



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 240^{वीं} बैठक का कार्यवृत्त।

Subject: Minutes of the 240th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 240^{वीं} बैठक दिनांक 17.02.2026 को आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट <https://www.nrpc.gov.in> पर उपलब्ध है। यदि कार्यवृत्त पर कोई टिप्पणी हो तो कार्यवृत्त जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें।

The 240th meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 17.02.2026. The Minutes of this meeting has been uploaded on the NRPC website <https://www.nrpc.gov.in>. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

संलग्नक: यथोपरि।

(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)

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5	NTPC	Central Generating Company	RAMESHSINGH@NTPC.CO.I N
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7	THDC		bhagatsingh@thdc.co.in
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15	Uttarakhand SLDC		se_sldc@ptcul.org
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19	HVPNL		cetspkl@hvpn.org.in
20	RRVPNL		ce.ppm@rvpn.co.in
21	UPPTCL		smart.saxena@gmail.com
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23	PSTCL		ce-tl@pstcl.org
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25	IPGCL		ncsharma@ipgcl-ppcl.nic.in
26	HPGCL	seom2.rgtpp@hpgcl.org.in	
27	RRVUNL	State Generating Company	ce.ppmcit@rrvun.com
28	UPRVUNL		cgm.to@uprvunl.org
29	UJVNL		gm_engg_ujvn@yahoo.co.in
30	HPPCL		gm_generation@hppcl.in

OCC Members for FY 2025-26			
S. No	OCC Member	Category	E-mail
31	PSPCL	State Generating Company & State owned Distribution Company	ce-ppr@pspcl.in
32	DHBVN	State owned Distribution Company (alphabetical rotational basis/nominated by state govt.)	nomination awaited (md@dhbvn.org.in)
33	Ajmer Vidyut Vitran Nigam Ltd.		nomination awaited (md.avvnl@rajasthan.gov.in)
34	Purvanchal Vidyut Vitaran Nigam Ltd.		nomination awaited (mdpurvanchalvvn@gmail.com)
35	UPCL		cgmupcl@yahoo.com
36	HPSEB		cesysophsebl@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.,		niraj.gupta@apraava.com
40	Talwandi Sabo Power Ltd.		arun.kumar@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.		amitkumarmaithil@ntpc.co.in
46	Adani Power Rajasthan Limited		raguvendral.dewra@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)

OCC Members for FY 2025-26			
S. No	OCC Member	Category	E-mail
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 entities engaged in generation/ transmission/ distribution of electricity in the Union Territory.	sojppdd@gmail.com
50	UT of Ladakh		cepdladakh@gmail.com
51	UT of Chandigarh		seelo-chd@nic.in
52	NVVN	Nodal Agency appointed by the Government of India for coordinating cross-border power transactions	ceonvvn@ntpc.co.in
53	Tata Power Delhi Distribution Limited	Private Distribution Company in region (alphabetical rotational basis)	nomination awaited sandeep.k@tatapower-ddl.com
54	Gurgaon Palwal Transmission Limited	Private transmission licensee (nominated by central govt.)	lokendra.ranawat@indigrid.com
55	PTC India Limited	Electricity Trader (nominated by central govt.)	nomination awaited bibhuti.prakash@ptcindia.com
56	ReNew Power Private Limited	RE Generating Company having more than 1000 MW installed capacity	sumant@renew.com
57	NTPC Green Energy Limited		rajivgupta@ntpc.co.in
58	Azure Power India Pvt. Limited		sunil.gupta@azurepower.com
59	Avaada Energy Private Limited		kishor.nair@avaada.com
60	Adani Green Energy Limited		chaitanya.sahoo@adani.com

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उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 239^{वीं} बैठक का कार्यवृत्त

The 240th OCC meeting of NRPC was held on 17.02.2026 through VC.

MS, NRPC welcomed all the participants of NR power utilities to the 240th OCC Meeting. She apprised the forum about the rising NR peak demand, which has reached 75.5 GW in January, 2026. She urged SLDCs to ensure preparedness for the upcoming summer season through reserves, proper voltage, reactive power, and system management.

She also highlighted the concern of oscillations and low system inertia in Rajasthan, which needs to be catered in coordinated manner.

She further emphasized that all thermal generating stations must ensure minimum shutdown during the period of April 2026–August 2026, in accordance with the directions of the Ministry of Power (MoP). She mentioned that the upcoming summer season will be very critical, and demand must be managed effectively with minimal shortfall and reduced tripping incidents to avoid any contingency in the grid.

खण्ड-क:उ.क्षे.वि.स.

PART-A:NRPC

A.1. Confirmation of Minutes

Minutes of the 239th OCC meeting were issued on 09.02.2026. OCC forum confirmed the minutes of the meeting.

Decision of OCC Forum:

OCC Forum confirmed the minutes of the 239th OCC meeting.

A.2. Status of action taken on decisions of 239th 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 the decision of the 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:

*Forum noted that 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 January 2026

Anticipated vis-à-vis Actual Power Supply Position (Provisional) for January 2026

Reasons submitted by States/UTs for significant deviation of actual demand from anticipated figures during the month of January 2026 are as follows:

- **Delhi**

Delhi witnessed that peak demand of 6,087 MW on January 9, 2026. This is due to severe cold wave conditions especially in 1st fortnight. So the peak demand was higher side than expected. However, the energy consumption was on lower side than expected due to imposition of GRAP restriction in Delhi in Jan-2026.

- **Haryana**

Haryana informed that the average Rural load, Urban load and Industrial load in the month of Jan-26 is 15%, 8% and 6% higher than Jan-25 respectively.

- **Himachal Pradesh**

HP intimated that anticipation in Energy Requirement & Peak demand in respect of Himachal Pradesh for the month of January 2026 was on the lower side due to prevailing dry spell during the first three weeks of January. Thereafter, owing to adverse weather conditions, a load crash occurred adversely affecting the overall demand.

- **Punjab**

Punjab intimated that actual energy requirement is less as compared to anticipated energy requirement due to reduced agriculture demand because of excess rainfall in first and last week in the month of January 2026 in the state of Punjab.

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

A.4.1. The maintenance programme of generating units and transmission lines for the month of March 2026 was deliberated in the meeting on 13.02.2026.

A.5. Anticipated Power Supply Position in Northern Region for March 2026

The updated anticipated Power Supply Position for March 2026 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	120	350	No Revision submitted
	Requirement	133	308	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	-13	42	
	% Surplus / Shortfall	-9.8%	13.6%	
DELHI	Availability	3060	6590	12-Feb-26
	Requirement	2450	4650	
	Surplus / Shortfall	610	1940	
	% Surplus / Shortfall	24.9%	41.7%	
HARYANA	Availability	5450	9595	13-Feb-26
	Requirement	4774	9100	
	Surplus / Shortfall	676	495	
	% Surplus / Shortfall	14.2%	5.4%	
HIMACHAL PRADESH	Availability	1136	2271	07-Feb-26
	Requirement	1147	2158	
	Surplus / Shortfall	-11	113	
	% Surplus / Shortfall	-0.93%	5.2%	
J&K and LADAKH	Availability	1150	2520	No Revision submitted
	Requirement	2063	3913	
	Surplus / Shortfall	-913	-1393	
	% Surplus / Shortfall	-44.3%	-35.6%	
PUNJAB	Availability	5100	10310	16-Feb-26
	Requirement	5300	10322	
	Surplus / Shortfall	-200	-12	
	% Surplus / Shortfall	-3.8%	-0.1%	
RAJASTHAN	Availability	9200	19340	16-Feb-26
	Requirement	10000	18500	
	Surplus / Shortfall	-800	840	
	% Surplus / Shortfall	-8.0%	4.5%	
UTTAR	Availability	10360	22500	5-Feb-26

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
PRADESH	Requirement	10276	22500	
	Surplus / Shortfall	84	0	
	% Surplus / Shortfall	0.8%	0.0%	
UTTARAKHAND	Availability	1209	2250	4-Feb-26
	Requirement	1232	2275	
	Surplus / Shortfall	-23	-25	
	% Surplus / Shortfall	-1.9%	-1.1%	
NORTHERN REGION	Availability	36685	71300	
	Requirement	37375	69400	
	Surplus / Shortfall	-690	1900	
	% Surplus / Shortfall	-1.8%	2.7%	

A.5.1. Representative of JK informed that their shortfall quantum will be lower than the LGBR figures, as the Baglihar Hydroelectric Power Project has been revived. He further informed that they are having round the clock banking arrangement with UP and Punjab to meet their shortfall.

A.5.2. Rajasthan SLDC representative informed that they are planning to meet the shortfall in morning and evening hours through short-term contracts in the market.

A.5.3. MS, NRPC advised the respective SLDCs to make requisite arrangements in advance to meet the demand, as power may not be available on exchanges during peak hours.

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

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

A.6.2. EE(O), NRPC informed that during the 238th OCC Meeting, all SLDCs were requested to coordinate with the DISCOMs in their respective control areas for identification of feeders for ADMS implementation and submit the list of such feeders to the NRPC Secretariat within fifteen days.

A.6.3. He informed that Haryana SLDC has intimated that the ADMS software has already been included under the SCADA-EMS upgradation project in Haryana and

the matter has been taken up with DISCOMs to provide the lists of 11kV & 33kV feeders to prepare the DPR of the same.

- A.6.4. OCC Forum requested all SLDCs to discuss the matter in State OCC meetings or similar forum at state level and coordinate with the respective DISCOMs for identification of feeders for ADMS implementation. SLDCs were also advised to identify the feeders based on their operational experience, in cases where the list is not provided by the respective DISCOMs and share the same with their DISCOMS for their consent and thereafter submit it to the NRPC Secretariat and NRLDC.

A.7. NR Islanding scheme

- A.7.1. EE(O), NRPC apprised the forum that in 239th OCC, Delhi SLDC and RVPN were advised to review their islanding scheme based on their updated network configuration.
- A.7.2. DTL representative informed that the base case study as requested by NRLDC has been taken up with Delhi SLDC and the same will be submitted shortly.
- A.7.3. Rajasthan SLDC representative informed that the revised islanding scheme will be implemented shortly.
- A.7.4. NRLDC representative requested RVPN to submit the mock test report once the revised scheme is implemented.
- A.7.5. Punjab SLDC representative informed that they have taken up with STUs for updated DPRs considering the latest applicable rates as per current FY.
- A.7.6. NRLDC representative requested UP SLDC to submit the requisite details of mock testing reports and simulation files for the NAPS and Lucknow–Unchahar implemented islanding schemes to facilitate periodic testing in accordance with the IEGC 2023.

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 the current month (till 9th February 2026).
- A.8.2. The coal stock position of generating stations in Northern Region, having critical stock, during first nine days of February 2026 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 or RLDC or 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 or RLDC or 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	<ol style="list-style-type: none"> (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)	<ol style="list-style-type: none"> (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	<ol style="list-style-type: none"> (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 the 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>. This may be used for testing.

A.9.7 In view of this, a Google sheet was prepared and it was requested that the testing plan for the next five financial years may be updated in the sheet provided at the earliest as per the requirement of IEGC 2023 and the decision of 73rd NRPC meeting.

A.9.8 EE(O), NRPC informed that a letter has been issued in this regard to all the state generators and NR ISTS renewables for submitting their testing schedule for the next five financial years. All SLDCs were requested to take up this with all the generators in their control area for providing of information at the earliest.

A.9.9 EE(O), NRPC stated that, as per IEGC 2023, the testing schedule for the next financial year was required to be submitted by 31st October 2025. The testing schedule is still awaited from the intra-state generating stations of Rajasthan and UPRVUNL.

A.9.10 List of Generating station from which a periodic testing schedule is not received is attached as Annexure-A.IV.c of agenda.

A.9.11 Rajasthan SLDC representative informed that testing is planned to be conducted through the OEM (BHEL) for the first time. As conveyed by BHEL, only three out of the five modules are currently available; therefore, details will be submitted and testing undertaken once all five modules are ready.

A.9.12 MS, NRPC asked respective SLDCs to coordinate with their respective intra-state generating stations to furnish the pending testing schedules at the earliest.

A.9.13 MS, NRPC enquired whether any generating station of NR has undergone periodic testing.

A.9.14 THDC representative informed that testing has been carried out at Koteswar HEP, and that the report will be submitted to NRLDC.

A.9.15 MS, NRPC asked all the SLDCs and ISTS Generating Stations whose testing schedule is yet to be received to furnish Testing schedule at the earliest in the format attached at Annexure-A.IV.a of agenda to seo-nrpc@nic.in.

Decision of OCC Forum:

OCC forum asked all the SLDCs (for intra-state generating stations) and ISTS Generating Stations whose testing schedule is yet to be received to furnish the testing schedule at the earliest in the format attached at Annexure-A.IV.a of the agenda to seo-nrpc@nic.in.

**A.10. Monthly Review of LGBR for the next 11 months (Availability & Requirement)
(Agenda by NRPC Secretariat)**

A.10.1. EE(O), NRPC informed the forum that in 236th OCC meeting matter regarding monthly Review of LGBR for the next 11 months (Availability & Requirement) was discussed and it was agreed that NR States/UTs shall submit the data for the monthly Review of LGBR for the next 11 months including the break-up of sources through which demand is proposed to be met, such as ISGS, internal generation, bilateral arrangements, DAM/RTM transactions, or other contracts, shall also be provided.

A.10.2. EE(O), NRPC informed that in 237th OCC meeting, OCC forum requested NR States/UT's to submit the data for monthly Review of LGBR for the next 11 months in the Google sheet to be shared by NRPC Secretariat.

A.10.3. EE(O), NRPC informed that details have been received from all the states of NR except J&K and Chandigarh.

A.10.4. MS, NRPC suggested that google sheet may be shared regularly in every OCC with SLDCs so that the data can be updated by all the states in the sheet monthly.

A.10.5. She further advised all the SLDCs to update the details of any bilateral transactions, banking arrangements, or short-term tie-ups as and when they are finalized, so that the actual quantum of surplus/deficit is accurately reflected in the LGBR.

Decision of OCC Forum:

Forum directed all NR States/UTs to submit LGBR data for the next 11 months in the Google Sheet shared by the NRPC Secretariat and update it monthly for any revisions due to short-term arrangements.

A.11. Data Collection for Monitoring Pan-India Captive Generating Capacity (Agenda by NRPC Secretariat)

- A.11.1. EE(O), NRPC apprised the forum that GM division, CEA has informed that in the meeting taken by the Secretary (Power) on 17.12.2025, it was decided that the State Chief Electrical Inspectors (CEIs) / State Load Despatch Centres (SLDCs) shall act as the nodal agencies for the collection of Captive Generation & Open Access data for their respective States.
- A.11.2. Further, in the said meeting it was decided that the Regional Power Committees (RPCs) shall act as the nodal coordinating agencies for consolidation and compilation of the data at the regional level and shall forward the same to the GM Division, CEA, for All-India level compilation on a monthly basis.
- A.11.3. In this regard, all the SLDCs of the NR Region have been requested to kindly submit the requisite details (in the attached format) for each month (starting from December 2025 onwards) by the 7th of the following month in the format attached at Annexure-A.V of agenda to the NRPC Secretariat at seo-nrpc@nic.in.
- A.11.4. GM Division, CEA representative informed that pan-India data on captive generating capacity is required by the Ministry of Statistics and Programme Implementation (MoSPI), and that the format for collection of captive generation details from the States in this regard has been finalized by the Ministry of Power (MoP).
- A.11.5. He further informed that the PDMLF portal for collection of captive data from the entities is under implementation. In the interim, all the states have been requested to provide the requisite details to the concerned RPCs.
- A.11.6. Punjab SLDC representative enquired whether schedule data may be provided in the open access details, since the actual meter data for the month is received belatedly.
- A.11.7. GM Division, CEA representative stated that in case the actual data is not available before the stipulated deadline, schedule data may be submitted with appropriate remarks.
- A.11.8. He further stated that the data received from a few States is not in the prescribed format and requested all States to furnish the data on a monthly basis strictly as per the specified format.

A.11.9. MS, NRPC asked all the SLDCs to submit the requisite information about Captive Generation & Open Access data for their respective States for each month by the 7th of the following month as the CEA-prescribed format.

Decision of OCC Forum:

Forum directed all SLDCs of NR to submit the requisite information about Captive Generation & Open Access data for their respective States for each month by the 7th of the following month as the CEA-prescribed format.

A.12. Analysis of Partial Outages of Thermal Power Plants (Agenda by NRPC Secretariat)

A.12.1 EE(O), NRPC apprised the forum that a meeting was taken by Member (GO&D), CEA on 28th Jan, 2026 to discuss the partial outages of thermal power plants and its related issues.

A.12.2 In the said meeting, RPC's were directed to monthly review in the OCC meeting the station-wise major incidences of partial outages in last month and seek remedial measures from the concerned generating stations.

A.12.3 Details of generating stations in NR that had reported incidences of partial outage in January'26 is attached as Annexure-A.VI of agenda.

A.12.4 MS, NRPC apprised the forum that the objective of carrying out this analysis is to ensure summer preparedness, so that any technical limitations of the generating units can be identified and addressed in advance, thereby enabling the units to operate at their full capacity during the summer period.

A.12.5 She requested the generating stations having partial outages due to technical reasons to make efforts to rectify the addressable issues, so that the units can operate at maximum capacity during the summer season.

A.12.6 She further stated that the generating stations currently under RSD should also undertake remedial measures to ensure maximum generation during the peak summer period.

A.12.7 EE(O), NRPC requested all generating stations experiencing partial outages due to poor fuel quality to explicitly specify the type of coal being supplied to them and the type of coal for which the unit is designed to operate under optimal conditions.

A.12.8 MS, NRPC directed Generating stations under partial outages to submit reasons for partial outages of thermal power plants and the remedial measures taken by utilities to mitigate the partial outages.

Decision of OCC Forum:

Forum directed thermal generating stations that under partial outages to submit reasons for partial outages of thermal power plants and the remedial measures taken by utilities to mitigate the partial outages.

A.13. Feasibility of operating retiring/old thermal units as synchronous (Agenda by NRPC Secretariat)

- A.13.1. EE(O), NRPC apprised the forum that a meeting was taken by Member (GO&D), CEA on 28th Jan, 2026 to discuss the partial outages of thermal power plants and its related issues.
- A.13.2. In the said meeting, RPC's were requested to access the feasibility of operating retiring/old thermal units as synchronous condensers to enhance grid stability.
- A.13.3. A study on the requirements of Synchronous Condenser in Northern Region for grid stability has been done by NRPC, CEA, GRID-INDIA and CTU wherein it is recommended to install synchronous condenser in Rajasthan to meet inertia and reactive power requirements to the grid.
- A.13.4. MS, NRPC requested all the SLDCs and ISGS generating stations to identify old or retiring thermal units under their purview that would be more beneficial if operated as synchronous condensers rather than as thermal units, and to submit the details to the NRPC Secretariat so that they can be considered for conversion to SYNCON.
- A.13.5. NRLDC representative submitted that:
- i. Recently in meeting taken by Secretary (P), RVUNL was asked to suggest their old thermal units which can be operated as SynCon. RVUNL suggested Dholpur Gas (3*110) and Kota (2*110) MW generating units to CEA.
 - ii. Meeting was taken by CEA PSPA-II recently in Jan 2026 wherein BHEL, RVUNL, CTUIL and GRID-INDIA participated. During the meeting, CTUIL and GRID-INDIA suggested Syn Con at Kota would not be effective as other 4 generating units would be available. During the meeting, it was agreed that BHEL would visit Dholpur gas and Giral TPS to see whether these can be operated as SynCon and tentative cost expenditure involved.

Decision of OCC Forum:

Forum directed to all the SLDCs of NR and ISGS generating stations to identify old or retiring thermal units under their purview that would be more beneficial if operated as synchronous condensers rather than as thermal units, and to submit the details to the NRPC Secretariat so that they can be considered for conversion to SYNCON.

A.14. Random UFR inspection at various substations of NR as IEGC 2023 (Agenda by NRPC Secretariat)

- A.14.1. EE(O), NRPC apprised the forum that as per Clause 29(13)(e) of IEGC-2023, RPC's is required to conduct random inspections of Under Frequency Relays (UFRs).
- A.14.2. In this regard, random UFR inspection of various substations of NR was carried out by NRPC Sectt. and NRLDC in co-ordination with the respective STU's of NR.

A.14.3. Major observation of the inspection report as tabulated below was noted:

Sl. No.	Name of substation	Observations	Actions to be taken
1	132kV Majra S/s of PTCUL	i. Time delay of 200 micro-sec was found in UFR setting	ii. Time delay to be removed
2	132kV Bindal S/s of PTCUL	i. Time delay of 200 micro-sec was found in UFR setting ii. 33 Kv Niranjanpur feeder was found mapped in both UFR Stage III & IV	i. Time delay to be removed ii. 33 kV Niranjanpur to be kept in only one stage. Other feeder need to be identified for another stage.
3	132kV Etawah S/s of UPPTCL	i. Time delay of 200 msec was found in UFR setting for 49.4 and 49.0 Hz	i. Time delay to be removed
4	220kV Safai S/s of UPPTCL	i. No time delay was observed ii. RIMS feeded from Saifai II	i. Utility is advised to revive the critical feeders from BD/SD and to avoid supplying power to critical loads by tapping from feeders under UFR
5	220kV Madri S/s of RRVPN	i. UFR operated when frequency reached below 48.1 Hz instantaneously	i. UFR Frequency to be discussed with Rajasthan SLDC for both feeders.
6	220 kV Sawa S/s of RRVPN	i. No time delay in relay setting.	--
7	132 kV Sarnath S/s of UPPTCL	i. Sensitivity issues were observed (relay was picking in Stage I at 49.415 Hz, Stage III at 49.02 Hz and Stage IV at 48.82 Hz) ii. Few feeders are spare with no load.	i. Sensitivity issues of relay may be reviewed and corrected. ii. Spare feeders may be removed from the UFR circuit.
8	132 kV	i. Sensitivity of 20mHz	i. Sensitivity issues

	Manduadih S/s of UPPTCL	at 48.8 Hz was observed with no delay.	of relay may be reviewed and corrected.
9	132 kV Ghazipur S/s of UPPTCL	i. Sensitivity issues were observed (relay was picking in Stage I at 49.46 Hz, Stage III at 49.12 Hz and Stage IV at 48.945 Hz)	i. Sensitivity issues of relay may be reviewed and corrected. ii. Calibration of testing kit may also be checked.

A.14.4. MS, NRPC requested all the SLDCs to take the necessary actions as recommended in the UFR Inspection Report and to intimate compliance to the NRPC Secretariat.

Decision of OCC Forum:

OCC forum requested all the SLDCs to take the necessary actions as recommended in the UFR Inspection Report and to intimate compliance to the NRPC Secretariat.

A.15. Inclusion of OPGW Link/ Communication Equipment Outages in Transmission Outage Planning (Agenda by NRPC Secretariat)

A.15.1. NRPC representative apprised the forum that as per Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017, the Communication Outage for the Region shall be carried out by RPC Secretariat:

Quote:

7.3 Role of National Power Committee (NPC) and Regional Power Committee (RPC):

.....

(iv) The RPC Secretariat shall be responsible for outage planning for communication system in its region. RPC Secretariat shall process outage planning such that uninterrupted communication system is ensured.

.....

Unquote

A.15.2. In compliance with the above provisions, communication outage planning for the Northern Region has been commenced from October 2025 in accordance with the Standard Operating Procedure (SOP) finalized by the National Power Committee (NPC) for communication outage planning.

- A.15.3. Subsequently, the first Communication Outage Planning Meeting for the Northern Region was convened on 27th January 2026. During the meeting, the process for handling outages of OPGW communication links associated with transmission lines was also deliberated. (Minutes attached)
- A.15.4. It was further discussed that OPGW link outages frequently arise due to activities such as line diversions, crossings, and diamond creation works, which are normally undertaken as part of approved transmission outages. At present, such OPGW outages are generally coordinated along with the corresponding transmission line outages through the OCC forum.
- A.15.5. In this regard, it was suggested that OPGW link outages associated with approved transmission outages may be formally integrated into the transmission outage planning mechanism. It was also proposed that the existing transmission outage proposal format may be suitably modified to include a separate provision for capturing details of associated OPGW links. A separate column for OPGW links/communication equipments may be added to the transmission outage format. Such outages, when linked with approved transmission outages, may be treated as deemed communication outages, while other standalone communication outages may continue to be processed through dedicated Communication Outage Planning Meetings.
- A.15.6. MS, NRPC requested NRLDC to examine whether provision for inclusion of communication outages along with transmission outages can be incorporated in the existing software.
- A.15.7. CGM NRLDC stated that:
- i. Present OMS portal at NRLDC is under extended AMC and may not be used for long in NRLDC.
 - ii. New centralised OMS portal is under development which shall be utilised across all RLDCs. In new portal, provision for providing remarks for OPGW Link/ Communication Equipment outages may be explored and it can be taken up during portal development stage.
 - iii. As the requirement is mainly coming up during line diversions, crossings, and diamond creation works, the existing practice of mentioning work as remark in existing OMS portal and getting it vetted in Test sub-committee meeting may continue.
- A.15.8. MS, NRPC agreed with the suggestion of NRLDC and requested all the entities to furnish details of OPGW link outages in the remarks section while availing transmission outages, until such time as provision for inclusion of communication outages is incorporated in the OMS portal.

Decision of OCC Forum:

OCC forum requested all the entities to furnish details of OPGW link outages in the remarks section while availing transmission outages, until such time, as provision for inclusion of communication outages is incorporated in the OMS portal.

A.16. Detailed Procedure for Assessment of Quantum of Secondary & Tertiary Reserve Capacity, along with Information Exchange and Timelines under Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 (Agenda by NRPC Secretariat)

- A.16.1 Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 require National Load Despatch Centre (NLDC) to assess secondary and tertiary reserve requirements for the regional entities on a year ahead basis. The detailed procedure approved by CERC (mentioned in the reference) provides modalities for the estimation.
- A.16.2 CERC Study Report dated 29.04.2025 on Planning for Safe, Secure, and Reliable Integrated Operation of the Power System during Critical Periods, has documented feedback received from stakeholders regarding the quantum of reserves. These suggestions were subsequently highlighted in the CERC Order in Suo-Motu Petition No. 9/SM/2024 dated 05.10.2025. In line with the suggestions received from the States, and as an interim measure, the tertiary reserve requirement has been assessed without including 50% of the largest unit size in the estimation of intra-state up tertiary reserves for the States having largest unit size of less than 500 MW. Further, in the estimation of intra-state down tertiary reserves, 50% of the largest unit size has not been considered for all the states.
- A.16.3 The quantum of secondary and tertiary reserves requirement computed by GRID-INDIA at all India level is given as below:

Type of Reserve	All India Up Reserve Requirement (MW)	All India Down Reserve Requirement (MW)
Secondary Reserve	10883	13213
Tertiary Reserve	16243	13213
Total	27127	26427

- A.16.4 Without the above interventions of harnessing diversity and moderated consideration of unit sizes, all India secondary reserve requirement would have been 13327 MW for up reserve and 18225 MW for down reserve. Similarly, the tertiary reserve requirement would have been 19081 MW for up reserve and 24146 MW for down reserve.
- A.16.5 The reserve requirement apportioned to regional entities is attached in Format-RAS4. as Annexure-A.VII of agenda.

- A.16.6 GRID-INDIA has informed that it is observed that States like Delhi, Tripura, Sikkim, West Bengal, Jharkhand and Chandigarh have demonstrated effective ACE management during the previous year, helping them reduce their up reserve requirement.
- A.16.7 In contrast, for some States, namely Manipur, Gujarat, Tamil Nadu, Nagaland, Mizoram, Arunachal Pradesh, and Maharashtra, higher ACE during the previous year resulted in an increased up reserve requirement for these States.
- A.16.8 Apart from the above, Reference Contingency applicable for FY 2026-27 as per **Format RAS-3** has been made available in the GRID-INDIA website at <https://grid-india.in/en/operations/reference-contingency>. The quantum considered for the Reference Contingency are 7000 MW for the solar hours and 4500 MW for the non-solar hours.
- A.16.9 NRLDC representative stated that:
- i. States were asked to submit the data as per the CERC approved procedure. The data received from NR states was shared with NLDC as per the timelines of procedure.
 - ii. Annual reserve requirement has been published by NLDC as per existing procedure. These are year-ahead reserves and need to be further refined on D-3 basis to arrive at reasonable reserve requirement figures.
 - iii. States are required to plan for these reserves during their annual load generation balance planning. Further, Grid Security Charges may be applicable in future in case the state is not maintaining reserve.
- A.16.10 MS, NRPC requested all the SLDCs to incorporate the reserve requirement in their LGBR planning for the next financial year, so that suitable short-term and banking arrangements can be made to meet the reserve requirement. Failing this, it may have commercial implications in future.

Decision of OCC Forum:

OCC Forum requested all the SLDCs to incorporate the reserve requirement in their LGBR planning for the next financial year, so that suitable short-term and banking arrangements can be made.

A.17. Strengthening of Transmission Network between J&K and Ladakh — Plan of Alternate 220 kV Transmission Line between Alustang and Leh (Agenda by JKPTCL)

- A.17.1 EE(O), NRPC apprised the forum that JKPTCL has submitted that at present, the 220 kV Single Circuit SLTS connecting Kashmir and Leh is the sole transmission corridor between J&K and Ladakh. The line is part of the Inter-State Transmission System (ISIS) and is being maintained by PGCIL.

A.17.2 Seasonal power exchange takes place through this line:

- During winter, approximately 50 MW is supplied from Kashmir to Leh.
- During summer, nearly 70 MW flows from Leh to Kashmir.

A.17.3 PGCIL has conveyed to LPDD that a maximum of 180 MW can be imported/exported through this single circuit 220 kV transmission line.

Upcoming Generation and System Constraints:

A.17.4 A 37 MW Solar Power Plant is planned to be commissioned in Ladakh by 2027, the power from which shall also be evacuated through the existing 220 kV S/C line.

A.17.5 The transmission line traverses extremely difficult and snow-bound terrain of Zojila and Drass and is highly prone to:

- Frequent faults
- Prolonged outages during winter snowfall

A.17.6 Due to the absence of an alternate transmission path, these outages result in significant generation loss, impacting both:

- Solar generation, and
- Hydro generation

Need for Alternate Transmission Corridor:

A.17.7 JKPTCL has mentioned that considering the Increasing seasonal power exchange, limited transfer capacity (180 MW), harsh terrain and frequent outages, and upcoming —200 MW Solar capacity under SASCI scheme in Ladakh, there is an urgent requirement for an alternate 220 kV transmission line between Alustang and Leh to provide redundancy and reliability, Improved grid security, Evacuation of additional renewable energy and Reduction in generation loss.

Long-Term System Strengthening:

A.17.8 JKPTCL has submitted that:

- A 400 kV Sub-Station in Central Kashmir has been proposed by JKPTCL Kashmir during the NRPC meeting held at Srinagar.
- The proposal was subsequently discussed by Chief Engineer, JKPTCL Kashmir with CTUIL on 18th December 2025 at CTUIL Office, Gurgaon.
- A 400 kV Transmission Line between Ladakh and Kashmir has also been proposed as part of long-term transmission planning

A.17.9 In view of the above, JKPTCL requested OCC forum for consideration of Alternate 220 kV Transmission Line between Alustang and Leh, and Associated system strengthening measures to facilitate reliable power transfer and evacuation of renewable energy from Ladakh.

- A.17.10 CTUIL representative informed that the existing system is a single-circuit line on a single-circuit tower and a separate corridor will be required for 400 kV interconnection of Ladakh with the grid; accordingly, JKPTCL has been requested to carry out a survey, based on which CTUIL will finalize the transmission network planning.
- A.17.11 JKPTCL representative informed that they are planning to undertake a joint survey along with Powergrid and Ladakh to carry out a feasibility study for establishing a separate corridor for the 400 kV interconnection of Ladakh with the grid.
- A.17.12 Powergrid representative informed that there is a possibility of developing a 400 kV level corridor from Alustang to Amargarh or from Alustang to New Wanpoh. Additionally, a separate 220 kV level corridor from Alustang to the Drass region may be considered to enhance overall system reliability.
- A.17.13 MS, NRPC requested JKPTCL to consider the inputs of PGCIL while undertaking the joint survey and to specify a definite timeline for completion of the survey so as to enable CTUIL to carry out the transmission planning accordingly.
- A.17.14 JKPTCL representative informed that the joint survey is expected to take approximately five to six months to complete.
- A.17.15 NRLDC representative stated that line loading limit of 180MW submitted by POWERGRID needs review. Further, proposal from JKPTCL side may be discussed with CTUIL and CEA-PSPA I which are responsible for transmission planning. Recently, also a meeting was also held between CTUIL, CEA, J&K and GRID-INDIA on 13.02.2026.
- A.17.16 MS, NRPC requested JKPTCL and Ladakh to undertake a joint survey to assess the feasibility of a separate corridor, so as to enable CTUIL to carry out the transmission planning accordingly.

Decision of OCC Forum:

OCC Forum requested JKPTCL and Ladakh to undertake a joint survey to assess the feasibility of a separate corridor and survey report submit to CTUIL for carry out the transmission planning accordingly.

A.18. Status of availability of ERS towers in NR (Agenda by NRPC Secretariat)

- A.18.1 EE(O), NRPC apprised the forum that the measures required for tower strengthening and availability of Emergency Restoration System are being regularly discussed in OCC meeting. There have been many past events of tower collapse especially during summer and monsoon season and accordingly all utilities have been requested to take necessary actions.
- A.18.2 It may be noted that MoP, Govt. of India had already issued instructions for procurement of ERS by all transmission utilities (attached as Annexure-A.VIII.a of agenda) which was discussed in 150th OCC meeting (held on 21.08.2018) and CEA

(Grid Standards) Regulations, 2010 also suggests keeping necessary arrangement for ERS. The instructions also suggest strategy to determine ERS requirement by utilities:

- “For any transmission utility, one set of ERS has been planned to cater to failure of towers for transmission line lengths of up to 5000 Ckt. Kms.
- Accordingly, two (2) sets of ERS have been planned for transmission line lengths of about 5000 to 10,000 Ckt. Kms, and three (3) sets for more than 10,000 Ckt. Kms and so on.
- The transmission Utility with line length less than 500 ckt kms (of 400kV 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.”

A.18.3 Given the increase in line length under jurisdiction of different utilities over the years, number of ERS requirement is reviewed and regularly monitored at OCC level.

A.18.4 MS, NRPC requested all transmission utilities in NR to update the voltage-level-wise cumulative transmission line length (ckm) and ERS availability, including location and status of utilization.

A.18.5 NRLDC representative stated that along with present ERS availability, a column may also be included highlighting the present utilisation of ERS. Details could include location and date from which ERS is in service at particular location and not available for emergency. Further, he requested PGCIL to update on the strategic locations for placement of four ERS sets approved in the 81st NRPC Meeting.

A.18.6 PGCIL, vide mail dated 24.02.2026, informed about the procurement status of the four ERS sets.

Decision of OCC Forum:

OCC Forum requested all transmission utilities in NR to update the voltage-level-wise cumulative transmission line length (ckm) and ERS availability, including location and status of utilization as per the format enclosed as Annexure-A.VIII.b of Agenda.

A.19. Diversion/Relocation of EHV Transmission lines hindering the construction of NHAI Expressway across carriage way of road alignment-maintaining adequate safety clearance as per CEA regulation dated 14.01.2025 (Agenda by NHAI)

A.19.1 NHAI has submitted the following:

- a) During Construction of National Highway, Number of Extra High Voltage transmission lines relocation and shifting to be done in order to provide safe horizontal and vertical clearance across the Carriage Way of National

Highway Route Alignment as per SOP circulated by Govt. of India Ministry of Power CEA Dated: 14.01.2025.

- b) While doing survey for the relocation of transmission line Towers, often Transmission Utilities/Licensee ask to relocate all the towers of the section crossing the carriage way of National Highway. **They insist to create a parallel route of transmission line in the crossing section from angle tower to angle tower, changing the complete existing route of the of transmission line.**
- c) While creating a parallel loop,
 - I. It involves normally relocation of minimum 10 to 20 numbers of transmission towers, creating a new alignment.
 - II. They are of the opinion that it may reduce the shutdown period of the EHV transmission line.
 - III. However, it is not at all optimum solution in view of costing and shutdown period of transmission line due to huge work. Further it creates severe ROW issues hampering working at site.
- d) NHAI representative proposed to adequately use only Two Numbers of Tension Towers with adequate extension in the alignment of existing transmission line across the carriage way of National Highway maintaining the safe horizontal and vertical clearance as per CEA regulation.
 - I. Two Nos Tower has to be placed in the existing route alignment; no major relocation of the existing towers has to be done.
 - II. Two Nos Towers has to be erected during the shutdown period by use of Cranes for each location, section by section which (each section of towers) has to be kept ready before taking the shutdown. **Towers erection can be completed within one day and tower tightening can we done in subsequent day, while doing parallel activities during shutdown period. Reducing the shutdown requirement as volume of the work reduced substantially.**
 - III. This may ease the Relocation/Shifting of transmission lines without major implication of cost & shutdown period by use of adequate Hydraulic Crane at each location.
- e) The relocation and shifting/transmission line tower Hindering across the carriage way of Expressway alignment tower Erection can be carried out fastly by use of Heavy Hydraulic Cranes being used by NHAI in their construction activities and besides road alignment, crane placement in not a challenge

A.19.2 PGCIL representative stated that the multiple shutdowns of the same line are occurring due to the involvement of multiple entities and the practice of NHAI

undertaking diversion of only two sections at a time out of several sections of the same line. As a result, the outages have been deferred or denied by the RPCs. As an interim measure, PGCIL has decided to avoid shutdown of in-line towers.

A.19.3 MS, NRPC requested NHA1 to submit detailed proposal to PGCIL. She further requested PGCIL to Examine NHA1's proposal. Thereafter, a separate meeting would be convened to arrive at a concrete solution.

Decision of OCC Forum:

OCC Forum asked NHA1 to submit a detailed proposal to PGCIL. Further, forum asked PGCIL to Examine NHA1's proposal. Thereafter, a separate meeting would be convened by NRPC Secretariat to arrive at a concrete solution.

A.20. Augmentation of 400KV sub-station BBMB, Siwah (Panipat) along with augmentation of 220KV Sewah (Panipat BBMB) – Chhajpur D/C line from ACSR to HTLS conductor to meet N-1 contingency (Agenda by HVPNL)

A.20.1 HVPNL has informed that State-wise operational issues observed in NR-region were deliberated in 1st meeting of Standing Committee on Short Term & Perspective Power System Planning (SCSTPPSPNR) held on dated 14.03.2024 (Annexure-IX.a of agenda) wherein the issue regarding 'N-1' contingency criteria of (1x500+1x450) MVA, 400/220KV ICTs at 400kV sub-station BBMB Siwah (Panipat) was also included.

A.20.2 CE/SO & Commercial, HVPNL, Panchkula vide letter memo no Ch-43/SO-PNP-PCP-218 DT 22.11.2024 (Attached as Annexure-IX.b of agenda) addressed to CE/PD&C, HVPNL, Panchkula also identified 1x450MVA+1x500MVA, 400/220kV ICTs at Panipat BBMB as 'N-1' noncompliant in real time System Operation during the year 2024-25. The maximum loading recorded on 400/220kV ICTs at Panipat BBMB in summer' 24 is 399 MW and 448 MW and in FY 2025-26 is 405 MW and 449 MW.

A.20.3 The above agenda was deliberated in 152nd meeting of Power Sub-Committee of BBMB on dated 07.02.2025 (MoM attached as Annexure-IX.c of agenda) wherein it was desired the proposal be first taken up with NRPC/CMETS, CTU as the BBMB system is an ISTS system.

A.20.4 Accordingly, the agenda was placed before the CEA which was discussed in the meeting held on dated 17.04.2025. Minutes of meeting attached as Annexure-IX.d of agenda.

A.20.5 The above agenda was again deliberated in 153rd meeting of Power Sub-Committee of BBMB on dated 11.07.2025 (Minutes of meeting attached as Annexure-IX.e of agenda). HVPNL has submitted that after deliberations, PSC members approved the following: -

- For further deliberation, NRPC approval to be first obtained by the HVPNL.
- The O&M arrangement and commercial & regulatory modalities are to be first discussed and decided in the committee constituted vide office order no 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025.

A.20.6 HVPNL has submitted the following proposal for deliberation in the OCC meeting:

Sr. No	Description of work
1.	<p>(i) To expedite the augmentation work of 400kV sub-station BBMB, Siwah (Panipat) at 400/220kV level from 1x500MVA + 1x450MVA, 400/220kV T/Fs to 2x500MVA, 400/220kV T/Fs by BBMB and the cost of augmentation will be borne by BBMB.</p> <p>(ii) To concur for the augmentation of 400kV sub-station BBMB, Siwah (Panipat) at 400/220kV level from 2x500MVA, 400/220kV T/Fs to 3x500MVA, 400/220kV T/Fs by BBMB during FY 2026-27 and the cost of augmentation will be borne by HVPNL.</p>
2.	<p>To concur for the augmentation of 400kV sub-station BBMB, Siwah (Panipat) at 220/132kV level from 2x100MVA 220/132KV transformers to 2x160MVA, 220/132kV transformers by BBMB during FY 2026-27 and the cost of augmentation will be borne by HVPNL.</p> <p>Note: HVPNL will retain spared 2 nos 100MVA 220/132KV transformers after aforesaid augmentation of 400kV sub-station BBMB Panipat.</p>
3.	<p>To concur for the augmentation of 220KV Sewah (Panipat BBMB) — Chhajpur D/C line from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having current carrying capacity of 1200Amp during FY 2026-27 by HVPNL.</p>

A.20.7 CTUIL representative stated that HVPNL may submit the agenda in CMETS Meeting for In-principle approval.

A.20.8 MS, NRPC suggested HVPNL to get In-principle approval in the CMETS Meeting.

Decision of OCC Forum:

OCC Forum noted the proposal and suggested HVPNL to get In-principle approval in the CMETS Meeting.

A.21. Generator and Transmission lines Electrical Parameter variation at RAPP-A (Agenda by RAPS)

A.21.1 RAPS representative intimated that on dated 04.02.2026 wide variation in electrical parameter of RAPP-A Generator and Transmission lines were recorded and tabulated in the table below:

S.No.	Equipment/System	Parameter	Max Variation Range
1	Bus A1/B1	Bus Voltage	219.84-223.32 kV
2	Bus A2/B2	Bus Voltage	220.80-224.40 kV
3	Grid	Frequency	49.73-49.99 Hz
4	RAPP-A Generator RAPS-2	MW(e)	152-256 MW(e)
		MVAR	+3 to +35 MVAR
		Current	4000 A-6000 A
5	220 kV RAPP-A Sakatpura Ckt-1	MW(e)	-10 to -40 MW(e) ¹
6	220 kV RAPP-A Sakatpura Ckt-2	MW(e)	-10 to -40 MW(e)
7	220 kV RAPP-A RAPP-B tieline	MW(e)	90-150 MW(e)

Line MW is negative due to Power inflow to RAPP-A switchyard from Sakatpura GSS.

- Time of disturbance: 11:05-11:46 hrs and 12:06 -12:20 hrs, Total Duration:55 minutes

A.21.2 RAPS representative mentioned that RAPP-A control room contacted the LDC and this hunting was controlled. Hunting in generation was observed at all the above operating stations during this period

A.21.3 RAPP representative stated that similar MW variations were observed in RAPP Units B, C, and D. Such sudden power ramps may lead to fuel failure, which is a major safety concern for nuclear units. Additionally, these incidents could result in commercial implications due to increased outage durations, bearing damage, and generation insulation failures.

A.21.4 Representative from RRVUNL stated that similar incidents of power, frequency, and voltage variations were observed in STPS units and other units of RRVUNL from December 2025 onwards. Therefore, appropriate planning and precautionary measures need to be undertaken to prevent potential subsequent grid failures.

A.21.5 NPL and LPGCL representative also mentioned that similar hunting and voltage variations were observed in their respective units.

A.21.6 Rajasthan SLDC representative stated that hunting issues have been highlighted in previous meetings also. With a 24 GW ISTS RE directly connected to the Rajasthan grid, sustained oscillations are being observed during solar generation hours. Additionally, while the standard SCR for generators in the RE pocket is 5, many RE generators are operating above their capacity leading to SCR below 4, which may be reviewed.

A.21.7 RVPN representative informed that vibration and hunting issues are being observed in regions receiving bulk power through the ISTS. He suggested that HVDC

¹

transmission systems may be preferred over A.C system for bulk power transfer. Additionally, he suggested the installation of SYNCONs in bulk power receiving regions and ensuring optimum transmission connectivity to mitigate the risk of potential grid failures.

A.21.8 NRLDC representative stated that:

- i. POWERGRID had recently implemented new dead band logic at STATCOMs in RE complex. After implementation of logic at Bikaner-II, oscillations were observed on 04.02.2026.
- ii. With dead band logic, oscillations which were amplified by STATCOMs, is not happening. However, drawback is STATCOMs remain idle for voltages 380-420kV.
- iii. It had been experienced that necessary instructions issued from NRLDC were not implemented immediately by POWERGRID in the field which needs to be looked into in the interest of grid security. It was also mentioned that putting STATCOMs in manual mode didn't reduce oscillations, so STATCOMs had to be taken out on 04.02.2026, wherein it was observed that in case of fast actions from POWERGRID side, the duration of oscillations could have been reduced.
- iv. Many old ISTS and intrastate RE plants in Rajasthan lack PMU data due to which visibility of those plants is not there and it is essential to install PMUs at all those plant urgently. In case Rajasthan SLDC is having any PMU data, they may please share PMU availability, PMU analysis for oscillation and non-compliance RE plants. PMU data of some of the new RE plants is also not reporting at NRLDC. However, NRLDC is separately taking up the matter with these inter-state RE plants.
- v. Quick response from RE plants and POWERGRID is needed. Extra manpower may be deployed during critical hours.
- vi. RE plants, which show adverse response will require disconnection from the grid immediately, in case there is no improvement by plant.
- vii. SOP for NRLDC control room has been in place in view of the oscillations observed and revised dead band logic as implemented by SIEMENS in STATCOMs.
- viii. Thereafter, no oscillations were observed from 05.02.2026 to 12.02.2026. However, minor oscillations were observed on 13.02.2026, when STATCOM at Bikaner-II tripped.

A.21.9 POWERGRID representative stated that oscillations were continued even after the STATCOMs were turned off as per the instructions of NRLDC. Therefore, other reasons for oscillations in the grid may be studied.

A.21.10 RRVUNL representative proposed opening the interconnector between STPS O&M and SSCTPS to mitigate vibrations in Suratgarh Unit-6.

A.21.11 NRLDC representative stated that request for opening of line reactors and interconnector switching by RRVUNL, may be jointly discussed internally within Rajasthan first between RRVUNL, RRVPNL and Rajasthan SLDC, and proposal may be submitted by Rajasthan SLDC along with relevant studies.

A.21.12 MS, NRPC advised Rajasthan SLDC to conduct a feasibility study for opening of interconnector and submit a proposal to NRLDC for examination. She further stated

that in 5th RE Sub-committee meeting a sub-group has been constituted to carry out root cause analysis of the oscillations observed on 04.02.2026 and suggest suitable remedial measures. She requested NRLDC to submit the report of the sub-group so that suitable measures can be adopted before the upcoming summer season. She further requested Powergrid to deploy adequate manpower at STATCOM site to enable operation of STATCOM during critical time without any delay.

Decision of OCC Forum:

Forum directed Powergrid to deploy adequate manpower at STATCOM site to enable operation of STATCOM during critical time without any delay and Rajasthan SLDC to conduct a feasibility study for opening of interconnector and submit a proposal to NRLDC for examination.

Forum advised NRLDC to submit the report of the sub-group constituted to carry out root cause analysis of the oscillations observed on 04.02.202, so that suitable measures can be adopted before the upcoming summer season.

A.22. Hunting in Generating Parameters due to fluctuations in Grid at all generating units of RRVUNL, Rajasthan (Agenda by RRVUNL)

A.22.1 This agenda has been deliberated along with A.21.

A.23. Proposed Islanding Schemes in UP Control Area (Agenda by UPLDC)

A.23.1 UPLDC has submitted the following islanding schemes for discussion in OCC meeting:

- Ayodhya/Gorakhpur- Tanda TPS Islanding Scheme- Annexure-A.X of agenda.
- Kanpur-Panki TPS Islanding Scheme -Annexure-A.XI of agenda.
- Bareilly- Rosa TPS Islanding Scheme- Annexure-A.XII of agenda.
- Aligarh- Harduaganj TPS Islanding Scheme- Annexure-A.XIII of agenda.
- Prayagraj-Meja TPS Islanding Scheme -Annexure-A.XIV of agenda.
- Meerut-Alaknanda HEP Islanding Scheme- Annexure-A.XV of agenda.

A.23.2 UP SLDC representative stated that for all the Islanding Schemes mentioned above, steady state feasibility study has been done by UPLDC.

A.23.3 UPLDC has mentioned that success rate of Islanding Schemes depends on load-generation balance of island. However, the success rate of proposed Islanding schemes can be increased by incorporating df/dt relays with associated time delay,

which shall take care of any excess or deficit in load/generation. Settings of df/dt relays can only be arrived at after dynamic study.

- A.23.4 UPSLDC requested that the proposal for aforementioned Islanding Schemes may be accepted and approval may be given for carrying out their dynamic study.
- A.23.5 MS, NRPC asked UPSLDC whether so many islanding schemes are required in the state.
- A.23.6 UPSLDC representative informed that they have decided islanding schemes as per the critical and supercritical loads classification in CEA Islanding scheme SOP. He also mentioned that in Prayagraj-Meja TPS Islanding Scheme and Ayodhya/Gorakhpur- Tanda TPS Islanding Scheme religious load has been considered along with defence and airport load.
- A.23.7 NRLDC representative that the load-generation balance feasibility study has been reviewed and found in order. He suggested that dynamic studies be carried out by UPSLDC. He also suggested that UPSLDC/UPPTCL may approach the Member, GO&D, CEA, to seek comments on whether implementation of multiple islanding schemes within a State is technically advisable and permissible.
- A.23.8 MS, NRPC requested UPSLDC/UPPTCL to carry out the dynamic study of the proposed islanding scheme and in the meantime seek suggestions from Member, GO&D, CEA regarding implementation of multiple islanding schemes within a State.

Decision of OCC Forum:

OCC Forum advised UPSLDC/UPPTCL to carry out the dynamic study of the proposed islanding schemes and in the meantime seek suggestions from Member, GO&D, CEA regarding implementation of multiple islanding schemes within a State.

A.24. Revision of SPS at Bara TPS in view of commissioning of 765 kV Bara-Mainpuri ckt -1 and 765 kV Unnao - Mainpuri line (Agenda by UPSLDC)

- A.24.1 UPSLDC has submitted revised SPS at Bara TPS in view of commissioning of 765 kV Bara- Mainpuri ckt -1 and 765 kV Unnao - Mainpuri line.
- A.24.2 UPSLDC representative informed that with the addition of two ICTs at Mainpuri and commissioning of the Unnao–Mainpuri line, Mainpuri has been removed from the existing SPS scheme. Further, with the addition of another Bara–Mainpuri line, tripping of both Bara–Mainpuri lines has been included in the SPS.
- A.24.3 NRLDC representative stated that logic can be simplified also. Line loading reaching >550MW can be given as logic to simplify it as AND logic may overcomplicate the SPS and reduce effectiveness. Further, instead of unit tripping, back down command may be given.
- A.24.4 UP SLDC and Bara TPS agreed for the suggestions proposed from NRLDC side and accordingly SPS attached at **Annexure-A.III** was approved.

Decision of OCC Forum:

OCC forum approved the revised SPS scheme at Bara TPS as attached at Annexure-A.III.

A.25. Proposed SPS at 400kV s/s Jehta, 400kV s/s Shamli and 400kV s/s Sahupuri (Agenda by UPSLDC)

- A.25.1 UPSLDC has submitted that at 400kV s/s Shamli (1X500 MVA) there is a single ICT and loading on said ICT is reaching 460 MW. To avoid any overloading in upcoming summer season, SPS is proposed.
- A.25.2 Further, UPSLDC has stated that at 400kV s/s Jehta (2x500 MVA) and 400kV s/s Sahupuri (2x500 MVA), ICTs may reach N-1 limit in upcoming summer season therefore SPS is proposed.
- A.25.3 Logics and Priority of feeders at 400kV s/s Shamli, 400kV s/s Jehta and 400kV s/s Sahupuri is attached as Annexure-A.XVII of agenda, Annexure-A.XVIII of agenda and Annexure-A.XIX of agenda respectively.
- A.25.4 UPSLDC representative informed that in view of the likely delay in commissioning of the second ICTs, the proposed SPS scheme has been formulated to avoid overloading during the ensuing summer season.
- A.25.5 NRLDC representative stated that SPS proposed by UPSLDC at 400kV s/s Jehta, 400kV s/s Shamli and 400kV s/s Sahupuri appears to be in order.

Decision of OCC Forum:

OCC Forum approved the proposed SPS at 400 kV S/s Jehta, 400 kV S/s Shamli and 400 kV S/s Sahupuri as attached at Annexure-A.XVII of agenda, Annexure-A.XVIII of agenda and Annexure-A.XIX of agenda respectively.

A.26. Operational Challenges at Kutehr HEP Arising from Uncoordinated Water Releases by Bajoli-Holi HEP (Agenda by JSW Hydro Energy)

- A.26.1 JSW Hydro Energy intimated that in 236th OCC meeting, a committee was constituted by OCC forum with representative from HPSLDC, Kutehr HEP, Bajoli-Holi HEP and NHPC for establishment of a joint operational protocol between Bajoli-Holi HEP, Kutehr HEP and NHPC Power Stations. OCC Forum directed that committee may finalize joint operational protocol within two months and submit the same to the OCC forum.
- A.26.2 In this regard, a meeting was held under the chairmanship of CE, HPSLDC on cited subject matter (copy of MoM attached as Annexure-A.XX of agenda)
- A.26.3 HPSLDC representative informed that the draft SOP has been received from Kutehr HEP, comments on which are awaited from the generating utilities. He further

informed that the final SOP shall be submitted within fifteen (15) days after receipt of comments from all concerned stakeholders.

- A.26.4 Representative from Bajoli-Holi HEP and JSW Hydro Energy stated that recurring instances of silt dumping by HP-PWD have been observed which leads to operational challenges and adversely impacts reservoir life.
- A.26.5 MS, NRPC advised HPSLDC to convene a meeting of the committee and also invite HP-PWD for deliberations on silt-related issues. She further requested HPSLDC to take up the matter proactively and finalise SOP within fifteen (15) days.

Decision of OCC Forum:

OCC Forum requested HPSLDC to convene a meeting of the committee and finalise SOP within fifteen (15) days. Further, forum requested HP SLDC to also invite HP-PWD in the meeting for deliberations on silt-related issues.

खण्ड-ख: उ.क्षे.भा.प्रे.के.

Part-B: NRLDC

B.1 NR Grid Highlights for January 2026 and demand forecasting related

B.1.1 NRLDC representative presented grid highlights for the month of January 2026:

Demand met details of NR

S.No	Constituents	Max Demand met (in MW)	Date & Time of Max Demand met	All time Max. Demand	Date & Time of All time Max Demand met
1	Chandigarh	340	14-01-2026 10:00	482	18.06.24 at 15:28
2	Delhi	6087	09-01-2026 10:39	8656	19.06.24 at 15:06
4	Haryana	10156	15-01-2026 10:00	14662	31.07.24 at 14:30
3	H.P.	2310	09-01-2026 09:15	2310	09-01-2026 09:15
5	J&K	3362	07-01-2026 10:00	3362	07-01-2026 10:00
6	Punjab	10661	16-01-2026 10:30	16754	28.06.25 at 15:00
7	Rajasthan	19282	09-01-2026 09:00	19282	09-01-2026 09:00
9	U.P.	23716	07-01-2026 19:30	31486	11.06.25 at 00:45
8	Uttarakhand	2766	16-01-2026 09:00	2910	11.06.25 at 22:00
10	Northern Region	75554	09-01-2026 10:00	91234	19.06.24 at 14:37

S.No	Constituents	Max Consumption (in MUs)	Date of Max Consumption	Average Demand met (in MUs)	All time Max consumption	Date of All time Max Consumption
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1	Chandigarh	5.83	14-01-2026	4.8	9.3	12.06.2025
2	Delhi	99.34	16-01-2026	90.6	177.7	18.06.2024
4	Haryana	185.1	14-01-2026	167.2	293.4	30.07.2024
3	H.P.	41.83	09-01-2026	38.8	42.6	11.06.2025
5	J&K	68.1	09-01-2026	63.3	70.3	04.02.2025
6	Punjab	188.6	16-01-2026	168.2	366.8	21.07.2024
7	Rajasthan	347.5	09-01-2026	332.2	388.0	11.06.2025
9	U.P.	422.7	06-01-2026	391.3	658.7	17.06.2024
8	Uttarakhand	51.6	14-01-2026	47.4	62.1	14.06.2024
10	Northern Region	1394.6	16-01-2026	1303.7	2022.9	12.06.2025

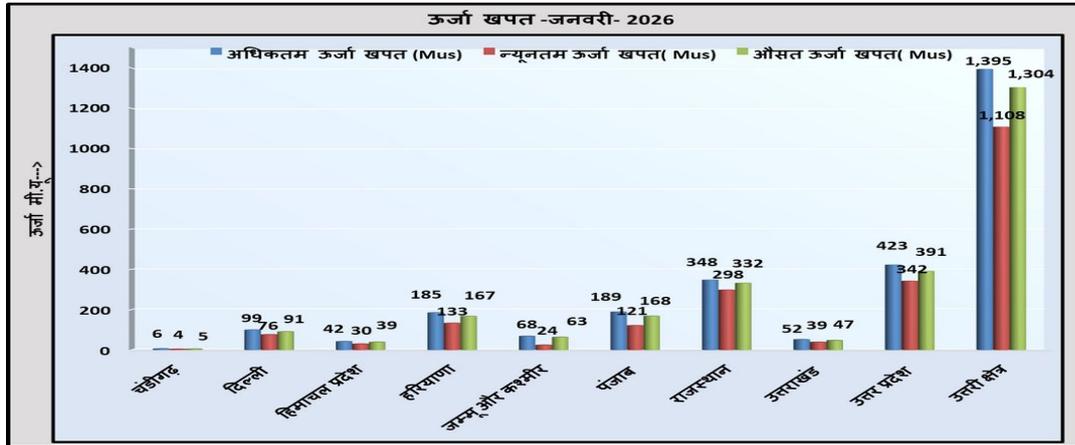
B.1.2 NRLDC representative apprised that in January'26,

- Maximum energy consumption of Northern Region was 1394.6 MUs on 16th January'26 and it was 7.7% higher than January'25 (1272.95 MUs on 10th January'25).
- Average energy consumption per day of Northern Region was 1303.7 MUs and it was 5.7% higher than January'25 (1233.9 MUs/day)
- Maximum Demand met of Northern Region was 75554 MW on 09th January'26 @10:00 Hrs as compared to 69109 MW 10th January'25 @10:00 Hrs.

Comparison of Average Energy Consumption (MUs/Day) – Jan '25 vs Jan'26

क्षेत्र/राज्य	जनवरी- 2025	जनवरी- 2026	% अंतर
चंडीगढ़	4.4	4.8	8.17%
दिल्ली	83.4	90.6	8.69%
हरियाणा	38	38.8	2.20%
हिमाचल प्रदेश	152.5	167.2	9.65%
जम्मू और कश्मीर	67	63.3	-5.52%
पंजाब	153.5	168.2	9.55%
राजस्थान	326.3	332.2	1.81%
उत्तराखंड	44.4	47.4	6.74%
उत्तर प्रदेश	364.5	391.3	7.37%
उत्तरी क्षेत्र	1233.9	1303.74	5.66%

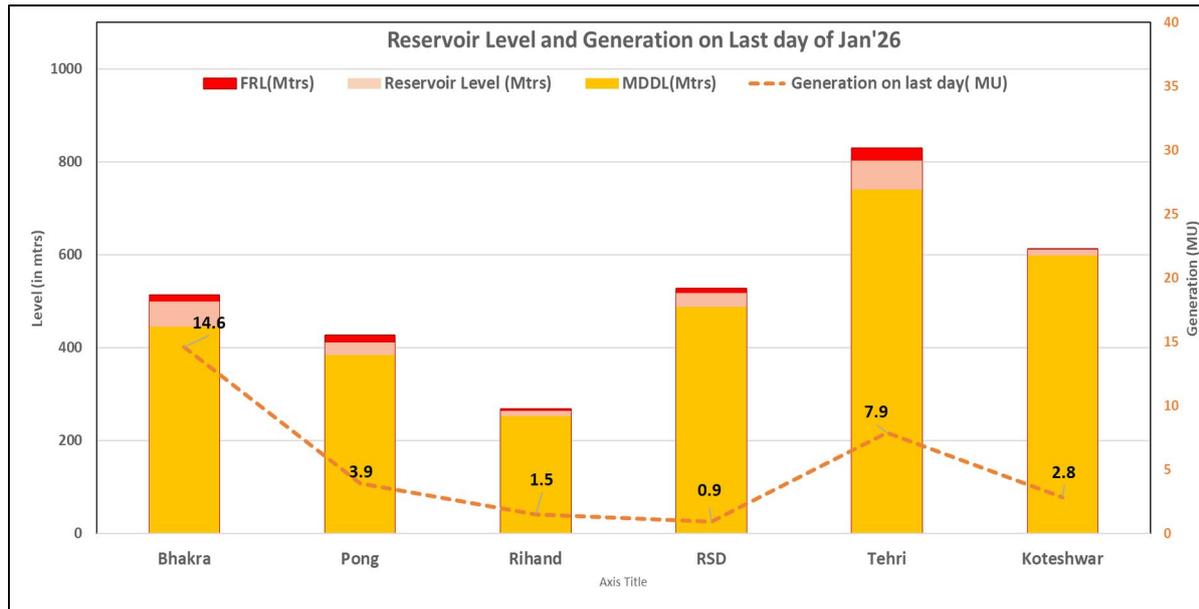
Energy Consumption



Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Jan'26	50.000	50.349 (12.01.26 at 08:59:10 hrs)	49.585 (09.01.26 at 11:44:00 hrs)	4.58	78.26	17.16
Jan'25	50.001	50.309 (26.01.25 at 14:01:10 hrs)	49.600 (11.01.25 at 09:07:30 hrs)	5.23	76.05	18.72

Reservoir Level and Generation on Last Day of Month



Reservoir Level on last day of January month				(Low: -ve)	(High: +ve)	
Year	Bhakra	Pong	Rihand HPS	RSD	Tehri	Koteshwar
2026	499	411.56	263.28	517.81	802.20	611.45
2025	487	399	263	500	802.41	611.15
Diff (in m)	12	12.56	0.28	17.81	-0.21	0.3

Detailed presentation on grid highlights of Jan'2026 as shared by NRLDC in OCC meeting is attached as Annexure-B.I.

B.2 Demand forecasting and resource adequacy related: CERC order dated 05.10.2025

B.2.1 NRLDC representative stated that Hon'ble CERC had 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.

B.2.2 CERC has also released "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.

B.2.3 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

B.2.4 NRLDC representative stated that Portal has been prepared for submission of data by states. The user credentials have been provided to all states of Northern region and presented the status of Day Ahead Forecasting, week ahead, month-ahead and year-ahead submission status for Jan-2025 as per Clause 31(4) (a) & (b) of IEGC-2023 as shown below:

State/Entity	Day Ahead	Week Ahead	Month Ahead
Punjab	As per Format	As per Format	As per Format
Haryana	As per Format	As per Format but irregular	As per Format
Delhi	As per Format	As per Format	As per Format
Rajasthan	As per Format	As per Format	As per Format
Uttar Pradesh	As per Format	As per Format	As per Format
Uttarakhand	As per Format	As per Format	As per Format
Himachal Pradesh	As per Format	As per Format	As per Format
J&K and Ladakh (UT)	As per Format	As per Format but irregular	As per Format
Chandigarh (UT)	As per Format	As per Format but irregular	As per Format but irregular

B.2.5 In accordance with above,

- All SLDCs were 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/1KWY4G9gTBLV5wTJkhGEleRptKP-QbhjL?usp=drive_link to NRLDC through mail (nrlbcmis@grid-india.in) and FTP as per above timeline.
- All SLDCs were asked 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.

B.2.6 NRLDC representative further highlighted that considering the high demand expected in the upcoming months, the Ministry of Power (MoP), in the meeting held on 15-01-2026, has directed RLDCs to carry out Resource Adequacy studies for all

States of their respective control regions (***MoM Quote: Grid-India to carry out short-term Resource Adequacy assessments for the States and take up the matter with those States that have projected shortages in their control area.***)

B.2.7 Accordingly, NRLDC had conducted Resource Adequacy studies for all the northern region states for the period April-June 2026 based on historical SCADA data. Studies done for Delhi were presented in detail and for other states it was mentioned that detailed results are attached as Annexure-B.I of agenda. The results indicate an elevated adequacy gap in forecasted demand and available generation from all sources during the April-June period, particularly during non-solar hours. Studies suggest higher risk of unserved energy is observed during this period, highlighting the need for timely and firm power arrangements by states to meet their demand smoothly.

B.2.8 NRLDC representative asked All SLDCs to review the resource adequacy results and provide their comments along with the proposed tie-ups to avoid shortfall during Apr-Jun 2026.

B.2.9 It was mentioned that following actions were communicated vide NRLDC letter dated 04.02.2026:

- All NR States are advised to plan in advance for power procurement for the entire summer period (April–June and beyond).
- Early finalisation of firm GNA and bilateral arrangements may be ensured to adequately meet peak and shoulder-hour demand while maintaining sufficient reserve margins.
- Reliance on short-term market purchases for meeting peak summer demand should be minimised and treated only as supplementary.
- States may review the enclosed Resource Adequacy (RA) study and undertake detailed State-level analysis in coordination with DISCOMs / Power Management Companies, considering local demand patterns and resource availability.
- States are further requested to review their demand forecast submissions.
- A detailed source-wise bifurcation of ISGS allocations, in the prescribed format, along with updated details of any new or revised GNA / bilateral contracts for April–June 2026, may be furnished to facilitate refinement of the RA assessment and proactive summer preparedness planning.

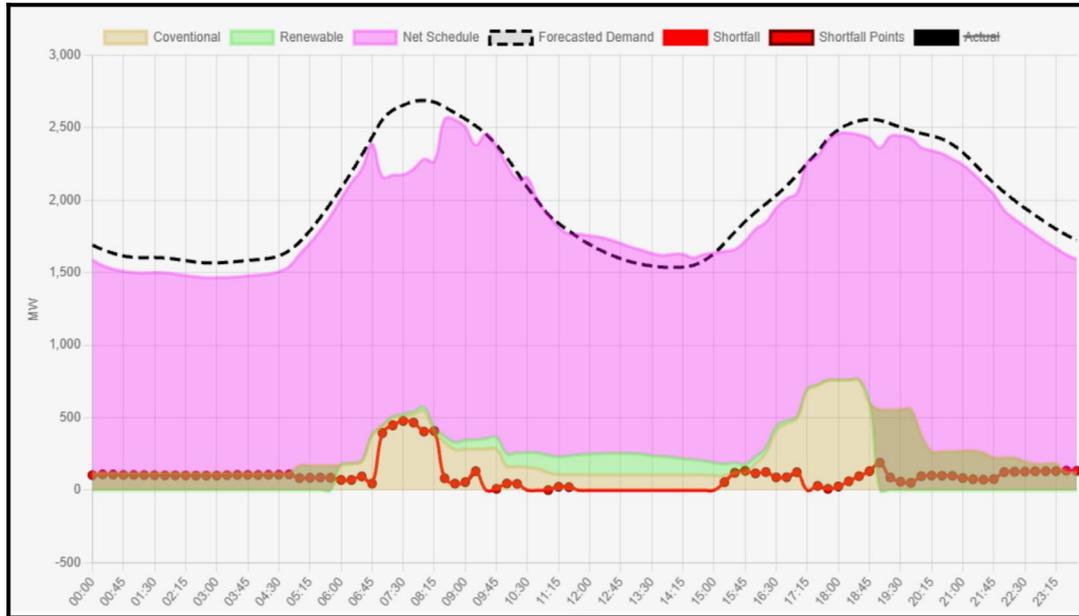
B.2.10 As per IEGC clause 31

Quote

(4) Adequacy of Resources (a) SLDCs shall estimate and ensure the adequacy of resources, identify generation reserves, demand response capacity and generation flexibility requirements with due regard to the resource adequacy framework as specified under Chapter 2 of these regulations.

Unquote

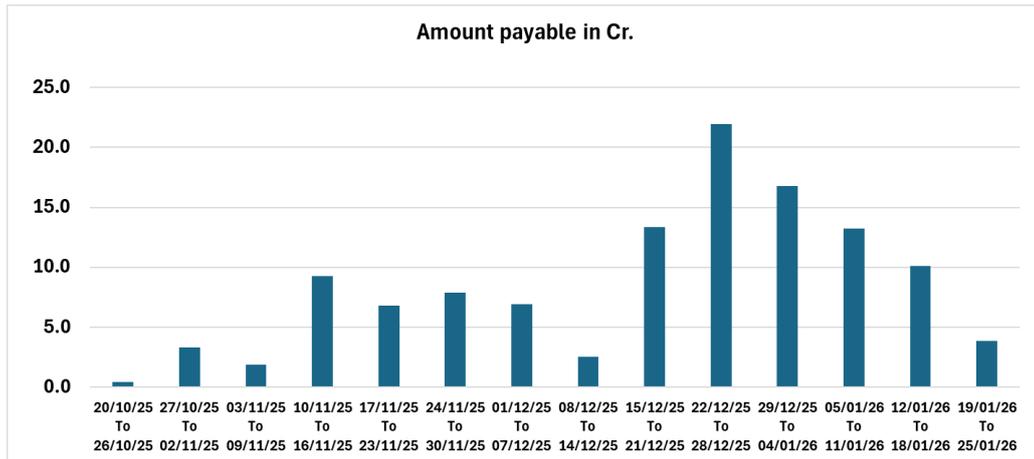
B.2.11 It was mentioned that NRLDC is also regularly sending emails based on day ahead resource adequacy exercise being carried out at NRLDC end. In case of major shortfall seen for a state based on demand forecast and generation adequacy data submitted by state, NRLDC communicates the actions required from state side in real-time also. Some sample snapshots emailed to respective states are shown below for reference:



B.2.12 However, it is being observed that states are only submitting the generation availability and not the actual internal generation schedule. This leads to a situation wherein only surplus/shortage values are checked. This does not take into account the schedule changes in internal thermal generation which may be happening based on merit order to accommodate high solar generation during daytime.

B.2.13 During 240 OCC meeting, MS NRPC stated that all concerned SLDCs may take necessary actions as discussed in previous OCC meetings also. It was mentioned that special attention may be given by SLDCs on demand estimation and Resource Adequacy data submission & ensuring adequate manpower in SLDCs.

B.2.14 NRLDC representative further presented the deviation amount payable by Rajasthan for last 3 months is shown below which suggests improvement requirement in resource adequacy planning by Rajasthan SLDC and RUVITL:



B.2.15 Rajasthan SLDC representative stated that meeting was conducted recently with RUVITL and all these points related to resource adequacy and deviations were discussed. RUVITL has been asked to make necessary tie up so that over drawl from grid is minimized. Further, intrastate thermal generators are being asked to ramp down their generation during solar hours, however increased ramp support is required.

Decision of the forum:

OCC forum asked all SLDCs to review the resource adequacy results and provide their comments along with the proposed tie-ups to avoid shortfall during Apr-Jun 2026. Further, forum asked all SLDCs to take measures for resource adequacy as per the IEGC 2023 regulations.

B.3 Summer Preparedness 2026

B.3.1 NRLDC representative stated that with the increase in temperature, demand of Northern Region starts increasing from March onwards every year. Summer of Northern region are typically hot and demand is also high during this time, therefore advance actions help in better grid operation.

B.3.2 To overcome the commonly encountered challenges during summer months and ensuring smooth grid operation, following are few points which were discussed in 240 OCC meeting and are required to be ensured by all stakeholders:

a. Maintenance of Reserves

Issues:

- Increasing summer demand requires adequate reserves.
- Sudden hydro outage (silt/other reasons) impacts frequency, voltage, corridor loading and system security.

Action Plan:

- Restart reserve shutdown units (State & Inter-State) through appropriate transactions.
- SLDCs to develop reserve display window similar to NRLDC, if not already done.

- Rajasthan, Punjab & Haryana to ensure backing down to 55% in critical situations.

Action By:

NRLDC, SLDCs, Generators

b. Telemetry

Issues:

- Telemetry failure during contingencies, bad weather and switching operations.
- Issues observed particularly in newly commissioned elements.

Action Plan:

- Ensure availability of all analog & digital telemetry points at control centres.

Action By:

SLDCs, STUs, ISTS licensees

c. Portfolio Management & Load Staggering

Issues:

- Large load connection/disconnection at hourly boundaries (UP, Rajasthan, Haryana) causing frequency spikes & overvoltage tripping.
- Overdrawal/underdrawal due to solar variation (e.g., Rajasthan on 09.02.2026).
- Transmission constraints during high demand.

Action Plan:

- Plan GNA-based and short-term arrangements based on forecast.
- Maintain margin in thermal scheduling; ensure units on bar & reserves.
- Operate thermal units at technical minimum during load crash.
- Tie-up with neighbouring/hydro-rich states.
- Use RTM to manage real-time imbalance.
- Maximize internal generation during contingency.

Action By:

All SLDCs

d. Tower Strengthening & ERS Availability

Issues:

- Tower collapse incidents during thunderstorms (May/June 2024 & 2025).
- 765kV & 400kV lines affected; RE curtailment in Western Rajasthan.
- ERS not available as per norms in some utilities.

Action Plan:

- Ensure availability of ERS for early restoration.
- Complete tower repair plans before April.
- Extra precautions for lines prone to wind/thunderstorm tripping.
- Expedite ERS procurement where deficient (PTCUL, HPPTCL, RRVPNL, JKPTCL, HVPNL).

Action By:

STUs, POWERGRID, ISTS transmission licensees.

e. Reactive Power Management

Issues:

- Voltage profile improved but vigilance required during summer.

Action Plan:

- Switch ON capacitors / Switch OFF reactors as required.
- Tap optimization:
 - 400/220kV by NRLDC
 - 220/132kV by respective States
- Ensure dynamic reactive support from generators as per capability curve.
- Improve SCADA visualization for real-time monitoring.

Action By:

NRLDC, SLDCs

f. Defense Mechanism**Issues:**

- Low performance of SPS.
- Defense schemes include UVLS, UFR, ROCOF, SPS for line/ICT loading etc.
- SPS is operational defense, not long-term solution.

Action Plan:

- Ensure protection & defense systems are functional before summer.
- Verify settings as per NRPC recommendations.
- Complete SPS mapping in SCADA.
- Provide updates on modifications/changes.

Action By:

Transmission Utilities (STU/ISTS), SLDCs

B.3.3 NRLDC representative further stated that due to unfavourable weather conditions during summer months, All India demand remains on the higher side. On several days, it is observed that frequency is below the band for most of the time. To maintain the Grid security all SLDCs were requested to take proactive steps as follows:

- Ensure that ADMS is in service and expedite its implementation if not commissioned.
- Ensure healthiness and availability of AUFLS and df/dt load shedding.
- Ensure revival of intra-state generators under economic shutdown/RSD based on requirement
- Ensure portfolio balancing through T-GNA/RTM market segments
- Ensure no under injection by the generators from schedule
- In case of inadequate margins in intrastate generators measures for emergency load regulation measures may be taken in interest of grid security.
- Pursue generators to expedite revival of thermal units under forced outage wherever feasible.
- ***As per the directions from Ministry, no planned outages of generating units to be approved for Apr-June period. Accordingly, all planned outages may be expeditiously taken and work may be completed by March 2026.***

B.3.4 In this case, the list of radial feeders in states becomes very important. List of such radial feeders has been provided by respective utilities and is part of 'Operating Procedure of Northern Region'. Latest list of radial feeders is also attached as Annexure-B.II of agenda. Following are the attributes for such feeders:

- Feeders shall be radial in nature
- They should usually have substantial load flow so that reduction of drawal can be prominently noticed on opening of such lines.

B.3.5 The opening of feeders is generally an extreme step which shall be required in case of threat to grid security and continuous non-adherence to NRLDC instructions to manage overdrawl by SLDCs/ DISCOMs. In such a case, every utility needs to take actions to support NRLDC by following their instructions including opening of feeders.

B.3.6 Telemetry is to be ensured for all such feeders for monitoring in real time by SLDC/ NRLDC. States were also advised to take remedial measures for minimizing sustained over drawal at low frequencies as per the IEGC.

Decision of the forum:

OCC forum asked all SLDCs to verify that

- *List of feeders are actually radial in nature and are likely to provide the expected relief*
- *Such feeders are not part of any other scheme such as any SPS, UFR or df/dt actuated shedding*
- *Telemetry is to be ensured for all such feeders for monitoring in real time by SLDC/ NRLDC.*

B.4 SPS proposals in Rajasthan

B.4.1 Majority of 400/220kV ICTs in Rajasthan state (both interstate as well as intrastate are N-1 non-compliant). List of N-1 non-compliant ISTS substations is shown below:

Constrained location	SPS Status as available with NRLDC
3*315=945 MVA ICT at Bhiwadi(PG)	Approved and to be implemented
2*315+500=1130 MVA ICT at Bassi(PG)	Approved and to be implemented
315+500=815 MVA ICT at Neemrana(PG)	Approved and to be implemented
2*315+500=1130 MVA ICT at Sikar(PG)	Approved and to be implemented
3*315=945 MVA ICT at Kankroli(PG)	Approved and to be implemented
2*315=630 MVA ICT at Kotputli(PG)	Implemented
2*315=630 MVA ICT at Deedwana(RVFN)	Not planned

B.4.2 NRLDC vide email dated 02.12.2025 had communicated that the stage wise logic for SPS of ICTs at POWERGRID stations in Rajasthan control area was discussed in 64th PSC meeting held on 21.11.2025. The time delay logic proposed by Rajasthan was agreed and POWERGRID was requested to start the implementation process of the SPS at designated stations.

B.4.3 During 240 OCC meeting,

- POWERGRID representative informed that separate meeting was convened on 12.01.2026 to discuss list of feeders which are being reviewed at SLDC end.
- SPS has been implemented at 400/220kV Kotputli(PG)
- SPS shall be implemented at other substations of POWERGRID by end of Feb 2026.

Decision of the forum:

OCC forum asked POWERGRID and RRVPNL to expedite commissioning of SPS.

B.5 State-wise transmission constraints anticipated during high demand season of 2026

- B.5.1 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.
- B.5.2 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.
- B.5.3 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.
- B.5.4 State-wise issues and measures required thereof are listed below. Concerned transmission utilities are requested to provide update and ensure that these transmission elements are expeditiously commissioned.

Punjab:

- B.5.5 Punjab SLDC representative stated that they have reassessed the ATC/TTC limit for paddy 2026. and shared assessment with NRLDC on 13.02.2026. NRLDC representative stated that the limits of 10950/11450MW submitted by Punjab SLDC seem in order as per preliminary studies, however, detailed studies shall be shared separately through email.

Haryana:

SPS proposals in Haryana

For SPS at 400/220kV Hissar(PG) ICTs:

B.5.6 NRLDC and Haryana SLDC representative presented SPS logic proposed at 400/220kV Hissar(PG) ICTs:

B.5.7 Loading of any of the 400/220kV Hissar(PG) ICTs crosses, 105 % for 3 seconds, tripping of following lines:

- 220 kV Hisar (BBMB) - Sangrur D/C line
- 220 kV Hisar (BBMB) - Chirawa line

B.5.8 Punjab SLDC expressed concern that opening of 220kV Hisar (BBMB) - Sangrur D/C line may lead to overloading of 220kV Ludhiana-Dhandharikalan lines as power will flow from Ludhiana to Dhandhari kalan to Jamalpur to Sangrur.

B.5.9 POWERGRID representative stated that ICT-4 at Hissar(PG) is expected by June 2026 (after diverting it from another location).

B.5.10 OCC forum discussed that as the feeders were already identified in meeting taken under SE(O) NRPC on 27.06.2025, accordingly, the proposed SPS was approved and POWERGRID was asked to implement it at the earliest. Further, Punjab SLDC was assured that this SPS operation would not impact the ATC/TTC of Punjab state control area.

B.5.11 Punjab SLDC was asked:

- *to separately discuss with NRLDC regarding solutions to the issues raised by them.*
- *take up with PSTCL planning team to take up for additional supply source for 220kV Sangrur.*

B.5.12 POWERGRID was asked to commission the ICT-4 at Hissar at the earliest.

For SPS at 400/220kV Panipat ICTs:

B.5.13 HVPNL updated that SPS at 400/220kV Panipat ICTs shall be commissioned before summer 2026.

B.5.14 EE(Protection), NRPC representative stated that the reason for time delay of 12 sec for wiring feeders for Panipat SPS need to be furnished and should be beyond protection setting time delays of transformers.

B.5.15 NRLDC representative stated that time delay can be reviewed and approved in protection sub-committee meeting of NRPC.

B.5.16 OCC forum asked NRPC to communicate their queries to HVPNL & BBMB and accordingly, the SPS logic can be approved in next protection subcommittee meeting of NRPC.

B.5.17 POWERGRID updated status of ICTs as following:

- **765/400kV Bhiwani ICT-IV: ICT received on site. Expected in March 2026**
- **765/400kV Jhatikara ICT-V: Expected in May 2026. Bay location to be changed for bus reactor.**

Uttar Pradesh:

B.5.18 POWERGRID representative stated that 500MVA ICT-4 at Allahabad is expected to be commissioned by Feb 2026 and First Time Charging is under process.

B.5.19 UPPTCL representative informed that old 240MVA ICT at Obra is expected to be revived by March 2026 whereas 315MVA ICTs at Obra would be revived after some time due to requirement of procurement of ICTs. Matter shall be discussed in separate meeting with UPPTCL.

B.5.20 CTUIL representative stated that ICT capacity augmentation at 400/220kV Sohawal(PG) shall be taken up in next CMETS meeting.

SPS proposals in Uttar Pradesh

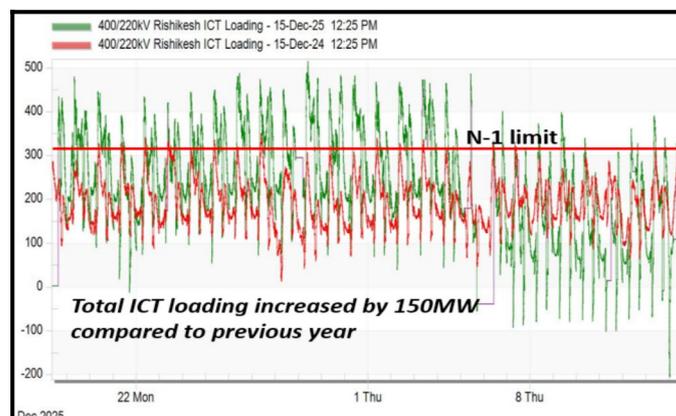
B.5.21 UP SLDC informed that work order for SPS logic of 400/220kV Bareilly S/s has been placed. SPS at both 400/220kV Panki and Bareilly substation are expected to be commissioned by Mar 2026.

B.5.22 POWERGRID representative stated that SPS at Agra(PG) would be commissioned by Feb 2026 end, during planned shutdown of Agra(PG) ICTs.

Uttarakhand:

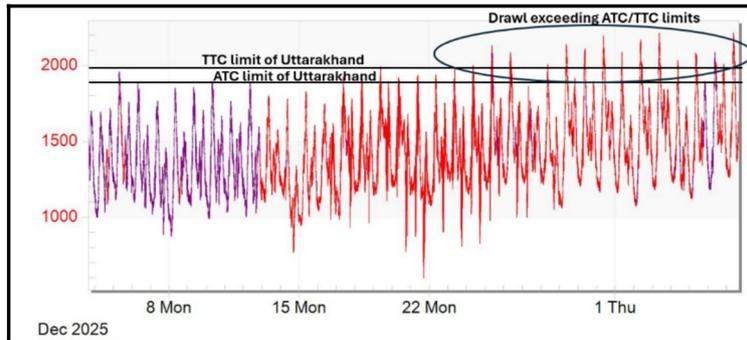
B.5.23 In 240 OCC meeting, NRLDC representative stated that continuous violation of ATC/TTC limits and loading of 400/220kV Rishikesh ICTs beyond their N-1 limit is being observed since the commissioning of 400kV Koteshwar-Rishikesh D/C line.

B.5.24 Loading pattern of 400/220kV Rishikesh ICTs for Dec 2025 is shown below:



B.5.25 Further, with the commissioning of 400kV Koteshwar-Rishikesh D/C line, the loading of Rishikesh ICTs is heavily dependent on mode of operation of Tehri PSP.

B.5.26 ATC/TTC limits and import by Uttarakhand state for the month of Dec2025-Jan2026 is shown below wherein it can be clearly seen that there is ATC/TTC limits violation almost on daily basis especially during 0800-1200 hrs in morning and 19-22 hrs in evening.



B.5.27 PTCUL representative presented the concerns and actions taken at their end for managing load of Rishikesh ICTs. Uttarakhand SLDC representative stated that due to the above overloading, SLDC is forced to open following intra-State lines to manage the load flow in the intra-State transmission system.

- ❖ 220 kV SIDCUL–Rishikesh,
- ❖ 220 kV Rishikesh–IIP,
- ❖ 132 kV Jwalapur–Roorkee,
- ❖ 132 kV SIDCUL–Roorkee line
- ❖ 132 kV Laltappar–Majra
- ❖ 132 kV Bindal–Majra

B.5.28 Presentation shared by Uttarakhand SLDC in 240 OCC meeting is attached as **Annexure-B.II** of MoM.

B.5.29 OCC forum discussed that 400kV Koteshwar-Rishikesh D/C line was approved in 2015-16 and the demand of Uttarakhand was much lower during that period. When studies were done back then, no constraint at 400/220kV Rishikesh ICTs was envisaged.

B.5.30 OCC forum asked CTUIL and PTCUL planning team to study loadings of line and ICTs in Rishikesh area in 2028-29 time frame.

B.5.31 Uttarakhand SLDC was asked to jointly study with NRLDC for any temporary relief measure for Rishikesh ICTs ensuring reliability of power supply. Uttarakhand SLDC was asked to share proposal from their side before next OCC meeting.

B.5.32 ATC/TTC limits of states for the month of March 2026 are attached as Annexure-B.III of agenda. Utilities were requested to go through these limits and provide comments.

Decision of the forum:

OCC forum asked all concerned to take necessary actions as discussed above.

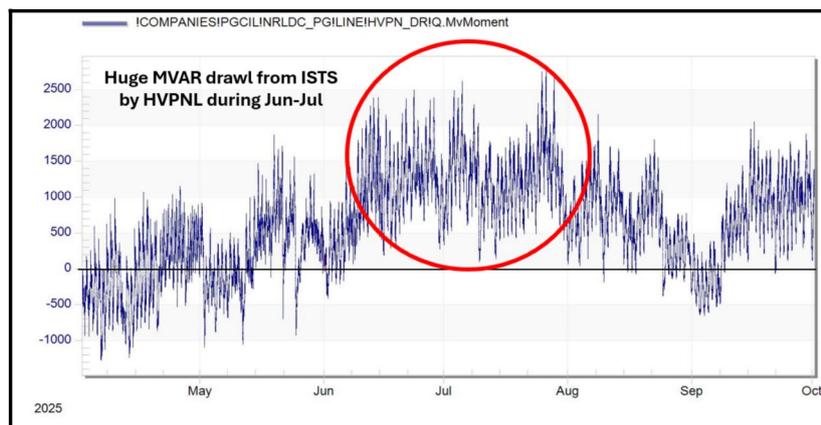
B.6 SPS for Champa-Kurukshetra HVDC

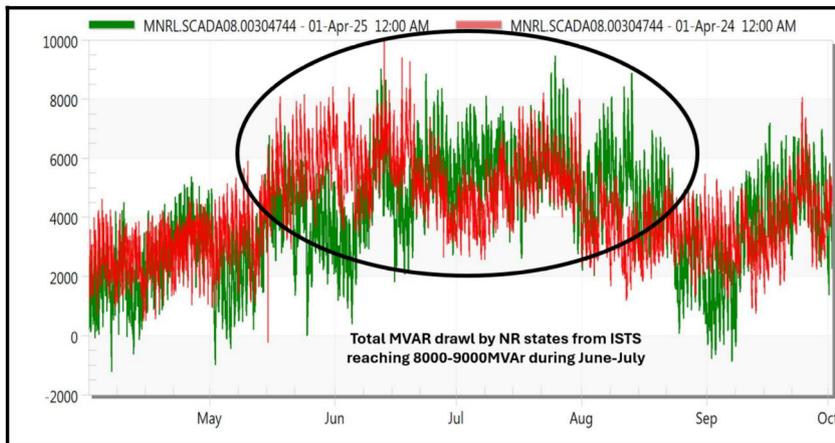
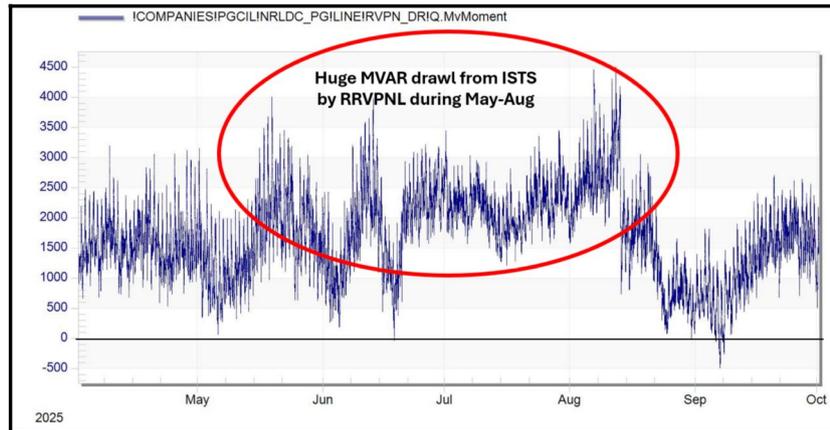
B.6.1 As discussed in recent OCC meetings, there have been concerns regarding reliability of Champa-Kurukshetra HVDC. There have been unplanned load loss that has taken place in two events related to simultaneous all poles outage of HVDC Champa-Kurukshetra namely,

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

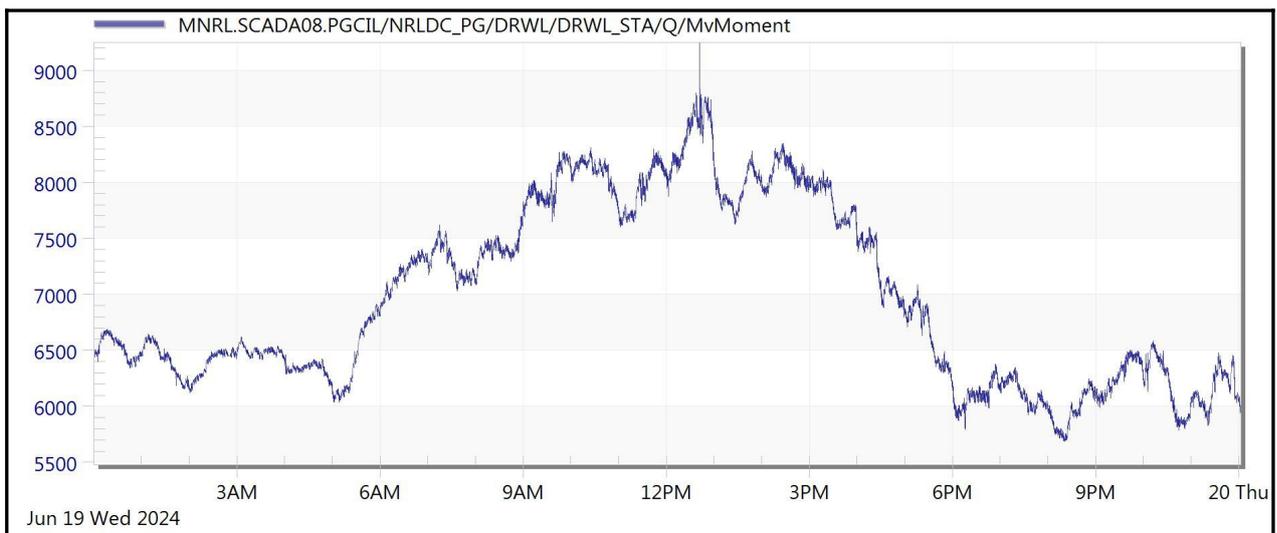
B.6.2 The recommendations of Committee formed under Member (GO&D), CEA] to analyse 17th June 2024 are attached as Annex-B.IV of agenda. NRLDC has been continuously pursuing with NR states to take measures for reactive power support at local level so that reactive power exchange from ISTS is minimal. However, as per discussions held in OCC meetings, no major progress is being reported. There is huge MVAR drawl by NR states during May-Sep months.

B.6.3 NRLDC has analysed reactive power flow of all states of NR for last year i.e. 2025. The points which are used to calculate MW drawl of state from ISTS have been used to calculate the MVAR drawl by state from ISTS.





B.6.4 Moreover, on 19th June 2024, the day NR demand reached maximum of 91.2 GW it can be seen that there was huge MVAR drawl by NR states from ISTS and seems to be following pattern of solar generation (maximum MVAR drawl at around 1pm) as shown below:



B.6.5 Accordingly, in 233 OCC meeting it was agreed 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 was suggested to utilise the wired loads of existing Agra-Gwalior SPS scheme. Signal of multiple HVDC pole outage can be extended from Kurukshetra station to 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.

B.6.6 During 240 OCC meeting, following tentative logics for SPS were discussed:

Case-1: Voltage at 400kV Kurukshetra less than 380kV & more than 50kV for 200ms: Shed Loads in Groups C and D

Case-2: Voltage at 400kV Kurukshetra less than 360kV & more than 50kV for 200ms: Shed Loads in all Groups

B.6.7 As the operation of SPS will result in load loss in NR, it is necessary that commensurate generation backing down in WR may also be done simultaneously which is already the case with existing Gwalior-Agra SPS. Accordingly, same backing down in WR may be done for this SPS of Champa-Kurukshetra HVDC link as for Gwalior-Agra SPS scheme.

B.6.8 Other OCC members were requested to:

- Provide actions taken at their end in compliance to recommendations of MoP Committee constituted under Member (GO&D), CEA to analyse 17th June 2024.
- Approve proposed SPS logic

Decision of the forum:

OCC forum asked POWERGRID and other OCC to furnish their comments on the proposed SPS logic before next PSC/OCC meeting of NRPC.

B.7 Database of transmission lines having terminal equipments rating lower than transmission line conductor capacity

B.7.1 For conducting studies for assessment of inter control-area transfer capability or any other related simulation studies, thermal ratings of lines as specified in CEA's Manual on Transmission Planning Criteria 2023 are being considered as safe capacity limit of lines based on anticipated ambient temperature.

B.7.2 However, it is being observed in number of cases, that the rating of terminal equipment is lower than thermal capacity of transmission line. This is leading to under-utilisation of line capacity due to limited switchgear rating and even leading to constraints in RE evacuation from Western Rajasthan RE complex.

B.7.3 As per the data available at NRLDC, following are few transmission lines in Northern region having terminal equipments of lower capacity than conductor capacity.

Name of Transmission line	Line length (km)	Owner	Conductor Type	Conductor Rating @45deg for 75deg design	Switchgear rating End-1 (MVA)	Switchgear rating End-2 (MVA)
400kV Bhadla-Bikaner D/C	189	RRVPNL	Quad Moose	1701	1386	1386
400kV Jaisalmer-Kankani S/C	177	RRVPNL	Quad Moose	1701	1386	1386
400kV Akal-Kankani S/C	223	RRVPNL	Quad Moose	1701	1386	1386
400kV Akal-Jaisalmer S/C	61	RRVPNL	Quad Moose	1701	1386	1386
400kV Suratgarh SCTPS-Babai D/C	245	RRVPNL	Quad Moose	1701	1386	1386
400kV Mahendragarh-Dhanonda D/C	5	ATIL	Quad Moose	1701	1386	1386
400kV Gr. Noida-Nawada D/C	30	POWERGRID	Quad Bersimis	1978	1386	1386
400kV Vishnuprayag-Muzaffarnagar S/C	280	UPPTCL	Twin Moose	850	693	NA
400kV Vishnuprayag-Alakhnanda D/C	109	UPPTCL	Twin Moose	850	693	NA
400kV Rampur-Nallagarh D/C	128	POWERGRID	Triple Snowbird	1275/1625*	1386	1386
400kV Jhakri-Gumma D/C	55	POWERGRID	Triple Snowbird	1275/1625*	1386	NA
400kV Gumma-Panchkula D/C	112	POWERGRID	Triple Snowbird	1275/1625*	NA	1386
400kV Jhakri-Rampur D/C	21	POWERGRID	Triple Snowbird	1275/1625*	1386	1386

*Considering ambient temp of 40deg (lower in Hilly areas)

B.7.4 During 240 OCC meeting,

- NRLDC representative stated that concerns from SJVNL side have been received in written and are attached as **Annexure-B.III** of MoM.
- UP SLDC representative informed that line capacity is upto 1200A but the switchgear capacity is only 1kA with setting at 10% extra margin.

- NRLDC representative asked UP SLDC to submit the line capacity along with terminal equipment rating at UPPTCL end through email to NRLDC/NRPC.
- Haryana SLDC representative informed that switchgear upgradation works are under progress at Nawada and expected to be completed by Feb 2026. Upgradation works at Dhanonda are under progress and will take some more time.
- NRLDC asked Haryana SLDC to communicate name of lines for which upgradation has been completed.
- RRVPNL representative informed that NIT has been issued for terminal equipments of all transmission lines. Supply and execution works are being issued as separate tender.

Decision of forum:

OCC forum asked all members to take necessary actions as discussed above.

B.8 Issues in grid operation in Rajasthan RE pocket

B.8.1 Voltage and power (active and reactive) oscillations are observed in the Rajasthan Renewable Energy (RE) complex during peak solar generation hours. During severe high-magnitude oscillation events in Rajasthan, frequency oscillations and hunting of synchronous generators in other regions have also been observed.

During solar hours, the following abnormalities are consistently observed on a daily basis:

- i. Continuous low-amplitude oscillations (2–4 kV peak-to-peak, 0.3 – 0.7 Hz, 3-6 Hz) persisting during solar hours.
- ii. High-amplitude oscillations (20–50 kV peak-to-peak, 3-6 Hz) – were previously originating following amplification by STATCOMs or due to suspected interactions among RE plants.

These oscillations usually damp out after switching the STATCOM to manual mode and/or reducing solar generation.

B.8.2 To overcome these, number of actions are already being taken at NRLDC end such as:

- Switching of EHV lines and reactors are avoided in the Rajasthan RE complex during solar hours (10:00–16:00 hrs). However, in case of variability of solar generation either due to foggy weather/moving cloud or implementation of TRAS up/down, Bus reactors (B/Rs) may be switched-In/out as per real-time voltage condition of the RE pooling S/s. Switching-out of B/R carried out first at RE pooling S/s and then at nearby connected S/s during solar ramping-up. Switching-In of B/R carried out first at nearby connected S/s and then at RE pooling S/s during solar ramping-down

- Total RE generation from the ISTS NR RE complex restricted within the permissible evacuation limits. Messages with flag Alert/Emergency/Extreme emergency are being issued to NRLDC / RE plants for curtailment of generation in case of violation in evacuation limits.
- Over-injection from VRE plants during solar hours being monitored and messages with flag Alert/Emergency/Extreme emergency RE plants in case of violations.
- Bus voltage at the VRE pooling stations (interstate as well as intrastate) are closely monitored to maintain it within the dead-band of STATCOMs. Dead band of STATCOMs at Bhadla-2 and Fatehgarh-2 has been set as 380 – 420 kV. During non-solar hours, the dead-band of the STATCOMs are reduced to control voltages.
- Adequate reactive power support, as per prevailing grid conditions, is ensured from RE plants. Instructions to plants operating in Fixed-Q Mode revised based on changing grid conditions, including line outages, TRAS operation, or STATCOM mode changes.
- Further, NRLDC has taken up with NLDC to trigger TRAS up/down in staggered manner across successive time blocks, avoiding large changes in PPC set points. TRAS down implementation/removal shall be intimated at least one time block (15 minutes) in advance to NRLDC C/R to take appropriate measures to ensure good voltage profile.

B.8.3 Due to above measures, no voltage oscillations were reported in NR grid from 05.02.2026 to 09.02.2026, even though NR solar reached an all time high crossing 30 GW (Instantaneous generation).

B.8.4 However, following challenges persist which are causing challenges in secure operation of RE complex in Western Rajasthan:

- No PMU data availability from old ISTS RE plants and intrastate RE plants of Rajasthan. It is desired that PMU should be installed at all RE plants so that it is possible to identify the defaulting plants and swift messages are issued to them. Rajasthan SLDC is requested to share availability of PMU data at their end and analysis of PMU being done at their end including for oscillation events and RE plant non-compliant events.
- Slow actions from POWERGRID end and response is sluggish on few occasions as seen on 04.02.2026 & 14.01.2026 when there was delay in execution of instructions issued from NRLDC control room. For instance, on 04.02.2026, when high voltage oscillations were being observed in the grid, NRLDC first asked POWERGRID to take STATCOMs at Fatehgarh-II and Bhadla-II in manual mode as was being done previously on many occasions. As the oscillations still persisted, NRLDC asked POWERGRID to take out the STATCOMs at Fatehgarh-II at 11:30 hrs. STATCOM-2 was taken under outage at 11:38 hrs and STATCOM-1 was taken under outage at 11:45 hrs, after which oscillations died out. Such delay in operation at crucial moments even with remote operation is extremely dangerous and also causes hunting in thermal

generators. The voltage oscillations were so high that they reached other regions also.

- It is to be noted that due to huge concentration of RE power in Western Rajasthan which is intermittent as well as creating challenges such as oscillation in the grid due to interactions between inverter controlled devices of RE plants as well as STATCOMs, it is required that swift actions are taken at both RE plant end as well as POWERGRID especially in case of observation of high voltage oscillations (04.02.2026) or tripping of evacuating 765kV lines as seen on 14.01.2026. If required, additional manpower can also be deployed by RE plants as well as POWERGRID in their control room especially during the morning shift period.

Decision of the forum:

Deliberations of 240 OCC meeting are already recorded at agenda item no. A.21 of 240 OCC MoM.

B.9 Multiple element tripping events in Northern region in the month of January 2026

- B.9.1 A total of **22** grid events occurred in the month of **January 2026** of which **17** are of GD-1 category and **05** are of GI-2 Category. NRLDC has emphasised on delayed fault clearance in eight (08) events. 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.V of the agenda.
- B.9.2 The maximum delayed clearance of fault was observed in the Kanpur event dated 07.01.2026, wherein the fault clearance time was recorded as 1560 ms(as per PMU data). A detailed deliberation on the matter was already carried out during the 66th PSC meeting. The timely submission of tripping details (DR, EL, tripping report, etc.) in respect of certain events is still awaited. In some cases, only partial information has been received.
- B.9.3 NRLDC further informed that on 14th January 2026, multiple elements tripping occurred in the Rajasthan RE Complex. Concurrently, Unit No. 7 of RAPP-D also tripped. The matter was deliberated during the 66th PSC meeting, wherein it was requested that a detailed Root Cause Analysis (RCA) report be prepared and submitted to NRLDC. RCA report from RAPP-D is still awaited.
- B.9.4 Representative from RAPP-D was not present in the meeting.
- B.9.5 Members agreed to share the tripping details at the earliest and assured to submit the tripping details as per the timeline specified in IEGC.
- B.9.6 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.

Decision of the forum:

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.10 Status of submission of DR/EL and tripping report of utilities for the month of January 2026:

- B.10.1 The status of receipt of DR/EL and tripping report of utilities for the month of January 2026 is attached at Annexure-B.VI of the 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.
- B.10.2 NRLDC representative stated that on the basis of the status of January month it is evident that the reporting status of some of the constituents i.e., RE stations(ACME, ADANI, AMPIN, EDEN, KSP, KREPL, RDUPL, RSDCL, SJVN, TPGEL), CPCC2, SLDC-HR, SLDC-PS, SLDC-J&K, SLDC-Delhi, INDIGRID, BBMB, NTPC, NHPC, Sterlite and RAPS is not satisfactory and needs improvement.
- B.10.3 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.
- B.10.4 The Member Secretary, NRPC, also advised that the DR/EL report should be submitted in a timely manner to help prevent further tripping incidents in the future. Timely submission will also facilitate accurate assessment of the nature of tripping, whether genuine or spurious.

Decision of the forum:

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 availability verification. The unavailability of these details delays the availability verification process. Hence, timely submission of DR/EL & tripping report is 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 the timely submission of the information. It is requested that DR/EL of all the tripping shall be uploaded on Web Web-Based Tripping Monitoring System (TMS) "<https://postda.nrlcdc.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.11 Frequency response performance for the reportable events of month of January 2026:

- B.11.1 Total four (4) nos of reportable events were notified by NLDC for which FRC/FRP need to be calculated during the month of January'2026. There were three (3) events on 14th January,2026 and another event was on 30th January, 2026. Details are in B.11 of agenda.
- B.11.2 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 09th February 2026, FRC/FRP as per NRLDC HDR data is used for computation of Average Monthly Frequency Response Performance, Beta ' β ' for Generating Stations.
- B.11.3 Status of details received from constituents and FRP values as considered for the events of January 2026 are attached as Annexure-B.VII of Agenda.
- B.11.4 NRLDC representative requested to submit the data within two(2) days from the receipt of mail from NRLDC end.
- B.11.5 NTPC informed that generation from Anta and Auraiya was unavailable during the said event.
- B.11.6 The representative of NRLDC requested that, in such instances, NRLDC may be duly informed, and a confirmation email may also be sent for cross verification.
- B.11.7 HP SLDC informed that they have submitted the data for the first three events by the end of the month but not updated.
- B.11.8 The representative of NRLDC informed that the data shall be considered as duly submitted only if it is provided within the stipulated timeline (i.e., within six days from the receipt of email from the NRLDC end in case of SLDC); otherwise, it shall be treated as non-submission.
- B.11.9 Status of Frequency response Performance is available in Annexure-B.VII of Agenda.
- B.11.10 NRLDC has requested to review the frequency response of the entities those have poor response in their respective control area and improve accordingly.**
- B.11.11 ISGS were requested to confirm whether FGMO as per IEGC 2023 has been implemented at their respective stations or not. All were requested to share the data as per the format shared by NRLDC. The detail of the present status is as per agenda item of B.11.**

Decision of forum:

OCC forum asked all members to take necessary actions as discussed above.

B.12 Mock trial run and testing of black start facilities at generating stations in Northern Region

- B.12.1 As per IEGC, the user shall carry out a mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming capability of inverter based generating station and VSC based HVDC black-start support at least once a year under intimation to the concerned SLDC and RLDC. Status of Black start is available in Annexure-B.VIII of agenda.
- B.12.2 NRLDC representative presented the status of mock black start exercises in NR and requested ISGS and SLDCs to take the following actions:
- **Share the report of testing of DG sets.**
 - **The plants that have not conducted the mock black start exercise were requested to conduct the mock black start exercise on priority.**
 - **Share the tentative schedule of the mock-black start exercise of generating stations in their respective control area and complete by Mar'26.**
 - **SLDCs were requested to share the tentative schedule plan of the mock black start exercise of generating stations in their respective control area.**
 - **Conduct dead bus charging after self-starting the generating station if a schedule with the load is not available.**
 - **Certain generating stations have successfully carried out black start operations under actual real-time system conditions. Plants were requested to share such events with NRLDC along with detail report.**

Decision of forum:

OCC forum asked all members to take necessary actions as discussed above.

B.13 Revision of document for System Restoration Procedure Document of Northern Region:

- B.13.1 NRLDC has been issuing 'System Restoration Procedure Document of Northern Region' on annual basis. The document was last revised on 29th January 2026 & updated document is available on NRLDC website in document section, the web link of the same is as below:

<https://nrldc.in/documents/Documents>

- B.13.2 The document is password protected and password has already been informed to all the NR constituents.
- B.13.3 NRLDC representative requested to go through the document for future use.

Decision of forum:

OCC forum requested members to go through the document for future use.

B.14 Revision of document for System Protection Scheme Document of Northern Region:

B.14.1 NRLDC has been issuing '**System Protection Scheme Document of Northern Region**' on annual basis. The document was last revised on 30th January 2026 & updated document is available on NRLDC website in document section, the weblink of the same is as below:

<https://nrlcdc.in/documents/Documents>

B.14.2 The document is password protected and password has already been informed to all the NR constituents.

Decision of forum:

OCC forum requested members to go through the document for future use.

Status of action taken on decision of 239th OCC meeting of NRPC

S.N.	Agenda	Decision of 239 th OCC meeting of NRPC	Status of action taken
1.	A.17. Review the technical requirement of the non-switchable reactor installed at 400kV Kota-Merta line after implementation of Rajasthan Phase III, Part F scheme (Agenda by CTUIL)	POWERGRID/RRVPNL to check the availability of space for a separate bay and to confirm, before the next OCC meeting, to GRID-INDIA and CTUIL the network arrangement for controlling the proposed NGR-bypassed LR as a bus reactor.	RRVPNL representative informed that space is available for the proposed NGR-bypassed LR to be installed as a bus reactor through a separate tie bay. PGCIL representative stated that they will deliberate with CTUIL regarding the cost implication of new bay.
2.	A.21. Installation of 3x41.67 MVAR, 420 KV Reactor at Parbati-II HEP (Agenda by NHPC)	<p>a) CTU to assess the feasibility of installing the 3 × 41.67 MVAR, 420 kV bus reactor at an alternative suitable location in the region based on the present system conditions.</p> <p>b) Powergrid to confirm the availability of space for installing the 3 × 41.67 MVAR, 420 kV bus reactor at the Banala ISTS Pooling Station.</p>	Powergrid representative informed that space is not available at Banala Pooling station for 3x41.67MVAR Reactors. MS, NRPC requested PGCIL, CTUIL and NHPC to deliberate separately on the feasibility of the reactor installation and to inform the outcome of the deliberations in the next OCC meeting.
3.	A.22. Exemption from the requirement of 220 kV Double busbar arrangement at 220kV Substation Derabassi (Agenda by PSTCL)	CTUIL to coordinate a joint team visit comprising CEA, CTUIL, GRID-INDIA, Powergrid, and NRPC to 220 kV Derabassi substation to assess space availability for a second 220 kV busbar and team to submit its recommendation on space availability for construction of a second 220 kV busbar.	CTUIL was advised to expedite the site visit.

Follow up issues from previous OCC meetings

Annexure-A. II

1	Down Stream network by State utilities from ISTS Station	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.	List of downstream networks is enclosed in Annexure-A. II. I .																																								
2	Progress of installing new capacitors and repair of defective capacitors	Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.	<p>Data upto following months, received from various states / UTs:</p> <table border="1" data-bbox="894 764 1437 1020"> <tr><td>⊙ CHANDIGARH</td><td>Sep-2019</td></tr> <tr><td>⊙ DELHI</td><td>Dec-2025</td></tr> <tr><td>⊙ HARYANA</td><td>Sep-2025</td></tr> <tr><td>⊙ HP</td><td>Oct-2025</td></tr> <tr><td>⊙ J&K and LADAKH</td><td>Not Available</td></tr> <tr><td>⊙ PUNJAB</td><td>Dec-2025</td></tr> <tr><td>⊙ RAJASTHAN</td><td>Dec-2025</td></tr> <tr><td>⊙ UP</td><td>Jan-2026</td></tr> <tr><td>⊙ UTTARAKHAND</td><td>Jan-2026</td></tr> </table> <p>All States/UTs are requested to update status on monthly basis.</p>	⊙ CHANDIGARH	Sep-2019	⊙ DELHI	Dec-2025	⊙ HARYANA	Sep-2025	⊙ HP	Oct-2025	⊙ J&K and LADAKH	Not Available	⊙ PUNJAB	Dec-2025	⊙ RAJASTHAN	Dec-2025	⊙ UP	Jan-2026	⊙ UTTARAKHAND	Jan-2026																						
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3	Healthiness of defence mechanism: Self-certification	<p>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”.</p> <p>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</p>	<p>Data upto following months, received from various states / UTs:</p> <table border="1" data-bbox="894 1163 1437 1478"> <tr><td>⊙ CHANDIGARH</td><td>Not Available</td></tr> <tr><td>⊙ DELHI</td><td>Dec-2025</td></tr> <tr><td>⊙ HARYANA</td><td>Dec-2025</td></tr> <tr><td>⊙ HP</td><td>Jan-2026</td></tr> <tr><td>⊙ J&K and LADAKH</td><td>Not Available</td></tr> <tr><td>⊙ PUNJAB</td><td>Dec-2025</td></tr> <tr><td>⊙ RAJASTHAN</td><td>Dec-2025</td></tr> <tr><td>⊙ UP</td><td>Jan-2026</td></tr> <tr><td>⊙ UTTARAKHAND</td><td>Dec-2025</td></tr> <tr><td>⊙ BBMB</td><td>Dec-2025</td></tr> </table> <p>All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quarterly basis for the rest.</p> <p>Status:</p> <table border="1" data-bbox="894 1640 1437 1929"> <tr><td>⊙ CHANDIGARH</td><td>Not Available</td></tr> <tr><td>⊙ DELHI</td><td>Increased</td></tr> <tr><td>⊙ HARYANA</td><td>Increased</td></tr> <tr><td>⊙ HP</td><td>Increased</td></tr> <tr><td>⊙ J&K and LADAKH</td><td>Increased</td></tr> <tr><td>⊙ PUNJAB</td><td>Increased</td></tr> <tr><td>⊙ RAJASTHAN</td><td>Increased</td></tr> <tr><td>⊙ UP</td><td>Increased</td></tr> <tr><td>⊙ UTTARAKHAND</td><td>Increased</td></tr> <tr><td>⊙ BBMB</td><td>Increased</td></tr> </table>	⊙ CHANDIGARH	Not Available	⊙ DELHI	Dec-2025	⊙ HARYANA	Dec-2025	⊙ HP	Jan-2026	⊙ J&K and LADAKH	Not Available	⊙ PUNJAB	Dec-2025	⊙ RAJASTHAN	Dec-2025	⊙ UP	Jan-2026	⊙ UTTARAKHAND	Dec-2025	⊙ BBMB	Dec-2025	⊙ CHANDIGARH	Not Available	⊙ DELHI	Increased	⊙ HARYANA	Increased	⊙ HP	Increased	⊙ J&K and LADAKH	Increased	⊙ PUNJAB	Increased	⊙ RAJASTHAN	Increased	⊙ UP	Increased	⊙ UTTARAKHAND	Increased	⊙ BBMB	Increased
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tripping report

4	Status of Automatic Demand Management System in NR states/UT's	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:	<p>The status of ADMS implementation in NR is enclosed in Annexure-A.II.II.</p> <table border="1"> <tr> <td>⊙ DELHI</td> <td>Scheme Implemented but operated in manual mode.</td> </tr> <tr> <td>⊙ HARYANA</td> <td>Scheme not implemented</td> </tr> <tr> <td>⊙ HP</td> <td>Scheme not implemented</td> </tr> <tr> <td>⊙ PUNJAB</td> <td>Scheme not implemented</td> </tr> <tr> <td>⊙ RAJASTHAN</td> <td>Under implementation.</td> </tr> <tr> <td>⊙ UP</td> <td>Scheme implemented by NPCIL only</td> </tr> <tr> <td>⊙ UTTARAKHAND</td> <td>Scheme not implemented</td> </tr> </table>	⊙ DELHI	Scheme Implemented but operated in manual mode.	⊙ HARYANA	Scheme not implemented	⊙ HP	Scheme not implemented	⊙ PUNJAB	Scheme not implemented	⊙ RAJASTHAN	Under implementation.	⊙ UP	Scheme implemented by NPCIL only	⊙ UTTARAKHAND	Scheme not implemented																				
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5	Status of availability of ERS towers in NR	As per the decision 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.	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.																																		
6	Submission of breakup of Energy Consumption by the states	<p>All states/UTs are requested to submit the requisite data as per the billed data information in the format given as under:</p> <table border="1"> <thead> <tr> <th>Category→</th> <th>Consumption by Domestic Loads</th> <th>Consumption by Commercial Loads</th> <th>Consumption by Agricultural Loads</th> <th>Consumption by Industrial Loads</th> <th>Traction supply load</th> <th>Miscellaneous / Others</th> </tr> </thead> <tbody> <tr> <td><Month></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category→	Consumption by Domestic Loads	Consumption by Commercial Loads	Consumption by Agricultural Loads	Consumption by Industrial Loads	Traction supply load	Miscellaneous / Others	<Month>							<p>Status of the information submission (month) from states / utilities is as under:</p> <table border="1"> <thead> <tr> <th>State / UT</th> <th>Upto</th> </tr> </thead> <tbody> <tr> <td>⊙ CHANDIGARH</td> <td>Not Submitted</td> </tr> <tr> <td>⊙ DELHI</td> <td>Oct-25</td> </tr> <tr> <td>⊙ HARYANA</td> <td>Dec-25</td> </tr> <tr> <td>⊙ HP</td> <td>Dec-25</td> </tr> <tr> <td>⊙ J&K and LADAKH</td> <td>JPDCI- Mar' 24 KPDCL- Not Submitted</td> </tr> <tr> <td>⊙ PUNJAB</td> <td>Dec-25</td> </tr> <tr> <td>⊙ RAJASTHAN</td> <td>Aug-25</td> </tr> <tr> <td>⊙ UP</td> <td>Jan-26</td> </tr> <tr> <td>⊙ UTTARAKHAND</td> <td>Oct-25</td> </tr> </tbody> </table> <p>Chandigarh is requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format</p>	State / UT	Upto	⊙ CHANDIGARH	Not Submitted	⊙ DELHI	Oct-25	⊙ HARYANA	Dec-25	⊙ HP	Dec-25	⊙ J&K and LADAKH	JPDCI- Mar' 24 KPDCL- Not Submitted	⊙ PUNJAB	Dec-25	⊙ RAJASTHAN	Aug-25	⊙ UP	Jan-26	⊙ UTTARAKHAND	Oct-25
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9	Reactive compensation at 220 kV/ 400 kV level at 5 substations			
	State / Utility	Substation	Reactor	Status
i	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.
ii	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.
iii	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.
iv	DTL	Electric Lane	1x50 MVAR at 220 kV	Under Re-tendering due to Single Bid
v	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.

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-wanpoh-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	Commissioned	Updated by HVPNL in 235th OCC.
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 Shahjahanpur (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.Commissioned 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.	Jan'26	Line work already completed. Signing of Connectivity agreement with CTU is under process. Likely to be commissioned by end of January-2026 as intimated in 239th OCC by HVPNL.
				• 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 Pradesh 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	Mar'26	220kV Jind PG - Jind D/C line commissioned. Further, 220kV Jind PG - Nain (HVPNL) D/C will be commissioned after completion of new 220kV Substation Nain (HVPNL) which is under construction. And likely to be commissioned by 15.03.2026.
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 Kadarpar Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• D/C line Kadarpar - Pali D/C line Kadarpar - 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	Mar'26	Line work completed, Substation is under construction. However, this arrangement will not lead to usage of additional bays i.e. no of utilised 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 Approved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	Mar'26	Contract awarded on 08.08.23 to M/s Skipper with completion in December 25. Likely date of commissioning of the project has been revised as 31.03.2026 due to slow progress of the work by the firm. Updated in 238th 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	Mar'26	Issue related to ROW. Likely date of commissioning of the project has been revised as 31.03.2026 due to slow progress of the work by the firm.
				• Prithla - Sector 89 Faridabad 220kV D/c line	Mar'26	Stringing is in progress at TL No.25 to 35 of Prithla - Sector 78 section as updated in 238th OCC by HVPNL
16	400/220kV Sonapat 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 Sonapat	Commissioned	Commissioned as updated by HVPNL in 233rd OCC
				• Sonapat - HSIISC Rai 220kV D/c line	Commissioned	Energization date: 31.05.2024 updated by HVPNL in 220th OCC
				• Sonapat - Kharkhoda Pocket A 220kV D/c line	Commissioned	Commissioned on dated 02.12.2025
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 Jalandhar 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 is under consideration with upcoming CMETS-NR as updated by PSTCL in 238th 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	• Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL.	Commissioned	• No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
				• Network to be planned for 2 bays		
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Commissioned	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th OCC
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 2 bays	-	• UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years).
				• No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.		
24	400/220kV Abdullapur Sub-station	Commissioned: 10 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Commissioned	Ckt-1 commissioned at 16:13hrs on dated 06.08.24 & Ckt-2 commissioned at 20:10 hrs on dated 05.08.24. Updated in 223rd OCC by HVPNL
				• Panchkula – Pinjore 220kV D/c line		Commissioned
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 – 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	Jan'26	Revised target date as confirmed by concerned XEN TS, Panchkula.Updated in 234th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
26	400/220kV Amritsar S/s	Commissioned:7	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	31.01.2026	Commissioning of 220kv S/C Amritsar -Patti S/c and 220kV Amritsar – Rashiana S/c may be done by 31.01.2026. Updated in 238th OCC by PSTCL.
		Approved in 50th NRPC- 1 no. Total: 8		• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	31.01.2026	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 238th 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 Bahadurgarh 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 competent authority of the HVPNL. Further, 06 no. Foundation has been casted.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	30.06.2026	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 RVPNL 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 agreement 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 Transmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is commissioned on 20.01.2024. Updated in 217th OCC by HPPTCL.
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 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 dismantling 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

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	In 236th OCC meeting, Delhi SLDC representative stated that as informed by BRPL and BYPL, SCADA upgradation work of would be completed by Mar'26. Further, SCADA upgradation work of TPDDL would be completed by Dec'26.
2	HARYANA	Scheme not implemented	Haryana SLDC intimated that ADMS software has already been taken under project work of upgradation of SCADA-EMS in Haryana. As per already decided methodology, the current status of ADMS Project is as under: - i. Part-1 i.e. Control with HVPNL Any hindrances/delay in execution of PART-I which is covered under upgradation of SCADA-EMS system (ULDC Phase-III of Northern Region) being delivered by M/s GE Vernova, completion timelines etc. ii. PART-II: Control with Distribution Utility Communication with DISCOMs, identification of feeders, status of retrofitting of 33kV & 11kV substations of DISCOMs to handle the automation, hiring of consultant on the pattern of Rajasthan etc. In this regard, the matter has already been taken up with Discoms to provide the lists of 11kV & 33kV feeders to prepare the DPR of the same.
3	HP	Scheme not implemented	In 237th OCC meeting, HPSLDC representative informed that vide letter dated 25.10.2025 they have requested HPSEBL to expedite the feeder list. However, reply of HPSEBL is awaited. Further, they have also requested MD, HPSEBL for a suitable date for a meeting in this regard.
4	PUNJAB	Scheme not implemented	In 238th OCC meeting, Punjab SLDC representative informed that testing of SCADA upgradation under ULDC phase III is underway. All the material may be commissioned by March-26 and implementation of logic of ADMS may be executed by Sept-26. Punjab has submitted list of feeders vide mail dated 16.01.2026
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 351 nos. of circuit breakers have been mapped to ADMS, all 351 circuit breakers tested upto yard individually. Total 650CBs are to be mapped in phased manner.
6	UP	Scheme implemented by NPCIL only	In 236th OCC meeting, UP SLDC representative stated that 300 No. of 132 KV Substations have been integrated with SCADA. SCADA upgradation under ULDC phase III is likely to be completed in the next 3 to 4 months. List of 33kV feeders to be mapped under ADMS is required from the Discoms. In the meeting held in Aug'25, UPSLDC had requested Discoms to provide the feeders list. Reminders were also sent to Discoms. However, 33 kV feeder list is still pending from the Discoms. MS, NRPC asked UPSLDC to have meeting with Discoms in its control areas and finalize of feeder list before next OCC meeting. In the 239th OCC Meeting, UPSLDC representative informed that 46 feeders have been identified and that the same would be updated to the NRPC after receiving consent from the DISCOMs in the SPC meeting scheduled to be held on 21.01.2026.
7	UTTARAKHAND	Scheme not implemented	i. UPCL has prepared a system architecture in which all the non-monitored sub-stations 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.

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	Delhi (DTL)	220kV	915.498	NIL	1	400kV Bamnauli Sub station	2 ERS tower available.
		400kV	249.19	02 Sets (32 towers)	1		
2	Himachal Pradesh (HPPTCL)	220 kV	659	NIL	1		
		400 kV	75.7	NIL	1		
3	Haryana (HVPNL)						ERS towers (6 nos tension and 6 nos suspension type 400kv level) in Haryana have been procured and already dispatched to 220kv Substation karnal and DD store Hisar.
4	Punjab (PSTCL)	400 kV	1666.43	2	3		
		220 kV	7921.991				
5	Rajasthan (RVPN)	132 kV	20706.876	1	4	01 No. ERS available at 220 kV GSS Heerapura, Jaipur	1 ERS set is available and work order has been placed for 3 more Sets.
		220 kV	16429.022		3		
		400 kV	8416.434		2		
		765 kV	425.498		1		
6	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				
7	Uttarakand (PTCUL)	400kV	418.394	NIL	1		Tender has been scraped due to single bidder.
		220kV	1045.135	NIL	1		
8	JKPTCL	132 kV	1040.63	8		Z Mohr, Kanispora Pathla T141 D/C, Kalanpora Delina Railway station T 3 & T4, Bagh-i Wahpoh	1 No. LILO USHP-I Kangan Line, 2 No. In Sheeri LJHP Line, 2 No. Delina Baramulla Railway Line, 1 No. Bagh-i Wanpoh (KPTL) and 2 No. Lying at the stores
		220 kV	419.34				
9	Powergrid NR-1	220 KV	1842.88	NIL	1		
		400 KV	11074.26	12 Towers	3	All 400kV ERS at Ballabgarh	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		

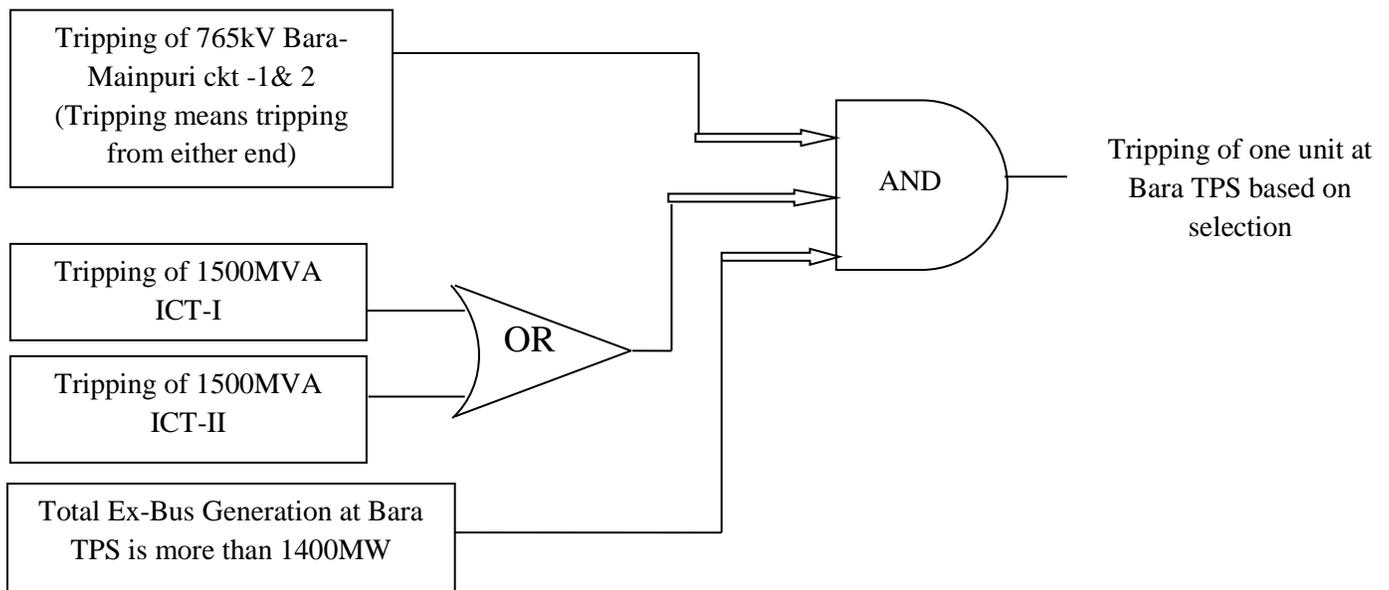
Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
10	Powergrid NR-2	66 KV	37.56	Nil	1		ERS tower 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	
11	Powergrid NR-3	765 KV	337.5	Nil	1		400KV ERS will be also be used in other voltage level lines
		800KV HVDC	2205	NIL	1		
		500KV HVDC	2566	NIL	1		
		765KV	4396	NIL	1		
		400KV	12254	26 Towers	3	Kanpur	
		220KV	1541	NIL	1		
12	PARBATI KOLDAM TRANSMISSION COMPANY LIMITED	400kV	457	NIL	1		Procurement under process.
13	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.
14	NRSS-XXIX TRANSMISSION LTD	400kV	853	NIL	1		
15	GURGAON PALWAL TRANSMISSION LTD	400kV	272	NIL	1		
16	RAPP Transmission Company Limited.	400kV	402	NIL	1		
17	NRSS XXXVI Transmission Limited	400kV	301.924/225.004	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.
18	POWERLINKS TRANSMISSIONLIMITED (PTL)	400 kV	1485				
19	POWERGRID HIMACHAL TRANSMISSION LTD	400 kV	454				
20	Powergrid Ajmer Phagi Transmission Limited	765 KV	269				
21	Powergrid Fatehgarh Transmission Limited	765 KV	372				
22	POWERGRID KALA AMB TRANSMISSION LTD	400 kV	2.38				
23	Powergrid Unchahar Transmission Ltd	400 kV	106.744				
24	Powergrid Khetri Transmission Limited	765 KV	292				
		400 kV	156.16				
25	POWERGRID VARANASI TRANSMISSION SYSTEM LTD	765 KV	379				
26	POWERGRID ALIGARH SIKAR TRANSMISSION LIMITED	765 KV	514				
27	ADANI TRANSMISSION INDIA LIMITED	400 kV	110				
28	Bikaner Khetri Transmission Limited (Adani)	765 KV	482	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.
29	Fatehgarh Bhadla Trasmission Limited (Adani)	765 kV HVAC 400 kV HVAC	282 10				
30	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.
31	AD Hydro Power Limited (Renew)	400 kV	360				
32	ARAVALI POWER COMPANY PVT LTD	400 kV	132				
33	POWEGRID BHADLA TRANSMISSION LIMITED	765 KV	405				
34	POWERGRID BIKANER TRANSMISSION SYSTEM LIMITED	400 kV	1353				
35	POWERGRID RAMGARH TRANSMISSION LIMITED	400 kV	188				
36	POWERGRID SIKAR TRANSMISSION LIMITED	765 KV	619				
		400 kV	267				

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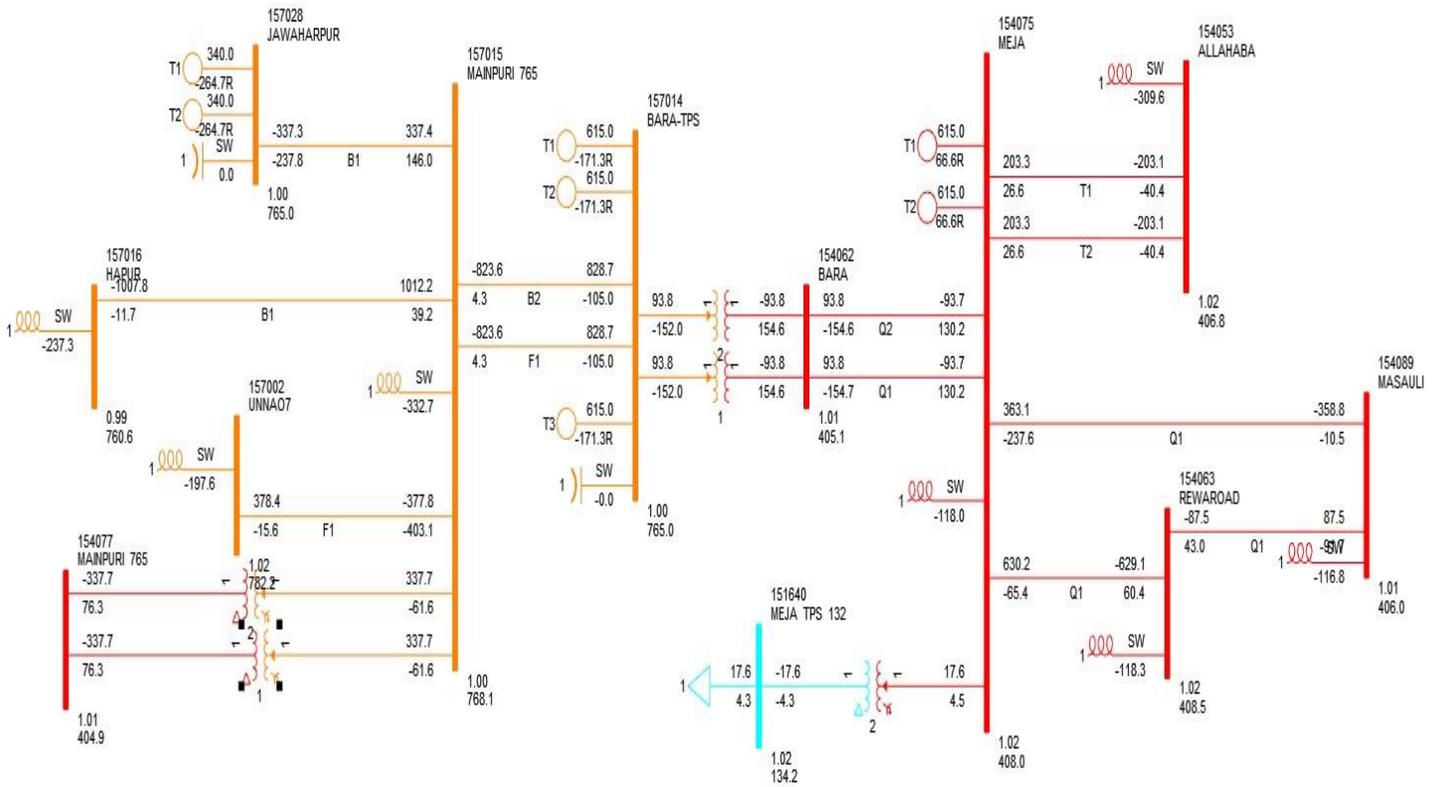
*The transmission Utility with line length less than 500 ckt kms (of 400 KV lines) may be given option either to procure ERS or have agreement with other transmission utilities for providing ERS on mutually agreed terms, when need arises. (As per MoP directions)

Revised logic for SPS at Bara TPS

Logic-1- In case loading on 400kV Meja-Allahabad (PG) ckt.-I &II is more than 550 MW each , backdown of Generation at Bara TPS till Loading on 400kV Meja-Allahabad (PG) ckt.-I &II is less than 550 MW

Logic-2

Single Line Diagram

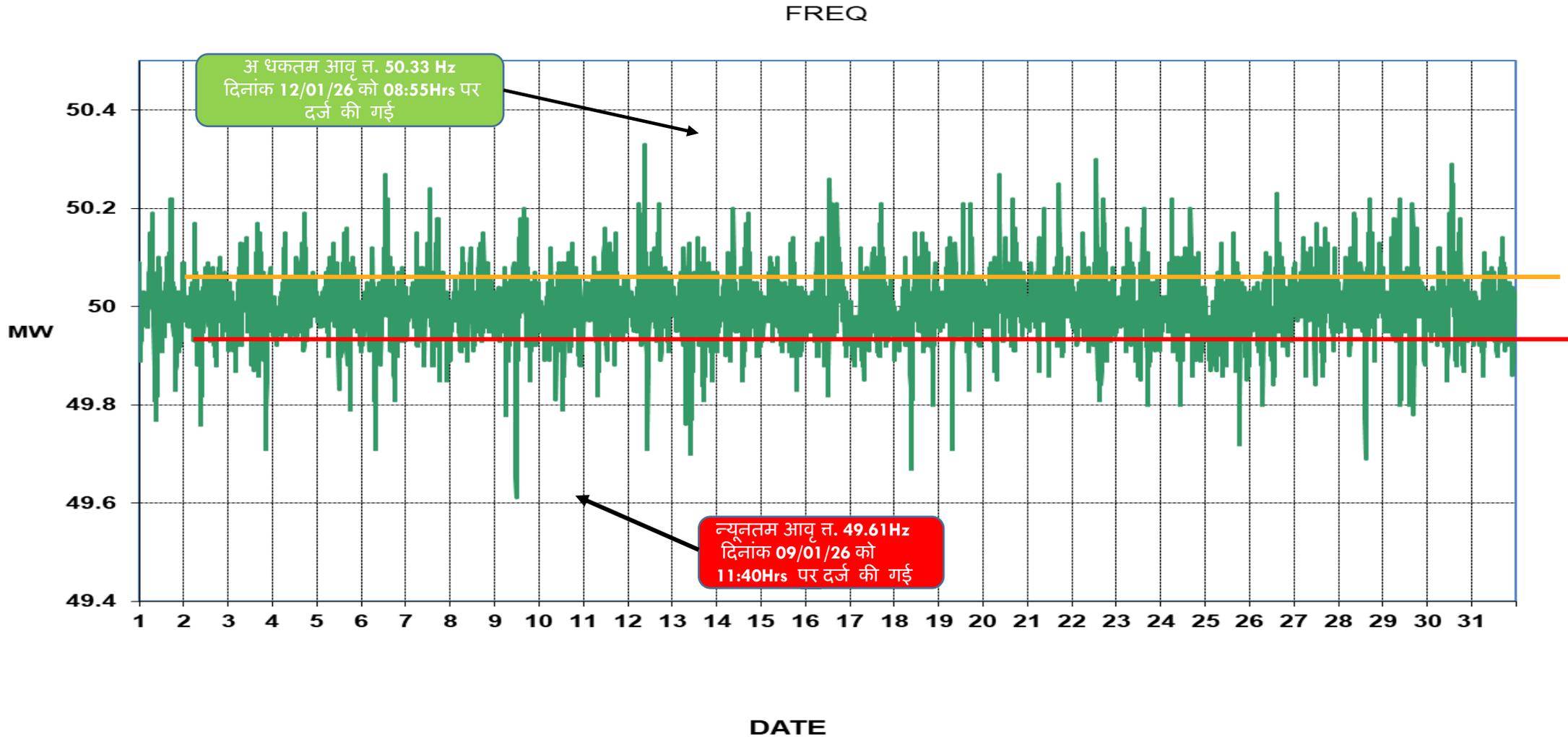


प्रचालन समन्वय उपस मति की बैठक जनवरी - 2026

NRLDC (Northern Regional Load Dispatch Centre),
New Delhi

जनवरी-2026 के दौरान आवृत्ति की स्थिति (As per 5 Minute SCADA data)

क्षेत्रीय OD/UD : अधिकतम आवृत्त पर : **+279 MW(OD)** न्यूनतम आवृत्त पर : **-1871 MW(UD)**



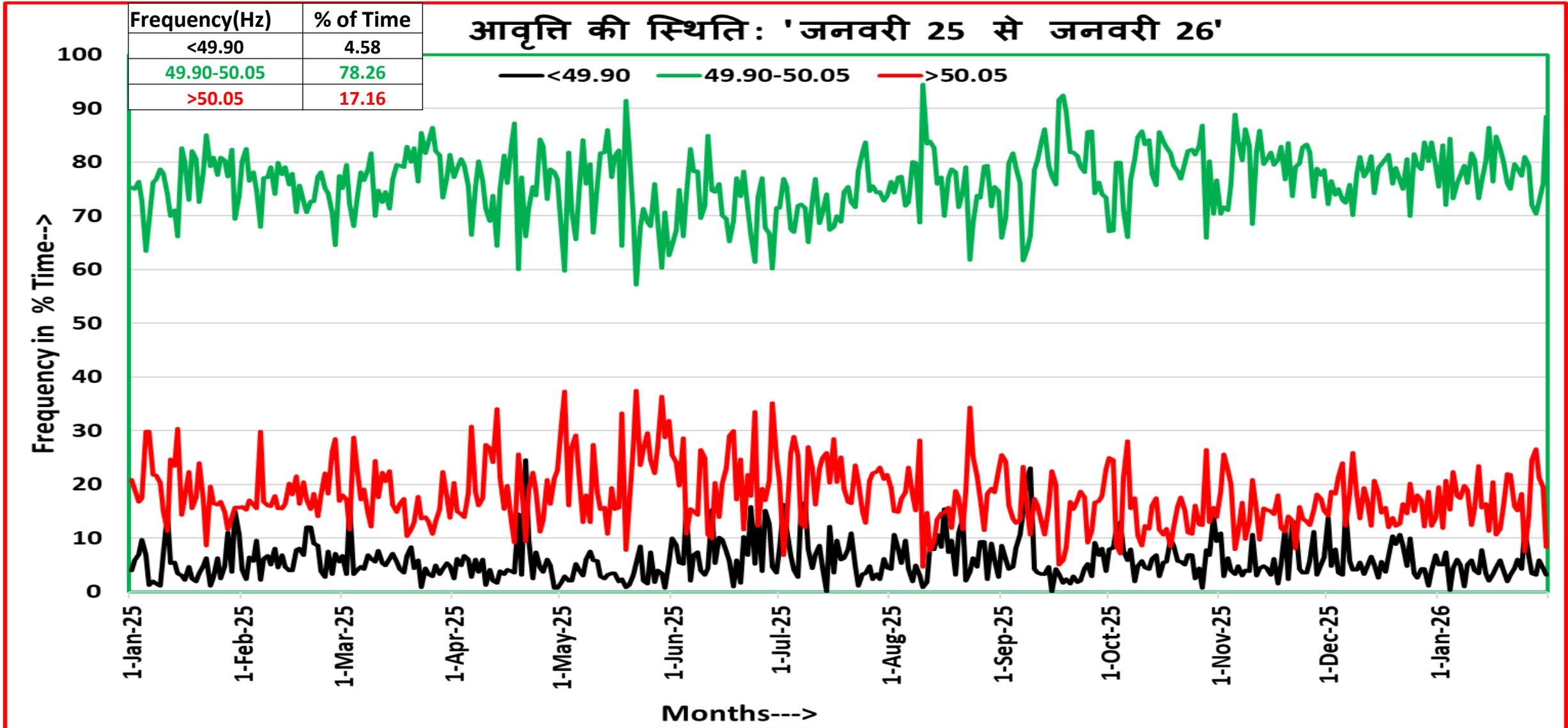
OD(+)/UD(-) at
Max Freq

UP +812
 Del +102
 HP +74
 Pun +76
 Chd +11
Raj -682
 Har -11
 Ut +89
 JK -15

OD(+)/UD(-) at
Min Freq

JK -167
 Raj -359
 Ut -131
 UP -252
 Har -215
 Pun -747
 HP -20
 Chd -1
Del +21

आवृत्ति की स्थिति: जनवरी-2025 से 2026



पिछले एक साल में आवृत्ति की स्थिति

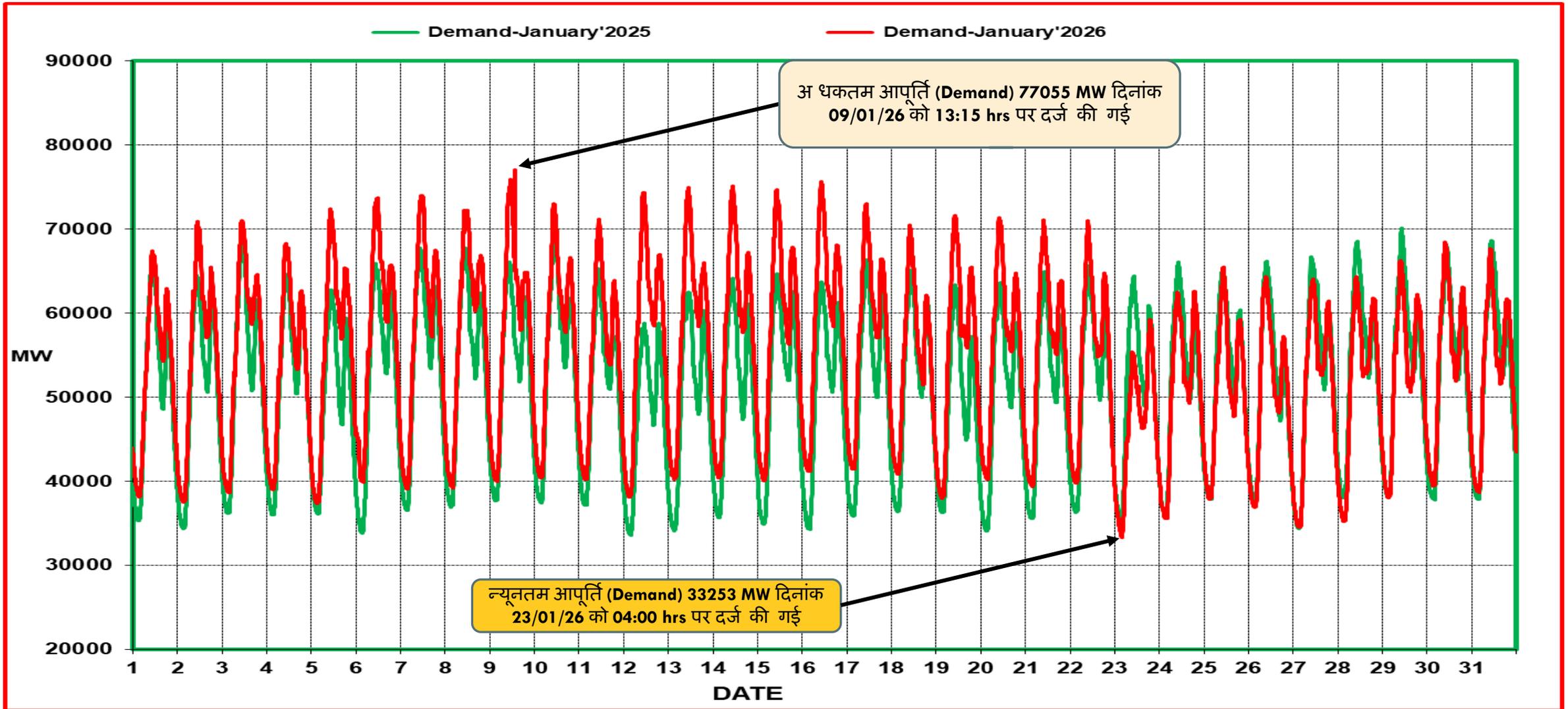
आवृत्त बैंड	जनवरी 2025	फरवरी 2025	मार्च 2025	अप्रैल 2025	मई 2025	जून 2025	जुलाई 2025	अगस्त 2025	सितम्बर 2025	अक्टूबर 2025	नवम्बर 2025	दिसंबर 2025	जनवरी 2026
< 49.7 Hz(%)	0.18	0.12	0.05	0.27	0.07	0.15	0.32	0.20	0.42	0.16	0.19	0.26	0.09
<49.8 Hz(%)	0.92	0.73	0.61	0.96	0.29	0.86	1.39	0.80	0.93	0.75	0.75	0.97	0.55
<49.9 Hz(%)	5.23	6.24	5.32	5.16	3.60	7.56	6.65	6.63	6.02	6.60	5.66	6.00	4.58
49.90-50.05 Hz(%)	76.05	75.35	77.89	75.64	73.30	71.85	72.89	76.22	78.33	78.59	79.39	77.50	78.26
50.05-50.10 Hz(%)	15.09	14.23	13.12	14.80	15.35	14.11	16.38	13.19	12.76	11.36	11.46	12.78	13.15
>50.10 Hz(%)	3.63	4.18	3.67	4.39	7.76	6.48	4.08	3.96	2.89	3.46	3.49	3.73	4.01
>50.20 Hz(%)	0.33	0.55	0.63	1.09	2.87	1.73	0.64	0.83	0.28	0.62	0.60	0.48	0.54
औसत आवृत्त	49.998	49.999	50.001	50.004	50.015	50.002	50.003	49.999	49.996	49.993	49.994	49.995	50.001

जनवरी -2026 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

राज्य	अधिकतम मांग (MW) (in Jan'26)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Dec'25)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in Jan'26)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Dec'25)	दिनांक
पंजाब	10661	16-01-2026 10:30	16754	28.06.25 at 15:00	188.6	16-01-2026	366.8	21.07.2024
हरियाणा	10156	15-01-2026 10:00	14662	31.07.24 at 14:30	185.1	14-01-2026	293.4	30.07.2024
राजस्थान	19617	09-01-2026 09:45	19165	12.02.25 at 11:00	347.5	09-01-2026	388.01	11.06.2025
दिल्ली	6087	09-01-2026 10:39	8656	19.06.24 at 15:06	99.34	16-01-2026	177.7	18.06.2024
उत्तर प्रदेश	23716	07-01-2026 19:30	31486	11.06.25 at 00:45	422.7	06-01-2026	658.7	17.06.2024
उत्तराखंड	2766	16-01-2026 09:00	2910	11.06.25 at 22:00	51.6	14-01-2026	62.1	14.06.2024
हिमाचल प्रदेश	2310	09-01-2026 09:15	2273	17.01.25 at 09:00	41.83	09-01-2026	42.55	11.06.2025
जम्मू और कश्मीर (UT) तथा लद्दाख (UT)	3325	07-01-2026 11:00	3301	31-12-2025 12:00	68.1	09-01-2026	70.3	04.02.2025
चंडीगढ़	340	14-01-2026 10:00	482	18.06.24 at 15:28	5.83	14-01-2026	9.28	12.06.2025
उत्तरी क्षेत्र #	75554	09-01-2026 10:00	91234	19.06.24 at 14:37	1394.6	16-01-2026	2022.9	12.06.2025

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

क्षेत्रीय विद्युत आपूर्ति (Demand) जनवरी 2025 बनाम जनवरी 2026 (As per 5 Minute SCADA data)

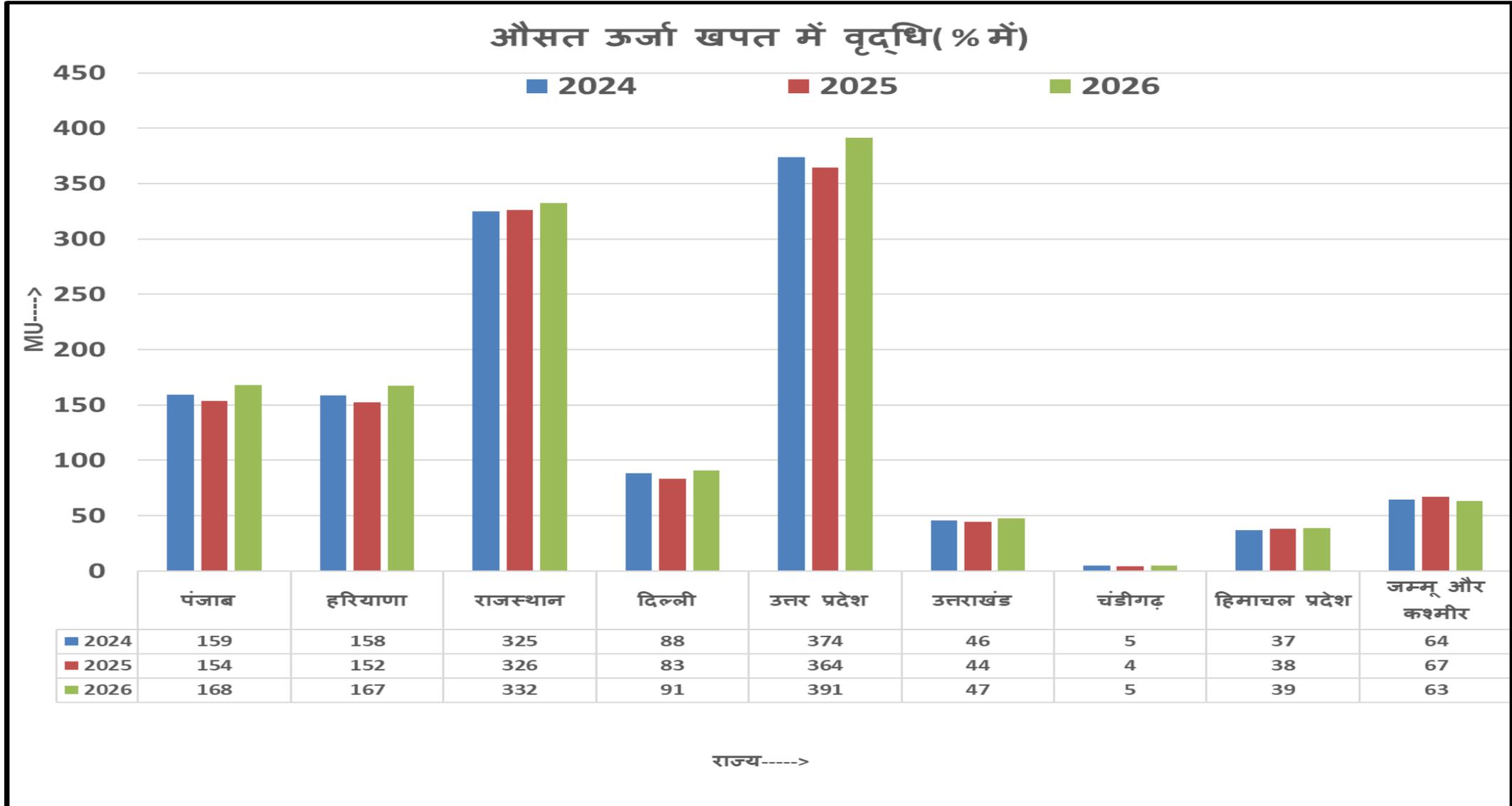


जनवरी -2025 की तुलना में जनवरी -2026 की औसत वद्युत आपूर्ति में 3238 MW वृद्ध हुई

उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि(% में) जनवरी -2026/ जनवरी-2025
/ जनवरी -2024

राज्य	जनवरी-2024	जनवरी-2025	जनवरी-2026	% वृद्धि (जनवरी-2025 vs जनवरी-2024)	% वृद्धि (जनवरी-2026 vs जनवरी-2025)
पंजाब	159	154	168	-3.7%	9.6%
हरियाणा	158	152	167	-3.8%	9.6%
राजस्थान	325	326	332	0.5%	1.8%
दिल्ली	88	83	91	-5.4%	8.7%
उत्तर प्रदेश	374	364	391	-2.5%	7.4%
उत्तराखंड	46	44	47	-3.0%	6.7%
चंडीगढ़	5	4	5	-12.9%	8.2%
हिमाचल प्रदेश	37	38	39	3.1%	2.2%
जम्मू और कश्मीर (UT) तथा लद्दाख (UT)	64	67	63	4.0%	-5.5%
उत्तरी क्षेत्र	1260	1238	1308	-1.8%	5.6%

उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि(% में) जनवरी-2026/ जनवरी-2025
/ जनवरी-2025

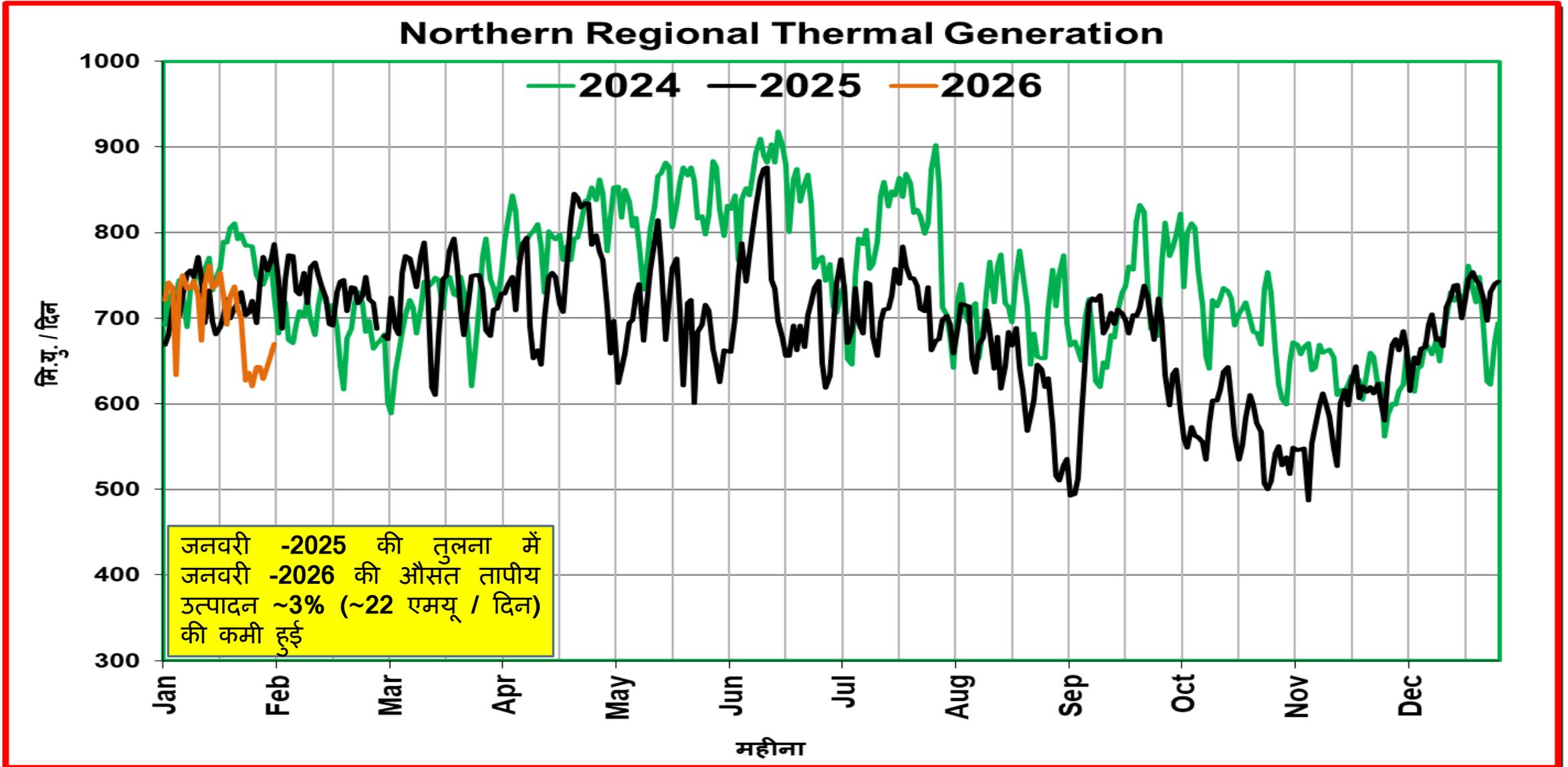


उत्तरी क्षेत्र की ऊर्जा खपत(MUs)

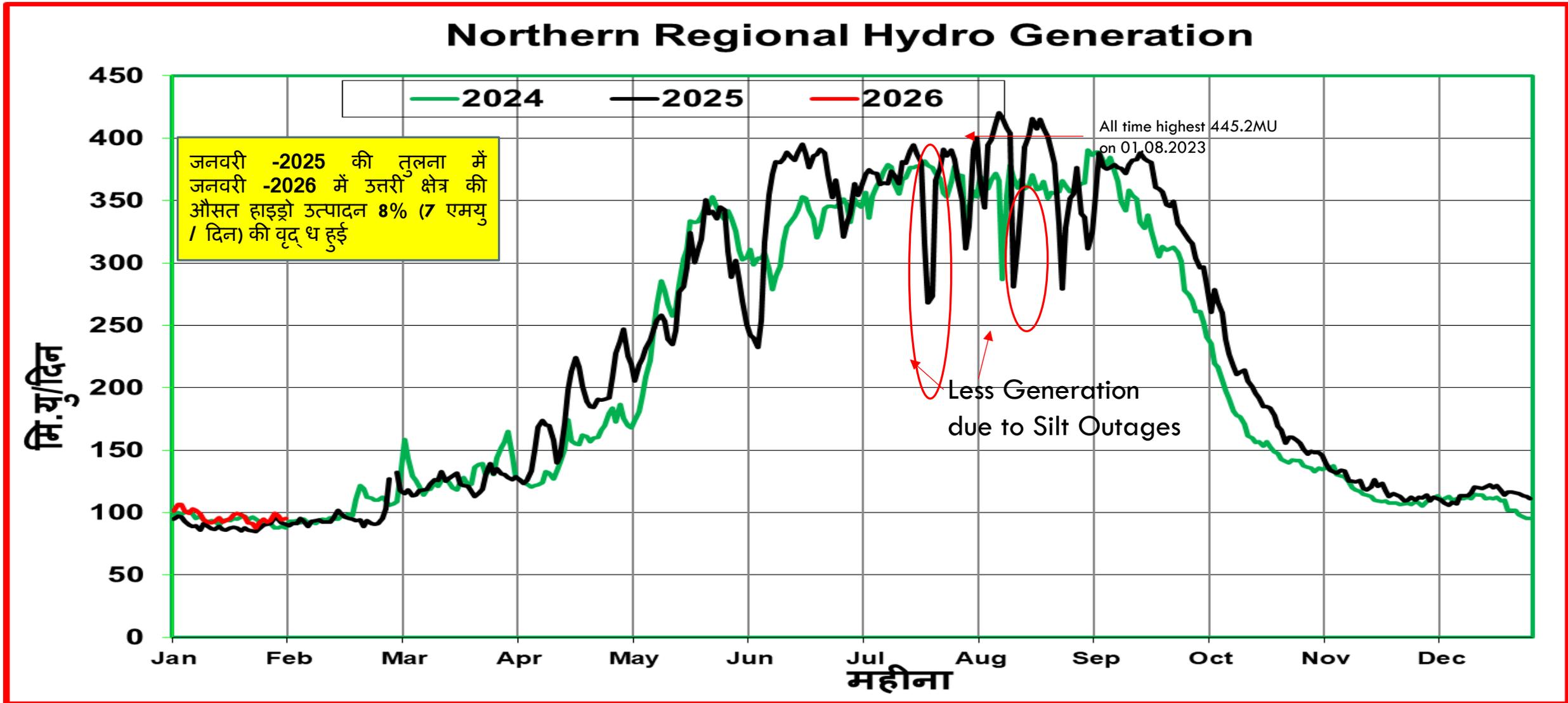
Northern Region Energy Consumption Pattern



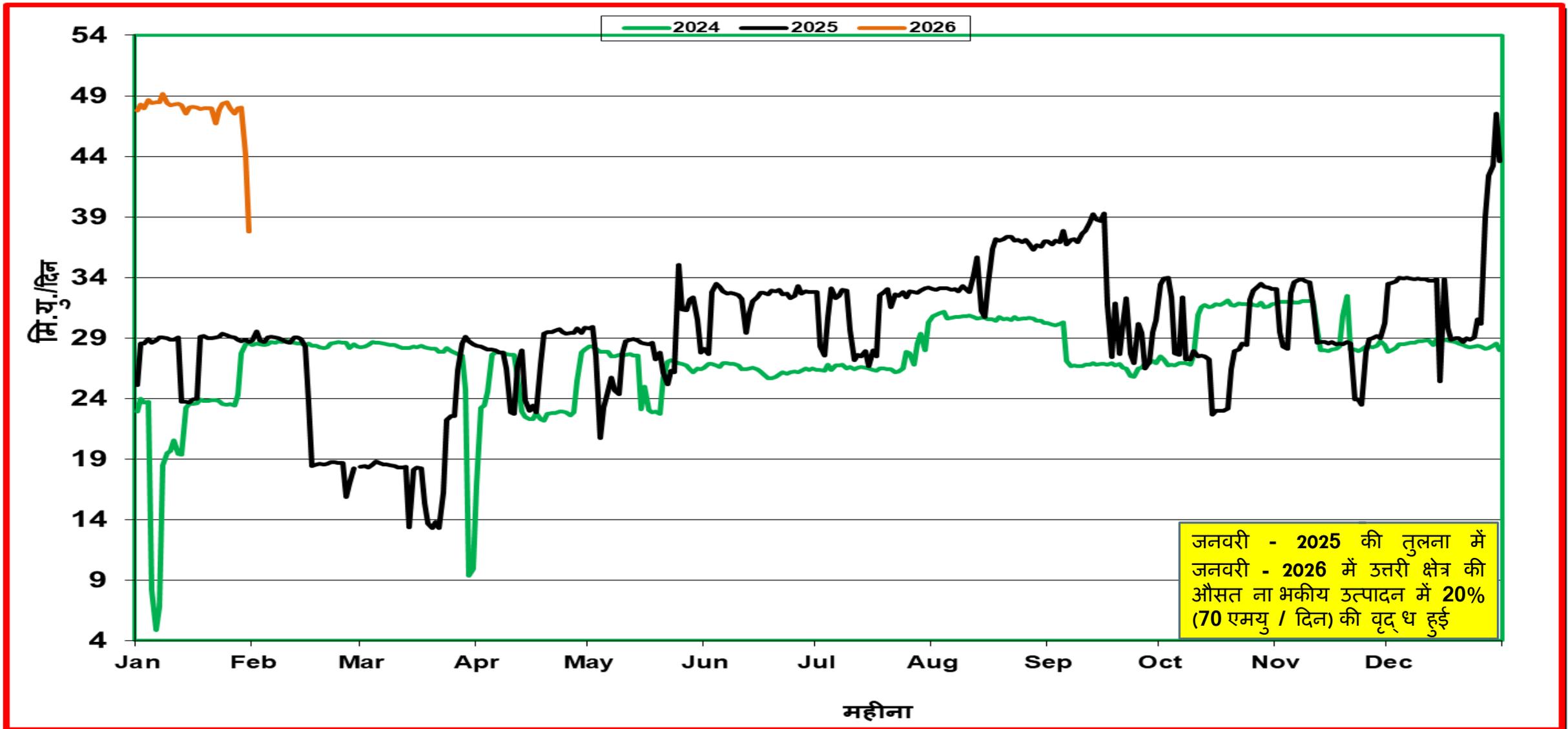
उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(MUs/Day)



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

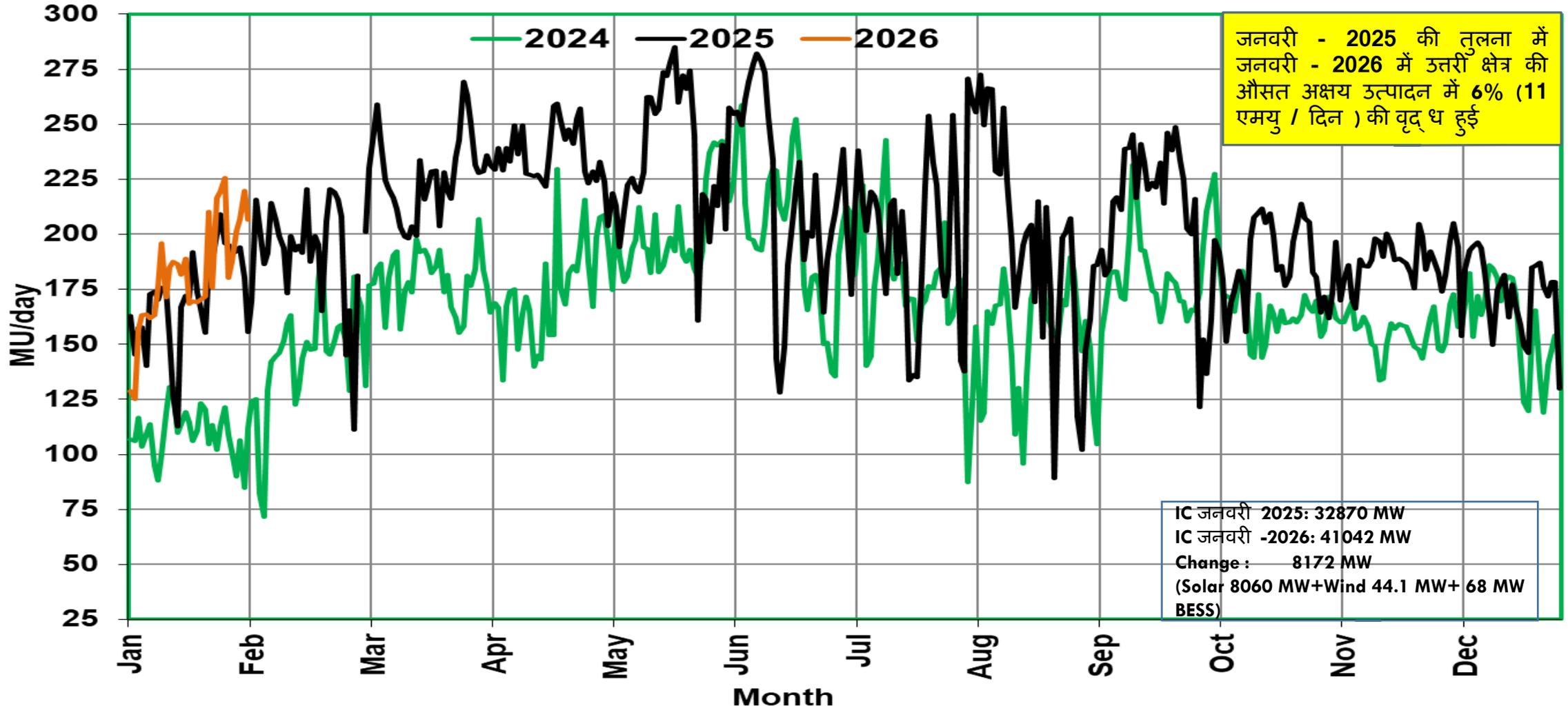


उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)

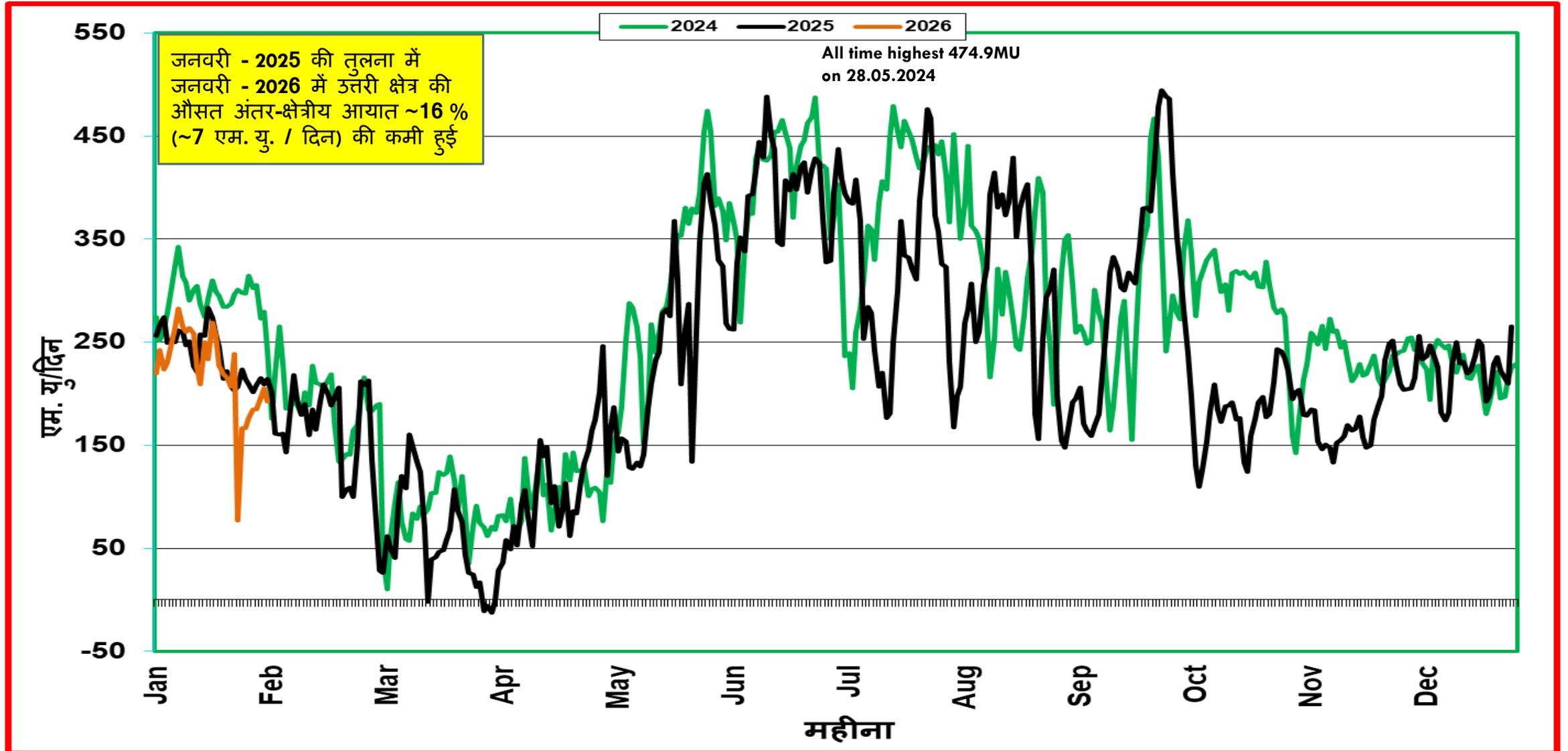


उत्तरी क्षेत्र की अक्षय (Renewable) उत्पादन की स्थिति (MUs/Day)

NR Renewable Generation



अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



वास्तविक सारांश -
जनवरी -2025 बनाम जनवरी -2026

	जनवरी-2025 (म.यु. /दिन)	जनवरी-2026 (म.यु. /दिन)	दिसम्बर माह में वृद्धि (म.यु./दिन)
तापीय (Thermal) उत्पादन	723	701	-22
जलीय (Hydro) उत्पादन	89	96	7
नाभकीय (Nuclear) उत्पादन	28	48	20
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	237	221	-16
अक्षय (Renewable) उत्पादन	171	182	11

नवीकरणीय ऊर्जा की क्षमता
(VRE PENETRATION)

	अ धकतम दैनिक (MU) क्षमता			
	जनवरी '2026		जनवरी '2026 तक का रिकॉर्ड	
	अ धकतम % क्षमता	दिनांक	अ धकतम % क्षमता	दिनांक
पंजाब	5.61	23-01-2026	12.28	01-04-2020
राजस्थान	24.51	24-01-2026	36.47	22-10-2021
उत्तर प्रदेश	3.92	21-01-2026	6.03	05-03-2025
उत्तर क्षेत्रीय	19.45	23-01-2026	23.00	15-03-2025

New Elements First Time Charged During Jan 2025

S. No.	Type of transmission element	TotaNo
1	AC/Lilo Lines	08
2	Antitheft Charging	00
3	Transformer	04
4	Solar Plant	05
5	Bus Reactors	01
6	Harmonic Filter	03
7	Wind Plant	01
8	Line Reactor	02
	Total New Elements Charged	24

AC Lines

S.No	Name of element	Owner	Voltage Level (in kV)	Circuit No	Line Length	Conductor Type	Actual date of charging
1	400kV NTPC_SL_Bhadla(RS)-Bhadla(RS)-1	NTPC_REL	400kV	1	1.3	Moose	03-Jan-2026
2	765kV Bhadla_2 (PG)-Sikar_2(PSTL)-3	PBSTL	765kV	3	313	Hexa Zebra	10-Jan-2026
3	765kV Bhadla_2 (PG)-Sikar_2(PSTL)-4	PBSTL	765kV	4	313	Hexa Zebra	10-Jan-2026
4	220kV Ampin_EG8PL_Hyb_W/S_FTHG4-Fatehgarh_IV(F4TL)-1	Ampin_EG8PL	220kV	1	10.2	AL59 Moose	10-Jan-2026
5	765kV Mainpuri(UP)-Bara(UP)-1	SEUPPTCL	765kV	1	380.4	Quad Bersimis	17-Jan-2026
6	765kV Mainpuri(UP)-Unnao(UP)-1	SEUPPTCL	765kV	1	193.782	Quad Bersimis	28-Jan-2026

Lilo Lines Charging

S.No	Name of element	Name of Line to be LILOed	Line Length of New Line after LILO (In Km)	LILO Portion Line Length (In Km)	Conductor Type	Agency/ Owner	Actual date of charging
1	765kV DAUSA(PBDTL)-Phagi(RS)-1 (After LILO of 765 kV Gwalior-Phagi-1 at Dausa(PBDTL))	765 kV Gwalior-Phagi-1 (304Km)	91.37	34	Hexa Zebra	PB_DAUSA_TL,POWER GRID	05-Jan-2026
2	765kV DAUSA(PBDTL)-Gwalior(PG)-1 (After LILO of 765 kV Gwalior-Phagi-1 at Dausa(PBDTL))	765 kV Gwalior-Phagi-1 (304Km)	282.95	34	Hexa Zebra	PB_DAUSA_TL,POWER GRID	06-Jan-2026

Line Reactor

S.No	Name of element	Owner	Voltage Level (in kV)	MVAR Capacity	Line Reactor Details	OLD MVAR Capacity	Actual date of charging
1	240 Switchable Convertible LINE_REACTOR of 765 kV Dausa-Gwalior ckt-1 at DAUSA(PBDTL)	PB_DAUSA_TL,POWERGRID	765kV	240	New	NA	06-Jan-2026
2	330 Switchable Non-Convertible LINE_REACTOR of 765 kV Bara-Mainpuri ckt.1 at Bara(UP)	PPGCL	765kV	330	New	NA	16-Jan-2026

Transformer

S.No	Name of element	Owner	Voltage Level (HV/LV/Tertiary)	MVA Capacity	HV Station	Transformer Details	OLD MVA Capacity	Actual date of charging
1	400/33/22kV, 315 MVA, 3-Phase, T&R, ICT - 2 at NTPC_SL_Bhadla(RS)	NTPC_REL	400/33/22kV	315	NTPC_SL_Bhadla(RS)	New	NA	03-Jan-2026
2	400/33/22kV, 315 MVA, 3-Phase, T&R, ICT - 1 at NTPC_SL_Bhadla(RS)	NTPC_REL	400/33/22kV	315	NTPC_SL_Bhadla(RS)	New	NA	03-Jan-2026
3	220/33kV, 150 MVA, 3-Phase, ATLANTA ELECTRICALS, ICT - 2 at Ampin_EG8PL_Hyb_W/S_FTHG4	Ampin_EG8PL	220/33kV	150	Ampin_EG8PL_Hyb_W/S_FTHG4	New	NA	11-Jan-2026
4	220/33kV, 60 MVA, 3-Phase, ATLANTA ELECTRICALS, ICT - 1 at Ampin_EG8PL_Hyb_W/S_FTHG4	Ampin_EG8PL	220/33kV	60	Ampin_EG8PL_Hyb_W/S_FTHG4	New	NA	11-Jan-2026

RE plants

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	ABC RENEWABLE ENERGY (RJ02) PRIVATE LIMITED(ARERJ02PL)	Fatehgarh_III	25	400	400	Solar	2	ARERJ02PL	03-Jan-2026
2	Ampin Energy Green Eight Private Limited (AEG8PL)	Fatehgarh_IV	112.5	112.5	130MW (112.5MW Solar + 44.1MW Wind)	Hybrid	13	Ampin_EG8PL	16-Jan-2026
3	AMPIN ENERGY GREEN THREE PRIVATE LIMITED(AEG3PL)	Fatehgarh_IV	52.8	52.8	50MW (52.8MW Solar + 18.9MW Wind)	Hybrid	6	Ampin_EG3PL	28-Jan-2026
4	Renew Dinkar Urja Private Limited (RDUPL)	Bikaner-II	53	200	200	Solar	8	Renew Dinkar_UPL	28-Jan-2026
5	JUNIPER GREEN COSMIC PRIVATE LIMITED	Bikaner-II	16MW BESS	100MW Solar + (25MW+ 16MW) BESS	100MW Solar + (25MW+ 16MW) BESS	Hybrid	BESS	JUNIPER GREEN COSMIC PRIVATE LIMITED	12-Jan-26
6	Ampin Energy Green Eight Private Limited (AEG8PL)	Fatehgarh_IV	44.1	44.1	130MW (112.5MW Solar + 44.1MW Wind)	Hybrid	14	Ampin_EG8PL	18-Jan-2026

Bus Reactors

S.No	Name of element	Owner	Voltage Level	MVAR Capacity	Bus Reactor Details	OLD MVAR Capacity	Actual date of charging
1	400kV, 80 Bus Reactor 1 at Gonda(UP)	SEUPPTCL	400kV	80	New	NA	23-Jan-2026

Harmonic Filters

S.No	Name of element	Owner	Voltage Level (in kV)	Type of Capacitor	Capacitor Bank No	Sub Capacitor Bank MVAR Rating	Capacitor MVAR Rating	Actual date of charging
1	33kV, 3.85 MVAR Capacitor bank no-1 at Anta(NT)	Anta Solar Power Plant NTPC Ltd	33kV	Harmonic Filter Capacitor Bank	1	3.85 MVAR (Quality Factor of 100.2)	3.85	12-Jan-2026
2	33kV, 12 MVAR Capacitor bank no-1 at Ampin_EG8PL_Hyb_W/S_FTHG4	Ampin_EG8PL	33kV	Harmonic Filter Capacitor Bank	1	12 MVAR (C-type filter tuned to 240HZ)	12	13-Jan-2026
3	33kV, 6 MVAR, Capacitor bank no-1 at Ampin_EG3PL_Hyb_W/S_FTHG4	Ampin_EG3PL	33kV	Harmonic Filter Capacitor Bank	2	6 MVAR (C-type -240Hz)	6	28-Jan-2026



Constraints in Intra-State Transmission System of Uttarakhand(Rishikesh Region) after new inter-connection of 400 kV D/C lines at 400 kV S/s Rishikesh from Koteshwar HEP



- 400 kV D/C Koteshwar-Rishikesh line was energized on 08th December 2025. After energization of this line, the down-stream intra-State transmission network of Uttarakhand is getting overloaded during high hydro generation (State generators as well as Tehri / PSP and Koteshwar HEPs) in morning and evening peak hours.
- Before energization of this line, loading pattern of 400/220 kV ICTs at 400 kV S/S Rishikesh and 220 kV Intra-State lines (220 kV Rishikesh-SIDCUL, 220Kv IIP-Rishikesh, 220 kV Pirankaliyar-SIDCUL, 220 kV IIP-Jhajhra).
- Due to the above overloading, SLDC is forced to open following intra-State lines to manage the load flow in the intra-State transmission system.
 - ❖ 220 kV SIDCUL-Rishikesh,
 - ❖ 220 kV Rishikesh-IIP,
 - ❖ 132 kV Jwalapur-Roorkee,
 - ❖ 132 kV SIDCUL-Roorkee line
 - ❖ 132 KV Laltappar-Majra
 - ❖ 132 KV Bindal-Majra..
- Beside this, some other bus segregations at 132 kV level are also being carried out by SLDC to manage the load flow

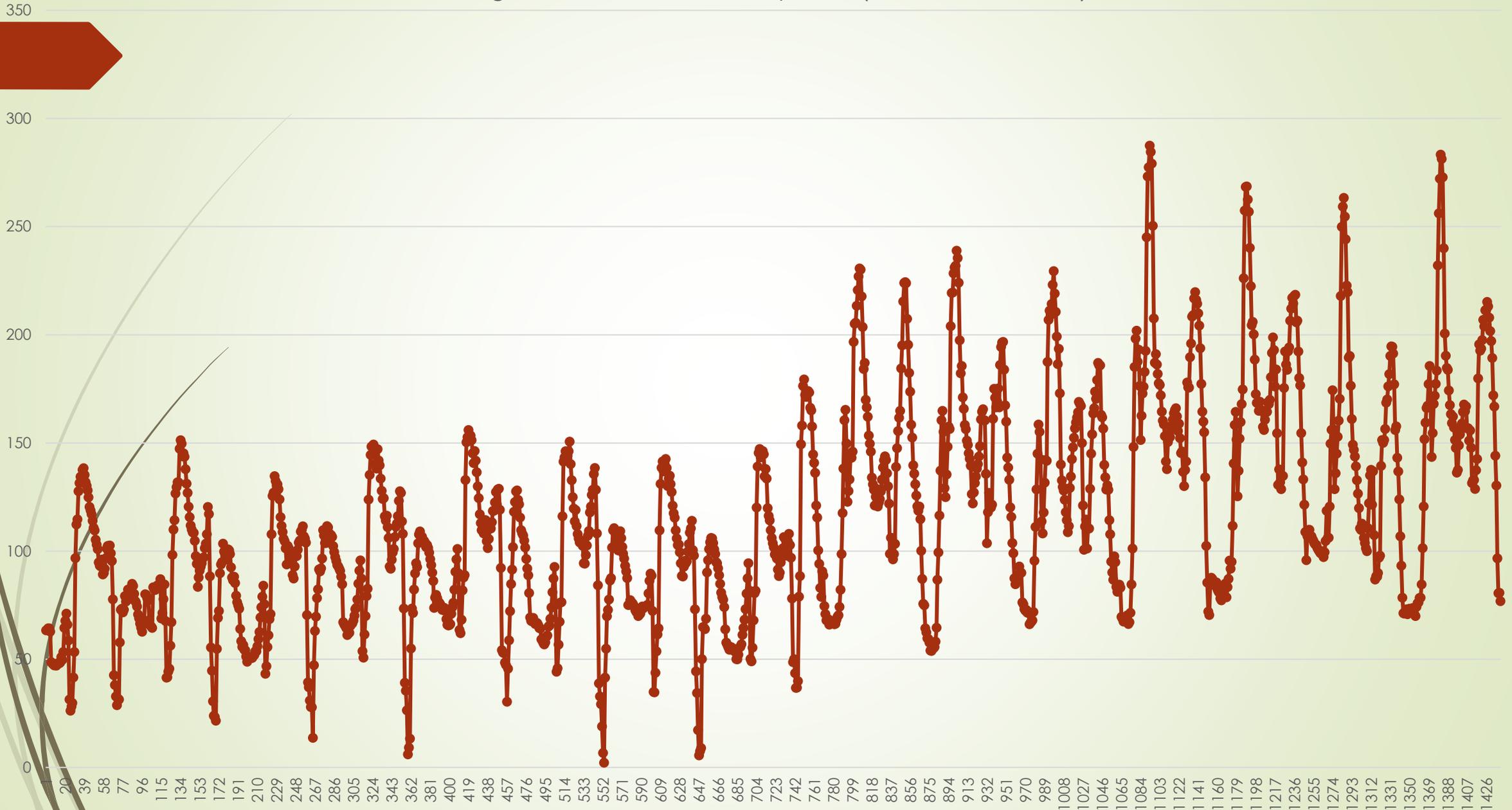
Impact on Loading on ICTs at Rishikesh before & after energization of 400 KV Rishikesh-Koteshwar Lines)

Energization date of 400 KV Rishikesh-Koteshwar line : 08/12/25 (18:46 & 19:03 hrs.)

Loading pattern of 315 MVA ICT at Rishikesh on dated (06/12/25-09/12/25)



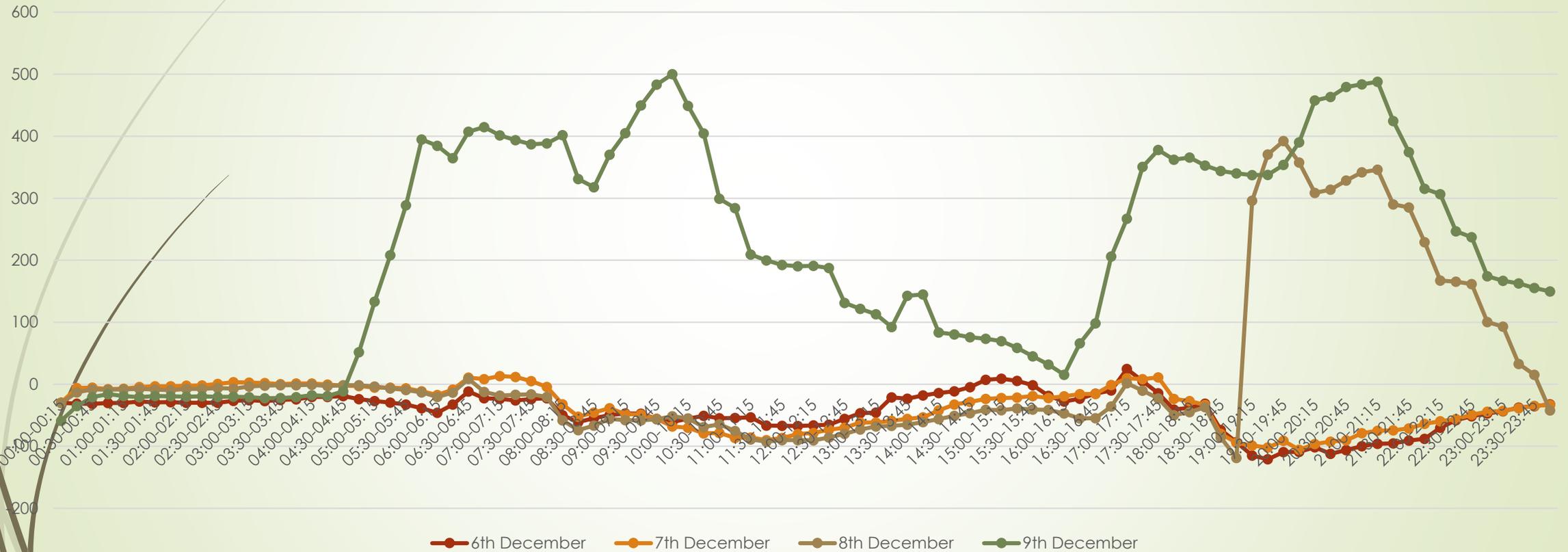
Loading Pattern of 315 MVA for period (01/12/25-15/12/25)



Impact on Loading on 400 KV Rishikesh-Roorkee line before & after energization of 400 KV Rishikesh-Koteshwar Lines)

Energization date of 400 KV Rishikesh-Koteshwar line : 8/12/25 (18:46 & 19:03 hrs.)

Loading Pattern of 400 KV Rishikesh-Roorkee line of period (06/12/25-09/12/25)



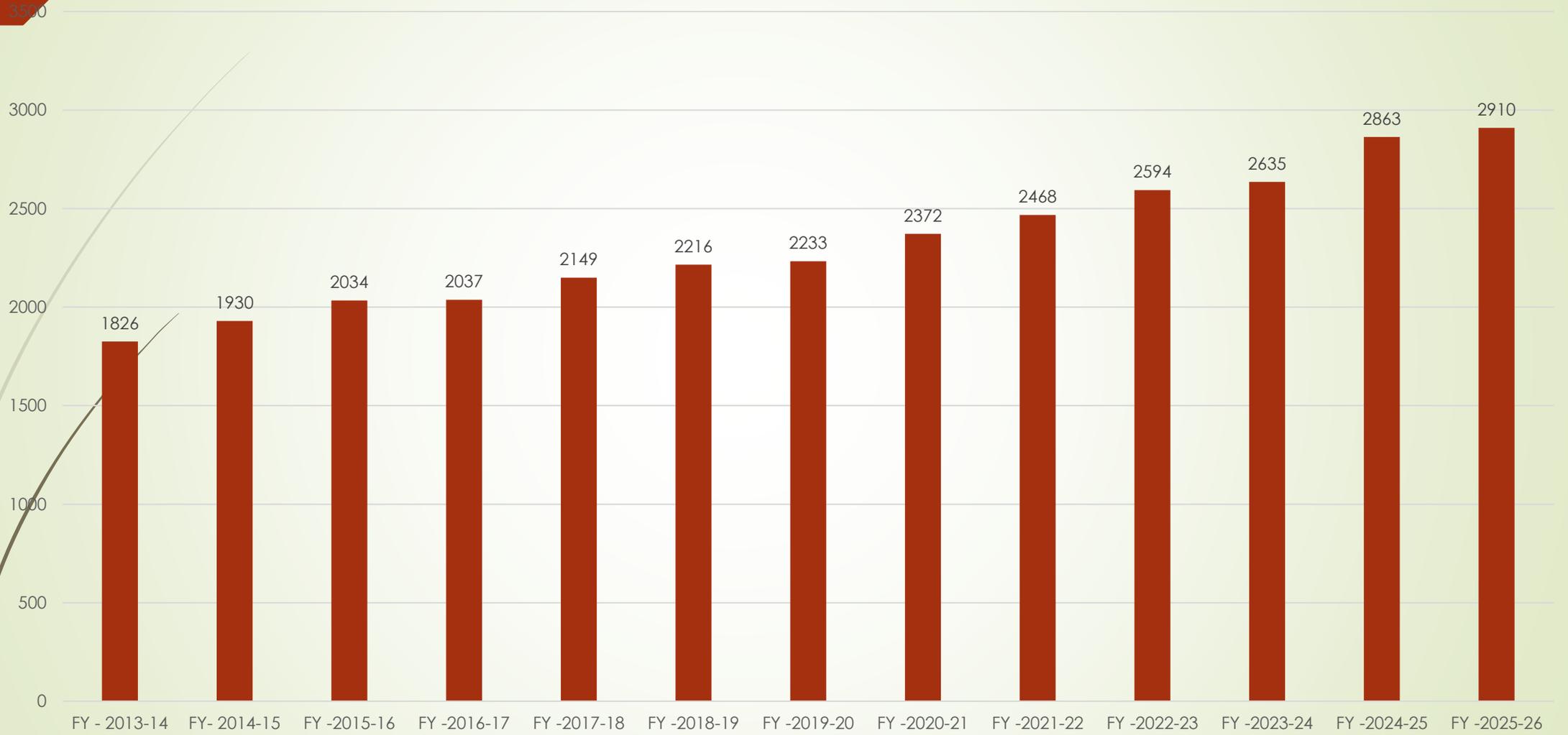
Impact on Loading on 220 KV Rishikesh-Sidcul Haridwar line before & after energization of 400 KV Rishikesh-Koteshwar Lines)

Energization date of 400 KV Rishikesh-Koteshwar line : 8/12/25 (18:46 & 19:03 hrs.)

Loading Pattern of 220 KV Rishikesh-Sidcul line for period (06/12/25-09/12/25)



Demand Growth Pattern of Uttarkhand



Observations :-

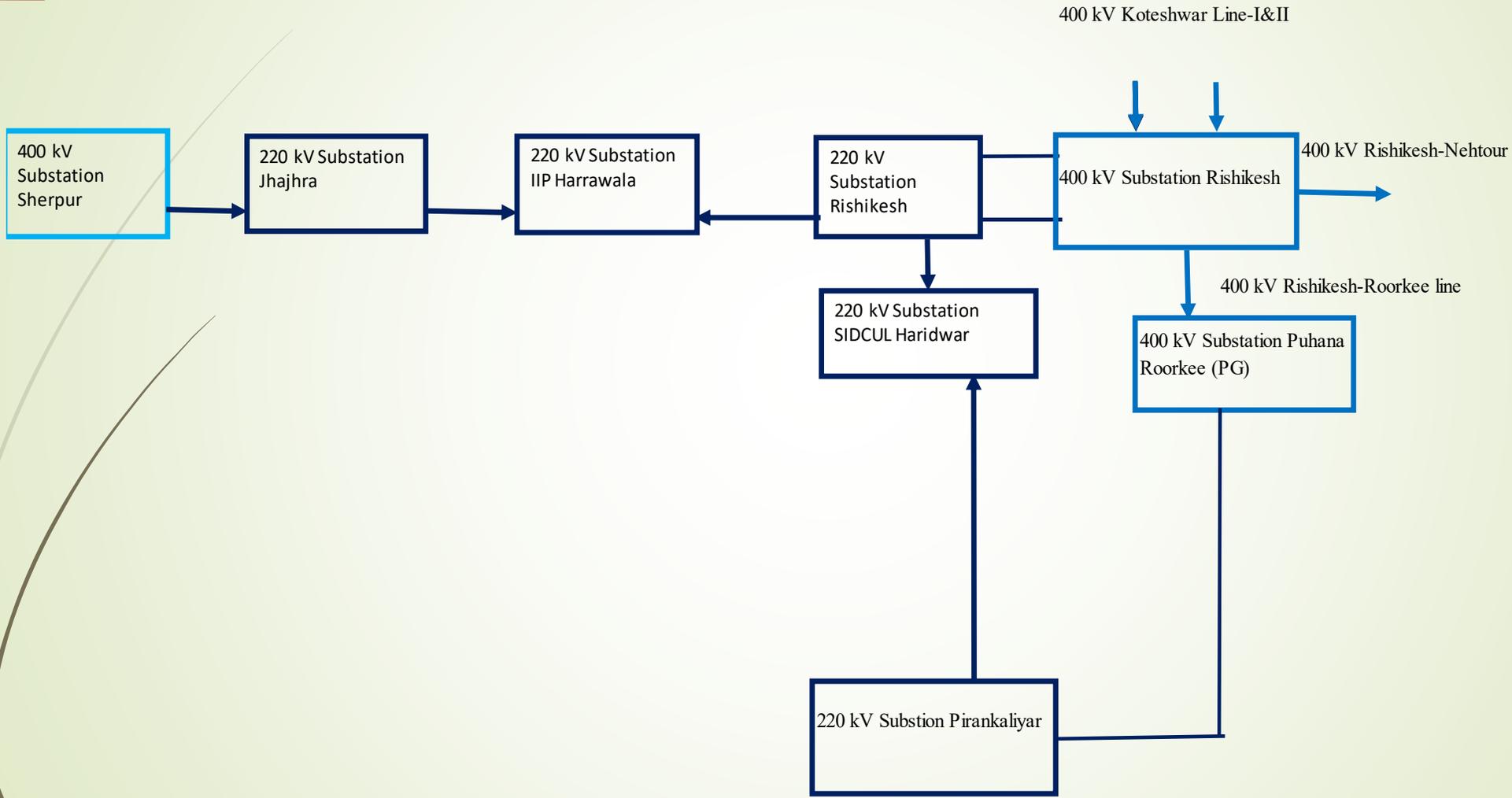
Graphical presentation of loading pattern of 315 MVA ICT at Rishikesh shows that after energization of 400 KV Rishikesh-Koteshwar D/C line, the power flows from 315 MVA ICT to Roorkee area & Dehradun area through 220 KV Rishikesh-Sidcul line & 220 KV Rishikesh-IIP line.

- ▶ The loading of ICTs at Rishikesh is now completely dependent on generation of Tehri/Koteshwar HEP.
- ▶ The power flow from 220 KV Pirankaliyar-Sidcul line was reversed (Pirankaliyar is connected to 400 KV Roorkee(PG) & 220 KV Sidcul (Haridwar))resulting into overloading of 220 KV Rishikesh-Sidcul line, consequently overloading of ICTs at Rishikesh.
- ▶ The power flow from 220 KV IIP-Dehradun-Rishikesh line was reversed (IIP is connected to 400 KV Dehradun(PG) via 220 KV Jhajhra & 220 KV Rishikesh ,resulting into overloading of ICTs at Rishikesh.
- ▶ 220 KV Lines kept in open conditions to control loading of ICTs at 400 KV Rishikesh, but this has reduced reliability of power as 220 KV Substaion Sidcul (Haridwar),220 KV IIP(Dehradun) are being supplied only from single source.
- ▶ PTCUL informed that Single source supply of 220 KV Sidcul (Haridwar) will reduce reliability of supply in upcoming Ardha-Kumbha Mela scheduled in Haridwar /Rishikesh from Jan-27 to Mar -27
- ▶ It was observed that demand pattern of Uttarakhand is not so abrupt, however strengthening of downstream network was not envisaged by CTUIL during approval of 400 KV Rishikesh-Koteshwar line in 2015.
- ▶ NRLDC stated that continuous violation of TTC/ATC Limit & Loading of ICT at 400 KV Rishikesh beyond their N-1 Limits being observed since commissioning of 400 KV Koteshwar-Rishikesh D/C line.

Way forward

- ▶ CTUIL & PTCUL planning team to study loading of line and ICTs in Rishikesh area in 2028-29 time frame for identification of constraints if any during upcoming summer & winter season for safe & reliable grid operation.
- ❖ Since High hydro generation is evacuated at Rishikesh (i.e. nearest load center), Bus segregation at Koteshwar pooling point in such a way that generation of koteshwar HEP will be evacuated at Rishikesh through 400 KV Koteshwar-Rishikesh D/C line.
- ❖ Forum may suggest solutions as appropriate till the strengthening of downstream network.

Power flow before charging of 400 kV Koteshwar-Rishikesh line-I&II



Power flow after charging of 400 kV Koteshwar-Rishikesh line-I&II

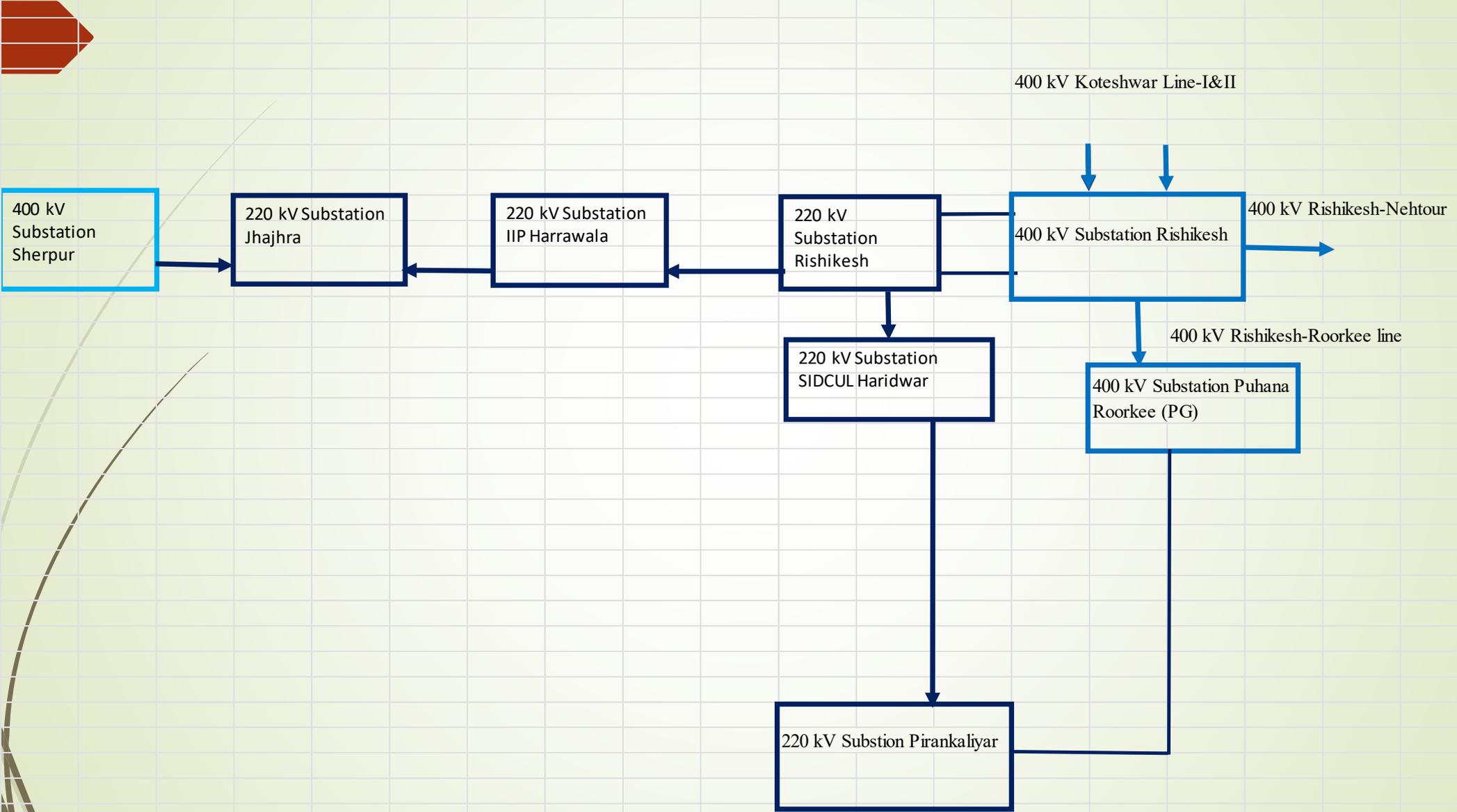


Exhibit-1

Subject: - Agenda No B.7 i.e. Database of transmission lines having terminal equipment rating lower than transmission line conductor capacity- Detailed Technical and commercial Assessment Regarding Terminal Equipment Upgradation at SJVN's Switchyards thereof.

1. Overview:

For conducting studies for assessment of inter control-area transfer capability or any other related simulation studies, thermal ratings of lines as specified in CEA's Manual on Transmission Planning Criteria 2023 are being considered as safe capacity limit of lines based on anticipated ambient temperature.

However, it is being observed in number of cases, that the rating of terminal equipment is lower than thermal capacity of transmission line. This is leading to under-utilisation of line capacity due to limited switchgear rating and even leading to constraints in RE evacuation from Western Rajasthan RE complex.

Terminal equipment rating issues were also observed in 400kV lines from NJHPS and Rampur wherein the lines such as 400kV NJPC-Panchkula D/C (further LILOed) and 400kV Rampura-Nalagarh sections of lines have equipment rating is only 2kA which translates to $1.732 \times 400 \times 2 = 1386 \text{MVA}$ only whereas transmission line has triple snowbird conductor.

The issue of lower line equipment rating has also been discussed in the past in 2018 in NRPC-OCC level wherein NPC had asked RPCs to furnish such details. It was requested that the terminal equipment ratings of STUs' and other transmission licensees' transmission lines in region, may be compiled and furnished to Grid-India with a copy to NPC Division, CEA on priority basis.

Subsequently, the agenda was discussed in number of OCC meetings and transmission utilities were asked to submit the data.

As per the data available at NRLDC, the following are the details of 400 kV, D/C transmission lines emanating from SJVN's switchyard having Triple Snowbird conductor and owned by POWERGRID.

Table-1

Name of TL	Length (km)	Conduct or Rating @45deg for 75deg Design	Switchgear rating End-1 (MVA)	Switchgear rating End-2 (MVA)
Rampur-Nallagarh	128	1275	1386	1386
Jhakri-Gumma	55	1275	1386	NA
Gumma-Panchkula	112	1275	NA	1386
Jhakri-Rampur	21	1275	1386	1386

Table -2

Name of TL	Length (km)	Conduct or Rating @40deg for 75deg Design	Switchgear rating End-1 (MVA)	Switchgear rating End-2 (MVA)
Rampur-Nallagarh	128	1625	1386	1386
Jhakri-Gumma	55	1625	1386	NA
Gumma-Panchkula	112	1625	NA	1386
Jhakri-Rampur	21	1625	1386	1386

2. Proposal Discussed in OCC:

Given the issues arising due to limited switchgear rating in lines which have higher thermal capacity, OCC forum asked:

- to plan for uprating switchgear ratings in existing lines to avoid issues in RE evacuation/ facilitating shutdowns may be studied by concerned transmission line and bay equipment owners.
- for written reply through email/letter may be submitted by the concerned transmission licensees to NRPC with copy to CEA and CTUIL.

3. Validation of Ambient Temperature Basis for Line Capacity Assessment:

As evident from Table-1, the terminal equipment capacity at SJVN end is 1386 MVA, which is higher than the transmission line rating of 1275 MVA at 45°C ambient temperature and 75°C design temperature. Further, considering hilly terrain conditions, the ambient temperature has been assumed as 40°C, based on which the line capacity has been indicated as 1625 MVA, exceeding the terminal equipment rating.

However, it is pertinent to note that the transmission lines emanating from NJHPS and RHPS evacuate power towards Nalagarh and Panchkula, where ambient temperatures during summer months exceeds 40°C. Therefore, adopting 40°C as the representative ambient temperature for determining enhanced line capacity may not reflect the actual operating conditions across the full transmission corridor.

In view of the above, the technical basis for considering 40°C ambient temperature for capacity assessment requires validation.

4. Technical Feasibility Assessment of Upgradation of 400/420 kV GIS End Terminal Equipment at NJHPS and Rampur HPS

In view of the envisaged increase in power evacuation requirements and loading under N-1 contingency conditions, the feasibility of upgradation of end terminal equipment / GIS systems at **Nathpa Jhakri Hydro Power Station (NJHPS - 1500 MW)** and **Rampur Hydro Power Station (RHPS - 412 MW)** was examined.

Accordingly, technical inputs were sought from both power stations regarding the feasibility, scope, outage requirements, and implications of such upgradation.

4.1 Observations from NJHPS

- Upgradation of terminal equipment alone is not adequate, as the existing busbar at NJHPS is rated for 4,000 A. To ensure sufficient thermal margin and system reliability, it is technically necessary to upgrade the busbar and associated equipment. Without such upgradation, the system may be subjected to increased temperature rise, leading to accelerated ageing of GIS/busbar joints and circuit breaker contacts, along with reduced operational flexibility.
- Due to the proprietary design of the GIS, active support of the OEM is mandatory for any upgradation activity. Based on past experience, the OEM typically requires a considerable lead time for engineering, supply, and execution of such upgradation works, which significantly impacts project schedules.
- Full plant shutdown of approximately one year is required i.e. around 3 months for dismantling and 9 months for installation.
- Due to the specialized design and adapter configuration, other manufacturers may not be willing to participate in the tender.
- Moreover, partial upgradation of GIS-I and GIS-II will require a large number of adapters and interface joints. Increasing the number of such connections will make the system more complex and vulnerable.
- Upgradation or replacement of the end terminal equipment of the NJHPS GIS system is not a prudent or viable option at this stage. The existing system may continue to be operated within its rated capacity.

(Detailed Technical Report on Upgradation Feasibility of 400 kV GIS System of NJHPS, Jhakri is attached at Annexure-1)

4.2 Observations from RHPS

- To accommodate the proposed loading through the Jhakri-Rampur and Rampur-Nalagarh circuits under N-1 contingency, enhancement of feeder bay rating and bus bar current capacity is required.
- The most critical requirement is increase of bus bar rating from 4000 A to 5000 A.
- the proprietary and customized design of the 400 kV GIS system supplied by M/s GE Vernova, France, the most critical constraint is the complete dependency on the OEM for any upgradation activity. No third-party manufacturer can undertake modification, supply compatible components, or certify performance due to design ownership, patented interfaces, and specialized adapter configurations.
- The upgradation is not limited to selective feeder bay replacement, but a holistic upgradation of the entire 420 kV GIS system. The minimum estimated shutdown period is approximately eight to nine months for execution.
- Rampur HPS operates in tandem with NJHPS for coordinated water utilization and grid evacuation, prolonged shutdown of NJHPS would also adversely impact generation scheduling and evacuation from Rampur HPS, thereby affecting overall cascade operation and power availability.
- Considering the substantial operational disruption, financial implications, OEM dependency, and system-wide impact, it is considered that upgradation or replacement of the end terminal equipment of the Rampur HPS GIS system is not a prudent or viable option at this stage. The existing system may continue to be operated within its rated capacity.

(Detailed Technical Report on Upgradation Feasibility of 400 kV GIS System of Rampur HPS, SJVN Ltd. Attached at Annexure-2)

4.3 Shutdown Requirement

- NJHPS and RHPS are operating in tandem; therefore, shutdown of NJHPS will necessitate the shutdown of RHPS as well. The estimated shutdown period for upgradation of the GIS system at NJHPS has been assessed as one year, and accordingly, RHPS will also remain under shutdown for the same duration.
- In case the upgradation of both plants is planned and executed in synchronism, a single shutdown period of approximately one year will be required for both stations.

4.4 Generation and Financial Loss

- Based on the requirement of a complete shutdown for a period of approximately one year, the total anticipated Gross Energy loss is estimated at 9,495 MU (corresponding Saleable Energy loss of 8,146 MU). The resultant revenue loss is assessed at approximately ₹2,412 crore, based on the generation and billing data of FY 2024–25.

(Detailed calculation sheet enclosed at Annexure-3).

5. Submission.

- In view of the technical, operational, commercial, and execution constraints, selective or partial upgradation of the GIS system at NJHPS is feasible only through the OEM due to its proprietary design; however, such upgradation will not meet the objective of capacity enhancement. Any meaningful improvement would require complete upgradation of GIS-I and GIS-II along with associated systems, effectively amounting to major reconstruction of the 420 kV GIS involving extensive equipment replacement, structural modifications, system reconfiguration, and detailed system studies.
- The minimum estimated shutdown period of approximately eight to twelve months would lead to complete non-availability of the plant, resulting in total loss of generation with significant commercial and financial implications. Further, as Rampur HPS operates in tandem with NJHPS, prolonged outage of either station would adversely impact generation scheduling, water utilization optimization, grid reliability.
- **Considering the reliable performance of the existing system since commissioning, along with the high technical complexity, commercial unviability, OEM dependency, and severe operational disruption, upgradation or replacement of the end terminal equipment at this stage is not considered prudent or viable. Accordingly, the existing GIS system may continue to be operated within its rated capacity.**

Annexure -1

Technical Report on Upgradation Feasibility of 400 kV GIS System of NJHPS, SJVN Ltd. Jhakri

1. Background

The Gas Insulated Switchgear (GIS-II) comprises with Four Outgoing 400kV Line Bays (NJ-Panchkula-I, NJ-Gumma-II, NJ-Rampur-I & II), Two Incoming 400KV Line Bays (NJ-Karcham-I & II), One No. Station Transformer Bay (400kV/22 kV Station Transformer) and One No. Bus Reactor Bay (80 MVAR Bus Reactor). Similarly, GIS-I consists of six generator bays and one bus coupler bay, connected to GIS-II through a CGI bus duct.

These transmission lines are important for evacuating power from the 1500 MW NJHPS power station (6 x 250 MW) and 330MW Baspa Hydroelectric Project to the Northern GRID through Two Double Circuit 400kV Line feeders.

2. Existing Operating Scenario

Under the existing configuration, the busbar system is designed with a continuous current rating of 4000 A or 2500MW, which is adequate to cater to the combined loading of multiple transmission lines under normal operating conditions. During peak generation periods, approximately 1960MW flows through the double busbar system, comprising power from two incoming lines from the Karcham side and the generated power of NJHPS, which is evacuated through four outgoing transmission lines towards Rampur and Gumma. Although this loading remains within the continuous rating of the busbar, it leaves a limited operational margin of around 540 MW, which restricts the system's ability to handle contingencies or abnormal operating conditions.

3. Limitation of Existing Configuration

The 400 kV switchyard of NJHPS is designed with a double bus configuration, each busbar and associated circuit breakers rated for **4000 A continuous current**, and the overall system has been planned based on a **design generation capacity of 2500 MW, 40 kA short-circuit level**, and compliance with the **N-1 reliability philosophy**. However, when the power flow through NJ-Karcham-I and NJ-Karcham-II increases beyond 330 MW with an additional 540 MW, the current flowing through the busbar will increase significantly, and the total connected generation will reach approximately 2500 MW.

This current will remain below the continuous rating of the busbar and circuit breaker, indicating that the system is thermally adequate under normal operating conditions. Even under an N-1

contingency, where one bus is taken out of service and the entire generation flows through a single bus, the current will be approximately 3800 amperes, which is within the rated capacity.

However, the anticipated loading is approximately 95% of the rated current, leaving very little operating margin. As per standard utility practices, continuous loading is typically limited to 80–85% of the rated capacity, which corresponds to about 3400 A for a 4000 A bus. Therefore, the proposed loading exceeds the recommended operating comfort zone. Although technically permissible, such high continuous loading may result in increased temperature rise, accelerated ageing of GIS/busbar joints and circuit breaker contacts, and reduced operational flexibility.

Therefore, in view of the above loading analysis and the anticipated increase in fault level, upgrading the ratings of the busbar and associated equipments would technically be required to ensure adequate thermal margin, and reliability.

i. OEM issues: The GIS system installed at NJHPS Jhakri was supplied, erected, tested, and commissioned by M/s GE Vernova, France, in 2003. Based on past experience and considering the proprietary design of the system, any partial upgradation or modification such as replacement of bus bars, breakers, adapters, elbows, conductors, or other GIS components requires technical support and material supply from the OEM, i.e., M/s GE Vernova, France.

A work order was placed with M/s GE Vernova for the retrofitting of generator breakers vide Order No. SJVN/NJHPS/P&C/Package (W)-250 (O&M): 5866–73 dated 10.01.2022. The OEM has taken approximately four years from the date of order placement for execution of the work. Accordingly, based on the recent progress achieved, the following timeline has been prepared.

Sr. No	Description	Time Taken (Approx.)	Remarks
1.	Technical & Commercial offer from OEM	1 Year	Duration is tentative and based on past experience; actual time may vary.
2.	Supply of Material	3-4 Years	Duration is tentative and based on past experience; actual time may vary. Includes manufacturing, inspection, and delivery period.
3.	Dismantling of existing system	2-3 Months	

4.	Installation, erection, testing & commissioning of the proposed system	8-9 Months	Duration is tentative and based on past experience; actual time may vary.
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Further, due to the specialized design and adapter configuration, other manufacturers are not willing to participate in the tender. Installation of non-OEM parts may lead to compatibility issues and difficulties in high-voltage testing, performance assurance, and warranty coverage. In case any failure occurs in the upgraded system attributable to the existing components or vice versa, it would be difficult to fix responsibility for the resulting losses, which may lead to ambiguity and disputes in accountability.

Moreover, partial upgradation of GIS-I and GIS-II will require a large number of adapters and interface joints. Increasing the number of such connections will make the system more complex and vulnerable. Therefore, even limited or partial upgradation is entirely dependent upon OEM support and supply, which involves long delivery timelines and significant cost implications.

5. Complete Upgradation: For achieving higher evacuation capability, the entire GIS-I and GIS-II system would require upgradation in a holistic manner. This would necessitate detailed power system and network studies to assess revised load flow patterns, and short circuit levels. Based on the updated fault level calculations, all associated equipment including busbars, circuit breakers, disconnectors, current transformers and other switchgear components would need to be re-evaluated and potentially replaced to match the enhanced ratings. Thus, the upgradation would not be limited to the selective equipment but would require complete replacement of the entire switchyard system. Upgradation of the entire switchgear system is expected to take approximately **2-3 years**, which would necessitate a prolonged shutdown of the plant. Such an extended outage would result in substantial generation loss and significant financial and operational implications, making the proposal impractical and economically unviable.

5. Outage Time: Since NJHPS has two GIS systems interconnected through a CGI bus duct, where one section is laid underground and the other installed on the open surface, the total length of the existing CGI bus duct is approximately 250 meters. It is installed in a 60-degree inclined/confined area, which makes work very difficult and time consuming. The long spans of each enclosure further complicate these maintenance activities, as it is challenging to maneuver and handle equipment in such confined and steeply inclined spaces.

Furthermore, replacement of the CGI bus duct is practically impossible without a complete plant shutdown due to the confined working space and associated safety constraints. Additionally, the bus duct components, including the closed cone, open cone, conductor, enclosures, and various

elbows, are specialized designs supplied by M/s GE Vernova, France. These components are custom-made for the NJHPS Plant and are not readily available on the Indian/world market.

Moreover, during this entire period, both powerhouses i.e. 1500MW NJHPS & 412MW RHPS would need to remain under shutdown, resulting in substantial generation loss (i.e. 9495MU) and significant financial implications. Therefore, carrying out the partially and entirely both upgradation or replacement of the end terminal equipment is not practically feasible without prolonged plant shutdown and consequent generation loss.

Submission: In view of the above factors, it is concluded that partial upgradation can only be undertaken through the OEM due to the customized proprietary design. However, selective replacement alone will not achieve the desired objective of capacity enhancement. For meaningful improvement, complete upgradation of both GIS-I and GIS-II along with associated systems would be required, which is technically complex, economically intensive, and operationally impractical. Given that the existing system has been functioning reliably since commissioning and that any upgradation would necessitate prolonged shutdown of the entire plants (NJHPS & RHPS) resulting in substantial generation and financial loss to the nation, such modification is presently not feasible.

Accordingly, it is considered that upgradation or replacement of the end terminal equipment of the NJHPS GIS system is not a prudent or viable option at this stage. The existing system may continue to be operated within its rated capacity.

Annexure -2

Technical Report on Upgradation Feasibility of 400 kV GIS System of Rampur HPS, SJVN Ltd.

1. Background

Rampur Hydro Power Station (412 MW) is equipped with a 420 kV Gas Insulated Switchgear (GIS) comprising:

- 6 Generator Transformer (GT) bays
- 4 Line bays
 - Jhakri-Rampur 1 & 2
 - Rampur-Nalagarh 1 & 2
- 1 Bus Reactor bay
- 1 Bus Coupler bay
- 1 Voltage Transformer (VT) bay
- 1 Surge Arrester bay

These transmission lines are important and plays a critical role in evacuation of power from Rampur HPS and maintaining N-1 contingency of outgoing lines from Nathpa Jhakri and Rampur HPS.

2. Existing Operating Scenario

Under the existing configuration, the busbar system is designed with a continuous current rating as mentioned below;

- Feeder bay terminal equipment rating: **2000 A**
- Bus Bar rating (Bus-1 & Bus-2): **4000 A**

Rampur HPS has been operating reliably since commissioning in 2014 and consistently achieving its design generation. Under present configuration, the system operates within rated limits. However, to accommodate the proposed loading through the Jhakri-Rampur and Rampur-Nalagarh circuits under N-1 contingency, enhancement of feeder bay rating and bus bar current capacity is required.

Action Required: The most critical requirement is increase of bus bar rating from 4000 A to 5000 A.

3. Limitation of Existing Configuration

For Upgradation from 4000 A to 5000 A bus rating requires:

- Increase in conductor cross-section
- Increase in GIS enclosure diameter

- Increase in mechanical loading
- Replacement of common compartments interface with:
 - ✓ 6 GT bays
 - ✓ 4 Line bays
 - ✓ Bus Reactor bay
 - ✓ Bus Coupler bay
 - ✓ VT & Surge Arrester bays

These compartments are mechanically and electrically interconnected, and any dismantling activity would directly disturb the structural integrity, gas sealing, insulation coordination, and alignment of both bus systems. As there is no physical segregation or isolatable boundary within these common sections, it is not technically feasible to isolate and replace them while keeping one bus in service.

Therefore, replacement of these common compartments necessitates complete de-energization of both Bus Bar-1 and Bus Bar-2 simultaneously, making total shutdown of the GIS system technically unavoidable during the execution period.

4. OEM and Execution Constraints

In view of the proprietary and customized design of the 400 kV GIS system supplied by M/s GE Vernova, France, the most critical constraint is the complete dependency on the OEM for any upgradation activity. No third-party manufacturer can undertake modification, supply compatible components, or certify performance due to design ownership, patented interfaces, and specialized adapter configurations. All activities – including feasibility assessment, detailed engineering, dimensional verification, manufacturing, testing, supervision, and commissioning – are solely within the OEM’s domain. Past experience at NJHPS (at our Upstream plant) has demonstrated that the OEM’s response cycle is inherently prolonged. The limited global manufacturing base and prioritization of projects at the OEM level further delay material supply and site execution. This high degree of OEM dependency, coupled with slow response and long lead times, significantly restricts planning flexibility and renders any partial or complete upgradation vulnerable to substantial schedule uncertainty.

Further, Up gradation of terminal equipment not limited to bay only it involves:

- Complete dismantling of common GIS compartments
- Structural modification of supports
- Installation of higher-rated compartments
- Re-alignment of all connected bays.
- Protection, control and SCADA reintegration

5. Complete Upgradation Implication

The upgradation is not limited to selective feeder bay replacement, but a holistic upgradation of the entire 420 kV GIS system. This would necessitate detailed power system and network studies to reassess revised load flow patterns, short-circuit levels, and N-1 contingency performance under the enhanced loading scenario. Based on updated fault level calculations, all associated equipment—including busbars, circuit breakers, disconnectors, current transformers, bus coupler, protection interfaces, and interconnected GIS compartments—would need to be re-evaluated and, wherever inadequate, replaced to match the enhanced ratings. Accordingly, the scope of work would extend beyond feeder bay modifications and would effectively amount to major reconstruction of the major GIS components.

Thus, the proposal amounts to partial reconstruction of the entire GIS rather than simple terminal equipment replacement. The **minimum estimated shutdown period is approximately eight to nine months for execution.**

6. Outage Impact

A complete shutdown would result in:

- Total generation loss for the period for Rampur HPS
- Reduced power availability during peak demand to GRID operation
- Adverse impact on grid reliability
- Operational constraints under N-1 scenarios

It is also submitted that, as Rampur HPS operates in tandem with NJHPS for coordinated water utilization and grid evacuation, prolonged shutdown of NJHPS would also adversely impact generation scheduling and evacuation from Rampur HPS, thereby affecting overall cascade operation and power availability.

7. Submission

In view of the above technical, operational, and execution constraints, the proposed enhancement terminal equipment capacity entails extensive replacement of major GIS compartments, structural modifications, system reconfiguration, and complete shutdown of both bus bars for an extended duration. The upgradation is not limited to selective feeder bay replacement but effectively amounts to major reconstruction of the 420 kV GIS, requiring detailed system studies, reassessment of fault levels, and potential replacement of multiple interconnected components. The minimum estimated shutdown period of approximately eight to nine months would result in total generation loss from Rampur HPS, reduced power availability to the Grid during peak demand,

adverse impact on regional grid reliability, and operational constraints under N-1 contingency conditions.

Further, since Rampur HPS operates in tandem with NJHPS for coordinated cascade operation and evacuation planning, prolonged outage at either station would disturb generation scheduling, water utilization optimization, and overall power availability.

Considering the substantial operational disruption, financial implications, OEM dependency, and system-wide impact, it is considered that upgradation or replacement of the end terminal equipment of the Rampur HPS GIS system is not a prudent or viable option at this stage. The existing system may continue to be operated within its rated capacity.

Annexure -3

Generation and Financial Loss

Details of NJHPS Billing for FY 2024-25										
S. No.	AFC Approved vide order dated 25.01.2022 (Rs in Cr)	ECR (Rs/unit)	Gross Energy Gen. (MU)	Saleable Schedule Energy (kWh)	Primary Energy (kWh)	Secondary Energy (kWh)	PAFY (%)	Amount (Rs)		
								Capacity Charges (Cr)	Energy Charges (Cr)	Total (Cr)
1	1382.8636	1.203	7421	6417574746.9	5748737280.0	668837466.9	101.407	805.93	772.03	1577.96
Details of Billing of RHPS for FY 2024-25										
S. No.	AFC Approved vide order dated 14.01.2026 (Rs in Cr)	ECR (Rs/unit)	Gross Energy Gen. (MU)	Saleable Schedule Energy (kWh)	Primary Energy (kWh)	Secondary Energy (kWh)	PAFY (%)	Capacity Charges (Cr)	Energy Charges (Cr)	Total (Cr)
1	738.9563	2.284	2074	1728739961.0	1617590304.0	111149657.0	101.151	450.28	383.91	834.19
Total in MU			9495	8146.315	Total revenue realisation for FY 2024-25 in Crores (INR)				2412.15	