1119800 | Feb - 2026 | 400kV Renew_Samir_SPL_SL_Ftg3-Renew_SS3PL_SL_Ftg3-1 | Renew_Samir_SPL | 400kV | 1 | 1.74 | AL59 Quad Moose | Double | RAJASTHAN to RAJASTHAN |
| 9 | 1119781 | Jan - 2026 | 220kV Khaba_REPL_SL_Ftg3-Fatehgarh_III(PG)-1 | Khaba_REPL | 220kV | 1 | 13.743 | AL59 Zebra | Double | RAJASTHAN to RAJASTHAN |

**SOLAR ICR/BLOCK Report from 01-02-2026 to 28-02-2026**

| S.No | CASE ID | Application Month | Plant Name | Capacity to be charged | Voltage LeveL | Total Installed Capacity of Plant | Type of RE | Feeder No | Solar ICR/Block No | IDT No | IDT Make | IDT MVA Rating | IDT Votage Rating(HV/LV) | Inverter Type | Inverter Make | Total No of Inverters | Inverter AC Rating | Agency/ Owner |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 312 | 15 | 15 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 2 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 312 | 17 | 17 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 3 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 312 | 16 | 16 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 4 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 312 | 27 | 27 | AUM | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 5 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 316 | 56 | 56 | Aum | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 6 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 320 | 12 | 12 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 7 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 316 | 49 | 49 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 8 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 321 | 5 | 5 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 9 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 322 | 1 | 1 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 10 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 310 | 19 | 19 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 11 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 322 | 4 | 4 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 12 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 311 | 21 | 21 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 13 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 311 | 24 | 24 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 14 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 310 | 36 | 36 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 15 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 317 | 55 | 55 | Aum | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 16 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 321 | 9 | 9 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 17 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 322 | 3 | 3 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 18 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 311 | 41 | 41 | Aum | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 19 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 315 | 54 | 54 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 20 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 321 | 14 | 14 | Aum | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 21 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 321 | 8 | 8 | AUM | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 22 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 320 | 13 | 13 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 23 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 317 | 45 | 45 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 24 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 316 | 48 | 48 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 25 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 315 | 53 | 53 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 26 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 321 | 6 | 6 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 27 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 320 | 10 | 10 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 28 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 312 | 18 | 18 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 29 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 315 | 52 | 52 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 30 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 310 | 20 | 20 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 31 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 310 | 33 | 33 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 32 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 321 | 2 | 2 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 33 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 320 | 11 | 11 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 34 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 316 | 47 | 47 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 35 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 311 | 22 | 22 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 36 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 311 | 23 | 23 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 37 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 315 | 51 | 51 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 38 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 316 | 50 | 50 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 39 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 317 | 43 | 43 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 40 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 317 | 44 | 44 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 41 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 321 | 7 | 7 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 42 | 1119793 | Feb - 2026 | RENEW SOLAR SHAKTI THREE PRIVATE LIMITED(RSS3PL) | 300 | 33kV | 300 | Solar | 317 | 46 | 46 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_SS3PL |
| 43 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 306 | 26 | 26 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 44 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 307 | 29 | 29 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 45 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 305 | 38 | 38 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 46 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 305 | 40 | 40 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 47 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 307 | 32 | 32 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 48 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 306 | 36 | 36 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 49 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 307 | 31 | 31 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 50 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 307 | 30 | 30 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 51 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 307 | 28 | 28 | AUM | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 52 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 306 | 42 | 42 | AUM | 8 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 53 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 306 | 25 | 25 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 54 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 305 | 39 | 39 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 55 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | Solar | 305 | 37 | 37 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 56 | 1119797 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 100 | 33kV | 300 | solar | 306 | 35 | 35 | Toshiba | 7 MVA | / | Central Inveter | Sineng Electric Co. Ltd. | 2 | 4.4 MVA | Renew_Samir_SPL |
| 57 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F21 | 23 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin_EG10PL |
| 58 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F21 | 26 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin_EG10PL |
| 59 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F21 | 22 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sunarow | 2 | 4.4 MVA | Ampin_EG10PL |
| 60 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F21 | 20 | 1 | Wilson | 9.5 MVA | 33 kV/.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin_EG10PL |
| 61 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F21 | 21 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin_EG10PL |
| 62 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F21 | 24 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin_EG10PL |
| 63 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F21 | 25 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin_EG10PL |
| 64 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F22 | 31 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin_EG10PL |
| 65 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F22 | 29 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sunarow | 2 | 4.4 MVA | Ampin_EG10PL |

| | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 66 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F22 | 28 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG10PL |
| 67 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 | Solar | F22 | 30 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG10PL |
| 68 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 | Solar | F22 | 32 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG10PL |
| 69 | 1119783 | Jan - 2026 | AMPIN ENERGY GREEN TEN PRIVATE LIMITED(AEG10PL) | 8.8 MVA | 33kV | 114.4 MW | Solar | F22 | 27 | 1 | Wilson | 9.5 MVA | 33 kV /.660 kV | Central Inveter | Sungrow | 2 | 4.4 MVA | Ampin EG10PL |
| 70 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 304 | 18 | 18 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 71 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 310 | 3 | 3 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 72 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 309 | 2 | 2 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 73 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 308 | 11 | 11 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 74 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 309 | 10 | 10 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 75 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 308 | 14 | 14 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 76 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 305 | 23 | 23 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 77 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 305 | 22 | 22 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 78 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 304 | 8 | 8 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 79 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 310 | 4 | 4 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 80 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 308 | 9 | 9 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 81 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 303 | 20 | 20 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 82 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 310 | 6 | 6 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 83 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 304 | 7 | 7 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 84 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 303 | 16 | 16 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 85 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 304 | 17 | 17 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 86 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 310 | 12 | 12 | Toshiba | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 87 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 308 | 13 | 13 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 88 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 303 | 15 | 15 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 89 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 309 | 5 | 5 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 90 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 309 | 1 | 1 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 91 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 305 | 24 | 24 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 92 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 305 | 21 | 21 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 35 | 0.300 MVA | Renew_Samir_SPL |
| 93 | 1119799 | Feb - 2026 | RENEW SAMIR SHAKTI PRIVATE LIMITED(RSSPL) | 200 | 33kV | 300 | Solar | 303 | 19 | 19 | TOSHIBA | 8.34 MVA | / | String Inverter | TBEA | 34 | 0.300 MVA | Renew_Samir_SPL |
| 94 | 1119819 | Feb - 2026 | BBMB | 1.5 MW | 33kV | 1.5 MW | Solar | 6 | 1 | 1 | Hammond | 1.5 MVA | 33 KV/690 V | Central Inveter | TMEIC | 2 | .84 MVA | BBMB |

# Transformer Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (HV/LV/Tertiary) | MVA Capacity | Type of Transformer |
|---|---|---|---|---|---|---|---|
| 1 | 1119776 | Jan - 2026 | 220/33kV, 140 MVA, 3-Phase, ATLANTA ELECTRICALS , ICT - 1 at Ampin_EG10PL_Hyb_W/S_FTHG4 | Ampin_EG10PL,Ampin_EG8PL | 220/33/na | 140 | ICT |
| 2 | 1119791 | Feb - 2026 | 400/33kV, 200 MVA, 3-Phase, Meiden T&D (India) Ltd., Power Transformer - 2 at Renew_SS3PL_SL_Ftg3 | Renew_SS3PL | 400/33/na | 200 | Power Transformer |
| 3 | 1119791 | Feb - 2026 | 400/33kV, 200 MVA, 3-Phase, Meiden T&D (India) Ltd, Power Transformer - 3 at Renew_SS3PL_SL_Ftg3 | Renew_SS3PL | 400/33/na | 200 | Power Transformer |
| 4 | 1119800 | Feb - 2026 | 400/33kV, 200 MVA, 3-Phase, Shirdi Sai Electricals, - 1 at Renew_Samir_SPL_SL_Ftg3 | Renew_Samir_SPL | 400/33/na | 200 | |
| 5 | 1119754 | Dec - 2025 | 765/400/33kV, 1500 MVA, 3x1-Phase, BHEL, ICT - 2 at Bhadla_3(PB3TL) | PB3TL | 765/400/33kV | 1500 | ICT |
| 6 | 1119737 | Dec - 2025 | 400/220/33kV, 500 MVA MVA, 3-Phase, Toshiba, ICT - 1 at RAMGARH_II(PR2TL) | PR2TL | 400/220/33kV | 500 MVA | ICT |
| 7 | 1119736 | Dec - 2025 | 400/220/33kV, 500 MVA MVA, 3-Phase, Toshiba, ICT - 2 at RAMGARH_II(PR2TL) | PR2TL | 400/220/33kV | 500 MVA | ICT |
| 8 | 1119746 | Dec - 2025 | 400/220/33kV, 500 MVA MVA, 3-Phase, TOSHIBA, ICT - 4 at Allahabad(PG) | POWERGRID | 400/220/33kV | 500 MVA | ICT |
| 9 | 1119781 | Jan - 2026 | 220/33kV, 140 MVA, 3-Phase, MEIDEN T&D (India) Ltd., Power Transformer - 2 at Khaba_REPL_SL_Ftg3 | Khaba_REPL | 220/33/na | 140 | Power Transformer |
| 10 | 1119781 | Jan - 2026 | 220/33kV, 140 MVA, 3-Phase, MEIDEN T&D (India) Ltd., Power Transformer - 1 at Khaba_REPL_SL_Ftg3 | Khaba_REPL | 220/33/na | 140 | Power Transformer |
| 11 | 1119844 | Feb - 2026 | 400/220/33, 500 MVA, 3-Phase, T&R, ICT - 2 at Maheba(UP) | UPPTCL | 400/220/33 | 500 | ICT |

## WTG Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Plant Name | Capacity to be charged | Voltage LeveL | Installed Capacity (in MW) | RE Type | Feeder No | WTGs No(s) as per SCADA/SLD | WTG Make | WTG Rating(each) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119775 | Jan - 2026 | AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL) | 18.9 MW | 33kV | 18.9 | Wind | F6 | GE-173, GE-166, GE-175, GE-133R, GE-171, GE-203R | Suzlon | 3.15 MW |

# Capacitor Bank Report from 01-02-2026 to 28-02-2026

| S.No | CASE ID | Application Month | Name of element | Owner | Voltage Level (in kV) | Type of Capacitor | Capacitor Bank No | Sub Capacitor Bank MVAR Rating | Capacitor MVAR Rating |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 1119792 | Feb - 2026 | 33kV, High Pass filter, 10.5 MVAR(10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz) Capacitor bank no-3 at Renew_SS3PL_SL_Ftg3 | Renew_SS3PL | 33kV | High Pass filter | 3 | 10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz | 10.5 |
| 2 | 1119792 | Feb - 2026 | 33kV, High Pass filter, 10.5 MVAR(10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz) Capacitor bank no-2 at Renew_SS3PL_SL_Ftg3 | Renew_SS3PL | 33kV | High Pass filter | 2 | 10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz | 10.5 |
| 3 | 1119792 | Feb - 2026 | 33kV, High Pass filter, 10.5 MVAR(10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz) Capacitor bank no-1 at Renew_SS3PL_SL_Ftg3 | Renew_SS3PL | 33kV | High Pass filter | 1 | 10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz | 10.5 |
| 4 | 1119780 | Jan - 2026 | 33kV, C-Type Filter Bank, 12 MVAR(12) Capacitor bank no-1VYN030125000160 at Ampin_EG10PL_Hyb_W/S_FTHG4 | Ampin_EG10PL | 33kV | C-Type Filter Bank | 1VYN030125000160 | 12 | 12 |
| 5 | 1119796 | Feb - 2026 | 33kV, High Pass filter, 10.5 MVAR(10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz) Capacitor bank no-5 at Renew_Samir_SPL_SL_Ftg3 | Renew_Samir_SPL | 33kV | High Pass filter | 5 | 10.5MVAR (3 Phase) High Pass filter with quality factor of 2 and cutoff frequency of 249.5Hz | 10.5 |
| 6 | 1119798 | Feb - 2026 | 33kV, Single tuned filter , 10 MVAR(2*5 MVAR(3- Phase) single tuned filter with quality factor 60 of 2 and cutoff frequency of 115 Hz) Capacitor bank no-1 at Renew_Samir_SPL_SL_Ftg3 | Renew_Samir_SPL | 33kV | Single tuned filter | 1 | 2*5 MVAR(3- Phase) single tuned filter with quality factor 60 of 2 and cutoff frequency of 115 Hz | 10 |
| 7 | 1119798 | Feb - 2026 | 33kV, High pass filter, 10 MVAR(2*5 MVAR (3- PHASE) High pass filter with quality factor of 2 and cutoff frequency of 250 Hz) Capacitor bank no-2 at Renew_Samir_SPL_SL_Ftg3 | Renew_Samir_SPL | 33kV | High pass filter | 2 | 2*5 MVAR (3- PHASE) High pass filter with quality factor of 2 and cutoff frequency of 250 Hz | 10 |

# UPSLDC

**220kV Shamli-Deoband Ckt-I&II**

1. Auto recloser is disabled. (shamli end ckt-1, 2 main-2) (deoband end ckt 1,2)
2. Deoband end, main 1 relay settings are provided only.

**220kV Shamli-Modipuram Ckt-I&II**

1. Auto reclose- enabled for multi phases fault also. (Shamli end ckt1 Main 1) (Modipuram end ckt1 & 2 main 1)
2. Auto reclose disabled (shamli end ckt 2 Main 1)

**220kV Mawana-Meerut (PMSTL) Ckt-I&II**

1. Back up earth fault stage-2 protection settings (DT, 800*1 A, 0sec.) (main 1) (earth fault stage-2 is not mentioned in the philosophy if )

**220 kV / 132 kV, 160 MVA T/F-I at 220kV S/S Etah**

1. REF protection settings not included.
2. Over flux protection disabled. (87T)

**220 kV / 132 kV, 160 MVA T/F-I at 220kV S/S Mawana**

1. In HV side high set back up over current protection & earth fault protection – pick up current is not as per philosophy.
2. In LV side high set back up over current protection & earth fault protection – pick up current & time delay are not as per philosophy.

**220 kV / 33 kV, 60 MVA T/F-II at 220kV S/S Harahua**

1. REF protection settings not included.

**220 kV/33 kV, 60 MVA T/F-I & 2 at 220kV GIS TRANSGANGA CITY**

1. In LV side high set back up over current protection & earth fault protection – pick up current & time delay are not as per philosophy. (current & time settings are lesser than philosophy)

2. In HV side high set back up over current protection & earth fault protection – pick up current is not as per philosophy. (lesser than philosophy)

**Zone 3 Setting Revision for Line W3 of TPSP (Due to New KPS-Rishikesh Line)**

| Parameter | Value | Unit | Remarks |
|---|---|---|---|
| TPSP Line 3 length | 13.5 | km | |
| TPSP Line 3 Impedance | 2 | ohm | On Secondary Side (Based on Previous Inputs from Site and present line setting document received) |
| New Line (KPS to Rishikesh) Length | 38.5 | Km | |
| New Line (KPS to Rishikesh) Impedance | 0.3125 | ohm/km/phase | |
| CTR | 2000/1 | | |
| PTR | 420/110 | | |
| New Line Total Impedance (Primary) ZN | 12.03125 | | |
| New Line Total Impedance (Secondary) | 6.302083333 | Ohm | ZN X CTR/PTR |
| Zone 3 Impedance Setting | 9.9625 | ohm | 120% of (Protected Line+ Adjacent Longest Line) |

**Zone 3 Setting for Line W3 of TPSP (Old)**

| Parameter | Value | Unit | Remarks |
|---|---|---|---|
| CTR | 2000/1 | | |
| PTR | 420 kV/110 V | | |
| TPSP Line 3 length | 13.5 | km | |
| Line W3 Positive Phase Sequence resistance | 0.013469 | Ohm/km | |
| Line W3 Positive Phase Sequence reactance | 0.2827 | Ohm/km | |
| Tehri-KPS Line W2 Length | 16.49 | Km | Resistance/reactance of Line W3 & W2 were same as per inputs received from TPSP project sites. |
| TPSP Line W3 Impedance | 13.5*(0.013469+j0.2827) = 3.821 Angle $87.3^0$ | ohm | |
| TPSP Line W3 Impedance on secondary side | 2 | Ohm | |
| Zone 3 Setting (Primary) | 1.2*(0.013469+j0.2827)*(13.5+16.49) = 10.18 | Ohm | |
| Zone 3 Setting (Secondary) | 10.18 X CTR/PTR= 5.33 | Ohm | |

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:40

SYSTEM DATA
- 00.01: Language: English
- 00.02: Password: ********
- 00.03: Sys Fn Links: 0
- 00.04: Description: TEHRI (THDC)
- 00.05: Plant Reference: LINE3 TEHRI-KOT.
- 00.06: Model Number: P443916B6M0790M
- 00.08: Serial Number: 167463Y
- 00.09: Frequency: 50 Hz
- 00.0A: Comms Level: 2
- 00.0B: Relay Address: 2
- 00.0C: Plant Status: 0000000000000010
- 00.0D: Control Status: 0000000000000000
- 00.0E: Active Group: 2
- 00.10: CB Trip/Close: No Operation
- 00.11: Software Ref. 1: P443____6A_790_F
- 00.20: Opto I/P Status: 10000000000011110000100
- 00.21: Relay O/P Status: 00000000000000000000000000000000
- 00.22: Alarm Status 1: 00000000000000000000000000000000
- 00.50: Alarm Status 1: 00000000000000000000000000000000
- 00.51: Alarm Status 2: 00000000000000000000000000000000
- 00.52: Alarm Status 3: 00000000000000000000000000000000
- 00.D0: Access Level: 3
- 00.D2: Password Level 1: ********
- 00.D3: Password Level 2: ********
- 00.D4: Password Level 3: ********
- 00.DF: Security Feature: 1

CB CONTROL
- 07.01: CB Control by: Disabled
- 07.02: Close Pulse Time: 500.0 ms
- 07.03: Trip Pulse Time: 500.0 ms
- 07.08: CB mon LO reset: No
- 07.09: Rst CB mon LO by: User Interface
- 07.0B: Autoreclose Mode: No Operation
- 07.0E: AR Status: Out of Service
- 07.11: CB Status Input: 52A 1 pole
- 07.7F: CB Status Time: 5.000 s
- 07.82: Reset AROK Ind: No
- 07.83: Reset CB LO: No
- 07.85: CB Total Shots: 55
- 07.86: CB SUCC SPAR: 27
- 07.87: CB SUCC3PARShot1: 2
- 07.88: CB SUCC3PARShot2: 0
- 07.89: CB SUCC3PARShot3: 0
- 07.8A: CB SUCC3PARShot4: 0
- 07.8B: CB Failed Shots: 25
- 07.8C: Reset CB Shots: No
- 07.96: Res AROK by UI: Enabled
- 07.97: Res AROK by NoAR: Disabled
- 07.98: Res AROK by Ext: Disabled
- 07.99: Res AROK by TDly: Disabled
- 07.9B: Res LO by CB IS: Enabled
- 07.9C: Res LO by UI: Enabled
- 07.9D: Res LO by NoAR: Disabled
- 07.9E: Res LO by ExtDDB: Disabled
- 07.9F: Res LO by TDelay: Disabled

DATE AND TIME
- 08.01: Date/Time: 2026-02-20 16:24:31.812
- 08.06: Battery Status: Healthy
- 08.07: Battery Alarm: Enabled
- 08.20: LocalTime Enable: Fixed

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:40

- 08.21: LocalTime Offset: 330.0 min
- 08.22: DST Enable: Disabled

CONFIGURATION

- 09.01: Restore Defaults: No Operation
- 09.02: Setting Group: Select via Menu
- 09.03: Active Settings: Group 2
- 09.04: Save Changes: No Operation
- 09.05: Copy From: Group 1
- 09.06: Copy To: No Operation
- 09.07: Setting Group 1: Disabled
- 09.08: Setting Group 2: Enabled
- 09.09: Setting Group 3: Disabled
- 09.0A: Setting Group 4: Disabled
- 09.0B: Distance: Enabled
- 09.0C: Directional E/F: Disabled
- 09.10: Overcurrent: Disabled
- 09.11: Neg Sequence O/C: Disabled
- 09.12: Broken Conductor: Enabled
- 09.13: Earth Fault: Enabled
- 09.15: SEF/REF Prot'n: Disabled
- 09.16: Residual O/V NVD: Disabled
- 09.17: Thermal Overload: Disabled
- 09.18: PowerSwing Block: Enabled
- 09.1D: Volt Protection: Enabled
- 09.1E: Freq Protection: Disabled
- 09.1F: df/dt Protection: Disabled
- 09.20: CB Fail: Disabled
- 09.21: Supervision: Enabled
- 09.23: System Checks: Enabled
- 09.24: Auto-Reclose: Enabled
- 09.25: Input Labels: Visible
- 09.26: Output Labels: Visible
- 09.28: CT & VT Ratios: Visible
- 09.29: Record Control: Invisible
- 09.2A: Disturb Recorder: Visible
- 09.2B: Measure't Setup: Invisible
- 09.2C: Comms Settings: Visible
- 09.2D: Commission Tests: Visible
- 09.2E: Setting Values: Secondary
- 09.2F: Control Inputs: Invisible
- 09.35: Ctrl I/P Config: Invisible
- 09.36: Ctrl I/P Labels: Invisible
- 09.39: Direct Access: Enabled
- 09.50: Function Key: Invisible
- 09.FB: RP1 Read Only: Disabled
- 09.FD: NIC Read Only: Disabled
- 09.FF: LCD Contrast: 11

CT AND VT RATIOS

- 0A.01: Main VT Primary: 420.0 kV
- 0A.02: Main VT Sec'y: 110.0 V
- 0A.03: CS VT Primary: 420.0 kV
- 0A.04: CS VT Secondary: 110.0 V
- 0A.07: Phase CT Primary: 2000 A
- 0A.08: Phase CT Sec'y: 1.000 A
- 0A.0B: SEF CT Primary: 2000 A
- 0A.0C: SEF CT Secondary: 1.000 A
- 0A.0D: MComp CT Primary: 2000 A
- 0A.0E: MComp CT Sec'y: 1.000 A
- 0A.0F: CS Input: AB
- 0A.10: Main VT Location: Line
- 0A.11: CT Polarity: Standard

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:41

- 0A.13: SEF CT Polarity: Standard
- 0A.14: M CT Polarity: Standard
- 0A.21: CS VT Ph Shift: 0 deg
- 0A.22: CS VT Mag: 1.000

DISTURB RECORDER

- 0C.01: Duration: 1.500 s
- 0C.02: Trigger Position: 33.30 %
- 0C.03: Trigger Mode: Single
- 0C.04: Analog Channel 1: VA
- 0C.05: Analog Channel 2: VB
- 0C.06: Analog Channel 3: VC
- 0C.07: Analog Channel 4: IA
- 0C.08: Analog Channel 5: IB
- 0C.09: Analog Channel 6: IC
- 0C.0A: Analog Channel 7: IN
- 0C.0B: Analog Channel 8: IN Sensitive
- 0C.0C: Digital Input 1: Any Dist Start
- 0C.0D: Input 1 Trigger: Trigger L/H
- 0C.0E: Digital Input 2: Any Trip
- 0C.0F: Input 2 Trigger: Trigger L/H
- 0C.10: Digital Input 3: Trip Output A
- 0C.11: Input 3 Trigger: Trigger L/H
- 0C.12: Digital Input 4: Trip Output B
- 0C.13: Input 4 Trigger: Trigger L/H
- 0C.14: Digital Input 5: Trip Output C
- 0C.15: Input 5 Trigger: Trigger L/H
- 0C.16: Digital Input 6: Zone 1 Trip
- 0C.17: Input 6 Trigger: Trigger L/H
- 0C.18: Digital Input 7: Zone 2 Trip
- 0C.19: Input 7 Trigger: Trigger L/H
- 0C.1A: Digital Input 8: Zone 3 Trip
- 0C.1B: Input 8 Trigger: Trigger L/H
- 0C.1C: Digital Input 9: Zone P Trip
- 0C.1D: Input 9 Trigger: Trigger L/H
- 0C.1E: Digital Input 10: Zone 4 Trip
- 0C.1F: Input 10 Trigger: Trigger L/H
- 0C.20: Digital Input 11: Power Swing
- 0C.21: Input 11 Trigger: Trigger L/H
- 0C.22: Digital Input 12: SOTF Trip Zone 1
- 0C.23: Input 12 Trigger: Trigger L/H
- 0C.24: Digital Input 13: SOTF Trip Zone 2
- 0C.25: Input 13 Trigger: Trigger L/H
- 0C.26: Digital Input 14: TOR Trip Zone 1
- 0C.27: Input 14 Trigger: Trigger L/H
- 0C.28: Digital Input 15: Aid 1 Dist Trip
- 0C.29: Input 15 Trigger: Trigger L/H
- 0C.2A: Digital Input 16: AR 1pole in prog
- 0C.2B: Input 16 Trigger: Trigger L/H
- 0C.2C: Digital Input 17: Trip 3ph
- 0C.2D: Input 17 Trigger: Trigger L/H
- 0C.2E: Digital Input 18: AR Initiation
- 0C.2F: Input 18 Trigger: Trigger L/H
- 0C.30: Digital Input 19: V>1 Trip
- 0C.31: Input 19 Trigger: Trigger L/H
- 0C.32: Digital Input 20: V>2 Trip
- 0C.33: Input 20 Trigger: Trigger L/H
- 0C.34: Digital Input 21: Broken Line Trip
- 0C.35: Input 21 Trigger: Trigger L/H
- 0C.36: Digital Input 22: IN>1 Trip
- 0C.37: Input 22 Trigger: Trigger L/H
- 0C.38: Digital Input 23: IN>2 Trip

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:41

- 0C.39: Input 23 Trigger: Trigger L/H
- 0C.3A: Digital Input 24: I>1 Trip
- 0C.3B: Input 24 Trigger: Trigger L/H
- 0C.3C: Digital Input 25: CB Succ 1P AR
- 0C.3D: Input 25 Trigger: Trigger L/H
- 0C.3E: Digital Input 26: Relay 32
- 0C.3F: Input 26 Trigger: Trigger L/H
- 0C.40: Digital Input 27: Opto 8
- 0C.41: Input 27 Trigger: Trigger L/H
- 0C.42: Digital Input 28: Opto 9
- 0C.43: Input 28 Trigger: Trigger L/H
- 0C.44: Digital Input 29: Opto 10
- 0C.45: Input 29 Trigger: Trigger L/H
- 0C.46: Digital Input 30: Opto 11
- 0C.47: Input 30 Trigger: Trigger L/H
- 0C.48: Digital Input 31: Opto 12
- 0C.49: Input 31 Trigger: Trigger L/H
- 0C.4A: Digital Input 32: Opto 13
- 0C.4B: Input 32 Trigger: Trigger L/H
- 0C.50: Analog Channel 9: V Checksync
- 0C.51: Analog Channel10: IM
- 0C.52: Analog Channel11: Max Ih(2)
- 0C.70: Digital Input 33: Opto 14
- 0C.71: Digital Input 34: Opto 15
- 0C.72: Digital Input 35: Opto 16
- 0C.73: Digital Input 36: Opto 17
- 0C.74: Digital Input 37: Opto 18
- 0C.75: Digital Input 38: Opto 19
- 0C.76: Digital Input 39: Opto 20
- 0C.77: Digital Input 40: Opto 21
- 0C.78: Digital Input 41: Opto 22
- 0C.79: Digital Input 42: Opto 23
- 0C.7A: Digital Input 43: Opto 23
- 0C.7B: Digital Input 44: Relay 1
- 0C.7C: Digital Input 45: Relay 2
- 0C.7D: Digital Input 46: Relay 3
- 0C.7E: Digital Input 47: Relay 4
- 0C.7F: Digital Input 48: Relay 5
- 0C.80: Digital Input 49: Relay 9
- 0C.81: Digital Input 50: Relay 10
- 0C.82: Digital Input 51: Relay 11
- 0C.83: Digital Input 52: Relay 18
- 0C.84: Digital Input 53: Relay 8
- 0C.85: Digital Input 54: Relay 23
- 0C.86: Digital Input 55: Relay 29
- 0C.87: Digital Input 56: Unused
- 0C.88: Digital Input 57: Unused
- 0C.89: Digital Input 58: Unused
- 0C.8A: Digital Input 59: Unused
- 0C.8B: Digital Input 60: Unused
- 0C.8C: Digital Input 61: Unused
- 0C.8D: Digital Input 62: Unused
- 0C.8E: Digital Input 63: Unused
- 0C.8F: Digital Input 64: Unused

COMMISSION TESTS

- 0F.01: Opto I/P Status: 100000000000011110000100
- 0F.02: Relay O/P Status: 00000000000000000000000000000000
- 0F.03: Test Port Status: 00000000
- 0F.05: Monitor Bit 1: 1060
- 0F.06: Monitor Bit 2: 1062
- 0F.07: Monitor Bit 3: 1064



Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:41

0F.08: Monitor Bit 4: 1066
0F.09: Monitor Bit 5: 1068
0F.0A: Monitor Bit 6: 1070
0F.0B: Monitor Bit 7: 1072
0F.0C: Monitor Bit 8: 1074
0F.0D: Test Mode: Disabled
0F.0E: Test Pattern: 00000000000000000000000000000000
0F.0F: Contact Test: No Operation
0F.10: Test LEDs: No Operation
0F.11: Test Autoreclose: No Operation
0F.12: Static Test: Disabled
0F.13: Test Loopback: Disabled
0F.18: IM64CH1 TestPATN: 00000000000000000000000000
0F.19: IM64CH2 TestPATN: 00000000000000000000000000
0F.1A: Red LED Status: 000000000000000000
0F.1B: Green LED Status: 000000011100000000
0F.20: DDB 31 - 0: 00000000000000000000000000000000
0F.21: DDB 63 - 32: 00000000100000000000011110000100
0F.22: DDB 95 - 64: 00000000000000000000000000000000
0F.23: DDB 127 - 96: 00000000000000000000000000000000
0F.24: DDB 159 - 128: 00000000000000000000000000000000
0F.25: DDB 191 - 160: 00000000000000000000000000000000
0F.26: DDB 223 - 192: 00000000000000000000000000000000
0F.27: DDB 255 - 224: 00000000000000000000000000000000
0F.28: DDB 287 - 256: 00000000000000000000000000000000
0F.29: DDB 319 - 288: 00000000000000000000000000000000
0F.2A: DDB 351 - 320: 00000000000000000000000000000000
0F.2B: DDB 383 - 352: 00000000000000000000000000000000
0F.2C: DDB 415 - 384: 00000000000000000000000000000000
0F.2D: DDB 447 - 416: 00000000000100000000000011100000
0F.2E: DDB 479 - 448: 00000000000000000000000000000000
0F.2F: DDB 511 - 480: 00000000000000000000000000000000
0F.30: DDB 543 - 512: 00000000000000000000000000000000
0F.31: DDB 575 - 544: 00000000000000111000000000000000
0F.32: DDB 607 - 576: 00000000000000000000000000000000
0F.33: DDB 639 - 608: 00000000000000000000000000000000
0F.34: DDB 671 - 640: 00000000000000000000000000000000
0F.35: DDB 703 - 672: 00000000000000000000000000000000
0F.36: DDB 735 - 704: 00000000000000000000000000000000
0F.37: DDB 767 - 736: 00000000000000000000000000000000
0F.38: DDB 799 - 768: 00000000000000000000000000000000
0F.39: DDB 831 - 800: 00000000000000000000000000000000
0F.3A: DDB 863 - 832: 00001000000000000100000000000000
0F.3B: DDB 895 - 864: 00000001100001100000001000000000
0F.3C: DDB 927 - 896: 00000000000000000111100000010100
0F.3D: DDB 959 - 928: 00000000000000000000000000000000
0F.3E: DDB 991 - 960: 00000000000000000000000000000000
0F.3F: DDB 1023 - 992: 00000000000000000000000000000000
0F.40: DDB 1055 - 1024: 00000000001010100000000000000000
0F.41: DDB 1087 - 1056: 00000010101000000000000000000000
0F.42: DDB 1119 - 1088: 00000000000000000000000000000000
0F.43: DDB 1151 - 1120: 00000000000000000000000000000000
0F.44: DDB 1183 - 1152: 11010101000000000000000000000000
0F.45: DDB 1215 - 1184: 00000000000000000000000100000000
0F.46: DDB 1247 - 1216: 00000000000000000000000000000000
0F.47: DDB 1279 - 1248: 00000000000000000000000000000000
0F.48: DDB 1311 - 1280: 00000000000011100000000000000000
0F.49: DDB 1343 - 1312: 00000000000000000000000000000000
0F.4A: DDB 1375 - 1344: 00000000000000000000010000000000
0F.4B: DDB 1407 - 1376: 00000000000000000000000000000000
0F.4C: DDB 1439 - 1408: 00000000000000000000000000000000

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:41

- 0F.4D: DDB 1471 - 1440: 00000000000000000000000000000000
- 0F.4E: DDB 1503 - 1472: 00000000000000000000000000000000
- 0F.4F: DDB 1535 - 1504: 00000001010000000000000000000000
- 0F.50: DDB 1567 - 1536: 00000000000000001000000000000000
- 0F.51: DDB 1599 - 1568: 00000000000001000110000001100000
- 0F.52: DDB 1631 - 1600: 00000000000000000000000000000000
- 0F.53: DDB 1663 - 1632: 00000000000000000000000000000000
- 0F.54: DDB 1695 - 1664: 00000000000000000000000000000000
- 0F.55: DDB 1727 - 1696: 00000000000000000000000000000000
- 0F.56: DDB 1759 - 1728: 00000000000000000000000000000000
- 0F.57: DDB 1791 - 1760: 00000000000000000000000000000000
- 0F.58: DDB 1823 - 1792: 00000000000000000000000000000000
- 0F.59: DDB 1855 - 1824: 00000000000000000000000000000000
- 0F.5A: DDB 1887 - 1856: 00000000000000000000000000000000
- 0F.5B: DDB 1919 - 1888: 00000000000000000000000000000000
- 0F.5C: DDB 1951 - 1920: 00000000000000000000000000000000
- 0F.5D: DDB 1983 - 1952: 00000000000000000000000000000000
- 0F.5E: DDB 2015 - 1984: 10000000000000000000000000000000
- 0F.5F: DDB 2047 - 2016: 00000000000000000000000000000000

CB MONITOR SETUP

- 10.01: Broken I^: 2.000
- 10.02: I^ Maintenance: Alarm Disabled
- 10.04: I^ Lockout: Alarm Disabled
- 10.06: No. CB Ops Maint: Alarm Disabled
- 10.08: No. CB Ops Lock: Alarm Disabled
- 10.0A: CB Time Maint: Alarm Disabled
- 10.0C: CB Time Lockout: Alarm Disabled
- 10.0E: Fault Freq Lock: Alarm Disabled

OPTO CONFIG

- 11.01: Global Nominal V: 220/250V
- 11.60: Opto Filter Cntl: 111111111011011111111011
- 11.80: Characteristic: Standard 60%-80%

CONTROL INPUTS

- 12.01: Ctrl I/P Status: 00000000000000000000000000000000
- 12.02: Control Input 1: No Operation
- 12.03: Control Input 2: No Operation
- 12.04: Control Input 3: No Operation
- 12.05: Control Input 4: No Operation
- 12.06: Control Input 5: No Operation
- 12.07: Control Input 6: No Operation
- 12.08: Control Input 7: No Operation
- 12.09: Control Input 8: No Operation
- 12.0A: Control Input 9: No Operation
- 12.0B: Control Input 10: No Operation
- 12.0C: Control Input 11: No Operation
- 12.0D: Control Input 12: No Operation
- 12.0E: Control Input 13: No Operation
- 12.0F: Control Input 14: No Operation
- 12.10: Control Input 15: No Operation
- 12.11: Control Input 16: No Operation
- 12.12: Control Input 17: No Operation
- 12.13: Control Input 18: No Operation
- 12.14: Control Input 19: No Operation
- 12.15: Control Input 20: No Operation
- 12.16: Control Input 21: No Operation
- 12.17: Control Input 22: No Operation
- 12.18: Control Input 23: No Operation
- 12.19: Control Input 24: No Operation
- 12.1A: Control Input 25: No Operation
- 12.1B: Control Input 26: No Operation
- 12.1C: Control Input 27: No Operation

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:41

- 12.1D: Control Input 28: No Operation
- 12.1E: Control Input 29: No Operation
- 12.1F: Control Input 30: No Operation
- 12.20: Control Input 31: No Operation
- 12.21: Control Input 32: No Operation

IED CONFIGURATOR

- 19.05: Switch Conf.Bank: No action
- 19.0A: Restore MCL: No action
- 19.10: Active Conf.Name: Not Available
- 19.11: Active Conf.Rev: Not Available
- 19.20: Inact.Conf.Name: Not Available
- 19.21: Inact.Conf.Rev: Not Available
- 19.30: IP PARAMETERS:
- 19.31: IP address: Not Available
- 19.32: Subnet mask: Not Available
- 19.33: Gateway: Not Available
- 19.40: SNTP PARAMETERS:
- 19.41: SNTP Server 1: Not Available
- 19.42: SNTP Server 2: Not Available
- 19.50: IEC 61850 SCL:
- 19.51: IED Name: Not Available
- 19.60: IEC 61850 GOOSE:
- 19.70: GoEna: 00000000
- 19.71: Test Mode: 00000000
- 19.73: Ignore Test Flag: No

SECURITY CONFIG

- 25.01: User Banner: ACCESS ONLY FOR AUTHORISED USERS
- 25.02: Attempts Limit: 3
- 25.03: Attempts Timer: 2
- 25.04: Blocking Timer: 5
- 25.11: Attempts Remain: 3
- 25.12: Blk Time Remain: 0
- 25.20: Fallbck PW level: 1

USER CURVES DATA

- B8.01: Curve 1 Name: Default Curve 1
- B8.02: Date/Time: 2001-01-01 22:10:10.545
- B8.03: Curve 1 ID: 00003238
- B8.04: UserCurve 1 Type: Operate 1.0
- B8.11: Curve 2 Name: Default Curve 2
- B8.12: Date/Time: 2001-01-01 22:10:10.565
- B8.13: Curve 2 ID: 00002C32
- B8.14: UserCurve 2 Type: Operate 1.0
- B8.21: Curve 3 Name: Default Curve 3
- B8.22: Date/Time: 2001-01-01 22:10:10.585
- B8.23: Curve 3 ID: 0000D17E
- B8.24: UserCurve 3 Type: Reset 1.1
- B8.31: Curve 4 Name: Default Curve 4
- B8.32: Date/Time: 2001-01-01 22:10:10.605
- B8.33: Curve 4 ID: 00008A2D
- B8.34: UserCurve 4 Type: Reset 1.1

Group 2

GROUP 2 LINE PARAMETERS

- 50.01: Line Length: 13.50 km
- 50.03: Line Impedance: 2.000 Ohm
- 50.04: Line Angle: 87.00 deg
- 50.05: kZN Res Comp: 840.0e-3
- 50.06: kZN Res Angle: -17.00 deg
- 50.07: Mutual Comp: Disabled
- 50.0B: Phase Sequence: Standard ABC
- 50.0C: Tripping Mode: 1 and 3 Pole
- 50.10: Line Charging Y: 2.000 mS

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:42

- GROUP 2 DISTANCE SETUP
  - 51.0C: Setting Mode: Advanced
  - 51.10: PHASE DISTANCE:
  - 51.11: Phase Chars.: Quad
  - 51.20: Zone 1 Ph Status: Enabled
  - 51.30: Zone 2 Ph Status: Enabled
  - 51.40: Zone 3 Ph Status: Enabled
  - 51.42: Zone 3 Ph Dir.: Forward
  - 51.50: Zone P Ph Status: Enabled
  - 51.51: Zone P Ph Dir.: Forward
  - 51.60: Zone 4 Ph Status: Enabled
  - 51.70: GROUND DISTANCE:
  - 51.71: Ground Chars.: Quad
  - 51.80: Zone 1 Gnd Stat.: Enabled
  - 51.90: Zone 2 Gnd Stat.: Enabled
  - 51.A0: Zone 3 Gnd Stat.: Enabled
  - 51.A2: Zone 3 Gnd Dir.: Forward
  - 51.B0: Zone P Gnd Stat.: Enabled
  - 51.B1: Zone P Gnd Dir.: Forward
  - 51.C0: Zone 4 Gnd Stat.: Enabled
  - 51.D0: Digital Filter: Standard
  - 51.D1: CVT Filters: Passive
  - 51.D2: SIR Setting: 60
  - 51.D3: Load Blinders: Disabled
  - 51.D7: Dist. Polarizing: 1.000
  - 51.E0: DELTADIRECTIONAL:
  - 51.E1: Dir. Status: Disabled
  - 51.F0: DIST STUB BUS:
  - 51.F1: Dist Stub Bus: Disabled
- GROUP 2 DIST. ELEMENTS
  - 52.01: PHASE DISTANCE:
  - 52.02: Z1 Ph. Reach: 1.600 Ohm
  - 52.03: Z1 Ph. Angle: 87.00 deg
  - 52.07: R1 Ph. Resistive: 15.00 Ohm
  - 52.08: Z1 Tilt Top Line: 0 deg
  - 52.09: Z1 Sensit. Iph>1: 750.0 mA
  - 52.10: Z2 Ph. Reach: 2.400 Ohm
  - 52.11: Z2 Ph. Angle: 87.00 deg
  - 52.15: R2 Ph. Resistive: 15.00 Ohm
  - 52.16: Z2 Tilt Top Line: 0 deg
  - 52.17: Z2 Sensit. Iph>2: 750.0 mA
  - 52.20: Z3 Ph. Reach: 9.960 Ohm
  - 52.21: Z3 Ph. Angle: 87.00 deg
  - 52.25: R3 Ph. Resistive: 15.00 Ohm
  - 52.27: Z3 Tilt Top Line: 0 deg
  - 52.28: Z3 Sensit. Iph>3: 50.00 mA
  - 52.30: ZP Ph. Reach: 2.400 Ohm
  - 52.31: ZP Ph. Angle: 87.00 deg
  - 52.35: RP Ph Resistive: 15.00 Ohm
  - 52.36: ZP Tilt Top Line: 0 deg
  - 52.37: ZP Sensit. Iph>P: 50.00 mA
  - 52.40: Z4 Ph. Reach: 500.0 mOhm
  - 52.41: Z4 Ph. Angle: 87.00 deg
  - 52.42: R4 Ph. Resistive: 15.00 Ohm
  - 52.45: Z4 Tilt Top Line: 0 deg
  - 52.46: Z4 Sensit. Iph>4: 500.0 mA
  - 52.50: GROUND DISTANCE:
  - 52.51: Z1 Gnd. Reach: 1.600 Ohm
  - 52.52: Z1 Gnd. Angle: 87.00 deg
  - 52.53: Z1 Dynamic Tilt: Disabled
  - 52.54: Z1 Tilt Top Line: 0 deg

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:42

- 52.55: kZN1 Res. Comp.: 840.0e-3
- 52.56: kZN1 Res. Angle: -17.00 deg
- 52.59: R1 Gnd Resistive: 15.00 Ohm
- 52.5B: Z1 Sensit Ignd>1: 750.0 mA
- 52.60: Z2 Gnd. Reach: 2.400 Ohm
- 52.61: Z2 Gnd. Angle: 87.00 deg
- 52.63: Z2 Dynamic Tilt: Disabled
- 52.64: Z2 Tilt Top Line: 0 deg
- 52.65: kZN2 Res. Comp.: 840.0e-3
- 52.66: kZN2 Res. Angle: -17.00 deg
- 52.69: R2 Gnd Resistive: 15.00 Ohm
- 52.6B: Z2 Sensit Ignd>2: 750.0 mA
- 52.70: Z3 Gnd. Reach: 9.960 Ohm
- 52.71: Z3 Gnd. Angle: 87.00 deg
- 52.73: Z3 Dynamic Tilt: Disabled
- 52.74: Z3 Tilt Top Line: 0 deg
- 52.75: kZN3 Res. Comp.: 840.0e-3
- 52.76: kZN3 Res. Angle: -17.00 deg
- 52.79: R3 Gnd Resistive: 15.00 Ohm
- 52.7C: Z3 Sensit Ignd>3: 50.00 mA
- 52.80: ZP Gnd. Reach: 5.330 Ohm
- 52.81: ZP Gnd. Angle: 87.00 deg
- 52.83: ZP Dynamic Tilt: Disabled
- 52.84: ZP Tilt Top Line: 0 deg
- 52.85: kZNP Res. Comp.: 840.0e-3
- 52.86: kZNP Res. Angle: -17.00 deg
- 52.89: RP Gnd Resistive: 15.00 Ohm
- 52.8B: ZP Sensit Ignd>P: 50.00 mA
- 52.90: Z4 Gnd. Reach: 500.0 mOhm
- 52.91: Z4 Gnd. Angle: 87.00 deg
- 52.93: Z4 Dynamic Tilt: Disabled
- 52.94: Z4 Tilt Top Line: 0 deg
- 52.95: kZN4 Res. Comp.: 840.0e-3
- 52.96: kZN4 Res. Angle: -17.00 deg
- 52.99: R4 Gnd Resistive: 15.00 Ohm
- 52.9B: Z4 Sensit Ignd>4: 500.0 mA
- 52.B0: Mem Volt Dura: 16

GROUP 2 SCHEME LOGIC

- 54.01: BASIC SCHEME:
- 54.02: BasicScheme Mode: Standard
- 54.08: Zone1 Tripping: Phase And Ground
- 54.09: tZ1 Ph. Delay: 0 s
- 54.0A: tZ1 Gnd. Delay: 0 s
- 54.10: Zone2 Tripping: Phase And Ground
- 54.11: tZ2 Ph. Delay: 500.0 ms
- 54.12: tZ2 Gnd. Delay: 500.0 ms
- 54.18: Zone3 Tripping: Phase And Ground
- 54.19: tZ3 Ph. Delay: 1.000 s
- 54.1A: tZ3 Gnd. Delay: 1.000 s
- 54.20: ZoneP Tripping: Phase And Ground
- 54.21: tZP Ph. Delay: 800.0 ms
- 54.22: tZP Gnd. Delay: 800.0 ms
- 54.28: Zone4 Tripping: Phase And Ground
- 54.29: tZ4 Ph. Delay: 500.0 ms
- 54.2A: tZ4 Gnd. Delay: 500.0 ms
- 54.40: AIDED SCHEME 1:
- 54.41: Aid. 1 Selection: PUR
- 54.42: Aid 1 Distance: Phase And Ground
- 54.43: Aid.1 Dist. Dly: 0 s
- 54.60: AIDED SCHEME 2:
- 54.61: Aid. 2 Selection: Disabled

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:42

- 54.80: TRIP ON CLOSE:
  - 54.81: SOTF Status: Enabled PoleDead
  - 54.82: SOTF Delay: 110.0 s
  - 54.83: SOTF Tripping: 000011
  - 54.84: TOR Status: Enabled
  - 54.85: TOR Tripping: 000001
  - 54.86: TOC Reset Delay: 500.0 ms
  - 54.88: TOC Delay: 200.0 ms
  - 54.B0: Z1 EXTENSION:
  - 54.B1: Z1 Ext Scheme: Disabled
  - 54.C0: LOSS OF LOAD:
  - 54.C1: LOL Scheme: Disabled
- GROUP 2 BROKEN CONDUCTOR
  - 57.01: Broken Conductor: Enabled
  - 57.02: I2/I1 Setting: 200.0e-3
  - 57.03: I2/I1 Time Delay: 5.000 s
- GROUP 2 EARTH FAULT
  - 58.01: IN>1 Status: Enabled
  - 58.25: IN>1 Function: DT
  - 58.26: IN>1 Directional: Directional Fwd
  - 58.29: IN>1 Current Set: 450.0 mA
  - 58.2C: IN>1 Time Delay: 1.300 s
  - 58.33: IN>1 tRESET: 0 s
  - 58.35: IN>2 Status: Disabled
  - 58.46: IN>3 Status: Disabled
  - 58.4D: IN>4 Status: Disabled
  - 58.54: IN> Blocking: 000001
  - 58.55: IN> DIRECTIONAL:
  - 58.56: IN> Char Angle: -60.00 deg
  - 58.57: IN> Polarisation: Zero Sequence
  - 58.59: IN> VNpol Set: 2.000 V
- GROUP 2 POWER SWING BLK.
  - 5D.01: PSB Status: Blocking
  - 5D.03: Zone 1 Ph. PSB: Delayed Unblock
  - 5D.05: Zone 2 Ph. PSB: Blocking
  - 5D.07: Zone 3 Ph. PSB: Blocking
  - 5D.09: Zone P Ph. PSB: Blocking
  - 5D.0B: Zone 4 Ph. PSB: Blocking
  - 5D.0D: Zone 1 Gnd. PSB: Allow Trip
  - 5D.0F: Zone 2 Gnd. PSB: Allow Trip
  - 5D.11: Zone 3 Gnd. PSB: Allow Trip
  - 5D.13: Zone P Gnd. PSB: Allow Trip
  - 5D.15: Zone 4 Gnd. PSB: Allow Trip
  - 5D.16: WI Trip PSB: Inhibit Trip
  - 5D.20: PSB Unblocking: Enabled
  - 5D.21: PSB Unblock dly: 2.000 s
  - 5D.22: PSB Reset Delay: 200.0 ms
  - 5D.23: OST Mode: OST Disabled
  - 5D.40: Slow Swing: Enabled
  - 5D.41: PSB Z7: 96.00 Ohm
  - 5D.42: PSB Z8: 106.0 Ohm
  - 5D.43: PSB Z7': -96.00 Ohm
  - 5D.44: PSB Z8': -106.0 Ohm
  - 5D.45: PSB R7: 32.00 Ohm
  - 5D.46: PSB R8: 36.00 Ohm
  - 5D.47: PSB R7': -32.00 Ohm
  - 5D.48: PSB R8': -36.00 Ohm
  - 5D.49: Alpha: 87.00 deg
  - 5D.4A: PSB Timer: 30.00 ms
- GROUP 2 VOLT PROTECTION
  - 62.30: OVERVOLTAGE:

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:42

- 62.31: V> Measur't Mode: V>1 & V>2 Ph-Ph
- 62.32: V> Hysteresis: 2.000 %
- 62.33: V> Operate Mode: V>1 & V>2 Any Ph
- 62.34: V>1 Function: DT
- 62.35: V>1 Voltage Set: 115.0 V
- 62.36: V>1 Time Delay: 7.000 s
- 62.38: V>2 Status: Enabled
- 62.39: V>2 Voltage Set: 147.0 V
- 62.3A: V>2 Time Delay: 100.0 ms
- 62.50: COMP OVERVOLTAGE:
- 62.51: Cp V Hysteresis: 2.000 %
- 62.52: V1>1 Cmp Funct: Disabled
- 62.56: V1>2 Cmp Status: Disabled
- 62.60: UNDER VOLTAGE:
- 62.61: V< Measur't Mode: V<1 & V<2 Ph-Ph
- 62.62: V< Operate Mode: V<1 & V<2 Any Ph
- 62.63: V< Hysteresis: 2.000 %
- 62.65: V<1 Function: Disabled
- 62.70: V<2 Status: Disabled
- 62.72: V<2 Time Delay: 5.000 s
- 62.73: V<2 Poledead Inh: Enabled

GROUP 2 CB FAIL & P.DEAD

- 65.0A: UNDER CURRENT:
- 65.0B: I< Current Set: 50.00 mA
- 65.0D: ISEF< Current: 20.00 mA
- 65.0E: POLEDEAD VOLTAGE:
- 65.10: V<: 38.10 V

GROUP 2 SUPERVISION

- 66.01: VTS Mode: Measured + MCB
- 66.02: VTS Status: Blocking
- 66.03: VTS Reset Mode: Auto
- 66.04: VTS Time Delay: 5.000 s
- 66.05: VTS I> Inhibit: 2.000 A
- 66.06: VTS I2> Inhibit: 200.0 mA
- 66.0A: VTS V>: 30.00 V
- 66.0E: Inrush Detection: Disabled
- 66.10: WEAK INFEED BLK:
- 66.11: WI Inhibit: Disabled
- 66.20: ISEF HARM. BLOCK:
- 66.21: ISEF>2nd Detect.: Disabled
- 66.30: CT SUPERVISION:
- 66.31: CTS Mode: Disabled

GROUP 2 SYSTEM CHECKS

- 68.14: VOLTAGE MONITORS:
- 68.85: Live Line: 51.00 V
- 68.86: Dead Line: 13.00 V
- 68.87: Live Bus: 51.00 V
- 68.88: Dead Bus: 13.00 V
- 68.8B: CS UV: 51.00 V
- 68.8C: CS OV: 73.00 V
- 68.8D: System Checks: Enabled
- 68.8E: CS Voltage Block: Vdiff>
- 68.8F: CS1 Status: Enabled
- 68.90: CS1 Angle: 10.00 deg
- 68.91: CS1 VDiff: 6.500 V
- 68.92: CS1 Slip Ctrl: Enabled
- 68.93: CS1 SlipFreq: 100.0 mHz
- 68.94: CS2 Status: Disabled

GROUP 2 AUTORECLOSE

- 69.51: AR Mode: AR 1P
- 69.5D: Discrim Time: 1.300 s

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:42

- 69.60: CB IS Time: 5.000 s
- 69.61: CB IS MemoryTime: 500.0 ms
- 69.62: DT Start by Prot: Protection Reset
- 69.64: DTStart by CB Op: Enabled
- 69.67: SP AR Dead Time: 1.000 s
- 69.6D: SPAR ReclaimTime: 25.00 s
- 69.6F: AR CBHealthyTime: 5.000 s
- 69.70: AR CheckSyncTime: 5.000 s
- 69.72: Z1 AR: Initiate AR
- 69.74: Dist Aided AR: Block AR
- 69.75: Z2T AR: No Action
- 69.76: Z3T AR: No Action
- 69.77: ZPT AR: No Action
- 69.78: Z4T AR: No Action
- 69.7B: TOR AR: Block AR
- 69.80: IN>1 AR: No Action
- 69.A5: AR SYS CHECKS:
- 69.A6: CB SC all: Disabled

GROUP 2 INPUT LABELS

- 6A.01: Opto Input 1: L1 SET GRP SEL
- 6A.02: Opto Input 2: L2 SET GRP SEL
- 6A.03: Opto Input 3: L3 LN VTS CLOSE
- 6A.04: Opto Input 4: L4BUS122 VTS CLS
- 6A.05: Opto Input 5: L5 GS101 CB A OP
- 6A.06: Opto Input 6: L6 GS101 CB B OP
- 6A.07: Opto Input 7: L7 GS101 CB C OP
- 6A.08: Opto Input 8: L8 GS101 CB A CL
- 6A.09: Opto Input 9: L9 GS101 CB B CL
- 6A.0A: Opto Input 10: L10GS101 CB A CL
- 6A.0B: Opto Input 11: L11 CB READY
- 6A.0C: Opto Input 12: L12 SF6 PRS STG2
- 6A.0D: Opto Input 13: L13 50BF STG1 OP
- 6A.0E: Opto Input 14: L14 50BF STG2 OP
- 6A.0F: Opto Input 15: L15 CARRFAIL CH2
- 6A.10: Opto Input 16: L16 DT T RECV
- 6A.11: Opto Input 17: L17 DT RECV2
- 6A.12: Opto Input 18: L18 CAR RECV
- 6A.13: Opto Input 19: L19 AR BLOCK
- 6A.14: Opto Input 20: L20 AR IN
- 6A.15: Opto Input 21: L21 AR INI R-PH
- 6A.16: Opto Input 22: L22 AR INI Y-PH
- 6A.17: Opto Input 23: L23 AR INI B-PH
- 6A.18: Opto Input 24: L24 86LE-2 SUVPN

GROUP 2 OUTPUT LABELS

- 6B.01: Relay 1: R1 CB TC1_R-PH
- 6B.02: Relay 2: R2 CB TC1_Y-PH
- 6B.03: Relay 3: R3 CB TC1_B-PH
- 6B.04: Relay 4: R4 TO 86LE-2 TRP
- 6B.05: Relay 5: R5 DT SND
- 6B.06: Relay 6: R6 DIST PERM SND
- 6B.07: Relay 7: R7 FUTURE USE
- 6B.08: Relay 8: R8 21M1 AR R INI
- 6B.09: Relay 9: R9 CB TC2_R-PH
- 6B.0A: Relay 10: R10 CB TC2_Y-PH
- 6B.0B: Relay 11: R11 CB TC2_B-PH
- 6B.0C: Relay 12: R12 50 STG1 OPTD
- 6B.0D: Relay 13: R13 59STG-2 OPTD
- 6B.0E: Relay 14: R14 67N OPTD
- 6B.0F: Relay 15: R15 78 TRIP
- 6B.10: Relay 16: R16 AR IN
- 6B.11: Relay 17: R17 M-2TCS_UNHLY



Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P443916B6M0790M

Printed on: 20/02/2026 16:26:43

- 6B.12: Relay 18: R18 AR BLCK
- 6B.13: Relay 19: R19 21 OPTD
- 6B.14: Relay 20: R20 TRP POLE A
- 6B.15: Relay 21: R21 TRP POLE B
- 6B.16: Relay 22: R22 TRP POLE C
- 6B.17: Relay 23: R23 AR INI Y
- 6B.18: Relay 24: R24 DT RECV
- 6B.19: Relay 25: R25 SF6 STG-2
- 6B.1A: Relay 26: R26 50BF INI RPH
- 6B.1B: Relay 27: R27 50BF INI YPH
- 6B.1C: Relay 28: R28 50BF INI BPH
- 6B.1D: Relay 29: R29 AR INI BPH
- 6B.1E: Relay 30: R30 SPARE
- 6B.1F: Relay 31: R31 SPARE
- 6B.20: Relay 32: R32 AR CLS CMD

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:31

- SYSTEM DATA
  - 00.01: Language: English
  - 00.02: Password: ********
  - 00.04: Description: TEHRI (THDC)
  - 00.05: Plant Reference: LINE3 TEHRI-KOT.
  - 00.06: Model Number: P444916B6M0720M
  - 00.08: Serial Number: 167472Y
  - 00.09: Frequency: 50 Hz
  - 00.0A: Comms Level: 2
  - 00.0B: Relay Address: 1
  - 00.0C: Plant Status: 0000000000000000
  - 00.0D: Control Status: 0000000000000000
  - 00.0E: Active Group: 2
  - 00.10: CB Trip/Close: No Operation
  - 00.11: Software Ref. 1: P444____6A_720_E
  - 00.20: Opto I/P Status: 10001000000011110000100
  - 00.21: Relay Status 1: 00000000000000001000000000000000
  - 00.22: Alarm Status 1: 00000000000000000000000000000000
  - 00.40: Relay Status 1: 00000000000000001000000000000000
  - 00.50: Alarm Status 1: 00000000000000000000000000000000
  - 00.51: Alarm Status 2: 00000000000000000000000000000000
  - 00.52: Alarm Status 3: 00000000000000000000000000000000
  - 00.D0: Access Level: 3
  - 00.D2: Password Level 1: ********
  - 00.D3: Password Level 2: ********
  - 00.D4: Password Level 3: ********
  - 00.DF: Security Feature: 1
- CB CONTROL
  - 07.01: CB Control by: Disabled
  - 07.07: A/R Single Pole: Enabled
  - 07.08: A/R Three Pole: Disabled
- DATE AND TIME
  - 08.01: Date/Time: 2026-02-20 16:27:10.25
  - 08.06: Battery Status: Healthy
  - 08.07: Battery Alarm: Enabled
  - 08.20: LocalTime Enable: Fixed
  - 08.21: LocalTime Offset: 330.0 min
  - 08.22: DST Enable: Disabled
- CONFIGURATION
  - 09.01: Restore Defaults: No Operation
  - 09.02: Setting Group: Select via Menu
  - 09.03: Active Settings: Group 2
  - 09.04: Save Changes: No Operation
  - 09.05: Copy From: Group 1
  - 09.06: Copy To: No Operation
  - 09.07: Setting Group 1: Disabled
  - 09.08: Setting Group 2: Enabled
  - 09.09: Setting Group 3: Disabled
  - 09.0A: Setting Group 4: Disabled
  - 09.0D: Dist. Protection: Enabled
  - 09.10: Power-Swing: Enabled
  - 09.11: Back-up I>: Disabled
  - 09.12: Neg Sequence O/C: Disabled
  - 09.13: Broken Conductor: Enabled
  - 09.14: Earth Fault PROT: Earth Fault O/C
  - 09.15: Aided D.E.F: Disabled
  - 09.16: Volt Protection: Enabled
  - 09.17: CB Fail & I<: Disabled
  - 09.18: Supervision: Enabled
  - 09.19: System Checks: Enabled
  - 09.1A: Thermal Overload: Disabled

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:31

- 09.1C: I< Protection: Disabled
- 09.1D: Residual O/V NVD: Disabled
- 09.1E: Freq Protection: Disabled
- 09.24: Internal A/R: Enabled
- 09.25: Input Labels: Visible
- 09.26: Output Labels: Visible
- 09.28: CT & VT Ratios: Visible
- 09.29: Record Control: Invisible
- 09.2A: Disturb Recorder: Visible
- 09.2B: Measure't Setup: Invisible
- 09.2C: Comms Settings: Visible
- 09.2D: Commission Tests: Visible
- 09.2E: Setting Values: Secondary
- 09.2F: Control Inputs: Invisible
- 09.35: Ctrl I/P Config: Invisible
- 09.36: Ctrl I/P Labels: Invisible
- 09.39: Direct Access: Enabled
- 09.50: Function Key: Invisible
- 09.54: PSL Timers: Invisible

CT AND VT RATIOS

- 0A.01: Main VT Primary: 420.0 kV
- 0A.02: Main VT Sec'y: 110.0 V
- 0A.03: 4th VT Primary: 420.0 kV
- 0A.04: 4th VT Secondary: 110.0 V
- 0A.07: Phase CT Primary: 2000 A
- 0A.08: Phase CT Sec'y: 1.000 A
- 0A.0D: MComp CT Primary: 2000 A
- 0A.0E: MComp CT Sec'y: 1.000 A
- 0A.0F: C/S Input:A-B
- 0A.10: Main VT Location: Line
- 0A.11: CT Polarity: Standard
- 0A.12: Measured VN: Disabled
- 0A.13: Measured IN: Disabled

DISTURB RECORDER

- 0C.01: Duration: 1.500 s
- 0C.02: TriggerPosition: 33.30 %
- 0C.03: TriggerMode: Single
- 0C.04: AnalogChannel1: VA
- 0C.05: AnalogChannel2: VB
- 0C.06: AnalogChannel3: VC
- 0C.07: AnalogChannel4: VN
- 0C.08: AnalogChannel5: IA
- 0C.09: AnalogChannel6: IB
- 0C.0A: AnalogChannel7: IC
- 0C.0B: AnalogChannel8: IN
- 0C.0C: DigitalInput1: Any Start
- 0C.0D: Input1Trigger: Trigger L/H
- 0C.0E: DigitalInput2: Any Trip
- 0C.0F: Input2Trigger: Trigger L/H
- 0C.10: DigitalInput3: Any Trip A
- 0C.11: Input3Trigger: Trigger L/H
- 0C.12: DigitalInput4: Any Trip B
- 0C.13: Input4Trigger: Trigger L/H
- 0C.14: DigitalInput5: Any Trip C
- 0C.15: Input5Trigger: Trigger L/H
- 0C.16: DigitalInput6: Z1
- 0C.17: Input6Trigger: Trigger L/H
- 0C.18: DigitalInput7: Z2
- 0C.19: Input7Trigger: Trigger L/H
- 0C.1A: DigitalInput8: Z3
- 0C.1B: Input8Trigger: Trigger L/H



Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:32

| | |
|---|---|
| 0C.1C: DigitalInput9: | Z4 |
| 0C.1D: Input9Trigger: | Trigger L/H |
| 0C.1E: DigitalInput10: | Power Swing |
| 0C.1F: Input10Trigger: | Trigger L/H |
| 0C.20: DigitalInput11: | SOTF/TOR Trip |
| 0C.21: Input11Trigger: | Trigger L/H |
| 0C.22: DigitalInput12: | DIST. Chan Recv |
| 0C.23: Input12Trigger: | Trigger L/H |
| 0C.24: DigitalInput13: | I A/R Close |
| 0C.25: Input13Trigger: | Trigger L/H |
| 0C.26: DigitalInput14: | 1P Trip |
| 0C.27: Input14Trigger: | Trigger L/H |
| 0C.28: DigitalInput15: | 3P Trip |
| 0C.29: Input15Trigger: | Trigger L/H |
| 0C.2A: DigitalInput16: | A/R 1P In Prog |
| 0C.2B: Input16Trigger: | Trigger L/H |
| 0C.2C: DigitalInput17: | 3ph Fault |
| 0C.2D: Input17Trigger: | Trigger L/H |
| 0C.2E: DigitalInput18: | V>2 Trip |
| 0C.2F: Input18Trigger: | Trigger L/H |
| 0C.30: DigitalInput19: | V>3 Trip |
| 0C.31: Input19Trigger: | Trigger L/H |
| 0C.32: DigitalInput20: | Brok.Cond. Alarm |
| 0C.33: Input20Trigger: | Trigger L/H |
| 0C.34: DigitalInput21: | IN>1 Trip |
| 0C.35: Input21Trigger: | Trigger L/H |
| 0C.36: DigitalInput22: | IN>2 Trip |
| 0C.37: Input22Trigger: | Trigger L/H |
| 0C.38: DigitalInput23: | I>1 Trip |
| 0C.39: Input23Trigger: | Trigger L/H |
| 0C.3A: DigitalInput24: | DEF. Chan Recv |
| 0C.3B: Input24Trigger: | Trigger L/H |
| 0C.3C: DigitalInput25: | DEF Rev |
| 0C.3D: Input25Trigger: | Trigger L/H |
| 0C.3E: DigitalInput26: | DEF Fwd |
| 0C.3F: Input26Trigger: | Trigger L/H |
| 0C.40: DigitalInput27: | DEF Trip A |
| 0C.41: Input27Trigger: | Trigger L/H |
| 0C.42: DigitalInput28: | DEF Trip B |
| 0C.43: Input28Trigger: | Trigger L/H |
| 0C.44: DigitalInput29: | DEF Trip C |
| 0C.45: Input29Trigger: | Trigger L/H |
| 0C.46: DigitalInput30: | Relay Label 32 |
| 0C.47: Input30Trigger: | Trigger L/H |
| 0C.48: DigitalInput31: | Opto Label 08 |
| 0C.49: Input31Trigger: | Trigger L/H |
| 0C.4A: DigitalInput32: | Opto Label 09 |
| 0C.4B: Input32Trigger: | Trigger L/H |
| 0C.60: DigitalInput33: | Opto Label 10 |
| 0C.61: DigitalInput34: | Opto Label 11 |
| 0C.62: DigitalInput35: | Opto Label 13 |
| 0C.63: DigitalInput36: | Opto Label 14 |
| 0C.64: DigitalInput37: | Opto Label 15 |
| 0C.65: DigitalInput38: | Opto Label 16 |
| 0C.66: DigitalInput39: | Opto Label 17 |
| 0C.67: DigitalInput40: | Opto Label 18 |
| 0C.68: DigitalInput41: | Opto Label 19 |
| 0C.69: DigitalInput42: | Opto Label 20 |
| 0C.6A: DigitalInput43: | Opto Label 21 |
| 0C.6B: DigitalInput44: | Opto Label 22 |
| 0C.6C: DigitalInput45: | Opto Label 23 |

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:32

- 0C.6D: DigitalInput46: Opto Label 24
- 0C.6E: DigitalInput47: Relay Label 01
- 0C.6F: DigitalInput48: Relay Label 02
- 0C.70: DigitalInput49: Relay Label 03
- 0C.71: DigitalInput50: Relay Label 04
- 0C.72: DigitalInput51: Relay Label 05
- 0C.73: DigitalInput52: Relay Label 09
- 0C.74: DigitalInput53: Relay Label 10
- 0C.75: DigitalInput54: Relay Label 11
- 0C.76: DigitalInput55: Relay Label 18
- 0C.77: DigitalInput56: Relay Label 08
- 0C.78: DigitalInput57: Relay Label 23
- 0C.79: DigitalInput58: Relay Label 29
- 0C.7A: DigitalInput59: VTS Fast
- 0C.7B: DigitalInput60: Unused
- 0C.7C: DigitalInput61: Unused
- 0C.7D: DigitalInput62: Unused
- 0C.7E: DigitalInput63: Unused
- 0C.7F: DigitalInput64: Unused

COMMUNICATIONS

- 0E.01: RP1 Protocol: Courier
- 0E.02: RP1 Address: 1
- 0E.03: RP1 InactivTimer: 15.00 min
- 0E.0B: RP1 Card Status: K-Bus OK
- 0E.0C: RP1 Port Config: K-Bus
- 0E.0D: RP1 Comms Mode: IEC60870 FT1.2
- 0E.0E: RP1 Baud Rate: 19200
- 0E.1F: NIC Protocol: IEC61850
- 0E.22: NIC MAC Address: 80-B3-2A-0C-80-4F
- 0E.64: NIC Tunl Timeout: 5.000 min
- 0E.6A: NIC Link Report: None

COMMISSION TESTS

- 0F.01: Opto I/P Status: 10001000000011110000100
- 0F.02: Relay Status 1: 00000000000000001000000000000000
- 0F.04: Test Port Status: 00000000
- 0F.06: Monitor Bit 1: Relay Label 01
- 0F.07: Monitor Bit 2: Relay Label 02
- 0F.08: Monitor Bit 3: Relay Label 03
- 0F.09: Monitor Bit 4: Relay Label 04
- 0F.0A: Monitor Bit 5: Relay Label 05
- 0F.0B: Monitor Bit 6: Relay Label 06
- 0F.0C: Monitor Bit 7: Relay Label 07
- 0F.0D: Monitor Bit 8: Relay Label 08
- 0F.0E: Test Mode: Disable
- 0F.0F: Test Pattern 1: 00000000000000000000000000001000
- 0F.11: Contact Test: No operation
- 0F.12: Test LEDs: No operation
- 0F.13: Autoreclose Test: No Operation
- 0F.16: Red LED Status: 000000000000000000
- 0F.17: Green LED Status: 000000011100000000

CB MONITOR SETUP

- 10.01: Broken I^: 2.000
- 10.02: I^ Maintenance: Alarms Disabled
- 10.04: I^ Lockout: Alarms Disabled
- 10.06: No CB Ops Maint: Alarms Disabled
- 10.08: No CB Ops Lock: Alarms Disabled
- 10.0A: CB Time Maint: Alarms Disabled
- 10.0C: CB Time Lockout: Alarms Disabled
- 10.0E: Fault Freq Lock: Alarms Disabled
- 10.11: Lockout Reset: No
- 10.12: Reset Lockout By: CB Close

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:32

- OPTO CONFIG
  - 11.01: Global Nominal V: 220/250V
  - 11.50: Opto Filter Cntl: 11111111111111111111111
  - 11.80: Characteristic: Standard 60%-80%
- IED CONFIGURATOR
  - 19.70: GoEna: 11111111
- SECURITY CONFIG
  - 25.01: User Banner: ACCESS ONLY FOR AUTHORISED USERS
  - 25.02: Attempts Limit: 2
  - 25.03: Attempts Timer: 2
  - 25.04: Blocking Timer: 5
  - 25.11: Attempts Remain: 2
  - 25.12: Blk Time Remain: 0
  - 25.20: Fallbck PW level: 1
- Group 2
  - GROUP 2 DISTANCE ELEMENT
    - 50.01: GROUP 2 Line Setting:
    - 50.02: Line Length: 13.50 km
    - 50.04: Line Impedance: 2.000 Ohm ( 94.21mOhm)
    - 50.05: Line Angle: 87.30 deg (j 1.998 Ohm)
    - 50.06: GROUP 2 Zone Setting:
    - 50.07: Zone Status: 110110
    - 50.08: kZ1 Res Comp: 840.0e-3
    - 50.09: kZ1 Angle: -16.80 deg
    - 50.0A: Z1: 1.630 Ohm
    - 50.0C: R1G: 15.00 Ohm
    - 50.0D: R1Ph: 15.00 Ohm
    - 50.0E: tZ1: 0 s
    - 50.0F: kZ2 Res Comp: 840.0e-3
    - 50.10: kZ2 Angle: -16.80 deg
    - 50.11: Z2: 2.400 Ohm
    - 50.12: R2G: 15.00 Ohm
    - 50.13: R2Ph: 15.00 Ohm
    - 50.14: tZ2: 500.0 ms
    - 50.15: kZ3/4 Res Comp: 847.0e-3
    - 50.16: kZ3/4 Angle: -16.80 deg
    - 50.17: Z3: 9.962 Ohm
    - 50.18: R3G-R4G: 15.00 Ohm
    - 50.19: R3Ph-R4Ph: 15.00 Ohm
    - 50.1A: tZ3: 1.000 s
    - 50.1B: Z4: 500.0 mOhm
    - 50.1C: tZ4: 500.0 ms
    - 50.1D: ZoneP - Direct: Directional FWD
    - 50.1E: kZp Res Comp: 840.0e-3
    - 50.1F: kZp Angle: -16.90 deg
    - 50.20: Zp: 2.400 Ohm
    - 50.21: RpG: 15.00 Ohm
    - 50.22: RpPh: 15.00 Ohm
    - 50.23: tZp: 600.0 ms
    - 50.2B: GROUP 2 Other Parameters:
    - 50.2C: Series Cmp. Line: Disabled
    - 50.2D: Overlap Z Mode: Disabled
    - 50.2E: Z1m Tilt Angle: 0 deg
    - 50.2F: Z1p Tilt Angle: 0 deg
    - 50.30: Z2/p/q Tilt Angl: 0 deg
    - 50.31: Fwd Z Chg. Delay: 0 s
    - 50.32: V Mem Validity: 10.00 s
    - 50.33: Earth I Detect.: 50.00 mA
    - 50.34: GROUP 2 Fault Locator:
    - 50.35: kZm Mutual Comp: 0
    - 50.36: kZm Angle: 0 deg

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:32

- 50.40: GROUP 2 Load Blinder:
- 50.41: Load Blinder En: Disabled

GROUP 2 DISTANCE SCHEMES
- 51.01: Program Mode: Standard Scheme
- 51.02: Standard Mode: P.U.P Z2
- 51.03: Fault Type: Both enabled
- 51.04: Trip Mode: 1P. Z1 & CR
- 51.07: Aid Dist Dly: 0 s
- 51.08: tReversal Guard: 0 s
- 51.09: Unblocking Logic: None
- 51.0A: SOTF/TOR Mode: 000000110000001
- 51.0B: SOTF Delay: 110.0 s
- 51.0C: Z1Ext Fail: Disabled
- 51.0D: GROUP 2 Weak Infeed:
- 51.0E: WI:Mode Status: Disabled
- 51.20: LoL:Window: 40.00 ms

GROUP 2 POWER-SWING
- 52.01: Delta R: 4.000 Ohm
- 52.02: Delta X: 4.000 Ohm
- 52.03: IN> status: Enabled
- 52.04: IN> (%Imax): 30.00 %
- 52.05: I2> status: Enabled
- 52.06: I2> (%Imax): 20.00 %
- 52.07: ImaxLine> Status: Enabled
- 52.08: ImaxLine >: 2.000 A
- 52.09: Delta I Status: Enabled
- 52.0A: Unblocking delay: 2.000 s
- 52.0B: Blocking Zones: 111111
- 52.0C: Out of Step: 255
- 52.0D: Stable Swing: 1

GROUP 2 BROKEN CONDUCTOR
- 57.01: Broken conductor: Enabled
- 57.02: I2/I1 Setting: 200.0e-3
- 57.03: I2/I1 Time delay: 5.000 s
- 57.04: I2/I1 Trip:Disabled

GROUP 2 EARTH FAULT O/C
- 58.01: IN>1 Function: DT
- 58.02: IN>1 Directional: Directional FWD
- 58.03: IN>1 VTS Block: Non Directional
- 58.04: IN>1 Current Set: 450.0 mA
- 58.05: IN>1 Time delay: 1.300 s
- 58.06: IN>1 Time VTS: 5.000 s
- 58.0A: IN>1 tReset: 0 s
- 58.0B: IN>2 Function: Disabled
- 58.15: IN>3 Status: Disabled
- 58.1B: IN>4 Status: Disabled
- 58.21: GROUP 2 IN> DIRECTIONAL:
- 58.22: IN Char Angle: -60.00 deg
- 58.23: Polarisation: Zero sequence
- 58.24: GROUP 2 IN> BLOCKING:
- 58.25: Block Pole Dead: Enabled

GROUP 2 VOLT PROTECTION
- 62.01: V< & V> MODE: 00001110000
- 62.02: GROUP 2 UNDERVOLTAGE:
- 62.03: V< Measur't Mode: Phase_Phase
- 62.04: V<1 Function: Disabled
- 62.08: V<2 Status: Disabled
- 62.0B: V<3 Status: Disabled
- 62.0E: V<4 Status: Disabled
- 62.11: GROUP 2 OVERVOLTAGE:
- 62.12: V> Measur't Mode: Phase_Phase

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:32

- 62.13: V> Hysteresis: 2.000 %
- 62.14: V>1 Function: Disabled
- 62.18: V>2 Status: Enabled
- 62.19: V>2 Voltage Set: 115.0 V
- 62.1A: V>2 Time Delay: 7.000 s
- 62.1B: V>3 Status: Enabled
- 62.1C: V>3 Voltage Set: 147.0 V
- 62.1D: V>3 Time Delay: 100.0 ms
- 62.1E: V>4 Status: Disabled

GROUP 2 SUPERVISION

- 66.01: GROUP 2 VT SUPERVISION:
- 66.02: VTS Time Delay: 5.000 s
- 66.03: VTS I2 & I0 Inh: 50.00 mA
- 66.04: Detect 3P: Enabled
- 66.05: Threshold 3P: 30.00 V
- 66.06: Delta I>: 100.0 mA
- 66.07: GROUP 2 CT SUPERVISION:
- 66.08: CTS Status: Disabled
- 66.0C: GROUP 2 CVT SUPERVISION:
- 66.0D: CVTS Status: Enabled
- 66.0E: CVTS VN>: 11.00 V
- 66.0F: CVTS Time Delay: 60.00 s
- 66.10: CVTS V2 Status: Disabled

GROUP 2 SYSTEM CHECKS

- 68.01: Chk scheme A/R: 111
- 68.02: Chk scheme ManCB: 111
- 68.03: V< Dead Line: 13.00 V
- 68.04: V> Live Line: 51.00 V
- 68.05: V< Dead Bus: 13.00 V
- 68.06: V> Live Bus: 51.00 V
- 68.07: Diff Voltage: 6.400 V
- 68.08: Diff Frequency: 100.0 mHz
- 68.09: Diff Phase: 10.00 deg
- 68.0A: Bus-Line Delay: 600.0 ms

GROUP 2 AUTORECLOSE

- 69.01: GROUP 2 AUTORECLOSE MODE:
- 69.02: 1P Trip Mode: 1
- 69.04: 1P Dead Time 1: 1.000 s
- 69.09: Reclaim Time: 25.00 s
- 69.0A: Close Pulse Time: 300.0 ms
- 69.0B: Discrim. Time: 1.300 s
- 69.0C: A/R Inhibit Wind: 5.000 s
- 69.0E: GROUP 2 AUTORCLE LOCKOUT:
- 69.0F: Block A/R:11111111111111111111111111111111
- 69.10: Block A/R 2: 111111

GROUP 2 INPUT LABELS

- 6A.01: Opto Input 1: L1 SET GRP SEL
- 6A.02: Opto Input 2: L2 SET GRP SEL
- 6A.03: Opto Input 3: L3 LN VTS CLOSE
- 6A.04: Opto Input 4: L4 BUS12 VTS CLS
- 6A.05: Opto Input 5: L5GSD101 CB A OP
- 6A.06: Opto Input 6: L6GSD101 CB B OP
- 6A.07: Opto Input 7: L7GSD101 CB C OP
- 6A.08: Opto Input 8: L8GSD101 CB A CL
- 6A.09: Opto Input 9: L9GSD101 CB B CL
- 6A.0A: Opto Input 10: L10GSD101CB C CL
- 6A.0B: Opto Input 11: L11 CB READY
- 6A.0C: Opto Input 12: L12 SF6 PSR STG2
- 6A.0D: Opto Input 13: L13 BF STG1 OPTD
- 6A.0E: Opto Input 14: L14 BF STG2 OPTD
- 6A.0F: Opto Input 15: L15 CARRFAIL CH1

Settings File Report
Substation: LINE-3
File: 000.set
Model Number: P444916B6M0720M

Printed on: 20/02/2026 16:28:33

- 6A.10: Opto Input 16: L16 DT HEALTHY
- 6A.11: Opto Input 17: L17 DT RECV
- 6A.12: Opto Input 18: L18 CARR RECV
- 6A.13: Opto Input 19: L19 AR BLOCK
- 6A.14: Opto Input 20: L20 ARS IN
- 6A.15: Opto Input 21: L21 ARS INI R-PH
- 6A.16: Opto Input 22: L22 ARS INI Y-PH
- 6A.17: Opto Input 23: L23 ARS INI B-PH
- 6A.18: Opto Input 24: L24 86LE3-1 SUVP

GROUP 2 OUTPUT LABELS

- 6B.01: Relay 1: R1 CB TC1_R-PH
- 6B.02: Relay 2: R2 CB TC1_Y-PH
- 6B.03: Relay 3: R3 CB TC1_B-PH
- 6B.04: Relay 4: R4 86L3-1 TRIP
- 6B.05: Relay 5: R5 DT SEND
- 6B.06: Relay 6: R6 DIST CARR SND
- 6B.07: Relay 7: R7 SPARE
- 6B.08: Relay 8: R8 21M2 AR RPH
- 6B.09: Relay 9: R9 CB TC2_R-PH
- 6B.0A: Relay 10: R10 CB TC2_Y-PH
- 6B.0B: Relay 11: R11 CB TC2_B-PH
- 6B.0C: Relay 12: R12 50 OPTD
- 6B.0D: Relay 13: R13 59 OPTD
- 6B.0E: Relay 14: R14 67N OPTD
- 6B.0F: Relay 15: R15 78 OPTD
- 6B.10: Relay 16: R16 AR IN SERVIC
- 6B.11: Relay 17: R17 M1 TCS UHLY
- 6B.12: Relay 18: R18 AR BLK
- 6B.13: Relay 19: R19 21 OPTD
- 6B.14: Relay 20: R20 TRIP POLE A
- 6B.15: Relay 21: R21 TRIP POLE B
- 6B.16: Relay 22: R22 TRIP POLE C
- 6B.17: Relay 23: R23 21M2 AR Y-PH
- 6B.18: Relay 24: R24 DT RECV
- 6B.19: Relay 25: R25 CB SF6 STG2
- 6B.1A: Relay 26: R26 50BF INI RPH
- 6B.1B: Relay 27: R27 50BF INI YPH
- 6B.1C: Relay 28: R28 50BF INI BPH
- 6B.1D: Relay 29: R29 21M2 AR B-PH
- 6B.1E: Relay 30: R30 SPARE
- 6B.1F: Relay 31: R31 SPARE
- 6B.20: Relay 32: R32 AR CLS CMD