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 223वीं बैठक का कार्यवृत |

Subject: Minutes of the 223rd OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 223वीं बैठक दिनांक 13.09.2024 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 223rd meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 13.08.2024. 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।

Signed by Dharmendra Kumar Meena
Date: 04-10-2024 15:39:55

(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 223वीं बैठक का कार्यवृत्त

The 223rd OCC meeting of NRPC was held on 13.09.2024 through video conferencing. MS, NRPC welcomed all the participants.

खण्ड-क:उ.क्षे.वि.स. PART-A:NRPC

A.1. Confirmation of Minutes

Minutes of the 222nt OCC meeting was issued on 05.09.2024. OCC Forum confirmed the minutes of the meeting.

A.2. Status of action taken on decisions of 222nd 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 August 2024

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

Reasons submitted by States for significant deviation between actual Energy requirement & demand and anticipated Energy requirement & demand figures during the month of August 2024 are as under:

- **Rajasthan**

The Actual Energy requirement and Peak Demand w.r.t. Anticipated Energy requirement and Peak Demand decreased by 20.7% and 21.1% respectively for August' 2024 due to heavy rain and good monsoon in the state control area.

- **Himachal Pradesh**

The Anticipation in Energy Requirement & Peak Demand in respect of Himachal Pradesh for the month of August, 2024 came on the lower side due to the heavy rainfall.

- **Haryana**

  In this regard, it is intimated that the Actual demand felt was less than the demand felt during August 2023 due to less agricultural load from second week onwards ranging from ~ 7 % to 50%.

- **Punjab**

  It is intimated that actual energy requirement is less as compared to anticipated energy requirement because of significant rainfall in the state of Punjab in the month of August 2024.

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

The maintenance programme of generating units and transmission lines for the month of October 2024 was deliberated in the meeting on 12.09.2024.

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

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	130	310	No Revision submitted
	Requirement	142	304	
	Surplus / Shortfall	-12	6	
	% Surplus / Shortfall	-8.5%	1.8%	
DELHI	Availability	3423	5650	12-Sep-24
	Requirement	2700	5650	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	723	0	
	% Surplus / Shortfall	26.8%	0.0%	
HARYANA	Availability	6126	10263	10-Sep-24
	Requirement	5601	10602	
	Surplus / Shortfall	525	-339	
	% Surplus / Shortfall	9.4%	-3.2%	
HIMACHAL PRADESH	Availability	1069	1935	10-Sep-24
	Requirement	1084	1915	
	Surplus / Shortfall	-15	20	
	% Surplus / Shortfall	-1.4%	1.0%	
J&K and LADAKH	Availability	1390	3090	No Revision submitted
	Requirement	1872	3235	
	Surplus / Shortfall	-482	-145	
	% Surplus / Shortfall	-25.7%	-4.5%	
PUNJAB	Availability	6150	10080	12-Sep-24
	Requirement	6499	12748	
	Surplus / Shortfall	-349	-2668	
	% Surplus / Shortfall	-5.4%	-20.9%	
RAJASTHAN	Availability	8330	17860	No Revision submitted
	Requirement	9461	15300	
	Surplus / Shortfall	-1131	2560	
	% Surplus / Shortfall	-12.0%	16.7%	
UTTAR PRADESH	Availability	13020	25500	08-Sep-24
	Requirement	12710	25500	
	Surplus / Shortfall	310	0	
	% Surplus / Shortfall	2.4%	0.0%	
UTTARAKHAND	Availability	1271	2200	06-Sep-24
	Requirement	1287	2260	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	-16	-60	
	% Surplus / Shortfall	-1.2%	-2.7%	
NORTHERN REGION	Availability	40909	72200	
	Requirement	41355	72800	
	Surplus / Shortfall	-447	-600	
	% Surplus / Shortfall	-1.1%	-0.8%	

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 223rd OCC, SLDCs were requested again to coordinate with respective Transmission Utilities of states/UTs and submit details about the updated status of Down Stream network by State Utilities from ISTS Station (enclosed as ***Annexure-A-I.I***) before every OCC meeting.

A.7. NR Islanding scheme

A.7.1. In the meeting (223rd OCC), UPPTCL representative apprised that Unchahar-Lucknow Islanding scheme has been successfully implemented and same is visible at SCADA of UPSLDC also (except 03 Substation: Namely 132 kV S/s tripula,132 kV S/s bachhrawan and 132 kV S/s Hussainganj. The data of above 03 substation is not available at UPSLDC due to lack of OPGW. The work of laying OPGW cable is under progress and same shall be completed by next month.

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

A.7.3. RRVPNL representative mentioned that logic for Jodhpur-Barmer-Rajwest islanding scheme is finalized and tender shall be floated by month end with delivery schedule within 3 months and thereafter 3 months shall take for implementation i.e. by March 2025.

A.7.4. RRVPNL representative mentioned that DPR for implementation of Suratgarh islanding scheme is under finalization.

A.7.5. 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 last OCC meeting, Punjab SLDC informed that no reply has been received from PSDF Sectt. till date in this regard. MS, NRPC had asked Punjab SLDC to explore the alternative mechanism for procurement of UFR as funding has been freezed till March'25 from PSDF Sectt.

In 223rd OCC meeting, Punjab SLDC representative apprised forum that as per their management direction, project is approved from state regulatory authority for PSDF funding, if funding mechanism is to be changed then again regulatory approval would be required and that would take time. Implementation of scheme cannot be done by internal finance and they are willing to wait for PSDF funding till March'25. NRLDC said that at least a parallel recourse may be started for the implementation of the scheme in case if PSDF funding could not be arranged after March 2025. Punjab SLDC said that they would apprise the management with the views of forum.

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

A.7.7. Further, with regard to Shimla-Solan Islanding scheme, issue b/w HPSEBL and M/s GE is unresolved. As per direction in the last OCC meeting, a separate meeting with the chairmanship of MS NRPC with the stakeholders HPSLDC, HPSEBL and GE is scheduled on 18.09.2024.

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

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

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

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd. (Days)	Actual Stock (Days)
KOTA TPS	1240	0.66	21	4.6
SURATGARH TPS	1500	0.62	21	4.7
TALWANDI SABO TPP	1980	0.55	21	3.7

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

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

A.10.1 In the 221st OCC meeting of NRPC, forum asked generating stations of NR to update the status of Planned Maintenance schedules versus actual maintenance availed for the previous month before every OCC meeting and it was decided that to enhance the monitoring of approved Planned Maintenance schedules the said agenda item shall be taken as rolling/follow-up agenda in OCC meetings.

A.10.2 In this regard, list of Planned Maintenance schedules versus actual maintenance availed for the year 2024-25 for the month of August-2024 attached as Annexure-A.IV of agenda was shared with the relevant generating stations of NR and based on the inputs received from them the updated information is attached as **Annexure-A.III**.

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

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

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

A.11.3. EE(O), NRPC asked the representatives of above-mentioned utilities to apprise the technical minimum load status of their units.

A.11.4. Punjab SLDC mentioned that for Goindwal Sahib TPS, the present load technical status is 60% as on date for both unit-1 and unit-2.

A.11.5. Haryana mentioned that they have approached their state regulatory commission for exemption of their units of Panipat TPS and same has been granted.

A.11.6. EE(O), NRPC asked RVUN to apprise the present technical minimum load status of all its state thermal units. To this RVUN replied that they would communicate the same vide mail to NRPC Sectt.

A.11.7. Punjab SLDC intimated that for GH TPS (LEH.MOH.) unit 3 and unit-4 TML is 68% and GH TPS (LEH.MOH.) unit 2 and unit-1 TML is 79%. For Ropar TPS unit 3, 4, 5 and 6 TML status is 75%.

A.11.8. Further, they informed that PSPCL is taking up the matter with BHEL for these machines and BHEL will submit the retro-fitting plan of these generators and same would be shared by them with CEA.

A.11.9. UPSLDC mentioned that all its state generators are able to achieve 55% TML.

A.11.10. JSW Barmer representative was not present in the meeting. MS, NRPC asked Rajasthan SLDC to co-ordinate with Rajwest & Barsinagarand submit the information regarding TML status of their units.

A.11.11. MS, NRPC mentioned that all the generating units in NR mentioned in Annexure -A.V of agenda shall submit their technical minimum load status. Updated status of is attached as **Annexure-A.IV**.

A.11.12. MS, NRPC asked NTPC and RUVN to submit their learnings/observations to CEA highlighting the difficulties faced by them to achieve the minimum load operation of 40%.

Decision of OCC Forum:

Forum asked all the generating units in NR mentioned in Annexure -A.V of agenda, shall submit their present technical minimum load status.

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

A.12. Anticipated Energy Requirement & Peak Demand and Unit Wise Planned Maintenance schedule for the year 2025-26 (Agenda by CEA)

A.12.1. NRPC representative apprised forum that Central Electricity Authority vide its mail dated 27.08.2024 has sought information regarding the Anticipated Energy Requirement & Peak Demand and Unit Wise Planned Maintenance schedule for the year 2025-26.

A.12.2. Information from all SLDC's of all the NR states/UTs have been received w.r.t. to Anticipated Energy Requirement & Peak Demand for FY 2025-26 and EE(O), NRPC presented these figures to the forum.

A.12.3. MS, NRPC was of view to submit these figures for anticipated energy requirement & peak demand as received from State's and UT's of NR with GM division, CEA.

A.12.4. SE(O), NRPC apprised forum that recently in the review meeting taken by Chairperson CEA is has been asked that planned maintenance of the generating units shall be avoided from March 25 to June 25.

A.12.5. Further, MS NRPC asked all the generating units of NR that have not submitted the planned maintenance schedule of their units to submit he requisite information at the earliest.

Decision of OCC Forum:

Forum asked all the generators of NR that have not submitted the planned maintenance schedule of their units to submit the requisite information at the earliest. Forum also asked that planned maintenance of the generating units shall be avoided from March 25 to June 25.

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

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

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

A.13.3. In the cited matter, inputs have been received from only Haryana and for the rest of the States/UT's of NR information is still awaited.

A.13.4. MS NRPC asked respective SLDCs/STU's of Northern Region to submit the requisite information at the earliest.

Decision of OCC Forum:

Forum asked respective SLDCs/STU's of Northern Region to submit the information in the requisite format regarding transmission capacity is readily available for evacuating RE at the earliest.

A.14. Revised SPS for 2X315 MVA, 400/220kV ILTs at 400kV GSS Jodhpur (Agenda by RVPN) (Agenda by RVPN)

A.14.1. In the meeting, NRPC representative mentioned that RVPN vide letter dated 23.08.2024 (copy attached as Annexure-A.XV of agenda) has submitted revised SPS for 2X315 MVA, 400/220kV ILTs at 400kV GSS Jodhpur after incorporating suggestions from NRLDC in the 221st and 222nd OCC meeting of NRPC.

A.14.2. NRLDC mentioned that revised SPS is found to be in order.

A.14.3. Forum approved the revised SPS for 2X315 MVA, 400/220kV ILTs at 400kV GSS Jodhpur. (copy attached as **Annexure-A.V**)

Decision of OCC Forum:

Forum approved the revised SPS for 2X315 MVA, 400/220kV ILTs at 400kV GSS Jodhpur.

A.15. Restriction of DC of Koldam HPS during high inflow and water spillage conditions (Agenda by NTPC)

A.15.1. NTPC representative opined that APC of Koldam should be considered as 1% of Installed Capacity during high flow/ spillage conditions as well instead of current practice of 1% of (Installed Capacity + plus overload capability).

A.15.2. NRLDC representative stated that tariff regulations 2024 defines the APC as quantum of energy consumed by auxiliary equipment of the generating station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the units of the generating station. Accordingly, APC has been defined as 1% of gross generation (Installed Capacity + overload capability) in new WBES.

A.15.3. Member Secretary concurred with views of NRLDC.

Decision of OCC Forum:

Forum was of view that APC to be treated as 1% of gross generation (Installed Capacity + overload capability) during high flow/ spillage conditions in WBES.

A.16. Requirement to confirm spillage conditions during high inflow season (Agenda by NTPC)

A.16.1. NTPC representative apprised that Koldam HPS was forced to declare within DC @100% of Ex-Bus capacity in the month of June 2024, despite June being a month in high flow season declared by NRPC.

A.16.2. NRLDC representative apprised that DC is restricted to @100% of Ex-Bus capacity only during non-high flow season and non-spillage conditions. During high flow season/ spillage conditions, provisions in WBES allow punching of DC above 100% of Ex-Bus capacity. No other entity has reported such issue so far.

A.16.3. Member Secretary stated that Koldam officials may connect with NRLDC scheduling team for any clarification over provisions of WBES.

Decision of OCC Forum:

Forum asked NTPC Koldam officials to connect with NRLDC scheduling team for any clarification over provisions of WBES.

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

B.1 NR Grid Highlights for August 2024

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

Demand met details of NR

S.No.	Constituents	Max Demand met (in	Date & Time of Max	Max Consumption	Date of Max Consumption	Average Demand met (in

		MW)	Demand met	(in MUs)		Mus)
1	Chandigarh	418	06.08.24 at 14:00	8.1	06.08.24	6.9
2	Delhi	6890	22.08.24 at 15:22	138.7	22.08.24	127.5
3	Haryana	12703	06.08.24 at 15:00	267.4	06.08.24	232.7
4	H.P.	1732	24.08.24 at 09:30	36.9	02.08.24	34.6
5	J&K	2726	24.08.24 at 20:00	54.1	23.08.24	49.9
6	Punjab	15307	08.08.24 at 14:00	356.0	08.08.24	299.7
7	Rajasthan	13409	21.08.24 at 11:00	286.8	21.08.24	251.3
8	U.P	29126	31.08.24 at 22:22	579.1	17.08.24	524.0
9	Uttarakhand	2482	31.08.24 at 22:00	54.4	31.08.24	48.9
10	Northern Region	77380	06.08.24 at 22:00	1694.1	06.08.24	1575.5

*As per SCADA

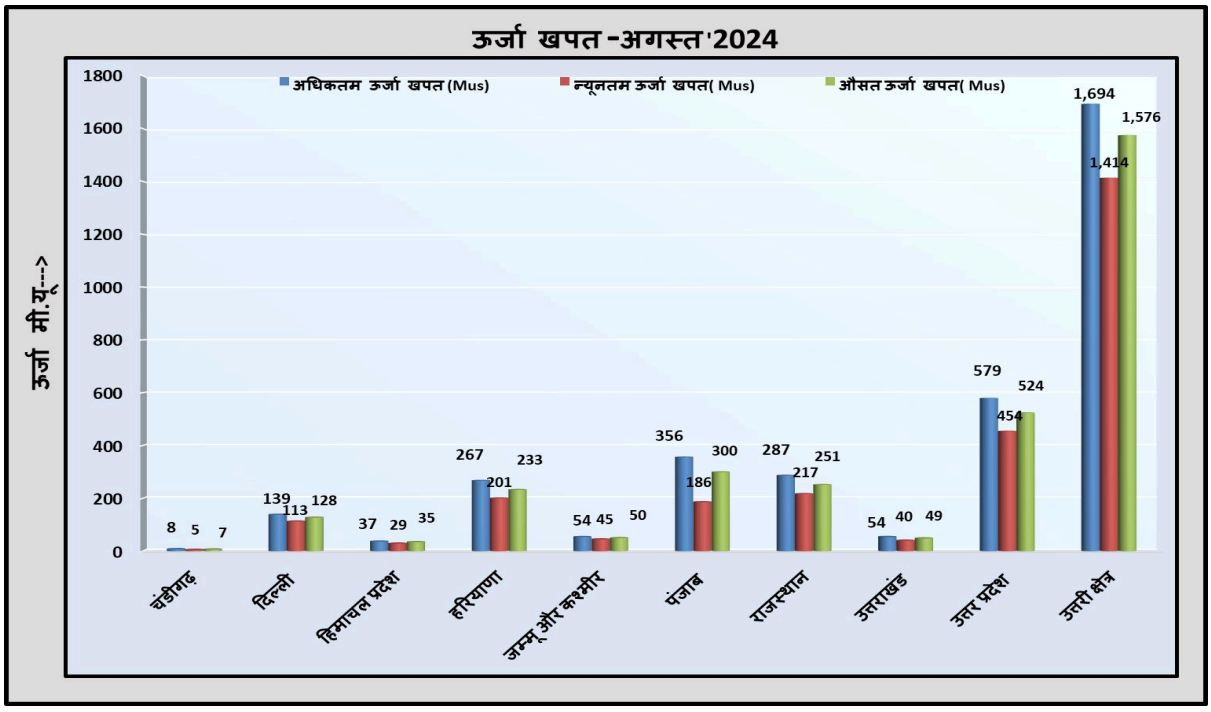
- In Aug’24, the Maximum energy consumption of Northern Region was 1694 MUs on 06th Aug’24 and it was 4.5 % lower than Aug’23 (1773 MU 18th Aug’23)
- In Aug’24, the Average energy consumption per day of Northern Region was 1576 MUs and it was 5.1 % lower than Aug’23 (1661 MUs/day)
- In Aug’24, the Maximum Demand met of Northern Region was 77380 MW on 06th Aug’24 @22:00 hours (*as per scada data)* as compared to 81012 MW on 18st Aug’23 @14:30hours.

Comparison of Average Energy Consumption (MUs/Day) of NR States for the Aug’23 vs Aug‘24

क्षेत्र/राज्य	अगस्त- 2023	अगस्त- 2024	% अंतर
चंडीगढ़	6.9	6.9	0.5%

दिल्ली	131.5	127.5	-3.0%
हिमाचल प्रदेश	34.1	34.6	1.6%
हरियाणा	244.9	232.7	-5.0%
जम्मू और कश्मीर	51.1	49.9	-2.5%
पंजाब	313.5	299.7	-4.4%
राजस्थान	328.1	251.3	-23.4%
उत्तराखंड	45.2	48.9	8.3%
उत्तर प्रदेश	505.6	524.0	3.7%
उत्तरी क्षेत्र	1660.8	1575.5	-5.1%

Energy Consumption

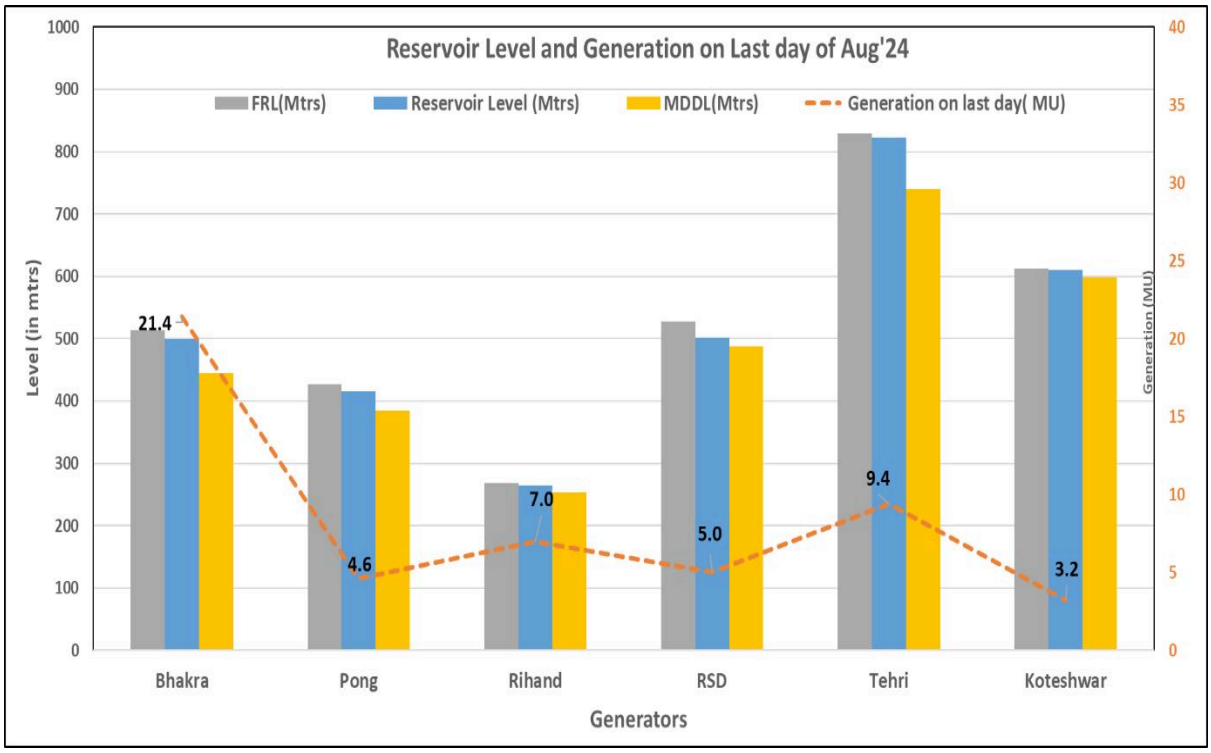


Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Aug'24	50.00	50.45	49.55	4.7	75.0	20.3

		(27.08.24 at 13:02:50 hrs)	(13.08.24 at 19:20:20 hrs)			
Aug'23	50.00	50.29 On 02.08.23 at 13:18:10 hrs	49.51 on 31.08.23 at 22:25:00 hrs	7.1	77.3	15.6

Reservoir Level and Generation on Last Day of Month



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

Demand forecasting related

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

Type of Demand Estimation	**Timeline**
Daily	10:00 hours of previous day

Weekly	First working day of previous week
Monthly	Fifth day of previous month
Yearly	30th September of previous year

The following is the status regarding forecast data submission.

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

***Submitted for FY-24-25. Data is awaited for FY 25-26**

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

HP SLDC representative stated that they are submitting the daily demand data to NRLDC through FTP, however, on few occasions it was missed to email the data. HP SLDC is now emailing the forecast data to NRLDC on daily basis. NRLDC representative noted the same.

All states agreed to furnish the demand estimation data with NRLDC as per timelines specified in IEGC 2023.

B.2 Grid-Operation related issues

a. Prolonged outage of 400kV Varanasi-Sahupuri line

NRLDC representative mentioned that during 222 OCC Meeting, NRLDC had raised concern over frequent tripping of 400kV Varanasi-Sahupuri D/C lines due to PLCC maloperation. UP representative stated that there was fault in the GIS compartment of 400kV Varanasi-Sahupuri ckt-2 at Sahupuri station. Frequent incident occurred due to persisting fault in GIS. Later, line was taken under shutdown and corrective actions are being taken. UP was requested to expedite the remedial actions and restore the line-2 as soon as possible so that reliability of NR-ER link through Sahupuri(UP) can be ensured.

NRLDC representative highlighted that the line is crucial link nearby inter-regional nodes and also is important during September months, as this period is associated with high demand in UP state and high import by the state control area as well as NR.

CGM NRLDC stated that Sahupuri substation is connected with Eastern region through 2no. 400kV lines. In case of tripping of 400kV Varanasi-Sahupuri ckt1, Varanasi-Sahupuri-Biharsharif link will not be available. It was also mentioned that when line was in service as 400kV Varanasi-Bihar Sharif D/C line, the line was not out this frequently. LILO of inter-regional line by STU has reduced the reliability of this line.

UPPTCL representative informed that there are some issues associated with GIS at Sahupuri and OEM M/s GE has been asked to attend to the issues observed. Work plan is to be received from M/s GE. It is expected that the line would be revived within next 1-2 month based on support received from OEM as substation has GIS technology.

OCC forum noted the commitments made by UPPTCL representative and asked UPPTCL to expedite their actions

b. Prolonged outage of FSC of 765kV Koteshwar-Meerut(PG) D/C lines at Meerut(PG)

The FSCs at 765kV Meerut(PG) are out since long time. As reported, reason of outage of FSCs is as follows:

Name of Elements	Outage time/date	Reason of outage
FSC of 765 KV Koteshwar-Meerut (PG) Ckt-2 at Meerut(PG)	12.30/18.04.23	Capacitor bank current imbalance protection operated.
FSC of 765 KV Koteshwar-Meerut (PG) Ckt-1 at Meerut(PG)	08.41/08.06.23	B-Phase to ground fault occurred in the line (Fault Current: 9.0 kA, Fault Location 100.8km from Meerut End). FSC-1 failed.

During 216 OCC meeting, POWERGRID informed that FSC in Ckt-2 is in healthy condition, but could not be taken into service due to capacitor current unbalance issue.

During 223 OCC meeting, NRLDC representative stated that Tehri PSP (1000MW) will be commissioned very shortly and FTC process of 400kV Tehri(THDC)-Koteshwar(PG) line-3 has already begun.

CGM NRLDC stated that after commissioning of Tehri PSP, loading in 765kV Koteshwar-Meerut (PG) D/C lines will increase by significant quantum and approx. 2400MW power would be evacuated through 765kV KoteshwarMeerut (PG) D/C lines. Therefore, FSCs are required to be kept in service to ensure N-1 compliance for reliable and secure operation.

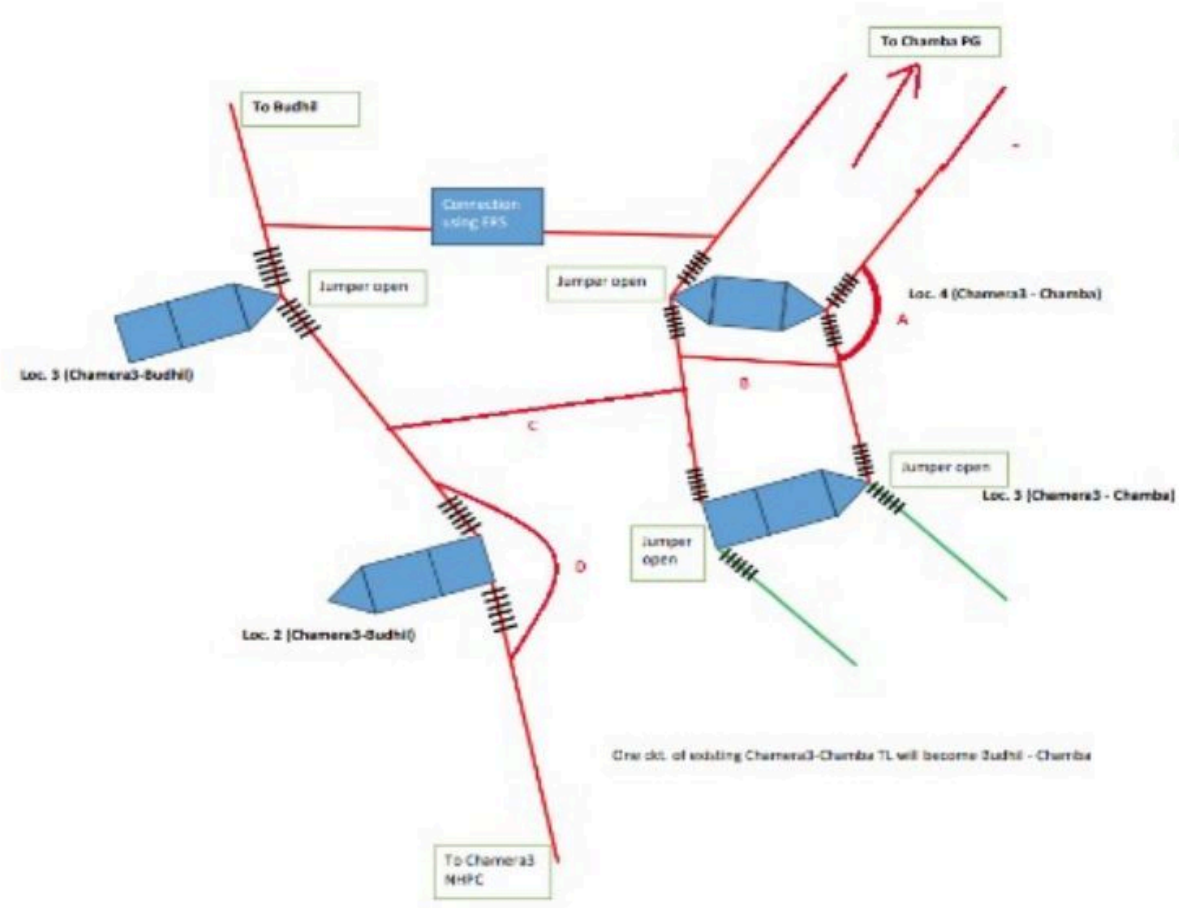
Letter from NRLDC is attached as Annexure-B.I of agenda.

POWERGRID representative stated that works are in progress for revival of FSCs at POWERGRID end. It is expected that FSC would be revived by 31st Oct.

OCC forum noted the commitments made by POWERGRID representative and asked POWERGRID to expedite their actions.

c. Long outage of 220kV Chamera 3-Chamba D/C line

220 KV Chamera_3(NH)-Chamba(PG) (PG) Ckt-1 and ckt-2 were out due to tower collapse on 09-07-2023. Tower collapse was reported at Loc no. 1 from Chamera-3 end and subsequently an interim arrangement was worked out in separate meeting between NRPC, PGCIL(NR2), Chamera3(NHPC), Budhil(Grenko), HPPTCL and NRLDC.



New circuits after installation of the alternative mechanism are in service as:
a) 220 kV Budhil-Chamba transmission line
b) 220 kV Chamera III-Chamba line

As the interim arrangement was done to facilitate safe evacuation of hydropower during the peak hydro season, it is requested that the works on collapsed tower may be expedited and the line may be restored to its normal configuration.

In 215 OCC meeting, NHPC representative stated that tower has been damaged and washed away, accordingly proposal is being worked out to directly string the conductor to gantry. Proposal is being taken up between NHPC and POWERGRID and it is expected that the line would be charged before monsoon season. Work from NHPC side is expected to be completed by Apr 2024.

During the 218 OCC meeting,

- POWERGRID representative stated that gantry tower design at NHPC end is not available. NHPC requested POWERGRID to develop the approximate tower design with help of some vendor.
- Cost estimate and work plan is under approval for both POWERGRID and NHPC. After approval of the work, the implementation would take 3-4 months and

accordingly it is expected that line would be restored to normal configuration by Nov'2024.

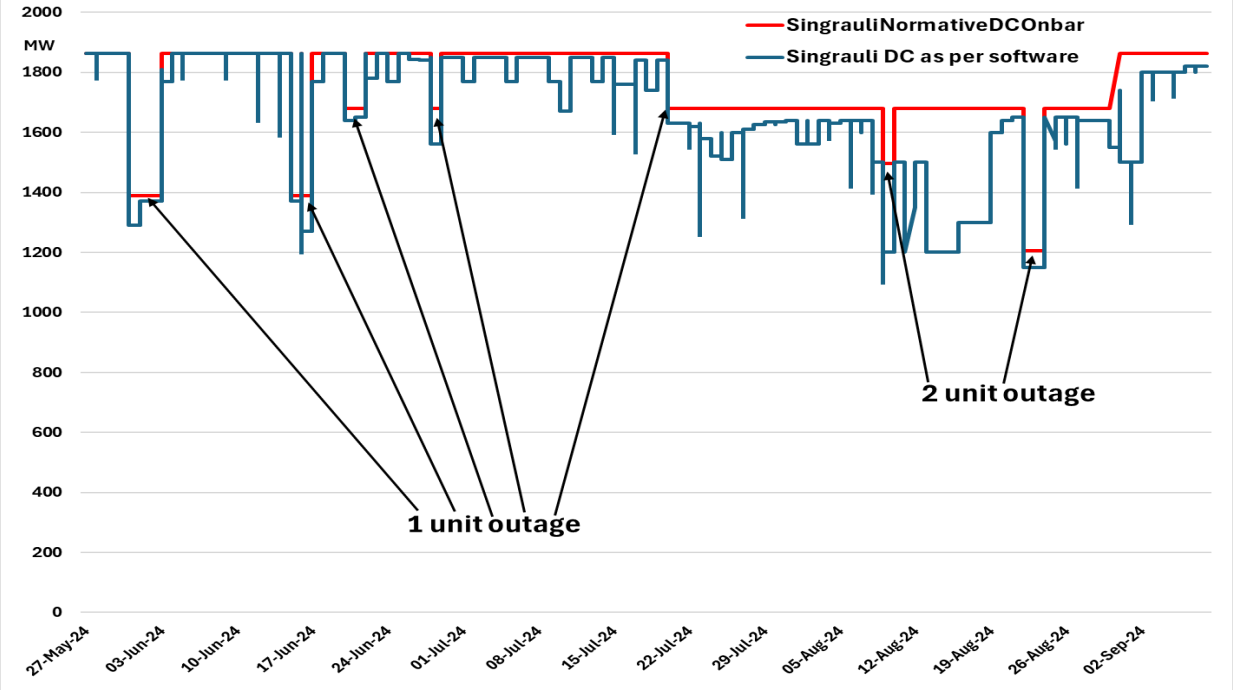
During 223 OCC meeting,

- ***POWERGRID representative informed that tower design and other related issue have been resolved and MOU has been proposed between POWERGRID and NHPC and sent to NHPC for formalities at their end.***
- ***Based on signing of MOU by NHPC, restoration timeline can be provided.***
- ***No update could be received from NHPC side.***
- ***NRLDC representative highlighted that major concern is that NHPC (Chamera-III) generation is being evacuated through single line and generation evacuation reliability is reduced.***

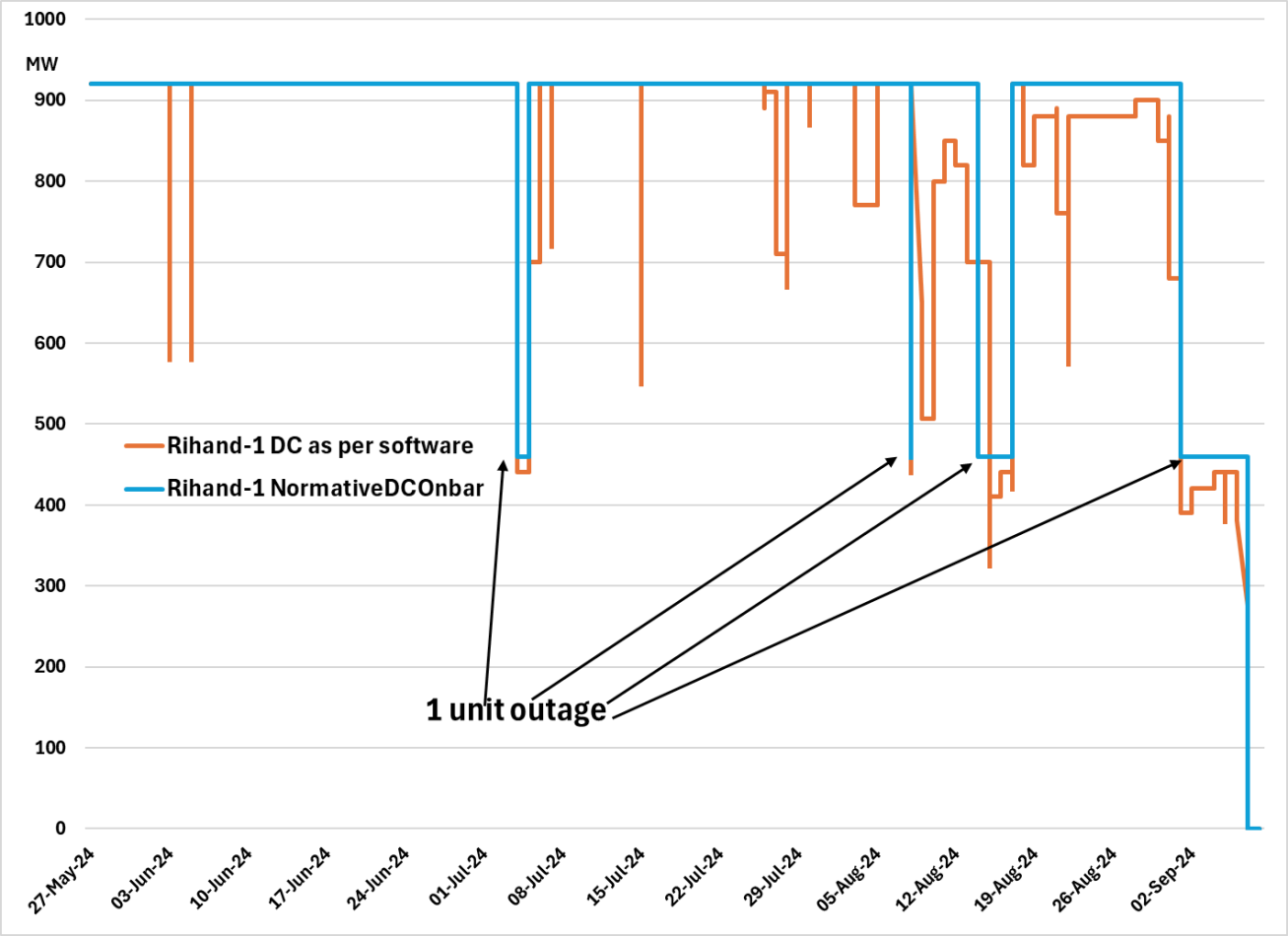
OCC forum noted the commitments made by POWERGRID representative and asked NHPC to expedite their actions

d. DC reduction by NTPC thermal generating stations:

NRLDC representative stated that the month of Jun-Sep are associated with high demand in Northern region and accordingly it is desirable that maximum generation is available to meet the demand in Northern region. Accordingly, all thermal units were advised to ensure availability of coal and timely provide update to NRLDC/beneficiary states regarding the status of coal stock availability during past OCC meetings as summer preparedness agenda.



Singrauli Plant DC declaration from 27.05.2024-09.09.2024



Rihand-1 Plant DC declaration from 27.05.2024-09.09.2024

NRLDC representative highlighted that from the data available at NRLDC, it was observed that some of the NTPC thermal stations such as Singrauli and Rihand-1 which are pit head thermal plants and having minimal variable charge had reduced their DC during this peak demand season especially during the month of July and August. It is to be noted that September month is associated with very high demand in Northern region and accordingly, it is desirable that maximum internal generation is available so that the stress on inter-regional corridors is minimised. Due to reduction of DC by NTPC plants, cheap thermal generation was not available, and accordingly, beneficiary states had to arrange power from alternate resources.

NTPC representative informed that in Rihand, reservoir levels were lower and lot of garbage was observed in reservoir. Due to this cooling water pumps had tripped frequently and accordingly frequent DC revisions were there.

With respect to Singrauli station, it was informed that there were issues with scrapper involved with fly ash collection. Some issues were also there related to spare availability.

NRLDC representative expressed concern on the same and asked NTPC to resolve all related issues. It was also mentioned that such frequent revisions are only being observed for Singrauli and Rihand-I thermal stations and not in other NTPC thermal stations. Since such DC reduction leads to unavailability of cheap power to beneficiary states, they have to arrange power from other sources.

NTPC representative committed that such issues shall be minimised in future by proactive actions. It was further informed that Singrauli and Rihand-I have old designs and trapezoidal model whereas newer stations have cylindrical model design. Therefore, new stations are less effected by wet coal issues.

OCC forum asked NTPC to attend the issues and asked NTPC to minimise such frequent DC revision of Singrauli and Rihand-I thermal stations in future.

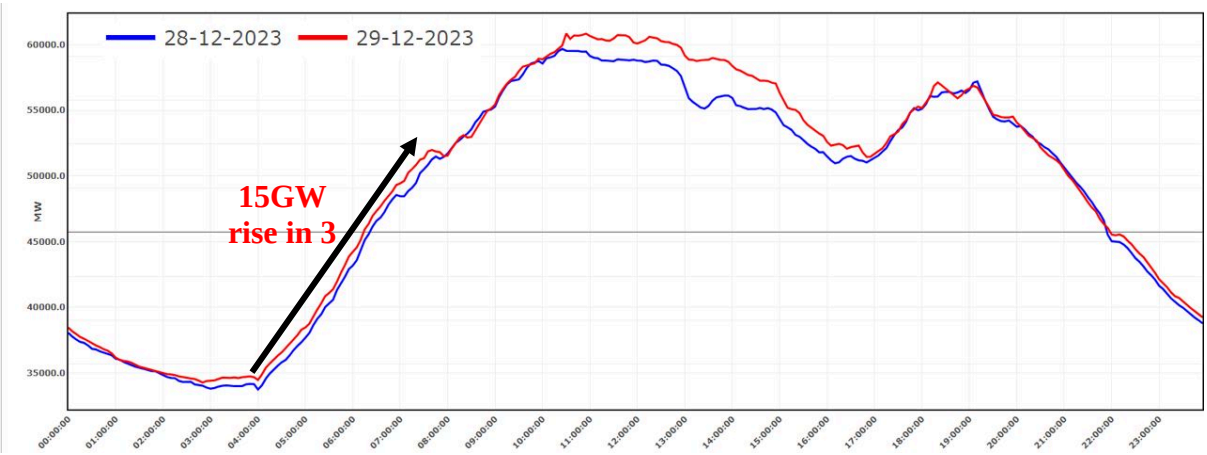
B.3 Winter preparedness 2023-24

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

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

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

Typical demand pattern for a winter day is shown below:



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

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

(ii) High voltages in grid (***Action by all utilities***)

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

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

- Ensuring to switch off capacitors & switch on reactors.
- Ensuring healthiness of all commissioned reactors in the system
- Monitoring of reactive power through SCADA displays.
- Reactive power support (absorption) by generating stations as per the capability curve. NRLDC would present the reactive power performance of all thermal generators in next OCC meetings.
- Synchronous condenser operation especially of hydro units during night hours for dynamic voltage support**. Some of the generators have already been tested (Tehri, Chamera, Pong, RSD etc.) and shall be available for condenser mode**

of operation as and when required. States/SLDCs are also advised to explore synchronous condenser operation of Hydro & Gas units in their state control area. It was requested that all other utilities may explore possibility of running units as synchronous condenser. It was highlighted that since reactive energy charges are now payable to generators also therefore, it would also be providing them financial support in case units are supporting through synchronous condenser mode of operation.

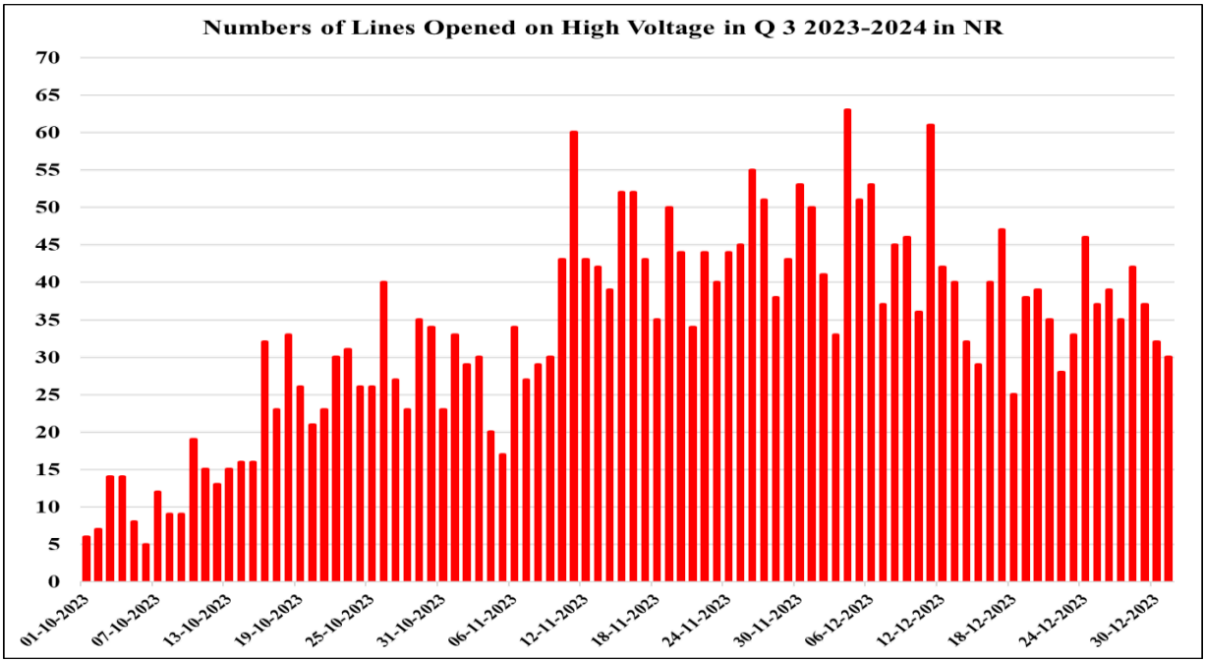
- ICT Tap Optimization at 400kV & above is carried out by NRLDC. Same exercise need to be carried out by SLDCs at 220kV & below levels. ICT tap optimisation will be done by NRLDC based on SCADA data of Oct month.
- Opening of EHV lines based on expected voltage reduction and also considering security & reliability of system
- To ensure that line reactors available after opening of lines are optimally utilized it is necessary that all the stations where the provision of using line reactors as bus reactors is available at all control centres. The Reactive power document being compiled by NRLDC has the details of all such line reactors. Last updated document is available at NRLDC website under documents section: https://nrldc.in/download/system-restoration-procedure-for-nr_2024/?wpdmdl=13253&lang=en. It is requested that all utilities go through document and share any anomaly/mis-representation. The document is being utilized in real-time operation by control room operators at NRLDC, thus it is necessary that list of all reactors where such provision is available are updated in the document.

(iii) Plan for winter preparedness *(Action by SLDCs)*

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

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

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



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

Severe High voltage in Delhi, Punjab & Haryana area

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

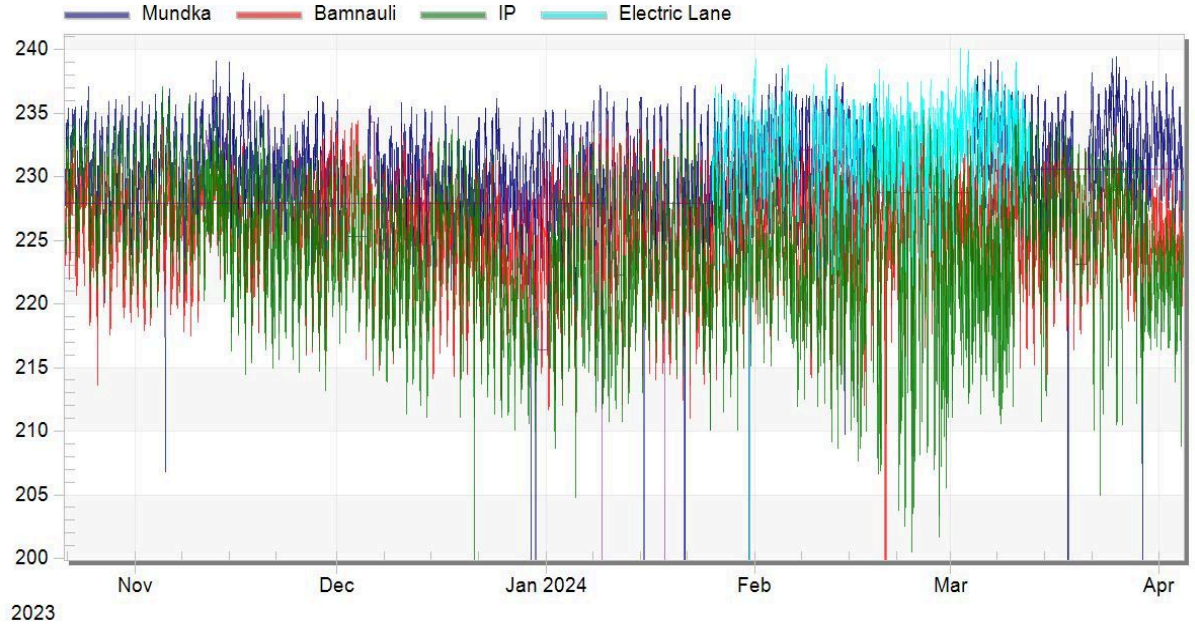
Delhi state has a transmission network and distribution network involving cable which are generating high reactive power. Further, when these cables are lightly loaded during the night hours of winter months, it leaves the operator no choice but to open the transmission lines. Thus, it is important that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

commissioned before the winter season so as to minimise the issues of high voltage in Delhi control area.

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

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

NRLDC representative also presented the voltage profile of these substations for last winter season in the meeting and emphasized on urgent requirement of these reactors.



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

Similarly, for Punjab & Haryana apart from the above listed measures, it is critical that lightly loaded transmission lines are opened at lower voltage during night time also

keeping in mind grid security so that unnecessary MVAR generation is avoided. Ready list of such lines may be furnished to NRLDC/NRPC for information.

Special actions are required by Punjab, Haryana & Delhi to avoid the high voltage issues during winter season. It was also requested to expedite the commissioning of these reactors apart from the measures listed above.

(iv) EHV line trip during fog/Smog *(Action by transmission line owners)*

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

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

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

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

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

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

Apart from above, it needs to be made sure that defense mechanism is healthy i.e. ensuring all SPS healthy, protection system intact, monitoring of df/dt & UFR etc; and telemetry especially of MVAr of Generator, temperature & humidity etc. is available and reliable.

During winter months, it has been observed that there is **frequent tripping of ICTs on overflux and lines on overvoltage** especially in Punjab and Haryana areas. On number of occasions, it is seen that utilities are correcting their protection settings after tripping events. It is important all the protection settings are as approved by NRPC.

Utilities are requested to confirm the same from field and ensure that protection settings are only as approved by NRPC.

OCC asked all utilities

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

B.4 Status of compliances of mock drill of islanding schemes as per IEGC 2023

"Mock drill of the islanding schemes shall be carried out annually by the respective RLDCs in coordination with the concerned SLDCs and other users involved in the islanding scheme. In case mock drill with field testing is not possible to be carried out for a particular scheme, simulation testing shall be carried out by the respective RLDC."

Following islanding schemes have been implemented in NR:

1. NAPS (UP)
2. RAPS (Rajasthan)
3. Bawana (Delhi)
4. Pathankot-RSD (Punjab)
5. Unchahar (UP)

During 222 OCC meeting,

All utilities were requested to test the relays one by one involved in the islanding schemes with disabling of actual trimming of load during testing and report may be submitted. Further, officers involved in preparation of the islanding schemes from states side, may also review the islanding scheme in consultation with NRLDC system studies team and carry out simulation studies.

Delhi SLDC confirmed that field testing of SPS is possible and timeline for same shall be provided in consultation with DTL. Punjab also confirmed that field testing is possible and same shall be planned in off-peak season around Nov'2024.

MS NRPC stated that since only signal checking is involved and no actual island formation will take place, accordingly, testing exercise may be carried out at the earliest. He suggested that islanding scheme testing may be carried out in next 2-3 months so as to comply with IEGC.

Some of the SLDCs stated that SOP may also need to be prepared before carrying out mock testing of SPS.

OCC forum discussed that NRLDC in consultation with SLDCs may prepare SOP and carry out mock testing of already commissioned SPS at the earliest.

During 223 OCC meeting, NRLDC representative mentioned that as per decision of 222 OCC meeting, an SOP has been prepared from NRLDC side and is attached as Annexure-B.II of agenda for comments from SLDCs/STUs and others.

No comments were received from STUs and SLDCs and all agreed with SOP as presented by NRLDC representative in 223 OCC meeting. It was agreed that testing exercise may be planned progressively from October 2024.

In addition to this, NRLDC representative stated that it was recommended to include the following in Islanding SCADA Display for better monitoring of Island health in real time:

1. Island Generators status with total actual generation in MW (G)
2. Island Load status with actual Load in MW (L)
3. G/L Ratio
4. Islanding Frequency value

The display may be arranged in following fashion.

Island Generators (Unit Wise) with Total MW Generation (G)	Island Total Load in MW (L)	G/L Ratio	Islanding Frequency in Hz

Individual feeder load details of Island

It was requested to prepare network map of the island for easy visualisation by control room operators. It was also requested to ensure that error-free telemetry of all elements which are part of island is available at SLDC/NRLDC control room. The load and generation may be logged and stored so that periodic analysis of island is possible.

During 222 OCC meeting,

Punjab SLDC stated that Pathankot-RSD display is available at their control center, however, they will implement the same in this format and share with NRLDC.

UP and Rajasthan SLDCs stated that island display has been prepared at their end in the required format, however, there is some issue in transferring the data to NRLDC.

NRLDC representative stated that along with display of island, logging of data also needs to be ensured to study island performance over period of time.

NRLDC stated that display availability of Delhi islanding scheme is poor and most of the data is not available and also requested to develop display in format attached in the meeting.

CGM NRLDC and MS NRPC expressed concern on the same and asked Delhi SLDC to implement the SCADA display at the earliest in the required format.

All SLDCs agreed to implement island display in this format at their end and also to share the data with NRLDC.

During 223 OCC meeting, NRLDC representative presented the updated display of NAPS islanding scheme.

NAPS ISLANDING
LOAD DISPLAY

FREQUENCY (HZ) 50.06 HZ 13 . 9 .24 11 : 1 :17

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

220KV NAPP-GENERATION	GENERATION(MW)	G/L RATIO(%)
UNIT-I	199.1	5.26
UNIT-II	9.43	4.47
TOTAL	407.5	3.82

NRLDC representative appreciated the efforts from UP SLDC side and enquired about telemetry of 220kV Khurja.

UP SLDC representative informed that 220kV Khurja had a fire incident and telemetry is not available since then.

NRLDC representative stated that till telemetry is available monthly maximum, minimum and average load may be obtained from hourly readings available from site and accordingly islanding feasibility may be checked.

NRLDC representative also presented the islanding displays of islanding schemes under RVPN control area.

RAJWEST (JSW) ISLANDING SCHEME (RAJASTHAN)

13.9.24 11:8:49

STANTANEOUS FREQ.	50.04 HZ			
NAME OF FEEDER	LOAD	STATUS (As per Scheme)	1-OPERATIVE 0-BLOCKED	STATUS (As per SCADA) OPERATIVE BLOCKED
AJWEST-BARMER	-313	BLOCKED		
AJWEST-JODHPUR	398	BLOCKED		
AJWEST-KANKANI	335	BLOCKED		
AJWEST-BARMER	70	BLOCKED		
AJWEST-DHAURIMANNA	77	BLOCKED		
ARMER-JAISALMER II	-421	OPERATIVE		
ARMER-JAISALMER I(AKAL)	30	OPERATIVE		
ARMER-BHINMAL	0	OPERATIVE		
ARMER-DHAURIMANNA	82	BLOCKED		

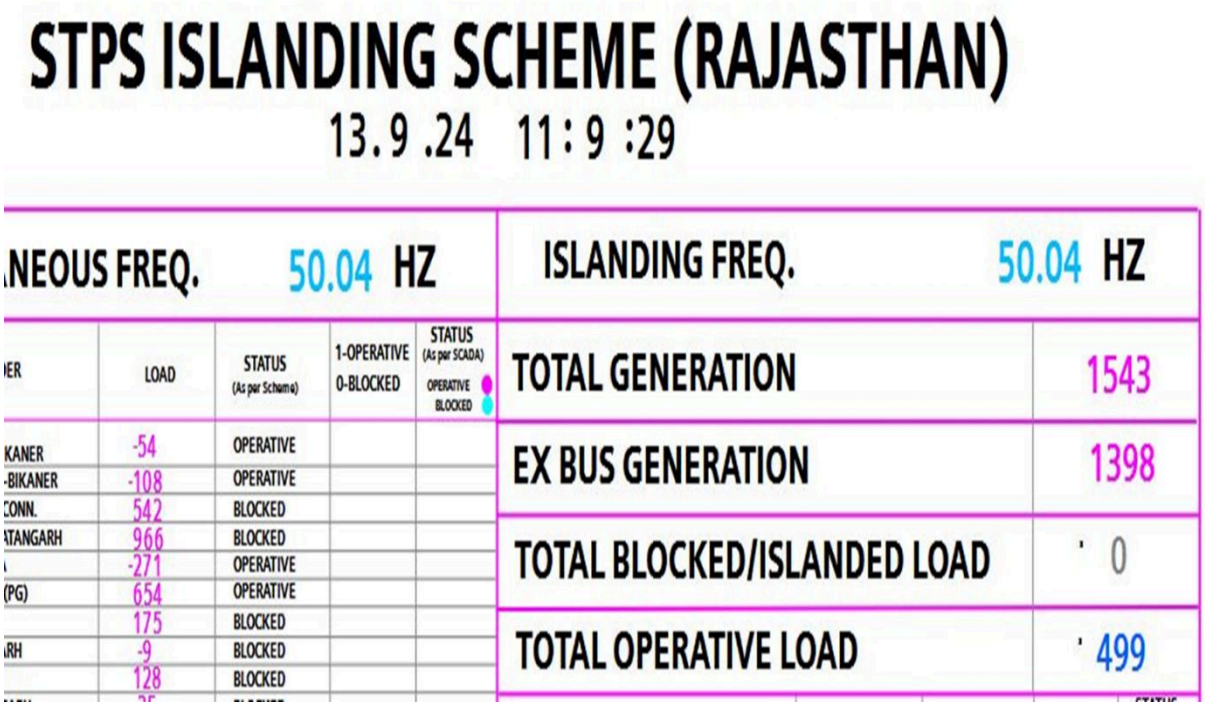
ISLANDING FREQ.	50.04 HZ
TOTAL GENERATION	632
EX BUS GENERATION	567
TOTAL BLOCKED/ISLANDED LOAD	0
TOTAL OPERATIVE LOAD	196

RAPP A & B ISLANDING SCHEME (RAJASTHAN)

13.9.24 11:3:17

INSTANTANEOUS FREQ.	50.06 HZ		
NAME OF FEEDER	LOAD	STATUS (As per Scheme)	STATUS (As per SCADA) OPERATIVE BLOCKED
RAPP-A End			
220 KV RAPP A-DEBARI	73	BLOCKED	
220 KV RAPP A-KOTA I	-1	OPERATIVE	
220 KV RAPP A-KOTA II	-1	OPERATIVE	
220 KV RAPP A-RAPP B	14	BLOCKED	
RAPP-B End			
220 KV RAPP B-KOTA III	-5	OPERATIVE	
220 KV RAPP B-DEBARI	61	BLOCKED	
220 KV RAPP B-RAPP C TIE LINE-1	35	BLOCKED	

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



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

Rajasthan SLDC representative agreed for the same.

NRLDC representative further informed that display of RSD islanding scheme is not available at NRLDC end and enquired from Punjab SLDC about the same.

Punjab SLDC representative informed that display is available at SLDC end. However, due to issue in SCADA at SLDC end, they are not able to share the display or even add new elements in their SCADA and SLDC SCADA team is taking up with vendor SIEMENS regarding this issue.

OCC forum asked all utilities to furnish their comments on SOP shared by NRLDC for mock testing exercise of islanding schemes by 30th September 2024. Thereafter, mock testing of islanding schemes shall be carried out progressively from October onwards.

OCC forum appreciated the efforts of SLDCs and asked them to attend to all the comments as discussed in the meeting so that displays as per the format shared by NRLDC are available at both SLDC as well as RLDC end.

B.5 Sharing of ATC/TTC assessment and basecase with NRLDC

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

CERC vide their order dated 29.09.2023 has granted approval of "'Detailed Procedure for Allocation of Transmission Corridor for Scheduling of General Network Access and

Temporary General Network Access under Central Electricity Regulatory Commission (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022".

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

Purpose	***S No***	***Action of Stakeholder***	***Responsibility***	***Submission to***	***Data/ Information Submission Timeline***
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*	*SLDC*	*RLDC*	*10th Day of 'M-12' month*
		Assessment of TTC/ATC of the import/export capability of the state and intra-state system and sharing of updated network simulation models			
	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*	*SLDC*	*RLDC*	*8th Day of 'M-1' month*
		Assessment of TTC/ATC of the intra- state system and sharing of updated network simulation models			
	3(b)	*Declaration of TTC/ATC of the*	*SLDC*	*RLDC*	*22nd*

		intra- state system in consultation with RLDC			*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.5.1 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 Aug'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.5.2 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.5.3 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 Oct'2024 are attached as Annexure-B.III.

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

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

In 223 OCC meeting,

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

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	Yes	Yes	No	No	No	No
Himachal	No	No	No	No	No	No
J &K	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	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	No	No	No	No	No	No
J &K	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	No	No	Yes	Yes
Uttarakhand	No	No	No	No	No	No

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

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

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

September 2024 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (October-24)		M-11 (September-25)		M-6 (Mar-25)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh						
Delhi						
Haryana						
Himachal						
J &K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh						
Punjab			Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand						

It was informed that basecase and data was shared by Punjab SLDC on 13.09.2024 and same is being examined at NRLDC end.

- It was mentioned that UP, Punjab and J&K are regularly sharing basecase as well ATC/TTC assessment with NRLDC. Rajasthan has also shared the basecase and data in this month. Haryana, Delhi, Uttarakhand and HP are sharing data, but on some occasions it is getting missed. It was requested that all SLDCs may timely share the same.
- All SLDCs agreed to share basecase as well as ATC/TTC assessment as per CERC approved procedure.

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

B.6 Frequent forced outages of transmission elements in the month of August'24:

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

S. No.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Anta(NT)-Sakatpura(RS) (RS) Ckt-1	4	NTPC/ Rajasthan
2	220 KV DandhariKalanI(PS)-Ludhiana(PG) (PSTCL) Ckt-2	3	PG/Punjab
3	220 KV NAPP(NP)-Khurja(UP) (UP) Ckt-1	6	NAPP/UP
4	220 KV Saharanpur(PG)-Shamli(UP) (UP) Ckt-1	4	PG/UP
5	400 KV Agra-Unnao (UP) Ckt-1	4	UP
6	400 KV Bhadla-Merta (RS) Ckt-1	5	Rajasthan
7	400 KV Dadri(NT)-Panipat(BB) (PG) Ckt-1	3	NTPC/PG

The complete details are attached at Annexure-B.III of Agenda.

Discussion during the meeting:

NRLDC representative raised concern over frequent tripping of transmission lines and requested constituents to take necessary remedial actions to minimize the frequent tripping of lines.

Frequent trippings of transmission lines connected at 220kV NAPP in the recent past was also highlighted. As per details available at NRLDC, 220kV NAPP(NP)-Khurja(UP) line tripped 16 (sixteen) times during the year 2024. Being a Nuclear Power Station, evacuating transmission lines are important and critical for safe evacuation of power. Such frequent tripping of evacuating transmission lines may lead to challenges in safe evacuation of generation at NAPP, which is a must run generating station. It is desirable that the transmission system remains intact and in healthy condition.

UP representative informed that most of the faults occurred due to flashover of polymer insulators.

UP was requested to identify the root cause behind frequent occurrence of faults and take suitable remedial measures to avoid frequent tripping of line.

NRLDC representative emphasized that A/R (auto re-closer) issue was found in many of these tripping. He sensitized all the utilities to ensure healthiness/in service of A/R in 220 kV and above transmission lines in compliance to CEA Grid Standards. He further informed that most of the tripping are transient in nature but due to non-operation of A/R, it resulted into tripping of the transmission element thus reducing the reliability of the grid. All the utilities shall endeavor to keep auto re-closer in service and healthy condition of 220 kV and above voltage level transmission line. The issue of time syncing of DR/EL at many of the stations was highlighted, constituents were requested to ensure the time syncing of DR/EL. In addition, necessary actions also need to be taken to ensure the Right of Way and other operation & maintenance issues to minimize the frequent faults in the line. All utilities agreed for the same.

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

B.7 Multiple elements tripping events in Northern region in the month of August ’24:

A total of 13 grid events occurred in the month of August’24 of which **05** are of GD-1 category, **05** are of GI-2 Category and **03** 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.IV of agenda.

Maximum delayed clearance of fault observed in event of multiple elements tripping at 220kV Shahbad(HV) & 220kV Rajokheri(HV) on 26th August, 2024 (As per PMU at

Abdullapur(PG), Y-B phase to phase fault converted into R-Y-B three phase fault with delayed fault clearing time of 2040msec is observed).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **05** events out of **13** grid events occurred in the month. In 01 (no.) of grid events, there was no fault in the grid.

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) 220/132kV Barn(J&K) on 02nd August'24

b) 220/132kV Nara(UP) on 11th August'24

c) 220/132kV Zainkote(J&K) on 26th August'24

d)

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

Constituents were requested to share the tripping analysis reports and details of remedial action taken to avoid such multiple elements tripping may be shared.

NRLDC representative raised concern over delayed submission of DR/EL, submission of incorrect files and non-submission of detail tripping report by the constituents. Non availability of tripping details leads to incomplete analysis of grid incidents which may lead to further delay in remedial actions.

NRLDC representative requested concerned utilities to analyse the tripping incidents at their end and taken necessary actions to avoid the similar events in future. Also share the detailed report of the tripping incidents along with remedial action taken. Utilities agreed for the same.

OCC forum suggested all the NR constituents to update the information on tripping portal developed by NRLDC. All the constituents agreed to take proactive remedial actions in this regard to minimize the tripping.

Members were asked to take expeditious actions to avoid such tripping in future, Moreover, utilities may impress upon all concerned for providing the preliminary report, DR/EL & detailed Report of the events in line with the regulations. Members were further requested to ensure the time syncing of recording devices (DR, EL etc.) with GPS/NAVIK at substation of their respective control area. Members agreed to take action in this regard.

B.8 Details of tripping of Inter-Regional lines from Northern Region for August' 24:

A total of 18 inter-regional lines tripping occurred in the month of August'24. The list is attached at Annexure-B.V 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.

NRLDC representative highlighted frequent tripping of 220kV Auraiya-Malanpur ckt and non-operation of A/R. NTPC was requested to take remedial actions and ensure A/R operation during single phase to earth fault in line.

NTPC representative stated that they will identify the issue and shall take necessary actions.

NRLDC representative requested members to advise the concerned for taking corrective action to avoid such tripping as well as timely submission of the information. Members agreed for the same.

OCC forum emphasized the importance of inter- regional links and requested all the concerned utilities to take necessary corrective to minimise such tripping in future.

B.9 Status of submission of DR/EL and tripping report of utilities for the month of August'24.

The status of receipt of DR/EL and tripping report of utilities for the month of August'24 is attached at Annexure-B.VI 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 tripping 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.

NRLDC representative requested RE stations, SLDC-HR, SLDC-HP, SLDC J&K & Punjab to improve the status of submission of DR/EL & tripping reports.

OCC forum emphasized the importance of DR/EL & tripping report data for analysis of the tripping. In addition, these data are also the base for the availability verification. The unavailability of these details delays the availability verification process also. Hence, timely submission of DR/EL & tripping report is very much necessary. Members were requested to comply with IEGC 37.2(c) and submit the details in time. Members agreed to take necessary follow-up actions to improve the reporting status.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the tripping 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.

B.10 Frequency response performance for the reportable events of month of August 2024:

In the month of August 2024, only 1 no. of reportable event on 23rd August 2024 was notified by NLDC for which FRC/ FRP need to be calculated and the same along with high resolution data need to be submitted to RLDC. Description of the event is as given below:
Table:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	Nadir Frequency (in Hz)	End Frequency (in Hz)	*Δf*	NR FRP during the event
1	23-Aug-24	12:34 hrs	As reported, at 12:34 hrs on 23rd August 2024, RE generation loss event of around 1200 MW occurred in RE generation complex of Kayathar, Tuticorin. Hence net generation loss of 1200 MW is considered for FRC/FRP Calculation.	50.006	49.870	49.957	-0.05	1.18

As per IEGC 2023 Clause 30.8, "The primary response of the generating units shall be verified by the Load Despatch Centres (LDCs) during grid events. The concerned

generating station shall furnish the requisite data to the LDCs within two days of notification of reportable event by the NLDC."

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 as on 05th September, 2024 is:

S. No	Control Area	Event Date
		23-08-2024
1	Punjab	Not Received
2	Haryana	Not Received
3	Rajasthan	Not Received
4	Delhi	Not Received
5	Uttar Pradesh	Received
6	Uttarakhand	Not Received
7	Chandigarh*	NA
8	Himachal Pradesh	Not Received
9	J&K(UT) and Ladakh(UT)	Not Received
10	Dadri -1 (TH)	Received
11	Dadri -2 (TH)	Received
12	Jhajjar (TH)	Received
13	Rihand-1 (TH)	Not Received
14	Rihand-2 (TH)	Not Received
15	Rihand-3 (TH)	Not Received
16	Shree Cement (TH)	Not Received
17	Singrauli (TH)	Received
18	Tanda-2 (TH)	Not Received
19	Unchahar stg-4 (TH)	Received
20	Unchahar (TH)	Received
21	Anta (G)	Not Received
22	Auraiya (G)	Received
23	Dadri (G)	Received
24	AD Hydro (H)	Received

25	**Bairasiul (H)**	Not Received
26	**Bhakra (H)**	Not Received
27	**Budhil (H)**	Received
28	**Chamera-1 (H)**	Not Received
29	**Chamera-2 (H)**	Not Received
30	**Chamera-3 (H)**	Not Received
31	**Dehar (H)**	Not Received
32	**Dhauliganga (H)**	Not Received
33	**Dulhasti (H)**	Not Received
34	**Karcham (H)**	Received
35	**Kishanganga**	Not Received
36	**Koldam (H)**	Received
37	**Koteshwar (H)**	Not Received
38	**Malana-2 (H)**	NA
39	**Nathpa Jhakri (H)**	Not Received
40	**Parbati-2 (H)**	Not Received
41	**Parbati-3 (H)**	Not Received
42	**Pong (H)**	Not Received
43	**Rampur (H)**	Received
44	**Sainj (H)**	Not Received
45	**Salal (H)**	Not Received
46	**Sewa-II (H)**	Not Received
47	**Singoli Bhatwari (H)**	Not Received
48	**Sorang (H)**	Not Received
49	**Tanakpur (H)**	Not Received
50	**Tehri (H)**	Not Received
51	**Uri-1 (H)**	Not Received
52	**Uri-2 (H)**	Not Received

Frequency Response Performance (FRP) of generating stations for each reportable event are calculated based on the submitted high resolution data from generating stations. However, the generating stations for which data is not received till 05th September, 2024, FRC/FRP as per NRLDC HDR data is used for computation of Average Monthly Frequency Response Performance, Beta 'β' for Generating Stations.

FRP values as considered (as per NRLDC HDR data/ generator high resolution data) for the events of August, 2024 is as follows:

Frequency response Performance		
S. No	**Control Area**	**Event Date**
		23-08-2024
1	**Punjab**	1.43
2	**Haryana**	1.40
3	**Rajasthan**	0.30
4	**Delhi**	-1.45
5	**Uttar Pradesh**	1.11

6	Uttarakhand	1.00
7	Chandigarh*	NA
8	Himachal Pradesh	4.39
9	J&K(UT) and Ladakh(UT)	-0.69
10	Dadri -1 (TH)	0.68
11	Dadri -2 (TH)	0.39
12	Jhajjar (TH)	-6.83
13	Rihand-1 (TH)	-6.34
14	Rihand-2 (TH)	-2.53
15	Rihand-3 (TH)	4.25
16	Shree Cement (TH)	1.56
17	Singrauli (TH)	-0.22
18	Tanda-2 (TH)	2.50
19	Unchahar-I (TH)	2.07
20	Unchahar-II (TH)	-3.91
21	Unchahar-III (TH)	6.21
22	Unchahar stg-4 (TH)	8.94
23	Anta (G)	-1.68
24	Auraiya (G)	0.82
25	Dadri (G)	0.05
26	AD Hydro (H)	2.92
27	Bairasiul (H)	0.00
28	Bhakra (H)	-0.14
29	Budhil (H)	8.66
30	Chamera-1 (H)	2.54
31	Chamera-2 (H)	-0.95
32	Chamera-3 (H)	1.43
33	Dehar (H)	1.71
34	Dhauliganga (H)	0.00
35	Dulhasti (H)	0.19
36	Karcham (H)	2.10
37	Kishenganga	1.25
38	Koldam (H)	0.03
39	Koteswar (H)	No Gen
40	Malana-2 (H)	NA
41	Nathpa Jhakri (H)	0.27
42	Parbati-2 (H)	No Gen
43	Parbati-3 (H)	0.00
44	Pong (H)	0.90
45	Rampur (H)	3.04
46	Sainj (H)	0.00
47	Salal (H)	0.72
48	Sewa-II (H)	No Gen
49	Singoli Bhatwari (H)	No Gen
50	Sorang (H)	0.82

51	**Tanakpur (H)**	-0.10
52	**Tehri (H)**	No Gen
53	**Uri-1 (H)**	0.60
54	**Uri-2 (H)**	0.00

Memebers were 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 as per timeline for ensuring IEGC compliance.

Members were also requested to reconcile the FRP values as considered for the events of August, 2024.

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 receicved is as follows:

Sl. No.	Entity	Capacity(MW)	Governor Mode (FGMO as per IEGC 2023) Yes or No	Droop 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	

Members were requested to ensure implementation of FGMO as per IEGC 2023 at generating stations in their respective control area and share the present status.

NRLDC representative highlighted that FRC/FRP computation sheet received from UP and HP only. Other SLDCs were requested to conduct the FRC/FRP computation as per procedure and timeline specified in IEGC 2023. Haryana, Rajasthan and Punjab agreed for the same.
NRLDC also requested SLDCs and other generating stations to implement data extracting facility if not available, in line with the data requirement mentioned in IEGC.

Among ISGS, data have been received from Dadri NTPC, Sinrauli NTPC, Unchhahar NTPC, Auraiya GPS, AD Hydro HEP, Budhil HEP, Karcham HEP, Koldam HEP, and Rampur HEP only. Other ISGS also requested to share the FRC data of their respective stations for each reportable event.

NHPC representative informed that they are following up with OEM to implement data extracting facility as per requirement in IEGC 2023 and also discussing with Koteshwar HEP for solution. Issue related to data extraction facility will be rectified at the earliest.

NRLDC representaitve higlighted unsatisfactory response of some of the generating stations during the event and requested to take necessary remedial actions to improve the governor response.

Memebers were requested to share the data and analysis of FRC of their control area. ISGS stations were requested to share the FRC/FRP calculations of each reportable event and also share the 01 sec data of respective generating stations. It was further requested to take remedial actions to improve the governor response if necessary. States were also requested to follow-up with the generating stations of their respective control area and share the unit wise 01 sec data of respective generating stations along with the anaysis of FRC response for the aforementioned event.

NRLDC representaitve also informed the forum that on 03rd September 2024, NRLDC has conducted an online workshop on Frequency Response Performance of Generators and States of Northern Region. Members from SLDCs, ISGS & State generating stations attended the worlshop. Approx. 185 participants were connected in the meeting. NRLDC presented and explained IEGC clauses related to Governor response FRC/ FRO methodology for computation of FRC/FRO/FRP, methodology for computation of Beta (average monhtly FRP value for incentive related claculation).
NRLDC also highlighted non compliance / unsatisfactory data submission status and requested all the memebers for timley computation of FRC/FRP and analysi of governor response of their trespective control area.

OCC forum requested members to share the FRC data and analysis fo FRC response of their respective control area and also to ensure the complaince w.r.t. IEGC 2023.

B.11 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.VII of agenda. Constituents are also requested to share the test report of diesel generators / auxiliary supply on 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 were requested to share the tentative schedule of mock black start exercise of generating stations in their respective control area. SLDCs are also requested to share the tentative schedule plan of mock black start exercise of generating stations in their respective control area and also share the report of the same. Members were requested to conduct dead bus charging after self-starting the generating station if schedule with load is not available. Further, members were also requested to share the test report of weekly DG testing on monthly/quarterly basis.

B.12 Mock testing of System Protection Schemes (SPS) in Northern Region

As per IEGC clause 16.2

''For the operational SPS, RLDC or NLDC, as the case may be, in consultation with the

concerned RPC(s) shall perform regular load flow and dynamic studies and mock testing for reviewing SPS parameters & functions, at least once in a year. RLDC or NLDC shall share the report of such studies and mock testing including any short comings to

respective RPC(s). The data for such studies shall be provided by CTU to the concerned RPC, RLDC and NLDC.''

As per IEGC clause 16.3

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

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. VIII of agneda. In this regard, a communication has already been sent to constituents through NRLDC letter dated 01.05.2024.

This is also to inform you an online meeting was scheduled on 05.08.2024 among NLDC, WRLDC, NRLDC, SLDC Gujarat, SLDC Delhi, SLDC UP, SLDC Haryana, SLDC Punjab, SLDC Rajasthan and ATL team to discuss the mock testing of SPS of 500kV HVDC Mundra-Mahindergarh and some challenges were highlighted during the meeting regarding changes in identified load feeders and load shedding in Punjab, Haryana, Delhi, UP and Rajasthan.

As per IEGC clause 16.1

"SPS for identified system shall have redundancies in measurement of input signals and
communication paths involved up to the last mile to ensure security and dependability."

Details only received from Uttarakhand & UP.

NRLDC representative informed that UP has conducted ~70-80% of SPS schemes in their control area. Rajasthan, Punjab and other members are also requested to plan and conduct the SPS testing in their control area.

NRLDC representative asked UP to share the present status of SPS of 400kV Gr. Noida, Unnao & Sultanpur. In status report submitted by UP, it was mentioned that SPS at these stations are unhealthy., If yes, then necessary remedial actions may be taken to ensure the healthiness of SPS system.
UP representative informed that SPS at these stations are still unhealthy. UP agreed to follow up for necessary remedial actions in this regard.

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

B.13 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.

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

In this view, you are requested to submit the status of work regarding undertaking submitted during First Time Charging of elements listed in Annexure-B.XI of agenda.

Members were requested to share the share the details w.r.t. availability and standardization of disturbance recorder and event logger at the station of their respective

control area. Members are also requested to submit the status of work regarding undertaking submitted during First Time Charging of elements.

Punjab representative informed that most of the 400kV stations comply with above requirements however almost all the 220KV stations don't have facility of station event logger.

OCC forum requested all the members to share the status of their control area and ensure the standardization of recording instruments at all the stations of their control area and comply the same prior to request of FTC.

B.14 Corrective action for healthiness of 500kV Mundra-Mahindergarh SPS

On 17th May 2024 on outage of both pole (carrying total ~1500MW), SPS of 500kV HVDC Mundra-Mahindergarh inter regional link didn't operate. This issue was discussed during 51st PSC meeting and ADANI was requested to share the details w.r.t. SPS operation during the meeting.
Further, NRLDC in coordination with NLDC conducted an online discussion meeting with concerned stakeholders (SLDCs, ADANI, POWERGRID) on 12th August 2024, for further remedial actions required to make this SPS healthy.

Following actions were decided during the meeting:

i. POWERGRID, ADANI and concerned states were requested to identify the issue in communication links and take expeditious actions to make the all the communication link healthy. POWERGRID & ADANI shall review the healthiness of SPS system at different load centres and communication path between them in coordination with the SLDCs.
ii. States were requested to go through the details of load feeders mentioned in SPS document and share the changes / modifications as per present scenario and share the inputs w.r.t. unavailability in identified load feeders and load shedding. SLDCs shall share the revised updated feeder details (radial) along with expected average/peak load relief through respective feeders.
iii. SLDCs in coordination with their transmission and protection team shall share the status and healthiness of existing SPS system along with details of availability of communication path for incorporation of proposed revised/additional feeders.

Load end details received from UP, Haryana, Rajasthan & Delhi. Details are attached as Annexure-B.X. Details yet to be received from Punjab.

Regarding communication network and hardware system, ADANI has submitted the status of their healthiness. As per details submitted, counter status was found OFF at Alwar, Ratangarh, Gobindgarh, Malerkotla, Bamnauli, Shamli and Dhanonda.

NRLDC representative requested Punjab to share their input with respect load details at the earliest. Further POWERGRID and ADANI were requested to share the status of

remedial action taken / planned to be taken. Desired remedial actions need to be expedited.

OCC forum requested concerned constituents to take necessary remedial actions and make the SPS link healthy and operational.

Annexure-0

Status of action taken on decision of 222nd OCC meeting of NRPC

S.N.	Agenda	Decision of 222nd OCC meeting of NRPC	Status of action taken
1	A.12. Installation of Control switch devices in 400KV Kalaamb Wangtoo and Kalaamb Sorang lines at PKATL Substation KALAAMB to control switching surges (Agenda by Powergrid NR-2)	Forum asked POWERGRID to submit report including space related constraint in reactor shifting and effectiveness of CSD relay. Thereafter, decision may be taken in next OCC meeting.	POWERGRID intimated they will shortly be sharing report wit NRPC and NRLDC.

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:
◎ CHANDIGARH — Sep-2019
◎ DELHI — Jul-2024
◎ HARYANA — Jun-2024
◎ HP — Jun-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jul-2024
◎ RAJASTHAN — Aug-2024
◎ UP — Aug-2024
◎ UTTARAKHAND — Aug-2024
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Not Available
◎ DELHI — Jun-2024
◎ HARYANA — Jun-2024
◎ HP — Aug-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Mar-2024
◎ RAJASTHAN — Jun-2024
◎ UP — Jun-2024
◎ UTTARAKHAND — Jun-2024
◎ BBMB — Jun-2024
All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest .</td></tr>
<tr><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>Status:
◎ CHANDIGARH — Not Available
◎ DELHI — Increased
◎ HARYANA — Increased
◎ HP — Increased
◎ J&K and LADAKH — Increased
◎ PUNJAB — Increased
◎ RAJASTHAN — Increased
◎ UP — Increased</td></tr>
</table>

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

			◎	UTTARAKHAND	Scheme not implemented

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

Annexure-A-I.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 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 Total: 6	Utilized: 2 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 Total: 6	Utilized: 4 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 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	Mar'25	Under construction.Updated in 222nd OCC by HVPNL
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 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 Total: 8	Utilized: 4 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 Total: 8	Utilized: 6 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 Total: 6	Utilized: 2 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. **Status:** 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 Approved:4 Total: 8	Utilized: 4 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 Under Implementation: 4	Utilized: 6 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 Total: 6	Utilized: 2 Unutilized: 2 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 Total: 8	Utilized: 0 Unutilized: 8	• D/C line Kadarpur - Sec-56 Gurugram.	Not awarded yet	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposal to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL
				• S/C line Kadarpur - Sec-52 Gurugram	Not awarded yet	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL
				• S/C line Kadarpur - Pali	Not awarded yet	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 4 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. **Status:-** 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 Aprroved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	Mar'25	Contract awarded on 08.08.23 to M/s Skipper with completion in March 25.Updated in 218th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	Commissioned	Energization date: 31.12.2021. Updated in 198th OCC by HVPNL
				• 220kV D/C for Sector78, Faridabad	31.01.2025	Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 223rd OCC by HVPNL.
				• Prithla - Sector 89 Faridabad 220kV D/c line	Jul'25	Work awarded to M/s Man Structurals Pvt Ltd. JV M/s Aquarian Enterprises on 09.01.2024. Contractual date: 06.05.2025 and Tentative date of completion :06.05.2025 Route has been approved and further work is in progress.Updated in 218th OCC by HVPNL
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	31.10.2024	Updated in 222nd OCC by HVPNL. **Status:** The stringing work between TL No. 19 & 20, TL No. 22 & 23 and TL No. 22 & 24 is pending for want of necessary consent from the forest department. The case has already been uploaded on Parivesh portal and is currently pending at the O/o AIGF, Forest Dept. Panchkula.
				• Sonepat - HSIISC Rai 220kV D/c line	Commissioned	Energization date: 31.05.2024 updated by HVPNL in 220th OCC
				• Sonepat - Kharkhoda Pocket A 220kV D/c line	08.03.2025	Updated in 212th OCC by HVPNL. **Status:** 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. Both bays are under construction and erection of electrical equipment is under progress. Tetative date of completion of both bays at PGCIL end is end of July 2024.
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 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 Total: 6	Utilized: 4 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 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	Nov'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL. 6 months more are needed due to ROW issues as updated by PSTCL in 220th OCC

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 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 Total: 8	Utilized: 4 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. _____ • 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 Total: 6	Utilized: 4 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 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 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). _____ • 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 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Commissioned	Ckt-1 commissioned at 16:13hrs on dated 06.08.24 & Ckt-2 commissioned at 20:10 hrs on dated 05.08.24. Updated in 223rd OCC by HVPNL
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	Commissioned	Updated in 218th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	Commissioned	Energization date: 24.05.2024 updated by HVPNL in 220th OCC
				• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	Mar'25	Updated in 222nd OCC by HVPNL
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	31.08.2024	Issue in connectivity agreement with CTU. PSTCL has taken up the iise with CEA and subsequently CTU has planned a meeting with PSTCL, CEA and CTU next week. Updated in 223rd OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	31.08.2024	Issue in connectivity agreement with CTU. PSTCL has taken up the iise with CEA and subsequently CTU has planned a meeting with PSTCL, CEA and CTU next week. Updated in 223rd OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Approved: 4 Total: 8	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra- Daultabad S/c line at 400 kV Bahadurgarh PGCIL	Mar'25	Updated in 220th OCC by HVPNL. **Status:** NIT has been floated vide NIT No. EPC-D-96 dated 15.10.23 to be opened on 22.12.23. • 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. **Status:** • Revised BOQ forwarded from Design wing to contract wing. • Tender has floated vide NIT No. EPC-D-100 dated 04.01.2024 with tender opening date of 26.02.2024. • 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. **Status:** 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 Total: 4	Utilized:2 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 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 _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220 kV D/C Kankroli(PG) - Nathdwara line	-	Standard bid document has been finalized on 13.08.2024 and bid is under preparation as updated by RVPN in 222nd OCC.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	-	Status:- 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. The 2nos bays may be utilised by HVPNL in future.
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 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 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 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 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 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 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 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 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'25	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Tender is yet to be awarded. Timeline one year communicated by PSTCL in 220th OCC meeting

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	A committee has been constituted under the chairmanship of GM, SLDC Delhi to formulate the logic for implementation of ADMS. Delhi SLDC informed that two meetings have been held by the committee and based on the delibration in those meetings, SoP has been formed by the committee. Delhi SLDC has shared the logic for implementation of ADMS with NRLDC for their observation and upon examination of same NRLDC has submitted its views/comments to Delhi SLDC. In 222nd OCC meeting Delhi SLDC intimated that they would be shortly having a meeting with its Discoms and NRLDC views would be delibrated in the said meeting. Delhi SLDC intimated that they have shared revised SoP with NRPC and NRLDC after incorporating the views of NRLDC In 223rd OCC meeting NRLDC informed they will submit its views on the same within a week.
2	HARYANA	Scheme not implemented	Haryana SLDC intimated that as per Joint Roadmap of implementation of ADMS in Haryana supplied to NRPC vide memo dated 17.10.2023 (Annexure-II), the implementation plan was proposed to be carried out in two parts, as mentioned below: PART-I: Control with Transmission Utility PART-II: Control with Distribution Utility It is pertinent to mention that as part of upcoming SCADA-EMS system i.e. upgradation of SCADA-EMS system, a feature in the name of LSS (Load Shedding Software)/ ADMS is part of the Technical Specification of project to be delivered. Therefore, the functionalities of ADMS application will be covered under 'Part-I: Control with Transmission Utility' will already be covered using the RTUs available at select substations along with the ADMS software being delivered by M/s GE under SCADA upgradation project. Hence, there is no need to acquire a separate ADMS application & associated hardware for data centre for implementation of PART-I. Further for Part -II a committee has been constituted for further finalization of the ADMS module with control with Discoms is under discussions for preparation of DPR.
3	HP	Scheme not implemented	HP SLDC imentioned that HPSEB had intimated that initially 142 Nos. of feeders were identified for operation under ADMS functionality but most of these feeders were from same sub-station. Therefore, now they have increased the no. of sub-station and identified the non-critical feeders. Load relief to be given through these feeders is under finalization. The revised feeder list to be shared by HPSEBL with the SLDC within one month.
4	PUNJAB	Scheme not implemented	i. A committee comprising of following officers of PSPCL & PSTCL has been constituted to finalize the logic regarding implementation of Automatic Demand Management System in Punjab Control Area. 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: 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. 2. In case the frequency falls further below 49.85 Hz, the Over Drawl will be reduced to zero. 3. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation. ii. In 222nd OCC, MS NRPC asked Punjab to co-ordiante with Powergrid for integration of their propsoed logic with the ULDC phase-III SCADA system for timely implementation.
5	RAJASTHAN	Under implementation. Likely completion schedule is 31.03.2024	RVPN informed that the issue of cyber security of link between SATNAM centre and SLDC control room has been resolved. Pilot testing has been done and for different logic combination/cases testing is under progress. In 223rd OCC RVPN intiamted that testing would be completed by October 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 ii. A committee formed for identification of load at 33 kV level under the chairmanship of Director (Distribution), UPPCL. iii. Another committee under the chairmanship of Director UPSLDC shall identify the technical and operational requirement for ADMS implementation 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. 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. 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. iii. Uttarakhand SLDC informed that feeder list at 11kV level has been finalized and logic of ADMS implementation is under finalization. iv. In 222nd OCC meeting, Uttarakhand intiamted that commissioning of servers and related software has been done and supply of field equipment and infrastructure is under process . Further, New API has to be develop and integrate as new API for WBES for fetching real time schedule has been created by NRLDC. NRLDC has been requested to provide design document(having URL, data structure and credentials etc) of new API.

FGD Status

Updated status of FGD related data submission

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

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

Updated status of FGD related data submission

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

HGPCL (14.06.2024)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)
KAWAI TPS

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

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

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

Target Dates for FGD Commissioning (Utility-wise)

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

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

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

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

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 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 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)

Annexure-A.III

											Approved Planned Outage-1			Actual Planned Outage-1		
Capacity (MW) 30-11-2023	Name of Station	UNIT_NM	STN_TYPE_ID	SECTOR	REGION_NM	ST_NM	SH_NM	IPP	FUEL_NM	Capacity (MW) 31-03-2025	Start Date	End Date	Reason	Start Date	End Date	Reason for any deviation
110	KOTA TPS	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	110	23-Jul-24	12-Aug-24	AOH			Deffered due to other unit forced outages
135	JALIPA KAPURDI TPP	2	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	28-Jul-24	21-Aug-24	COH			Deffered due to other unit forced outages
250	CHHABRA TPP	1	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	250	1-Aug-24	21-Aug-24	AOH	7-Aug-24	28-Aug-24	
600	KALISINDH TPS	1	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	600	1-Aug-24	21-Aug-24	AOH			Deffered due to other unit forced outages
45	MAQSOOD PUR TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	22-Aug-24	26-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	MAQSOOD PUR TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	25-Aug-24	29-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	KHAMBAR KHERA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	16-Aug-24	20-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	KHAMBAR KHERA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	19-Aug-24	23-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	BARKHERA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	9-Aug-24	13-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	BARKHERA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	12-Aug-24	16-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	KUNDARKI TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	10-Aug-24	14-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	KUNDARKI TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	13-Aug-24	17-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	UTRAULA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	24-Aug-24	28-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly
45	UTRAULA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	27-Aug-24	31-Aug-24	Inspection			Outage Rescheduled for latter and date will be informed accordingly

Annexure-A.IV

Sr. No.	State	Organisation	Name of Project	Unit No	Total Capacity (MW)	Technical Minimum Load Status (%) achieved by the Unit
1	Punjab	GPGSL (GVK)	GOINDWAL SAHIB	2	270.00	60%
2	Punjab	GPGSL (GVK)	GOINDWAL SAHIB	1	270.00	60%
3	Haryana	HPGCL	PANIPAT TPS	8	250.00	Haryana SERC has given exemption
4	Haryana	HPGCL	PANIPAT TPS	7	250.00	Haryana SERC has given exemption
5	Haryana	HPGCL	PANIPAT TPS	6	210.00	Haryana SERC has given exemption
6	Uttar Pradesh	LAPPL	ANPARA C TPS	2	600.00	55%
7	Uttar Pradesh	LAPPL	ANPARA C TPS	1	600.00	55%
8	Uttar Pradesh	RPSCL	ROSA TPP Ph-I	4	300.00	55%
9	Uttar Pradesh	RPSCL	ROSA TPP Ph-I	3	300.00	55%
10	Uttar Pradesh	RPSCL	ROSA TPP Ph-I	2	300.00	55%
11	Uttar Pradesh	RPSCL	ROSA TPP Ph-I	1	300.00	55%
12	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	7	135.00	70%
13	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	6	135.00	70%
14	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	8	135.00	70%
15	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	5	135.00	70%
16	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	4	135.00	70%
17	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	3	135.00	70%
18	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	2	135.00	70%
19	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	1	135.00	70%
20	Punjab	PSPCL	GH TPS (LEH.MOH.)	4	250.00	68%
21	Punjab	PSPCL	GH TPS (LEH.MOH.)	3	250.00	68%
22	Punjab	PSPCL	GH TPS (LEH.MOH.)	2	210.00	79%
23	Punjab	PSPCL	GH TPS (LEH.MOH.)	1	210.00	79%
24	Punjab	PSPCL	ROPAR TPS	6	210.00	75%
25	Punjab	PSPCL	ROPAR TPS	5	210.00	75%
26	Punjab	PSPCL	ROPAR TPS	4	210.00	75%
27	Punjab	PSPCL	ROPAR TPS	3	210.00	75%
28	Rajasthan	RRVUNL	KALISINDH TPS	2	600.00	66.33%
29	Rajasthan	RRVUNL	CHHABRA TPP	4	250.00	72.20%
30	Rajasthan	RRVUNL	KALISINDH TPS	1	600.00	66.33%
31	Rajasthan	RRVUNL	CHHABRA TPP	3	250.00	72.20%
32	Rajasthan	RRVUNL	CHHABRA TPP	2	250.00	72.20%
33	Rajasthan	NLC	BARSINGSAR LIGNITE	2	125.00	47.03%
34	Rajasthan	NLC	BARSINGSAR LIGNITE	1	125.00	47.03%
35	Rajasthan	RRVUNL	KOTA TPS	7	195.00	72.26%
36	Rajasthan	RRVUNL	SURATGARH TPS	6	250.00	72.13%
37	Rajasthan	RRVUNL	GIRAL TPS	2	125.00	Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC
38	Rajasthan	RRVUNL	CHHABRA TPP	1	250.00	72.20%
39	Rajasthan	RRVUNL	GIRAL TPS	1	125.00	Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC
40	Rajasthan	RRVUNL	KOTA TPS	6	195.00	72.26%
41	Rajasthan	RRVUNL	SURATGARH TPS	5	250.00	72.13%
42	Rajasthan	RRVUNL	SURATGARH TPS	4	250.00	72.13%
43	Rajasthan	RRVUNL	SURATGARH TPS	3	250.00	72.13%
44	Rajasthan	RRVUNL	SURATGARH TPS	2	250.00	72.13%
45	Rajasthan	RRVUNL	SURATGARH TPS	1	250.00	72.13%
46	Rajasthan	RRVUNL	KOTA TPS	5	210.00	72.26%
47	Rajasthan	RRVUNL	KOTA TPS	4	210.00	72.26%
48	Rajasthan	RRVUNL	KOTA TPS	3	210.00	72.26%
49	Rajasthan	RRVUNL	KOTA TPS	2	110.00	72.26%
50	Rajasthan	RRVUNL	KOTA TPS	1	110.00	72.26%

Annexure-A.V

Proposed Revised SPS for 2x315 MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur

A. Transmission Network Associated with 400 kV GSS Jodhpur (Surpura)

- There are two 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura) each having capacity of 315 MVA.
- Percentage impedance of 315 MVA, 400/220 kV ILT-I is 12.50% (HV to IV) & 45% (HV to LV) & 30% (IV to LV) and Percentage impedance of 315 MVA, 400/220 kV ILT-II is 12.50% (HV to IV) & 60% (HV to LV) & 45% (IV to LV).
- 400 kV GSS Jodhpur is connected to 400 kV GSS Kankani, 400 kV GSS Bhadla, 400 kV GSS Kankroli, 400 kV GSS Akal, and Rajwest LTPS through 400 kV lines. There are following 220 kV lines emanating from 400 kV GSS Jodhpur:-
  - 220 kV D/C Jodhpur-Bhawad line
  - 220 kV D/C Jodhpur-Tinwari line
  - 220 kV S/C Jodhpur-Barli line
  - 220 kV S/C Jodhpur-Jhalamand line
  - 220 kV S/C Jodhpur-Bilara line
  - 100MVA, 220/132 kV Transformer at Surpura.
- 220 kV GSS Bhawad is connected to the 220 kV GSS Bhaithwasia through 220 kV D/C line and 220 kV GSS Bhaithwasia is further connected to the 220 kV GSS Aau through 220 kV D/C line.
- 132 kV GSS Mandore is fed from the 100MVA, 220/132 kV Transformer at Surpura and connected to 132 kV GSS Banar, and 132 kV GSS Mathania through 132 kV S/C lines. There are (20/25 MVA+10/12.5MVA) 132/33 kV transformers at 132 kV GSS Mandore.
- There is split bus arrangement at 220 kV GSS Banar for 132/33 kV Transformers on the 132 kV side and on 33 kV bus is coupled.
- Power Map of Transmission System at 400kV GSS Jodhpur is shown in Fig. 1.

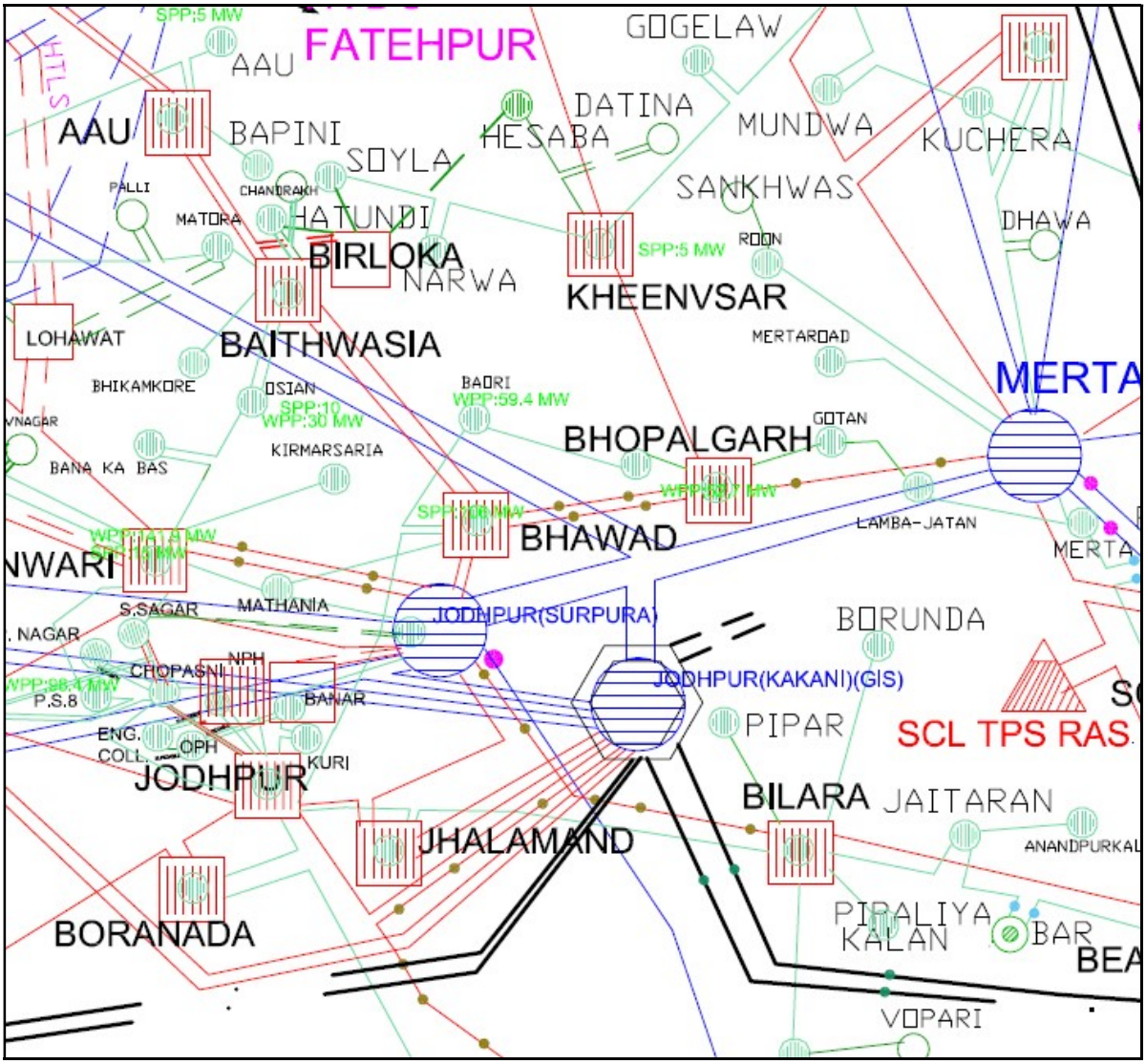


Fig. 1 Power map of Jodhpur region

B. Recorded Loads on the Transmission Elements

Recorded peak loads on the transmission lines and transformers are included in Table 1. Critical remarks are also included in the Table 1.

Table 1: Load Details of Peak and Average Loads on Transformers and Transmission Lines Associated with 400 kV GSS Jodhpur (Surpura) and Associated 220 kV GSS Considered for SPS

S. No.	Name of 220 kV line/ICTs	Peak Load	Average Load	Bus to Which connected	SPS Group/Remark
1	315 MVA, 400/220 kV ILT-I	262MVA	240 MVA	Bus-A	
2	315 MVA, 400/220 kV ILT-II	264 MVA	244 MVA	Bus-A	
3	100MVA, 220/132 kV Transformer	85 MVA	78 MVA	Bus-A	
4	220 kV Jodhpur-Bilara line	157 MVA	133 MVA	Bus-A	220 kV GSS Bilara is also connected with 220 kV GSS Beawer. There is DFCC feeder on 220 kV voltage level.
5	220 kV Jodhpur-Bhawad Ckt-I line	210 MVA	190 MVA	Bus-A	These circuits feed power to 220 kV GSS Bhawad, Bhoplagarh, Aau, Baithwasia,
6	220 kV Jodhpur- Bhawad Ckt-II line	210 MVA	190 MVA	Bus-A	

					Badisid and Bhadla. Tripping of these lines will create load shedding in large area. Further, tripping of these lines will also increase loading on the 2x315 MVA, 400/220 kV ILTs at 400 kV GSS Merta during off RE hours. Further, during high RE scenario, RE power is evacuated to Jodhpur from the Bhadla, Badisid and Bap through 220 kV GSS at Aau , Baithwasia and Bhawad. Considering these lines in the SPS may impact the RE evacuation. There is 106 MW SPP at 220 kV GSS Bhawad connected on 132 kV voltage level and 59.40 MW WPP connected at 132 kV GSS Baori which is evacuated through 220 kV GSS Bhawad. In the event of tripping of (1x160+1x100) MVA, 220/132 kV Transformer at Bhawad, this RE will not be evacuated. Hence, ripping of transformers cannot be considered.
7	220 kV Jodhpur-Tinwari Ckt-I line	174 MVA	95 MVA	Bus-B	These circuits feed power to 220 kV GSS Tinwari, Dechu, Phalodi, Bap, Amarsagar and Bhadla.
8	220 kV Jodhpur- Tinwari Ckt-II line	155 MVA	115 MVA	Bus-B	
9	220 kV Jodhpur- Barli line	176 MVA	110 MVA	Bus-B	
10	220 kV Jodhpur- Jhalamand line	185 MVA	123 MVA	Bus-B	
11	100 MVA, 220/132 kV Transformer-I at 220 kV GSS Bilara	95 MVA	75 MVA		
12	100 MVA, 220/132 kV Transformer-I at 220 kV GSS Bilara	95 MVA	75 MVA		
13	220 kV S/C Bilara-Beawer line	166 MVA	140 MVA		Generally, this line is kept opened from 220 kV GSS Beawer end.
14	220 kV S/C Bilara-DFCC line-I	10MVA	10MVA		Only one feeder takes load at a time
15	220 kV S/C Bilara-DFCC line-II	10 MVA	10 MVA		
16	220 kV Bhawad-Baithwasia line-I	240.21 MVA	134.19 MVA		
17	220 kV Bhawad-Baithwasia line-II	221.76 MVA	133.44 MVA		
18	220 kV Baithwasia-Aau line-I	226.33MVA	99.48 MVA		SPS Group-2
19	220 kV Baithwasia-Aau line-II	194.57MVA	98.48 MVA		SPS Group-2
20	160MVA, 220/132 kV Transformer-I at 220 kV GSS Baithwasia	132.37 MVA	95.80 MVA		SPS Group-1
21	160MVA, 220/132 kV Transformer-II at 220 kV GSS Baithwasia	128.60 MVA	95.80 MVA		SPS Group-1

22	132 kV S/C Mandore-Banar line	72.93 MVA	55.59 MVA		SPS Group-4
23	132 kV S/C Mandore-Mathania line	46.86 MVA	32.035 MVA		SPS Group-3
24	20/25 MVA, 132/33 kV Transformer at 132 kV GSS Mandore	20.24 MVA	19.83 MVA		SPS Group-3
25	10/12.5 MVA, 132/33 kV Transformer at 132 kV GSS Mandore	10.12 MVA	9.93 MVA		SPS Group-3
26	40/50 MVA, 132/33 kV Transformer-I at 132 kV GSS Banar	41.70 MVA	32.51 MVA		
27	40/50 MVA, 132/33 kV Transformer-II at 132 kV GSS Banar	43.69 MVA	32.67 MVA		
28	132 kV S/C Banar-Kuri Bhagtasani line	74.95 MVA	51.52 MVA		
29	132 kV S/C Banar-OPH line	64.21 MVA	42.25 MVA		

C. Approved SPS

The SPS for 2x315MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura) was approved in the 197th OCC meeting held on dated 22.07.2022. Approved SPS is placed at Annexure-A.

D. Operational Arrangements at 400 kV GSS Jodhpur

There are two main Bus-A & B at 400 kV GSS Jodhpur. Following 220 kV feeders and transformers are connected to Main Bus-A:-

- 315 MVA, 400/220 kV ILT-I
- 315 MVA, 400/220 kV ILT-II
- 100MVA, 220/132 kV Transformer
- 220 kV Jodhpur-Bhawad line-I
- 220 kV Jodhpur-Bhawad line-II
- 220 kV Jodhpur-Bilara line

Following 220 kV feeders and transformers are connected to Main Bus-B:-

- 220 kV Jodhpur-Barli line
- 200 kV Jodhpur-Jhalamand line
- 200 kV Jodhpur-Tinwari line-I
- 200 kV Jodhpur- Tinwari line-II

Generally, power in taken from 400 kV GSS Kankani to Main Bus-B through 220 kV GSS Jhalamand and 220 kV GSS Barli which is transmitted to 220 kV GSS Tinwari.

E. Need of Revision in the Approved SPS

- After implementation of the SPS for 2x315MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura), 315MVA, 400/220 kV ILT-II burnt on dated 29.05.2023. Subsequently the configuration of lines were changed to manage the power supply from the healthy ILT and ILTs at 400 kV GSS Kankani. Burnt ILT was replaced by the healthy 315MVA, 400/220 kV ILT on dated 11.12.2023.

- Due to increased loading in the Bilara, Jodhpur and Bhawad region, operational arrangement of lines and transformers as detailed in Section-D is used at 400 kV GSS Jodhpur (Surpura).

F. Revised SPS for 2x315MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura)

- Communication channel is available on the 220 kV D/C Jodhpur-Bhawad transmission line and 220 kV D/C Bhawad-Baithwasia line which can be used to communicate the trip command from 400 kV GSS Jodhpur (Surpura) to trip the transformers installed on the 220 kV GSS Baithwasia. A looping arrangement at 220 kV GSS Bhawad will be made to transfer trip command from the 400 kV GSS Jodhpur (Surpura) to the 220 kV GSS Baithwasia.

- 220 kV D/C Jodhpur-Bhawad line is used to feed power to 220 kV GSS Bhawad, Bhopalgarh, Aau, Baithwasia, Badisid and Bhadla. Tripping of these lines will create load shedding in large area.

- Tripping of 220 kV D/C Jodhpur-Bhawad line will also increase loading on the 2x315 MVA, 400/220 kV ICTs at 400 kV GSS Merta during off RE hours.
- During high RE scenario, RE power is evacuated to Jodhpur from the Bhadla, Badisid and Bap through 220 kV GSS at Aau, Baithwasia and Bhawad. Considering 220 kV D/C Jodhpur-Bhawad line in the SPS may impact the RE evacuation.
- There is dedicated 220kV feeder from 220 kV GSS Bilara to cater load of DFCC and TSS load is also connected on the 132 kV GSS Piparcity which is fed from the 220 kV GSS BIlara.
- The 1x40/50MVA, 132/33 kV Transformer at 132 kV GSS Banar is fed from the 132 kV GSS Mandore and another 1x40/50MVA, 132/33 kV Transformer at 132 kV GSS Banar is fed from the 132 kV GSS Kuri. LV side bus of these transformers is combined.
- There are 2x160MVA, 220/132 kV Transformers at 220 kV GSS Baithwasia which are operated in parallel.
- After detailed analysis of loading conditions, power injection, available communication channels, RE evacuation & grid interconnection issues, following universal logics are proposed for the 2x315MVA, 400/220 kV ICTs at 400 kV GSS Jodhpur (Surpura) which will work for all the operating scenarios:-

1. **SPS Group-1:** Trip commands are generated at time delay of 1.0 second to trip the following transformers when 105% loading [105% current in all the three phases] on any one of the 2x315MVA, 220/132 kV Transformers at 400 kV GSS Jodhpur (Surpura) is reached due to tripping of one of the transformer or any of the 220 kV lines associated with 400 kV GSS Jodhpur or the overloading of transformers:-
   - 160 MVA, 220/132 kV Transformer-I at 220 kV GSS Baithwasia
   - 160MVA, 220/132 kV Transformer-II at 220 kV GSS Baithwasia

   Implementation of SPS Logic-1: This logic will be implemented by taking reference from overcurrent relays of both 315MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura). Trip command will be initiated at time delay of 1.0 second when current reached the 105% loading of the ILTs [105% current in all three phases]. This trip command will be communicated to the 220 kV GSS Baithwasia when status of any of one of the Circuit Breaker of 220 kV Jodhpur-Bhawad Ckt-I & II line is closed at 400 kV GSS Jodhpur end and trip command will not be communicated when the status of both of the Circuit Breaker of 220 kV Jodhpur-Bhawad Ckt-I & II line is open at 400 kV GSS Jodhpur end.

   At 220 kV GSS Bhawad:-

   - Trip command received from 400 kV GSS Jodhpur (Surpura) will be communicated to the 220 kV GSS Baithwasia by looping at 220 kV GSS Bhawad in such a manner that trip command (through carrier) received from 400 kV GSS Jodhpur is reached at 220 kV GSS Bhaithwasia in all conditions.

   At 220 kV GSS Baithwasia:-

   - Trip command along with status of both the Circuit breakers of 220 kV D/C Baithwasia-Bhawad line at 220 kV GSS Baithwasia end will be used to trip the 02X160 MVA, 220/132 KV Transformers at 220 KV GSS Baithwasia when any of one of CB status of 220 kV D/C Bhawad-Baithwasia line Ckt-I & II is closed at 220 KV Baithwsaia. When CB status of both lines i.e. 220 kV Bhawad-Baithwasia line Ckt-I & II are open then no action will be taken.

2. **SPS Group-2:** Trip command is generated at time delay of 1.50 second to trip the following transmission line at 220 kV GSS Baithwasia when 105% loading [105% current is all the three phases] on any one of the 2x315MVA, 400/220 kV Transformers at 400 kV GSS Jodhpur (Surpura) is reached due to tripping of one of the transformer or any of the 220 kV lines associated with 400 kV GSS Jodhpur or the overloading of transformers:-
   - 220 KV D/C Baithwasia- Aau Line

Implementation of SPS Logic-2: This logic will be implemented by taking reference from overcurrent relays of both 315MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura). Trip command will be initiated at time delay of 1.5 second when current reached the 105% loading of the ILTs [105% current in all the three phases]. This trip command will be communicated to the 220 kV GSS Baithwasia when status of any of one of the Circuit Breaker of 220 kV Jodhpur-Bhawad Ckt-I & II line is closed at 400 kV GSS Jodhpur end and trip command will not be communicated when the status of both of the Circuit Breaker of 220 kV Jodhpur-Bhawad Ckt-I & II line is open at 400 kV GSS Jodhpur end.

At 220 kV GSS Bhawad:-

- Trip command received from 400 kV GSS Jodhpur (Surpura) will be communicated to the 220 kV GSS Baithwasia by looping at 220 kV GSS Bhawad in such a manner that trip command (through carrier) received from 400 kV GSS Jodhpur is reached at 220 kV GSS Bhaithwasia in all conditions.

At 220 kV GSS Bhaithwasia:-

- Trip command along with status of any one of the Circuit breakers of 220 kV D/C Baithwsaia-Bhawad line at 220 kV GSS Baithwsaia end will be used to trip both the circuits of 220 KV Baithwasia –Aau line from 220 kV GSS Baithwasia. When circuit breakers of 220 kV D/C Baithwsaia- Bhawad line are open then no action will be initiated at 220 kV GSS Aau. When circuit breakers of 220 kV D/C Baithwsaia- Bhawad line are closed then then trip command will used to trip the both circuits of 220 KV Baithwasia–Aau line.

3. **SPS Group-3:** Trip command is generated at time delay of 2.0 second to trip the following transmission elements at 132 kV GSS Manore when 105% loading [105% current in all the three phases] on any one of the 2x315MVA, 400/220 kV Transformers at 400 kV GSS Jodhpur (Surpura) is reached due to tripping of one of the transformer or any of the 220 kV lines associated with 400 kV GSS Jodhpur or the overloading of transformers:-

   - 10/12.5 MVA, 132/33 kV Transformer-I at 132 kV GSS Mandore
   - 20/25 MVA, 132/33 kV Transformer-II at 132 kV GSS Mandore
   - 132 KV S/C Mandore –Mathania Line

   Implementation of SPS Logic-3:-This logic will be implemented by taking reference from overcurrent relays of both 315MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura). Trip command will be initiated at time delay of 2.0 second when current reached the 105% loading of the ILTs [105% current in all the three phases]. This trip command will be communicated to the 132 kV GSS Mandore when status of LV side Circuit Breaker of 100MVA, 220/132 kV Transformer at 400 kV GSS Jodhpur (Surpura) is closed at 400 kV GSS Jodhpur and trip command will not be communicated when the status of LV side Circuit Breaker of 100MVA, 220/132 kV Transformer at 400 kV GSS Jodhpur (Surpura) is open.

   At 132 kV GSS Mandore:-

   - Trip command will used to trip both transformers at 132 KV GSS Mandore and 132 KV S/C Mandore –Mathania Line.

4. **SPS Group-4:**–Trip command is generated at time delay of 2.5 second to trip the following transmission line at 132 kV GSS Mandore when 105% loading [105% current in all the three phases] on any one of the 2x315MVA, 400/220 kV Transformers at 400 kV GSS Jodhpur (Surpura) is reached due to tripping of one of the transformer or any one of the 220 kV lines associated with 400 kV GSS Jodhpur or the overloading of transformers

   - 132 KV S/C Mandore- Banar Line

   Implementation of SPS Logic-4: This logic will be implemented by taking reference from overcurrent relays of both 315MVA, 400/220 kV ILTs at 400 kV GSS Jodhpur (Surpura). Trip command will be initiated at time delay of 2.50 second when current exceeds the 105% loading of the ILTs [105%

current in all the three phases]. This trip command will be communicated to the 132 kV GSS Mandore when status of LV side Circuit Breaker of 100MVA, 220/132 kV Transformer at 400 kV GSS Jodhpur (Surpura) is closed at 400 kV GSS Jodhpur and trip command will not be communicated when the status of LV side Circuit Breaker of 100MVA, 220/132 kV Transformer at 400 kV GSS Jodhpur (Surpura) is open.

At 132 kV GSS Mandore:-

- Trip command will used to trip 132 KV S/C Mandore –Banar Line

- Schematic diagram of proposed SPS is shown in Fig. 2.

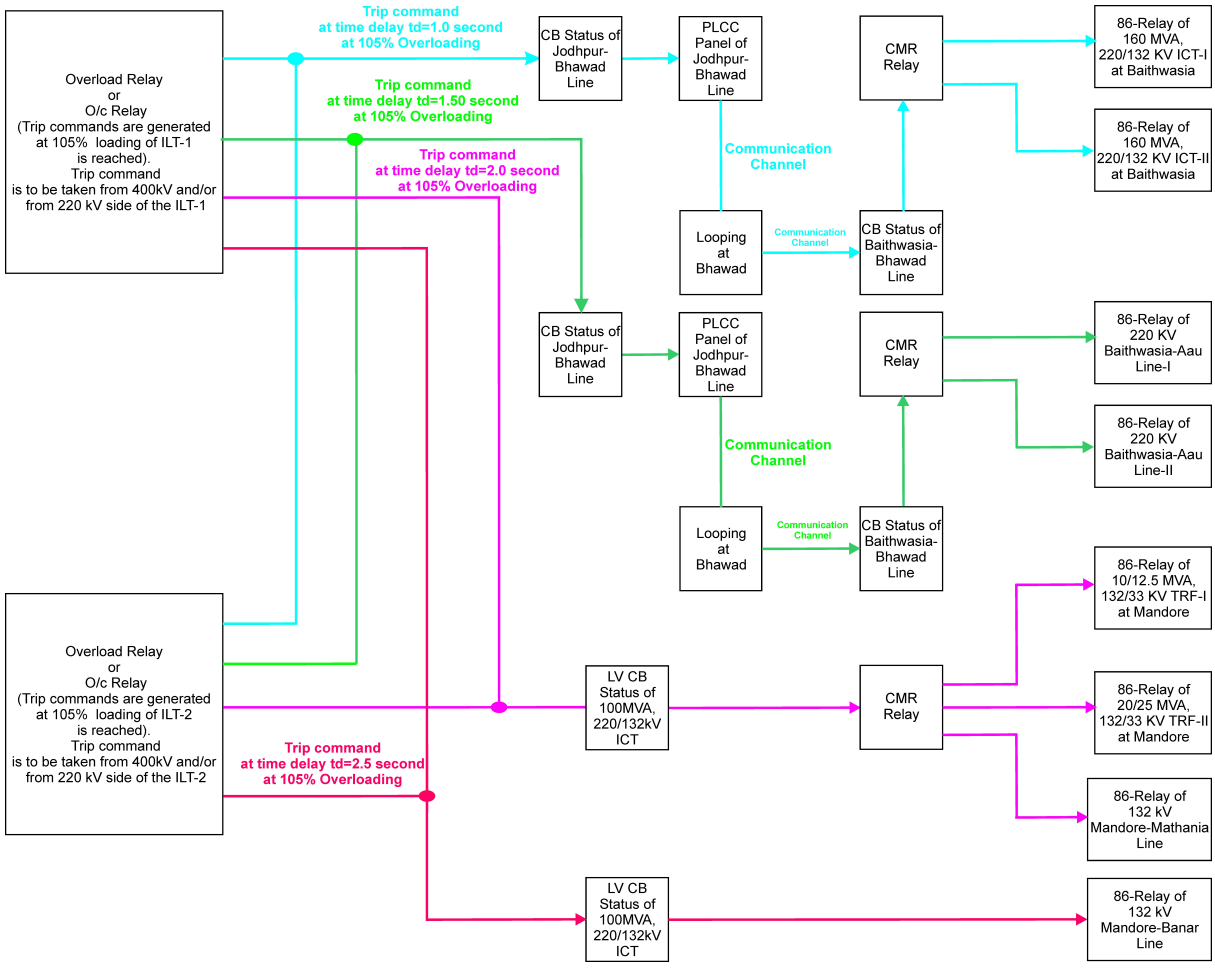


Fig. 2 Schematic diagram for implementation of proposed SPS Logics

- To maintain supply of critical loads connected to all the GSS in the region, tripped transformers and lines may be re-connected after applying load shedding on all the GSS in the region in such a quantum to maintain loadings on the both the 315MVA, 400/220 kV ILTs or the healthy 315MVA, 400/220 kV ILT at 400 kV GSS Jodhpur (Suprura) within permissible limits.

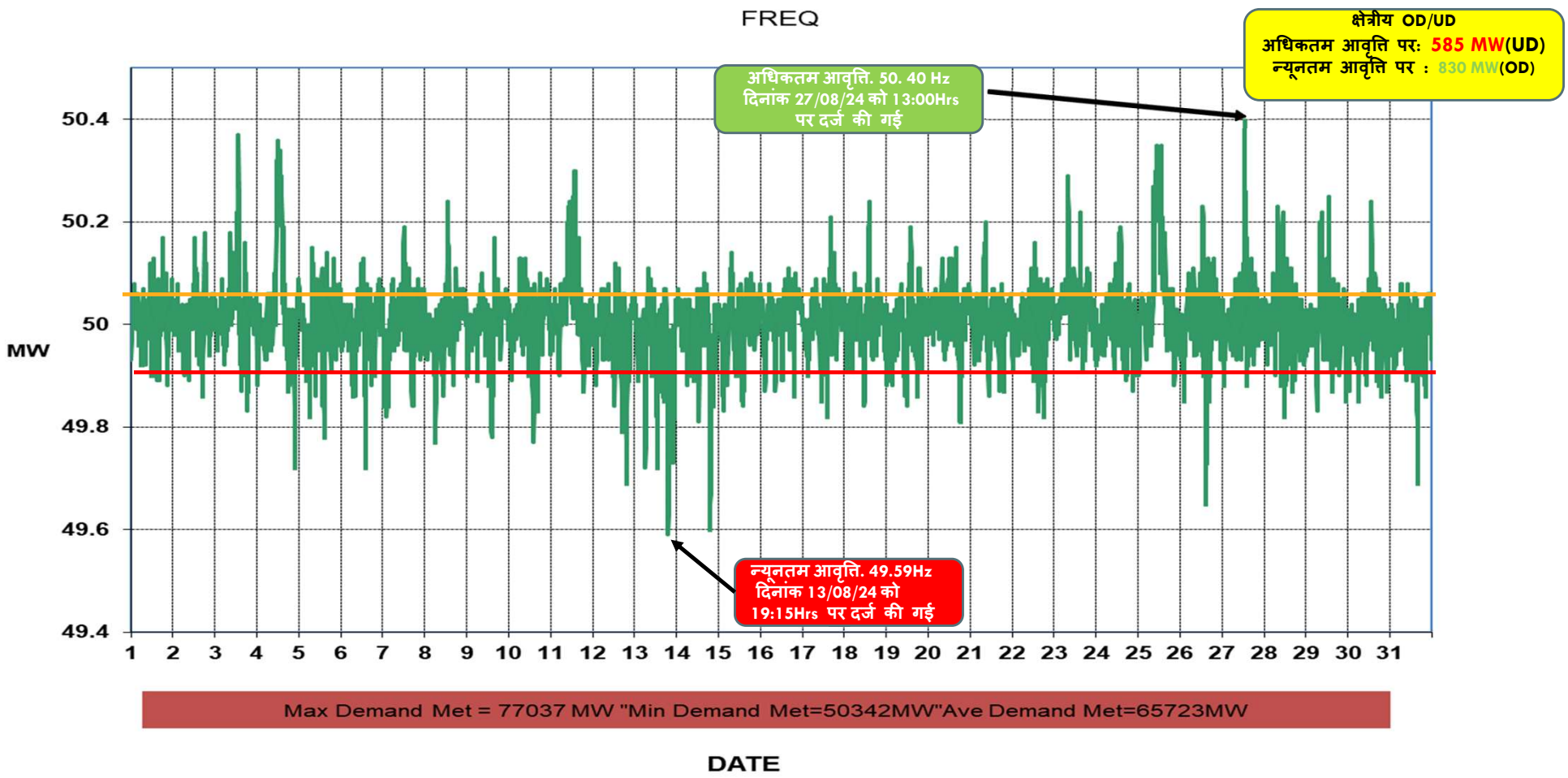
G. Requirement of Healthiness of the SPS

This SPS will function only if both the transformers and 220 kV transmission lines connected on Bus-A at 400 kV GSS Jodhpur as indicated in Table 1 are remain intact. Any change in configuration of lines and transformers connected on Bus-A will lead to mal-operation of the SPS. Further, LD Control room and SE(T&C), RVPN, Jodhpur may ensure to take prior approval of NRLDC if any change is required in the configuration for which SPS is designed. Any change in configuration may be restored after the loading conditions are normalized.

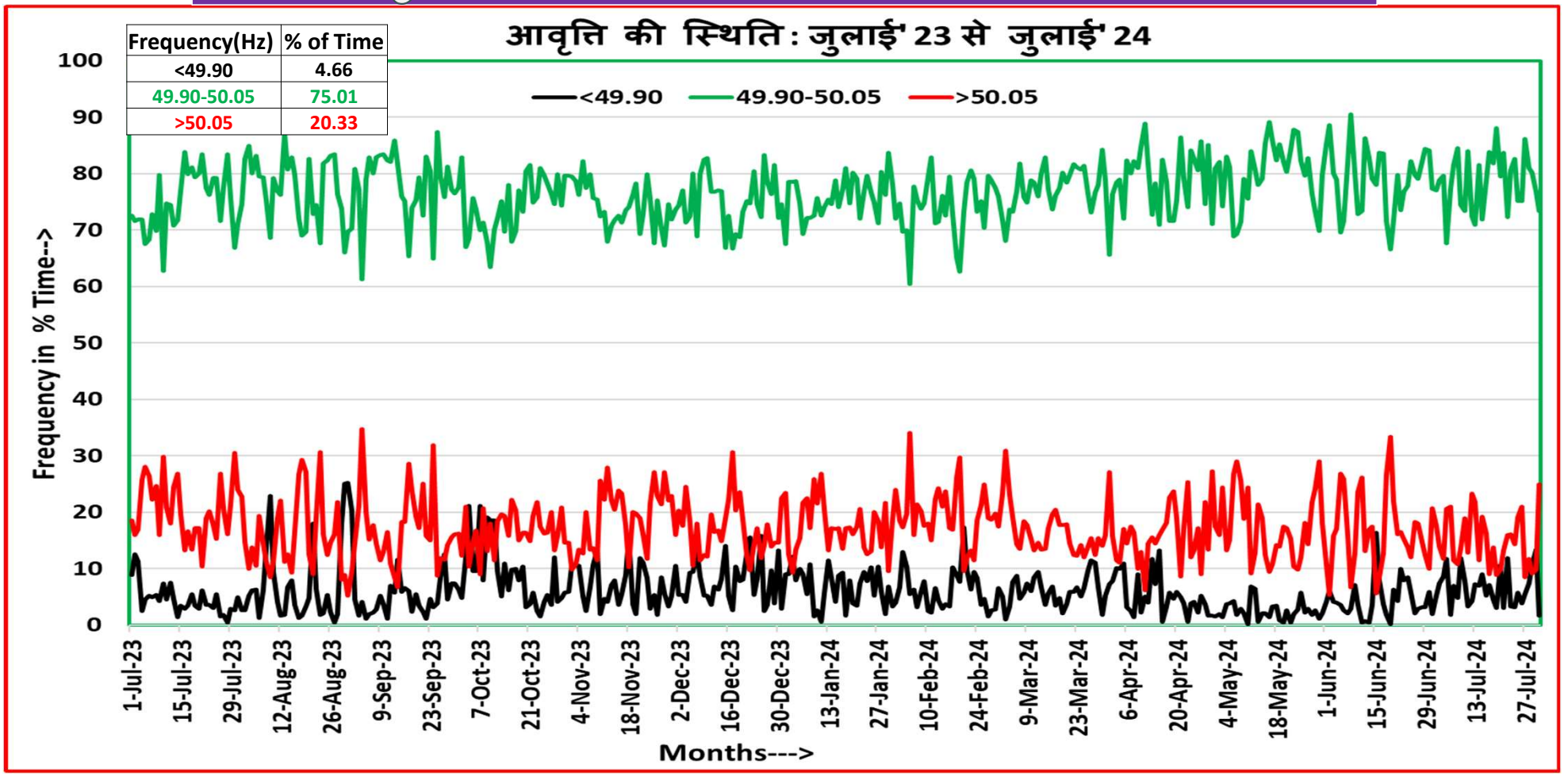
Annexure-B-I

प्रचालन समन्वय उपसमिति की बैठक
अगस्त- 2024

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



आवृत्ति की स्थिति: अगस्त -2023 से 2024



पिछले एक साल मे आवृत्ति की स्थिति

आवृत्ति बैंड	अगस्त 2023	सितम्बर 2023	अक्टूबर 2023	नवम्बर 2023	दिसंबर 2023	जनवरी 2024	फ़रवरी 2024	मार्च 2024	अप्रैल 2024	मई 2024	जून 2024	जुलाई 2024	अगस्त 2024
< 49.7 Hz(%)	0.47	0.11	0.53	0.10	0.17	0.12	0.095	0.065	0.030	0.000	0.02	0.054	0.176
<49.8 Hz(%)	1.63	0.57	1.99	0.96	1.40	0.92	0.797	0.479	0.432	0.059	0.31	0.621	0.631
<49.9 Hz(%)	7.11	5.21	8.87	6.83	7.83	6.80	6.239	6.022	5.254	2.490	4.50	6.406	4.660
49.90-50.05 Hz(%)	***77.25***	***77.86***	***74.42***	***74.36***	***75.21***	***75.83***	***74.06***	***77.51***	***78.56***	***80.045***	***79.177***	***78.424***	***75.012***
50.05-50.10 Hz(%)	13.28	13.32	13.53	13.74	10.47	11.91	14.118	12.262	11.178	13.839	13.34	12.122	13.334
>50.10 Hz(%)	2.35	3.61	3.18	5.06	6.49	5.47	5.581	4.204	5.010	3.627	2.99	3.047	6.992
>50.20 Hz(%)	0.23	0.32	0.14	0.66	0.53	0.41	0.565	0.657	0.539	0.285	0.12	0.280	1.725
औसत आवृत्ति	50.00	50.00	49.99	50.00	49.99	49.99	50.00	50.00	50.00	50.00	50.002	49.997	50.008

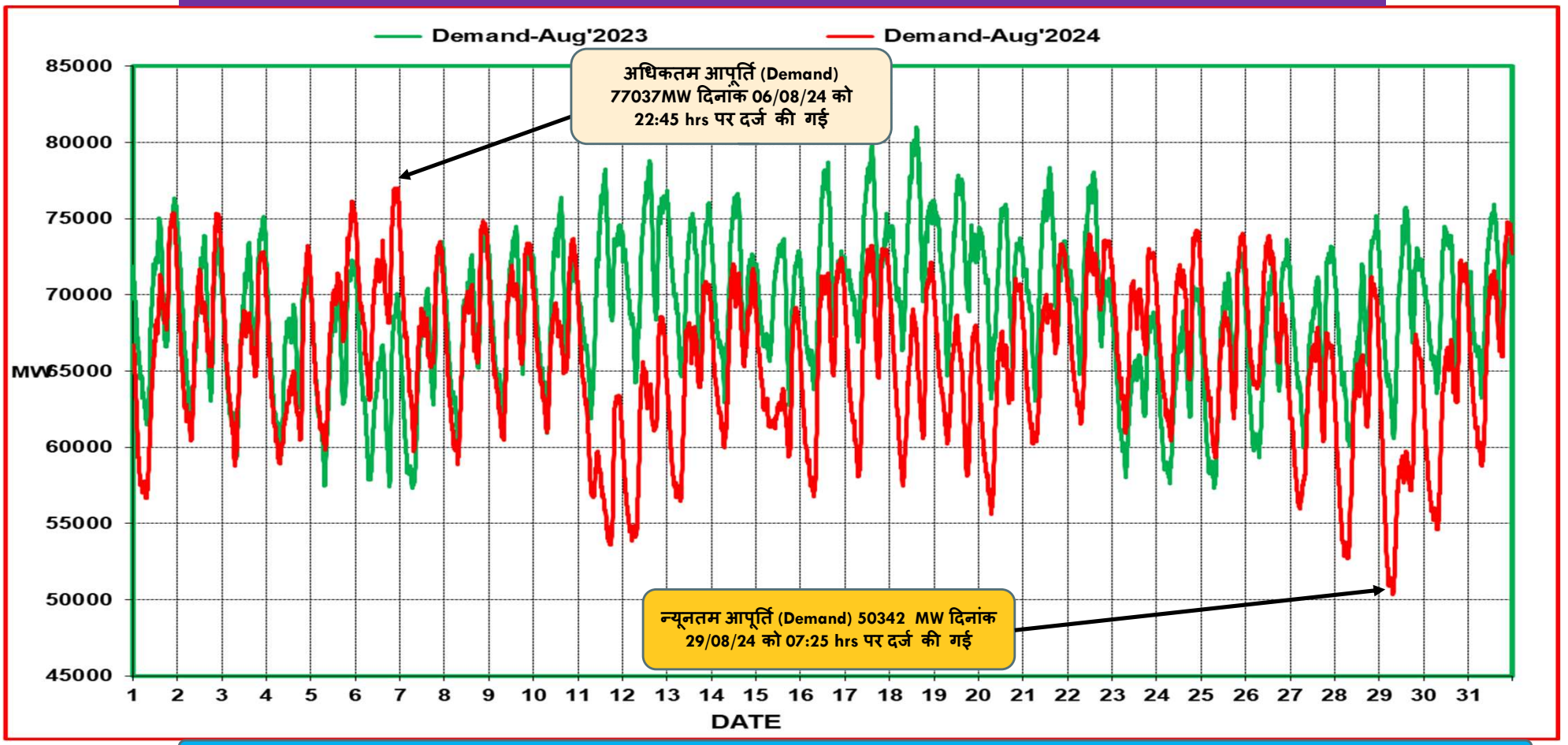
अगस्त-2024 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

ग्रिड-इंडिया GRID-INDIA

राज्य	अधिकतम मांग (MW) (in Aug'24)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Jul'24)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in Aug'24)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Jul'24)	दिनांक
पंजाब	15307	08.08.24 at 14:00	16089	29.06.24 at 12:45	356.0	08.08.24	366.8	21.07.2024
हरियाणा	12703	06.08.24 at 15:00	14662	31.07.24 at 14:30	267.4	06.08.24	293.4	30.07.2024
राजस्थान	13409	21.08.24 at 11:00	17949	20.01.24 at 11:00	286.8	21.08.24	379.1	30.05.2024
दिल्ली	6890	22.08.24 at 15:22	8656	19.06.24 at 15:06	138.7	22.08.24	177.7	18.06.2024
उत्तर प्रदेश	29126	31.08.24 at 22:22	30618	13.06.24 at 22:00	579.1	17.08.24	658.7	17.06.2024
उत्तराखंड	2482	31.08.24 at 22:00	2863	14.06.24 at 22:00	54.4	31.08.24	62.1	14.06.2024
हिमाचल प्रदेश	1732	24.08.24 at 09:30	2235	20.01.24 at 07:00	36.9	02.08.24	40.5	30.07.2024
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	2726	24.08.24 at 20:00	3107	12.01.24 at 20:00	54.1	23.08.24	66.8	26.01.2024
चंडीगढ़	418	06.08.24 at 14:00	482	18.06.24 at 15:28	8.1	06.08.24	9.1	18.06.2024
उत्तरी क्षेत्र #	77380	06.08.24 at 22:45	91234	19.06.24 at 14:37	1694.1	06.08.24	1990.4	18.06.2024

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

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

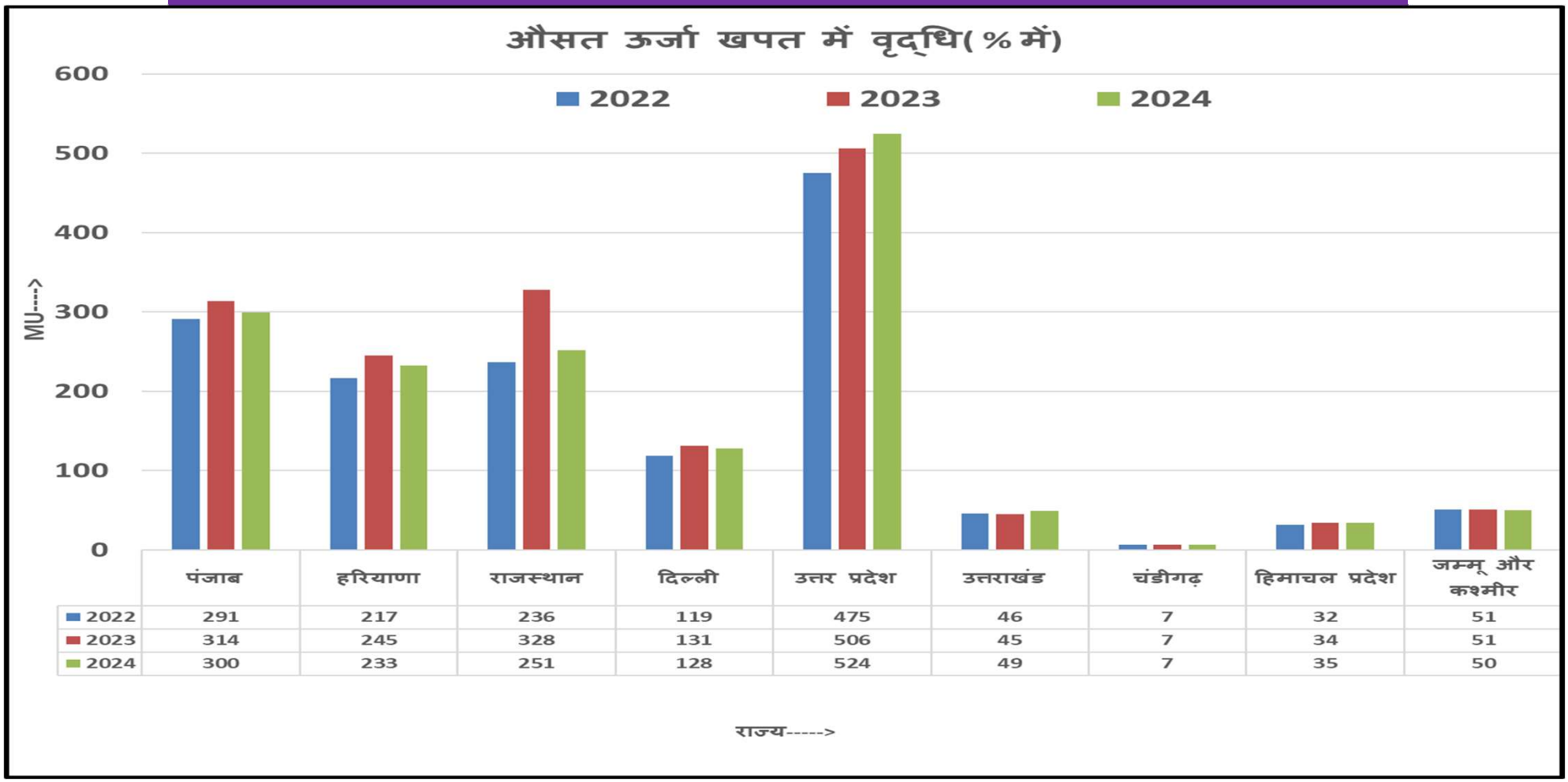


अगस्त -2023 की तुलना में अगस्त -2024 की औसत विद्युत आपूर्ति में 5.1% (~3215 MW) कमी हुई

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

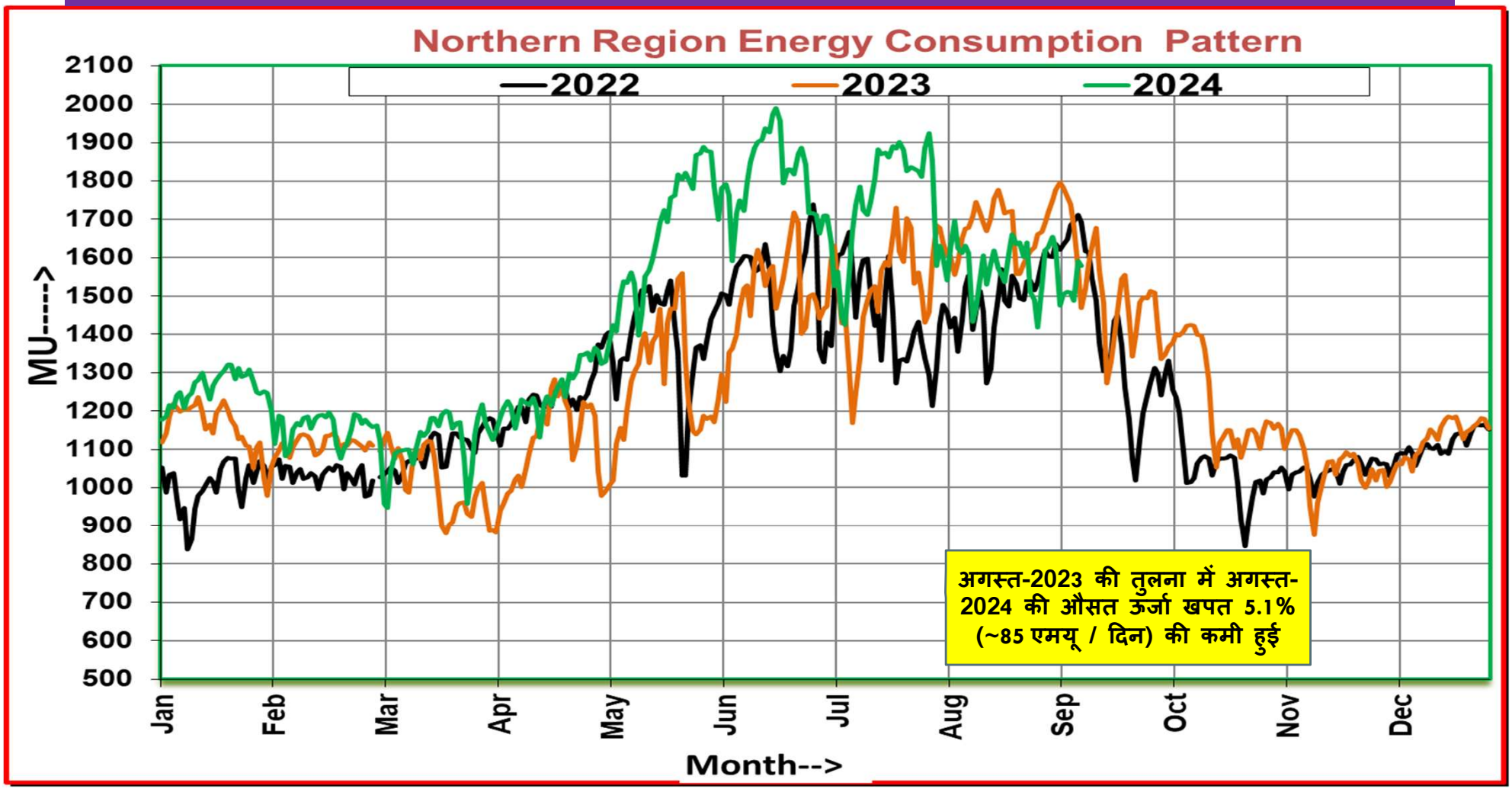
राज्य	अगस्त -2022	अगस्त -2023	अगस्त -2024	% वृद्धि (अगस्त -2023 vs अगस्त -2022)	% वृद्धि (अगस्त -2024 vs अगस्त -2023)
पंजाब	291	314	300	7.8%	-4.4%
हरियाणा	217	245	233	13.0%	-5.0%
राजस्थान	236	328	251	38.8%	-23.4%
दिल्ली	119	131	128	10.4%	-3.0%
उत्तर प्रदेश	475	506	524	6.4%	3.7%
उत्तराखंड	46	45	49	-2.1%	8.3%
चंडीगढ़	7	7	7	4.4%	0.5%
हिमाचल प्रदेश	32	34	35	7.7%	1.6%
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	51	51	50	-0.2%	-2.5%
उत्तरी क्षेत्र	1474	1664	1579	12.9%	-5.1%

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

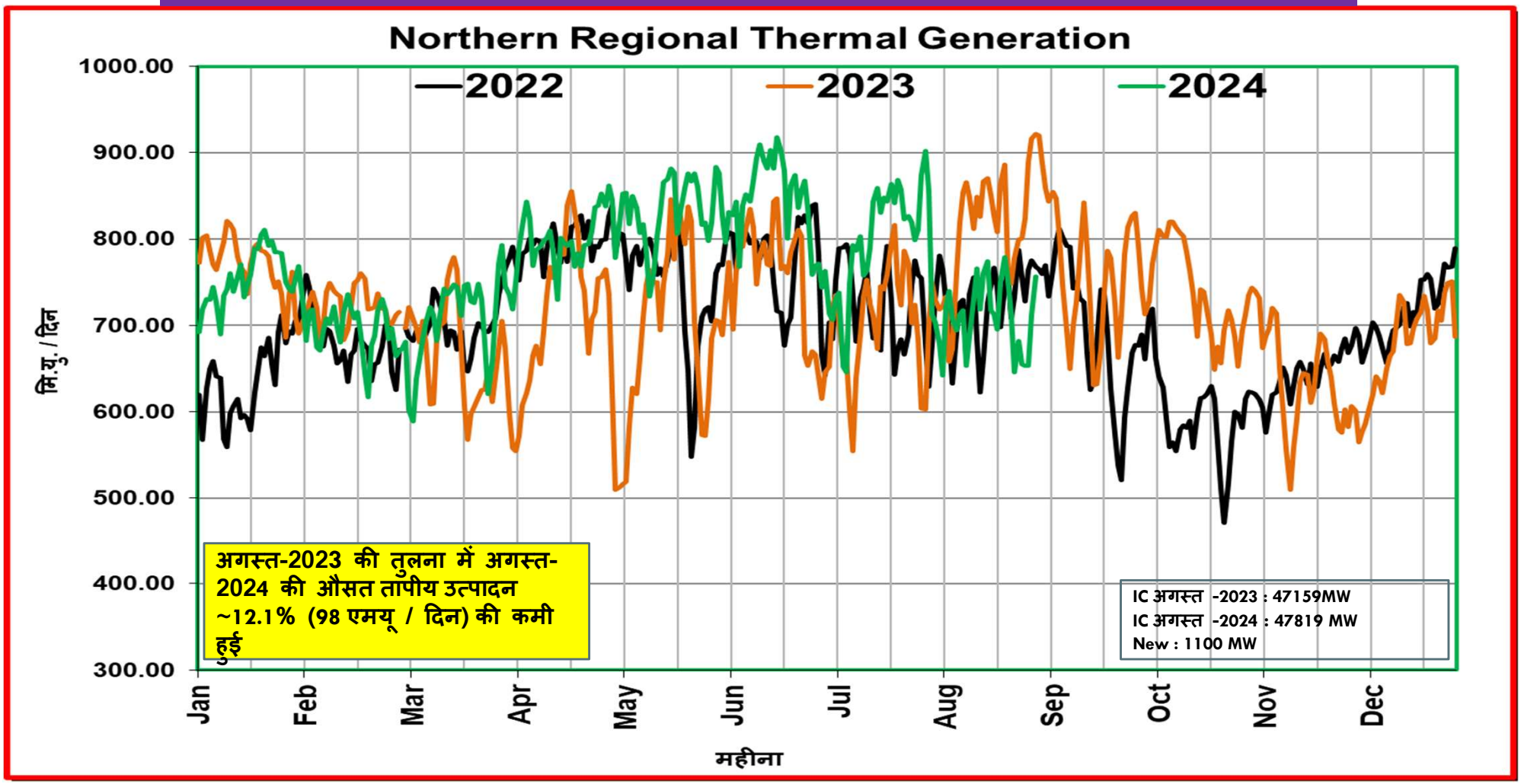


	पंजाब	हरियाणा	राजस्थान	दिल्ली	उत्तर प्रदेश	उत्तराखंड	चंडीगढ़	हिमाचल प्रदेश	जम्मू और कश्मीर
2022	291	217	236	119	475	46	7	32	51
2023	314	245	328	131	506	45	7	34	51
2024	300	233	251	128	524	49	7	35	50

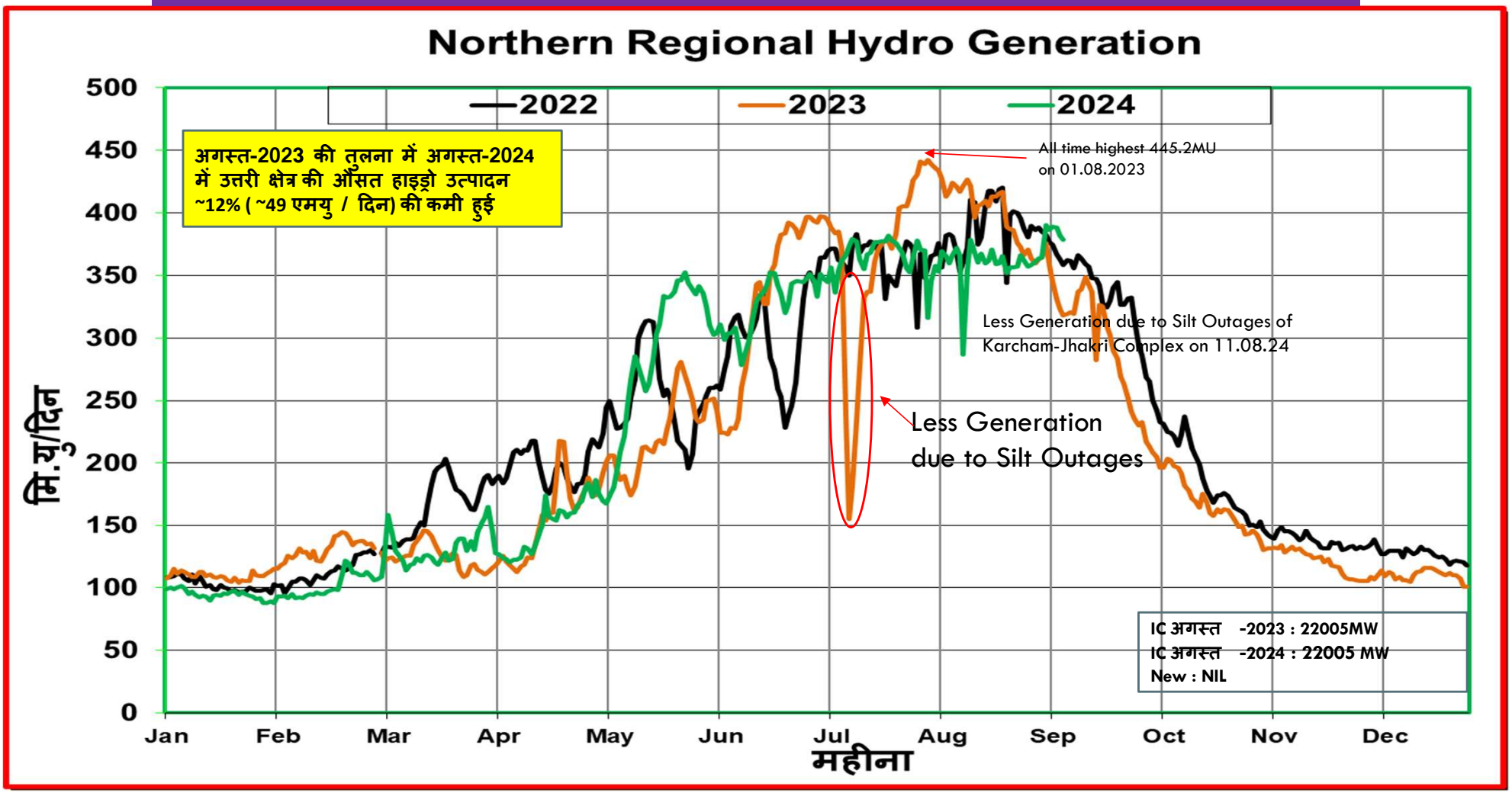
उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



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



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



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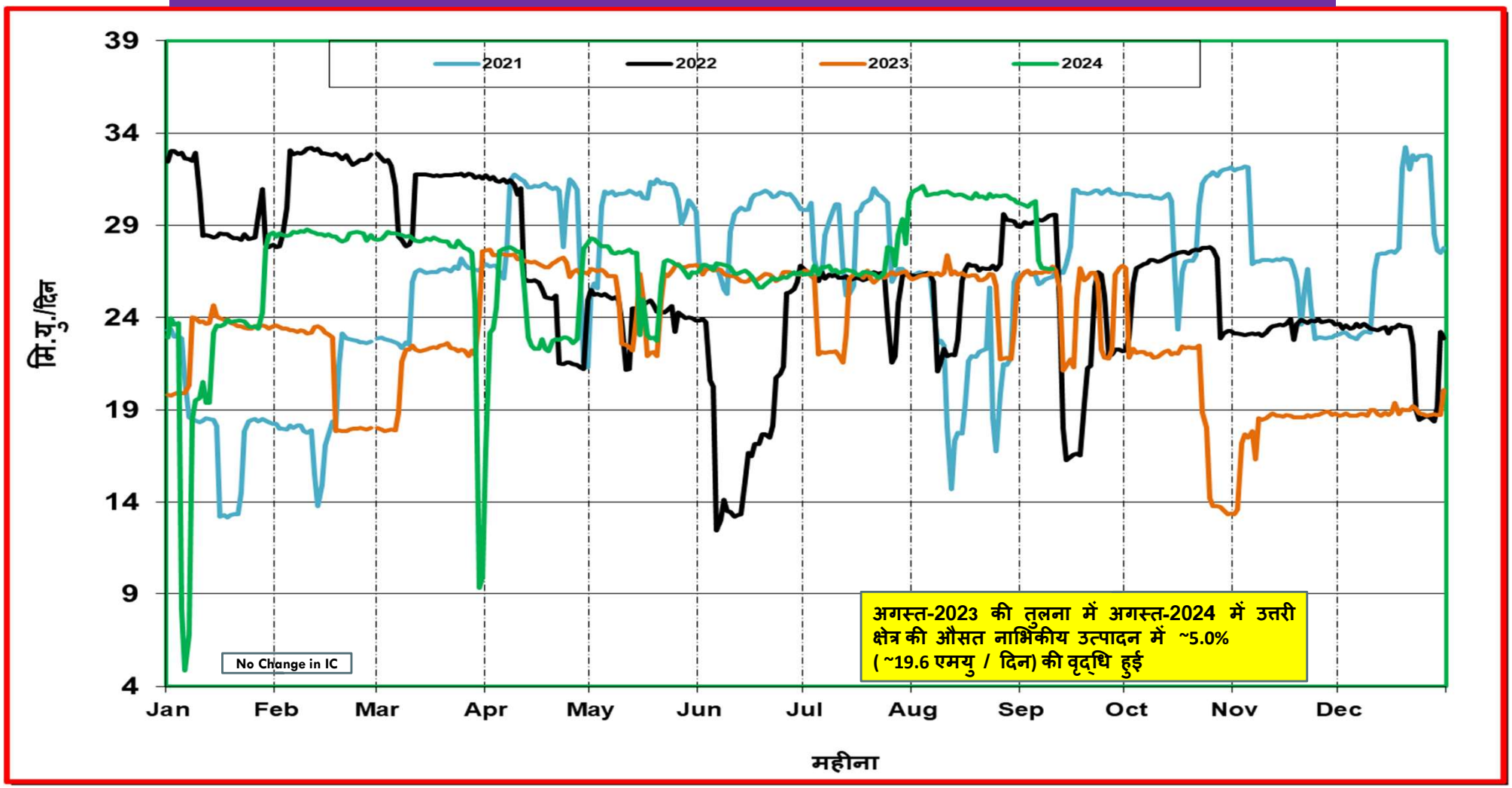
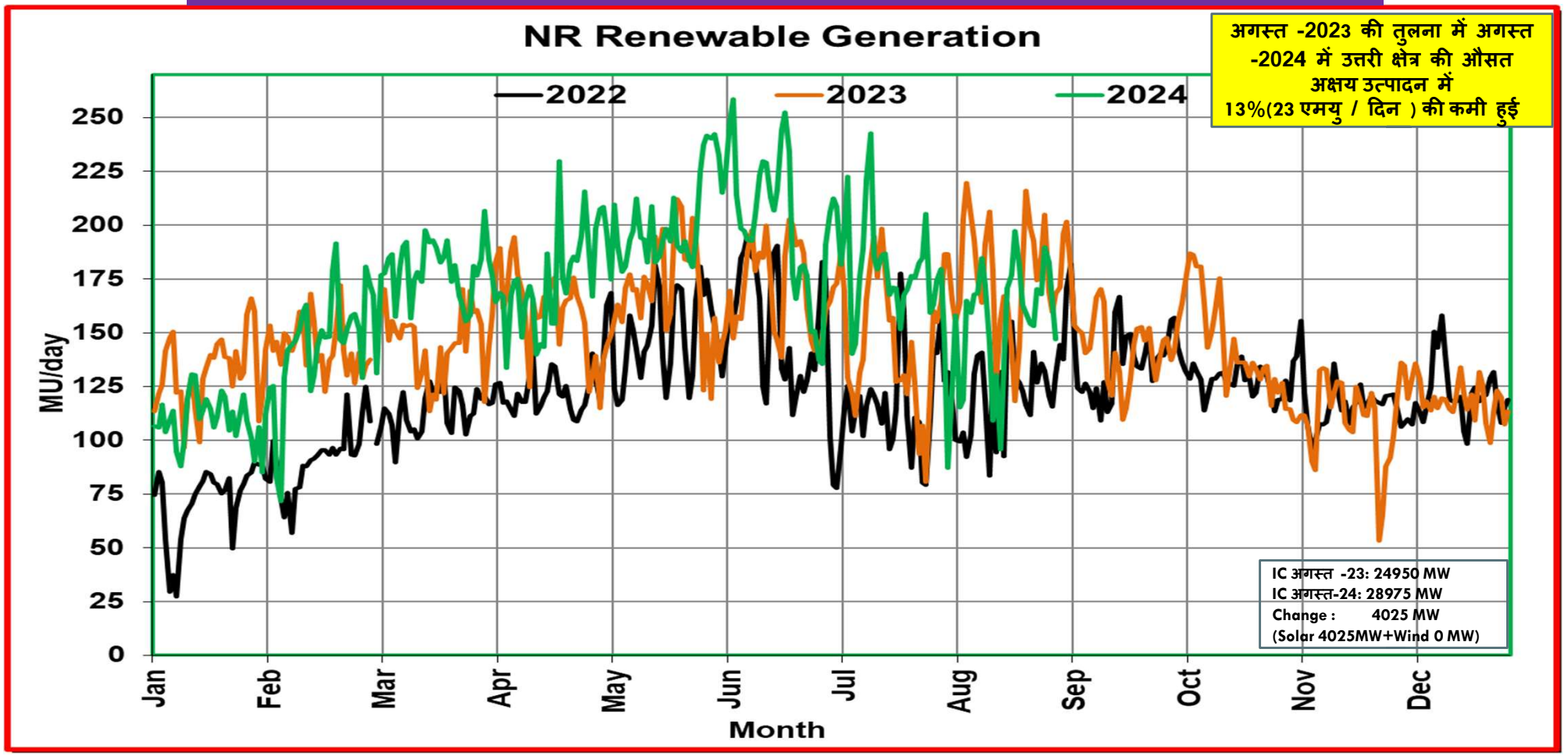
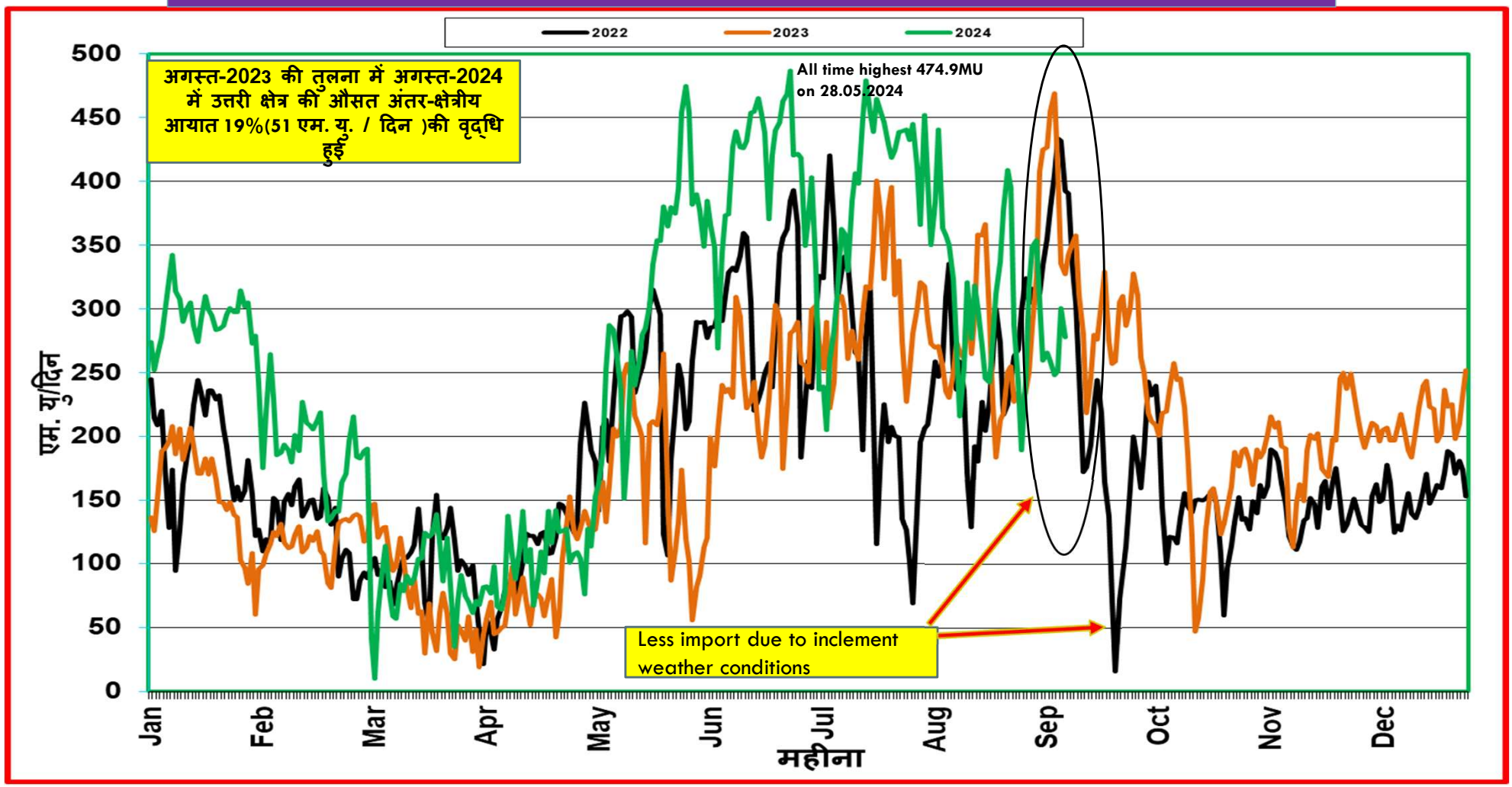


उत्तरी क्षेत्र की अक्षय (Renewable) उत्पादन की स्थिति (MUs/Day)



अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



वास्तविक सारांश - अगस्त-2023 बनाम अगस्त-2024

	अगस्त-2023 (मि.यु. /दिन)	अगस्त-2024 (मि.यु. /दिन)	अगस्त माह में वृद्धि (मि.यु./दिन)
तापीय (Thermal) उत्पादन	807.47	709.58	-97.90
जलीय (Hydro) उत्पादन	406.24	357.70	-48.54
नाभिकीय (Nuclear) उत्पादन	25.62	30.65	5.04
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	268.44	319.12	50.68
अक्षय (Renewable) उत्पादन	176.111	153.482	-22.63

RE Penetration

	Maximum Daily MU Penetration			
	Aug '2024		Record upto Jul '2024	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	2.77	30-08-2024	12.28	01-04-2020
Rajasthan	11.48	19-08-2024	36.47	22-10-2021
UP	2.86	29-08-2024	5.50	05-03-2024
NR	12.90	11-08-2024	20.69	02-04-2023

DEMAND FORECAST STATUS OF SLDC

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

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

- The following is the status regarding forecast data submission.

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

***Submitted for FY-24-25. Data is awaited for FY 25-26.**

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

Outage Summary For August 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	301	268	151	117	66.6%	33.4%	56.3%	43.7%	569
UPPTCL	72	244	68	176	51.4%	48.6%	27.9%	72.1%	316
RRVPNL	61	110	58	52	51.3%	48.7%	52.7%	47.3%	171
HVPNL	31	46	22	24	58.5%	41.5%	47.8%	52.2%	77
PSTCL	10	42	20	22	33.3%	66.7%	47.6%	52.4%	52
BBMB	14	30	10	20	58.3%	41.7%	33.3%	66.7%	44
DTL	5	25	8	17	38.5%	61.5%	32.0%	68.0%	30
PTCUL	14	11	2	9	87.5%	12.5%	18.2%	81.8%	25
NTPC	9	10	6	4	60.0%	40.0%	60.0%	40.0%	19
HPPTCL	5	12	4	8	55.6%	44.4%	33.3%	66.7%	17
THDC	6	5	4	1	60.0%	40.0%	80.0%	20.0%	11
PDD JK	2	7	3	4	40.0%	60.0%	42.9%	57.1%	9
PKTSL	5	3	2	1	71.4%	28.6%	66.7%	33.3%	8
Cleansolar_Jodhpur	1	5	3	2	25.0%	75.0%	60.0%	40.0%	6
AHEJ4L	2	3	2	1	50.0%	50.0%	66.7%	33.3%	5
NHPC	1	3	2	1	33.3%	66.7%	66.7%	33.3%	4
NRSS36	1	3	3	0	25.0%	75.0%	100.0%	0.0%	4
Tata Power	0	4	4	0	0.0%	100.0%	100.0%	0.0%	4
Adani	3	0	0	0	100.0%	0.0%	NA	NA	3
AREPRL	1	2	2	0	33.3%	66.7%	100.0%	0.0%	3
Saurya Urja	1	2	2	0	33.3%	66.7%	100.0%	0.0%	3
AEPL	0	2	1	1	0.0%	100.0%	50.0%	50.0%	2
ESUCRL	0	2	1	1	0.0%	100.0%	50.0%	50.0%	2
MAHINDRA	0	2	1	1	0.0%	100.0%	50.0%	50.0%	2
NRSS XXIX	2	0	0	0	100.0%	0.0%	NA	NA	2
Sekura	0	2	2	0	0.0%	100.0%	100.0%	0.0%	2
THAR SURYA1	1	1	1	0	50.0%	50.0%	100.0%	0.0%	2
Total	548	844	382	462	58.9%	41.1%	45.3%	54.7%	1392

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))	
May-24	812	1113	469	634	62.9%	37.1%	1925
June-24	448	1163	550	613	44.9%	55.1%	1611
July-24	481	904	459	445	51.2%	48.8%	1385
Aug-24	**548**	**844**	**382**	**462**	**58.9%**	**41.1%**	**1392**

New Elements First Time Charged During August 2024

S. No.	Type of transmission element	Total No
1	New AC Transmission line	04
2	Capacitor Bank	02
3	Transformer	07
4	BUS REACTOR	01
5	GENERATING UNIT	01
Total New Elements charged		15

New AC Transmission line

S.No	Name of element	Owner	Voltage Level (in kV)	Line Length	Conductor Type	Actual date of charging
1	220kV Abdullapur(PG)-Rajokheri (HV)-2	HVPNL	220kV	22.35 km	MOOSE	05-Aug-2024
2	220kV Abdullapur(PG)-Rajokheri (HV)-1	HVPNL	220kV	22.35 km	MOOSE	06-Aug-2024
3	765kV Fatehgarh_II(PG)-Bhadla_2 (PG)-4	POWERGRID BHADLA TRANSMISSION LIMITED (PBTL)	765kV	202.23 KM	AL59 Zebra	14-Aug-2024
4	400kV Tehri(THDC)-Koteshwar(PG)-3	POWERGRID	400kV	13.5 KM	Quad Moose	28-Aug-2024

Capacitor Bank

S.No	Name of element	Owner	Voltage Level (in kV)	Type of Capacitor	Capacitor Bank No	Sub Capacitor Bank MVAR Rating	Capacitor MVAR Rating	Actual date of charging
1	33kV, Harmonic Filter Capacitor Bank, 12 MVAR(8+4 MVAR Filter bank as per compliances related to Clause B.1 Power Quality Norms.) Capacitor bank no-01 at bay no. 315 at ASER2PL_SL_FTHG2_PG	ADANI SOLAR ENERGY RJ TWO PRIVATE LIMITED	33kV	Harmonic Filter Capacitor Bank	01 at bay no. 315	8+4 MVAR Filter bank as per compliances related to Clause B.1 Power Quality Norms.	12	03-Aug-2024
2	33kV, Harmonic Filter Capacitor Bank, 12 MVAR(8+4 MVAR Filter bank as per compliances related to Clause B.1 Power Quality Norms.) Capacitor bank no-02 at bay no. 303 at ASER2PL_SL_FTHG2_PG	ADANI SOLAR ENERGY RJ TWO PRIVATE LIMITED	33kV	Harmonic Filter Capacitor Bank	02 at bay no. 303	8+4 MVAR Filter bank as per compliances related to Clause B.1 Power Quality Norms.	12	03-Aug-2024

Transformer

S.No	Name of element	Owner	Voltage Level (HV/LV/Tertiary)	MVA Capacity	Actual date of charging
1	400/21/NIL, 3*275 MVA, 3x1-Phase, BHEL, GT - 1 at Panki TPS (UP)	UPRVUNL	400/21 kV	825	06-Aug-2024
2	400/220/33kV, 500 MVA, 3-Phase, Crompton, ICT - 1 at Ropar(PSTCL)	PSTCL	400/220/33kV	500	10-Aug-2024
3	400/220/33kV, 500 MVA, 3-Phase, Crompton, ICT - 2 at Ropar(PSTCL)	PSTCL	400/220/33kV	500	10-Aug-2024
4	400/220/33kV, 500 MVA, 3x1-Phase, GE T& D, ICT - 3 at Jawaharpur_TPS(UP)	UPRVUNL	400/220/33kV	500	14-Aug-2024
5	400/220/33kV, 500 MVA, 3x1-Phase, GE T&D, ICT - 4 at Jawaharpur_TPS(UP)	UPRVUNL	400/220/33kV	500	22-Aug-2024
6	400/220/33kV, 500 MVA, 3-Phase, TOSHIBA, ICT - 3 at Bikaner(PG)	POWERGRID	400/220/33kV	500	30-Aug-2024
7	420 KV/15.75kV, 306 MVA, 3-Phase, M/s GE, GT - 5 at Tehri(THDC)	Tehri PSP	420 KV/15.75 kV	306	31-Aug-2024

BUS REACTOR

S.No	Name of element	Owner	Voltage LeveL	MVAR Capacity	Actual date of charging
1	400kV, 125 MVAr Bus Reactor at Shamli(UP)	UPPTCL	400kV	125 MVAr	14-Aug-2024

GENERATING UNIT

S.No	Name of element	Owner	Voltage Level	Installed Capacity (MW)	MVA Capacity	Make	Actual date of charging
1	660 MW, 777 MVA 21 KV Make SIEMENS PG BHEL Unit No I at 1*660 MW 400 KV PANKI TPS(Stage CTPS)	UPRVUNL	21kV	660 MW	777 MVA	SIEMENS PG BHEL	06-Aug-2024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