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 221 वीं बैठक का कार्यवृत |

**Subject:** Minutes of the 221st OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 221 वीं बैठक दिनांक 19.07.2024 को 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 221st meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 19.07.2024. 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 I

Signed by Dharmendra Kumar Meena
Date: 08-08-2024 15:05:51

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

**सेवा में,**

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

# Contents

# उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 221वीं बैठक का कार्यवृत्त

The 221th OCC meeting of NRPC was held on 19.07.2024 through video conferencing.

## खण्ड-क:उ.क्षे.वि.स. PART-A:NRPC

### A.1. Confirmation of Minutes

Minutes of the 220th OCC meeting was issued on 10.07.2024.

- With regard to agenda No. A.3, HPSLDC representative informed that there is a typographical error, *"The Anticipation in Energy Requirement & Peak Demand in respect of Himachal Pradesh for the month of April, 2024 came on the lower side due to consistent bad weather"* shall be replaced with following:

*"The Anticipation in Energy Requirement & Peak Demand in respect of Himachal Pradesh for the month of **May, 2024** came on the lower side due to consistent bad weather"*

- Further with regard to point no. A.7.6 of agenda No. A.7 in respect to "NR Islanding Scheme", HPSLDC has requested that following may be modified: -

"*With regard to "Shimla-Solan Islanding Scheme" representative from **HPSEB** intimated to forum that HPSEB has been taken up the matter with M/s GE and they have given clearance to enable the UFR setting of Bhaba HEP at 47.5 Hz. M/s GE has submitted a performa invoice for 100% advance payment regarding the same."*

OCC confirmed the minutes of the 220th OCC meeting with above modifications in agenda No.A.3 and point no. A.7.6 of agenda No. A.7.

### A.2. Status of action taken on decisions of 220th 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 June 2024

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

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

- **Delhi**

  Delhi experienced unexpected scorching heat wave in month of June-2024. So, actual peak demand and energy consumption in June-2024 are much higher than expected.

- **Haryana**

  It is intimated that the deviation in Actual Power Supply Position (Provisional) vis-à-vis Anticipated figures was due to severe heat wave in northern region and increase in demand ranging from ~ 20% to 355% in the agricultural sector for the first half of the month as compared to last year data for the same period.

- **Punjab**

  It is intimated that actual energy requirement is more as compared to anticipated energy requirement because of higher temperature and deficit of rainfall in the month of June 2024 in the state of Punjab.

- **Rajasthan**

  The Actual Energy requirement and Peak Demand w.r.t. Anticipated Energy requirement and Peak Demand increased by 16.3% and 7.7% respectively for June' 2024 due to unexpected load growth (27.06% w.r.t. June’ 2023) during the month as unexpected temperature rise & heat waves in the state control area.

- **Uttar Pradesh**

  Actual energy consumption and demand was higher than anticipated due to severe heat wave and persistent 4-5 degree higher temperature in June 2024 in comparison to June 2023.

- **Uttarakhand**

  The reason for significant variation in energy requirements (14.4%) and Peak Demand (10.1%) for month of June'24 against anticipated figures were due to persistent heat wave conditions along with 6-7 degree increase in temperature throughout the month and delay in pre-monsoon as compared to previous years.

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

The maintenance programme of generating units and transmission lines for the month of August 2024 was deliberated in the meeting held on 15.07.2024.

Following shutdowns was also deliberated in the OCC meeting:

| Element Name | Daily/ Cont. | Reason | Requested From | Requested To | Decision of OCC |
|---|---|---|---|---|---|
| 400KC D/C BARMER BHINMAL LINE Ckt I & 2 | C | Shutdown is required for height raising / shifting work of overhead EHV line of 400KV D/C BARMER - Bhinmal line by the NHAI under the bhartmala pariyojana (Phase-1) | 20.07.2024<br>09:00 Hrs | 10.08.2024<br>18:00 hrs. | **Rejected. PowerGrid denied consent as they are carrying out some work at Bhinmal S/s and asked RVPN to apply for s/d in first week of August** |

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

The updated anticipated Power Supply Position for August 2024 is as below:

| State / UT | Availability / Requirement | Revised Energy (MU) | Revised Peak (MW) | Date of revision |
|---|---|---|---|---|
| CHANDIGARH | Availability | 240 | 400 | No Revision submitted |
| | Requirement | 231 | 457 | |
| | Surplus / Shortfall | 9 | -57 | |
| | % Surplus / Shortfall | 4.0% | -12.5% | |
| DELHI | Availability | 5303 | 7607 | 14-Jun-24 |
| | Requirement | 3900 | 7100 | |
| | Surplus / Shortfall | 1403 | 507 | |
| | % Surplus / Shortfall | 36.0% | 7.1% | |
| HARYANA | Availability | 7829 | 13811 | 12-July-24 |
| | Requirement | 8123 | 13124 | |
| | Surplus / Shortfall | -294 | 687 | |
| | % Surplus / Shortfall | -3.6% | 5.2% | |
| HIMACHAL PRADESH | Availability | 1374 | 1848 | 09-July-24 |
| | Requirement | 1139 | 1800 | |
| | Surplus / Shortfall | 235 | 48 | |
| | % Surplus / Shortfall | 20.7% | 2.7% | |
| J&K and | Availability | 1844 | 2478 | 17-July-24 |

| State / UT | Availability / Requirement | Revised Energy (MU) | Revised Peak (MW) | Date of revision |
|---|---|---|---|---|
| LADAKH | Requirement | 1846 | 3103 | |
| | Surplus / Shortfall | -2 | -625 | |
| | % Surplus / Shortfall | -0.1% | -20.1% | |
| PUNJAB | Availability | 10200 | 14200 | 19-July-24 |
| | Requirement | 11700 | 15500 | |
| | Surplus / Shortfall | -1500 | -1300 | |
| | % Surplus / Shortfall | -12.8% | -8.4% | |
| RAJASTHAN | Availability | 10560 | 17790 | 18-July-24 |
| | Requirement | 9824 | 17000 | |
| | Surplus / Shortfall | 736 | 790 | |
| | % Surplus / Shortfall | 7.5% | 4.6% | |
| UTTAR PRADESH | Availability | 17670 | 30500 | 09-July-24 |
| | Requirement | 17360 | 30500 | |
| | Surplus / Shortfall | 310 | 0 | |
| | % Surplus / Shortfall | 1.8% | 0.0% | |
| UTTARAKHAND | Availability | 1463 | 2300 | 03-July-24 |
| | Requirement | 1476 | 2400 | |
| | Surplus / Shortfall | -12 | -100 | |
| | % Surplus / Shortfall | -0.8% | -4.2% | |
| NORTHERN REGION | Availability | 56483 | 84300 | |
| | Requirement | 55598 | 84300 | |
| | Surplus / Shortfall | 885 | 0 | |
| | % Surplus / Shortfall | 1.6% | 0.0% | |

## 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 221st 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.6.3. MS, NRPC suggested States/UTs of NR to constitute State Operation Co-ordination Committee with participation from SLDC, STU, State DISCOMs and State GENCOs to address their internal grid/operation issues regularly and in effective manner.

## A.7. NR Islanding scheme

A.7.1. In the meeting (221st OCC), UPPTCL representative mentioned that telemetry for few stations for Unchahar islanding scheme is pending. MS, NRPC asked UPPTCL to intimate the sub-station wise timelines for the telemetry work remaining.

A.7.2. With regard to Agra islanding scheme, UPPTCL representative apprised forum that procurement of UFR is under process and tender would be floated soon.

A.7.3. RRVPNL representative mentioned that logic for Jodhpur-Barmer-Rajwest islanding scheme is under implementation and DPR for implementation of Suratgarh islanding scheme is under finalization.

A.7.4. With regard to Patiala-Nabha Power Rajpura islanding scheme representative from Punjab SLDC informed that DPR for PSDF funding has been approved from their management and it has been submitted to PSDF Secretariat. In the meeting, Punjab SLDC informed that there were some observations from PSDF Sectt. and reviewed scheme has been submitted last week.

A.7.5. With regard to Kullu-Manali Islanding scheme, HPSLDC representative apprised forum that the appraisal Committee meeting was held on 06.07.2024 and MoM of same is awaited.

A.7.6. With regard to Shimla-Solan Islanding scheme, SE(O) highlighted that there is no progress from last few months and mentioned that a physical meeting would be conveyed by NRPC Sectt. with all stakeholders. HPSLDC to ensure participation of GE officials in the said meeting.

## 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 09th July 2024).

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

| Station | Capacity (MW) | PLF % (prev. months) | Normative Stock Reqd. (Days) | Actual Stock (Days) |
|---|---|---|---|---|
| SURATGARH TPS | 1500 | 0.69 | 22 | 3.8 |
| TALWANDI SABO TPP | 1980 | 0.62 | 22 | 4.7 |
| CHHABRA-I PH-1 TPP | 500 | 0.50 | 22 | 4.8 |

MS, NRPC asked above Generators to make efforts for the enhancement of coal stock as per the normative requirement.

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

A.9.1 In the meeting, EE(O) NRPC apprised forum updated inputs received from utilities are attached as **Annexure-A.II.**

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. System Implementation of AUFLS and df/dt Scheme in Northern Region (Agenda by NRPC Sectt.)**

A.10.1 NRPC representative apprised forum that the report of Task Force on Automatic Under Frequency Load Shedding (AUFLS) and df/dt scheme was approved by the NPC in 14th NPC meeting. The same needed to be taken up for implementation by NRPC.

A.10.2 NRPC representative presented the recommendation of the report to the OCC forum as below:

i. NPC Secretariat will communicate region wise relief quantum (based on Regional Peak Demand Met during the previous FY) by 31st of May to RPCs for implementation in the next Financial Year (FY).
ii. Distribution of relief among State/UT to be carried out based on Regional relief and demand contribution in the average of Peak demand met ratio and demand met (consumption) ratio of State/UT in the previous FY by RPCs.
iii. Guidelines for identification of AUFLS feeders: Stage-1 & Stage-2 for downstream network at 11/22/33 kV level and Stage-3 & Satge-4 for upstream network at EHV (66/110/132 kV) level.
iv. Prioritization of the loads under the AUFLS and df/dt scheme: Feeders catering to critical loads are to be avoided. VIP areas, Airport, Metro, Railways and Defence etc. has been prioritized.
v. Quantum Identification for AUFLS by States/UT and monthly vetting: Each SLDC shall carry out month-wise Stage-wise analysis and furnish to RPC/RLDC. Actual Relief for the month and recommended Relief for the month for each Stage. The data would be vetted by RLDC and discussed in OCC Meetings of RPC. As a general Guideline Actual Relief for the month should be 10% more than the recommended Relief for the month considering the Relay/breaker issues and a resilient safety net.
vi. Analysis of AUFLS Event and discussion in OCC Meetings of RPC.
vii. Mapping of AUFLS feeder at SLDC and RLDC level.
viii. SLDCs shall download the data and store it for two years. The Data should be made available to RPCs/RLDCs/CEA/CERC for further studies or analysis.

ix. Settings of UFR for Pumping load/Energy Storage Systems: All Energy Storage Systems would change from charging mode to discharging mode at 49.50 Hz. If it is not possible then they would be tripped at 49.50 Hz. If ESS is injecting active power at 49.50 Hz not to be tripped. Pumping load will be tripped before AUFLS first stage. Irrigation Pumps would be tripped at 49.50 Hz.

x. All the relays procured in future to have a sampling period ranging from three (03) cycles to five (05) Cycles. No additional time delay to be incorporated in the relay other than the inherent measuring time.

xi. Testing/Inspection of UFR: SLDCs responsible for testing and chalk out a plan of relays testing schedule before 1st of December and submit the same to RPC/RLDC. The periodicity of testing of relays shall be twice in a year at 110 / 132 kV level and above Substations and once in a year at 66 kV level and below Substations.

xii. RPC would carry UFR inspection randomly on sample basis by the RPC Secretariat or through RLDC.

xiii. df/dt Scheme: It is specific to regions and therefore, the quantum of load shedding may be discussed at regional levels in the RPCs in consultation with the stakeholders.

A.10.3 Representative of HP SLDC stated that they would face difficulty in testing of UFRs due to non-availability of sufficient manpower with SLDC for this purpose.

A.10.4 Representative of NRLDC stated that SLDC may carry out testing of UFRs through respective STUs and SLDC may coordinate for the same.

A.10.5 CGM, NRLDC stated that NR constituents may go through the report of the task force and submit queries, if any, to NRPC Secretariat before the next OCC meeting.

***Decision of OCC Forum:***

*Forum requested NR constituents to go through the report of the task force and submit queries, if any, to NRPC Secretariat before the next OCC meeting.*

## A.11. Updating outage Details by Generating Station/utilities (Agenda by CEA)

A.11.1. 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.11.2. In this regard, list of Planned Maintenance schedules versus actual maintenance availed for the year 2024-25 for the month of April, May & June-2024 attached as Annexure-A.VI. 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.III**.

A.11.3. Chief Engineer (OPM), CEA requested RPC Sectt. to kindly update the google sheet circulated by them about Planned Maintenance schedules versus actual maintenance

availed for the year 2024-25 and also ensure that Generating Station/utilities of NR are submitting for each month the details of the maintenance activities that transpired against the originally planned schedule. Further, any deviations from the planned schedule shall be explained by the concerned generating entities.

A.11.4. MS, NRPC was of view that said matter to be taken as agenda in every OCC meeting and generating stations of NR to update the status of Planned Maintenance schedules versus actual maintenance availed for the previous month before every OCC meeting.

***Decision of OCC Forum:***

*Forum agreed to take this matter as agenda in every OCC meeting and 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.*

**A.12. Increasing capacity of ICT's at 400 KV Agra, 400 KV Lucknow, Gorakhpur & Mainpuri Sub-Station (Agenda by Powergrid NR-3)**

A.12.1. Powergrid NR-3 representative apprised forum that ICTs at Agra, Gorakhpur, Lucknow and & Mainpuri Sub-Station under the peak loading are not complying N-1 contingency criteria.

A.12.2. Further he mentioned that regarding addition of new ICTs at above Substations, space requirement was identified and observed that space for new ICT is available at all Substations i.e. Agra (with provision of outdoor GIS bays), at 400kV Lucknow (with provision of outdoor GIS bays), at 400kV Gorakhpur (with provision of outdoor GIS bays) and at Mainpuri S/S.

A.12.3. CTU representative acknowledged that based on the load pattern of ICT for above mentioned substations for past one year, there is an issue of overloading of ICT's at Agra and Lucknow S/s. However, loading of ICTs at 400kV Gorakhpur and Mainpuri substations are within n-1 limit.

A.12.4. CTU representative also mentioned that for 400/220kV Lucknow (PG) ICT augmentation, confirmation from UPPTCL is required as Mohanlalganj has also been commissioned near Lucknow.

A.12.5. NRLDC mentioned that they have highlighted in quarterly feedback to CTUIL their concern regarding N-1 non-compliant ICTs at 400kV Agra and 400 kV Lucknow Sub-Station of Northern Region-3.

A.12.6. MS, NRPC asked UPPTCL to give their inputs on the said matter to CTU in next 10 days. Subsequently the issue may be taken up in the CMETS meeting of CTU.

***Decision of OCC Forum:***

*Forum asked UPPTCL to give their inputs on the said matter to CTU in next 10 days and subsequently the issue may be taken up in the CMETS meeting of CTU.*

**A.13. Requirement of additional 400/132/33 KV,200 MVA ICT at HVDC Ballia Sub-Station. (Agenda by Powergrid NR-3)**

A.13.1. Powergrid NR-3 representative apprised forum that as on date no spare ICT of 200MVA, 400/132kV rating is available in Northern Region-3.

A.13.2. Regarding auxiliary supply from tertiary of 400/132 KV 200 MVA ICT, Powergrid NR-3 mentioned that there are 02 nos 132 KV transmission lines of UPPTCL connected to UPPTCL SubStation. There are frequent faults in these lines which are being fed by this ICT, Hence the reliability of this ICT is also not good.

A.13.3. Therefore, for reliability of HVDC Ballia-Bhiwadi link Powergrid has requested following:

- Approval of one additional 200MVA, 400/132/33kV ICT along with bays at Ballia (PG) substation on priority basis, for which space is available at Ballia Substation.

A.13.4. Allowing procurement of one spare 200MVA, 400/132/33kV ICT to meet out contingency requirement.

A.13.5. CGM, NRLDC stated that with regard to the requirement of an additional 200MVA, 400/132/33kV ICT, views of UPPTCL are required on as the power from the proposed ICT would ultimately be fed in UP system. Further, in respect of requirement of spare ICT, CEA Regulations/norms may be referred.

A.13.6. Powergrid representative stated that there is no spare available with POWERGRID in UP & Uttarakhand states of this rating.

A.13.7. CGM, NRLDC enquired about the number of ICTs with this rating installed in the Powergrid system in the northern region. Powergrid NR-3 responded that this is the only ICT of this rating in their system in the NR.

A.13.8. Further, NRLDC representative informed that Agra South S/s (UP) has similar 200 MVA, 400/132kV ICTs.

A.13.9. MS, NRPC asked UPPTCL to give their views on the Powergrid proposal before the next OCC meeting.

***Decision of OCC Forum:***

*Forum asked UPPTCL to give their views on the Powergrid proposal before the next OCC meeting.*

**A.14. Controlling overloading of 400kV Jhatikra –Bamnauli Line (Agenda by Powergrid DTL)**

A.14.1. In the meeting, DTL representative explained the proposal from their side. Due to LILO of only single ckt of 400kV Bamnauli-Jhatikara D/C line at Dwarka, flow on 400kV

Bamnauli-Dwarka is much lower whereas loading of 400kV Bamnauli-Jhatikara line remains high, thus loading on one section is lower.

A.14.2. DTL further expressed concern that due to LILO at Jhatikara, some portion of line is quad moose whereas majority of portion of line is quad bersimis.

A.14.3. CTUIL representative stated that additional connection of 400kV Dwarka is already under implementation by POWERGRID as new 400kV Jhatikara-Dwarka D/C, therefore, long-term solution is already under implementation.

A.14.4. NRLDC representative stated that Short-term proposal seems effective for loading management, however, bus-split operation at 400kV Bamnauli leads to reduced reliability of Bamnauli load (also feeding DIAL). Further, there is likely to be slight reduction in voltage, this will increase possibility of sudden load reduction in case of tripping as seen on 17Jun 2024 and 16Jul 2024.

A.14.5. Further, NRLDC mentioned that the proposed arrangement would also increase loading of 400/220kV Bamnauli ICTs. In event of tripping of 400kV Jhatikara - Dwarka line after bus splitting, loading of 400/220kV ICTs at Bamnauli will increase by ~450 MW cumulatively.

A.14.6. DTL representative stated that short term proposal was included for comments from all stakeholders and as discussed, the short-term proposal reduces reliability.

A.14.7. OCC agreed that short-term proposal may not be implemented as it reduces reliability.

A.14.8. OCC asked DTL to refer their long-term proposal to CEA/CTUIL for discussion at CMETS level to avoid issues during next summer season. Subsequently, the matter may be taken up at TCC/NRPC level. OCC also asked POWERGRID to expedite commissioning of 400kV Jhatikara-Dwarka D/C lines.

***Decision of OCC Forum:***

*Forum was of view that short-term proposal of DTL may not be implemented as it reduces reliability and asked DTL to refer their long-term proposal to CEA/CTUIL for discussion at CMETS level to avoid issues during next summer season. Subsequently, the matter may be taken up at TCC/NRPC level. OCC also asked POWERGRID to expedite commissioning of 400kV Jhatikara-Dwarka D/C lines.*

**A.15. Revised SPS for 2X315 MVA, 400/220kV ILTs at 400kV GSS Jodhpur (Agenda by RVPN)**

A.15.1. EE(O) NRPC intimated forum that SPS for 2X315 MVA, 400/220 kV ILTs at 400kV GSS Jodhpur (Surpura) was approved in 197th OCC meeting.

A.15.2. RVPN vide letter dated 28.06.2024 has submitted that due to increased loading in the Bilara, Jodhpur and Bhawad region, operational arrangement of lines and transformers has been changed at 400kV GSS Jodhpur. This has necessitated the revision of the approved and implemented SPS.

A.15.3. In this regard, RVPN has submitted the revised SPS for for 2X315 MVA, 400/220kV ILTs at 400kV GSS Jodhpur (Surpura). (Copy attached as Annexure-A.IX of agenda)

A.15.4. NRLDC representative mentioned that RVPN has submitted four logic for the revised SPS. Upon examination of same following are their observations:

- Group-1 logic seems ok
- Group-2 logic seems to increase loading
- Group-3 logic seems ok
- Group-4 logic seems ok

A.15.5. NRLDC mentioned that Group-1 and Group-4 logics seems to cause load loss and asked RVPN may confirm no important load connecting these groups.

A.15.6. Further, NRLDC stated that between different groups there is difference of only 200ms, it is suggested that this difference may be kept as 500ms/1sec, so that line flows become stable after 1st logic operation.

A.15.7. MS, NRPC asked RVPN to reply vide mail to the above queries of NRLDC and matter may be further deliberated in the upcoming PSC meeting of NRPC.

***Decision of OCC Forum:***

*Forum asked RVPN to reply vide mail to the above queries of NRLDC and matter may be further deliberated in the upcoming PSC meeting of NRPC.*

**A.16. Table Agenda-1: Streamlining of Online Submission of Generation data in NPP Portal (Agenda by CEA)**

A.16.1 NRPC representative apprised forum that all Generating Utilities/Stations in Northern Region need to be submitted their online generation data through NPP Portal.

A.16.2 Chief Engineer (OPM), CEA informed that currently many of Generating Utilities/Stations of NR are either not submitting the data or submitting the data by mail. List of such station is attached as **Annexure-A.IV.**

A.16.3 MS, NRPC asked OPM division CEA to once again share the login credentials for NPP portal with generating stations who are not submitting data online.

***Decision of OCC Forum:***

*Forum asked all Generating Utilities/Stations in Northern Region to submit their online generation data through NPP Portal.*

*OPM division CEA was requested to once again share the login credentials for NPP portal with generating stations who are not submitting data online.*

**A.17. Table Agenda 2: Frequent auto reclosing of 400 KV Allahabad-1& 2 Breakers (Agenda by NTPC)**

A.17.1. NTPC representative intimated that 400 KV Allahabad line-1 & 2 are getting frequent auto re-closures due to transient faults.

Details of Auto re-closure are as given below:-

| Date | Line | Fault distance |
|---|---|---|
| 27.06.24 @2:46:25:536 PM | Ald#1 for Bph- E | 204 Km from Rihand, current 1.71 KA |
| 04.07.24 @6:55:02:975 PM | Ald#2 Yph-E | 230 Km from Rihand, current 1.45 KA |
| 11.07.24 @4:13:47:671 PM | Ald#1 Bph-E | 100.8 Km from Rihand, current 3.38 KA |
| 14.07.24 @2:36:06:081 AM | Ald#2 Rph-E | 11.5 Km from Rihand, Current 18.91 KA |

A.17.2. Further, he stated that Frequency of Auto reclosures due to transient faults is significantly increasing in nature, during the fault on 14.07.2024 due to shorter distance of fault location the fault current was significantly higher in magnitude and all the Generators U#1,2,3 & 4 Fed this fault current.

A.17.3. He requested that for reliable operation of our generators and associated equipment, frequent auto re-closures of these lines need to be addressed.

A.17.4. Powergrid representative mentioned that most of the above fault are transient in nature and are due to lightning and assured to get these faults checked from the field officials.

A.17.5. MS, NRPC asked Powergrid to address this issue at the earliest.

***Decision of OCC Forum:***

*Forum asked Powergrid to kindly get these faults checked and resolve this issue at the earliest.*

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

## B.1 NR Grid Highlights for June 2024

Major grid highlights of Northern region grid for June 2024 were presented in the meeting as shown below:

**Demand met details of NR**

| S.No. | Constituents | Max Demand met (in MW) | Date & Time of Max Deman | Max Consumption (in MUs) | Date of Max Consumption | Average Demand met (in Mus) |
|---|---|---|---|---|---|---|

| | | | | | | |
|---|---|---|---|---|---|---|
| | | | **d met** | | | |
| 1 | Chandigarh | 443 | 13.06.24 at 14:00 | 9.1 | 18.06.24 | 7.9 |
| 2 | Delhi | 8656 | 19.06.24 at 15:06 | 177.7 | 18.06.24 | 151.8 |
| 3 | Haryana | 14469 | 19.06.24 at 15:00 | 293.4 | 19.06.24 | 259.6 |
| 4 | H.P. | 1919 | 26.06.24 at 11:45 | 41.2 | 26.06.24 | 38.3 |
| 5 | J&K | 2902 | 17.06.24 at 05:00 | 58.7 | 17.06.24 | 54.6 |
| 6 | Punjab | 16089 | 29.06.24 at 12:45 | 357.2 | 26.06.24 | 293.2 |
| 7 | Rajasthan | 17774 | 18.06.24 at 11:45 | 378.8 | 19.06.24 | 344.8 |
| 8 | U.P | 30618 | 13.06.24 at 22:00 | 658.8 | 17.06.24 | 601.9 |
| 9 | Uttarakhand | 2863 | 14.06.24 at 22:00 | 62.1 | 14.06.24 | 56.8 |
| 10 | **Northern Region** | **91234*** | **19.06.24 at 14:37** | **1986.1** | **18.06.24** | **1809.0** |

***As per SCADA**

- In June’24, the Maximum energy consumption of Northern Region was **1986.1 MUs** on 18th June’24 and it was 16 % higher than June’23 (1714 MU 23rd June’23)

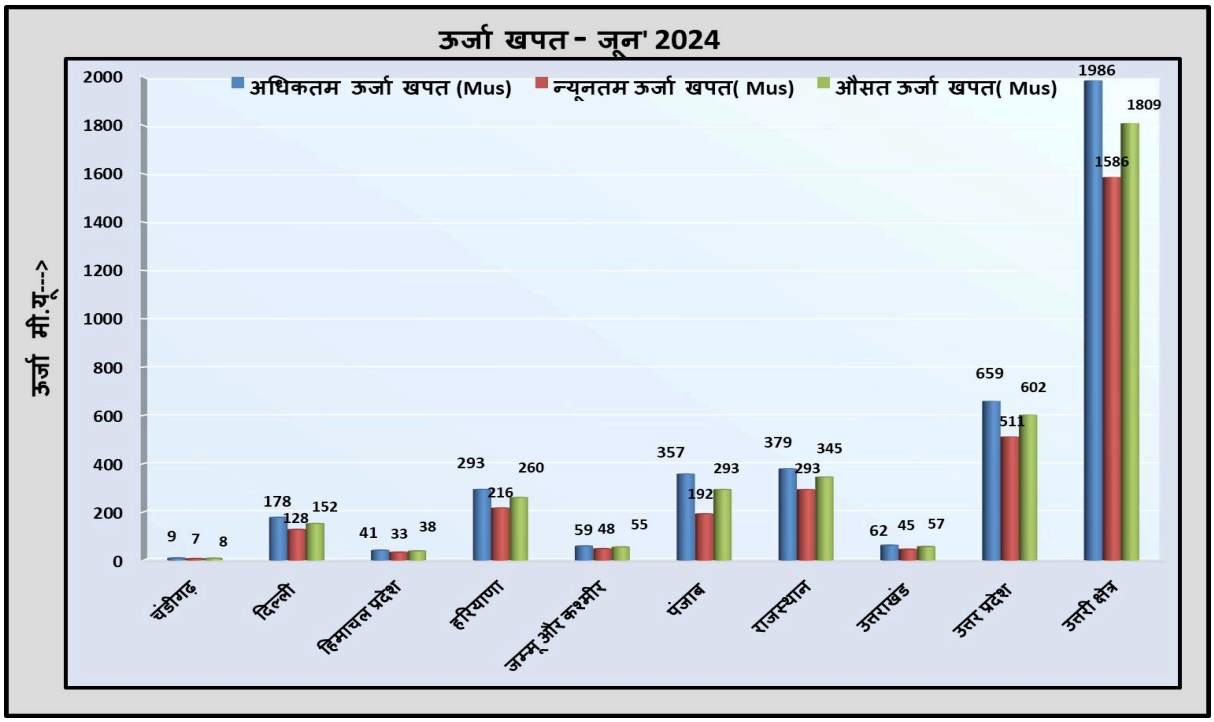
- In June’24, the Average energy consumption per day of Northern Region was **1809 MUs** and it was 23% higher than June’23 (1477 MUs/day)

- In June'24, the Maximum Demand met of Northern Region was **91234 MW** on 19th June'24 @14:37 hours (*as per scada data)* as compared to **77898 MW** on 23rd June'23 @22:00 hours.

- **Comparison of Average Energy Consumption (MUs/Day) of NR States for the June'23 vs June'24**

| क्षेत्र/राज्य | जून- 2023 | जून- 2024 | % अंतर |
|---|---|---|---|
| चंडीगढ़ | 6.1 | 7.9 | 30.2% |
| दिल्ली | 122.2 | 151.8 | 24.2% |
| हिमाचल प्रदेश | 31.1 | 38.3 | 23.1% |
| हरियाणा | 204.6 | 259.6 | 26.9% |
| जम्मू और कश्मीर | 52.0 | 54.6 | 5.0% |
| पंजाब | 235.9 | 293.2 | 24.3% |
| राजस्थान | 271.1 | 344.8 | 27.2% |
| उत्तराखंड | 49.7 | 56.8 | 14.3% |
| उत्तर प्रदेश | 503.9 | 601.9 | 19.5% |
| **उत्तरी क्षेत्र** | **1476.6** | **1809.0** | **22.5%** |

**Energy Consumptions**



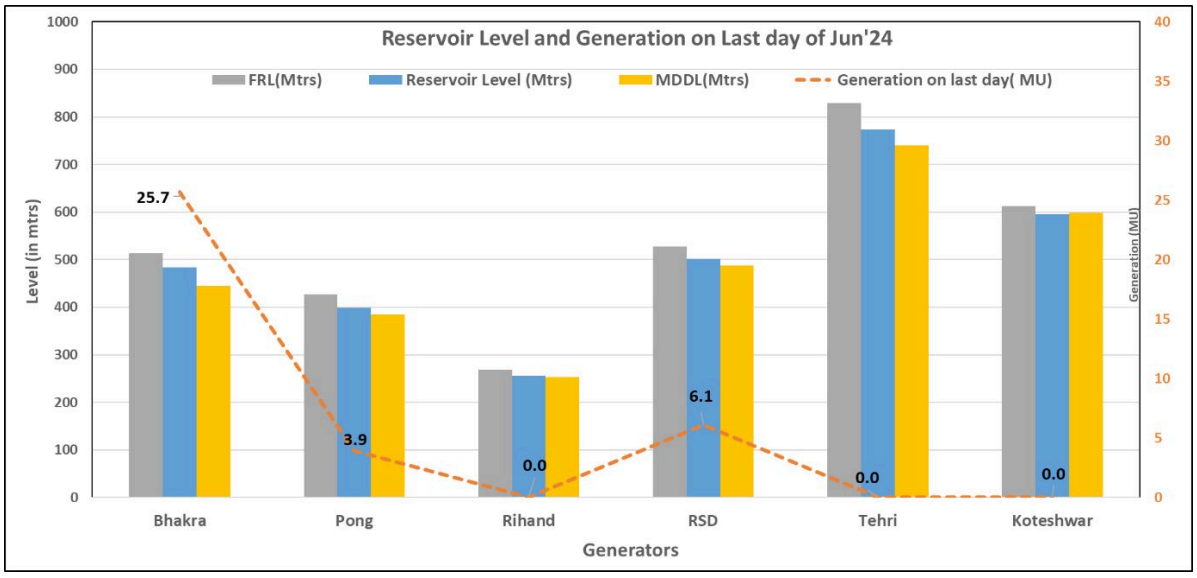

**Northern Region all-time high value recorded in June'24:**

| States | Max. Demand Met during the day (MW) | | Energy Consumption (MU) | |
|---|---|---|---|---|
| | As per Format28/hourly data Submitted by States (MW) | As on date | As per PSP (Mus) | As on date |
| Chandigarh | 443 | 13.06.24 at 14:00 | 9.1 | 18.06.24 |
| Delhi | 8656 | 19.06.24 at 15:06 | 177.7 | 18.06.24 |
| Haryana | 14469 | 19.06.24 at 15:00 | 293.4 | 19.06.24 |
| Punjab | 16089 | 29.06.24 at 12:45 | 357.2 | 26.06.24 |
| U.P | 30618 | 13.06.24 at 22:00 | 658.8 | 17.06.24 |
| Uttarakhand | 2863 | 14.06.24 at 22:00 | 62.1 | 14.06.24 |
| **Northern Region** | **91234** | 19.06.24 at 14:37 | **1986.1** | **18.06.24** |

**Frequency profile**

| Month | Avg. Freq. (Hz) | Max. Freq. (Hz) | Min. Freq. (Hz) | <49.90 (% time) | 49.90 – 50.05 (% time) | >50.05 (% time) |
|---|---|---|---|---|---|---|
| **June'24** | 50.00 | 50.67 (07.06.24 at 18:02:40 hrs) | 49.63 (11.06.24 at 00:02:40 hrs) | 4.50 | 79.18 | 16.32 |
| **June'23** | 50.01 | 50.41 on 14.06.23 at 08:00:10 hrs | 49.51 on 14.06.23 at 22:33:50 hrs | 6.5 | 67.8 | 25.7 |

**Reservoir Level and Generation on Last Day of Month**




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

## B.2 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* | *Responsibili* | *Submission to* | *Data/ Informa* |
|---|---|---|---|---|---|

| | | | | | |
|---|---|---|---|---|---|
| | | | ***ty*** | | ***tion 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.

### B.2.1 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 July'25 i.e. Afternoon Peak, Solar Peak, Evening Peak & Off-Peak hours as given below

| S. No. | Scenario | Time of Scenario |
|---|---|---|
| 1 | Off-Peak | 06:00 Hrs |
| 2 | Afternoon Peak | 15:00 Hrs |
| 3 | Evening Peak | 22:30 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***.

### B.2.2 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.***

### B.2.3 TTC/ATC of state control areas for monsoon 2024 (M-1)

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 Aug'2024 are attached as **Annexure-B.I of agenda.**

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

| January 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (Feb-24) | | M-11 (Jan-25) | | M-6 (July-24) | |
| | 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 Pradesh | No | No | No | No | No | No |
| Jammu and Kashmir | Yes | No | Yes | No | No | No |
| Ladakh | No | No | No | No | No | No |
| Punjab | No | No | Yes | No | Yes | Yes |
| Rajasthan | No | No | No | No | No | No |
| Uttar Pradesh | No | No | No | No | Yes | Yes |
| Uttarakhand | No | No | No | No | No | No |

| February 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (Mar-24) | | M-11 (Feb-25) | | M-6 (August-24) | |
| | 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 | Yes | No | No |
| Himachal Pradesh | No | No | No | No | No | No |
| Jammu and Kashmir | Yes | No | Yes | No | Yes | No |
| Ladakh | No | No | No | No | No | No |
| Punjab | No | No | Yes | No | Yes | No |
| Rajasthan | No | No | No | No | No | No |
| Uttar Pradesh | No | No | Yes | Yes | Yes | Yes |
| Uttarakhand | No | No | No | No | No | No |

| March 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (Apr-24) | | M-11 (Mar-25) | | M-6 (Sep-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 | Yes | Yes | Yes | Yes | Yes | Yes |
| Himachal Pradesh | No | No | No | No | No | No |
| Jammu and Kashmir | 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 | Yes | Yes | Yes | Yes |
| Uttarakhand | No | No | No | No | No | No |

| April 2024 Mails | | | | | | |
|---|---|---|---|---|---|---|
| | ATC/TTC Declaration | | | | Interconnection Studies | |
| | M-1 (May-24) | | M-11 (Apr-25) | | M-6 (Oct-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 Pradesh | No | No | No | No | No | No |
| Jammu and Kashmir | 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 | Yes | Yes | Yes | No |
| Uttarakhand | No | No | No | No | No | No |

| 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 Pradesh | No | No | No | No | No | No |
| Jammu and Kashmir | 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 | | | | | | |
| Delhi | | | Yes | Yes | | |
| Haryana | | | | | | |
| Himachal Pradesh | | | | | | |
| Jammu and Kashmir | Yes | | Yes | | Yes | |
| Ladakh | | | | | | |
| Punjab | | | | | | |
| Rajasthan | | | | | | |
| Uttar Pradesh | Yes | Yes | Yes | Yes | | |
| Uttarakhand | | | | | | |

***NRLDC representative stated that the agenda was also discussed in 220 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. NRLDC CGM had asked states to get help from NRLDC in case of any difficulty and emphasized on the need for regularity in sharing the data.***

***In 221 OCC meeting,***

- ***NRLDC representative stated that Haryana, UP and J&K are generally sharing basecase as well ATC/TTC assessment with NRLDC. It was requested that other SLDCs may also timely share the same.***

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

## B.3 Grid Operation related issues in Northern region

**a) Voltage stability studies carried out by NRLDC**

In view of the high demand season of NR and event witnessed on 17.06.2024, NRLDC has carried out voltage stability analysis for Northern region as well as individual states

Following are results from simulation studies carried out on latest All India basecase prepared in consultation with all stakeholders.

- It is observed that with NR Demand of ~92.25 GW and high IR import during peak solar, voltage stability limits are being reached particularly in Western Raj area.
- Further in case of outage of both bipoles of HVDC Champa - Kurukshetra corresponding NR Demand limit comes as 90.5 GW.

Accordingly, NRLDC requested that:

- All control room operators are extra alert when demand crosses 85GW
- In the event on 17th June 2024, it is suspected that as the grid voltages were not that low, so either the stalling of motors has taken place at comparatively higher voltages (~0.8 - 0.9 p.u. voltage), or the voltages at distribution level were very low. Accordingly, matter may be taken up with DISCOMs
- All generators to provide maximum reactive power support by injecting MVAR (30-40% of MW generation) in real-time to avoid issues of low voltage in the grid especially during solar hours.
- SLDCs/DISCOMs to ensure that available capacitor banks in their control area are healthy and in service as per requirement
- Till the availability of adequate dynamic reactive power support, the voltages in the system may be kept slightly on the higher side (not below 390 kV) so as to prevent similar incidents as seen on 17th June 2024 in future

***All members agreed to adhere to above actions during the high demand season.***

**b) Crossing of EHVAC lines with other EHVAC/HVAC/HVDC lines**

It has come to notice of NRLDC that emergency shutdowns have been applied by constituents/Transmission licensees related to the power line crossings. The shutdowns were taken as either there was clearance issue with other EHV power lines or as a safety measure due to imminent tower collapse of lower voltage transmission lines (220 KV) which are crossing over the higher voltage lines (400 KV lines).

***In view of the above issues observed OCC forum agreed that:***

1. ***Wherever there is likelihood of clearances with the other power line crossings during high wind/stormy weather conditions, preventive measures like putting counterweights etc. is to be carried. Shutdown for the same during low demand period would be facilitated as per the approved outage planning procedure.***

2. ***For the upcoming projects utilities to explore all possibilities for avoiding high voltage power lines undercrossing the low voltage lines. This would help in preventing multiple outages due to unforeseen circumstances like tower collapse conditions of the lower voltage transmission lines which may fall on the high voltage lines carrying larger amounts of power.***

**c) Baglihar bus coupling**

The agenda related to only single 400 kV outgoing line from both Baglihar stage-I (3X150MW) and stage-II (3X150MW) to Kishenpur was discussed in special meeting called by NRPC on 28.07.2020 via video conferencing to deliberate on issues related to UT of J&K and Ladakh. Tripping of one line can lead to outage of entire corresponding generating plant. JKPDD had been requested in the past to expedite coupling of two buses of Baghlihar stage-I & II to minimize the chances of generation losses.

During the meeting, J&K representative informed that both these stages are coupled with cables and we will explore the further possibility for healthiness of bus coupler between both these stages. J&K agreed to take action on this front in upcoming lean hydro period i.e.in winter months.

Subsequently, on 21.06.2024, JKPDD and Baglihar HEP requested for emergency Shutdown of BHEP-I and II generating units (900 MW) along with 400 KV Baglihar-Kishenpur-I, 400 KV Baglihar- Kishenpur-III and 400 KV Baglihar- New Wanpoh-I.

During the shutdown, Baglihar Stage-I and Stage-II were coupled together and are since then getting evacuated through 400kV Baglihar-Kishenpur ckt1 and ckt2 lines while 400 KV Baglihar(JK)-Kishenpur(PG) (JKSPDCL) Ckt-3 & 400 KV New Wanpoh(PG)-Baglihar(JK) continue to remain out of service.

Further, due to absence of bus coupler in Stage-I, 3*150MW generating units of each stage are still getting evacuated separately through individual 400kV lines.

Accordingly, Baglihar HEP (JKSPDCL) was requested to provide update regarding operation of Stage-I and Stage-II units coupled together and also explore for coupling of two buses of Stage-I section.

***JKSPDCL representative stated that Stage-1 and Stage-2 both stages have bus couplers. Stage-1 bus coupler is out since last one year and support from OEM is being taken as it is GIS substation. Stage-2 generation is getting evacuated through interconnection cable between Stage-1 and Stage-2 as 400kV Baglihar-Kishenpur ckt 3 and 400kV Bagilhar-New Wanpoh lines are under outage. Interconnection cable between Stage-1 and Stage-2 is 800 sq. mm cable whereas 400kV lines from Baglihar are having some part as 630 sq. mm cable. Stage-2 bus coupler is available and would be charged shortly. Stage-1 and Stage-2 sections can be coupled using disconnector switch and there is no breaker provision for connecting Stage-1 and Stage-2 buses.***

***NRLDC representative stated that as generally 4 evacuating lines are available for evacuation of Baglihar HEP, there is not likely to be much issue in case of N-1 contingency, accordingly, both stages may be run in synchronization.***

***JKSPDCL representative stated that connecting both stages is possible and same would be implemented shortly in consultation with NRLDC after revival of 400kV Baglihar-Kishenpur ckt 3 and 400kV Bagilhar-New Wanpoh lines.***

**d) Update of Operating Procedure document in line with IEGC:**

In compliance with Regulation 28.4 of Indian Electricity Grid Code-2023, Operating Procedure document would be updated by NRLDC in mid-July 2024.

NRLDC has revised the operating procedure document and same is available at

*https://nrldc.in/download/draft_operatingprocedures_nr_rev0/?wpdmdl=13575&lang=en*

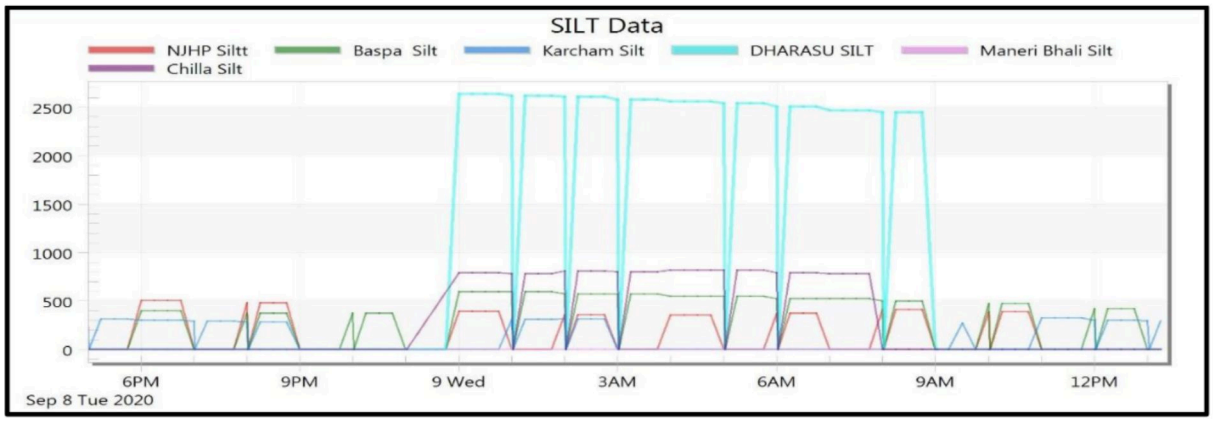
In 220 OCC meeting, all utilities were requested to provide their inputs/comments for any suggested changes in the document.

It is requested that inputs/comments may be provided by 18th July 2024. Thereafter, the document would be uploaded by NRLDC based on comments received.

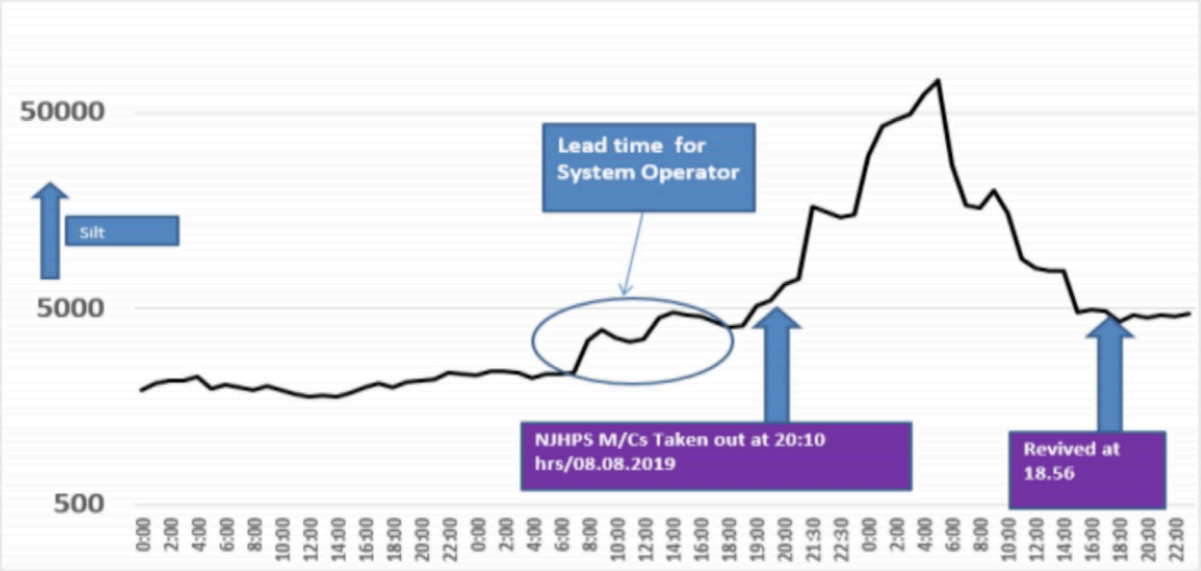
***Members noted the same.***

**e) Near Real Time Silt Monitoring of hydro stations**

Availability of near real time silt measurement data to NRLDC/ SLDCs will be helpful for real time system operation in view of frequent hydro generation outage due to silt. PPM numbers are being punched directly from the site/control room at NRLDC server providing silt measurement at NRLDC control room. During previous years also, for Nathpa Jhakri, Baspa, Karcham and other small HEPs of Uttarakhand, trends of silt data were made available at NRLDC & being monitored by system operators in real-time.




Sample available data of silt shown below suggests that there is some lead-time (varying from few hours to several hours) available with system operators to accommodate outage of hydro generators on account of high silt level.




All hydro stations are requested to take actions to provide this near-real time silt measurement to control centers (RLDCs/SLDCs) as this would help them gain some lead-time for better tackling of hydro generator outage on silt.

In 220 OCC meeting, members agreed to share the data on real-time basis with NRLDC control room and perform coordinated operations of hydro generators during monsoon season.

As per the latest status available at NRLDC, real-time silt monitoring data is being received from most of the hydro plants. All other hydro generators such as Bairasuil, Chamera-1, Chamera-3, Kishenganga, Salal, Sainj, Maneri Bhali, Chilla, Baspa, Khodri, Chibro are also requested to regularly share data.

| Status of NHPC Plants as on 19.07.2024 at 10:00 hrs | |
|---|---|
| Bairasuil | Not yet |
| CPS-1 | Not yet |
| Kishenganga | Not yet |
| Salal | Not yet |
| Uri-1 | Not yet |
| Uri-2 | Not yet |
| Parbati-3 | Last update on 06.07.2027 |
| Tanakpur | only once on 08.07.2027 |
| CPS-2 | Last update on 16.07.2024 |
| CPS-3 | Last update on 13.07.2025 |
| Dhauliganga | Last update on 17.07.2026 |
| Dulhasti | only once on 08.07.2027 |
| Sewa-2 | Updating timely |

| Status of SJVNL Plants and near Complex as on 19.07.2024 at 10:00 hrs | |
|---|---|
| Nathpa Jhakri HPS | Last update on 18.07.2024 |
| KARCHAM | Last update on 18.07.2025 |

| Status of Other Hydro Plants as on | |
|---|---|
| Sainj | Not yet |
| Maneri Bhali | Not yet |
| Chilla | Not yet |
| Baspa | Not yet |
| Khodri | Not yet |
| Chibro | Not yet |

***NHPC representative stated that there was some IP address issue in NHPC substations and the issue would be resolved shortly.***

***NRLDC representative stated that as mentioned above, some NHPC substations are sharing the silt data but frequency of sharing also needs to be improved.***

***All hydro generators agreed to share the data in real-time with NRLDC control room.***

**f) Restoration of lines outage on tower collapse**

Following lines are under long outage due to tower collapse in Rajasthan state control area:

1. 400kV Bhadla-Jodhpur
2. 400kV Bhadla-Merta

Further, as per information shared by Rajasthan, tower collapse has been reported at loc no 476-480. Due to the unavailability of these two lines, issues are being observed in evacuation of RE power from Western Rajasthan.

The non-availability of these lines also leads to critical loading of other transmission elements including high loading of 400kV Bhadla(RJ)-Bikaner(RJ) which is not well maintained and reservations have been made from RVPN/Rajasthan SLDC side for this line.

Moreover, at the time of high solar and high wind generation in Western Rajasthan, voltage oscillations have also been observed due to the degraded short circuit ratio.

Further, following lines are under long outage due to tower collapse in J&K state control area:

1. 220 KV Kishenpur(PG)-Mir Bazar(PDD)
2. 220 KV Kishenpur(PG)-Ramban(PDD)

Outage of these lines has impact on reliability of J&K control area as redundancy of supply to 220kV Mir Bazar and 220kV Ramban substations will not be there.

RVPN/JKPDD were requested to expedite restoration of these two lines and also intimate the latest status to OCC forum.

Further, Committee under chairmanship of SE(O), NRPC, also visited site for issues observed in 400kV Bhadla-Bikaner D/C lines of RVPN. The Committee had also submitted its report to OCC/NRPC forum and listed out number of actions to be taken from RVPN side.

RVPN was requested to provide update on the works being carried out from their side on 400kV Bhadla-Bikaner D/C lines based on Committee recommendation.

***J&K SLDC representative stated that stringing of 220kV Kishenpur-Ramban is completed and expected to be revived shortly. 220kV Kishenpur-Mirbazar is not expected to be charged shortly. Further, clearance would also be provided to charge 400kV Baglihar-Kishenpur ckt 3 and 400kV Bagilhar-New Wanpoh lines in one or two day.***

***RVPN representative stated that 400kV Bhadla-Merta is expected to be revived shortly on ERS. Revival of 400kV Bhadla-Jodhpur would be done on normal tower configuration in due course.***

***OCC asked JKPTCL and RRVPNL to expedite revival of lines under long outage on tower collapse. If revival is expected to take time, option of ERS to be explored.***

**g) Sharing of data for event analysis of 17th June 2024 load loss event**

A Committee under Chairmanship of Member (GO&D), CEA has been constituted to analyse the issues of multiple tripping incidents occurred in the National grid at 13:53 hours of 17th June 2024 during which about 16.5 GW of consumer load in Northern Region got interrupted for a brief period.

The Committee has proposed analysis on following areas:

- Detailed analysis of cause of outage of HVDC Champa-Kurukshetra bipole
- Detailed analysis of cause of Load Drop and its impact and estimation of ATC/TTC in view of the grid event
- Detailed analysis of behaviour of Renewable Plants in Rajasthan RE complex during incident and STATCOM/SVC/TCR of NR
- Detailed analysis of Primary Response & Reactive power support of conventional plants
- Detailed review of Over Voltage Protection Settings and suggesting optimum voltage grading philosophy
- Simulation of the load reduction and estimation of dynamic reactive reserve required near affected load centres

The Committee has already conducted two meetings and planning to prepare the final report by 20th July 2024. For carrying out thorough analysis of the events, the Committee requires extensive granular data from all utilities which has also been requested through email from NRLDC/NRPC side.

***All utilities agreed to cooperate and share data as requested through email at the earliest for analysis by the Committee.***

**h) Long outage of transmission elements**

It is requested to expedite restoration of the Grid elements under long outage at the earliest and also provide an update regarding their expected restoration date/time in the meeting/ NRLDC outage portal.

Some of the key elements that need to be revived at the earliest are listed below:

| S. No. | Element Name | Outage Date |
|---|---|---|
| 1 | 400/220 kV 315 MVA ICT 2 at Mundka(DV) | 20-09-2019 |
| 2 | 400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP) | 13-03-2020 |

| | | |
|---|---|---|
| 3 | 50 MVAR Bus Reactor No 1 at 400KV Moradabad(UP) | 03-12-2021 |
| 4 | 400/220 kV 240 MVA ICT 3 at Moradabad(UP) | 13-12-2021 |
| 5 | 220 KV Gazipur(DTL)-Noida Sec62(UP) (UP) Ckt-1 | 30-04-2022 |
| 6 | 220 KV Gazipur(DTL)-Shahibabad(UP) (UP) Ckt-2 | 30-04-2022 |
| 7 | 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2 | 09-03-2023 |
| 8 | 400/220 KV 500 MVA ICT 1 AT RAMGARH(RS) | 26-04-2023 |
| 9 | 400/220 kV 240 MVA ICT 1 at Muradnagar_2(UP) | 05-06-2023 |
| 10 | 400/220 kV 500 MVA ICT 1 at Rasra (UP) | 26-10-2023 |
| 11 | 225 MVAR Bus Series Reactor No 1 at 400 KV Ballabhgarh(PG) | 02-02-2024 |

Apart from this, other number of grid elements are also under long outage. These details are available in NRLDC website.

Update as received from UP SLDC in the meeting is shown below:

| S.No. | Element Name | Date of Outage | Tenative date of revival | Outage reason |
|---|---|---|---|---|
| 1 | 315 MVA ICT I at 400kV Muradnagar (Old) | 13.03.2020 | TWC approved on 09.12.2021 for replacement with 500MVA new ICT . | Damged |
| 2 | 240 MVA ICT - III at 400kV Moradabad | 13.12.2021 | Alloted from Unnao and will be lifted from Unnao after installation of 500 MVA ICT at Unnao | It has been informed that 315MVA ICT has been aproved |
| 3 | 240MVAICT-I at 400kV Muradnagar (New) | 05.06.2023 | | |
| 4 | 50 MVAR Bus Reactor No 1 at 400KV Moradabad(UP) | 03.12.2021 | Already charged | |
| 5 | 500MVAICT-I at 400kV Rasra | 26.10.2023 | Dec-24 | |
| 6 | 400kV Noida sec 148 - Noida sec 123 ckt - II | 09.03.2023 | Oct-24 | |
| 7 | 220 KV Gazipur(DTL)-Shahibabad(UP) (UP) Ckt-2 | 30-04-2022 | Line under break down , no further status till now . Fund not provided by MCD, Delhi. | Line remains charge at No load from UP end. Manually open at 19:30 on 30/04/22 due bending of tower |

| | | | | |
|---|---|---|---|---|
| | | | | no. 4 |
| 8 | 220 KV Gazipur(DTL)-Noida Sec62(UP) (UP) Ckt-1 | 30-04-2022 | Line under break down , no further status till now . Fund not provided by MCD, Delhi. | Tower tilted on one side at tower no 10 from Gazipur (DTL) end |

***All utilities agreed to expedite restoration as well as regularly update the likely revival time of elements under long outage on NRLDC OMS portal.***

## B.4 Frequent tripping of transmission elements in the month of June'24:

The following transmission elements were frequently tripping during the month of **June'24**:

| S. NO. | Element Name | No. of forced outages | Utility/SLDC |
|---|---|---|---|
| 1 | 400 KV Kala Amb(PKTL)-Wangto_GIS(HP) (HPPTCL) Ckt-1 | 3 | POWERGRID/HP |
| 2 | 400 KV Kala Amb(PKTL)-Sorang(Greenko) (Greenko) Ckt-1 | 3 | POWERGRID/ Sorang |
| 3 | 400 KV Abdullapur(PG)-Bawana(DV) (PG) Ckt-1 | 4 | POWERGRID/Delhi |
| 4 | 220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2 | 3 | RAPS/Rajasthan |
| 5 | 220 KV Khara(UP)-Saharanpur(PG) (UP) Ckt-1 | 5 | POWERGRID/UP |
| 6 | 220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-1 | 5 | BBMB/Delhi |

The complete details are attached at **Annexure-B.II of agenda**.

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

***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

## B.5 Multiple element tripping events in Northern region in the month of June '24:

A total of 36 grid events occurred in the month of June'24 of which **01** is of GD-2 category, **14** are of GD-1 category, **10** are of GI-2 Category and **11** 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 Mandaula(PG) on 11th June, 2024 (As per PMU at Mandaula(PG), B-N phase to

earth fault converted to Y-B-N double phase to earth fault with delayed fault clearing time of 2320ms is observed).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **12** events out of **36** grid events occurred in the month. In 07 (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.***

DR/EL of the following grid events not received till date:

a) 220kV Pong(BBMB) on 03rd Jun'24
b) 220kV Jalandhar(BBMB) on 07th Jun'24
c) 220kV Hiranagar(J&K) on 13th Jun'24
d) 400/220kV Kankani(RS) on 16th Jun'24
e) Load loss event on 17th Jun'24
f) 400kV Rajwest(RS) on 19th Jun'24
g) 220kV Mund(HV) on 19th Jun'24
h) 400kV Bikaner2(PG) and Banderwala(TATA) RE station on 20th Jun'24
i) 220kV Mohali(PSTCL) on 21st Jun'24
j) 220kV Tughlakabad(DTL) on 23rd Jun'24

Detail report of majority of the grid events not received yet.

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

***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

## B.6 Review and uniformity of df/dt (ROCOF) protection philosophy in Northern Region

Multiple incidents of load shedding on df/dt (ROCOF) protection operation have been reported during recent past. Major operations were reported from Punjab control area. Delhi, Rajasthan & UP have also reported load shedding on df/dt operation during some of the incidents. Incidents during which df/dt operation reported is attached as **Annexure B.IV of agenda.**

In view of frequent incidents of tripping of distribution feeders on df/dt operation, analysis and review of df/dt operation is necessary. Communication has already been sent to SLDCs via mail to provide details of stage wise quantum of load relief on df/dt operation and protection setting adopted (average cycle, time delay etc.)

| Name of State | df/dt settings (average cycles considered, time delay etc) | Maximum quantum of relief (MW) | | |
|---|---|---|---|---|
| | | Stage-1 | Stage-2 | Stage-3 |
| | | | | |
| | | | | |

Details received from Haryana only. Details received from Haryana are attached in **Annexure B.V of agenda.**

SLDCs are requested to share the adopted philosophy of df/dt protection and confirm whether uniform philosophy has been adopted throughout the state or not. Kindly share the details at the earliest so that analysis and review of df/dt operation and its philosophy may be done.

Further review of df/dt protection setting also need to be done to ensure its uniformity and to avoid undesired operation and load loss.

***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

**B.7 Details of tripping of Inter-Regional lines from Northern Region for June' 24:**

A total of 13 inter-regional lines tripping occurred in the month of June'24. The list is attached at **Annexure-B.VI of agenda.** The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 37.2(c) of IEGC and regulation 15(3) of CEA Grid Standards. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

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

***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

**B.8 Status of submission of DR/EL and tripping report of utilities for the month of June'24.**

The status of receipt of DR/EL and tripping report of utilities for the month of June'24 is attached at **Annexure-B.VII of agenda**. It is to be noted that as per the IEGC provision under clause 37.2 (c), tripping report along with DR/EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall be **uploaded on Web Based Tripping Monitoring System "http://103.7.128.184/Account/Login.aspx"** within 24 hours of the events as per IEGC clause 37.2(c) and clause 15.3 of CEA grid standard. Apart from prints of DR outputs, the corresponding COMTRADE files may please also be submitted in tripping portal / through email.

***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

**B.9 Frequency response characteristic:**

The FRC based event occurred in the month of **June-2024**. Description of the event is as given below:
Table:

| S. No. | Event Date | Time (In hrs.) | Event Description | Starting Frequency (in Hz) | Nadir Frequency (in Hz) | End Frequency (in Hz) | $\Delta f$ | NR FRP during the event |
|---|---|---|---|---|---|---|---|---|
| 1 | 04-Jun-24 | 10:26hrs | On 4th June 2024 at 10:26 hrs, dip in RE generation in Rajasthan RE generation complex (NR) was observed. The net generation loss of approx. 1090 MW occurred in this event. Therefore generation loss of 1090MW has been considered for FRC computation. | 50.07 | 49.954 | 49.995 | -0.08 | 0.38 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 2 | 04-Jun-24 | 10:34hrs | On 4th June 2024 at 10:34 hrs, dip in RE generation in Rajasthan RE generation complex (NR) was observed. The net generation loss of approx. 1295 MW occurred in this event. Therefore, generation loss of 1295 MW has been considered for FRC computation. | 50.073 | 49.965 | 50.021 | -0.05 | 1.80 |
| 3 | 11-Jun-24 | 14:10hrs | As reported, at 14:10 hrs on 11th June 2024, 400/220 kV 500 MVA ICT-3 at Mandola s/s tripped due to fire in isolator of ICT-3 (Transfer Bus side). ICT-3 was charged from transfer bus, as Main Bay (212) was under planned shutdown. At the same time, remaining 03 Nos 400/220 kV 500 MVA ICTs also tripped. As reported by SLDC Delhi, 1601 MW | 49.929 | 50.027 | 50.006 | 0.08 | 1.33 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | load loss and generation loss of 279 MW at Pragati (Units-10,11 and 12) were observed. Hence net load loss of (1601-279=) 1322 MW is considered for FRC/FRP Calculation. | | | | | |
| 4. | 11-Jun-24 | 14:10hrs | As reported, at 13:53 Hrs of 17th June 2024, NR demand experienced a reduction in load of the order of 16.5 GW. The incident occurred immediately after tripping of both bipoles of +/-800 kV HVDC Champa (WR)-Kurukshetra (NR) which was carrying 4,500 MW from the WR to NR. Aft er tripping of the HVDC link, low voltages were observed across the Northern region and multi ple lines and generation tripping occurred. Parti al outage of the765/400kV Aligarh (PGCIL) station occurred due to reported tripping of five (5) nos 765 kV lines.In the Northern Region hydro generating | 50.034 | 50.681 | 50.629 | 0.59 | 0.62 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | units tripped at Bhakra, Karcham, Sainj, Ranjit Sagar Dam. Thermal generating units in NR tripped at Lalitpur, Rajwest and Panipat. NR Renewable Generation (Solar) of 2,870 MW approx. (majorly in Rajasthan) was also affected. Moreover, tripping of generation units at Mahan Energen (MEL) in WR and two modules of OTPC Palatana in the North Eastern Region were reported. Hence net load loss of 9725 MW [16500 (Change in NR demand) - 5240 (NR generation loss)– 1117 (MEL generation loss) – 418 (OTPC Palatana generation loss)] is considered for FRC/FRP Calculation. | | | | | |
| | | | At 12:42 hrs on 19th June 2024, dip in solar, wind generation and load loss in Punjab, Rajasthan and UP was observed. At the same time as per SCADA and data received from SLDCs around 3893 MW dip in | | | | | |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 5. | 19-Jun-24 | 12:42hrs | solar generation, 597 MW dip in wind generation was observed. Rajwest IPP Units-2,4,5,6 & 8 also tripped at the same time reportedly due to grid voltage fluctuations. Further, load throw-off (1050 MW) occurred in Punjab, UP and Rajasthan control area due to df/dt relay operation. Hence net generation loss of 4480 MW [=3490 MW (Rajasthan ISTS connected RE) + 843 MW (Rajasthan Solar) + 597 MW (Rajasthan wind)+ 600 MW (Rajwest IPP)-1050 MW (df/dt load throw off)] is considered for FRC/FRP Calculation. | 50.060 | 49.653 | 49.873 | -0.19 | 1.72 |

As per IEGC 2023 Clause 30.10.(n), "Each control area shall assess its frequency response characteristics and share the assessment with the concerned RLDC along with high resolution data of at least 1 (one) second for regional entity generating stations and energy storage systems and 10 (ten) seconds for the state control area."

As per sub-clause (a(v)) of clause (9) of IEGC 2023 Annexure-2, "All the SLDCs shall work out FRC for all the intra-state entities (for events indicated by the Regional Load Despatch Centres) based on the HDR available at their respective SLDCs and submit the same to respective RLDC within six (6) working days after the event. (Format as per Table-B)."

As per sub-clause (a(vi)) of clause (9) of IEGC 2023 Annexure-2, "All regional entity generating stations shall also assess the FRC for their respective stations and submit the same to respective RLDC within six (6) working days. (Format as per Table-B). The high-resolution data (1 second or better resolution) of active power generation and frequency shall also be shared with RLDC."

Status of details received from constituents is:

| FRC computation and data submission status | | | | | | |
|---|---|---|---|---|---|---|
| S. No | Control Area | Event Date | | | | |
| | | 04-06-2024_10:26hrs | 04-06-2024_10:34 hrs | 11-06-2024 | 17-06-2024 | 19-06-2024 |
| 1 | Punjab | Not Received | Not Received | Not Received | Not Received | Not Received |
| 2 | Haryana | Not Received | Not Received | Not Received | Not Received | Not Received |
| 3 | Rajasthan | Not Received | Not Received | Not Received | Not Received | Not Received |
| 4 | Delhi | Not Received | Received* | Not Received | Received * | Not Received |
| 5 | Uttar Pradesh | Received | Received | Not Received | Received | Received |
| 6 | Uttarakhand | Not Received | Not Received | Not Received | Not Received | Not Received |
| 7 | Chandigarh* | NA | NA | NA | NA | NA |
| 8 | Himachal Pradesh | Received | Received | Received | Received | Received |
| 9 | J&K(UT) and Ladakh(UT) | Not Received | Not Received | Not Received | Not Received | Not Received |
| 10 | Dadri -1 (TH) | Received | Received | Not Received | Not Received | Not Received |
| 11 | Dadri -2 (TH) | Received | Received | Not Received | Not Received | Not Received |
| 12 | Jhajjar (TH) | Not Received | Not Received | Not Received | Not Received | Not Received |
| 13 | Rihand-1 (TH) | Received | Received | Received | Received | Not Received |
| 14 | Rihand-2 (TH) | Received | Received | Received | Received | Not Received |
| 15 | Rihand-3 (TH) | Received | Received | Received | Received | Not Received |
| 16 | Shree Cement (TH) | Not Received | Not Received | Not Received | Not Received | Not Received |
| 17 | Singrauli (TH) | Received | Received | Received | Received | Received |
| 18 | Tanda-2 (TH) | Not Received | Not Received | Not Received | Received | Not Received |
| 19 | Unchahar stg-4 (TH) | Received | Received | Received | Received | Not Received |
| 20 | Unchahar (TH) | Received | Received | Received | Received | Not Received |
| 21 | Anta (G) | Received | Received | Not Received | Not Received | Not Received |

| | | | | | | |
|---|---|---|---|---|---|---|
| 22 | **Auraiya (G)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 23 | **Dadri (G)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 24 | **AD Hydro (H)** | Received | Received | Received | Received | Received |
| 25 | **Bairasiul (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 26 | **Bhakra (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 27 | **Budhil (H)** | Received | Received | Not Received | Not Received | Not Received |
| 28 | **Chamera-1 (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 29 | **Chamera-2 (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 30 | **Chamera-3 (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 31 | **Dehar (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 32 | **Dhauliganga (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 33 | **Dulhasti (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 34 | **Karcham (H)** | Received | Received | Received | Received | Received |
| 35 | **Kishanganga** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 36 | **Koldam (H)** | Received | Received | No Gen | Received | Received |
| 37 | **Koteshwar (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| 38 | **Malana-2 (H)** | NA | NA | NA | NA | NA |
| 39 | **Nathpa Jhakri (H)** | Received | Received | Received | Received | Received |
| 40 | **Parbati-2 (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| 41 | **Parbati-3 (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| 42 | **Pong (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 43 | **Rampur (H)** | Received | Received | Not Received | Received | Received |
| 44 | **Sainj (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 45 | **Salal (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 46 | **Sewa-II (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| 47 | **Singoli Bhatwari (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 48 | **Sorang (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |
| 49 | **Tanakpur (H)** | Not Received | Not Received | Not Received | Not Received | Not Received |

| | | | | | | |
|---|---|---|---|---|---|---|
| 50 | Tehri (H) | No Gen | No Gen | No Gen | No Gen | No Gen |
| 51 | Uri-1 (H) | Not Received | Not Received | Not Received | Not Received | Not Received |
| 52 | Uri-2 (H) | Not Received | Not Received | Not Received | Not Received | Not Received |

FRC/FRP as per SCADA data at NRLDC is as follows:

| Frequency response Performance | | | | | | |
|---|---|---|---|---|---|---|
| S. No | Control Area | Event Date | | | | |
| | | 04-06-2024_10:26hrs | 04-06-2024_10:34hrs | 11-06-2024 | 17-06-2024 | 19-06-2024 |
| 1 | Punjab | 0.71 | 0.96 | 0.72 | -0.04 | -0.10 |
| 2 | Haryana | 0.18 | 0.31 | 0.41 | -0.18 | 1.29 |
| 3 | Rajasthan | -2.31 | 0.29 | -0.48 | 0.89 | 1.79 |
| 4 | Delhi | 0.62 | -1.30 | 1.28 | -2.13 | -0.23 |
| 5 | Uttar Pradesh | -0.13 | 0.84 | -0.22 | 0.51 | 0.58 |
| 6 | Uttarakhand | -0.64 | 0.47 | 0.10 | -0.12 | 0.45 |
| 7 | Chandigarh* | NA | NA | NA | NA | NA |
| 8 | Himachal Pradesh | -1.88 | 0.11 | -1.25 | 1.22 | -1.04 |
| 9 | J&K(UT) and Ladakh(UT) | 0.68 | -0.12 | 0.52 | -3.24 | 0.18 |
| 10 | Dadri -1 (TH) | 1.33 | 2.97 | 0.28 | 1.58 | 3.60 |
| 11 | Dadri -2 (TH) | -0.50 | -1.55 | 0.58 | 1.34 | 6.17 |
| 12 | Jhajjar (TH) | -1.62 | 3.05 | -0.23 | 1.33 | 5.18 |
| 13 | Rihand-1 (TH) | -6.33 | -0.26 | 1.42 | 1.62 | 3.31 |
| 14 | Rihand-2 (TH) | 1.24 | 2.41 | -0.16 | 1.67 | 2.55 |
| 15 | Rihand-3 (TH) | 0.00 | 1.05 | 0.00 | 0.06 | -0.29 |
| 16 | Shree Cement (TH) | 1.01 | 1.47 | 0.00 | 0.00 | 2.05 |
| 17 | Singrauli (TH) | 0.78 | -3.24 | 0.03 | 0.45 | 1.76 |
| 18 | Tanda-2 (TH) | 0.08 | 0.38 | 1.11 | 2.48 | 3.00 |
| 19 | Unchahar stg-4 (TH) | 2.52 | 10.39 | 0.92 | 1.90 | 6.16 |
| 20 | Unchahar (TH) | -0.05 | 0.01 | 0.16 | -0.01 | -0.02 |
| 21 | Anta (G) | 0.36 | 1.26 | 1.23 | -0.59 | 2.95 |
| 22 | Auraiya (G) | 0.78 | 0.41 | -0.39 | 6.73 | 0.23 |
| 23 | Dadri (G) | 3.92 | 5.51 | 2.49 | 6.12 | 4.85 |
| 24 | AD Hydro (H) | 14.79 | 24.32 | -1.82 | 5.19 | 8.26 |
| 25 | Bairasiul (H) | 0.00 | 0.00 | 0.00 | -0.02 | 0.00 |
| 26 | Bhakra (H) | 0.11 | 0.10 | -0.15 | 38.81 | 0.01 |
| 27 | Budhil (H) | 0.19 | 0.82 | 0.18 | 0.12 | -0.30 |
| 28 | Chamera-1 (H) | 0.07 | -1.46 | 0.21 | 5.13 | 6.55 |
| 29 | Chamera-2 (H) | -0.63 | 2.58 | 0.76 | 2.89 | 0.37 |
| 30 | Chamera-3 (H) | 0.00 | 0.00 | -0.19 | 2.16 | 0.01 |

| | | | | | | |
|---|---|---|---|---|---|---|
| **31** | **Dehar (H)** | 1.24 | 1.60 | 0.17 | 0.26 | 0.09 |
| **32** | **Dhauliganga (H)** | -6.99 | 6.81 | 2.30 | 5.21 | 0.47 |
| **33** | **Dulhasti (H)** | -1.03 | 1.70 | 0.15 | 4.32 | 0.29 |
| **34** | **Karcham (H)** | 8.49 | 13.28 | 8.28 | 57.64 | 2.92 |
| **35** | **Kishenganga** | -0.27 | 0.49 | 0.12 | -0.03 | -0.02 |
| **36** | **Koldam (H)** | 2.56 | 6.55 | No Gen | 7.57 | 0.00 |
| **37** | **Koteshwar (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| **38** | **Malana-2 (H)** | NA | NA | NA | NA | NA |
| **39** | **Nathpa Jhakri (H)** | 8.46 | 8.38 | 7.04 | 7.84 | 2.10 |
| **40** | **Parbati-2 (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| **41** | **Parbati-3 (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| **42** | **Pong (H)** | 0.78 | -0.72 | -0.31 | 0.05 | -0.02 |
| **43** | **Rampur (H)** | 2.59 | 7.57 | 0.85 | 8.38 | -0.35 |
| **44** | **Sainj (H)** | 0.00 | 0.00 | -0.22 | 87.21 | 0.36 |
| **45** | **Salal (H)** | 0.31 | 0.67 | 0.05 | 8.00 | -0.08 |
| **46** | **Sewa-II (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| **47** | **Singoli Bhatwari (H)** | 0.02 | 0.04 | 0.08 | -0.04 | -0.17 |
| **48** | **Sorang (H)** | -0.08 | 0.19 | 0.15 | -0.04 | -0.13 |
| **49** | **Tanakpur (H)** | 21.01 | -0.85 | -2.86 | -0.36 | 0.40 |
| **50** | **Tehri (H)** | No Gen | No Gen | No Gen | No Gen | No Gen |
| **51** | **Uri-1 (H)** | 0.35 | 0.58 | 0.14 | 2.90 | 0.55 |
| **52** | **Uri-2 (H)** | 0.00 | 0.00 | -1.18 | 0.00 | -0.48 |

Memebers are requested to analyse the frequency response of their respective control area and share the FRC/FRP analysis of generating stations along with unit wise 01 sec data of for the aforementioned event.

ISGS were requested to confirm whether FGMO as per IEGC 2023 has been implemented at their respective stations or not. Updated sheet on the basis of details received is 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 ) | | | |
| 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 | |

Constituents are requested to share the details at the earliest.

***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.C***Mock trial run and testing of black start facilities at generating stations in Northern Region

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*".

Hydro and gas-based plants are capable of self-black-start. Conducting periodic mock black start exercises are extremely important to ensure the healthiness of black start facilities and also to build awareness as well as confidence among the system operators.

In view of above, regional entity generating stations shall conduct the dead bus charging of their units on rotation basis as per availability of schedule under intimation to the NRLDC. Testing of Diesel generator sets and other standalone auxiliary supply source to be used for black start shall also be done on a weekly basis. SLDC shall also ensure the same in their respective control area. This will ensure the healthiness of blackstart facility at generating stations. Further, NRLDC shall coordinate with the ISGS and states to conduct the mock black start exercise of subsystems.

Therefore, regional entity generating stations and SLDCs are requested to share the annual schedule plan for conducting dead bus charging / mock black start exercise of generating stations / sub-systems during 2024-25 in the format attached as **Annexure-B.VIII of agenda**. Constituents are also requested to share the test report of diesel generators / auxiliary supply on a quarterly basis. In this regard, a communication has already been sent to constituents through NRLDC letter dated 24.04.2024.

**Details received from AD Hydro HEP, Tehri HEP, Karcham Wangtoo HEP, Koteshwar HEP, SJVN, Budhil, Chamera-III, Auraiya GPS, Singoli Bhatwari HEP, Koldam HEP, Dadri GPS, Delhi, Punjab and Uttarakhand.**

***Members are 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.***

***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

**B.10 Mock testing of System Protection Schemes (SPS) in Northern Region**

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 .

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

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.IX 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.**

***Members are requested to share the tentative schedule of mock testing of SPS implemented on their control area and share the report of the same.***
***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

**B.11 Availability and Standardization of recording instrument (Disturbance recorder and Station Event Logger):**

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 standardization is very important.

Therefore, availability of disturbance recorder with standardization, 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 the above, all the constituents are requested to share the details w.r.t. availability and standardization of disturbance recorder and event logger at the station of their respective control area in format attached as **Annexure-B.X of agenda.**

**Details only received from Haryana & UP.**

***Members are 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.***
***Agenda was deferred for discussion in Protection Sub-Committee meeting on 23.07.2024.***

Status of action taken on decision in 220th OCC meeting of NRPC

| S.N. | Agenda | Decision of 220th OCC meeting of NRPC | Status of action taken |
|---|---|---|---|
| 1 | A.11 Requirement of additional 500 MVA, 400/220/33kV ICT at Samba (PG) Substation to meet increasing load demand of Jammu city (Agenda by JKPTCL) | Forum asked JKPTCL that since it is an ISTS network they may approach CTU along with details regarding the timeframe the downstream network is expected. | JKPTCL informed that they have approached CEA on the said matter. |
| 2 | A.12 Construction of 320MVA, 220/66 KV, Grid Sub-Station, Bhaathall Kathua (Agenda by JKPTCL) | Forum asked JKPTCL to approach CEA on the cited matter. | JKPTCL informed that they have approached CEA on the said matter. |
| 3 | A.13 Revised System Protection Scheme (SPS) scheme for Anpara Complex (Agenda by UPSLDC) | Forum directed that a separate meeting among constituents may be held next week to review the SPS scheme for Anpara Complex. | UPSLDC informed that they have submitted agenda for revised SPS for Anpara Complex in upcoming PSC meeting scheduled on 23.07.2024. |
| 4 | A.14 N-1 contingency violation in 400/220/33KV 315MVA ICT-I at BBMB Dehar (Agenda by Powergrid NR-2) | 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. | BBMB informed that an internal meeting with HPPTCL, PSTCL and Powergrid is scheduled on 25.07.2024 on said matter. |

Status of action taken on decision in 220th OCC meeting of NRPC

| | | | |
|---|---|---|---|
| 5 | A.16 Tapping Tertiary of 765/400/33 kV ICT - 2 for Reliable Auxiliary Power Supply to ±500kV HVDC Ballia Sub-Station (Agenda by POWERGRID, NR3) | Forum agreed with the Powergrid proposal of Additional source of Auxiliary Power connectivity from tertiary of 765/400/33 KV ICT-2 for reliable auxiliary supply to HVDC Ballai Sub-Station and asked POWERGRID that since they have submitted that cost estimate may be considered under ADD-Cap therefore the same may be brought up as Agenda by POWERGRID in the NRPC board meeting for approval of NRPC Forum. | Approval accorded by NRPC forum to Powergrid proposal of Additional source of Auxiliary Power connectivity from tertiary of 765/400/33 KV ICT-2 for reliable auxiliary supply to HVDC Ballai Sub-Station. |
| 6 | A.19 Restoration of damaged tower No.4 (C-Type) of double circuit line connecting Noida Sector-62 and Sahibabad to DTL 220kV Gazipur S/Stn. [Delhi-UP Corridor]. (Agenda by DTL) | Forum asked DTL to take up the matter with the higher officials of MCD for reimbursement of cost of repair of this tower. | NRPC to send a D.O. letter to DTL and UPPTCL for early restoration of these lines. |

## 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 — May-2024<br>◎ HARYANA — May-2024<br>◎ HP — Feb-2024<br>◎ J&K and LADAKH — Not Available<br>◎ PUNJAB — Jun-2024<br>◎ RAJASTHAN — Jun-2024<br>◎ UP — Jun-2024<br>◎ UTTARAKHAND — Jun-2024<br>All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td>3</td><td>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 — Jun-2024<br>◎ HARYANA — Jun-2024<br>◎ HP — Jun-2024<br>◎ J&K and LADAKH — Not Available<br>◎ PUNJAB — Mar-2024<br>◎ RAJASTHAN — Mar-2024<br>◎ UP — Jun-2024<br>◎ UTTARAKHAND — Jun-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></td><td></td><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<br>◎ UTTARAKHAND — Increased<br>◎ BBMB — Increased</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td></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<br>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>Apr-24</td></tr><tr><td>◎</td><td>HARYANA</td><td>May-24</td></tr><tr><td>◎</td><td>HP</td><td>Jun-24</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Apr-24</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Apr-24</td></tr><tr><td>◎</td><td>UP</td><td>Mar-24</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Feb-24</td></tr></table>J&K and Ladakh and Chandigarh are 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><tr><td>◎</td><td>UTTARAKHAND</td><td>Scheme not implemented</td></tr></table></td></tr>
</table>

| 8 | Reactive compensation at 220 kV/ 400 kV level at 15 substations | | | |
|---|---|---|---|---|
| | State / Utility | Substation | Reactor | Status |
| i | POWERGRID | Kurukshetra | 500 MVAr TCR | 500 MVAr TCR at Kurukshetra has been commissioned on dated 15th December 2023 |
| ii | DTL | Peeragarhi | 1x50 MVAr at 220 kV | 1x50 MVAr Reactor at Peeragarhi has been commissioned on dated 18.09.2023 |
| iii | DTL | Harsh Vihar | 2x50 MVAr at 220 kV | 2x50 MVAR Reactor at Harsh Vihar has been commissioned on dated 31th March 2023. |
| iv | 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. |
| v | 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. |
| vi | 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. |
| vii | DTL | Electric Lane | 1x50 MVAr at 220 kV | Under Re-tendering due to Single Bid |
| viii | PUNJAB | Dhuri | 1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV | 400kV Reactors - 1x125 MVAR Reactor at Dhuri has been commissioned on dated 30th March 2023.<br>220kV Reactors - 1x25 MVAR Reactor at Dhuri has been commissioned on dated 27th January 2023. |
| ix | PUNJAB | Nakodar | 1x25 MVAr at 220 kV | 1x25 MVAR Reactor at Nakodar has been commissioned on dated 13th February 2023. |
| x | PTCUL | Kashipur | 1x125 MVAR at 400 kV | SLDC informed that PTCUL has intimated that bid extension has been done till 18.07.2024. |
| xi | RAJASTHAN | Akal | 1x25 MVAr | 1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022. |

| | | | | |
|---|---|---|---|---|
| xii | RAJASTHAN | Bikaner | 1x25 MVAr | 1x25 MVAR Reactor at Bikaner has been commissioned on dated 24th June 2023. |
| xiii | RAJASTHAN | Suratgarh | 1x25 MVAr | 1x25 MVAR Reactor at Suratgarh has been commissioned on dated 25th November 2022. |
| xiv | RAJASTHAN | Barmer & others | 13x25 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. Out of 13 Nos. of reactors, 07 Nos. have been commissioned and rest are under progress. Tentative charging plan is to be intimated by Rajasthan SLDC. |
| xv | 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 | Jul'24 | Updated in 205th 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. Expected to be completed by 31.12.2024. 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. | Jul'24 | 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.<br>Updated in 218th OCC by HVPNL |
| | | | | • S/C line Kadarpur - Sec-52 Gurugram | Jul'24 | 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.<br>Updated in 218th OCC by HVPNL |
| | | | | • S/C line Kadarpur - Pali | Jul'24 | 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.<br>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 8.08.23 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 | 30.09.2024 | Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 218th 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 | 15.07.2024 | Updated in 220th OCC by HVPNL.<br>**Status:**<br>Work was held up due to ROW at T.L. No. 7,8,11,12 & 13 by the farmers of Jajji villagers during July'23 and now the matter has been resolve and work under progress from 01.08.2023.<br>The erection work of T.no. 1 is pending due to non availability of shut down at 220KV Mohana-Smk line and 220KV Jajji-Mohana line.<br>• PLCC protection coupler and Forest approval is also pending. |
| | | | | • 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. 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.<br>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 | Sep'24 | Line charged from Rajokheri end on 09.02.2020. The work of construction was awarded to M/s IKE ltd but due to non completion of work firm is blacklisted, Now the pending work of SCADA , Telemetry and Data Integration is being carried out departmentally through OeM M/s ZIV . After completion of these statutory requirement of NRLDC the load will be taken from the Abdullapur. Tentative date of completion of work will be 30.09.2024. Updated in 218th 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 | Jul'24 | Updated in 205th 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 | 31.07.2024 | One bay is ready and another bay from Powergrid is pending it would be completed by 31.07.2024. Updated in 220th OCC by PSTCL. |
| | | | | • Amritsar – Rashiana 220kV S/c line<br>(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) | 31.07.2024 | One bay is ready and another bay from Powergrid is pending it would be completed by 31.07.2024. Updated in 220th 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 | Jul'24 | Price bid opened on 29.01.2024, tender dropped due to price variation. Retendering would be done after general election as updated by RVPN in 218th 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. |
| 2 | HARYANA | Scheme not implemented | Haryana SLDC intimated that the matter has been taken up with Powergrid by XEN/SLDC Design, HVPNL, Panchkula regarding the LSS /ADMS application in ULDC Phase-III for SCADA/EMS upgradation project of SLDCs of Northern region. HVPNL has sought comments & suggestions from Powergrid that LSS/ADMS under SCADA upgradation project will suffice the purpose of ADMS or this LSS/ADMS software is meant for emergency control for SLDC only. The reply from Powergrid is awaited and updated status would be provided by the Design Wing in its accordance. |
| 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 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. |
| 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. Final testing is rescheduled for 22.07.2024. |
| 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. |
| 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. |

# 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) |

## 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 | | |

| 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 |
|---|---|---|---|---|---|---|---|
| 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) |
| 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)

| 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 | LGBR Approved Outage | | | Actual Planned Outage-1 | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | Start Date | End Date | Reason | Start Date | End Date | Reason for any deviation |
| 220 | RAJASTHAN A.P.S. | 3 | N | CENTRAL SECTOR | Northern | Rajasthan | NPCIL | FALSE | NUCLEAR | 220 | 1-Apr-24 | 24-May-24 | EMCCR | 27-Oct-22 | 25-Jul-24 | Reactor startup initiated on 17 July 2024. unit will be syncronised by 25 July 2024. |
| 250 | CHHABRA TPP | 4 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | COAL | 250 | 1-Apr-24 | 14-Apr-24 | COH | 5-Mar-24 | 28-Mar-24 | Preponned due to problem in GT as Bucholz relay Alarm continuously persists |
| 130.19 | DADRI CCPP | 2 | T | CENTRAL SECTOR | Northern | Uttar Pradesh | NTPC Ltd. | FALSE | NATURAL GAS | 130.19 | 1-Apr-24 | 8-May-24 | Major Overhauling | | | Not taken, as EOH not completed |
| 154.51 | DADRI CCPP | 5 | T | CENTRAL SECTOR | Northern | Uttar Pradesh | NTPC Ltd. | FALSE | NATURAL GAS | 154.51 | 1-Apr-24 | 2-Apr-24 | Major Overhauling | | | Not taken, as EOH not completed |
| 250 | SURATGARH TPS | 3 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | COAL | 250 | 15-Apr-24 | 5-May-24 | AOH | | | Deferred due to Power Crisis |
| 200 | RAJASTHAN A.P.S. | 2 | N | CENTRAL SECTOR | Northern | Rajasthan | NPCIL | FALSE | NUCLEAR | 200 | 1-May-24 | 31-May-24 | Binennial Shutdown | 1-Jan-25 | 30-Apr-25 | Reactor feeder refurbishment and Enmasse thermowell replacement. Material supply is expected by 01 Jan 2025. |
| 220 | NARORA A.P.S. | 1 | N | CENTRAL SECTOR | Northern | Uttar Pradesh | NPCIL | FALSE | NUCLEAR | 220 | 1-May-24 | 4-Jul-24 | Binennial Shutdown | 15-Mar-25 | 15-Jun-25 | |
| 250 | SURATGARH TPS | 4 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | COAL | 250 | 11-May-24 | 31-May-24 | AOH | | | Deferred due to Power Crisis |
| 111.19 | AURAIYA CCPP | 2 | T | CENTRAL SECTOR | Northern | Uttar Pradesh | NTPC Ltd. | FALSE | NATURAL GAS | 111.19 | 31-May-24 | 31-May-24 | Boiler License Renewal | 31-May-24 | 31-May-24 | Availed. No deviation |
| 225 | KASHIPUR CCPP | 1 | T | IPP SECTOR | Northern | Uttarakhand | SrEPL | FALSE | NATURAL GAS | 225 | 1-Jun-24 | 3-Jun-24 | Offline Waterwash | 16-Jun-24 | 16-Jun-24 | To meet UPCL load requirement |
| 111.19 | AURAIYA CCPP | 3 | T | CENTRAL SECTOR | Northern | Uttar Pradesh | NTPC Ltd. | FALSE | NATURAL GAS | 111.19 | 4-Jun-24 | 18-Jun-24 | Filter Replacement | 1-Jul-24 | 20-Jul-24 | EOH completed later. Currently under OH |
| 250 | SURATGARH TPS | 1 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | COAL | 250 | 5-Jun-24 | 25-Jun-24 | AOH | 22-Sep-24 | 16-Oct-24 | Postponed as U#5 taken earlier |
| 195 | KOTA TPS | 6 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | COAL | 195 | 10-Jun-24 | 30-Jun-24 | AOH | 1-Mar-25 | 21-Mar-25 | Deferred due to Power Crisis |
| 660 | CHHABRA TPP | 5 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | COAL | 660 | 27-Jun-24 | 31-Jul-24 | AOH | 27-Jun-24 | Continue | |
| 250 | SURATGARH TPS | 5 | T | STATE SECTOR | Northern | Rajasthan | RRVUNL | FALSE | COAL | 250 | | | | 2-May-24 | 30-May-24 | Earlier proposed in FY 23-24 but deferred due to power crisis and further taken w.e.f 02.05.24 |

## STATUS OF SUBMISSION OF DATA BY NORTHERN REGION PLANTS

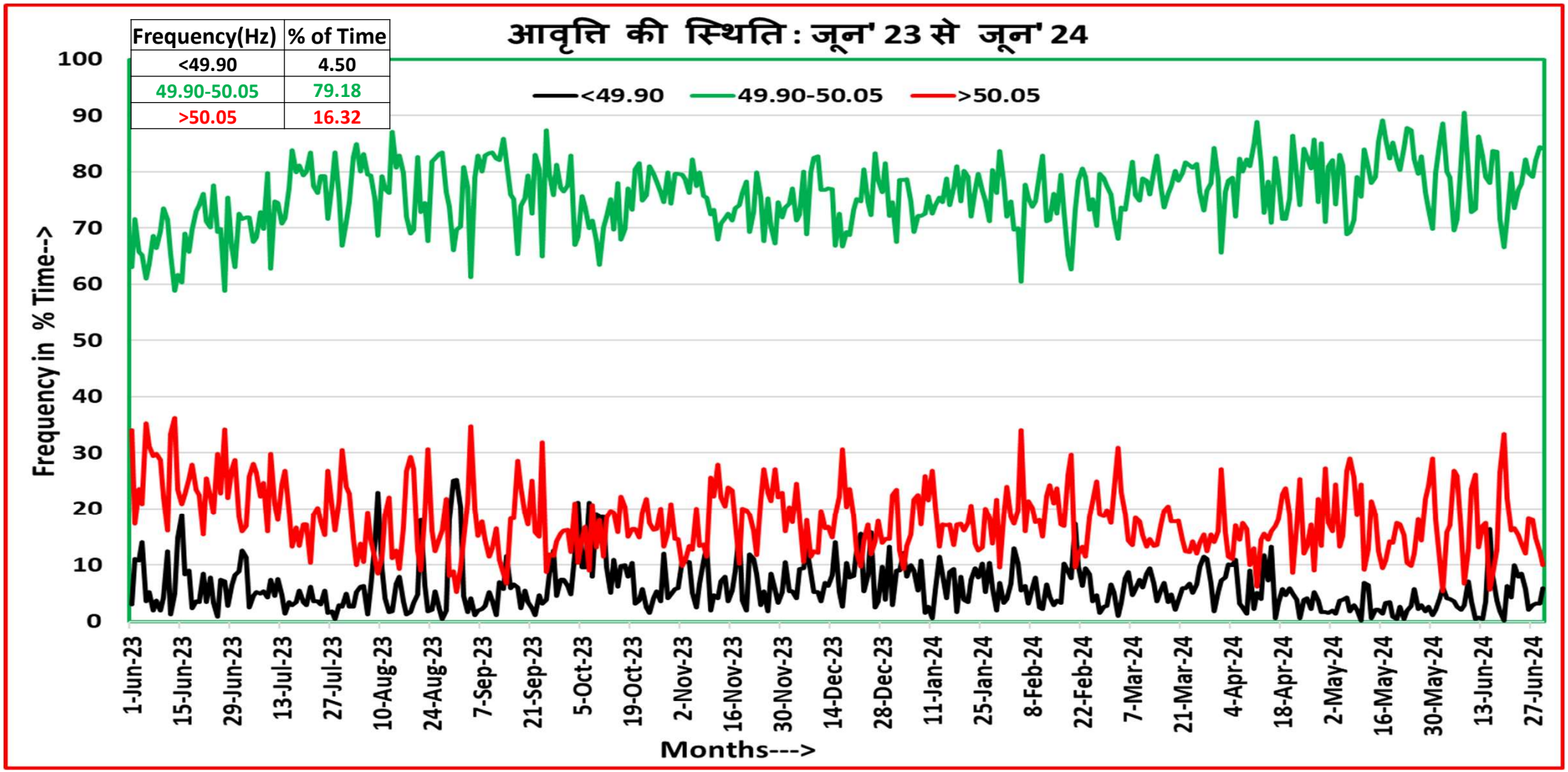
| Sr. No. | State | Plant-Not providing data | Remarks |
|---|---|---|---|
| 1 | Delhi | RITHALA (Unit#1 to 3) | Status of the plant whether it is generating power or not is to be confimed. If there is generation, online submission of data is required. |
| 2 | J & K | PAMPORE GPS(Liq.)(Unit #1 to 7) | |
| 3 | J & K | BAGLIHAR II HPS | |

| Sr. No | | Units providing data but offline | Remarks |
|---|---|---|---|
| 1 | Delhi | I.P. CCPP (unit #1 to 9) | Online data submission required. |
| 2 | Delhi | PRAGATI CCGT-III(#1-6) | Online data submission required. |
| 3 | Rajasthan | JALIPA KAPURDI TPP(Unit#1 to 8) | sometimes online/sometimes offline, not consistent in online. |
| 4 | U. P | JAWAHAR STPP(Unit#1) | Online data submission required. |
| 5 | Uttarakhand | GAMA CCPP | new nodal person user id alloted in 1st week of June, fed data online only once. No more data submission after that. |
| 6 | Uttarakhand | SRAVANTHI CCPP(Unit#1,2) | Online data submission required. |
| 7 | Punjab | ANANDPUR SAHIB-I | Online data submission required. |
| | Punjab | ANANDPUR SAHIB-II | Online data submission required. |
| 8 | ~~Uttarakhand~~ Punjab | MUKERIAN-I | Sends only consolidated data offline. Unit wise online data submission is required. |
| | ~~Uttarakhand~~ | MUKERIAN-II | |
| | ~~Uttarakhand~~ | MUKERIAN-III | |
| | ~~Uttarakhand~~ | MUKERIAN-IV | |
| 9 | Uttarakhand | KHATIMA HPS (Unit#1,2,3) | Online data submission required. |
| 10 | Uttarakhand | MANERI RHALI-II HPS | Online data submission required. |
| 11 | Uttarakhand | SHRI NAGAR HPS | Online data submission required. |
| 12 | Uttarakhand | VYASI HPS | Online data submission required. |

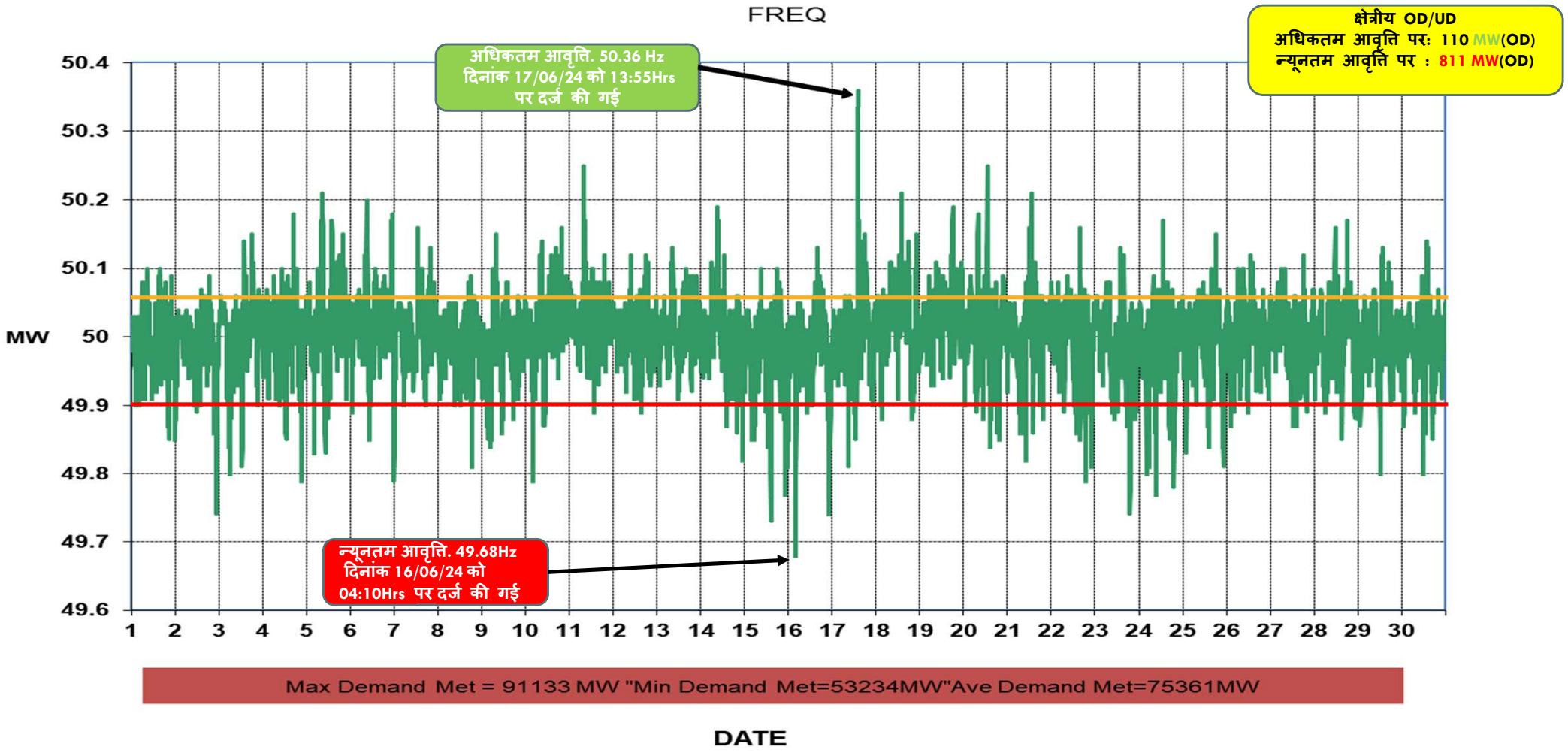
# प्रचालन समन्वय उपसमिति की बैठक
# जून- 2024

# आवृत्ति की स्थिति: जून -2023 से 2024

| Frequency(Hz) | % of Time |
|---|---|
| <49.90 | 4.50 |
| 49.90-50.05 | 79.18 |
| >50.05 | 16.32 |



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



# पिछले एक साल मे आवृत्ति की स्थिति

| आवृत्ति बैंड | जून 2023 | जुलाई 2023 | अगस्त 2023 | सितम्बर 2023 | अक्टूबर 2023 | नवम्बर 2023 | दिसंबर 2023 | जनवरी 2024 | फ़रवरी 2024 | मार्च 2024 | अप्रैल 2024 | मई 2024 | जून 2024 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| < 49.7 Hz(%) | 0.22 | 0.09 | 0.47 | 0.11 | 0.53 | 0.10 | 0.17 | 0.12 | 0.095 | 0.065 | 0.030 | 0.000 | 0.02 |
| <49.8 Hz(%) | 0.86 | 0.66 | 1.63 | 0.57 | 1.99 | 0.96 | 1.40 | 0.92 | 0.797 | 0.479 | 0.432 | 0.059 | 0.31 |
| <49.9 Hz(%) | 8.42 | 4.60 | 7.11 | 5.21 | 8.87 | 6.83 | 7.83 | 6.80 | 6.239 | 6.022 | 5.254 | 2.490 | 4.50 |
| 49.90-50.05 Hz(%) | ***67.83*** | ***74.96*** | ***77.25*** | ***77.86*** | ***74.42*** | ***74.36*** | ***75.21*** | ***75.83*** | ***74.06*** | **77.51** | **78.56** | **80.045** | **79.177** |
| 50.05-50.10 Hz(%) | 15.59 | 15.64 | 13.28 | 13.32 | 13.53 | 13.74 | 10.47 | 11.91 | 14.118 | 12.262 | 11.178 | 13.839 | 13.34 |
| >50.10 Hz(%) | 8.15 | 4.79 | 2.35 | 3.61 | 3.18 | 5.06 | 6.49 | 5.47 | 5.581 | 4.204 | 5.010 | 3.627 | 2.99 |
| >50.20 Hz(%) | 1.09 | 0.80 | 0.23 | 0.32 | 0.14 | 0.66 | 0.53 | 0.41 | 0.565 | 0.657 | 0.539 | 0.285 | 0.12 |
| औसत आवृत्ति | 50.01 | 50.01 | 50.00 | 50.00 | 49.99 | 50.00 | 49.99 | 49.99 | 50.00 | 50.00 | 50.00 | 50.00 | 50.002 |

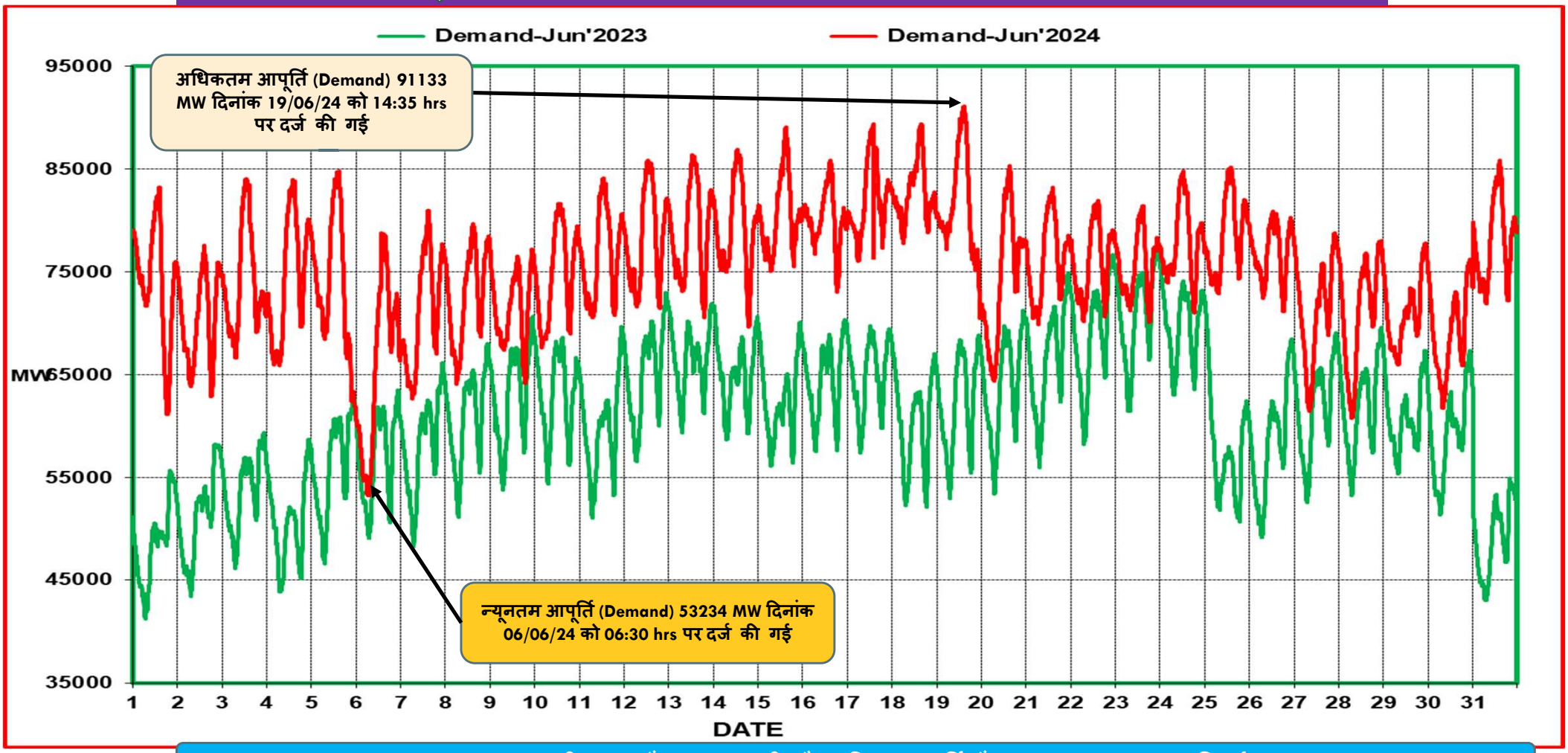
# जून-2024 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

ग्रिड-इंडिया GRID-INDIA

| राज्य | अधिकतम मांग (MW) (in Jun'24) | दिनांक / समय | रिकॉर्ड अधिकतम मांग (in MW) (upto May'24) | दिनांक / समय | अधिकतम ऊर्जा खपत (MU) (in Jun'24) | दिनांक | रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto May'24) | दिनांक |
|---|---|---|---|---|---|---|---|---|
| पंजाब | 16089 | 29.06.24 at 12:45 | 15293 | 24.06.23 को 11:45 बजे | 345 | 25.06.2024 | 344.1 | 24.06.2023 |
| हरियाणा | 14469 | 19.06.24 at 15:00 | 12768 | 28.06.22 को 11:56 बजे | 273 | 25.06.2024 | 273.1 | 18.08.2023 |
| राजस्थान | 17774 | 18.06.24 at 11:45 | 17949 | 20.01.24 को 11:00 बजे | 378.8 | 19.06.2024 | 379.1 | 30.05.2024 |
| दिल्ली | 8656 | 19.06.24 at 15:06 | 8302 | 29.05.24 को 15:36 बजे | 177.7 | 18.06.2024 | 163.8 | 31.05.2024 |
| उत्तर प्रदेश | 30618 | 13.06.24 at 22:00 | 29727 | 31.05.24 को 21:45 बजे | 658.7 | 17.06.2024 | 642.3 | 27.05.2024 |
| उत्तराखंड | 2863 | 14.06.24 at 22:00 | 2781 | 29.05.24 को 21:00 बजे | 62.1 | 14.06.2024 | 60.7 | 31.05.2024 |
| हिमाचल प्रदेश | 1919 | 26.06.24 at 11:00 | 2235 | 20.01.24 को 07:00 बजे | 40.3 | 25.06.2024 | 39.29 | 24.01.2024 |
| जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT) | 2902 | 17.06.24 at 05:00 | 3107 | 12.01.24 को 20:00 बजे | 58.4 | 17.06.2024 | 66.8 | 26.01.2024 |
| चंडीगढ़ | 482 | 18.06.24 at 15:28 | 432 | 30.05.24 को 14:00 बजे | 9.1 | 18.06.2024 | 8.6 | 30.05.2024 |
| उत्तरी क्षेत्र # | 91234 | 19.06.24 at 14:37 | 86773 | 30.05.24 को 14:13 बजे | 1990.4 | 18.06.2024 | 1882.1 | 29.05.2024 |

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

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

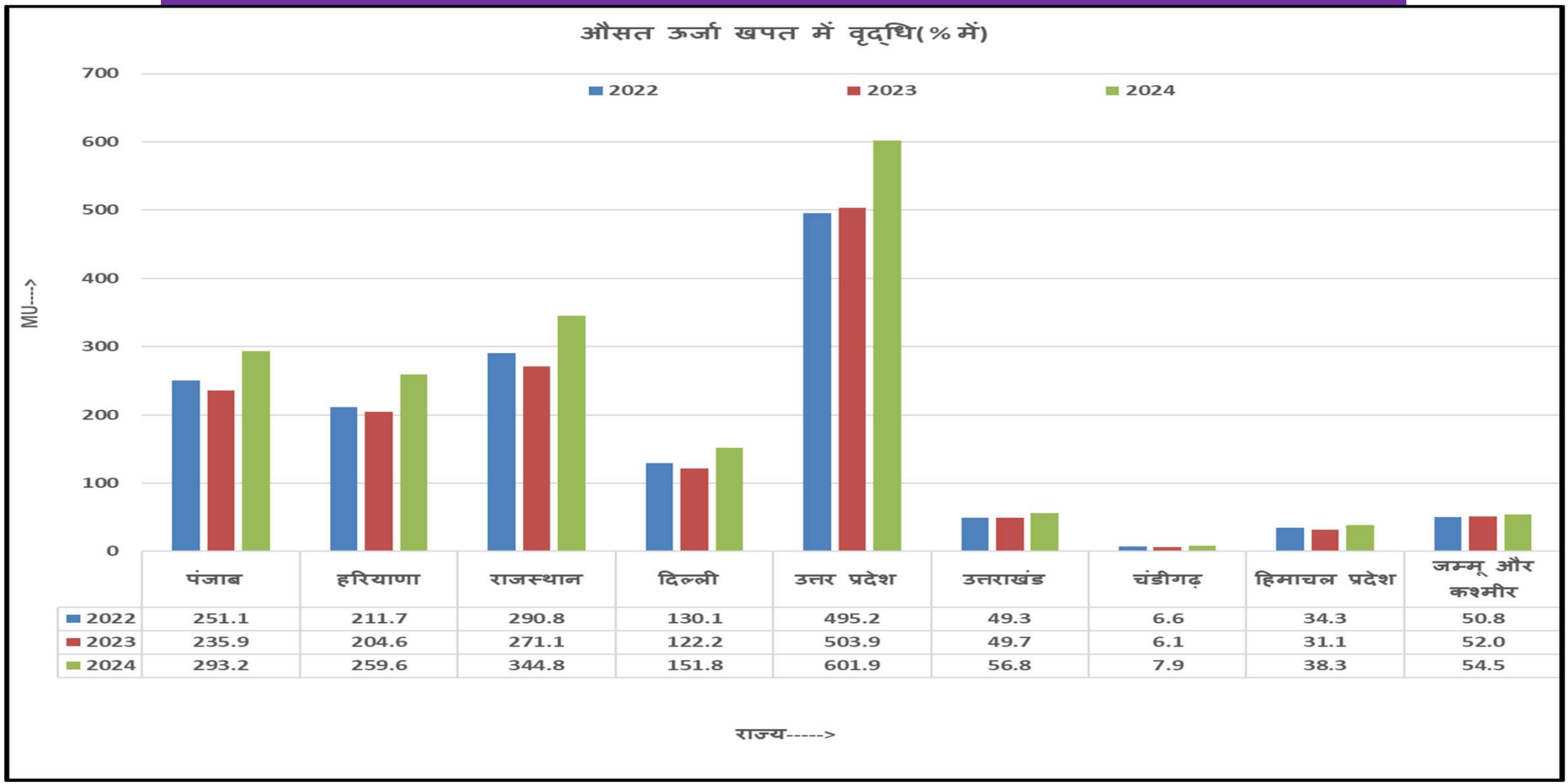



जून -2023 की तुलना में जून -2024 की औसत विद्युत आपूर्ति में 23.1% (~14161 MW) वृद्धि हुई

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

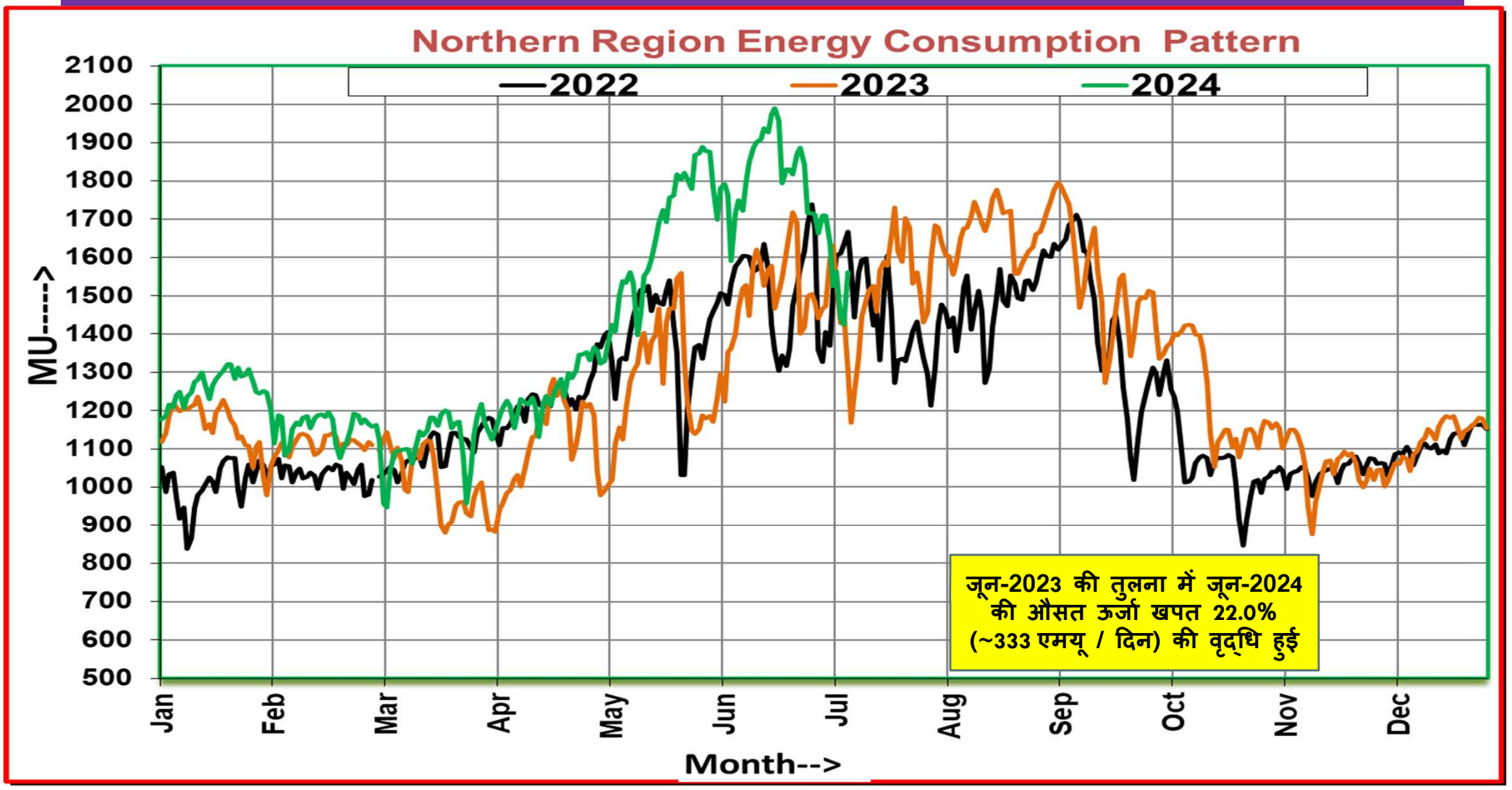
| राज्य | जून -2022 | जून -2023 | जून -2024 | % वृद्धि (जून -2023 vs जून -2022 ) | % वृद्धि (जून -2024 vs जून -2023 ) |
|---|---|---|---|---|---|
| पंजाब | 251.1 | 235.9 | 293.2 | -6.0% | 24.3% |
| हरियाणा | 211.7 | 204.6 | 259.6 | -3.4% | 26.9% |
| राजस्थान | 290.8 | 271.1 | 344.8 | -6.8% | 27.2% |
| दिल्ली | 130.1 | 122.2 | 151.8 | -6.1% | 24.2% |
| उत्तर प्रदेश | 495.2 | 503.9 | 601.9 | 1.7% | 19.5% |
| उत्तराखंड | 49.3 | 49.7 | 56.8 | 0.8% | 14.3% |
| चंडीगढ़ | 6.6 | 6.1 | 7.9 | -7.7% | 30.2% |
| हिमाचल प्रदेश | 34.3 | 31.1 | 38.3 | -9.3% | 23.1% |
| जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT) | 50.8 | 52.0 | 54.5 | 2.3% | 4.8% |
| **उत्तरी क्षेत्र** | **1520.1** | **1480.5** | **1813.3** | **-2.6%** | **22.5%** |

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

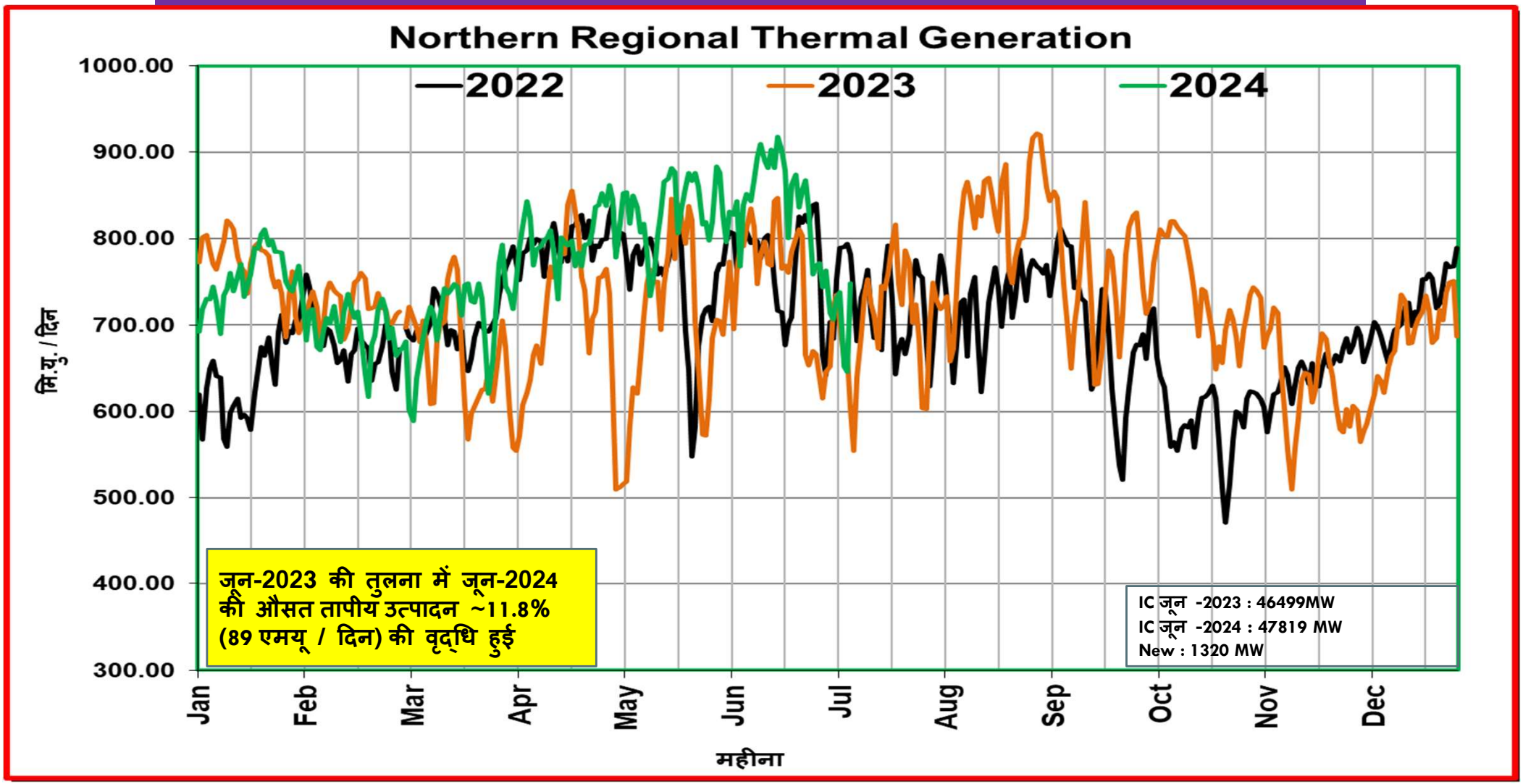



| | पंजाब | हरियाणा | राजस्थान | दिल्ली | उत्तर प्रदेश | उत्तराखंड | चंडीगढ़ | हिमाचल प्रदेश | जम्मू और कश्मीर |
|---|---|---|---|---|---|---|---|---|---|
| 2022 | 251.1 | 211.7 | 290.8 | 130.1 | 495.2 | 49.3 | 6.6 | 34.3 | 50.8 |
| 2023 | 235.9 | 204.6 | 271.1 | 122.2 | 503.9 | 49.7 | 6.1 | 31.1 | 52.0 |
| 2024 | 293.2 | 259.6 | 344.8 | 151.8 | 601.9 | 56.8 | 7.9 | 38.3 | 54.5 |

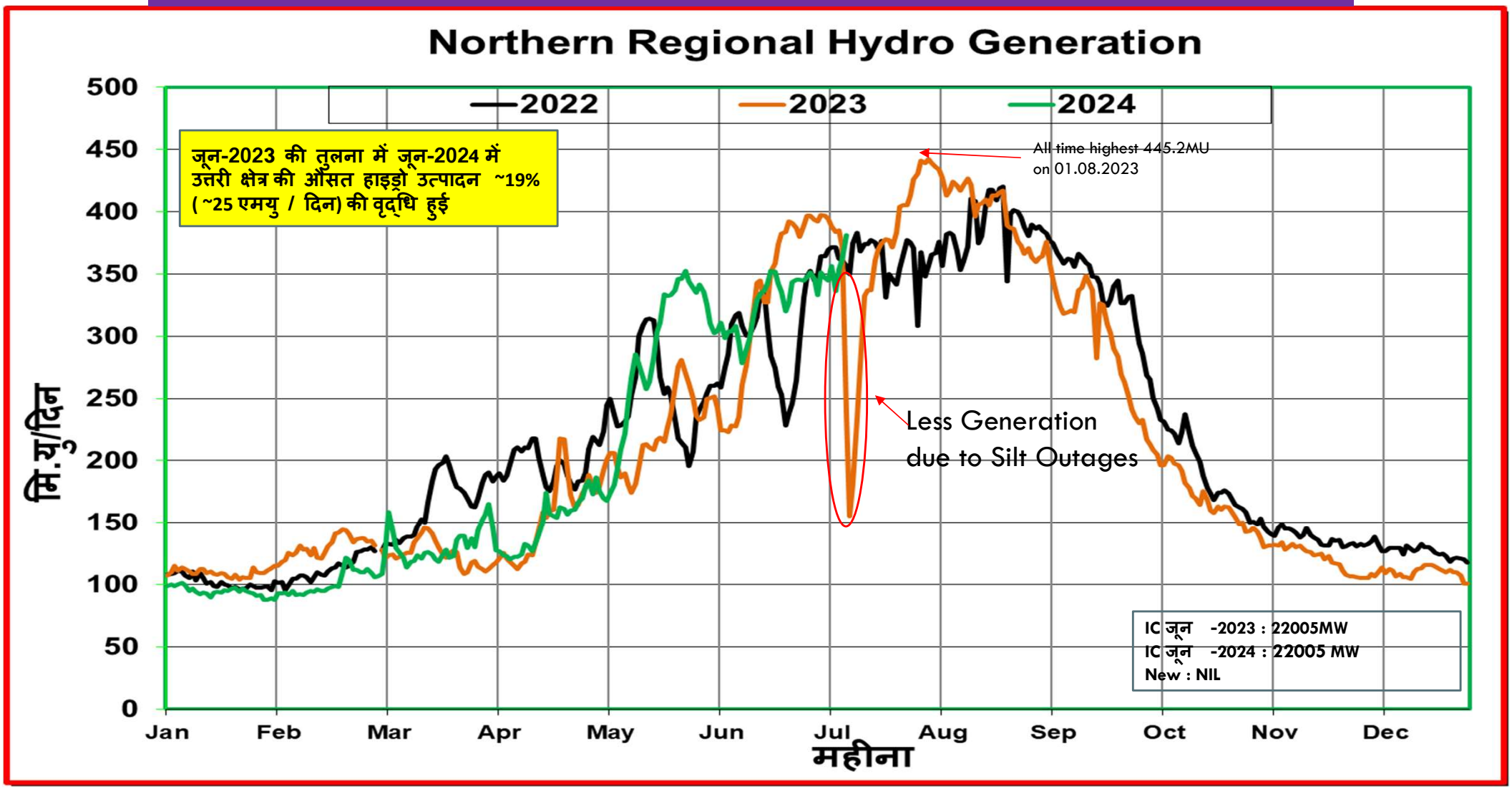
# उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



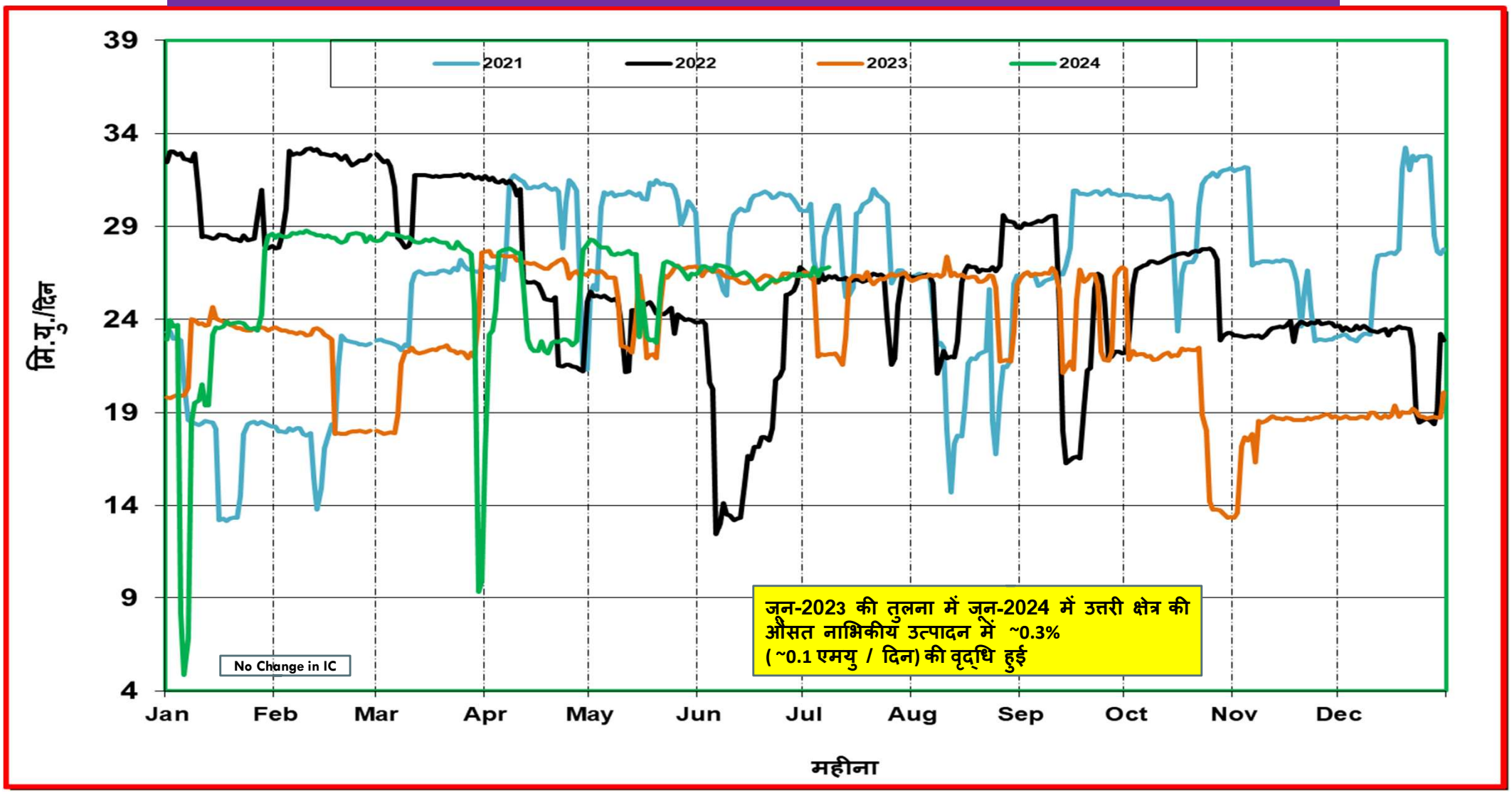
# उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(MUs/Day)



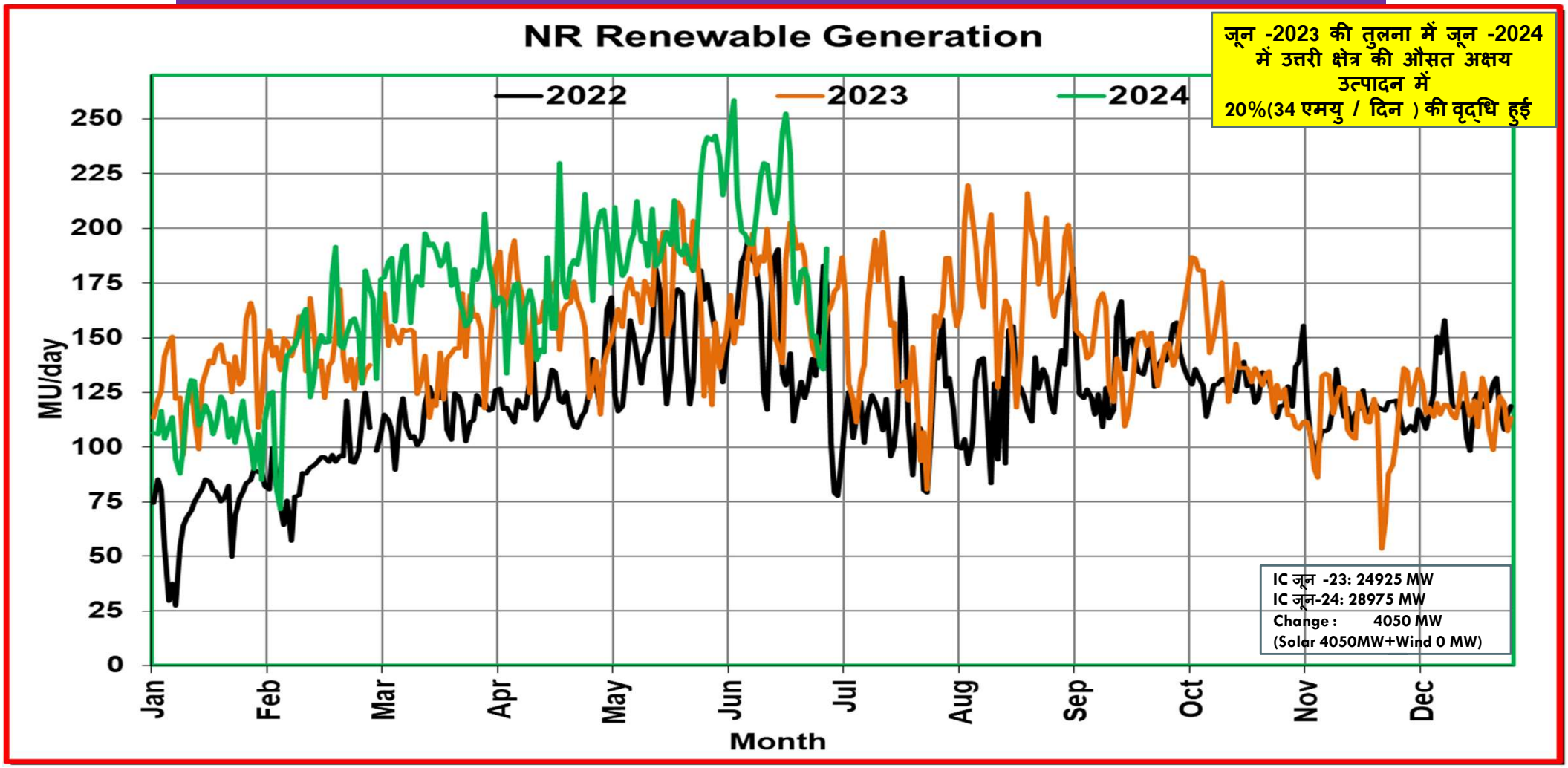
# उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(MUs/Day)



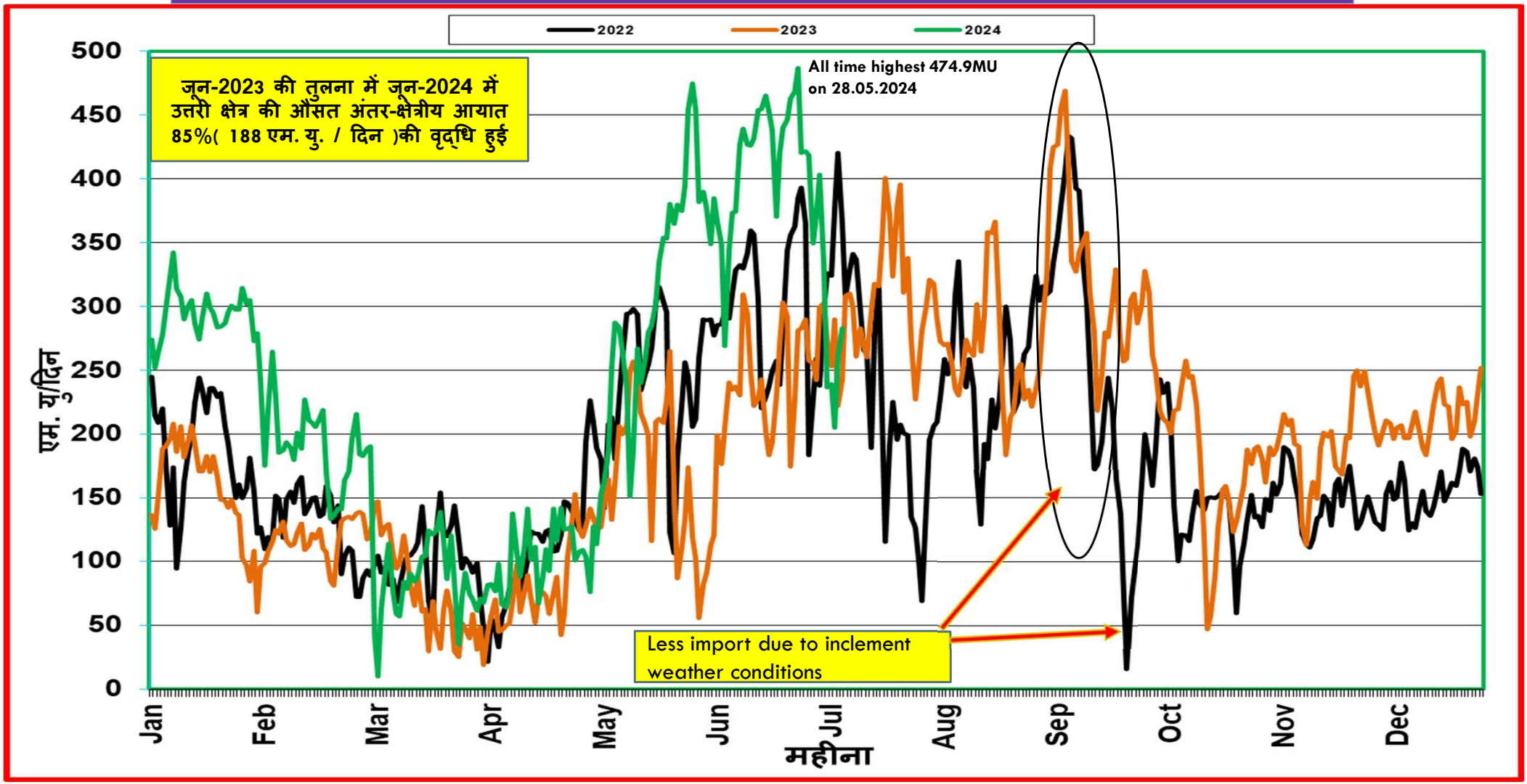
# उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)



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



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



## वास्तविक सारांश -
## जून-2023 बनाम जून-2024

| | जून-2023 (मि.यु. /दिन) | जून-2024 (मि.यु. /दिन) | जून माह में वृद्धि (मि.यु./दिन) |
|---|---|---|---|
| तापीय (Thermal) उत्पादन | 755.07 | 844.21 | 89.13 |
| जलीय (Hydro) उत्पादन | 319.34 | 323.89 | 4.56 |
| नाभिकीय (Nuclear) उत्पादन | 26.31 | 26.39 | 0.08 |
| अंतर-क्षेत्रीय (Inter-Regional) कुल आयात | 222.22 | 410.33 | 188.11 |
| अक्षय (Renewable) उत्पादन | 168.065 | 202.397 | 34.33 |

# RE Penetration

| | Maximum Daily MU Penetration | | | |
|---|---|---|---|---|
| | June '2024 | | Record upto May '2024 | |
| | Max % Penetration | Date | Max % Penetration | Date |
| Punjab | 4.27 | 06-06-2024 | 12.28 | 01-04-2020 |
| Rajasthan | 23.70 | 05-06-2024 | 36.47 | 22-10-2021 |
| UP | 2.57 | 07-06-2024 | 5.50 | 05-03-2024 |
| NR | 14.67 | 05-06-2024 | 20.69 | 02-04-2023 |

| Outage Summary For June 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 | 168 | 429 | 239 | 190 | 41.3% | 58.7% | 55.7% | 44.3% | 597 |
| UPPTCL | 80 | 220 | 89 | 131 | 47.3% | 52.7% | 40.5% | 59.5% | 300 |
| RRVPNL | 71 | 128 | 71 | 57 | 50.0% | 50.0% | 55.5% | 44.5% | 199 |
| BBMB | 15 | 109 | 47 | 62 | 24.2% | 75.8% | 43.1% | 56.9% | 124 |
| HVPNL | 36 | 83 | 38 | 45 | 48.6% | 51.4% | 45.8% | 54.2% | 119 |
| DTL | 5 | 49 | 17 | 32 | 22.7% | 77.3% | 34.7% | 65.3% | 54 |
| PSTCL | 14 | 36 | 12 | 24 | 53.8% | 46.2% | 33.3% | 66.7% | 50 |
| PTCUL | 5 | 16 | 3 | 13 | 62.5% | 37.5% | 18.8% | 81.3% | 21 |
| HPPTCL | 2 | 15 | 6 | 9 | 25.0% | 75.0% | 40.0% | 60.0% | 17 |
| PDD JK | 1 | 16 | 4 | 12 | 20.0% | 80.0% | 25.0% | 75.0% | 17 |
| NTPC | 5 | 8 | 3 | 5 | 62.5% | 37.5% | 37.5% | 62.5% | 13 |
| GTL | 4 | 7 | 0 | 7 | 100.0% | 0.0% | 0.0% | 100.0% | 11 |
| ESUCRL | 8 | 2 | 1 | 1 | 88.9% | 11.1% | 50.0% | 50.0% | 10 |
| RENEW SURYARAVI (RSRPL) | 10 | 0 | 0 | 0 | 100.0% | 0.0% | NA | NA | 10 |
| THDC | 1 | 9 | 6 | 3 | 14.3% | 85.7% | 66.7% | 33.3% | 10 |
| ATIL | 0 | 9 | 3 | 6 | 0.0% | 100.0% | 33.3% | 66.7% | 9 |
| PKATL | 0 | 8 | 2 | 6 | 0.0% | 100.0% | 25.0% | 75.0% | 8 |
| Cleansolar_Jodhpur | 3 | 4 | 1 | 3 | 75.0% | 25.0% | 25.0% | 75.0% | 7 |
| RSEJ3PL | 4 | 2 | 1 | 1 | 80.0% | 20.0% | 50.0% | 50.0% | 6 |
| SBSRPC-11 | 4 | 1 | 0 | 1 | 100.0% | 0.0% | 0.0% | 100.0% | 5 |
| Tata Power | 4 | 1 | 1 | 0 | 80.0% | 20.0% | 100.0% | 0.0% | 5 |
| Sekura | 1 | 3 | 1 | 2 | 50.0% | 50.0% | 33.3% | 66.7% | 4 |
| AHEJ4L | 2 | 1 | 1 | 0 | 66.7% | 33.3% | 100.0% | 0.0% | 3 |
| Renew Power | 3 | 0 | 0 | 0 | 100.0% | 0.0% | NA | NA | 3 |
| RENEW SUN WAVE (RSWPL) | 2 | 1 | 0 | 1 | 100.0% | 0.0% | 0.0% | 100.0% | 3 |
| AREPRL | 0 | 2 | 1 | 1 | 0.0% | 100.0% | 50.0% | 50.0% | 2 |
| NHPC | 0 | 2 | 1 | 1 | 0.0% | 100.0% | 50.0% | 50.0% | 2 |
| NRSS XXIX | 0 | 2 | 2 | 0 | 0.0% | 100.0% | 100.0% | 0.0% | 2 |
| Total | 448 | 1163 | 550 | 613 | 44.9% | 55.1% | 47.3% | 52.7% | 1611 |

## 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)) | |
| Mar-24 | 927 | 788 | 380 | 408 | 70.9% | 29.1% | 1715 |
| Apr-24 | 838 | 724 | 366 | 358 | 69.6% | 30.4% | 1562 |
| May-24 | 812 | 1113 | 469 | 634 | 62.9% | 37.1% | 1925 |
| **June-24** | **448** | **1163** | **550** | **613** | **44.9%** | **55.1%** | **1611** |

# New Elements First Time Charged During June 2024

| S. No. | Type of transmission element | Total No |
|---|---|---|
| 1 | ICTs/GTs/Transformers | 02 |
| 2 | LILO Line Charging | 02 |
| 3 | Capacitor Bank | 03 |
| 4 | BUS REACTOR | 01 |
| 5 | AC Transmission line Shifting | 01 |
| Total New Elements charged | | 09 |

## ICTs/GTs/Transformers

| S.No | Name of element | Owner | Voltage Level (HV/LV/Tertiary) | MVA Capacity | Transformer Details | OLD MVA Capacity | Actual date of charging |
|---|---|---|---|---|---|---|---|
| 1 | 400/220/33kV, 500 MVA, 3-Phase, BHEL, ICT - 2 at Gorakhpur(UP) | UPPTCL | 400/220/33kV | 500 | Augmentation | 240 | 20-Jun-2024 |
| 2 | 400/220/33kV, 315 MVA, 3-Phase, CGL, ICT - 3 at Bhinmal(PG) | POWERGRID | 400/220/33kV | 315 | New | NA | 27-Jun-2024 |

## LILO Line Charging

| S.No | Name of element | Voltage Level (in kV) | Name of Line to be LILOed | Line Length of New Line after LILO (In Km) | LILO Portion Line Length (In Km) | Conductor Type | Agency/Owner | Actual date of charging |
|---|---|---|---|---|---|---|---|---|
| 1 | 220kV Patran(PATR)-Mansa(PSTCL) -1(After LILO of 220 KV Mansa - Sunam at 400 KV PTCL Patran (Banwala)) | 220kV | 220 KV Mansa - Sunam | 78.169 | 42.737 | ZEBRA | PSTCL | 28-Jun-2024 |
| 2 | 220kV Patran(PATR)-Sunam(PSTCL)-1(After LILO of 220 KV Sunam - Mansa at 400 KV PTCL Patran (Banwala)) | 220kV | 220 KV Sunam - Mansa | 44.647 | 42.737 | ZEBRA | PSTCL | 28-Jun-2024 |

## Capacitor Bank

| S.No | Name of element | Owner | Capacitor Bank No | Capacitor MVAR Rating | Actual date of charging |
|---|---|---|---|---|---|
| 1 | 33kV, CHDB- F880, 55 MVAR(1X10 MVAR and 3x15 MVAR) Capacitor bank no-Capacitor Bank-3 (55 MVAR) at Nokhra SL_BHD2 (NTPC) | NTPC_NOKHRA | Capacitor Bank-3(55 MVAR) | 55 | 12-Jun-2024 |
| 2 | 33kV, CHDB- F880, 55 MVAR(1x10 MVAR and 3x15 MVAR) Capacitor bank no-Capacitor Bank-2 (55 MVAR) at Nokhra SL_BHD2 (NTPC) | NTPC_NOKHRA | Capacitor Bank-2(55 MVAR) | 55 | 17-Jun-2024 |
| 3 | 33kV, CHDB- F880, 55 MVAR(1x10 MVAR and 3x15 MVAR) Capacitor bank no-Capacitor Bank-1 (55 MVAR) at Nokhra SL_BHD2 (NTPC) | NTPC_NOKHRA | Capacitor Bank-1(55 MVAR) | 55 | 17-Jun-2024 |

## BUS REACTOR

| S.No | Name of element | Owner | Voltage Level | MVAR Capacity | Actual date of charging |
|---|---|---|---|---|---|
| 1 | 400kV, 125MVAr Bus Reactor 1 at Sahupuri (UP) | UPPTCL | 400kV | 125 | 15-Jun-2024 |

# AC Transmission line Shifting

| S.No | Name of element | Owner | Voltage Level (in kV) | Circuit No | Line Length(Km) | Conductor Type | Actual date of charging |
|---|---|---|---|---|---|---|---|
| 1 | 220kV Shahjahanpur(PG)-Hardoi(UP)- 1 (JUMPERING OF 220 KV SHAHJAHANPUR(PG)- MALLAWAN LINE AND 220 KV MALLAWAN - HARDOI LINE AT TOWER NO-201 AND 202) | UPPTCL | 220kV | 1 | 60 | ZEBRA | 08-Jun-2024 |


धन्यवाद