सत्यमेव जयते

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

विषय: उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की **231** वीं बैठक का कार्यवृत |

Subject: Minutes of the **231**th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की **231** वीं बैठक दिनांक 14.05.2025 को आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट http://164.100.60.165 पर उपलब्ध है। यदि कार्यवृत पर कोई टिप्पणी हो तो कार्यवृत जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें |

The **231**st meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 14.05.2025 at Ramnagar (Uttarakhand). The Minutes of this meeting has been uploaded on the NRPC website http://164.100.60.165. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

संलग्नक:यथोपरि।

18/6/25

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

सेवा में,

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

18-ए, शहीद जीत सिंह मार्ग, कटवरिया सराय, नई दिल्ली दूरभाष:011-26513265 ई-मेल: seo-nrpc@nic.in वेबसाईट: www.nrpc.gov.in
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List of addressee (via mail)

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

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

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

Contents

उत्तर क्षत्रीय विद्यत समिति की प्रचालन समन्वय उप-समिति की 231वीं बैठक का कार्यवृत्त

The 231st OCC meeting of NRPC was held on 14.05.2025 through video conferencing. MS, NRPC welcomed all the participants connected through VC and

requested for the presentation of the agenda items.

खण्ड-क:उ.क्ष.वि.स. PART-A:NRPC

A.1. Confirmation of Minutes

Minutes of the 230th OCC meeting was issued on 08.05.2025. OCC confirmed the minutes of the meeting.

A.2. Status of action taken on decisions of 230th OCC meeting of NRPC

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

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

Decision of OCC Forum:

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

A.3. Review of Grid operations of April 2025

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

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

- **Chandigarh**

  Actual energy requirement and actual peak demand are more than anticipated energy requirement and anticipated peak demand respectively because of warm weather conditions in the month of April 2025 in Chandigarh.

- **Delhi**

  In April- 2025, Delhi witnessed the warmest weather in April months so actual peak demand and energy consumption was on higher side than expected.

- **Haryana**

The actual demand felt is within 5% of the projected demand in MW. The availability was calculated based on the normative PLF. However, actual availability depends upon the various operational parameters and technical conditions. Further, it is intimated that HPPC had floated tender for procurement of 500 MW which was expected to be commenced from May-25 and same was considered in the availability, however, the tender is still under process.

- **Himachal Pradesh**

  The actual Energy Requirement as well as in peak demand in respect of Himachal Pradesh for the month of April, 2025 came on the lower side due to the moderate temperature throughout the State.

- **Punjab**

  It is intimated that actual energy requirement and actual maximum demand are more than anticipated energy requirement and anticipated maximum demand respectively because of predominantly dry weather and higher temperatures in the month of April 2025.

- **Rajasthan**

  The Actual Peak Demand and Energy requirement w.r.t. Anticipated Peak Demand and Energy requirement decreased by 7.1% and 4.9% respectively for April' 2025 as demand couldn't pick up due to intermittent bad weather observed in western part of Rajasthan state control area during the month.

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

The maintenance programme of generating units and transmission lines for the month of May 2025 was deliberated in the meeting on 13.05.2025.

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

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	190	420	No Revision submitted
	Requirement	246	481	
	Surplus / Shortfall	-56	-61	
	% Surplus / Shortfall	-22.8%	-12.7%	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Availability	6055	9116	
DELHI	Requirement	4750	9000	13-May-25
	Surplus / Shortfall	1305	116	
	% Surplus / Shortfall	27.5%	1.3%	
HARYANA	Availability	7440	13182	12-May-25
	Requirement	8294	15355	
	Surplus / Shortfall	-854	-2173	
	% Surplus / Shortfall	-10.3%	-14.2%	
HIMACHAL PRADESH	Availability	1272	1945	13-May-25
	Requirement	1254	1919	
	Surplus / Shortfall	18	26	
	% Surplus / Shortfall	1.4%	1.4%	
J&K and LADAKH	Availability	1910	3340	No Revision submitted
	Requirement	1775	3071	
	Surplus / Shortfall	135	269	
	% Surplus / Shortfall	7.6%	8.8%	
PUNJAB	Availability	7860	15270	14-May-25
	Requirement	9177	17097	
	Surplus / Shortfall	-1317	-1827	
	% Surplus / Shortfall	-14.4%	-10.7%	
RAJASTHAN	Availability	10430	19870	13-May-25
	Requirement	10200	17500	
	Surplus / Shortfall	230	2370	
	% Surplus / Shortfall	2.3%	13.5%	
UTTAR PRADESH	Availability	18810	32000	6-May-25
	Requirement	18150	32000	
	Surplus / Shortfall	660	0	
	% Surplus /	3.6%	0.0%	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Shortfall			
	Availability	1680	2725	
UTTARAKHAND				7-May-25
	Requirement	1710	2800	
	Surplus / Shortfall	-30	-75	
	% Surplus / Shortfall	-1.8%	-2.7%	
NORTHERN REGION	Availability	55310.0	99200	
	Requirement	58493.0	99600	
	Surplus / Shortfall	-3183.0	-400	
	% Surplus / Shortfall	-5.4%	-0.4%	

A.5.1. Representative of Chandigarh DISCOMs stated that mostly the shortages in Chandigarh are during day time. The shortages are met through Power Market where sufficient power is available during day time.

A.5.2. Representative of Haryana stated that they will manages the shortfall through Power Exchanges.

A.5.3. Representative of Punjab SLDC informed that the shortfall in Punjab would be met through Real time exchanges.

A.5.4. ED, NRLDC stated that states shall not rely on Day Ahead Market and Real-Time Market for meeting demand and should make power tie ups up front so that resource adequacy is ensured. Due to huge uncertainty, at least Real-Time Market should definitely not be considered as tool for power procurement and all arrangements should be done well in advance.

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

A.7. NR Islanding scheme

A.7.1. EE, NRPC informed that a meeting taken by MS, NRPC on 10.05.2025 to review the status of existing islanding schemes and availability of ERS in NR. In this meeting Punjab SLDC informed that Pathankot RSD islanding scheme is currently dismantled.

A.7.2. MS, NRPC asked Punjab SLDC the reason for dismantling the said islanding scheme. Punjab SLDC representative replied that it was dismantled during the works of control room extension.

A.7.3. NRLDC representative expressed concern on the information shared by Punjab SLDC that RSD-Pathankot islanding scheme has been dismantled for control room extension works. It was requested that tentative timeline be provided by Punjab SLDC for revival of islanding scheme. Punjab SLDC agreed to share latest timeline for revival of islanding implementation with NRLDC/NRPC at the earliest.

A.7.4. MS, NRPC expressed serious concerns for dismantling Pathankot-RSD scheme without any approval. He asked Punjab SLDC to restore the said islanding scheme at the earliest.

A.7.5. UPPTCL representative apprised that Unchahar- Lucknow Islanding scheme has been successfully implemented and same is visible at SCADA of UPSLDC also (except 01 Substation: 132 kV S/s Hussainganj. The data of above 01 substation is not available at UPSLDC due to lack of OPGW. The work of laying OPGW cable is under progress and same shall be completed by end of May end.

A.7.6. With regard to Lalitpur- Agra islanding scheme, UPPTCL representative apprised the forum that they have submitted their proposal to the PSDF Secretariat for PSDF funding. A meeting was held on 07.03.2025, during which some queries regarding the scheme were raised and UPPTCL was asked to submit their board approval. The representative of UPPTCL stated that they are preparing responses to the PSDF Secretariat's queries and will resubmit the proposal once it has been approved by the UPPTCL board.

A.7.7. RRVPNL representative stated that they have submitted their proposal of Jodhpur-Barmer-Rajwest islanding scheme to PSDF Secretariat on 16.01.2025 for PSDF funding. A meeting was held on 07.03.2025, during which some queries regarding the scheme were raised. RRVPNL representative informed that responses to these queries are currently being prepared.

A.7.8. RRVPNL representative mentioned that DPR for implementation of Suratgarh islanding scheme would be submitted after confirmation PSDF funding from PSDF Sectt. for Jodhpur-Barmer-Rajwest islanding scheme.

A.7.9. With regard to Patiala-Nabha Power Rajpura islanding scheme representative from Punjab SLDC informed that they have submitted their proposal to PSDF Secretariat. The PSDF Secretariat had raised some observation regarding the scheme which has been replied by Punjab.

A.7.10. HPSLDC representative apprised that the Monitoring committee of State PSDF has provided approval for State PSDF funding for implementation of proposed UFR scheme for Kullu- Manali islanding scheme and Shimla-Solan Islanding scheme in the meeting held on 22nd April, 2025. He further stated that the procurement of UFRs will be undertaken by HPSEBL. The tentative timeline for the implementation of the schemes will be obtained from HPSEBL and shared with the forum in due course.

A.7.11. Further, with regard to Shimla-Solan Islanding scheme he apprised that HPSEBL has done the testing and requisite frequency settings of their generators for islanding scheme.

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

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

A.8.2. Average coal stock position of generating stations in northern region, having critical stock, during first ten days of May 2025 is NIL.

A.9. Updating outage Details by Generating Station/utilities (Agenda by CEA)

A.9.1 NRPC representative apprised forum that to enhance the monitoring of approved Planned Maintenance schedules, CEA has asked that information regarding actual maintenance availed against approved planned maintenance is to be updated on priority by respective RPCs regularly on monthly basis.

A.9.2 In the 221st OCC meeting of NRPC, forum asked generating stations of NR to update the status of Planned Maintenance schedules versus actual maintenance availed for the previous month before every OCC meeting and it was decided that to enhance the monitoring of approved Planned Maintenance schedules the said agenda item shall be taken as rolling/follow-up agenda in OCC meetings.

A.9.3 In this regard, list of Planned Maintenance schedules versus actual maintenance availed for the year 2025-26 for the month of April-2025 was shared with the relevant generating stations of NR and based on the inputs received from them the updated information is attached as **Annexure-A.III**.

A.10. Implementation of AUFLS scheme in accordance with the report of Task Force on Automatic under Frequency Load Shedding (AUFLS) (Agenda by NRPC Sectt.)

A.10.1. NRPC representative apprised forum that in line with the report of Task Force on Automatic under Frequency Load Shedding (AUFLS) and df/dt scheme and Region wise quantum of load shedding in different stages of AUFLS communicated by NPC Secretariat, NRPC Sectt. has computed Stage-wise AUFLS relief quantum for each State/UT of NR. The details of which are mentioned in the table below: -

State/UT	Stage-1 49.4 Hz (5%)	Stage-2 49.2 Hz (6%)	Stage-3 49.0 Hz (7%)	Stage-4 48.8 Hz (7%)	Total
	Stage-1 Relief	Stage-2 Relief	Stage-3 Relief	Stage-4 Relief	
Chandigarh	15.850	19.020	22.190	22.190	**79.248**
Delhi	299.338	359.205	419.073	419.073	**1496.690**
Haryana	526.332	631.599	736.865	736.865	**2631.661**
Himachal Pradesh	97.246	116.695	136.145	136.145	**486.231**
UT J&K & Ladakh	145.406	174.487	203.569	203.569	**727.031**
Punjab	601.638	721.966	842.293	842.293	**3008.190**
Rajasthan	811.056	973.268	1135.479	1135.479	**4055.282**
Uttar Pradesh	1191.769	1430.122	1668.476	1668.476	**5958.843**
Uttarakhand	113.069	135.682	158.296	158.296	**565.343**
Total	**3801.704**	**4562.045**	**5322.386**	**5322.386**	**19008.52**

A.10.2. In 226th OCC and 227th OCC meeting, aforementioned relief was communicated to respective SLDC's of NR and forum asked States/UTs of NR to communicate feeder-wise, Stage-wise AUFLS quantum to NRPC/NRLDC before next OCC meeting.

A.10.3. In 15th NPC meeting held on 14.11.2024 following was approved by the committee: -

- The AUFLS scheme must ensure Pumped storage hydro plants operating in pumping mode or ESS operating in charging mode shall be automatically disconnected before the first stage of UFR.
- Bulk consumers connected to ISTS and STU networks must implement the UFR scheme. Compliance should be ensured during the grant of connectivity by CTU and STU.
- The implementation of the **AUFLS must be completed by March 2025**. RPCs are required to regularly monitor the implementation of the UFR scheme as a whole including the bulk consumers connected

at the ISTS level. RPCs may communicate above decisions to the respective States for implementation.

A.10.4. NRPC Representative informed to states SLDC that there should not be any duplicacy of feeders mapped in AUFLS with the feeders mapped under ADMS and df/dt.

A.10.5. NRPC Representative informed that a meeting was held under the chairmanship of Member Secretary, NRPC with SLDC's and STU's of States/UTs of NR on 01.05.2025 to discuss the stage-wise and feeder-wise relief quantum of AUFLS implemented by NR States/UTs. Minutes of the meeting is attached at **Annexure-A.IV.**

A.10.6. As per the information received from SLDC's of NR States/UTs the current relief quantum at different stages of AUFLS is mentioned below:

State/UT	**Stage-1 49.4 Hz (5%)**	**Stage-2 49.2 Hz (6%)**	**Stage-3 49.0 Hz (7%)**	**Stage-4 48.8 Hz (7%)**	**Total**
	Stage-1 Relief	Stage-2 Relief	Stage-3 Relief	Stage-4 Relief	
Chandigarh	NIL	NIL	NIL	NIL	**NIL**
Delhi	322	399	441	433	**1595**
Haryana	735	730	815	897	**3177**
Himachal Pradesh	432	365	182	97	**1076**
UT J&K & Ladakh	155	204	204	214	**777**
Punjab	583	715	855	859	**3012**
Rajasthan	813	973	1138	1142	**4066**
Uttar Pradesh	2580	2187	2013	1757	**8537**
Uttarakhand	319	138	167	241	**865**
Total	**5939**	**5711**	**5815**	**5640**	**23105**

A.11. Periodic testing of generators and FACTS/HVDC Devices (Agenda by NRPC Sectt.)

A.11.1 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.11.2 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.11.3 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.11.4 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	(1) Real and Reactive Power Capability assessment. (2) Assessment of Reactive Power Control Capability as per CEA Technical Standards for Connectivity (3) Model Validation and verification test for the complete Generator and Excitation System model including PSS. (4) Model Validation and verification of Turbine/Governor and Load Control or Active Power/ Frequency Control Functions. (5) Testing of Governor performance and Automatic Generation Control.	Individual Unit of rating 100MW and above for Coal/lignite, 50MW and above gas turbine and 25 MW and above for Hydro.
Non synchronous Generator (Solar/Wind)	(1) Real and Reactive Power Capability for Generator (2) Power Plant Controller Function Test (3) Frequency Response Test (4) Active Power Set Point change test. (5) Reactive Power (Voltage / Power Factor / Q) Set Point change test	Applicable as per CEA Technical Standards for Connectivity.
HVDC/FACTS Devices	(1) Reactive Power Controller (RPC) Capability for HVDC/FACTS (2) Filter bank adequacy assessment based on present grid condition, in consultation with NLDC. (3) Validation of response by FACTS devices as per settings.	To all ISTS HVDC as well as Intra-State HVDC/FACTS, as applicable

A.11.5 In accordance with above, Generators and HVDC/FACT owners were supposed to furnish the Testing schedule for 2025-26 by 31st October 2024.

A.11.6 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.11.7 In 73rd NRPC meeting, NRPC forum asked all Generators and HVDC/FACT owners to furnish the Testing schedule for 2024-25 and 2045-26 to NRPC/NRLDC at the earliest.

A.11.8 In view of this, a google sheet was prepared and it was requested that testing plan for 2024-25 and 2025-26 may be updated in the sheet provided at the earliest as per the requirement of IEGC 2023 and decision of 73rd NRPC meeting.

A.11.9 Representative of NHPC stated that they have received offer for testing from one vendor i.e. M/s Solvina. However, for at least two vendors are required for tendering. He requested NRLDC weather there is any other vendor which can be approached testing.

A.11.10 NRLDC representative informed that last year M/s Siemens was also engaged for PFR testing. So, NHPC may approach them. Further, he will enquire with other RLDCs about other vendors for testing and communicate accordingly in next OCC meeting.

A.11.11 MS NRPC asked Generators and HVDC/FACT owners to furnish Testing schedule for 2025-26 in the format attached at **Annexure-A.V.** to seo-nrpc@nic.in.

Decision of OCC Forum:

OCC forum asked all Generators and HVDC/FACT owners to furnish Testing schedule for 2025-26 in the format attached at Annexure-A.V. to seo-nrpc@nic.in.

A.12. Temporary Shifting of ICT-02 (RHS) to LHS to Mitigate Generation Loss due to ICT Failure (Agenda by Saurya Urja Company of Rajasthan Ltd.)

A.12.1. Representative of Saurya Urja Company of Rajasthan Ltd. (SUCRL) stated that it is currently managing a 1000 MW Solar Park at Bhadla Phase-III, which involves 500MW (RHS) connected with CTU & 500MW(LHS) connected with STU through dedicated pooling substations for evacuation of solar power generated by various Solar Power Developers (SPDs).

A.12.2. He also mentioned that SUCRL is presently facing a critical operational challenge due to the failure of two out of five 125 MVA ICTs at the LHS pooling substation, second failure occurred on 22nd April 2025. This failure has significantly affected the power evacuation capacity of the LHS Pooling substation, resulting in 125MW curtailment of solar generation due to non-availability of Transformer.

A.12.3. As an immediate mitigation step, SUCRL proposed to temporarily shift the healthy ICT-02 transformer from the RHS substation to the LHS substation so that there will be four transformers on both sides. The objective is to restore the evacuation capability for LHS-connected SPDs.

A.12.4. MS, NRPC asked when did these transformers of LHS Pooling substation failed and what actions were taken to replace the transformers. Further, weather any other transformers were failed earlier.

A.12.5. SUCRL representative stated that first transformer failed on 7th July, 2024 and second failure occurred on 22nd April 2025. First transformer is currently being repaired in Chennai. It is expected to be delivered by July end. However, due to transportation challenges in the rainy season it may be delayed. Second transformer has been sent for repairs. Previously one transformer was failed on the RHS side in 2021 and its loading was managed through other four transformers. Subsequently another transformer was failed on the RHS side in 2022. At that time one transformer was arranged with the help of SPDs. This time also availability of spare transformer was explored. However, no spare transformer is available.

A.12.6. MS, NRPC asked why any spare transformer is not available with SUCRL. SUCRL representative replied that spare transformer available with SUCRL which was recently shifted to another SUCRL plant where one transformer was failed recently. This spare transformer is likely to be available by June end.

Further one more spare transformer is being procured by SUCRL to avoid such situations.

A.12.7. MS, NRPC asked views of NRLDC, CTU, UPPCL and other members of the OCC forum on the proposal of SUCRL.

A.12.8. NRLDC representative highlighted following issues with temporary shifting proposed by Saurya Urja Company:

i. With shifting of one transformer from RHS side to LHS side, the reliability on RHS side would reduce as only four transformers would be available instead of five. The comments from beneficiary (UPPCL) may be sought as the reliability of their share would be compromised.

ii. There has been history of failure of transformers of Saurya Urja Company and accordingly, measures need to be taken to review the specifications of transformers as transformers of other nearby RE plants/ Solar parks are not failing. Shifting of transformer from RHS side would lead to continuous full loading and overloading (in case of MVAr injection), therefore existing 4 ICTs may fail as there would be high ambient temperature in next 25-30 days also and ICTs would be stressed.

iii. There is severe issue of low voltages in Northern grid during high demand months of May-Sep months and there is reactive power support requirement from available resources. In case transformer capacity on RHS side is only 500MVA and generation that is connected is 500MW, there would be no room for reactive power support. As per CEA technical standards for connectivity to grid, 33% reactive power support (167MVAR) is required at Point of Interconnection which will be 220kV Bhadla (PG) bus.

iv. As spare transformer was transferred recently to some other location, same can be made available at Saurya Urja end in June 2025 that is by next month, measures may be taken for ensuring availability of transformer at LHS side so that RE curtailment is minimised.

A.12.9. CTU representative stated that shifting of transformer from RHS to LHS would hamper the reliability on the RHS side and it may also cause cascade tripping of all transformers when transformers get overloaded during the peak time. He further mentioned that as there is history of frequent failure of transformer of SUCRL, it is prudent to devise a long term solution like installing a bus sectionalizer to connect RHS and LHS sides in case of contingency.

A.12.10. SUCRL representative mentioned that in 195th OCC, SUCRL has proposed for keeping bus coupler breaker open to reduce fault current at SUCRL end. OCC forum denied the request of SUCRL for opening of bus coupler breaker for six months and requested SUCRL to rope in the transformer manufacturer to get the transformer design reviewed. Subsequently, as precautionary measure SUCRL had installed additional protection equipment's on the RHS side. As a result of this no transformer failures happened in last two years. On the LHS side voltage

profile had affected the health of the transformer earlier. However, recently voltage profile has improved on the LHS side. Further, a study was carried out through CPRI to address the failure of transformers. In this study it was found that most of the issues were addressed in the specification of transformers published by CEA in 2021. However, these guidelines were not available in 2017-18 when SUCRL had procured the transformers.

A.12.11. Representative of UPPCL stated that shifting of transformer may be allowed only if no other alternative is available.

A.12.12. Representative of Adani Green Energy and ACME Solar stated that in case of shifting of transformer from LHS to RHS, reliability would be compromised only 2 to 3 hours during peak solar hours. For these 2-3 hours generation may be restricted.

A.12.13. ED, NRLDC stated that it would not be prudent to put 500 MW generation at risk to avoid the loss of 125 MW during peak hour.

A.12.14. CTU representative suggested that possibility implementation of SPS below 220kV level in solar hours may be explored if the shifting is allowed.

A.12.15. NRLDC representative stated that the suggested SPS would be at plant level and 33 kV bus of all ICTs would have to be connected for implementation of the said SPS.

A.12.16. Representative of ACME Solar stated that at present 33kV bus is not connected. Further, it is practically not feasible to connect 33 kV bus due to existing metering arrangement.

A.12.17. MS, NRPC stated that RE generation loss is not desirable. At the same time the concerns raised by NRLDC and CTU regarding reliability issues in the proposed shifting arrangement also need to be taken into consideration. Therefore, he advised SUCRL to expedite the ICT which is being repaired.

Decision of OCC Forum:

OCC forum deliberated various aspects of the proposed shifting arrangement and other feasible solution to avoid RE generation loss. Since there was no consensus among the members of the forum, OCC forum advised SUCRL to expedite the ICT which is being repaired to minimize the RE generation loss.

A.13. Intraday Downward Schedule Revision Constraint in ISGS (Agenda by TPDDL)

A.13.1. EE, NRPC informed that TPDDL has submitted that with the implementation of the amendment to Regulation 49 of the Indian Electricity Grid Code (IEGC), TPPDL is facing serious challenges in maintaining demand-supply balance efficiently, especially during sudden intraday weather events as the revised provisions now restrict DISCOMs from revising schedules downward post 14:30 hrs on D-1 unless scheduled quantum is above the respective share of the MTDL.

A.13.2. TPDDL representative mentioned that the amendment has led to significant operational challenges. It restricts the real-time flexibility of utilities to manage sudden demand fluctuations, especially during unexpected weather events. As thermal plants are often the only dispatchable option during such situations, curtailing their ramp-down flexibility severely limits balancing options.

A.13.3. NRLDC representative submitted following comments:

i. As per the first amendment of IEGC-23, the beneficiaries are not allowed for downward revision in requisition on D-day in case the requisition on D-1 day before 14:30 hrs for D day is below their MTL share in a generating station.
ii. During the day of operation (D-day), no downward revision in requisition shall be permitted in any time block where the beneficiary's requisition exceeds its MTL share, notwithstanding the fact that the generating station's schedule is above the technical minimum limit.
iii. The restrictions are placed are per the first amendment to IEGC-2023.

A.13.4. MS, NRPC stated that as the scheduling is done as per the relevant CERC regulations, TPDDL may approach CERC for amendment in the relevant CERC regulations.

Decision of OCC Forum:

OCC Forum noted the concerns raised by TPDDL and forum advised TPDDL to approach CERC for amendment in the relevant CERC regulations.

A.14. Constraint in achieving the ram rate scheduled by UPSLDC (Agenda by Khurja STPP)

A.14.1. EE(O), NRPC informed that Khurja STPP has submitted that Khurja Unit's, 1% of the MCR Load is 92.32MW/block, which mean that unit can ramp up or down by 92.32MW in 15 min time block. For this ramp rate the block average load achievable is 46MW approximately. However, in current Load scheduling with UPSLDC they are getting 92.32MW as average load during ramp-up or down in every block instead of 46MW. To achieve 92.32MW as average load in each block the machine has to increase/decrease load by approximately 140MW which is very high. This high quantum of Load change in a 15-min time block is not desirable for safe and sustainable operation of the unit. The high rate has adverse effect on boiler and turbine due to high thermal stress as well as repeated expansion and contraction which may lead to deterioration of boiler tube life, LP turbine last stage blades, Turbine driven feed pumps and all other major equipment's and has also commercial implications in terms of UI/OI as per DSM regulation.

A.14.2. Representative from Khurja STPP was not present in the meeting.

A.14.3. Representative from NRLDC stated that for the ISGS stations for which scheduling is done by NRLDC ramp-up or ramp-down schedule for the first block is given as half of the ramp rate of the generating station as per relevant CERC regulations.

A.14.4. Representative of UPSLDC stated that in UP all generating stations are given same ramp-up or ramp-down schedule for all blocks as there is no provision in the UPERC regulations for different ramp-up or ramp-down schedule in different blocks.

A.14.5. MS, NRPC stated that the concerns raised by Khurja STPP is genuine. He further mentioned that since the scheduling is done by UPSLDC as per the relevant UPERC regulations Khurja STPP may approach UPERC for resolution of their concerns.

Decision of OCC Forum:

Forum noted the concerns raised by Khurja STPP advised Khurja STPP to approach UPERC for resolution of their concerns.

A.15. Table Agenda - Utilisation of dynamic capability of SVCs and STATCOM to maintain GRID voltage (Agenda by Powergrid NR-2)

A.15.1. Powergrid NR-2 representative submitted that SVCs and STATCOM have been installed to provide dynamic stability to GRID during extreme conditions. SVC are in service at Ludhiana (+600-400MVAR) and New Wanpoh and STATCOM (+/-200MVAR) is in service and most of the period, their full capacity is consumed to maintain GRID voltage and there will be no dynamic compensation in case of any GRID instability.

A.15.2. NRLDC representative highlighted that the set points of these devices are kept for optimal grid operation such as SVC high set point of Ludhiana is 412kV i.e. SVC will absorb MVAR when voltage at Ludhiana bus crosses 412kV. Further, as Ludhiana bus has high fault level, there is minimal impact of support provided from SVC. Reactive energy charges are also payable to pool by concerned entity having connection with ISTS point when voltage exceeds 1.03 p.u. and there is MVAr injection from low voltage level. Similarly, SVC at New Wanpoh is injecting MVAr to support voltages in Kashmir valley area during winter months which are extremely low due to non-availability of capacitors at DISCOM level.

A.15.3. He further mentioned that NRLDC has continuously been asking states to take necessary steps for reactive power management in previous meetings also so that reactive power drawl from ISTS is minimized.

A.15.4. MS, NRPC asked states to take necessary steps for reactive power management so that dynamic reserve of SVC/STATCOM remains available.

Decision of OCC Forum:

OCC forum asked states to take necessary steps for reactive power management so that dynamic reserve of SVC/STATCOM remains available.

A.16. Table Agenda - Increase in fault level at 400/220KV Substation Ludhiana and Moga Substations (Agenda by Powergrid NR-2)

A.16.1. Powergrid NR-2 representative submitted that on 02.05.2025 at 00:00:01:826 Hrs, in 220KV Shanewal ckt-1 of Ludhiana Substation, LBB operated due to a blast in 214 bay CB resulting in tripping of 220KV Bus 2. Fault current was above 40KA which persisted for about 250 msec.

A.16.2. He further mentioned that during Bus fault, following abnormalities observed:

i. Huge spart was observed at the terminals of earth mat
ii. CB Air pipes damaged in 02 number nearby CBs
iii. FF Water pipes installed nearby damaged

A.16.3. He informed that there are 09 Nos. of 220kV lines and 04 no. of ICTs at Ludhiana. Further, there are 08 Nos. of 220kV lines and 04 no. of ICTs at Moga Substation.

A.16.4. In view of the above, he proposed that as a temporary measure, both 220KV Bus 1 & 2 may be kept isolated by keeping 220KV Bus Coupler CB open at Ludhiana and Moga Substations.

A.16.5. NRLDC representative stated that NRLDC is already submitting the issue of high fault level at various substations in NR including Ludhiana and Moga in their quarterly operational feedback report to CTUIL/CEA-PSPA-I. June-Sep months are high demand months in Punjab state and bus split operation as per proposal from POWERGRID may compromise reliability.

A.16.6. NRLDC representative stated that POWERGRID and PSTCL may jointly study the impact in fault-level relief of bus split operation at these substations, operational issues with bus split and loading scenario of 400/220kV ICTs at these substations as it will impact ATC/TTC of Punjab state control area. Further, CTUIL may also study for requirement of series bus reactors/ series line reactors in this area or other measures for fault level control.

A.16.7. MS, NRPC asked Powerrgid, PSTCL and NRLDC to jointly study the bus split operation at Ludhiana and Moga Substations. Further, he asked CTU to conduct study for necessary measures for fault level control at these substations.

Decision of OCC Forum:

OCC forum asked Powerrgid, PSTCL and NRLDC to jointly study the bus split operation at Ludhiana and Moga Substations. Further, forum asked CTU to conduct study for necessary measures for fault level control at these substations.

A.17. Table Agenda - Rectification of the breaker and charging of the 220kV Sunam (PS)-Patran (indiGrid) Circuit (Agenda by Punjab SLDC)

A.17.1. Representative of Punjab SLDC submitted that the 220kV Sunam(PS)-Patran(IndiGrid) Circuit was discharged (Forced outage) on dated 13.08.2024 at 13:30hrs, due to problem/abnormal sound of circuit breaker at 400kv Patran end (IndiGrid). The matter was taken up with IndiGrid telephonically many times and

communicated to them about the critical importance of the Transmission Line for the upcoming paddy season vide email dated 21.04.2025 and also requested them to restore the Transmission line (PSTCL) at the earliest. In response to this, Punjab SLDC was informed that arrangement of new Circuit Breaker was being done by them.

A.17.2. The LIL0 arrangement of Sunam (PS)- Mansa (PS) S/C at 400kV Patran was done to de-load 220kv Patran (IndiGrid)-Patran (PS) D/C and safe evacuation of power from 400kv Patran after installation of third 400/220kv, 500MVA ICT. The third 400/220kv, 500MVA ICT has been installed at 400kv Patran (IndiGrid) in order to make them N-1 compliant. The non-availability of 220kV Sunam (PS)- Patran (IndiGrid) S/C for the upcoming paddy season will overload 220kv Patran (IndiGrid)-Patran (PS) D/C and tripping of these circuits may lead to blackout at the station. The Paddy season in the Punjab Control Area is approaching and the demand is also rising, the charging of the above said Circuit is very critical in order to meet the demand in the Punjab Control Area.

A.17.3. Representative of Punjab SLDC requested that IndiGrid may be asked to rectify its breaker and charge the 220kV Sunam (PS)-Patran (indiGrid) Circuit at the earliest before paddy (1st of June).

A.17.4. Representative from IndiGrid informed that they have procured new circuit breaker and the failed Circuit Breaker at 400kv Patran S/s (IndiGrid) would be replaced by first week of Jun’25.

A.18. Table Agenda - Renewal of the maintenance and support contract for PSS/E use license (Agenda by UPSLDC)

A.18.1. Representative of UPSLDC informed that presently, PSS/E software of M/s Siemens is used for power flow studies by UPSLDC in line with NRLDC and other NR states for coordinated base case. In 2019, NRLDC started the process for renewal of AMC of PSS/E software on behalf of all NR states which was also discussed in 155th and 161st OCC meetings. AMC of PSS/E software available in UPSDLC is valid up to December 2025.

A.18.2. Therefore, it is requested to discuss at forum level with NRLDC and other NR users to start the process of renewal of AMC of PSS/E software.

A.18.3. NRLDC representative stated that NLDC is responsible for procuring and renewing contract of maintenance and support of PSS/E user licenses for all RLDCs and NLDC. Talks between NLDC and vendor SIEMENS are underway and price negotiation is being done. Incase NR states wish to renew maintenance and support contract for PSS/E Users License at same rate as GRID-INDIA, then same may be intimated to NLDC for further communication to SIEMENS. Payment can be made directly from SLDC side to M/S SIEMENS.

A.18.4. MS, NRPC agreed with NRLDC and suggested SLDCs of NR may renew PSS/E users License at same rate as GRID-INDIA.

Decision of OCC Forum:

OCC forum agreed that GRID-INDIA may request SIEMENS that they renew PSS/E Users License at same rate as GRID-INDIA for SLDCs also for next renewal cycle. Thereafter, each SLDC can engage with SIEMENS based on their requirement on individual payment basis.

A.19. Table Agenda - Shutdown Approval of Multiple Elements at Baghpat PG for Urgent PD Rectification (Agenda by Powergrid NR-1)

A.19.1. Powergrid representative apprised forum that Partial Discharge (PD) has been observed in the system and must be addressed on priority. With the increasing system load, there is a heightened risk of escalation in PD levels, potentially resulting in equipment faults or failure. A timely and planned shutdown is, therefore, imperative to mitigate these risks and avoid major outages.

A.19.2. Powergrid representative informed that as per the decision taken in the meeting held by MS, NRPC on 02.04.2025, Powergrid had approached CEA for safety clearance. CEA replied that the proposed interim arrangement is under the scope of UPPTCL. As there is no change in the bay elements consent of CEA is not required.

A.19.3. Representative of NRLDC stated that the shutdown may be allowed subject to the consent of UP for load management.

A.19.4. Representative of UPSLDC stated that due to the peak summer season, they can not give consent for the shutdown. The shutdown may be planned in July.

A.19.5. Representative of Powergrid mentioned that the shutdown may be provided for three days if the system permits.

A.19.6. MS, NRPC asked Powergrid to plan the shutdown in July in consultation with UP.

Decision of OCC Forum:

Forum asked POWERGRID to plan the shutdown in July in consultation with UP.

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

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

NRLDC representative presented the following grid highlights for month of April’2025:

Demand met details of NR

S.No	Constituents	Max Demand met (in MW)	Date & Time of Max Demand met	Max Consumption (in MUs)	Date of Max Consumption	Average Demand met (in Mus)
1	Chandigarh	322	30.04.25 at 15:00	6.4	30.04.25	5.0
2	Delhi	6014	28.04.25 at 15:30	122.3	28.04.25	104.4
3	Haryana	9937	17.04.25 at 23:45	213.6	30.04.25	173.7
4	H.P.	1818	04.04.25 at 07:45	37.1	26.04.25	33.2
5	J&K	2844	04.04.25 at 07:00	57.6	04.04.25	54.1
6	Punjab	11276	30.04.25 at 07:00	217.6	30.04.25	175.5
7	Rajasthan	15730	30.04.25 at 10:00	329.5	30.04.25	294.7
8	UP	26278	25.04.25 at 21:32	505.1	25.04.25	434.7
9	Uttarakhand	2305	24.04.25 at 20:00	50.1	30.04.25	43.9
***10**	**Northern Region**	**69880**	**30.04.25 at 21:00**	**1524.6**	30.04.25	**1319.3**

*As per SCADA

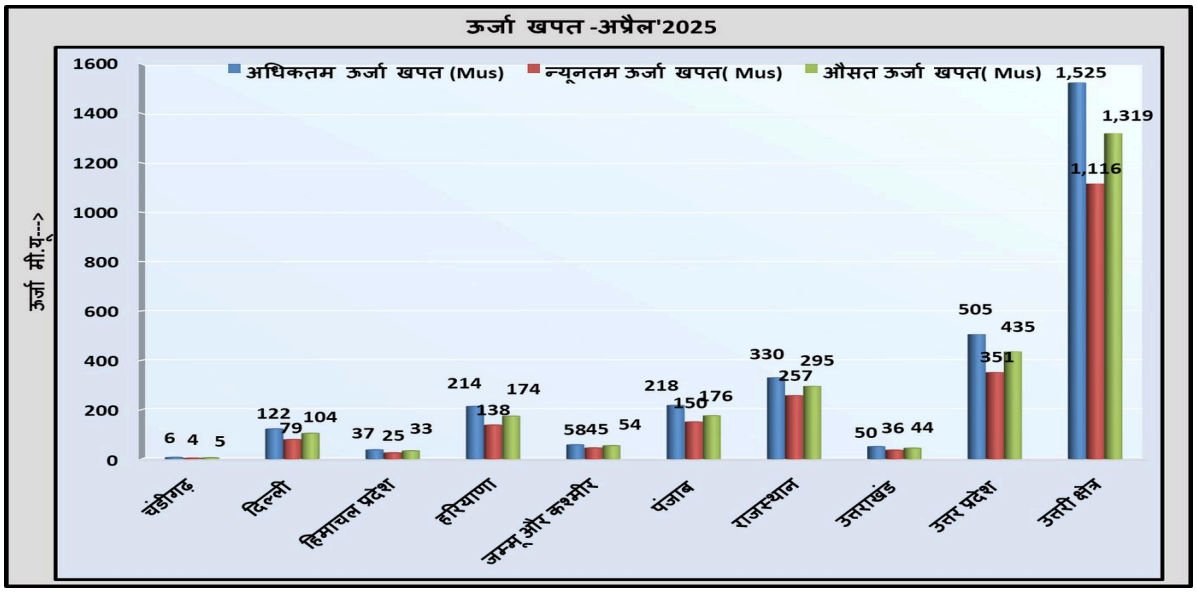
- In Apr’25, the Maximum energy consumption of Northern Region was 1525 MUs on 30th Apr’25 and it was 12.08 % higher than Apr’24 (1360 MU 29th Apr’24)

- In Apr'25, the Average energy consumption per day of Northern Region was 1319 MUs and it was 6.27 % higher than Apr'24 (1214 MUs/day)
- In Apr'25, the Maximum Demand met of Northern Region was 69880 MW on 30th Apr'25 @21:00 hours (as per SCADA data) as compared to 62884 MW on 25th Apr'24 @22:00hours.

Comparison of Average Energy Consumption (MUs/Day) of NR States for the Apr'24 vs Apr'25

क्षेत्र/राज्य	अप्रैल- 2024	अप्रैल- 2025	% अंतर
चंडीगढ़	4	5	14.5%
दिल्ली	95	104	10.2%
हिमाचल प्रदेश	31	33	5.6%
हरियाणा	156	174	11.6%
जम्मू और कश्मीर	50	54	7.5%
पंजाब	154	176	14.2%
राजस्थान	271	295	8.7%
उत्तराखंड	43	44	1.1%
उत्तर प्रदेश	436	435	-0.4%
उत्तरी क्षेत्र	**1241**	**1319**	**6.3%**

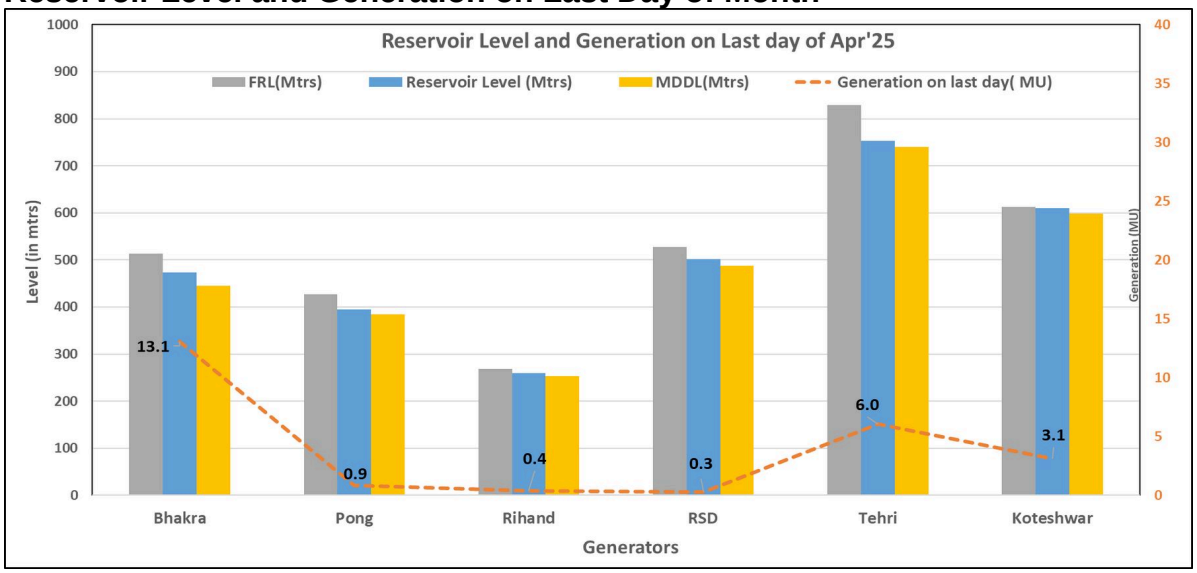
Energy Consumptions



Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Apr'25	50.004	50.487 (06.04.25 at 13:03:00 hrs)	49.424 (21.04.25 at 19:04:20 hr)	5.16	75.64	19.20
Apr'24	50.00	50.43 (18.04.24 at 18:04:20 hrs)	49.55 (06.04.24 at 11:24:10 hrs)	5.3	78.6	16.2

Reservoir Level and Generation on Last Day of Month



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

Year	Bhakra	Pong	Rihand HPS	RSD	Tehri	Koteshwar
2025	474	394	259	502	754	610
2024	477	404	256	506	744	603
Diff (in m)	**-3.4**	**-9.7**	**2.8**	**-3.9**	**9.2**	**7.9**

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

B.2 State-wise transmission constraints anticipated in summer 2025

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.

In Apr 2025, maximum demand met in Northern region in solar hours and non-solar hours was 63826MW (forecast was 63125MW) and 70725MW (forecast was 66430MW) respectively. During the May and June 2025, following is the forecast:

Month	Max. forecasted demand during solar hours (06-18 hrs) (MW)	Max. forecasted demand during non- solar hours (18-06 hrs) (MW)
May	95429	89394
June	98512	90504

Further, as per CEA LGBR forecast for 2025-26:

Month	Peak			
	Demand	Availability	Surplus(+)/ Deficit(-)	
	(MW)	(MW)	(MW)	(%)
Apr-25	69,422	80,010	10,588	15.3
May-25	93,307	94,820	1,513	1.6
Jun-25	99,574	99,210	-364	-0.4
Jul-25	95,253	98,270	3,017	3.2
Aug-25	90,471	100,140	9,669	10.7
Sep-25	88,941	97,030	8,089	9.1

When demand of Northern region will increase towards these levels, a number of transmission constraints are expected to be seen in the grid. Transmission elements to overcome few of such constraints are under implementation and need to be expedited.

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

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

NRLDC representative requested PSTCL to share:

- Status of commissioning of 400/220kV Dhanansu ICT-2.
- ATC/TTC assessment for paddy 2025 which becomes important as Punjab is configured as separate bid area.
- Requirement for SPS at 400/220kV Ludhiana(PG) based on anticipated loading during paddy 2025.
- Measures taken for minimising outages of Talwandi Saboo thermal generating units

Punjab SLDC representative informed that ICT at Dhanansu(PS) is planned to be commissioned by 30th May 2025. He further stated that with the commissioning of new ICT at Dhanansu(PS), ATC of Punjab will also increase by approx. 300 MW.

Punjab SLDC agreed to share their latest study w.r.t. ATC enhancement for paddy 2025 with NRLDC at the earliest.

It was further informed from Punjab side that communication have been sent from Punjab SLDC/ PSPCL side to Talwandi Saboo Thermal plant for minimizing outages.

NRLDC representative suggested that Punjab SLDC may also convene separate meeting with all state generators including IPP for their preparations for paddy 2025.

Haryana:

During 231 OCC meeting, NRLDC representative requested HVPN regarding:

- Action plan for N-1 non-compliance being observed in real-time at 765/400kV Bhiwani, 400/220kV Panipat (BBMB), Kabulpur, Hisar ICTs by Haryana SLDC.
- SPS implementation till ICT capacity augmentation.
- Measures required for minimising MVAR drawl from ISTS to avoid low voltages.

It was mentioned that Haryana SLDC representatives had visited NRLDC on 13.05.2025 for discussion on SPS proposal at different HVPNL substations. Details mentioned in B.3 of MOM.

It was also mentioned that 220kV Hisar (PG) - Hisar (IA) reconductoring needs to be expedited by POWERGRID.

POWERGRID representative stated that works are in progress however, timeline will be shared through email.

NRLDC representative stated that POWERGRID should have carried out the reconductoring works before summer as it would be difficult to facilitate long shutdowns during this high demand period.

Rajasthan:

NRLDC representative presented constraints in Rajasthan network:

Constrained location	Status as available with NRLDC
N-1 contingency of 3*315=945 MVA ICT at Bhiwadi(PG)	Additional 500MVA ICT approved in 29 CMETS on 17.05.2024
N-1 contingency of 2*315+500=1130 MVA ICT at Bassi(PG)	Additional 500MVA ICT has been approved. Same is anticipated by 14.12.2025.
N-1 contingency of 315+500=815 MVA ICT at	Additional 500MVA ICT has been approved in

Neemrana(PG)	36 NR CMETS held on 15.01.2025.
N-1 contingency of 2*500=1000 MVA ICT at Jaipur South(PG)	Additional 500MVA ICT has been approved in 36 NR CMETS held on 15.01.2025.
N-1 contingency of 2*315+500=1130 MVA ICT at Sikar(PG)	ICT Augmentation may be taken up in discussion with CTUIL/RVPNL.
N-1 contingency of 3*315=945 MVA ICT at Kankroli(PG)	ICT-4 has been approved and is expected to be commissioned by 22.09.2025.
N-1 contingency of 2*315=630 MVA ICT at Kotputli(PG)	Augmentation by 400/220 kV 500 MVA (3rd) ICT at Kotputli (PG) is expected by 31.12.2025
N-1 contingency of 2*315=630 MVA ICT at Deedwana(RVPN)	As per latest status shared by Rajasthan SLDC order for 10 no. ICT has been placed recently. First ICT is expected at Jaisalmer-II in Apr'25. All others expected by Sep'25. SPS has been implemented as temporary measure for some of the stations such as Chittorgarh (RVPN), Ajmer (RVPN), Merta (RVPN), Bikaner (RVPN), Jodhpur (RVPN), Suratgarh(RVPN), Ratangarh(RVPN)
N-1 contingency of 3*250+315=1065 MVA ICT at Heerapura(RVPN)	
N-1 contingency of 3*315 =945 MVA ICT at Chittorgarh (RVPN)	
N-1 contingency of 2*315 =630 MVA ICT at Ajmer (RVPN)	
N-1 contingency of 2*315 =630 MVA ICT at Merta (RVPN)	
N-1 contingency of 2*315 =630 MVA ICT at Bikaner (RVPN)	
N-1 contingency of 2*315 =630 MVA ICT at Jodhpur (RVPN)	
N-1 contingency of 2*315=630 MVA ICT at Suratgarh(RVPN)	
N-1 contingency of 3*315=945 MVA ICT at Ratangarh(RVPN)	
N-1 contingency of 1*500+1*315 =815 MVA ICT at Bhilwara (RVPN)	

RVPNL representative informed that 08 number of ICTs i.e, Ramgarh, Jodhpur, Bhadla, Bikaner, Ajmer, Merta, Babai and Kalisindh are planned to be commissioned by September 2025. ICT at Heerapura will be commissioned in near future. For Ratangarh & Chittorgarh, process is at bidding stage and for Deedwana, feasibility study is going on.

NRLDC representative requested RVPNL to expedite the commissioning of ICTs at N-1 non-compliant stations. Further, NRLDC raised concern over 750MW loading limit on in 400kVBhadla-Bikaner D/C and requested RVPNL to apprise the status of work of upgradation of terminal equipments in the line.

RVPNL representative informed that bid for upgradation of terminal equipments and maintenance will be opened on 20th April.

NRLDC requested Rajasthan to share measures taken for:

- Bid opening for upgradation of terminal equipment in different lines and maintenance for improvement of line condition of 400kV Bhadla(RVPN)-Bikaner(RVPN) D/C line
- High MVAr drawal observed by intra-state network of Rajasthan at number of substations and poor power factor at various 400/220kV substations such as Bikaner, Kankani, Barmer, Jodhpur, Merta etc. (power factor of 0.55 observed at 400/220kV Bikaner during solar hours)

Further, tripping of 400kV Bhadla(RJ)-Bikaner(RJ) D/C in last one year were presented:

S. No.	CKT ID	Outage Date & Time		Revival Date & Time	
1	400kV Bhadla(RJ)-Bikaner(RJ) Ckt-1	08-05-2024	13:06	09-05-2024	14:36
2		11-05-2024	03:59	11-05-2024	10:22
3		04-07-2024	14:18	04-07-2024	15:53
4		05-07-2024	16:12	05-07-2024	20:05
5		11-07-2024	22:27	12-07-2024	09:42
6		23-11-2024	22:11	24-11-2024	00:15
7		07-04-2025	12:33	08-04-2025	08:51
8		01-05-2025	13:04	01-05-2025	19:37
9	400kV Bhadla(RJ)-Bikaner(RJ)Ckt-2	08-05-2024	16:29	09-05-2024	14:39
10		23-11-2024	22:11	24-11-2024	00:25

11		07-04-2025	12:24	07-04-2025	20:45
12		08-04-2025	18:19	09-04-2025	08:58

RRVPNL representative informed that:

- Approvals have been accorded, however bid process is under progress. Bid floated for work for improvement of condition of 400kV Bhadla-Bikaner D/C and would be awarded by 30.05.2025. Terminal equipment upgradation works are expected to be awarded by next month.
- Supply of 100no. total 5.43MVAr capacitors have begun and are now being received at site. Further, order has been placed for 5.43MVAr of capacitor banks recently for which supply will begin Sep 2025 onwards.
- Proposal of 100MVAr capacitor banks through PSDF funding are under development.
- Proposal of nearly 1000MVAr MVAR capacitor banks have been received from DISCOMS which are being studied, and would be shared for PSDF approval.

Uttar Pradesh:

POWERGRID was asked to provide status of commissioning of 400/220kV Allahabad(PG) ICT.

POWERGRID representative stated that around 4-5 months would further be required for commissioning of 500MVA ICT-4 at Allahabad.

NRPC, UP SLDC and NRLDC representatives expressed concern on the same and POWERGRID was asked to ensure healthiness of SPS installed at 400/220kV Allahabad(PG)

UP SLDC was asked to share measures being taken for relieving loading of highly loaded 220kV lines such as RaiBarelli-Bachrawan, Saharanpur-Saharanpur, RaiBarelli-Unchahar, Allahabad-Jhusi, Kanpur-Rania, Meerut-Modipuram etc. by UPPTCL

UP SLDC representative informed that monitoring of loading of 220kV lines is being done at SLDC and STU level (Zonal offices) and necessary actions are being taken in real-time and as of now no major issues are seen. However, with increase in demand, several pockets may observe issues.

Further, due to forced outage of one ICT at 400/220kV Jaunpur, radial supply is being provided as only one 315MVA ICT is available. Moreover, some load has been shifted to 400/220kV Sahupuri.

NRLDC representative expressed concern on the non-implementation of SPS at 400/220kV Jaunpur S/s. No firm timeline could be provided from UPPTCL side.

UP SLDC stated that there is high drawl by Uttarakhand and as a result high loading of 220kV Saharanpur-Saharanpur line is seen especially when generation is low at Khodri. It was mentioned that there has also been some connectivity changes in Himachal area due to which there is high power flow from UP to Uttarakhand to HP.

HP SLDC agreed to check for the same.

NRLDC requested UP SLDC to share their concern in detail with NRLDC, Uttarakhand SLDC and HP SLDC. Thereafter, a separate meeting may also be convened on the matter, if required.

Uttarakhand:

During 231 OCC meeting, PTCUL representative was asked to provide status of new ICT procurement at 400/220kV Kashipur and capacitor commissioning expected before summer 2025.

PTCUL representative stated that few capacitors which were damaged were revived, but new capacitors were not commissioned. No update on procurement of new 400/220kV Kashipur ICT.

In view of above transmission constraints for all states, NRLDC requested that:

- All SLDCs to take actions such that loading of ICTs and lines in their control area are below their N-1 contingency limits.
- While requisitioning power from various sources, states should take care to limit their scheduled drawl as well as actual drawl in real time within the Available Transfer Capability (ATC) limits assessed by SLDC and NRLDC.
- SLDCs also need to ensure that their drawl from grid remains within these limits during real-time operation. In the past, it has been observed that some states have drawn power beyond their ATC limits as assessed by SLDCs and NRLDC.
- Further, all SLDCs need to make sure that loading of 220kV and below voltage level intrastate lines remain within safe limits during the high demand season.

Further, it may be noted that CERC vide their order dated 29.09.2023 has granted approval of "'Detailed Procedure for Allocation of Transmission Corridor for Scheduling of General Network Access and Temporary General Network Access under Central Electricity Regulatory Commission (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022" which requires SLDCs to submit network data as well as PSSE basecases on M-12, M-6, M-1 basis. The monitoring of submission of these data by SLDCs is being done in OCC meetings on monthly basis where response of some of the states needs improvement.

December 2024 Mails

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

January 2025 Mails

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

February 2025 Mails

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

March 2025 Mails

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

Submitted with one month delay

April 2025 Mails

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

May 2025 Mails

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

It was mentioned that separate workshop was also carried out for Chandigarh SLDC for all topics including PSSe basecase preparation in month of May 2025. Chandigarh, Delhi, Haryana, Rajasthan and Uttarakhand SLDCs were requested to timely share basecases as per CERC approved procedure.

ATC/TTC limits of states for the month of June 2025 are attached as Annexure-B.I of agenda. Utilities were requested to share any comments with NRLDC at the earliest.

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

B.3 Expediting SPS implementation before summer 2025:

NRLDC representative stated that very high demand in Northern region is expected during the month of May-Sep months. During the high demand period, it is observed that often the transmission system remains heavily loaded and may become N-1 non-compliant on several occasions.

To overcome this N-1 non-compliance, planning for new transmission system is being carried out by CTUIL and CEA. However, it is observed that there are certain occasions when the transmission elements approved will take considerable time for commissioning. Due to this delay, the existing transmission system may get overloaded.

To address the issue and avoid major contingency due to cascading tripping, SPS are being designed to minimize impact of outage of one or more transmission elements. As per clause 29.14 of IEGC 2023,

"NLDC, RLDCs, SLDCs, CTU, STUs or users may identify the requirement of System Protection Schemes (SPS) (including inter-tripping and run-back) in the power system to operate the transmission system within operating limits and to protect against situations such as voltage collapse, cascade tripping and tripping of important corridors/flow-gates. Any such SPS at the intra-regional level shall be finalized by the concerned RPC. SPS at the inter-regional and cross-border levels

shall be finalized by the NLDC in coordination with the concerned RPCs. SPS shall be installed and commissioned by the concerned users. SPS shall always be kept in service. If any SPS at the intra-regional level is to be taken out of service, the permission of the concerned RLDC shall be required. If any SPS at the inter-regional and cross-border levels is to be taken out of service, permission of NLDC shall be required."

SPS at following substations need to be commissioned before summer 2025 so as to avoid major contingency incase of outage of one or more transmission element.

- Haryana SLDC to provide feeder details to be wired under SPS

    - 765/400kV 2*1000MVA Bhiwani ICTs (two ICT section)
    - 400/220kV 450+500MVA Panipat ICTs (BBMB)
    - 400/220kV 2*315MVA Kabulpur ICTs
    - 400/220kV 3*315MVA Hissar ICTs

It was discussed that Haryana SLDC representatives had visited NRLDC on 13.05.2025 for discussion on SPS proposal at different HVPNL substations. Following was discussed in the meeting:

- 765/400kV 2*1000MVA Bhiwani ICTs (two ICT section): Required load relief is not observed with feeders proposal from HVPNL. HVPNL was asked to review the same.
- 400/220kV 450+500MVA Panipat ICTs (BBMB): Feeders identified by HVPNL are also supplying power to DTL. HVPNL and DTL to jointly discuss and converge.
- 400/220kV 3*315MVA Hissar ICTs: Feeders identified by HVPNL are also supplying power to Rajasthan and Punjab. HVPNL to discuss the feeders with RRVPNL and PSTCL also.
- 400/220kV 2*315MVA Kabulpur ICTs: Load will be shifted to 400/220kV Sonepat after LILO of Mohana-Samalkha line at Sonepat(PG). 1no. 315MVA ICT under long outage since Aug 2024. Remaining single 315MVA ICT will radially feed load.

Haryana SLDC was asked to discuss with concerned states for SPS at 400/220kV Panipat(BBMB) and Hissar ICTs. Further, additional feeders need to be identified for 765/400kV 2*1000MVA Bhiwani ICTs. NRLDC representative suggested that Haryana may bilaterally discuss with concerned states first, thereafter NRLDC may also be intimated.

NRLDC representative stated that as discussed earlier on numerous occasions, majority of 400/220kV ICTs in Rajasthan state (both interstate as well as intrastate) are N-1 non-compliant. RVPNL needs to identify feeders and discuss with POWERGRID for finalisation of SPS at interstate substations. For intrastate substations, where SPS have not been planned and implemented, the same may be taken up. List of N-1 non-compliant substations is shown below:

Constrained location	SPS Status as available with NRLDC
3*315=945 MVA ICT at Bhiwadi(PG)	Not planned
2*315+500=1130 MVA ICT at Bassi(PG)	Not planned
315+500=815 MVA ICT at Neemrana(PG)	Not planned
2*500=1000 MVA ICT at Jaipur South(PG)	Not planned
2*315+500=1130 MVA ICT at Sikar(PG)	Not planned
3*315=945 MVA ICT at Kankroli(PG)	Not planned
2*315=630 MVA ICT at Kotputli(PG)	Not planned
2*315=630 MVA ICT at Deedwana(RVPN)	Not planned
3*250+315=1065 MVA ICT at Heerapura(RVPN)	Not planned
3*315 =945 MVA ICT at Chittorgarh (RVPN)	Implemented
2*315 =630 MVA ICT at Ajmer (RVPN)	Implemented
2*315 =630 MVA ICT at Merta (RVPN)	Implemented
2*315 =630 MVA ICT at Bikaner (RVPN)	Implemented
2*315 =630 MVA ICT at Jodhpur (RVPN)	Implemented
2*315=630 MVA ICT at Suratgarh(RVPN)	Implemented
3*315=945 MVA ICT at Ratangarh(RVPN)	Implemented
1*500+1*315 =815 MVA ICT at Bhilwara (RVPN)	Implemented

NRLDC representative stated that details of feeders to be wired under SPS is yet to be received from Rajasthan SLDC.

Rajasthan SLDC/RVPN were also requested to identify feeders for SPS at pending 400/220kV POWERGRID and RVPN substations supplying power to Rajasthan. While identification of feeders it needs to be ensured that in case of SPS operation and tripping of one/two feeders, any other element should not get overloaded (no cascade tripping).

To discuss the feeders in Delhi control area to be wired under SPS, separate meeting was convened on 02.04.2025 by NRPC. Subsequently, a separate meeting was convened on 04.04.2025 between DTL, Delhi SLDC, NRPC, NRLDC and POWERGRID for finalisation of feeders, for SPS at different 765/400kV and 400/220kV POWERGRID ICTs supplying power to Delhi state control area where loading of ICTs is expected to be beyond N-1 limits during summer 2025. Vide email dated 08.04.2025, logics to be implemented in field were communicated to POWERGRID.

During 231 OCC meeting, POWERGRID representative stated that SPS has been implemented at 400/220kV Mandola and Maharanibagh and is under implementation at 765/400kV Jhatikara.

NRLDC had also received letter from NHPC side regarding evacuation of power from Parbati-II HEP through deemed T-GNA till commissioning of 400/200kV 500MVA ICT-4 at Nallagarh(PG).

Subsequently, NRLDC carried out simulation studies and following are inputs:

Major Impact on Line and ICT Loadings:

- 765/400kV ICTs at Moga: Decrease in loading by ~75 MW per ICT.
- 400kV Amritsar – Banala: Increase in loading by ~175 MW.
- 400kV Koldam – Ludhiana: Increase in loading by ~145 MW.
- 400kV Koldam – Ropar: Increase in loading by ~195 MW.
- 765/400kV ICTs at Bhiwani: Decrease in loading by ~95 MW per ICT (2 ICT section).
- 400kV Rampur – Nallagarh: Decrease in loading by ~95 MW per circuit.
- 400kV KWHEP – Wangtoo: Increase in loading by ~58 MW per circuit.

Critical Observation at Nallagarh ICTs:

The loading of 400/220kV ICTs at Nallagarh is expected to increase by approximately 33 MW per ICT.

- Considering the last year's maximum loading of ~245-250 MW per ICT, the loading is projected to reach around 280-285 MW per ICT.
- The N-1 loading of the ICTs is estimated to be around 255 MW, which indicates that the ICTs will be significantly stressed post-commissioning of Parbati-II generation.
- To mitigate potential overloading risks, implementation of a SPS is needed.

During 231 OCC meeting, POWERGRID was asked to update status of 500MVA ICT-IV at Nallagarh. Incase commissioning schedule of ICT is not expected by mid-June 2025, SPS proposal to be taken with Punjab, HP, Chandigarh and POWERGRID.

POWERGRID representative stated that ICT is expected to be commissioned by 3rd week of June 2025.

NHPC representative stated that during connectivity grant, timeline of 8th June 2025 was provided and requested POWERGRID to commission ICT by 8th June 2025.

OCC asked POWERGRID to commission 500MVA ICT-4 at Nallagarh at the earliest. It was discussed that incase SPS at Nallagarh ICT-4 does not get commissioned by 10th June 2025, proposal for SPS at Nallagarh ICTs would be taken up.

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

B.4 Actions taken based on Committee recommendation report on 17th June load loss event

On 17th June 2024, a grid event occurred at 13:53 hours in the Northern Region, leading to a substantial load reduction of approximately 16.5 GW. This event started with the tripping of both bipoles of the +/-800 kV HVDC Champa (WR) – Kurukshetra (NR) link, which was transferring 4500 MW of power from the Western Region (WR) to the Northern Region (NR). The tripping of this HVDC link triggered a

series of events. There was a sudden voltage drop across the stations in the Northern region which resulted in a significant load drop of around 16.5 GW in the Northern region. There was simultaneous reduction of around 2800 MW of RE-based generation in the Rajasthan RE complex. There was also trippings of conventional generating units leading to a generation loss of 3909 MW at the all India level. The significantly higher load loss resulted in the rise in frequency of the Indian power system from 50.03 Hz to 50.68 Hz. The load drop resulted in a rise in the voltages of stations in the Northern region. This high voltage resulted in the tripping of 18 nos. of EHVAC lines in the Northern Region on over-voltage protection. The power system was normalised after the revival of all the poles of HVDC Champa-Kurukshetra by 15:51 Hrs.

A Committee under the Chairmanship of Member (GO&D), CEA with members from CEA, IIT-Delhi, NRPC, NLDC, NRLDC, POWERGRID, SLDC Delhi & DISCOMs was set up to analyse the above-mentioned issues during which about 16.5 GW of consumer load in Northern Region got interrupted for a brief period.

The committee recommended the following remedial measures for avoiding the recurrence of such grid event for which actions taken are yet to be received from utilities:

- **Reactive Power Management (Dynamic/Static) by STU and DISCOMs**: In order to maintain voltage stability, reactive power support is desired from all grid connected utilities without leaning over each other so as to ensure minimum reactive exchange at different voltage levels.

- **Planning for dynamic reactive power sources near load centers based on load composition**: Adequate static/dynamic reactive devices may be planned at the distribution level near loads so that there is minimum drawl from reactive sources at the transmission (STU) level. The dynamic reactive power sources shall be commissioned near load centre stations based on the composition and quantum of individual load type.

- **Enhance reliability of HVDC Link**: Committee recommended POWERGRID to the followings

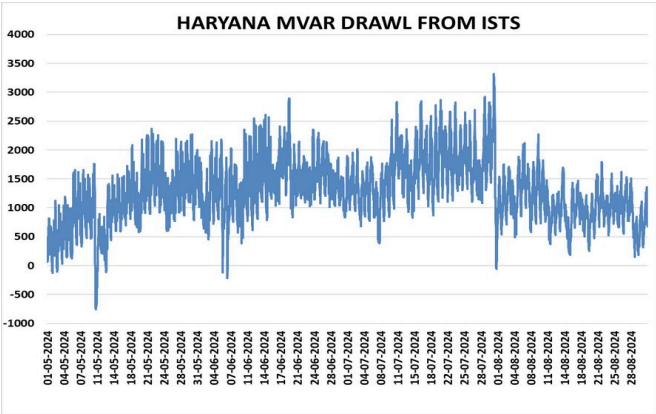
  a. Review of protection schemes to avoid frequent outages.
  b. Review of transmission line design including cross arms, jumpers, etc.
  c. Design of filter switching logic to support system voltage.

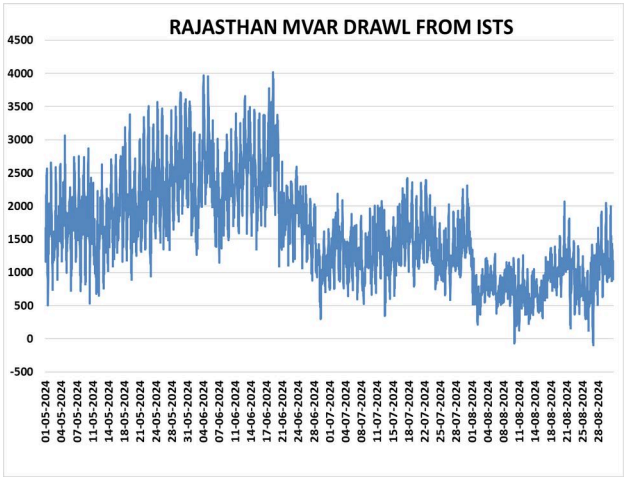
The above agenda point was also discussed in 75th NRPC Meeting held on 28 August 2024 through online mode. Forum acknowledged the sensitivity of event and directed the concerned to take appropriate actions based on the recommendations of Committee. Thereafter the agenda was also discussed in 53rd TCC and 78th NRPC meeting in March 2025.

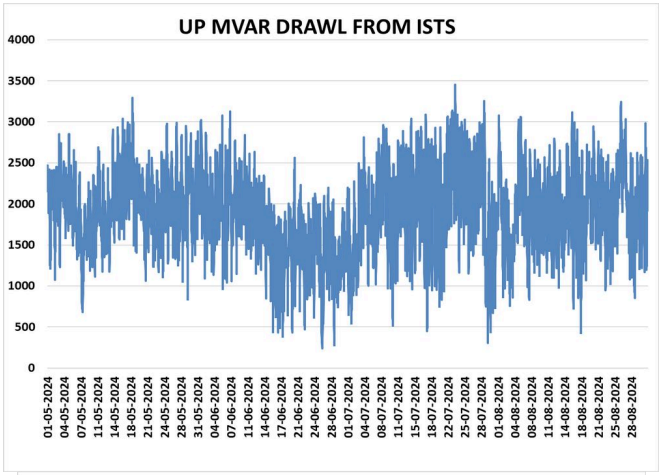
Measures for Low voltages

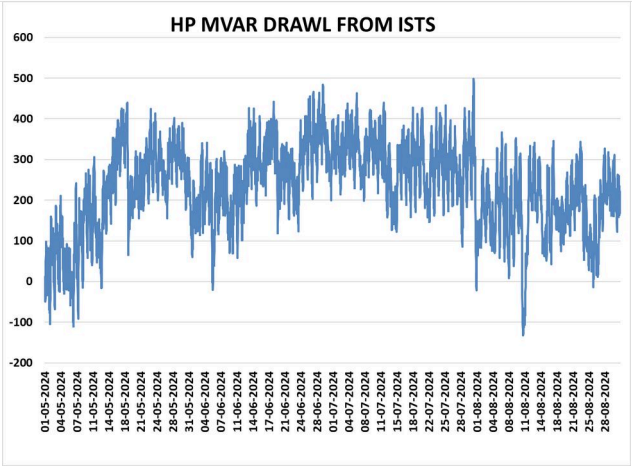
During summer months, reactive power requirement by load also increases due to increased cooling and pumping requirement. Due to lack of sufficient compensation at distribution and transmission level, huge reactive power is being drawn from ISTS network. Due to this high reactive power requirement during day-time and high loading of existing transmission lines from RE complex, low voltages are seen in the grid during afternoon time. Sample snapshot of low voltage observed in the grid during summer 2024 is shown below:

Reactive power drawl by states during May-Jul months is shown below where it can be clearly seen that there is huge MVAR drawl by some of the states such as Haryana, Rajasthan, HP and UP during these months. These huge MVAR drawl leads to low voltages in the grid especially during the day-time as there is high agricultural as well as cooling load requirement during this time.









NRLDC representative requested STUs/SLDCs/POWERGRID to provide update on the actions taken at their end based on Committee recommendations.

POWERGRID representative informed that they had availed shutdown of HVDC Champa-Kurukshetra poles last year during Sep to attend few issues that were observed in committee recommendations and assured that all identified issues have been attended.

NRLDC and NRPC representative requested that POWERGRID may submit brief report on actions taken at their end on improvement of reliability of HVDC Champa-Kurukshetra poles based on committee recommendations.

MS NRPC stated that NRPC had also formed a committee to review overvoltage settings as per committee recommendation of 17th June event. The overvoltage settings would be finalized in upcoming protection subcommittee meeting and utilities may implement those settings at the earliest.

OCC forum discussed that it seems that actions on other recommendations listed at s.no. (i) & (ii) have not been taken from STU/SLDC side. In this case, there is likelihood of low voltages in the grid again during summer 2025.

It was highlighted from NRLDC side that in case no major capacitor banks are added before summer, and as NR load is projected to rise to 98GW during this summer season, therefore there is high probability of low voltages during upcoming summer season.

NRLDC representative requested STUs/SLDCs/POWERGRID to provide update on the actions taken at their end based on committee recommendations.

POWERGRID representative informed that they have formed four team for complete review and rectification work w.r.t. issues in HVDC Chamba-Kurukshetra line.

NRLDC and NRPC representative requested POWERGRID to take necessary corrective actions for rectification of issues highlighted by committee related to clearance and design related aspects at few locations in HVDC Champa-Kurukshetra line.

Further, NRLDC also highlighted the two incidents of multiple pole tripping of HVDC Champa-Kurukshetra in March 2025 due to issues in protection, control and communication system. POWERGRID was requested to rectify the issues to avoid unwanted tripping due to maloperation of protection, control and communication system.

Regarding reactive power management issue states informed following:

- Rajasthan informed that 150 sets of capacitors to total capacity of 900MVAR are planned to be installed. Out of 150, 50 sets of capacitors have been purchases but delivery of CTs is awaited.
- HP representative informed that STU was requested to take necessary actions in this regard. No further update is received.

The concerned members were requested to provide update on the actions taken at their end in this regard.

OCC forum discussed that it seems that actions on recommendations listed at s.no. (i) & (ii) have not been taken from STU/SLDC side. In this case, there is likelihood of low voltages in the grid again during summer 2025.

It was highlighted from NRLDC side that in case no major capacitor banks are added before summer, and as NR load is projected to rise beyond 95GW during this summer season, therefore there is high probability of low voltages during upcoming summer season.

POWERGRID representative once again assured that there are no issues with HVDC Champa-Kurukshetra and it can be used at 6000MW power flow on continuous basis.

MS NRPC asked POWERGRID to submit detailed report in next one week on actions taken at POWERGRID end in last one year for improvement of reliability of Champa-Kurukshetra HVDC including the works during planned shutdown last year.

OCC forum asked all STUs and SLDC to ensure maximum reactive power support at underlying network to minimize low voltage issues during summer season. OCC forum also expressed concern that STU/SLDC were not able to share actions taken at their end on recommendations listed at s.no. (i) & (ii)

B.5 Shifting of Rihand-III to NR temporarily as agreed in 53 TCC and 78 NRPC meeting

The agenda for opening of 400kV Singrauli-Anpara line and shifting of Rihand Stage-III generating units to Northern region was discussed in 50th TCC & 74th NRPC meetings held in Raipur on 28.06.2024 & 29.06.2024 respectively. In the meeting, UP SLDC and UPRVUN expressed concern regarding possibility of major grid event in case of multiple element outage (N-2/N-3) in UP Control area. Further, NTPC expressed concern on healthiness of bus coupler at Rihand and also stated it would increase stress on Stage-1 & 2 switchyard equipments. Accordingly, forum decided that joint meeting would be convened with participants from NRPC, WRPC, CEA-PSPA I, CTUIL, NRLDC, WRLDC, NLDC, NTPC, POWERGRID, UP SLDC, UPPTCL, UPRVUN and Lanco Anpara which was convened on 09.07.2024.

Subsequently, all required SOPs were prepared and shared with all concerned. After review of SOPs, 400kV Singrauli-Anpara line was opened on 06.08.2024 to control fault levels in the complex as agreed in 1st Meeting of NRPCTP held on 24.01.2020.

After keeping the line under observation for one week and completion of works as agreed in meeting held on 09.07.2024, shifting of Rihand-III from WR to NR was carried out on 14.08.2024 with coordination with all stakeholders.

Rihand-III generation was evacuated through Northern region from 14.08.2024 to Oct 2024. Thereafter, when demand of Northern region reduced and shutdown of HVDC Rihand-Dadri was to be provided Rihand-III generation was shifted back to Western region on 04.11.2024.

Shifting of Rihand-III generation to Northern region reduced loading of 765kV Vindhaychal-Varanasi D/C, due to which NR was able to import higher power from WR without major constraint. ATC/TTC limits on WR-NR corridor and NR import were increased after shifting exercise which facilitated NR states to import higher power during summer months.

Sl No	Corridor	Time Period	TTC with Rihand-III in NR (MW)	TTC with Rihand-III in WR (MW)	Increase in TTC due to shifting of Rihand from WR to NR (MW)
1	NR Import	00-09	28400	25700	2700
		09-15	20650	20250	400
		15-16	21750	21750	0
		16-24	28400	25700	2700
2	WR->NR	00-09	24800	22350	2450
		09-15	19450	19050	400
		15-16	20550	20550	0
		16-24	24800	22350	2450

It was specifically highlighted from NRLDC side that number of meetings had to be convened last year to converge on the issue:

- 14.06.2024 between NRLDC, NLDC, UP SLDC, UPPTCL, UPRVUN, NTPC
- 220 OCC meeting held on 19.06.2024
- 50th TCC 74th NRPC meeting held on 28.06.2024 & 29.06.2024
- Joint meeting with participants from NRPC, WRPC, CEA-PSPA I, CTUIL, NRLDC, WRLDC, NLDC, NTPC, POWERGRID, UP SLDC, UPPTCL, UPRVUN and Lanco Anpara held on 09.07.2024.

Accordingly, the agenda was taken up for discussion in 53rd TCC and 78th NRPC meetings held in March 2025. TCC forum discussed that as similar demand and line loading pattern is expected when NR imports high power from WR during summer 2025 & summer 2026 months, that there may be requirement of such changeovers for next 2-3 high demand seasons till approved transmission system of establishment of 765/400kV Prayagraj and 765/400kV Robertsganj is implemented. No reservations were expressed from any members on the above agenda and shifting of Rihand-III to NR based on requirement was approved. Further, it was agreed that the exercise may be carried out upon discussion in OCC forum/separate meeting by NRPC one week before schedule of exercise so that in case of requirement, the exercise is carried out swiftly for the benefit of NR states.

All members agreed for the shifting of Rihand-III to NR for enhancement of WR-NR and simultaneous NR import transfer capability.MS NRPC stated that separate meeting would be convened by NRPC next week for discussion on SOP of shifting of Rihand-III to NR between all stakeholders.

B.6 Grid Operation related issues in Northern region

a) Line outages in Rajasthan State control area:

NRLDC representative stated that multiple EHV transmission line outages have been reported in the Rajasthan Control Area in the first week of May 2025. Tower collapse of 400 KV Jaisalmer-Barmer (RS) D/C line and 400 KV Bhinmal (PG)-Barmer (RS) (RS) D/C line were also reported. The transmission lines under outage in Rajasthan Control Area are major RE generation evacuating and load serving lines. The outage of a large no of EHV transmission lines is a matter of serious concern in view of grid security.

Further, planned outage of 400 KV Bhadla-Merta and 400 KV Bhadla-Jodhpur was also facilitated on Rajasthan request for the work of Shifting / Height raising work for Jodhpur Ring Road project of NHAI. SLDC Rajasthan had agreed to revive these transmission lines from Bhadla (Raj) after availing only 01 day of continuous shutdown on 04.05.2025 but the shutdown was returned on 09.05.2025.

It is to be noted that prolonged outage of these lines following RE curtailment was done:

S. No.	Date	Maximum Intrastate RE curtailment (MW)
1	06.05.2025	450
2	07.05.2025	410
3	08.05.2025	205
4	09.05.2025	185

Hence SLDC Rajasthan was requested to take following measures for safe evacuation of RE generation and reliable grid operation:

1. Expedite restoration of transmission lines on forced outages where tower collapse/damages have not been reported.
2. Adequate patrolling team and maintenance team to be deployed for quick restoration works.
3. Revival of EHV transmission lines on ERS towers to be explored for safe evacuation of RE generation.
4. Carry out load shifting, RE optimisation for preventing any cascade tripping of remaining transmission elements.

In the meeting, RRVPN representative informed that:

- 12 towers have been damaged and for 3 towers, peak portion has been damaged in 400kV Jaisalmer-Barmer D/C lines. Work is under progress for revival.
- Only one tower is damaged in 400kV Barmer-Bhinmal D/C and same would be revived in May 2025.
- Committee reports have suggested that there are some serious theft issues in lines.
- For new transmission lines, tower design is being explored for higher wind zone which is presently for wind zone-IV.
- Transmission line patrolling is being done by outsourced teams.
- RRVPN is internally examining the reasons for tower collapses of intrastate transmission licensees and detail report will be shared with NRPC/CEA.

NRLDC representative expressed concern that the shutdowns availed for NHAI related works are being returned with significant delays in RRVPN control area transmission lines. RRVPN and NHAI may jointly plan the shutdown related activities well in advance in coordinated manner so that shutdowns are returned within the approved timelines.

NRLDC representative further requested RRVPN to expedite restoration of 400kV Barmer-Bhinmal D/C lines and also explore possibility of revival through ERS.

MS NRPC stated that within 24 hrs of tower collapse, CEA has to be intimated by the concerned transmission licensee for any tower damage/collapse. Thereafter, detailed report is prepared from CEA side in this regard.

OCC forum asked RRVPN to plan visit from CEA team also. Further, RRVPN may share brief report on the reasons for tower collapse of intrastate transmission lines. Further, RRVPN was asked to return shutdowns within the approved shutdown timelines in future.

b) Long outage of transmission elements

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

The list of key elements that need to be revived at the earliest are attached as **Annexure-B.II**.

OCC forum asked all utilities to provide update regarding the likely revival date for these in the NRLDC outage portal and expedite revival of these transmission elements.

c) Update of Important grid element document in line with IEGC:

In line with Chapter 6 section 29.2.(b) of IEGC, list of important grid elements in Northern region has to be compiled by NRLDC. Such elements shall be opened/closed only on instructions from NRLDC. It was requested to submit the list of all elements with details charged under their jurisdiction from 1.4.2024 till date including those expected to be commissioned till May 2025 so that the same could be included in the list.

It was requested to provide details before 15th May 2025. Same has also been requested vide email dated 01.04.2025 from NRLDC side.

Draft document updated at NRLDC end is available at following link: https://nrldc.in/documents/Important-Grid-Elements

Any other feedback related to inclusion/deletion of elements may also be provided.

OCC forum noted the same.

d) Action Points as agreed in 50th FOLD meeting

The 50th Meeting of the Forum of Load Despatchers was held in hybrid mode on 23rd April 2025, with physical venue at EROS Hotel, Nehru Place, New Delhi. Over 170 participants (both online & offline), including senior officials from GRID-INDIA and State Load Despatch Centres, attended the meeting.

The following agenda items were discussed in the meeting:

a) Agenda-1: Preparedness for Upcoming Summer by NLDC
b) Agenda-2: Update on Ancillary Services by NLDC
c) Agenda-3: Operational and Capacity Building Issues by Odisha SLDC
d) Agenda-4: Registration of GENCOS/Intra state plants in NOAR by NLDC
e) Agenda-5: SLDC Establishment – Chandigarh
f) Agenda-6: RE integration challenges, learnings and way forward - experiences in Northern Region by NRLDC
g) Agenda-7: Exam related to CERTIFICATION for system operation by West Bengal SLDC
h) Agenda-8: Intra-State Operations – Western Region Focus by WRLDC
i) Agenda-9: Update on Intra-State Security Constrained Economic Despatch by NLDC

Various action points that were agreed in the meeting for secure grid operation during upcoming summer months are listed below for actions by all states were presented in the 231 OCC meeting by NRLDC side:

1. All SLDCs to continuously monitor demand and ensure generation ramping aligns with real-time variations.
2. SLDCs and GENCOS to coordinate closely to avoid delays in unit synchronization, especially during low-frequency or high-demand periods.

3. Ensure implementation of 55% minimum technical limits and pursue compensation mechanisms through SERCs, in line with CERC guidelines.
4. Conduct health assessments of UVLS, UFR, ADMS, and other critical defense systems; submit reports to respective RLDCs.
5. States anticipating shortages to expedite power procurement through exchanges or bilateral tie-ups.
6. Surplus states to actively offer generation in the market during peak demand hours to enhance national adequacy and grid stability.
7. States with intra-state IPPs to explore and facilitate their participation in RTM and ancillary services, especially where surplus is available.
8. All SLDCs to identify intra-state generating stations that are yet to register on NOAR and initiate coordination for their registration.

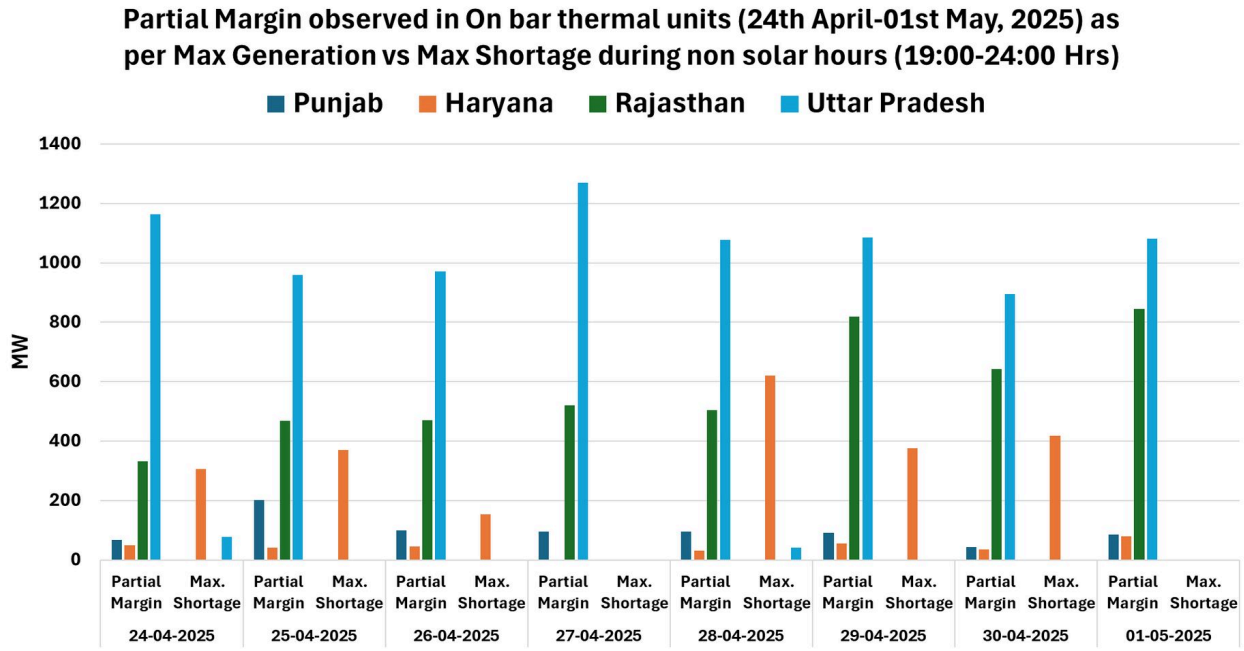
MoM of 50th FOLD meeting held on 23.04.2025 is attached as Annex-B.II of agenda.

OCC forum noted the same.

e) Partial outage of thermal generating units in NR

In light of the increasing trend in power demand across All India and the Northern Region, the power supply position of all India states is being closely monitored. This is being done through daily appraisal reports submitted to the MoP/CEA, as well as through weekly review meetings chaired by the Chairperson, CEA to review the overall power supply status, generating unit outages, and partial outage/margins, particularly during non-solar hours.

The trend of partial margins observed in thermal power plants during the period 24th to 30th April 2025 as shown below.



Additionally, the report dated 05.05.2025, along with the reasons submitted by the respective SLDCs, were attached as **Annexure B.III** of agenda.

All the SLDCs and representatives of generating stations were requested to ensure their presence in the review meetings held every Monday.

Further, OCC forum asked all SLDCs to ensure the following:

1. ***Correct and Verified Reasons: The reasons for partial outages or margins in thermal generating units on bar during non-solar hours must be clearly stated and duly verified in the daily appraisal reports being submitted.***
2. ***Addressing Fuel-Related Constraints: For generating units facing challenges due to poor coal quality or coal shortages, it is advised to explore feasibility of coal blending options to maximize the generation.***
3. ***Utilization of surplus margin: In instances where the margin is on account of low demand within the control area, SLDCs are encouraged to sell the surplus power through the Real-Time Market (RTM), thereby ensuring effective utilization of available resources.***

B.7 Demand forecasting and resource adequacy related

Hon'ble CERC In the matter of Planning for safe, secure, and reliable integrated operation of the power system during critical periods arising on account of seasonal variations wherein the electricity demand increases rapidly by undertaking specific measures to mitigate the risks on the power system, under clause (h) of sub-section (1) of Section 79 of the Electricity Act, 2003 and the Regulation 31 of the Central

Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 had issued suo-motto order 9/SM/2024 dated 07.10.2024.

Commission had issued the following directions to NLDC, RLDCs, and SLDCs in connection with the implementation of Regulations 31 and 33 of the Grid Code to address the anticipated surge in demand of electricity during October 2024 on account of seasonal variations. NLDC, RLDCs, and SLDCs were directed to submit their responses to the measures contained in para 9 of this order by 16.10.2024.

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.

NRLDC representative mentioned that 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.

In the report following actions have been suggested:

6.1 Power supply position during the month of October 2024 and preparedness of the SLDCs for the next upcoming power shortage:

➢SLDCs need to adopt a proactive approach to plan their power procurement in advance and to minimize their dependence on last-minute Day-Ahead Market (DAM) and Real-Time Market (RTM) purchases, as these do not guarantee power availability during high-demand periods

➢Power may be tied up well in advance through banking arrangements, short term contracts, and long-term agreements to ensure reliable supply.

6.2 Submission of Resource Adequacy data:

➢ Enhanced coordination between RLDCs and SLDCs for improving forecasting capabilities of SLDCs.

➢ Access to advanced forecasting tools should be facilitated to ensure better accuracy and reliability.

➢ SLDCs facing manpower challenges should leverage automation and training programs to strengthen forecasting and data management capabilities and should make best efforts to submit the requisite data with the available manpower till the availability of additional manpower.

➢ SLDC to take up the matter of non- submission of data with concerned DISCOMs in their control area and as a short gap arrangement SLDC should submit the requisite information based on historical data.

➢ The issue of submission of Resource Adequacy data including demand estimation and generation data by the states should be taken up as a regular agenda in the RPC meeting of concerned region**.**

➢ An issue was highlighted that ISTS drawl of some of the states were more than their ATC limit. In case of inadequate ATC, a State may not be able to draw power from identified sources outside the state and would not be able to meet the demand. States need to ensure their intra-state transmission resource adequacy and needs to plan and implement their intra-state transmission system adequately.

6.3 Shortage of manpower in SLDCs:

➢SLDCs to take up the matter with their management to provide the manpower as per their current sanctioned strength.

➢ SLDCs to take up the matter with their management for approval of revised sanction strength considering the MoP Workforce Adequacy Guidelines for Load Despatch Centres

➢Forum of Regulator can take up with the State Regulatory Commissions for determining the Fees and Charges for the Load Dispatch Centers which will provide financial autonomy to the Load Dispatch Centers. The possibility of establishing separate cadre system for SLDCs may also be explored.

➢RLDCs, in collaboration with NLDC, to conduct structured capacity-building programs to equip SLDC personnel with the required technical skills.

➢ SLDCs to post their employees at RLDCs temporarily to enhance their technical expertise.

6.4 Reserve estimation and management

➢ SLDCs to take up the issue of maintaining the reserves with their respective DISCOMs to maintain the reserves as allocated to them by NLDC as per the provisions of the Grid Code.

➢ RLDCs to hold discussions with respective SLDCs, in coordination with NLDC to explain the exact process of estimation and allocation of reserve quantum of each state.

➢ NLDC to review the quantum of reserves allocated to North-Eastern Region states, where the reserve requirement appears disproportionately high compared to their demand.

➢ The regulations enabling implementation of AGC and recovery of cost of maintaining reserves may be taken up at FOR level on recommendations and requirements cited by States.

6. 5 Backing down of state-owned thermal generating stations up to Minimum Turndown level (MTL) (i.e., 55% of the MCR)

➢SLDCs to take up the issue of operation of intra-state thermal generating stations with intra-state generators to investigate the technical issues and work towards addressing the issues of operation at MTL of 55%. Intra-State generators to collaborate with the Inter-State Generating Stations in overcoming the various technical issues involved in achieving MTL of 55%.

➢Forum of Regulator to take up the issue with respective SERC regarding formulation of regulatory framework at state level to compensate the generators for part load operation of thermal generation station.

6.6 Implementation of SAMAST (Scheduling, Accounting, Metering, and Settlement of Transactions) Scheme

➢ Implementation of the SAMAST framework in the 9 control areas needs to be closely monitored and implemented in the timeframe or earlier as indicated in table under para 5.8.

➢ The states where the scheme is under initial stage, the scheme needs to be awarded within two months and its implementation in period not exceeding one year after the award.

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

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

NRLDC representative presented the summary of actions that have been mentioned in CERC report dated 29.04.2025:

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

Further as per the report, the issue of submission of Resource Adequacy data including demand estimation and generation data by the states should be taken up as a regular agenda in the RPC meeting of concerned region. This shows the thrust being given from CERC for increasing participation from SLDC side in resource adequacy exercise.

NRLDC representative further presented the status of Day Ahead Forecasting, week ahead, month-ahead and year-ahead submission status for April-2025 as per Clause 31(4) (a) & (b) of IEGC-2023 is shown below:

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

In accordance with above, in 231 OCC meeting, forum asked all SLDCs 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 (nrldcmis@grid-india.in) and FTP as per above timeline.

The relevant clauses from IEGC 2023 related to demand forecasting exercise and resource adequacy exercise as discussed in 225 OCC meeting are enclosed in Annexure-B.IV of agenda.

All SLDCs need to take actions at their end for timely submission of demand forecasting and resource adequacy data on day-ahead, week-ahead, month ahead and year ahead basis. It is also requested to share actions being taken at SLDC end to ensure compliance of listed clauses of IEGC 2023 as Annex-B.IV of agenda.

Resource Adequacy guidelines issued by the CEA outline the roles and responsibilities of all stakeholders and provide a framework for RA planning in India. This matter was also discussed during the 52nd NRPC TCC meeting under Agenda Item A.12 to sensitize stakeholders on the importance of RA activities as per the approved CEA guidelines and IEGC provisions to enhance grid reliability. The format for data submission for ST-NRAP is provided in NLDC operating procedure (Link: https://posoco.in/wp-content/uploads/2024/08/NLDC-Operating-Procedure_2024.pdf).

NRLDC representative stated that data on day ahead basis received from some of the states (as shown in table) is not as per NRLDC format. It was further mentioned that NRLDC is in process of developing a code/program for automation of day-ahead resource adequacy. Incase data is not received in formats circulated by NRLDC, it would not be possible to map/utilize the data submitted by states in the internal program being developed at NRLDC end.

OCC requested all the states to take actions at their end to ensure compliance of all regulations and guidelines w.r.t. resource adequacy framework. SLDCs were also asked to maintain the reserves as per the allocated quantum by the NLDC as per the Grid Code. SLDCs were also asked to submit data to CERC as mentioned in MoM issued by CERC on 05.03.2025.

Self-audit related

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

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

Self-audit report has been received from NHPC and Koteshwar THDC.

OCC forum asked all concerned utilities to carry out self-audit exercise as per IEGC Clause 56.2(c), and submit the report to NRLDC.

B.8 Monitoring of Data Center/Electrolysers and their compliances before connection to the grid

National Green Hydrogen Mission launched in Jan 2023 has included in its objective to build capabilities to produce at least 5 Million Metric Tonne (MMT) of Green Hydrogen per annum by 2030, with potential to reach 10 MMT per annum with growth of export markets. Achieving this goal will require an estimated 60-100 GW of electrolyzer capacity installations. A significant portion of this load is expected to get connected at the ISTS (Inter-State Transmission System) level, primarily in concentrated green hydrogen zones across the country. In addition to electrolyzer load, a large quantum of data centre load is also expected to be connected at intra-state level in Northern region.

Following aspects of data centers and electrolysers need to be studied in detail:

1. Classification and Load Interface Assessment

- State of the art technology for electrolyzers, data centres and their characteristics
- Classification of the nature of these bulk consumer loads - distinguishing between Inverter-Based Resources (IBR) and traditional synchronous connections.
- Analyse load characteristics to inform tailored connection requirements and grid support functions.

2. Connection Code/Standard Development

- Ride-Through Capabilities: Define fault ride-through standards to maintain grid connection during disturbances.
- Voltage and Frequency Support: Establish dynamic support criteria for voltage regulation and frequency stability.
- Harmonic Compliance: Set standards for harmonic distortion limits to mitigate power quality impacts on the grid.
- Grid Supportive Control Modes: Specify droop and other frequency-sensitive control modes to contribute to grid frequency containment. Any other technical requirement

3. Reactive Power and Voltage Support Requirements

- Define reactive power requirements, including dynamic reactive capability specifications, to support voltage stability and local grid requirements.
- Establish reactive power capability curves for bulk consumer loads, ensuring alignment with grid voltage regulation needs during both normal and contingency conditions.

4. Ramping Requirements

- Determine acceptable ramp rate limits for bulk loads to prevent adverse impacts on grid stability, considering rapid load variations typical of electrolyzers and similar facilities.
- Specify maximum permissible ramping rates based on load characteristics and grid operational needs.

5. Energy Management and Curtailment Mechanisms

- Outline requirements for curtailment capabilities during peak load and contingency conditions to enhance grid flexibility and renewable integration.

6. Requirements to be specified for approval of First-time energization and Integration

- Model submission, telemetry, metering, trial operation, COD, disturbance records etc.

Furthermore, it may be noted that committee has been setup for the same under Member Power System, CEA.

During 229 OCC meeting, NRLDC representative stated that SLDCs are required to share the details of Data Centers/Electrolysers functional in their respective states. The below mentioned format may be referred for sharing the details. It was also requested to obtain the telemetered data of active power and reactive power consumption of data centers for one complete year at highest time resolution possible.

S.No.	Data Centre Or Electrolysers	Owner	Capacity	State	Connectivity via line/ICT at 220 kV level	Telemetry available(Yes/No)
1						

NRLDC representative also stated that information on following points may also be shared and taken up by all SLDCs of Northern region:

1. Availability of PMU on radial feeders supplying to Data Centers/Electrolysers

2. Phase wise power consumption trend as obtained from PMU for at least three scenarios of a day

3. Action by NRLDC/SLDC/DISCOM for PMU placement on the radial supply feeder.

MS NRPC stated that data centers load will be growing rapidly in the coming years and urged SLDCs to get involved in data sharing and regulation formulation exercise.

OCC asked all SLDCs to submit the information on the points as requested by NRLDC for further actions.

During 230 OCC meeting,

UP representative informed that data center have come in Noida with load capacity of ~5MW, currently peak demand is ~4MW. Around ~12MW of data center load was planned however as of now only 5 MW have come. It was further informed that no specific monitoring is being done as load quantum is very low.

Representatives from Rajasthan, Haryana and Punjab stated that no such load have come in their respective control area.

NRLDC requested all the states to be vigil about monitoring of data center and electrolyser type of load as these load would be of sensitive nature and sudden load through off from these load centers will impact the grid. Hence, proper monitoring of these load centers is necessary.

MS NRPC stated that data centers load will be growing rapidly in the coming years and urged SLDCs to get involved in data sharing and regulation formulation exercise.

During 231 OCC meeting,

NRLDC representative further requested all SLDCs to collect data from concerned DISCOMs and submit to NRLDC/NRPC.

MS NRPC highlighted that this data is only for the present data centers in service. But STUs/SLDCs should also list out the planned data centers which have been granted necessary approvals and share the list timely with NRLDC and NRPC. List of data centers planned over the next 5 years can be compiled.

OCC forum asked all SLDCs to submit the information on the points as requested by NRLDC/NRPC for further actions.

B.9 Mock testing of islanding scheme and simulation studies

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

To review the progress of work, a meeting was convened by NRLDC with concerned SLDCs on 06.02.2025.

Following was discussed during the meeting:

During 228 OCC meeting,

Rajasthan representative informed that the islanding basecase will be submitted to NRLDC within a week.

Punjab representative stated that they are in the process of aggregating dynamic data from the site. Regarding UFR testing and SCADA display, they confirmed that both will be completed and submitted within a week.

Delhi representative informed that UFR testing was delayed due to the legislative assembly elections in Delhi during January-February 2025. Now that the elections are over, the pending UFR testing at Maharanibagh, Bawana, and Electric Lane will be completed within a week, and a consolidated UFR testing report will be submitted to NRLDC thereafter.

OCC Forum urged all concerned SLDCs to expedite the mock testing of the islanding scheme, submission of PSSE islanding basecase, dynamic data, preparation of SCADA display/SCADA map and complete the associated studies before the next OCC meeting**.**

During 229 OCC meeting,

DTL representative informed that UFR testing is pending for POWERGRID Maharanibagh substation and thereafter testing report would be submitted to NRLDC/NRPC.

No update could be received from Punjab SLDC.

Rajasthan SLDC assured that they will be sharing basecases for other scenarios also shortly.

NRLDC representative requested that as per IEGC, load flow and dynamic studies and mock testing need to be carried out once every year. Accordingly, in case same is not completed before march 2025, same would be treated as non-compliance in self/ third party audit for 2024-25.

OCC asked all SLDCs to ensure that all testing and basecase sharing for islanding studies as per IEGC 2023 is done at the earliest.

After 229 OCC meeting, Punjab SLDC has shared basecase files for islanding schemes, however only steady stated files have been shared and dynamic data of generators is yet to be shared. UFR testing has been carried out by Punjab and report has been shared with NRLDC. SCADA display for RSD scheme is being developed at Punjab SLDC end (G/L ratio is pending)

During 230 OCC meeting, NRLDC representative presented the status of mock testing of islanding and studies:

NRLDC representative stated that, after 229 OCC meeting, Punjab SLDC has shared basecase files for islanding schemes, however only steady state files have been shared and dynamic data of generators is yet to be shared. UFR testing has been carried out by Punjab and report has been shared with NRLDC. SCADA display for RSD scheme is being developed at Punjab SLDC end (G/L ratio is pending)

Moreover, pending basecase files have been received from Rajasthan SLDC.

Delhi representative stated that testing is pending at 400kV only, all the testing at 220kV & below has been completed. They will submit the report at the earliest.

No further updated received from Punjab and Rajasthan.

During 231 OCC meeting, OCC requested Rajasthan and Punjab to complete the work related to SCADA display of islanding scheme and Delhi was requested to complete the UFR testing and submit testing report.

Current Status

Scheme	UFR testing done	Basecase shared	SCADA display made
NAPP Islanding scheme (UP)	Yes	Yes	Yes*
RAPP Islanding scheme (Raj)	Yes	Yes	No
Pathankote-RSD Islanding scheme (Pun)	Yes	Yes#	No
Bawana Islanding scheme (Delhi)	No	Yes	Yes

**Telemetry not coming properly*
 # steady state basecase received

MS NRPC stated that ERS availability and implementation of islanding schemes were deliberated thoroughly in MoP and all concerned were asked to ensure ERS availability and also expedite implementation of islanding schemes along with mock testing of existing islanding schemes.

Punjab SLDC informed that Pathankote-RSD islanding scheme was disabled recently. OCC forum expressed concern on the same and stated that no prior approval was taken by PSTCL from NRPC forum.

MS NRPC asked DTL and POWERGRID to coordinate and carry out field testing of pending UFRs of Bawana islanding scheme.

Further, Rajasthan SLDC was asked to ensure availability of SCADA display at SLDC/NRLDC end at the earliest.

Rajasthan SLDC stated that display has been created at SLDC end, however there are some pending telemetry related issues.

OCC forum asked Rajasthan to resolve the telemetry related issues and ensure availability of SCADA display at SLDC/NRLDC end at the earliest. Further, POWERGRID and DTL to coordinate and carry out mock testing of UFRs part of Bawana islanding scheme.

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

A total of 24 grid events occurred in the month of April 2025 of which 16 are of GD-1 category, 03 are of GI-2 Category and 05 is of GI-1 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at Annexure-B.V of agenda.

Maximum delayed clearance of fault observed in event of multiple elements tripping at 400/220kV Gurgaon(PG) and 220kV Gurgaon Sec72(HR) at 13:59 hrs on 17th April, 2025 (As per PMU at Gurgaon(PG), B-N phase to earth fault converted into Y-B fault with delayed clearance of ~1800msec is observed).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total 08 events out of 24 grid events occurred in the month. In 01 (no.) of grid event, there was no fault in the grid.

NRLDC representative presented the reporting status of DR/EL & tripping reports w.r.t. grid events occurred in April 2025. It was highlighted that detailed report of majority of the tripping events have not received.

DR/EL and tripping report of following multiple elements tripping event not received as on date 08.05.2025:

a) *220kV Ayana Bikaner on 02.04.2025*
b) *400/220kV Jaisalmer(RS) on 02.04.2025 (Time sync issue in DR)*
c) *220kV Azure(Bhadla) on 06.04.2025 (Not received from Azure end)*
d) *220kV Thar Surya (Bikaner) on 07.04.2025*
e) *220kV Mehal kalan(PS) on 08.04.2025*
f) *220kV Fatehabad(HV) on 09.04.2025 (DR/EL &tripping report not received)*
g) *220kV Singoli Bhatwari HEP on 09.04.2025 (not received from Singoli end)*
h) *220kV Dandhari Kalan(PS) on 10.04.2025 (not received from Punjab end)*
i) *220kV Renew Sunbright on 11.04.2025 (Not received from Renew end)*
j) *220kV Unchhahar(NTPC) on 13.04.2025 (Tripping report not received)*
k) *220kV Pong(BBMB) on 16.04.2025 (Partial data received)*
l) *220kV Bairasiul HEP(NHPC) on 16.04.2025 (No details received)*
m) *220kV Bhiwani(BBMB) and Charkhi Dadri(BBMB) on 25.04.2025 (No details received)*
n) *400/220kV Ropar(PS) on 28.04.2025 (Partial data received)*
o) *220kV GrianPSS_BIK2_(AMPLUS) on 28.04.2025 (No details received)*

Regarding unsatisfactory reporting of tripping reports, Punjab representative stated that this issue has been discussed in state OCC meeting for improvement in reporting of grid events. Necessary follow-ups are being done in this regard.

NRLDC representative further highlighted the significant delayed clearance of fault during multiple elements tripping event at 400/220kV Gurgaon(PG) and 220kV Sec 72 Gurgaon(HR) on 17.05.2025. SLDC-Haryana representative stated that detailed report of the event will be shared shortly.

NRLDC requested all the constituents to timely share the DR/EL of tripping, so that events can be analysed in stipulated time and necessary remedial actions at site may also be expedited. Utilities were further requested to start preparing the detailed report of the tripping events as per timeline mentioned in IEGC 2023 and share the report with NRLDC, NRPC and PSC forum. Remedial actions taken by

constituents to avoid such multiple elements tripping may also be included in the detailed report.

As per IEGC clause 37.2 (c), Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) shall be submitted within 24 hrs of the event and as per IEGC clause 37.2 (e), the user shall submit a detailed report in the case of grid disturbance or grid incidence within one (1) week of the occurrence of event to RLDC and RPC.

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

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

The status of receipt of DR/EL and tripping report of utilities for the month of **April 2025** is attached at Annexure-B.VI of agenda. It is to be noted that as per the IEGC provision under clause 37.2 (c), tripping report along with DR/EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement.

NRLDC representative stated that on the basis of status of April month it is evident that reporting status of some of the constituents i.e., SLDC-HR, SLDC-PS, SLDC-J&K, SLDC-HP, INDIGRID, NHPC, BBMB, POWERGRID(NR-3) and RAPS and RE stations are not satisfactory and needs improvement. The status of Punjab is persistently unsatisfactory. It was emphasized that timely submission of tripping details (DR, EL, tripping report etc.) helps in detailed analysis of the grid event.

Members were requested to please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the tripping shall be ***uploaded on Web Based Tripping Monitoring System (TMS) "https://postda.nrldc.in/Default.aspx"*** *within 24 hours of the events as per IEGC clause 37.2(c) and clause 15.3 of CEA grid standard.*

Members agreed to improve the reporting status of tripping events.

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

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

As per IEGC clause 16.2

''For the operational SPS, RLDC or NLDC, as the case may be, in consultation with the concerned RPC(s) shall perform regular load flow and dynamic studies and mock testing for reviewing SPS parameters & functions, at least once in a year. RLDC or NLDC shall share the report of such studies and mock testing including any short comings to respective RPC(s). The data for such studies shall be provided by CTU to the concerned RPC, RLDC and NLDC.''

As per IEGC clause 16.3

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

There are 56 numbers of System Protection Scheme (SPS) approved in Northern Region. These SPS are implemented at major generation complexes, important evacuating transmission lines and ICTs which are N-1 non-complaint. System Protection Scheme Document of Northern Region has been revised/updated on 31st February 2025. Revised version of the document is available on the NRLDC website in Document section and can be accessed at below link: https://newnr.nrldc.in/documents/Documents.

In this regard, communication was sent to constituents through NRLDC letter dated 01.05.2024, 21.02.2025 & 05.03.2025 for conducting mock testing of SPS in their control area and continuous follow up is also being done in OCC & PSC meeting since May 2024. Mock testing of most of the SPS has been conducted, however it is pending at some of the stations / complex shown in below table

Not conducted Mock Testing of SPS in 2024-25				
Sr. No.	**Scheme Name**	**Control Area**	**Remarks**	**Date of Last Mock testing conducted**
1	SPS for contingency due to tripping of HVDC Mundra-Mahendergarh	ADANI	Not healthy. Review is being done at OCC/PSC forum	
2	System Protection Scheme (SPS) for HVDC Balia-Bhiwadi Bipole	POWERGRID	Schedule not received. Review of SPS is needed.	
3	SPS for high capacity 400 kV Muzaffarpur-Gorakhpur D/C Inter-regional tie-line	POWERGRID	Schedule not received. Review of SPS is needed.	

	related contingency			
4	SPS for Reliable Evacuation of Ropar Generation	Punjab	Schedule not received	
5	SPS for contingency due to tripping of evacuating lines from Narora Atomic Power Station	NAPS	Schedule not received	
6	SPS for Lahal Generation	Himachal Pradesh	Schedule not received	08-07-2020
7	SPS for evacuation of Kawai TPS, Kalisindh TPS generation complex	Rajasthan	Partially conducted on 14-03-2025. Complete exercise needs to be conducted.	
8	SPS for Transformers at Ballabhgarh (PG) substation	POWERGRID	Not in service, Review is being done in OCC/PSC forum	
9	SPS for Transformers at Maharanibagh (PG) substation	POWERGRID	Not in service, Review is being done in OCC/PSC forum	
10	SPS for Transformers at Mandola (PG) substation	POWERGRID	Not in service, Review is being done in OCC/PSC forum	
11	SPS for Transformers at Bamnauli (DTL) Substation	Delhi	Schedule not received; Review is being done at OCC/PSC forum	
12	SPS for Transformers at 400kV Deepalpur (JKTPL) Substation	Haryana	Schedule not received	
13	SPS for Transformers at 400KV Fatehgarh Solar Park (AREPRL)	ADANI	Schedule not received	
14	SPS for Transformers at 400kV Unnao (UPPTCL) Substation	Uttar Pradesh	SPS Unhealthy	19-05-2023

Concerned constituents / utility were requested to conduct the mock testing of pending SPS (mentioned in above table) by the end of April 2025 month through NRLDC letter dated 04.04.2025.

POWERGRID representative stated that they will share the schedule for the mock testing of SPS at Bhadla2-Ajmer Line and HVDC Balia-Bhiwadi at the earliest.

NRLDC representative stated that Mock testing of the following SPS have been conducted recently w.r.t 2025-26 year:

i. ICTs at Moradabad(UP): 02.04.2025
ii. Lalitpur TPS: 09.04.2025
iii. Rosa TPS: 12.04.2025
iv. 400KV Fatehgarh Solar Park (AREPRL): 19.04.2025

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

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

OCC forum emphasized that in compliance with IEGC clause 16.2, users shall ensure that mock testing along with the review of SPS logic of all the SPS is conducted at least once a year. Further In compliance with IEGC clause 16.3, users shall also share the detailed report of SPS operation in their respective control area within 3 days of its operation. Presently, no such report is being received. Members were also requested to review the SPS scheme in their respective control area if there is any change in network configuration and load profile.

B.13 Confirmation of regarding implementation of proposed Overvoltage protection setting by committee

The committee formed by NRPC (during 52nd PSC meeting held on 20.09.2024) to review the Overvoltage Protection settings of 400kV and 765kV transmission lines in NR finalized the philosophy for overvoltage protection and proposed the revised overvoltage protection setting for 400kV and 765kV transmission lines in NR. The proposed protection settings were discussed and approved in 58th Protection Sub-Committee (PSC) meeting held on 26.03.2025. The PSC forum requested all the utilities to implement the proposed overvoltage protection settings in 400kV and 765kV transmission lines in their respective control area. Details of the revised overvoltage protection setting to be implemented at site is attached as Annexure of agenda.

Further, the agenda in this regard was again discussed in 230 OCC meeting held on 17.04.2025 and members were requested to ensure the implementation of proposed overvoltage settings by the end of April 2025.

NRLDC representative requested members to share the confirmation regarding implementation of revised overvoltage protection setting in 400kV and 765kV transmission lines in their respective control area.

POWERGRID(NR-I) representative stated that implementation of revised Overvoltage protection is under process. It will get completed by 20th May 2025. Stations wise status of implementation of revised OV protection will be shared.

MS NRPC stated that detailed discussion in this regard may be done in upcoming PSC meeting (60th PSC meeting on 26.05.2025).

OCC forum requested members to ensure the implementation of revised overvoltage protection in transmission lines of their respective control area at the earliest and share the confirmation.

B.14 Long Outage of 400KV BUS-3 AT MOGA(PG):

400KV BUS 4 AT MOGA(PG) was under outage to attend Leakages in GIS Bus from 11:52Hrs of 13.09.25 and revived at 17:51Hrs of 16.01.25 i.e. total of around 125days. Also, Shutdown of 400KV BUS 3 AT MOGA(PG) was taken from 11:50Hrs of 06.02.25 and has not been revived with almost 91 days already passed.

NRLDC representative stated that 400KV BUS 3 AT MOGA(PG) is an important element from the point of Grid security and reliability and in case of N-1 contingency and outage of other Bus will lead to tripping of 1500 MVA ICT 1 & 2, along with circuits of 400kV Kishenpur-Moga 1 &2 and 400kV Hissar-Moga ckt-2 & 3 which may result into problem of solar generation evacuation and meeting the load of J&K valley.

It may be further noted that during the initial shutdown request, work plan of 90 days was submitted and approved by OCC forum. Therefore, in the interest of Grid security and reliability, it is requested to adhere to the approved shutdown duration and revive the bus as early as possible.

During 231 OCC meeting, it was discussed that shutdown was returned on 10.05.2025 and the bus (400kV BUS-3) was charged.

OCC forum noted the same and asked all utilities to timely return shutdowns availed.

B.15 Long Outage due to Tower Collapse:

Following lines are under outage due to tower collapse

Name of element उपकरण का नाम	Owner स्वामित्व	Outage time (in hrs) / date	Revival time (in hrs) / date	Reason of outage ट्रिपिंग का कारण	Remarks/ Expected date
220 KV KISHENPUR(PG)-MIR BAZAR(PDD) (PDD) CKT-1	JK	20:09/ 21.06.24	-------	Tower foundation damaged. Emergency shutdown of 220k KPTL Kishenpur - Mirbazar Ckt as the landslide occurred at Tower Loc. no. KP-196 at Peerah and tower is on the verge of collapse.	30.05.25
400 KV MORADABAD(UP)-KASHIPUR(UK) (UK) CKT-1	UK	22:37/18.04.25	-------	Phase to Phase Fault R-Y , Fault current Ir 6.7kA, Iy 6.76kA from Kashipur. Tower collapsed at Loc. no. 94.	15.05.25
400 KV JAISALMER-BARMER (RS) CKT-2	RRVPNL	21:05/01.05.25	-------	Phase to Phase Fault R-Y , Zone-1, Dist. 80.44km, Fault current Ir 4.226kA, Ib 4.328kA from Barmer & Zone-1, Dist. 20.1km from Jaisalmer.	Tower collapsed from Location No. 70 to 81-12 Nos. (09 Towers damaged + 03 Nos. peak damaged) due to Heavy wind
400 KV JAISALMER-BARMER (RS) CKT-1	RRVPNL	21:05/01.05.25	-------	Phase to earth fault B-N , Zone-1, Dist. 91.46km, fault current 3.017kA from Barmer & Zone-1, Dist. 25.31km from Jaisalmer.	
400 KV BHINMAL(PG)-BARMER(RS) (RS) CKT-2	RRVPNL	04:14/05.05.25	-------	Tower collapse at Loc:101	
400 KV BHINMAL(PG)-BARMER(RS) (RS) CKT-1	RRVPNL	04:14/05.05.25	-------	Tower collapse at Loc:101	

PTCUL representative informed that tender has been opened for tower restoration works of 400kV Moradabad-Kashipur line, and the line is expected to be charged by 30th June 2025.

OCC forum asked all utilities to expedite the revival of the above-mentioned lines.

B.16 Detailed analysis of resource adequacy and peak demand scenarios in view of anticipated high demand in coming months:

NRLDC representative stated that Tamil Nadu (SR region) is currently scheduling generation from the Anta, Auraiya, and Dadri gas plants in open cycle mode, predominantly during non-solar hours to meet the high demand.

In view of the anticipated increase in electricity demand during the upcoming summer months, all Northern Region (NR) states are hereby requested to undertake a detailed analysis of their resource adequacy and peak demand scenarios. Based on this assessment, NR states are requested to consider scheduling their requisitions from the Anta, Auraiya, and Dadri gas stations in closed/open cycle, particularly during periods of anticipated shortfall. Such proactive planning and optimal utilization of available gas-based generation resources will support overall grid reliability and ensure a balanced supply-demand situation during critical periods.

OCC forum noted the same.

B.17 Table Agenda - Mock trial run and testing of black start facilities at generating stations in Northern Region

As per Indian Electricity Grid Code (IEGC) clause 34.3

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

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

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

NRLDC representative stated that communications in this regard have already been sent to constituents through NRLDC letter dated 24.02.2025 & 24.04.2025 for conducting mock black start exercise of hydro/gas generating stations and black start facilities in their control area. Continuous follow up is also being done in OCC & PSC meetings since May 2024. Mock black start exercise has been conducted at some of the ISGS and state controlled generating stations however it is yet to be conducted at many of the black start capable generating stations. Updated status is attached as **Annexure-B.III.**

NHPC representative stated that they will plan the mock testing of Sewa-II and Parbati-III HEP during May 2025, schedule for the same shall be shared.

Following Mock blackstart exercises have been conducted during May 2025:

a) *Ramgarh GPS (Rajasthan) on 11.05.2025*
b) *Sewa-II HEP (NHPC) on 16.05.2025*

c) *Parbati-III HEP (NHPC) on 17.05.2025*

NRLDC representative requested ISGS and SLDCs to take following actions:

- *To share the report of testing of DG sets.*
- *To share the tentative schedule of mock black start exercise of generating stations in their respective control area.*
- *SLDCs are requested to share the tentative schedule plan of mock black start exercise of generating stations in their respective control area.*
- *To conduct dead bus charging after self-starting the generating station if schedule with load is not available.*
- *To share the test report of mock black start exercise conducted along with weekly DG testing on monthly/quarterly basis.*

NRLDC representative requested all the control areas to conduct the mock testing of black start facilities in their respective control area.

OCC forum requested all the concerned generating stations and state to conduct the mock black start exercise of black start facilities in your respective control area. Members were also requested to share the report of testing of DG sets on quarterly basis.

Meeting ended with vote of thanks to the chair.

Annexure-A.I

Status of action taken on decision of 230th OCC meeting of NRPC

S.N.	Agenda	Decision of 230th OCC meeting of NRPC	Status of action taken
1	A.12. Tower integrity of 400KV Transmission lines emanating from Adani Kawai TPP & frequent porcelain string insulator failures.	OCC forum asked RVPN to take appropriate steps immediately such as increasing the height of tower base of tower 9 & 10 of 400KV Kawai-Anta D/C transmission line to prevent tower damage. Forum further asked RVPN to increase the patrolling of 400KV Kawai-Anta D/C transmission line and 400KV Kawai-Chhabra S/C transmission line to prevent the theft of tower members.	Representative of Adani Power informed that after the last OCC meeting, as per the advice of Rajasthan SLDC they have written a letter to Chief Engineer, RVPN requesting for appropriate action in the matter. Representative of RVPN stated that they have sought inputs from their field office for appropriate action in the matter.
2	A.15. N-1 Contingency violation in 765/400KV 1500MVA ICT at Moga Substation (Agenda by Powergrid NR-2)	Forum asked POWERGRID and CTU to take up the matter of additional ICT at 765/400kV Moga(PG) Substation in the next CMETS meeting.	Representative of CTU stated that they have sought confirmation from Powergrid regarding availability of space for additional ICT at Moga substation. He further mentioned that after the confirmation from Powergrid, the matter of additional ICT at Moga

			substation space would be taken up in the CMETS meeting.
3	A.16. Frequent disconnection of Leh Transmission system from National GRID due to redial connectivity/ N-1 Contingency violation J&K and Ladakh Region. (Agenda by Powergrid NR-2)	Forum asked CTU and Powergrid to prepare the proposal for additional connectivity of Leh for further discussion.	Representative of CTU stated that a joint survey need is required to assess the availability of RoW. Further, a meeting would be held with CEA, NRLDC Powergrid and NHPC for discussion on the matter.
4	A.17. Extreme voltage variation in J&K & Ladakh area (Agenda by Powergrid NR-2)	Forum asked CTU and Powergrid to prepare the proposal for installing static / dynamic reactive power compensation devices in J&K control area.	Representative of CTU stated that a dynamic study would be carried out to assess the requirement of static/ dynamic reactive power compensation devices in J&K control area and report shall be submitted in two months. MS, NRPC asked NRLDC to provide support to CTU for dynamic study.

Follow up issues from previous OCC meetings

Annexure-A.II

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.</td><td colspan="3">List of downstream networks is enclosed in Annexure-A.II.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td colspan="3">Data upto following months, received from various states / UTs:
◎ CHANDIGARH Sep-2019
◎ DELHI Mar-2025
◎ HARYANA Mar-2025
◎ HP Mar-2025
◎ J&K and LADAKH Not Available
◎ PUNJAB Mar-2025
◎ RAJASTHAN Mar-2025
◎ UP Apr-2025
◎ UTTARAKHAND May-2025
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td rowspan="2">3</td><td rowspan="2">Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td colspan="3">Data upto following months, received from various states / UTs:
◎ CHANDIGARH Not Available
◎ DELHI Mar-2025
◎ HARYANA Mar-2025
◎ HP Mar-2025
◎ J&K and LADAKH Not Available
◎ PUNJAB Mar-2025
◎ RAJASTHAN Dec-2024
◎ UP Apr-2025
◎ UTTARAKHAND Mar-2025
◎ BBMB Dec-2024
All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest.</td></tr>
<tr><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td colspan="3">Status:
◎ CHANDIGARH Not Available
◎ DELHI Increased
◎ HARYANA Increased
◎ HP Increased
◎ J&K and LADAKH Increased
◎ PUNJAB Increased
◎ RAJASTHAN Increased
◎ UP Increased
◎ UTTARAKHAND Increased
◎ BBMB Increased</td></tr>
</table>

<table>
<tr><td>4</td><td>Status of Automatic Demand Management System in NR states/UT's</td><td>The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:</td><td>The status of ADMS implementation in NR is enclosed in Annexure-A.II.II.<table><tr><td>◎</td><td>DELHI</td><td>Scheme Implemented but operated in manual mode.</td></tr><tr><td>◎</td><td>HARYANA</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>HP</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Under implementation.</td></tr><tr><td>◎</td><td>UP</td><td>Scheme implemented by NPCIL only</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Scheme not implemented</td></tr></table></td></tr>
<tr><td>5</td><td>Status of availability of ERS towers in NR</td><td>As per the decesion of 68th NRPC and 211th OCC meeting, ERS availability monitoring is being taken as rolling/follow-up agenda in OCC meetings for regular monitoring of ERS under different utilities in Northern region.</td><td>As per the information received from different utilities in Northern region, updated status of availability of ERS towers in Northern Region attached as Annexure-A.II.III.</td></tr>
<tr><td>6</td><td>Submission of breakup of Energy Consumption by the states</td><td>All states/UTs are requested to submit the requisite data as per the billed data information in the format given as under:<table><tr><td>Category→</td><td>Consumption by Domestic Loads</td><td>Consumption by Commercial Loads</td><td>Consumption by Agricultural Loads</td><td>Consumption by Industrial Loads</td><td>Traction supply load</td><td>Miscellaneous / Others</td></tr><tr><td><Month></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>Status of the information submission (month) from states / utilities is as under:<table><tr><td></td><td>State / UT</td><td>Upto</td></tr><tr><td>◎</td><td>CHANDIGARH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>DELHI</td><td>Feb-25</td></tr><tr><td>◎</td><td>HARYANA</td><td>Mar-25</td></tr><tr><td>◎</td><td>HP</td><td>Mar-25</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>JPDCL- Mar'24
KPDCL- Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Mar-25</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Mar-25</td></tr><tr><td>◎</td><td>UP</td><td>Feb-25</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Jan-25</td></tr></table>Chandigarh is requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format</td></tr>
<tr><td>7</td><td>Status of FGD installation vis-à-vis installation plan at identified TPS</td><td>List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed.
Further, progress of FGD installation work on monthly
basis is monitored in OCC meetings.</td><td>Status of the information submission (month) from states / utilities is as under:<table><tr><td>◎</td><td>HARYANA</td><td>Jun-2024</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Feb-2025</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Feb-2025</td></tr><tr><td>◎</td><td>UP</td><td>Jan-2024</td></tr><tr><td>◎</td><td>NTPC</td><td>Mar-2025</td></tr></table>FGD status details are enclosed as Annexure-A. II. IV.
All States/utilities are requested to update status of FGD installation progress on monthly basis.</td></tr>
<tr><td>8</td><td>Information about variable charges of all generating units in the Region</td><td>The variable charges detail for different generating units are available on the MERIT Order Portal.</td><td>All states/UTs are requested to submit daily data on MERIT Order Portal timely.</td></tr>
</table>

9	Reactive compensation at 220 kV/ 400 kV level at 7 substations			
	State / Utility	Substation	Reactor	Status
i	DTL	Peeragarhi	1x50 MVAr at 220 kV	1x50 MVAr Reactor at Peeragarhi has been commissioned on dated 18.09.2023
ii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	2x50 MVAR Reactor at Harsh Vihar has been commissioned on dated 31th March 2023.
iii	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
iv	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
v	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work completed on 07.11.2023. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
vii	PTCUL	Kashipur	1x125 MVAR at 400 kV	Tender for Procurement of 125 MVAR Reactor has been floated on 04.11.2024 and tender opening date is 30.12.2024.

Annexure-A-II.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	Jul'25	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to persisting RoW issues. expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 220th OCC by JKPTCL.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	Mar'25	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. RoW issues persisting; At present new-wampoh-mirbazar 5km and harwan-alstung 16km have been completed, expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 214th OCC by JKPTCL.
				• 220 kV New Wanpoh - Mattan D/c Line	End of 2024	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	End of 2024	02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	Contractual completion date on 04.08.2025.	Under construction.Updated in 230rd OCC by HVPNL
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1	Utilized: 7	• 220 kV D/C Shahajahanpur (PG) - Gola line	Commissioned	Energization date: 26.10.2023 updated by UPPTCL in 215th OCC
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG)	Commissioned	Energization date: 25.02.2022 updated by UPPTCL in 196th OCC
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• 220 kV Hamirpur-Dehan D/c line	Commissioned	HPPTCL has commissioned the Planned 220kV Dehan-Hamirpur TL utilizing 2 No. 220kV Bays.Commisioned date: 09.06.2022. Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	-	Issue related to ROW as intimated in 228th OCC by HVPNL. **Status:** Work was stalled since 29.07.2021 due to ROW issues and farmers agitation and further restarted on 9.10.2023 with the help of district administration. Now, work was again stalled since30.11.2023 due to severe ROW issues. Expected to be completed by 31.03.2025. Foundation 209/212. Erection 193/212. Stinging 37.8/50.3 km
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Oct'25	Line work awarded to M/s R S Infra Projects Pvt. Ltd. Noida, Uttar Pardesh on dated 09.03.2024. Work of route plan and route alignment has been started by the firm as intimated in 218th OCC by HVPNL.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	Oct'25	Erection and stringing work completed.The signing of Connection agreement amongst the Utilities is pending. Updated in 230th OCC by HVPNL.
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4	Utilized: 6 Unutilized: 0	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	Commissioned	Updated in 216th OCC by DTL
				• Masjid Mor – Tughlakabad 220kV D/c line.	Commissioned	Updated in 216th OCC by DTL
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 2 Under Implementation:2	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Commissioned	Energization date: 31.05.2024 updated by HPPTCL in 220th OCC
				• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Giri S/s	-	Tendering process is yet to be started.Updated in 219th OCC by HPPTCL
				• Network to be planned for 2 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• D/C line Kadarpur - Pali D/C line Kadarpur - Sec-65	May'25	Updated in 230th OCC by HVPNL **Status:-** A-formats for FTC of line submitted on FTC portal of NRLDC on dated 09.04.25.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	Oct'25	Line work completed, but commissioning of 220kV substation Roj ka Meo is pending till now.. However, this arrangement will not lead to usage of additional bays i.e. no of utilitsed bays at Sohna road will remain same.Updated in 230th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 228th OCC by HVPNL. **Status:-** Earlier 02 nos 220 kV line bays were to be utilized for the 220 kV GIS S/Stn. Sec-77, Gurugram but due to denotification of land of the 220 kV GIS S/Stn. Sec-77 the said substation is now going to be dismantled and a new substation is proposed at Sec-75A, Gurugram. Now, these 02 no. 220 kV line bays may be utilized at 220 kV GIS S/Stn Sec-75A, Gurugram.
15	400/220kV Prithla Sub-station	Commissioned: 8 Aprroved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	Dec'25	Contract awarded on 08.08.23 to M/s Skipper with completion in December 25.Updated in 230th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	Commissioned	Energization date: 31.12.2021. Updated in 198th OCC by HVPNL
				• 220kV D/C for Sector78, Faridabad	31.07.2025	Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 228th OCC by HVPNL.
				• Prithla - Sector 89 Faridabad 220kV D/c line	Jul'25	The work for construction of 220kV D/C Prithla-Sector-78 Faridabad line on multi circuit towers is delayed mainly due to severe resistance by local villagers & ROW problem at site during construction. Due to delay in construction of 220kV D/C Prithla-Sector-78 Faridabad line, the work for construction of 220kV D/C Prithla-Sector 89 Faridabad line might delay..Updated in 230th OCC by HVPNL
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	May'25	Updated in 230th OCC by HVPNL. **Status:** A-formats for FTC of line submitted on FTC portal of NRLDC on dated 09.04.25.
				• Sonepat - HSIISC Rai 220kV D/c line	Commissioned	Energization date: 31.05.2024 updated by HVPNL in 220th OCC
				• Sonepat - Kharkhoda Pocket A 220kV D/c line	May'25	Updated in 230th OCC by HVPNL. **Status:** Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line. Both bays are under construction and erection of electrical equipment is under progress.
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	-	Work is under progres. Stub Setting: 14/2017. Permission for Highway is awaited from concerned department as updated in 218th OCC by RVPNL.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Date of bid opening has been extended up to 30.04.2024 as updated in 218th OCC by RVPNL.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar	-	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Route plan and estimate of work sanctioned, DNIT has been sent to float tender as updated by PSTCL in 227th OCC
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line commissioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	Commissioned	• Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL. • No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Commissioned	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th OCC
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 2 bays	-	• UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years). • No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
24	400/220kV Abdullapur Sub-station	Commissioned: 10 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Commissioned	Ckt-1 commissioned at 16:13hrs on dated 06.08.24 & Ckt-2 commissioned at 20:10 hrs on dated 05.08.24. Updated in 223rd OCC by HVPNL
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	Commissioned	Updated in 218th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	Commissioned	Energization date: 24.05.2024 updated by HVPNL in 220th OCC
				• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	Jun'25	Revised target date as confirmed by concerned XEN TS, Panchkula.Updated in 230th OCC by HVPNL
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	31.08.2024	Draft connectivity agreements for 220kV Rashiana-Amritsar has been received from CTU and the same under processing. Draft connectivity agreements for 220kV Patti-Amritsar line is under consideration by CTU. CTU is processing the agreement and PSTCL is providing with the requisite inputs/data to CTU from time to time, as and when required. Updated in 231st OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	31.08.2024	Draft connectivity agreements for 220kV Rashiana-Amritsar & 220kV Patti-Amritsar lines are under consideration by CTU. CTU is processing these agreements and PSTCL is providing with the requisite inputs/data to CTU from time to time, as and when required.. Updated in 225th OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Approved: 4 Total: 8	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra- Daultabad S/c line at 400 kV Bahadurgarh PGCIL	-	Proposal turned down by CEA.Updated in 230th OCC by HVPNL.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	15.06.2026	Updated in 230th OCC by HVPNL. **Status:** The work stands awarded to the M/s KRR and the execution work has been started at site. Partial route stands approved by the competant authority of the HVPNL. Further, 06 no. Foundation has been casted.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	30.06.2025	Updated in 230th OCC by HVPNL. **Status:** RoW issues which are being resolved with the help of Duty Magistrate.
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• LILO of 220 kV S/C Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG)	06.10.2025	Work order has been issued on 06.10.2023, work under progress as updated by RVPNL in 215th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220 kV D/C Kankroli(PG) - Nathdwara line	-	Standard bid document has been finalized on 13.08.2024 and bid is under preparation as updated by RVPN in 222nd OCC.
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	-	Status:- A proposal is being prepared for the creation of another 220kV D/C line from the 400kV substation Panchgaon (PG) to the 220kV substation Panchgaon (HVPNL), along with the LILO of one circuit of the 220kV D/C Panchgaon (PG) – Mau line at the 220kV substation Panchgaon to utilize two bays at the 400kV substation Panchgaon. The load flow study for this has already been completed.
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	Commissioned	Saharanpur(PG)-Devband D/c line (Energization date: 20.04.2023) updated by UPPTCL in 207th OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	Commissioned	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work completed , final agrrement is expected to be signed by May'24. Updated in 218th OCC by PSTCL.
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	Commissioned	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is commissioned on 20.01.2024. Updated in 217th OCC by HPPTCL.
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.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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. Technical bid for civil work of 66kV to 220kV Bhadson upgradation has been opened and further processed for opening of financial bid. Work likely to be started by 15.05.2025. as updated by PSTCL in 230th OCC meeting

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

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	In 225th OCC meeting NRPC representative apprised forum that revised Standard Operating Procedure (SOP) of Automatic Demand ManagementScheme (ADMS) by the DISCOMs in NCT of Delhi has been approved in 51st TCC and 76th NRPC meeting. In 52nd TCC and 77th NRPC DTL intimated that tentative timeline for implemenation is 28th February 2025.DTL intimated that TPPDL has informed that they have engaged SCADA OEM for the implementation of ADMS. However, OEM has confirmed that incorporation of ADMS logic into the current SCADA system is not feasible and it would require an upgrade or refresh of the system, necessitating additional expenditure for which DERC has been approached. The complete implementation cycle is expected to be within 2 years. However, in the meantime considering the criticality, their in-house team is working to develop a trigger notification/alarm system for manual operation of breaker triggering from the control room and thereafter exploring the possibility of automatically triggering the breaker using the trigger notification. TPPDL has stated that they expect to complete it by August 2025, if materialized. BRPL and BYPL have informed that their existing SCADA system is obsolete and it is in the up-gradation phase by OEM. After the up-gradation of SCADA system, the ADMS is expected to be implemented in BRPL & BYPL by Oct 25.
2	HARYANA	Scheme not implemented	Haryana SLDC intimated that as per Joint Roadmap of implementation of ADMS in Haryana supplied to NRPC vide memo dated 17.10.2023 (Annexure-II), the implementation plan was proposed to be carried out in two parts, as mentioned below: PART-I: Control with Transmission Utility PART-II: Control with Distribution Utility It is pertinent to mention that as part of upcoming SCADA-EMS system i.e. upgradation of SCADA-EMS system, a feature in the name of LSS (Load Shedding Software)/ ADMS is part of the Technical Specification of project to be delivered. Therefore, the functionalities of ADMS application will be covered under 'Part-I: Control with Transmission Utility' will already be covered using the RTUs available at select substations along with the ADMS software being delivered by M/s GE under SCADA upgradation project. Hence, there is no need to acquire a separate ADMS application & associated hardware for data centre for implementation of PART-I. Further for Part -II a committee has been constituted for further finalization of the ADMS module with control with Discoms is under discussions for preparation of DPR.
3	HP	Scheme not implemented	HP SLDC imentioned that HPSEB had intimated that initially 142 Nos. of feeders were identified for operation under ADMS functionality but most of these feeders were from same sub-station. Therefore, now they have increased the no. of sub-station and identified the non-critical feeders. Load relief to be given through these feeders is under finalization. The revised feeder list from HPSEBL is awaited as intimated by HPSLDC.
4	PUNJAB	Scheme not implemented	i. A committee comprising of following officers of PSPCL & PSTCL has been constituted to finalize the logic regarding implementation of Automatic Demand Management System in Punjab Control Area. A meeting in this regard was held on dated 26-02-2024 at PSLDC Complex, Patiala. The committee deliberated various loading scenarios and proposed the following logic for the management of demand: 1. If the frequency sustains below 49.90 Hz for duration of 3 minutes, the Automatic Demand Management System will initiate a 50% reduction in the Over Drawl. 2. In case the frequency falls further below 49.85 Hz, the Over Drawl will be reduced to zero. 3. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation. ii. In 222nd OCC, MS NRPC asked Punjab to co-ordiante with Powergrid for integration of their propsoed logic with the ULDC phase-III SCADA system for timely implementation.
5	RAJASTHAN	Under implementation	In 230th OCC meeting, RVPN informed that 247 nos. of circuit breakers have been mapped to ADMS, all 247 circuit breakers tested upto yard individually. Total 650CBs are to be mapped in phased manner.

6	UP	Scheme implemented by NPCIL only	i. A meeting regarding ADMS was held on 15.01.2023 with the UPPCL under the chairmanship of MD UPPTCL ii. A committee formed for identification of load at 33 kV level under the chairmanship of Director (Distribution), UPPCL. iii. Another committee under the chairmanship of Director UPSLDC shall identify the technical and operational requirement for ADMS implementation iv. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation and likely to be commissioned by March 2025. v. In order to operate identified 33 kV feeders under ADMS scheme, integration of 132 kV substations with SCADA system is under implementation in the Reliable Communication Scheme and expected date of completion of the scheme is October 2024. vi. MS, NRPC apprised forum that a letter has been written to Director, SLDC for co-odinatng with Director (Distribution), UPPCL for expediting the finalization of feeder list at 33kV for ADMS implementation. vii. Response from UPPCL regarding the finalization of feeder list at 33kV for ADMS implementation is awaited. viii. UPSLDC intimated that they plan to have a meeting with UPPCL in the month of April 2025 for the finalization of feeder list at 33kV. ix. In 230th OCC meeting UP SLDC representative informed that feeder list at 33kV level for ADMS is awaited from UPPCL.
7	UTTARAKHAND	Scheme not implemented	i. UPCL has prepared a system architecture in which all the non-monitored sub-stions have been selected and 11kV feeders have been considered for ADMS operation. For the scheme, discom has also done group-wise selection of feeders and quantum of MW relief to be given for automatic demand response at 11kV level has also been decided. UPCL has awarded the tender for implementation of the aforementioned scheme to M/s Metergy Pvt.Ltd. ii. As per the status report submitted by M/s Metergy Pvt.Ltd, the survey work of 30 nos. incomer sites have been completed and order has been placed by UPCL for hardware equipments. iii. Uttarakhand SLDC informed that feeder list at 11kV level has been finalized and logic of ADMS implementation is under finalization. iv. Uttarakhand has intimated that It is bring to your notice that installation MFT(Multi Function Transducers) at various interstate points at PTCUL Substations under ADRS Project of UPCL is in progress. v. First Phase- Data Acquisition of 32 interstate points completed. vi. Second Phase-95 distribution side Substation work is on progress. vii In 230th OCC meeting Uttarakhand SLDC representative informed that Harbour installation and communication establishment has been done on 35 11kV feeders out of total 195 11kV feeders. The work is expected to be completed by December, 2025.

Annexure-A.II.III.

Status of availability of ERS towers in NR

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

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
13	DTL	220kV	915.498	NIL	1	400kV Bamnauli Sub station	ERS tower available for 400KV rating can also be used for lower voltage lines as well
		400kV	249.19	02 Sets (32 towers)	1		
14	JKPTCL						JKPTCL, Jammu: being procured JKPTCL, Kashmir:10 tower procured (out of which 3 on loan to JKPTCL, Jammu)
15	HVPN						HVPN has apprised that purchase order for procurement of 2 sets of Emergency Restoration System (ERS) in HVPNL has been issued to M/s Jost's Engineering Company Ltd., Mumbai
16	PSTCL	400 kV	1666.43	2	2		
		220 kV	7921.991				
17	UPPTCL 1- Meerut	132KV	27508.321	24 Nos(15 Running+9 Angle)		400 kV S/s Gr. Noida	ERS will be also be used in other voltage level lines.
		220KV	14973.453				
		400KV	6922.828				
	UPPTCL 2-Prayagraj	765KV	839.37	24 Towers		220 kv S/s phulpur	ERS will also be used in other voltage lines.
		400KV	1804.257				
		220KV	2578.932				
		132KV	4714.768				
18	POWERLINK						
19	POWERGRID HIMACHAL TRANSMISSION LTD						
20	Powergrid Ajmer Phagi Transmission Limited						
21	Powergrid Fatehgarh Transmission Limited						
22	POWERGRID KALA AMB TRANSMISSION LTD						
23	Powergrid Unchahar Transmission Ltd						
24	Powergrid Khetri Transmission Limited						
25	POWERGRID VARANASI TRANSMISSION SYSTEM LTD						
26	ADANI TRANSMISSION INDIA LIMITED		2090	1 Set (12 towers)	1 set (12 towers)	Sami (Gujarat)	Make-Lindsey ERS set available for 400KV & 500KV rating can be used for lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can reduce due to increase in Tower Height & nos of conductors.
27	BIKANER KHETRI TRANSMISSION LIMITED		482				
28	FATEHGARH BHADLA TRANSMISSION LIMITED	500 kV HVDC 400 kV HVAC	291				
29	NRSS-XXXI(B) TRANSMISSION LTD	400 kV	577.74	Not Available	Not Available		Tied up with M/s INDIGRID for providing ERS on need basis.
30	ARAVALI POWER COMPANY PVT LTD	765 kv HVAC					

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

FGD COMMISSIONING STATUS						
S.No.	Utility	Plant Name	Unit	Target Commissioning Date (As updated by utility in OCC)	If commissioned , Actual Date of Commissioning	If not commissioned , Target Date of Commissioning
1	Adani Power Ltd.	KAWAI TPS	1	31-Dec-24		31-Dec-29
2			2	31-Dec-24		31-Dec-29
3	APCPL	INDIRA GANDHI STPP	1		3-May-24	
4			2	30-Sep-23	27-Jan-25	
5			3	30-Jun-23		31-May-25
6	GVK	GOINDWAL SAHIB	1	30-Apr-20	INFO NOT RECEIVED	
7			2	29-Feb-20		
8	NTPC	DADRI NCTPP	1	31-Dec-20	31.12.2019,(DSI - Dry FGD)	
9			2	31-Oct-20	27.12.2019,(DSI - Dry FGD)	
10			3	31-Aug-20	27.07.2020,(DSI - Dry FGD)	
11			4	30-Jun-20	14.07.2020,(DSI - Dry FGD)	
12			5	30-Jun-22	15-Jun-22	
13			6	31-Mar-23	8-Feb-24	
14		RIHAND STPS	1	31-Dec-24		30-Nov-26
			2	30-Jun-26		31-Aug-26
			3	31-Dec-24		31-Dec-26
			4	31-Mar-25		30-Sep-26
			5	30-Jun-25		30-Jun-26
15			6	31-Mar-25		31-Mar-25
16		SINGRAULI STPS	1	31-Dec-24		30-Sep-25
17			2	31-Dec-24		30-Sep-25
18			3	31-Dec-24		30-Sep-25
19			4	31-Dec-24		31-Dec-25
20			5	31-Mar-25		31-Dec-25
21			6	30-Jun-24		31-Aug-25
22			7	31-Mar-24	Hot Gas In completed on 26.03.2025	30-Jun-25
23		UNCHAHAR TPS	1	31-Dec-23	22-Feb-25	
24			2	31-Dec-23	22-Feb-25	
25			3	30-Sep-23		30-May-25
26			4	30-Sep-23		30-May-25
27			5	30-Sep-23		30-May-25
28			6	31-Aug-22	11-Oct-22	
29		MEJA STAGE- 1	1	31-Oct-23	16-Jan-25	
30			2	30-Jun-23	28-Feb-25	
31		TANDA STAGE -1	1	No FGD		
			2	No FGD		
			3	No FGD		
32			4	No FGD		
33		TANDA STAGE -2	5	31-Mar-23	28-Nov-24	
34			6	30-Sep-23		30-May-25
35	L&T POWER DEVELOPMENT	NABHA TPP (RAJPURA TPP)	1	30-Apr-21	NPL has completed construction of FGD units for both of its units, which have been ready for	
36			2	28-Feb-21		
37	TALWANDI SABO POWER LTD.	TALWANDI SABO TPP	1	28-Feb-21	INFO NOT RECEIVED	
38			2	31-Dec-20		
39			3	31-Oct-20		
40	HGPCL	PANIPAT TPS	6	31-Dec-25		
41			7	31-Dec-25		
42			8	31-Dec-25		
43		RAJIV GANDHI TPS	1	31-Aug-27		
44			2	31-Aug-27		
45		YAMUNA NAGAR TPS	1	31-Aug-27		
46			2	31-Aug-27		
47	Lalitpur Power Gen. Company Ltd.	LALITPUR TPS	1	31-Dec-26		
48			2	30-Sep-26		
49			3	30-Jun-26		
50	Lanco Anpara Power Ltd.	ANPARA C TPS	1	31-Dec-25		
51			2	31-Dec-25		
52	Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP	1	31-Dec-26		
53			2	31-Dec-26		
54			3	31-Dec-26		
55	PSPCL	GH TPS (LEH.MOH.)	1	31-Dec-26		
56			2	31-Dec-26		
57			3	31-Dec-26		
58			4	31-Dec-26		
59		GGSSTP, Ropar	3	31-Dec-26		
60			4	31-Dec-26		
61			5	31-Dec-26		
62			6	30-Dec-26		
63	Rosa Power Supply Company	ROSA TPP PH-I	1	31-Dec-26		
64			2	31-Dec-26		
65			3	31-Dec-26		
66			4	31-Dec-26		
67			5	30-Nov-25		

68	RRVUNL	KOTA TPS	6	30-Nov-25		
69			7	30-Nov-25		
70		SURATGARH TPS	1	31-Dec-29		
71			2	31-Dec-29		
72			3	31-Dec-29		
73			4	31-Dec-29		
74			5	31-Dec-29		
75			6	31-Dec-29		
76		SURATGARH SCTPS	7	28-Feb-26		
77			8	28-Feb-26		
78		CHHABRA TPP	1	31-Dec-29		
79			2	31-Dec-29		
80			3	31-Dec-29		
81			4	31-Dec-29		
82		CHHABRA SCPP	5	28-Feb-26		
83			6	28-Feb-26		
84		KALISINDH TPS	1	28-Feb-26		
85			2	28-Feb-26		
86	UPRVUNL	ANPARA TPS	1	31-Dec-25		
87			2	31-Dec-25		
88			3	31-Dec-25		
89			4	31-Dec-25		
90			5	31-Dec-25		
91			6	31-Dec-25		
92			7	31-Dec-25		
93		HARDUAGANJ TPS	8	31-Dec-26		
94			9	31-Dec-26		
95		OBRA TPS	9	31-Dec-26		
96			10	31-Dec-26		
97			11	31-Dec-26		
98			12	31-Dec-26		
99			13	31-Dec-26		
100		PARICHHA TPS	3	31-Dec-26		
101			4	31-Dec-26		
102			5	31-Dec-26		
103			6	31-Dec-26		

Annexure-A.III

										Approved Planned Outage-1			Actual Planned Outage-1		
Name of Station	UNIT_NM	STN_TYPE_ID	SECTOR	REGION_NM	ST_NM	SH_NM	IPP	FUEL_NM	Capacity (MW) 31-03-2025	Start Date	End Date	Reason	Start Date	End Date	Reason for any deviation
PANIPAT TPS	8	T	STATE SECTOR	Northern	Haryana	HPGCL	FALSE	COAL	250	01-Apr-25	23-Apr-25	Annual Overhauling	06.04.2025	30.04.2025	
RAJASTHAN A.P.S.	2	N	CENTRAL SECTOR	Northern	Rajasthan	NPCIL	FALSE	NUCLEAR	200	01-Apr-25	30-Apr-25	Reactor feeder refurbishment and Emmasse thermowell	01-Apr-25	30-Apr-25	No deviation from plan is expected.
SURATGARH TPS	6	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	250	15-Apr-25	05-May-25	Annual Boiler Overhauling	01.07.25	15.07.25	Postponed due to Power demand in state is running
JALIPA KAPURDI TPP	2	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	23-Apr-25	30-Apr-25	Boiler License renewal			Planned in next week.
JALIPA KAPURDI TPP	8	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	01-Apr-25	08-Apr-25	Boiler License renewal	31-Mar-25	04-Apr-25	
CHHABRA TPP	4	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	250	01-Apr-25	15-May-25	Capital Overhauling	Not Taken		Deferred due to Power demand in state is running
KALISINDH TPS	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	600	01-Apr-25	14-Apr-25	Annual Boiler Overhauling and checking of Generator Stator & Rotor	01.07.25	15.08.25	Postponed due to Power demand in state is running
ANTA CCPP	1	T	CENTRAL SECTOR	Northern	Rajasthan	NTPC Ltd.	FALSE	NATURAL GAS	88.71	01-Apr-25	26-Apr-25	Maintenance Type - C (16000 hrs)			
NARORA A.P.S.	1	N	CENTRAL SECTOR	Northern	Uttar Pradesh	NPCIL	FALSE	NUCLEAR	220	01-Apr-25	15-Jun-25	BSD FOR 90 DAYS	14-Apr-25	09-Jul-25	In electricity generation program NAPS-1 tentative outage date was from 15.03.2025 for BSD of 90 days. However, outage was planned from 15.05.2025. But NAPS-1 TG tripped on Gen Differential protection on 14.04.2025 at 04:36:43 hrs. Subsequently reactor also tripped. NAPS-1 BSD is declared from 14.04.2025.

Annexure-A.IV

सत्यमेव जयते

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

विषय: Minutes of the meeting to discuss the status of AUFLS scheme in accordance with the report of Task Force on Automatic under Frequency Load Shedding (AUFLS) held on 01.05.2025 at 11: 00 hrs -reg.

Kindly find attached minutes of the meeting held on **01.05.2025 (11:00 AM)** to discuss the status of AUFLS scheme in accordance with the report of Task Force on Automatic under Frequency Load Shedding (AUFLS).

This issues with the approval of Member Secretary, NRPC.

Encl: As above

Signed by Dharmendra Kumar Meena
Date: 23-05-2025 14:54:19

(डी के मीना)
निदेशक (प्रचालन)

सेवा में,

As per list of participants attached

Minutes of the meeting to discuss status of AUFLS scheme in accordance with the report of Task Force on Automatic under Frequency Load Shedding (AUFLS) held on 01.05.2025 at 11: 00 hrs.

List of participants is attached as Annexure-I.

MS, NRPC welcomed all the participants and informed that implementation of Automatic under Frequency Load Shedding (AUFLS) scheme in accordance with the report of Task Force on AUFLS is being regularly discussed in the OCC meetings. In 229th OCC Meeting, it was decided to conduct a separate meeting with all the states of Northern Region to get the status of feeder-wise, Stage-wise AUFLS quantum data of States till March, 2025. Accordingly this meeting has been convened. Further, he asked EE(O), NRPC to present state-wise status of implementation of AUFLS scheme.

1. EE(O), NRPC presented the Stage wise Planned AUFLS relief quantum for each State/UT of NR Region as under:

State/UT	Stage-1 49.4 Hz (5%)	Stage-2 49.2 Hz (6%)	Stage-3 49.0 Hz (7%)	Stage-4 48.8 Hz (7%)	Total
	Stage-1 Relief	Stage-2 Relief	Stage-3 Relief	Stage-4 Relief	
Chandigarh	15.850	19.020	22.190	22.190	**79.248**
Delhi	299.338	359.205	419.073	419.073	**1496.690**
Haryana	526.332	631.599	736.865	736.865	**2631.661**
Himachal Pradesh	97.246	116.695	136.145	136.145	**486.231**
UT J&K & Ladakh	145.406	174.487	203.569	203.569	**727.031**
Punjab	601.638	721.966	842.293	842.293	**3008.190**
Rajasthan	811.056	973.268	1135.479	1135.479	**4055.282**
Uttar Pradesh	1191.769	1430.122	1668.476	1668.476	**5958.843**
Uttarakhand	113.069	135.682	158.296	158.296	**565.343**
Total	**3801.704**	**4562.045**	**5322.386**	**5322.386**	**19008.52**

2. MS, NRPC asked to discuss the stage-wise load relief implemented by states/UT's.

DELHI

3. EE(O) NRPC informed that feeder wise details have been submitted by DELHI SLDC (attached at **Annexure -II**). As per this, the stage-wise load relief of Delhi is 322 MW (Stage-1), 399 MW (Stage-2) ,441 MW (Stage-3) and 433 MW (Stage-4).
4. EE(O) NRPC mentioned that based on data submitted by Delhi the stage-wise load relief is greater than the planned stage wise load relief.
5. **Representative from Delhi SLDC requested for implementation of stage-wise AUFLS scheme as per the updated data. MS, NRPC agreed with the same.**

HARYANA

6. EE(O) NRPC mentioned that as per the information earlier shared by Haryana SLDC, actual load relief was 308 MW for Stage-1, 309 MW for Stage -2, 312 MW for Stage-3 and 314 MW for Stage-4.

7. EE(O) NRPC also mentioned that Haryana SLDC has submitted revised feeder-wise load relief (attached at **Annexure-III**). Based on this the updated stage-wise load relief of Haryana is 735 MW (Stage-1), 730 MW (Stage-2), 815 MW (Stage-3) and 897 MW (Stage-4).

8. EE(O) NRPC asked Haryana SLDC, the reason for difference between earlier shared stage-wise load relief and the updated stage-wise load relief.

9. Representative from Haryana SLDC informed that they have identified new additional feeders where relief during under frequency conditions could be obtained.

10. **MS, NRPC directed HARYANA SLDC to implement stage-wise AUFLS scheme as per the updated data.**

HIMANCHAL PRADESH

11. EE(O) NRPC mentioned that as per the information earlier shared by HP SLDC, the stage-wise load relief is 153 MW(Stage-1), 197 MW (Stage-2), 80 MW (Stage-3) and 35 MW (Stage-4).

12. He apprised the forum that as per the revised feeder wise details shared by HP SLDC (attached at **Annexure-IV**), the load relief is 432 MW (Stage-1), 365.42 MW (Stage-2), 182.5 MW (Stage-3) and 97.2 MW (Stage-4). He asked HPSLDC the reason for the change in earlier submitted data.

13. HPSLDC representative informed that earlier data was based on the information provided by protection wing of HPSEBL. Subsequently. Shimla and Hamirpur circles of HPSEBL have also submitted the details. Accordingly, implemented stage wise relief quantum has been revised/updated.

14. **MS, NRPC directed HP SLDC to implement stage-wise AUFLS scheme as per the updated data.**

UT J&K & Ladakh

15. EE(O) NRPC mentioned that as per feeder wise details submitted by J&K SLDC (attached at **Annexure-V**), the stage-wise load relief is 155.6 MW(Stage-1), 204.3 MW (Stage-2), 204.2 MW (Stage-3) and 214.2 MW (Stage-4).

16. Based on this, EE(O) NRPC mentioned that as per the feeder wise details shared by J&K SLDC, the stage-wise load relief is greater than the planned stage wise load relief in case of Jammu & Kashmir.

PUNJAB

17. EE(O) NRPC mentioned that as per feeder wise details submitted by Punjab SLDC (attached at **Annexure-VI**), the stage-wise load relief is 249 MW(Stage-1), 298.49 MW (Stage-2), 1035.97 MW (Stage-3) and 270 MW (Stage-4). As per this, load relief is less than planned load relief in case of Stage-1, Stage-2 and Stage-4.

18. MS NRPC stated that some loads of Stage-3 may be shifted to Stage-1/ Stage-2 to prevent the fall of frequency in Stage-1/Stage- 2. Representative from Punjab SLDC agreed to shift the load from Stage-3 to Stage-1/Stage-2.

19. MS, NRPC also stated that overall actual load relief is less than planned load relief in Punjab. To this, representative from Punjab SLDC informed that updated information from discom has been received and on the basis of that desired relief is expected. The information from discom shall be analysed stage wise as per task force and shall be submitted to NRPC.

20. **MS, NRPC directed Punjab SLDC to share the updated stage-wise and feeder wise details of relief with NRPC and to implement the updated scheme.**

RAJASTHAN

21. EE(O) NRPC mentioned that as per the information earlier shared by Rajasthan SLDC, the stage-wise load relief is 461 MW(Stage-1), 340 MW (Stage-2), 348 MW (Stage-3) and 344 MW (Stage-4).

22. He apprised the forum that as per revised feeder wise details submitted by Rajasthan SLDC (attached at **Annexure-VII**), the load relief is 812.13 MW (Stage-1), 973.54 MW (Stage-2), 1138.07 MW (Stage-3) and 1142.285 MW (Stage-4).

23. Representative of Rajasthan SLDC informed that load relief has been finalised considering the average load of the feeders.

24. **MS, NRPC directed Rajasthan SLDC to implement stage-wise AUFLS scheme as per the revised/updated data.**

UTTAR PRADESH

25. EE(O) NRPC mentioned that as per the information submitted by UP SLDC, the stage-wise actual load relief is 2580.33 MW(Stage-1), 2187.72 MW (Stage-2), 2013 MW (Stage-3) and 1757 MW (Stage-4).

26. EE(O) NRPC also mentioned that based on data submitted by UP SLDC, the stage-wise load relief is greater than the planned stage wise load relief.

27. **MS NRPC asked representative of UPPTCL to send the stage-wise feeder-wise details since the same was not yet received to NRPC.** Representative from UPPTCL assured to send the same.

UTTARAKHAND

28. EE(O) NRPC mentioned as per the information earlier shared by Uttarakhand actual load relief is 486 MW(Stage-1), 67 MW (Stage-2), 87 MW (Stage-3) and 241 MW (Stage-4).

29. He apprised the forum that as per revised/updated feeder wise details submitted by Uttarakhand SLDC (attached at **Annexure-VIII**), the load relief is 319 MW (Stage-1), 138 MW (Stage-2), 167 MW (Stage-3) and 241 MW (Stage-4).

30. Representative from Uttarakhand SLDC confirmed that the updated feeder wise relief given is implemented.

31. **MS, NRPC stated that most of the states have implemented stage-wise AUFLS load relief. He asked all SLDC to ensure that planned stage-wise load relief is implemented in their respective control areas. In addition to the planned relief states should also implement 10% additional relief as mentioned in the report of Task Force on AUFLS.**

32. In addition to agenda of the above meeting, NRLDC presented table agenda regarding review of UFR and df/dt operation and uniformity of df/dt protection setting in NR.

33. NRLDC representative mentioned that on 21.04.2025 at 19:04 hrs, frequency had touched 49.42 Hz and UFR have been operated in some of the feeders in Lucknow, Meerut and Prayagraj zone of UP with tripping of around 50 MW.

34. Further on 25.04.2025 at 21:26 hrs, significant quantum of load loss (~425 MW) occurred in Punjab control area during a fault incident at 400kV Malerkotla(PG). During the May-June 2024 also, multiple incidents of df/dt operation leading to significant quantum of load loss were observed in Punjab control area. Punjab confirmed that they have reviewed the df/dt setting and settings has been kept in line with the philosophy. However, the recent operation of df/dt on 25.04.2025 indicates issue in df/dt settings in Punjab control area.

35. In view of above, review of UFR and df/dt settings is required to avoid unwanted tripping of feeders and load loss in states. Major review is needed in Punjab control area.

36. UPPTCL representative stated that a sensitivity of 2% could be a possibility of tripping of relay at 49.42 Hz frequency and is negligible to be avoided. He assured for the periodic review.

37. NRLDC asked PUNJAB SLDC to review the protection settings of relays and to submit list of the load mapping in df/dt.

38. **MS, NRPC suggested to take this agenda for discussion in upcoming PSC meeting.**

Meeting ended with vote of thanks to the Chair.

*****

Annexure-I

List of participants of the meeting

Display Name	Attendee Email
V K Singh, MS, NRPC	ms-nrpc@nic.in
Omkishor, EE(O), NRPC	seo-nrpc@nic.in
Mahavir Prasad Singh/NRLDC	mahavir@grid-india.in
Bikas_NRLDC	bikaskjha@grid-india.in
Deepak/NRLDC	deepak.kr@grid-india.in
B L GUJAR	bharatlalgujar@gmail.com
DTL	chanana.ramneet@gmail.com
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Sldc delhi	sldcmintoroad@gmail.com
Haryana SLDC	sldcharyanacr@gmail.com
PC HPSLDC	sehpsldc@gmail.com
PSLDC	adeep19930916@gmail.com
Punjab sldc	karan.bansal.00@gmail.com
upsldc	sesc@upsldc.org
Pankaj Saxena, SE, UPPPTCL	smart.saxena@gmail.com
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SLDC J&K JKPTCL JAMMU	jksldc3@gmail.com
Uttarakhand SLDC	uksldcso@ptcul.org
Asim Baig (PTCUL)	NA
Visshad Ranjan	NA
bheempratap	NA
rahul sharma Sr. XEN HPSEBL	NA

Format for UFR Settings for NR States/UTs as on 31.03.2025

S. No.	Name of S/Stn (including voltage level)	Name of Feeder/ transformer (including voltage level)	UFR(Hz) setting	Estimated Load relief (MW)			
				49.4 Hz	49.2 Hz	49.0 Hz	48.8 Hz
1	A	x					
		y					
		z					
2	B	x					
		y					
		z					

Annexure-B.I

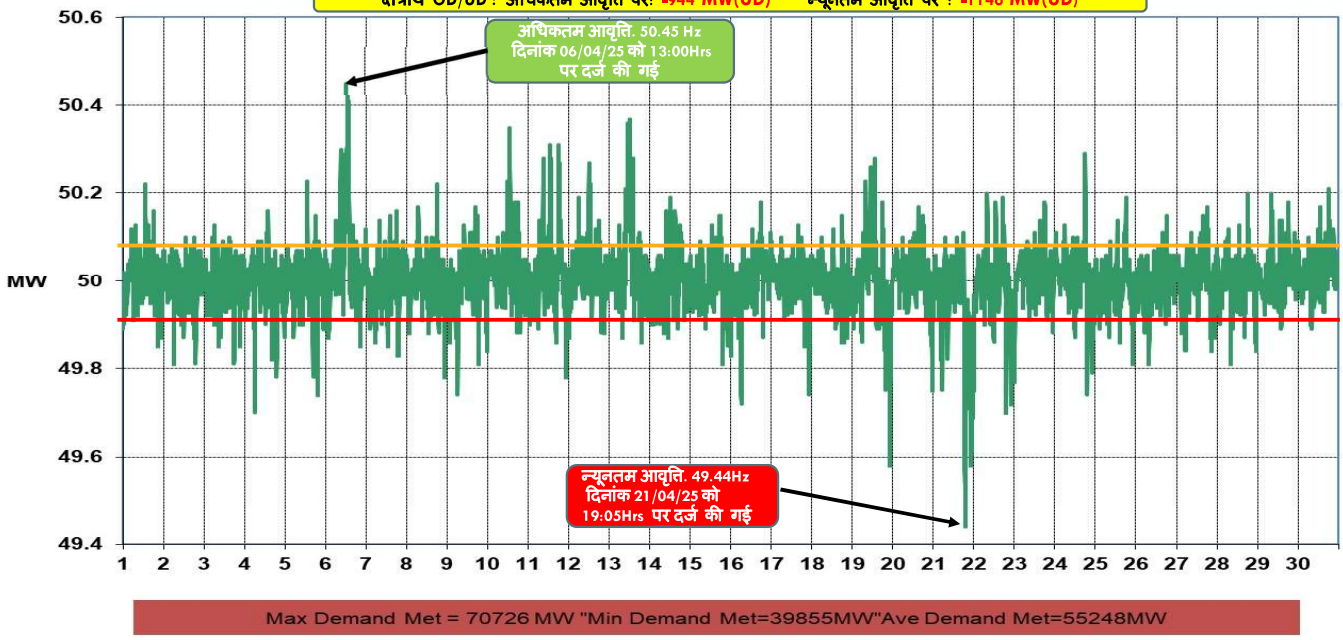
प्रचालन समन्वय उपसमिति की बैठक
अप्रैल - 2025

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

ग्रिड-इंडिया GRID-INDIA

FREQ

क्षेत्रीय OD/UD : अधिकतम आवृत्ति पर: -944 MW(UD) न्यूनतम आवृत्ति पर : -1146 MW(UD)



OD(+)/UD(-) at Max Freq	
UP	-802
Raj	-652
Har	307
Utt	-46
JK	-35
Chd	-23
Pun	133
HP	90
Del	83

OD(+)/UD(-) at Min Freq	
Del	-92
Pun	-25
JK	-137
Raj	-212
Chd	-51
UP	-365
Utt	-112
Har	-147
HP	-41

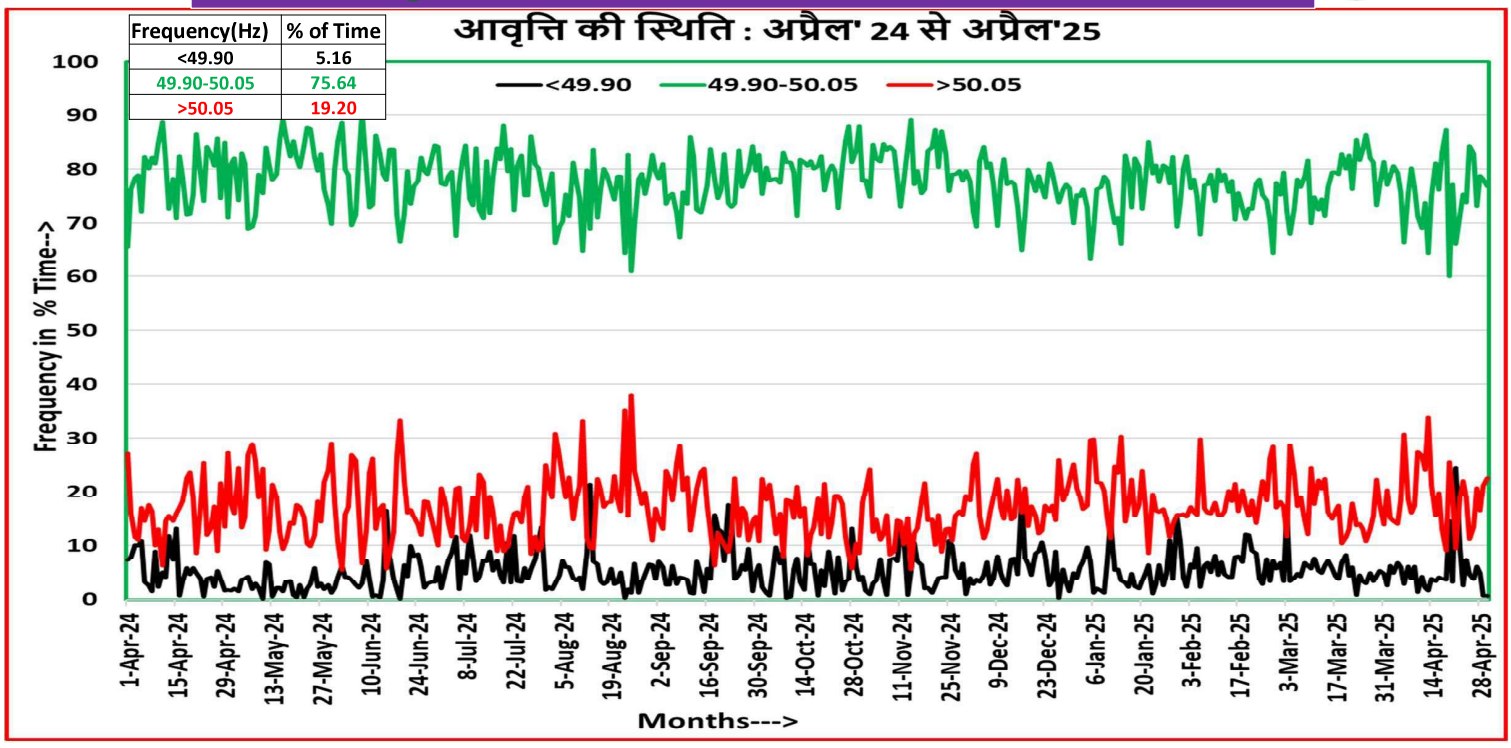
Max Demand Met = 70726 MW "Min Demand Met=39855MW"Ave Demand Met=55248MW

DATE

आवृत्ति की स्थिति: अप्रैल-2024 से 2025

ग्रिड-इंडिया
GRID-INDIA

Frequency(Hz)	% of Time
<49.90	5.16
49.90-50.05	75.64
>50.05	19.20



पिछले एक साल मे आवृत्ति की स्थिति

आवृत्ति बैंड	अप्रैल 2024	मई 2024	जून 2024	जुलाई 2024	अगस्त 2024	सितम्बर 2024	अक्टूबर 2024	नवम्बर 2024	दिसंबर 2024	जनवरी 2025	अप्रैल 2025	मार्च 2025	अप्रैल 2025
< 49.7 Hz(%)	0.030	0.000	0.02	0.054	0.176	0.18	0.14	0.10	0.29	0.18	0.12	0.05	0.27
<49.8 Hz(%)	0.432	0.059	0.31	0.621	0.631	0.89	0.60	0.66	0.97	0.92	0.73	0.61	0.96
<49.9 Hz(%)	5.254	2.490	4.50	6.406	4.660	6.09	4.86	5.15	5.58	5.23	6.24	5.32	5.16
49.90-50.05 Hz(%)	*78.56*	*80.045*	*79.177*	*78.424*	*75.012*	*77.130*	*80.27*	*80.80*	*76.45*	*76.05*	*75.35*	*77.89*	*75.64*
50.05-50.10 Hz(%)	11.178	13.839	13.34	12.122	13.334	10.36	12.18	10.90	14.59	15.09	14.23	13.12	14.80
>50.10 Hz(%)	5.010	3.627	2.99	3.047	6.992	6.42	2.49	3.15	3.38	3.63	4.18	3.67	4.39
>50.20 Hz(%)	0.539	0.285	0.12	0.280	1.725	1.03	0.20	0.21	0.37	0.33	0.55	0.63	1.09
औसत आवृत्ति	50.00	50.00	50.002	49.997	50.008	50.000	49.998	49.995	49.998	49.998	49.999	50.001	50.004

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

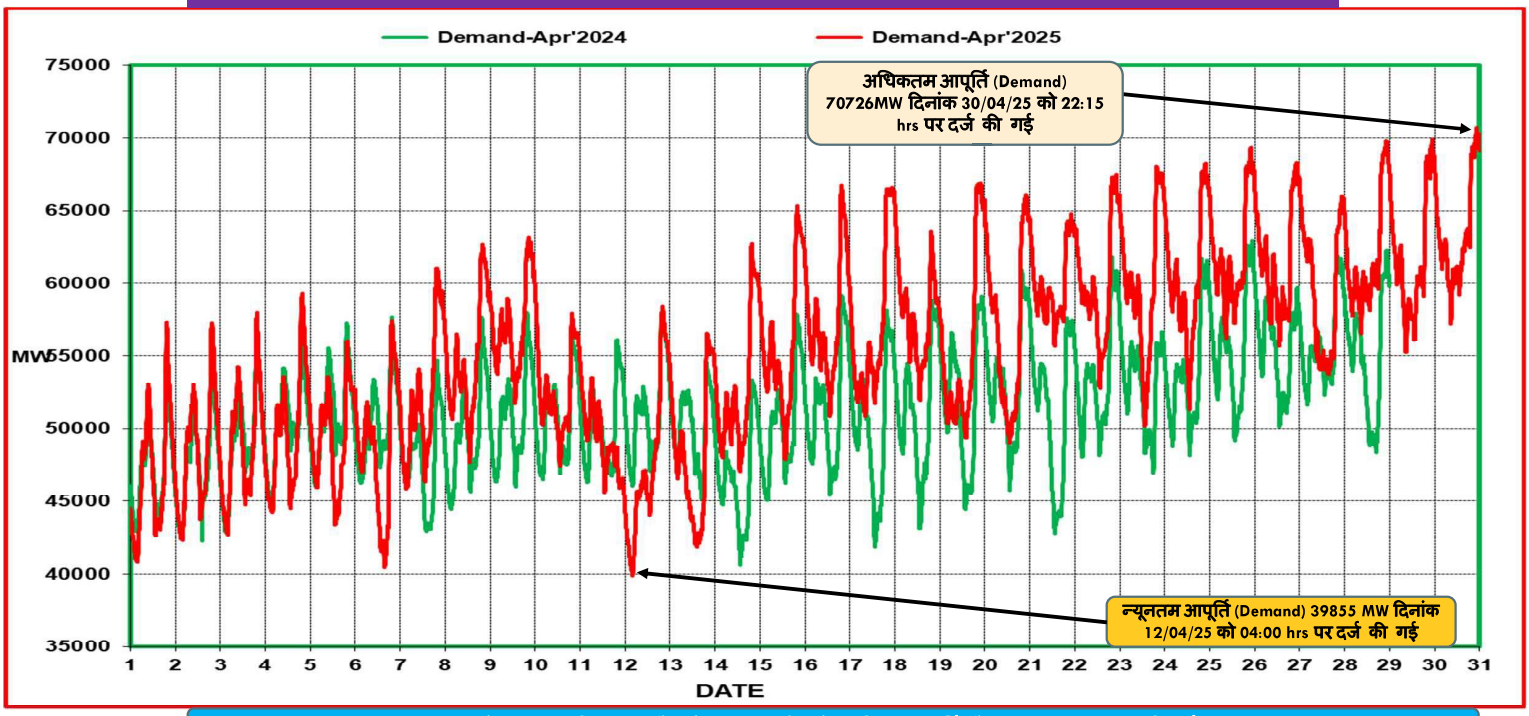
ग्रिड-इंडिया GRID-INDIA

राज्य	अधिकतम मांग (MW) (in Apr'25)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Mar'25)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in Apr'25)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Mar'25)	दिनांक
पंजाब	11276	30.04.25 at 07:00	16089	29.06.24 at 12:45	217.6	30.04.25	366.8	21.07.2024
हरियाणा	9937	17.04.25 at 23:45	14662	31.07.24 at 14:30	213.6	30.04.25	293.4	30.07.2024
राजस्थान	15730	30.04.25 at 10:00	19165	12.02.25 at 11:00	329.5	30.04.25	379.1	30.05.2024
दिल्ली	6014	28.04.25 at 15:30	8656	19.06.24 at 15:06	122.3	28.04.25	177.7	18.06.2024
उत्तर प्रदेश	26278	25.04.25 at 21:32	30618	13.06.24 at 22:00	505.1	25.04.25	658.7	17.06.2024
उत्तराखंड	2305	24.04.25 at 20:00	2863	14.06.24 at 22:00	50.1	30.04.25	62.1	14.06.2024
हिमाचल प्रदेश	1818	04.04.25 at 07:45	2273	17.01.25 at 09:00	37.1	26.04.25	41.3	20.12.24
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	2844	04.04.25 at 07:00	3200	07.01.25 at 10:00	57.6	04.04.25	70.3	04.02.25
चंडीगढ़	322	30.04.25 at 15:00	482	18.06.24 at 15:28	6.4	30.04.25	9.1	18.06.2024
उत्तरी क्षेत्र #	70726	30.04.25 at 22:15	91234	19.06.24 at 14:37	1524.6	30.04.25	1990.4	18.06.2024

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

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

ग्रिड-इंडिया
GRID-INDIA

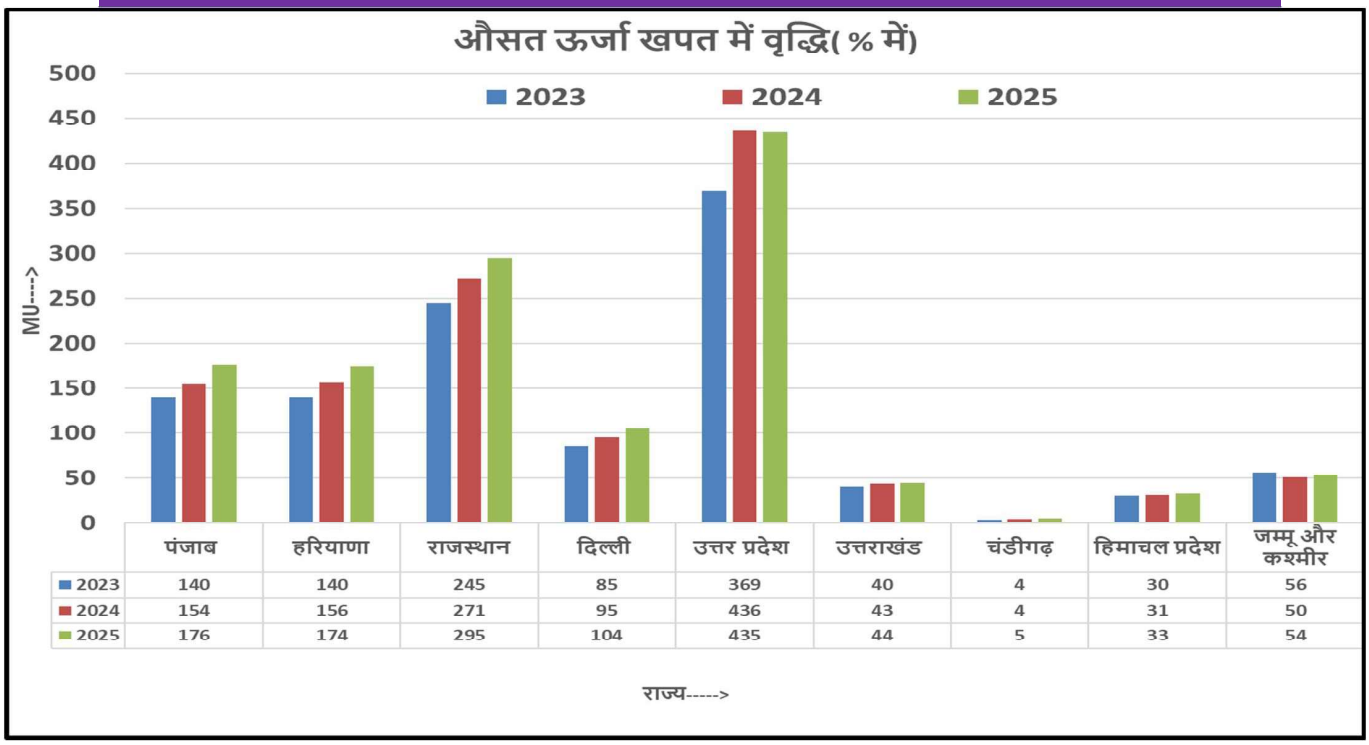


अप्रैल -2024 की तुलना में अप्रैल -2025 की औसत विद्युत आपूर्ति में 7.03 % (3630MW) वृद्धि हुई

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

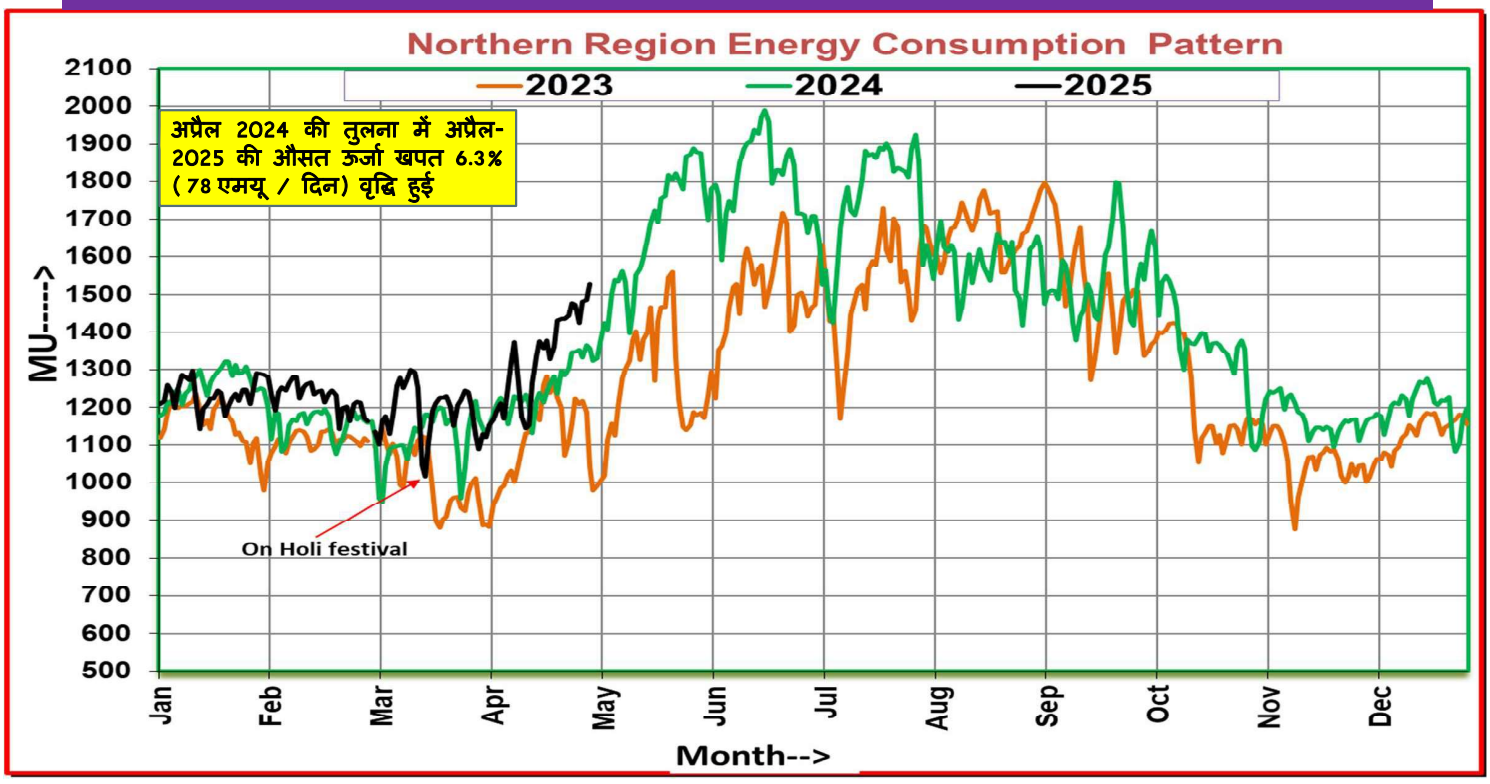
राज्य	अप्रैल-2023	अप्रैल-2024	अप्रैल-2025	% वृद्धि (अप्रैल-2024 vs अप्रैल-2023)	% वृद्धि (अप्रैल-2025 vs अप्रैल-2024)
पंजाब	140	154	176	9.9%	14.2%
हरियाणा	140	156	174	11.4%	11.6%
राजस्थान	245	271	295	10.6%	8.7%
दिल्ली	85	95	104	11.4%	10.2%
उत्तर प्रदेश	369	436	435	18.1%	-0.4%
उत्तराखंड	40	43	44	8.1%	1.1%
चंडीगढ़	4	4	5	7.8%	14.5%
हिमाचल प्रदेश	30	31	33	3.0%	5.6%
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	56	50	54	-9.8%	7.5%
उत्तरी क्षेत्र	1110	1245	1323	12.2%	6.3%

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

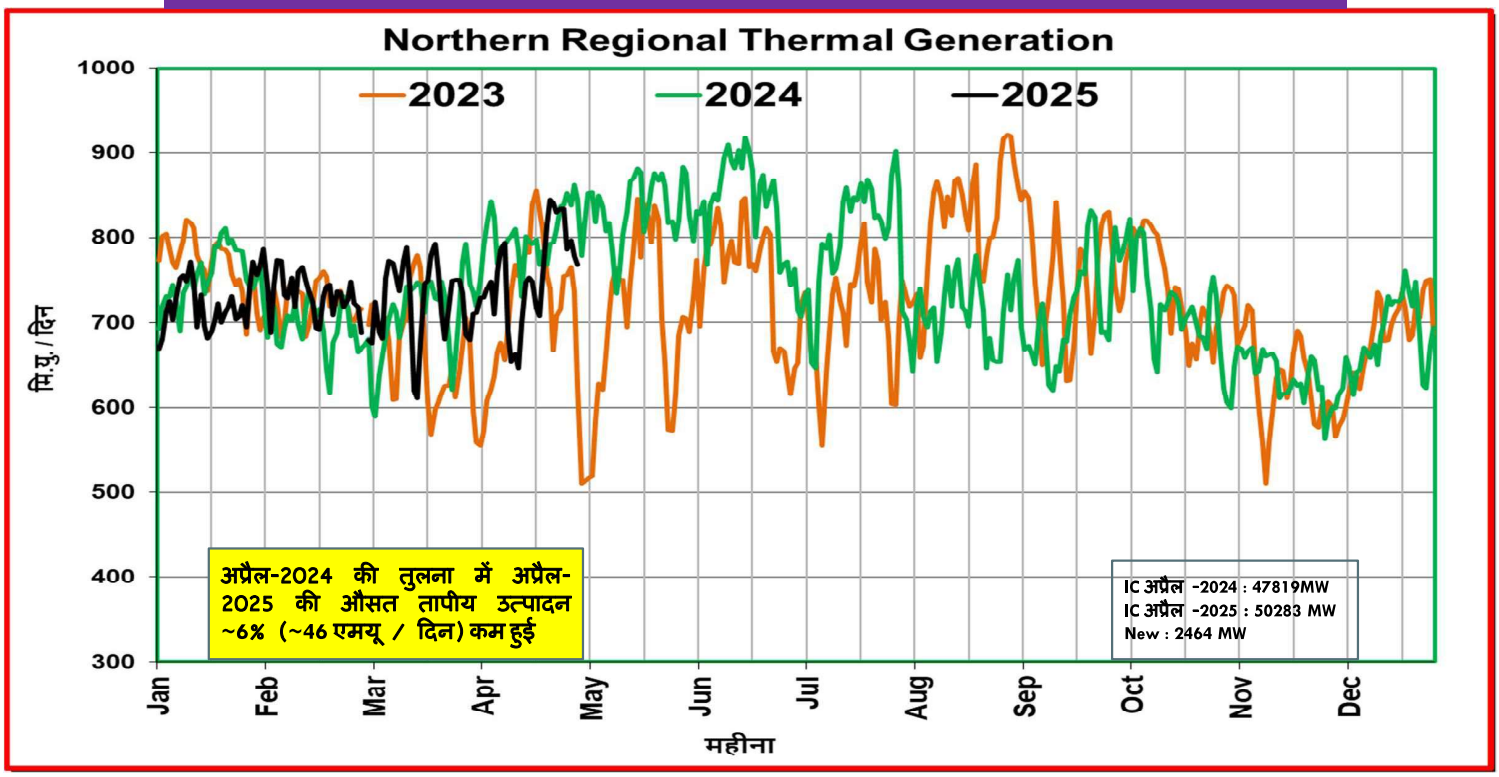


	पंजाब	हरियाणा	राजस्थान	दिल्ली	उत्तर प्रदेश	उत्तराखंड	चंडीगढ़	हिमाचल प्रदेश	जम्मू और कश्मीर
2023	140	140	245	85	369	40	4	30	56
2024	154	156	271	95	436	43	4	31	50
2025	176	174	295	104	435	44	5	33	54

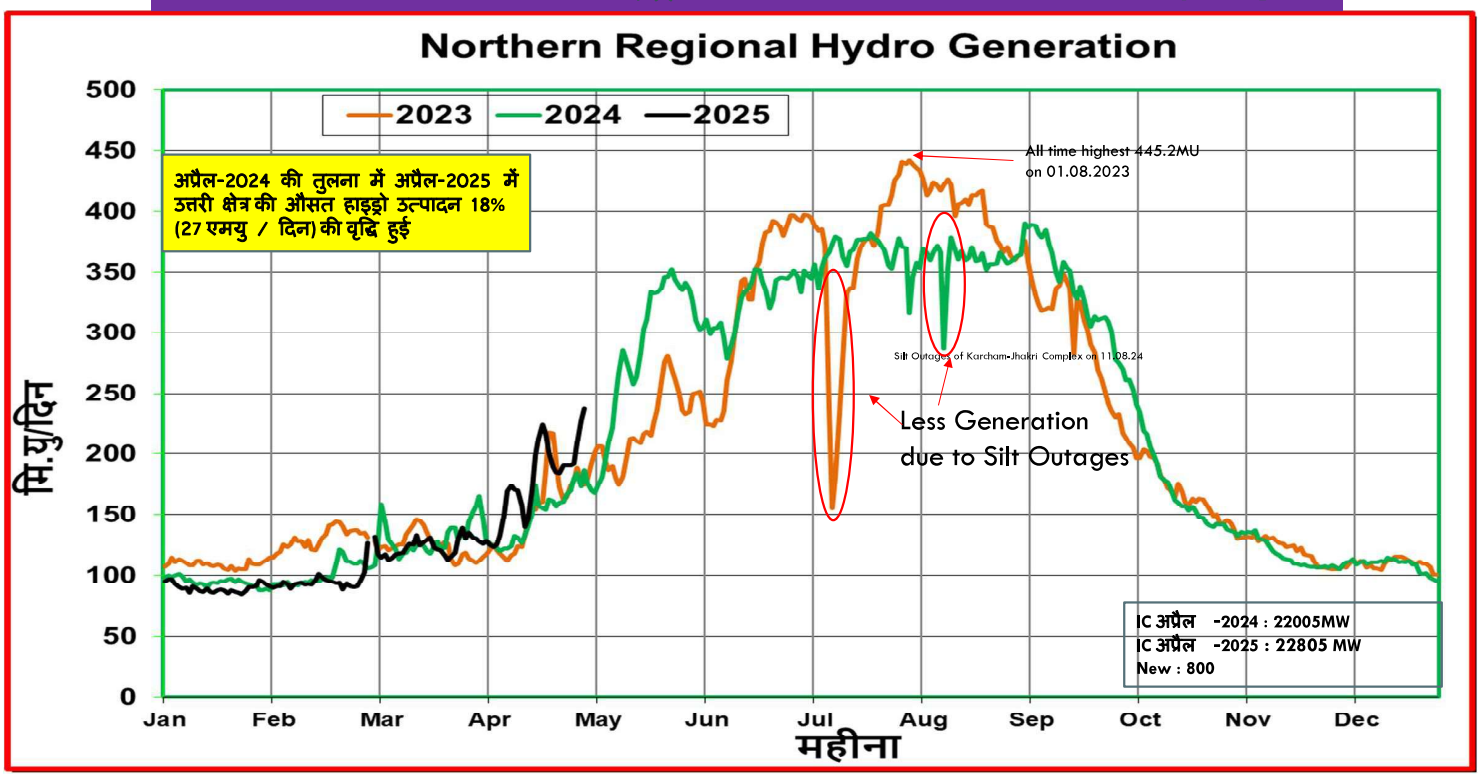
उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



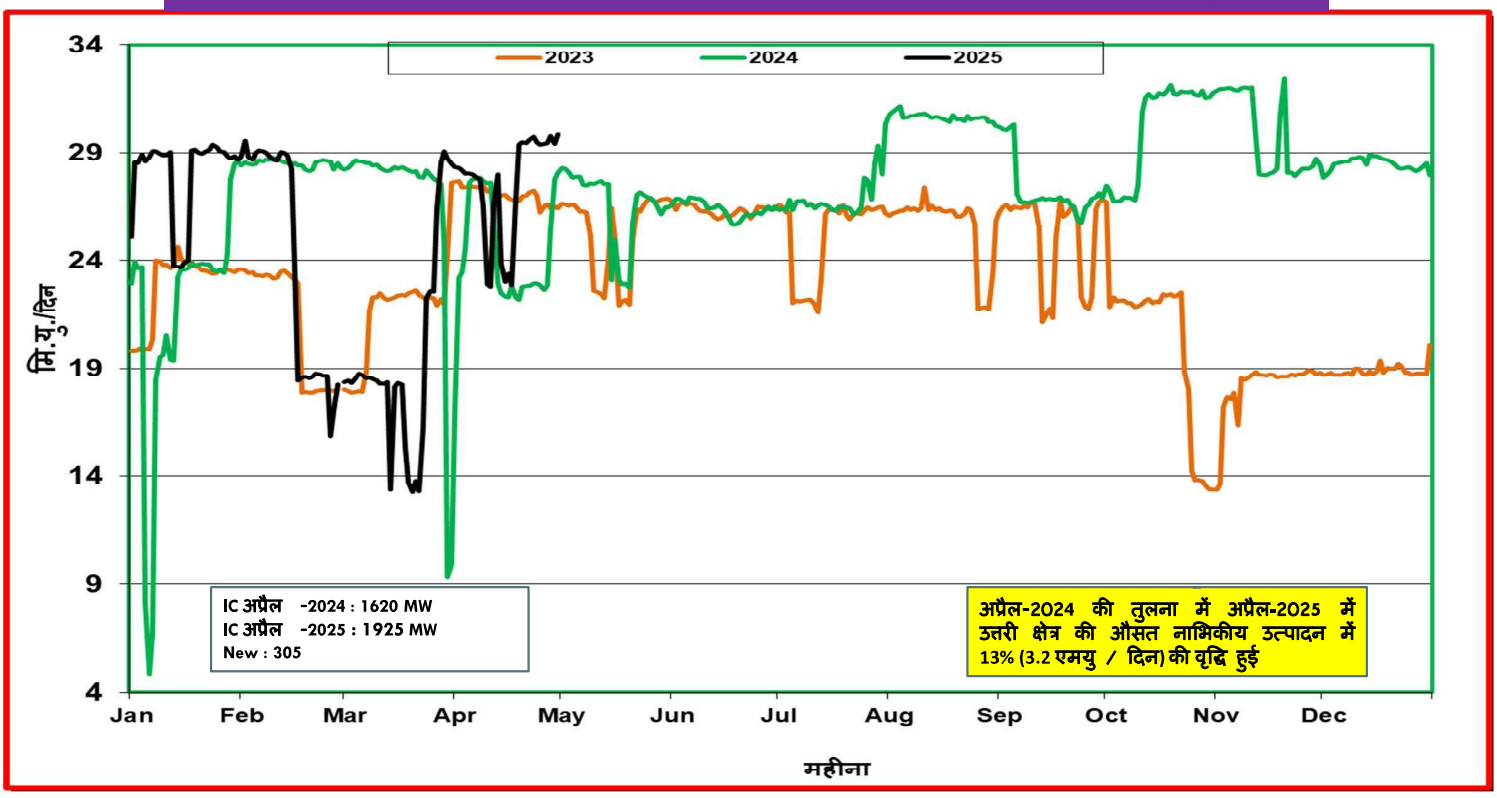
उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(MUs/Day)



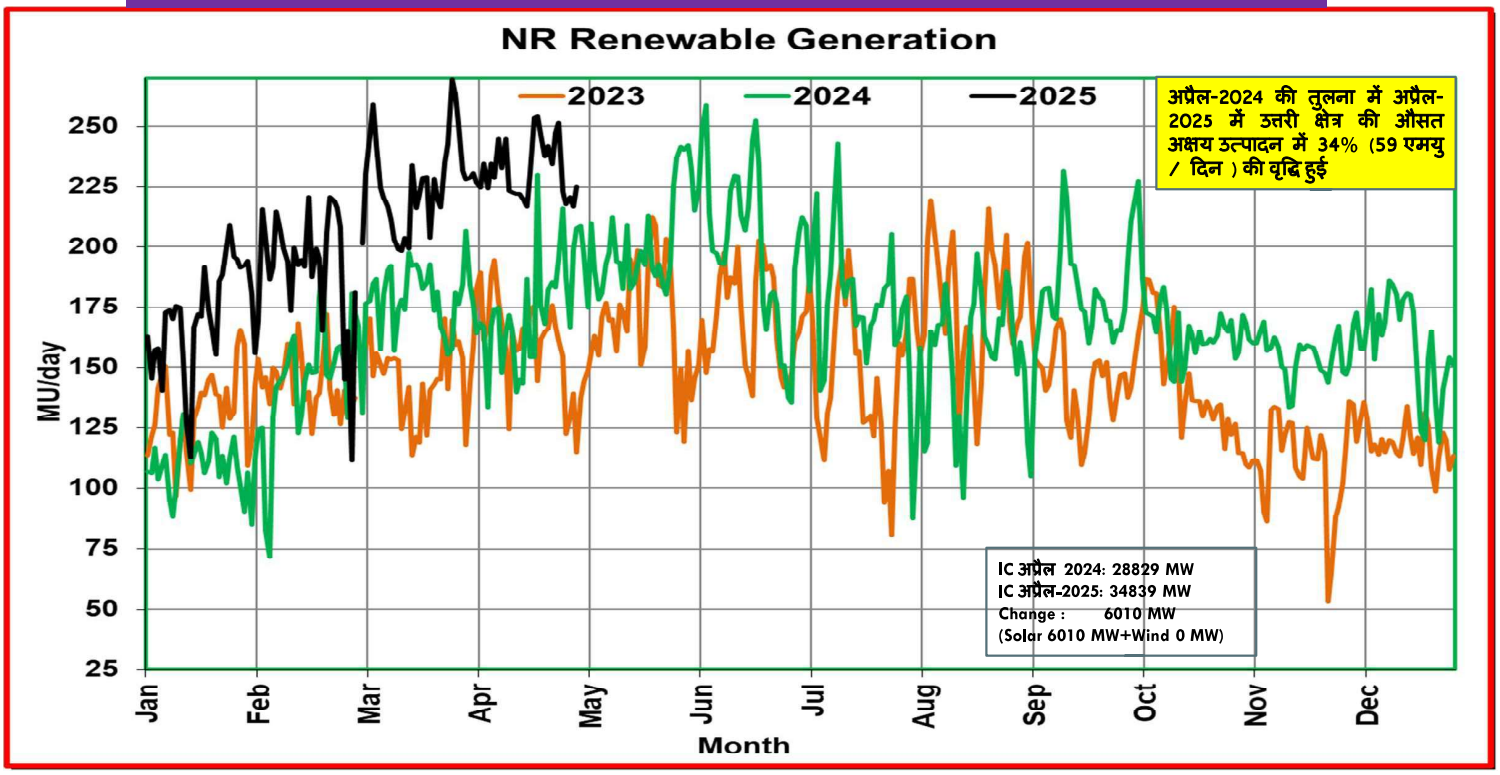
उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(MUs/Day)



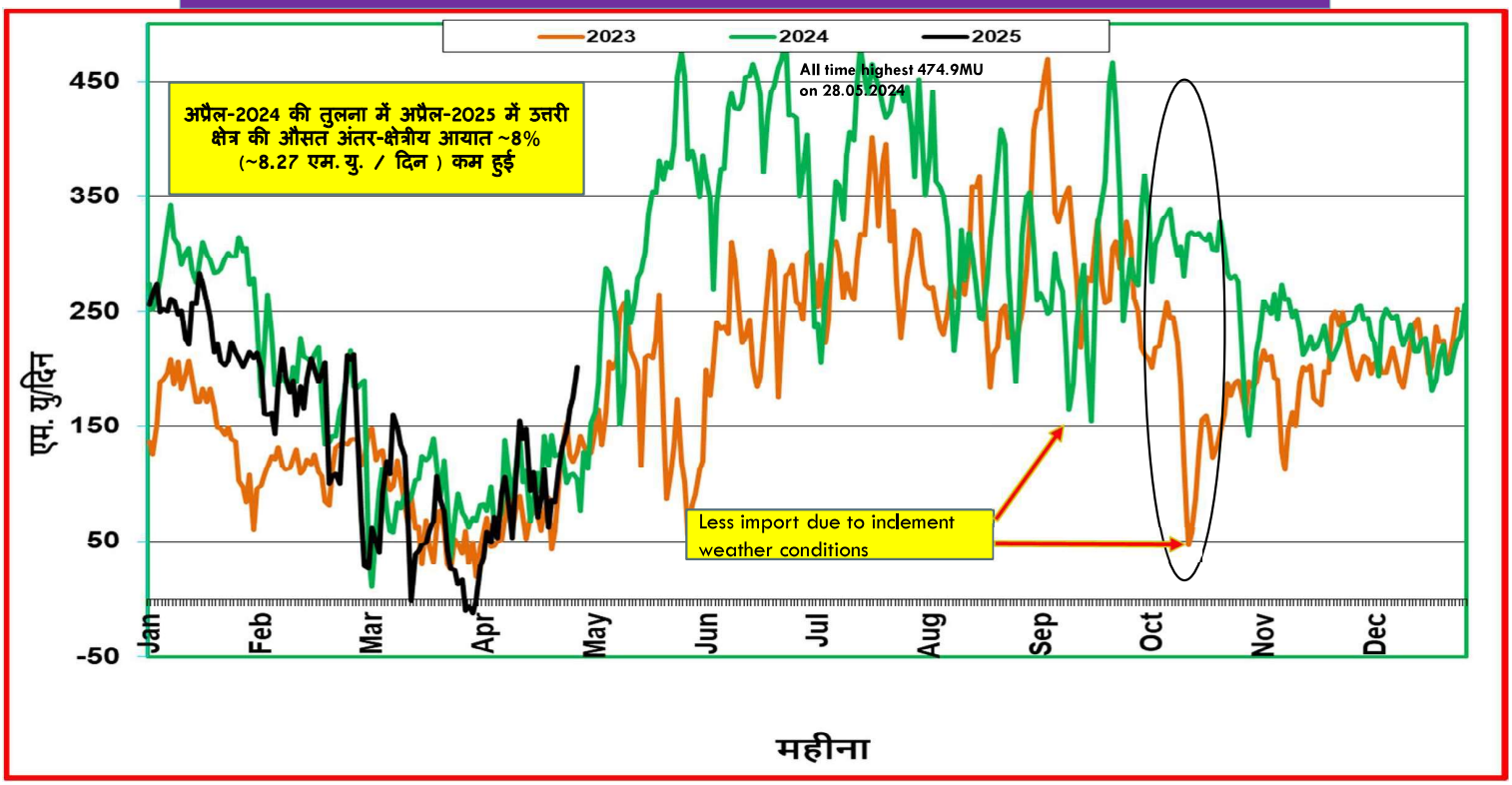
उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)



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



अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



वास्तविक सारांश -
अप्रैल-2024 बनाम अप्रैल-2025

	अप्रैल-2024 (मि.यु. /दिन)	अप्रैल-2025 (मि.यु. /दिन)	अप्रैल माह में वृद्धि (मि.यु./दिन)
तापीय (Thermal) उत्पादन	800	754	-46
जलीय (Hydro) उत्पादन	148	175	27
नाभिकीय (Nuclear) उत्पादन	24	27	3.2
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	101	93	-8
अक्षय (Renewable) उत्पादन	173	232	59

RE Penetration

	Maximum Daily MU Penetration			
	Apr '2025		Record upto Mar '2025	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	4.74	01-04-2025	12.28	01-04-2020
Rajasthan	26.15	18-04-2025	36.47	22-10-2021
UP	5.19	01-04-2025	6.03	05-03-2025
NR	20.60	01-04-2025	23.00	15-03-2025

DEMAND FORECAST STATUS OF SLDC

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

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

- The following is the status regarding forecast data submission.

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

- **Online portal is under development and will go live within 2 months. All are requested to strictly follow the standard format provided along with the submission timeline.**

Outage Summary For April 2025									
CONSTITUENTS	PLANNED (A)	FORCED OUTAGES (B=C+D)	EMERGENCY SHUTDOWNS (C)	TRIPPING (D)	% PLANNED SHUTDOWNS (A/(A+C))	% EMERGENCY SHUTDOWNS(C/(A+C)	% ESD SHUTDOWNS(C/B)	% TRIPPING (D/B)	TOTAL OUTAGES (A+B)
POWERGRID	351	288	152	136	69.8%	30.2%	52.8%	47.2%	639
UPPTCL	162	194	80	114	66.9%	33.1%	41.2%	58.8%	356
RRVPNL	85	141	43	98	66.4%	33.6%	30.5%	69.5%	226
BBMB	67	76	22	54	75.3%	24.7%	28.9%	71.1%	143
HVPNL	78	53	18	35	81.3%	18.8%	34.0%	66.0%	131
PSTCL	62	60	22	38	73.8%	26.2%	36.7%	63.3%	122
DTL	19	28	21	7	47.5%	52.5%	75.0%	25.0%	47
NRSS36	16	18	18	0	47.1%	52.9%	100.0%	0.0%	34
NTPC	9	24	6	18	60.0%	40.0%	25.0%	75.0%	33
HPPTCL	13	16	4	12	76.5%	23.5%	25.0%	75.0%	29
PTCUL	4	22	2	20	66.7%	33.3%	9.1%	90.9%	26
GTL	4	19	1	18	80.0%	20.0%	5.3%	94.7%	23
NUPPL	8	14	2	12	80.0%	20.0%	14.3%	85.7%	22
MAHINDRA	8	4	0	4	100.0%	0.0%	0.0%	100.0%	12
ADHPL	8	3	0	3	100.0%	0.0%	0.0%	100.0%	11
PDD JK	2	9	2	7	50.0%	50.0%	22.2%	77.8%	11
AHEJ2L	0	10	8	2	0.0%	100.0%	80.0%	20.0%	10
GPTL	5	3	1	2	83.3%	16.7%	33.3%	66.7%	8
ESUCRL	6	1	1	0	85.7%	14.3%	100.0%	0.0%	7
Adani	6	0	0	0	100.0%	0.0%	NA	NA	6
NHPC	3	3	1	2	75.0%	25.0%	33.3%	66.7%	6
AEPL	1	4	2	2	33.3%	66.7%	50.0%	50.0%	5
NRSS XXIX	0	5	2	3	0.0%	100.0%	40.0%	60.0%	5
PKTSL	4	1	1	0	80.0%	20.0%	100.0%	0.0%	5
Saurya Urja	1	4	4	0	20.0%	80.0%	100.0%	0.0%	5
THDC	1	3	3	0	25.0%	75.0%	100.0%	0.0%	4
Total	923	1003	416	587	68.9%	31.1%	41.5%	58.5%	1926

OUTAGE SUMMARY OF LAST THREE MONTHS

MONTH	PLANNED	FORCED OUTAGES	EMERGENCY SHUTDOWNS	TRIPPING	% PLANNED as of TOTAL S/D	% EMERGENCY SHUTDOWNS	TOTAL OUTAGES (A+B)
	(A)	(B=C+D)	(C)	(D)	(A/(A+C))	(C/(A+C))	
Jan-25	965	813	445	368	68.4%	31.6%	1778
Feb-25	1000	658	355	303	73.8%	26.2%	1658
Mar-25	1104	772	392	380	73.8%	26.2%	1876
Apr-25	**923**	**1003**	**416**	**587**	**68.9%**	**31.1%**	**1926**

New Elements First Time Charged During April 2025

S. No.	Type of transmission element	Total No
1	AC Lines	2
2	LILO AC Lines	2
3	Transformer	9
4	Solar plant	7
5	Bus Reactor	1
Total New Elements charged		21

New AC Lines

S.No	Name of element	Owner	Voltage Level (in kV)	Circuit No	Line Length	Conductor Type	Actual date of charging
1	220kV XL_XPPL_SL_Ftg3(PG)-Fatehgarh_III(PG)-1	XL_XPPL	220kV	1	5.329	HTLS	20-Apr-2025
2	220kV ASSPL_SL_BKN2-Bikaner_2 (PBTSL)-1	ASSPL_BKN2	220kV	1	2.347	AL59 Moose	25-Apr-2025

LILO AC Lines

S.No	Name of element	Voltage Level (in kV)	Name of Line to be LILOed	Line Length of New Line after LILO (In Km)	LILO Portion Line Length (In Km)	Conductor Type	Agency/Owner	Actual date of charging
1	400kV Anta(RS)-Sangod GSS (RS)-1(After LILO of 400 kV Kalisindh-Anta ckt-II at 400 kV GSS Sangod)	400kV	400 kV Kalisindh-Anta ckt-II	27.269	5.712	Quad Moose	RRVPNL,Sangod Transmission Service Limited	12-Apr-2025
2	400kV Kalisindh(RS)-Sangod GSS (RS)-1(After LILO of 400 kV Kalisindh-Anta ckt-II at 400 kV GSS Sangod)	400kV	400 kV Kalisindh-Anta ckt-II	63.532	5.712	Quad Moose	RRVPNL,Sangod Transmission Service Limited	12-Apr-2025

Transformer

S.No	Name of element	Owner	Voltage Level (HV/LV/Tertiary)	MVA Capacity	Transformer Details	OLD MVA Capacity	Actual date of charging
1	400/11.5kV, 100 MVA, 3-Phase, BHEL, Station Transformer - 2 at Panki TPS (UP)	UPRVUNL	400/11.5kV	100	New	NA	06-Apr-2025
2	400/220/33kV, 500 MVA, 3-Phase, Transformers & Rectifiers, Power Transformer - 1 at Sangod GSS (RS)	Sangod_TSL_RS	400/220/33kV	500	New	NA	12-Apr-2025
3	400/220/33kV, 500 MVA, 3-Phase, Transformers & Rectifiers, Power Transformer - 2 at Sangod GSS (RS)	Sangod_TSL_RS	400/220/33kV	500	New	NA	12-Apr-2025
4	220/33kV, 213 MVA, 3-Phase, INDOTECH, Power Transformer - 2 at XL_XPPL_SL_Ftg3(PG)	XL_XPPL	220/33kV	213	New	NA	20-Apr-2025
5	220/33kV, 213 MVA, 3-Phase, INDOTECH, Power Transformer - 1 at XL_XPPL_SL_Ftg3(PG)	XL_XPPL	220/33kV	213	New	NA	20-Apr-2025
6	220/33kV, 150 MVA, 3-Phase, TBEA, Power Transformer - 1 at ASSPL_SL_BKN2	ASSPL_BKN2	220/33kV	150	New	NA	25-Apr-2025
7	220/33kV, 150 MVA, 3-Phase, TBEA, Power Transformer - 2 at ASSPL_SL_BKN2	ASSPL_BKN2	220/33kV	150	New	NA	26-Apr-2025
8	765/400/33kV, 1500 MVA MVA, 3x1-Phase, Siemens energy, ICT - 1 at Fatehgarh_III(PG)	PRTL	765/400/33kV	1500	New	NA	27-Apr-2025
9	765/400/33kV, 1500 MVA, 3x1-Phase, GE T&D, ICT - 1 at Jawaharpur_TPS(UP)	UPRVUNL	765/400/33kV	1500	New	NA	28-Apr-2025

Solar plant

S.No	Plant Name	Pooling Sub-station	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	Karinsar Solar Plant NHPC Ltd(KSP_NHPC)	Bikaner_2(PBTSL)	10.36	300	Solar	1	NHPC	01-Apr-2025
2	RENEW SURYA JYOTI PRIVATE LIMITED(RSJPL)	Fatehgarh_3	210	210	Solar	26	Renew Surya Jyoti Private Limited	05-Apr-2025
3	Neemba Solar Plant Renew Surya Vihaan Private Limited(NSPRVPL)	Fatehgarh_3	200	200	Solar	24	Neemba_SPRVPL	05-Apr-2025
4	GORBEA SOLAR PRIVATE LIMITED(GSPL)	Bhadla_2(PG)	100	300	Solar	12	Gorbea_SPL	22-Apr-2025
5	XL Xergi Power Private Limited(XXPPL)	Fatehgarh_3	215	400	Solar	25	XL_XPPL	22-Apr-2025
6	ACME Sikar Solar Private Limited(ASSPL_BKN2)	Bikaner_2(PBTSL)	90	300	SOLAR	6	ASSPL_BKN2	30-Apr-2025
7	RENEW SURYA ROSHNI PRIVATE LIMITED	Fatehgarh_3	23	400	Hyb(Solar+BESS)	BESS	RENEW SURYA ROSHNI PRIVATE LIMITED	08-Apr-25

Bus Reactor

S.No	Name of element	Owner	Voltage LeveL	MVAR Capacity	Bus Reactor Details	OLD MVAR Capacity	Actual date of charging
1	400kV, 80 MVAr Bus Reactor 1 at Panki TPS (UP)	UPRVUNL	400kV	80 MVAr	New	NA	23-Apr-2025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S. No.	Element Name	Owner	Outage (Date & Time)		Reason / Remarks
1	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	UPPTCL	13-03-2020	02:46	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover.
2	FSC(40%) of 400 KV Fatehpur-Mainpuri (PG) Ckt-1 at Mainpuri(PG)	POWER GRID	24-10-2021	21:07	VME protection system was blocking the FSC back to in service
3	50 MVAR Non-Switchable LR on Agra-Unnao (UP) Ckt-1 @Agra(UP)	UPPTCL	28-10-2021	22:27	R and Y phase bushing damaged at Agra(UP).
4	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	UPPTCL	13-12-2021	22:38	Due to high DGA values, Hydrogen gas is above permissible limit.
5	FSC(40%) of 400 KV Fatehpur-Mainpuri (PG) Ckt-2 at Mainpuri(PG)	POWER GRID	29-01-2022	08:25	While attempting charging of FSC-2 (Fathepur Mainpuri line-2) at Mainpuri, VME protection system was blocking the FSC back to in service. Due to that FSC-2 could not be taken in service.
6	400/220 kV 315 MVA ICT 1 at Loni Harsh Vihar(DV)	DTL	07-06-2024	18:28	Earth fault. During back charging of ICT-1 was tripped off on OLTC OSR, E/f pick up and harmonic block relay indication.
7	220 KV Kishenpur(PG)-Mir Bazar(PDD) (PDD) Ckt-1	PDD JK	21-06-2024	20:09	Tower foundation damaged . Emergency shutdown of 220k KPTL Kishenpur - Mirbazar Ckt as the landslide occurred at Tower Loc. no. KP-196 at Peerah and tower is on the verge of collapse.
8	400KV Bus 2 at Noida Sec 148(UP)	UPPTCL	08-03-2023	17:28	Bus bar protection operated. GIS duct issue at Noida Sec 148(UP).
9	400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2	UPPTCL	09-03-2023	17:26	Flashover Y-phase earth switch compartment at Noida Sector-148.
10	400/220 KV 500 MVA ICT 1 at Ramgarh(RS)	RRVPNL	26-04-2023	18:06	Preparatory arrangement & dismantling work of ICT-I at Ramgarh

11	FSC(39%) of 765 KV Koteshwar-Meerut (PG) Ckt-1 at Meerut(PG)	POWER GRID	08-06-2023	08:41	B-Phase to earth fault, Fault Current: 9.0kA, , Dist. 100.8km from Meerut end.
12	400/220 kV 500 MVA ICT 1 at Rasra (UP)	UPPTCL	26-10-2023	20:34	Y-phase bushing has got damaged.
13	400/220 kV 315 MVA ICT 1 at Kabulpur(HV)	HVPNL	11-08-2024	06:07	Operation of transformer protection . Differential protection trip.
14	400 KV Baglihar(JK)-Kishenpur(PG) (PDD JK) Ckt-2	PDD JK	12-09-2024	06:24	Phase to earth fault B-N , Dist. 62km, Fault current 5.86kA from Kishenpur(PG) & Dist. 0.3km, Fault current 7.46kA from Baglihar. After thorough inspection fault was detected in the Pot head yard due to insulation failure in 400kV SUDKABEL outdoor termination kit.
15	400KV Bus 3 at Anpara(UP)	UPPTCL	07-10-2024	08:30	For Replacement of Breaker(Transfer bus)
16	400 KV Dulhasti(NH)-Kishenpur(PG) (PG) CKT-2	POWER GRID	15-10-2024	10:44	400KV Dulhasti Kishenpur -II is a Double circuit Line but stringing is done on one circuit only. Award placed for stringing on Circuit-2 under evacuation of Power from Pakaldul HEP in Chenab Valley HEPs. Shutdown to carryout stringing on Circuit 2.
17	407 Bus Coupler Bay - 400kV Bus 1 and 400kV Bus 2 at Parbati_2(NH)	NHPC	03-12-2024	17:21	Partial Outage Problem in Bay Watch of Bus Coupler. Issue was taken up with OEM GE Vernova T&D Ltd.

Annexure-B.III

List of Black start capable generating stations and Mock Drill status(conducted during uring Jan, 2024-Apr, 2025)

Northern Region

S.No.	Power Station	Sector	Ownership	Fuel Type	Black Start Source	Capacity of Black Start Source	Date of last mock drill	Remarks
1	Anta GPS	Central	NTPC	Gas	DG Set	2.968 MW	29-02-2024	
2	Faridabad GPS	Central	NTPC	Gas	DG Set	3.3 MW / 4.125 MVA	25-11-2024	
3	Koldam HEP	Central	NTPC	Hydro	DG Set	2X1250 KVA	14-03-2024	
4	Bairasuil	Central	NHPC	Hydro	DG Set	2X1010 KVA	14-12-2024	
5	Salal Stage-I	Central	NHPC	Hydro	DG Set	2X875 KVA	16-12-2024	
6	Salal Stage-II	Central	NHPC	Hydro	DG Set	3X1020 KVA	16-12-2024	
7	Tanakpur HPS	Central	NHPC	Hydro	DG Set	2X625 KVA & 1X312.5 KVA	19-12-2024	
8	Chamera HPS-I	Central	NHPC	Hydro	DG Set	1X1010 KVA & 2x1000 KVA	12-12-2024	
9	Dhauliganga	Central	NHPC	Hydro	DG Set	2x625 KVA	13-12-2024	
10	Kishanganga	Central	NHPC	Hydro	DG Set	2x1010 KVA	09-11-2024	
11	Parbati-2	Central	NHPC	Hydro	DG Set	2x1000 KVA	26.05.2025	
12	Parbati-3	Central	NHPC	Hydro	DG Set	2x1010 KVA	17.05.2025	
13	Sewa-II	Central	NHPC	Hydro	DG Set	2x500 KVA	16.05.2025	
14	Nathpa-Jhakri	Central	SJVNL	Hydro	DG Set	2*750kVA	08-12-2024	
15	Rampur	Central	SJVNL	Hydro	DG Set	2*1010kVA	08-12-2024	
16	Tehri	Central	THDC	Hydro	DG Set	2*1000kVA	13-11-2024	
17	Koteshwar	Central	THDC	Hydro	DG Set	2*1010kVA	27-11-2024	
18	I.P. Gas Turbine (IPGCL G.T.)	State	IPPGCL/Delhi Gencos	Gas	DG Set	500kVA	10-04-2024	
19	Ranjit Sagar (Thein Dam)	State	Punjab	Hydro	DG Set	2*500kVA	07-05-2024	
20	Rihand (H) or Pipri	State	Uttar Pradesh	Hydro	DG Set	2*320kVA	16-02-2024	
21	Obra(H)	State	Uttar Pradesh	Hydro	DG Set	1*320kVA & 1*250kVA	16-02-2024	
22	Bhakra (L)	Central	BBMB	Hydro			08-11-2024	
23	Bhakra (**R**)	Central	BBMB	Hydro	DG Set	500kVA	08-11-2024	
24	Pong	Central	BBMB	Hydro	DG Set	500kVA, 380kVA	09.11.2024	
25	Mahi Bajaj Sagar I	State	Rajasthan	Hydro	DG Set	200kVA	20.03.2025	
26	Mahi Bajaj Sagar II	State	Rajasthan	Hydro	DG Set	2*200kVA	21.03.2025	
27	Ramgarh GPS	State	Rajasthan	Gas	DG Set	625kVA	11.05.2025	

List of Generating Stations which have not conducted Mock Drill during Jan, 2024-Apr, 2025

Northern Region

S.No.	Power Station	Sector	Ownership	Fuel Type	Black Start Source	Capacity of Black Start Source	Date of last mock drill	Remarks (Reason for not conducting Mock drill)
1	Dadri GPS	Central	NTPC	Gas	DG Set	2.4 MW	15-12-2023	
2	Auraiya GPS	Central	NTPC	Gas	DG Set	2900 kVA	Not conducted	Because of railway line connection
3	Chamera HPS-II	Central	NHPC	Hydro	DG Set	2x1250 KVA	02-12-2022	
4	Chamera HPS-III	Central	NHPC	Hydro	DG Set	2x725 KVA	04-12-2017	Evacuating line was not available
5	URI-I	Central	NHPC	Hydro	DG Set	2x1000 KVA	20-12-2016	Readiness from J&K for availbility of load not received
6	URI-II	Central	NHPC	Hydro	DG Set	2x1010 KVA	20-12-2016	
7	Parbati-3	Central	NHPC	Hydro	DG Set	2x1010 KVA	22-12-2021	Dead bus charging was performed during Mar 2023 and April 2024 (During revival of units after shutdown)
8	AD Hydro	IPP	AD Hydro Power Ltd.	Hydro	DG Set	750 kVA	27-01-2023	
9	Budhil	IPP	Greenco	Hydro	DG Set	2*800kVA	Not conducted	
10	Malana-II	IPP	Everest Power Company Ltd.	Hydro	DG Set	725kVA	27-01-2023	
11	Vishnu Prayag IPP	IPP	Jaiprakash power Venture Ltd. (UP)	Hydro			Not conducted	Due to unavailability of load. Unit is at 400kV level.
12	Alaknanda IPP	IPP	GVK (UP)	Hydro			Not conducted	Due to unavailability of load. Unit is at 400kV level.
13	Baghlihar-I	State	Jammu & Kashmir	Hydro			Not conducted	No update received from SLDC-J&K
14	Baghlihar-II	State	Jammu & Kashmir	Hydro			Not conducted	No update received from SLDC-J&K
15	Lower Jhelum	State	Jammu & Kashmir	Hydro			20-12-2016	No update received from SLDC-J&K
16	Upper Sindh	State	Jammu & Kashmir	Hydro			20-12-2016	No update received from SLDC-J&K
17	Rana Pratap Sagar(RPS)	State	Rajasthan	Hydro	DG Set	250kVA	16-01-2011	All 4 Units got submerged in 2019. Units were restored in phases. Last unit revived in March 2025. Remainig 3 units revived by 2022 however, AVR systme is not there. Mock testing of 4th unit may be performed during 2025-26.
18	Khara HEP	State	Uttar Pradesh	Hydro			Not conducted	Due to unavailability of nearby load
19	Matatila	State	Uttar Pradesh	Hydro	DG Set	2*190kVA	Not conducted	Due to unavailability of nearby load
20	Khodri	State	Uttrakhand	Hydro	DG Set	2*500kVA	Not conducted	Due to issue in governing system(old units, R&M work is proposed).
21	Chibro	State	Uttrakhand	Hydro	DG Set	2*500kVA	Not conducted	
22	Singoli Bhatwari	IPP	L&T	Hydro	DG set	2*500kVA	Not conducted	Due to non availability of load
23	Karcham Wangtoo	IPP	JSW	Hydro	DG Set	2*1500kVA	29-12-2021	Scheduled in 2024-25, however couldn't performed due to SCADA upgradation work at Station.
24	Baspa	IPP	JSW	Hydro	DG Set	2*625kVA	29-12-2021	