सत्यमेव जयते

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

**विषय:** उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 224 वीं बैठक का कार्यवृत |

**Subject:** Minutes of the 224th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 224 वीं बैठक दिनांक 18.10.2024 को जयपुर, राजस्थान में आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट http://164.100.60.165 पर उपलब्ध है। यदि कार्यवृत पर कोई टिप्पणी हो तो कार्यवृत जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें |

The 224th meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 18.10.2024 in Jaipur, Rajasthan. The Minutes of this meeting has been uploaded on the NRPC website http://164.100.60.165. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

**संलग्नक:**यथोपरि।

Signed by Dharmendra Kumar Meena
Date: 07-11-2024 17:22:48

(डी. के. मीना)
अधीक्षण अभियंता (प्रचालन)

**सेवा में,**

**उ.क्षे.वि.स. के प्रचालन समन्वय उप-समिति के सभी सदस्य**

# Contents

List of addressee (via mail)

| OCC Members for FY 2024-25 | | | |
|---|---|---|---|
| **S. No.** | **OCC Member** | **Category** | **E-mail** |
| 1 | NLDC | National Load Despatch Centre | nomination awaited |
| 2 | NRLDC | Northern Regional Load Despatch Centre | somara.lakra@grid-india.in |
| 3 | CTUIL | Central Transmission Utility | kashish@powergrid.in |
| 4 | PGCIL | Central Government owned Transmission Company | rtamc.nr1@powergrid.in<br>rtamcjammu@powergrid.in<br>cpcc.nr3@powergrid.in |
| 5 | NTPC | Central Generating Company | hrastogi@ntpc.co.in |
| 6 | BBMB | | powerc@bbmb.nic.in |
| 7 | THDC | | ravindrasrana@thdc.co.in |
| 8 | SJVN | | sjvn.cso@sjvn.nic.in |
| 9 | NHPC | | surendramishra@nhpc.nic.in |
| 10 | NPCIL | | df@npcil.co.in |
| 11 | Delhi SLDC | State Load Despatch Centre | gmsldc@delhisldc.org |
| 12 | Haryana SLDC | | cesocomml@hvpn.org.in |
| 13 | Rajasthan SLDC | | ce.ld@rvpn.co.in |
| 14 | Uttar Pradesh SLDC | | cepso@upsldc.org |
| 15 | Uttarakhand SLDC | | se_sldc@ptcul.org |
| 16 | Punjab SLDC | | ce-sldc@pstcl.org |
| 17 | Himachal Pradesh SLDC | | cehpsldc@gmail.com |
| 18 | DTL | State Transmission Utility | bl.gujar@dtl.gov.in |
| 19 | HVPNL | | cetspkl@hvpn.org.in |
| 20 | RRVPNL | | ce.ppm@rvpn.co.in |
| 21 | UPPTCL | | smart.saxena@gmail.com |
| 22 | PTCUL | | ce_oandmk@ptcul.org |
| 23 | PSTCL | | ce-tl@pstcl.org |
| 24 | HPPTCL | | gmprojects.tcl@hpmail.in |
| 25 | IPGCL | State Generating Company | ncsharma@ipgcl-ppcl.nic.in |
| 26 | HPGCL | | seom2.rgtpp@hpgcl.org.in |
| 27 | RRVUNL | | ce.ppmcit@rrvun.com |
| 28 | UPRVUNL | | cgm.to@uprvunl.org |
| 29 | UJVNL | | gm_engg_ujvn@yahoo.co.in |
| 30 | HPPCL | | gm_generation@hppcl.in |
| 31 | PSPCL | State Generating Company & State | ce-ppr@pspcl.in |

| | | | |
|---|---|---|---|
| | | owned Distribution Company | |
| 32 | UHBVN | State owned Distribution Company (alphabetical rotaional basis/nominated by state govt.) | nomination awaited (md@uhbvn.org.in) |
| 33 | Jodhpur Vidyut Vitran Nigam Ltd. | | addlcehqjdvvnl@gmail.com |
| 34 | Paschimanchal Vidyut Vitaran Nigam Ltd. | | nomination awaited (md@pvvnl.org) |
| 35 | UPCL | | cgmupcl@yahoo.com |
| 36 | HPSEB | | cesysophpsebl@gmail.com |
| 37 | Prayagraj Power Generation Co. Ltd. | IPP having more than 1000 MW installed capacity | sanjay.bhargava@tatapower.com |
| 38 | Aravali Power Company Pvt. Ltd | | amit.hooda01@gmail.com |
| 39 | Apraave Energy Ltd., | | rajneesh.setia@apraava.com |
| 40 | Talwandi Sabo Power Ltd. | | ravinder.thakur@vedanta.co.in |
| 41 | Nabha Power Limited | | Durvesh.Yadav@larsentoubro.com |
| 42 | MEIL Anpara Energy Limited | | arun.tholia@meilanparapower.com |
| 43 | Rosa Power Supply Company Ltd | | Suvendu.Dey@relianceada.com |
| 44 | Lalitpur Power Generation Company Ltd | | avinashkumar.ltp@lpgcl.com |
| 45 | MEJA Urja Nigam Ltd. | | rsjuneja@ntpc.co.in |
| 46 | Adani Power Rajasthan Limited | | manoj.taunk@adani.com |
| 47 | JSW Energy Ltd. (KWHEP) | | roshan.zipta@jsw.in |
| 48 | TATA POWER RENEWABLE | IPP having less than 1000 MW installed capacity (alphabetical rotational basis) | nomination awaited (dhmahabale@tatapower.com) |
| 49 | UT of J&K | From each of the Union Territories in the region, a representative nominated by the | sojpdd@gmail.com |
| 50 | UT of Ladakh | | cepdladakh@gmail.com |

| | | | |
|---|---|---|---|
| 51 | UT of Chandigarh | administration of the Union Territory concerned out of the entities engaged in | elop2-chd@nic.in |
| 52 | Noida Power Company limited | Private Distribution Company in region (alphabetical rotational basis) | nomination awaited (ssrivastava@noidapower.com) |
| 53 | Fatehgarh Bhadla Transmission Limited | Private transmission licensee (nominated by central govt.) | nomination awaited (nitesh.ranjan@adani.com) |
| 54 | NTPC Vidyut Vyapar Nigam Ltd. | Electricity Trader (nominated by central govt.) | nomination awaited (ceonvvn@ntpc.co.in) |

## उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 224 वीं बैठक का कार्यवृत्त

Member Secretary, NRPC welcomed all the participants to the 224th OCC meeting was held at Jaipur Rajasthan. He thanked JSW Hydro Energy limited for hosting the meeting and wonderful arrangements for the meeting. He hoped that the deliberations in the meeting would help to resolving the issues affecting the power system of Northern Region. He also stated that some of the agenda's approved in this meeting would be taken up for approval in the upcoming NRPC meeting. Thereafter, he requested that the agenda may be presented and deliberated.

The List of participants of 224th OCC meeting is attached at ***Annexure-A.***

## खण्ड-क:उ.क्षे.वि.स. PART-A:NRPC

### A.1. Confirmation of Minutes

Minutes of the 223rd OCC meeting was issued on 04.10.2024. No comments/observations received from members. OCC confirmed the minutes of the meeting.

### A.2. Status of action taken on decisions of 223rd OCC meeting of NRPC

A.2.1. MS, NRPC conveyed that the agenda has been taken to track the status of action taken as per decision of last meeting. Accordingly, issues may be resolved at the earliest.

A.2.2. Concerned utilities submitted the status of action taken.

***Decision of OCC Forum:***

*Concerned utilities submitted the status of action taken and the same has been complied as* ***Annexure- 0****.*

### A.3. Review of Grid operations of September 2024

**Anticipated vis-à-vis Actual Power Supply Position (Provisional) for September 2024**

Reasons submitted by States for significant deviation of actual demand from anticipated figures during the month of September 2024 are as under:

- **Delhi**

The actual Peak Demand and Energy Consumption was lower than Anticipated Energy requirement and Peak Demand due to rain and temperature drop in Delhi in Sept-2024.

- **Rajasthan**

  The actual Energy Requirement and Peak Demand w.r.t. Anticipated Energy requirement and Peak Demand decreased by 3.2% and 5.3% respectively for September' 2024 due to good rain during the monsoon months in the state control area.

- **Himachal Pradesh**

  The anticipation in Energy Requirement in respect of Himachal Pradesh for the month of September, 2024 came on the lower side due to a low inrush of tourists in the state.

- **Haryana**

  The actual Energy Requirement and Peak Demand felt was less than anticipated Energy Requirement and Peak Demand due to good rainfall leading to decrease in agricultural sector load.

- **Punjab**

  The actual Energy Requirement and Peak Demand is less as compared to anticipated Energy Requirement and Peak Demand because of scattered rainfall in the month of September 2024 in the state of Punjab.

- **Uttar Pradesh**

  The actual Energy Requirement and Peak Demand was lower than anticipated Energy Requirement and Peak Demand due to mild temperature, humidity and good rainfall in September 2024 in comparison to September 2023.

- **Uttarakhand**

  The reason for significant variation in Energy Requirement and Peak Demand for month of Sept'24 (actual 2564MW) against anticipated figures (2400MW) was due to no rainfall in 3rd week of Sep'24. Hence, there was increase the ambient temperature (sunny day).

### A.4. Maintenance Programme of Generating units and Transmission Lines

The maintenance programme of generating units and transmission lines for the month of November 2024 was deliberated in the meeting on 16.10.2024.

## A.5. Anticipated Power Supply Position in Northern Region for November 2024

| State / UT | Availability / Requirement | Revised Energy (MU) | Revised Peak (MW) | Date of revision |
|---|---|---|---|---|
| CHANDIGARH | Availability | 110 | 310 | No Revision submitted |
| | Requirement | 118 | 302 | |
| | Surplus / Shortfall | -8 | 8 | |
| | % Surplus / Shortfall | -6.8% | 2.7% | |
| DELHI | Availability | 3179 | 4882 | 16-Oct-24 |
| | Requirement | 2150 | 4400 | |
| | Surplus / Shortfall | 1029 | 482 | |
| | % Surplus / Shortfall | 47.9% | 11.0% | |
| HARYANA | Availability | 6126 | 8526 | 14-Oct-24 |
| | Requirement | 4105 | 7973 | |
| | Surplus / Shortfall | 2021 | 553 | |
| | % Surplus / Shortfall | 49.2% | 6.9% | |
| HIMACHAL PRADESH | Availability | 1012 | 1930 | 07-Oct-24 |
| | Requirement | 1070 | 2036 | |
| | Surplus / Shortfall | -58 | -106 | |
| | % Surplus / Shortfall | -5.4% | -5.2% | |
| J&K and LADAKH | Availability | 1140 | 3000 | No Revision submitted |
| | Requirement | 1832 | 3431 | |
| | Surplus / Shortfall | -692 | -431 | |
| | % Surplus / Shortfall | -37.8% | -12.6% | |
| PUNJAB | Availability | 5960 | 10480 | 16-Oct-24 |
| | Requirement | 4310 | 8006 | |
| | Surplus / Shortfall | 1650 | 2474 | |
| | % Surplus / Shortfall | 38.3% | 30.9% | |

| State / UT | Availability / Requirement | Revised Energy (MU) | Revised Peak (MW) | Date of revision |
|---|---|---|---|---|
| | Availability | 8110 | 17270 | |
| RAJASTHAN | Requirement | 9600 | 17238 | 15-Oct-24 |
| | Surplus / Shortfall | -1490 | 32 | |
| | % Surplus / Shortfall | -15.5% | 0.2% | |
| UTTAR PRADESH | Availability | 9750 | 19800 | 07-Oct-24 |
| | Requirement | 9600 | 19800 | |
| | Surplus / Shortfall | 150 | 0 | |
| | % Surplus / Shortfall | 1.6% | 0.0% | |
| UTTARAKHAND | Availability | 1200 | 2200 | 07-Oct-24 |
| | Requirement | 1230 | 2250 | |
| | Surplus / Shortfall | -30 | -50 | |
| | % Surplus / Shortfall | -2.4% | -2.2% | |
| NORTHERN REGION | Availability | 36587 | 63700 | |
| | Requirement | 34015 | 60900 | |
| | Surplus / Shortfall | 2572 | 2800 | |
| | % Surplus / Shortfall | 7.6% | 4.6% | |

## A.6. Follow-up of issues from various OCC Meetings - Status update

A.6.1. The updated status of agenda items is enclosed at ***Annexure-A.I.***

A.6.2. In 224th OCC, SLDCs were requested again to coordinate with respective Transmission Utilities of states/UTs and submit details about the updated status of Down Stream network by State Utilities from ISTS Station (enclosed as ***Annexure-A-I.I***) before every OCC meeting.

## A.7. NR Islanding scheme

A.7.1. In the meeting (224th OCC), UPPTCL representative apprised that Unchahar-Lucknow Islanding scheme has been successfully implemented and same is visible at SCADA of UPSLDC also (except 03 Substation: Namely 132 kV S/s tripula,132 kV S/s bachhrawan and 132 kV S/s Hussainganj. The data of above 03 substation is not available at UPSLDC due to lack of OPGW. The work of

laying OPGW cable is under progress and same shall be completed by end of October.

A.7.2. With regard to Agra islanding scheme, UPPTCL representative apprised forum that procurement of UFR for Lalitpur Agra Islanding scheme is under process and tender for UFR shall be floated by month end with delivery schedule within 3 months and thereafter 3 months shall take for implementation i.e. by March 2025.

A.7.3. RRVPNL representative mentioned that logic for Jodhpur-Barmer-Rajwest islanding scheme is finalized and tender for both Jodhpur-Barmer-Rajwest islanding scheme and Suratgarh islanding scheme would be floated together.

A.7.4. RRVPNL representative mentioned that DPR for implementation of Suratgarh islanding scheme would be submitted by next OCC meeting.

A.7.5. With regard to Patiala-Nabha Power Rajpura islanding scheme representative from Punjab SLDC informed that there is a meeting scheduled in NLDC on 22nd October 2025 whereby PSTCL has been asked to give a presentation regarding the DPR submitted by them to PSDF Sectt.. for PSDF funding.

A.7.6. HPSLDC representative apprised that proposed UFR scheme for both Kullu-Manali has been recommended by the Appraisal Committee of the State PSDF for approval of Hon'ble HPERC. The islanding scheme will go to Monitoring committee for State PSDF funding approval. Monitoring committee is expected to be scheduled in November first week.

A.7.7. Further, with regard to Shimla-Solan Islanding scheme, a separate meeting was conducted by NRPC Sectt. with HPSLDC, HPSEBL and M/s GE on 18.09.2024 (copy of MOM attached as **Annexure-A.II**) wherein HPSEBL informed that payment to M/s GE would be made within two months and subsequently work regarding the implementation in revised setting of Bhaba HEP would be completed by M/s GE within one month.

A.7.8. A presentation was given by M/s Valiant Communication Ltd on Smart Grid Islanding with Integrated Cybersecurity Solutions (copy of presentation is attached as **Annexure-A.III**)

## A.8. Coal Supply Position of Thermal Plants in Northern Region

A.8.1. In the meeting, NRPC representative apprised forum about the coal stock position of generating stations in northern region during current month (till 10th October 2024).

A.8.2. Average coal stock position of generating stations in northern region, having critical stock, during first ten days of October 2024 is as follows:

| Station | Capacity (MW) | PLF % (prev. months) | Normative Stock Reqd. (Days) | Actual Stock (Days) |
|---|---|---|---|---|
| KOTA TPS | 1240 | 0.72 | 21 | 4.3 |
| SURATGARH TPS | 1500 | 0.65 | 21 | 3.6 |
| TALWANDI SABO TPP | 1980 | 0.71 | 21 | 3.4 |

**A.9. Status of availability of ERS towers in Northern Region (Agenda by NRPC Sectt.)**

A.9.1 EE (O) NRPC apprised forum that updated inputs received from utilities are attached as **Annexure-A.IV.**

A.9.2 MS, NRPC asked transmission utilities of NR that have not submitted the status of ERS set/towers available with them to submit the requisite information before next OCC meeting.

***Decision of the OCC forum***

*Forum asked the transmission utilities of NR that have not submitted the status of ERS set/towers available with them to submit the requisite information before next OCC meeting.*

**A.10. Updating outage Details by Generating Station/utilities (Agenda by CEA)**

A.10.1 NRPC representative apprised forum that to enhance the monitoring of approved Planned Maintenance schedules, CEA has asked that information regarding actual maintenance availed against approved planned maintenance is to be updated on priority by respective RPCs regularly on monthly basis.

A.10.2 In the 221st OCC meeting of NRPC, forum asked generating stations of NR to update the status of Planned Maintenance schedules versus actual maintenance availed for the previous month before every OCC meeting and it was decided that to enhance the monitoring of approved Planned Maintenance schedules, the said agenda item shall be taken as rolling/follow-up agenda in OCC meetings.

A.10.3 Planned Maintenance schedules versus actual maintenance availed by the generators for the year 2024-25 & for the month of August-2024 attached as Annexure-A.IV of agenda was shared with the relevant generating stations of NR and based on the inputs received from them the updated information is attached as **Annexure-A.V**.

**A.11. Flexible Operation of Coal Based Thermal Power Plants (Agenda by CEA)**

A.11.1. NRPC representative apprised forum that as per the CEA Gazette Notification dated January 30, 2023, coal-based thermal power generating units shall have flexible operation capability with a minimum power level 55%, along with specified ramp rates, January 2024. Additionally, a phased implementation plan for achieving a 40% minimum technical load (MTL) has been notified, with specific targets and timelines for compliance.

A.11.2. CEA has shared the list of thermal generating units in NR which are not complying with 55% MTL regulation. (Copy attached as Annexure-A.V of agenda).

A.11.3. EE (O), NRPC asked the representatives of thermal generators as mentioned in Annexure-A.V to apprise the technical minimum load status of their units.

A.11.4. Updated status as intimated by generating utilities is attached as **Annexure-A.VI**.

A.11.5. MS, NRPC asked NTPC and RUVN to submit their comments/observations to CEA and highlighting the difficulties faced by them to achieve the minimum load operation of 40%.

***Decision of OCC Forum:***

*Forum asked NTPC and RUVN to submit their comments/observations to CEA and highlighting the difficulties faced by them to achieve the minimum load operation of 40%.*

**A.12. Furnishing of Data for finalization of Generation Programme 2025-26 (Agenda by OPM Division CEA)**

A.12.1 OPM division, CEA representative mentioned that vide letter dated 30.09.2024 (copy enclosed as **Annexure-A.IX of agenda**) they have sought the following information in the prescribed formats from generating utilities of the country for the preparation of electricity generation program for the year 2025-26. In this regard, please find enclosed herewith the prescribed formats (data formats) and the inputs desired;

- *Unit-wise monthly generation proposed during 2025-26 taking into account likely fuel availability, the anticipated loss of generation on account of various factors such as grid constraint, low schedule/Reserve shut down due to high cost, coal/lignite quality etc., if any.,*

A.12.2 MS NRPC asked all the generating units of NR that have not submitted the requisite information till date to submit thesaid information in the prescribed formats by email to **targetopmcea@gmail.com** or **ceopm-cea@gov.in** l.

***Decision of OCC Forum:***

*Forum asked all the generating units of NR that have not submitted the data of their units for electricity generation programme 2025-26 to submit the requisite information to OPM division, CEA at the earliest.*

**A.13. Transmission Infrastructure for upcoming RE Projects (Agenda by CEA)**

A.13.1. NRPC representative apprised forum that in the meeting held under the chairmanship of Advisor to PM, CEA has been entrusted with the task of identification of State-wise Intra-State sub-stations (132kV and above) where transmission capacity is readily available for evacuating RE.

A.13.2. NRPC vide letter dated 16.08.2024 and subsequent reminder dated 05.09.2024 have requested respective SLDCs/STU's of Northern Region to submit the requisite information in prescribed format (copy attached as Annexure-A.XIV of agenda) for Intra-State sub-stations (132kV and above).

A.13.3. In the cited matter, inputs have been received from Haryana, Rajasthan and HP.

A.13.4. Punjab and UP representative intimated that they have also sent the inputs soon.

A.13.5. MS NRPC asked remaining SLDCs/STU's of Northern Region to submit the requisite information at the earliest.

***Decision of OCC Forum:***

*Forum asked SLDCs/STU's of Delhi, J&K and Uttarakhand to submit the information in the requisite format regarding transmission capacity is readily available for evacuating RE at the earliest.*

**A.14. Assessment & usability of the Interstate lines i.e. 220 kV S/C MIA (Alwar) - BTPS (Badarpur) Line and 132 kV S/C Hisar-Sadulpur (Rajgarh) (Agenda by RVPN)**

A.14.1 In the meeting, NRPC representative mentioned that RVPN has submitted that in the 57th meeting of Northern Regional Power Committee held on dated 27.09.2022 (copy of MoM attached as **Annexure-A.XII of agenda**), wherein at Sr.no.A.8, assessment and usability of the interstate lines i.e 220 KV S/C MIA (Alwar) BTPS (Badarpur) line and 132 KV S/C Hisar-Sadulpur (Rajgarh) was deliberated.

A.14.2 It was informed by RVPN in the said meeting that these lines are not useful for them and expressed willingness that POWERGRID may acquire these lines. POSOCO stated that States may express their views on utility of lines and also confirmed no significant use of the lines from power flow point of view. Also, Haryana intimated that comment may be shared after consultation with planning wing. Finally, the Forum decided that Delhi and Haryana may intimate their comment in this regard to RVPN, CTU and NRPC.

A.14.3 HVPN representative vide letter dated 15.10.2024 has submitted its comments on the cited subject matter (copy attached as **Annexure-A.VII**.).

A.14.4 CGM (SO), NRLDC suggested a committee may be constituted under GM (CTUL) comprising representative of NRLDC, Powergrid NR-1, RVPN, HVPN and DTL to

access the usability of the Interstate lines i.e. 220 kV S/C MIA (Alwar) -BTPS (Badarpur) Line and 132 kV S/C Hisar-Sadulpur (Rajgarh) based on the generation load pattern in future and submit its report to OCC forum within 3 months.

***Decision of OCC Forum:***

*Forum recommended to constitute a committee under GM (CTUL) comprising representative of NRLDC, Powergrid NR-1, RVPN, HVPN and DTL to access the usability of the Interstate lines i.e. 220 kV S/C MIA (Alwar) -BTPS (Badarpur) Line and 132 kV S/C Hisar-Sadulpur (Rajgarh) based on the generation load pattern in future and submit its report to OCC forum within 3 months.*

**A.15. N-1 contingency violation in 400/220/33KV 315MVA ICT-I at BBMB Dehar (Agenda by Powergrid NR-2)**

A.15.1. EE(O), NRPC apprised forum that the subject cited matter was also deliberated in 220th OCC meeting of NRPC. In the said meeting, Powergrid NR-2 intimated forum that 315 MVA ICT at 400/220KV BBMB Dehar S/s is overloaded. On 315MVA ICT, load remains in the range of 300-315MW. In the said meeting, Punjab SLDC has also highlighted that they have also experienced problems due to the overloading of BBMB Dehar S/s.

A.15.2. In 220th OCC meeting, Forum asked Powergrid, PSTCL, HPPTCL and BBMB to internally have a discussion/study on the SPS as temporary relief for Transformer overloading at BBMB Dehar and submit accordingly. Further, for installation of new transformer at BBMB Dehar S/s, proposal may be submitted by Powergrid to CTU for study.

A.15.3. Powergrid mentioned that after discussion with PSTCL, HPPTCL and BBMB it was understood that in case of overloading of ICT at Dehar, disconnection of one circuit of 220KV Dehar Ganguwal can provide relief to overloading ICT.

A.15.4. Further, Powergrid stated that that loading on ICT at Dehar will further increase after commissioning of upcoming 2nd circuit of 220KV Dehar Kangoo by HPPTCL.

A.15.5. Powergrid representative informed forum that earlier there was space restriction for installation of new ICT at Dehar S/s, but space constraint has now been resolved, however 500MVA ICT cannot be transported due to road constraint.

A.15.6. Accordingly, MS NRPC advised POWERGRID to take up matter with CTU on priority for installation of new 315 MVA ICT at Dehar S/s since there is n-1 violation at Dehar S/s.

A.15.7. CGM, NRLDC intimated that in case of opening of one circuit of 220KV Dehar Gangulwal, other circuit will be overloaded and therefore for SPS implementation possibility of opening of 220KV Dehar Kango line of HPPTCL may be explored.

A.15.8. HPSLDC representative stated that HP does not agree to opening the 220KV Dehar Kango line during the lean season, as it would hinder their ability to meet load requirements at Kangoo.

A.15.9. Further, CGM NRLDC enquired Punjab whether bus splitting can be done at Ganguwal. To this Punjab SLDC replied that they would do the study and inform NRLDC before next OCC meeting.

A.15.10. However, BBMB raised reservations regarding bus splitting at 220kV GIS Ganguwal as the station has direct connectivity with Bhakra Left and Right bank power houses. Dehar power house as well as Ganguwal power house had some reservations regarding the Bus splitting arrangement at Ganguwal end.

A.15.11. MS, NRPC mentioned that BBMB, PSTCL and HPPTCL may jointly have a meeting and explore the technical modalities for implementation of SPS at Dehar and same may be presented in next OCC meeting.

***Decision of OCC Forum:***

*Forum was of view that Powergrid to pursue with CTU for installation of new ICT at 220kV Dehar S/s.*

*As an interim arrangement, Forum asked BBMB, PSTCL and HPPTCL to jointly have a meeting and explore the technical modalities for implementation of SPS at Dehar and same may be presented in next OCC meeting.*

**A.16. Regarding installation of CSD in 400KV Kalaamb Wangtoo and 400KV Kalaamb Sorang to control switching surges (Agenda by Powergrid NR-2)**

A.16.1. EE(O), NRPC apprised forum that in 222nd OCC Meeting, POWERGRID NR-2 had proposed installation of Control switch devices in 400KV Kalaamb Wangtoo and Kalaamb Sorang lines at PKATL Substation KALAAMB to control High Voltage switching surges. Forum in the said meeting asked POWERGRID to submit report indicating space related constraint for installation of Line Reactor and effectiveness of CSD relay.

A.16.2. Powergrid representative informed that Space is not available at Kalaamb Substation premises for installation of Line Reactors.

A.16.3. Powergrid stated that originally it was karcham wagntoo-kalaamb line, however over the period its configuration has changed and now this line has been LILO-ed at two locations, one is Sorang and other is Wagntoo. After above LILO arrangements, details of Lines connected to 400KV Bus at Kalaamb were:

- 400KV Kalaamb-Wangtoo Line having line length of 174 KM

- 400KV Kalamb-Sorang line having Line length 160.5KM.

A.16.4. Powergrid also mentioned that initially at the time of commissioning of the line, reactor was at Karcham end but now the reactor has to be shifted to either Wangtoo or Sorang depending upon the space availability at these end which may be confirmed by HPPTCL and M/s Greenko, since LILO of 400KV Kalaamb-Karchamm Wangtoo-1 was done in 2019 by M/S HPPTCL at Wangtoo. Similarly, LILO of 400KV Kalaamb-Karcham Wangtoo-2 was done in 2021 by M/S Greenco at Sorang.

A.16.5. Further, Powergrid mentioned that above Lines having longer line length are provided with FSC at one end but no Line Reactor at other end. Switching of these lines without Line Reactor had resulted in generation of switching surges and Failure of GIS equipment in these bays at Kalamb during 03 occasions from 2019 onwards may be due to above surges.

A.16.6. To overcome above difficulty, Powergrid had installed CSD relay in one Line as per recommendations of OEM as an experiment and had resulted in reduced switching surges in above Lines. In view of above, it is proposed that CSD must be installed in above Lines at both ends.

A.16.7. Regarding effectiveness of CSD relay, POWERGRID has submitted report. (copy attached as **Annexure-A.XIV. of agenda)**

A.16.8. CGM NRLDC mentioned that problem of switching surges is experienced during opening and closing of lines in winter period.

A.16.9. Further, CGM NRLDC suggested the following on the cited matter:

a. A study may be conducted by CTU to determine whether the reactor currently installed at the Karcham end could be relocated to either Wangtoo or Sorang, or alternatively, a new reactor could be installed. This would serve two purposes: it would help mitigate switching surges and also function as a bus reactor to address high bus voltage issues.

b. A study may be conducted by CTU to determine whether to install a reactor at Wangtoo or Sorang, or alternatively, to install a Capacitor Switching Device (CSD) on the 400 kV Wangtoo and 400 kV Sorang lines at Kalaamb substation to manage switching surges.

***Decision of OCC Forum:***

*Forum recommended that CTU to do a study and submit its observations to on the following*

*a. Whether the reactor currently installed at the Karcham end could be relocated to either Wangtoo or Sorang, or alternatively, a new reactor could be installed.*

b. *Determine whether to install a reactor at Wangtoo or Sorang, or alternatively, to install a Capacitor Switching Device (CSD) on the 400 kV Wangtoo and 400 kV Sorang lines at Kalaamb substation to manage switching surges.*

**A.17. Restoration of Bays at Sahupuri GIS (UPPTCL) of 400 KV Varanasi-Shahupuri-2 line (Agenda by Powergrid NR-3)**

A.17.1. Powergrid NR-3 submitted that 400 KV Varanasi-Sahupuri-2 Line tripped on date 10.07.24 at 19:26 Hrs due to breakdown of GIS Bays at Sahupuri (UPPTCL). Since then the line is in idle charged/antitheft charged condition.

A.17.2. Powergrid mentioned that 400 KV Varanasi -Sahupuri ckt-1 &2 line also provide inter regional connectivity with ER and NR connecting POWERGRID Varanasi (NR) via Sahupuri(UP) and POWERGRID Biharsharif (ER).

A.17.3. Further, as due to above GIS issue at Sahupuri, Varanasi s/s is presently connected with Sahupuri with only ckt-1, in case of any tripping of ckt-1, connectivity of Varanasi (NR) with Biharsharif (ER) would be lost and will impact reliability of ER-NR Link.

A.17.4. UPPTCL representative stated that GIS module at Sahupuri has been commissioned by M/s GE and they have taken up the matter with M/s GE. M/s GE has agreed that there is manufacturing defect in the GIS module at Sahupuri and their team would be visiting site on 21.10.2024 and within one month they would resolve the issue.

A.17.5. MS, NRPC mentioned that protection related issues of 400 KV Varanasi-Shahupuri- line will be discussed in upcoming Protection sub-committee meeting.

***Decision of OCC Forum:***

*Forum recommended that the protection-related issues of the 400 kV Varanasi-Shahupuri line may be discussed in the upcoming Protection Sub-Committee meeting.*

**A.18. Power flow congestion to Delhi Ring Main unit through 400 kV Switchyard at 765/400KV Jhatikra substation (Agenda by Powergrid NR-1)**

A.18.1. Powergrid NR-1 representative stated that Jhatikra Substation Caters approx. 3500-4400MW power requirement (>50% load of Delhi) part of NCR, Delhi through 04 Nos. of 400KV Lines namely 02 Nos. of Mundka, 01 No. of Dwarka and 01 No. of Bamnauli line. Following issues related to power flow from Jhatikra has been observed which requires urgent attention before next summer peak loading: -

a. Loading congestion at 400 kV Switchyard at Jhatikra:- 400 kV Bus at Jhatikra is sectionalised in 02 sections (Section-1 feeds load to Bamnauli/Dwarka SS through 765/400 kV ICT-1&2, Section-II feeds loads to Mundka SS through 765/400 kV ICT-3&4

b. Critical N-1 situation has been observed for 765/400 ICT-1&2 connected at Bus section-1 and 765/400 kV ICT-3&4 connected at Bus section-II with violation of N-1 criteria on regular basis from April-June'25. Any tripping of one of the 765/400 ICT at Jhatikra may lead to cascading tripping and eventual power interruption to Delhi.

A.18.2. POWERGRID suggested to upgrade the tie bay equipments rating from existing 3150 Amp to 4000 Amp in 400 kV Switchyard at Jhatikra as short term measure and provision for additional dia/bus coupler in both sections of 400 kV Buses as long term measure to relieve load congestion at Jhatikra 400 kV Switchyard.

A.18.3. CTU representative informed that both ICT-3 at Jhatikra and the 765/400 kV Narela substation are being constructed by Powergrid. According to the information they have, the expected commissioning timelines are August 2025 for ICT at Jhatikra and March 2025 for Narela S/s.

A.18.4. CGM, NRLDC asked CTU how much load relief is expected at 765/400KV Jhatikra substation with commissioning of Narela S/s to which CTU replied that that they would need to do study regarding the load scenario at 765/400KV Jhatikra substation with commissioning of Narela S/s.

A.18.5. Powergrid NR-1 representative also intimated that tie bay equipments of rating 4000 Amp is not readily available with them. It would take approximately 8 to 10 months to place the order and complete the retrofitting, making it unlikely to finish the work before the upcoming summer months.

A.18.6. MS, NRPC stated that CTU in consultation with NRLDC may provide detailed study report on load congestion relieving measures at Jhatikra S/S including provision for upcoming ICTs at Jhatikra S/S and Narela S/s. Subsequently, the matter may be deliberated in the upcoming OCC meeting.

***Decision of OCC Forum:***

*Forum asked CTU to carry out detailed study in consultation with NRLDC on load congestion relieving measures at Jhatikra S/S including provision for upcoming ICTs at Jhatikra S/S and Narela S/s and submit the report to OCC forum.*

**A.19. SPS arrangement for load shedding at 400/220 kV Mandola & Maharani Bagh Substation in view of N-1 criteria violation (Agenda by Powergrid NR-1)**

A.19.1. Powergrid NR-1 has mentioned that 400/220 kV Mandola & Maharani Bagh are critical substations of POWERGRID feeding directly to Delhi through 220 kV DTL feeders. N-1 criteria violation has been observed at both the substations in June'24.

A.19.2. Powergrid stated that as the projected peak load in 2025 is expected to be higher than record loading in 2024, SPS arrangement for load shedding in case of

tripping of ICT at both Mandola & Maharnibagh may be implemented to avoid power interruption in Delhi.

A.19.3. CGM, NRLDC stated that SPS arrangement for load shedding in Delhi must be avoided and augmentation of Mandola & Maharanibagh transformation capacity may be explored.

A.19.4. Powergrid apprised forum that ICT-5 at Maharnibagh S/s is already approved in CMETS meeting.

A.19.5. MS, NRPC asked CTU to discuss with constituent states in its CMETS meeting and explore transformation capacity augmentation at Mandola & Maharanibagh.

***Decision of OCC Forum:***

*Forum asked CTU to take up the matter in its next CMETS meeting with the constituent states for augmentation of transformation capacity at Mandola & Maharanibagh.*

**A.20. Discussion on N-1 criteria violation at POWERGRID Substations in Northern Region (Agenda by Powergrid NR-1)**

A.20.1. EE(O), NRPC apprised that Powergrid has highlighted N-1 criteria violation at following POWERGRID Substations in Northern Region

| **Substation** | **Volt Level (KV)** | **Rating (MVA)** | **N-1 limit** | **Max loading** |
|---|---|---|---|---|
| BHIWANI765 | 765 | 2000 | 1500 | **+2000 as well as -2000** |
| JHATIKARA765 | 765 | 3000 | 1900 | **2500** |
| KURUKSHETRA | 400 | 1500 | 1200 | 1200 |
| MAHARANIBAGH400 | 400 | 1630 | 1200 | 1250 |
| MANDOLA400 | 400 | 2000 | 1560 | **1660** |
| NEEMRANA400 | 400 | 815 | 490 | 510 |
| SAHARANPUR | 400 | 1130 | 770 | 820 |
| JAIPURSOUTH400 | 400 | 1000 | 660 | 700 |
| KOTPUTLI400 | 400 | 630 | 380 | 500 |
| SIKAR400 | 400 | 1130 | 820 | 950 |

A.20.2. CTU apprised forum that new ICT at Bhiwani and Jhatikara is awarded to Powergrid. Further, he mentioned that for Maharanibagh, ICT-5 is approved in CMETS meeting subject to DTL consent. For Saharanpur, UPPTCL is requested to confirm space availability.

A.20.3. MS, NRPC asked STU's of Rajasthan and UP to submit their observations to CTU for ICT augmentation at above mentioned list of S/s.

***Decision of OCC Forum:***

*Forum asked RVPN and UPPTCL to submit their observations to CTU for ICT augmentation at above mentioned list of S/s.*

**A.21. Requirement of complete 400 kV Bus-1 &2 shutdown at Mandola & Ballabgarh SS for replacement of damaged sections 400 kV jack buses (Agenda by Powergrid NR-1)**

A.21.1. Powergrid NR-1 mentioned that 400/220 kV Ballabgarh & Mandola Substations were commissioned in 1990 & 1991 respectively with D-type layout. Most of the equipment's at above substations has been replaced on account ageing however jack buses of 400 KV Bus-1 & 2 has not been replaced due to requirement of complete shutdown of both 400 kV buses.

A.21.2. Powergrid representative explained the damages in 400 kV Jack buses along with criticality to replace the same.

A.21.3. Powergrid requested for shutdown of complete 400 kV Bus-1 &2 sections at Mandola & Ballabgarh for 06 days on daily basis/03 days on continuous basis is proposed for replacement of jack bus conductors.

A.21.4. CGM, NRLDC asked DTL to confirm load management during complete shutdown of 400 kV Bus sections at Mandola Substations as proposed by POWERGRID.

A.21.5. DTL representative mentioned that with the complete shutdown of 400 kV Bus sections at Mandola there would be reliability issue at their system and they would need to discuss the proposal of Powergrid with its Discoms and informed that their state OCC is scheduled for October 23, 2024 wherein Powergrid may discuss in detail this matter with all concerned entities.

A.21.6. MS, NRPC acknowledged the urgent need to replace then 400 kV jack buses at Mandola & Ballabgarh Substations.

***Decision of OCC Forum:***

*Forum acknowledged the urgent need to replace the 400 kV jack buses at Mandola and Ballabgarh substations, stating that the work must be completed by November 2024. DTL and HVPN to submit before OCC meeting how they will manage their load during the complete shutdown of 400 kV Bus-1 and Bus-2 at Mandola and Ballabgarh substations, respectively.*

**A.22. Regarding changing of period of half yearly feedback of constraints in State Transmission network to STU (Agenda by UPSLDC)**

A.22.1. UPSLDC mentioned that as peak and off-peak season in UP control area is from April to September and from October to March respectively. Therefore, UPSLDC proposed that feedback of bottlenecks, constraints and overloading in State Transmission network to STU on the basis of peak and off season every year i.e. for peak season, feedback may be provided in October and for off-peak season, feedback may be provided in April.

A.22.2. OCC forum noted the same.

**A.23. Frequent fluctuations in some of the generating parameters i.e Generating Voltage, MW, MVAR etc of Kota TPS during morning hours. (Agenda by RRVUN)**

A.23.1. RUVN representative informed that from past few weeks the fluctuations in some of the generating parameters i.e. Generating Voltage, MW, MVAR etc of Kota TPS during morning around 10:30 Hours to 12:00 Hours. has been observed. Same issue is also being observed in STPS as well.

A.23.2. Representative of NPCIL, HPGCL and PPCL informed that fluctuations are also being observed in RAPP-C, PTPS and CCGT Bawana respectively.

A.23.3. Representative of NRLDC stated that issue of oscillation in RAPP-C is being discussed with RE generators. Fluctuations in the generating parameters of other generating stations has been first time reported in OCC meeting. He mentioned that the issue would be discussed with the RE generators.

A.23.4. NRLDC suggested Rajasthan SLDC to do stringent checks about regulatory compliances at the time of FTC of RE plants.

A.23.5. Representative of Rajasthan SLDC mentioned that they have strict guidelines in place to check and verify all the telemetry data at the time of FTC.

A.23.6. MS, NRPC mentioned that with the addition of more and more number of RE plants, regulatory compliance becomes crucial for the grid safety. He further stated that 1st meeting of Renewable Energy sub-committee of NRPC would be held on 24.10.2024 wherein this issue would also be discussed with RE generators.

***Decision of OCC Forum:***

*Forum acknowledged the issue of hunting in the generating parameters of some of the generating stations of NR and agreed that the issue may be taken up with the RE generators of NR.*

**A.24. Critical issues of the Switchyards of 6x250MW, STPS, RRVUNL, Suratgarh (Agenda by RRVUN)**

A.24.1. RUVN Representative stated that switchyard at Suratgarh consists of 220 kV, 440kV Switch Yard of STPS, Suratgarh and 400kV switch yard of SSCTPP. He informed that due to the less power sources as compared to the feeders at 220KV Switchyard of STPS, power demand on all the feeders could not be met whereas feeders are less as compared to sources at 400KV Switchyard of STPS

causing overloading of both the STPS-Ratangarh feeders. Due to inadequate evacuation of power from the 2x660MW SSCTPP plant, their considerable generation evacuates through 400KV switchyard of STPS plant causing overloading of power elements of 400KV Switchyard of STPS

A.24.2. Further, RUVN Representative mentioned that Generating stations at STPS & SSCTPP Suratgarh having full generating capacity of 2820MW are dependent mainly on 400KV Ratangarh GSS because of issues related with Babai and Bikaner GSS. Therefore, RVUN has requested to arrange to conduct load flow studies to connect Suratgarh with other 400KV GSS.

A.24.3. CGM, NRLDC stated that this issue has been highlighted in the previous OCC meetings as well. Main reason for the aforementioned issues is the non-availability of the Suratgarh- Babai lines. He enquired RVPN about the timeline of commissioning of Suratgarh- Babai lines.

A.24.4. Representative of RVPN mentioned that commissioning of Suratgarh- Babai line is expected by June'2025.

A.24.5. CGM, NRLDC suggested RUVN that their other proposals may be discussed bilaterally with RVPN.

A.24.6. MS, NRPC stated that a separate meeting has been convened to discuss long pending bilateral issues between state power utilities of Rajasthan. This agenda would be discussed in the said meeting as well.

**A.25. LILO of 132 kV Sahupuri (220)- Karmnasha (Bihar) Ckt-II at 132 kV Chandauli (Chandauli) S/s (Agenda by UPPTCL)**

A.25.1. UPPTCL representative mentioned that 132 kV S/s Chandauli was constructed in year 1992(limited space) with LILO of 132 kV Sahupuri (220) - Karmnasha (Bihar) Ckt-I at 132 kV Chandauli (Chandauli) S/s. Further, the approval of 2nd Ckt. LILO of 132 kV Sahupuri (220)- Karmnasha (Bihar) approval has been taken in 3rd meeting of NRPC (TP) held on 19.02.2021 and same in 4th meeting of Eastern Region Power Committee (Transmission Planning) (ERPCTP) held on 23rd July 2021 after NOC by BSPTCL, Patna.

A.25.2. UPPTCL informed that they have approached CTU for granting connectivity of LILO of 132 kV Sahupuri (220)- Karmnasha (Bihar) Ckt-II at 132 kV Chandauli (Chandauli) S/s, where the Bus scheme at 132 kV Chandauli S/s of UPPTCL is Single main while as per the CEA (Technical Standard for Construction of Electrical Plants and Electric Lines) Regulation, 2022 (page 160, Table 7), 132 kV shall be "Main and Transfer bus scheme or Double bus scheme".

A.25.3. Therefore now UPPTCL has requested forum to allow the charging of 2nd ckt LILO of 132 kV Sahupuri(220) Karmnasha(Bihar) at 132kV Chandauli S/s.

A.25.4. CGM, NRLDC suggested that UPPTCL should approach the CEA for an exemption from the double bus scheme, as outlined in the CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulation, 2022.

***Decision of OCC Forum:***

*Forum asked UPPTCL to approach CEA for an exemption from the double bus scheme, as outlined in the CEA (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulation, 2022.*

**A.26. Declaration of High Flow Season for FY 2024-25 (Agenda by NRPC Sectt.)**

A.26.1. AE(C), NRPC apprised that the high-flow season for FY 2024-25 for regional hydro generators was declared during the 49th Commercial Subcommittee Meeting held on 11.03.2024.

A.26.2. However, for some plants, the high-flow season was not declared due to the unavailability of the information regarding water inflow series for the past 5 years. This data has now been provided by ADHPL, Sorang HEP, Singoli Bhatwari and Sainj HEP. Based on water inflow series information and scheduling data, the high-flow season for these hydro generators for FY 2024-25, in compliance with Regulation 45.8(a) of the IEGC, 2023, is proposed as follows:

| S. No. | Hydro Generating Station | High inflow season for FY 2024-25 |
|---|---|---|
| 1 | ADHPL | 16th May to 15th September |
| 2 | Sorang HEP | 16th May to 15th September |
| 3 | Singoli Bhatwari | 20th June to 19th October |
| 4 | Sainj HEP | 1st June to 30th September |

A.26.3. Further, he informed that the cited hydro generators have agreed to the above mentioned duration.

***Decision of OCC Forum:***

*Forum approved the High Flow Season for Regional Hydro generators of NR namely ADHPL, Sorang HEP, Singoli Bhatwari and Sainj HEP for FY 2024-25.*

**A.27. Annual protection audit plan for FY 2024-25 and third-party protection audit plan (Agenda by NRPC Secretariat)**

A.27.1. AEE(P), NRPC apprised forum 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).*
- *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.27.2.* AEE(P), NRPC also informed forum 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.27.3. As per the information available with NRPC Sectt., status of Annual protection audit plan for FY 2024-25 and third party protection audit plan is attached as **Annexure-A.VIII** and **Annexure-A.IX** respectively.

***Decision of OCC Forum:***

*Forum asked utilities to expedite and submit the Annual protection audit plan for FY 2024-25 and third party protection audit plan to NRPC Sectt. along with the audited report and its compliance as per IEGC 2023.*

**A.28. Submission of protection performance indices to NRPC Secretariat on monthly basis (Agenda by NRPC Secretariat)**

A.28.1. AEE(P), NRPC apprised forum that as per clause 15(6) of IEGC, users shall submit the protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system, which shall be reviewed by the RPC.

A.28.2. As per the information available with NRPC Sectt., status of the protection performance indices reported for the month of August,2024, is attached as **Annexure-A.X.**

A.28.3. MS, NRPC asked utilities to submit the protection performance indices of previous month by 7$^{th}$ day of next month element wise along with the reason for indices less than unity and required corrective action.

***Decision of OCC Forum:***

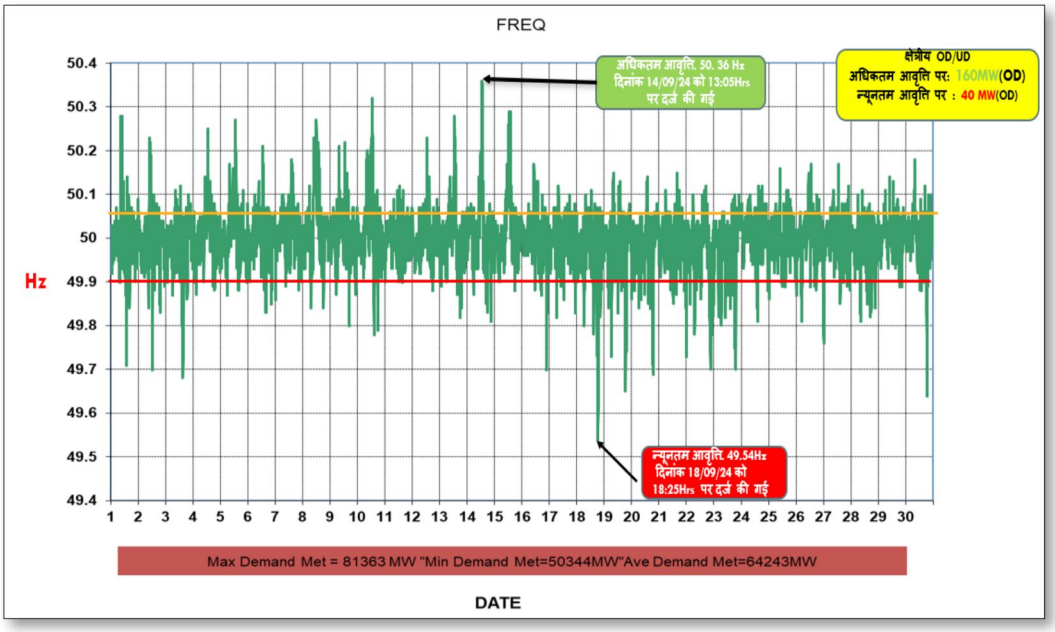
*Forum asked utilities to submit the information regarding the protection performance indices of previous month by 7$^{th}$ day of next month element wise along with the reason for indices less than unity and required corrective action.*

**खण्ड-ख: उ.क्षे.भा.प्रे.के. Part-B: NRLDC**

**B.1 NR Grid Highlights for September 2024**

NRLDC representative presented major grid highlights for the month of September 2024

## Monthly Frequency profile



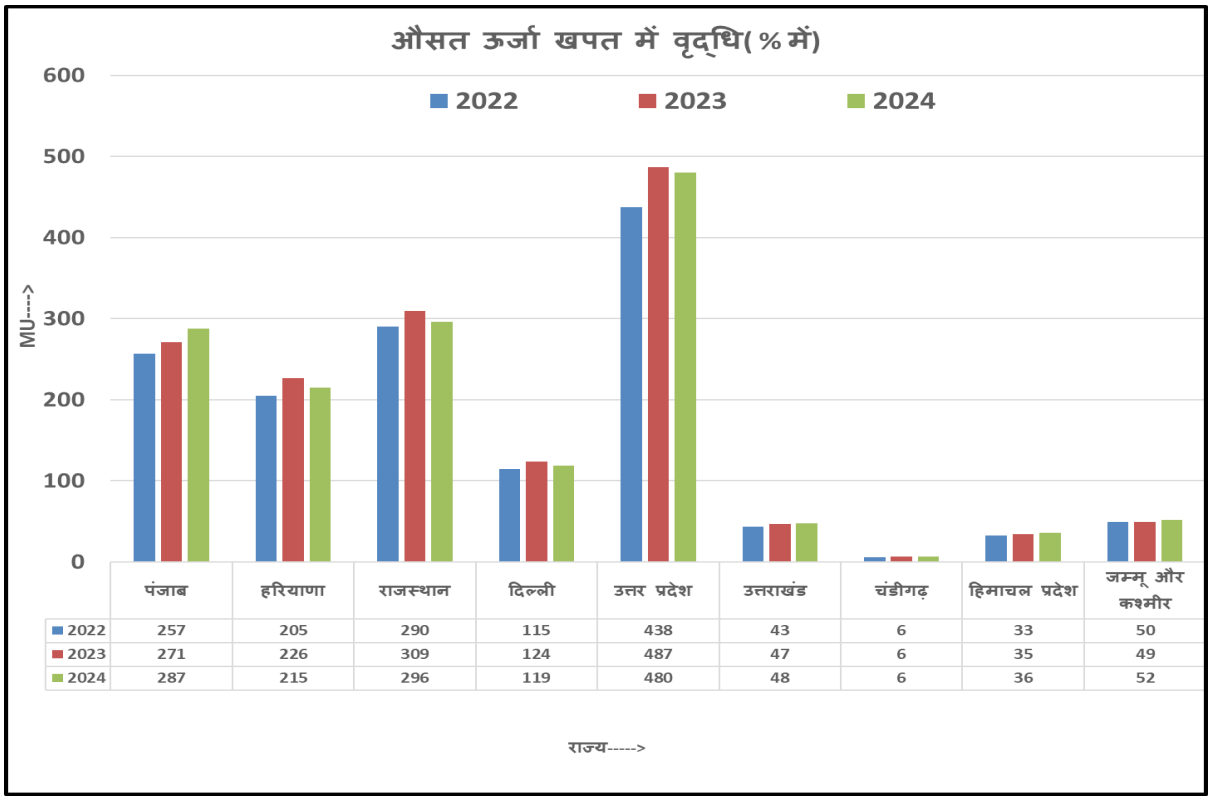

| Month | Avg. Freq (Hz) | Max. Freq (Hz) | Min. Freq (Hz) | <49.90 (% time) | 49.90-50.05 (% time) | >50.05 (% time) |
|---|---|---|---|---|---|---|
| **Sep'24** | **50.00** | 50.36 on 14.09.24 at 13:05 Hrs | 49.54 on 18.09.24 at 18:25 Hrs | 6.09 | **77.13** | 16.78 |
| **Sep'23** | **50.00** | 50.30 on 18.09.23 at 14:02 Hrs hrs | 49.52 on 01.09.23 at 14:50Hrs hrs | 5.3 | **77.9** | 16.8 |

## Demand met details of NR

| राज्य | अधिकतम मांग (MW) (in Sep'24) | दिनांक / समय | रिकॉर्ड अधिकतम मांग (in MW) (upto Aug'24) | दिनांक / समय | अधिकतम ऊर्जा खपत (MU) (in Sep'24) | दिनांक | रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Aug'24) | दिनांक |
|---|---|---|---|---|---|---|---|---|
| पंजाब | 15310 | 21.09.24 at 15:00 | 16089 | 29.06.24 at 12:45 | 340.1 | 25.09.24 | 366.8 | 21.07.2024 |
| हरियाणा | 12414 | 24.09.24 at 15:00 | 14662 | 31.07.24 at 14:30 | 258.4 | 24.09.24 | 293.4 | 30.07.2024 |
| राजस्थान | 16292 | 25.09.24 at 14:15 | 17949 | 20.01.24 at 11:00 | 354.8 | 25.09.24 | 379.1 | 30.05.2024 |
| दिल्ली | 6780 | 24.09.24 at 15:22 | 8656 | 19.06.24 at 15:06 | 140.0 | 25.09.24 | 177.7 | 18.06.2024 |
| उत्तर प्रदेश | 29347 | 03.09.24 at 21:55 | 30618 | 13.06.24 at 22:00 | 585.2 | 03.09.24 | 658.7 | 17.06.2024 |
| उत्तराखंड | 2489 | 24.09.24 at 19:00 | 2863 | 14.06.24 at 22:00 | 53.6 | 24.09.24 | 62.1 | 14.06.2024 |
| हिमाचल प्रदेश | 1884 | 25.09.24 at 07:00 | 2235 | 20.01.24 at 07:00 | 40.0 | 24.09.24 | 40.5 | 30.07.2024 |
| जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT) | 2836 | 24.09.24 at 19:00 | 3107 | 12.01.24 at 20:00 | 57.4 | 25.09.24 | 66.8 | 26.01.2024 |
| चंडीगढ़ | 397 | 24.09.24 at 15:00 | 482 | 18.06.24 at 15:28 | 7.9 | 24.09.24 | 9.1 | 18.06.2024 |
| उत्तरी क्षेत्र# | 81472 | 24.09.24 at 13:55 | 91234 | 19.06.24 at 14:37 | 1793.1 | 24.09.24 | 1990.4 | 18.06.2024 |

# उत्तरी क्षेत्र अधिकतम मांग (Demand Met) as per 1 min SCADA Data

## Energy consumption details of NR




| राज्य | सितम्बर -2022 | सितम्बर -2023 | सितम्बर -2024 | % वृद्धि (सितम्बर - 2023 vs सितम्बर -2022 ) | % वृद्धि (सितम्बर -2024 vs सितम्बर -2023 ) |
|---|---|---|---|---|---|
| पंजाब | 257 | 271 | 287 | 5.6% | 5.9% |
| हरियाणा | 205 | 226 | 215 | 10.5% | -4.9% |
| राजस्थान | 290 | 309 | 296 | 6.6% | -4.4% |
| दिल्ली | 115 | 124 | 119 | 7.9% | -4.0% |
| उत्तर प्रदेश | 438 | 487 | 480 | 11.2% | -1.4% |
| उत्तराखंड | 43 | 47 | 48 | 7.3% | 3.0% |
| चंडीगढ़ | 6 | 6 | 6 | 10.7% | -2.9% |
| हिमाचल प्रदेश | 33 | 35 | 36 | 5.4% | 3.4% |
| जम्मू और कश्मीर | | | | | |

| | | | | | |
|---|---|---|---|---|---|
| **(UT) तथा लद्दाख (UT)** | **50** | **49** | **52** | **-0.8%** | **6.1%** |
| उत्तरी क्षेत्र | **1436** | **1558** | **1543** | **8.5%** | **-0.9%** |

- In Sep'24, the Maximum energy consumption of Northern Region was **1793.1 MUs** on 24th Sept'24 and it was almost same as Sept'23 (1793 Mus on 4th Sept'23)
- In Sept'24, the average energy consumption per day of Northern Region was **1543 MUs** and it was 0.9% less than Sept'23 (1558 MUs / day)
- In Sept'24 the maximum demand met of Northern Region was **81472 MW** on 24th Sept'24 which was 0.52% more than the maximum demand met during Sept'23 (81048 MW on 04th Sept'23)

***During the agenda discussion, the CGM(NRLDC) inquired with NPCIL about a daily reduction of approximately 50-60 MW in nuclear generation across the Northern Region's nuclear plants, observed during daytime hours.***

***NPCIL representative explained that this drop is due to the reduced efficiency of generators and turbines at older 220kV-connected plants (RAPS-A, RAPS-B and NAPS), which are more affected by rising ambient temperatures. Specifically, for each 1°C increase, these units lose about 3 MW each. This issue is less pronounced at the 400kV-connected RAPS C plant due to its more modern design.***

Detailed presentation on grid highlights of Sep'2024 as shared by NRLDC in OCC meeting is attached as **Annexure B-I.**

**Demand forecasting related**

NRLDC representative mentioned that with reference to the Clause 31(2) of Central Electricity Regulatory Commission-IEGC Regulations, 2023 and the Operating Procedure of NRLDC prepared in accordance with the same, each SLDC has to furnish the demand estimation for day ahead, week ahead, month ahead (with time block wise granularity) and demand estimation for year ahead (with hour granularity). The sub-clause 31(2) (h) of IEGC-2023 states the following timeline for the submission of demand estimate data to RLDC.

| Type of Demand Estimation | Timeline |
|---|---|
| Daily | 10:00 hours of previous day |
| Weekly | First working day of previous week |
| Monthly | Fifth day of previous month |

| | |
|---|---|
| Yearly | 30th September of previous year |

The following is the status regarding forecast data submission.

| Region | State | Demand Estimation | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Daily* | | Weekly | | Monthly | | Yearly | |
| | | Estimation (Y/N) | Data submission (Y/N) | Estimation (Y/N) | Data submission (Y/N) | Estimation (Y/N) | Data submission (Y/N) | Estimation (Y/N) | Data submission (Y/N) |
| NR | Punjab | Y | Y | N | N | N | N | N | N |
| | Haryana | Y | Y | N | N | N | N | N | N |
| | Rajasthan | Y | Y | N | N | N | N | N | N |
| | Delhi | Y | Y | N | N | N | N | Y | Y |
| | UP | Y | Y | N | N | N | N | Y | Y |
| | Uttarakhand | Y | Y | N | N | N | N | N | N |
| | HP | Y | Y | Y | Y | N | N | Y | Y |
| | J&K | Y | Y | N | N | N | N | N | N |
| | Chandigarh | Y | Y | N | N | N | N | N | N |

In accordance with above, NRLDC representative requested all SLDCs to furnish the demand estimation data as per the formats available at https://drive.google.com/drive/folders/1KWY4G9gTBLV5wTJkhGEIeRptKP-QbhjL?usp=drive_link to NRLDC through mail (nrldcmis@grid-india.in) and FTP as per above timeline.

***CGM (NRLDC) highlighted the critical importance of resource adequacy and provided an overview of the recent suo-moto order issued by CERC, which required NRLDC and SLDCs to furnish compliances with resource adequacy measures. He noted that resource adequacy is a key focus area at both CERC***

***and MoP levels, and emphasized the need for SLDCs to submit the necessary data for aggregation and processing at the RLDC level.***

HP representative inquired about access to forecasted ISGS data.

NRLDC representative clarified that this data is already provided on a day-ahead basis. He further emphasized that states need to verify their entitlements, taking into account planned unit shutdowns as per the annual unit outage report and LGBR, to accurately assess the ISGS forecast.

***All members agreed to sharing the requisite data as per the timelines mentioned in regulations.***

## B.2 Critical Operation of Rajasthan Grid during upcoming winter season

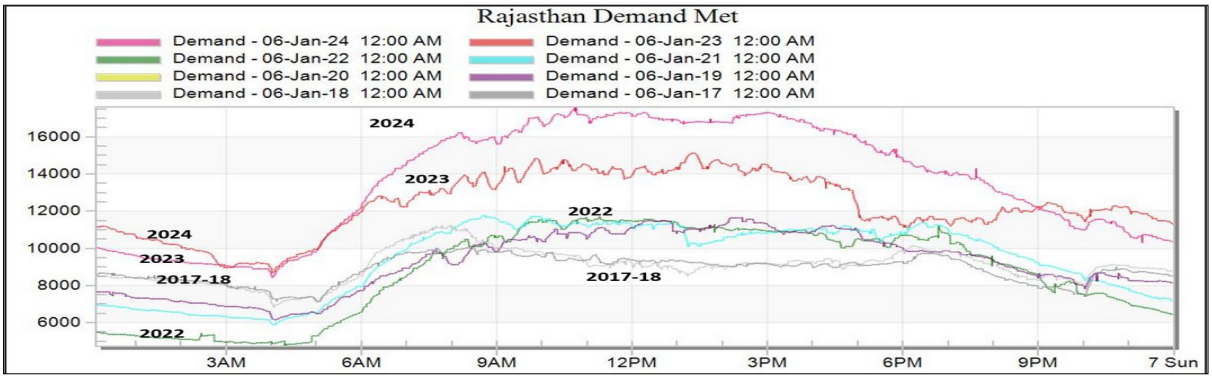
NRLDC representative submitted that issues related to the Rajasthan power system are frequently raised in various OCC, TCC, and NRPC meetings. He highlighted that the operational challenges in the Rajasthan grid become particularly critical during winter, as the demand surges due to increased agricultural activity across the state. During the last winter season, several significant issues were observed, including:

### 1. Non-compliance issues during day time and shifting of load to day time

Nearly all 400/220kV substations, both intrastate and interstate, in Rajasthan operated beyond their N-1 contingency limits during the day due to considerable shift of load during daytime as compared to previous years. This overloading not only led to localized load losses in areas with N-1 non-compliance but also posed risks of major grid disturbances within the Rajasthan control area. There was considerable non-compliance during daytime, with a noticeable shift of load to daytime hours.

| Name of Substation | MVA Capacity | Total Loading (MW) (variations throughout day during Dec'23-Jan'24) | SPS Status as available with NRLDC |
|---|---|---|---|
| **Bhiwadi(PG)** | 3*315=945 | 300-700 | Not implemented |
| **Neemrana(PG)** | 315+500=8 | 200- | Not |

| | | | |
|---|---|---|---|
| | 15 | 450 | implemented |
| **Bassi(PG)** | 2*315+500=1130 | 300-1000 | Not implemented |
| **Sikar(PG)** | 2*315+500=1130 | 150-750 | Not implemented |
| **Jaipur South(PG)** | 2*500=1000 | 150-650 | Not implemented |
| **Kankroli(PG)** | 3*315=945 | 250-650 | Not implemented |
| **Kotputli(PG)** | 2*315=630 | 150-500 | Not implemented |
| **Hindaun (RVPN)** | 2*315 =630 | 250-550 | Implemented |
| **Chittorgarh (RVPN)** | 3*315 =945 | 200-700 | Implemented |
| **Ajmer (RVPN)** | 2*315 =630 | 200-600 | Implemented |
| **Merta (RVPN)** | 2*315 =630 | 250-550 | Implemented |
| **Bikaner (RVPN)** | 2*315 =630 | 100-550 | Implemented |
| **Jodhpur (RVPN)** | 2*315 =630 | 200-500 | Implemented |
| **Heerapura(RVPN)** | 3*250+315=1065 | 300-900 | Not implemented |
| **Bhilwara (RVPN)** | 1*500+1*315 =815 | 300-550 | Under Implementation |
| **Ratangarh(RVPN)** | 3*315=945 | 300-750 | Implemented |
| **Deedwana(RVPN)** | 2*315=630 | 150-500 | Not implemented |
| **Suratgarh(RVPN)** | 2*315=630 | 100-500 | Implemented |



It can be inferred from the above graph that during 2023 ratio of demand during solar hours to night hours was 1.6 which has risen to 2.3 in 2024.

Earlier Communication from MoP also discussed in 73rd NRPC mentioned that:

*"It is requested that the shifting agricultural load to solar hours be implemented by end of March, 2024. Some states have reported constraints in transmission / distribution because of which the shift could be delayed. In such cases, the shift can be in phases. The Transmission and distribution bottlenecks can be addressed by using fund from the RDSS to separate agriculture feeder."*

It was once again requested that SLDC takes up the matter with DISCOMs for shifting of non-essential demand being provided in day-time till transmission network capacity augmentation takes place.
***Rajasthan representative agreed to look into the issue and assured for shifting of some non-essential load from solar hours to non-solar hours.***

**2. Frequent tripping of line and maintenance issues due to forest area**

NRLDC representative raised concerns about the frequent tripping of transmission lines from RAPS-A and RAPS-B, noting ongoing maintenance efforts by RVPNL. Previously, the Chief Engineer of SLDC Rajasthan had explained that these lines, which frequently trip, traverse the forested Chambal region, where contractors have faced challenges in conducting tree pruning due to objections from forest rangers.

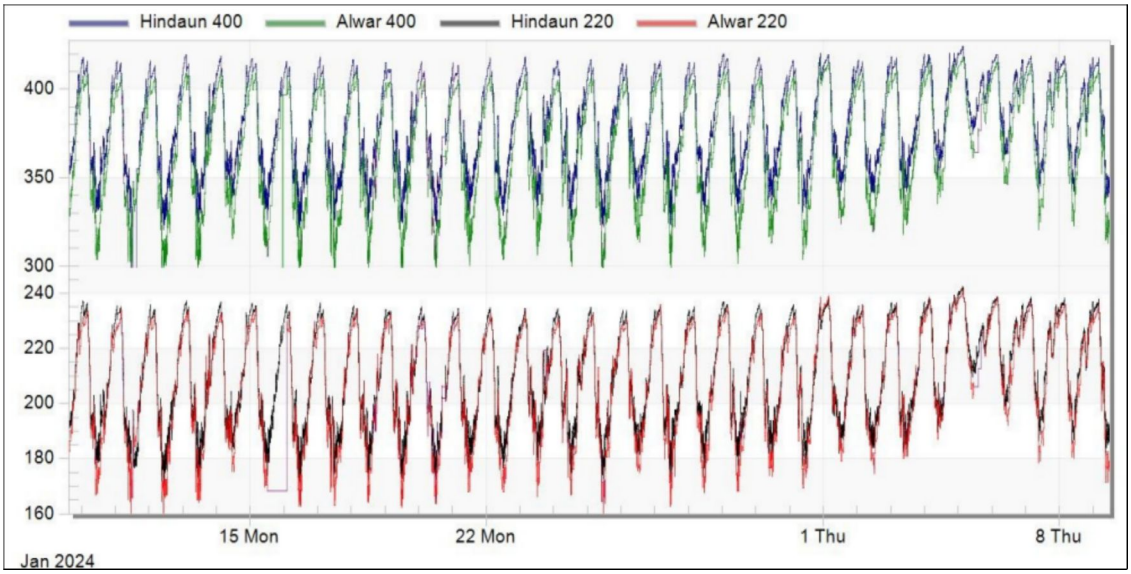
***MS (NRPC) asked Rajasthan for an update on this matter. He advised that if the preventive maintenance is hindered by a lack of clearance from the Forest Department, Rajasthan should document this in writing so the matter can be escalated to higher authorities at MoP and MoEF for resolution.***

***Rajasthan representative then informed that they have obtained the necessary permission and plan to complete all preventive maintenance on these lines within 1 to 1.5 months.***

***MS (NRPC) urged them to maintain close communication with forest officials and expedite the preventive maintenance work.***

**3. Generation of Dholpur TPS to minimize low voltages in Hindaun & Alwar region**

CGM (NRLDC) raised concerns regarding the persistently low voltage levels in the Hindaun and Alwar regions, noting that voltage at the 400kV Hindaun substation has at times dropped critically low, reaching as low as 300kV. He emphasized that this issue has been brought up repeatedly in various OCC meetings and reiterated that running the Dholpur gas turbines significantly improves the voltage profile in these areas.




He also inquired about the status of 33kV capacitor bank installations in Rajasthan to support voltage stability.

CGM (NRLDC) further informed that a simulation study conducted by NRLDC using the PSSE base case shared by Rajasthan SLDC showed convergence issues when Rajasthan's demand exceeds 18,000 MW. This indicates a urgent need for reactive power compensation in areas experiencing low voltage within Rajasthan. Operating the Dholpur gas turbines would provide immediate relief for low voltage conditions in the Hindaun and Alwar regions.

***Rajasthan representative stated that their MD has directed the operation of Dholpur gas turbines during peak agricultural hours to help stabilize voltage levels. They have an upcoming meeting with RUVNL, which holds the authority to issue directives for Dholpur gas operations, and they are actively addressing this issue at the highest levels.***

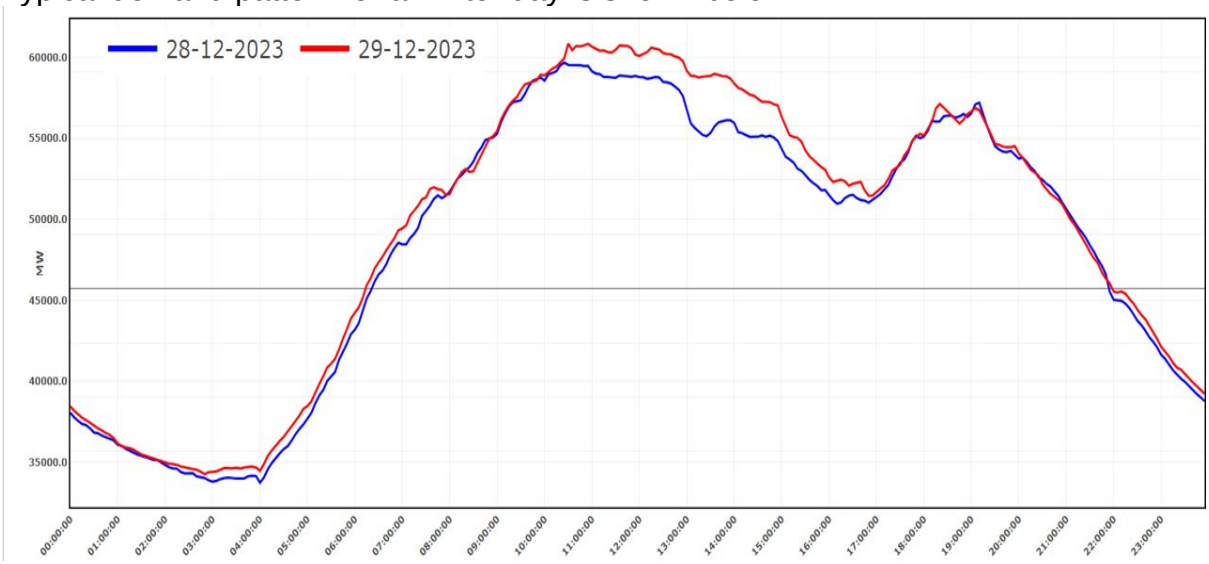
## B.3 Winter Preparedness 2024-25

Winter in Northern region is likely to start from mid of October till February end, and challenges such as Fog, High voltages in the grid, low demand etc are faced during these months. During winter, demand of NR states except Rajasthan and hilly states starts reducing. With decreasing temperatures and festivals, winter also brings some severe challenges to NR grid operators. **Moreover, there is possibility for severe winter during this season due to the impact of LA-NINA. IMD in their press release dated 05.09.2024, Extended range Forecast for next two weeks (5- 18 Sept, 2024) mentioned that "*The latest MMCFS forecast indicates higher likelihood of La Niña conditions are likely to develop during end of monsoon season*".** Accordingly, following measures were discussed and implemented for better grid operation during winter months:

### (i) Load-generation balance (Action by SLDCs/ NRLDC)

- Hydro generation resource which becomes all the more important due to ramping requirement; it starts depleting due to limited inflow of water (most of the hydro stations of NR are snow fed). With increasing solar generation during the day-time, the ramping requirements during evening hours are rising and posing serious challenge to the system operators to maintain frequency within the band.
- Off-peak to peak demand ratio of NR falls to around 0.5 to 0.6 during winter, morning and evening load ramp is quite steep together with limited hydro resources etc. This increases the importance of Portfolio management as per load forecast especially during high ramp up and ramp down periods and with increasing penetration of renewable energy.
- Generation planning becomes very important especially with the in-surge of renewable integration with the grid, generation resources should be optimally planned, taking care to maintain adequate reserves.

Typical demand pattern for a winter day is shown below:




Measures to be taken by utilities to manage load generation balance during winter months as discussed during previous many meetings are mentioned below:

- With increasing complexity, users may develop in house or use third party Software tools for precision of load forecasting & generation planning for daily basis, which can further go for hourly basis also.
- Forecast of demand ramp has also become important especially with increasing penetration of solar generation, and so SLDCs are advised to forecast load ramping so that commensurate ramping of generation can also be planned.
- Minimize generation to technical minimum as per IEGC guidelines /CERC directions during low demand.
- Co-ordination of ramping of generation during morning & evening peak ramping.
- Optimum utilization of Hydro resources for meeting peak hour demand.

### (ii) High voltage in the grid (Action by all utilities)

Another big challenge with decrease in demand, is the high voltages observed in the grid. With NR load reducing significantly, the lines become lightly loaded and are generating MVAR most of the time leading to high voltages in grid. Moreover, with heating loads across most of the NR states the power factor also is improved minimizing any reactive power requirement/drawl from the grid exacerbating the high voltage issues in the grid.

To overcome this challenge number of measures have been discussed earlier and are reiterated for OCC members:

- Ensuring to switch off capacitors & switch on reactors.
- Ensuring healthiness of all commissioned reactors in the system
- Monitoring of reactive power through SCADA displays.
- Reactive power support (absorption) by generating stations as per the capability curve. NRLDC would present the reactive power performance of all thermal generators in next OCC meetings.
- Synchronous condenser operation especially of hydro units during night hours for dynamic voltage support**. Some of the generators have already been tested (Tehri, Chamera-II, Pong, RSD etc.) and shall be available for condenser mode of operation as and when required. States/SLDCs are also advised to explore synchronous condenser operation of Hydro & Gas units in their state control area. It was requested that all other utilities may explore possibility of running units as synchronous condenser. It was highlighted that since reactive energy charges are now payable to generators also therefore, it would also be providing them financial support in case units are supporting through synchronous condenser mode of operation.**
- ICT Tap Optimization at 400kV & above is carried out by NRLDC. Same exercise need to be carried out by SLDCs at 220kV & below levels. ICT tap optimisation will be done by NRLDC based on SCADA data of Oct month.
- Opening of EHV lines based on expected voltage reduction and also considering security & reliability of system
- To ensure that line reactors available after opening of lines are optimally utilized it is necessary that all the stations where the provision of using line reactors as bus reactors is available at all control centres. The Reactive power document being compiled by NRLDC has the details of all such line reactors. Last updated document is available at NRLDC website under documents section:

  https://nrldc.in/download/nr_reactive-power-management_2024/?wpdmdl=13136&lang=en.

It is requested that all utilities go through document and share any anomaly/mis-representation. The document is being utilized in real-time operation by control room operators at NRLDC, thus it is necessary that list of all reactors where such provision is available are updated in the document.

***NHPC representative agreed to make Chamera-II available to operate as a synchronous condenser this winter season, as needed for grid stability. He noted that the unit had not been run as a synchronous condenser since 2018 due to maintenance issues, which have now been addressed.***

***Punjab representative informed the forum that currently only one machine at RSD can operate as a synchronous condenser. For the other three machines, they have engaged ABB to install additional equipment to enable synchronous condenser functionality.***

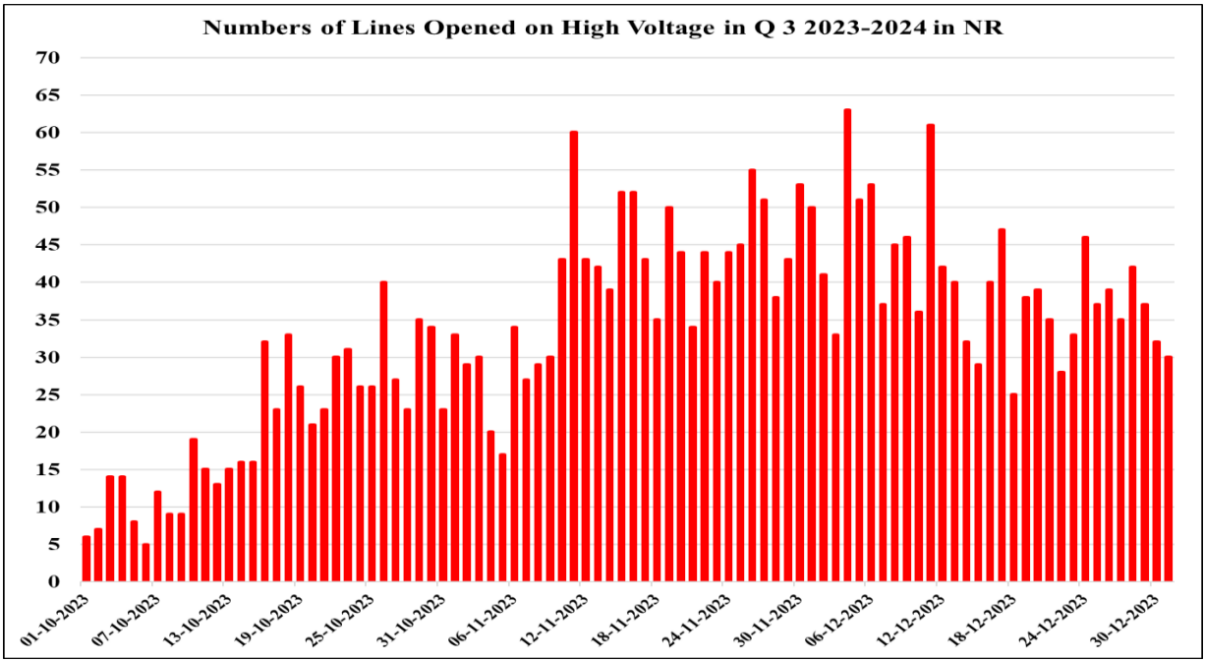
***BBMB representative mentioned that they would provide an update on their synchronous condenser capabilities to the forum shortly.***

### (iii) Plan for winter preparedness

Generally following actions are being taken at NRLDC end for controlling high voltages in the grid. To avoid frequent opening of lines, following instructions are given to avoid over voltages in the system.

• The bus reactors are switched in.
• The manually switchable capacitor banks are taken out.
• The switchable line/tertiary reactor are taken in.
• Optimized the filter banks at HVDC terminal.
• All the generating units on bar are advised to absorb reactive power within the capability curve.
• Reduced power flow on HVDC terminals so that loading on parallel EHV network goes up resulting in drop in voltage.

After exhausting all the above stated resources, in the last resort, lightly loaded lines are opened and priority was given to the lines which have switchable line reactor, so that their line reactors(L/R) can be converted to bus reactors(B/R) to contain the overvoltage. As can be seen from the plot shown below, number of 400kV & above lines have to be opened on daily basis to control high voltages in the grid.




It has been observed that many transmission lines have switchable Line Reactors (with distinct Circuit Breaker for switching operations) but they are not used as Bus Reactors due to concerns raised by line owners owing to non-availability of NGR bypass scheme. Generally, the bypass scheme is required for Neutral Grounding Reactor (NGR) of the line reactor so as to utilize the line reactor as bus reactor. The NGR bypass scheme requires a bypass isolator or circuit breaker, the provision of which makes the conversion possible. In planning stage, instalment of NGR bypass schemes may also be considered in switchable Line Reactors to avoid multiple opening of parallel circuits on high voltage and to maintain system voltage within limits specified under Central Electricity Authority (Grid Standards) Regulations, 2010.

NRLDC representative further shared the list of Bus Reactors on long outage as follows:

1. 125 MVAR BR NO 1 AT 400KV PARICHA(UPUN) (**03-03-2023**)
2. 125 MVAR BR No 1 at 400 KV Jaisalmer(RS) (**15-11-2023)**
3. 63 MVAR BR No 1 at 400KV Unnao(UP) **(21-02-2024)**
4. 125 MVAR BR No 1 at 400 KV Kadarpur (GPTL) (**03-08-2024**)
5. 125 MVAR BR No 1 at 400KV Chamera_1(NH) (**05-09-2024**)

Concerned utilities were asked update on their status in OMS portal.

***UP representative reported that the 125 MVAR bus reactor (BR) at Paricha could not be brought into service due to deficiencies in the SCADA system, which is currently under rectification. It is expected to be operational by the end of November 2024. He also noted that the 63 MVAR BR at the 400kV Unnao substation remains out of service due to a defect in its circuit breaker. Since the transfer breaker at Unnao is currently in use by the 400kV Agra–***

***Unnao line, the reactor could not be taken into service. This is also scheduled for service by the end of November 2024.***

***NHPC representative informed the forum that the 125 MVAR BR at Chamera-I is out of service due to an earth fault. The issue has been taken up with BHEL (OEM), for rectification, with repairs expected to be completed by next week.***

***Rajasthan representative added that the 125 MVAR BR at the 400kV Jaisalmer substation is o=out of service due to defects in its main and tie circuit breakers. The procurement process for replacement components has been initiated.***

The issue of high voltage in Delhi, Punjab & Haryana state control area is well known. Since the demand of these states reduces drastically in the winter months compared to high demand months from Jun-Sep, the transmission lines and transformers are under-utilised. This leads to a situation wherein the low power flow through these transmission lines leads to high MVAR generation. This high MVAR generation along with less reactive load (highly inductive load during summer months due to agricultural and cooling requirement) leads to very high voltages in the grid. Further due to less demand, these states are generally drawing power from the pit-head plants and their internal generation is also less. This lower internal generation / less machines on bar aggravates the high voltage as no local reactive power support is available from nearby machines.

Delhi state has a transmission network and distribution network involving cable which are generating high reactive power. Further, when these cables are lightly loaded during the night hours of winter months, it leaves the operator no choice but to open the transmission lines. Thus, it is important that already planned and approved reactors are commissioned before the winter season so as to minimise the issues of high voltage in Delhi control area.

Status of reactors under commissioning in Delhi control area in Northern region as per 222 OCC MoM is shown below:

| Substation | Reactor | Status as per 222 OCC MoM |
|---|---|---|
| Mundka | 1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV | Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision. |
| Bamnauli | 2x25 MVAr at 220 kV | Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision. |
| Electric Lane | 1x50 MVAr at 220 kV | Under Re-tendering due to Single Bid |
| Indraprastha | 2x25 MVAr at 220 kV | Bay work completed on 07.11.2023. Reactor part tender is dropped and at present same is under revision. |

***DTL representative stated that tender works is still to be awarded and all four reactors would be awarded simultaneously.***

Similarly, for Punjab & Haryana apart from the above listed measures, it is critical that lightly loaded transmission lines are opened at lower voltage during night time also keeping in mind grid security so that unnecessary MVAR generation is avoided. Ready list of such lines may be furnished to NRLDC/NRPC for information.
Special actions are required by Punjab, Haryana & Delhi to avoid the high voltage issues during winter season. It was also requested to expedite the commissioning of these reactors apart from the measures listed above.

**(iv) EHV line tripping during fog/smog**

One more challenge during winter months is tripping of EHV lines due to fog. With low temperature across Northern region and sometimes with high humidity in the air, fog starts to appear across Northern region. This problem is generally most severe from 15Dec- 15Feb period. During this time additional care need to be taken by system operator as many multiple element tripping events have been reported in the past especially in Punjab and Eastern UP. Such tripping are more severe if the lines are tripping from generation complex such as Singrauli-Anpara-Rihand complex. Therefore, utilities are requested to ensure:

- **Priority wise cleaning & replacement is carried out. Priority to be given to the lines that have historical record of tripping during foggy weather.**
- Progress on cleaning & replacement of porcelain insulator with polymer insulator to be monitored and latest status may be furnished to NRPC/NRLDC.

**(v) Load crash due to inclement weather (Action by all utilities)**

During winter months, the demand of Northern region is much lower compared to summer months for which the transmission system is designed. When operating at reduced demand, the internal generation of most of the states is low based on merit order. Several EHV lines are also opened to ensure voltages within IEGC limits. In such a scenario, in case of rainfall/snowfall, it is seen that demand of Northern region falls sharply. With several lines out due to high voltage and more tripping due to bad weather, ensuring safe and secure grid operation becomes a big challenge for system operators. To overcome this challenge, it is important that:

- All system operators and transmission utilities regularly monitor weather forecast site ( Weather portal for power sector)
- ERS is available with transmission utilities in case of emergency requirements.
- Additional trained manpower is made available especially during night hours at all major control centres/ substations

**(vi) Ensuring protection settings as approved by NRPC (Action by all transmission & generating stations)**

Apart from above, it needs to be made sure that defense mechanism is healthy i.e. ensuring all SPS healthy, protection system intact, monitoring of df/dt & UFR etc; and telemetry especially of MVAr of Generator, temperature & humidity etc. is available and reliable.
During winter months, it has been observed that there is **frequent tripping of ICTs on overflux and lines on overvoltage** especially in Punjab and Haryana areas. On number of occasions, it is seen that utilities are correcting their protection settings after tripping events. It is important all the protection settings are as approved by NRPC. Utilities are requested to confirm the same from field and ensure that protection settings are only as approved by NRPC.

***OCC Forum asked all utilities***

- ***To prepare plan for measures to be taken by them for carrying out pre-winter maintenance activities. Same may be shared by utilities via mail with NRPC/NRLDC before next OCC meeting.***
- ***To submit feedback on NRLDC reactive power document including for line reactors which can be used as bus reactors as per requirement.***
- ***To carry out tap change exercise at 220kV and below voltage level***
- ***To ensure maximum availability of bus reactors and line reactors including provision of using line reactors as bus reactors incase of opening of lines on high voltage.***
- ***To furnish details of Progress on cleaning and replacement of porcelain insulator with polymer insulator***
- ***To ensure that all overflux setting of transformers and overvoltage settings of transmission lines are as per approved protection philosophy of NRPC.***
- ***OCC expressed concern on the lack of progress of DTL reactors and asked them to expedite their works.***

## B.4 Status of 765kV Sikar-II substation and anticipated issues thereof

NRLDC representative highlighted that 765kV Sikar-II substation and its associated transmission system are crucial components of Rajasthan's RE evacuation infrastructure, specifically planned for transmission system strengthening for evacuation of power from solar energy zones in Rajasthan (8.1GW) under Phase-II – Part C (approved in 5$^{th}$ NRSCT on 13.09.2019)

The project, which was delayed from its original target completion date of December 2022, has caused significant strain on the existing Rajasthan Inter-State Transmission System. The delay in commissioning has resulted in high loading of transmission lines, limiting the ability to safely evacuate the large volumes of renewable energy generated in the state.

Presently about 5200 MW RE generation has been connected in Western Rajasthan which does not have its GNA operationalized from CTUIL.

Challenges faced in Real Time System operation includes difficultly in facilitating major shutdowns such as outage of 765kV Bikaner-Moga D/C ( RE curtailment ~1500 – 3500 MW in present case )

CGM (NRLDC) emphasized that the shutdown of the 765kV Bikaner-Moga (D/C) line would lead to a substantial curtailment of RE generation. Therefore, this shutdown is being deferred until the commissioning of the 765kV Sikar_2 substation and its associated transmission elements, which will significantly reduce RE curtailment in the region.

He also noted that Rajasthan has requested shutdowns for two 400kV lines – 400kV Bhadla-Jodhpur and 400kV Bhadla-Merta, making the timely commissioning of the 765kV Sikar_2 substation even more crucial. He requested an update from CTUIL and POWERGRID on the status of this commissioning.

***POWERGRID representative updated the forum that 1st 765kV Bhadla_2 – Sikar_2 D/C is expected by end of November 2024.***

***CGM (NRLDC) then advised Rajasthan that, upon commissioning of these circuits, the requested shutdown of 400kV Bhadla-Jodhpur and 400kV Bhadla-Merta lines from can be accommodated.***

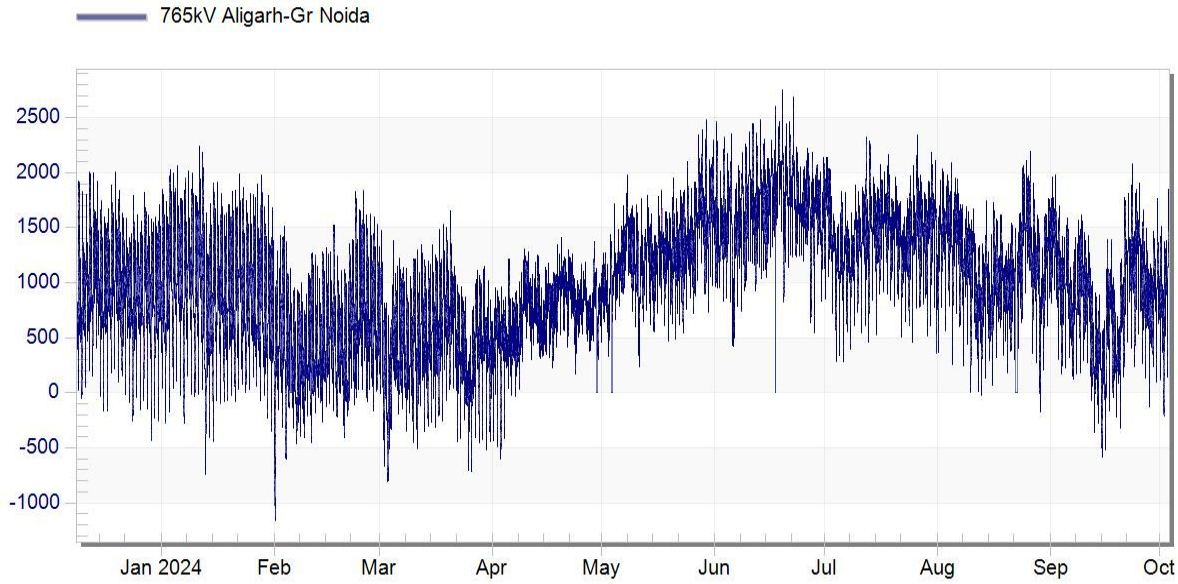
Rajasthan representative mentioned that they have devised an interim arrangement involving the opening of certain 400kV lines, which they believe would allow the shutdown to proceed even under current conditions.

***CGM (NRLDC) cautioned that this approach is not advisable, as opening multiple lines in an RE-rich area could compromise grid reliability and is not a safe method of operation.***

***MS(NRPC) also emphasized the security of grid and cautioned against the approach of Rajasthan of opening other 400kV lines to facilitate the Shutdown in RE-Rich area.***

NRLDC representative again stressed on the importance of early commissioning of 765kV Sikar_2 S/S as it will help to stabilize the grid and impacts of frequent transient fault could be minimized. It was also shared that given the challenges posed by the overstressed Rajasthan RE ISTS network due to the absence of the 765kV Sikar_2 system, it may not be feasible to evacuate additional RE generation from Western Rajasthan beyond current levels, despite NRLDC's best efforts.

NRLDC representative further briefed the forum that with commissioning of 765kV Sikar_II S/S and associated 765kV Lines, from Simulation studies it is observed that loading of 765kV Aligarh-G.Noida would increase. 765kV Aligarh-G.Noida line is already a heavily loaded line >2000 MW, and any further increase in its loading would be one of the limiting criteria for determination of NR Import ATC that will ultimately restrict NR constituents from purchasing power from other regions to meet their increased demand.




***NRLDC representative informed the forum that they have continuously requested POWERGRID NR-3 to furnish the safe loadability limit of 765kV Aligarh-Gr. Noida vide emails dated 27.08.2024, 06.09.2024 & 27.09.2024, however, reply from POWERGRID is yet to be received.***

***POWERGRID representative assured the forum that they would provide the requested information within a week, following discussions with the CTU planning wing.***

***The forum also requested CTU to share projected loading scenarios for the 765kV Aligarh–Greater Noida line after the commissioning of the Bhadla-2–Sikar-2–Aligarh link and to propose any necessary management strategies.***

***OCC forum concluded that CTU will analyse the impact of the Sikar-2 and Narela substations on the loading of the 765kV Aligarh–Greater Noida line and share the findings with NRLDC, along with any recommended remedial measures.***

## B.5 J&K and Ladakh grid operation related issues anticipated during winter 2024-25

The issue was not discussed due to non-availability of representatives from J&K and Ladakh.

## B.6 Reactive power performance of generators

NRLDC representative stated that during the winter season, high voltage levels persist across the Northern region, particularly in Punjab, Haryana, and Delhi. Generators' ability to absorb reactive power (MVAr) is essential for voltage management in the grid. However, there are concerns regarding inadequate

reactive power absorption, especially at night, and poor telemetry data accuracy from many generators.

The performance of several generating units was analyzed (from September 20 to October 7, 2024). The telemetry shows suboptimal MVAr absorption compared to the capability curves of the generating stations.

| S.No. | Station | Unit No. | Capacity | Geo graphical location | MVAR capacity as per capability curve (on LV side) | MVAR performance (-) Absorption (+) Generation (HV side data) | Voltage absorption above (in KV) |
|---|---|---|---|---|---|---|---|
| 1 | Dadri NTPC | 1 | 490 | Delhi-NCR | -147 to 294 | -150 to 110 | 408 |
| | | 2 | 490 | | -147 to 294 | -150 to 110 | 407 |
| 2 | Singrauli NTPC | 1 | 200 | UP | -60 to 120 | 5 to 30 | 405 |
| | | 2 | 200 | | -60 to 120 | 0 to 30 | 404 |
| | | 3 | 200 | | -60 to 120 | 0 to 30 | 402 |
| | | 4 | 200 | | -60 to 120 | -30 to 0 | **396** |
| | | 5 | 200 | | -60 to 120 | -10 to 20 | **398** |
| | | 6 | 500 | | -150 to 300 | 0 to 60 | 404 |
| | | 7 | 500 | | -150 to 300 | 0 to 60 | 402 |
| 3 | Rihand NTPC | 1 | 500 | UP | -150 to 300 | - | - |
| | | 2 | 500 | | -150 to 300 | -50 to 50 | 397 |
| | | 3 | 500 | | -150 to 300 | -70 to 30 | 395 |
| | | 4 | 500 | | -150 to 300 | -90 to 10 | 395 |
| 4 | Kalisindh RS | 1 | 600 | Rajasthan | -180 to 360 | -130 to 100 | - |
| | | 2 | 600 | | -180 to 360 | -140 to 10 | - |
| 5 | Anpara C UP | 1 | 600 | UP | -180 to 360 | -110 to 50 | 765 |
| | | 2 | 600 | | -180 to 360 | -90 to 30 | 768 |
| 6 | Talwandi Saboo PB | 1 | 660 | Punjab | -198 to 396 | -150 to 150 | **410** |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | 2 | 660 | | -198 to 396 | -150 to 150 | **410** |
| | | 3 | 660 | | -198 to 396 | - | - |
| **7** | Kawai RS | 1 | 660 | Rajasthan | -198 to 396 | -100 to 20 | 402 |
| | | 2 | 660 | | -198 to 396 | -100 to 20 | 405 |
| **8** | IGSTPP Jhajjar | 1 | 500 | Haryana | -150 to 300 | | |
| | | 2 | 500 | | -150 to 300 | -90 to 150 | **412** |
| | | 3 | 500 | | -150 to 300 | -130 to 80 | **408** |
| **9** | Rajpura (NPL) | 1 | 700 | Punjab | -210 to 420 | -180 to 100 | 402 |
| | | 2 | 700 | | -210 to 420 | -200 to 140 | 402 |
| **10** | MGTPS | 1 | 660 | Haryana | -198 to 396 | -130 to 150 | **408** |
| | | 2 | 660 | | -198 to 396 | -140 to 180 | **408** |
| **11** | Bawana | 1 | 216 | Delhi-NCR | -65 to 130 | -60 to 40 | **406** |
| | | 2 | 216 | | -65 to 130 | -60 to 40 | **406** |
| | | 3 | 216 | | -65 to 130 | - | - |
| | | 4 | 216 | | -65 to 130 | - | - |
| | | 5 | 253 | | -65 to 130 | -60 to 60 | **410** |
| | | 6 | 253 | | -65 to 130 | - | - |

NRLDC representative further requested that:

- Generating stations need to ensure their reactive power absorption (MVAr) aligns with grid requirements. Stations like IGSTPP Jhajjar, MGTPS Jhajjar, and Bara must explore ways to absorb more reactive power.
- All generating stations are requested to resolve any issues related to telemetry and make sure that MVAr absorption is as per grid requirement and capability curve of machine.
- Generators may also set their Vsch (voltage set point) such that units are absorbing MVAR as per their capability and grid requirement with intimation to RLDC/SLDC.

- Rajasthan's intrastate generators are encouraged to support the grid with reactive power during low voltage periods in the daytime.

***Singrauli representative informed that they would look into the issue of Unit 4 and Unit 5.***

***IGSTPP Jhajjar representative informed the forum that their machine is capable of absorbing reactive power as per its capability curve. However, they have manually set a voltage threshold of 408kV for Unit-3, and they plan to adjust the voltage threshold of 412kV in Unit-2 by making suitable tap changes to align it with Unit-3.***

***Regarding Talwandi Sabo, Punjab representative stated that they have consulted PSPCL, which confirmed that the settings were configured as per the OEM's specifications and have not been adjusted since. Punjab representative requested guidance on any standard settings or documents that could be shared with the OEM for tuning the system.***

***The forum advised that the settings could be aligned with the unit's capability curve. Subsequently, Punjab SLDC representative proposed inviting a PSPCL representative to the upcoming Northern Region protection meeting to resolve the issue.***

***Representative from Bara also agreed to rectify the issue and same has been taken up with their protection team.***

***CGM(NRLDC) informed all such plants to take suitable actions at their end so that the reactive power performance of generators aligns with the requirement of the grid. Additionally, SLDCs were requested to regularly monitor the reactive power performance of intra-state and IPP generators and to advise them to operate within their capability curves to support grid operation effectively.***

## B.7 Sharing of ATC/TTC assessment and basecase with NRLDC

All NR states except Chandigarh UT are sharing basecase and ATC/TTC assessment with NRLDC. OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement

CERC vide their order dated 29.09.2023 has granted approval of "'Detailed Procedure for Allocation of Transmission Corridor for Scheduling of General Network Access and Temporary General Network Access under Central Electricity Regulatory Commission (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022"

Detailed roles and responsibilities for State Load Dispatch Centers in various timelines of the approved procedure are provided in the table below.

| ***Purpose*** | ***S No*** | ***Action of Stakeholder*** | ***Responsibility*** | ***Submission to*** | ***Data/ Information*** |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| | | | | | ***Submission Time line*** |
| ***1. Revision 0 TTC/ATC Declaration for Month 'M'*** | *1(a)* | *Submission of node wise Load and generation data along with envisaged scenarios for assessment of transfer capability Assessment of TTC/ATC of the import/export capability of the state and intra-state system and sharing of updated network simulation models* | *SLDC* | *RLDC* | *10th Day of 'M-12' month* |
| | *1(b)* | *Declaration of TTC/ATC of the intra- state system by SLDC in consultation with RLDC* | | | *26th Day of 'M-12' month* |
| ***2. Interconnection Studies for elements to be integrated in the month 'M'*** | *2(a)* | *Submission of node-wise load and generation data & sharing of network simulation models for intra-state elements coming in the next six months* | *SLDC* | *RLDC* | *8th Day of 'M- 6' month* |
| | *2(b)* | *Sharing of inter-connection study results* | | | *21st Day of 'M-6' month* |
| ***3. Month Ahead TTC/ATC Declaration & Base case for Operational Studies for Month 'M'*** | *3(a)* | *Submission of node wise Load and generation data along with envisaged scenarios for assessment of transfer capability Assessment of TTC/ATC of the intra- state system and sharing of updated network simulation models* | *SLDC* | *RLDC* | *8th Day of 'M- 1' month* |
| | *3(b)* | *Declaration of TTC/ATC of the intra- state system in consultation with RLDC* | *SLDC* | *RLDC* | *22nd Day of 'M-1' month* |

To encourage participation from SLDCs regarding basecase preparation and ATC/TTC assessment, two workshops have been conducted from Grid-India/NRLDC side. One workshop was conducted 31.08.2023 before the finalization of the procedure and another on 10.01.2024 recently to involve further participation from SLDCs.

Although all SLDCs are now involved in preparation of basecase & ATC/TTC assessment, it is seen that the timelines as per CERC approved procedure are not being followed and number of times basecases are not received from SLDC side.

**ATC/TTC assessment sharing 11 months in advance**

The procedure mentions that:

“SLDCs in consultation with RLDCs shall declare the import and export TTC, ATC, and TRM of the individual control/bid areas within the region in accordance with Regulation 44 (3) of the Grid Code 2023. RLDCs shall assess the import and export TTC, TRM and ATC for the group of control/bid areas within the region (if required). The computed TTC, TRM and ATC figures shall be published on the website of respective SLDCs and RLDCs, along with the details of the basis of calculations, including assumptions, if any, **at least eleven (11) months in advance**. The specific constraints indicated in the system study shall also be published on the website.”

Accordingly, SLDCs are requested to send the PSSE cases for four scenarios for October'25 i.e. Afternoon Peak, Solar Peak, Evening Peak & Off-Peak hours as given below

| S. No. | Scenario | Time of Scenario |
|---|---|---|
| 1 | Off-Peak | 04:00 Hrs |
| 2 | Morning Peak | 10:30 Hrs |
| 3 | Evening Peak | 19:00 Hrs |
| 4 | Solar Peak | 12:00 Hrs |

It is requested that the basecases as well as ATC/TTC assessments may be shared with NRLDC as per CERC approved procedure. Further, the above exercise needs to be carried out regularly monthly.

It was discussed in last several OCC meetings & all states were requested to share basecase as well as ATC/TTC assessments for M-11 scenarios on monthly basis with NRLDC as per CERC approved procedure. Accordingly, it was requested to submit the basecase as well as ATC/TTC assessments.

**Sharing of Data and study results for interconnection studies**

As per **Regulation 33 of IEGC 2023,**

*(9) Each SLDC shall undertake a study on the impact of new elements to be commissioned in the intra-state system in the next six (6) months on the TTC and ATC for the State and share the results of the studies with RLDC.*
*(10) Each RLDC shall undertake a study on the impact of new elements to be commissioned in the next six (6) months in (a) the ISTS of the region and (b) the intra-state system on the inter-state system and share the results of the studies with NLDC.*

*(11) NLDC shall undertake study on the impact of new elements to be commissioned in the next six (6) months in (a) inter-regional system, (b) cross-border link and (c) intra-regional system on the inter-regional system.*

In line with above, utilities are requested to share the list of elements/LGB data/interconnection study results etc as per the approved procedure which are expected to be commissioned within next six months. This needs to be practised as monthly exercise on regular basis.

The agenda was discussed in last several OCC meetings & all utilities were requested to share list of elements/LGB data/interconnection study results etc as per the approved procedure on monthly basis.

**TTC/ATC of state control areas on M-1 basis**

As discussed in previous OCC meetings, most of the NR states except Ladakh and Chandigarh U/Ts are sharing basecase and ATC/TTC assessment with NRLDC.

Based on simulation studies and discussions between SLDCs and NRLDC, ATC/TTC limits for NR states for the month of Nov'2024 are attached as **Annexure-B.II of Agenda.**

OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement.

The agenda was also discussed in last several OCC meetings wherein all states agreed to send the data as well as PSSE basecases on time for all three (M-1, M-6, M-11) scenarios.

In 224 OCC meeting,

- NRLDC representative stated that the agenda was also discussed in last several OCC meeting wherein all states agreed to send the data as well as PSSE basecases on time for all three (M-1, M-6, M-11) scenarios. CGM NRLDC asked states to get help from NRLDC in case of any difficulty and emphasized on the need for regularity in sharing the data.
- NRLDC representative presented the status of basecase and data sharing by NR states for the last six months.

| May 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (June-24) | | M-11 (May-25) | | M-6 (Nov-24) | |
| | Data Values | Basecases | Data Values | Basecases | Data Values | Basecases |
| Chandigarh | No | No | No | No | No | No |
| Delhi | No | No | Yes | Yes | No | No |
| Haryana | No | No | No | No | No | No |
| Himachal | No | No | No | No | No | No |
| J & K | Yes | No | Yes | No | Yes | No |
| Ladakh | No | No | No | No | No | No |
| Punjab | No | No | No | No | No | No |
| Rajasthan | No | No | No | No | No | No |
| Uttar Pradesh | Yes | Yes | No | No | Yes | Yes |
| Uttarakhand | No | No | No | No | No | No |

| June 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (July-24) | | M-11 (June-25) | | M-6 (Dec-24) | |
| | Data Values | Basecases | Data Values | Basecases | Data Values | Basecases |
| Chandigarh | No | No | No | No | No | No |
| Delhi | No | No | Yes | Yes | No | No |
| Haryana | No | No | No | No | No | No |
| Himachal | No | No | No | No | No | No |
| J & K | Yes | Yes | Yes | Yes | Yes | Yes |
| Ladakh | No | No | No | No | No | No |
| Punjab | No | No | Yes | No | No | No |
| Rajasthan | No | No | No | No | No | No |
| Uttar Pradesh | Yes | Yes | Yes | Yes | No | No |
| Uttarakhand | No | No | No | No | No | No |

| July 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (August-24) | | M-11 (July-25) | | M-6 (Jan-25) | |
| | Data Values | Basecases | Data Values | Basecases | Data Values | Basecases |
| Chandigarh | No | No | No | No | No | No |
| Delhi | No | No | No | No | No | No |
| Haryana | No | No | No | No | No | No |
| Himachal | No | No | No | No | No | No |
| J & K | Yes | Yes | Yes | Yes | Yes | Yes |
| Ladakh | No | No | No | No | No | No |
| Punjab | No | No | No | No | No | No |
| Rajasthan | No | No | No | No | No | No |
| Uttar Pradesh | Yes | Yes | Yes | Yes | Yes | Yes |
| Uttarakhand | No | Shared only for 1 cardinal point | No | No | No | No |

| August 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (September-24) | | M-11 (August-25) | | M-6 (Feb-25) | |
| | Data Values | Basecases | Data Values | Basecases | Data Values | Basecases |
| Chandigarh | No | No | No | No | No | No |
| Delhi | No | No | Yes | Yes | No | No |
| Haryana | No | Shared only for 1 cardinal point | No | No | No | No |
| Himachal | No | No | No | No | No | No |
| J & K | Yes | Yes | Yes | Yes | Yes | Yes |
| Ladakh | No | No | No | No | No | No |
| Punjab | No | No | Yes | Yes | Yes | Yes |
| Rajasthan | No | No | No | No | No | No |
| Uttar Pradesh | Yes | Yes | Yes | Yes | Yes | Yes |
| Uttarakhand | No | No | No | No | No | No |

| September 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (October-24) | | M-12 (September-25) | | M-6 (Mar-25) | |
| | Data Values | Basecases | Data Values | Basecases | Data Values | Basecases |
| Chandigarh | No | No | No | No | No | No |
| Delhi | No | No | No | No | No | No |
| Haryana | No | No | No | No | No | No |
| Himachal | No | No | No | No | No | No |
| J & K | Yes | Yes | Yes | Yes | Yes | Yes |
| Ladakh | No | No | No | No | No | No |
| Punjab | No | No | Yes | Yes | Yes | Yes |
| Rajasthan | Yes | Yes | Yes | Yes | Yes | Yes |
| Uttar Pradesh | Yes | Yes | Yes | Yes | Yes | Yes |
| Uttarakhand | No | No | No | No | No | No |

| October 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (November-24) | | M-12 (October-25) | | M-6 (Apr-25) | |
| | Data Values | Basecases | Data Values | Basecases | Data Values | Basecases |
| Chandigarh | | | | | | |
| Delhi | | | | | | |
| Haryana | | | | | | |
| Himachal | | | | | | |
| J & K | Yes | Yes | Yes | Yes | Yes | Yes |
| Ladakh | | | | | | |
| Punjab | | | Yes | Yes | Yes | Yes |
| Rajasthan | Yes | Yes | Yes | Yes | Yes | Yes |
| Uttar Pradesh | Yes | Yes | Yes | Yes | Yes | Yes |
| Uttarakhand | | | | | | |

- All SLDCs agreed to share basecase as well as ATC/TTC assessment as per CERC approved procedure.

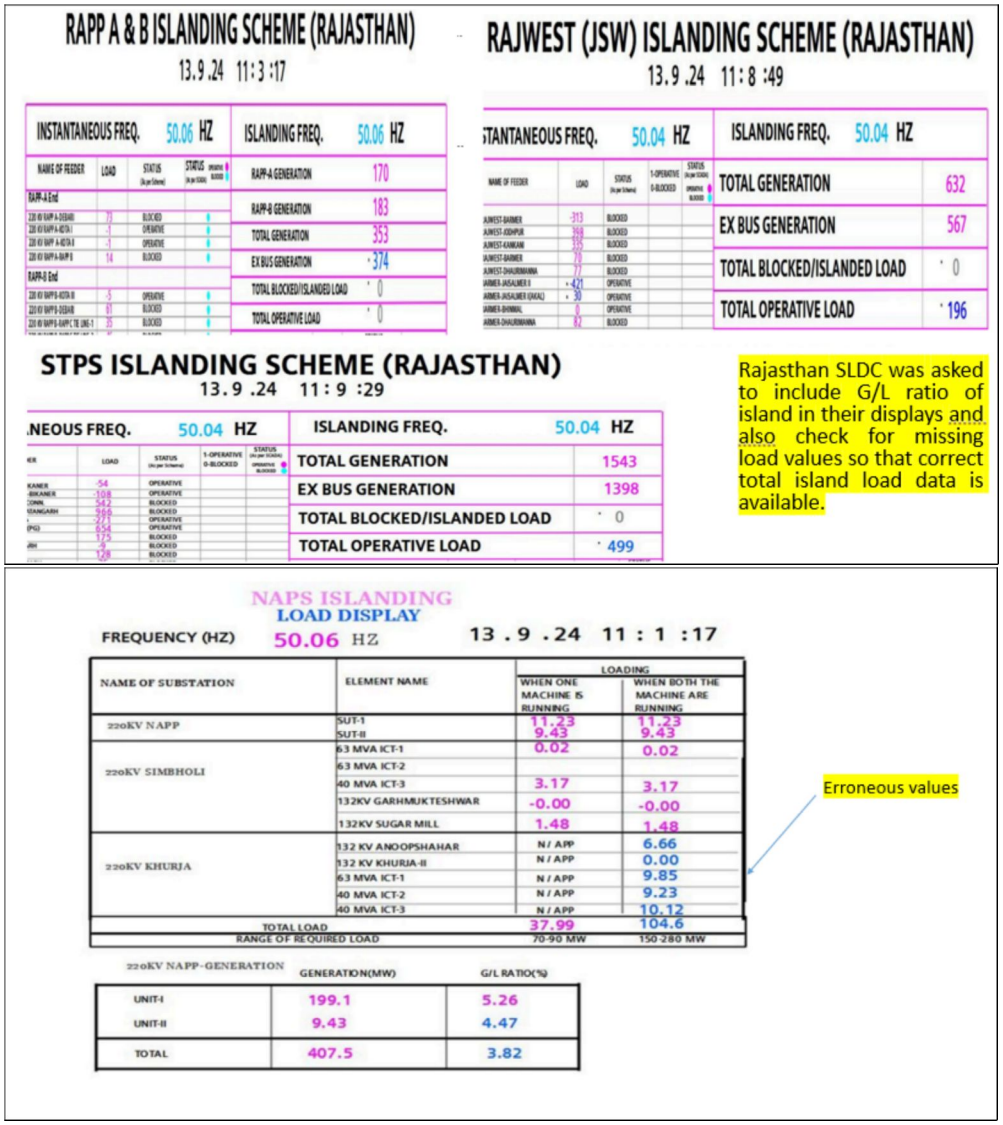
***OCC asked all SLDCs to share basecase as well as ATC/TTC assessment as per CERC approved procedure.***

During the discussion, the representative from Haryana shared that the master monthly base case received from NRLDC is not converging at their end. In response, the NRLDC representative explained that this issue may be due to Haryana SLDC using an older version of PSSE (Version 34). All other Northern Region constituents are currently using the latest version of PSSE (Version 35), which may be causing compatibility issues, as no other constituents have reported similar convergence issues with the master monthly base case shared by NRLDC. He also advised that NRLDC will soon transition to PSSE Version 36, the latest version released by Siemens, and recommended that Haryana should also consider upgrading to the latest version.

## B.8 Mock testing of islanding scheme and simulation studies

NRLDC representative shared that the following four islanding schemes are operational in the Northern Region: NAPP Islanding Scheme (Uttar Pradesh), RAPP Islanding Scheme (Rajasthan), Bawana Islanding Scheme (Delhi), and Pathankot-RSD Islanding Scheme (Punjab). It was also highlighted that, as per the SOP for mock islanding schemes approved in the recently concluded OCC 223, SLDCs are requested to prepare and share their plans for conducting mock testing of islanding schemes in their control areas.

Additionally, it was informed that none of the four utilities have yet created a SCADA network map for their island areas. However, Uttar Pradesh and Rajasthan have developed SCADA displays with partial island summaries, although telemetry issues still need resolution.



RAPP A & B ISLANDING SCHEME (RAJASTHAN)
13.9.24 11:3:17

| INSTANTANEOUS FREQ. | 50.06 HZ | ISLANDING FREQ. | 50.06 HZ |
|---|---|---|---|
| | | RAPP-A GENERATION | 170 |
| | | RAPP-B GENERATION | 183 |
| | | TOTAL GENERATION | 353 |
| | | EX BUS GENERATION | 374 |
| | | TOTAL BLOCKED/ISLANDED LOAD | 0 |
| | | TOTAL OPERATIVE LOAD | 0 |

RAJWEST (JSW) ISLANDING SCHEME (RAJASTHAN)
13.9.24 11:8:49

| STANTANEOUS FREQ. | 50.04 HZ | ISLANDING FREQ. | 50.04 HZ |
|---|---|---|---|
| | | TOTAL GENERATION | 632 |
| | | EX BUS GENERATION | 567 |
| | | TOTAL BLOCKED/ISLANDED LOAD | 0 |
| | | TOTAL OPERATIVE LOAD | 196 |

STPS ISLANDING SCHEME (RAJASTHAN)
13.9.24 11:9:29

| NEOUS FREQ. | 50.04 HZ | ISLANDING FREQ. | 50.04 HZ |
|---|---|---|---|
| | | TOTAL GENERATION | 1543 |
| | | EX BUS GENERATION | 1398 |
| | | TOTAL BLOCKED/ISLANDED LOAD | 0 |
| | | TOTAL OPERATIVE LOAD | 499 |

Rajasthan SLDC was asked to include G/L ratio of island in their displays and also check for missing load values so that correct total island load data is available.

NAPS ISLANDING
LOAD DISPLAY

FREQUENCY (HZ) 50.06 HZ 13.9.24 11:1:17

| NAME OF SUBSTATION | ELEMENT NAME | LOADING: WHEN ONE MACHINE IS RUNNING | LOADING: WHEN BOTH THE MACHINE ARE RUNNING |
|---|---|---|---|
| 220KV NAPP | SUT-I | 11.23 | 11.23 |
| | SUT-II | 9.43 | 9.43 |
| 220KV SIMBHOLI | 63 MVA ICT-1 | 0.02 | 0.02 |
| | 63 MVA ICT-2 | | |
| | 40 MVA ICT-3 | 3.17 | 3.17 |
| | 132KV GARHMUKTESHWAR | -0.00 | -0.00 |
| | 132KV SUGAR MILL | 1.48 | 1.48 |
| 220KV KHURJA | 132 KV ANOOPSHAHAR | N/APP | 6.66 |
| | 132 KV KHURJA-II | N/APP | 0.00 |
| | 63 MVA ICT-1 | N/APP | 9.85 |
| | 40 MVA ICT-2 | N/APP | 9.23 |
| | 40 MVA ICT-3 | N/APP | 10.12 |
| TOTAL LOAD | | 37.99 | 104.6 |
| RANGE OF REQUIRED LOAD | | 70-90 MW | 150-280 MW |

Erroneous values

220KV NAPP-GENERATION

| | GENERATION(MW) | G/L RATIO(%) |
|---|---|---|
| UNIT-I | 199.1 | 5.26 |
| UNIT-II | 9.43 | 4.47 |
| TOTAL | 407.5 | 3.82 |

NRLDC representative further mentioned that only the NAPS Islanding Scheme of UP has incorporated the G/L ratio in its SCADA display according to the shared format. UP representative added that due to a recent fire incident at Khurja S/S, the telemetry from the 220kV Khurja S/S is currently unavailable, and they promised to share an update on the restoration of telemetry from Khurja as soon as possible.

***NRLDC representative also requested that all concerned utilities provide updated islanding base cases for different load-generation balance scenarios (Summer: Peak/Off-peak and Winter: Peak/Off-peak) along with dynamic data of the generators in the island for conducting dynamic simulation studies. He reiterated that the Islanding SCADA display should be made available at NRLDC as per the format shared in previous OCC meetings.***

***All relevant utilities agreed to develop the necessary SCADA network map for their island and to share a dynamic base case at the earliest. They also committed to providing a proposed date for conducting a mock testing exercise for their island.***

**B.9 Multiple element tripping events in Northern region in the month of September ’24**

NRLDC representative shared that a total of 18 grid events occurred in the month of September’24 of which 09 are of GD-1 category, 05 are of GI-2 Category and 04 are of GI-1 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.III** of Agenda.

Maximum delayed clearance of fault observed in event of multiple elements tripping at 400/220kV Akal(RS) on 13th September, 2024 (As per PMU at Bhadla(PG), R-B phase to phase fault converted into R-Y-B three phase fault with delayed fault clearance time of 1120 msec is observed).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total 08 events out of 18 grid events occurred in the month. In 02 (no.) of grid events, there was no fault in the grid.

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

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

***CGM(NRLDC) further shared that all the above events will be discussed in detail in the upcoming Protection Sub-committee meeting of NRPC.***

**B.10 Details of tripping of Inter-Regional lines from Northern Region for September’ 24**

To be discussed in detail in the upcoming Protection Sub-committee meeting of NRPC.

**B.11 Status of submission of DR/EL and tripping report of utilities for the month of September’24**

To be discussed in detail in the upcoming Protection Sub-committee meeting of NRPC.

**B.12 Frequency response performance for the reportable events of month of September 2024**

NRLDC representative shared that in the month of September 2024, only 1 no. of reportable event on 13th September 2024 was notified by NLDC for which FRC/

FRP need to be calculated and the same along with high resolution data need to be submitted to RLDC.

Description of the event is as given below:

| **Event Date** | **Time (In hrs.)** | **Event Description** | **Starting Frequency (in Hz)** | **Nadir Frequency (in Hz)** | **End Frequency (in Hz)** | ***Δf*** | **NR FRP during the event** |
|---|---|---|---|---|---|---|---|
| 13-Sep-24 | 13:15 hrs | As reported, at 13:15 hrs on 13th September, 2024, RE generation loss event of around 850 MW occurred in RE generation complex of Rajasthan, NR. Hence net generation loss of 850 MW is considered for FRC/FRP Calculation. | 50.229 | 50.099 | 50.144 | -0.085 | 0.72 |

Status of FRC/FRP computation and reporting was shown as:

| S. No | Control Area | Event Date |
|---|---|---|
| | | 13-09-2024 |
| 1 | Punjab | Not Received |
| 2 | Haryana | Received |
| 3 | Rajasthan | Not Received |
| 4 | Delhi | Received* |
| 5 | Uttar Pradesh | Received* |
| 6 | Uttarakhand | Not Received |
| 7 | Chandigarh* | NA |
| 8 | Himachal Pradesh | Not Received |
| 9 | J&K(UT) and Ladakh(UT) | Not Received |
| 10 | Dadri -1 (TH) | Received |
| 11 | Dadri -2 (TH) | Received |
| 12 | Jhajjar (TH) | Received |
| 13 | Rihand-1 (TH) | Not Received |
| 14 | Rihand-2 (TH) | Not Received |
| 15 | Rihand-3 (TH) | Not Received |
| 16 | Shree Cement (TH) | Not Received |
| 17 | Singrauli (TH) | Not Received |
| 18 | Tanda-2 (TH) | Received |
| 19 | Unchahar stg-4 (TH) | Not Received |
| 20 | Unchahar (TH) | Not Received |
| 21 | Anta (G) | No Gen |
| 22 | Auraiya (G) | Received |
| 23 | Dadri (G) | No Gen |
| 24 | AD Hydro (H) | No Gen |
| 25 | Bairasiul (H) | No Gen |
| 26 | Bhakra (H) | Received |
| 27 | Budhil (H) | Not Received |

| S. No | Control Area | Event Date |
|---|---|---|
| | | 13-09-2024 |
| 28 | Chamera-1 (H) | Received |
| 29 | Chamera-2 (H) | Not Received |
| 30 | Chamera-3 (H) | No Gen |
| 31 | Dehar (H) | Not Received |
| 32 | Dhauliganga (H) | Not Received |
| 33 | Dulhasti (H) | Received |
| 34 | Karcham (H) | Not Received |
| 35 | Kishanganga | Not Received |
| 36 | Koldam (H) | Received |
| 37 | Koteshwar (H) | Not Received |
| 38 | Malana-2 (H) | Received |
| 39 | Nathpa Jhakri (H) | Received |
| 40 | Parbati-2 (H) | NA |
| 41 | Parbati-3 (H) | Received |
| 42 | Pong (H) | Not Received |
| 43 | Rampur (H) | Not Received |
| 44 | Sainj (H) | Received |
| 45 | Salal (H) | Received |
| 46 | Sewa-II (H) | Not Received |
| 47 | Singoli Bhatwari (H) | Not Received |
| 48 | Sorang (H) | No Gen |
| 49 | Tanakpur (H) | Not Received |
| 50 | Tehri (H) | Not Received |
| 51 | Uri-1 (H) | No Gen |
| 52 | Uri-2 (H) | Received |

***CGM(NRLDC) highlighted that recently NRLDC organized an online workshop on "Frequency Response Performance of Generators and States in Northern Region" was conducted by NRLDC Protection team on 03rd September 2024 to have a clear and uniform understanding among stakeholders (SLDCs/ Regional entity generators) regarding methodology and timeline for calculation of FRP.***

Utilities that were still non-compliant in sharing their FRC/FRP data were requested to provide reasons for the delay.

***Tehri representative submitted that they have submitted the required data on 03rd October itself and therefore there name may be corrected in the list of non-compliant generators.***

***All the others utilities agreed to timely send the FRC/FRP data as per the regulations of IEGC 2023.***

CGM (NRLDC) also assured that if any utility feels the need for additional training on the subject, NRLDC would be more than willing to conduct a second session. He acknowledged that the topic is complex, and it is possible that some participants may not have fully grasped all aspects during the initial training.

***MS (NRPC) and CGM (NRLDC) suggested that the commercial issues related to the calculation of FRC/FRP, and β-calculation, as raised by representatives from NTPC, NHPC, SJVNL, and others, should be discussed in detail in a separate dedicated meeting or commercial meeting of NRPC.***

MS(NRPC) also requested that agenda points for this discussion be submitted at least 4-5 days prior to the meeting. This advance submission would allow for a thorough analysis of the issues beforehand to facilitate more effective decision-making during the meeting.

NRLDC representative further shared the FRC/FRP computation of states and generators of Northern region as below:

| S. No | Control Area | Event Date |
|---|---|---|
| | | 13-09-2024 |
| 1 | Punjab | 0.64 |
| 2 | Haryana | 1.07 |
| 3 | Rajasthan | 0.28 |
| 4 | Delhi | -1.76 |
| 5 | Uttar Pradesh | 0.50 |
| 6 | Uttarakhand | -0.19 |
| 7 | Chandigarh* | NA |
| 8 | Himachal Pradesh | -1.54 |
| 9 | J&K(UT) and Ladakh(UT) | -0.08 |
| 10 | Dadri -1 (TH) | -1.63 |
| 11 | Dadri -2 (TH) | 0.03 |
| 12 | Jhajjar (TH) | -0.09 |
| 13 | Rihand-1 (TH) | 0.04 |
| 14 | Rihand-2 (TH) | 0.11 |
| 15 | Rihand-3 (TH) | 0.00 |
| 16 | Shree Cement (TH) | 3.60 |
| 17 | Singrauli (TH) | -0.33 |
| 18 | Tanda-2 (TH) | -0.08 |
| 19 | Unchahar stg-4 (TH) | -0.14 |
| 20 | Unchahar-I TPS | 0.02 |
| 21 | Unchahar-II TPS | No Gen |
| 22 | Unchahar-III TPS | 4.51 |
| 23 | Anta (G) | No Gen |
| 24 | Auraiya (G) | No Gen |
| 25 | Dadri (G) | No Gen |
| 26 | AD Hydro (H) | -0.01 |
| 27 | Bairasiul (H) | 0.00 |
| 28 | Bhakra (H) | -0.37 |

| S. No | Control Area | Event Date |
|---|---|---|
| | | 13-09-2024 |
| 29 | Budhil (H) | 0.17 |
| 30 | Chamera-1 (H) | No Gen |
| 31 | Chamera-2 (H) | 1.43 |
| 32 | Chamera-3 (H) | 1.64 |
| 33 | Dehar (H) | -1.33 |
| 34 | Dhauliganga (H) | 10.42 |
| 35 | Dulhasti (H) | 4.32 |
| 36 | Karcham (H) | 5.87 |
| 37 | Kishenganga | -0.22 |
| 38 | Koldam (H) | 4.28 |
| 39 | Koteshwar (H) | 21.83 |
| 40 | Malana-2 (H) | NA |
| 41 | Nathpa Jhakri (H) | 3.12 |
| 42 | Parbati-2 (H) | 0.00 |
| 43 | Parbati-3 (H) | 0.00 |
| 44 | Pong (H) | -1.01 |
| 45 | Rampur (H) | 6.43 |
| 46 | Sainj (H) | 0.00 |
| 47 | Salal (H) | -0.18 |
| 48 | Sewa-II (H) | No Gen |
| 49 | Singoli Bhatwari (H) | 0.69 |
| 50 | Sorang (H) | -0.21 |
| 51 | Tanakpur (H) | No Gen |
| 52 | Tehri (H) | 15.89 |
| 53 | Uri-1 (H) | 4.49 |
| 54 | Uri-2 (H) | 0.00 |

CGM(NRLDC) asked all the underperforming utilities to analyse the issue of poor performance.

***Representative from Karcham submitted that during the high inflow season for hydro plants, they are required to operate the machines at full overload to avoid water spillage. In such cases, to maintain frequency response, they sometimes inject more than 110% of the scheduled power. This results in***

***penalties for exceeding the schedule and also leads to violations of the generation overload limit. Therefore, he requested that frequency response be disabled during the high inflow season. This suggestion was supported by other hydro generators.***

***In response, the MS (NRPC) and CGM (NRLDC) requested all concerned generators to provide detailed information on this issue, indicating that it will be discussed in depth in the upcoming NRPC Commercial meeting.***

NRLDC representative further shared the list of generators who have confirmed the droop settings set as per the IEGC 2023 as follows:

| Sl. No. | Entity | Capacity(MW) | Governor Mode (FGMO as per IEGC 2023) Yes or No | Drrop setting (%) | Remarks (if any) |
|---|---|---|---|---|---|
| 1 | Dadri-1 (TH) | 4*200 | | | |
| 2 | Dadri -2 (TH) | 2*490 | | | |
| 3 | Jhajjar (TH) | 3*500 | | | |
| 4 | Rihand-1 (TH) | 2*500 | Yes | 5.0 | Under Implementation |
| 5 | Rihand-2 (TH) | 2*500 | Yes | 5.0 | Under Implementation |
| 6 | Rihand-3 (TH) | 2*500 | Yes | 5.0 | Under Implementation |
| 7 | Shree Cement (TH) | ( 2 * 150 ) | | | |
| 8 | Singrauli (TH) | 2*500+5*200 | | | |
| 9 | Tanda-2 (TH) | 2*660 | | | |
| 10 | Unchahar stg-4 (TH) | 1*500 | | | |
| 11 | Unchahar (TH) | 2*210 | | | |
| 12 | Anta (G) | (1 * 153.2 + 3 * 88.71 ) | | | |
| 13 | Auraiya (G) | ( 2 * 109.3 + 4 * 111.19 ) | | | |
| 14 | Dadri (G) | ( 2 * 154.51 + 4 * 130.19 ) | | | |
| 15 | AD Hydro (H) | ( 2 * 96 ) | YES | 4.0 | - |
| 16 | Bairasiul (H) | ( 3 * 60 ) | Yes | 4.0 | |
| 17 | Bhakra (H) | ( 5 * 126 + 5 * 157 ) | | | |
| 18 | Budhil (H) | ( 2 * 35 ) | | | |
| 19 | Chamera-1 (H) | ( 3 * 180 ) | Yes | 5.0 | |
| 20 | Chamera-2 (H) | ( 3 * 100 ) | Yes | 5.0 | |
| 21 | Chamera-3 (H) | ( 3 * 77 ) | Yes | 4.0 | |
| 22 | Dehar (H) | ( 6 * 165 ) | | | |

| Sl. No. | Entity | Capacity(MW) | Governor Mode (FGMO as per IEGC 2023) Yes or No | Drrop setting (%) | Remarks (if any) |
|---|---|---|---|---|---|
| 23 | Dhauliganga (H) | ( 4 * 70 ) | Yes | 5.0 | |
| 24 | Dulhasti (H) | ( 3 * 130 ) | Yes | 5.0 | |
| 25 | Karcham (H) | ( 4 * 261.25 ) | Yes | 5.0 | |
| 26 | Kishenganga | ( 3 * 110 ) | Yes | 4.0 | |
| 27 | Koldam (H) | ( 4 * 200 ) | Yes | 4.0 | |
| 28 | Koteswar (H) | ( 4 * 100 ) | Yes | 4.0 | |
| 29 | Malana-2 (H) | ( 2 * 50 ) | | | |
| 30 | Nathpa Jhakri (H) | ( 6 * 250 ) | Yes | 5.5 | |
| 31 | Parbati-2 (H) | ( 4 * 200 ) | | | |
| 32 | Parbati-3 (H) | ( 4 * 130 ) | Yes | 4.0 | |
| 33 | Pong (H) | ( 6 * 66 ) | | | |
| 34 | Rampur (H) | ( 6 * 68.67 ) | | | |
| 35 | Sainj (H) | ( 2 * 50 ) | | | |
| 36 | Salal (H) | ( 6 * 115 ) | Yes | 3.0 | |
| 37 | Sewa-II (H) | ( 3 * 40 ) | Yes | 4.0 | |
| 38 | Singoli Bhatwari (H) | ( 3 * 33 ) | | | |
| 39 | Sorang (H) | ( 2 * 50 ) | | | |
| 40 | Tanakpur (H) | ( 1 * 31.42 + 2 * 31.4 ) | Yes | 4.0 | |
| 41 | Tehri (H) | ( 4 * 250 ) | Yes | 4.0 | |
| 42 | Uri-1 (H) | ( 4 * 120 ) | Yes | 6.0 | |
| 43 | Uri-2 (H) | ( 4 * 60 ) | Yes | 5.0 | |

***Jhajjar representative submitted that they have complied with the FGMO status.***

***Representative from Rampur informed the forum about the unique tandem operation setup between the Rampur and Nathpa Jhakri plants. In this configuration, the droop setting applied at Nathpa Jhakri is automatically mirrored by the Rampur plant, meaning Rampur has no separate provision for setting its own droop independently. Nathpa Jhakri acts as the "master" in this arrangement, with Rampur operating as the "slave," as Nathpa Jhakri is located upstream of the Rampur plant.***

***NRLDC representative requested that if any change in the above status is there then the concerned utility should inform NRPC/NRLDC in writing through mail for the correction within a week time.***

**B.13 Mock trial run and testing of black start facilities at generating stations in Northern Region**

NRLDC representative shared that as per Indian Electricity Grid Code (IEGC) clause 34.3

*"Detailed procedures for restoration post partial and total blackout of each user system within a region shall be prepared by the concerned user in coordination with*

*the concerned SLDC, RLDC or NLDC, as the case may be. The concerned user shall review the procedure every year and update the same. The user shall carry out a mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming capability of inverter based generating station and VSC based HVDC black-start support at least once a year under intimation to the concerned SLDC and RLDC. Diesel generator sets and other standalone auxiliary supply source to be used for black start shall be tested on a weekly basis and the user shall send the test reports to the concerned SLDC, RLDC and NLDC on a quarterly basis".*

It was informed that the dead bus charging of Kishanganga HEP, Sala HEP, and Dadri GPS is scheduled for October 2024; however, the respective utilities have not yet provided firm dates for this exercise. In response, the NHPC representative agreed to share an update via email shortly.

***CGM (NRLDC) then inquired whether similar black start exercises are regularly conducted for intra-state generators.***

***Punjab representative confirmed that the RSD plant, which has black start capability, undergoes regular black start exercises.***

***UP representative added that they also conduct regular black start exercises at Rihand HEP.***

***Members were requested to share the tentative schedule of mock black start exercise of generating stations in their respective control area. SLDCs are also requested to share the tentative schedule plan of mock black start exercise of generating stations in their respective control area and share the report of the same.***

## B.14 Mock testing of System Protection Schemes (SPS) in Northern Region

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

To ensure correct operation of SPS as per designed logic, 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

In view of the above, concerned constituents / utility are requested to share the tentative schedule plan for conducting mock testing of SPS in their respective control area during 2024-25 in format attached as **Annexure-B.VII of Agenda.** In this regard, a communication has already been sent to constituents through NRLDC letter dated 01.05.2024.

Details only received from Uttarakhand & UP.

It was also informed that SPS link of HVDC Mundra-Mahindergarh inter regional link is also not healthy. Follow up and discussion for necessary remedial actions are being done. In view of the same, cconstituents were also requested to share the nodal officer for coordination with the ADANI team for further remedial actions. Details received from UP, Punjab, Rajasthan & Haryana. BBMB & Delhi are requested to share the details of their control area at the earliest.

***ADANI was requested to coordinate with the respective states to rectify the issues in the SPS system and share the status of remedial action taken / planned to be taken. Desired remedial actions need to be expedited.***

***ADANI representative agreed for the same and sharing the remedial action taken by them at the earliest.***

It was also decided that the issue of Mundra – Mohindergarh SPS will also be dealt in detail in the upcoming Protection sub-committee of NRPC.

***All members agreed for the carrying out mock testing of SPS.***

**B.15 Availability and Standardization of recording instrument (Disturbance recorder and Station Event Logger)**

NRLDC representative shared that as per IEGC clause 17

1) *All users shall keep the recording instruments (disturbance recorder and event logger) in proper working condition.*

2) *The disturbance recorders shall have time synchronization and a standard format for recording analogue and digital signals.*

*IEGC clause 37.2 (c) also mandates the submission of Disturbance Recorder* (DR), station Event Logger (EL), Data Acquisition System (DAS) within 24 hrs of the event.

Data of recording instruments (DR/EL) are very helpful in grid event analysis and also is being used in availability verification of transmission lines. Complete and conclusive analysis of any grid event is not possible without these recording instruments and thus their standardisation is very important.

Therefore, availability of disturbance recorder with standardisation, time sync and correct nomenclature and station event logger need to be ensured by users at the station of their respective control area.

In view of above, all the constituents are requested share the details w.r.t. availability and standardisation of disturbance recorder and event logger at the station of their respective control area in approved format.

Details were only received from Haryana, Uttarakhand & UP.

In some special cases First Time Charging of Elements were allowed for some critical elements on user request based on undertaking submitted by the user. Majority of these undertaking are related to installation of station event logger or non-functionality of station event logger.

In this view, it was requested to submit the status of work regarding undertaking submitted during First Time Charging of elements listed in **Annexure-B.IX of agenda**.

***Members were requested to share the share the details w.r.t. availability and standardization of disturbance recorder and event logger at the station of their respective control area. Members are also requested to submit the status of work regarding undertaking submitted during First Time Charging of elements.***

***Meeting ended with vote of thanks to Chair.***

| List of Participants 224th OCC Meeting 18.10.2024 | | | |
|---|---|---|---|
| **S.N.** | **Name** | **Designation** | **Organization** |
| 1 | V.K. Singh | Member Secretary | NRPC |
| 2 | Pushpa Rao | PSO- NRPC | NRPC |
| 3 | D.K. Meena | SE-NRPC | NRPC |
| 4 | Omkishor | EE-NRPC | NRPC |
| 5 | Vipul Kumar | AEE (O) | NRPC |
| 6 | Rajat Dixit | AEE-NRPC | NRPC |
| 7 | Lokesh Agrawal | AEE-NRPC | NRPC |
| 8 | Omprakash Rajput | AE-NRPC | NRPC |
| 9 | Somara Lakra | Chief General Manager | NRLDC |
| 10 | Bikas Kr. Jha | DGM | NRLDC |
| 11 | Gaurav Singh | Chief Manager | NRLDC |
| 12 | K Satish Kumar | Assistant Director | CEA |
| 13 | Darshit Kataria | Assistant Director | CEA |
| 14 | Yatin Sharma | Manager | CTUIL |
| 15 | Neeraj Kumar | DGM | POWERGRID NR-1 |
| 16 | Shafat Ahmad Wani | Senior General Manager | POWERGRID NR-2 |
| 17 | Rakesh Kumar Gupta | Chief Manager | POWERGRID NR-2 |
| 18 | Anoop D Mishra | DGM-SS/AM | POWERGRID NR-3 |
| 19 | Hitesh Rastogi | DGM (OS) | NTPC LTD |
| 20 | Rajeev Agarwal | DGM | SJVN Limited |
| 21 | Rakesh Kumar | JO | SJVN Limited |
| 22 | S K Mishra | GM (O & M) | NHPC |
| 23 | Vijay Kumar | GSM (O & M) | NHPC |
| 24 | Amandeep Singh | Power Controller | BBMB |
| 25 | Narendera Kr. Jangir | Deputy Manager | THDC India Ltd. |
| 26 | Ganesh Mishra | Dy. GM (O & M) | THDCIL (Koteshwar HEP) |
| 27 | Sameer Rai | Technical Services Superintendent RAPS-C | NPCIL |
| 28 | Jyoti Dahiya | DGM Commericial | NPCIL |
| 29 | Dinesh Kumar Shringi | SO/F | NPCIL, RAPS-C |
| 30 | Pankaj Saxena | Superintending Engineer | UPPTCL |
| 31 | K.K Meena | Director Technical | RVPNL |
| 32 | Manish Athiaya | Addl. Chief Engineer | Rajasthan SLDC |
| 33 | Sona Shisodiya | Superintending Engineer | Rajasthan SLDC |
| 34 | Kamal Patidar | Executive Engineer | Rajasthan SLDC |
| 35 | Sanjay Mathur | Executive Engineer | RVPNL |
| 36 | N. P. Sharma | Executive Engineer | RVPNL |
| 37 | Dr. O. P. Mahela | Executive Engineer | RVPNL |
| 38 | Ramneet Chanana | Deputy Manager | DTL |
| 39 | Bharat Lal Gujar | Addl. GM | DTL |
| 40 | H S Hyanki | CE(O & M) | PTCUL |
| 41 | Er. BL Thakur | Managing Director | HPSLDC |
| 42 | Er. Rohit Kumar | Assistant Engineer | HPSLDC |
| 43 | Sanjay Jaiswal | Executive Engineer | UPSLDC |
| 44 | Bhanu Pratap Sharma | Executive Engineer | UPSLDC |
| 45 | Amit Kumar Singh | SE | Uttarakhand SLDC |
| 46 | Rajeev Kumar Tayal | Chief Engineer, SO & Commercial | HVPNL Haryana SLDC |
| 47 | Ashok Kumar | DGM(T)SO | Delhi SLDC |
| 48 | Er. Nitish Bansal | Sr. XEN/SLDC(Op.) | Punjab SLDC |
| 49 | Jai Ram | XEN/SLDC(Op.) | Haryana SLDC |
| 50 | Harsh Singh | Superintending Engineer | RVUNL |
| 51 | Vinod Kumar Agarwal | Superintending Engineer | RVUNL |
| 52 | Suresh Kumar Parjapati | Assistant Engineer | RVUNL |
| 53 | Sandeep Kumar | Addl. SE | PSPCL |
| 54 | Suneel Kumar | Executive Engineer | UPRVUNL |
| 55 | Raguvendra Singh Dewra | GM | Adani Power Limited |
| 56 | Jeetendra Nigam | Assistant VP | Rosa Power Supply Company Ltd |
| 57 | Avinash Kumar | VP-Operation | LPGCL Lalitpur |
| 58 | Naveen C Sharma | Addl. GM | CCGT Bawana IPGCL-PPCL |
| 59 | Amit Hooda | Sr. Manager | APCPL-IGSTPS Jhajjar |
| 60 | Sanjay Bhargava | Head-C&R | PPGCL, Bara |
| 61 | Imran Khan | Station Head Chhayan | TPREL |
| 62 | Pratul Gupta | DGM | Greenko Group |

Status of action taken on decision of 223rd OCC meeting of NRPC

| S.N. | Agenda | Decision of 223rd OCC meeting of NRPC | Status of action taken |
|---|---|---|---|
| 1 | A.12. Installation of Control switch devices in 400KV Kalaamb Wangtoo and Kalaamb Sorang lines at PKATL Substation KALAAMB to control switching surges (Agenda by Powergrid NR-2) | Forum asked POWERGRID to submit report including space related constraint in reactor shifting and effectiveness of CSD relay. Thereafter, decision may be taken in next OCC meeting. | POWERGRID has submitted an agenda in this regard. |

## Follow up issues from previous OCC meetings

Annexure-A.I

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.</td><td>List of downstream networks is enclosed in Annexure-A.I.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:<br>◎ CHANDIGARH — Sep-2019<br>◎ DELHI — Jul-2024<br>◎ HARYANA — Aug-2024<br>◎ HP — Sep-2024<br>◎ J&K and LADAKH — Not Available<br>◎ PUNJAB — Sep-2024<br>◎ RAJASTHAN — Sep-2024<br>◎ UP — Sep-2024<br>◎ UTTARAKHAND — Sep-2024<br>All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td>Data upto following months, received from various states / UTs:<br>◎ CHANDIGARH — Not Available<br>◎ DELHI — Sep-2024<br>◎ HARYANA — Sep-2024<br>◎ HP — Aug-2024<br>◎ J&K and LADAKH — Not Available<br>◎ PUNJAB — Sep-2024<br>◎ RAJASTHAN — Jun-2024<br>◎ UP — Sep-2024<br>◎ UTTARAKHAND — Sep-2024<br>◎ BBMB — Jun-2024<br>All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest .</td></tr>
<tr><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>Status:<br>◎ CHANDIGARH — Not Available<br>◎ DELHI — Increased<br>◎ HARYANA — Increased<br>◎ HP — Increased<br>◎ J&K and LADAKH — Increased<br>◎ PUNJAB — Increased<br>◎ RAJASTHAN — Increased<br>◎ UP — Increased</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>◎</td><td>UTTARAKHAND</td><td>Increased</td></tr>
<tr><td>◎</td><td>BBMB</td><td>Increased</td></tr>
</table>
</td></tr>
<tr><td>4</td><td>Status of FGD installation vis-à-vis installation plan at identified TPS</td><td>List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed.<br>Further, progress of FGD installation work on monthly<br>basis is monitored in OCC meetings.</td><td>Status of the information submission (month) from states / utilities is as under:<br>
<table>
<tr><td>◎</td><td>HARYANA</td><td>Jun-2024</td></tr>
<tr><td>◎</td><td>PUNJAB</td><td>Jun-2024</td></tr>
<tr><td>◎</td><td>RAJASTHAN</td><td>Jul-2024</td></tr>
<tr><td>◎</td><td>UP</td><td>Jan-2024</td></tr>
<tr><td>◎</td><td>NTPC</td><td>Feb-2023</td></tr>
</table>
FGD status details are enclosed as Annexure-A.I.II.<br>All States/utilities are requested to update status of FGD installation progress on monthly basis.</td></tr>
<tr><td>5</td><td>Submission of breakup of Energy Consumption by the states</td><td>All states/UTs are requested to submit the requisite data as per the billed data information in the format given as under:<br>
<table>
<tr><td>Category→</td><td>Consumption by Domestic Loads</td><td>Consumption by Commercial Loads</td><td>Consumption by Agricultural Loads</td><td>Consumption by Industrial Loads</td><td>Traction supply load</td><td>Miscellaneous / Others</td></tr>
<tr><td><Month></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
</table></td><td>Status of the information submission (month) from states / utilities is as under:<br>
<table>
<tr><td></td><td>State / UT</td><td>Upto</td></tr>
<tr><td>◎</td><td>CHANDIGARH</td><td>Not Submitted</td></tr>
<tr><td>◎</td><td>DELHI</td><td>Jun-24</td></tr>
<tr><td>◎</td><td>HARYANA</td><td>Aug-24</td></tr>
<tr><td>◎</td><td>HP</td><td>Aug-24</td></tr>
<tr><td>◎</td><td>J&K and LADAKH</td><td>JPDCL- Mar'24<br>KPDCL- Not Submitted</td></tr>
<tr><td>◎</td><td>PUNJAB</td><td>Aug-24</td></tr>
<tr><td>◎</td><td>RAJASTHAN</td><td>Jul-24</td></tr>
<tr><td>◎</td><td>UP</td><td>Jun-24</td></tr>
<tr><td>◎</td><td>UTTARAKHAND</td><td>Jun-24</td></tr>
</table>
Chandigarh is requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format</td></tr>
<tr><td>6</td><td>Information about variable charges of all generating units in the Region</td><td>The variable charges detail for different generating units are available on the MERIT Order Portal.</td><td>All states/UTs are requested to submit daily data on MERIT Order Portal timely.</td></tr>
<tr><td>7</td><td>Status of Automatic Demand Management System in NR states/UT's</td><td>The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:</td><td>The status of ADMS implementation in NR is enclosed in Annexure-A.I.II.<br>
<table>
<tr><td>◎</td><td>DELHI</td><td>Scheme Implemented but operated in manual mode.</td></tr>
<tr><td>◎</td><td>HARYANA</td><td>Scheme not implemented</td></tr>
<tr><td>◎</td><td>HP</td><td>Scheme not implemented</td></tr>
<tr><td>◎</td><td>PUNJAB</td><td>Scheme not implemented</td></tr>
<tr><td>◎</td><td>RAJASTHAN</td><td>Under implementation.</td></tr>
<tr><td>◎</td><td>UP</td><td>Scheme implemented by NPCIL only</td></tr>
</table></td></tr>
</table>

| | | | | | |
|---|---|---|---|---|---|
| | | | ◎ | UTTARAKHAND | Scheme not implemented |

| 8 | Reactive compensation at 220 kV/ 400 kV level at 8 substations | | | |
|---|---|---|---|---|
| | State / Utility | Substation | Reactor | Status |
| i | DTL | Peeragarhi | 1x50 MVAr at 220 kV | 1x50 MVAr Reactor at Peeragarhi has been commissioned on dated 18.09.2023 |
| ii | DTL | Harsh Vihar | 2x50 MVAr at 220 kV | 2x50 MVAR Reactor at Harsh Vihar has been commissioned on dated 31th March 2023. |
| iii | DTL | Mundka | 1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV | Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision. |
| iv | DTL | Bamnauli | 2x25 MVAr at 220 kV | Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision. |
| v | DTL | Indraprastha | 2x25 MVAr at 220 kV | Bay work completed on 07.11.2023. Reactor part tender is dropped and at present same is under revision. |
| vi | DTL | Electric Lane | 1x50 MVAr at 220 kV | Under Re-tendering due to Single Bid |
| vii | PTCUL | Kashipur | 1x125 MVAR at 400 kV | SLDC informed that PTCUL has intimated that bid extension has been done till 18.07.2024. In 220th OCC meeting, PTCUL was suggested to seek assistance from Powergrid in |
| viii | RAJASTHAN | Jodhpur | 1x125 MVAr | Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 & work order placed on dt. 07.04.2022 to M/s Kanohar Electricals Ltd. Schedule time is 18 months. 01 No. of 125 MVAR reactor is under testing which is expected to done by end of May 2024. Tentaive charging plan is to be intimated by Rajasthan SLDC. |

Annexure-A-I.I

**1. Down Stream network by State utilities from ISTS Station:**

| Sl. No. | Substation | Downstream network bays | Status of bays | Planned 220 kV system and Implementation status | Revised Target | Remarks |
|---|---|---|---|---|---|---|
| 1 | 400/220kV, 3x315 MVA Samba | Commissioned: 8<br>Total: 8 | Utilized: 6<br>Unutilized: 2 | • Network to be planned for 2 bays. | Mar'25 | 02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to persisting RoW issues. expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 220th OCC by JKPTCL. |
| 2 | 400/220kV, 2x315 MVA New Wanpoh | Commissioned: 6<br>Total: 6 | Utilized: 2<br>Unutilized: 4 | • 220 kV New Wanpoh - Alusteng D/c Line | Mar'25 | 02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. RoW issues persisting; At present new-wampoh-mirbazar 5km and harwan-alstung 16km have been completed, expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 214th OCC by JKPTCL. |
| | | | | • 220 kV New Wanpoh - Mattan D/c Line | End of 2024 | 02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL. |
| 3 | 400/220kV, 2x315 MVA Amargarh | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri | End of 2024 | 02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL. |
| 4 | 400/220kV, 2x500 MVA Kurukshetra (GIS) | Commissioned: 8<br>Total: 8 | Utilized: 6<br>Unutilized: 2 | • 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line | Mar'25 | Under construction.Updated in 222nd OCC by HVPNL |
| 5 | 400/220 kV, 2x315 MVA Dehradun | Commissioned: 6<br>Total: 6 | Utilized: 2<br>Unutilized: 4 | • Network to be planned for 4 bays | - | PTCUL to update the status. |
| 6 | Shahjahanpur, 2x315 MVA 400/220 kV | Commissioned: 6<br>Approved/Under Implementation:1 | Utilized: 7 | • 220 kV D/C Shahajahanpur (PG) - Gola line | Commissioned | Energization date: 26.10.2023 updated by UPPTCL in 215th OCC |
| | | | | • LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG) | Commissioned | Energization date: 25.02.2022 updated by UPPTCL in 196th OCC |
| 7 | Hamirpur 400/220 kV Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 4<br>Unutilized: 4 | • 220 kV Hamirpur-Dehan D/c line | Commissioned | HPPTCL has commissioned the Planned 220kV Dehan-Hamirpur TL utilizing 2 No. 220kV Bays.Commisioned date: 09.06.2022. Updated in 198th OCC by HPPTCL |
| | | | | • Network to be planned for 4 bays | - | HPPTCL to update the status. |
| 8 | Sikar 400/220kV, 1x 315 MVA S/s | Commissioned: 8<br>Total: 8 | Utilized: 6<br>Unutilized: 2 | • LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG) | Commissioned | LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022 |
| | | | | • Network to be planned for 2 bays. | - | Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC |
| 9 | Bhiwani 400/220kV S/s | Commissioned: 6<br>Total: 6 | Utilized: 2<br>Unutilized: 4 | • 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line | Commissioned | Updated in 202nd OCC by HVPNL |
| | | | | • 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line. | Dec'24 | Issue related to ROW as intimated in 218th OCC by HVPNL.<br>**Status:**<br>Work was stalled since 29.07.2021 due to ROW issues and farmers agitation and further restarted on 9.10.2023 with the help of district administration. Now, work was again stalled since30.11.2023 due to severe ROW issues.<br>Expected to be completed by 31.12.2024.<br>Foundation 209/212. Erection 193/212. Stinging 37.8/50.3 km |
| | | | | • 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line. | Oct'25 | Line work awarded to M/s R S Infra Projects Pvt. Ltd. Noida, Uttar Pardesh on dated 09.03.2024. Work of route plan and route alignment has been started by the firm as intimated in 218th OCC by HVPNL. |
| 10 | Jind 400/220kV S/s | Commissioned: 4<br>Approved:4<br>Total: 8 | Utilized: 4<br>Unutilized: 0 | • LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor | Dec'24 | Work in progress. Updated in 220th OCC by HVPNL. |
| 11 | 400/220kV Tughlakabad GIS | Commissioned: 6<br>Under Implementation: 4 | Utilized: 6<br>Unutilized: 0 | • RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023. | Commissioned | Updated in 216th OCC by DTL |
| | | | | • Masjid Mor – Tughlakabad 220kV D/c line. | Commissioned | Updated in 216th OCC by DTL |

| Sl. No. | Substation | Downstream network bays | Status of bays | Planned 220 kV system and Implementation status | Revised Target | Remarks |
|---|---|---|---|---|---|---|
| 12 | 400/220kV Kala Amb GIS (TBCB) | Commissioned: 6<br>Total: 6 | Utilized: 2<br>Unutilized: 2<br>Under Implementation:2 | • HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s | Commissioned | Energization date: 31.05.2024 updated by HPPTCL in 220th OCC |
| | | | | • HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Giri S/s | - | Tendering process is yet to be started.Updated in 219th OCC by HPPTCL |
| | | | | • Network to be planned for 2 bays | - | HPPTCL to update the status. |
| 13 | 400/220kV Kadarpur Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 0<br>Unutilized: 8 | • D/C line Kadarpur - Sec-56 Gurugram. | Not awarded yet | Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue.<br>Proposal to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL |
| | | | | • S/C line Kadarpur - Sec-52 Gurugram | Not awarded yet | Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue.<br>Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL |
| | | | | • S/C line Kadarpur - Pali | Not awarded yet | Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue.<br>Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL |
| 14 | 400/220kV Sohna Road Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 4<br>Unutilized: 4 | • LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road | Dec'24 | Updated in 216th OCC by HVPNL |
| | | | | • LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road | - | The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 205th OCC by HVPNL.<br>**Status:-**<br>Earlier 02 nos 220 kV line bays were to be utilized for the 220 kV GIS S/Stn. Sec-77, Gurugram but due to denotification of land of the 220 kV GIS S/Stn. Sec-77 the said substation is now going to be dismantled and a new substation is proposed at Sec-75A, Gurugram. Now, these 02 no. 220 kV line bays may be utilized at 220 kV GIS S/Stn Sec-75A, Gurugram. |
| 15 | 400/220kV Prithla Sub-station | Commissioned: 8<br>Aprroved: 2<br>Total: 10 | Utilized: 4<br>Unutilized: 4<br>Under Implementation:2 | • 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali | Mar'25 | Contract awarded on 08.08.23 to M/s Skipper with completion in March 25.Updated in 218th OCC by HVPNL |
| | | | | • LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line | Commissioned | Energization date: 31.12.2021. Updated in 198th OCC by HVPNL |
| | | | | • 220kV D/C for Sector78, Faridabad | 31.01.2025 | Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 223rd OCC by HVPNL. |
| | | | | • Prithla - Sector 89 Faridabad 220kV D/c line | Jul'25 | Work awarded to M/s Man Structurals Pvt Ltd. JV M/s Aquarian Enterprises on 09.01.2024.<br>Contractual date: 06.05.2025 and Tentative date of completion :06.05.2025<br>Route has been approved and further work is in progress.Updated in 218th OCC by HVPNL |
| 16 | 400/220kV Sonepat Sub-station | Commissioned: 6<br>Under Implementation:2<br>Total: 8 | Utilized: 2<br>Unutilized: 4<br>Under Implementation:2 | • LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat | 31.12.2024 | Updated in 224th OCC by HVPNL.<br>**Status:**<br>The stringing work between TL No. 19 & 20, TL No. 22 & 23 and TL No. 22 & 24 is pending for want of necessary consent from the forest department.<br>The case has already been uploaded on Parivesh portal and is currently pending at the O/o AIGF, Forest Dept. Panchkula. |
| | | | | • Sonepat - HSIISC Rai 220kV D/c line | Commissioned | Energization date: 31.05.2024 updated by HVPNL in 220th OCC |
| | | | | • Sonepat - Kharkhoda Pocket A 220kV D/c line | 08.03.2025 | Updated in 212th OCC by HVPNL.<br>**Status:**<br>Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line.<br>Both bays are under construction and erection of electrical equipment is under progress.<br>Tetative date of completion of both bays at PGCIL end is end of July 2024. |
| 17 | 400/220kV Neemrana Sub-station | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG) | - | Work is under progres. Stub Setting: 14/2017.<br>Permission for Highway is awaited from concerned department as updated in 218th OCC by RVPNL. |
| 18 | 400/220kV Kotputli Sub-station | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • Kotputli - Pathreda 220kV D/c line | - | Date of bid opening has been extended up to 30.04.2024 as updated in 218th OCC by RVPNL. |
| 19 | 400/220kV Jallandhar Sub-station | Commissioned: 10<br>Total: 10 | Utilized: 8<br>Unutilized: 2 | • Network to be planned for 2 bays | Nov'24 | LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL. 6 months more are needed due to ROW issues as updated by PSTCL in 220th OCC |

| Sl. No. | Substation | Downstream network bays | Status of bays | Planned 220 kV system and Implementation status | Revised Target | Remarks |
|---|---|---|---|---|---|---|
| 20 | 400/220kV Roorkee Sub-station | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • Roorkee (PG)-Pirankaliyar 220kV D/c line | Commissioned | Roorkee (PG)-Pirankaliyar 220kV D/c line commissioned in 2020 as intimated by PTCUL in 197th OCC |
| 21 | 400/220kV Lucknow Sub-station | Commissioned: 8<br>Total: 8 | Utilized: 4<br>Unutilized: 4 | • Network to be planned for 2 bays | Commissioned | • Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL.<br>_____<br>• No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid. |
| 22 | 400/220kV Gorakhpur Sub-station | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • Network to be planned for 2 bays | Commissioned | • Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th OCC |
| 23 | 400/220kV Fatehpur Sub-station | Commissioned: 8<br>Under Implementation:2<br>Total: 10 | Utilized: 6<br>Unutilized: 2<br>Under Implementation:2 | • Network to be planned for 2 bays | - | • UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years).<br>_____<br>• No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid. |
| 24 | 400/220kV Abdullapur Sub-station | Commissioned: 10<br>Under Implementation:2<br>Total: 12 | Utilized: 10<br>Unutilized: 0<br>Under Implementation:2 | • Abdullapur – Rajokheri 220kV D/c line | Commissioned | Ckt-1 commissioned at 16:13hrs on dated 06.08.24 & Ckt-2 commissioned at 20:10 hrs on dated 05.08.24. Updated in 223rd OCC by HVPNL |
| 25 | 400/220kV Pachkula Sub-station | Commissioned: 8<br>Under tender:2<br>Total: 10<br>Out of these 10 nos. 220kV | Utilized: 2<br>Unutilized: 4<br>Under Implementation:2 | • Panchkula – Pinjore 220kV D/c line | Commissioned | Updated in 218th OCC by HVPNL |
| | | | | • Panchkula – Sector-32 220kV D/c line | Commissioned | Energization date: 24.05.2024 updated by HVPNL in 220th OCC |
| | | | | • Panchkula – Raiwali 220kV D/c line | Commissioned | Updated in 194th OCC by HVPNL |
| | | | | • Panchkula – Sadhaura 220kV D/c line: Sep'23 | Mar'25 | Updated in 222nd OCC by HVPNL |
| 26 | 400/220kV Amritsar S/s | Commissioned:7<br>Approved in 50th NRPC- 1 no.<br>Total: 8 | Utilized: 6<br>Under Implementation:2 | • Amritsar – Patti 220kV S/c line | 31.08.2024 | Issue in connectivity agreement with CTU. PSTCL has taken up the issue with CTU and accordingly CTU has been asked by OCC forum to plan a meeting with PSTCL and CEA at the earliest. Updated in 224th OCC by PSTCL. |
| | | | | • Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC) | 31.08.2024 | Issue in connectivity agreement with CTU. PSTCL has taken up the issue with CTU and accordingly CTU has been asked by OCC forum to plan a meeting with PSTCL and CEA at the earliest. Updated in 224th OCC by PSTCL. |
| 27 | 400/220kV Bagpat S/s | Commissioned: 8<br>Total: 8 | Utilized:6<br>Unutilized: 2 | • Bagpat - Modipuram 220kV D/c line | Commissioned | Updated in 201st OCC by UPPTCL |
| 28 | 400/220kV Bahardurgarh S/s | Commissioned: 4<br>Approved: 4<br>Total: 8 | Utilized:2<br>Unutilized: 2 | • LILO of 220 kV Nunamajra- Daultabad S/c line at 400 kV Bahadurgarh PGCIL | Mar'25 | Updated in 220th OCC by HVPNL.<br>**Status:**<br>NIT has been floated vide NIT No. EPC-D-96 dated 15.10.23 to be opened on 22.12.23.<br>• Now, the tender has been dropped and likely to be refloated by 31.07.2024. |
| | | | | • Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL) | Mar'25 | Updated in 220th OCC by HVPNL.<br>**Status:**<br>• Revised BOQ forwarded from Design wing to contract wing.<br>• Tender has floated vide NIT No. EPC-D-100 dated 04.01.2024 with tender opening date of 26.02.2024.<br>• Tender has been opened on 26.03.24 and 03 nos. bids has been received. The work is likely to be awarded by the 31.07.2024. |
| | | | | • Bahadurgarh - Kharkhoda Pocket B 220kV D/c line | 08.03.2025 | Updated in 220th OCC by HVPNL.<br>**Status:**<br>Contract awarded on 09.08.23 to M/s R S Infra Noida. Work has been started. |
| 29 | 400/220kV Jaipur (South) S/s | Commissioned: 4<br>Total: 4 | Utilized:2<br>Unutilized: 2 | • LILO of 220 kV S/C Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG) | 06.10.2025 | Work order has been issued on 06.10.2023, work under progress as updated by RVPNL in 215th OCC |
| 30 | 400/220kV Sohawal S/s | Commissioned: 8<br>Total: 8 | Utilized: 8 | • Sohawal - Barabanki 220kV D/c line | Commissioned | Energization date: 14.04.2018 updated by UPPTCL in 196th OCC |
| | | | | • Sohawal - New Tanda 220kV D/c line | Commissioned | Energization date: 28.05.2019 updated by UPPTCL in 196th OCC |
| | | | | • Network to be planned for 2 bays | Commissioned | • Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC<br>_____<br>• Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC |
| 31 | 400/220kV, Kankroli | Commissioned: 6<br>Total: 6 | Utilized: 4<br>Unutilized: 2 | • 220 kV D/C Kankroli(PG) - Nathdwara line | - | Standard bid document has been finalized on 13.08.2024 and bid is under preparation as updated by RVPN in 222nd OCC. |

| Sl. No. | Substation | Downstream network bays | Status of bays | Planned 220 kV system and Implementation status | Revised Target | Remarks |
|---|---|---|---|---|---|---|
| 32 | 400/220kV, Manesar | Commissioned: 8<br>Total: 8 | Utilized: 4<br>Unutilized: 4 | • Network to be planned for 2 bays | - | Status:-<br>2nos bays are being utilised for 220 kV D/C Panchgaon (PGCIL)-Panchgaon Ckt-I & 220 kV D/C Panchagon (PGCIL)-Panchgaon Ckt-II, charged on dated 05.09.2022 & 20.10.2022 respectively.<br>The 2nos bays may be utilised by HVPNL in future. |
| 33 | 400/220kV, Saharanpur | Commissioned: 6<br>Under Implementation:2<br>Total: 8 | Utilized: 6<br>Unutilized: 0<br>Under Implementation:2 | • Network to be planned for 2 bays | Commissioned | Saharanpur(PG)-Devband D/c line (Energization date: 20.04.2023) updated by UPPTCL in 207th OCC |
| 34 | 400/220kV, Wagoora | Commissioned: 10<br>Total: 10 | Utilized: 6<br>Unutilized: 4 | • Network to be planned for 4 bays | - | PDD, J&K to update the status. |
| 35 | 400/220kV, Ludhiana | Commissioned: 9<br>Total: 9 | Utilized: 8<br>Unutilized: 1 | • Network to be planned for 1 bay | Commissioned | Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work completed , final agrrement is expected to be signed by May'24. Updated in 218th OCC by PSTCL. |
| 36 | 400/220kV, Chamba (Chamera Pool) | Commissioned: 3<br>Under tender:1<br>Total: 4 | Utilized:3<br>Unutilized: 0<br>Under tender:1 | • Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line | Commissioned | Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is commissioned on 20.01.2024. Updated in 217th OCC by HPPTCL. |
| 37 | 400/220kV, Mainpuri | Commissioned: 6<br>Under Implementation:2<br>Total: 8 | Utilized: 6<br>Unutilized: 0<br>Under Implementation:2 | • Network to be planned for 2 bays | - | • 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC. |
| 38 | 400/220kV, Patiala | Commissioned: 8<br>Total: 8 | Utilized: 6<br>Unutilized: 2 | • Network to be planned for 2 bays | May'25 | 2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Tender is yet to be awarded. Timeline one year communicated by PSTCL in 220th OCC meeting |
| | | | | | | |

**Status of ADMS implementation in NR:**

| Sl. No. | State / UT | Status | Remarks |
|---|---|---|---|
| 1 | DELHI | Scheme Implemented but operated in manual mode. | A committee has been constituted under the chairmanship of GM, SLDC Delhi to formulate the logic for implementation of ADMS. Delhi SLDC informed that two meetings have been held by the committee and based on the delibration in those meetings, SoP has been formed by the committee. Delhi SLDC has shared the logic for implementation of ADMS with NRLDC for their observation and upon examination of same NRLDC has submitted its views/comments to Delhi SLDC. In 222nd OCC meeting Delhi SLDC intimated that they would be shortly having a meeting with its Discoms and NRLDC views would be delibrated in the said meeting. Delhi SLDC intimated that they have shared revised SoP with NRPC and NRLDC after incorporating the views of NRLDC In 224th OCC meeting NRLDC mentioned that logic for ADMS in revised SoP is found to be inorder, and subsequently forum asked that the pocedure may be taken up as an agenda in upcoming NRPC board meeting for approval. |
| 2 | HARYANA | Scheme not implemented | Haryana SLDC intimated that as per Joint Roadmap of implementation of ADMS in Haryana supplied to NRPC vide memo dated 17.10.2023 (Annexure-II), the implementation plan was proposed to be carried out in two parts, as mentioned below:<br><br>PART-I: Control with Transmission Utility<br><br>PART-II: Control with Distribution Utility<br><br>It is pertinent to mention that as part of upcoming SCADA-EMS system i.e. upgradation of SCADA-EMS system, a feature in the name of LSS (Load Shedding Software)/ ADMS is part of the Technical Specification of project to be delivered. Therefore, the functionalities of ADMS application will be covered under 'Part-I: Control with Transmission Utility' will already be covered using the RTUs available at select substations along with the ADMS software being delivered by M/s GE under SCADA upgradation project.<br><br>Hence, there is no need to acquire a separate ADMS application & associated hardware for data centre for implementation of PART-I.<br><br>Further for Part -II a committee has been constituted for further finalization of the ADMS module with control with Discoms is under discussions for preparation of DPR. |
| 3 | HP | Scheme not implemented | HP SLDC imentioned that HPSEB had intimated that initially 142 Nos. of feeders were identified for operation under ADMS functionality but most of these feeders were from same sub-station. Therefore, now they have increased the no. of sub-station and identified the non-critical feeders. Load relief to be given through these feeders is under finalization. The revised feeder list to be shared by HPSEBL with the SLDC within one month. |
| 4 | PUNJAB | Scheme not implemented | i. A committee comprising of following officers of PSPCL & PSTCL has been constituted to finalize the logic regarding implementation of Automatic Demand Management System in Punjab Control Area.<br>A meeting in this regard was held on dated 26-02-2024 at PSLDC Complex, Patiala. The committee deliberated various loading scenarios and proposed the following logic for the management of demand:<br>1. If the frequency sustains below 49.90 Hz for duration of 3 minutes, the Automatic Demand Management System will initiate a 50% reduction in the Over Drawl.<br>2. In case the frequency falls further below 49.85 Hz, the Over Drawl will be reduced to zero.<br>3. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation.<br>ii. In 222nd OCC, MS NRPC asked Punjab to co-ordiante with Powergrid for integration of their propsoed logic with the ULDC phase-III SCADA system for timely implementation. |
| 5 | RAJASTHAN | Under implementation. Likely completion schedule is 31.03.2024 | RVPN informed that the issue of cyber security of link between SATNAM centre and SLDC control room has been resolved. Pilot testing has been done and for different logic combination/cases testing is under progress. In 223rd OCC RVPN intimated that testing has been completed on 16th October 2024 and shortly they would be implementing the ADMS scheme in phased manner. |
| 6 | UP | Scheme implemented by NPCIL only | i. A meeting regarding ADMS was held on 15.01.2023 with the UPPCL under the chairmanship of MD UPPTCL<br>ii. A committee formed for identification of load at 33 kV level under the chairmanship of Director (Distribution), UPPCL.<br>iii. Another committee under the chairmanship of Director UPSLDC shall identify the technical and operational requirement for ADMS implementation<br>iv. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation and likely to be commissioned by March 2025.<br>v. In order to operate identified 33 kV feeders under ADMS scheme, integration of 132 kV substations with SCADA system is under implementation in the Reliable Communication Scheme and expected date of completion of the scheme is October 2024.<br>vi. MS, NRPC apprised forum that a letter has been written to Director, SLDC for co-odinatng with Director (Distribution), UPPCL for expediting the finalization of feeder list at 33kV for ADMS implementation. |
| 7 | UTTARAKHAND | Scheme not implemented | i. UPCL has prepared a system architecture in which all the non-monitored sub-stions have been selected and 11kV feeders have been considered for ADMS operation. For the scheme, discom has also done group-wise selection of feeders and quantum of MW relief to be given for automatic demand response at 11kV level has also been decided. UPCL has awarded the tender for implementation of the aforementioned scheme to M/s Metergy Pvt.Ltd.<br>ii. As per the status report submitted by M/s Metergy Pvt.Ltd, the survey work of 30 nos. incomer sites have been completed and order has been placed by UPCL for hardware equipments.<br>iii. Uttarakhand SLDC informed that feeder list at 11kV level has been finalized and logic of ADMS implementation is under finalization.<br>iv. In 222nd OCC meeting, Uttarakhand intiamted that commissioning of servers and related software has been done and supply of field equipment and infrastructure is under process . Further, New API has to be develop and integrate as new API for WBES for fetching real time schedule has been created by NRLDC. NRLDC has been requested to provide design document( having URL, data structure and credentials etc) of new API. |

# FGD Status

# Updated status of FGD related data submission

| **NTPC (27.02.2023)** |
|---|
| MEJA Stage-I |
| RIHAND STPS |
| SINGRAULI STPS |
| TANDA Stage-I |
| TANDA Stage-II |
| UNCHAHAR TPS |
| **UPRVUNL (10.01.2024)** |
| ANPARA TPS |
| HARDUAGANJ TPS |
| OBRA TPS |
| PARICHHA TPS |

| **PSPCL (18.06.2024)** |
|---|
| GGSSTP, Ropar |
| GH TPS (LEH.MOH.) |
| **RRVUNL (09.07.2023)** |
| CHHABRA SCPP |
| CHHABRA TPP |
| KALISINDH TPS |
| KOTA TPS |
| SURATGARH SCTPS |
| SURATGARH TPS |

# Updated status of FGD related data submission

| |
|---|
| **Lalitpur Power Gen. Co. Ltd. (10.01.2024)** |
| Lalitpur TPS |
| **Lanco Anpara Power Ltd. (01.01.2024)** |
| ANPARA-C TPS |

| |
|---|
| **HGPCL (14.06.2024)** |
| PANIPAT TPS |
| RAJIV GANDHI TPS |
| YAMUNA NAGAR TPS |

| |
|---|
| **Adani Power Ltd. (18.02.2022)** |
| KAWAI TPS |

| |
|---|
| **Rosa Power Supply Company (01.01.2024)** |
| Rosa TPP Phase-I |
| **Prayagraj Power Generation Company Ltd. (05.01.2024)** |
| Prayagraj TPP |
| **APCPL (01.05.2024)** |
| INDIRA GANDHI STPP |

# Pending submissions

| **GVK Power Ltd.** |
| --- |
| GOINDWAL SAHIB |

| **NTPC** |
| --- |
| DADRI (NCTPP) |
| **Talwandi Sabo Power Ltd.** |
| TALWANDI SABO TPP |
| **L&T Power Development Ltd.** |
| Nabha TPP (Rajpura TPP) |

# Target Dates for FGD Commissioning (Utility-wise)

| | |
|---|---|
| **Adani Power Ltd.** | KAWAI TPS U#1 (Target: 31-12-2024), KAWAI TPS U#2 (Target: 31-12-2024) |
| **APCPL** | INDIRA GANDHI STPP U#2 (Target: 30-09-2023), INDIRA GANDHI STPP U#3 (Target: 30-06-2023) |
| **GVK Power Ltd.** | GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020) |
| **HGPCL** | PANIPAT TPS U#6 (Target: 31-12-2026), PANIPAT TPS U#7 (Target: 31-12-2026), PANIPAT TPS U#8 (Target: 31-12-2026), RAJIV GANDHI TPS U#1 (Target: 31-12-2024), RAJIV GANDHI TPS U#2 (Target: 31-12-2024), YAMUNA NAGAR TPS U#1 (Target: 31-12-2024), YAMUNA NAGAR TPS U#2 (Target: 31-12-2024) |

| | |
|---|---|
| **NTPC** | DADRI (NCTPP) U#1 (Target: 31-12-2020), DADRI (NCTPP) U#2 (Target: 31-10-2020), DADRI (NCTPP) U#3 (Target: 31-08-2020), DADRI (NCTPP) U#4 (Target: 30-06-2020), DADRI (NCTPP) U#5 (Target: 30-06-2022), DADRI (NCTPP) U#6 (Target: 31-03-2023), RIHAND STPS U#1 (Target: 31-10-2025), RIHAND STPS U#2 (Target: 30-06-2026), RIHAND STPS U#3 (Target: 31-12-2024), RIHAND STPS U#4 (Target: 31-03-2025), RIHAND STPS U#5 (Target: 30-06-2025), RIHAND STPS U#6 (Target: 31-10-2025), SINGRAULI STPS U#1 (Target: 31-12-2024), SINGRAULI STPS U#2 (Target: 31-12-2024), SINGRAULI STPS U#3 (Target: 31-12-2024), SINGRAULI STPS U#4 (Target: 31-12-2024), SINGRAULI STPS U#5 (Target: 31-03-2025), SINGRAULI STPS U#6 (Target: 31-06-2024), SINGRAULI STPS U#7 (Target: 31-03-2024), UNCHAHAR TPS U#1 (Target: 31-12-2023), UNCHAHAR TPS U#2 (Target: 31-12-2023), UNCHAHAR TPS U#3 (Target: 30-09-2023), UNCHAHAR TPS U#4 (Target: 30-09-2023), UNCHAHAR TPS U#5 (Target: 30-09-2023), UNCHAHAR TPS U#6 (Target: 31-08-2022), MEJA Stage-I U#1 (Target: 31-10-2023), MEJA Stage-I U#2 (Target: 30-06-2023), TANDA Stage-I U#3 (Target: ), TANDA Stage-I U#4 (Target: ), TANDA Stage-II U#3 (Target: 31-03-2023), TANDA Stage-II U#4 (Target: 30-09-2023) |

| | |
|---|---|
| **L&T Power Development Ltd (Nabha)** | Nabha TPP (Rajpura TPP) U#1 (Target: 30-04-2021), Nabha TPP (Rajpura TPP) U#2 (Target: 28-02-2021) |
| **Lalitpur Power Gen. Company Ltd.** | LALITPUR TPS U#1 (Target: 31-12-2026), LALITPUR TPS U#2 (Target: 30-09-2026), LALITPUR TPS U#3 (Target: 30-06-2026) |
| **Lanco Anpara Power Ltd.** | ANPARA C TPS U#1 (Target: 31-12-2025), ANPARA C TPS U#2 (Target: 31-12-2025) |
| **Prayagraj Power Generation Company Ltd.** | PRAYAGRAJ TPP U#1 (Target: 31-12-2026), PRAYAGRAJ TPP U#2 (Target: 31-12-2026), PRAYAGRAJ TPP U#3 (Target: 31-12-2026) |
| **PSPCL** | GH TPS (LEH.MOH.) U#1 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2026), GGSSTP, Ropar U#3 (Target: 31-12-2026), GGSSTP, Ropar U#4 (Target: 31-12-2026), GGSSTP, Ropar U#5 (Target: 31-12-2026), GGSSTP, Ropar U#6 (Target: 30-12-2026) |

| | |
|---|---|
| **Rosa Power Supply Company** | ROSA TPP Ph-I U#1 (Target: 31-12-2026), ROSA TPP Ph-I U#2 (Target: 31-12-2026), ROSA TPP Ph-I U#3 (Target: 31-12-2026), ROSA TPP Ph-I U#4 (Target: 31-12-2026) |
| **RRVUNL** | KOTA TPS U#5 (Target: 31-08-2024), KOTA TPS U#6 (Target: 31-08-2024), KOTA TPS U#7 (Target: 31-08-2024), SURATGARH TPS U#1 (Target: 31-12-2026), SURATGARH TPS U#2 (Target: 31-12-2026), SURATGARH TPS U#3 (Target: 31-12-2026), SURATGARH TPS U#4 (Target: 31-12-2026), SURATGARH TPS U#5 (Target: 31-12-2026), SURATGARH TPS U#6 (Target: 31-12-2026), SURATGARH SCTPS U#7 (Target: 28-02-2025), SURATGARH SCTPS U#8 (Target: 28-02-2025), CHHABRA TPP U#1 (Target: 31-12-2026), CHHABRA TPP U#2 (Target: 31-12-2026), CHHABRA TPP U#3 (Target: 31-12-2026), CHHABRA TPP U#4 (Target: 31-12-2026), CHHABRA SCPP U#5 (Target: 28-02-2025), CHHABRA SCPP U#6 (Target: 28-02-2025), KALISINDH TPS U#1 (Target: 28-02-2025), KALISINDH TPS U#2 (Target: 28-02-2025) |
| **Talwandi Sabo Power Ltd.** | TALWANDI SABO TPP U#1 (Target: 28-02-2021), TALWANDI SABO TPP U#2 (Target: 31-12-2020), TALWANDI SABO TPP U#3 (Target: 31-10-2020) |
| **UPRVUNL** | ANPARA TPS U#1 (Target: 31-12-2025), ANPARA TPS U#2 (Target: 31-12-2025), ANPARA TPS U#3 (Target: 31-12-2025), ANPARA TPS U#4 (Target: 31-12-2025), ANPARA TPS U#5 (Target: 31-12-2025), ANPARA TPS U#6 (Target: 31-12-2025), ANPARA TPS U#7 (Target: 31-12-2025), HARDUAGANJ TPS U#8 (Target: 31-12-2026), HARDUAGANJ TPS U#9 (Target: 31-12-2026), OBRA TPS U#9 (Target: 31-12-2026), OBRA TPS U#10 (Target: 31-12-2026), OBRA TPS U#11 (Target: 31-12-2026), OBRA TPS U#12 (Target: 31-12-2026), OBRA TPS U#13 (Target: 31-12-2026), PARICHHA TPS U#3 (Target: 31-12-2026), PARICHHA TPS U#4 (Target: 31-12-2026), PARICHHA TPS U#5 (Target: 31-12-2026), PARICHHA TPS U#6 (Target: 31-12-2026) |

Annexure-A.II

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

सेवा में,

1. प्रबंध निदेशक, हिमाचल प्रदेश राज्य भार प्रेषण केंद्र(HPSLDC), शिमला
2. मुख्य अभियंता, हिमाचल प्रदेश राज्य भार प्रेषण केंद्र (HPSLDC), शिमला
3. मुख्य अभियंता (उत्पादन), हिमाचल प्रदेश राज्य विद्युत् बोर्ड लिमिटेड (HPSEBL)
4. इन-चार्ज, उत्तर क्षेत्रीय भार प्रेषण केंद्र, नई दिल्ली
5. मेसर्स जनरल इलेक्ट्रिक

**विषय: Minutes of Meeting held through VC mode on 18.09.2024 at 11:00 AM to discuss implementation of Shimla-Solan Islanding Scheme in HP- reg.**

महोदय,

Please find attached minutes of the meeting held through VC on 18.09.2024 to discuss implementation of Shimla-Solan Islanding Scheme in HP at Annexure-I.

This issues with approval of MS, NRPC.

Yours sincerely,

**Signed by Anzum Parwej**
**Date: 25-09-2024 18:05:24**

(अंजुम परवेज)
अधीक्षण अभियंता (सेवाएँ)

Copy for information to:

1. Member Secretary, NRPC

**Annexure-I**

**Minutes of Meeting held through VC mode on 18.09.2024 at 11:00 AM to discuss implementation of Shimla-Solan Islanding Scheme in HP**

Member Secretary, NRPC welcomed the participants from NRLDC, HPSEBL, HPSLDC & GE and asked EE NRPC to present the agenda of meeting.

2. EE NRPC said that Shimla-Solan Islanding Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 220th OCC held in June 2024, HPSLDC representative informed w.r.t. Shimla-Solan Islanding Scheme that HPSEBL has taken up the matter with M/s GE and they have given clearance to enable the UFR setting of Bhabha HEP at 47.5 Hz. M/s GE has submitted a Performa invoice of 100% advance payment regarding the same. However, since then no progress is made in the matter. In 222nd OCC, MS NRPC directed to have a separate meeting with all stakeholders to resolve the issue. Representative form M/s GE is also invited in this meeting.

3. MS NRPC requested HPSEBL representative to provide update on the matter as no substantive progress is made in last six months. HPSEBL representative informed that payment to the M/s GE for calibration of UFR settings of Bhabha HEP will be made soon. Payment is to be made from internal finance (F&A wing) of HPSEBL.

4. MS NRPC asked for view of NRLDC. NRLDC representative said that the Shimla - Solan Islanding Scheme was approved in 60th NRPC in November 2022 meeting and around two years have passed since then. There may have been Load Generation Changes and therefore before final implementation Load Generation Balance may also be reviewed.

5. MS NRPC said that HPSEBL may expedite the implementation of the Islanding scheme. EE NRPC asked how much time would take for implementation of the setting after payment. GE representative said that it would take about 3 to 4 weeks to complete the work. GE representative also said that it is better to test after modification of settings and testing kit would be required. However, in the purchase order only engineer visit is included. MS NRPC asked HPSEBL representative to check for the testing of revised UFR settings.

6. MS NRPC asked from HPSEBL timelines for implementation. HPSEBL informed that payment to M/s GE may be made within two months and subsequently implementation will be completed in another one month.

7. NRLDC representative asked whether the settings have been revised in other generators in the scheme other than Bhabha HEP. HPSLDC informed two HEPs namely Sumej and Surykanta HEP are not part of Islanding Scheme. However,

HPSLDC will pursue other HEPs once the confirmation is received from HPSEBL regarding implementation of revised settings in Bhabha HEP. EE NRPC said that at least in-principle consent may be taken in parallel from other power producers regarding revised settings for implementation of scheme so that other issues may not crop up at a later stage.

8. MS, NRPC stated that the implementation of scheme should be expedited and regular follow-up should be done by HPSLDC.

Meeting ended with thanks to the chair.

**********

# List of Participants

## NRPC

1. Sh. V. K. Singh, Member Secretary ..... In Chair
2. Sh. Anzum Parwej, SE
3. Sh. Ravi Kant, EE
4. Sh. Rajat Dixit, AEE

## NRLDC

5. Sh. Gaurav Singh, Chief Manager

## HPSEBL

6. Sh. Varun Sharma, SE Bhabha HEP
7. Sh. Banit Kumar, AE Bhabha HEP

## HPSLDC

8. Sh. Parvinder Kumar, Addl. SE

## GE

9. Sh. Vivek Singhal

Annexure-A.III

VALIANT COMMUNICATIONS

# Grid Islanding Solution

## Presentation

# ABOUT VALIANT COMMUNICATIONS

## Introduction

- Established in 1993 in technical and financial collaboration with Vanguard Communications USA.
- An ISO 9001:2015, ISO 10001:2018, ISO 14001:2015, ISO 27001:2013 and ISO 45001:2018 certified equipment manufacturer of Communication, Transmission, Protection, Synchronization, NAS & Data Storage Servers and Cyber Security solutions.
- Provides a powerful blend of “innovation, quality and economics".
- Successful installations in over 110 countries, worldwide.
- Global footprint with offices in USA, UK, Canada and India.
- Regional Distributor offices in 25 countries.

# Made in India - CREDENTIALS

- Designed, developed and manufactured in India with Indian IPR ownership.
- Qualified ‘Class-I Local Supplier’.
- Made in India

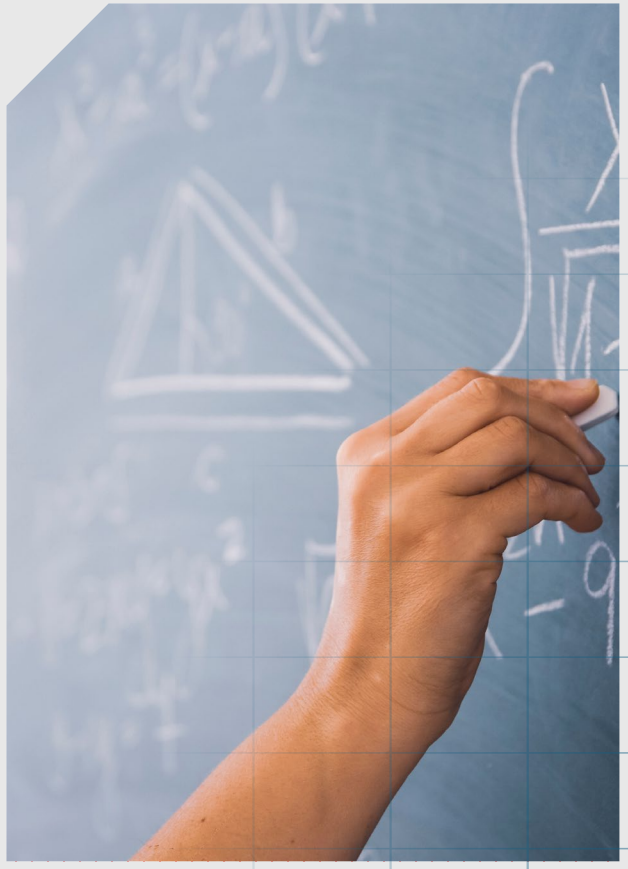
- Original Equipment Manufacturer (OEM) under the Public Procurement (Preference to Make in India) Order, 2017

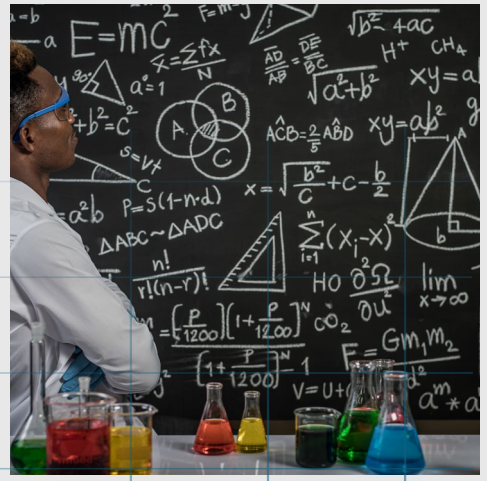
- Approved as a “Trusted Source Company” by Govt. of India

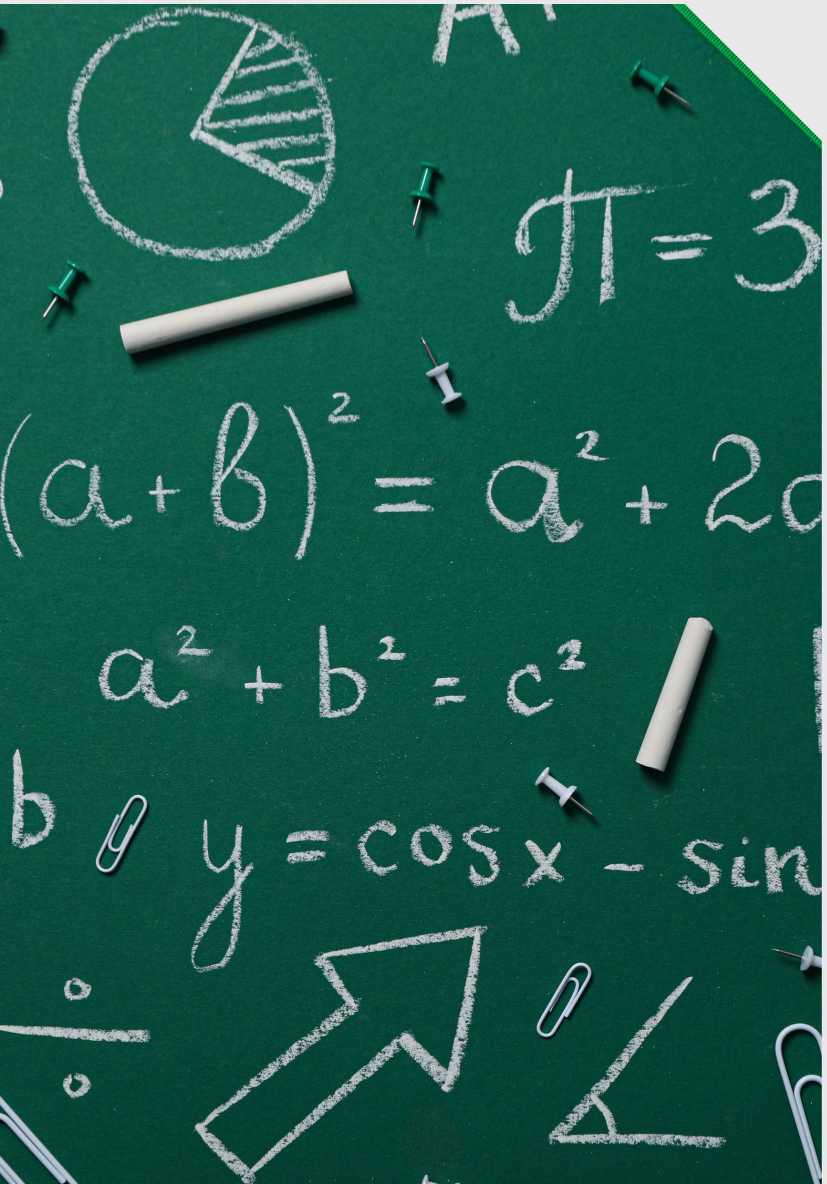
# Objective

To monitor the power grid at various transmission points and to deliberately isolate the critical portion of the power grid to ensure the availability of power for critical services to the specific, strategic areas during an outage, under various conditions as explained in the following slides.

In a controlled grid islanding scheme, specific, strategic areas of the power grid continue to be energized and operate independently, even though it has been disconnected from the main power grid. For example: In an event of a Northern Grid Failure, the power supply of certain critical zones remains in healthy condition, within a specified area.








# Process of Implementation

To constantly monitor the synchronicity of the complete grid and phase angles between key transmission points to ensure stability and dynamically adjust generation and load as needed, to maintain a safe operational range.

# Comparison between the two schemes:

| Comparison | PMUs with Tele-protection and CPU based Grid-Islanding Scheme | Standalone Under-Frequency Relay based Grid-Islanding Scheme |
|---|---|---|
| Principle of Operation | Under-frequency, ROCOF, Phase angle deviation, synchronized data acquisition, real-time data analysis and decision making by centralized servers running application specific grid-islanding software. | Under-frequency and possibly ROCOF Only. |

# A Grid Island shall be formed in the following scenarios

01

When the grid frequency falls below a specific frequency (example falls below 47.9Hz).

02

When the ROCOF (df/dt) value indicates a shift in the grid frequency eventually falling below 47.9Hz.

# A Grid Island shall be formed in the following scenarios

03

When any phase angle of any zone deviates from the other zones and goes out of and exceeds a permissible threshold.

04

A malicious, hostile attack, (which would include a cyber-attack) would normally lead to the occurrence any one or all of the above events or conditions.

# A Grid Island shall be formed in the following scenarios

- ✓ In such a scenario, unless **synchro-phasors** (Phasor Measurement Units) are used to monitor the phase angles and their deviations, the stability of the grid cannot be effectively ensured.
- ✓ In the event of any one of above scenarios occurring, the tripping of the entire zone / entire feeder line tripping process must be completely automated implemented, with an option of manual intervention.

# Why choose PMU based Islanding?

- ✓ The power grid in a synchronized, homogeneous structure and relying only on the detection of an under-frequency, or an over-frequency condition to detect a grid-instability condition is fraught with numerous pitfalls.
- ✓ A phase angle variation exceeding the safe threshold between any two (or more) power generation points of the grid can cause the grid to become unstable and collapse. The grid can be rendered unstable without causing an under-frequency or over-frequency condition, by simply by manipulating the phase angle at one, or more than one, power generating sites.
- ✓ In a modern, distributed grid, which consists of multiple elements of power generation and power generating locations consisting of thermal, wind and solar, the possibility of occurrence and the susceptibility to such an attack becomes even more imminent.

# What is required to implement a grid islanding scheme?

**High-speed communications network**

Transport PMU data and carry protection signaling

**Reference clocks synchronized to the GPS / NavIC satellite system**

Timestamping and reading accuracy

**Phasor Measurement Unit**

Frequency, load, and generation readings

**Digital Teleprotection (DTPC) equipment**

Protection Signaling and decoupling action

**Central Control Intelligence**

Decision making based on acquired data

# PMU and DTPC

- ✓ Frequency, load, and generation readings from the remote sites are transmitted to the central site using PMUs.
- ✓ Teleprotection equipment stack shall decouple only the sites in operative mode over the high-speed communication links.
  - ✓ Optical
  - ✓ Ethernet or IP/MPLS-TP
- ✓ The DTPC stack in conjunction with the central control unit shall be used to dynamically increase or decrease the perimeter of the island.

# DTPC

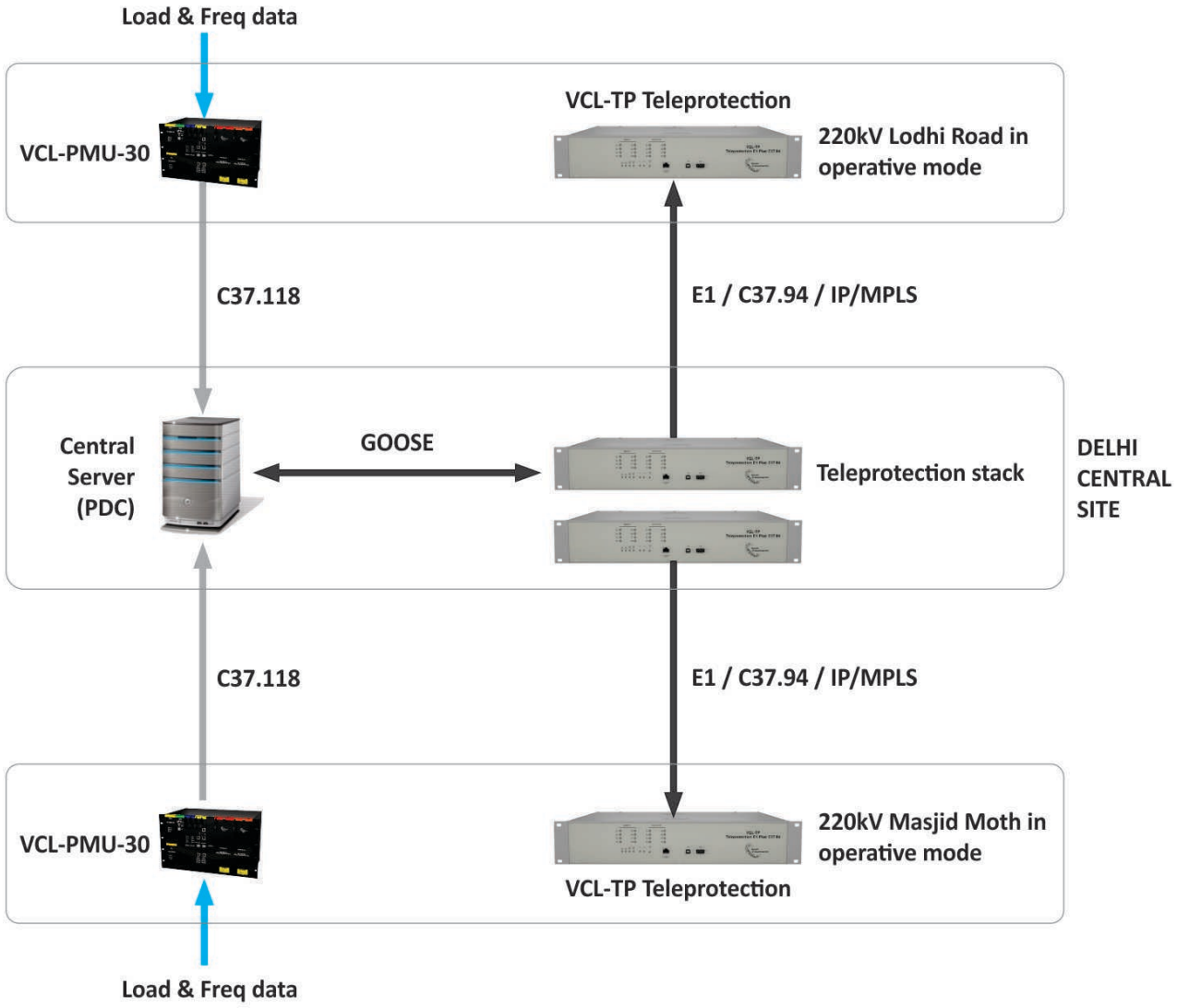
- ✓ Two signaling paths shall be used by the DTPC equipment to carry out a logical ‘AND’ operation on them.
- ✓ The primary input shall be the under and over frequency input that shall be generated based on the frequency monitoring data across the power network.
  - ✓ In addition to this, the input shall also be tied to the instantaneous load demand and the generation demand.
  - ✓ This load and generation data shall be measured by the PMUs and processed to generate this input to the DTPC equipment.

## What is required to implement a grid islanding scheme?

# DTPC

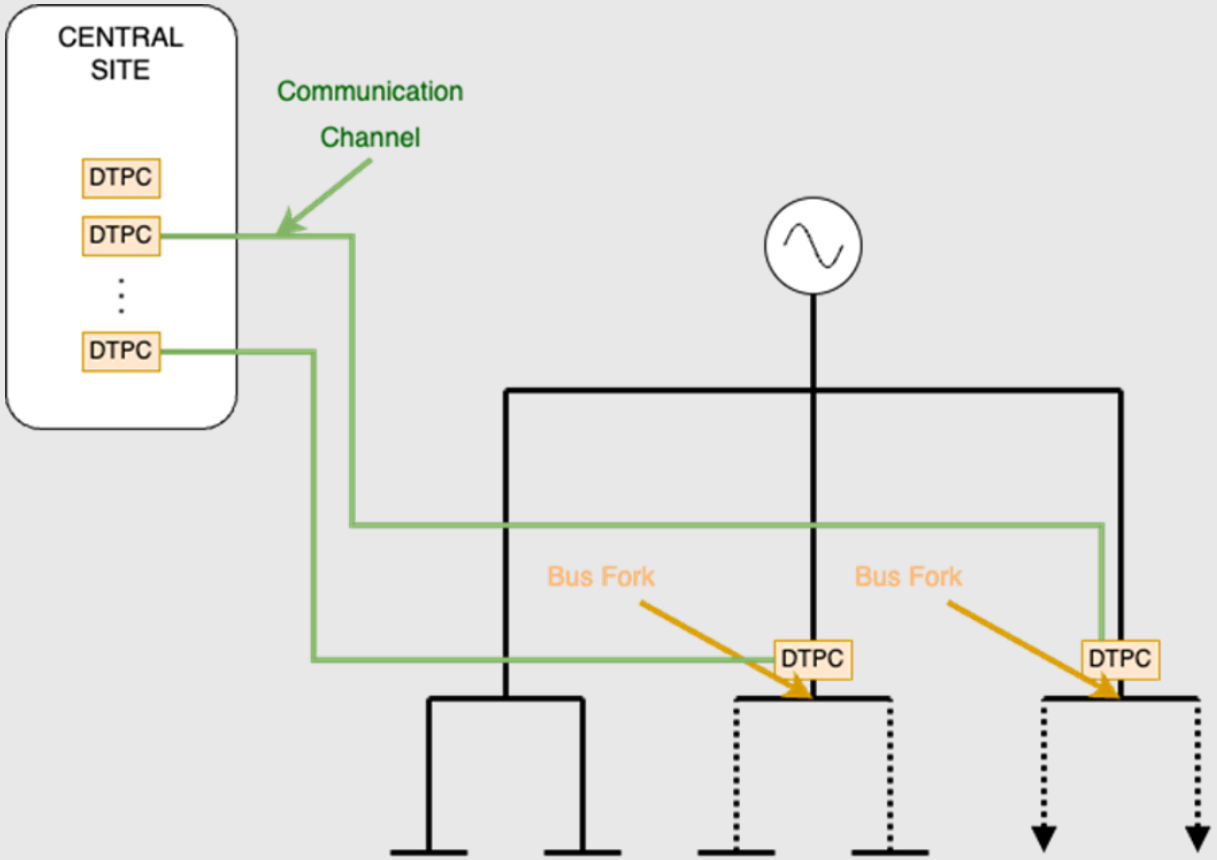
- ✓ The second input shall control the island's perimeter and would be the deciding input whether the distribution fork shall be the island's perimeter or included in it.
- ✓ This input shall be ‘TRUE’ when the fork is determined to be in operative mode. i.e., the fork shall be disconnected when the island is created (frequency dips in case of a grid failure) and the downstream loads from the grid fork shall be disconnected.
- ✓ The same input shall be set to ‘FALSE’ when the fork is determined to be included in the island and is in blocked mode. The Central end of the island shall only transmit the TRIP command to the remote sites when both inputs to the central DTPC stack shall be ‘TRUE’.

# Application



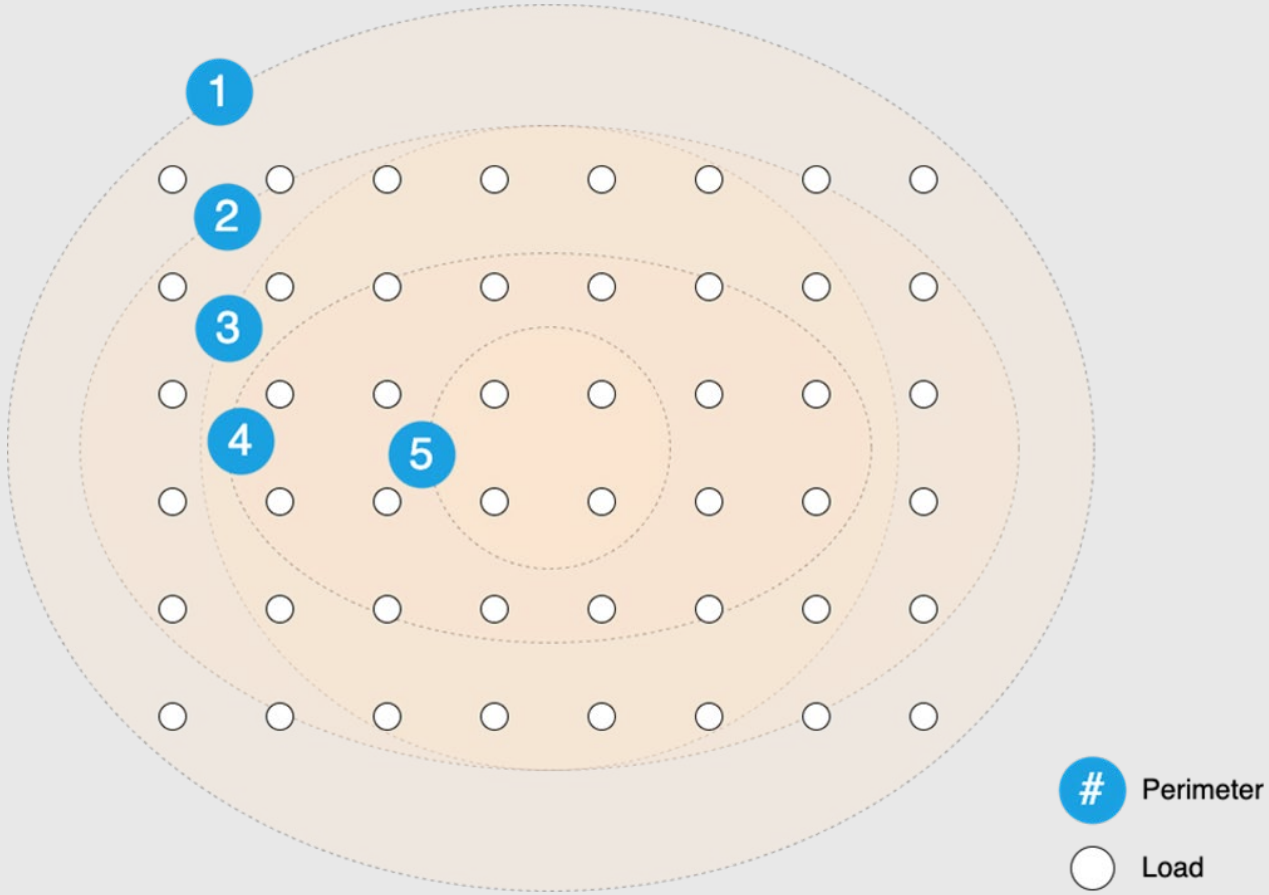

- ✓ The dynamic islanding perimeter shall vary based on measured frequency, load, and generation readings from remote sites.
- ✓ Protection signaling will be carried over the network to be used to initiate the decoupling action in the event of a grid failure and change the blocked/operative modes of the sites.

# Application




- ✓ Completely automated, with an option of manual intervention.
- ✓ Control unit at central site shall be used to dynamically increase or decrease the perimeter of the island.

# Application




- ✓ To monitor the frequency within the active perimeter, all installed PMUs at various bus forks shall measure and stream this information to the central site.
- ✓ This information will be used to actively shrink or grow the perimeter up to the island's maximum allowed outer perimeter.

# Components Used

| | | |
|---|---|---|
|  | VCL-PMU-30 | **A comprehensive and a compact PMU solution that is designed to build an intelligent and an effective real-time control system for implementing advanced remedial action and protection schemes.** |
|  | VCL-TP Teleprotection | **Teleprotection Equipment is an extremely reliable product that offers up to 8 independent Binary Command Input and 8 independent Binary Command Output channels which can be operated selectively, or simultaneously over Ethernet/IP/MPLS-IP with less than 2ms back-to-back transmission time and less than 3ms relay operating time.** |
|  | VCL-CPU Grid-Islanding Server | **A high-performance platform for managing IEEE C37.118 synchrophasor data and processing streaming data in real-time and taking actionable decisions based on a set of parameters.** |
|  | VCL-2156 NTP Server | **VCL-2156 is a high performance NTP Server powered by a highly precise GPS/GLONASS/NavIC based time receiver that provides a better than 30 nanosecond accuracy to assure high bandwidth NTP Performance** |
|  | VCL-TP-GOOSE-over-IP | **VCL-TP Teleprotection - IEC-61850 GOOSE equipment is designed to transport IEC-61850 GOOSE messages over IP/MPLS and MPLS-TP networks.** |

# PRESTIGIOUS REFERENCE

## CUSTOMERS

End-users, using VCL equipment

ABB

Siemens

Schneider Electric

Power Grid (PGCIL)

Turkish Electricity Company

Larsen & Toubro Limited

Perusahaan Listrik Negara

Vietnam Electricity

Defense Communications Agency (DCA)

Honeywell

Lockheed Martin

Northrop Grumman

United Nations

United States Government

Raytheon

Amentum (NASA)

GE Renewable Energy

L3 Harris

Motorola

Transelectrica

Airport Authority of India

General Dynamics

Government of Canada

Tesla

# Global Distribution Network

# Contact Us

For more details, visit us at our Website

**www.valiantcom.com**

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Revision 5, September 9, 2024

## Status of availability of ERS towers in NR

| Sl. No. | Transmission Utility | Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.) | Length of the transmission lines owned by the Utility (Ckt. Kms.) | Number of ERS Sets ( towers) available (Nos.) | ERS Set ( towers) required as per the Govt. norms. | Location | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | PTCUL | 400kV | 418.394 | NIL | 1 | | Tender has been opened and contract activities under process |
| | | 220kV | 1045.135 | NIL | 1 | | |
| 2 | Powergrid NR-1 | 220 KV | 1842.88 | NIL | 1 | | |
| | | 400 KV | 11074.26 | 12 Towers | 3 | All 400kV ERS at Ballabhgarh | make-Lindsey |
| | | 765 KV | 4721.85 | 15 Towers | 1 | All 765kV ERS at Meerut | Make-SBB |
| | | 500 KV HVDC | 653.88 | NIL | 1 | | |
| | | 800 KV HVDC | 416.58 | NIL | 1 | | |
| 3 | Powergrid NR-2 | 66 KV | 37.56 | Nil | 1 | | ERS tower available for 400KV rating can be used in place of lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can be erected will reduce due to increase in Tower Hight. |
| | | 132 KV | 262.7 | Nil | 1 | | |
| | | 220 KV | 2152 | Nil | 1 | | |
| | | 400 KV | 8097.3 | 02 Set (32 Towers) | 2 | Kishenpur & Jalandhar | |
| | | 765 KV | 337.5 | Nil | 1 | | |
| 4 | Powergrid NR-3 | 800KV HVDC | 2205 | NIL | 1 | | 400KV ERS will be also be used in other voltage level lines |
| | | 500KV HVDC | 2566 | NIL | 1 | | |
| | | 765KV | 4396 | NIL | 1 | | |
| | | 400KV | 12254 | 26 Towers | 3 | Kanpur | |
| | | 220KV | 1541 | NIL | 1 | | |
| | | 132KV | 207 | NIL | 1 | | |
| 5 | PARBATI KOLDAM TRANSMISSION COMPANY LIMITED | 400kV | 457 | NIL | 1 | | Procurement under process. |
| 6 | PATRAN TRANSMISSION COMPANY LTD | 400kV | 0.4 | NIL | 1 | It is kept in Bhopal and on need basis is moved across region | Not available, will tie up based on the requirements in future. However the parent company IndiGrid owns one set of ERS for all five regions. |
| 7 | NRSS-XXIX TRANSMISSION LTD | 400kV | 853 | NIL | 1 | | |
| 8 | GURGAON PALWAL TRANSMISSION LTD | 400kV | 272 | NIL | 1 | | |
| 9 | RAPP Transmission Company Limited. | 400kV | 402 | NIL | 1 | | |
| 10 | NRSS XXXVI Transmission Limited | 400kV | 301.924 | NIL | 1 | | Element I - Operational comprising of 3 kms. Element II - Work Under Progress comprising of 221.924 kms. Element II - Work Under Progress comprising of 77 kms. |
| 11 | HPPTCL | 220 kV | 659 | NIL | 1 | | |
| | | 400 kV | 75.7 | NIL | 1 | | |
| 12 | RVPN | 132 kV | 18969.958 | 1 | 4 | 01 No. ERS available at 220 kV GSS Heerapura, Jaipur | ERS proposed : 01 Set at 400 kV GSS, Jodhpur. 01 set at 400 kV GSS Bikaner |
| | | 220 kV | 16227.979 | | 3 | | |
| | | 400 kV | 6899.386 | | 2 | | |
| | | 765 kV | 425.498 | | 1 | | |
| 13 | DTL | 220kV | 915.498 | NIL | 1 | 400kV Bamnauli Sub station | ERS tower available for 400KV rating can also be used for lower voltage lines as well |
| | | 400kV | 249.19 | 02 Sets (32 towers) | 1 | | |
| 14 | JKPTCL | | | | | | JKPTCL, Jammu: being procured |
| 15 | HVPN | | | | | | JKPTCL, Kashmir:10 tower procured (out of which 3 on loan to JKPTCL, Jammu) |

| Sl. No. | Transmission Utility | Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.) | Length of the transmission lines owned by the Utility (Ckt. Kms.) | Number of ERS Sets ( towers) available (Nos.) | ERS Set ( towers) required as per the Govt. norms. | Location | Remarks |
|---|---|---|---|---|---|---|---|
| 16 | PSTCL | 400 kV | 1666.43 | 2 | 2 | | |
| | | 220 kV | 7921.991 | | | | |
| 17 | UPPTCL 1- Meerut | 132KV | 27508.321 | 24 Nos(15 Running+9 Angle) | | 400 kV S/s Gr. Noida | ERS will be also be used in other voltage level lines. |
| | | 220KV | 14973.453 | | | | |
| | | 400KV | 6922.828 | | | | |
| | UPPTCL 2-Prayagraj | 765KV | 839.37 | 24 Towers | | 220 kv S/s phulpur | ERS will also be used in other voltage lines. |
| | | 400KV | 1804.257 | | | | |
| | | 220KV | 2578.932 | | | | |
| | | 132KV | 4714.768 | | | | |
| 18 | POWERLINK | | | | | | |
| 19 | POWERGRID HIMACHAL TRANSMISSION LTD | | | | | | |
| 20 | Powergrid Ajmer Phagi Transmission Limited | | | | | | |
| 21 | Powergrid Fatehgarh Transmission Limited | | | | | | |
| 22 | POWERGRID KALA AMB TRANSMISSION LTD | | | | | | |
| 23 | Powergrid Unchahar Transmission Ltd | | | | | | |
| 24 | Powergrid Khetri Transmission Limited | | | | | | |
| 25 | POWERGRID VARANASI TRANSMISSION SYSTEM LTD | | | | | | |
| 26 | ADANI TRANSMISSION INDIA LIMITED | | 2090 | 1 Set (12 towers) | 1 set (12 towers) | Sami (Gujarat) | Make-Lindsey<br>ERS set available for 400KV & 500KV rating can be used for lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can reduce due to increase in Tower Height & nos of conductors. |
| 27 | BIKANER KHETRI TRANSMISSION LIMITED | | 482 | | | | |
| 28 | FATEHGARH BHADLA TRANSMISSION LIMITED | 500 kV HVDC<br>400 kV HVAC | 291 | | | | |
| 29 | NRSS-XXXI(B) TRANSMISSION LTD | 400 kV | 577.74 | Not Available | Not Available | | In the advance stage of process of finalising arrangement for providing ERS on need basis with other transmission utility (M/s INDIGRID). |
| 30 | ARAVALI POWER COMPANY PVT LTD | 765 kv HVAC | | | | | |

*The transmission Utility with line length less than 500 ckt kms (of 400 KV lines) may be given option either to procure ERS or have agreement with other transmission utilities for providing ERS on mutually agreed terms, when need arises. (As per MoP directions)

| | | | | | | | | | | | Approved Planned Outage-1 | | | Actual Planned Outage-1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity (MW) 30-11-2023 | Name of Station | UNIT_NM | STN_TYPE_ID | SECTOR | REGION_NM | ST_NM | SH_NM | IPP | FUEL_NM | Capacity (MW) 31-03-2025 | Start Date | End Date | Reason | Start Date | End Date | Reason for any deviation |
| 135 | JALIPA KAPURDI TPP | 3 | T | IPP SECTOR | Northern | Rajasthan | JSWBL | FALSE | LIGNITE | 135 | 1-Sep-24 | 12-Sep-24 | Boiler Inspection | 12-Aug-24 | 10-Sep-24 | |
| 135 | JALIPA KAPURDI TPP | 4 | T | IPP SECTOR | Northern | Rajasthan | JSWBL | FALSE | LIGNITE | 135 | 14-Sep-24 | 21-Sep-24 | AOH | | | Defferred due to other unit forced outages |
| 135 | JALIPA KAPURDI TPP | 8 | T | IPP SECTOR | Northern | Rajasthan | JSWBL | FALSE | LIGNITE | 135 | 22-Sep-24 | 29-Sep-24 | Boiler Inspection | | | Defferred due to other unit forced outages |
| 110 | RAMGARH CCPP | 5 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | NATURAL GAS | 110 | 1-Aug-24 | 15-Sep-24 | Major Inspection | | | Boxed up since 26.02.2024 due to non-availability of Gas |
| 225 | KASHIPUR CCPP | 1 | T | IPP SECTOR | Northern | Uttarakhand | SrEPL | FALSE | NATURAL GAS | 225 | 1-Sep-24 | 3-Sep-24 | Offline Waterwash | | | Not required as the Plant is under reserve shutdown ( demand restriction by UPCL) |

| Sr. No. | State | Organisation | Name of Project | Unit No | Total Capacity (MW) | Technical Minimum Load Status (%) achieved by the Unit |
|---|---|---|---|---|---|---|
| 1 | Punjab | GPGSL (GVK) | GOINDWAL SAHIB | 2 | 270.00 | 60% |
| 2 | Punjab | GPGSL (GVK) | GOINDWAL SAHIB | 1 | 270.00 | 60% |
| 3 | Haryana | HPGCL | PANIPAT TPS | 8 | 250.00 | Haryana SERC has given exemption |
| 4 | Haryana | HPGCL | PANIPAT TPS | 7 | 250.00 | Haryana SERC has given exemption |
| 5 | Haryana | HPGCL | PANIPAT TPS | 6 | 210.00 | Haryana SERC has given exemption |
| 6 | Uttar Pradesh | LAPPL | ANPARA C TPS | 2 | 600.00 | 55% |
| 7 | Uttar Pradesh | LAPPL | ANPARA C TPS | 1 | 600.00 | 55% |
| 8 | Uttar Pradesh | RPSCL | ROSA TPP Ph-I | 4 | 300.00 | 55% |
| 9 | Uttar Pradesh | RPSCL | ROSA TPP Ph-I | 3 | 300.00 | 55% |
| 10 | Uttar Pradesh | RPSCL | ROSA TPP Ph-I | 2 | 300.00 | 55% |
| 11 | Uttar Pradesh | RPSCL | ROSA TPP Ph-I | 1 | 300.00 | 55% |
| 12 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 7 | 135.00 | 70% |
| 13 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 6 | 135.00 | 70% |
| 14 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 8 | 135.00 | 70% |
| 15 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 5 | 135.00 | 70% |
| 16 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 4 | 135.00 | 70% |
| 17 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 3 | 135.00 | 70% |
| 18 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 2 | 135.00 | 70% |
| 19 | Rajasthan | RWPL (JSW) | JALIPA KAPURDI TPP | 1 | 135.00 | 70% |
| 20 | Punjab | PSPCL | GH TPS (LEH.MOH.) | 4 | 250.00 | 68% |
| 21 | Punjab | PSPCL | GH TPS (LEH.MOH.) | 3 | 250.00 | 68% |
| 22 | Punjab | PSPCL | GH TPS (LEH.MOH.) | 2 | 210.00 | 79% |
| 23 | Punjab | PSPCL | GH TPS (LEH.MOH.) | 1 | 210.00 | 79% |
| 24 | Punjab | PSPCL | ROPAR TPS | 6 | 210.00 | 75% |
| 25 | Punjab | PSPCL | ROPAR TPS | 5 | 210.00 | 75% |
| 26 | Punjab | PSPCL | ROPAR TPS | 4 | 210.00 | 75% |
| 27 | Punjab | PSPCL | ROPAR TPS | 3 | 210.00 | 75% |
| 28 | Rajasthan | RRVUNL | KALISINDH TPS | 2 | 600.00 | 55.00% |
| 29 | Rajasthan | RRVUNL | CHHABRA TPP | 4 | 250.00 | 71.20% |
| 30 | Rajasthan | RRVUNL | KALISINDH TPS | 1 | 600.00 | 55.00% |
| 31 | Rajasthan | RRVUNL | CHHABRA TPP | 3 | 250.00 | 68.00% |
| 32 | Rajasthan | RRVUNL | CHHABRA TPP | 2 | 250.00 | 69.20% |
| 33 | Rajasthan | NLC | BARSINGSAR LIGNITE | 2 | 125.00 | 47.03% |
| 34 | Rajasthan | NLC | BARSINGSAR LIGNITE | 1 | 125.00 | 47.03% |
| 35 | Rajasthan | RRVUNL | KOTA TPS | 7 | 195.00 | 82.00% |
| 36 | Rajasthan | RRVUNL | SURATGARH TPS | 6 | 250.00 | 72.00% |
| 37 | Rajasthan | RRVUNL | GIRAL TPS | 2 | 125.00 | Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC |
| 38 | Rajasthan | RRVUNL | CHHABRA TPP | 1 | 250.00 | 70.00% |
| 39 | Rajasthan | RRVUNL | GIRAL TPS | 1 | 125.00 | Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC |
| 40 | Rajasthan | RRVUNL | KOTA TPS | 6 | 195.00 | 82.00% |
| 41 | Rajasthan | RRVUNL | SURATGARH TPS | 5 | 250.00 | 72.13% |
| 42 | Rajasthan | RRVUNL | SURATGARH TPS | 4 | 250.00 | 72.13% |
| 43 | Rajasthan | RRVUNL | SURATGARH TPS | 3 | 250.00 | 72.13% |
| 44 | Rajasthan | RRVUNL | SURATGARH TPS | 2 | 250.00 | 72.13% |
| 45 | Rajasthan | RRVUNL | SURATGARH TPS | 1 | 250.00 | 72.13% |
| 46 | Rajasthan | RRVUNL | KOTA TPS | 5 | 210.00 | 76% |
| 47 | Rajasthan | RRVUNL | KOTA TPS | 4 | 210.00 | 66% |
| 48 | Rajasthan | RRVUNL | KOTA TPS | 3 | 210.00 | 66% |
| 49 | Rajasthan | RRVUNL | KOTA TPS | 2 | 110.00 | 55% |
| 50 | Rajasthan | RRVUNL | KOTA TPS | 1 | 110.00 | 55% |

Annexure-A.VII

# HARYANA VIDYUT PRASARAN NIGAM LIMITED

(A Govt. of Haryana Undertaking)
(Registered office: - Shakti Bhawan, Sector-6, Panchkula)
SE TS Circle HVPNL, Hisar
Email- setshsr@hvpn.org.in Phone: 01662-223084

To

**SE/NCR Planning,**
**HVPNL, Gurugram.**

Memo No. Ch-29/DRG-222/Vol-V Dated: 15-10-2024.

**Subject:** **Regarding assessment and usability of the Interstate lines i.e. 220kV S/C MIA (Alwar) - BTPS (Badarpur) line and 132kV S/C Hisar-Sadulpur (Rajgarh).**

Please refer to your office office memo no. Ch-52/408/K-29 dated 03.09.2024 on above subject cited matter.

In this context, the information regarding 132KV S/C Hisar-Sadulpur (Rajgrah) line is as under please:

| Sr. No. | Observations | Point wise reply |
|---|---|---|
| 1. | Whether the said transmission line is being utilized by HVPNL via T-off arrangement or LILO arrangement. | Not utilized by HVPN |
| 2. | Name of the utility that owns this transmission. | RVPN |
| 3. | Name the utility that conducting the O&M of this transmission line. | O&M of this transmission line conducted by RVPN. |
| 4. | The max load data of last five years (month-wise) for said line to see if it is being utilized by HVPNL or not. | Not utilized by HVPN |
| 5. | Recommendations of TS on the proposal of RVPNL. | It is submitted that 132kV S/C BBMB Hisar- Sadalpur (Rajgarh Line) can not be utilized for feeding the Sub Stations under TS Division HVPNL Hisar as the route of the line is passing through the dense residential area of Sector 9-11, Model Town Extension, Sector 16-17, Patel Nagar and Azad Nagar Hisar, so there is no ROW alternative is available for modification/ rectification on the said line. It is added that the line was never used by TS Circle HVPNL Hisar in past and is not connected with any Substation under TS Circle HVPNL Hisar. Hence, in view of the above it is submitted that this line cannot be used by any substation under TS Circle, HVPNL, Hisar |

This is for your kind information and taking necessary action please.

**Superintending Engineer**
**TS Circle, HVPNL, Hisar**

CC:

Executive Engineer/TS, Division, HVPNL, Hisar.

## Status of Internal Protection Audit Plan for FY 2024 -25

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

## Status of 3rd Party Protection Audit Plan

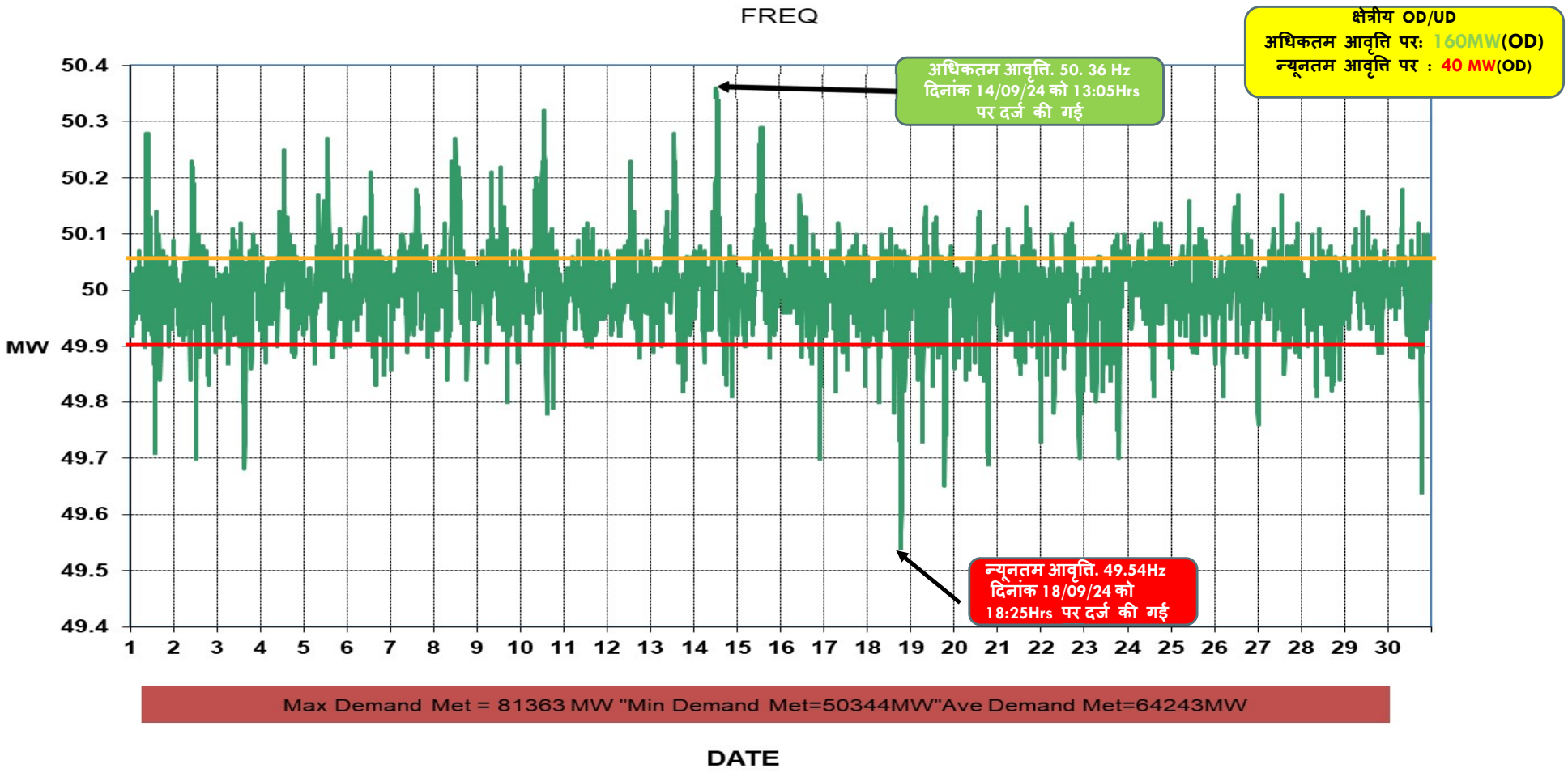
| S. No. | NRPC Member | Category | Status | Schedule submitted as per utililty | Present Status Comlpleted (yes/no) |
|---|---|---|---|---|---|
| 1 | PGCIL | Central Government owned Transmission Company | Received (7 S/s of NR-1, 1 S/s of NR-2, 4 S/s of Nr-3) | By Jan 2025 | |
| 2 | NTPC | Central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

* Revised Schedule

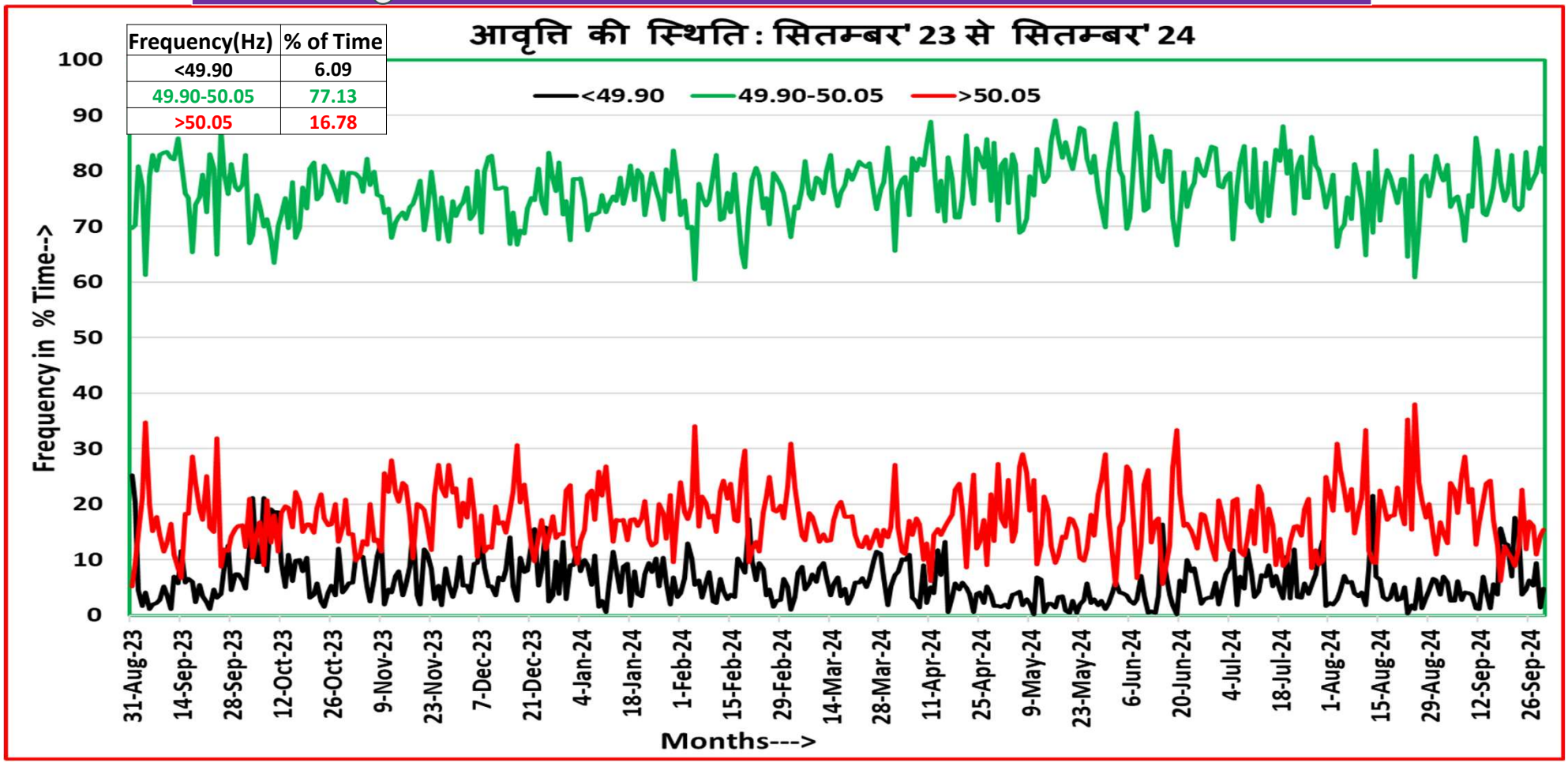
| Status of perfomance indices report of August 2024 | | |
|---|---|---|
| **S. No.** | **Utility** | **Status of Protection Performance indices** |
| 1 | PGCIL | Received (NR-1,2,3) |
| 2 | NTPC | Received (Dadri, Unchahar, Tanda, Anta) |
| 3 | BBMB | Received (Transmission) |
| 4 | THDC | Received |
| 5 | SJVN | Received |
| 6 | NHPC | Received |
| 7 | NPCIL | Received (RAP- 1-6), NAP-(1-2) |
| 8 | DTL | Received |
| 9 | HVPNL | Received |
| 10 | RRVPNL | Received |
| 11 | UPPTCL | Received |
| 12 | PTCUL | Received |
| 13 | PSTCL | Received |
| 14 | HPPTCL | Received |
| 15 | IPGCL | Received (PPCL) |
| 16 | HPGCL | Not Recevied |
| 17 | RRVUNL | Received |
| 18 | UPRVUNL | Received (DTPS-Anpara) |
| 19 | UJVNL | Received (Dharashu, Uttrakashi) |
| 20 | HPPCL | Not Recevied |
| 21 | PSPCL | Received (GGSSTPS, 220kV GATPL, 220kV GHTP) |
| 22 | HPSEBL | Received |
| 23 | Prayagraj Power Generation Co. Ltd. | Received |
| 24 | Aravali Power Company Pvt. Ltd | Received |
| 25 | Apraava Energy Private Limited | Received |
| 26 | Talwandi Sabo Power Ltd. | Received |
| 27 | Nabha Power Limited | Received |
| 28 | MEIL Anpara Energy Ltd | Not Recevied |
| 29 | Rosa Power Supply Company Ltd | Received |
| 30 | Lalitpur Power Generation Company Ltd | Received |
| 31 | MEJA Urja Nigam Ltd. | Not Recevied |
| 32 | Adani Power Rajasthan Limited | Received (Kawai) |
| 33 | JSW Energy Ltd. (KWHEP) | Not Recevied |
| 34 | AESL | Received(ATSCL, MTSCL, OCBTL, HPTSL) |
| 35 | Tata Power Renewable Energy Ltd. | Received (Sourya, TPGEL, TPREL) |
| 36 | UT of J&K | Not Recevied |
| 37 | UT of Ladakh | Not Recevied |
| 38 | UT of Chandigarh | Not Recevied |
| 39 | ATIL, BKTL, FBTL | Received (ATIL, BKTL, FBTL) |
| 40 | INDIGRID | Received |
| 41 | POWERLINK | Not Recevied |
| 42 | ADHPL | Received |
| 43 | Sekura Energy Limited | Not Recevied |
| 44 | WUPPTCL | Received |
| 45 | SEUPPTCL | Not Recevied |
| 46 | Vishnuprayag Hydro Electric Plant (J.P.) | Not Recevied |
| 47 | Alaknanda Hydro Electric Plant (GVK) | Not Recevied |

# **B.1** NR Grid Highlights for September 2024

# सितम्बर-2024 के दौरान आवृत्ति की स्थिति
## (As per 5 Minute SCADA data)



# आवृत्ति की स्थिति: सितम्बर -2023 से 2024



# पिछले एक साल मे आवृत्ति की स्थिति

| आवृत्ति बैंड | सितम्बर 2023 | अक्टूबर 2023 | नवम्बर 2023 | दिसंबर 2023 | जनवरी 2024 | फ़रवरी 2024 | मार्च 2024 | अप्रैल 2024 | मई 2024 | जून 2024 | जुलाई 2024 | अगस्त 2024 | सितम्बर 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| < 49.7 Hz(%) | 0.11 | 0.53 | 0.10 | 0.17 | 0.12 | 0.095 | 0.065 | 0.030 | 0.000 | 0.02 | 0.054 | 0.176 | 0.18 |
| <49.8 Hz(%) | 0.57 | 1.99 | 0.96 | 1.40 | 0.92 | 0.797 | 0.479 | 0.432 | 0.059 | 0.31 | 0.621 | 0.631 | 0.89 |
| <49.9 Hz(%) | 5.21 | 8.87 | 6.83 | 7.83 | 6.80 | 6.239 | 6.022 | 5.254 | 2.490 | 4.50 | 6.406 | 4.660 | 6.09 |
| 49.90-50.05 Hz(%) | *77.86* | *74.42* | *74.36* | *75.21* | *75.83* | *74.06* | *77.51* | *78.56* | *80.045* | *79.177* | *78.424* | *75.012* | *77.130* |
| 50.05-50.10 Hz(%) | 13.32 | 13.53 | 13.74 | 10.47 | 11.91 | 14.118 | 12.262 | 11.178 | 13.839 | 13.34 | 12.122 | 13.334 | 10.36 |
| >50.10 Hz(%) | 3.61 | 3.18 | 5.06 | 6.49 | 5.47 | 5.581 | 4.204 | 5.010 | 3.627 | 2.99 | 3.047 | 6.992 | 6.42 |
| >50.20 Hz(%) | 0.32 | 0.14 | 0.66 | 0.53 | 0.41 | 0.565 | 0.657 | 0.539 | 0.285 | 0.12 | 0.280 | 1.725 | 1.03 |
| औसत आवृत्ति | 50.00 | 49.99 | 50.00 | 49.99 | 49.99 | 50.00 | 50.00 | 50.00 | 50.00 | 50.002 | 49.997 | 50.008 | 50.000 |

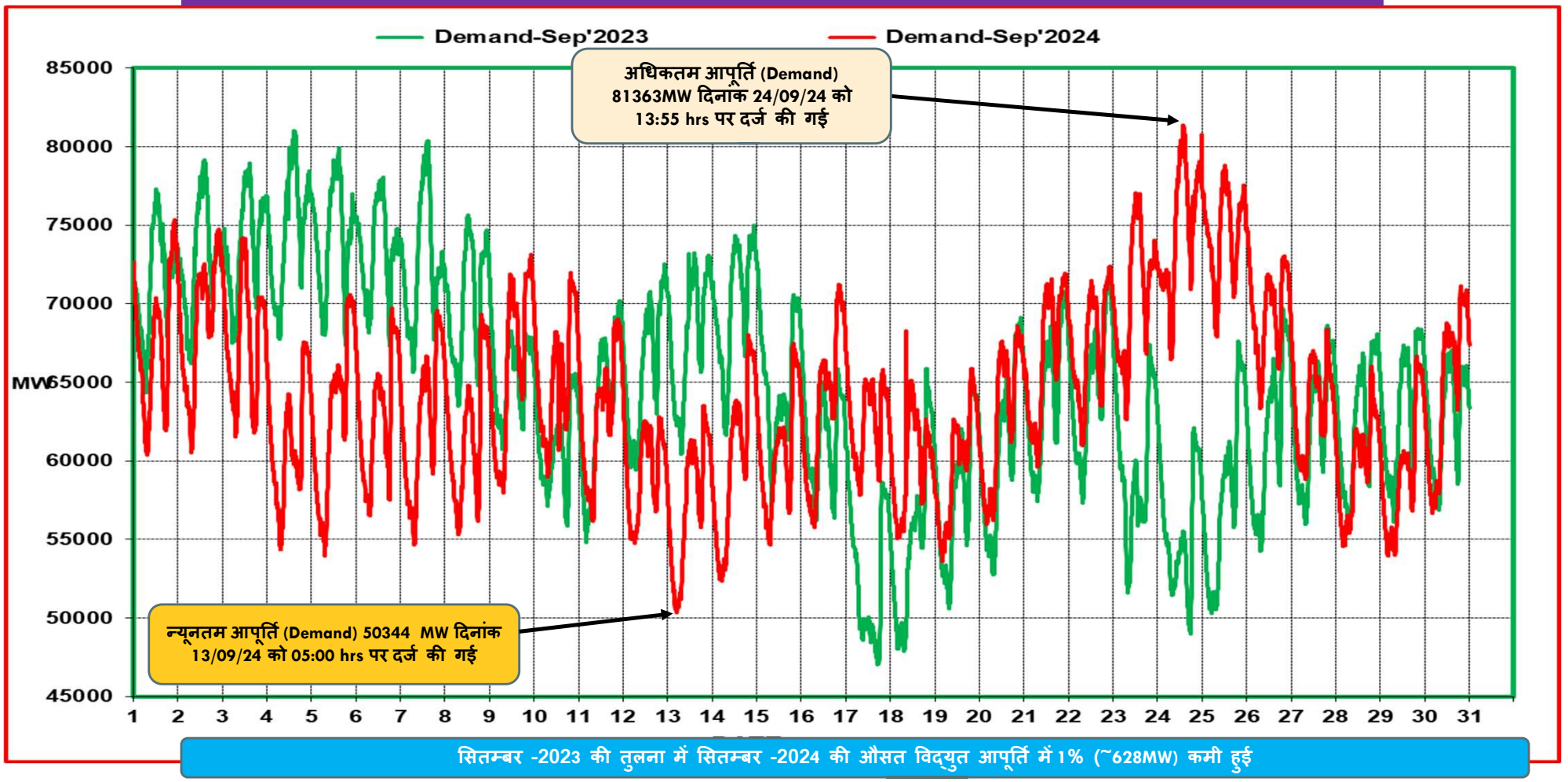
# सितम्बर-2024 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

ग्रिड-इंडिया GRID-INDIA

| राज्य | अधिकतम मांग (MW) (in Sep'24) | दिनांक / समय | रिकॉर्ड अधिकतम मांग (in MW) (upto Aug'24) | दिनांक / समय | अधिकतम ऊर्जा खपत (MU) (in Sep'24) | दिनांक | रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Aug'24) | दिनांक |
|---|---|---|---|---|---|---|---|---|
| पंजाब | 15310 | 21.09.24 at 15:00 | 16089 | 29.06.24 at 12:45 | 340.1 | 25.09.24 | 366.8 | 21.07.2024 |
| हरियाणा | 12414 | 24.09.24 at 15:00 | 14662 | 31.07.24 at 14:30 | 258.4 | 24.09.24 | 293.4 | 30.07.2024 |
| राजस्थान | 16292 | 25.09.24 at 14:15 | 17949 | 20.01.24 at 11:00 | 354.8 | 25.09.24 | 379.1 | 30.05.2024 |
| दिल्ली | 6780 | 24.09.24 at 15:22 | 8656 | 19.06.24 at 15:06 | 140.0 | 25.09.24 | 177.7 | 18.06.2024 |
| उत्तर प्रदेश | 29347 | 03.09.24 at 21:55 | 30618 | 13.06.24 at 22:00 | 585.2 | 03.09.24 | 658.7 | 17.06.2024 |
| उत्तराखंड | 2489 | 24.09.24 at 19:00 | 2863 | 14.06.24 at 22:00 | 53.6 | 24.09.24 | 62.1 | 14.06.2024 |
| हिमाचल प्रदेश | 1884 | 25.09.24 at 07:00 | 2235 | 20.01.24 at 07:00 | 40.0 | 24.09.24 | 40.5 | 30.07.2024 |
| जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT) | 2836 | 24.09.24 at 19:00 | 3107 | 12.01.24 at 20:00 | 57.4 | 25.09.24 | 66.8 | 26.01.2024 |
| चंडीगढ़ | 397 | 24.09.24 at 15:00 | 482 | 18.06.24 at 15:28 | 7.9 | 24.09.24 | 9.1 | 18.06.2024 |
| उत्तरी क्षेत्र # | 81472 | 24.09.24 at 13:55 | 91234 | 19.06.24 at 14:37 | 1793.1 | 24.09.24 | 1990.4 | 18.06.2024 |

# उत्तरी क्षेत्र अधिकतम मांग (Demand Met) as per 1 min SCADA Data

# क्षेत्रीय विद्युत आपूर्ति (Demand) सितम्बर 2023 बनाम सितम्बर 2024 (As per 5 Minute SCADA data)

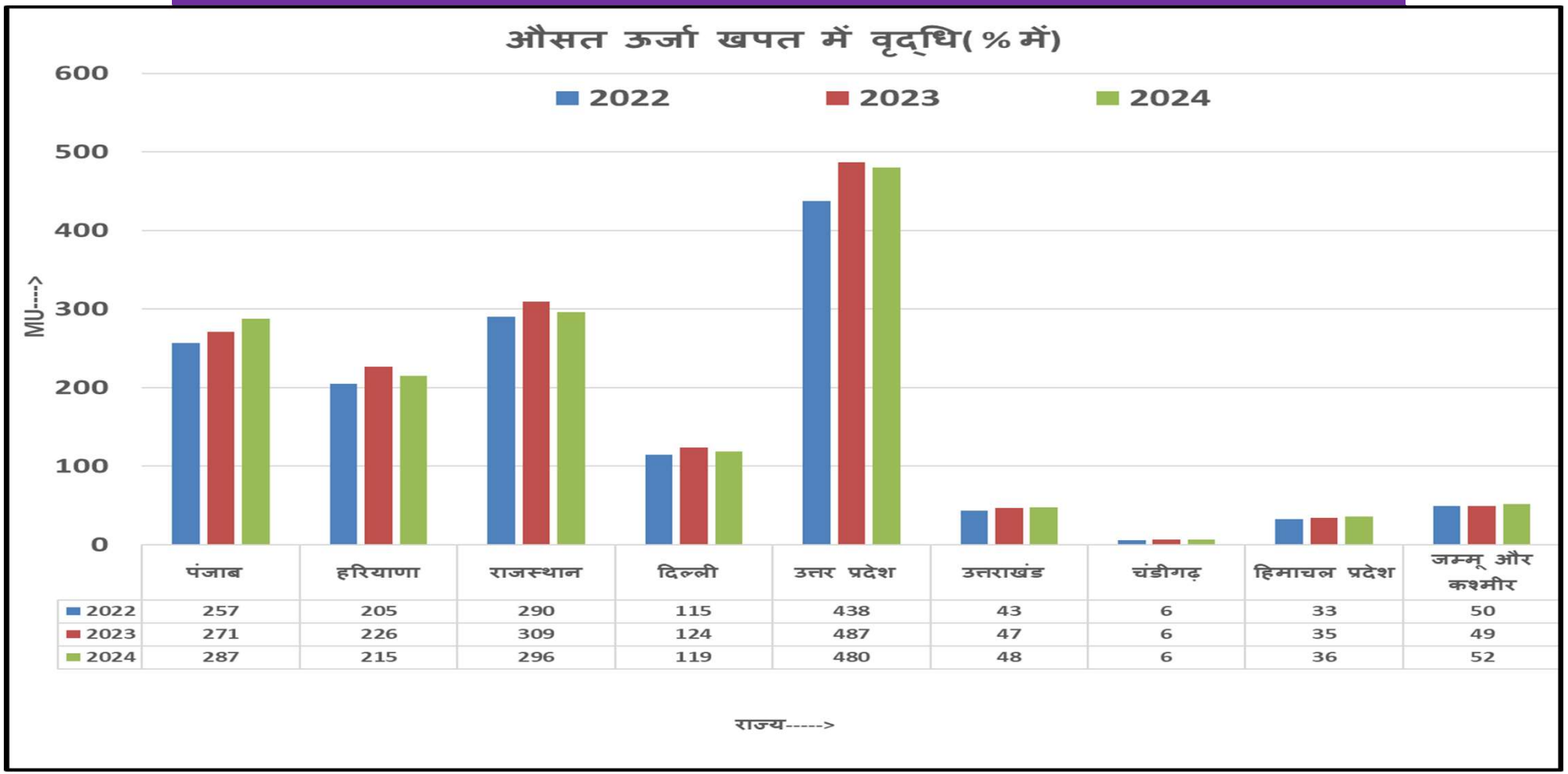



सितम्बर -2023 की तुलना में सितम्बर -2024 की औसत विद्युत आपूर्ति में 1% (~628MW) कमी हुई

# उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि( % में) सितम्बर -2024/ सितम्बर -2023 / सितम्बर -2022

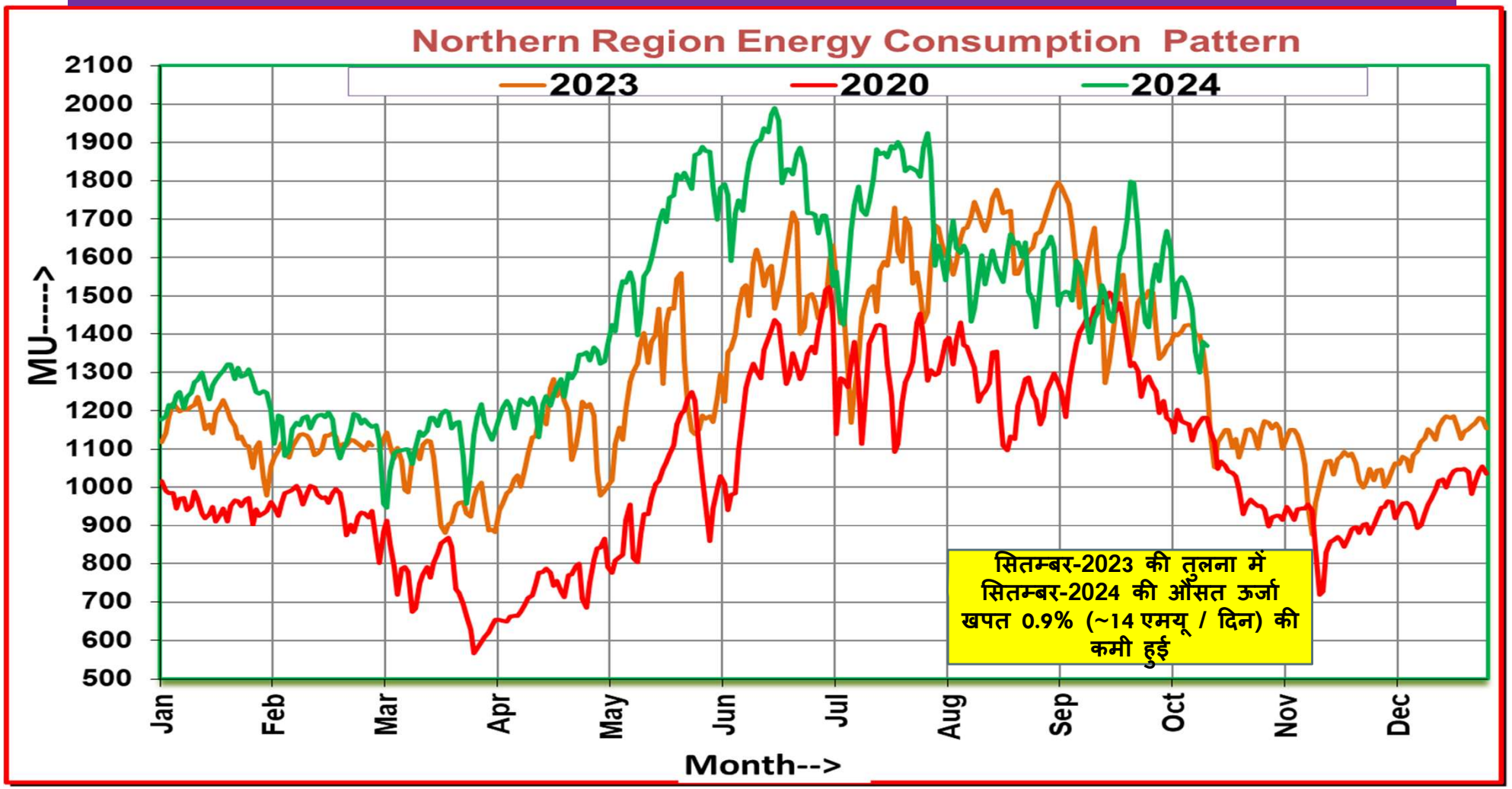
| राज्य | सितम्बर -2022 | सितम्बर -2023 | सितम्बर -2024 | % वृद्धि (सितम्बर -2023 vs सितम्बर -2022 ) | % वृद्धि (सितम्बर -2024 vs सितम्बर -2023 ) |
|---|---|---|---|---|---|
| पंजाब | 257 | 271 | 287 | 5.6% | 5.9% |
| हरियाणा | 205 | 226 | 215 | 10.5% | -4.9% |
| राजस्थान | 290 | 309 | 296 | 6.6% | -4.4% |
| दिल्ली | 115 | 124 | 119 | 7.9% | -4.0% |
| उत्तर प्रदेश | 438 | 487 | 480 | 11.2% | -1.4% |
| उत्तराखंड | 43 | 47 | 48 | 7.3% | 3.0% |
| चंडीगढ़ | 6 | 6 | 6 | 10.7% | -2.9% |
| हिमाचल प्रदेश | 33 | 35 | 36 | 5.4% | 3.4% |
| जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT) | 50 | 49 | 52 | -0.8% | 6.1% |
| उत्तरी क्षेत्र | 1436 | 1558 | 1543 | 8.5% | -0.9% |

# उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि( % में) सितम्बर-2024/ सितम्बर-2023 / सितम्बर-2022

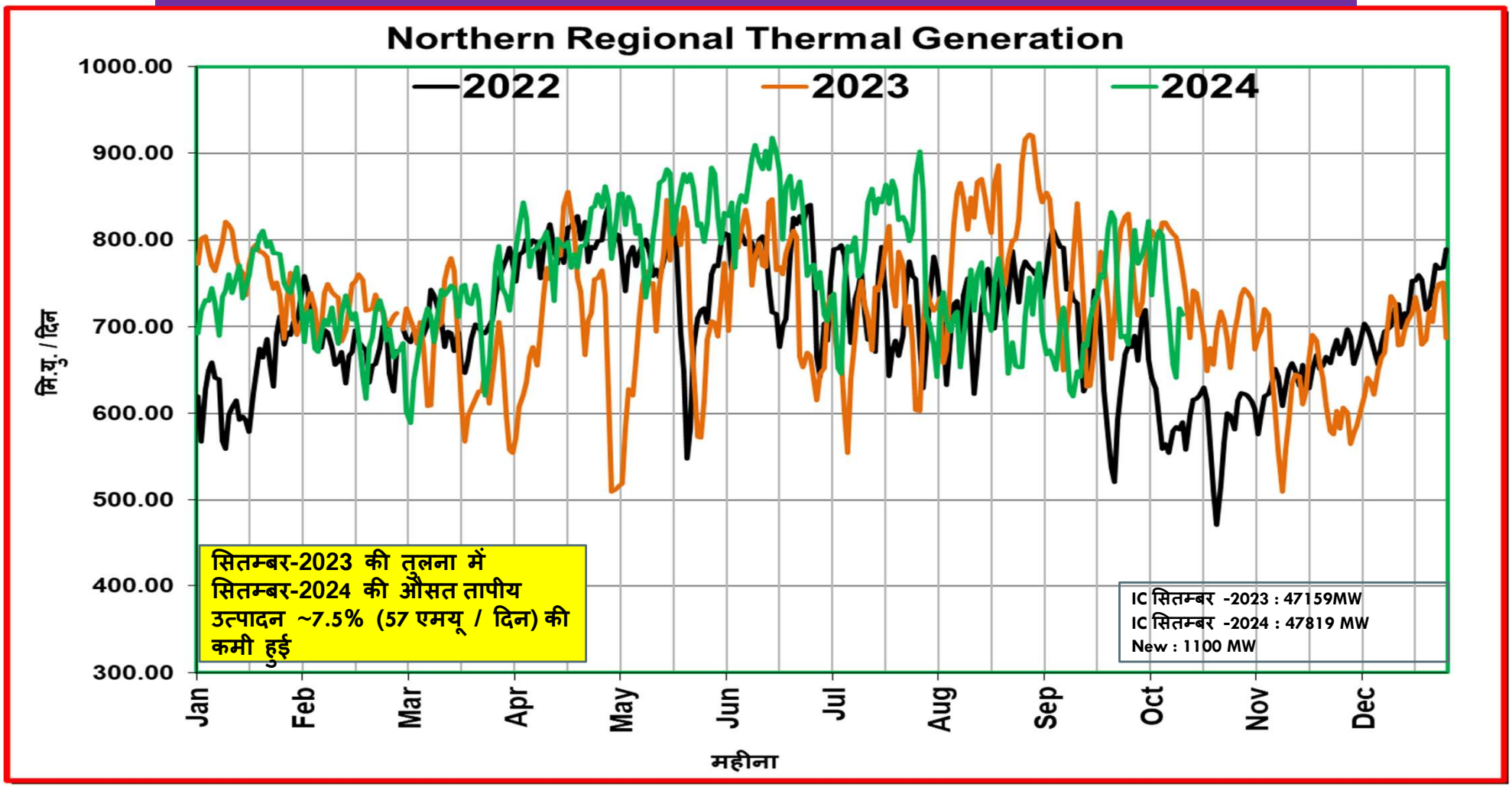



| | पंजाब | हरियाणा | राजस्थान | दिल्ली | उत्तर प्रदेश | उत्तराखंड | चंडीगढ़ | हिमाचल प्रदेश | जम्मू और कश्मीर |
|---|---|---|---|---|---|---|---|---|---|
| 2022 | 257 | 205 | 290 | 115 | 438 | 43 | 6 | 33 | 50 |
| 2023 | 271 | 226 | 309 | 124 | 487 | 47 | 6 | 35 | 49 |
| 2024 | 287 | 215 | 296 | 119 | 480 | 48 | 6 | 36 | 52 |

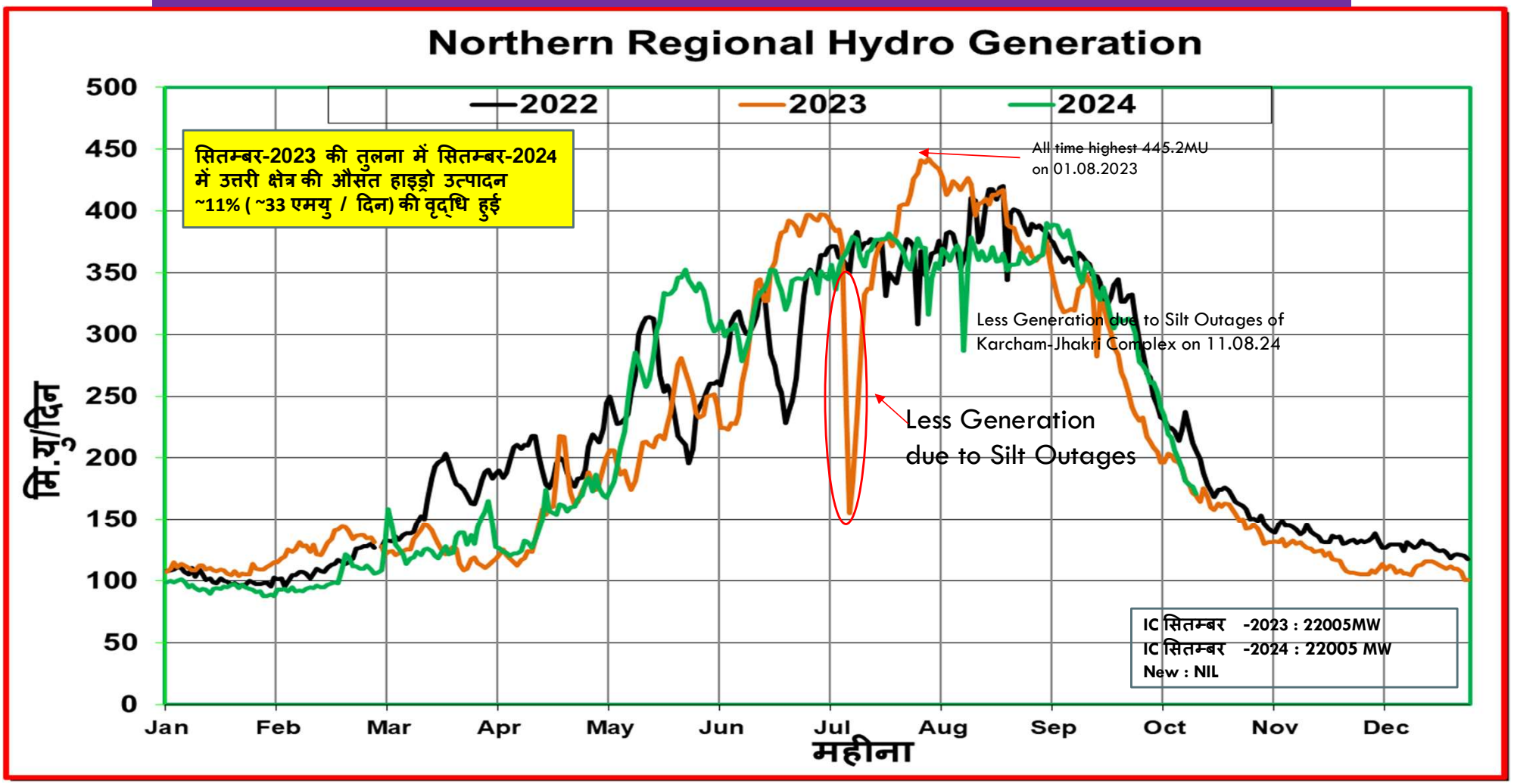
# उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



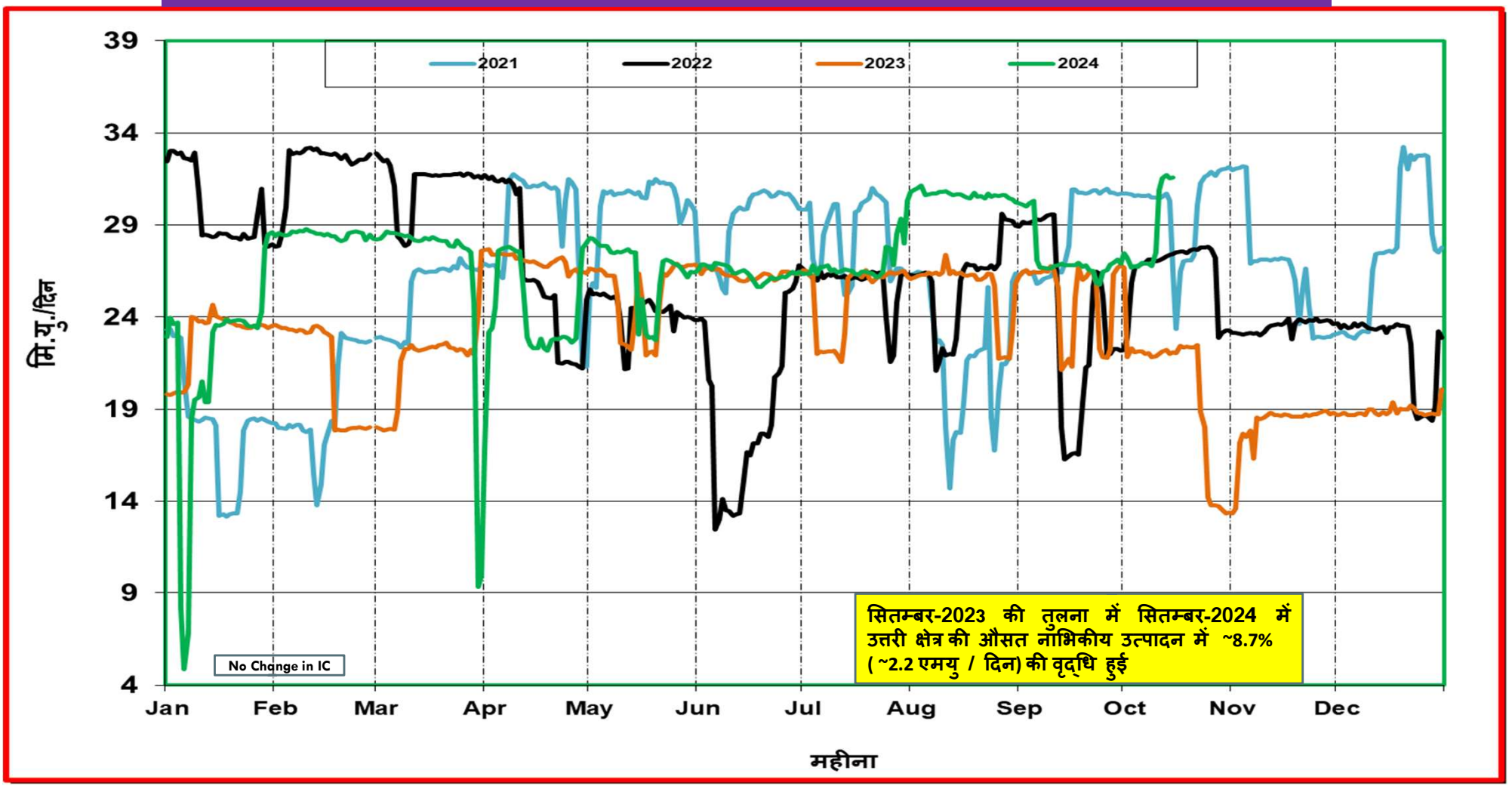
# उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(MUs/Day)



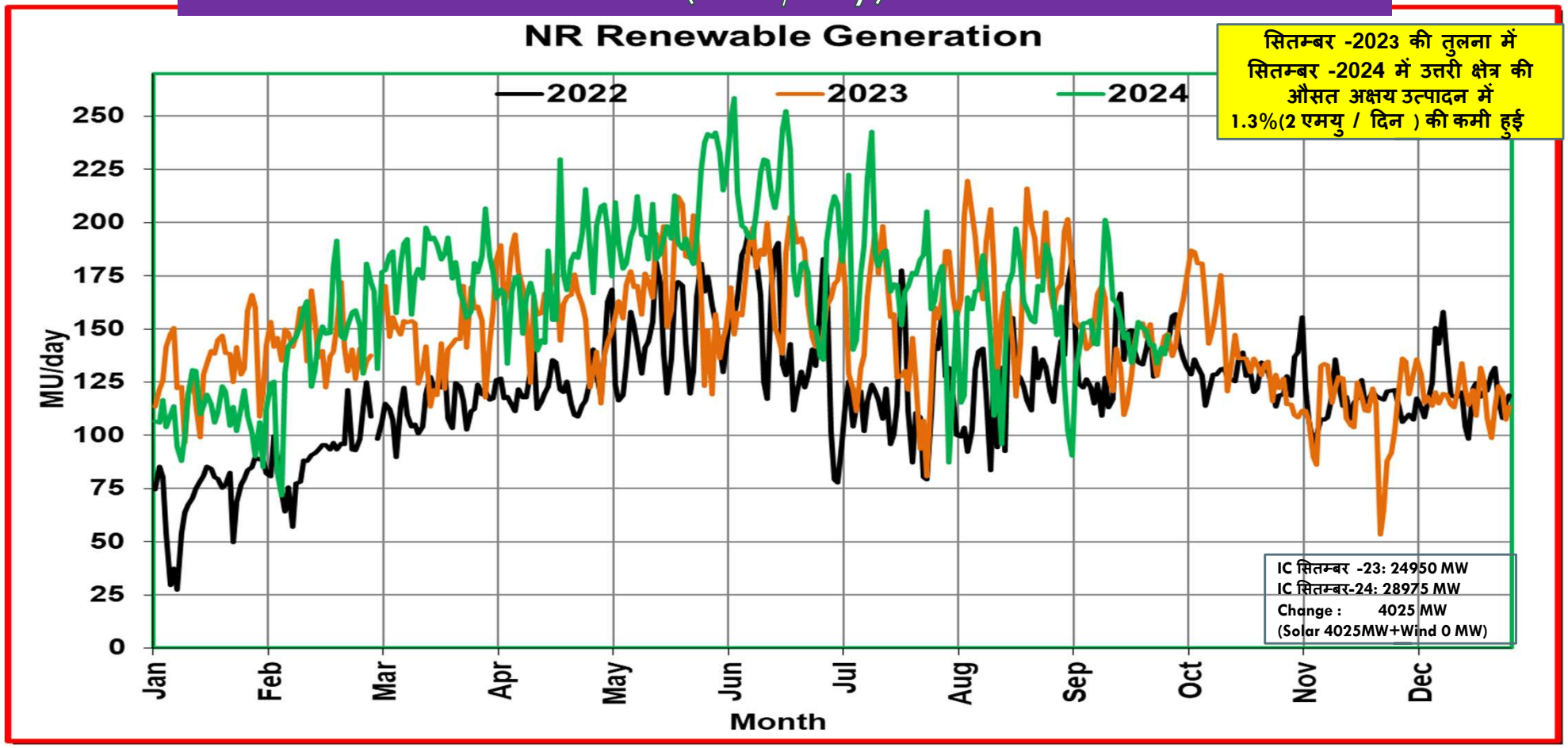
# उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(MUs/Day)



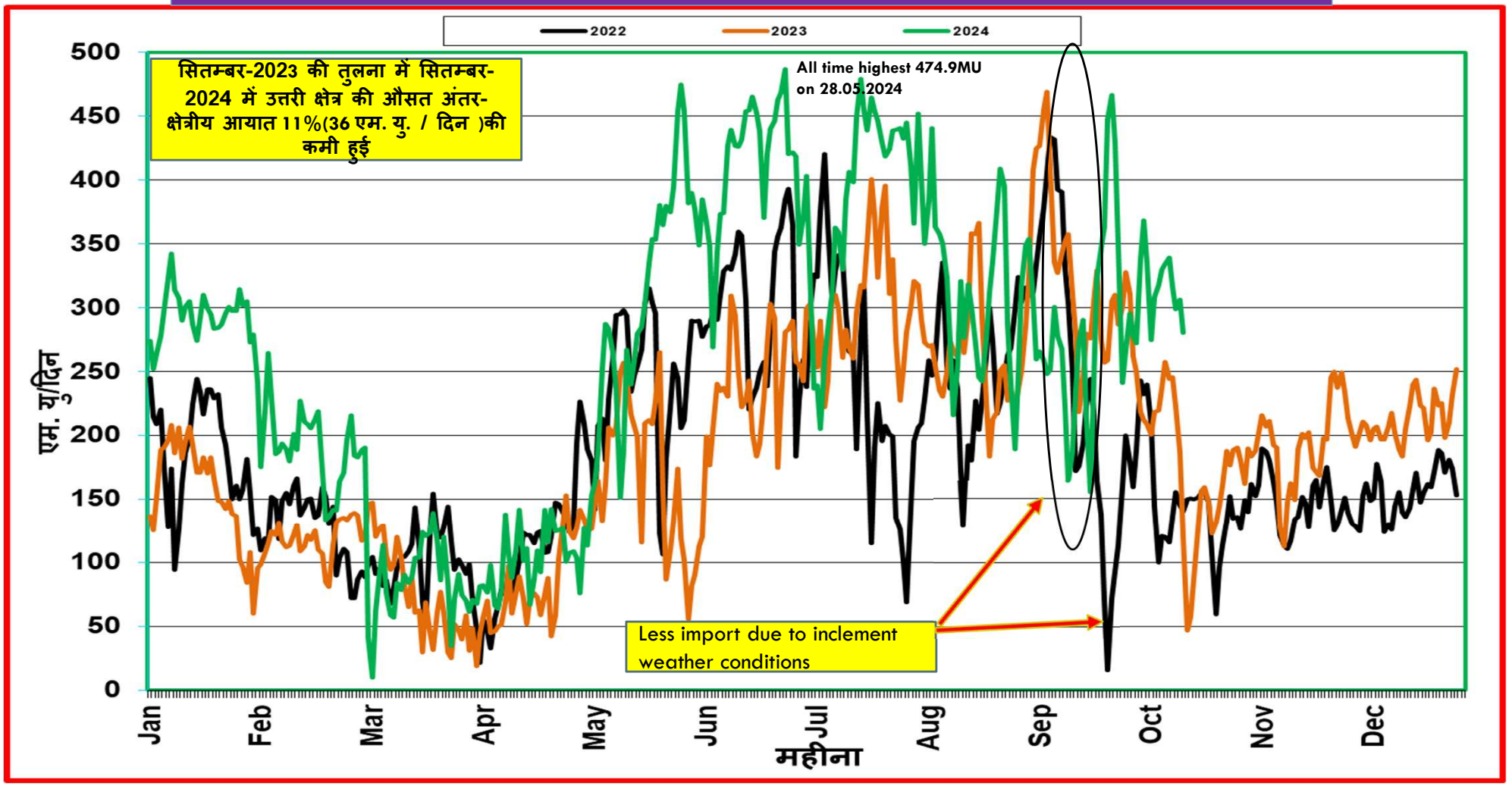
# उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)



# उत्तरी क्षेत्र की अक्षय (Renewable) उत्पादन की स्थिति (MUs/Day)



# अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



## वास्तविक सारांश -
## सितम्बर-2023 बनाम सितम्बर-2024

| | सितम्बर-2023 (मि.यु. /दिन) | सितम्बर-2024 (मि.यु. /दिन) | सितम्बर माह में वृद्धि (मि.यु./दिन) |
|---|---|---|---|
| तापीय (Thermal) उत्पादन | 768.27 | 710.51 | -57.76 |
| जलीय (Hydro) उत्पादन | 309.52 | 342.43 | 32.91 |
| नाभिकीय (Nuclear) उत्पादन | 25.10 | 27.28 | 2.18 |
| अंतर-क्षेत्रीय (Inter-Regional) कुल आयात | 324.65 | 288.39 | -36.26 |
| अक्षय (Renewable) उत्पादन | 148.68 | 146.71 | -1.98 |

# RE Penetration

| | Maximum Daily MU Penetration | | | |
|---|---|---|---|---|
| | Sep '2024 | | Record upto Aug '2024 | |
| | Max % Penetration | Date | Max % Penetration | Date |
| Punjab | 2.73 | 04-09-2024 | 12.28 | 01-04-2020 |
| Rajasthan | 27.92 | 13-09-2024 | 36.47 | 22-10-2021 |
| UP | 3.21 | 14-09-2024 | 5.50 | 05-03-2024 |
| NR | 14.61 | 13-09-2024 | 20.69 | 02-04-2023 |

# DEMAND FORECAST STATUS OF SLDC

- With reference to the Clause 31(2) of Central Electricity Regulatory Commission-IEGC Regulations, 2023 and the Operating Procedure of NRLDC prepared in accordance with the same, each SLDC has to furnish the demand estimation for day ahead, week ahead, month ahead (with time block wise granularity) and demand estimation for year ahead (with hour granularity). The sub-clause 31(2) (h) of IEGC-2023 states the following timeline for the submission of demand estimate data to RLDC.

| Type of Demand Estimation | Timeline |
|---|---|
| Daily | 10:00 hours of previous day |
| Weekly | First working day of previous week |
| Monthly | Fifth day of previous month |
| Yearly | 30th September of previous year |

- The following is the status regarding forecast data submission.

| Region | State | Demand Estimation | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | Daily* | | Weekly | | Monthly | | Yearly | |
| | | Estimation (Y/N) | Data submission (Y/N) | Estimation (Y/N) | Data submission (Y/N) | Estimation (Y/N) | Data submission (Y/N) | Estimation (Y/N) | Data submission (Y/N) |
| NR | Punjab | Y | Y | N | N | N | N | N | N |
| | Haryana | Y | Y | N | N | N | N | N | N |
| | Rajasthan | Y | Y | N | N | N | N | N | N |
| | Delhi | Y | Y | N | N | N | N | Y | Y |
| | UP | Y | Y | N | N | N | N | Y | Y |
| | Uttarakhand | Y | Y | N | N | N | N | N | N |
| | HP | Y | Y | Y | Y | N | N | Y | Y |
| | J&K | Y | Y | N | N | N | N | N | N |
| | Chandigarh | Y | Y | N | N | N | N | N | N |

- In accordance with above, all SLDCs are requested to furnish the demand estimation data as per the formats to NRLDC through mail (nrldcmis@grid-india.in) and SFTP as per above timeline.

| Outage Summary For September 2024 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| CONSTITUENTS | PLANNED (A) | FORCED OUTAGES (B=C+D) | EMERGENCY SHUTDOWNS (C) | TRIPPING (D) | % PLANNED SHUTDOWNS (A/(A+C)) | % EMERGENCY SHUTDOWNS(C/(A+C) | % ESD SHUTDOWNS(C/B) | % TRIPPING (D/B) | TOTAL OUTAGES (A+B) |
| POWERGRID | 347 | 247 | 159 | 88 | 68.6% | 31.4% | 64.4% | 35.6% | 594 |
| UPPTCL | 150 | 288 | 91 | 197 | 62.2% | 37.8% | 31.6% | 68.4% | 438 |
| RRVPNL | 100 | 97 | 57 | 40 | 63.7% | 36.3% | 58.8% | 41.2% | 197 |
| BBMB | 42 | 57 | 25 | 32 | 62.7% | 37.3% | 43.9% | 56.1% | 99 |
| HVPNL | 33 | 51 | 24 | 27 | 57.9% | 42.1% | 47.1% | 52.9% | 84 |
| PSTCL | 16 | 38 | 16 | 22 | 50.0% | 50.0% | 42.1% | 57.9% | 54 |
| DTL | 10 | 25 | 11 | 14 | 47.6% | 52.4% | 44.0% | 56.0% | 35 |
| PTCUL | 8 | 20 | 2 | 18 | 80.0% | 20.0% | 10.0% | 90.0% | 28 |
| HPPTCL | 8 | 16 | 4 | 12 | 66.7% | 33.3% | 25.0% | 75.0% | 24 |
| NTPC | 6 | 12 | 5 | 7 | 54.5% | 45.5% | 41.7% | 58.3% | 18 |
| PDD JK | 1 | 16 | 2 | 14 | 33.3% | 66.7% | 12.5% | 87.5% | 17 |
| MAHINDRA | 1 | 10 | 0 | 10 | 100.0% | 0.0% | 0.0% | 100.0% | 11 |
| Saurya Urja | 9 | 1 | 0 | 1 | 100.0% | 0.0% | 0.0% | 100.0% | 10 |
| THDC | 3 | 7 | 5 | 2 | 37.5% | 62.5% | 71.4% | 28.6% | 10 |
| RENEW SUN WAVE (RSWPL) | 0 | 8 | 4 | 4 | 0.0% | 100.0% | 50.0% | 50.0% | 8 |
| AMP Energy Green Private L | 6 | 0 | 0 | 0 | 100.0% | 0.0% | NA | NA | 6 |
| NRSS36 | 4 | 2 | 2 | 0 | 66.7% | 33.3% | 100.0% | 0.0% | 6 |
| GTL | 1 | 4 | 0 | 4 | 100.0% | 0.0% | 0.0% | 100.0% | 5 |
| PKTSL | 4 | 1 | 1 | 0 | 80.0% | 20.0% | 100.0% | 0.0% | 5 |
| ARP1PL | 3 | 1 | 1 | 0 | 75.0% | 25.0% | 100.0% | 0.0% | 4 |
| Adani | 2 | 1 | 1 | 0 | 66.7% | 33.3% | 100.0% | 0.0% | 3 |
| AEPL | 2 | 1 | 1 | 0 | 66.7% | 33.3% | 100.0% | 0.0% | 3 |
| AHEJ3L | 0 | 3 | 2 | 1 | 0.0% | 100.0% | 66.7% | 33.3% | 3 |
| ESUCRL | 1 | 2 | 1 | 1 | 50.0% | 50.0% | 50.0% | 50.0% | 3 |
| NHPC | 1 | 1 | 0 | 1 | 100.0% | 0.0% | 0.0% | 100.0% | 2 |
| NPCIL | 0 | 2 | 1 | 1 | 0.0% | 100.0% | 50.0% | 50.0% | 2 |
| Total | 758 | 911 | 415 | 496 | 64.6% | 35.4% | 45.6% | 54.4% | 1669 |

## OUTAGE SUMMARY OF LAST THREE MONTHS

| MONTH | PLANNED | FORCED OUTAGES | EMERGENCY SHUTDOWNS | TRIPPING | % PLANNED as of TOTAL S/D | % EMERGENCY SHUTDOWNS | TOTAL OUTAGES (A+B) |
|---|---|---|---|---|---|---|---|
| | (A) | (B=C+D) | (C) | (D) | (A/(A+C)) | (C/(A+C)) | |
| June-24 | 448 | 1163 | 550 | 613 | 44.9% | 55.1% | 1611 |
| July-24 | 481 | 904 | 459 | 445 | 51.2% | 48.8% | 1385 |
| Aug-24 | 548 | 844 | 382 | 462 | 58.9% | 41.1% | 1392 |
| **Sep-24** | **758** | **911** | **415** | **496** | **64.6%** | **35.4%** | **1669** |

# New Elements First Time Charged During Sep 2024

| S. No. | Type of transmission element | Total No |
|---|---|---|
| 1 | New Ac Transmission Line | 03 |
| 2 | Capacitor Bank | 04 |
| 3 | Transformer | 09 |
| 4 | Bus Reactor | 01 |
| 5 | Line Reactor | 01 |
| 6 | Solar Plant | 04 |
| Total New Elements charged | | 22 |

## New AC Transmission line

| S.No | Name of element | Owner | Voltage Level (in kV) | Circuit No | Line Length | Conductor Type | Actual date of charging |
|---|---|---|---|---|---|---|---|
| 1 | 765kV Ghatampur_TPS(UP)-Rampur_PRSTL (UP)-1 | GTL,PGYTL | 765kV | 1 | 406.604 | Quad Bersimis | 07-Sep-2024 |
| 2 | 400kV AGE25L SL_BHD2_PG-Bhadla_2 (PG)-1 | AGE25L | 400kV | 1 | 11.038 | AL59 Moose | 07-Sep-2024 |
| 3 | 220kV JGCPL_SL_BIK2_PG-Bikaner_2 (PBTSL)-1 | Juniper_NEPL | 220kV | 1 | 9.3 | HTLS | 12-Sep-2024 |

## Capacitor Bank

| S.No | Name of element | Owner | Voltage Level (in kV) | Capacitor Bank No | Sub Capacitor Bank MVAR Rating | Capacitor MVAR Rating | Actual date of charging |
|---|---|---|---|---|---|---|---|
| 1 | 33kV, Harmonic Filter Capacitor bank at SRIPL_SL_BIK2_PG | SERENTICA_RI5 PL_Bik2 | 33kV | 3 | 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 12.33kVAr for 7th Harmonic and 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 4.81kVAr for 11th Harmonic | 1.8 | 29-Sep-2024 |
| 2 | 33kV, Harmonic Filter Capacitor bank at SRIPL_SL_BIK2_PG | SERENTICA_RI5 PL_Bik2 | 33kV | 4 | 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 12.33kVAr for 7th Harmonic and 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 4.81kVAr for 11th Harmonic | 1.8 | 29-Sep-2024 |
| 3 | 33kV, Harmonic Filter Capacitor bank at SRIPL_SL_BIK2_PG | SERENTICA_RI4 PL_Bik2 | 33kV | 2 | 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 12.33kVAr for 7th Harmonic and 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 4.81kVAr for 11th Harmonic | 1.8 | 29-Sep-2024 |
| 4 | 33kV, Harmonic Filter Capacitor bank at SRIPL_SL_BIK2_PG | SERENTICA_RI4 PL_Bik2 | 33kV | 1 | 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 12.33kVAr for 7th Harmonic and 1659kVAr capacitor bank with effective output 900kVAr ,Series reactor 4.81kVAr for 11th Harmonic | 1.8 | 29-Sep-2024 |

# Transformer

| S.No | Name of element | Owner | Voltage Level (HV/LV/Tertiary) | MVA Capacity | Actual date of charging |
|---|---|---|---|---|---|
| 1 | 765/400/33kV, 1500 MVA, 3x1-Phase, GE, ICT - 4 at Bhadla_2 (PG) | POWERGRID | 765/400/33kV | 1500 | 07-Sep-2024 |
| 2 | 400/33kV, 330 MVA, 3-Phase, TBEA, Power Transformer - 1 at AGE25L SL_BHD2_PG | AGE25L | 400/33kV | 330 | 07-Sep-2024 |
| 3 | 400/33kV, 330 MVA, 3-Phase, TBEA, Power Transformer - 2 at AGE25L SL_BHD2_PG | AGE25L | 400/33kV | 330 | 08-Sep-2024 |
| 4 | 220/33kV, 160 MVA, 3-Phase, Bharat Bijlee, Power Transformer - 1 at JGCPL_SL_BIK2_PG | Juniper_GCPL,Juniper_NEPL | 220/33kV | 160 | 12-Sep-2024 |
| 5 | 400/220/33kV, 500 MVA, 3-Phase, TandR, ICT - 3 at Jind(PG) | POWERGRID | 400/220/33kV | 500 | 21-Sep-2024 |
| 6 | 765/400/33kV, 3*333 MVA, 3x1-Phase, GE , ICT - 1 at Obra_C_TPS(UP) | UPRVUNL | 765/400/33kV | 1000 | 23-Sep-2024 |
| 7 | 220/33kV, 150 MVA, 3-Phase, Indotech, Power Transformer - 4 at SRIPL_SL_BIK2_PG | SERENTICA_RI5PL_Bik2 | 220/33kV | 150 | 26-Sep-2024 |
| 8 | 220/33kV, 150 MVA, 3-Phase, Indotech, Power Transformer - 3 at SRIPL_SL_BIK2_PG | SERENTICA_RI5PL_Bik2 | 220/33kV | 150 | 26-Sep-2024 |
| 9 | 400/220/33kV, 500 MVA MVA, 3-Phase, Transformers and Rectifiers (India) Limited, ICT - 3 at Bahadurgarh(PG) | POWERGRID | 400/220/33kV | 500 | 30-Sep-2024 |

## BUS REACTOR

| S.No | Name of element | Owner | Voltage Level | MVAR Capacity | Actual date of charging |
|---|---|---|---|---|---|
| 1 | 400kV, 125 MVAr Bus Reactor at Jawaharpur_TPS(UP) | UPRVUNL | 400kV | 125 MVAr | 06-Sep-2024 |

## LINE REACTOR

| S.No | Name of element | Owner | Voltage Level (in kV) | MVAR Capacity | Actual date of charging |
|---|---|---|---|---|---|
| 1 | 330 MVAr Switchable Non-Convertable LINE_REACTOR of 765 KV GHATAMPUR TPS - RAMPUR LINE at Ghatampur_TPS(UP) | GTL,PGYTL | 765kV | 330 MVAr | 06-Sep-2024 |

## Solar plant

| S.No | Plant Name | Total Capacity charged(MW) | Total Installed Capacity of Plant(MW) | Type of RE | Total No. of Solar ICR/Block Charged | Agency/ Owner | Actual date of charging |
|---|---|---|---|---|---|---|---|
| 1 | Adani Green Energy Twenty Five Limited | 143 MW | 500 MW | Solar | 12 | AGE25L | 08-Sep-2024 |
| 2 | Adani Green Energy Twenty Five Limited | 119 MW | 500 MW | Solar | 10 | AGE25L | 14-Sep-2024 |
| 3 | JUNIPER GREEN COSMIC PRIVATE LIMITED | 100MW | 100MW | Solar | 12 | Juniper_GCPL | 14-Sep-2024 |
| 4 | Kolayat Solar Power Plant NTPC Limited | 54.87MW | 498.78MW | Solar | 5 | NTPC_KOLAYAT SL | 25-Sep-2024 |
| 5 | Serentica Renewables India 5 Pvt Ltd (SRI5PL) | 110 MW | 220 MW | Solar | 10 | SERENTICA_RI5PL_Bik2 | 28-Sep-2024 |