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 **234**वी बैठक का कार्यवृत |

Subject: Minutes of the **234**th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की **234**वीं बैठक दिनांक 14.08.2025 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 **234**th meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 14.08.2025. 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।

DHARMENDER KUMAR MEENA
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(डी. के. मीना)
अधीक्षण अभियंता (प्रचालन)

सेवा में,

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

List of addressee (via mail)

OCC Members for FY 2025-26			
S. No.	**OCC Member**	**Category**	**E-mail**
1	NLDC	National Load Despatch Centre	nomination awaited (susha@grid-india.in)
2	NRLDC	Northern Regional Load Despatch Centre	somara.lakra@grid-india.in
3	CTUIL	Central Transmission Utility	sandeepk@powergrid.in
4	PGCIL	Central Government owned Transmission Company	rtamc.nr1@powergrid.in rtamcjammu@powergrid.in cpcc.nr3@powergrid.in
5	NTPC	Central Generating Company	RAMESHSINGH@NTPC.CO.IN
6	BBMB		powerc@bbmb.nic.in
7	THDC		ravindrasrana@thdc.co.in
8	SJVN		sjvn.cso@sjvn.nic.in
9	NHPC		surendramishra@nhpc.nic.in
10	NPCIL		df@npcil.co.in
11	Delhi SLDC	State Load Despatch Centre	gmsldc@delhisldc.org
12	Haryana SLDC		cesocomml@hvpn.org.in
13	Rajasthan SLDC		ce.ld@rvpn.co.in
14	Uttar Pradesh SLDC		cepso@upsldc.org
15	Uttarakhand SLDC		se_sldc@ptcul.org
16	Punjab SLDC		ce-sldc@pstcl.org
17	Himachal Pradesh SLDC		cehpsldc@gmail.com
18	DTL	State Transmission Utility	bl.gujar@dtl.gov.in
19	HVPNL		cetspkl@hvpn.org.in
20	RRVPNL		ce.ppm@rvpn.co.in
21	UPPTCL		smart.saxena@gmail.com
22	PTCUL		ce_oandmk@ptcul.org
23	PSTCL		ce-tl@pstcl.org
24	HPPTCL		gmprojects.tcl@hpmail.in
25	IPGCL	State Generating Company	ncsharma@ipgcl-ppcl.nic.in
26	HPGCL		seom2.rgtpp@hpgcl.org.in
27	RRVUNL		ce.ppmcit@rrvun.com
28	UPRVUNL		cgm.to@uprvunl.org
29	UJVNL		gm_engg_ujvn@yahoo.co.in
30	HPPCL		gm_generation@hppcl.in
31	PSPCL	State Generating Company & State	ce-ppr@pspcl.in

		owned Distribution Company	
32	DHBVN	State owned Distribution Company (alphabetical rotational basis/nominated by state govt.)	(cecommercial@dhbvn.org.in)
33	Ajmer Vidyut Vitran Nigam Ltd.		nomination awaited (md.avvnl@rajasthan.gov.in)
34	Purvanchal Vidyut Vitaran Nigam Ltd.		nomination awaited (mdpurvanchalvvnl@gmail.com)
35	UPCL		cgmupcl@yahoo.com
36	HPSEB		cesysophpsebl@gmail.com
37	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	sanjay.bhargava@tatapower.com
38	Aravali Power Company Pvt. Ltd		amit.hooda01@apcpl.co.in
39	Apraave Energy Ltd.,		rajneesh.setia@apraava.com
40	Talwandi Sabo Power Ltd.		ravinder.thakur@vedanta.co.in
41	Nabha Power Limited		Durvesh.Yadav@larsentoubro.com
42	MEIL Anpara Energy Limited		arun.tholia@meilanparapower.com
43	Rosa Power Supply Company Ltd		Suvendu.Dey@relianceada.com
44	Lalitpur Power Generation Company Ltd		avinashkumar.ltp@lpgcl.com
45	MEJA Urja Nigam Ltd.		rsjuneja@ntpc.co.in
46	Adani Power Rajasthan Limited		manoj.taunk@adani.com
47	JSW Energy Ltd. (KWHEP)		roshan.zipta@jsw.in
48	Transition Cleantech Services Private Limited	IPP having less than 1000 MW installed capacity (alphabetical rotational basis)	nomination awaited (kswamidoss@evrenenergy.com)
49	UT of J&K	From each of the Union Territories in the region, a representative nominated by the administration of the Union Territory concerned out of the	sojpdd@gmail.com
50	UT of Ladakh		cepdladakh@gmail.com
51	UT of Chandigarh		seelo-chd@nic.in

		entities engaged in generation/ transmission/	
52	Tata Power Delhi Distribution Limited	Private Distribution Company in region (alphabetical rotational basis)	nomination awaited (sandeep.k@tatapower-ddl.com)
53	Gurgaon Palwal Transmission Limited	Private transmission licensee (nominated by central govt.)	nomination awaited (samriddhi.gogoi@indigrid.com)
54	PTC India Limited	Electricity Trader (nominated by central govt.)	nomination awaited (bibhuti.prakash@ptcindia.com)

Contents

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The 234th OCC meeting of NRPC was held on 14.08.2025 through video conferencing. MS, NRPC welcomed all the participants connected through VC in the meeting from power utilities of Northern Region.

खण्ड-क:उ.क्षे.वि.स. PART-A:NRPC

A.1. Confirmation of Minutes

Minutes of the 233rd OCC meeting was issued on 09.08.2025. The comments were received from JKPTCL regarding Agenda-13 as follows-

"A.13.8. MS, NRPC asked JKPTCL and CTU to conduct simulation studies jointly for reconductoring proposal and proposal may be deliberated in the upcoming CMETS meeting."

JKPTCL has submitted that since the lines belongs to PGCIL, the above point should be revised and read as-

"A.13.8. MS, NRPC asked JKPTCL and CTU **along with PGCIL** to conduct simulation studies jointly for reconductoring proposal and thereafter the proposal may be deliberated in the upcoming CMETS meeting."

Decision of OCC Forum:

OCC confirmed the minutes of the meeting with above modification.

A.2. Status of action taken on decisions of 233rd 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-A.I**.*

A.3. Review of Grid operations of July 2025

Anticipated vis-à-vis Actual Power Supply Position (Provisional) for July 2025

Reasons submitted by States/UTs for significant deviation of actual demand from anticipated figures during the month of July 2025 are as under:

- **Delhi**

  Delhi witnessed frequent rain and overcast skies in July 2025, resulted in below-normal temperatures throughout the month, its result the peak power demand and energy consumption significantly lower than anticipated.

- **Haryana**

  The actual demand for the month of July-25 was lesser than anticipated demand as the rural agricultural demand felt is significantly lesser than last year.

- **Punjab**

  The actual energy requirement and actual maximum demand are less as compared to anticipated energy requirement and anticipated maximum demand respectively because of above the average rainfall in July 2025.

- **Rajasthan**

  The Actual Peak Demand and Actual Energy requirement w.r.t. Anticipated Peak Demand and Anticipated Energy requirement for the month of July'2025 decreased by 16.1% and 13.6% respectively due to sufficient (more than expectation) rain observed in July-2025 in Rajasthan state.

- **Uttar Pradesh**

  Due to unexpected rains and low atmospheric temperature in July 2025 in comparison to July 2024, energy requirement and energy consumption was lesser than anticipated.

- **Uttarakhand**

  The reason for significant variation in Peak Demand (increase) for month of July'25 against anticipated figures was due to humid weather for 2-3 days after rainfall.

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

The maintenance programme of generating units and transmission lines for the month of September 2025 was deliberated in the meeting on 13.08.2025.

A.5. Anticipated Power Supply Position in Northern Region for September 2025

The updated anticipated Power Supply Position for September 2025 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	190	420	No Revision submitted
	Requirement	200	434	
	Surplus / Shortfall	-10	-14	
	% Surplus / Shortfall	-5.0%	-3.2%	
DELHI	Availability	5147	7400	13-Aug-25
	Requirement	4000	7200	
	Surplus / Shortfall	1147	200	
	% Surplus / Shortfall	28.7%	2.8%	
HARYANA	Availability	6750	12911	13-Aug-25
	Requirement	6796	13064	
	Surplus / Shortfall	-46	-153	
	% Surplus / Shortfall	-0.7%	-1.2%	
HIMACHAL PRADESH	Availability	1145	1545	08-Aug-25
	Requirement	1130	1560	
	Surplus / Shortfall	15	-15	
	% Surplus / Shortfall	1.3%	-1.0%	
J&K and LADAKH	Availability	1570	3360	No Revision submitted
	Requirement	1698	3429	
	Surplus / Shortfall	-128	-69	
	% Surplus / Shortfall	-7.5%	-2.0%	
PUNJAB	Availability	8420	16630	13-Aug-25
	Requirement	8767	16206	
	Surplus / Shortfall	-347	424	
	% Surplus / Shortfall	-4.0%	2.6%	
RAJASTHAN	Availability	8810	18940	13-Aug-25

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Requirement	10200	17500	
	Surplus / Shortfall	-1390	1440	
	% Surplus / Shortfall	-13.6%	8.2%	
UTTAR PRADESH	Availability	15450	31000	07-Aug-25
	Requirement	15300	31000	
	Surplus / Shortfall	150	0	
	% Surplus / Shortfall	1.0%	0.0%	
UTTARAKHAND	Availability	1490	2555	05-Aug-25
	Requirement	1500	2575	
	Surplus / Shortfall	-10	-20	
	% Surplus / Shortfall	-0.7%	-0.8%	
NORTHERN REGION	Availability	50440.0	97000	
	Requirement	51149.0	88900	
	Surplus / Shortfall	-709.0	8100	
	% Surplus / Shortfall	-1.4%	9.1%	

A.5.1. Representative of J&K SLDC informed that the shortfall in J&K would be met through Real time exchanges.

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

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

A.6.2. 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.II.I***) before every OCC meeting.

A.7. NR Islanding scheme

A.7.1. With regard to the Agra Islanding Scheme, the UPPTCL representative informed the forum that the proposal has been resubmitted to the PSDF Secretariat for

funding under PSDF and following approval with the UPPTCL Board as required by PSDF Secretariat.

A.7.2. Regarding Lucknow-Unchahar Islanding Scheme, UPPTCL representative apprised the forum that the data of 132 KV S/S Husainganj is available through GPRS. The work of laying of OPGW cable is under progress.

A.7.3. RRVPNL representative informed the forum that the proposal for the Jodhpur–Barmer–Rajwest Islanding Scheme was submitted to the PSDF Secretariat on 16.01.2025 for PSDF funding. A meeting regarding the scheme was held on 07.03.2025, during which certain queries were raised. The representative further stated that responses to these queries were submitted on 30.05.2025. However, the final decision from the PSDF Secretariat is still awaited.

A.7.4. RRVPNL representative mentioned that DPR for implementation of Suratgarh islanding scheme would be submitted after the confirmation of decision from PSDF Sectt. for PSDF funding for Jodhpur-Barmer-Rajwest islanding scheme.

A.7.5. EE (O), NRPC also apprised the forum that regarding RAPS islanding scheme, a Committee was formed to review the protection settings and load. Report of the Committee is finalised and recommended to review the Islanding Scheme.

A.7.6. Punjab SLDC representative informed that two islanding schemes were approved by NRPC for Punjab Control area as mentioned below-

- NPL Rajpura islanding scheme
- RSD islanding scheme (with only one machine)

These schemes were conceptualized, based on PMUs and DPR (Detailed Project Report) regarding PSDF funding was submitted for PSDF funding about a year ago. The total estimated cost of scheme is around 20 crores based on re-evaluation done on the pattern of Raipur islanding scheme (similar to schemes proposed by PSTCL) as per directives of authorities sanctioning DPRs for PSDF funding. As discussed in 233rd OCC meeting, EE (O) asked PSTCL to get the designing aspect of both the islanding scheme vetted by Punjab SLDC and thereafter submit the proposal with the undertaking the earlier PSDF funding was not availed for these schemes.

A.7.7. HPSLDC representative apprised that the Monitoring Committee of State PSDF has provided approval for State PSDF funding for implementation of proposed UFR scheme for Kullu-Manali islanding scheme and Shimla-Solan Islanding scheme in the meeting held on 22nd April, 2025. He further stated that the procurement of UFRs to be undertaken by HPSEBL. HPSEBL had floated the tender and the tender will open on 23rd August, 2025, with work completion period of 06 months.

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

A.8.1. In the meeting, NRPC representative apprised the forum about the coal stock position of generating stations in Northern Region during current month (till 10th August 2025).

A.8.2. The coal stock position of generating stations in Northern Region, having critical stock, during first ten days of August 2025 is NIL.

A.9. Periodic Testing of generators and FACTS/HVDC Devices (Agenda by NRPC Sectt.)

A.9.1 NRPC representative stated that Regulation 40 (1) of CERC (IEGC) Regulations, 2023 stipulate that there shall be periodic tests, as required under clause (3) of this Regulation, carried out on power system elements for ascertaining the correctness of mathematical models used for simulation studies as well as ensuring desired performance during an event in the system.

A.9.2 The tests shall be performed once every five (5) years or whenever major retrofitting is done. If any adverse performance is observed during any grid event, then the tests shall be carried out even earlier, if advised by SLDC, RLDC, NLDC or RPC as the case may be.

A.9.3 Further, Regulation 40(1)(b) stipulate that "All equipment owners shall submit a testing plan for the next year to the concerned RPC by 31st October to ensure proper coordination during testing as per the schedule. In case of any change in the schedule, the owners shall inform the concerned RPC in advance."

A.9.4 Extract of IEGC 2023 clause 40,

"40. PERIODIC TESTING

(1) There shall be periodic tests, as required under clause (3) of this Regulation, carried out on power system elements for ascertaining the correctness of mathematical models used for simulation studies as well as ensuring desired performance during an event in the system.

(2) General provisions

(a) The owner of the power system element shall be responsible for carrying out tests as specified in these regulations and for submitting reports to NLDC, RLDCs, CEA and CTU for all elements and to STUs and SLDCs for intra-State elements.

(b) ***All equipment owners shall submit a testing plan for the next year to the concerned RPC by 31st October to ensure proper coordination during testing as per the schedule****. In case of any change in the schedule, the owners shall inform the concerned RPC in advance.*

(c) The tests shall be performed once every five (5) years or whenever major retrofitting is done. If any adverse performance is observed during any grid event,

then the tests shall be carried out even earlier, if so advised by SLDC, RLDC, NLDC or RPC as the case may be.

(d) The owners of the power system elements shall implement the recommendations, if any, suggested in the test reports in consultation with NLDC, RLDC, CEA, RPC and CTU.

(3) Testing requirements

The following tests shall be carried out on the respective power system elements:

TABLE 9 : TESTS REQUIRED FOR POWER SYSTEM ELEMENTS

Power System Elements	Tests	Applicability
Synchronous Generator	(1) Real and Reactive Power Capability assessment. (2) Assessment of Reactive Power Control Capability as per CEA Technical Standards for Connectivity (3) Model Validation and verification test for the complete Generator and Excitation System model including PSS. (4) Model Validation and verification of Turbine/Governor and Load Control or Active Power/ Frequency Control Functions. (5) Testing of Governor performance and Automatic Generation Control.	Individual Unit of rating 100MW and above for Coal/lignite, 50MW and above gas turbine and 25 MW and above for Hydro.
Non synchronous Generator (Solar/Wind)	(1) Real and Reactive Power Capability for Generator (2) Power Plant Controller Function Test (3) Frequency Response Test (4) Active Power Set Point change test. (5) Reactive Power (Voltage / Power Factor / Q) Set Point change test	Applicable as per CEA Technical Standards for Connectivity.
HVDC/FACTS Devices	(1) Reactive Power Controller (RPC) Capability for HVDC/FACTS (2) Filter bank adequacy assessment based on present grid condition, in consultation with NLDC. (3) Validation of response by FACTS devices as per settings.	To all ISTS HVDC as well as Intra-State HVDC/FACTS, as applicable

A.9.5 In accordance with above, Generators and HVDC/FACT owners were supposed to furnish the Testing schedule for the next five financial years.

A.9.6 The procedure for testing is available at the NLDC website at https://posoco.in/wpcontent/uploads/2023/09/Final-Procedure-of-Periodic-Testing-for-Power-SystemElements-submitted-to-CERC.pdf.

A.9.7 EE (O), NRPC informed the forum that a letter has been issued to all the generators and NR ISTS RE generators for submitting their testing schedule for the next five financial years. He asked all SLDCs to take up this with all the generators in their control area to expedite and providing of information at the earliest.

A.9.8 He also informed that till date, data has been received only from NHPC, SJVN, THDC JSW Hydro and Rosa Power Supply Co Ltd.

A.9.9 SE (O), NRPC asked Generators and HVDC/FACT owners to furnish Testing schedule in the format attached at **Annexure-A.III.** to seo-nrpc@nic.in.

Decision of OCC Forum:

OCC forum asked all Generators and HVDC/FACT owners to furnish Testing schedule for next five financial years in the format attached at Annexure-A.III. to seo-nrpc@nic.in.

A.10. Flexible Operation of Coal Based Thermal Power Plants (Agenda by NRPC Secretariat)

A.10.1. EE (O), NRPC apprised forum that as per the CEA Gazette Notification dated January 30, 2023, coal-based thermal power generating units shall flexible operation capability with a minimum power level 55%, along with specified ramp rates by 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. The Committee has recommended short term and long-term solutions to ensure Thermal Generation at Technical Minimum level for Grid Stability and RE Integration.

A.10.2. The status of MTDL achieved in intra-state thermal generating stations of Punjab, Rajasthan and Haryana noted in 223rd OCC meeting of NRPC. The same is attached at **Annexure-A.IV**.

A.10.3. In this regard, the NRPC Secretariat, vide letter dated 31.07.2025 (**Annexure-A.V**), had requested the thermal generating stations listed in Annexure-A.IV to submit reasons for not achieving the 55% Technical Minimum level. However, no responses have received from the concerned states so far.

A.10.4. Representative from GS TPS (LEH. MOH.), submitted that in second stage of GSTP (Unit 3&4), 55% technical minimum level could achieved by provide the coal quality is good. In Stage-1 (Unit 1&2), minimum load achieved so far is 68%. Discussion with OEM is under progress for further improvement.

A.10.5. MS, NRPC asked GSTPS to submit to NRPC, the reason for not achieving 55% technical minimum level. If it is not feasible to achieve technical minimum of 55 %, exemption to be taken from State Electricity Regulatory Commission.

A.10.6. The EE (O), NRPC, informed the forum that, as per communication received from CEA, a format (attached as **Annexure-A.VI**) had been circulated to all thermal generating stations for submission of the requisite information. He requested the utilities to furnish the information in the prescribed format at the earliest.

A.10.7. Representative from GGSTPS, Rupnagar (4x210 MW) (ROPAR TPS), informed the forum that, as the plant is approximately 40 years old, the level of automation is very low. Consequently, achieving the 55% Technical Minimum level would require significant investment in OEM upgrades. The plant management has decided to conduct a Residual Life Assessment (RLA) of the units at the earliest to evaluate

the feasibility of such investments. Accordingly, it has decided to file for an exemption before the State Electricity Regulatory Commission. EE (O), NRPC, requested that the copy of the submission by GGSTPS, Rupnagar to commission to be communicated to NRPC Sectt. via email.

A.10.8. Representative from Haryana SLDC informed the forum that Panipat TPS is unable to achieve the 55% Technical Minimum level, for which the plant has already obtained an exemption from the State Electricity Regulatory Commission. EE (O), NRPC, requested the Haryana SLDC representative to share the exemption document with the NRPC Secretariat.

A.10.9. EE(O), NRPC, informed the forum that RAJWEST TPS has submitted via mail its ability to achieve the 55% Technical Minimum level; however, the plant's ramp rate is 0.496%, which is lower than the prescribed ramp rates of 2% for the 55–70% range and 3% for the 70–100% range. The Member Secretary, NRPC, requested RAJWEST TPS to provide an updated explanation for not meeting the 55% Technical Minimum requirement, along with details of the actions taken to address the issue.

A.10.10. EE (O), NRPC, informed the forum that Barsingar TPS (NLC) has communicated its inability to achieve the required 55% Technical Minimum level, stating that the plant is currently able to operate only down to 65% due to operational constraints. These include sintering issues at low load operations, increased back-pass roof metal temperatures leading to forced outages, and refractory failures.

A.10.11. Regarding GIRAL TPS, representative from Rajasthan informed the forum that unit is under shutdown since 2011 and likely to be scrapped.

A.10.12. Representative from RVUNL informed the forum that their supercritical generating stations are able to achieve the 55% Technical Minimum level. However, the sub-critical units below 500 MW are unable to meet this requirement. In this regard, RVUNL has filed a petition with the State Electricity Regulatory Commission (SERC) seeking exemption for the sub-critical units below 500 MW.

A.10.13. MS, NRPC asked all the thermal generating stations to submit to NRPC, the current status of achieving the 55% Technical Minimum level, along with reasons for non-compliance, if any, in the format circulated by CEA (**Annexure-A.VI**).

A.10.14. NTPC mentioned that under the Pilot Phase of the phasing plan, Dadri TPS unit 6 has been considered for minimum load operation of 40%, however, it is facing operational difficulties in achieving the minimum load operation of 40%.

A.10.15. MS, NRPC asked NTPC to submit its comments/observations to TPRM division, CEA (cetprm-cea@gov.in) and highlighting the difficulties faced to achieve the minimum load operation of 40%.

Decision of OCC Forum:

OCC forum asked all the thermal generating stations for submit to NRPC, the current status of achieving the 55% Technical Minimum level, along with reasons for non-compliance, if any, in the format circulated by CEA (Annexure-A.VI).

A.11. Unit-wise Planned Maintenance schedule of Generating Units for the year 2026-27 (Agenda by NRPC Secretariat)

A.11.1. EE (O), NRPC apprised the forum that Central Electricity Authority vide mail dated 10.07.2025 has sought information regarding the Unit Wise Planned Maintenance schedule for the year 2026-27.

A.11.2. NRPC Secretariat vide letter dated 22.07.2025 (**Annexure-A.VII**) had requested respective SLDC's of Northern Region to co-ordinate with IPPs and State Generating Companies within their control area and submit the data as per **Annexure-A. VIII.** Further, Central Generating utilities are also requested to submit the abovementioned data as per **Annexure-A. VIII.**

A.11.3. SE (O), NRPC requested all generating stations in the Northern Region to submit their unit-wise planned maintenance schedule for the year 2026-27 in the prescribed format (**Annexure-A.VIII)** via email to seo-nrpc@nic.in by 31st August 2025.

Decision of OCC Forum:

OCC Forum asked all generating stations of NR to submit Unit Wise Planned Maintenance schedule for the year 2026-27 in the format (Annexure-A.VIII) via email to seo-nrpc@nic.in by 31st August 2025.

A.12. Approval of SPS at 400kV substation Bareilly (Agenda by UPSLDC)

A.12.1. EE(O), NRPC apprised the forum that UP SLDC has submitted that during peak load condition, ICTs at 400 kV substation Bareilly are observed to be N-1 noncompliant.

A.12.2. A meeting was held on 25.07.2025 regarding the identification of feeders for load shedding, SPS logic, and overcurrent settings. Based on the discussions, UPSLDC has finalized the SPS logic and enclosed as Annexure-A.IX of agenda.

A.12.3. UPSLDC representative stated that peak load at Bareilly is around 800 MW, which is N-1 non-compliant. In view of this, SPS scheme at 400 KV S/S Bareilly has proposed. The SPS operation shall be in two stages. For the loading between 100-110%, the feeders shall be cutoff in order of their priority in 5 sec. For the loading above 110%, the load shall be cutoff within 1500 milliseconds in order of their priority. The settings are designed such that the SPS operate before operation of overcurrent protection and after fault in Zone-3.

A.12.4. NRLDC representative stated that 220kV Bareilly-Pantnagar is crucial line for supply to Uttarakhand and is wired for SPS at 400/220kV Kashipur, therefore same

may be removed from proposed SPS logic and accordingly SPS logic can be approved.

A.12.5. In response, the UPSLDC representative informed that NRLDC observation will be duly incorporated. He further mentioned that adequate load relief would be achieved through the tripping of other feeders; therefore, the 220 kV Bareilly–Pantnagar feeder shall be excluded from the SPS scheme.

Decision of OCC Forum:

OCC Forum agreed to the proposal submitted by UPSLDC subject to the omission of 220 KV Bareilly-Pant nagar feeder from priority of feeders for load cut off. In view of protection setting, this agenda also to be put-up in upcoming PSC meeting. If any change/modification suggest by PSC forum may be done by concern utility.

A.13. Approval of SPS at 400 kV substation Panki (Agenda by UPSLDC)

A.13.1. EE (O), NRPC apprised the forum that UP SLDC has submitted that during peak load condition, ICTs at 400 kV S/S Panki are observed to be N-1 non-compliant. SPS for ICTs at 400 kV S/S Panki has been finalized by UPSLDC.

A.13.2. Agenda for approval of the same was put-up in 232nd OCC Meeting wherein OCC forum found the SPS logic technically in order as per requirement. However, forum advised that over Current settings may be reviewed in Protection Sub-Committee Meeting of NRPC.

A.13.3. UP SLDC representative stated that over current settings at 400kV substation Panki has implemented on 15.07.2025 as per NRPC Protection philosophy. The same was communicated to NRLDC and NRPC vide e-mail on dated 16.07.2025 & 30.07.2025 respectively.

A.13.4. SPS logic and over current settings are attached as Annexure-A.X of agenda.

A.13.5. EE (P), NRPC, informed the forum that the overcurrent settings have been reviewed and are suitable for implementation. He further stated that if any constituent has observations on overcurrent settings, necessary modification can be taken up in the forthcoming PSC meeting.

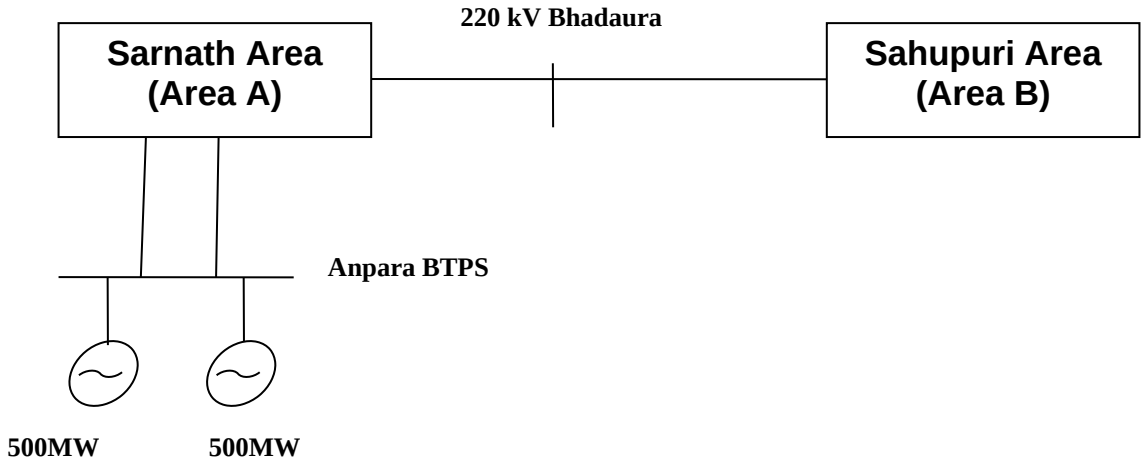
Decision of OCC Forum:

OCC forum agreed to the proposal of SPS implementation at 400 KV S/S Panki and in view of protection setting, this agenda also to be put-up in upcoming PSC meeting. If any change/modification suggest by PSC forum may be done by concern utility.

A.14. Agenda on Varanasi Islanding Scheme (Agenda by UPSLDC)

A.14.1. EE (O), NRPC apprised the forum that UPSLDC has submitted that it has conducted steady state load flow study of Varanasi Islanding Scheme using generation of Anpara BTPS (2X500MW).

A.14.2. 400kV Anpara BTPS is connected to 400 kV S/S Sarnath through 400 kV double circuit lines.



A.14.3. UPSLDC mentioned that study was conducted in various scenarios which are given as follows: -

Sl. No.	Case	Area	Number of Machine	Generation	Load	Remarks
1	Case-1	A and B	2	874 MW	806 MW (Summer Peak)	Not Feasible
2	Case-2	A and B	2	442 MW	435 MW (Winter Peak)	Not Feasible
3	Case-3	A	1	452 MW	440 MW (Summer Peak)	Feasible
4	Case-4	A	1	310 MW	305 MW (Summer Off Peak)	Feasible
5	Case-5	A and B	1	409 MW	402 MW (Winter Peak)	Feasible
6	Case-6	A and B	1	326 MW	322 MW (Winter Off Peak)	Feasible

A.14.4. UPSLDC representative mentioned that initially the study for the proposed islanding scheme was done with 02 no. of generating units with an average generation of 800-900 MW.

A.14.5. Under these situations, under voltages were observed at various node; therefore, Islanding scheme does not seem feasible in cases 1. In addition, during winter off peak loading situations, the combined technical minimum generation of two machines is coming less that the combined load of Sarnath Area and Sahupuri Area; therefore, case 2 is not feasible.

A.14.6. UPSLDC representative mentioned that in case no. 3 and 4, one machine has been taken with load form Area A for summer scenario. Voltages and loading of transmission lines are within limit. However, for winter scenario, the load of area A is less than technical minimum of 1x500 MW units at Anpara BTPS. Therefore, to ensure technical minimum of unit, load of area A and B both has been taken in case no 5 and 6 for winter scenario. Study report is attached as Annexure-A.XI of agenda.

A.14.7. Hence, UPSLDC representative proposed that: -

i. Varanasi Islanding is plan with one machine.

ii. For Summer and Winter seasons, two different island areas i.e., Area A for Summer season and Area A & B for Winter season is to be considered.

iii. Decision may be taken whether dynamic study is required or not.

A.14.8. UPSLDC further informed the forum that two different islanding areas need to be considered for the summer and winter seasons—Area A for the summer season, and Areas A & B for the winter season. As a result, manual intervention would be required to isolate certain UFRs to ensure the islanding area aligns with the respective seasonal configuration.

A.14.9. NRLDC asked UPSLDC to share the steady state base case file with them and accordingly feedback would be provided.

A.14.10. NRLDC representative requested that a dynamic study of the islanding scheme be carryout, by UPSLDC or independent third party and upon submission of dynamic study files by UP SLDC and the same to be reviewed by NRLDC and inputs would be provided.

A.14.11. He further emphasized that a Standard Operating Procedure (SOP) to be prepared by UPSLDC for different scheme as per seasonal variation to define the process for manual switching of relays on and off.

A.14.12. MS, NRPC asked UPSLDC to review the overall requirement of Islanding Schemes in UP Control area according to their critical load installations and may refer CEA guidelines

A.14.13. She also asked NRLDC to review the steady state simulation studies submitted by UP SLDC. Further, UP SLDC was asked to carry out and share preliminary dynamic studies for Varanasi islanding scheme and take necessary assistance from NRLDC.

Decision of OCC Forum:

OCC forum asked NRLDC to go through the steady state study done by UPSLDC on Varanasi IS. Additionally, UPSLDC to ensure that a dynamic study is carryout, either internally or through a third party.

A.15. SOP for diversion of RPC approved spare Transformers/Reactors to constituents/state transmission utilities (Agenda by Powergrid NR-1)

A.15.1. EE (O), NRPC apprised the forum that, in line with the discussion held in 55th TCC and 80th NRPC meeting, POWERGRID was asked to submit POWERGRID draft guidelines for diverting RPC-approved spare transformers and reactors to regional constituents.

A.15.2. Further, in the above meeting it was agreed that guidelines should cover scope, cost implications, penalty provisions, responsibilities of borrowers, timeline for return, and other general aspects related to diversion.

A.15.3. In compliance to the above, POWERGRID submitted draft SOP/Guidelines for diversion of RPC approved Spare Transformers to the constituents/state transmission utilities.

A.15.4. EE (O), NRPC apprised forum that draft guidelines were circulated to the constituents with the agenda item.

A.15.5. POWERGRID representative apprised the forum the salient features of the guidelines as follows: -

i. Normally, consider the diversions to STUs in case of failure of existing equipment for use in the interest of Grid security and reliability. However, if agreed by RPC forum, diversions to other utilities may be allowed only under the exceptional circumstances.

ii. With approval in the RPC, the Spare transformer/ reactor shall be diverted to the borrower only on replenishment basis and the same shall not be sold to the borrower under any circumstances.

iii. An agreement shall be signed between POWERGRID and the Borrower in the presence of Member Secretary of concerned RPC covering the terms and conditions for the diversion of equipment in line with this SOP.

iv. The Borrower shall return the Spare transformer/ reactor within the timeframe agreed by the RPC, which in all cases shall not exceed a maximum of 24 months from the date of diversion. The spare transformer/ reactor is to be lifted within 3 months of RPC approval. Failing which the consent for diversion as agreed in the RPC shall be deemed withdrawn.

v. RPC secretariat shall monitor the list of such diverted equipment and coordinate to ensure that the replenishment by the borrower is done as per agreed timeframe.

vi. The equipment shall divert on zero cost basis/ cost neutral basis to POWERGRID. The sharing of cost of the asset shall be as per Sharing Regulations. Further, if decided by RPC, tariff of the asset shall be borne by the requestor for the period of usage and charges of the asset shall recovered bilaterally and adjusted back to pool.

vii. The Borrower shall be responsible for dismantling, to & fro transportation, transit insurance, statutory expenses, erection, testing & commissioning charges (including at POWERGRID station after return) etc., any other incidental expenditure associated with the diversion of equipment or any loss to POWERGRID on account of diversion and all such charges shall be borne by the Borrower.

viii. Before diversion, the Borrower shall submit the Bank Guarantee (BG) equivalent to prevailing cost of diverted equipment. Borrower shall maintain BG valid until the diverted equipment is takeover by POWERGRID in healthy condition.

ix. In case of any exigency or if required in the interest of the Grid, POWERGRID reserves the right to demand the diverted Spare from the Borrower prior to the time period as agreed in the RPC after intimation to RPC. Once consented in RPC Forum, Borrower shall return the diverted spare to POWERGRID on immediate basis.

x. In case of delay of return/ replenishment of spare equipment to POWERGRID beyond agreed time (maximum 24 months from the date of diversion), a penalty @15% of the approved tariff of diverted equipment for the delayed period to be imposed on the Borrower as one time charge.

A.15.6. SE (O), NRPC stated that the maximum timeline of 24 months for return/replenishment of spare equipment to POWERGRID may not be feasible in cases where procurement of a new transformer by the constituents is required.

A.15.7. MS, NRPC advised STUs to maintain their own spare transformers to address exigencies, as the regional spares are designated for ISTS substations.

A.15.8. Referring to the clause, ***"After approval of RPC Forum, an agreement shall be signed between POWERGRID and the Borrower in the presence of the Member Secretary of the concerned RPC,"before diversion of a Regional***

spare transformer/reactor. MS, NRPC has clarified that once approval is accorded in the RPC forum, the presence of the Member Secretary, NRPC, shall not be required for signing the agreement between POWERGRID and the Borrower.

A.15.9. EE (O), NRPC suggested that the guidelines should clearly define the date of diversion, which may consider as the date on which the spare equipment is hand-over to the borrower. Further, a timeline to be specified for signing of the MoU between the borrower and POWERGRID after approval of the proposal by the forum. In case the MoU is not execute within the stipulated period, the RPC approval shall be deemed revoked.

A.15.10. Referring to the clause, ***"RPC Secretariat shall monitor the list of such diverted equipment and coordinate to ensure that the replenishment by the borrower is done as per the agreed timeframe,"*** EE (O), NRPC suggested that the monitoring may be undertaken by the OCC forum instead of RPC Secretariat.

A.15.11. EE(O), NRPC suggested that **utilities eligible for diversion may be classified into two categories namely,**

a. TSP's for ISTS stations.

b. State Transmission Utility.

A.15.12. POWERGRID mentioned that TSP's for Intra-state substation should not consider for diversion.

A.15.13. Referring to the clause, ***"In case of any exigency or if required in the interest of the Grid, POWERGRID reserves the right to demand the diverted spare from the Borrower prior to the agreed timeframe after intimation to RPC. Once consented in RPC Forum, the Borrower shall return the diverted spare to POWERGRID on an immediate basis,"*** the UPPTCL representative stated that returning the transformer on an immediate basis may not be feasible for any utility.

A.15.14. MS, NRPC suggested that a predefined timeline for the return of the transformer should be mutually agreed upon by POWERGRID and the borrower, and the same should be specified in the MoU.

A.15.15. EE(O), NRPC suggested that a clause on **"Lender Responsibilities"**—covering aspects such as ensuring the healthiness of the regional spare to be shifted, carrying out necessary testing and related works, along with the associated financial implications—should also be incorporated in the SOP.

A.15.16. MS, NRPC requested POWERGRID to specify a clause detailing the Lender's responsibilities pertaining to the Operation and Maintenance of the spare equipment.

A.15.17. MS, NRPC requested POWERGRID to incorporate the modifications suggested by the OCC forum. These, along with the financial aspects of the SOP, will be deliberated in the upcoming Commercial Sub-Committee meeting of NRPC.

A.15.18. MS, NRPC requested the constituents to review the draft SOP prepared by POWERGRID and submit their comments before the next OCC meeting.

Decision of OCC Forum:

OCC forum asked POWERGRID to incorporate the modifications suggested by forum. These, along with the financial aspects of the SOP, will be deliberated in the upcoming Commercial Sub-Committee meeting of NRPC.

Further, constituents were asked to review the draft SOP prepared by POWERGRID and submit their comments before the next OCC meeting.

A.16. Installation of 315 MVA 400/220kV Synthetic Ester Oil based Transformer in Delhi-NCR (Agenda by Powergrid NR-1)

A.16.1. EE(O), NRPC apprised the forum that Powergrid NR-1 has submitted that it has developed one number Synthetic Ester Oil based 315 MVA 400 / 220 Transformer in association with M/s Hitachi which is having the following advantages:

- **Fire Safety**: Synthetic esters have a **high flash point (275–315°C)** and **fire point (317–355°C)**, significantly reducing fire risk compared to mineral oils.
- **Environmental Safety**: These fluids are **readily biodegradable** and **non-toxic**, minimizing ecological damage in case of leaks or spills.
- **Moisture Tolerance**: Synthetic esters can absorb more moisture without compromising insulation, which helps **extend transformer life** and **reduce aging of cellulose insulation**

A.16.2. MS, NRPC asked NRLDC if there is grid operational feasibility of installing the proposed ICT with Synthetic Ester Oil technology at Bhiwadi in place of existing operational transformer (ICT-2).

A.16.3. The NRLDC representative informed the forum that the three ICTs at Bhiwadi Substation are already N-1 non-compliant and serve as a vital link to key HVDC substations. Considering Bhiwadi's significance as a major load centre catering to Delhi's demand, he suggested that POWERGRID consider undertaking this R&D work at an alternative substation.

A.16.4. POWERGRID representative mentioned that commissioning of Synthetic Ester Oil transformer in Bhiwadi in place of existing operational transformer (ICT-2) is decided for the following reason:

i. Bhiwadi is near to Delhi and it has a state of art oil testing laboratory. Hence, close monitoring and analysis of oil can be undertaken in exhaustive manner. Further, the data collected during testing may be used in future for fine tuning the design and specifications.

ii. ICT-2 at Bhiwadi exhibits high fault gases and is vulnerable which may affect the reliable power supply.

A.16.5. NRLDC representative suggested that suitable substations in NCT of Delhi could be explored for commissioning the transformer, particularly where any existing transformer is under outage due to failure. He informed that, at present, ICTs at Bamnauli and Mundka DTL substations are under outage, and these locations can be explored for commissioning the transformer. A confirmation in this regard may be sought from DTL by POWERGRID. He added that, since Delhi is in close proximity to Bhiwadi, there should be no issues with collecting and transporting samples for testing.

A.16.6. In response, POWERGRID representative stated that, as of now there is no 315 MVA AIS transformer at any POWERGRID substation in NCT of Delhi. Moreover, as this involves new technology, it is preferable to commission the transformer at a POWERGRID substation.

A.16.7. SE (O), NRPC informed that the 4th ICT (500 MVA) at Bhiwadi (PG) S/s has been approved in CMETS-NR meeting and requested POWERGRID to confirm its commissioning timeline.

A.16.8. POWERGRID informed that the tentative timeline for commissioning the 4th ICT (500 MVA) at Bhiwadi S/s is March 2026.

A.16.9. NRLDC suggested that POWERGRID may examine the foundation structure and available space at the Bhiwadi substation. If feasible, they may consider installing the Synthetic Ester Oil-based transformer in place of the 4th ICT approved in the CEMTS meeting.

A.16.10. CTU representative stated that, given the increasing load at Bhiwadi, it would be more appropriate to install a 500 MVA transformer at the Bhiwadi substation.

A.16.11. CTU representative suggested that locations such as New Wangpoo and Samba, where 315 MVA ICTs have been approved by the CMETS-NR meeting and are currently facing N-1 issues, may be considered for the installation of the Synthetic Ester Oil-based transformer. In response, the POWERGRID NR-2 representative clarified that the ICTs approved at New Wangpoo are single-phase units, and the ICT approved at Samba is of 500 MVA capacity, not 315 MVA.

A.16.12. POWERGRID apprised the forum that a reactor using similar technology has been installed in the Eastern Region, and its performance has been found to be satisfactory.

A.16.13. NRLDC highlighted that in 188th OCC meeting, tap change exercise (Increase by 2 Steps) at Bhiwadi (PG) station was approved by forum, but same was denied by POWERGRID as ICT is also supplying auxiliary power to HVDC from tertiary of 400/220kV ICT and tap change would impact voltage of auxiliary supply feeding HVDC.

A.16.14. MS, NRPC asked POWERGRID whether there is an option to install an additional 5th ICT at the Bhiwadi substation, considering the availability of space. In response,

the POWERGRID representative stated that the feasibility of this option would be explored.

Decision of OCC Forum:

OCC forum requested POWERGRID to explore the possibility of installing an additional 5th ICT at the Bhiwadi substation, considering the availability of space. Additionally, POWERGRID was asked to survey and examine the option of commissioning the ICT at other substations (including DTL) in the vicinity of the NCR.

A.17. Operational Reliability Concerns Arising from Frequent Switching of MSR/MSC Circuit Breakers in STATCOMs at Renewable Energy Complexes (Agenda by Powergrid NR-1)

A.17.1 EE(O), NRPC apprised the forum that Powergrid NR-1 has submitted a recent failure of the 245kV circuit breaker associated with the 125 MVAR Mechanically Switched Reactor (MSR) of STATCOM-1 at Bikaner-2 on 20.07.2025 which has raised significant reliability and operational concerns. The failure resulted in extensive collateral damage, including failure of BPI units, MSC capacitor, and chipping in smoothening reactors.

A.17.2 POWERGRID representative stated that presently, CB operation counters of MSR / MSC at Bikaner-2 are in range of 3000. STATCOMs installed at RE complexes (Bikaner-2, Bhadla-2, Fatehgarh-2) are experiencing high switching frequency of MSR/MSC circuit breakers — averaging 5 to 6 operations per day — leading to accelerated wear and potential failure. During the initial design and application stage, POWERGRID had anticipated only 1-2 switching operations per day for MSRs in STATCOM applications, based on switching experience of Bus Reactors in 400kV System. A circuit breaker specifically designed for frequent inductive switching observed in STATCOMs installed in RE complex is not available, and the one in use is a compromise solution.

A.17.1. He added that circuit breakers currently deployed are not specifically rated capacity for such frequent high-current inductive switching, and are operating beyond originally anticipated limits. OEMs have indicated higher TRVs and arcing stress due to such applications. Given the current switching frequency, periodic testing and health assessment of the circuit breakers is essential every two years & may necessitate overhauling, in line manufacturer guidelines. This will result in increased outage durations and the need for spare components and assemblies to replace damaged parts.

A.17.2. Given the current switching frequency, periodic testing and health assessment of the circuit breakers is essential every two years & may necessitate overhauling, in

line manufacturer guidelines. This will result in increased outage durations and the need for spare components and assemblies to replace damaged parts.

A.17.3. POWERGRID representative raised the following technical concerns-

a) Increased TRV due to frequent switching and high X/R ratio.

b) Premature degradation of arcing contacts and DCRM deviation.

c) Elevated maintenance requirements, potential outages, and risk of catastrophic failure.

A.17.4. Hence, he proposed as follows-

1. NRLDC to review and rationalize switching logic/settings of MSC/MSR to minimize unnecessary operations.

2. Periodic health assessment and mandatory overhauling of MSR breakers every two years.

3. Approval to claim replacement/major overhaul cost of MSR breakers under Add-Cap in case of high daily switching requirements.

A.17.5. NRLDC representative stated that committee was formed at CEA level (Grid-Management division) with members from POWERGRID, GRID-INDIA and CTUIL, wherein it was agreed that there are some issues with specifications of existing STATCOMs in RE complex and same would be duly taken care in STATCOMs planned in future in RE complex. This includes incorporation of only dynamic component of VSC with no provision of MSC and MSR.

A.17.6. In the RE complex, there is diurnal switching of bus reactors, which has to be done based on the profile of solar generation. Similarly, the response of STATCOM also varies as per grid voltage and MSC and MSR vary their output as per grid voltages.

A.17.7. Therefore, as these STATCOMs installed in RE complex were bound to have frequent variation in their MVAR performance, this should have been taken care while designing the technical specification of STATCOM. There is wide difference in the envisaged operation of MSRs/MSCs in planning and actual operation in real time and these should be considered in the planning stage itself.

A.17.8. He mentioned that number of operations of MSC/MSR may be higher due to oscillations observed in peak solar hours. POWERGRID may submit the details of MSC/MSR operation on a normal day when no major oscillations have been observed and for days where oscillations of 60-80 KV have been reported.

A.17.9. NRLDC was of view that the concern highlighted by POWERGRID needs to be further deliberated and may be discussed in detail by the committee formed at NRPC level for review of STATCOM performance and specifications which also has member of OEM of STATCOMs i.e. SIEMENS.

A.17.10. NRLDC representative recommended that the switching on STATCOMs should be voltage-based. In Bikaner-2, there is only one pair of STATCOM whereas in Bhadla-2 and Fategarh-2, there is two pair of STATCOM, hence the number of switching operations on Bikaner-2 shall be more. He also suggested to take-up this matter in a separate Committee at RPC level to discuss upon the operational issues on STATCOMs. He also added that the network which need to come along with existing solar generation had not come.

A.17.11. MS, NRPC stated that since a committee has already been constituted by NRPC to examine the issue of STATCOM operation in light of the oscillations observed in the Northern Region, the matter may be referred to the same committee for further deliberation.

Decision of OCC Forum:

OCC forum directed that this matter be taken up by the existing committee constituted to examine issues related to STATCOM operation, in view of the oscillations observed in the Northern Region.

A.18. Regarding frequent/repetitive faults in 220KV Lines (Agenda by Powergrid NR-2)

A.18.1. EE(O), NRPC apprised the forum that submission has been received from POWERGRID NR-2 regarding occurrence of frequent faults in various lines, especially 220 KV network and line is cleared for charging without fault finding. Further, after charging the line, no corrective action taken to rectify the fault resulting in repetition of the faults. Frequent faults in 220KV Lines are resulting in stress to power transformers.

A.18.2. He also mentioned that following are the best practices followed by POWERGRID in maintenance of the Lines-

- After each tripping, proper patrolling like ground patrolling/Tower top patrolling is done till identification of the fault.
- Replacement of porecelain insulators with Polymer insulators.
- Jumper clearance measurement and rectification in case of jumper flashover.
- Measurement of Tower footing impedance and based on the results, additional earthing is done.
- In case of tripping due to lightening, installation of Line LAs has provided better results.

A.18.3. POWERGRID NR-2 representative stated that lines from Panchkula S/S, Abdullapur S/S, Ludhiana S/S, Amritsar S/S, Kishanpur S/S are prone to frequent faults. In view of this, it was requested by POWERGRID NR-2 that a proper maintenance philosophy should be followed so that proper find the fault and repetitive faults should be avoided.

A.18.4. SE(O), NRPC requested POWERGRID to share with the respective STUs and SLDCs the details of transmission lines experiencing frequent faults. He further advised the SLDCs of Haryana, Punjab, and J&K to coordinate with their respective STUs to avoid frequent tripping and to ensure proper maintenance of lines prone to recurrent faults.

Decision of OCC Forum:

OCC Forum took cognizance of the issue and asked Haryana, Punjab, and J&K SLDC to coordinate with their respective STUs to avoid frequent tripping and to ensure proper maintenance of lines prone to recurrent faults. Further, forum asked POWERGRID to share with the respective STUs and SLDCs the details of transmission lines experiencing frequent faults.

A.19. Rectification of Normal-Intermediate-Transfer scheme of 400kV RASRA-MAU transmission line at RASRA UPPTCL end (Agenda by Powergrid NR-3)

A.19.1. EE(O), NRPC apprised the forum that submission has been received from Powergrid NR-3 mentioning that Powergrid owned transmission assets are installed within premises of State utilities. While their maintenance is managed by Powergrid, operational activities such as shutdowns or shifting to Transfer Bus Coupler (TBC) are under the purview of the respective State utility. It has been observed many a times that element/TL tripping had occurred due to wrong scheme implemented at state utility control Panel. In this regard, he mentioned that Powergrid has contacted concerned utilities numbers of time but issue is persisting.

A.19.2. A similar incidence had occurred in 400 kV MAU-RASRA transmission line; the said line tripped at 11:58 hrs on date 17.01.2025 due to a DT (Direct Trip) signal received at the RASRA (UP) end. Despite repeated requests made to UPPTCL, the issue has not yet been rectified by UPPTCL.

A.19.3. UPPTCL representative informed the forum that letter in response to this has been sent on 12.08.2025 to Powergrid. He mentioned that the Direct trip wiring of channel 1 and channel -2 has been rectified on 05.08.2025 and DC earth fault relay issue on 400 KV Mau-Ballia line has been rectified on 07th/08th Aug,25. He asked POWERGRID NR-3 to get the check done on the mentioned elements.

A.19.4. In the meeting, POWERGRID acknowledged receipt of the communication from UPPTCL, indicating that the necessary rectification has been completed.

Decision of OCC Forum:

UPPTCL and POWERGRID NR-3 representative confirmed the forum that the issue has been resolved.

A.20. Shutdown of 500kV HVDC Rihand-Dadri CKT- I&II for Construction 765kV Bareilly-Neemrana D/C line for Power line crossing work (Agenda by Powergrid NR-3)

A.20.1 EE(O), NRPC informed the forum that submission has been received from Powergrid NR-3 that shutdown of 500kV HVDC Rihand-Dadri CKT- I&II for Power line crossing work towards under construction 765kV Bareilly-Neemrana D/C lines was proposed in 231st OCC meeting (in May'25) for the month of June'25. In the meeting shutdown was not approved by the forum due prevailing high-power demand.

A.20.2 Shutdown again proposed and approved in 232nd OCC meeting for the month July'25. However, in real time when shutdown was proposed from 24.07.2025 to 26.07.2025 (07:00 hrs to 19:00 hrs), it was rejected by RLDC mentioning that "To be availed in less NR demand period and with Unit outage at Rihand scheduled from 6th Aug".

A.20.3 In line with NRLDC's comment, shutdown of the HVDC lines (also approved in 233rd OCC) were further applied in real time from 06-08-2025 06:00 - 08-08-2025 19:00 (during the outage period of Rihand (NTPC)'s Generation unit). However, the same has been rejected again by RLDC mentioning that "In view of High generation at Rihand. At least two no. of units to be under shutdown in order to facilitate the shutdown".

A.20.4 Due to multiple time rejection of the shutdown since June'25, progress of construction work for 765kV Bareilly-Neemrana D/C line has critically hampered.

A.20.5 NRLDC representative stated that the shifting of Rihand Stage-III towards the Western Region is planned for the last week of September or the first week of October. If the shutdown is taken prior to this, generation will need to be curtailed to facilitate it. Therefore, he recommended for grid stability considerations, that the shutdown be scheduled after the shifting of Rihand Stage-III towards the Western Region from grid stability point of view.

A.20.6 SE (O), NRPC asked POWERGRID NR-3 to request for the shutdown after shifting of Rihand Stage-III towards WR and proposal for the same may be submitted in the next OCC meeting.

Decision of OCC Forum:

Forum asked POWERGRID NR-3 to request for the shutdown after shifting of Rihand Stage-III towards WR.

A.21. Implementation of AUFLS scheme in accordance with the report of "Task Force on Automatic under Frequency Load Shedding (AUFLS)" (Additional Agenda by NRPC Sectt.)

A.21.1 EE(O), NRPC apprised forum that in line with the report of Task Force on Automatic under Frequency Load Shedding (AUFLS) and df/dt scheme, NPC Secretariat to communicate the Region wise relief quantum (based on Regional Peak Demand

Met during the previous year) by 31st of May to RPCs for implementation in the next Financial Year (FY).

A.21.2 NPC Secretariat has communicated to RPC's that they have computed the quantum of load shedding in different stages of AUFLS based on the Peak Demand Met of the Region in the financial year (2024-25). The region wise Peak Demand Met considered by NPC Sectt. is as follows:

Region	**NR**	**SR**	**WR**	**ER**	**NER**
Peak Demand Met (MW)	80,548	68,094	72,556	29,299	3,678

A.21.3 The quantum of load shedding in different stages of AUFLS region-wise is as follows-

Sr. No.	**Stage**	**Frequency (Hz)**	**Demand Disconnection (%)**	**Quantum of Load shed in MW**					
AUFLS Set Points and Percentage Quantum of Relief				NR	SR	WR	ER	NER	All India Load shed
1	Stage 1	49.4 Hz	5.00%	4100	3160	3638	1419	177	12494
2	Stage 2	49.2 Hz	6.00%	4920	3791	4366	1702	212	14991
3	Stage 3	49.0 Hz	7.00%	5740	4423	5093	1986	248	17490
4	Stage 4	48.8 Hz	7.00%	5740	4423	5093	1986	248	17490
	Total (in MW)			20500	15797	18190	7093	885	62465

A.21.4 He mentioned that NRPC Sectt. has computed each State/UT Stage-wise AUFLS quantum for NR based upon the task force report and quantum of load shedding in different stages of AUFLS region-wise finalized by NPC. The details of which are mentioned in the table below:-

State/UT	**Stage-1 49.4 Hz (5%)**	**Stage-2 49.2 Hz (6%)**	**Stage-3 49.0 Hz (7%)**	**Stage-4 48.8 Hz (7%)**	**Total**	**Currently implemented relief as per 231st OCC**
	Stage-1 Relief	Stage-2 Relief	Stage-3 Relief	Stage-4 Relief		

Chandigarh	17	21	24	24	**86**	**Nil**
Delhi	334	400	467	467	**1668**	**1595**
Haryana	586	704	821	821	**2931**	**3177**
Himachal Pradesh	101	122	142	142	**507**	**1076**
UT J&K & Ladakh	140	168	196	196	**700**	**777**
Punjab	645	773	902	902	**3223**	**3012**
Rajasthan	853	1024	1194	1194	**4266**	**4066**
Uttar Pradesh	1297	1557	1816	1816	**6486**	**8537**
Uttarakhand	127	152	177	177	**633**	**865**
Total	**4100**	**4920**	**5740**	**5740**	**20500**	**23105**

A.21.5 Based on above table, he apprised that states like Chandigarh, Delhi, Punjab and Rajasthan need to plan load relief in comparison to actual load relief required (attached as **Annexure-A.VII**). He said that as per the recommendation of task force, States/UT shall identify the load relief for each stage considering the Quantum of relief and their demand contribution considering the intra-day, seasonality etc. 10% additional relief would be finalised considering the demand growth of the year, planned and forced outages, UFR and breaker issues etc.

A.21.6 SE (O), NRPC asked states to plan the load relief as per the recommendation of Task force.

Decision of OCC Forum:

OCC Forum asked states to plan load relief as per the recommendations of Task Force.

A.22. Installation of STATCOM at 220/66 KV GIS Substation to improve Voltage Stability (Additional Agenda by LPDD)

A.22.1 EE(O), NRPC apprised the forum that LPDD has informed that it is facing low voltage issue during the peak winter months (November to February) due to substantial seasonal load increase, primarily due to the widespread use of heating appliances, issue of weak grid connectivity and the long radial line of the 220kV SLTS.

A.22.2 In view of this, it was proposed by LPDD-

- Installation of a STATCOM (Static Synchronous compensator) at the 220/66kv GIS Substation to improve voltage stability.
- Capacitor bank of various capacities on the 11 KV voltage level at the 66/11kV substation in Leh.

- Enabling the RTCC (Remote Tap Changer Control) panels at the GIS station during winter months for further aid in voltage improvement.

A.22.3 The CTU representative informed that a study on connecting Pang to Leh is currently undergoing, with the project to be completed by 2030. This initiative will strengthen the Ladakh Grid, and under this scheme, STATCOM/SYNCON devices to be installed at 220 kV substations. The NRLDC representative agreed with the same.

A.22.4 NRLDC suggested that, in the interim, to mitigate low voltage issues at the distribution level, Ladakh PDD may consider installing capacitor banks at the DISCOM end.

A.22.5 Regarding the implementation of capacitor banks, the POWERGRID NR-2 representative stated that the capacitor banks already installed at 11kV substations are currently not in service. He recommended obtaining detailed information from LDPP on the status of operational and non-operational capacitor banks. He further added that enabling the RTCC is not feasible.

A.22.6 LDPP representative stated that the some of the capacitor banks installed in rural areas are currently non-functional. With the increase in transformation capacity, additional capacitor banks need to install. Regarding the installation of STATCOMs, it was proposed that they be installed at POWERGRID's GIS substations.

A.22.7 SE (O), NRPC asked LPDD to prepare and submit DPR regarding implementation of capacitor banks at the 66/11kV substation for approval from RDSS/PSDF.

A.22.8 NRLDC opined that CTU, in consultation with LDPP and POWERGRID, may submit the proposed locations and required STATCOM capacities for various POWERGRID substations. Further comments will be provided after a detailed study.

A.22.9 SE (O), NRPC, requested CTU to conduct studies in consultation with LDPP and POWERGRID to identify suitable locations and the required STATCOM capacities for various POWERGRID substations. The results of the study may subsequently be shared with NRLDC for their observations and feedback, thereafter matter would be again taken up in the OCC meeting.

A.22.10 NRLDC representative stated that tap changing should be carried out on a seasonal basis, as it is not feasible to perform it daily. In response, the LDPP representative clarified that tap changing will not be done on a daily basis and will be carried out once, coinciding with the increase in load during the winter season.

A.22.11 NRLDC representative mentioned that they will conduct study regarding the feasibility of tap changing and will accordingly proceed for the same.

Decision of OCC Forum:

OCC Forum asked CTU to conduct studies in consultation with LDPP and POWERGRID to identify suitable locations and the required STATCOM capacities for various POWERGRID substations. Regarding installation of capacitor banks, forum asked LPDD to submit the DPR vetted by J&K SLDC.

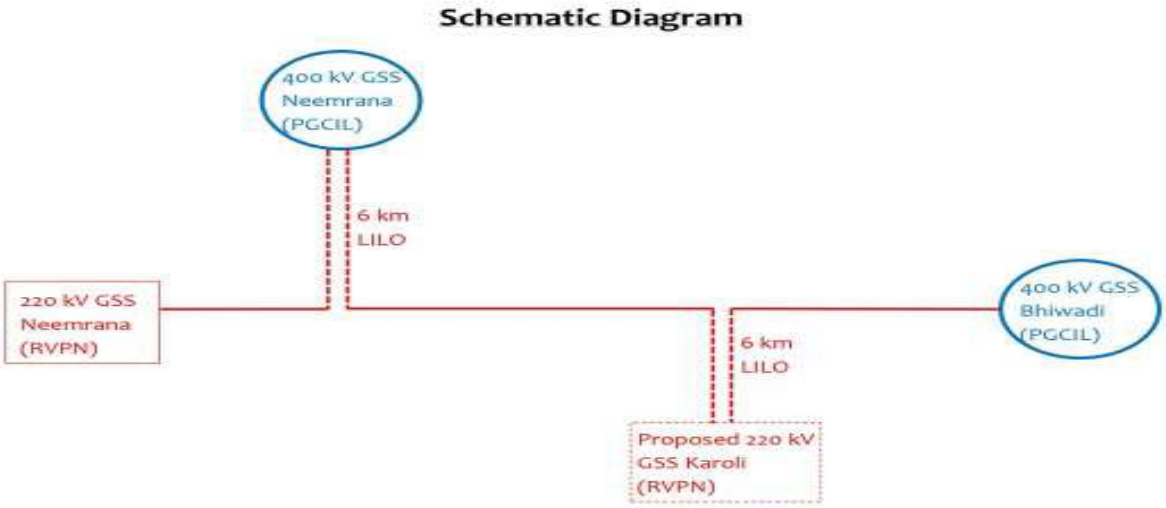
A.23. Shifting of 220 KV bays at 400 kV GSS Neemrana (PGCIL) for termination of RVPN's proposed LILO of 220 KV S/C Neemrana (RVPN)-Bhiwadi (PGCIL) line at 400 KV GSS Neemrana (PGCIL) (Agenda by RRVPN)

A.23.1 RVPN representative apprised the forum that out of 06 No. of bays at 400 KV Neemrana S/S, 04 No. of bays are used through which following are the lines-

- 220 kV D/C Behror (RVPN)-Neemrana (PGCIL) line
- 220 kV S/C Neemrana (RVPN)-Neemrana (PGCIL) line [one ckt of LILO of 220 kV S/C Neemrana (RVPN)-Kushkhera (RVPN) line at 400 kV GSS Neemrana (PGCIL)]
- 220 kV S/C Kushkhera (RVPN)-Neemrana (PGCIL) line [one ckt of LILO of 220 kV S/C Neemrana (RVPN)-Kushkhera (RVPN) line at 400 kV GSS Neemrana (PGCIL)]
- 02 nos. 220 kV spare bays at 400 kV GSS Neemrana (PGCIL) are available for proposed LILO of 220 kV S/C Neemrana (RVPN)-Bhiwadi (PGCIL) line at 400 kV GSS Neemrana (PGCIL)

A.23.2 He mentioned that LILO of 220 kV S/C Neemrana (RVPN)-Bhiwadi (PGCIL) line at 400 kV GSS Neemrana (PGCIL) require termination of LILO lines at 02 nos. 220 kV spare bays at 400 kV GSS Neemrana (PGCIL). The work of transmission lines includes double crossing of EHV lines, proximity with national highway and toll plaza. To avoid these situations, shifting of existing 220 kV bays at 400 kV GSS Neemrana (PGCIL) is required as mentioned below: -

Sr. No.	SCADA Bay No.	Present Nomenclature	Proposed Nomenclature	Remarks
1	212	Unutilized Spare 2	Behror-2	Existing line shift
2	211	Unutilized Spare 1	Behror-1	Existing line shift
3	210	Behror-2	Neemrana RVPN-I	Existing line shift [Neemrana (PGCIL)-Neerana (RVPN) line-I]
4	210	Behror-1	Kushkhera	Existing line shift
5	202	Neemrana-I	Neemrana RVPN-II	New line [Neemrana (PGCIL)-Neerana (RVPN) line-II]
6	201	Kushkhera	Karoli	New line [Neemrana (PGCIL)-Karoli line]



A.23.3 GM, NRLDC stated that upon approval of the proposed work by this forum, RRVPNL may proceed with the execution of a new Connectivity Agreement and submit the necessary details on the FTC portal accordingly.

A.23.4 CTU representative submitted that RRVPNL need to define on which bay, the connectivity agreement needs to be made. Data of the bay on which the connection is been done (and not of the one before swapping) is to be given to CTU by RRVPNL.

A.23.5 POWERGRID representative submitted that POWERGRID has no objection for the proposed bay swapping work, subject to approval by any appropriate forum of NRPC.

Decision of OCC Forum:

OCC Forum approved the proposal and advised RVPNL to ensure proper bay numbering prior to the execution of the connection agreement. Subsequently approached to NRLDC for FTC clearance.

A.24. Opening of 06 nos. 50 MVAR capacity non-switchable line reactors installed on various 400 KV lines to improve voltage and reduce MVAR drawl from NR Grid in Rajasthan Control Area (Table Agenda by RRVPNL)

A.24.1 RRVPNL representative apprised the forum that intra-state solar generation of Rajasthan is about 7000 MW. Higher generation often leads to higher MVAR injection by RE generators. He stated that SLDC Rajasthan has explored to open non-switchable line reactors installed on 400 kV lines so that in day time voltage can be improved. 50 MVAR capacity non-switchable line reactors are installed on following 400 kV lines which line lengths are less than 200 KM: -

- 400 kV S/C Bikaner-Merta line (Twin moose) with 50 MVAR non switchable line reactors at both ends of line (172 KM)

- 400 kV D/C Bhadla-Bikaner line (quad moose) with 50 MVAR non switchable line reactors on each circuit at Bhadla end (189.1 KM)
- 400 kV S/C Ramgarh-Bhadla line (Twin moose) with 50 MVAR non switchable line reactor at Ramgarh end of line (160 KM)
- 400 kV S/C Jaisalmer 2-Kankani line (Quad moose) with 50 MVAR non switchable line reactor at Kankani end of line (176.84 KM)

A.24.2 He mentioned that Rajasthan SLDC has carried out load flow studies in latest PSSE file shared by NRLDC to assess the impact of opening of above 6 nos. 50 MVAR capacity non-switchable line reactors installed on aforesaid 400 kV lines to improve day time low Grid voltage in Rajasthan Control area. Following two scenarios have been simulated: -

- Case-1: Load flow study with 17000 MW system demand and aforesaid 6 nos. 50 MVAR line are in circuit
- Case-2: Load flow study with 17000 MW system demand and aforesaid 6 nos. 50 MVAR line reactors are out of circuit

A.24.3 Load flow study results are tabulated hereunder:

Impact on Voltage and system losses

S. No.	Particulars	Voltage (kV)		Change in voltage in Case-2 with respect to Case-1
		Case-1	Case-2	
1	400 kV GSS Merta	388	391	-3
2	400 kV GSS Bikaner	393	395	-2
3	400 kV GSS Kankani	384	387	-3
4	400 kV GSS Bhadla	390	393	-3
5	400 kV GSS Jodhpur	386	388	-2
6	400 kV GSS Ramgarh	393	397	-4
7	Transmission losses(MW)	840.2	834.6	5.6

A.24.4 Impact of switching off 06 no. 50 MVAR reactors (Total 300 MVAR Capacity) on MVAR loss of transmission lines on which installed line reactors are proposed to take out of circuit are tabulated hereunder: -

S. No.	Particulars	Line reactor capacity(MVAR)		Line Conductor	Line length (km)	Line MVAR loss reduction in Case-2 as compare to Case-1
		End1	End2			
1	400 kV S/C Bikaner-Merta line	50	50	Twin Moose	172	51
2	400 kV D/C Bhadla-Bikaner line (Ckt-1)	50	-	Quad Moose	189.1	51
3	400 kV D/C Bhadla-Bikaner line (Ckt-2)	50	-	Quad Moose	189.1	51
4	400 kV S/C Ramgarh-Bhadla line (Ckt-1)	50	-	Twin Moose	160	65
5	400 kV S/C Jaisalmer2-Kanknai line	-	50	Quad Moose	176.84	44
	Total	**200**	**100**			**262**

A.24.5 NRLDC representative requested RRVPNL to share the base case file reflecting solar peak and off-peak conditions. He highlighted that keeping open reactors could lead to voltage rise during transients and oscillations, potentially causing equipment damage. Therefore, he recommended referring the matter to the Protection Sub-Committee for a detailed discussion on the impact of opening of reactors during faults and transient conditions.

A.24.6 CTU representative also asked RRVPNL to share the base case file with them for further analysis.

A.24.7 SE(O), NRPC asked RRVPNL to share the base-case file with NRLDC and CTU and to bring the agenda in upcoming Protection Sub-Committee Meeting so that the same could be studied and finalised in the meeting.

Decision of OCC Forum:

OCC Forum asked RRVPNL to share the base case file with NRLDC and CTU and to bring the agenda in upcoming Protection Sub-Committee Meeting so that the same may be studied and finalised in the PSC meeting.

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

B.1 NR Grid Highlights for July 2025 and demand forecasting related

Demand met details of NR

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

		MW)	Demand met		on	Mus)
1	Chandigarh	399	25.07.25 at 15:00	7.9	26.07.25	6.8
2	Delhi	7568	25.07.25 at 15:11	152.7	28.07.25	135.7
3	Haryana	14084	05.07.25 at 15:00	292.7	26.07.25	256.2
4	H.P.	1835	23.07.25 at 09:00	40.0	26.07.25	36.6
5	J&K	2729	04.07.25 at 12:00	57.0	04.07.25	52.3
6	Punjab	16670	05.07.25 at 13:45	355.9	27.07.25	311.8
7	Rajasthan	14685	25.07.25 at 22:45	311.7	25.07.25	276.2
8	UP	30818	24.07.25 at 22:45	600.6	24.07.25	545.6
9	Uttarakhand	2673	26.07.25 at 22:00	54.9	26.07.25	50.7
10	Northern Region	**81583**	**26.07.25 at 22:00**	**1820.6**	28.07.25	**1672.0**

- In July'25, the Maximum energy consumption of Northern Region was **1820.6 MUs** on 28th July'25 and it was 5.18% lower than July'24 (1920 MU 30th July'24)

- In July'25, the Average energy consumption per day of Northern Region was **1672 MUs** and it was 4.83% lower than July'24 (1757 MUs/day)

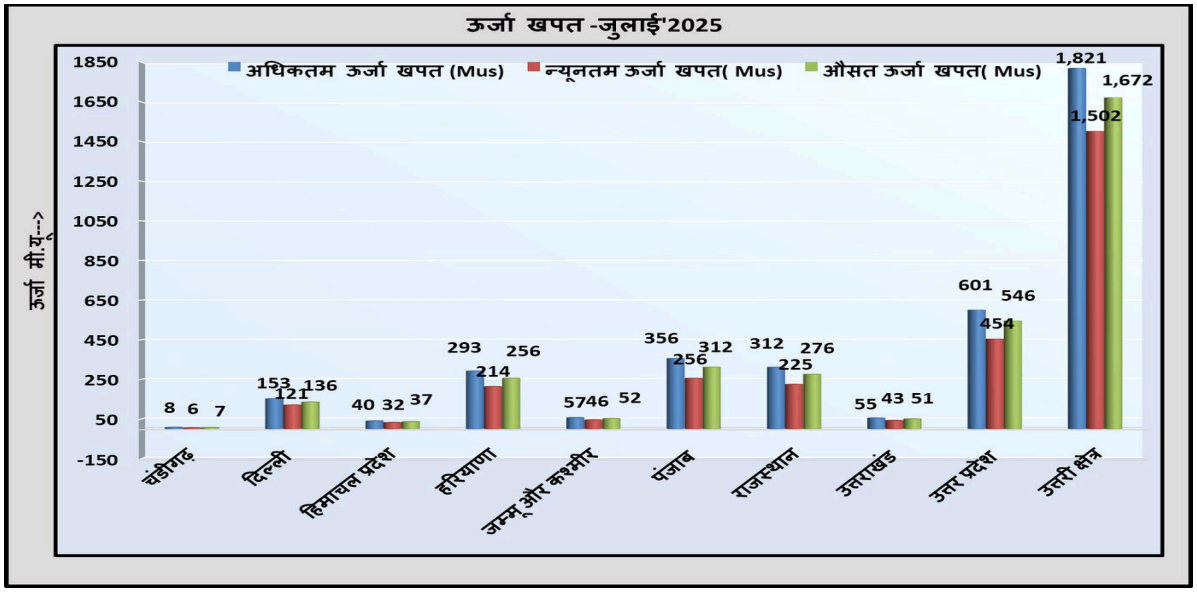
- In July'25, the Maximum Demand met of Northern Region was **81583 MW** on 26th July'25 @22:00 hours as compared to 88085 MW on 30th Jul'24 @12:40 hours.

Comparison of Average Energy Consumption (MUs/Day) - July'24 vs July'25

क्षेत्र/राज्य	जून- 2024	जून - 2025	% अंतर
चंडीगढ़	7.7	6.8	-11.3%

दिल्ली	141.0	135.7	-3.7%
हिमाचल प्रदेश	38.1	36.6	-3.9%
हरियाणा	269.3	256.2	-4.9%
जम्मू और कश्मीर	53.0	52.3	-1.4%
पंजाब	335.5	311.8	-7.1%
राजस्थान	310.6	276.2	-11.1%
उत्तराखंड	50.3	50.7	0.7%
उत्तर प्रदेश	551.3	545.6	-1.0%
उत्तरी क्षेत्र	1756.8	1672.0	-4.8%

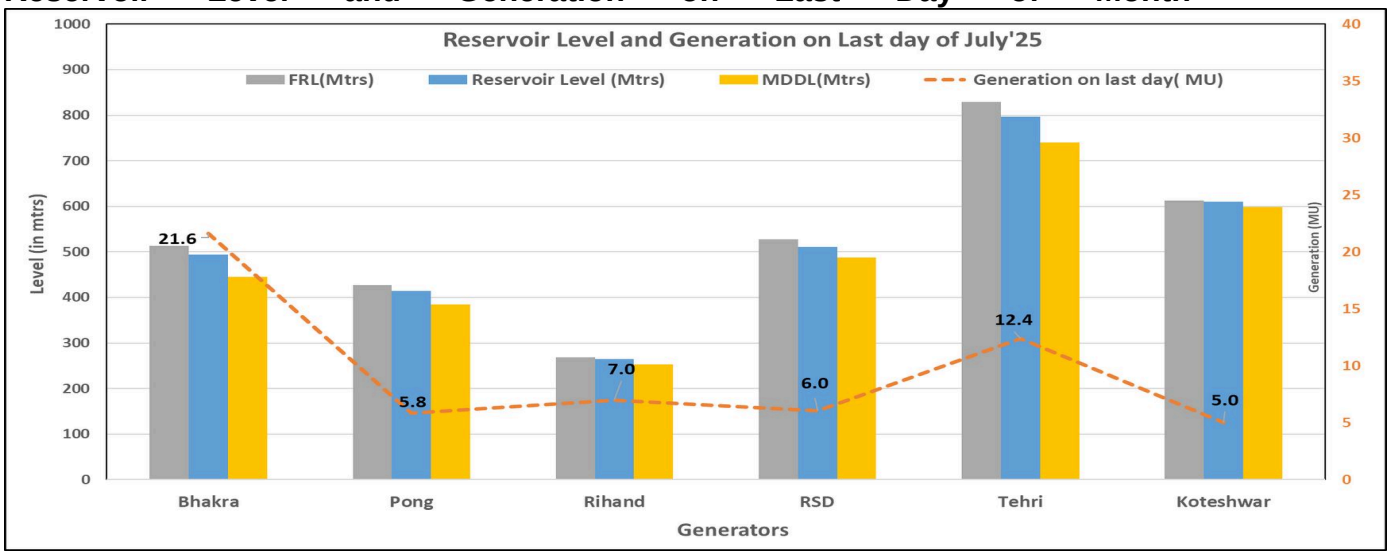
Energy Consumptions



Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
July'25	50.003	50.400 (27.07.25 at 14:02:00 hrs)	49.504 (26.07.25 at 14:53:20 hrs)	6.65	72.89	20.46
July'24	50.00	50.37 (06.07.24 at 13:12:20 hrs)	49.64 (20.07.24 at 15:24:40 hrs)	6.4	78.4	15.2

Reservoir Level and Generation on Last Day of Month



Reservoir Level on last day of July month (Low: - ve) (High: +ve)

Year	Bhakra	Pong	Rihand HPS	RSD	Tehri	Koteshwar
2025	495	414	265	510	797	610
2024	490	403	260	491	794	611
Diff (in m)	4.5	11.2	4.5	19.2	3.3	-0.8

Detailed presentation on grid highlights of July'2025 as shared by NRLDC in OCC meeting is attached as Annexure-B.I of MoM.

B.2 State-wise transmission constraints in monsoon 2025 and SPS proposals

During the high demand season, the transmission system in Northern region remains heavily loaded. Transmission constraints observed in the grid during high demand period are regularly being highlighted in OCC meetings. Same is also being submitted to CTUIL and CEA through quarterly operational feedback.

Even after several follow-ups, it is observed that progress of several transmission elements are not upto the mark and expeditious actions from transmission utilities are required so that minimal issues are observed at transmission level during the high demand season.

State-wise anticipated issues and measures required thereof are listed below. Concerned transmission utilities are requested to provide update and ensure that these transmission elements are possibly commissioned before the high demand season.

Punjab:

During 233 OCC meeting, NRLDC representative stated that the loading of 400/220kV ICTs supplying power to Punjab state is within the N-1 limits when import is close to the ATC limits and suggested that Punjab SLDC further reviews the ATC/TTC assessment for paddy 2025 for any further enhancement also considering other constraints at 220kV level.

Punjab SLDC informed that the studies for review of ATC/TTC enhancement of Punjab state control area is under progress.

NRLDC representative further asked Punjab SLDC to study/review any intrastate constraints being observed in 220kV network as maximum demand of Punjab has also crossed 17000MW recently.

Punjab SLDC assured that no major transmission constraints are being observed in intrastate level even when demand crossed 17000MW. Further, studies after review of ATC/TTC enhancement of Punjab will be submitted to NRLDC at the earliest.

During OCC 234, NRLDC representative stated that:

NRLDC vide email dated 01.08.2025 has mentioned that 400/220kV ICT-4 at Nallagarh has also been recently commissioned by POWERGRID. Punjab draws power from 220kV Nallagarh via 220kV Nallagarh-Mohali D/c lines. Accordingly, with ICT augmentation at Nallagarh, additional margin would be created for power drawl by Punjab state. Accordingly, Punjab SLDC was requested to update the ATC/TTC limits of Punjab state control area accordingly.

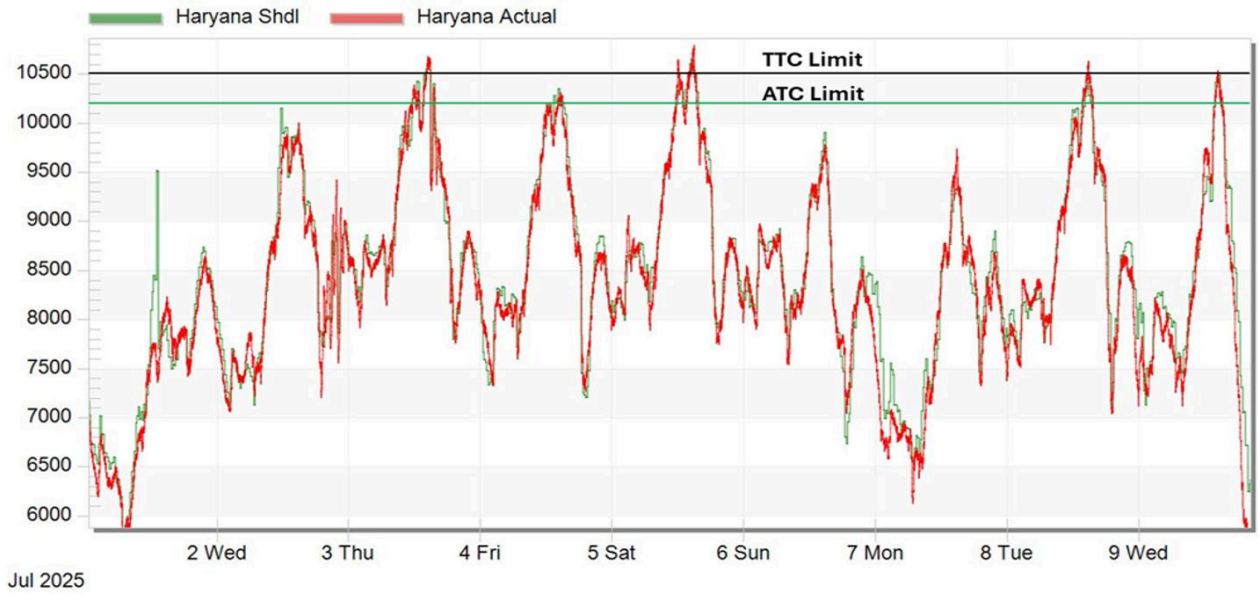
Punjab SLDC informed that study has been carried out and revised ATC/TTC limit has been recently submitted on 13.08.2025 which requires review and assistance from NRLDC. Tentative increase of 500MW in ATC/TTC limits has been proposed from Punjab SLDC side.

NRLDC representative agreed to review and share feedback on the studies submitted shortly.

Haryana:

During 233 OCC meeting, NRLDC representative requested HVPN regarding:

NRLDC representative highlighted that schedule as well as actual drawl by HVPNL is crossing the ATC/TTC limits during several time blocks.



After revival of 400kV Mahendragarh-Bhiwani D/C and 400kV Bhiwani-Babai D/C lines, following are present ATC/TTC limits of Haryana state:

- 10200/10500MW

During OCC 234, NRLDC representative informed the forum that:
After implementation of SPS at 765/400kV Bhiwani(PG) and 400/220kV Hissar(PG), following would be tentative ATC/TTC limits:

- 10600/10900MW

As POWERGRID has confirmed via e-mail that SPS has been implemented at 765/400kV Bhiwani(PG), ATC/TTC of Haryana state control area has been revised to 10400/10700 MW w.e.f. 07th Aug 2025.

SPS proposals in Haryana

For SPS at 400/220kV Hissar(PG) ICTs: Haryana SLDC wanted to wire 220kV Hissar(BBMB)-220kV Sangrur D/C (supplying power to Punjab) and 220kV Hissar-Chirawa (supplying power to Rajasthan) lines in SPS. Punjab SLDC was assured from NRLDC side that there would not be impact on state ATC/TTC in case these feeders are wired, however, Punjab SLDC will need to take measures for managing loading of 220kV lines. Rajasthan SLDC agreed for wiring 220kV Hissar-Chirawa line in SPS logic.

POWERGRID informed that PLCC channel is not available for transferring signal from 220kV Hissar(PG)--->220kV Hissar(IA-HVPNL)--->220kV Hissar(BBMB) and it would require procurement of DTPC coupler for implementation of SPS. It was discussed that new 500MVA ICT is approved at Hissar(PG) but it may not be commissioned before next paddy season. Further, there are also loading issues in 220kV Hissar(PG)---220kV Hissar(IA-HVPNL)---220kV Hissar(BBMB) for most part of the year. Accordingly, SPS for N-1 contigency of 400/220kV Hissar(PG) ICTs and 220kV Hissar(PG)---220kV Hissar(IA-HVPNL)---220kV Hissar(BBMB) ckts is required. HVPNL and BBMB were asked to check at their respective substations

regarding space for DTPC panel and also confirm feasibility of SPS implementation.

As a short term measure (till implementation of SPS at Hissar-PG), in case loading of 400/220kV Hissar(PG) ICTs crosses 90% of rated capacity, then NRLDC in consultation with BBMB, Haryana SLDC, Punjab SLDC and Rajasthan SLDC may ask BBMB to open 220kV Hissar(BBMB)-220kV Sangrur D/C (supplying power to Punjab) and 220kV Hissar-Chirawa (supplying power to Rajasthan) lines. Punjab SLDC and Rajasthan SLDC to ensure supply of these stations from other stations before disconnection from Hissar(BBMB).

For SPS at 400/220kV Panipat ICTs: Haryana SLDC was asked by NRLDC to review the requirement of SPS as continuous N-1 violation is being observed in June 2025. Further, BBMB was asked to expedite new ICT approval/implementation process. Haryana SLDC assured that after LILO of 2nd ckt of 220kV Samalkha-Mohana at 400/220kV Sonepat(PG), loading would be under limits. NRLDC suggested to review the loading as soon as 2nd ckt is LILOed and take necessary actions in case loading is not within N-1 limit.

During 234 OCC meeting,

NRLDC representative stated that loading of 400/220kV Panipat is still beyond the N-1 limits even after LILO of 2nd ckt of 220kV Samalkha-Mohana at 400/220kV Sonepat(PG) and continuous N-1 violations were observed during June 2025. HVPNL is to implement new 400/22kV ICT at Panipat. It was requested to provide an update on shifting of some load from Panipat to Sonipat as an interim measure.

Haryana SLDC representative stated that around 40-50MW load has been shifted to Sonipat from Panipat. He further stated that in the coming time loading would reduce only and before the next season ICT might come, timeline for which once confirmed by BBMB and their TS wing will be shared with the forum.

NRLDC representative further stated that Haryana and BBMB had earlier confirmed space availability for DTPC at their end for SPS at 400/220kV Hissar and till SPS is not implemented manual opening of feeders by NRLDC in consultation with BBMB, Haryana, Punjab and Rajasthan will be done.

Haryana SLDC representative informed that space availability was already confirmed and PLCC channel implementation is pending by Powergrid.

NRLDC representative requested to Powergrid to expedite the procurement of DTPC couplers for implementation of SPS at Hissar as it will further enhance the ATC/TTC limit to 10,600/10,900MW and further requested to share the timeline for the same.

POWERGRID was asked by OCC forum to expedite procurement of DTPC for implementation of SPS at Hissar(PG).

Rajasthan:

Constrained location	Status as available with NRLDC
N-1 contingency of 3*315=945 MVA ICT at Bhiwadi(PG)	Additional 500MVA ICT approved in 29 CMETS on 17.05.2024
N-1 contingency of 2*315+500=1130 MVA ICT at Bassi(PG)	Additional 500MVA ICT has been approved. Same is anticipated by 14.12.2025.
N-1 contingency of 315+500=815 MVA ICT at Neemrana(PG)	Additional 500MVA ICT has been approved in 36 NR CMETS held on 15.01.2025.
N-1 contingency of 2*500=1000 MVA ICT at Jaipur South(PG)	Additional 500MVA ICT has been approved in 36 NR CMETS held on 15.01.2025.
N-1 contingency of 2*315+500=1130 MVA ICT at Sikar(PG)	Additional 500MVA ICT has been approved in 38 NR CMETS held on 28.05.2025..
N-1 contingency of 3*315=945 MVA ICT at Kankroli(PG)	ICT-4 has been approved and is expected to be commissioned by 22.09.2025.
N-1 contingency of 2*315=630 MVA ICT at Kotputli(PG)	Augmentation by 400/220 kV 500 MVA (3rd) ICT at Kotputli (PG) is expected by 31.12.2025
N-1 contingency of 2*315=630 MVA ICT at Deedwana(RVPN)	As per latest status shared by Rajasthan SLDC order for 10 no. ICT has been placed recently. New 500MVA ICTs are expected to be commissioned at 400/220kV Merta, Ajmer and Bikaner by Sep 2025. SPS has been implemented as temporary measure for some of the stations such as Chittorgarh (RVPN), Ajmer (RVPN), Merta (RVPN), Bikaner (RVPN), Jodhpur (RVPN), Suratgarh(RVPN), Ratangarh(RVPN)
N-1 contingency of 3*250+315=1065 MVA ICT at Heerapura(RVPN)	
N-1 contingency of 3*315 =945 MVA ICT at Chittorgarh (RVPN)	
N-1 contingency of 2*315 =630 MVA ICT at Ajmer (RVPN)	
N-1 contingency of 2*315 =630 MVA ICT at Merta (RVPN)	
N-1 contingency of 2*315 =630 MVA ICT at Bikaner (RVPN)	
N-1 contingency of 2*315 =630	

MVA ICT at Jodhpur (RVPN)	
N-1 contingency of 2*315=630 MVA ICT at Suratgarh(RVPN)	
N-1 contingency of 3*315=945 MVA ICT at Ratangarh(RVPN)	
N-1 contingency of 1*500+1*315 =815 MVA ICT at Bhilwara (RVPN)	

In 233 OCC meeting, RRVPNL representative informed that:

- Work order has been placed for improvement of condition of 400kV Bhadla-Bikaner D/C and also upgradation of terminal equipment. Work is expected to be completed by Dec 2025.
- Proposal of upgradation of terminal equipment for other lines is being prepared and order would be placed shortly.
- Supply of 100 no. total 5.43MVAr capacitors has been done and in next 1-2 months all the supplied capacitors would be commissioned.
- Proposal of 100no.s capacitor banks through PSDF funding are under development.
- Jaipur and Jodhpur DISCOMs have directly applied for PSDF funding. Ajmer DISCOM has already included proposal for capacitor under RDSS Scheme and is not going for additional capacitor banks
- New 500MVA ICTs are expected to be commissioned at 400/220kV Merta, Ajmer and Bikaner by Sep 2025.

In 234 OCC meeting,

RRVPNL representative informed that:

- Work order has been placed for improvement of condition of 400kV Bhadla-Bikaner D/C and upgradation of terminal equipment, bid was opened on 25.05.2025 and PO was issued on 24.06.2025 approving L1 bidder and is scheduled to be completed by December 2025. Repair work will be carried out along the entire line, with reconductoring at locations experiencing significant damage.
- After the work is completed, the full capacity of the 400kV Bhadla-Bikaner double circuit (D/C) line which is quad-moose will be available for utilization.
- Total of 151 no. total 5.43MVAr capacitors has been planned out of which 19 has already been commissioned and by December'2025 all the capacitors would be commissioned.
- Further, additional 1100MVAR is being considered and is in the planning phase as locations are being identified.
- Jaipur and Jodhpur DISCOMs have also been asked to expedite capacitor commissioning.
- 500MVA ICTs at Bikaner and Ajmer are expected to be commissioned by September 2025 and for 500MVA ICT at Merta, bay completion work is

under progress, transformer has already reached at the site and is expected to be commissioned by end of this month i.e. August 2025.

- For ±300MVAR STATCOMs planned at 400kV Bhadla and 765kV Jaisalmer and ±100MVAR STATCOMs planned at 220kV Tinwari and 220kV Phalodi, Rajasthan is planning to move ahead with PSDF fund.
- All new substations as approved by CEA are planned to come with STATCOM as per the scheme and one synchronous condenser is expected to commission at Bikaner.
- 3700MVAR of capacitors are planned at Discom level which has been sent for approval of PSDF fund.

NRLDC representative reiterated that peak demand season of Rajasthan starts from mid Nov onwards which is hardly 2 months away, so accordingly any shutdown requirement of 400kV Bhadla-Bikaner for condition improvement may be taken up timely and work may preferably be completed by mid Nov so that line remains available during peak demand and high MVAR drawl season of Rajasthan.

NRLDC representative further requested that Rajasthan provide regular updates to the forum on the progress of the work being carried out to improve the 400kV Bhadla-Bikaner D/C line, as it plays a critical role in evacuating both Rajasthan's renewable energy and the renewable energy connected through ISGS.

Regarding capacitor commissioning, the representative from Rajasthan stated that once the submission for PSDF funding is made, they cannot utilize alternative resources until a decision on the funding is finalized. They requested that the decision on PSDF funding be expedited so that, in case approval is not granted, they can proceed using other resources, including self-financing.

Regarding PSDF funding, the Member Secretary of NRPC stated that obtaining approval currently appears challenging due to the depletion of PSDF funds.

Given the urgent and critical need for capacitors, and the potential delays associated with the PSDF approval process, OCC forum suggested that Rajasthan may consider self-financing and proceed accordingly.

SPS proposals in Rajasthan

Majority of 400/220kV ICTs in Rajasthan state (both interstate as well as intrastate are N-1 non-compliant).

For intrastate substations, where SPS have not planned and implemented, the same may be taken-up. List of N-1 non-compliant substations is shown below:

Constrained location	SPS Status as available with NRLDC
3*315=945 MVA ICT at Bhiwadi(PG)	Not planned
2*315+500=1130 MVA ICT at Bassi(PG)	Not planned
315+500=815 MVA ICT at Neemrana(PG)	Not planned
2*500=1000 MVA ICT at Jaipur South(PG)	Not planned

2*315+500=1130 MVA ICT at Sikar(PG)	Not planned
3*315=945 MVA ICT at Kankroli(PG)	Not planned
2*315=630 MVA ICT at Kotputli(PG)	Not planned
2*315=630 MVA ICT at Deedwana(RVPN)	Not planned
3*250+315=1065 MVA ICT at Heerapura(RVPN)	Not planned
3*315 =945 MVA ICT at Chittorgarh (RVPN)	Implemented
2*315 =630 MVA ICT at Ajmer (RVPN)	Implemented
2*315 =630 MVA ICT at Merta (RVPN)	Implemented
2*315 =630 MVA ICT at Bikaner (RVPN)	Implemented
2*315 =630 MVA ICT at Jodhpur (RVPN)	Implemented
2*315=630 MVA ICT at Suratgarh(RVPN)	Implemented
3*315=945 MVA ICT at Ratangarh(RVPN)	Implemented
1*500+1*315 =815 MVA ICT at Bhilwara (RVPN)	Implemented

Subsequently, NRLDC vide email dated 01.08.2025 had communicated to share simulation studies carried out at RRVPNL side for feeders identified for SPS at the earliest. Further, it was mentioned that NRLDC has also simulated feeders for SPS and need further discussion for feeders identified for Bassi SPS.

Rajasthan representative stated that for all RRVPN substations as mentioned in the table ICTs have already been planned. At Heerapura the ICT is about to reach the site and for Suratgarh due to space constraint they will not be able accommodate additional ICT and for all other work is underway.

For feeder identification of SPS Rajasthan representative stated that they will identify the feeder and share the simulation studies of SPS schemes wherever not implemented by next OCC.

Uttar Pradesh:

In 234 OCC meeting, POWERGRID representative stated that 500MVA ICT-4 at Allahabad is expected to be commissioned by end of Sep 2025.

UP SLDC informed that work order for SPS logic of 400/220kV Panki S/s has been placed and it will take 3-4 months for implementation.

It was also informed that 240MVA ICT at Obra is expected to be revived by Sep 2025 whereas 315MVA ICTs at Obra would be revived after some time due to requirement of procurement of ICTs.

SPS proposals in Uttar Pradesh

NRLDC also received a request from UP SLDC vide email dated 24.05.2025 regarding implementation of SPS at 400/220kV Agra(PG) ICTs. During 232 OCC

meeting, UP SLDC stated that they will shortly convene a meeting with participation from POWERGRID and STU in next week and submit agenda for SPS proposal at 400/220kV Agra(PG) in upcoming Protection subcommittee meeting of NRPC.

During 233 OCC meeting, MS NRPC suggested that NRLDC may prepare SPS logic for 400/220kV Agra(PG) ICTs and share with UPPTCL and POWERGRID. Thereafter, SPS logic can be discussed in next OCC meeting.

NRLDC vide email dated 29.07.2025 had proposed SPS logic for 400/220kV Agra(PG) ICTs. UP SLDC thereafter provided their comments on the SPS proposal. Revised SPS logic taking into account comments from UPPTCL side is attached as Annexue-B.I of agenda for comments of OCC members.

NRLDC representative shared the revised SPS scheme with the forum and requested SLDC Rajasthan to provide consent as 220kV Agra-Bharatpur line from which Rajasthan draws load was included in the scheme.

Rajasthan representative stated that this line remains highly loaded and has critical load and may not be included in the SPS scheme.

Representative from UP SLDC explained the SPS scheme to the forum and stated that 220kV Agra-Bharatpur line is kept on the last priority of tripping and would only be disconnected under extreme circumstances. They further requested the forum to approve the SPS scheme without including the 220kV Agra-Bharatpur line for the time being.

During this period, they intend to have one-on-one discussions with Rajasthan to resolve any concerns. Once those issues are addressed, the inclusion of the 220kV Agra-Bharatpur line in the SPS scheme will be proposed in the next OCC meeting.

SE(O) NRPC stated that SPS scheme omitting 220kV Agra-Bharatpur line may be approved.

Accordingly, OCC accorded approval of SPS scheme at Agra(PG) and asked POWERGRID to implement the same at the earliest.

As discussed in previous OCC meetings, it was agreed that:

- All SLDCs to take actions such that loading of ICTs and lines in their control area are below their N-1 contingency limits.
- While requisitioning power from various sources, states should take care to limit their scheduled drawl as well as actual drawl in real time within the Available Transfer Capability (ATC) limits assessed by SLDC and NRLDC.
- SLDCs also need to ensure that their drawl from grid remains within these limits during real-time operation. In the past, it has been observed that some states have drawn power beyond their ATC limits as assessed by SLDCs and NRLDC.

- Further, all SLDCs need to make sure that loading of 220kV and below voltage level intrastate lines remain within safe limits during the high demand season.

Further, it may be noted that 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" which requires SLDCs to submit network data as well as PSSE basecases on M-12, M-6, M-1 basis. The monitoring of submission of these data by SLDCs is being done in OCC meetings on monthly basis where response of some of the states needs improvement.

March 2025 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (April-25)		M-12 (March-26)		M-6 (September-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	No	Yes	Yes	No	No
Himachal	Yes	No	Yes	No	Yes	No
J & K	Yes	No	Yes	Yes	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	Yes	Yes	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

April 2025 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (May-25)		M-12 (April-26)		M-6 (October-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	Yes	Yes	Yes	Yes	Yes	Yes
Himachal	Yes	No	Yes	No	Yes	No
J & K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	Yes	Yes	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

May 2025 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (June-25)		M-12 (May-26)		M-6 (November-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	No	Yes	Yes	Yes	Yes
Himachal	Yes	No	Yes	No	Yes	No
J & K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	Yes	Yes	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

June 2025 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (July-25)		M-12 (June-26)		M-6 (December-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	Yes	Yes	Yes	Yes	Yes	Yes
Himachal	Yes	Yes	Yes	Yes	Yes	Yes
J & K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	Yes	Yes	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

Submitted with one month delay

July 2025 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (August-25)		M-12 (July-26)		M-6 (January-26)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	Yes	Yes	Yes	Yes	Yes	Yes
Himachal	Yes	Yes	Yes	Yes	Yes	Yes
J & K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	Yes	Yes	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

August 2025 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (Sep-25)		M-12 (August-26)		M-6 (February-26)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh						
Delhi			Yes	Yes		
Haryana						
Himachal						
J & K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh						
Punjab	Yes	Yes	Yes	Yes		
Rajasthan						
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand						

OCC forum asked all utilities to take necessary actions as discussed above and adhere to timelines for basecase submission as per CERC approved procedure.

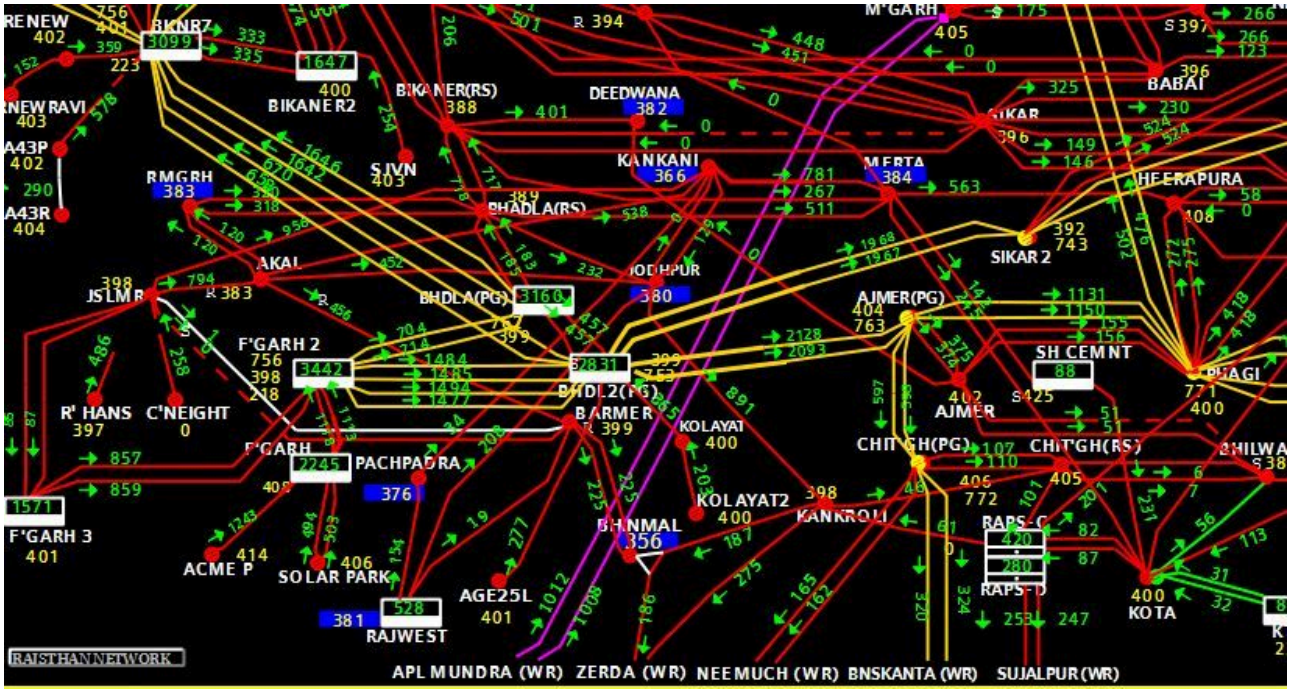
ATC/TTC limits of states for the month of September 2025 are attached as Annexure-B.II of agenda. Utilities were requested to go through these limits and provide comments.

B.3 Delay in revival of 400kV Jaisalmer-Barmer D/C and issues during present high wind season

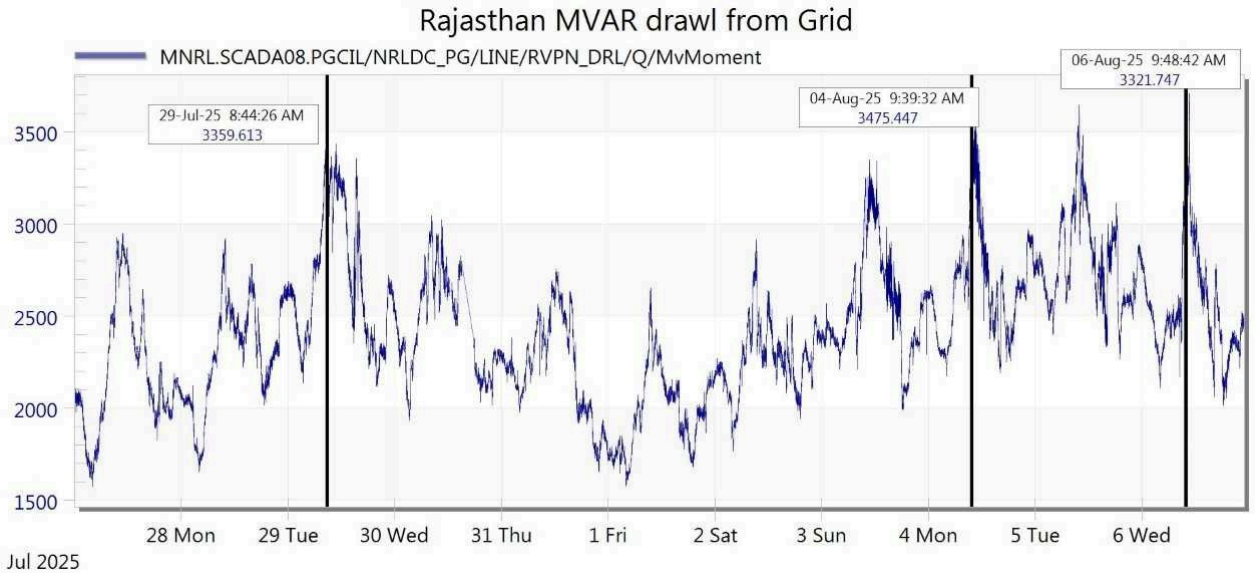
NRLDC representative stated the following points during 234 OCC meeting :

Rajasthan Control Area has been drawing huge MVAR from the ISTS grid. Regular emails and messages from NRLDC Control Room have been issued to Rajasthan SLDC and also conveyed telephonically to minimize MVAR drawl and facilitate in keeping grid voltage profile of Rajasthan power network within safe limits. MVAR drawl from the grid by Rajasthan has reached alarming levels of 3200-3500 MVAR in the past first week of August which even reached up 4500MVAR due to high wind season and is posing serious challenge in safe and reliable grid operation.

The Wind generation in Rajasthan is on the higher side and low voltages are observed when high wind generation is coinciding with peak solar hours. It has also been time and again emphasized to maintain grid voltage profile ~ 1 p.u. particularly in Western Rajasthan complex-dominated by the Renewables. Network snapshot during peak solar hours is shown below:



Huge MVAR drawl even when the demand is on lower side has been observed in the past few days (MVAR requirement reaching almost 30 percent of demand met in MW).



While MVAR support from the ISGS RE plants in Western Rajasthan is being taken on daily basis during peak solar hours, MVAR support from conventional and RE generators in state control area is not adequate. In fact, MVAR drawl at RE pooling stations viz. Bhadla(Raj),Bikaner(Raj) etc. are being observed on daily basis and has been flagged at various NRPC/OCC forums also. The issues being faced in Western Rajasthan Grid are broadly summarised as below:

1. Long outage of 400 KV Barmer(Raj)-Jaisalmer(Raj) D/C line (Outage on tower collapse from 01.05.2025)
   Consequences-High loading, low voltages and low SCR particularly in the ongoing High Wind season

2. Loading restriction on 400 KV Bhadla(Raj)-Bikaner(Raj) D/C line-750 MW instead of ~ 1700 MW each ckt. (Damaged conductors and underrated terminal equipment)
   Consequences-One of the major limiting constraints in RE evacuation and leading to restricted NOC of ISGS RE plants to the tune of ~ 4000 MW in peak solar hours. Opening of both 400 KV Bikaner(Raj)-Sikar PG D/C lines to control line loading as per above restriction.

3. Inadequate MVAR support from Renewable and Conventional plants in Rajasthan Control Area
   Consequences-Low Voltage in the network. Voltage oscillations observed in peak solar hours.

4. High Wind Generation-drawl of MVAR from grid (High Solar coinciding with high wind-old plants without PPC Control)
   Consequences- High wind generation in peak solar hours causing lowering of SCR and Voltage fluctuations in the depleted network.

5. Non-Availability of Dynamic devices in Rajasthan RE network.
   Consequences-Rajasthan Wind -Solar generation ~ 7000 MW observed in peak solar hours without any dynamic compensation installed in state Control area-leading to vulnerable grid operation.

Voltage oscillations to the tune of 70-80 KV and higher have been observed in the Western Rajasthan complex in this ongoing High Wind season with depleted network during the peak solar hours. It has already been suggested earlier and also intimated through regular mails from NRLDC Control Room to restrict Rajasthan Wind + Solar generation upto 6000 MW in view of the forced outage of 400 KV Barmer-Jaisalmer D/C line and restriction on loading capacity of 400 KV Bhadla(Raj)-Bikaner(Raj) D/C line-(750 MW only).

In the first two weeks of august,2025 during high wind scenario Rajasthan's total RE generation was reaching up to 7000MW which lowers SCR and makes the network prone to voltage fluctuations.

Rajasthan has been under-drawing considerably during high-frequency periods despite TRAS-down being implemented across the grid which undermines the efforts taken to maintain grid-frequency. Additionally Rajasthan is unable to back down its thermal generation to a technical minimum of 55% of its installed generation.

NRLDC had to curtail solar generation in real time at few occasions to mitigate Voltage oscillations as Rajasthan continued high amount of reactive power drawl from the grid.

Rajasthan SLDC is once again suggested to take following measures to maintain grid parameters within safe limits:

1. Maintain Bus Voltages particularly in RE complex around normative values by taking adequate support from RE as well as conventional plants thus avoiding huge MVAR drawl from grid.
2. Restrict RE generation (Wind + Solar) to around 6000 MW during the outage of 400 KV Barmer (Raj)-Jaisalmer (Raj) D/C line.
3. Expedite installation of capacitor banks giving priority to the nodes where bus voltages are on alarmingly lower side. Also, expediting installation of dynamic compensation devices.
4. Operators at SLDC and REMC Control Room in Rajasthan to take timely actions in maintaining grid parameters viz. Voltage profile etc. so that rise in generation is matched with adequate MVAR support. Day-ahead forecast may also be referred for actions to be taken beforehand to avoid delay.

Rajasthan SLDC representative expressed agreement with all the points discussed and informed the forum that the state's power demand this season has been significantly lower than expected—approximately 1500 MW less compared to the same period last year. Despite reducing the scheduling of all thermal generation units to the technical minimum of 55%, they are encountering challenges in backing down certain units. While supercritical thermal plants are being operated at 55% during low demand period, older plants such as KTPS and STPS cannot achieve this.

The representative from Rajasthan SLDC further stated that to ensure reactive power support, all generators, including older units, are being sensitized through regular meetings and consistent communication. Efforts are ongoing to fulfil reactive power compensation requirements. For renewable energy plants without Power Plant Controllers (PPC), they are actively following up with non-compliant

generators to install PPCs. Additionally, all new generators are being granted connectivity only after verifying compliance with reactive power compensation.

It was further informed from Rajasthan side that 400kV Barmer-Jaisalmer D/C line is expected to be revived by 25th Aug 2025.

NRLDC representative also stated that new RE generators recently commissioned and evacuating through 400kV Jaisalmer(RVPN) substation may be asked regularly by Rajasthan SLDC to provide MVAR support for improving the voltage profiles in Western Rajasthan.

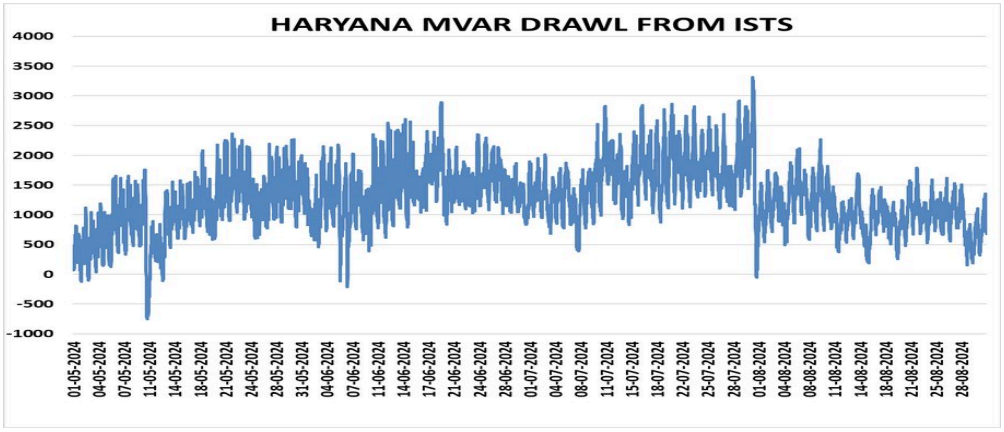
MS NRPC emphasized that Rajasthan needs to enhance its forecasting, particularly during the high wind season, due to several challenges they are currently facing—such as insufficient downward reserves, difficulties in operating thermal units at their technical minimum, and high MVAR drawl. These issues are critical and must be addressed proactively to avoid any undesirable incidents. Rajasthan was also urged to closely monitor and adhere to communications from NRLDC on a continuous basis.

OCC asked Rajasthan to take necessary actions as discussed above.

B.4 SPS for Champa-Kurukshetra HVDC and SOP actions in case of tripping

During high demand period of Northern region, NR imports high power from Western and Eastern region. To optimize flows on AC paths, HVDC power orders are accordingly modulated. Power order of Champa-Kurukshetra HVDC is also kept on the higher side in summer months due to less demand in Western region and high demand in Northern region. However, there have been reliability issues related to Champa-Kurukshetra HVDC since long time. There have been events of simultaneous pole outages also, which creates stressful condition for grid and number of issues are observed in real-time. These effects are more pronounced when Champa-Kurukshetra poles trip simultaneously carrying huge power in antecedent condition. This switches out filter banks, increases power flow on parallel AC lines, increased loading reduces the grid voltages, further, due to increased distance for power to travel, the reactive power support requirement increases tremendously. This may lead to sudden dips in voltage and further load loss due to stalling of induction motor type load.

NRLDC has been continuously pursuing with NR states to take measures for reactive power support at local level so that reactive power exchange from ISTS is minimal. However, as per discussions held in 229-232 OCC meetings, no progress is being reported. From the plots presented by NRLDC in OCC meetings, it can be clearly seen that there is huge MVAR drawl by some of the states such as Haryana, Rajasthan, HP and UP during May-Sep months. These huge MVAR drawl leads to low voltages in the grid especially during the day-time as there is high agricultural as well as cooling load requirement during this time.


HARYANA MVAR DRAWL FROM ISTS
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3500
3000
2500
2000
1500
1000
500
0
-500
-1000
01-05-2024
04-05-2024
07-05-2024
11-05-2024
14-05-2024
18-05-2024
21-05-2024
24-05-2024
28-05-2024
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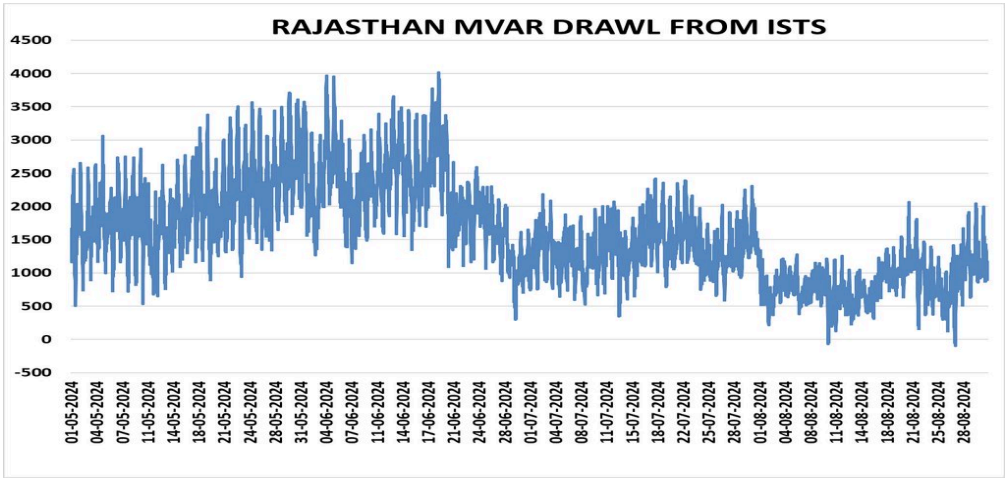
RAJASTHAN MVAR DRAWL FROM ISTS
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4000
3500
3000
2500
2000
1500
1000
500
0
-500
01-05-2024
04-05-2024
07-05-2024
11-05-2024
14-05-2024
18-05-2024
21-05-2024
24-05-2024
28-05-2024
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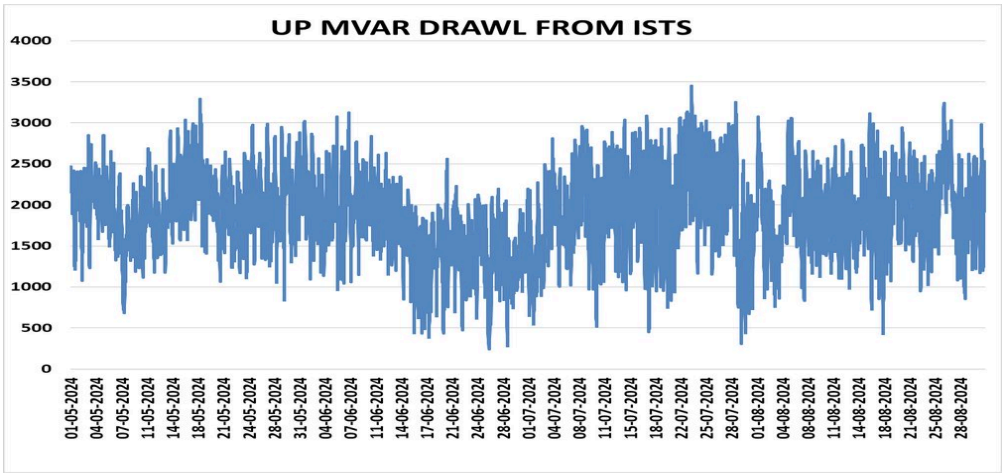
UP MVAR DRAWL FROM ISTS
4000
3500
3000
2500
2000
1500
1000
500
0
01-05-2024
04-05-2024
07-05-2024
11-05-2024
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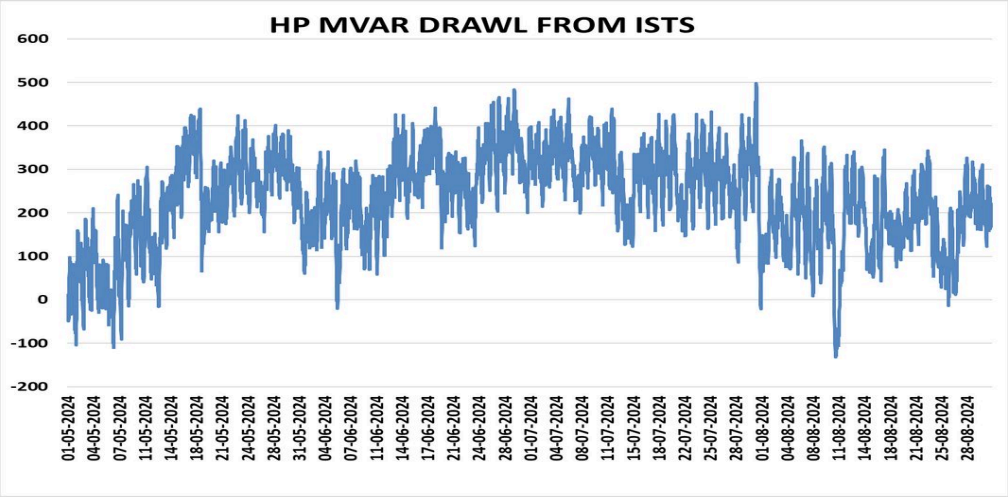


There have been two major events involving load loss with simultaneous all poles outage of Champa-Kurukshetra HVDC in last two years:

1. 16.5GW load loss event on 17.06.2024 due to tripping of Champa-Kurukshetra all poles carrying 4000MW with NR total load as 89.4GW
2. 0.9GW load loss event on 09.06.2025 due to tripping of Champa-Kurukshetra all poles carrying 4300MW with NR total load as 82.6GW

This year NR demand has been slightly on the lower side due to favorable weather conditions, however, prolonged dry spell may lead to sudden surge in demand and NR demand may again cross 85GW. It is expected that any incident of simultaneous outage of HVDC Champa-Kurukshetra poles may cause emergency conditions in the Grid. It is possible that voltages in NR stations may reach extremely low values as witnessed during similar incident which occurred on 17th Jun 2024.

Accordingly, it is proposed to implement a SPS scheme which can shed loads in case of simultaneous outage of all poles of HVDC Champa-Kurukshetra. Since, identification and wiring of new load groups may be difficult for implementation in short time frame and further utilities have also expressed concerns in identifying further new feeders for UFR or other load shedding schemes, it is suggested to utilise the wired loads of existing Agra-Gwalior or Rihand-Dadri SPS scheme. Signal of multiple HVDC pole outage can be extended from Kurukshetra station to Dadri/Agra SPS scheme and some load relief can be obtained. The automatic disconnection of wired loads post outage of multiple HVDC Poles at Kurukshetra may provide some relief and may help in containing the voltages till suitable static and dynamic compensation devices are commissioned.

List of feeders for Agra-Gwalior/ Rihand-Dadri SPS scheme is attached as Annexure-B.III of agenda. Concerned states are requested to verify the load quantum mentioned against each feeder. NRLDC will then carry out simulation studies and in consultation with SLDCs/NLDC propose SPS logic for Champa-Kurukshetra HVDC. As some load

is proposed to be shed in SPS scheme, corresponding generation backing down will also need to be taken up in Western region.

This feeder review exercise becomes important as on 21.05.2025, at 20:21 hrs, 500kV HVDC Rihand-Dadri D/C tripped on commutation failure. Multiple elements tripped at 400kV Dadri(NTPC) during the event due to multiple faults. 500kV HVDC Rihand-Dadri D/C was carrying ~1150 MW before tripping.

As per SPS of 500kV HVDC Rihand-Dadri, Case-2 of SPS which is "Tripping of any or both poles resulting in power order reduction by 750 MW and above" operated during the event. As per SPS case-2 action, immediate load shed in load groups A, B, C & D and generation backdown at Singrauli / Rihand TPS by 500 MW should occur. However, no major load relief was observed based on demand pattern of states.

During the 234 OCC meeting, the NRLDC representative noted that SLDCs had not provided any feedback. They emphasized that the SPS implementation can only proceed after receiving confirmation from all stakeholders.

SLDC UP representative informed that they have received load details and feeder wiring information from 6 out of 7 locations. Once the information from the remaining location is received, the complete data will be shared within 1–2 days.

MS NRPC proposed holding a separate meeting between NRLDC, Powergrid and all states, noting that there appear to be significant deviations from the original plan, which may necessitate a review of the SPS scheme. It was requested all states provide their input on the feeders connected to the Agra-Gwalior or Rihand-Dadri SPS schemes and submit any proposals if there are changes from the initially planned scheme.

Member Secretary further mentioned that a separate committee for SPS of Champa-Kurukshetra HVDC under the Member (Power System), CEA as agreed in NPC meeting is still awaiting approval, the SPS scheme can be prepared in the meantime by NRLDC in coordination with all NR states.

OCC asked all SLDCs to submit whether feeders already identified for Agra-Gwalior SPS and Rihand-Dadri SPS are:

- Whether wired loads are still radial or not
- What is quantum of load flow in these feeders
- Incase feeders are not radial, other feeders may be identified.
- Is any feeder wired in SPS facing issue in receiving signal of SPS

OCC asked all SLDCs to share any comments from their side for feeders wired for Agra-Gwalior SPS or Rihand-Dadri SPS scheme. Further, NRLDC was asked to conduct to separate meeting with all NR states to discuss feeder finalisation for SPS of HVDC Champa-Kurukshetra.

B.5 Minimising deviation against scheduled drawl by state control area

It has been observed that some of the NR states have been under drawing from the grid in June 2025. The under drawl in Energy terms has reached 8-12 MUs on daily basis as per the Daily Operation Report published by NRLDC. With inclement weather leading to load crash and lower demand, high frequency grid operation has been observed recently. NRLDC has been advising constituents to maintain load generation balance and messages are also regularly issued from Real time operators to the under-drawing constituents. Further, NRLDC has been pro-actively carrying out hydro moderation of ISGS plants in addition to TRAS down support from NLDC to arrest high frequency.

The details of Grid frequency remaining above 50.05 Hz (above IEGC band), maximum frequency of the day, daily under-drawl (MU) and max. under-drawl based on 5 minutes average telemetered data i.r.o. Rajasthan state control area is given below:

Rajasthan Deviation and grid frequency

Date	Deviation/UI [Overdrawl (+) Underdrawl (-)] MUs	Max Under-drawl (in MW) during high frequency time	% of time frequency above 50.05 Hz (above IEGC band)
04.08.2025	-7.81	1270 MW / 50.13 Hz at 09:00 Hrs	17.3%
03.08.2025	-9.28	1816 MW / 50.17Hz at 13:03Hrs	14.9%
02.08.2025	-12.63	906 MW / 50.28 Hz at 07:58 Hrs	15.0%
01.08.2025	-9.14	840 MW / 50.27 Hz at 14:03 Hrs	19.3%
31.07.2025	-6.55	260 MW / 50.20 Hz at 13:12 Hrs	21.8%
30.07.2025	-5.48	1050 MW / 50.18 Hz at 11:06 Hrs	21.0%
29.07.2025	-13.28	2419 MW / 50.26 Hz at 13:05 Hrs	23.2%
28.07.2025	-9.15	693 MW / 50.21 Hz at 13:04 Hrs	22.3%
27.07.2025	-2.76	1494 MW / 50.28 Hz at 16:06 Hrs	22.0%
26.07.2025	-8.21	577 MW / 50.25 Hz at 11:34 Hrs	20.7%
25.07.2025	-2.47	837 MW / 50.11 Hz at 09:11 Hrs	12.8%
24.07.2025	-2.61	839 MW / 50.13 Hz at 18:31 Hrs	15.0%
23.07.2025	-7.02	541 MW / 50.25 Hz at	20.4%

		13:03 Hrs	

Plots attached as Annexure B.IV of agenda.

Such large deviations from schedule and high frequency operation are a threat to the system security.

To avoid continuous high frequency operation in the grid, following actions may be ensured during real-time grid operation and maintain their drawl close to schedule:

- Portfolio management through sale/purchase of power in T-GNA
- Lifting of planned load shedding, curtailments, if any
- Generation backing down in coal fired thermal stations to 55% of Maximum Continuous Rating (MCR) loading of the units on bar at the generating station after deducting the normative Auxiliary Energy Consumption plus Auxiliary Energy Consumption compensation as per the provisions of the Grid Code as per merit order based on variable charges
- Downward revision of requisitions from ISGS as per merit order on request of beneficiaries
- Generation reduction at hydro stations having storage capability

During 234 OCC meeting,

ED NRLDC pointed out that multiple letters and real-time communications from the control room have been sent to Rajasthan. However, despite these efforts, Rajasthan still needs to improve its portfolio management. There have been instances of significant under-drawl, exceeding 2100 MW, during high-frequency periods coinciding with the implementation of TRAS down on ISGS solar plants to control frequency. He also urged all SLDCs to engage with their respective regulators and explore the possibility of introducing ancillary services regulations at the state level, like what is being implemented at the ISTS level.

Rajasthan SLDC representative stated that Intrastate Thermal generation is being backed down to technical minimum level as well as requisitions from ISGS are being revised to revise net schedule of state from ISTS. They are selling excess power in market and as a last resort, RE curtailment has also been done on few occasions to maintain state drawl from the grid. He further stated that discussions are going to improve the under-drawl especially during high wind scenarios.

MS NRPC requested all the states to identify their reserves and take proactive actions as it is high time that states start working towards this as it is a serious issues. Further, in case states are not able to maintain both up and down reserves then NRLDC may

have to procure reserves on behalf of states and its financial implication would have to be borne by the concerned state.

OCC asked all states to take necessary measures as discussed above.

B.6 Delay in return of shutdown of Transmission elements and prolonged outage of elements affecting grid operation

The shutdown of 765 KV Meerut-Koteshwar ckt.1 was approved from 11.07.2025 to 20.07.2025 for NHAI diversion works. Grid-India concerns regarding the N-1 non-compliance status during the shutdown period was strongly put up during the meeting called by NRPC with PGCIL, NHAI, GRID-INDIA, Tehri Hydro and SLDCs for facilitating the said shutdown. The generation evacuation of Tehri Hydro, Tehri PSP and Koteshwar Hydro was through the only available path i.e. 765 KV Meerut-Koteshwar ckt. 2. The shutdown was facilitated with the condition that the timeline of the shutdown would be strictly adhered.

However, there was inordinate delay in restoration of the said transmission line, and it has come to notice that the shutdown was taken despite of unresolved Right of Way issues which was already known to NHAI/PGCIL and ultimately the line was revived on 29.07.2025.

The tripping of 765 KV Meerut-Koteshwar ckt. 2 at 19:46 hours on 22.07.2025 on phase to Earth fault (B-N) led to loss of the only available evacuation path for generators at Tehri HEP, Tehri PSP and Koteshwar HEP. Generation loss of 1436 MW was observed due to the above line tripping. (Tehri HEP- 846 MW, Tehri PSP- 200 MW and Koteshwar HEP-390 MW). The transmission line revived by 11:00 hrs of 23.07.2025 and the whole Tehri-Koteshwar generation complex was unavailable for generation during the said period. The non-utilisation of Hydro resources during the high demand period and spillage of Koteshwar hydro due to loss of evacuation path is a matter of concern and leads to challenges in maintaining grid parameters within safe and reliable limits.

Apart from this, there are several other transmission elements whose shutdown was returned with delay from various utilities. It may be noted that Northern Region demand is on the high side with peak demand of the day in the range of 80-82 GW driven by Agriculture/paddy load along with hot and humid conditions. Further, various hydro units in the Northern Region are forced to go under outage due to high silt condition on short notice.

List of transmission elements wherein there was delay in return of shutdown by utilities is shown below:

SL. No	Element Name	Approved Shutdo	Approved Shutdo	Actual revival date	Reason	Remarks

		wn	wn (To)			
1	400 KV Bawana CCGTB(DTL)-Bahadurgarh(PG) (PG) Ckt-1 400 KV Bawana CCGTB(DTL)-Bhiwani(PG) (PG)	24.07.2025	03.08.2025	06.08.2025 06.08.2025	for NHAI diversion works	
2	765 KV KOTESHWAR-MEERUT (PG) CKT-1	11.07.2025	20.07.2025	29.07.2025	for NHAI diversion works.	Generation loss of approx 1400MW due to tripping of remaining ckt 2 on 22.07.2025/19:46Hrs
3	400 KV BHADLA-MERTA (RS) CKT-1 400 KV BHADLA-JODHPUR (RS) CKT-1	03.05.2025/15:00	05.05.2025/06:00	09.05.2025	To facilitate the work of Shifting / Height raising work	Re curtailment of 600MW during shutdown
4	400 KV RAJWEST(RW)-GSS PACHPADRA (RS) CKT-1 400 KV RAJWEST(RW)-JODHPUR (RS) CKT-1	19.03.2025	31.03.2025	19.04.2025	Height Raising and Shifting work	
5	400 KV KAITHAL-MALERKOTLA (PG) CKT-1	12.03.2025	22.03.2025	26.03.2025	for NHAI diversion work.	
6	400 KV JODHPUR-KANKANI (RS) CKT-1 400 KV MERTA-KANKANI (RS) CKT-1	21.12.2024	31.12.2024	14.01.2025	For Height Raising work	

PowerGrid representative explained that the work on the 765 kV Koteshwar–Meerut (PG) Circuit-1 was delayed due to the rainy season, which prevented its completion.

NRLDC representatives requested that, if possible, such shutdowns be avoided during the peak hydro season, as this line is a key evacuation corridor for the Tehri complex, and construction activities often face delays during the monsoon.

Several important transmission lines in the Northern Region are under prolonged outage due to tower collapse. The extended non-availability of these elements is impacting grid reliability, load transfer capability, and in some cases RE evacuation.

Sr. No.	Element	Owner	Outage Date	No. of Days Out	Reason
1	220 kV Gazipur (DTL) – Sahibabad (UP)	UPPTCL	30-04-2022	1158	Bending of tower no. 4
2	220kV Gazipur(DTL)-Noida Sec. 62				Tower tilted at location no. 10
3	220 kV Kishenpur (PG) – Mir Bazar (PDD) Ckt-1	JKPTCL	21-06-2024	375	Tower foundation damaged at loc. no. KP-196
4	400 kV Jaisalmer – Barmer (RS) Ckt-2	RRVPNL	01-05-2025	61	Tower collapse at 12 locations (Loc. no. 70–81)
5	400 kV Jaisalmer – Barmer (RS) Ckt-1		01-05-2025	61	

Further, number of other transmission elements are also under prolonged outage such as:

S. No.	Element Name	Owner	Date	Reason / Remarks
1	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	UPPTCL	13-03-2020	Buccholz relay alarm and Local Breaker Backup protection operated.
2	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	UPPTCL	13-12-2021	Due to high DGA values, Hydrogen gas is above permissible limit.
3	400 KV Noida Sec 148-	UPPTCL	09-03-	Flashover Y-phase earth switch

	Noida Sec 123 (UP) Ckt-2		2023	compartment at Noida Sector-148.

Number of Fixed Series capacitors (FSCs) are also under prolonged outage such as:

Name of Elements (Owner: POWERGRID)	Outage time/date	Reason of tripping
FSC of 400 KV Fatehpur-Mainpuri (PG) Ckt-1 at Mainpuri (PG)	21:07 / 24.10.21	BHEL breaker hydraulic pressure could not be developed in B phase and (loss of N2 pressure) doesn't allow the FSC-1 taken into service as reported by CPCC3. OEM support stopped
FSC of 400 KV Fatehpur-Mainpuri (PG) Ckt-2 at Mainpuri (PG)	08:25 / 29.10.21	VME protection system was blocking the FSC back in service as reported by CPCC3. OEM support stopped
FSC(40%) of 400 KV Kanpur-Ballabhgarh (PG) Ckt-2 at Ballabhgarh (PG)	10:25 / 23.09.22	DC earth fault in main power supply. Safety clearance required.
FSC(45%) of 400 KV Bareilly-Unnao (UP) Ckt-1 at Unnao(UP)	19:50 / 03.01.24	Problem in GTE card of R phase and also unbalancing of one capacitor of B phase.
FSC (40%) of 400 KV Kanpur-Ballabhgarh (PG) Ckt-3 at Ballabhgarh (PG)	11:58 / 14.02.25	For attending the capacitor unbalance alarm

Representative from UP SLDC stated the following

- Diversion work is underway for 400/220 kV 315 MVA ICT 1 at Muradnagar_1 and 400/220 kV 240 MVA ICT 3 at Moradabad and ICTs will be brought to these locations and will roughly take 1 year.
- 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2 is expected to be revived by October'2025

OCC advised all transmission utilities to strictly adhere to the approved timelines so that grid operation is not affected and other shutdown requests are also timely allowed. Further, it was requested to update likely revival date for

these in the NRLDC outage portal and expedite revival of these transmission elements.

B.7 Demand forecasting and resource adequacy related

Hon'ble CERC In the matter of Planning for safe, secure, and reliable integrated operation of the power system during critical periods arising on account of seasonal variations wherein the electricity demand increases rapidly by undertaking specific measures to mitigate the risks on the power system, under clause (h) of sub-section (1) of Section 79 of the Electricity Act, 2003 and the Regulation 31 of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 has issued suo-motto order 9/SM/2024 dated 07.10.2024.

Subsequently, a meeting was taken by Hon'ble CERC on 14.02.2025 with all NR SLDCs, NRLDC and NRPC to review the actions being taken at SLDC end on measures related to resource adequacy.

It is to be noted that CERC has also released the report on "Planning for safe, secure, and reliable integrated operation of the power system during critical periods arising on account of seasonal variations wherein the electricity demand increases rapidly by undertaking specific measures to mitigate the risks on the power system under Order dated 07.10.2024 in Suo-Moto Petition No. 9/SM/2024" on 29.04.2025.

In the report following actions have been suggested:

Area	Key Action
Power Procurement	Advance contracts, banking arrangements
Forecasting	Tool access, RLDC coordination, automation incase of manpower issue, Feedback from DISCOM,
Manpower	Approvals as per MoP guidelines, training
Reserve Management	Enforce obligations, clarify reserve norms
Thermal Generation	Enable operation at MTL, regulatory support from SERC
SAMAST	Ensure implementation within strict timelines

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

Status of Day Ahead Forecasting, week ahead, month-ahead and year-ahead submission status for Aug-2025 as per Clause 31(4) (a) & (b) of IEGC-2023 is shown below:

State/Entity	Day Ahead	Week Ahead	Month Ahead	Year-Ahead
Punjab	As per Format	As per Format	As per Format	Not received
Haryana	Demand and Resource not as per format	Only demand & irregular	Not received	Not received
Delhi	Demand and Resource not as per format	As per Format	As per Format	Only Demand
Rajasthan	As per Format but irregular	As per Format	Not received	Not received
Uttar Pradesh	As per Format	As per Format	As per Format	As per Format
Uttarakhand	Demand and Resource not as per format and irregular	As per Format	As per Format	Not received
Himachal Pradesh	Demand and Resource not as per format	As per Format	As per Format	As per Format
J&K and Ladakh (UT)	Demand and Resource not as per format & irregular	Not received	Not received	Not received
Chandigarh (UT)	As per Format	Not received	Not received	Not received

In accordance with above, all SLDCs are requested to timely furnish the demand estimation data along with generation adequacy 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.

All SLDCs need to take actions at their end for timely submission of demand forecasting and resource adequacy data on day-ahead, week-ahead, month ahead and year ahead basis.

It may be noted that timeline for submission of year ahead data of 2026-27 is 30th Sep 2025.

NRLDC representative also highlighted that portal has been prepared for submission of data by states. The user credentials have been provided to some states whereas it is pending for few of the states as:

User Name	Email Address	Contact Detail
Demand_UP	eemis@upsldc.org	Received
Demand_Utt	uksldcmis@ptcul.org	Received
Demand_HP	pchpsldcshimla@gmail.com	Received
Demand_Har	sldcharyanacr@gmail.com	To be provided by SLDC
Demand_Pun	ase-sldcop@pstcl.org	Received
Demand_JK	jksldc4@gmail.com	Received
Demand_Chd	apc.chandigarh@gmail.com	To be provided by SLDC
Demand_Raj	se.ldrvpnl@rvpn.co.in	Received
Demand_Del	dtldata@delhisldc.org	Received

Haryana and Chandigarh were requested to share their contact details at the earliest with NRLDC.

Further, NRLDC representative presented the results of the month ahead resource adequacy analysis on regional basis for Sep 2025 which was done as per data available at NRLDC through PRAS software. The results are attached as Annexure-B.II.

NRLDC had also organized training program for NR SLDCs on 29.07.2025 regarding Demand Forecast, RA Planning & Reserve Assessment for SLDCs of Northern Region

Self-audit related:

As per IEGC Clause 56.2(c), 'The self-audit reports by users, QCAs, and SNAs shall be submitted to the concerned RLDC or SLDC, as the case may be.' Failure to submit the self-audit report within the stipulated timeframe would be considered a non-compliance with IEGC regulations.

During the 228th OCC meeting, CGM, NRLDC, reiterated the importance of conducting the self-audit exercise within the timelines mandated by regulations. He informed that NRLDC has already submitted its self-audit report to CERC and urged all stakeholders to do the same.

Self-audit report has been received from NHPC and Koteshwar THDC for F.Y. 2023-24.

During 234 OCC meeting,

NRLDC representative stated that:

- Data on day ahead basis received from some of the states (as shown in table) is not as per NRLDC format. It was further mentioned that NRLDC is in process of developing a code/program for automation of day-ahead resource adequacy. In case data is not received in formats circulated by NRLDC, it would not be possible to map/utilize the data submitted by states in the internal program being developed at NRLDC end.
- Self-audit report has been received from NHPC and Koteshwar THDC only for F.Y. 2023-24. As F.Y. 2024-25 has also completed recently, all utilities in Northern region are requested to carry out self-audit exercise and share report with NRLDC as per IEGC Clause 56.2(c).

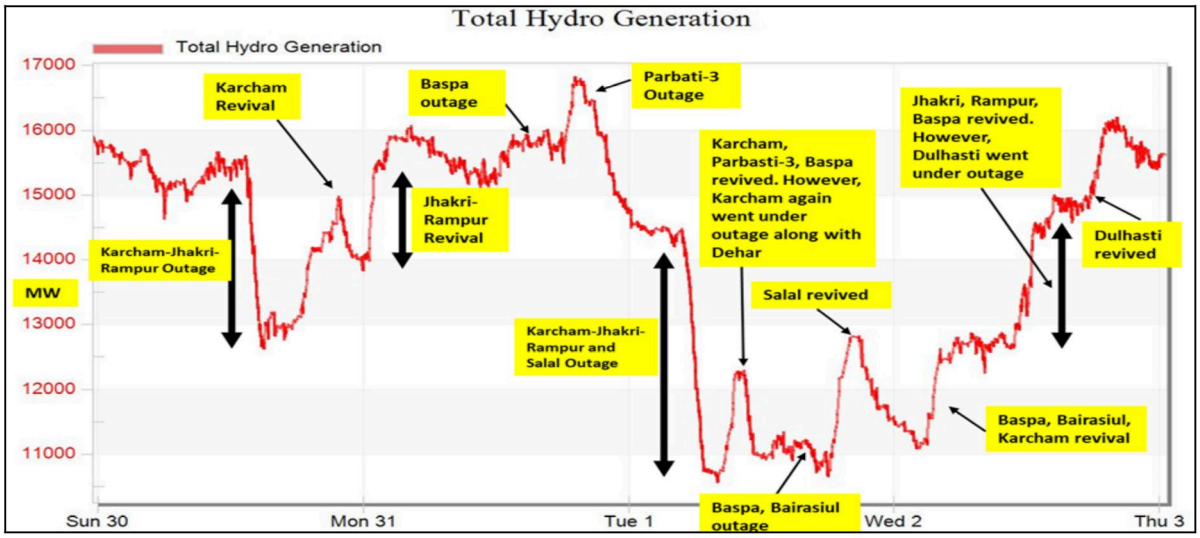
As 31.07.2025 has already past, it is requested that all concerned users of NRLDC may carry out their self-audit and submit report to NRLDC at the earliest. List of NRLDC users is attached as Annex B.VI of agenda.

OCC asked all the states to take actions at their end to ensure compliance of all regulations and guidelines w.r.t. resource adequacy framework. OCC forum asked all concerned utilities to carry out self-audit exercise as per IEGC Clause 56.2(c), and submit the report to NRLDC.

B.8 Near real-time monitoring of silt at NRLDC for hydro generating stations

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

Sample plot showing outage of hydro generating stations due to high silt level leading sudden outage of hydro generating stations in Northern region is shown below:



Large hydro outage in short duration during monsoon on silt is a common phenomenon and the associated challenges have been highlighted in regular OCC/TCC meeting. The agreed action based on deliberation in various meetings are given below:

- Action for Generator
  - Silt monitoring/Silt forecasting for planned hydro outage [Advance information]
  - Reduction of Generation/Tripping of Units as per protocol (Staggering of units)
  - Slow ramping down of generation on the units to be closed as per protocol.

- Action by SLDC/Constituents
  - Generation reserve to be maintained
    - Own Generation
    - Contracted Generation from Other State/Traders
  - Load management to be planned
  - Optimization of Hydro generation as per demand requirement

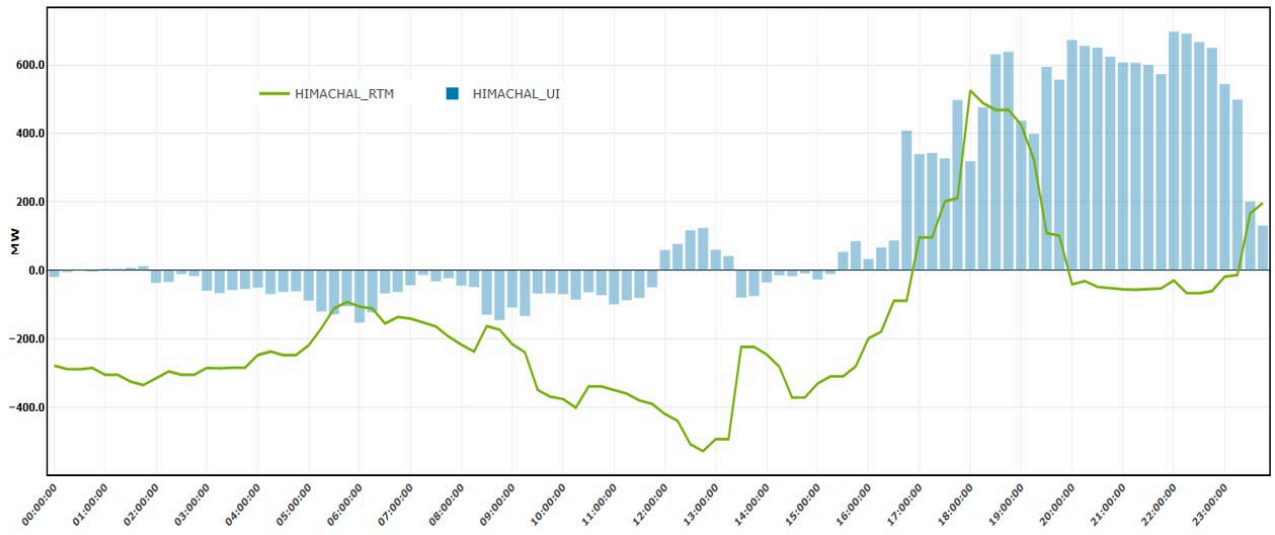
In view of upcoming silt scenario, all hydro stations are requested to furnish the silt forecast data (near-real time silt measurement) for operational planning measures to control centers (RLDCs/SLDCs) as this would help them gain some lead-time for better tackling of hydro generator outage on silt.

NRLDC has also developed a portal for sharing of silt-data by hydro generating stations with NRLDC. Login credentials have been shared with all hydro generating stations for sharing of the data with NRLDC. NRLDC also demonstrated the portal in 233 OCC meeting on 15.07.2025.

Still, it is being observed that number of NR hydro plants are regularly not sharing the silt data with NRLDC control room.

Further, it is observed that even after repeated messages some states such as HP continue to overdraw from the grid in case of outage of hydro generating units on silt. Multiple violation messages were sent from NRLDC side on 21.07.2025 and 22.07.2025 to HP which was continuously overdrawing on 21.07.2025 during evening hours between 18:30 Hours to 23:00 Hours from the Grid. Further, the grid frequency was very low and minimum frequency recorded was 49.59 Hz. During this low frequency period, HP state control area was continuously overdrawing in the range of 610 to 650 MW and total over drawl quantum was 1.60 MUs on 21.07.2025. Such significant over-drawl during low frequency regime causes a serious threat to Grid stability and exposes the system to heightened contingency risk. It is further to be noted that HP state had not purchased the required quantum of power in RTM and was already selling in DAM. Similar, over drawl by HP state was once again observed on 05.08.2025.

Himachal Sell in RTM and UI from Grid for 05.08.2025



The representative from Himachal Pradesh stated that the DISCOMs attempted to procure power from the RTM but was unsuccessful in securing any and even load-shedding of around 500MW was also carried out to control over-drawl. Further, HP has not been able to ensure reserves as they are having intrastate run of river hydro plants.

OCC forum advised all hydro stations to timely share silt related information with NRLDC on newly developed portal and also follow protocol as approved by NRPC for taking units out in staggered manner in case of high silt.

B.9 Mock testing of islanding scheme and simulation studies

Following four islanding schemes are operational in the Northern Region: NAPP Islanding Scheme (Uttar Pradesh), RAPP Islanding Scheme (Rajasthan), Bawana Islanding Scheme (Delhi), and Unchahar Islanding Scheme (Uttar Pradesh).

During 233 OCC meeting, NRLDC representative presented the latest status of actions required on various islanding schemes.

Scheme	UFR testing done	Basecase shared	SCADA display made
NAPP Islanding scheme (UP)	✅ Yes	✅ Yes	✅ Yes
RAPP Islanding scheme (Raj)	✅ Yes	✅ Yes	✅ Yes
Bawana Islanding scheme (Delhi)	❌ No	✅ Yes	✅ Yes
Unchahar Islanding scheme(UP)	✅ Yes	❌ No	✅ Yes

It was also discussed that there have been recent directions from NPC and MoP also for islanding testing.

NRLDC asked DTL to share comprehensive testing report of islanding scheme after completion of testing exercise of Delhi islanding scheme and requested POWERGRID to expedite pending UFR testing.

It was highlighted from NRLDC side that although SCADA displays have been made for islanding schemes, telemetry of site data to NRLDC is poor and most of the time, some or other data is missing. UFR testing report and SCADA display has been submitted by UP SLDC for Unchahar islanding scheme, however, basecase is yet to be received at NRLDC end.

Delhi SLDC representative stated that POWERGRID has agreed to carry out ufr testing within next 7 days.

OCC forum asked all utilities to take necessary actions as discussed above. OCC forum also expressed concern that ufr testing of Bawna islanding scheme is pending since long.

B.10 Multiple element tripping events in Northern region in the month of July 2025:

A total of 21 grid events occurred in the month of July 2025 of which 14 are of GD-1 category 02 are of GI-2 Category and 05 are of GI-1 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events along with the status of DR/EL & tripping detail submission is attached at Annexure-B.IV of agenda.

Maximum delayed clearance of fault observed in event of tripping event at 220/33kV RSDCL PSS2 RE station at 13:46 hrs on 04th July 2025 (As per PMU at Bhadla2(PG), R-Y phase to phase fault with delayed fault clearing time of 1200 msec is observed).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total 06 events out of 21 grid events occurred in the month. In 05 (no.) of grid event, there was no fault in the grid.

NRLDC representative presented the reporting status of DR/EL & tripping reports w.r.t. grid events occurred in July 2025. It was highlighted that detailed reports of some of the tripping events have not been received. In some of the grid events, complete DR & EL have also been not received.

Members agreed to share the tripping details at the earliest and assured to submit the tripping details as per timeline specified in IEGC.

Regarding grid event at 220kV Patparganj(DTL), DTL representative informed that multiple elements tripping occurred due to bus bar protection operation on ph-ph bus fault which occurred due to kite thread. 220kV system was being operated in bus split mode. Protection operation was correct however supply disruption was due to failure of automatic supply changeover at distribution system. BSES and concerned DISCOMS has been advised to take necessary corrective actions in this regard.

NRLDC highlighted the frequent multiple elements tripping event at Khodri HEP(UK). Complete tripping details and analysis have also not been received. Protection related issues in this complex is being continuously discussed in PSC forum also. PTCUL and UJVUNL are requested to expedite the corrective actions to avoid such event in future and also submit the details analysis of the tripping event.

NRLDC requested utilities to start preparing the detailed report of the tripping events as per timeline mentioned in IEGC 2023 and share the report with NRLDC, NRPC and PSC forum. Remedial actions taken by constituents to avoid such multiple elements tripping may also be included in the detailed report.

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.

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

B.11 Status of submission of DR/EL and tripping report of utilities for the month of July 2025:

The status of receipt of DR/EL and tripping report of utilities for the month of **July 2025** is attached at Annexure-B.V of agenda. It is to be noted that as per the IEGC provision under clause 37.2 (c), the tripping report along with DR/EL has to be furnished within 24 hrs of the occurrence of the event.

NRLDC representative stated that on the basis of status of July month it is evident that reporting status of some of the constituents i.e., RE stations, SLDC-HR, SLDC-PS, SLDC-J&K, SLDC-HP, SLDC-Delhi, NTPC, NHPC and RAPS are not satisfactory and need improvement. Further, persistent unsatisfactory reporting status of Punjab & J&K was also highlighted.

NRLDC representative requested utilities to improve the status of submission of DR/EL & tripping reports. Timely submission of tripping details (DR, EL, tripping report etc.) helps in detailed analysis of the grid event and further remedial actions.

Members from SLDCs and transmission licensees stated that continuous follow-up are being done for timely submission of DR/EL of tripping events. Further efforts will be made to improve the DR/EL reporting status.

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 (TMS) "https://postda.nrldc.in/Default.aspx" within 24 hours of the events as per IEGC clause 37.2(c) and clause 15.3 of CEA grid standard.

B.12 Frequency response performance for the reportable events of month of July 2025:

In the month of July 2025, 2 no. of reportable events were 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 in the Table below:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	Nadir Frequency (in Hz)	End Frequency (in Hz)	*Δf(Hz)*	NR FRP during the event
1	22-July-25	19:46 hrs	As reported, at 19:46 hrs on 22nd July 2025, generation loss event of 1437MW occurred at Tehri, Koteshwar Hydro generation complex in NR. Hence generation loss of 1437 MW is considered for FRC/FRP Calculation.	49.942	49.832	49.874	-0.068	1.31
2	29-July-25	14:55 hrs	As reported, at 14:55 hrs on 29th July 2025, generation loss event of 1100 MW occurred at ACME_Fatehgarh_I in Rajasthan RE complex. Hence, generation loss of 1100 MW is considered for FRC/FRP Calculation.	50.145	50.044	50.075	-0.70	0.95

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 14th August 2025 is:

FRC computation and data submission status			
S. No	Control Area	Event Date	
		22-07-2025	29-07-2025
1	Punjab	Received	Received
2	Haryana	Received	Received
3	Rajasthan	Received	Received
4	Delhi	Received	Received
5	Uttar Pradesh	Received	Received
6	Uttarakhand	Not Received	Not Received
7	Chandigarh*	NA	NA
8	Himachal Pradesh	Received	Received
9	J&K(UT) and Ladakh(UT)	Not Received	Not Received
10	Dadri -1 (TH)	Received	Received
11	Dadri -2 (TH)	Received	Received
12	Jhajjar (TH)	Received	Received
13	Rihand-1 (TH)	Received	Received
14	Rihand-2 (TH)	Received	Received
15	Rihand-3 (TH)	Received	Received
16	Shree Cement (TH)	Not Received	Not Received
17	Singrauli (TH)	Not Received	Not Received
18	Tanda-2 (TH)	Received	Received
19	Unchahar-I (TH)	Received	Received
20	Unchahar-II (TH)	Not Received	Received
21	Unchahar-III (TH)	Received	Received
22	Unchahar-IV (TH)	Received	Received
23	Anta (G)	Not Received	Received
24	Auraiya (G)	Not Received	Not Received
25	Dadri (G)	Not Received	Not Received
26	AD Hydro (H)	Received	Received
27	Bairasiul (H)	Received	Received
28	Bhakra (H)	Received	Received
29	Budhil (H)	Not Received	Not Received

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

NRLDC representaitve higlighted the list of generating stations and control area who haven't shared the FRC/FRP computation details. Details are pending from SLDC-Uttarakhand, SLDC-J&K, Shree Cement TPS, NTPC (Singrauli TPS, Anta GPS, Auraiya GPS, Dadri GPS, Unchhahar_II TPS), NHPC (Sainj HEP, Uri-2 HEP, Sewa_II HEP, Dhauliganga HEP, Chamera_III HEP), Budhil HEP, Singoli Bhatwari HEP and Sorang HEP. Members were requested to share the FRC/FRP computation as per timeline.

Further it was also highlighted that only UP, Punjab and Haryana are submitting FRC/FRP computation of generating stations of their respective control area. Other SLDCs were also requested to compute FRC/FRP of their respective control area and submit the FRC/FRP computation to NRLDC as per timeline specified in IEGC.

NRLDC requested SLDCs and generating stations to share the FRC / FRP compuation of their respecive control area as per stipulated timeline.

NRLDC member also highlighted the persistent issue of partial data submission from Singrauli TPS. NTPC was requested to share the complete plant data of Singrauli TPS otherwise it can't be consisdered for FRP

computatuion. Presently, data of only 2 units are being submitted by Singrauli TPS.

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 14th August 2025, 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 event of July 2025 is as follows:

Frequency response Performance			
S. No	Control Area	Event Date	
		22-07-2025	29-07-2025
1	Punjab	0.92	0.69
2	Haryana	2.61	-0.01
3	Rajasthan	-0.88	-1.44
4	Delhi	-1.01	-0.86
5	Uttar Pradesh	1.83	-0.34
6	Uttarakhand	-1.02	-0.31
7	Chandigarh*	NA	NA
8	Himachal Pradesh	1.34	0.00
9	J&K(UT) and Ladakh(UT)	-0.34	-0.34
10	Dadri -1 (TH)	3.12	-0.62
11	Dadri -2 (TH)	16.95	0.65
12	Jhajjar (TH)	7.62	0.73
13	Rihand-1 (TH)	12.93	0.00
14	Rihand-2 (TH)	3.72	2.11
15	Rihand-3 (TH)	5.13	0.73
16	Shree Cement (TH)	2.86	16.17
17	Singrauli (TH)	0.75	0.02
18	Tanda-2 (TH)	-0.01	0.85
19	Unchahar-I (TH)	8.35	1.84
20	Unchahar-II (TH)	0.02	6.51
21	Unchahar-III (TH)	6.31	2.78
22	Unchahar-IV (TH)	18.97	3.25
23	Anta (G)	3.13	No Gen
24	Auraiya (G)	1.04	No Gen
25	Dadri (G)	10.35	No Gen
26	AD Hydro (H)	-1.29	1.50
27	Bairasiul (H)	0.00	0.00
28	Bhakra (H)	-0.42	0.09
29	Budhil (H)	No Gen	0.35
30	Chamera-1 (H)	-2.14	0.67

31	**Chamera-2 (H)**	No Gen	2.12
32	**Chamera-3 (H)**	0.00	0.00
33	**Dehar (H)**	0.54	0.76
34	**Dhauliganga (H)**	-0.11	8.33
35	**Dulhasti (H)**	0.32	3.22
36	**Karcham (H)**	No Gen	8.24
37	**Kishenganga**	-3.55	-0.40
38	**Koldam (H)**	-0.69	-0.14
39	**Koteshwar (H)**	0.00	6.73
40	**Malana-2 (H)**	NA	NA
41	**Nathpa Jhakri (H)**	No Gen	3.86
42	**Parbati-2 (H)**	No Gen	No Gen
43	**Parbati-3 (H)**	-1.12	1.37
44	**Pong (H)**	-1.68	-0.52
45	**Rampur (H)**	No Gen	3.42
46	**Sainj (H)**	No Gen	No Gen
47	**Salal (H)**	1.53	0.00
48	**Sewa-II (H)**	0.00	-0.76
49	**Singoli Bhatwari (H)**	-0.43	No Gen
50	**Sorang (H)**	0.20	0.19
51	**Tanakpur (H)**	-0.58	6.74
52	**Tehri (H)**	0.00	No Gen
53	**Uri-1 (H)**	0.12	-0.11
54	**Uri-2 (H)**	-2.45	-1.43

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.

NRLDC highlighted the unsatisfactory response of some of the generating stations during the event. As per FRC/FRP computation details received from SLDCs, it was highlighted that FRP of most of the generating stations of UP control area is poor or unsatisfactory. Necessary remedial actions need to be taken to improve the FRP of generating stations.

Members were requested to take necessary remedial actions to improve the governor response. PFR testing (governor tuning) may also be conducted if required. The IEGC clause 40.2(c) also mendates governor testing once every five (5) years or whenever major retrofitting is done.

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.	Entity	Capacity(MW)	Governor	Droop	Remarks (if

No.			Mode (FGMO as per IEGC 2023) Yes or No	settin g (%)	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	

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

Further, 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.

OCC forum requested members to share the FRC/FRP compuation data as per timeline and also analyse the FRC response of their respective control area. Necessary action for imporvement in governor respeonse need be taken to ensure the propoer frequency response in complaince w.r.t. IEGC 2023.

B.13 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 56 numbers of System Protection Scheme (SPS) approved in Northern Region. These SPS are implemented at major generation complexes, important evacuating transmission lines and ICTs, which are N-1 non-complaint. System Protection Scheme Document of Northern Region has been revised/updated on 31st January, 2025. Revised version of the document is available on the NRLDC website.

NRLDC representative stated that in this regard, communication has already been sent to constituents through NRLDC letter dated 01.05.2024, 21.02.2025 & 05.03.2025 for conducting mock testing of SPS in their control area and continuous follow up is also being done in OCC & PSC meeting since May 2024.

Further it was stated that during 2024-25, mock testing of 14 SPS out of total 55 SPS were not conducted. In view of high demand scenario during summer 2025-26, NLRDC vide letter dated 04.04.2025 requested all the concerned utility to conduct the mock testing of pending SPS by the end of April 2025. However, as reported, mock testing of 03 SPS out of pending 14 SPS have been done. In this regard, discussion was also held in 60th & 61st PSC meeting. PSC forum requested all the members to conduct the mock testing of all the SPS in their respective control area at the earliest.

Status of mock testing of all the SPS in NR is attached as Annexure-B.VIII of agenda.

NRLDC requested POWERGRID(NR-3) to share the schedule of mock testing of 400kV Gorakhpur-Muzaffarpur D/C (NR-ER inter-regional link). POWERGRID(NR-3) representative agreed to share at the earliest.

SLDC-UP representative informed following w.r.t. SPS in their control area:

i. *Mock testing of SPS at 400kV & 220kV Sarojini Nagar has been conducted. Details of the same shall also be shared.*
ii. *No written confirmation regarding SPS has been received from NAPS. Further, there has been significant changes in evacuating network at NAPS and an island scheme is also in service. Therefore, further review of SPS requirement will be done and accordingly suitable SPS scheme shall be proposed if required.*

NRLDC requested concerned members to conduct the mock testing SPS in their respective control area and share the mock test report if mock test exercise has been conducted.

NRLDC also highlighted the following points related to SPS schemes in NR:

i. **SPS of HVDC Rihand-Dadri:** During mock testing of SPS of HVDC Rihand-Dadri on 20.03.2025, some issues were identified. SPS of HVDC Rihand-Dadri operated recently on 21.05.2025 during incident of outage of both poles. Desired SPS actions were not observed at some of the stations. NRLDC vide letter dated 02.07.2025, requested POWERGRID to take necessary remedial measure and make complete SPS system healthy.
During 233 OCC meeting, POWERGRID representative stated that the equipment's at Singrauli TPS end is owned by NTPC and need to be revived by them. SPS system at Rihand is healthy and operational. NTPC representative stated that as per details received from site, NTPC Singrauli team have initiated necessary actions in coordination with the POWERGRID.
Representative from POWERGRID(NR-1) and NTPC were not available during the discussion of this agenda point.
NRLDC representative stated that NTPC Singrauli and POWERGRID(NR-1) need to take necessary corrective actions and ensure healthiness of SPS system at Singrauli TPS and load stations.

ii. **SPS of Anta, Kawai, Chhabra generation complex:** In one of the SPS cases i.e., N-1-1/ N-2 of 765kV Anta-Phagi 1 & 2, instantaneous generation back down of ~2100 MW is designed as SPS action. In such scenario, to avoid overloading of WR-NR corridor and over drawl by Rajasthan, it was agreed that RVPNL shall implement the automatic load shedding of ~750 MW by 28.02.2018. However, as per details available, implementation of automatic load shedding as per SPS hasn't been done yet. This matter has already been discussed in PSC as well as OCC meetings on regular basis. The concern of grid security and reliability was also raised during request of shutdown of 765kV Anta-Phagi line. is requested to expedite implementation of the automatic load shedding of ~750 MW as per SPS (N-1-1/ N-2 contingency of 765kV Anta-Phagi-1 & 2).
During 233 OCC meeting, SLDC-Rajasthan representative informed that study has been conducted in this regard and the case shall be put up in next OCC meeting for approval.

NRLDC representative requested Rajasthan to apprise the forum about present status. No agenda has been put up in 234 OCC meeting.
RVPNL representative informed that automatic load shedding of ~750 MW has been mapped under this SPS system. Case shall be put up for approval at the earliest.

iii. **SPS of N.Jhajkri, Karcham, Rampur hydro generation complex:** Status of implementation of case-6(i) and corrective actions w.r.t case-6 (ii) need to be shared.
NRLDC representative requested Karcham(JSW) and HPPTCL to apprise the forum about present status of actions taken.
SLDC-HP representative informed that quotation has been finalised and case has been put up at headquarter for final approval. NRLDC requested to expedite the follow up actions as the healthiness of SPS system in this complex is very important.
Representative from Karcham(JSW) were not available during the discussion of this agenda point.

iv. **SPS of HVDC Mundra-Mahendragarh: Continuous follow up is being done since 51st PSC meeting. As informed by ADANI, word order has been placed and SPS will be made healthy by end of December 2025.**
In view of high demand scenario and criticality of SPS of HVDC Mundra-Mahindergarh in case of any contingency, ADANI was requested to expedite the corrective actions and share the present status.
Representative from ADANI were not available during the discussion of this agenda point.

Further, Clause 16.2 of IEGC 2023 also mandates the mock testing of SPS for reviewing SPS parameters & functions, at least once a year. Mock testing of all the SPS needs to be conducted in 2025-26. In view of this NRLDC representative requested the following to the members:

i. Concerned constituents / utility are requested to conduct the mock testing of pending SPS (whose mock testing was not conducted in 2024-25) at the earliest.

ii. Utilities are also requested to conduct the mock testing of SPS schemes in their respective control area w.r.t. year 2025-26.

iii. In compliance with IEGC clause 16.2, users shall ensure that mock testing along with the review of SPS logic of all the SPS is conducted at least once a year.

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

Further, during 60th PSC meeting, forum also decided to not disable the SPS where ICTs are now N-1 compliant after augmentation. It was decided that SPS may be kept enabled with logic based on loading instead of ICT tripping. In view of this, NRLDC requested members to take necessary actions at their end and share the confirmation.

OCC forum requested members to conduct the mock testing of SPS in their respective control area, share the report of the mock testing conducted. Members were also requested to review the SPS scheme in their respective control area if there is any change in network configuration and load profile.

B.14 Voltage oscillations observed in the Rajasthan RE complex – Revision of NOC restriction for Northern Region ISGS RE plants whose GNA is yet to be effective and being scheduled under deemed T-GNA. (Table Agenda by NRLDC)

NRLDC representative informed the forum following points:-
As on 06.08.2025, total 22509 MW of ISGS RE generation in Rajasthan have been commissioned and being scheduled. Out of 22509 MW, 14343 MW is having GNA effective (Complete ATS commissioned), and 8166 MW is having Non-effective GNA (Complete ATS not yet commissioned).

It is pertinent to mention that total 8166 MW of ISGS RE capacity is being given NOC for evacuation of Power under deemed T-GNA as GNA is yet to get effective (Complete ATS not yet commissioned). Out of 8166 MW deemed T-GNA, 4042 MW is being evacuated, and 4124 MW is being restricted during Solar peak hrs (10:30-14:30hrs) due to non-availability of transmission system.

RE capacity commissioned (MW)	Effective GNA quantum (MW) (Complete ATS commissioned)	Non-effective GNA (T-GNA) quantum (MW) (Complete ATS not yet commissioned)	NOC allowed for evacuation under deemed T-GNA during Peak Solar hours (10:30hrs-14:30hrs) (MW)	Non-effective GNA (T-GNA) quantum restricted for evacuation during Peak Solar hours (10:30hrs-14:30hrs) (MW)
22509	14343	8166	4042	4124

Further, to facilitate the evacuation and to accommodate the ISGS RE generation whose GNA is yet to be effective (Complete ATS not yet commissioned) time block wise margin for deemed T-GNA have been given. NOC have been given for part

capacity and part capacity have been restricted time block wise to accommodate & evacuate the maximum ISGS RE capacity with ensuring the Security & Reliability of the Grid in Rajasthan RE complex. Maximum Allowable capacity (MW) that can be scheduled and margin under deemed T-GNA for evacuation of ISGS RE generation whose GNA is yet to be effective (Complete ATS not yet commissioned) is tabulated below;

Table-1: Margin for evacuation of NR ISGS RE capacity under deemed T-GNA whose ATS not yet commissioned

Margin for evacuation of NR ISGS RE capacity under deemed T-GNA				
S. No.	Time Block (hrs)	Maximum Allowable capacity that can be scheduled (MW)	T-GNA Margin (MW)	Remarks
1	Before 09:30 hrs	22509	8166	Full Requested NOC (Further RE addition can also be accommodated)
2	09:30 – 09:45	21378	7035	Need to be restricted because ISGS RE generation is reaching ~86% of Total Capacity being scheduled (in clear weather condition).
3	09:45-10:00	20500	6157	Need to be restricted because ISGS RE generation is reaching ~90% of Total Capacity being scheduled (in clear weather condition).
4	10:00-10:15	19769	5426	Need to be restricted because ISGS RE generation is reaching ~93% of Total Capacity being scheduled (in clear weather condition).
5	10:15-10:30	19000	4657	Need to be restricted because ISGS RE generation is reaching ~97% of Total Capacity being scheduled (in clear weather condition).
6	10:30-14:30	18385	4042	Solar Peak hrs, Generation is reaching ~100% after 10:30hrs and before 14:30 hrs, restricted NOC.
7	14:30-14:45	19000	4657	Need to be restricted because ISGS RE generation is reaching ~97% of Total Capacity being scheduled (in clear weather condition).
8	14:45-15:00	19769	5426	Need to be restricted because ISGS RE generation is reaching ~93% of Total Capacity being scheduled (in clear weather condition).
9	15:00-15:15	20500	6157	Need to be restricted because ISGS RE generation is reaching ~90% of

				Total Capacity being scheduled (in clear weather condition).
10	15:15-15:30	21378	7035	Need to be restricted because ISGS RE generation is reaching ~86% of Total Capacity being scheduled (in clear weather condition).
11	15:30-15:45	21378	7035	Need to be restricted because ISGS RE generation is reaching ~86% of Total Capacity being scheduled (in clear weather condition).
12	After 15:45 hrs	22509	8166	Full Requested NOC (Further RE addition can also be accommodated)

Revision in NOC w.e.f. 08.08.2025 for evacuation of ISGS RE generation under deemed T-GNA whose associated Transmission system not yet commissioned:

- Earlier NOC restriction under deemed T-GNA started from 10:00 hrs with restriction in steps from 10:00-10:15 hrs & 10:15-10:30 hrs in staggered manner, 10:30-14:30 hrs flat and subsequently restriction lifted from 14:30 hrs with restriction lifted in steps from 14:30-1445 hrs & 14:45-15:00 hrs in staggered manner, and Full requested NOC quantum before 10:00 hrs and after 15:00 hrs.

- Now, NOC restriction under deemed T-GNA has been started from 09:30 hrs with restriction in steps from 09:30-10:30 hrs in staggered manner for each 15 min time block, 10:30-14:30 hrs flat and subsequently restriction lifted from 14:30 hrs with restriction lifted in steps from 14:30 hrs-15:45 hrs in staggered manner for each 15 min time block, and Full requested NOC quantum before 09:30 hrs and after 15:45 hrs (As given in Table-1).

Transmission Constraint, which are causing bottlenecking of RE power in Rajasthan REZ:

1. Loading on 400kV Bhadla(RS)-Bikaner(RS) D/C line exceeding 750MW each ckt (750 MW: safe loading limit of each ckt) and reaching 780MW each ckt despite opening of both the Ckts of 400kV Bikaner(RS)-Sikar(PG) D/C line, hotspot comes beyond 780-800MW each ckt due to poor condition of line conductor, can't load more than 800 MW otherwise cascade tripping may occur.
2. Next (2nd) constraint is 765kV Bhadla-II-Ajmer D/C line angular separation under N-1 Contingency.
3. Issue of low SCR at Fatehgarh-II Pooling S/s, 4.1 at 400kV Fatehgarh-II (PG). Further RE penetration with this low SCR would cause oscillation in the complex. Sever Voltage oscillation observed on 02.08.2025 @14:35hrs (ISGS RE: 19373 MW), on 03.08.2025 @10:24hrs (ISGS RE: 18954 MW), on 03.08.2025 @14:35hrs (ISGS RE: 19629 MW), on 04.08.2025 @10:13hrs (ISGS RE: 18621 MW).

4. N-1 Non-compliance issue at 400kV Fatehgarh-III PS, as only 5 nos. of 500 MVA ICTs are there to evacuate 2190 MW of RE capacity connected at 220kV. N-1 loading limit of 5*500 MVA ICTs at Fatehgarh-III PS is 2090 MW.

The reasons for extended period of NOC restriction under deemed T-GNA are as follows:

1. As RE generation is exceeding the 18385 MW quantum even before 10:30 hrs and after 14:30 hrs near boundary of 10:00hrs and 15:00hrs boundary. Hence, restriction on already issued NOC were reviewed and based on injection profile (under clear sky days), deemed T-GNA quantum is revised time block wise to keep total ISGS RE Injection below 18385 MW at any time to avoid any Voltage oscillation issues in Rajasthan RE complex and for ensuring the security of the Grid. Further, staggering has been done b/w 09:30-10:30hrs and 14:30-15:45 hrs also to accommodate more RE capacity and making the Solar ramping up/down smoother to avoid any sudden change in the system.
2. *High Wind scenario and continuous violation of Rajasthan:* Solar+Wind injection of ~6800MW against limit of 6000 MW despite several follow-up by NRLDC C/R but no actions have taken from Rajasthan, left no options for C/R operator except managing at ISTS level.
3. Increase in Wind generation and thereby increase in Reactive power drawl by Rajasthan system resulting low voltage issue. With Active power drawl of merely 2600-3000 MW, Rajasthan is drawing ~3600 MVAr from the Grid (ISTS). Huge Reactive power drawl by Rajasthan system is being managed by opening the Bus Reactors at nearby Substations and by increasing Reactive power from ISGS RE plant to ensure voltage stability of the complex.
4. *Coinciding of Solar and Wind generation:* Due to high Wind in morning & after-noon hours, net penetration of RE (Solar + Wind) in the Rajasthan RE complex becomes high (~22-23 GW) resulted depletion in SCR of the system during coinciding Solar & Wind penetration during morning & after-noon hours
5. Outage of 400kV Jaisalmer-Barmer D/C line in this High Wind season (Jul'25-Sept'25), Rajasthan earlier submitted the tentative deadline of 30.07.2025, and revised tentative timeline for revival is 20.08.2025 as reported by Rajasthan.
6. Issue of STATCOM i.e. aggravation of Low amplitude high frequency oscillation into High amplitude high frequency oscillation under Low SCR scenario is yet to be resolved, on both 02.08.2025 & 03.08.2025, oscillation died out after taking STATCOM in Manual fixed-Q mode.
7. Due to fast ramping of Wind and any sudden change in system, lesser time left with C/R operator to take necessary measure if system is already on margin this result in severe voltage oscillation in the Rajasthan RE complex.

OCC forum noted the same.

Status of action taken on decision of 233rd OCC meeting of NRPC

S.N.	Agenda	Decision of 233rd OCC meeting of NRPC	Status of action taken
1	Agenda. Rectification of the breaker and charging of the 220kV Sunam (PS)-Patran (IndiGrid) Circuit (Agenda by Punjab SLDC)	IndiGrid representative apprised that replacement is in process and expected to be done shortly. MS, NRPC mentioned that owner of the asset may give application to electrical inspector for permission to commence or recommence supply after such installation has been disconnected for six months as per Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023.	The IndiGrid representative informed that the OEM has assured the cord would be made available within the next 15 days. MS, NRPC, urged IndiGrid to resolve the matter within a week, as the line has been under breakdown for a considerable period.
2	A.11 MoU between Powergrid and NTPC for O&M of 400 kV D/C Dadri – Harsh Vihar transmission lines and 400 kV Panipat-2 bays (Agenda by NTPC)	OCC Forum asked Powergrid to deliberate the matter bilaterally with NTPC and convey their decision on the matter to NTPC in the next 15 days.	NTPC representative informed that no communication has been received from Powergrid in this regard. MS, NRPC suggested Powergrid, DTL and NTPC may have a joint meeting to resolve the matter and share the outcome with NRPC Secretariat within 15 days.

Status of action taken on decision of 233rd OCC meeting of NRPC

3	A.15 Shifting of 220kV Patti-Verpal Single Circuit from Verpal end to 400kV PGCIL Amritsar (Agenda by PSTCL)	OCC forum asked CTU to finalize the connectivity agreement within 15 days.	Punjab SLDC representative stated that connectivity agreement is yet to be finalized by the CTU. MS, NRPC asked CTU to expedite the matter.
4	A.21 Shutdown consent/Approval of Bus-1 & 2 at 400kV Ballabhgarh and 220kV System at Hisar for Jack Bus Replacement work (Agenda by Powergrid NR-I)	OCC forum asked Powergrid to bilaterally have a meeting with HVPNL and DTL to deliberate the matter and plan the shutdown with consent of HVPNL and DTL.	Powergrid representative informed that there is no progress in the matter. MS, NRPC asked Powergrid to deliberate the matter with DTL and HVPNL and plan the shutdown accordingly.
5	Table agenda No. 2 - Controlling overloading of 400kV Jhatikra – Bamnauli Line (Agenda by DTL)	OCC forum directed POWERGRID and DTL to submit the signed report of the joint site visit to CEA within 15 days, clearly stating the scope of work to be undertaken for the removal of the LILO of the 400 kV Jhatikara–Bamnauli line at 400 kV Dwarka.	DTL representative informed that report of the joint site visit has been prepared. However, it is yet to be signed by Powergrid representatives. MS, NRPC asked DTL and Powergrid to submit the report to CEA at the earliest.

Follow up issues from previous OCC meetings

Annexure-A.II

<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 colspan="3">List of downstream networks is enclosed in Annexure-A.II.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 colspan="3">Data upto following months, received from various states / UTs:
◎ CHANDIGARH Sep-2019
◎ DELHI Jul-2025
◎ HARYANA Apr-2025
◎ HP Mar-2025
◎ J&K and LADAKH Not Available
◎ PUNJAB Apr-2025
◎ RAJASTHAN Jun-2025
◎ UP Jul-2025
◎ UTTARAKHAND Jul-2025
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 colspan="3">Data upto following months, received from various states / UTs:
◎ CHANDIGARH Not Available
◎ DELHI Jul-2025
◎ HARYANA Jun-2025
◎ HP Jun-2025
◎ J&K and LADAKH Not Available
◎ PUNJAB Jun-2025
◎ RAJASTHAN Jun-2025
◎ UP Jun-2025
◎ UTTARAKHAND Jul-2025
◎ BBMB Jun-2025
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 colspan="3">Status:
◎ CHANDIGARH Not Available
◎ DELHI Increased
◎ HARYANA Increased
◎ HP Increased
◎ J&K and LADAKH Increased
◎ PUNJAB Increased
◎ RAJASTHAN Increased
◎ UP Increased
◎ UTTARAKHAND Increased
◎ BBMB Increased</td></tr>
</table>

<table>
<tr><td>4</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.II.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><tr><td>◎</td><td>UTTARAKHAND</td><td>Scheme not implemented</td></tr></table></td></tr>
<tr><td>5</td><td>Status of availability of ERS towers in NR</td><td>As per the decesion of 68th NRPC and 211th OCC meeting, ERS availability monitoring is being taken as rolling/follow-up agenda in OCC meetings for regular monitoring of ERS under different utilities in Northern region.</td><td>As per the information received from different utilities in Northern region, updated status of availability of ERS towers in Northern Region attached as Annexure-A.II.III.</td></tr>
<tr><td>6</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-25</td></tr><tr><td>◎</td><td>HARYANA</td><td>Jun-25</td></tr><tr><td>◎</td><td>HP</td><td>Jul-25</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>Jun-25</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Apr-25</td></tr><tr><td>◎</td><td>UP</td><td>Feb-25</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Feb-25</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>7</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>Feb-2025</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Feb-2025</td></tr><tr><td>◎</td><td>UP</td><td>Jan-2024</td></tr><tr><td>◎</td><td>NTPC</td><td>Mar-2025</td></tr></table>FGD status details are enclosed as Annexure-A.II.IV.
All States/utilities are requested to update status of FGD installation progress on monthly basis.</td></tr>
<tr><td>8</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>
</table>

9	Reactive compensation at 220 kV/ 400 kV level at 7 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	The Letter of Award for "Procurement of 125 MVAR Reactor, Online DGA, ODS, NIFPS along with its accessories at 400 KV Sub-station Kashipur" against Tender Specification no. PTCUL/E-Tender/C&P-II/SS-12/2024-25 has been issued to M/s Bharat Heavy Electricals Limited, New Delhi on 26.06.2025.

Annexure-A-II.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.	-	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is expected to begin on 16th July 2025. Updated in 233rd 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	Contractual completion date on 31.08.2025.	Under construction.Updated in 233rd 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'25	Issue related to ROW as intimated in 228th 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 31.03.2025. Foundation 209/212. Erection 193/212. Stinging 37.8/50.3 km
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Mar'26	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 234th 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	Sep'25	Erection and stringing work completed.The signing of Connection agreement amongst the Utilities is pending. Updated in 234th 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
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 - Pali D/C line Kadarpur - Sec-65	Commissioned	Updated in 232nd OCC by HVPNL **Status:-** A-formats for FTC of line submitted on FTC portal of NRLDC on dated 09.04.25.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	Oct'25	Line work completed, but commissioning of 220kV substation Roj ka Meo is pending till now.. However, this arrangement will not lead to usage of additional bays i.e. no of utilitsed bays at Sohna road will remain same.Updated in 230th 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 228th 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	Dec'25	Contract awarded on 08.08.23 to M/s Skipper with completion in December 25.Updated in 230th 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	Dec'25	Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 228th OCC by HVPNL.
				• Prithla - Sector 89 Faridabad 220kV D/c line	Dec'25	The work for construction of 220kV D/C Prithla-Sector-78 Faridabad line on multi circuit towers is delayed mainly due to severe resistance by local villagers & ROW problem at site during construction. Due to delay in construction of 220kV D/C Prithla-Sector-78 Faridabad line, the work for construction of 220kV D/C Prithla-Sector 89 Faridabad line might delay..Updated in 230th 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	Commissioned	Commissioned as updated by HVPNL in 233rd OCC
				• 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	Nov'25	Updated in 232nd 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.
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	• LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar	-	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Route plan and estimate of work sanctioned, DNIT has been sent to float tender as updated by PSTCL in 227th OCC
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.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	Nov'25	Revised target date as confirmed by concerned XEN TS, Panchkula.Updated in 234th 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	-	Draft connectivity agreements for 220kV Rashiana-Amritsar has been received from CTU and the same under processing. Draft connectivity agreements for 220kV Patti-Amritsar line is under consideration by CTU. CTU is processing the agreement and PSTCL has provided with the requisite inputs/data to CTU. Updated in 232nd 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)	-	Draft connectivity agreements for 220kV Rashiana-Amritsar & 220kV Patti-Amritsar lines are under consideration by CTU. CTU is processing the agreement and PSTCL has provided with the requisite inputs/data to CTU. Updated in 232nd 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	-	Proposal turned down by CEA.Updated in 230th OCC by HVPNL.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	15.06.2026	Updated in 230th OCC by HVPNL. **Status:** The work stands awarded to the M/s KRR and the execution work has been started at site. Partial route stands approved by the competant authority of the HVPNL. Further, 06 no. Foundation has been casted.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	30.11.2025	Updated in 234th OCC by HVPNL. **Status:** RoW issues which are being resolved with the help of Duty Magistrate.
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.
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	-	Status:- A proposal is being prepared for the creation of another 220kV D/C line from the 400kV substation Panchgaon (PG) to the 220kV substation Panchgaon (HVPNL), along with the LILO of one circuit of the 220kV D/C Panchgaon (PG) – Mau line at the 220kV substation Panchgaon to utilize two bays at the 400kV substation Panchgaon. The load flow study for this has already been completed.
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.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	• 400 kV PGCIL Patiala - 220 kV Bhadson (D/C)	-	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Construction of boundary wall has started at 220 kv ss bhadson.yard work could not be started as approval for dismantaling existing 517 no tress is pending at district level committee which is competent for giving approval of dismantling of trees. Chairman of committee is DC pataiala.. as updated by PSTCL in 233th OCC meeting

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	Revised Standard Operating Procedure (SOP) of Automatic Demand Management Scheme (ADMS) in NCT of Delhi has been approved in 51st TCC and 76th NRPC meeting. In OCC meeting, DTL intimated that TPPDL has informed that they have engaged SCADA OEM for the implementation of ADMS. However, OEM has confirmed that incorporation of ADMS logic into the current SCADA system is not feasible and it would require an upgrade or refresh of the system, necessitating additional expenditure for which DERC has been approached. The complete implementation cycle is expected to be within 2 years. However, in the meantime considering the criticality, their in-house team is working to develop a trigger notification/alarm system for manual operation of breaker triggering from the control room and thereafter exploring the possibility of automatically triggering the breaker using the trigger notification. TPPDL has stated that they expect to complete it by August 2025, if materialized. BRPL and BYPL have informed that their existing SCADA system is obsolete and it is in the up-gradation phase by OEM. After the up-gradation of SCADA system, the ADMS is expected to be implemented in BRPL & BYPL by Oct 25.
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	HPSDLC has kept the provision of ADMS in upgradation/replacement of SCADA system under ULDC Phase-III scheme for operating the feeders automatically through ADMS functionality. HP SLDC mentioned that logic regarding implementation of Automatic Demand Management System in HP Control Area has been finalized and finalization of feeders to give this load relief is pending. 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 from HPSEBL is awaited as intimated by HPSLDC.
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	RVPN has pilot tested the logic of ADMS which is to be implemented for Rajasthan. In 232th OCC meeting, RVPN informed that 286 nos. of circuit breakers have been mapped to ADMS, all 286 circuit breakers tested upto yard individually. Total 650CBs are to be mapped in phased manner.
6	UP	Scheme implemented by NPCIL only	i. A meeting regarding ADMS was held on 15.01.2023 with the UPPCL under the chairmanship of MD UPPTCL 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.(it is delayed) 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. vi. MS, NRPC apprised forum that a letter has been written to Director, SLDC for co-odinatng with Director (Distribution), UPPCL for expediting the finalization of feeder list at 33kV for ADMS implementation. vii. Response from UPPCL regarding the finalization of feeder list at 33kV for ADMS implementation is awaited. ix. In 230th OCC meeting UP SLDC representative informed that feeder list at 33kV level for ADMS is awaited from UPPCL.
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. Uttarakhand has intimated that It is bring to your notice that installation MFT(Multi Function Transducers) at various interstate points at PTCUL Substations under ADRS Project of UPCL is in progress. v. First Phase- Data Acquisition of 32 interstate points completed. vi. Second Phase-95 distribution side Substation work is on progress. vii In 230th OCC meeting Uttarakhand SLDC representative informed that Harbour installation and communication establishment has been done on 35 11kV feeders out of total 195 11kV feeders. The work is expected to be completed by December, 2025.

Annexure-A.II.III.

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 scraped due to single bidder.
		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 Ajmer.
		220 kV	16227.979		3		
		400 kV	6899.386		2		
		765 kV	425.498		1		
13	DTL	220kV	915.498	NIL	1	400kV Bamnauli Sub station	ERS tower available for 400KV rating can also be used for lower voltage lines as well
		400kV	249.19	02 Sets (32 towers)	1		
14	JKPTCL						JKPTCL, Jammu: being procured JKPTCL, Kashmir:10 tower procured (out of which 3 on loan to JKPTCL, Jammu)

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
15	HVPN						HVPN has apprised that purchase order for procurement of 2 sets of Emergency Restoration System (ERS) in HVPNL has been issued to M/s Jost's Engineering Company Ltd., Mumbai
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		Tied up with M/s INDIGRID for providing ERS on need basis.
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

Hydro Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Type (Pondage/RoR etc.)	Name of Utility	Sector	Control Area	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance			Automatic Generation Control			Revised Simulation Models	
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)					Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1	Bairasiul	UNIT-I	60 MW	67 MVA	M/S BHEL	18.05.1980	11kV/220kV	25 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
2	Bairasiul	UNIT-II	60 MW	67 MVA	M/S BHEL	19.05.1980	11kV/220kV	25 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
3	Bairasiul	UNIT-III	60 MW	67 MVA	M/S BHEL	13.09.1981	11kV/220kV	25 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
4	Salal	UNIT-I	115 MW	127.8 MVA	M/S BHEL	November'87	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
5	Salal	UNIT-II	115 MW	127.8 MVA	M/S BHEL	November'87	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
6	Salal	UNIT-III	115 MW	127.8 MVA	M/S BHEL	November'87	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
7	Salal	UNIT-IV	115 MW	127.8 MVA	M/S BHEL	March'93	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
8	Salal	UNIT-V	115 MW	127.8 MVA	M/S BHEL	May'94	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
9	Salal	UNIT-VI	115 MW	127.8 MVA	M/S BHEL	February'95	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
10	Tanakpur	UNIT-I	31.4 MW	45 MVA	M/S BHEL	31.03.1992	11kV/220kV	49.5 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
11	Tanakpur	UNIT-II	31.4 MW	45 MVA	M/S BHEL	06.04.1992	11kV/220kV	49.5 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
12	Tanakpur	UNIT-III	31.4 MW	45 MVA	M/S BHEL	04.04.1992	11kV/220kV	49.5 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
13	Chamera-I	UNIT-I	180 MW	200 MVA	GE, Canada	28.04.1992	13.8KV/400 KV	75 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
14	Chamera-I	UNIT-II	180 MW	200 MVA	GE, Canada	25.04.1993	13.8KV/400 KV	75 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
15	Chamera-I	UNIT-III	180 MW	200 MVA	GE, Canada	22.04.1994	13.8KV/400 KV	75 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
16	Uri-I	UNIT-I	120 MW	136 MVA	ABB	10.04.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
17	Uri-I	UNIT-II	120 MW	136 MVA	ABB	27.01.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
18	Uri-I	UNIT-III	120 MW	136 MVA	ABB	03.03.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
19	Uri-I	UNIT-IV	120 MW	136 MVA	ABB	13.03.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
20	Chamera-II	UNIT-I	100 MW	111.1 MVA	GE	04.10.2003	11KV/400 KV	41 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
21	Chamera-II	UNIT-II	100 MW	111.1 MVA	GE	05.12.2003	11KV/400 KV	41 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
22	Chamera-II	UNIT-III	100 MW	111.1 MVA	GE	26.02.2004	11KV/400 KV	41 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
23	Dulhasti	UNIT-I	130 MW	145 MVA	GEC ALSTHOM	28.03.2007	11KV/400 KV	48.33 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
24	Dulhasti	UNIT-II	130 MW	145 MVA	GEC ALSTHOM	28.02.2007	11KV/400 KV	48.33 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
25	Dulhasti	UNIT-III	130 MW	145 MVA	GEC ALSTHOM	18.03.2007	11KV/400 KV	48.33 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
26	Dhauliganga	UNIT-I	70 MW	78 MVA	Alstom/GE	14.10.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
27	Dhauliganga	UNIT-II	70 MW	78 MVA	Alstom/GE	01.09.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
28	Dhauliganga	UNIT-III	70 MW	78 MVA	Alstom/GE	28.07.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
29	Dhauliganga	UNIT-IV	70 MW	78 MVA	Alstom/GE	26.07.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
30	Sewa-II	UNIT-I	40 MW	50 MVA	M/S BHEL	27.06.2010	11kV/132kV	50 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
31	Sewa-II	UNIT-II	40 MW	50 MVA	M/S BHEL	10.07.2010	11kV/132kV	50 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
32	Sewa-II	UNIT-III	40 MW	50 MVA	M/S BHEL	27.07.2010	11kV/132kV	50 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
33	Uri-II	UNIT-I	60 MW	67 MVA	Alstom	25.09.2013	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
34	Uri-II	UNIT-II	60 MW	67 MVA	Alstom	25.11.2013	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
35	Uri-II	UNIT-III	60 MW	67 MVA	Alstom	27.09.2013	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
36	Uri-II	UNIT-IV	60 MW	67 MVA	Alstom	02.02.2014	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				
37	Chamera-III	UNIT-I	77 MW	85.56 MVA	Alstom	27.06.2012	11kV/220kV	32 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026				

38	Chamera-III	UNIT-II	77 MW	85.56 MVA	Alstom	10.06.2012	11kV/220kV	32 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
39	Chamera-III	UNIT-III	77 MW	85.56 MVA	Alstom	07.06.2012	11kV/220kV	32 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
40	Parbati-III	UNIT-I	130 MW	145 MVA	M/S BHEL	17.02.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
41	Parbati-III	UNIT-II	130 MW	145 MVA	M/S BHEL	27.02.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
42	Parbati-III	UNIT-III	130 MW	145 MVA	M/S BHEL	15.03.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
43	Parbati-III	UNIT-IV	130 MW	145 MVA	M/S BHEL	22.05.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
44	Kishanganga	UNIT-I	110 MW	122.22 MVA	M/S BHEL	13.03.2018	13.8KV/220 KV	45 MVA		Pondage	NHPC	Power/Energy	Northern	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
45	Kishanganga	UNIT-II	110 MW	122.22 MVA	M/S BHEL	21.03.2018	13.8KV/220 KV	45 MVA		Pondage	NHPC	Power/Energy	Northern	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
46	Kishanganga	UNIT-III	110 MW	122.22 MVA	M/S BHEL	30.03.2018	13.8KV/220 KV	45 MVA		Pondage	NHPC	Power/Energy	Northern	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026	01-03-2018	Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
47	Parbati-II	UNIT-I	200 MW	222.22 MVA	M/S BHEL	01.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
48	Parbati-II	UNIT-II	200 MW	222.22 MVA	M/S BHEL	01.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
49	Parbati-II	UNIT-III	200 MW	222.22 MVA	M/S BHEL	01.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
50	Parbati-II	UNIT-IV	200 MW	222.22 MVA	M/S BHEL	16.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
51	Tehri HPP(4*250 MW)	1	250 MW	278 MVA	Power Machine	09.07.2007	420/15.75 kV	306	0.4 (2/5)		THDC India Limited	Power Generation	Northern	-	Yes	Mar-26	-	Yes	Mar-26	-	Yes	Mar-26	Apr-23	No	Mar-28	Apr-23	No	Mar-28	Mar-2021	Yes	Mar-26
52		2	250 MW	278 MVA		30.03.2007	420/15.75 kV	306	0.4 (2/5)																						
53		3	250 MW	278 MVA		09.11.2006	420/15.75 kV	306	0.4 (2/5)																						
54		4	250 MW	278 MVA		22.09.2006	420/15.75 kV	306	0.4 (2/5)																						
55	NJHPS	1	250 MW	278 MVA	EUCONA (Voith Siemens(Germany), GE Hydro (Oslo/Norway), Alstom(Germany), VA Tech(Italy), BHEL(India))	18.05.2004	15.75kV/ 400kV	3 x 102 MVA	Tap Ratio - 2/5	RoR	SJVN	Power/Energy	NRLDC	18.02.2023	No	-	18.02.2023	No	-	18.02.2023	No	-	05.05.2022	No	-	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
56	NJHPS	2	250 MW	278 MVA		06.05.2004					SJVN		NRLDC	28.02.2023	No	-	28.02.2023	No	-	28.02.2023	No	-	05.05.2022	No	-	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
57	NJHPS	3	250 MW	278 MVA		31.03.2004					SJVN		NRLDC	20.02.2023	No	-	20.02.2023	No	-	20.02.2023	No	-	05.05.2022	No	-	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
58	NJHPS	4	250 MW	278 MVA		30.03.2004					SJVN		NRLDC	19.02.2023	No	-	19.02.2023	No	-	19.02.2023	No	-	05.05.2022	No	-	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
59	NJHPS	5	250 MW	278 MVA		06.10.2003					SJVN		NRLDC	10.02.2023	No	-	10.02.2023	No	-	10.02.2023	No	-	05.05.2022	No	-	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
60	NJHPS	6	250 MW	278 MVA		02.01.2004					SJVN		NRLDC	11.02.2023	No	-	11.02.2023	No	-	11.02.2023	No	-	03.11.2023	No	-	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026

HVDC Links

S. No	Name of Link	Type (LCC/VSC/Back-to-Back)	HVDC_Voltage (kV)	Converter-1		Converter-2		Master Converter Station	Pole_number	Length (km)	Capacity (MW)	Owner	Forward Direction			Reverse Direction			Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC.			Revised Simulation Models		
				Station Name	Region	Station Name	Region						Maximum Capacity	Minimum Capacity	Ground_return_capacity	Maximum Capacity	Minimum Capacity	Ground_return_capacity	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks	
1			500	APL-Mundra	WR	Mohindargarh	NR		1	989	1,250	ATIL	150	500	1250					Due			Due			
2			500	APL-Mundra		Mohindargarh			2	989	1,250	ATIL	150	500	1250					Due			Due			
3		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	1	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			
4		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	2	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			
5		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	3	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			
6		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	4	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			

STATCOMs/SVCs

S.No	Station	Statcom	Capacity (MVAR)	Owner	Make	Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC			Validation of response by FACTS devices as per settings.			Revised Simulation Models	
						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1	Kurukshetra	TCR	500	POWERGRID	GE Vernova T&D	NA	NA	NA	NA	NA	NA	Nov-2023	No	Sep-2028		
2	Fatehgarh-2	STATCOM	-+/-600	POWERGRID	SIEMENS	Oct-2023	No	Sep-2028	NA	NA	NA	Oct-2023	No	Sep-2028		
3	Bhadla-2	STATCOM	-+/-600	POWERGRID	SIEMENS	Jun-2023	No	May-2028	NA	NA	NA	Jun-2023	No	May-2028		
4	Bikaner-2	STATCOM	-+/-300	POWERGRID	SIEMENS	Jul-2023	No	Jun-2028	NA	NA	NA	Jul-2023	No	Jun-2028		

Sr. No.	State	Organisation	Name of Project	Unit No	Total Capacity (MW)	Technical Minimum Load Status (%) achieved by the Unit as intimated in 223rd OCC	Reason for not achieving 55% Technical Minimum
1	Punjab	PSPCL	GOINDWAL SAHIB	1	270.00	60%	Matter has been taken up with Siemens (OEM) and GATP expects to achieve 55% Minimum Technical Load after the next overhauling
2	Punjab	PSPCL	GOINDWAL SAHIB	2	270.00	60%	
3	Punjab	PSPCL	GH TPS (LEH.MOH.)	1	210.00	79%	Matter has been taken up with BHEL (OEM).
4	Punjab	PSPCL	GH TPS (LEH.MOH.)	2	210.00	79%	
5	Punjab	PSPCL	GH TPS (LEH.MOH.)	3	250.00	68%	
6	Punjab	PSPCL	GH TPS (LEH.MOH.)	4	250.00	68%	
7	Punjab	PSPCL	ROPAR TPS	3	210.00	75%	The plant is very old and the ageing of equipment is a major constraint for achieving 55% Minimum Technical Load.
8	Punjab	PSPCL	ROPAR TPS	4	210.00	75%	
9	Punjab	PSPCL	ROPAR TPS	5	210.00	75%	
10	Punjab	PSPCL	ROPAR TPS	6	210.00	75%	
11	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	1	135.00	55% MTL ahived with ramp rate of 0.496%	Desired ramp rate can not be achived by CFBC units due to boiler expansion related issues, U seal leakage, Boiler ageing, Refractory failure, failure of metallic/non-metallic expansion joints, maintenance issues etc.
12	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	2	135.00	55% MTL ahived with ramp rate of 0.496%	
13	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	3	135.00	55% MTL ahived with ramp rate of 0.496%	
14	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	4	135.00	55% MTL ahived with ramp rate of 0.496%	
15	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	5	135.00	55% MTL ahived with ramp rate of 0.496%	
16	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	6	135.00	55% MTL ahived with ramp rate of 0.496%	
17	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	7	135.00	55% MTL ahived with ramp rate of 0.496%	
18	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	8	135.00	55% MTL ahived with ramp rate of 0.496%	
19	Rajasthan	RRVUNL	CHHABRA TPP	1	250.00	72.20%	Due to unstability of units at 55% without oil support and also feasibility study to be carried out by OEM (BHEL)
20	Rajasthan	RRVUNL	CHHABRA TPP	2	250.00	72.20%	
21	Rajasthan	RRVUNL	CHHABRA TPP	3	250.00	72.20%	
22	Rajasthan	RRVUNL	CHHABRA TPP	4	250.00	72.20%	
23	Rajasthan	RRVUNL	KALISINDH TPS	1	600.00	55.00%	Requisite ramp rate cannot be achieved because as coal quantity reduces the flames in the boiler became unstable and below 330 MW load it is very essential to keep guns into service otherwise unit may got tripped on flame loss protection.
24	Rajasthan	RRVUNL	KALISINDH TPS	2	600.00	55.00%	
25	Rajasthan	RRVUNL	SURATGARH TPS	1	250.00	72.13%	Due to unstability of flame on low load
26	Rajasthan	RRVUNL	SURATGARH TPS	2	250.00	72.13%	
27	Rajasthan	RRVUNL	SURATGARH TPS	3	250.00	72.13%	
28	Rajasthan	RRVUNL	SURATGARH TPS	4	250.00	72.13%	
29	Rajasthan	RRVUNL	SURATGARH TPS	5	250.00	72.13%	
30	Rajasthan	RRVUNL	SURATGARH TPS	6	250.00	72.13%	
31	Rajasthan	RRVUNL	KOTA TPS	1	110.00	55.00%	
32	Rajasthan	RRVUNL	KOTA TPS	2	110.00	55.00%	
33	Rajasthan	RRVUNL	KOTA TPS	3	210.00	72.26%	KSTPS U# 3 & 4 were commissioned more than 37 & 36 years ago. These Units are very old and have ageing effects, achieving technical minimum load of 55% may affect stability of units. Technical minimum load (55%) can't be achieved due to instability of flame in boiler during low load.
34	Rajasthan	RRVUNL	KOTA TPS	4	210.00	72.26%	
35	Rajasthan	RRVUNL	KOTA TPS	5	210.00	72.26%	1. The KSTPS Unit 5, 6 & 7 are commissioned more than 30, 21 and 16 years ago respectively. 2. Poor flame intensity may cause flame failure at technical minimum load and this may lead to tripping of Unit 3. Difficulty in operating in technical minimum load condition for units using tube Mill due to inherent limitations. 4. During 1.5 Mill (3 elevation) operation, chance of explosion in Mill rises if operated with single elevation for longer period. 5. Tube Mill changeover cannot be carried out at technical minimum load.
36	Rajasthan	RRVUNL	KOTA TPS	6	195.00	72.26%	
37	Rajasthan	RRVUNL	KOTA TPS	7	195.00	72.26%	
38	Rajasthan	NLC	BARSINGSAR LIGNITE	1	125.00	65.00%	The longer operation of units at part load below 65% is not feasible due to refractory failure, increase in back roof metal temperature, incease in sintering issues.
39	Rajasthan	NLC	BARSINGSAR LIGNITE	2	125.00	65.00%	
40	Rajasthan	RRVUNL	GIRAL TPS	2	125.00	Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC	
41	Rajasthan	RRVUNL	GIRAL TPS	1	125.00	Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC	
42	Haryana	HPGCL	Panipat TPS	7	250.00	70.00%	To achieve 55% level Advance Process Control (APC) system is yet to be installed. Matter is in progress with BHEL.
42	Haryana	HPGCL	Panipat TPS	8	250.00	70.00%	

Annexure-A.V

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

सेवा में,
As per attached list (via e-mail)

विषय: Status of MTDL achieved in intra-state thermal generating stations of Punjab Rajasthan and Haryana - reg.

महोदय/महोदया,

This is with reference to CEA's Gazette Notification issued on dated January 30, 2023, regarding the flexible operation of coal-fired thermal generating units, therein stating that all thermal generating units must have flexible operation capabilities with a minimum power level of 55% within one year of Notification, i.e.by January 2024 and with a minimum power level of 40 % (as per the Phasing Plan specified by the authority from time to time) at the following Ramp rate:

From	To	Ramp Rate
40%	55%	1%
55%	70%	2%
70%	100%	3%

2. CEA vide communication dated 30.05.2024 (**Annexure-I**) also had intimated that 55% flexible operation regulation is effective in the country from 1st February 2024.
3. The list of intra-state thermal generating stations of Punjab, Rajasthan and Haryana that have not achieved MTDL of 55% as per information noted in 223rd OCC meeting is attached at **Annexure-II**.
4. Concerned thermal generating stations mentioned at **Annexure-II** are requested to submit the reasons for not achieving 55% Technical Minimum Level.
5. SLDC's to co-ordinate with the intra-state thermal Plant (including IPP) of their respective control area for the requisite information.
6. It is requested the requisite information may kindly be provided latest by 10th August 2025 via email at **seo-nrpc@nic.in**.

This issues with the approval of Member Secretary, NRPC.

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

18-ए, शहीद जीत सिंह मार्ग, कटवुरिया सराय, नई दिल्ली दूरभाष:011-26513265 ई-मेल: seo-nrpc@nic.in वेबसाईट: www.nrpc.gov.in
18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016 Phone: 011-26513265 e-mail: seo-nrpc@nic.in Website: www.nrpc.gov.in

List of addressees:

1. Director (Generation), PSPCL (dir-generation@pspcl.in)
2. Director (Technical), RRVUNL (director.tech@rrvun.com)
3. Director (Technical), HPGCL, (dirtech@hpgcl.org.in)
4. Head of Plant, Goindwal Sahib, GVK (Bivashchandra.Ghosh@gvk.com)
5. Head of Plant, Rajwest Power Limited, JSW (vijay.chintala@jsw.in)
6. Head of Plant, Barsingsar Lignite, NLC (plan.btps@nlcindia.in)
7. Chief Engineer, Punjab SLDC (ce-sldc@pstcl.org)
8. Chief Engineer, Rajasthan SLDC (ce.ld@rvpn.co.in)
9. Chief Engineer, Rajasthan SLDC (cesocomml@hvpn.org.in)

Annexure-I

सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
तापीय परियोजना नवीनीकरण एवं आधुनिकीकरण प्रभाग
Thermal Project Renovation & Modernization Division

No. 2/3/TPRM/Flex./2024/ 484-572 Date: 30.05.2024

Subject: Minimum Technical Load of Coal based Power Plants–reg.

Ref: CEA (Flexible operation of coal Based Thermal Generating Units) Regulation, 2023

The increasing penetration of renewable generation in the grid is bringing various challenges in the power sector. The inconsistency of solar & wind power has to be managed by other sources of generation in order to ensure the grid security, reliability and stability. Hence, there is a demand of flexible power in the grid which is increasing day by day with growing capacity of solar and wind power. It is a fact that coal based power plants have the capability of providing flexible power in the grid by lowering minimum technical load and the cost is also comparatively low.

In view of the above CEA has issued a gazette notification dated January 30, 2023 for compulsory flexible operation of coal fired generating units with minimum technical load (MTL) of 55% and 40%. As per the CEA gazette notification extraordinary, part III, section 4, no. 61 (CG-DL-E-31012023-243299), the coal based thermal power generating units shall have flexible operation capability with minimum power level of 55% along with ramp rate of 2% per minute between 55% to 70% load and 3% per minute above 70% load within one year of notification of the above mentioned regulations i.e. by 31st Jan 2024. CEA has also notified phasing plans on 15.12.2023 for implementation of 40% minimum technical load (MTL) along with ramp rate of 1% per minute between 40% to 55%, 2% per minute between 55% to 70% load and 3% per minute above 70% load.

It may be noted that the 55% flexible operation regulation is effective in the country from 1st February, 2024. In this regard it is requested to kindly provide the status as per attached format at earliest.

Rohit 30/5/2024

(Rohit Yadav)
Deputy Director, TPRM

To:

1. Managing Director, Tenughat Vidyut Nigam Ltd .Hinoo, Doranda, Ranchi - 834002, Jharkhand, Fax 0651 -2507460, Email: info@tvnl.in
2. MD/CMD, JSW Centre, Bandra Kurla Complex, Near MMRDA Grounds, Bandra

East,Mumbai 400 051 Fax: +91 22 4286 3000, Email: contact@jsw.in

3. CMD, Bajaj Bhawan , Jamnalal Bajaj Marg, B-10, Sector-3, Noida-201 301, Uttar Pradesh Tel. 0120-4045100, Email: jkbajajtrust@gmail.com
4. The Durgapur Projects Limited , Dr B C Roy Avenue, Durgapur- 713201, West Bengal , India, Email: admin@dpl.net.in
5. CMD, TRN Energy Pvt. Ltd. / ACB India LTD., 7th Floor, Corporate Tower, Ambience Mall, NH.-8, Gurgaon -122002 , Ph . 0124-2719000, Fax: 0124-2719185, Email: legal.secretarial@acbindia.com
6. CMD, DB Power Ltd, 3rd Floor, Naman Corporate Link, Opposite Dena Bank, C-31 , Block G,Bandra Kurla Complex, Bandra (E), Mumbai- 400 051 ,Tel No +91-22-7156 6000, Fax No +91 -22-26590264, Email: sandeep.gurav@dbpower.in
7. CMD, Bharat Aluminium Company Limited , Aluminium Sadan, Core - 6, Scope Office Complex, Lodi Road , New Del hi – 110003, Email: north.aluminium@vedanta.co.in
8. CMD, Tata Power, Bombay House, 24, Homi Mody Street, Mumbai 400 001 , Tel: (91 22) 66658282, Fax: (91 22) 6665 8801, Email: tatapower@tatapower.com
9. CMD/ MD, Essar, Essar House, Opposite Gujarat College, Ellisbridge, Ahmedabad 380 006, Gujarat , India, Tel.: +91 -79-66086666 , Fax: +91-79-66086608, Email: powersec@essarpower.co.in
10. CMD, CESC Limited , CESC House, Chowringhee Square, Kolkata - 70000 I, Phone: 2225604049, Email: cesclimited@rp-sg.in
11. CMD, Larsen & Toubro Limited, L&T House, Ballard Estate P. 0. Box: 278, Mumbai 400001. Email: Infodesk@larsentoubro.com
12. MD, Haldia Energy Limited, 8, Chittaranjan Avenue, Barick Bhawan, 6th Floor, Kolkata 700072. Email: ranajit.haldiaenergy@rp-sg.in
13. CMD, Lalitpur Power Generation Company Limited, 106-107, Bajaj Bhawan , 10th Floor, Jamnalal Bajaj Marg, 226 Nariman Point, Mumbai -400021 ,Tel. +91-22-22049056 /58, Fax: +91 -22-22048681, Email: cs@lpgcl.com
14. Chairman, Reliance Centre, Santacruz, Near Prabhat Colony, Off. Western Express Highway, Santa Cruz (East), Mumbai 400 055 Tel: +91 22 3303 1000 Fax: +91 22 3303 3662, Email: reliancepower.investors@relianceada.com
15. CMD, Lanco Anpara Power Limited , Plot No. 397, Phase-III ,, Udyog Vihar, Gurgaon-122016, New Delhi Region - India, Phone +91 -124 - 4741 000,Fax +91 -124 - 4741 024, Email: info.power@lancogroup.com
16. MD, Talwandi Sabo Power Limited, Site Cum Regd. Office:,Village Banawala , Mansa - Talwandi Sabo Road, Distt. Mansa, Punjab - 15 1302 INDIA, Tel: +91 -1659-248000 Telefax: 01659-248083, Email: tspl.commercial@vedanta.co.in
17. CMD, GVK Power, Paigah House, 156-159, SP Road, Secunderabad 500003,Telangana, India.,Telephone +91 -40-27902663/4, Email: pvrs@gvk.com
18. CMD, Prayagraj Power Generation Co. Ltd, Khan Semra, Uttar Pradesh 212106, Email: ppgcl@ppgcl.co.in
19. Chairman, CSPDCL, Energy Info Tech Centre, Block No. 8, CS Power Companies Campus ,Daganiya, Raipur (CG), Pin – 492013, Email:
20. Sterlite power Transmission Limited , Director, F-1 Mira Corporate Suits, 1 &2 floor, Mathura Road , Ishwar Nagar New Delhi, Delhi, New Delhi, Delhi 110065 Email: amitabh.prasad@sterlite.com
21. Director, Adani Power Limited, Achalraj, Opp Mayor Bungalow, Law Garden, Ahmedabad-380006 ,Gujarat, lndia.,Tel:+91 79 2555 7555,Fax:+91 79 25557177 Email: deepak.pandya@adani.com
22. Director, Jaiprakash Power Ventures Limited, Complex of Jaypee Nigrie Super Thermal Power Plant, Tehsil Sarai, Nigrie, Singrauli , Madhya Pradesh - 486669 , India, Phone No: (7801) 286021 - 39, Fax: (780 I) 286020, Email: mm.sibbal@jalindia.co.in
23. CMD, NLC India Ltd., First Floor, No.8, Mayor Sathyamurthy Road, FSD, Egmore Complex of Food Corporation of India, Chetpet, Chennai-60003 I ,Tamil Nadu, India. Ph No. 044-28364613,614,615,616,617 Fax. 044-28364619 Email: cmd@nlcindia.com

24. CMD, The Singareni Collieries Company Ltd., Kothagudem Collieries, Bhadradri Kothagudem Dist , Telangana State PIN: 507101. Ph No 08744-242301 /02/03/04 Fax: 08744-242305, Email: dp@scclmines.com
25. CMD, Hinduja National Power Corporation Limited , Hinduja House, 171 , Dr. Annie Besant Road,, Worli , Mumbai - 40001 8, India, Phone : +91 -22-24960707, Fax : +91 - 22-24960747 Email: sunil.hnp@hindujagroup.com
26. CMD, R.K.M Powergen Private Limited , 14/45 Dr.Giriappa Road , T.Nagar,, Chennai - 600017, Tamil Nadu, India, Telephone : +91 -44-66291000, Email: m.malathi@rkmpowergen.in
27. Chairman, jhabua Power, Avantha Power & Infrastructure Limited, 6th floor, Vatika City Point, M.G. Road -Gurgaon - 122002, India, Tel: + (91 124) 439 2000, Fax: + (91 124) 437 6496, Email: communications@avanthapower.com
28. Chairman , KSK Energy Ventures Limited, 8-2-293/82/A/43 I/A, Road No:22 , Jubilee Hills, Hyderabad, Telangana 500033, India , Tel: 04023559922 /23/24/25 Fax: 04023559930, Email: info@ksk.co.in
29. Dy. General Manager, Mahatma Gandhi TPS, Jhajjar Power Ltd . (CLP India Co.), Tehsil Matenhail , Distt Jhajjar-124142, Email: rajiv.mishra @clpindia.in
30. Chairman, Adhunik Industries Ltd., Lansdowne Towers, 2/1 A, Sarat Bose Road Kolkata 700020, West Bengal , INDIA Tel: 033 3051 7100 Fax 033 22890285 Email: bharatagarwal@adhunikgroup.co.in
31. Chairman , Rattanlndia Power Limited, 5th Floor, Tower-8, World mark I , Aerocity,, New Delhi - 110037 Email: powersectt@rattanindia.com
32. CMD/MD, Taqa Neyveli Power Company Pvt Ltd, Uthangal, Tamil Nadu 607804, Email: raghu.nathan@taqaglobal.com
33. CMD/MD, Coastal Energy Pvt. Ltd , 5th Floor, Buhari Towers,4, Moores Road, Chennai - 600 006, INDIA Tel: +91 44 4397 4397. Fax: +91 44 2826 8316. Email: nadeem.ma@coastalenergen.com
34. MD/CMD, CLP India Private Limited, 7th Floor, FULCRUM , Sahar Road, Andheri (East), Mumbai - 400 099, Tel : +91 -22-6758 8888, Fax: +91 -22-6758 881 1/8833
35. MD/CMD, Dhariwal Infrastructure Limited., C-6, Tadali Growth Centre, MIDC Tadali, District: Chandrapur, Maharashtra – 442406, India., Phone:07172 645911/645912/645913, FAX : 07172 237992,Email : dhariwalinfrastructure@rp-sg.in
36. MD/CMD,Adhunik Group,14, N. S. Road, 2nd Floor, Kolkata 700001, West Bengal, INDIA
37. MD/CMD, Essar, Essar House, 11, Keshavrao Khadye Marg, Mahalaxmi, Mumbai 400034, Maharashtra, India Tel.: +91-22- 66601100Fax: +91-22-66601809
38. MD/CMD, Jindal Power Limited, Jindal Centre, 12, Bhikaiji Cama Place, New Delhi 110 066, India, Email: info@jindalpower.com
39. MD/CMD , Gujarat Mineral Development Corporation Limited , 132 feet - Ring Road, Vastrapur, Ahmedabad – 380052 Phone : 079-27913501, 27913200 Fax : 079-27913038 Email : contact@gmdcltd.com
40. MD/CMD, Gujarat Industries Power Company Ltd. , P.O. Petrochemical – 391346 Dist.: Vadodara, Gujarat – India Phone: +91-265-2232768 Fax: +91-265-2230029 Email: genbaroda@gipcl.com
41. MD/CMD Torrent Power Generation Ltd, Sola Road, Naranpura,Ahmedabad - 380 013 Ph +91 79 22551912 / 66551912 Email: connect.ahd@torrentpower.com
42. MD/CMD TAQA Neyveli Power Company Pvt. Ltd, 79 Kasturi Avenue, MRC Nagar, R A Puram, Chennai Pin:600028 India Tel: +91 44 4209 7811 Fax: +91 44 4209 7812
43. MD/CMD, M/S SKS ISPAT AND POWER LTD., B-501, Elegant Business Park, Andheri Kurla Road, J.B.Nagar, Andheri - (E), Mumbai - 400 059 Telephone: +91-22-3080 7000 Fax: +91-22-3080 7070 / 7080 E-Mail: corporateoffice@sksispat.com
44. MD/CMD , Sembcorp Energy India Limited, 5th floor, Tower C, Building No. 8, DLF Cybercity, Gurgaon 122002 Haryana, India Ph: (91) 12 4389 6700
    Email: cs.india@sembcorp.com
45. MD/CMD, Hindustan Power projects Private Ltd., 239, Okhla Industrial Estate, Phase-

III New Delhi-110020 Tel: +91-11-47624100, Fax: +91-11-47624229 Email: info.hpppl@hpppl.in

46. MD/CMD, JINDAL INDIA THERMAL POWER LIMITED , Plot No 12, Sector B-1, Local Shopping Complex , Vasant Kunj NEW DELHI 110 070 Tel: 011-26139256-65 Fax: 011-26125739, E-Mail: jitpl@jindalgroup.com
47. MD/CMD, Ind-Barath Power Infra Limited, Hyderabad, Plot No. 30-A, Road No. 1, Film Nagar, Jubilee Hills, Hyderabad - 500 096 , Andhra Pradesh, INDIA. Phone: +91-40-23553459 Fax: +91 40 23607522 Email: hyderabad@ibpil.com
48. MD/CMD, GMR Enterprises Private Limited, Third Floor, Old No.248/New No.114, Royapettah High Road, Royapettah, Chennai - 600 014 Email: Yogindu.Khajuria@gmrgroup.in
49. CMD, India Power Corporation Ltd., Plot No.X, 1, 2 & 3, Block – EP, Sector-V, Salt Lake City, Kolkata – 700091, Email: pr@indiapower.com, Fax: +91 33 2357 2452
50. Chairman/CMD, MAHAGENCO, Maharashtra State Power Generation Co. Ltd., Prakashgad, Plot No. G-9, Bandra (East) Mumbai-400 051
51. CMD/MD, East Coast Energy Pvt. Ltd., H. No. 7-1-50, Flat No. 203, Myneni Apartments, Dharam Karam Road, Ameerpet, Hyderabad TG 500016 Email: irp.eastcoast@bdo.in
52. MD/CMD, Lanco Amarkantak Pvt. Ltd., 397, Phase II, Udyog Vihar, Sector 20, Gurugram, Haryana 122008
53. MD/CMD, Vandana Vidyut Ltd., Vandana Bhawan M.G.Road, Raipur, Chhattisgarh 492001 Email: codinthree@rediffmail.com
54. MD/CMD, Visa Power Ltd., 8/10 Alipore Road, Kolkata, West Bengal 700027, Email ID: secretarial@visa-group.com
55. MD/CMD, Corporate Power Ltd., FE-83, SECTOR-III Salt Lake City, Ground Floor, Kolkata, West Bengal- 700106, Email : mcainfo@abhijeet.in
56. MD/CMD, Jinbhuvish Power Generation Pvt. Ltd., 101, E High Ct Rd, New Ramdaspeth, Ramdaspeth, Nagpur, Maharashtra 440010, Email: companylaw.info@gmail.com
57. MD/CMD, Shirpur Power Pvt. Ltd., 903, Shilp Building, Opposite Navrangpura Telephone Exchange, Ahmedabad, Gujarat- 380009, India,
    Email ID: nikunj.shah@shirpurpower.in
58. MD/CMD, D.B. Power (MP) Ltd., Office Block 1A,5th Floor, Corporate Block, DB City- Park, DB City, Arera Hills Opposite MP Nagar, Zone -I Bhopal, Madhya Pradesh-462016, Email : sandeep.gurav@dbpower.in
59. MD/CMD, Ind Barath TPP Odisha, Ind Barath Energy Utkal Ltd., H NO. 8-5-210/43, Plot No 44, Shiva Enclave old Bowenpally, Secunderabad, Rangareddi Telangana 500011, Email : brs@ibpil.com
60. MD/CMD, KVK Nilanchal, Plot No. 484/A, Road No. 36, Jubilee Hills, Hyderabad-500033, Email: srinivasaraoa@kvkenergy.com
61. MD/CMD, LBP Ltd., Lanco Babandh Thermal Power Plant, Plot # 4, Software Units Layout, HITEC City, Madhapur Hyderabad, Telangana 500081,
    Email: dheeraj.kumarmishra@lancogroup.com
62. MD/CMD, Monnet Power Company Ltd. (MPCL), Malibrahmani TPP, Monnet House, 11, Masjid Moth, Greater Kailash Part-II, New Delhi- 110048
63. MD/CMD, IBPIL- Tuticorin TPP (Ind- Barath), Plot No. 30-A, Road No. 1, Film Nagar, Jubilee Hills, Hyderabad - 500 096, Email: hyderabad@ibpil.com , chennai@ibpil.com
64. MD/CMD, SEPC Power Company Ltd., Tuticorin TPP Stage-IV, MEIL House, First Floor No 395 (Old No 280-A) Anna Salai, Teynampet, Chennai, Tamil Nadu 600018, Email ID: sepc.ppl@meilteam.in
65. MD/CMD, India Power Corporation (Haldia) Limited, Plot No. X1- 2 & 3, Block-EP, Sector - V, Salt Lake City, Kolkata - 700 091.
66. MD/CMD, Lanco Vidharbha Power Pvt. Ltd., 11th Milestone, Belgaon-Mandwa Road, PO Mandwa, Dist Wardha, Maharashtra -422001 Phone +91-715-2283715

67. MD/CMD, BLA Power Pvt. Ltd., 84 Maker Chambers III, Nariman Point, Mumbai, Maharashtra- 400021 Email: compsec@bla.co.in
68. MD/CMD, BRBCL (Bharatiya Rail Bijlee Company Ltd.), Bihar State Power Generation Company Ltd., 5th Floor, Vidyut Bhawan, Bailey Road, Patna-800001, Email ID : gmhrbspgcl@gmail.com
69. MD/CMD, Corporate Power Ltd., FE-83, Sector-III Salt Lake City, Ground Floor, Kolkata, West Bengal- 700106, Email ID : mcainfo@abhijeet.in
70. MD/CMD, Dishergarh Power Supply Company Ltd. (DPSCL), Plot No.- X-1, 2 & 3 Block EP Sector-V, Salt Lake, Kolkata 700091 Email: rpower.mcafiling@relianceada.com
71. MD/CMD, Essar Power Ltd., LGF, A-20, Kailash Colony, Hotel Conclave Complex, Block A, Kailash Colony, Greater Kailash, New Delhi, Delhi 110048 Email: Shailendra.saha@essarpower.co.in
72. CMD/MD, NTPC SAIL Power Company Ltd. (NSPCL), NBCC Tower, 15, 4th Floor, Bhikaji Cama Place, New Delhi
73. MD/CMD, Shirpur Power Pvt. Ltd., 903, Shilp Building, Opposite Navrangpura Telephone Exchange, Ahmedabad, Gujarat- 380009, India, Email ID: nikunj.shah@shirpurpower.in
74. Chairman, DVC, DVC Head Quarters, DVC Towers, VIP Rod, Kolkata-700054 Email id : chairman@dvc.gov.in
75. CMD/MD, Global Energy Pvt. Ltd. (GEPL), 2, Panchsheel Community Centre, New Delhi-110017 Email: gyansheel@globalenergy.net.in
76. Bishagarh, Email address: cmd.tsecl@rediffmail.com
77. NTEC , NTPC Tamil Nadu Energy Company Ltd. NTPC Tamil Nadu Energy Company Limited , Vallur Thermal Power Project, Vellivoyal chavadi, Ponneri Taluk, Thiruvallur, Tamil Nadu - 600 103
78. Vidarbha Industries Ltd. Subs of reliance Power, Email : rpower.mcafiling@relianceada.com
79. Korba West power Company Ltd., Avantha Power, Email: communications@avanthapower.com
80. MD/CMD, ITPCL, IL&FS Tamil Nadu Power Company Limited 4th Floor, KPR Tower, Old No. 21, New No. 2, 1st Street, Subba Rao Avenue,College Road, Chennai - 600 006, Email: info@itpclindia.com
81. Deputy General Manager (Electrical) Meenakshi Energy Pvt. Ltd. NSL ICON, Plot No. 1, 2, 3, 4 H-No-8-2-684/2/A, 2nd floor, Road No. 12, Banjara hills, Hyderabad-500034 Tel: 040-33872309/ 344/ 345 Fax: 040-33872323/ 23351530 Email: mepl@meenakshienergy.com
82. GM (O&M) Simhapuri Energy Pvt Ltd Madhucon Greenlands 6-3-866/2, 3rd Floor Begumpet, Hyderabad-500016 (AP) (T)- 040- 23412195/96, 23412297 (F)- 040 23412197, 23412298 , 08624- 213298/99 Email: info@simhapurienergy.com sme@simhapurienergy.com

Copy for information to:

1. Secretary (Power), MOP
2. Chairman, CEA
3. Member (Thermal), CEA
4. Member Secretary (NRPC/ERPC/SERPC/WRPC)

FORMAT

S. No	Details		Unit 1	Unit2	Unit3	-------
1	Name of Utility					
2	Plant Name and Address					
3	Capacity, MW					
4	Date of Commissioning					
5	Type of Unit: Supercritical/Subcritical/....					
6	Net Heat rate (i) Design Coal GCV (ii) Actual Coal GCV					
7	Maximum Ramp Rate Up (last 2 years)	Between 55%-70%				
		Between 70%-100%				
8	Maximum Ramp Rate Down (last 2 years)	Between 100%-70%				
		Between 70%-55%				
9	Whether 55% Minimum load Achieved (YES/NO) i. If YES, specify the duration and time i. If NO, specify the reason for the same and details of measures identified for implementation to achieve the same					
10	Whether desired ramp rates of 3% (100%-70%) and 2% (70%-55%) Achieved (YES/NO) If NO, specify the reason for the same and details of measures identified for implementation to achieve the same					
11	Tentative date of unit readiness for Sustainable running at 55% MTL with requisite ramp rates					
12	Any other details					

Annexure-II

Sr. No.	State	Organisation	Name of Project	Unit No	Total Capacity (MW)	Technical Minimum Load Status (%) achieved by the Unit as intimated in 223rd OCC	Reason for not achieving 55% Technical Minimum
1	Punjab	GPGSL (GVK)	GOINDWAL SAHIB	1	270.00	60%	
2	Punjab	GPGSL (GVK)	GOINDWAL SAHIB	2	270.00	60%	
3	Punjab	PSPCL	GH TPS (LEH.MOH.)	1	210.00	79%	
4	Punjab	PSPCL	GH TPS (LEH.MOH.)	2	210.00	79%	
5	Punjab	PSPCL	GH TPS (LEH.MOH.)	3	250.00	68%	
6	Punjab	PSPCL	GH TPS (LEH.MOH.)	4	250.00	68%	
7	Punjab	PSPCL	ROPAR TPS	3	210.00	75%	
8	Punjab	PSPCL	ROPAR TPS	4	210.00	75%	
9	Punjab	PSPCL	ROPAR TPS	5	210.00	75%	
10	Punjab	PSPCL	ROPAR TPS	6	210.00	75%	
11	Haryana	HPGCL	PANIPAT TPS	8	250.00	Inforamtion Not Available	
12	Haryana	HPGCL	PANIPAT TPS	7	250.00	Inforamtion Not Available	
13	Haryana	HPGCL	PANIPAT TPS	6	210.00	Inforamtion Not Available	
14	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	1	135.00	70%	
15	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	2	135.00	70%	
16	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	3	135.00	70%	
17	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	4	135.00	70%	
18	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	5	135.00	70%	
19	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	6	135.00	70%	
20	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	7	135.00	70%	
21	Rajasthan	RWPL (JSW)	JALIPA KAPURDI TPP	8	135.00	70%	
22	Rajasthan	RRVUNL	CHHABRA TPP	1	250.00	72.20%	
23	Rajasthan	RRVUNL	CHHABRA TPP	2	250.00	72.20%	
24	Rajasthan	RRVUNL	CHHABRA TPP	3	250.00	72.20%	
25	Rajasthan	RRVUNL	CHHABRA TPP	4	250.00	72.20%	
26	Rajasthan	RRVUNL	KALISINDH TPS	1	600.00	66.33%	
27	Rajasthan	RRVUNL	KALISINDH TPS	2	600.00	66.33%	
28	Rajasthan	RRVUNL	SURATGARH TPS	1	250.00	72.13%	
29	Rajasthan	RRVUNL	SURATGARH TPS	2	250.00	72.13%	
30	Rajasthan	RRVUNL	SURATGARH TPS	3	250.00	72.13%	
31	Rajasthan	RRVUNL	SURATGARH TPS	4	250.00	72.13%	
32	Rajasthan	RRVUNL	SURATGARH TPS	5	250.00	72.13%	
33	Rajasthan	RRVUNL	SURATGARH TPS	6	250.00	72.13%	
34	Rajasthan	RRVUNL	KOTA TPS	1	110.00	72.26%	
35	Rajasthan	RRVUNL	KOTA TPS	2	110.00	72.26%	
36	Rajasthan	RRVUNL	KOTA TPS	3	210.00	72.26%	
37	Rajasthan	RRVUNL	KOTA TPS	4	210.00	72.26%	
38	Rajasthan	RRVUNL	KOTA TPS	5	210.00	72.26%	
39	Rajasthan	RRVUNL	KOTA TPS	6	195.00	72.26%	
40	Rajasthan	RRVUNL	KOTA TPS	7	195.00	72.26%	
41	Rajasthan	NLC	BARSINGSAR LIGNITE	1	125.00	Inforamtion Not Available	
41	Rajasthan	NLC	BARSINGSAR LIGNITE	2	125.00	Inforamtion Not Available	
41	Rajasthan	RRVUNL	GIRAL TPS	2	125.00	Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC	
41	Rajasthan	RRVUNL	GIRAL TPS	1	125.00	Under is under shutdown from 2012 and likely to be scrapped as intimated by Rajasthasn SLDC	

FORMAT

S. No	Details		Unit 1	Unit2	Unit3	-------
1	Name of Utility					
2	Plant Name and Address					
3	Capacity, MW					
4	Date of Commissioning					
5	Type of Unit: Supercritical/Subcritical/....					
6	Net Heat rate (i) Design Coal GCV (ii) Actual Coal GCV					
7	Maximum Ramp Rate Up (last 2 years)	Between 55%-70%				
		Between 70%-100%				
8	Maximum Ramp Rate Down (last 2 years)	Between 100%-70%				
		Between 70%-55%				
9	Whether 55% Minimum load Achieved (YES/NO) i. If YES, specify the duration and time i. If NO, specify the reason for the same and details of measures identified for implementation to achieve the same					
10	Whether desired ramp rates of 3% (100%-70%) and 2% (70%-55%) Achieved (YES/NO) If NO, specify the reason for the same and details of measures identified for implementation to achieve the same					
11	Tentative date of unit readiness for Sustainable running at 55% MTL with requisite ramp rates					
12	Any other details					

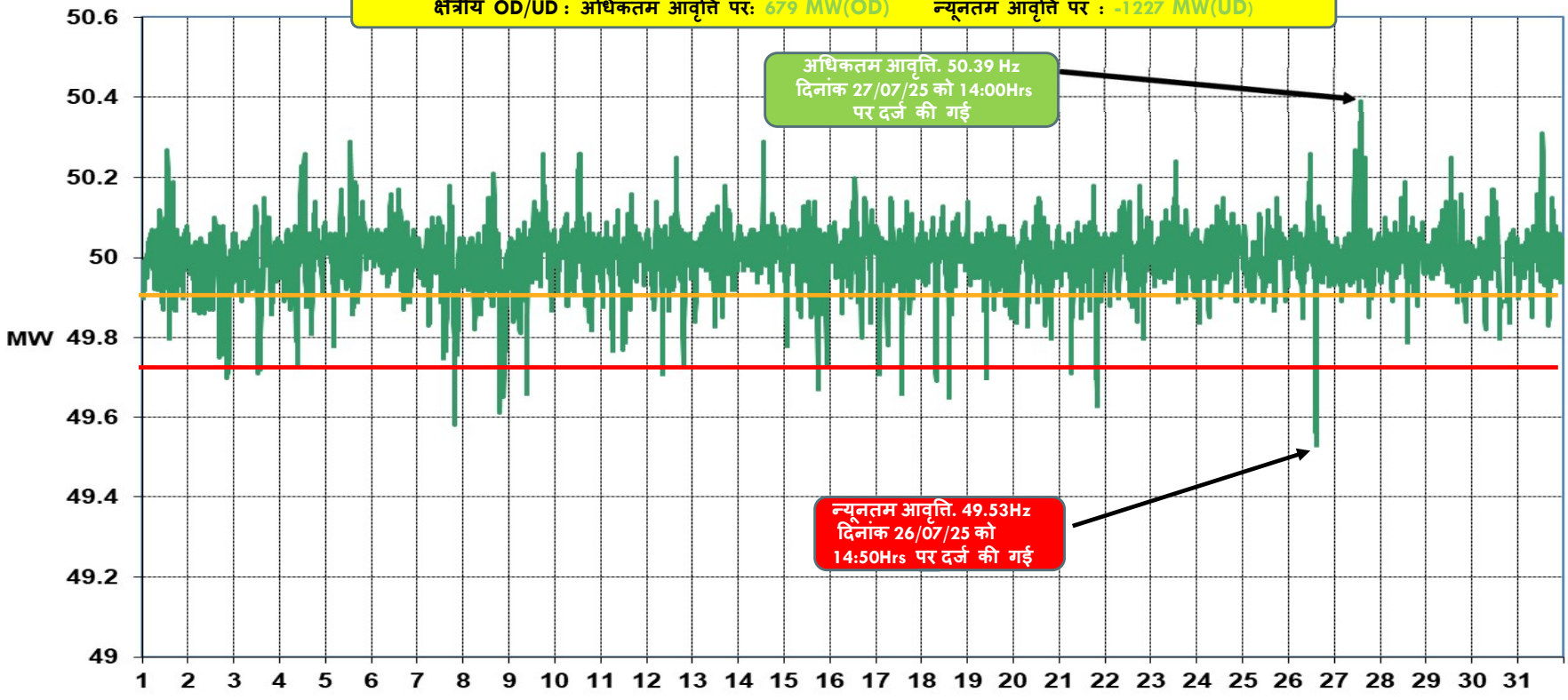
State/UT		Stage-1 49.4 Hz (5%)	Stage-2 49.2 Hz (6%)	Stage-3 49.0 Hz (7%)	Stage-4 48.8 Hz (7%)	Total
		Stage-1 Relief	Stage-2 Relief	Stage-3 Relief	Stage-4 Relief	
Chandigarh	Planned (MW)	17	21	24	24	86
	Actual (MW)	0	0	0	0	0
	Difference (MW)	-17	-21	-24	-24	-86
	Difference (%)	-100%	-100%	-100%	-100%	-100%
Delhi	Planned (MW)	334	400	467	467	1668
	Actual (MW)	322	399	442	434	1597
	Difference (MW)	-11	-1	-25	-33	-71
	Difference (%)	-3%	0%	-5%	-7%	-4%
Haryana	Planned (MW)	586	704	821	821	2931
	Actual (MW)	735	730	815	897	3175
	Difference (MW)	148	26	-6	76	244
	Difference (%)	25%	4%	-1%	9%	8%
Himachal Pradesh	Planned (MW)	101	122	142	142	507
	Actual (MW)	432	365	183	97	1077
	Difference (MW)	331	244	41	-45	570
	Difference (%)	326%	200%	29%	-32%	112%
UT J&K & Ladhak	Planned (MW)	140	168	196	196	700
	Actual (MW)	156	204	204	214	778
	Difference (MW)	16	36	8	18	78
	Difference (%)	11%	22%	4%	9%	11%
Punjab	Planned (MW)	645	773	902	902	3223
	Actual (MW)	584	715	855	859	3014
	Difference (MW)	-61	-58	-47	-43	-209
	Difference (%)	-9%	-8%	-5%	-5%	-6%
Rajasthan	Planned (MW)	853	1024	1194	1194	4266
	Actual (MW)	812	974	1138	1142	4066
	Difference (MW)	-41	-50	-56	-52	-200
	Difference (%)	-5%	-5%	-5%	-4%	-5%
Uttar Pradesh	Planned (MW)	1297	1557	1816	1816	6486
	Actual (MW)	2580	2188	2013	1757	8538
	Difference (MW)	1283	631	197	-59	2052
	Difference (%)	99%	41%	11%	-3%	32%
Uttarakhand	Planned (MW)	127	152	177	177	633
	Actual (MW)	319	138	167	241	865
	Difference (MW)	192	-14	-10	64	232
	Difference (%)	152%	-9%	-6%	36%	37%
Total	Planned (MW)	4100	4920	5740	5740	20499
	Actual (MW)	5940	5713	5816	5642	23111
	Difference (MW)	1840	793	76	-98	2612
	Difference (%)	45%	16%	1%	-2%	13%

प्रचालन समन्वय उपसमिति की बैठक
जुलाई - 2025

जुलाई-2025 के दौरान आवृत्ति की स्थिति
(As per 5 Minute SCADA data)

ग्रिड-इंडिया GRID-INDIA

क्षेत्रीय OD/UD : अधिकतम आवृत्ति पर: 679 MW(OD) न्यूनतम आवृत्ति पर : -1227 MW(UD)



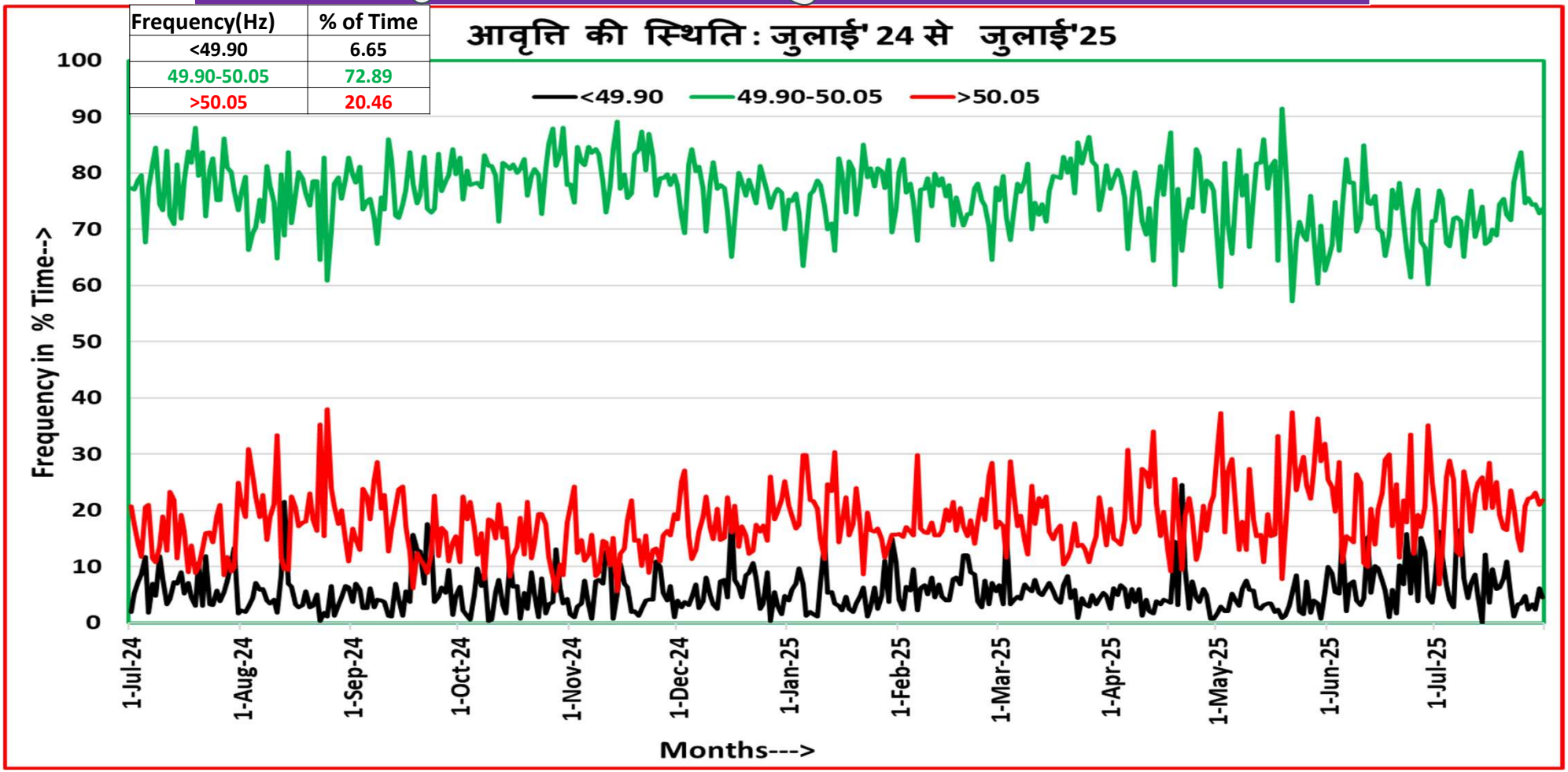
OD(+)/UD(-) at Max Freq	
UP	+ 433
Pun	+ 57
Del	+ 126
Raj	+ 421
Utt	- 114
HP	- 12
JK	- 75
Chd	- 31
Har	- 151

OD(+)/UD(-) at Min Freq	
Raj	+ 276
Utt	+ 244
HP	+ 47
Chd	+ 5
UP	- 908
Har	- 386
Del	- 27
JK	- 28
Pun	- 356

आवृत्ति की स्थिति: जुलाई-2024 से 2025

ग्रिड-इंडिया
GRID-INDIA

Frequency(Hz)	% of Time
<49.90	6.65
49.90-50.05	72.89
>50.05	20.46



पिछले एक साल मे आवृत्ति की स्थिति

ग्रिड-इंडिया GRID-INDIA

आवृत्ति बैंड	जुलाई 2024	अगस्त 2024	सितम्बर 2024	अक्टूबर 2024	नवम्बर 2024	दिसंबर 2024	जनवरी 2025	फरवरी 2025	मार्च 2025	अप्रैल 2025	मई 2025	जून 2025	जुलाई 2025
< 49.7 Hz(%)	0.054	0.176	0.18	0.14	0.10	0.29	0.18	0.12	0.05	0.27	0.07	0.15	0.32
<49.8 Hz(%)	0.621	0.631	0.89	0.60	0.66	0.97	0.92	0.73	0.61	0.96	0.29	0.86	1.39
<49.9 Hz(%)	6.406	4.660	6.09	4.86	5.15	5.58	5.23	6.24	5.32	5.16	3.60	7.56	6.65
49.90-50.05 Hz(%)	***78.424***	***75.012***	***77.130***	***80.27***	***80.80***	***76.45***	***76.05***	***75.35***	***77.89***	***75.64***	***73.30***	***71.85***	***72.89***
50.05-50.10 Hz(%)	12.122	13.334	10.36	12.18	10.90	14.59	15.09	14.23	13.12	14.80	15.35	14.11	16.38
>50.10 Hz(%)	3.047	6.992	6.42	2.49	3.15	3.38	3.63	4.18	3.67	4.39	7.76	6.48	4.08
>50.20 Hz(%)	0.280	1.725	1.03	0.20	0.21	0.37	0.33	0.55	0.63	1.09	2.87	1.73	0.64
औसत आवृत्ति	49.997	50.008	50.000	49.998	49.995	49.998	49.998	49.999	50.001	50.004	50.015	50.002	50.003

जुलाई-2025 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

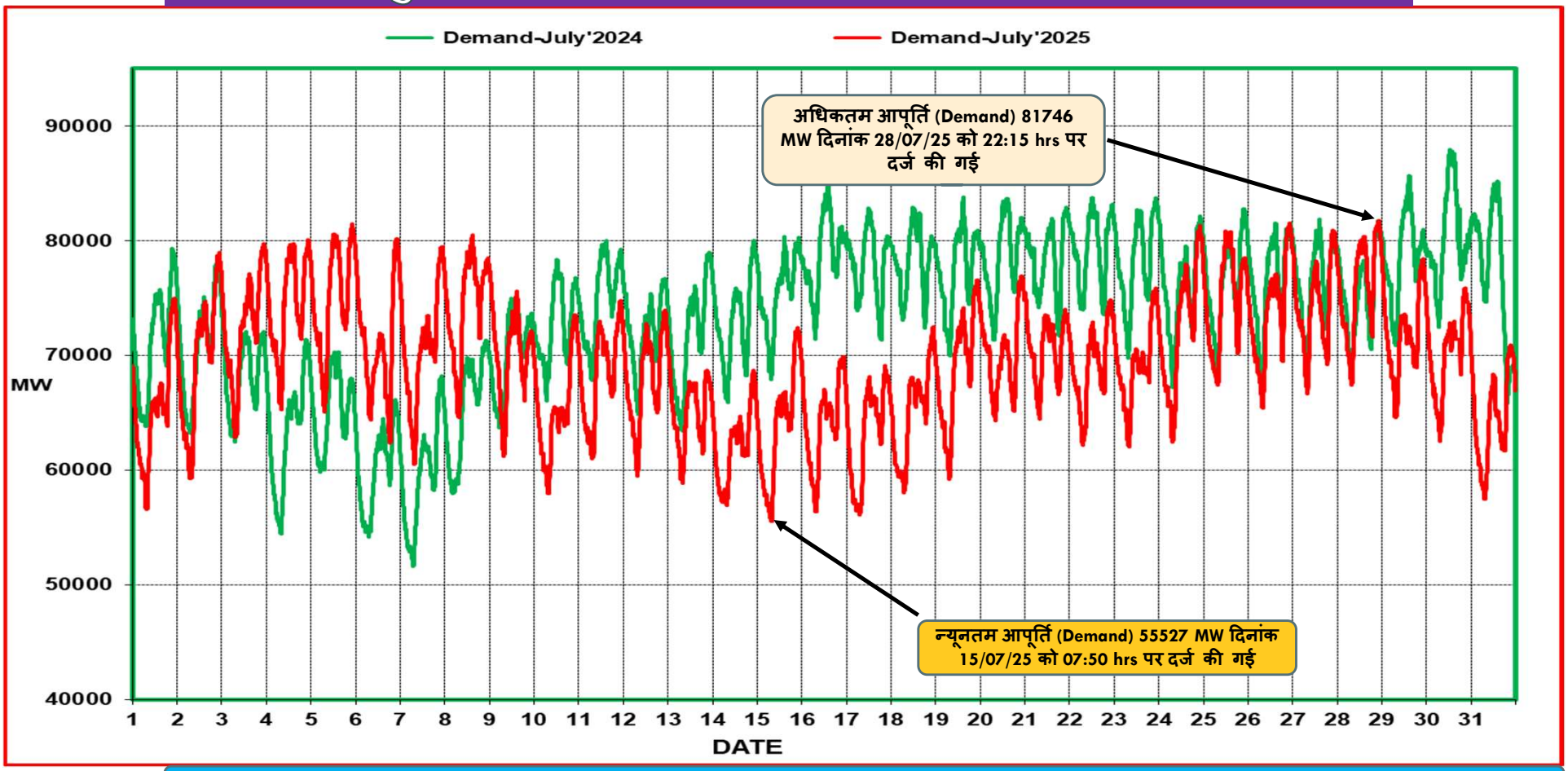
ग्रिड-इंडिया GRID-INDIA

राज्य	अधिकतम मांग (MW) (in Jul'25)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Jun'25)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in Jul'25)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Jun'25)	दिनांक
पंजाब	16670	05.07.25 at 13:45	16754	28.06.25 at 15:00	355.9	27.07.25	366.8	21.07.2024
हरियाणा	14084	05.07.25 at 15:00	14662	31.07.24 at 14:30	292.7	26.07.25	293.4	30.07.2024
राजस्थान	14685	25.07.25 at 22:45	19165	12.02.25 at 11:00	311.7	25.07.25	388.01	11.06.2025
दिल्ली	7568	25.07.25 at 15:11	8656	19.06.24 at 15:06	152.7	28.07.25	177.7	18.06.2024
उत्तर प्रदेश	30818	24.07.25 at 22:45	31486	11.06.25 at 00:45	600.6	24.07.25	658.7	17.06.2024
उत्तराखंड	2673	26.07.25 at 22:00	2910	11.06.25 at 22:00	54.9	26.07.25	62.1	14.06.2024
हिमाचल प्रदेश	1835	23.07.25 at 09:00	2273	17.01.25 at 09:00	40.0	26.07.25	42.55	11.06.2025
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	2729	04.07.25 at 12:00	3200	07.01.25 at 10:00	57.0	04.07.25	70.3	04.02.2025
चंडीगढ़	399	25.07.25 at 15:00	482	18.06.24 at 15:28	7.9	26.07.25	9.28	12.06.2025
उत्तरी क्षेत्र #	81583	26.07.25 at 22:00	91234	19.06.24 at 14:37	1820.6	28.07.25	2022.9	12.06.2025

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

क्षेत्रीय विद्युत आपूर्ति (Demand) जुलाई 2024 बनाम जुलाई 2025 (As per 5 Minute SCADA data)

ग्रिड-इंडिया GRID-INDIA

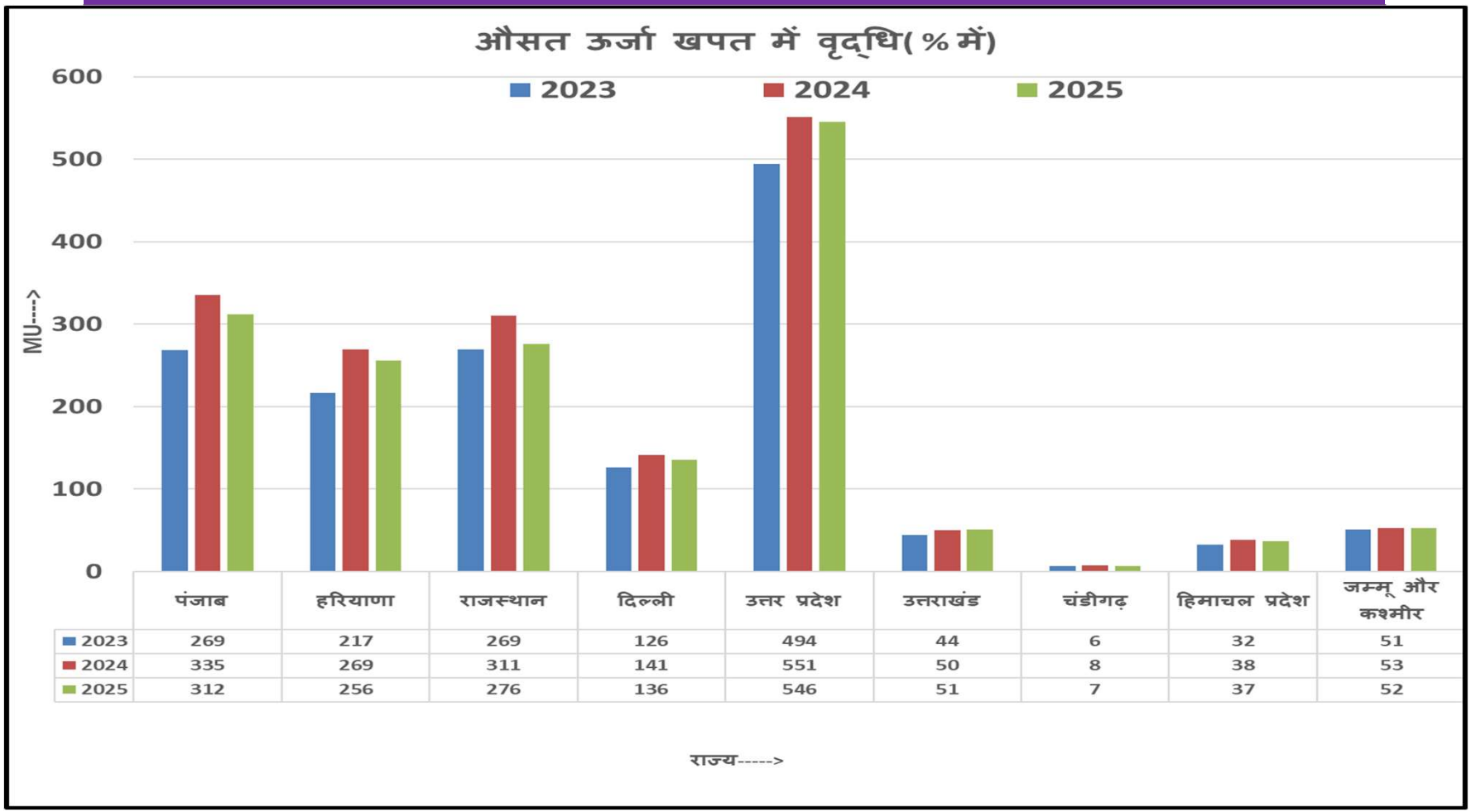


जुलाई -2024 की तुलना में जुलाई -2025 की औसत विद्युत आपूर्ति में 3997 MW कम हुई

उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि(% में) जुलाई-2025/ जुलाई-2024 / जुलाई-2023

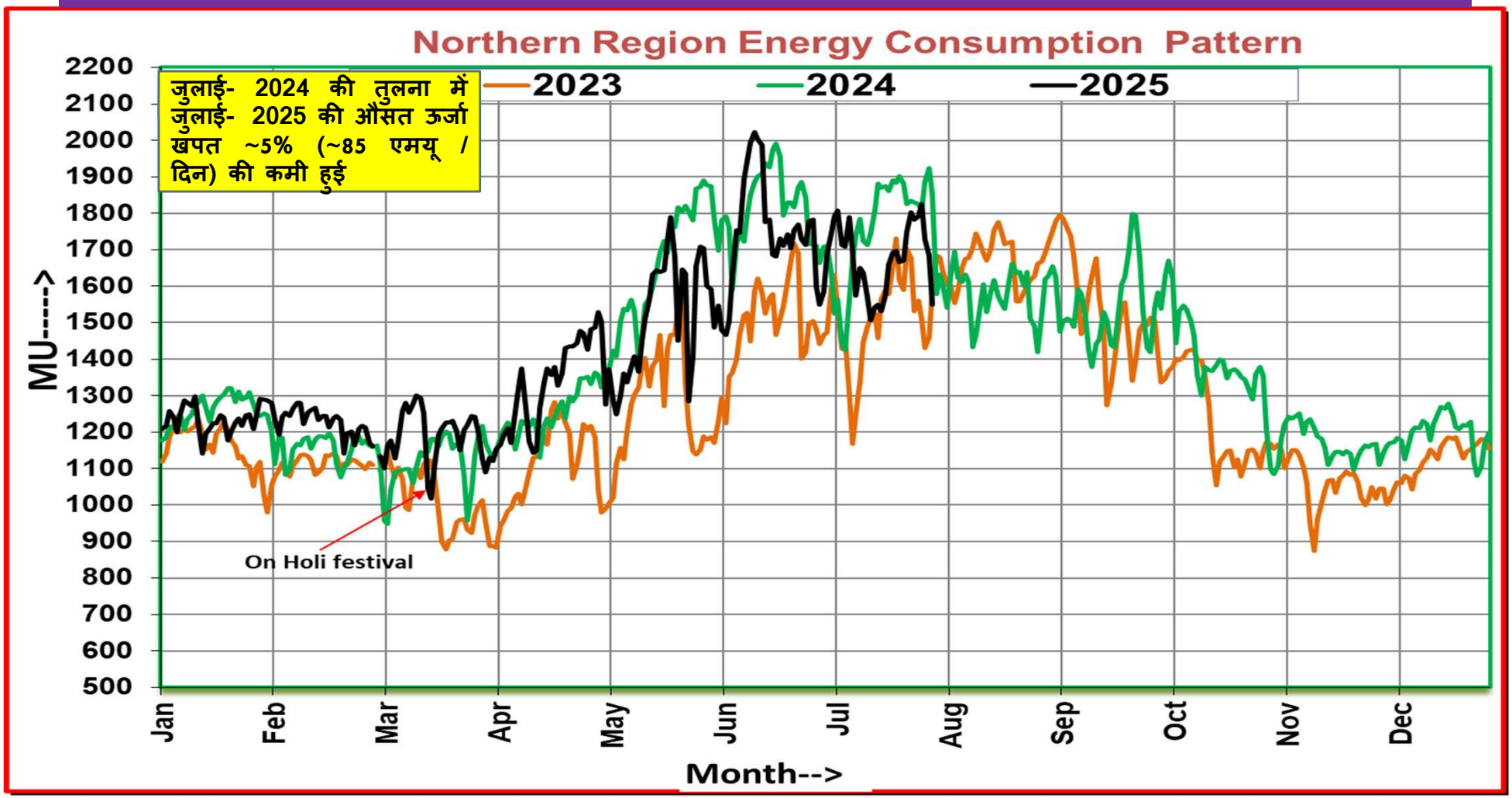
राज्य	जुलाई-2023	जुलाई-2024	जुलाई-2025	% वृद्धि (जुलाई-2024 vs जुलाई-2023)	% वृद्धि (जुलाई-2025 vs जुलाई-2024)
पंजाब	269	335	312	24.8%	-7.1%
हरियाणा	217	269	256	24.1%	-4.9%
राजस्थान	269	311	276	15.3%	-11.1%
दिल्ली	126	141	136	11.7%	-3.7%
उत्तर प्रदेश	494	551	546	11.6%	-1.0%
उत्तराखंड	44	50	51	14.6%	0.7%
चंडीगढ़	6	8	7	22.0%	-11.3%
हिमाचल प्रदेश	32	38	37	17.6%	-3.9%
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	51	53	52	4.4%	-1.4%
उत्तरी क्षेत्र	**1512**	**1761**	**1676**	**16.5%**	**-4.8%**

उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि(% में) जुलाई-2025/ जुलाई-2024 / जुलाई-2023

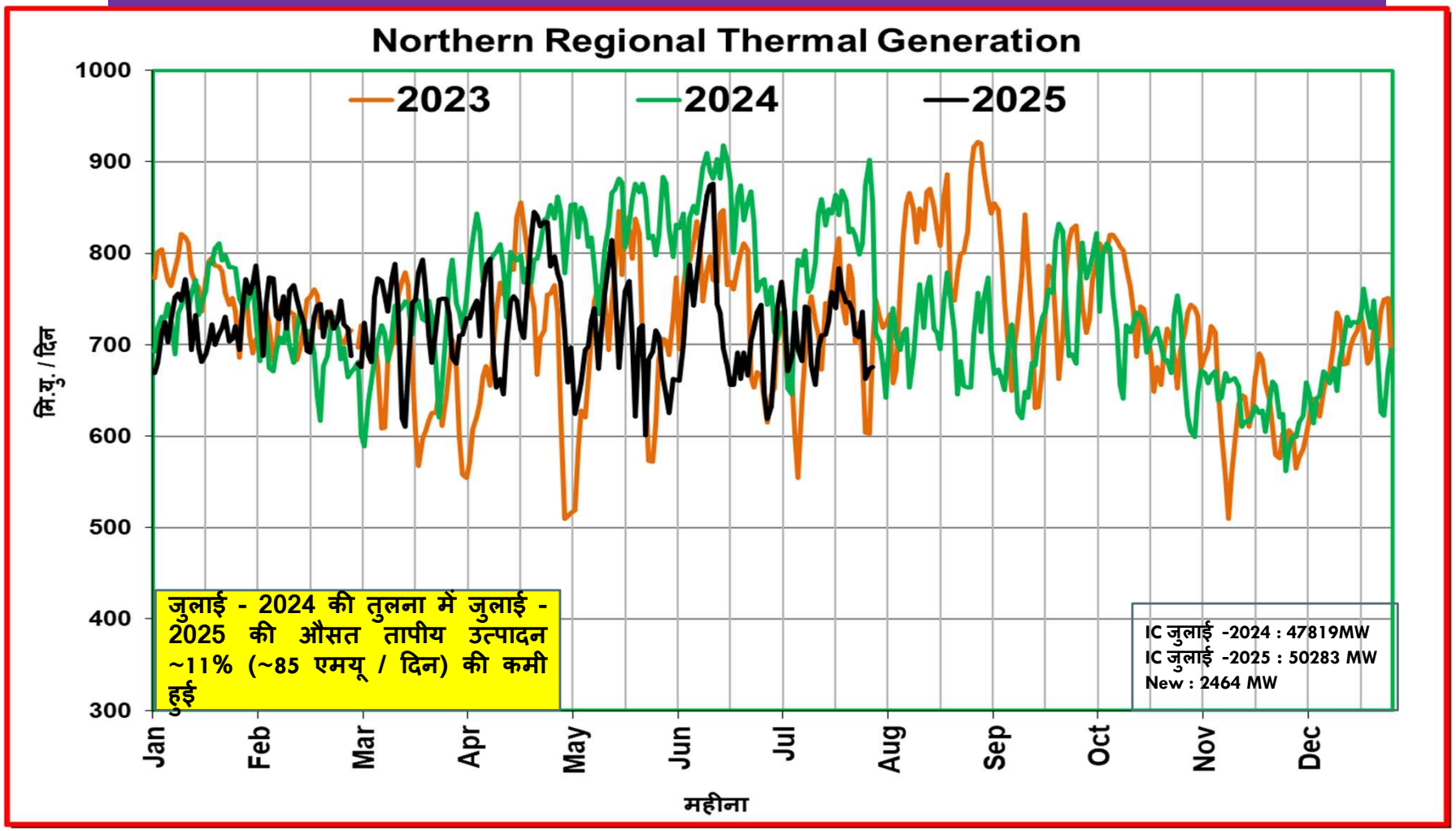


	पंजाब	हरियाणा	राजस्थान	दिल्ली	उत्तर प्रदेश	उत्तराखंड	चंडीगढ़	हिमाचल प्रदेश	जम्मू और कश्मीर
2023	269	217	269	126	494	44	6	32	51
2024	335	269	311	141	551	50	8	38	53
2025	312	256	276	136	546	51	7	37	52

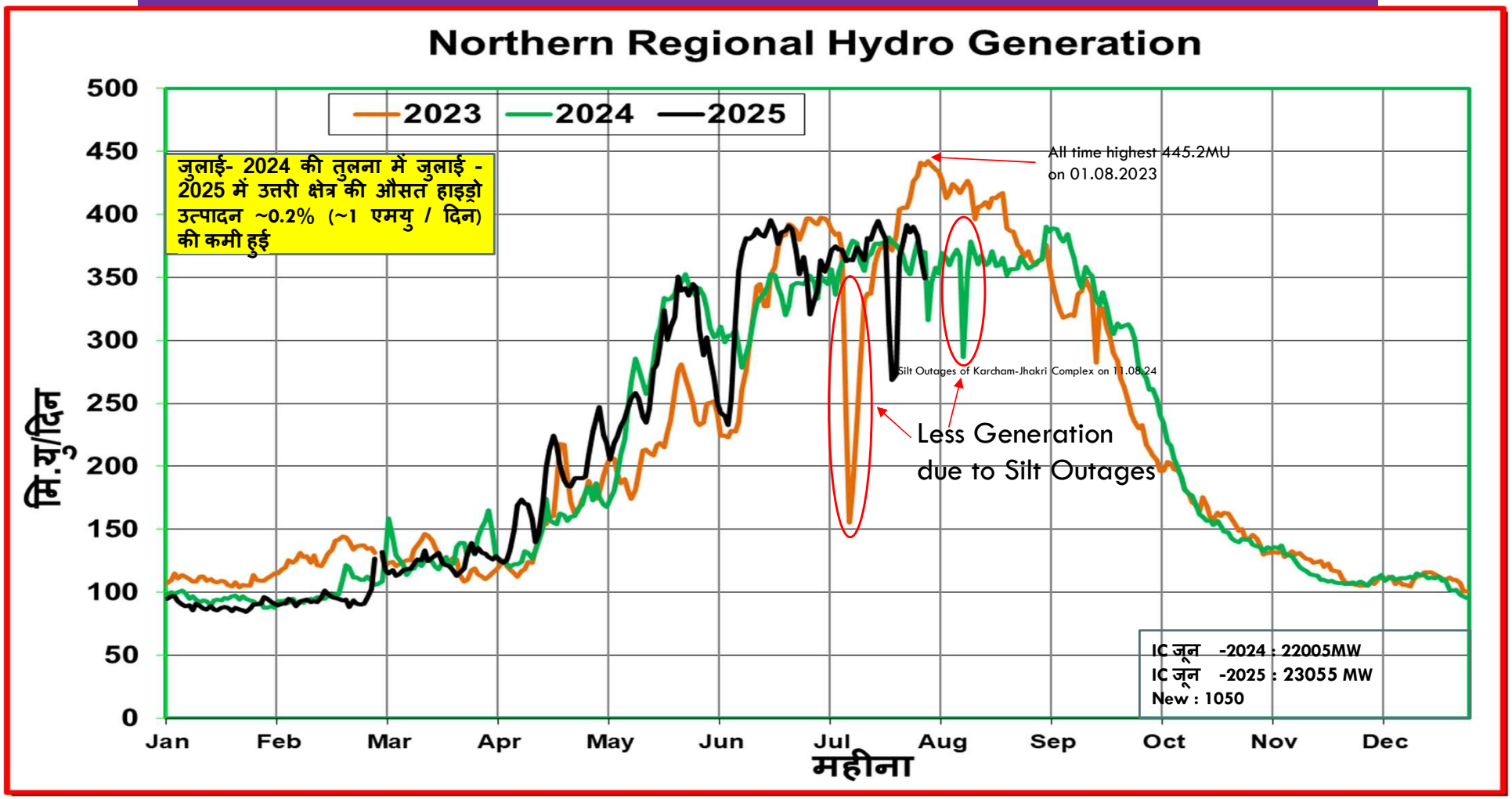
उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



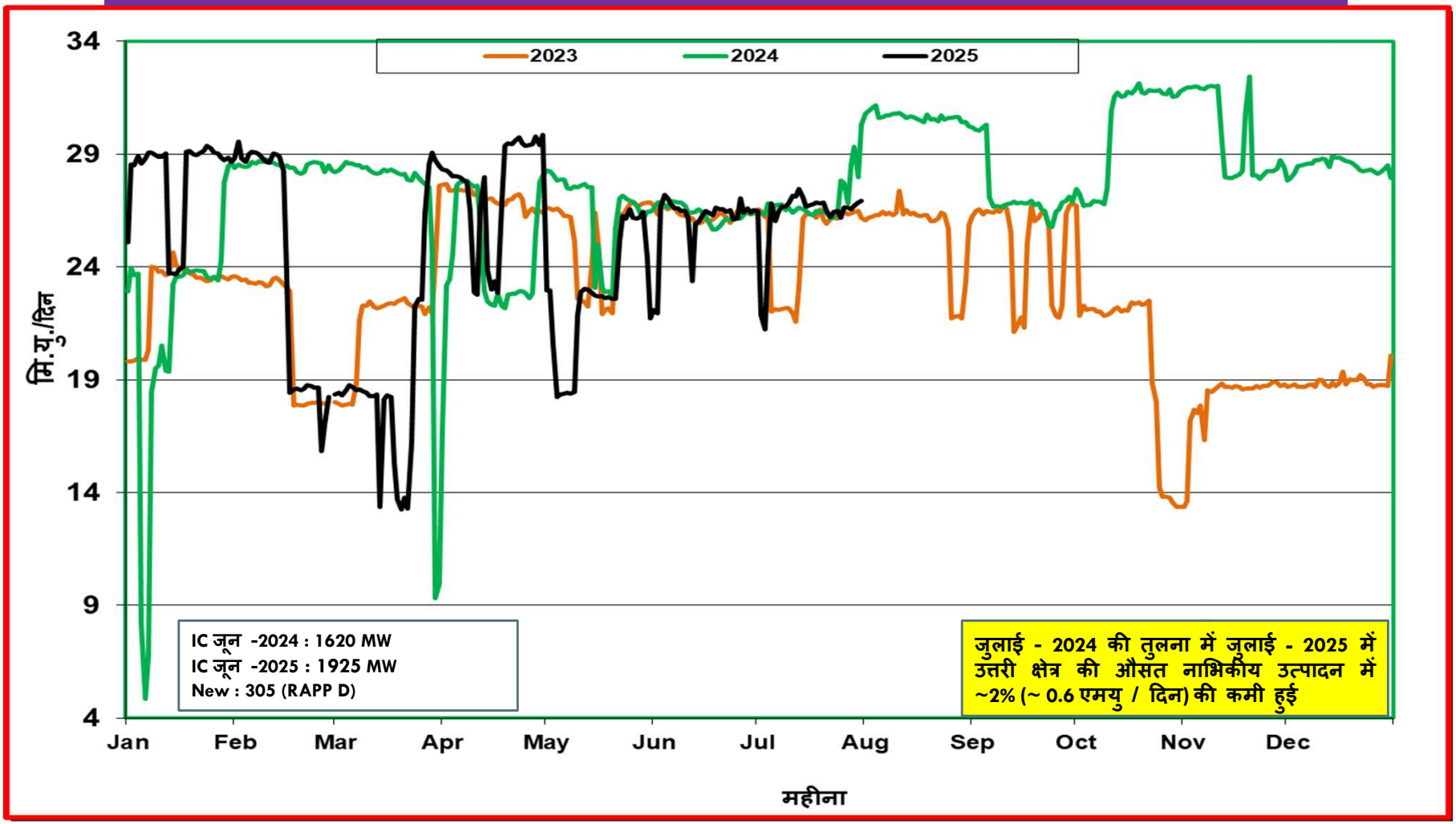
उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(MUs/Day)



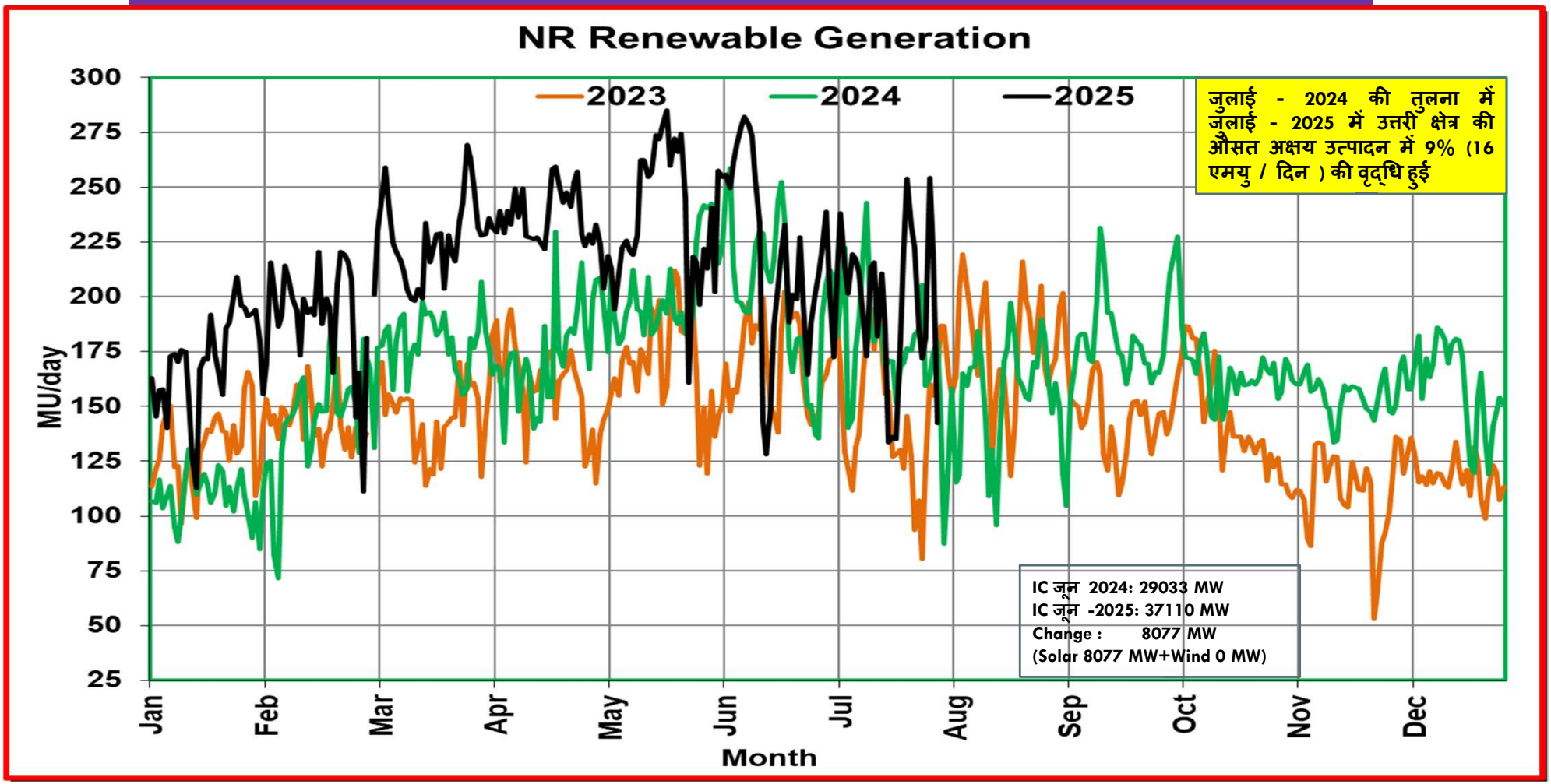
उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(MUs/Day)



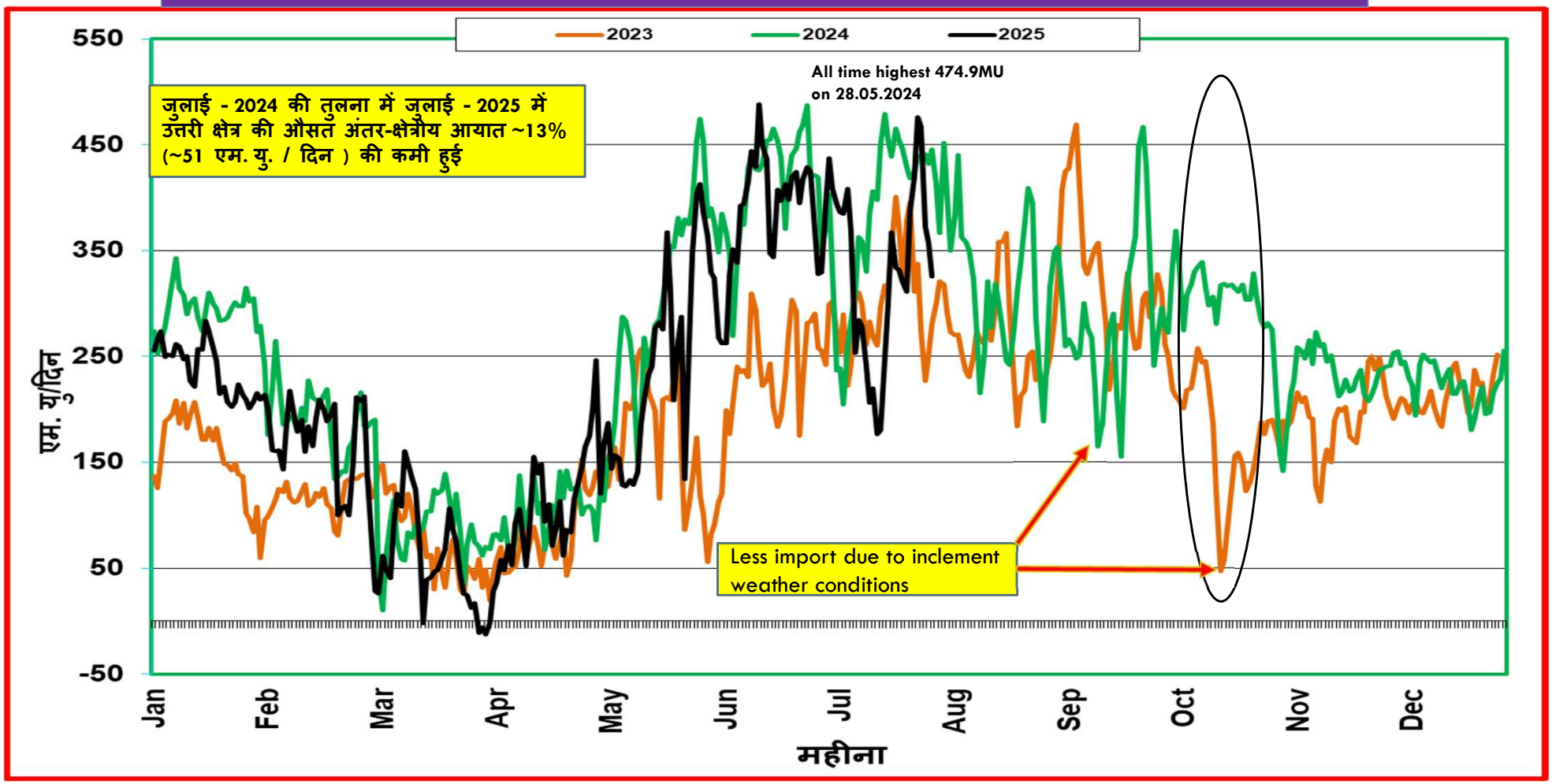
उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)



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



अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



वास्तविक सारांश - जुलाई-2024 बनाम जुलाई-2025

	जुलाई-2024 (मि.यु. /दिन)	जुलाई-2025 (मि.यु. /दिन)	जुलाई माह में वृद्धि (मि.यु./दिन)
तापीय (Thermal) उत्पादन	799	714	-85
जलीय (Hydro) उत्पादन	365	364	-1
नाभिकीय (Nuclear) उत्पादन	27	26	-0.6
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	386	335	-51
अक्षय (Renewable) उत्पादन	183	199	16

नवीकरणीय ऊर्जा की क्षमता
(RE PENETRATION)

	अधिकतम दैनिक (MU) क्षमता			
	जुलाई '2025		जुलाई '2025 तक का रिकॉर्ड	
	अधिकतम % क्षमता	दिनांक	अधिकतम % क्षमता	दिनांक
पंजाब	2.43	16-07-2025	12.28	01-04-2020
राजस्थान	29.17	29-07-2025	36.47	22-10-2021
उत्तर प्रदेश	3.01	19-07-2025	6.03	05-03-2025
उत्तर क्षेत्रीय	15.21	23-07-2025	23.00	15-03-2025

OUTAGE SUMMARY FOR JULY-2025

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	286	226	128	98	69.08	30.92	56.64	43.36	512
UPPTCL	58	198	99	99	36.94	63.06	50.00	50.00	256
RRVPNL	47	90	35	55	57.32	42.68	38.89	61.11	137
HVPNL	38	42	18	24	67.86	32.14	42.86	57.14	80
BBMB	12	66	24	42	33.33	66.67	36.36	63.64	78
PSTCL	27	46	17	29	61.36	38.64	36.96	63.04	73
DTL	1	20	9	11	10.00	90.00	45.00	55.00	21
PTCUL	5	13	2	11	71.43	28.57	15.38	84.62	18
HPPTCL	4	4	4	0	50.00	50.00	100.00	0.00	8
NTPC	1	7	2	5	33.33	66.67	28.57	71.43	8
PDD JK	2	6	3	3	40.00	60.00	50.00	50.00	8
ESUCRL	4	6	1	5	80.00	20.00	16.67	83.33	10
GPTL	0	2	2	0	0.00	100.00	100.00	0.00	2
THAR SURYA1	2	0	0	0	100.00	0.00	0.00	0.00	2
Adani	1	21	8	13	11.11	88.89	38.10	61.90	22
NRSS XXIX	1	6	4	2	20.00	80.00	66.67	33.33	7
APCPL	0	1	0	1	0.00	0.00	0.00	100.00	1
NHPC	0	7	5	2	0.00	100.00	71.43	28.57	7
NRSS36	2	3	2	1	50.00	50.00	66.67	33.33	5
Renew Power	0	2	0	2	0.00	0.00	0.00	100.00	2
Saurya Urja	2	0	0	0	100.00	0.00	0.00	0.00	2
PKTCL	1	6	6	0	14.29	85.71	100.00	0.00	7
MAHINDRA	1	1	1	0	50.00	50.00	100.00	0.00	2
Total	**495**	**773**	**370**	**403**	**57.23**	**42.77**	**47.87**	**52.13**	**1268**

OUTAGE SUMMARY OF LAST FOUR 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))	
Apr-25	923	1003	416	587	68.9%	31.1%	1926
May-25	**729**	**1379**	**482**	**897**	**60.2%**	**39.8%**	**2108**
June-25	**498**	**801**	**401**	**400**	**55.39%**	**44.60%**	**1299**
July-25	**495**	**773**	**370**	**403**	**57.23%**	**42.77%**	**1268**

New Elements First Time Charged During July 2025

S. No.	Type of transmission element	Total No
1	AC Lines	6
2	Transformer	8
3	Solar plant	2
4	Generating Units	1
5	Harmonic filter	11
Total New Elements charged		28

New AC Lines

S.No	Name of element	Owner	Voltage Level (in kV)	Circuit No	Line Length	Conductor Type	Actual date of charging
1	220kV ESUCRL SL_BHD_PG (ESUCRL ISS1)-ESUCRL_SL_BHD_PG(ESUCRL MSS)-1	ESUCRL	220kV	1	6.23	ACSS TEAL	08-Jul-2025
2	220kV ESUCRL SL_BHD_PG (ESUCRL)-ESUCRL_SL_BHD_PG(ESUCRL MSS)-1	ESUCRL	220kV	1	8.14	ACSS TEAL	08-Jul-2025
3	220kV ESUCRL_SL_BHD_PG(ESUCRL RPSS)-Bhadla(PG)-2	ESUCRL	220kV	2	0.7	ACSS TEAL	10-Jul-2025
4	220kV ESUCRL_SL_BHD_PG(ESUCRL MSS)-ESUCRL_SL_BHD_PG(ESUCRL RPSS)-2	ESUCRL	220kV	2	67.87	ACSS TEAL	11-Jul-2025
5	220kV ESUCRL_SL_BHD_PG(ESUCRL RPSS)-Bhadla(PG)-1	ESUCRL	220kV	1	0.7	ACSS TEAL	13-Jul-2025
6	220kV ESUCRL_SL_BHD_PG(ESUCRL MSS)-ESUCRL_SL_BHD_PG(ESUCRL RPSS)-1	ESUCRL	220kV	1	67.87	ACSS TEAL	13-Jul-2025

Transformer

S.No	Name of element	Owner	Voltage Level (HV/LV/Tertiary)	MVA Capacity	HV Stattion	Transformer Details	OLD MVA Capacity	Actual date of charging
1	220/33kV, 125 MVA, 3-Phase, ABB, Power Transformer - 1 at ESUCRL_SL_BHD_PG(ESUCRL MSS)	ESUCRL	220/33kV	125	ESUCRL_SL_BHD_PG (ESUCRL MSS)	New	NA	08-Jul-2025
2	220/33kV, 125 MVA, 3-Phase, ABB, Power Transformer - 2 at ESUCRL_SL_BHD_PG(ESUCRL MSS)	ESUCRL	220/33kV	125	ESUCRL_SL_BHD_PG (ESUCRL MSS)	New	NA	10-Jul-2025
3	220/33kV, 125 MVA, 3-Phase, ABB, Power Transformer - 3 at ESUCRL_SL_BHD_PG(ESUCRL MSS)	ESUCRL	220/33kV	125	ESUCRL_SL_BHD_PG (ESUCRL MSS)	New	NA	10-Jul-2025
4	220/33kV, 300 MVA, 3-Phase, TBEA, Power Transformer - 1 at ESUCRL_SL_BHD_PG(ESUCRL RPSS)	ESUCRL	220/33kV	300	ESUCRL_SL_BHD_PG (ESUCRL RPSS)	New	NA	11-Jul-2025
5	220/33kV, 300 MVA MVA, 3-Phase, TBEA, Power Transformer - 2 at ESUCRL_SL_BHD_PG(ESUCRL RPSS)	ESUCRL	220/33kV	300	ESUCRL_SL_BHD_PG (ESUCRL RPSS)	New	NA	11-Jul-2025
6	400/132kV, 200 MVA, 3-Phase, 6008099, ICT - 2 at Singrauli(NT)	NTPC	400/132kV	200	Singrauli(NT)	Replacement	200	14-Jul-2025
7	400/220/33kV, 500 MVA, 3-Phase, BHEL, ICT - 1 at Rasra (UP)	UPPTCL	400/220/33kV	500	Rasra (UP)	Replacement	500	16-Jul-2025
8	220/33kV, 150 MVA, 3-Phase, INDOTECH TRANSFORMERS LIMITED (Serial.No.- ITK-56389), Power Transformer - 2 at Eden_RAPL_SL_BHD2_PG	EDEN_RAPL	220/33kV	150	Eden_RAPL_SL_BHD 2_PG	New	NA	25-Jul-2025

Generating Units

S.No	Name of element	Owner	Voltage LeveL	Installed Capacity (MW)	MVA Capacity	Max Continuous Gen Capacity	Min Continuous Gen Capacity	Auxilliary Consumption	Actual date of charging
1	660 MW, 776.47 MVA 22 KV Make GE Unit No 2 at 3*660 MW GHATAMPUR TPS(Stage 1)	NUPPL	22kV	660 MW	776.47 MVA	660	363	5.25%	20-Jul-2025

Solar plant

S.No	Plant Name	Pooling Sub-station	Added Capacity (MW)	Total Capacity Charged(MW)	Total Installed Capacity of Plant(MW)	Type of RE	Total No. of Solar ICR/Block Charged	Agency/ Owner	Actual date of charging
1	AMBUJA CEMENTS LIMITED(ACL)	Bhadla	150	150	150	Solar	13	AMBUJA_CL	24-Jul-2025
2	EDEN RENEWABLE ALMA PRIVATE LIMITED(ERAPL)	Bhadla_2	200	300	300	Solar	18	EDEN_RAPL	28-Jul-2025

Harmonic filter

S.No	Name of element	Owner	Voltage Level (in kV)	Capacitor Bank No	Sub Capacitor Bank MVAR Rating	Capacitor MVAR Rating	Actual date of charging
1	33kV, Harmonic filter capacitor bank- 3, at ESUCRL_SL_BHD_PG(ESUCRL MSS)	ESUCRL	33kV	3	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters	7	19-Jul-2025
2	33kV, Harmonic filter capacitor bank - 2, at ESUCRL_SL_BHD_PG(ESUCRL MSS)	ESUCRL	33kV	2	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters	7	19-Jul-2025
3	33kV, Harmonic filter capacitor bank - 1, at ESUCRL_SL_BHD_PG(ESUCRL MSS)	ESUCRL	33kV	1	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters	7	19-Jul-2025
4	33kV, Harmonic Filter Capacitor Bank - 1, at ESUCRL_SL_BHD_PG(ESUCRL RPSS)	ESUCRL	33kV	1	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters filter	7	19-Jul-2025
5	33kV, Harmonic Filter Capacitor Bank - 2, at ESUCRL_SL_BHD_PG(ESUCRL RPSS)	ESUCRL	33kV	2	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters	7	19-Jul-2025
6	33kV, Harmonic Filter capacitor bank - 1, at ESUCRL SL_BHD_PG (ESUCRL)	ESUCRL	33kV	1	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters filter	7	19-Jul-2025
7	33kV, Harmonic Filter capacitor bank - 2, at ESUCRL SL_BHD_PG (ESUCRL)	ESUCRL	33kV	2	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters filter	7	19-Jul-2025
8	33kV, Harmonic filter capacitor bank - 3, at ESUCRL SL_BHD_PG (ESUCRL ISS1)	ESUCRL	33kV	3	2+5 MVAR Filter Bank as per compliances related to clause B.1 Power Quality Norms. 1x2 MVAR 2nd order single tuned filters and 1x5 MVAR 5th Order High Pass Filters filter	7	19-Jul-2025
9	33kV, Harmonic Filter Capacitor Bank - 1 , at ASSPL_SL_BKN2	ASSPL_BKN2	33kV	1	15 MVAr at 33 kV with Tuned Harmonic Order (n) 4.9, a quality factor of 2, Resonant frequency (fn) 245Hz on each 33 kV side of Power Transformer	15	28-Jul-2025
10	33kV, Harmonic Filter - 2 at Eden_RAPL_SL_BHD2_PG	EDEN_RAPL	33kV	2	3x2MVAR, Tuned Fitter Quality Factor 100, Tuned Frequency 685 Hz	6	28-Jul-2025
11	33kV, Harmonic Filter - 1 at Eden_RAPL_SL_BHD2_PG	EDEN_RAPL	33kV	1	3x1MVAR, Tuned Fitter Quality Factor 100, Tuned Frequency 295 Hz	3	28-Jul-2025

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.

State/Entity	Day Ahead (As on Jul-25)	Week Ahead	Month Ahead (Aug 2025)	Year-Ahead
Punjab	As per Format	Demand and Resource not as per timeline	Not received	Not received
Haryana	Demand and Resource not as per format	Only demand & irregular	Not received	Not received
Delhi	Demand and Resource not as per format	As per Format	As per Format	Only Demand
Rajasthan	As per Format but irregular	As per Format	Not received	Not received
Uttar Pradesh	As per Format	As per Format	As per Format	As per Format
Uttarakhand	Demand and Resource not as per format and irregular	As per Format	As per Format	Not received
Himachal Pradesh	As per Format	As per Format	As per Format	As per Format
J&K and Ladakh (UT)	Demand and Resource not as per format & irregular	Not received	Not received	Not received
Chandigarh (UT)	As per Format	Not received	Not received	Not received

- **All are requested to strictly follow the standard format provided along with the submission timeline.**

FILE UPLOAD PORTAL:

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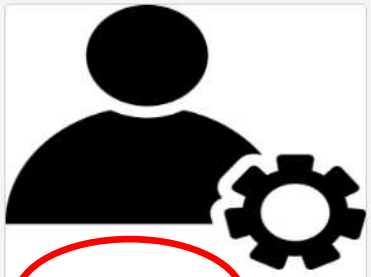

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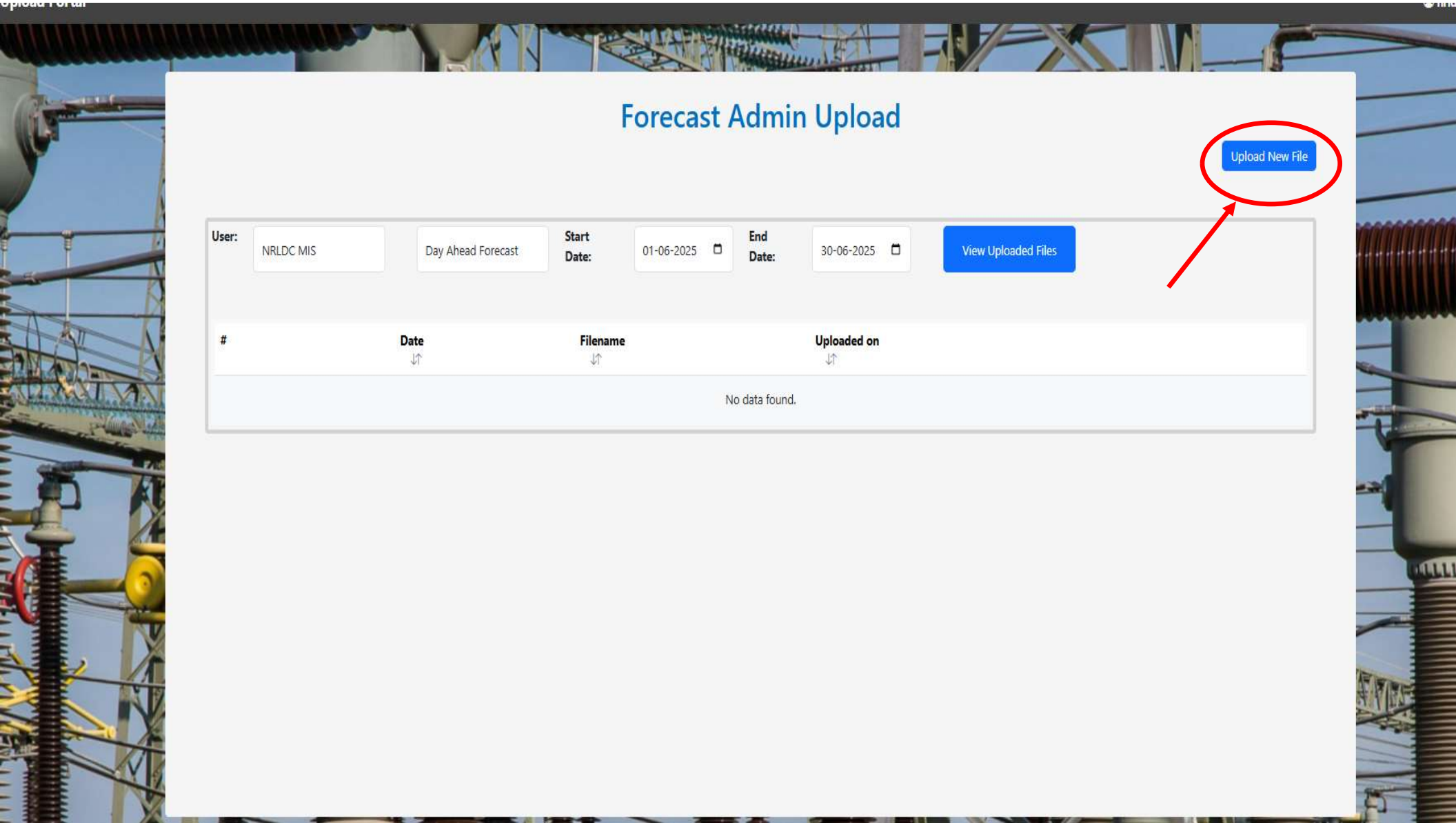
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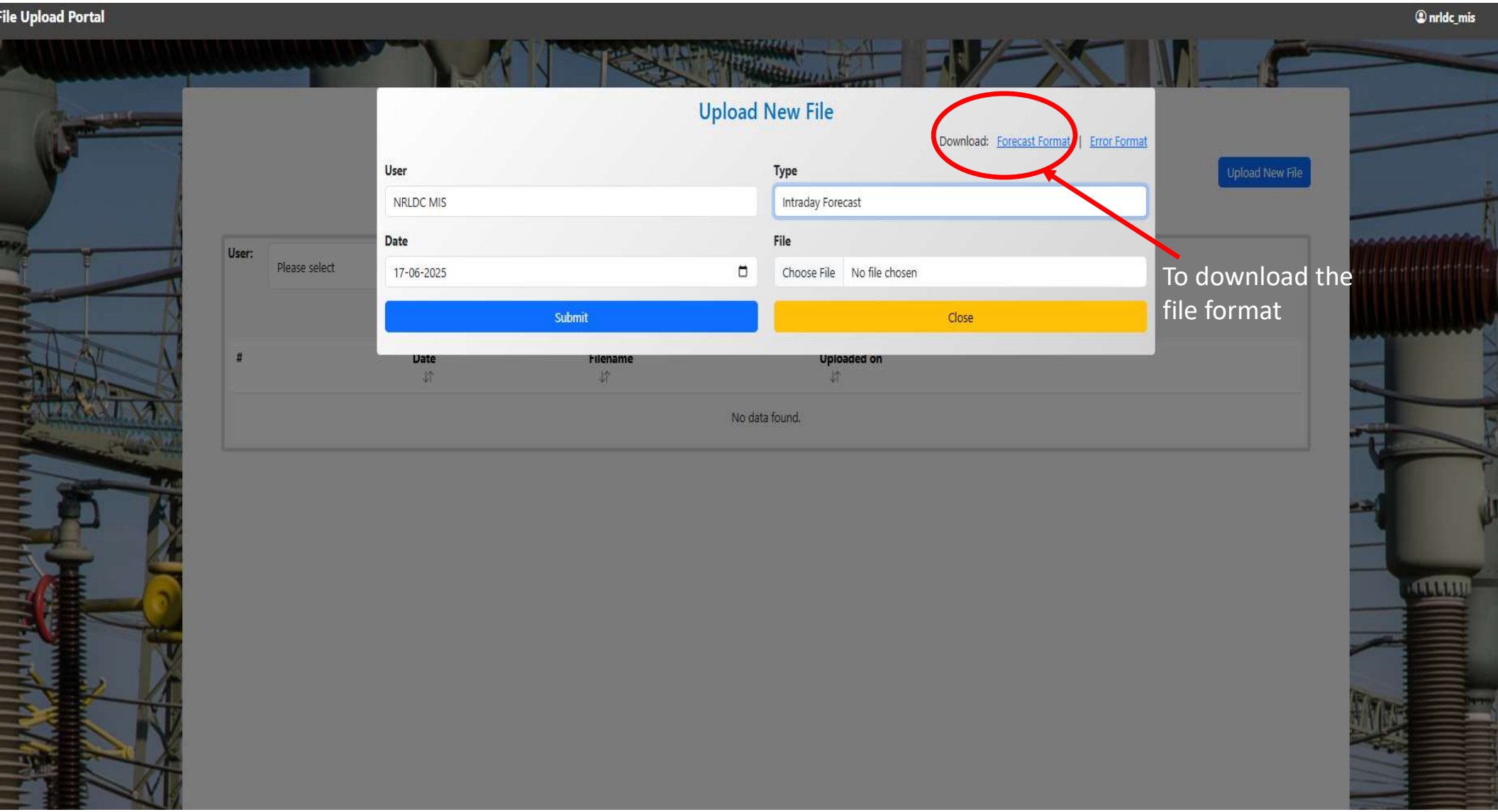
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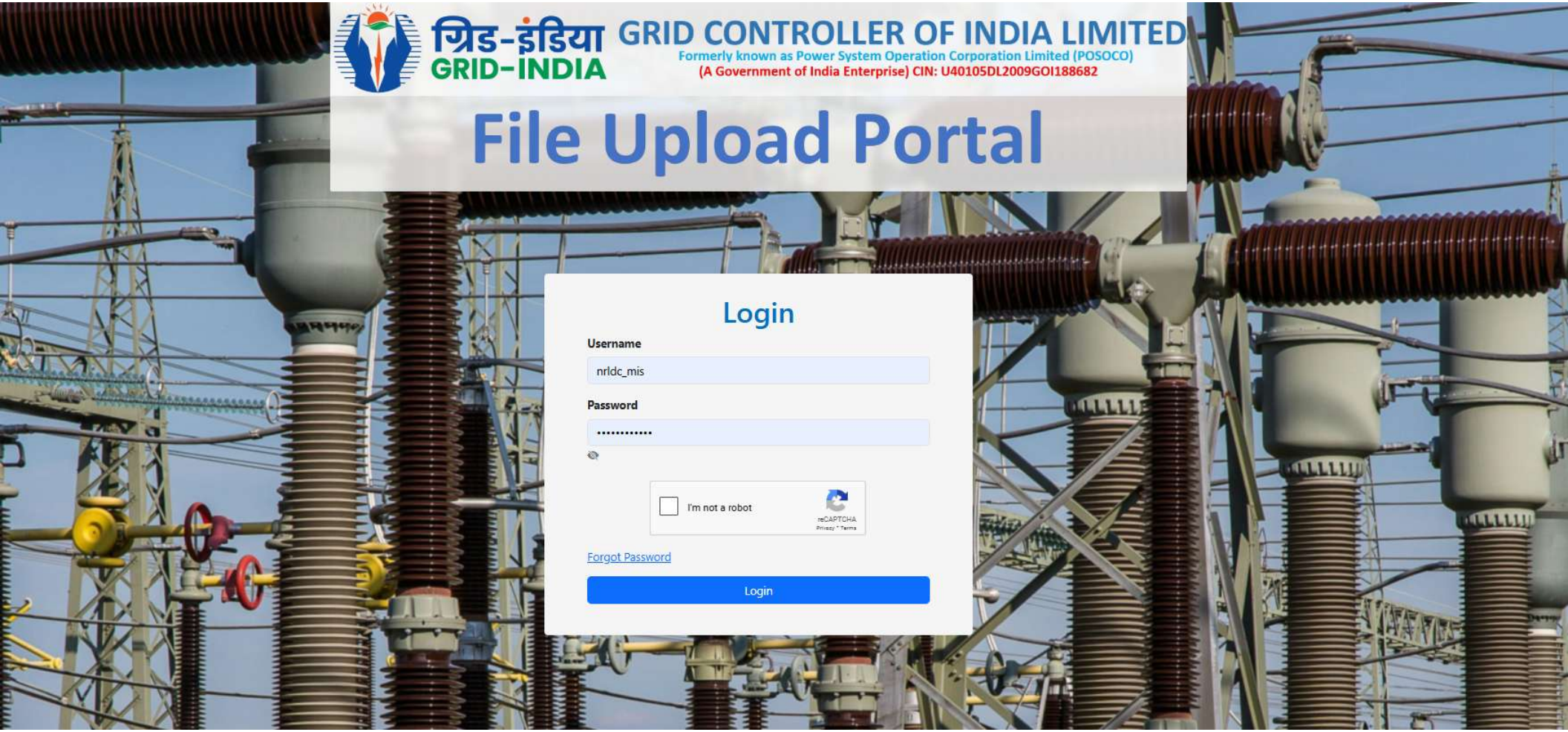
ACTION REQUIRED BY CONSTITUENTS: The Forecast vs Actual trend will be displayed on the portal. To proceed with creating login credentials, kindly share the respective email IDs and contact details at : NRLDCMIS@GRID-INDIA.IN.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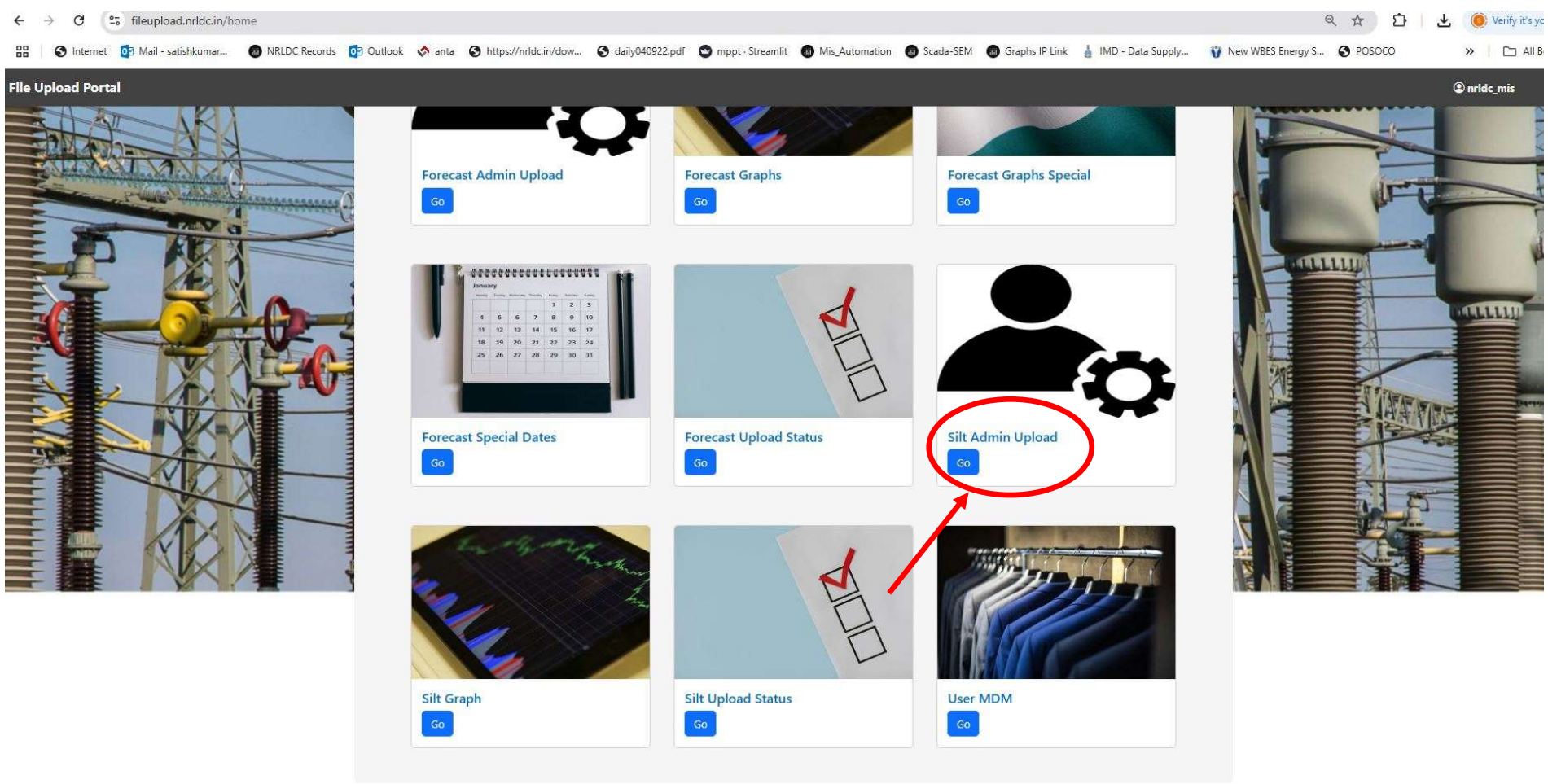
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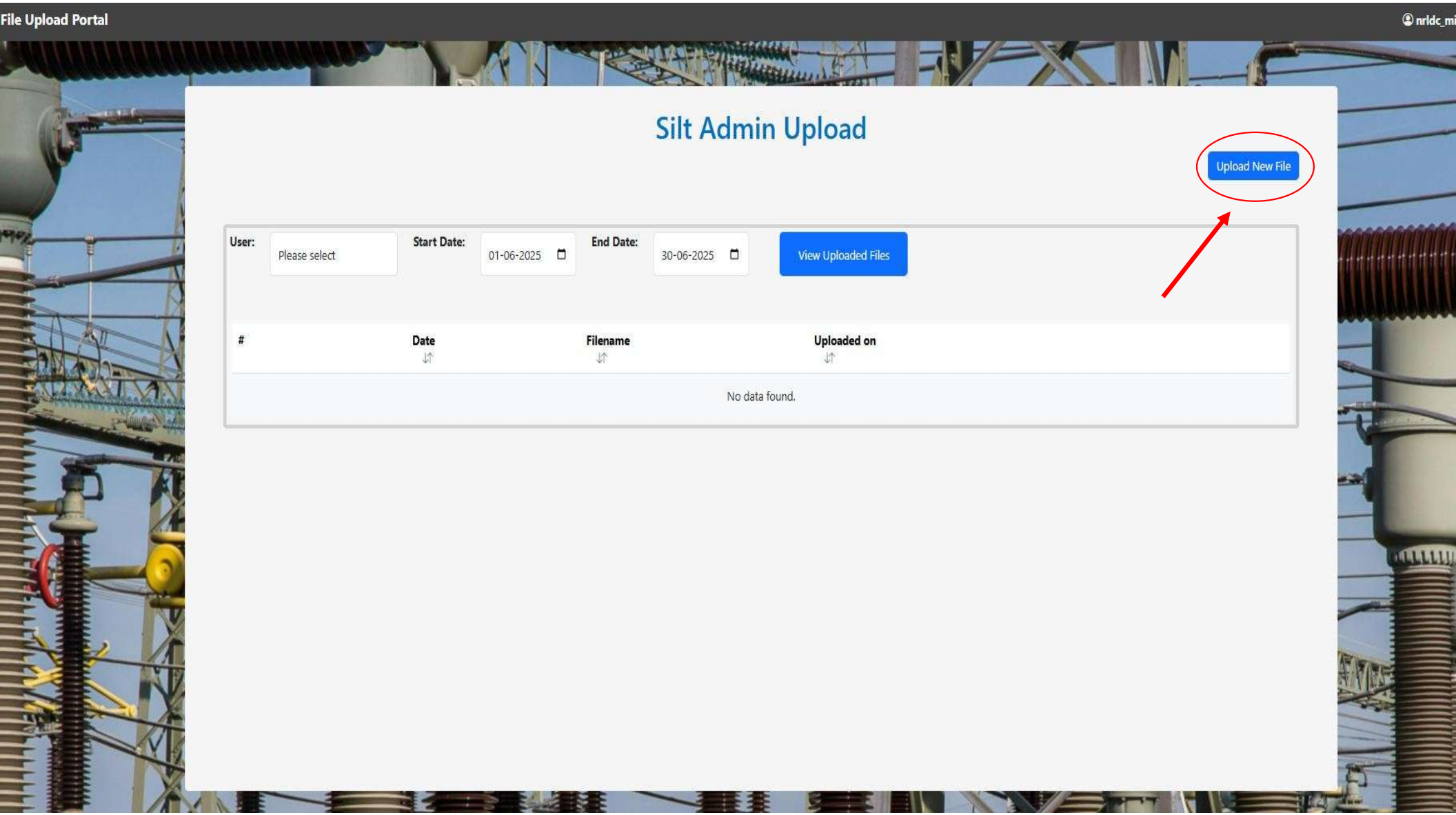
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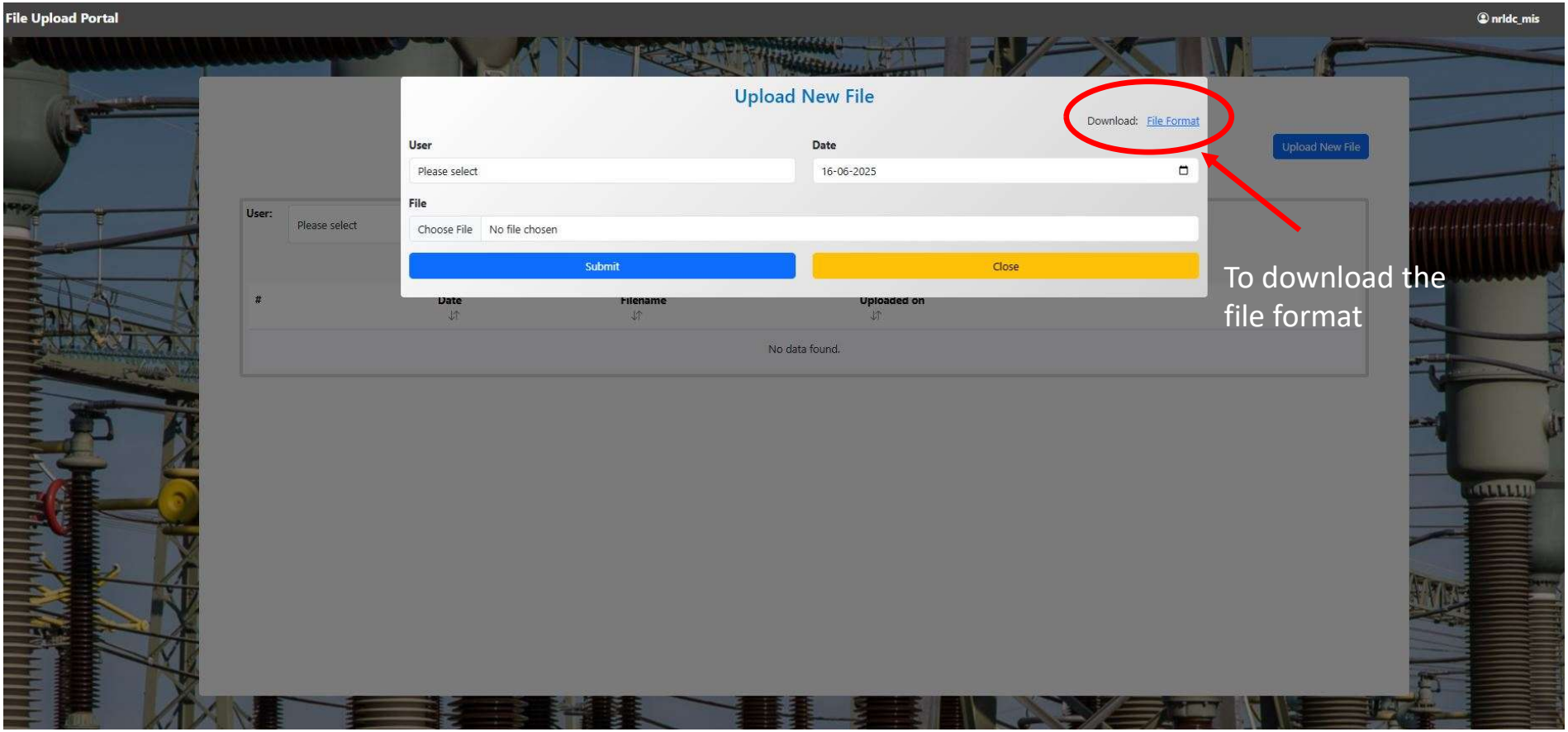
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धन्यवाद

Resource Adequacy

PRAS results- Northern Region

Month ahead for Sep-2025

Resource Adequacy - PRAS

- The Probabilistic Resource Adequacy Study (PRAS) for the month of Sep 2025 has been carried out for the Northern Region to assess the sufficiency of available generation resources to meet the projected demand under varying scenarios. The study was conducted using 1000 probabilistic scenarios, with median results presented to reflect expected system behavior under typical conditions.
- To evaluate the net load that must be met by dispatchable thermal generation, the projected regional demand for Sep 2025 was first estimated. From this demand, the expected contribution from non-thermal resources **solar, wind, hydro, and nuclear** was subtracted, based on historical generation profiles observed for these sources during the same period in past years. This approach ensures that the inherent variability and diurnal patterns of renewable generation are accurately captured in the analysis.
- For thermal generation, a detailed availability assessment was carried out using the following assumptions:

  Planned Outages:

  Unit-wise planned outages for the month of Sep 2025 were incorporated as per the data available in the latest LGBR. This reflects scheduled maintenance and other operational constraints known in advance.

  Forced Outages:

  A Monte Carlo simulation approach was adopted to model forced outages of thermal generating units. This stochastic simulation utilized historical outage and revival rates specific to each unit and capacity. The probabilistic nature of this method allows for modeling of unplanned events, enhancing the robustness of the adequacy assessment.

Two distinct scenarios were modeled to analyze the role of inter-regional power exchanges in meeting regional adequacy requirements:

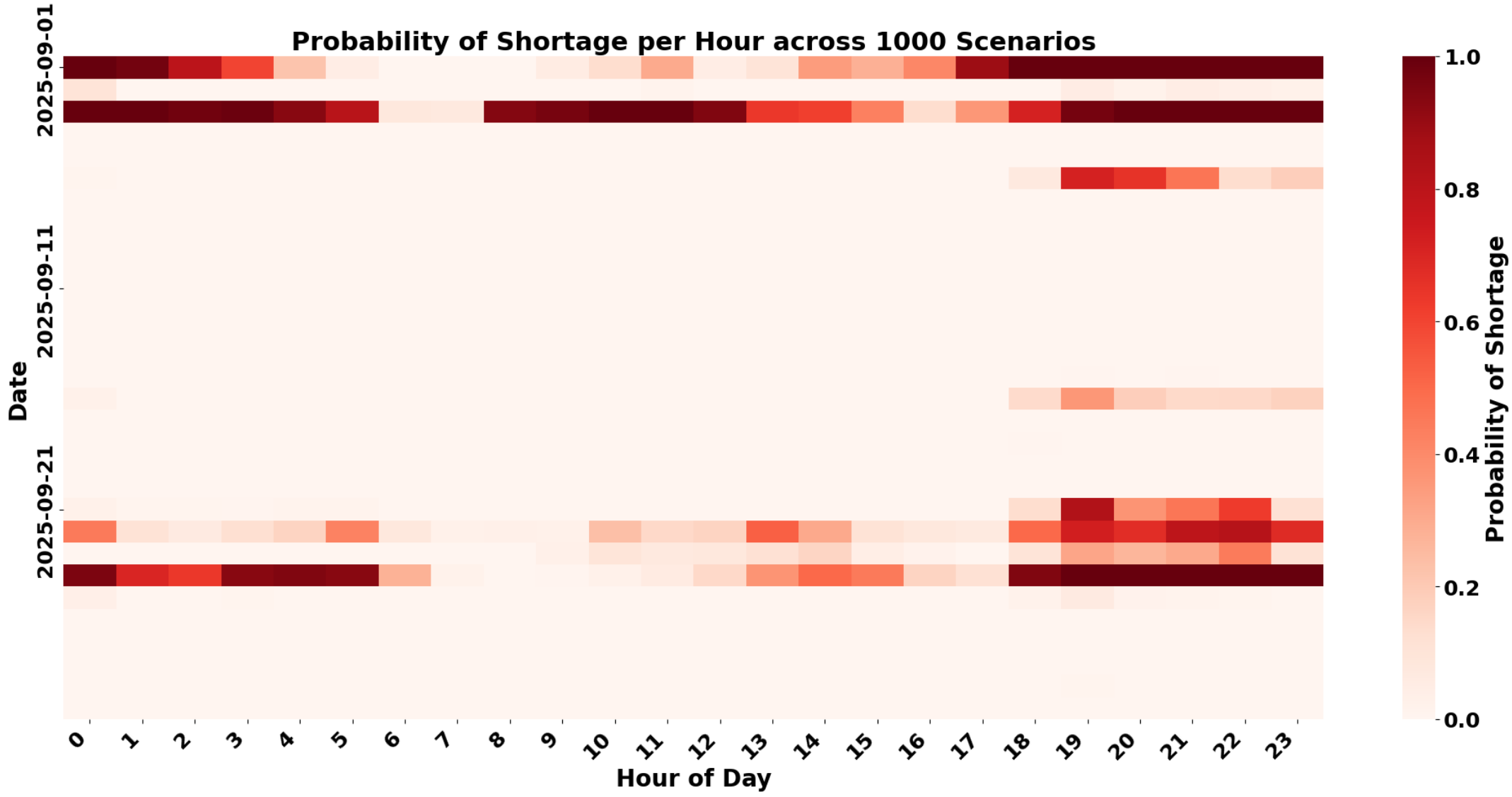
1. Scenario without Inter-Regional T-GNA Contracts

- In this base case scenario, no inter-regional transmission capacity contracted through T-GNA was modeled.
- Under this scenario, the study indicated higher Loss of Load Probability (LOLP) and increased Expected Unserved Energy (EUE), highlighting potential shortfalls due to the limited flexibility in accessing external generation.

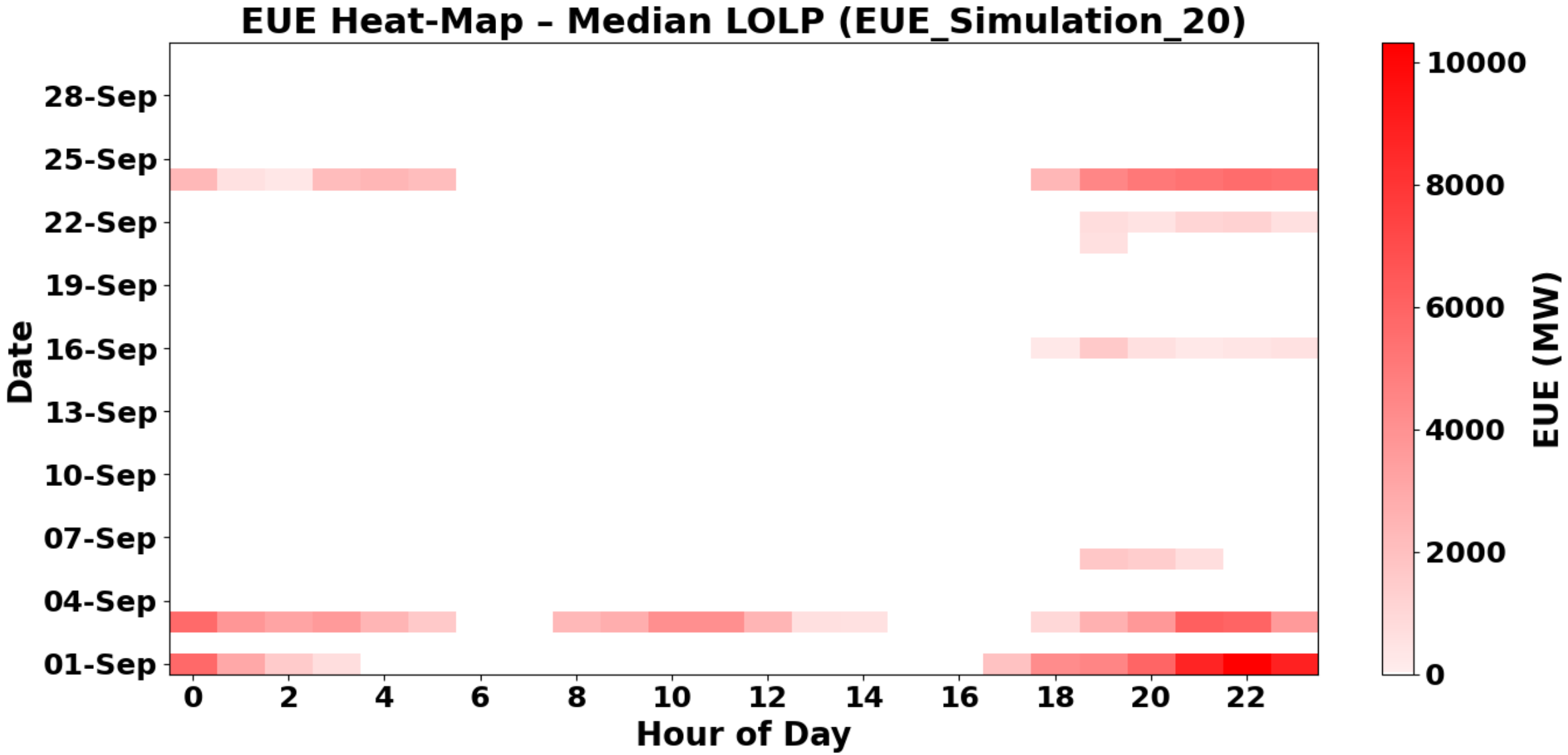
2. Scenario with Past-Year IR Flow Profile

- In the second scenario, the actual inter-regional power flow patterns from Sep 2024 were incorporated as a proxy for expected support in Sep 2025. This approach reflects realistic inter-regional exchange behavior under comparable seasonal conditions and operating constraints.
- This demonstrated a notable reduction in LOLP and EUE values, indicating enhanced adequacy due to the implicit support from neighboring regions.

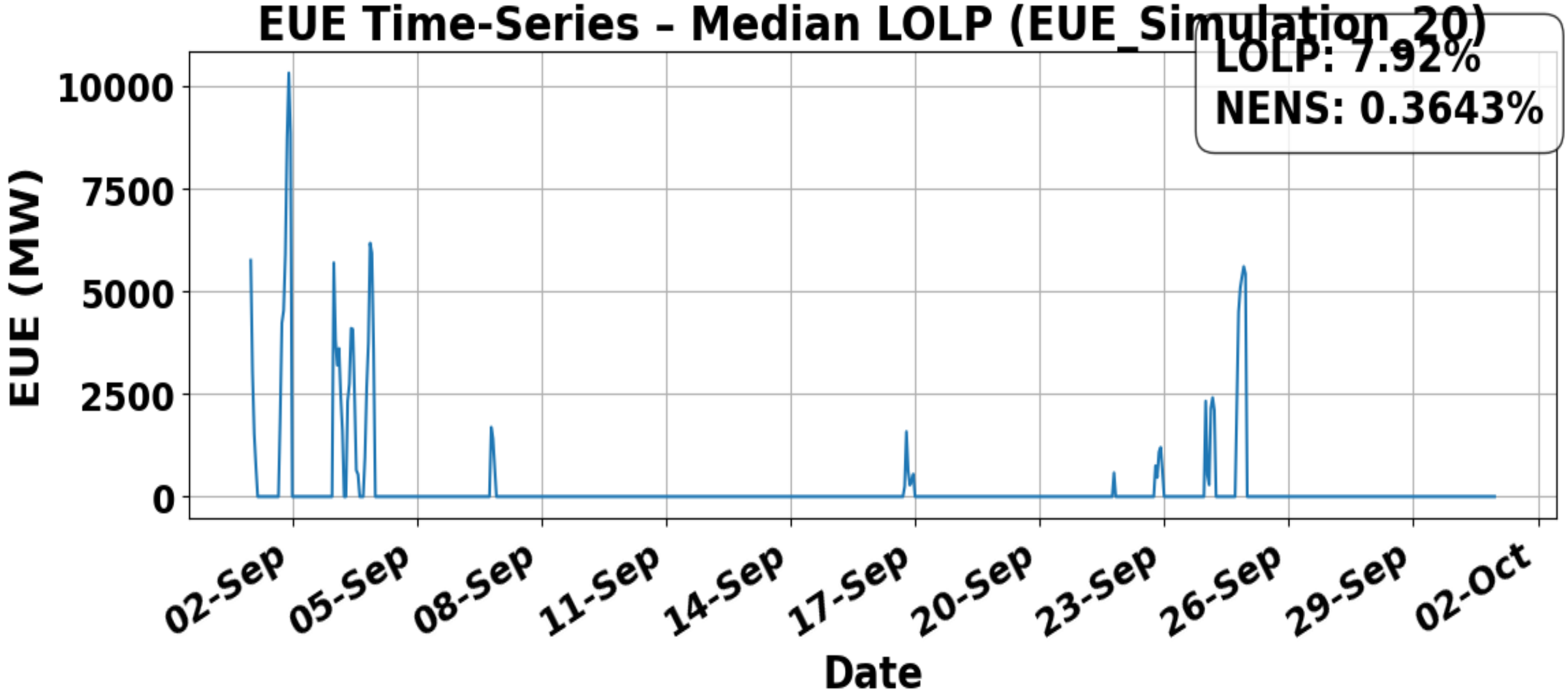
2. (A) Resource Adequacy results (with Sep 2024 IR schedule)



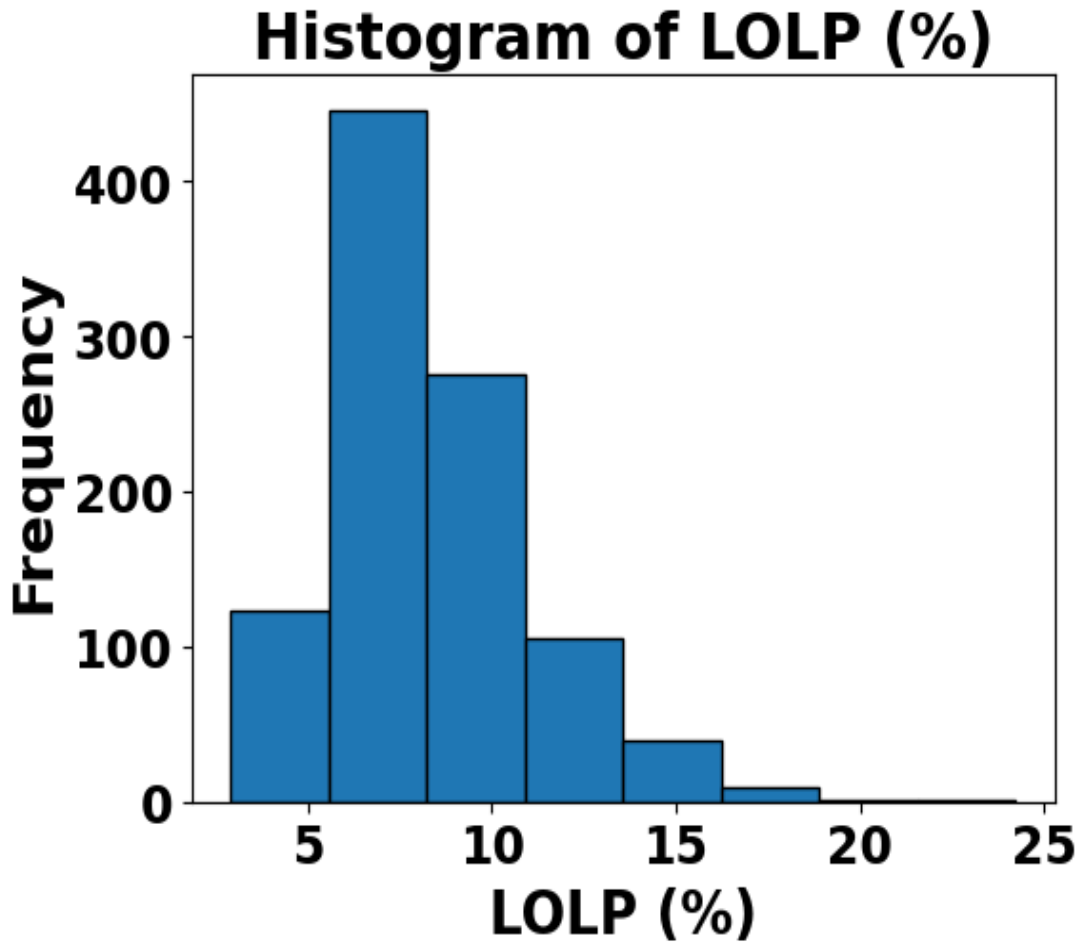
2. (B) Resource Adequacy results (with Sep 2024 IR schedule)

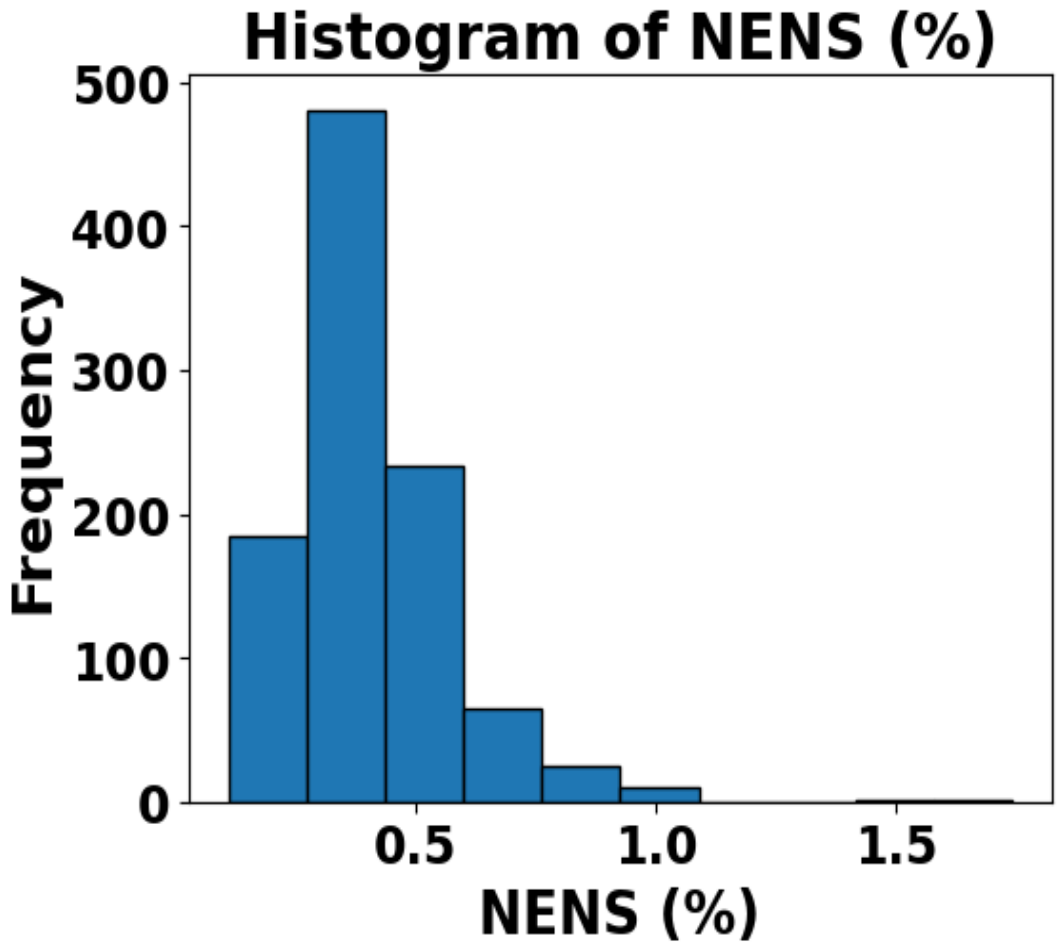


2.(C) Resource Adequacy results (with Sep 2024 IR schedule)



2. (D) Resource Adequacy results (with Sep 2024 IR schedule)

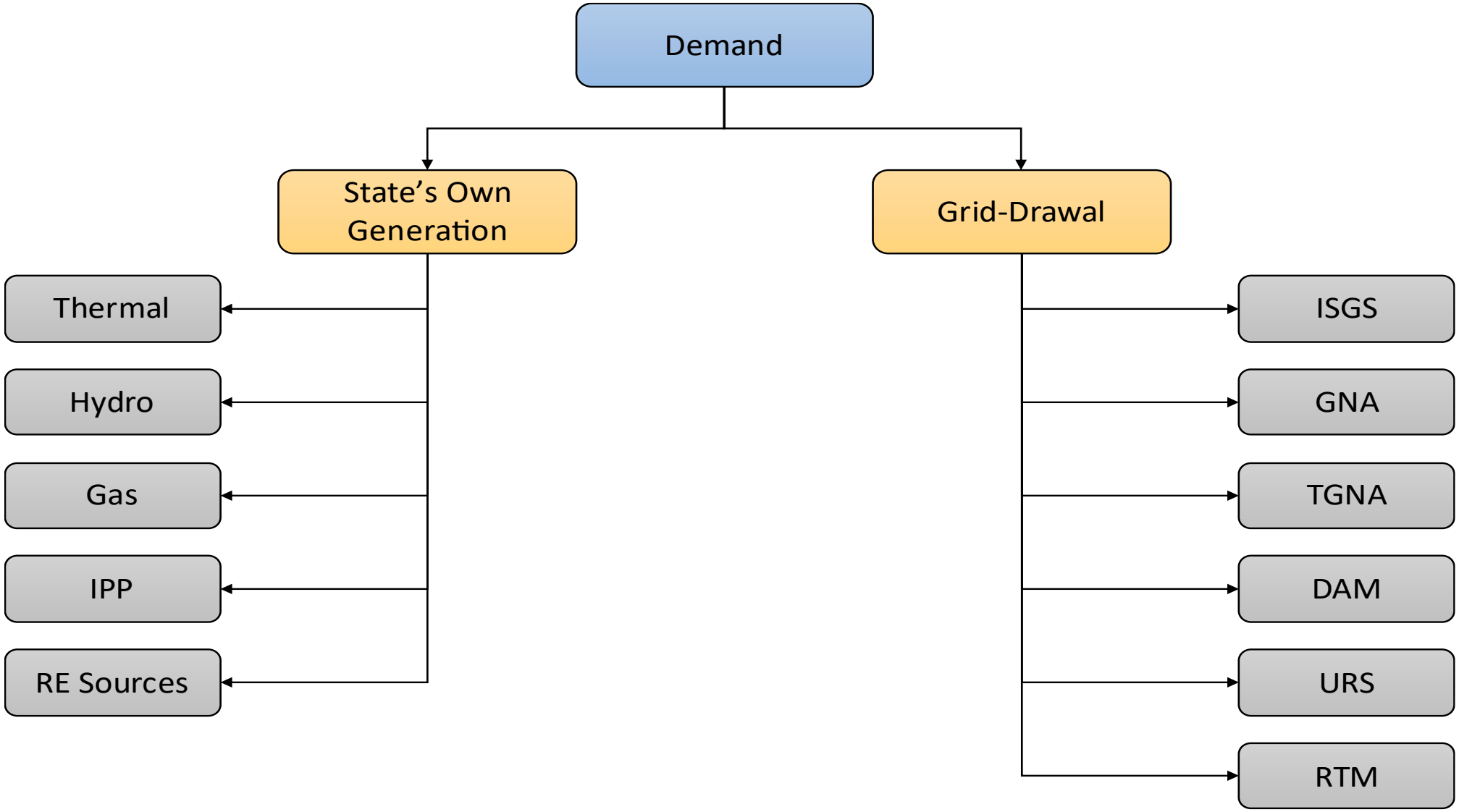




Way forward

- Inter-Regional Modeling will be undertaken by incorporating actual power flow data from WBES to improve the accuracy of inter-regional support estimation.
- Intra-Day and Day-Ahead Resource Adequacy Monitoring will be conducted using data submitted by the states, with integrated WBES data, as outlined in the subsequent slides.
- Month-Ahead PRAS Studies will be conducted at the state level.
- Week-Ahead and Year-Ahead PRAS Studies will be carried out at both regional and state levels.

RA Planning for Intra day and Day ahead



RA Planning for Intra day and Day ahead

The demand forecast and self-generation forecast, as currently submitted by the states via email, will be shifted to the designated portal in due course. For both day-ahead and intra-day monitoring, the drawl from the grid shall be considered as per WBES, as detailed below. Stacking of both demand and generation will provide a clear picture of shortage period.

ISGS	• Entitlement from each of the Generator in all the regions.
GNA	• Requisition Quantum of the buyer for each of the GNA Contracts (incl. REMC).
TGNA	• Scheduled Quantum from each of the T-GNA (including REMC) Contracts
DAM	• Net Scheduled Quantum from each of the Day-Ahead Market Exchange and Products (DAM, GDAM, HPDAM)
RTM	• Net Scheduled Quantum from each of the Real-Time Market Exchange.