



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 230^{वीं} बैठक का कार्यवृत्त |

Subject: Minutes of the 230th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 230^{वीं} बैठक दिनांक 17.04.2025 को रामनगर (उत्तराखंड) में आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट <http://164.100.60.165> पर उपलब्ध है। यदि कार्यवृत्त पर कोई टिप्पणी हो तो कार्यवृत्त जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें |

The 230th meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 17.04.2025 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।

Signed by Omkishor

Date: 08-05-2025 17:51:33

(ओमकिशोर)

कार्यपालक अभियंता (प्रचालन)

सेवा में,

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

List of addressee (via mail)

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15	Uttarakhand SLDC		se_sldc@ptcul.org
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17	Himachal Pradesh SLDC		cehpsldc@gmail.com
18	DTL	State Transmission Utility	bl.gujar@dtl.gov.in
19	HVPNL		cetspk1@hvpn.org.in
20	RRVPNL		ce.ppm@rvpn.co.in
21	UPPTCL		smart.saxena@gmail.com
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24	HPPTCL		gmprojects.tcl@hpmail.in
25	IPGCL	State Generating Company	ncsharma@ipgcl-ppcl.nic.in
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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	ce-ppr@pspcl.in

		Company & State owned Distribution Company	
32	DHBN	State owned Distribution Company (alphabetical rotational basis/nominated by state govt.)	nomination awaited (md@dhbn.org.in)
33	Ajmer Vidyut Vitran Nigam Ltd.		nomination awaited (md.avvn@rajasthan.gov.in)
34	Purvanchal Vidyut Vitaran Nigam Ltd.		nomination awaited (mdpurvanchalvvn@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	sojpd@gmail.com
50	UT of Ladakh		cepdladakh@gmail.com
51	UT of Chandigarh		seelo-chd@nic.in

		concerned out of the 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)

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उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 230^{वीं} बैठक का कार्यवृत्त

Member Secretary, NRPC welcomed all the participants to the 230th OCC meeting. He thanked LPGCL for hosting the meeting and for the wonderful arrangements for meeting.

Member Secretary, NRPC mentioned that last year Northern Region witnessed record-breaking peak demands, with the peak met of 90,747 MW. He stated that this year peak demand is expected to reach 99500 in Jun'25 as per LGBR and IMD has also forecasted harsh summer this year. So, all stakeholders need to be prepared to meet this summer demand. He urged all generators to minimize the forced shutdown, reserve shutdown and partial outage and all licensees to maintain their assets in healthy condition and ensure availability of ERS. He requested all the states to plan short term and banking arrangements to avoid power shortages in real time. Further, all states should manage their power portfolio diligently and adhere strictly to their drawl schedule to ensure grid stability. He stressed that states should ensure that all protection and defence mechanisms are in healthy condition. He further mentioned that last year on 17th June, 2024 a grid event occurred wherein approximately 16.6 GW load loss happened in NR. A committee under Member GO&D analysed the event and recommended some remedial measures to avoid the recurrence of such events. He stated that all utilities should take actions suggested by the committee. He hoped that the deliberations in the meeting would help in resolving the issues affecting the Northern Region. He stated that the agenda put up today shall be thoroughly discussed and approved in this meeting and if required it would be taken up for approval in the upcoming NRPC meeting. Thereafter, he requested that the agenda may be presented and deliberated.

List of participants of the meeting is attached as **Annexure-A.I.**

खण्ड-क:उ.क्षे.वि.स.

PART-A:NRPC

A.1. Confirmation of Minutes

Minutes of the 229th OCC meeting was issued on 04.04.2025.

Representative of BBMB mentioned that comments made by BBMB representative during the meeting are not reflected in the following paragraph under Agenda Item No. B.9 of the minutes:

“NRLDC representative further highlighted the multiple elements tripping event at 220/66kV Narela(DTL) which occurred due to lack of coordination between DTL & BBMB during switching operation. DTL representative highlighted the wrong switching process done by the BBMB team during the event by closing both the isolators even during off load condition. NRLDC representative requested BBMB to ensure that correct switching philosophy is used during switching operation. DTL &

BBMB shall ensure proper communication and coordination during any switching operation at the stations to avoid any unwanted tripping incident.”

Therefore, he requested to modify the above paragraph as follows:

“NRLDC representative further highlighted the multiple elements tripping event at 220/66kV Narela(DTL) which occurred due to lack of coordination between DTL & BBMB during switching operation. DTL representative highlighted the wrong switching process done by the BBMB team during the event by closing both the isolators even during off load condition. BBMB has rejected the claim of DTL of wrong operation by BBMB. NRLDC representative requested BBMB to ensure that correct switching philosophy is used during switching operation. DTL & BBMB shall ensure proper communication and coordination during any switching operation at the stations to avoid any unwanted tripping incident.”

OCC confirmed the minutes of the 229th OCC meeting with aforementioned modification requested by BBMB.

A.2. Status of action taken on decisions of 229th 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.II**.*

A.3. Review of Grid operations of March 2025

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

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

- **Delhi**

Actual peak demand is much lower than expected due to pleasant weather in the month of Mar-2025 and demand didn't pick up.

- **Himachal Pradesh**

Anticipation in Energy Requirement in respect of Himachal Pradesh for the month of March, 2025 came on the lower side due to bad weather (Rain & Snowfall) conditions.

- **Rajasthan**

The Actual Energy requirement and Peak Demand w.r.t. Anticipated Energy requirement and Peak Demand decreased by 7.2% and 4.8% respectively for March' 2025 since growth in Energy requirement and Peak Demand was less than the anticipated growth w.r.t. same month of the previous year during the month in the state control area.

- **Punjab**

It is intimated by Punjab SLDC that actual energy requirement is less as compared to anticipated energy requirement because of rainfall in the second week of the month of March 2025 in the state of Punjab.

- **Uttar Pradesh**

Actual demand was lower than anticipated due to moderate weather in the month of March 2025

- **Uttarakhand**

The reason for significant variation in Energy Requirement (Decrease) and Peak Demand (Decrease) for month of Mar'25 against anticipated figures) was due to unexpected rainfall/snowfall in hilly areas resulting into normal ambient temperature.

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 15.04.2025.

CGM SO, NRLDC stated that as per present practice, utilities takes code from NRLDC for availing planned/forced outage of transmission elements however codes are not being taken from NRLDC while taking planned outage of generating units. To ensure that the sudden outage of generating units wouldn't affect the load generation balance in the grid, planned outage of generating units of 500 MW & above capacity should be availed by taking code from NRLDC at least during the summer season.

MS NRPC agreed with the suggestion of NRLDC.

OCC forum decided that utility shall give prior intimation to NRLDC and take NRLDC code for availing planned shutdown of 500 MW & above generating units during summer season.

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

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	170	400	No Revision submitted
	Requirement	216	460	
	Surplus / Shortfall	-46	-60	
	% Surplus / Shortfall	-21.3%	-13.0%	
DELHI	Availability	5563	8450	11-Apr-25
	Requirement	4400	8450	
	Surplus / Shortfall	1163	0	
	% Surplus / Shortfall	26.4%	0.0%	
HARYANA	Availability	7293	11475	15-Apr-25
	Requirement	7241	12998	
	Surplus / Shortfall	52	-1523	
	% Surplus / Shortfall	0.7%	-11.7%	
HIMACHAL PRADESH	Availability	1225	1948	9-Apr-25
	Requirement	1243	1937	
	Surplus / Shortfall	-18	11	
	% Surplus / Shortfall	-1.5%	0.6%	
J&K and LADAKH	Availability	1800	3420	No Revision submitted
	Requirement	1854	3182	
	Surplus / Shortfall	-54	238	
	% Surplus / Shortfall	-2.9%	7.5%	
PUNJAB	Availability	6700	13510	No Revision submitted
	Requirement	7627	14643	
	Surplus / Shortfall	-927	-1133	
	% Surplus / Shortfall	-12.2%	-7.7%	
RAJASTHAN	Availability	10370	20300	15-Apr-25

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Requirement	10385	18300	
	Surplus / Shortfall	-15	2000	
	% Surplus / Shortfall	-0.1%	10.9%	
UTTAR PRADESH	Availability	17360	31100	7-Apr-25
	Requirement	17515	31100	
	Surplus / Shortfall	-155	0	
	% Surplus / Shortfall	-0.9%	0.0%	
UTTARAKHAND	Availability	1674	2860	5-Apr-25
	Requirement	1643	2820	
	Surplus / Shortfall	31	40	
	% Surplus / Shortfall	1.9%	1.4%	
NORTHERN REGION	Availability	52155	86300	
	Requirement	52124	86700	
	Surplus / Shortfall	31	-400	
	% Surplus / Shortfall	0.1%	-0.5%	

- A.5.1. EE(O), NRPC stated that as per the anticipated Power Supply Position in Northern Region for May 2025, shortfall is expected in the peak availability in Haryana and Punjab.
- A.5.2. MS, NRPC asked representatives of Haryana SLDC and PSPCL, what measures they would be taking to meeting the shortfall.
- A.5.3. Representative of Haryana SLDC informed that they would meet the shortfall through RTM and DAM.
- A.5.4. Representative of NRLDC suggested Haryana SLDC to make short term tie up also to meet the shortfall in case the Power is not available in RTM/DAM.
- A.5.5. Representative of PSPCL informed that they are making arrangements to meet the shortfall.

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.III**.

A.6.2. In 230th OCC, SLDCs were requested again to coordinate with respective Transmission Utilities of states/UTs and submit details about the updated status of Down Stream network by State Utilities from ISTS Station (enclosed as **Annexure-A.III.I**) before every OCC meeting.

A.7. NR Islanding scheme

A.7.1. In the meeting (230th OCC), 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.7.2. With regard to Agra islanding scheme, UPPTCL representative apprised forum they submitted their proposal of procurement of UFRs for the Lalitpur-Agra islanding scheme 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. UPPTCL was requested to provide board approval for the proposal. The representative of UPPTCL stated that they are currently preparing responses to the PSDF Secretariat's queries and will resubmit the proposal once it has been approved by the UPPTCL board.

A.7.3. 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.7.4. RRVPNL representative mentioned that DPR for implementation of Suratgarh islanding scheme would be submitted after confirmation of status of PSDF funding from PSDF Sectt. for Jodhpur-Barmer-Rajwest islanding scheme.

A.7.5. 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.7.6. HPSLDC representative apprised that proposed UFR scheme for Kullu- Manali islanding scheme has been recommended by the Appraisal Committee of the State PSDF for approval of Hon'ble HPERC. The islanding scheme would now be taken up in the Monitoring committee for State PSDF funding approval. Meeting of Monitoring committee is scheduled on 22nd April, 2025.

A.7.7. Further, with regard to Shimla-Solan Islanding scheme, a separate meeting was conducted by NRPC Sect. with HPSLDC, HPSEBL and M/s GE on 18.09.2024) wherein HPSEBL informed that payment to M/s GE would be made within two

months and subsequently work regarding the implementation in revised setting of Bhaba HEP would be completed by M/s GE within one month. In the 227th OCC meeting, HPSLDC also informed that they had sent a letter to all concerned generators requesting them to lower the UFR settings of their generators to below 47.5 Hz. In this regard, in HPSLDC has intimated vide letter dated 06.01.2025 that except generators under HPSEBL and Sandhya HEP (which is under force outage) all the rest generators have lower the UFR settings of their generators to below 47.5 Hz. In the 229th OCC Meeting, HPSLDC representative apprised that payment to M/s GE has not yet been done by HPSEBL.

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

- A.8.1. In the meeting, NRPC representative apprised forum about the coal stock position of generating stations in northern region during current month (till 10th April 2025).
- A.8.2. Average coal stock position of generating stations in northern region, having critical stock, during first ten days of April 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 2024-25 for the month of March-2025 attached as Annexure-A.III of agenda was shared with the relevant generating stations of NR and based on the inputs received from them the updated information is attached as **Annexure-A.IV.**

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. 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	350	335	330	435	1450
Haryana	308	309	312	314	1243
Himachal Pradesh	153	197	80	35	465
UT J&K & Ladakh	155.6	204.3	204.2	214.2	778.3
Punjab	249	298.49	1035.97	270	1853.46
Rajasthan	461	340	348	344	1493
Uttar Pradesh	2580.33	2187.72	2013	1757	8538.05
Uttarakhand	486	67	87	241	881
Total	4742.93	3938.51	4410.17	3610.2	16701.81

A.10.5. NRPC Representative informed states SLDC that there should not be any duplicacy of feeders mapped in AUFLS with the feeders mapped under ADMS and df/dt.

A.10.6. NRPC Representative informed that a meeting under the chairmanship of Member Secretary, NRPC with SLDC's and STU's of States/UTs of NR is scheduled on 01.05.2025 to discuss the stage-wise and feeder-wise relief quantum of AUFLS implemented by NR States/UTs.

A.10.7. MS, NRPC asked all SLDC's of NR to submit the feeder-wise and stage-wise AUFLS quantum for their respective control areas as of 31.03.2025 latest by 22.04.2025 for deliberation in the aforementioned meeting.

Decision of OCC Forum:

Forum asked all SLDC's of NR to submit the feeder-wise and stage-wise AUFLS quantum for their respective control areas as of 31.03.2025 latest by 22.04.2025 to the NRPC Secretariat.

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 In 230th OCC meeting, NRPC representative informed the forum that details were filled by some utilities in the aforementioned google sheet. However, it has been noticed that some formats in the aforementioned google sheet has been deleted erroneously by some utility while feeding the details.

A.11.10 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. Tower integrity of 400KV Transmission lines emanating from Adani Kawai TPP & frequent porcelain string insulator failures. (Adani Power Limited)

- A.12.1. Representative of Adani Power Limited stated that towers (9 & 10) of 400KV Kawai-Anta D/C transmission line located at Ash Dyke area submerged in water permanently making these towers more vulnerable to tower damage. Further, members are missing in critical towers due to theft or unknown reasons, compromising stability in Kawai-Anta D/C transmission line and Kawai-Chhabra S/C transmission line. Also, frequent failures of porcelain insulators are happening in the Kawai-Anta D/C transmission line (41 No's insulators failure observed in last 2 years) leading to unplanned outage of transmission lines and maintenance efforts.
- A.12.2. Representative of Adani Power Limited mentioned that these issues were communicated to RVPN several times in the last one and half years.
- A.12.3. MS, NRPC stated that since tower 9 & 10 are permanently submerged they may get rusted and they may also collapse during heavy winds or storm etc.. He asked RVPN to take appropriate steps immediately such as increasing the height of tower base of these towers to prevent tower damage. He asked RVPN to increase the patrolling to prevent the theft of tower members.
- A.12.4. CGM, NRLDC enquired about number of trippings of the Kawai-Anta D/C transmission line due to insulator failure, to which representative of Adani Power Limited replied that there was one tripping including unit outage in the last two years. Representative of Adani Power Limited also mentioned that most of the insulator failures are happening during winter months i.e. December to February.
- A.12.5. CGM, NRLDC stated that although tripping's are not much as present but trippings may increase in the future. Therefore, failure of insulators must be addressed.
- A.12.6. MS, NRPC enquired about the reason for insulator failure to which representative of Adani Power Limited replied that the main reason is that the insulator is double string porcelain insulators.
- A.12.7. MS, NRPC asked RVPN to take appropriate steps immediately to resolve aforementioned issues to which representative of RVPN replied that he would put up the matter to concerned person to resolve the aforementioned issues.

Decision of OCC Forum:

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.

A.13. Declaration of High Flow Season for Parbati-2 HE Project for FY 2025-26. (Agenda by NHPC)

- A.13.1. NRPC representative apprised the forum that NHPC has requested to consider high inflow period of aforementioned issues same as high inflow period of Parbati-3 Power Station as both the projects are situated in same river basin. NHPC has intimated that high inflow period of Parbati-3 Power Station has been declared as June to September in 51st meeting of Commercial Sub-committee of NRPC.
- A.13.2. Representative of NHPC informed that all four units of Parbati-2 Power Station has been declared under commercial operation.
- A.13.3. MS, NRPC stated that since both the projects are situated in same river basin, high inflow period of Parbati-2 Power Station can be considered same as the high inflow period of Parbati-3 Power Station i.e. from June to September.

Decision of OCC Forum:

Forum agreed to declare the high inflow period of Parbati-2 Power Station same as the high inflow period of Parbati-3 Power Station i.e. from June to September.

A.14. Issue in functionality of PLCC owned by UPPTCL (Agenda by Powergrid NR-3)

- A.14.1. NRPC representative apprised the forum that as informed by Powergrid NR-3 following issues are there in the functionality of PLCC owned by UPPTCL:
- Installation of Redundant PLCC panel for 220 KV D/C Allahabad-Rewa Road Line and Mal-operation of existing PLCC panel
 - PLCC out of service for 220 KV Kanpur-Mainpuri (UP)
 - PLCC panel unhealthy for 220kV Kanpur-Rania (UP) line
 - PLCC mal-operation in 400kV Pilipokhar (UP)-Fatehabad (UP) line
- A.14.2. UPPTCL representative stated that they do not have cabinets for 220 KV D/C Allahabad-Rewa Road Line and the work for cabinet allotment is going on which is expected to be completed in the next two months. He further informed that PLCC issues of Kanpur-Mainpuri line would be resolved in the next one and half months. He also informed that PLCC issues of 220kV Kanpur-Rania (UP) line would be resolved in the 15 days and PLCC issues of 400kV Pilipokhar (UP)-Fatehabad (UP) line would be resolved in the next two months.
- A.14.3. MS, NRPC directed UPPTCL to resolve PLCC issues of aforementioned lines expeditiously.

Decision of OCC Forum:

Forum asked UPPTCL to resolve PLCC issues of aforementioned lines expeditiously.

A.15. N-1 Contingency violation in 765/400KV 1500MVA ICT at Moga Substation

(Agenda by Powergrid NR-2)

- A.15.1. NRPC representative apprised forum that Powergrid NR-2 has intimated that at Moga Substation, 02 No. 765/400KV, 1500 MVA ICT are in service and Load in each ICT is in the range of 1150MW against capacity of 1500MVA.
- A.15.2. Powergrid NR-2 representative stated that in case anyone ICT is tripped then other ICT would be overload. He mentioned that space is available at Moga Substation so forum may consider for installation of additional ICT at Moga.
- A.15.3. NRLDC representative stated that there is bus split arrangement at 400kV side of Moga(PG) and ICTs at Moga(PG) are feeding to J&K and Haryana. During winter months, J&K draws significant power from Moga(PG) ICTs leading to its N-1 non-compliance. During the winter of 2024-25, NRLDC also sent communication to SLDC-J&K to explore the possibility of load staggering at their end to ensure N-1 compliance of ICTs at Moga(PG).
- A.15.4. Further, it was also mentioned that issue of N-1 non-complaint of Moga(PS) is only arising in winter months and possible solutions may be commissioning of new ICT, load staggering by J&K or SPS implementation.
- A.15.5. CGM NRLDC requested POWERGRID and CTU to take up the matter of new ICT at 765/400kV Moga(PG) in CMETS.
- A.15.6. MS, NRPC asked POWERGRID and CTU to take up the matter in the next CMETS meeting.

Decision of OCC Forum:

Forum asked POWERGRID and CTU to take up the matter of additional ICT at 765/400kV Moga(PG) Substation in the next CMETS meeting.

A.16. Frequent disconnection of Leh Transmission system from National GRID due to radial connectivity/ N-1 Contingency violation J&K and Ladakh Region. (Agenda by Powergrid NR-2)

- A.16.1. NRPC representative apprised forum that Powergrid NR-2 has intimated that at present LEH transmission system is connected to National GRID through 220 kV \ Aulsteng-Drass-Kargil-Khalsti-Leh radial line. *In March 2025, voltage of Srinagr Lehh Transmission System has reduced to zero at 04 occasions.* Temperature in LEH area goes as low as (-)20 deg and complete blackout of the area had extreme impacts. Further, as per JKPTCL, load requirement in Aulsteng area is going to increase in near future. Powergrid NR-2 has requested that direct ISTS connectivity needs to be planned for ISTS from nearest ISTS station i.e. Wagoora, New Wanpoh or Amargarh.
- A.16.2. NRLDC representative highlighted the issue of complete load loss in Leh, Ladakh region during tripping of 220kV Alusteng-Drass line due to radial nature of

complete network i.e., Alustang-Drass-Kargail-Khalsti-Leh. Hydro generation i.e., Chutak HEP at Kargil and Nimo Bazgo HEP at Leh also get affected during the disturbance. In view of this, alternate line connectivity suggested by POWERGRID will improve the reliability of the complex.

- A.16.3. MS, NRPC asked CTU and Powergrid to prepare the proposal for additional connectivity of Leh for further discussion.

Decision of OCC Forum:

Forum asked CTU and Powergrid to prepare the proposal for additional connectivity of Leh for further discussion.

A.17. Extreme voltage variation in J&K & Ladakh area (Agenda by Powergrid NR-2)

- A.17.1. Representative of Powergrid NR-2 informed that there is extreme voltage variation in J&K & Ladakh area. 400KV Voltage at Wagoora and New Wanpoh goes as low as 350KV and 220KV Voltage in LEH area goes as low as 190KV and as high as 235KV
- A.17.2. NRLDC representative stated that major low voltage issue arises in winter months. The voltages remains below the specified band in IEGC at both 400kV as well as 220kV level after full utilization of SVC at New Wanpoh. SVC at New Wanpoh is meant for dynamic compensation, but due to severe low voltages in J&K, SVC capacity is being already fully utilized in steady state itself.
- A.17.3. CGM NRLDC further highlighted that J&K draws around 700-800MVar by 400/220kV ICTs from Amargarh, Wagoora and New Wanpoh and 300MVar support is being provided by New Wanpoh SVC, there seems to be requirement of nearly 1000MVar reactive power compensation (capacitive) in Kashmir valley at transmission and distribution level in next 1-2 years. If proposal is prepared for futuristic scenario, further additional capacity as per requirement may be planned by J&K. POWERGRID and CTU may also explore the possibility of installing static / dynamic reactive power compensation devices in J&K control area.
- A.17.4. MS, NRPC asked CTU and Powergrid to prepare the proposal for installing static / dynamic reactive power compensation devices in J&K control area.

Decision of OCC Forum:

Forum asked CTU and Powergrid to prepare the proposal for installing static / dynamic reactive power compensation devices in J&K control area.

A.18. Table Agenda - LILO arrangement for both circuits of existing 400 KV D/C Ludhiana-Koldam line at proposed 400 KV Substation Ropar (Agenda by PSTCL)

- A.18.1. Representative of PSTCL informed that in 2023 PSTCL requested PKTCL (Parbati Koldam Transmission Company Limited) for approval of Tapping arrangement for

LILO of one ckt. (CKT-II) of existing 400 KV D/C Ludhiana-Koldam line at proposed 400 KV S/stn Ropar. However, PKTCL did not agree with the tapping arrangement, so, the matter was placed before NRPC vide PSTCL memo no. 109 dated 24.01.2024, 187 dated 27.02.2024, it was requested by PSTCL that approval may be as accorded as proposed by PSTCL considering the status of work and the same can be reviewed during the approval of LILO arrangement of other circuit. The matter was discussed in the 71st NRPC meeting held on 29.01.2024 and tapping arrangement as proposed by PSTCL was approved and thus line was energized on 20.07.2024.

- A.18.2. Now, LILO arrangement for both circuits of existing 400KV D/C Ludhiana-Koldam line at 400KV Substation Ropar has been prepared and PSTCL is requested PKTCL vide letter no 1064 dated 19.12.2024 (Anneure-1) to approve the same. It is pertinent to mention here that this proposal of LILO of both circuits has been prepared considering suggestion(s) given by PKTCL (the same were discussed in NRPC meeting held on 29.01.2024) at time of approval of LILO of Circuit-2(First Phase) as detailed in para 1.
- A.18.3. Vide letter no. PKTCL/KL-RP/05/2025/93 dated 04.03.2025 (Anneure-2) NOC has been provided by PKTCL. However, as per point no.1 (f) & 2, of the terms and conditions of NOC, PSTCL will have to bear the costs associated with outage(s).
- A.18.4. In this regard, it is submitted that during the approval of tapping arrangement of Circuit-2(First Phase) of this 400KV D/C line accorded by PKTCL vide their letter no. PKTCL/KL-RP/F. No-05/91 dated 07.03.2024, no such condition was imposed by PKTCL and no such conditions were deliberated during the agenda meetings.
- A.18.5. Also, PGCIL has also provided the approval of LILO arrangement of 400KV Jalandhar-Kurukshetra & 400KV Nokodar-Kurukshetra line at 400KV Dhanasu (similar scenario i.e. Loop in and Loop Out arrangement) but no such condition regarding outage costs has been imposed by PGCIL.
- A.18.6. Vide memo no. 220 dated 11.03.2025, PSTCL has asked PKTCL to withdraw these conditions (i.e. point no.1 (f) & 2) in the NOC for LILO work of 400KV D/C Ludhiana koldam at 400KV Ropar. However, there is no reply from PKTCL even after telephonically discussions.
- A.18.7. It is pertained to mention here that the supply of Tower material has already been taken. The stubbing of 13 out of 21 tower locations has been completed. The Construction work of line is in full swing and this transmission line is of utmost importance for increasing reliability and transmission capacity in the region. Due to such conditions imposed by PKTCL, PSTCL is unable to complete the further stubbing work.
- A.18.8. Representative of PKTCL stated that in the NOC given to PSTCL, they have requested PSTCL to share the tentative outage plan for LILO of the said line. Based on the outage proposal of PSTCL, they would assess the revenue loss of PKTCL and communicate the same to PSTCL. Further, they would refund the revenue loss amount to PSTCL if NRPC considers outage period under deemed availability category.

- A.18.9. NRPC representative enquired PSTCL in which meeting this LILO arrangement was approved. PSTCL representative replied that the said LILO arrangement was approved in 3rd NCT meeting held on 24.05.2019.
- A.18.10. MS, NRPC stated that deemed availability is decided based on the relevant CERC regulations and guideline issued by MoP/CEA in this regard. Further, if the scheme is approved by MoP/CEA/NRPC, deemed availability is generally granted for outage of elements for construction of new transmission scheme. He requested PKTCL to revise the NOC accordingly.

A.19. Table Agenda - FTC for replacement of 420 kV 50 MVAR Bus Reactor under ADD CAP 2024_29 at UPPCL Muradnagar & Mandola SS (Agenda by Powergrid NR-1)

- A.19.1. Representative of Powergrid NR-1 informed that replacement of existing 420kV 50MVAR Bus Reactors at Mandola & Muradnagar substation with 125MVAR bus reactor under Additional Capitalization in Tariff Block 2024-2029 has been approved in 71st NRPC Meeting dt 29.01.2024. Further replacement of existing 420kV 50MVAR Bus Reactors at Mandola & Muradnagar substation with 125MVAR bus reactor has also been agreed in 27th CMETS meeting of Northern Region.
- A.19.2. Representative of Powergrid NR-1 mentioned that based on deterioration conditions of above reactors, new 420 kV 125 MVAR Bus Reactors has been despatched to Mandola & Muradnagar Substation and is under commissioning stage. He stated that CERC petition for above replacement works under ADD CAP 2024_29 has been filled with Hon'ble CERC and hearing date is awaited. POWERGRID has filed FORM A for RLDC approval however same has been rejected with remarks of "CERC ORDER REQUIRED"
- A.19.3. Representative of Powergrid NR-1 requested that as the replacement of above 420kV 50MVAR Bus Reactors at Mandola & Muradnagar substation with 125MVAR bus reactor under Additional Capitalization in Tariff Block 2024-2029 has been approved in 71st NRPC Meeting & 27th CMETS and petition has been filled in CERC, FTC for above reactors may be deliberated by forum.
- A.19.4. NRLDC representative stated that although replacement of existing 420kV 50MVAR Bus Reactors at Mandola & Muradnagar substation with 125MVAR bus reactor has been technically approved from NRPC and CMETS. But final approval from CERC is needed for FTC.
- A.19.5. MS, NRPC requested NRLDC to consider giving conditional FTC considering deteriorating condition of existing Bus Reactor and availability of the new Bus reactor.
- A.19.6. NRLDC representative stated that they would discuss it separately with Powergrid.
- A.19.7. MS, NRPC suggested Powergrid to take up the matter separately with NRLDC.

Decision of OCC Forum:

Forum asked Powergrid to take up the matter separately with NRLDC to resolve the above issue.

A.20. Table Agenda - Requirement of complete 400 kV Bus-1 &2 shutdown at Mandola & Ballabgarh SS for replacement of damaged sections 400 kV jack buses (Agenda by Powergrid NR-1)

- A.20.1. Representative of Powergrid NR-1 informed that Requirement of complete shutdown of 400 kV Bus-1&2 at Mandola has been discussed in 224th & 225th OCC. After several discussions with M/s HVPNL TS and SLDC it was agreed by M/s HVPNL to give consent for Bus 1 and Bus 2 continuous shut down for the above critical work within 1st week or latest by 2nd week of April-2025. Consent for shutdown of complete 400 kV Bus sections at Ballabgarh has not been provided by BBMB/HVPNL. Considering the deteriorating condition of existing 400 kV Jack buses, forum may deliberate the complete 400 kV bus -1&2 shutdown at Ballabgarh Substation within April'25 to avoid major disruption in peak loading season.
- A.20.2. Representative of Haryana SLDC stated that Kadarapur Substation of HVPN is likely to be commissioned by April end. Thereafter they would be able to facilitate 400 kV bus -1&2 shutdown at Ballabgarh Substation.
- A.20.3. MS, NRPC asked Haryana SLDC to facilitate the shutdown at the earliest.

Decision of OCC Forum:

Forum asked Haryana SLDC to facilitate the shutdown at the earliest.

A.21. Table Agenda - Complete Shutdown of 200KV Buses at Hisar substation for replacement of 200KV Jack bus Single Moose conductor with Twin Moose for capacity augmentation (Agenda by Powergrid NR-1)

- A.21.1. Representative of Powergrid NR-1 informed that in 229th OCC meeting forum asked POWERGRID to coordinate with HVPN, BBMB and Haryana SLDC and conduct a physical visit at site and to submit to this forum a joint proposal for discussion in next OCC Meeting. Matter was taken up with HVPNL. However, consent for shutdown has not been provided yet. He requested forum to deliberate on complete Shutdown of 200KV Buses at Hisar substation for replacement of 200KV Jack bus Single Moose conductor with Twin Moose before peak loading season.
- A.21.2. MS, NRPC asked Powergrid NR-1 representative to again coordinate with concerned officials and conduct a joint visit at site to explore the feasibility of the shutdown.

Decision of OCC Forum:

Forum asked Powergrid NR-1 representative to again coordinate with concerned officials and conduct a joint visit at site to explore the feasibility of the shutdown.

A.22. Table Agenda - Joint Survey report for removal of S/c LILO of 400 kV Jhatikra-Bamnauli at 400 kV Dwarka to restore 400 kV Jhatikra- Bamnauli D/c line & Formation of 400 kV Dwarka- Bamnauli D/c line (Agenda by Powergrid NR-1)

- A.22.1. Representative of Powergrid NR-1 informed that DTL has proposed for removal of 400 kV Jhatikra- Dwarka Line & restore 400 kV Jhatikra- Bamnauli D/c line to relieve loading on 400kv S/C Bamnauli -Jhatikra line in peak summer and same been deliberated on meeting held on 03.03.2025 at CEA O/o PSPA-I Division. In the meeting, it was decided that joint survey may be carried out by POWERGRID and DTL team to examine the feasibility and implementation timeframe of the proposal submitted by DTL. Accordingly joint survey for removal of 400 kV Jhatikra-Dwarka Line & restore 400 kV Jhatikra- Bamnauli D/c line to relieve loading on 400kv S/C Bamnauli -Jhatikra line has been carried out by POWERGRID & DTL team.
- A.22.2. As per joint survey report, bay equipment/C&P for arrangement is required to be made ready by DTL at Bamnauli Substation and 02 no Transmission line towers is also required to be constructed within DTL premises. The above proposed arrangement may be carried out by DTL.
- A.22.3. He requested forum to deliberate upon the matter and direct DTL to carryout the above arrangement as proposed.
- A.22.4. NRLDC representative stated that as per proposed reconfiguration, Dwarka will become radial which is not feasible. Further, the matter is already under discussion at CEA level. Hence, further deliberation may be done after outcome of CEA meeting.
- A.22.5. MS, NRPC suggested Powergrid NR-1 to approach CEA for further deliberation in the matter.

Decision of OCC Forum:

Forum asked Powergrid NR-1 to approach CEA for further deliberation in the matter.

खण्ड-ख: उ.क्षे.भा.प्रे.के.

Part-B: NRLDC

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

NRLDC representative presented the following grid highlights for month of Feb'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	229	05.03.25 at 07:00	4.0	27.03.25	3.5
2	Delhi	4361	27.03.25 at 19:05	89.8	27.03.25	74.9
3	Haryana	8750	11.03.25 at 10:00	167.9	05.03.25	146.7
4	H.P.	2075	05.03.25 at 08:00	36.5	11.03.25	33.2
5	J&K	3024	17.03.25 at 19:00	63.2	07.03.25	59.5
6	Punjab	10083	08.03.25 at 11:00	190.9	08.03.25	159.1
7	Rajasthan	17580	07.03.25 at 09:00	335.2	11.03.25	299.3
8	UP	21869	26.03.25 at 19:39	400.3	12.03.25	369.1
9	Uttarakhand	2202	06.03.25 at 07:00	42.9	28.03.25	39.7
*10	Northern Region	66638	10.03.25 at 09:55	1295.9	11.03.25	1184.8

*As per SCADA

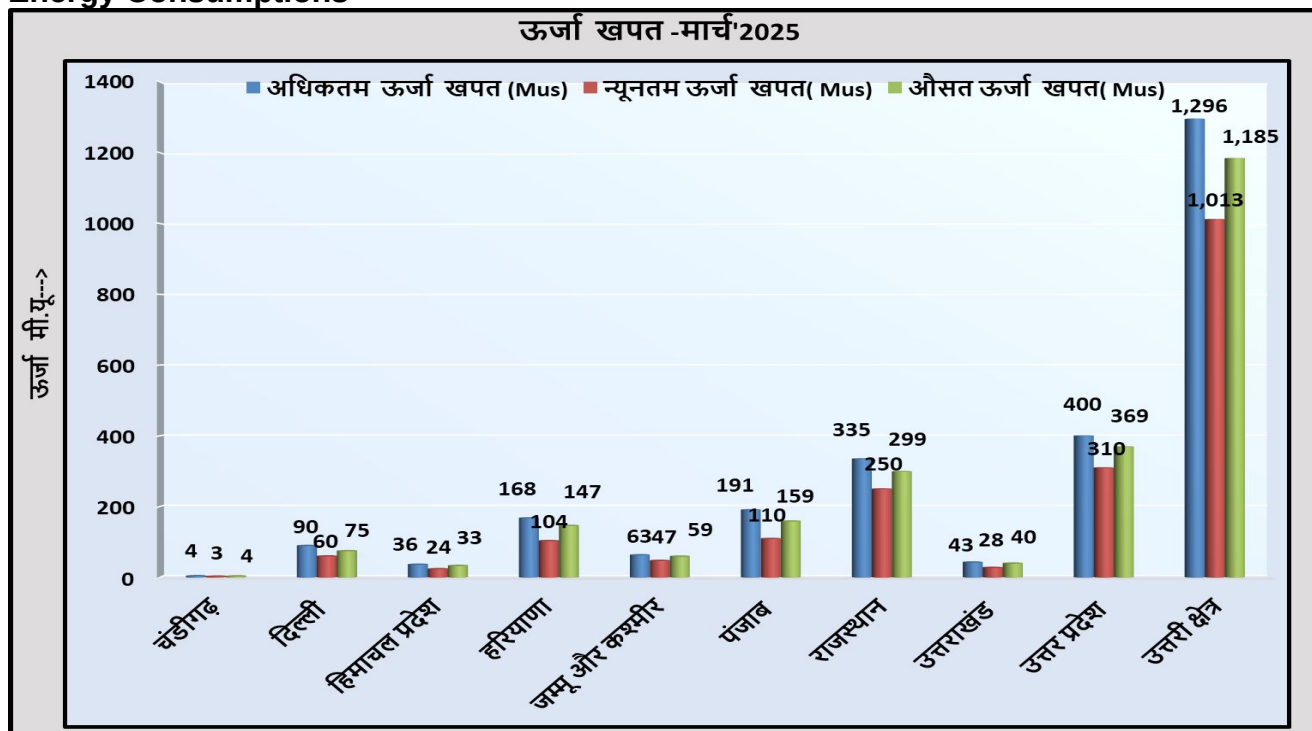
- In Mar'25, the Maximum energy consumption of Northern Region was 1296 MUs on 11th Mar'25 and it was 6.88 % higher than Mar'24 (1213 MU 29th Mar'24)
- In Mar'25, the Average energy consumption per day of Northern Region was 1185 MUs and it was 6.30 % higher than Mar'24 (1115 MUs/day)
- In Mar'25, the Maximum Demand met of Northern Region was 65384 MW on 10th Mar'25 @10:00 hours (as per scada data) as compared to 60002 MW on 19th Mar'24 @10:00hours.

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

क्षेत्र/राज्य	मार्च- 2024	मार्च- 2025	% अंतर
चंडीगढ़	4	3.5	0.6%
दिल्ली	71	74.9	5.3%
हिमाचल प्रदेश	31	33.2	8.2%
हरियाणा	138	146.7	6.0%

जम्मू और कश्मीर	55	59.5	8.0%
पंजाब	152	159.1	5.0%
राजस्थान	288	299.3	3.8%
उत्तराखंड	39	39.7	0.9%
उत्तर प्रदेश	337	369.1	9.6%
उत्तरी क्षेत्र	1115	1184.8	6.3%

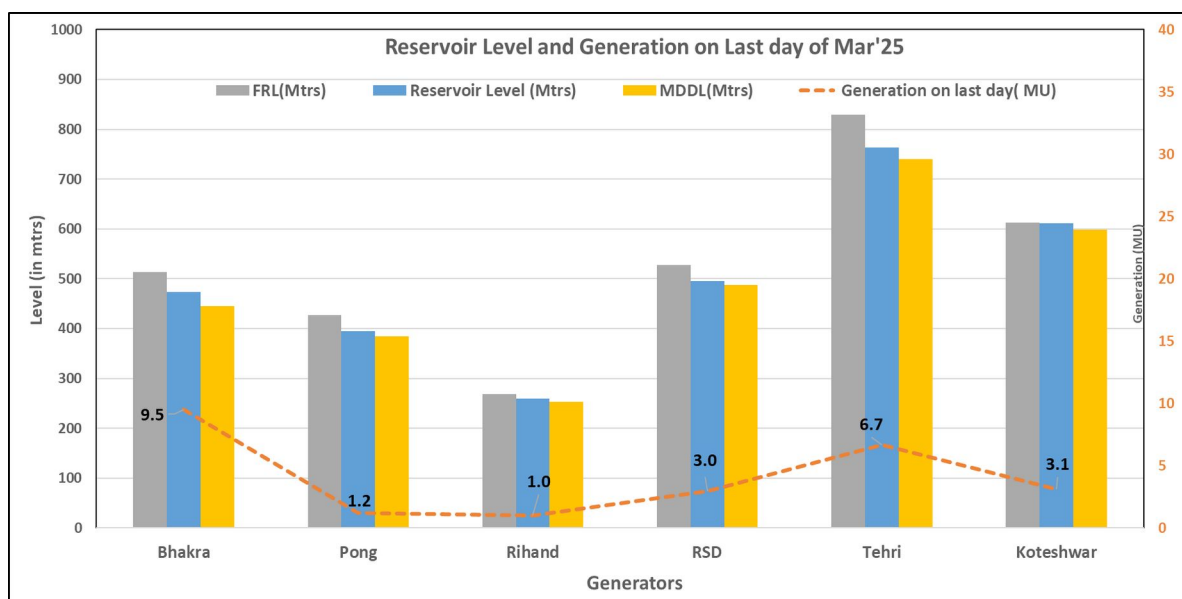
Energy Consumptions



Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Mar'25	50.001	50.456 (05.03.25 at 13:11:40 hrs)	49.618 (30.03.25 at 00:07:10 hrs)	5.32	77.89	16.79
Mar'24	49.998	50.43 (17.03.24 at 06:03:00 hrs)	49.59 (28.03.24 at 22:23:10 hrs)	6.02	77.51	16.46

Reservoir Level and Generation on Last Day of Month



Reservoir Level on last day of Mar month				(Low: -ve)	(High: +ve)	
Year	Bhakra	Pong	Rihand	RSD	Tehri	Koteswar
2025	473	395	259	495	764	611
2024	479	404	257	506	765	605
Diff (in m)	-6.2	-8.8	2.6	-11.1	-0.8	6.4

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

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

NRLDC representative presented the maximum forecasted demand during solar & non-solar hours in the upcoming summer. It was highlighted that during May and June 2025, the forecasted NR demand is 95.4 GW and 98.5 GW respectively.

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

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

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

Punjab:

- Expeditious commissioning of 2nd 400/220kV ICT at Dhanansu Substation. Timeline of March 2025 was provided in the meeting by PSTCL in 53TCC and 78 NRPC meeting.
- PSTCL to study requirement of ICT capacity augmentation at 400/220kV Ludhiana(PG) and take it up timely.
- POWERGRID to expedite commissioning of 400/220kV 500MVA Nallagarh ICT-4. During 53TCC and 78 NRPC meeting, POWERGRID representative informed that 500MVA Nallagarh ICT-4 is planned for commissioning by Sep 2025, however they would try and commission it by June 2025.
- PSPCL to take up the matter with Talwandi Saboo thermal generating units for minimising outages of (intrastate) thereby reducing dependency on power import from ISTS.

NRLDC representative asked Punjab about the tentative schedule of commissioning of 2nd 400/220kV ICT at Dhanansu(PS).

Punjab representative informed that ICT at Dhanansu(PS) is planned to be commissioned by 25th April 2025, shutdown from 22nd April has already been planned in this regard. He further stated that with the commissioning of new ICT at Dhanansu(PS), ATC of Punjab will also increase by approx. 300 MW.

CGM NRLDC requested Punjab to share their study w.r.t. ATC enhancement along with the schedule of ICT commissioning to NRLDC.

*NRLDC asked POWERGRID to apprise the status of commissioning of ICT-4 at Nallagarh(PG). It was further highlighted that as generation at Parabati_II HEP (total ~800MW) has been commissioned and in case of its peak generation during high inflow season, existing 3*315 MVA ICTs at Nallagarh will become N-1 non-complaint. Expected increase in loading at Nallagarh ICT is 33MW per ICT (245-255 MW per ICT to ~285MW per ICT) and N-1 loading limit is ~255MW.*

POWERGRID stated that new ICT is delayed as it is under manufacturing stage. In view of this, it is planned to commission the spare ICT from Ludhiana(PG) and tentative schedule of its commissioning at Nallagarh(PG) is 1st week of June 2025.

CGM NRLDC requested POWERGRID to commission the ICT-4 at Nallagarh before 08th June 2025 otherwise generation of Parabati_II HEP may be restricted or SPS may be implemented in view of unavailability of transmission system and for avoiding N-1 non-compliant at Nallagarh(PG). NHPC is also requested to follow up with the POWERGRID for expeditious commissioning of 500 MVA ICT-4 at Nallagarh(PG).

Further, NRLDC representative highlighted the significantly large number i.e., 53 (no's since Jan 2024) of outages of generating units as Talwandi Sabo TPS (TSPL). SLDC-Punjab was requested to take necessary follow up actions and ensure availability of TSPL generation during upcoming summer.

Haryana:

During 53TCC and 78 NRPC meeting, NRLDC representative further 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.

HVPNL representatives agreed to provide inputs on the same in upcoming OCC meeting.

220kV Hisar (PG) - Hisar (IA) reconductoring needs to be expedited by POWERGRID.

HVPNL representative informed that new ICT at Kabulpur will be commissioned tentatively by 15th June and load at Panipat(BBMB) will also get relieved after LILO of At 220kV Smalakha S/s. Further, it was informed that SPS at all three stations i.e., Panipat(BBMB), Kabulpur and Hissar will be implemented within approx. 01 month.

NRLDC representative raised concern over high reactive power drawl by Haryana from ISTS. It was requested to install the adequate capacitors for reactive power demand and minimize the MVAR drawl from ISTS to avoid low voltages.

Rajasthan:

Constrained location	Status as available with NRLDC
N-1 contingency of 3*315=945 MVA ICT at Bhiwadi(PG)	Additional 500MVA ICT approved in 29 CMETS on 17.05.2024
N-1 contingency of 2*315+500=1130 MVA ICT at Bassi(PG)	Additional 500MVA ICT has been approved. Same is anticipated by 14.12.2025.
N-1 contingency of 315+500=815 MVA ICT at Neemrana(PG)	Additional 500MVA ICT has been approved in 36 NR CMETS held on 15.01.2025.
N-1 contingency of 2*500=1000 MVA ICT at Jaipur South(PG)	Additional 500MVA ICT has been approved in 36 NR CMETS held on 15.01.2025.
N-1 contingency of 2*315+500=1130 MVA ICT at Sikar(PG)	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	Augmentation by 400/220 kV 500 MVA (3rd)

MVA ICT at Kotputli(PG)	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)	

During 53TCC and 78 NRPC meeting, RVPN representative intimated that:

- Out of the under implementation of additional capacity at 11 substations, ICTs have been commissioned at 2 no. 400/220 kV substations.
- ICT augmentation at other substations is expected by Sep 2025.
- NIT floated for upgradation of terminal equipment for 400 kV Bhadla-Bikaner D/C and 400 kV Jaisalmer-Kankani S/C.
- 4-month timeline (date of July 2025) was provided by RVPN for improvement of the condition of 400kV Bhadla(RJ)-Bikaner(RJ) D/C line.

NRLDC asked RVPN to take up equipment upgradation for other 4 intrastate lines, which are not having terminal equipment of commensurate ratings. RVPN representative agreed for the same.

Rajasthan is also requested to take measures for:

- 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)
- Voltages at all RE stations & nearby substations such as Akal, Ramgarh, Jaisalmer, Bhadla(RJ), Bikaner(RJ), Jodhpur, Kankani, Heerapura, Bhinmal, Merta etc. are low and fluctuating. Severe low voltages in Hindaun & Alwar area
- Persistent issue of high loading of 400kV Bhadla(RJ)-Bikaner(RJ) D/C (loading restriction due to poor condition of line), tripping observed on 07.04.2025.

NRLDC representative asked RVPNL to apprise the forum about status of new ICTs at N-1 non-compliant stations.

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 representative requested RVPNL to expedite the process and also expedite the upgradation of terminal equipments work in other 04 intra state lines.

NRLDC asked CTU to take up for ICT capacity augmentation at 400/220kV Sikar(PG) in CMETS.

CTU representative informed that Rajasthan was supposed to review the load in that area and on the basis of Rajasthan input, decision will be made.

NRLDC requested RVPNL to review the load at the earliest and share the input so that decision on new ICT at Sikar(PG) can be taken.

Further NRLDC highlighted the issue on high MVAR drawl by Rajasthan from ISTS and low voltages at stations in RE complex. Rajasthan was requested to take necessary actions such as capacitor installation, RE compliance monitoring etc. at their end to minimize the issue of low voltages and voltage fluctuation.

Uttar Pradesh:

UPSLDC and NRLDC to assess the loading scenario of 400/220 kV Obra-B ICTS for summer 2025, given the recent commissioning of 400 kV Sahupuri S/S.

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

Regarding review of loading of 400/220 kV Obra-B, NRLDC representative informed that no constraint was observed as per study. UP SLDC may also review at their end.

Further, NRLDC requested POWERGRID to apprise the status of 400/220kV Allahabad(PG) ICT which was displaced to Allahabad(PG) during Kumbh 2025. POWERGRID stated that they will share the status after confirmation.

Uttarakhand:

PTCUL representative to provide status of new ICT procurement at 400/220kV Kashipur and capacitor commissioning expected before summer 2025.

PTCUL representative informed that capacitors of ~390MVAR capacity was planned to be installed. ~160 MVAR capacitors will be installed by the end of April 2025.

Regarding new ICT at Kashipur, it was informed that tender process has been completed, process of investment approval is in process. After this, order will be awarded.

Further, In view of above transmission constraints for all states, it was 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, all SLDCs were requested to share their ATC/TTC assessment for summer 2025 at the earliest with NRLDC.

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.

In 230 OCC meeting,

- ***NRLDC representative stated that the agenda was also discussed in last several OCC meeting wherein all states agreed to send the data as well as PSSE basecases on time for all three (M-1, M-6, M-11) scenarios.***
- ***NRLDC representative presented the status of basecase and data sharing by NR states for the last six months. Latest status for Mar 2025 is shown below:***

November 2024 Mails							
ATC/TTC Declaration						Interconnection Studies	
M-1 (December-24)			M-12 (November-25)			M-6 (May-25)	
Data Values	Basecases		Data Values	Basecases		Data Values	Basecases
Chandigarh	No	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No	No
Haryana	Yes	Yes	No	No	No	No	No
Himachal	Yes	No	Yes	No	No	No	No
J & K	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No	No
Punjab	No	No	Yes	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No	No

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

April 2025 Mails							
ATC/TTC Declaration						Interconnection Studies	
M-1 (May-25)			M-12 (April-26)			M-6 (October-25)	
Data Values	Basecases		Data Values	Basecases		Data Values	Basecases
Chandigarh							
Delhi			Yes	Yes			
Haryana							
Himachal							
J & K							
Ladakh							
Punjab						Yes	Yes
Rajasthan							
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand							

Submitted with one month delay

ATC/TTC limits of states for the month of May 2025 are attached as Annexure-B.I. of agenda.

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

B.3 Expediting SPS implementation before summer 2025:

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.”

As per NRLDC, 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

SLDC Haryana representative assured to provide the feeder details to POWERGRID for SPS at 765/400kV Bhiwani(PG). He further agreed to finalize the feeder details at the earliest and ensure implementation of SPS at 400/220kV Panipat, Kabulpur and Hissar by the end of April 2025.

OCC forum asked Haryana SLDC to identify feeders to be wired under SPS at the earliest and requested POWERGRID and SLDC Haryana to share proposed SPS with NRLDC/NRPC for further studies.

Further, as discussed earlier on numerous occasions, as majority of 400/220kV ICTs in Rajasthan state (both interstate as well as intrastate are N-1 non-compliant, RVPNL may 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 presented the list of 400/220kV Stations in Rajasthan control area which are N-1 non-compliant and requested to provide the feeder details to POWERGRID for finalization of SPS logic at 400/220kV Bhiwadi(PG), Bassi(PG), Neemrana(PG), Jaipur South(PG), Sikar(PG), Kankroli(PG) and Kotputli(PG). Further, Rajasthan was also requested to finalize the SPS logic for 400/220kV Deedwana(RS) and Heerapura(RS) and share with NRLDC/NRPC for further studies.

Rajasthan agreed for the same.

To discuss the feeders in Delhi control area to be wired under SPS, separate meeting was also convened on 02.04.2025 in 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.

The minutes of the meeting are attached as Annexure-B.II of agenda.

During 230 OCC meeting, NRLDC representative asked POWERGRID to provide update on the implementation of SPS at 765/400kV Jhatikara and 400/220kV Mandola and Maharaniabagh.

POWERGRID representative informed that cable laying work will be completed by 25th April and further within one week, SPS logic implementation and testing will be completed.

SLDC Delhi representative requested to increase the triggering logic of SPS at Mandola and Maharaniabagh from 95% to 100% in view of high current during low voltage scenario and to avoid SPS operation during optimal loading condition. POWERGRID agreed for the same and requested for final SPS logic.

OCC forum requested NRLDC to sent final SPS logic of Mandola and Maharaniabagh to NRPC, SLDC Delhi and POWERGRID. POWERGRID shall ensure implementation of SPS at Jhatikara, Mandola and Maharaniabagh S/s by 1st week of May 2025. POWERGRID shall submit the test report of SPS after implementation.

Further, it may be noted that NRLDC had 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). Communication received from NHPC side is attached as Annexure-B.III of agenda.

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.

*NRLDC asked POWERGRID to apprise the status of commissioning of ICT-4 at Nallagarh(PG). It was further highlighted that as generation at Parabati_II HEP (total ~800MW) has been commissioned and in case of its peak generation during high inflow season, existing 3*315 MVA ICTs at Nallagarh will become N-1 non-complaint. Expected increase in loading at Nallagarh ICT is 33MW per ICT (245-255 MW per ICT to ~285MW per ICT) and N-1 loading limit is ~255MW.*

POWERGRID stated that new ICT is delayed as it is under manufacturing stage. In view of this, it is planned to commission the spare ICT from Ludhiana(PG) and tentative schedule of its commissioning at Nallagarh(PG) is 1st week of June 2025.

CGM NRLDC requested POWERGRID to commission the ICT-4 at Nallagarh before 08th June 2025 otherwise generation of Parabati_II HEP may be restricted or SPS may be implemented in view of unavailability of transmission system and for avoiding N-1 non-compliant at Nallagarh(PG). NHPC is also requested to follow up with the POWERGRID for expeditious commissioning of 500 MVA ICT-4 at Nallagarh(PG).

OCC asked Haryana SLDC to identify feeders for SPS wiring at 400/220kV Hissar, Kabulpur, Panipat(BBMB) and 765/400kV Bhiwani(PG) and share the details with POWERGRID/NRLDC/NRPC at the earliest for further review.

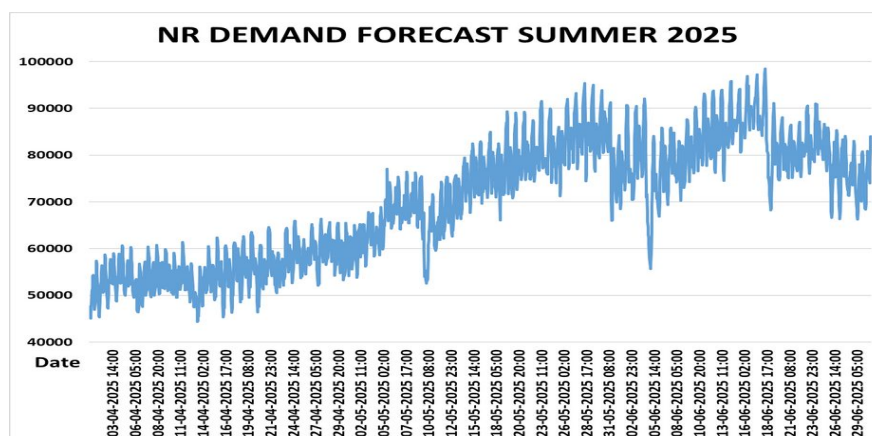
Rajasthan SLDC/RVPN were also asked to identify feeders for SPS at pending 400/220kV POWERGRID and RVPN substations supplying power to Rajasthan. While identification of feeders it needs to be ensured that in case of SPS operation and tripping of one/two feeders, any other element should not get overloaded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

Feeders details to be shared by respective SLDCs well in advance so that feeders and SPS logics are prepared and finalised in next OCC meeting.

B.4 Summer Preparedness 2025 measures:

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

In 2024, Northern Regional Maximum demand of 91,234 MW was met on 19.06.2024 at 14:37 Hrs. As per the year-ahead forecast done by NRLDC team, following is likely to be the demand scenario during summer 2025:



Month	Max. forecasted demand during solar hours (06-18 hrs) (MW)	Max. forecasted demand during non-solar hours (18-06 hrs) (MW)
April	63125	66430
May	95429	89394
June	98512	90504

It is to be noted that as per information available with NRLDC, LGBR for F.Y. 2025-26 is still under finalisation by CEA/NRPC.

Communication from NRLDC side dated 08.04.2025 regarding summer preparedness measures is attached as Annexure B.IV of agenda.

Due to extreme weather conditions, high demand is observed during summer/monsoon months in Northern region. Along with high demand, high loadings of lines and transformers and low voltages especially at transmission & distribution level are big challenge to safe and secure grid operation.

To overcome the commonly encountered challenges during summer months and ensuring smooth grid operation, following points were discussed and requires action to be followed by all:

- Apart from portfolio management based on proper forecast as discussed above, re-starting of units under reserve shutdown at state as well as Inter-state level through appropriate transactions is required.
- Moreover, display window showing reserve available in ISGS generators has been developed at NRLDC. SLDCs are also requested to arrange for such display window at their control centers so that system operators readily know quantum of reserve available and hence better real-time actions can be taken.
- It has been observed in past years that sudden information of outage of thermal units on coal unavailability poses challenges to meet high demand. It is therefore requested to update & share coal stock position of thermal plants at least a week in advance as agreed earlier in TCC/NRPC meeting.
- Apart from GNA based arrangements based on forecast, other short term arrangements should also be planned for real time imbalances. For example, ensuring adequate margin while scheduling own thermal generation, units on bar, maintenance of reserves, technical minimum operation of thermal units in

case of load crash, tie up with neighbour states or hydro rich states and utilization of real-time market etc. to bridge the load-generation gap in real time.

- It is suggested that all state control area/Users shall ensure before start of summer that their protection and defence system are in working conditions and settings are as per the recommendations of NRPC. In addition, all states/user need to provide update for changes or modifications carried out if any.
- All are requested to ensure the telemetry of all analog & digital points of all stations at respective control centers. Large number of telemetry issues are also encountered with newly commissioned elements.
- Expedite implementation of ADMS system
- Each utility shall work on plan for tower repairing work before April. Extra precautions need to be taken care for important lines which have history of tripping during thunderstorm/windstorms.
- All utilities are requested to ensure availability of Emergency Restoration System (ERS) for early restoration of supply. Each utility shall work on plan for tower repairing work before April. Extra precautions need to be taken care for important lines which have history of tripping during thunderstorm/ windstorm.

NRLDC raised concern over issue of Rajasthan regarding non able to backing down the generating units to technical minimum during load crash and such grid requirement.

Rajasthan representative stated that supercritical thermal units are coming to technical minimum however other thermal generating units are reluctant in backing down till technical minimum due to some technical issue. However, continuous follow ups are being done with all the generating stations for backing down of generating unit to technical minimum during load crash and critical scenarios.

CGM NRLDC requested Rajasthan to explore alternate actions such as taking out the small units during such scenarios and restoring back during peak hours. And prompt decision is required during such grid scenarios.

Rajasthan, Punjab, Haryana, Uttarakhand and Delhi were requested to take prompt actions to ensure backing down of generators to 55% of their capacity in case of critical situations.

Regarding availability of ERS, it was highlighted that PTCUL, HPPTCL, RRVPNL, JKPTCL and HVPNL are not having ERS as per the government norms. ERS procurement may be expedited by licensees having deficit ERS than requirement as per the Govt. norms

MS NRPC also requested POWEGRID to conduct a training program for all the utilities for demonstration of use of ERS. Utilities were requested to ensure availability of trained manpower along with ERS.

To maintain the voltage profile of Grid within IEGC band and reactive power management during summer, following known actions were suggested:

- Switching ON Capacitor/Switching OFF reactor as per system requirement

- Tap Optimization at 400/220kV by NRLDC and 220/132kV by respective state control area based on scatter plots of ICTs, offline studies, NRPC RE account etc.
- Dynamic reactive support from Generator as per their capability curve. SLDC to monitor the same for intrastate generators.
- SCADA Displays for better visualization during real-time

To ensure the healthiness of defense mechanisms such as Under voltage, under frequency, rate of change of frequency, SPS for line/ICTs loading/generator complex evacuation, Islanding schemes etc. ***All State control area/Utilities shall ensure that their protection and defense system are in working conditions and settings are as per the recommendations of NRPC.***

Constituents shall ensure to conduct the Mock-testing of SPS in their respective control area before summer 2025 (also mandated as per IEGC 2023).

In grid operation during summer season, the list of radial feeders becomes very important during critical scenarios. Utilities have been requested number of times to update list of radial feeders which can be opened on the directions of NRLDC to regulate the demand. List of such radial feeders has been provided by respective utilities and is part of 'Operating Procedure of Northern Region'. Latest list of radial feeders is also attached as Annexure-B.V of agenda. Following are the attributes for such feeders:

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

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

During 230 OCC meeting, SLDCs were once again requested to verify that

- ***list of feeders are actually radial in nature and are likely to provide the expected relief***
- ***such feeders are not part of any other scheme such as any SPS, UFR or df/dt actuated shedding***
- ***Incase of less number of radial feeders, feeders with dual supply may also be identified and same may be disconnected from both supply stations (with due care to avoid disturbance) so as to make sure that overdrawl of state is controlled incase of sustained overdrawl and low frequency operation upon instruction from NRLDC.***

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

NRLDC also requested states to expedite the implementation of ADMS in their respective control area. The present status of NR states is:

◎ DELHI	Scheme Implemented but operated in manual mode.
◎ HARYANA	Scheme not implemented
◎ HP	Scheme not implemented
◎ PUNJAB	Scheme not implemented
◎ RAJASTHAN	Under implementation.
◎ UP	Scheme implemented by NPCIL only
◎ UTTARAKHAND	Scheme not implemented

B.5 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 allIndia 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.

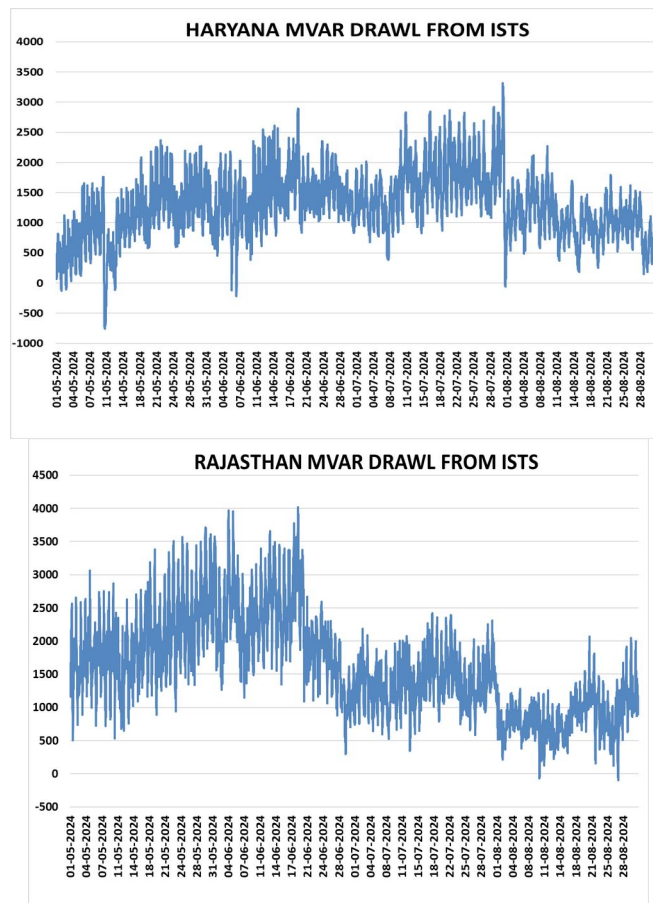
The above agenda point was also discussed in 75th NRPC Meeting held on 28 August 2024 through online mode. Forum acknowledged the sensitivity of event and directed the concerned to take appropriate actions based on the recommendations of Committee.

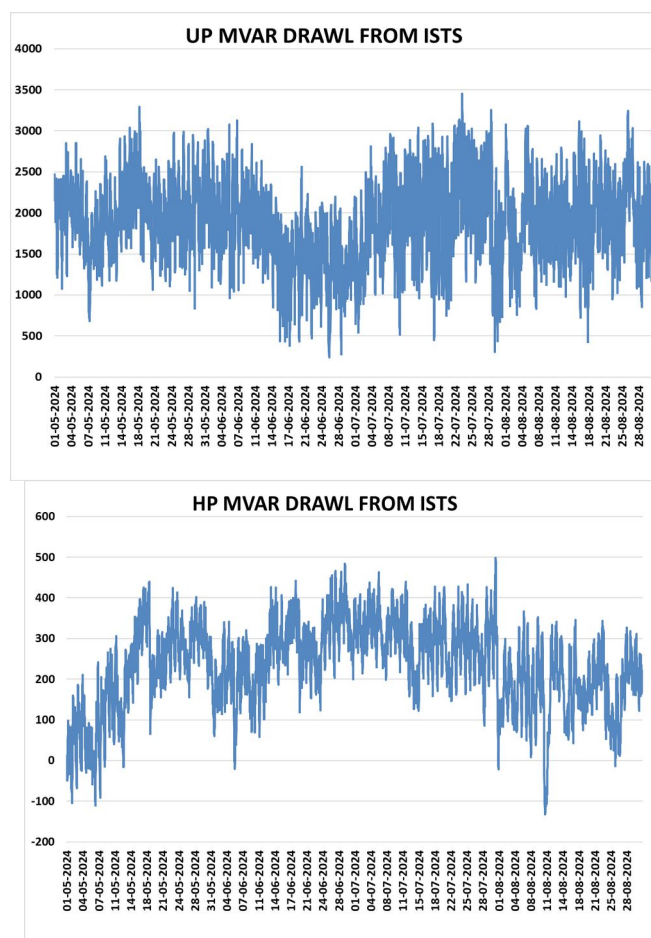
Measures for Low voltages

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.





In 226 OCC meeting, following were discussed:

- CTUIL representative stated that in NR, around 60-80% reactive compensation has been provided at ISTS level. Reactive compensation planning and implementation at intrastate level needs to be expedited to cater low/high voltage scenarios.
- OCC asked all SLDCS to analyse reactive power change with ISTS grid and accordingly plan reactive power devices at intrastate level. This would also help to minimize opening/closing of EHVAC lines in winter months.

In 229 OCC meeting, following were discussed:

- 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 were finalized in 58th PSC meeting and utilities were

requested to implement the revised overvoltage setting in lines of their respective control area.

- 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.

During 230 OCC meeting, 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.

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 were finalized in 58th PSC meeting and utilities were requested to implement the revised overvoltage setting in lines of their respective control area. In case it is pending in any of the control area then such utility shall ensure to implement the revised setting by the end of April 2025.

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.

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.

OCC asked all STUs and SLDC to ensure maximum reactive power support at underlying network to minimize low voltage issues during summer season.

B.6 Grid Operation related issues in Northern region

a) Long outage of transmission elements

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

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

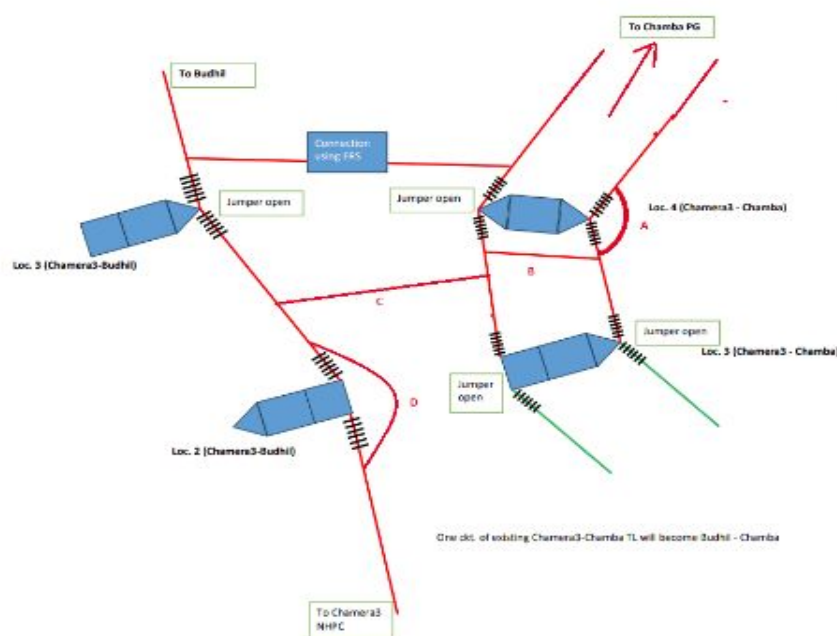
S. No.	Element Name	Owner	Outage (Date & Time)		Reason / Remarks
1	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	UPPTCL	13-03-2020	02:46	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover.
2	FSC(40%) 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)	RRVNL	26-04-2023	18:06	Preparatory arrangement & dismantling work of ICT-I at Ramgarh
11	FSC(39%) of 765 KV Koteswar-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.

UP representative stated that few ICTs are under long outage in UP control area. It was informed that ICT augmentation has been planned, and the order has already been placed in this regard.

CGM NRLDC requested all the concerned utilities to share the updated status regarding the likely revival date and plan for these in through mail or NRLDC outage portal and expedite revival of these transmission elements.

b) Long outage of 220kV Chamera2-Chamba D/C line

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



New circuits after installation of the alternative mechanism are in service as:

- 220 kV Budhil-Chamba transmission line
- 220 kV Chamera III-Chamba line

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

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

During the 218 OCC meeting,

- POWERGRID representative stated that gantry tower design at NHPC end is not available. NHPC requested POWERGRID to develop the approximate tower design with help of some vendor.
- Cost estimate and work plan is under approval for both POWERGRID and NHPC. After approval of the work, the implementation would take 3-4 months and accordingly it is expected that line would be restored to normal configuration by Nov'2024.

During 223 OCC meeting,

- POWERGRID representative informed that tower design and other related issue have been resolved and MOU has been proposed between POWERGRID and NHPC and sent to NHPC for formalities at their end. Based on signing of MOU by NHPC, restoration timeline can be provided.
- No update could be received from NHPC side.

Major concern is that NHPC (Chamera-III) generation is being evacuated through single line and generation evacuation reliability is reduced.

During 227 OCC meeting,

- NHPC representative stated that MOU signing has been done and line is expected to be restored by 31 Mar 2024. NHPC will also change CT, CVT at their end by 31 Mar 2025.
- POWERGRID representative stated that the work is expected to be completed by 31 Mar 2025.
- NRLDC representative asked POWERGRID/NHPC to coordinate and complete the line restoration work as per their commitments made in the meeting.

During 230 OCC meeting, NHPC/POWERGRID were requested to provide the update as the line has not yet been restored yet.

NHPC representative stated that there is readiness at NHPC and POWERGRID end in this regard. The shutdown of a 11kV line belong to HP is required for stringing work. Continuous follow up since 10th April is being done with HPPTCL for providing the shutdown of 11kV line (Sunara feeder).

MD HPPTCL assured to facilitate the shutdown of said 11kV line at the earliest.

NHPC stated that they will complete the work within one week of shutdown of 11kV line. (220kV Chamera_III-Budhil line and 220kV Chamera_III-Chamba line-II were charged on 24.04.2025)

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 is 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 is requested to provide details before 30th April 2024. Same has also been requested vide email dated 01.04.2025 from NRLDC side.

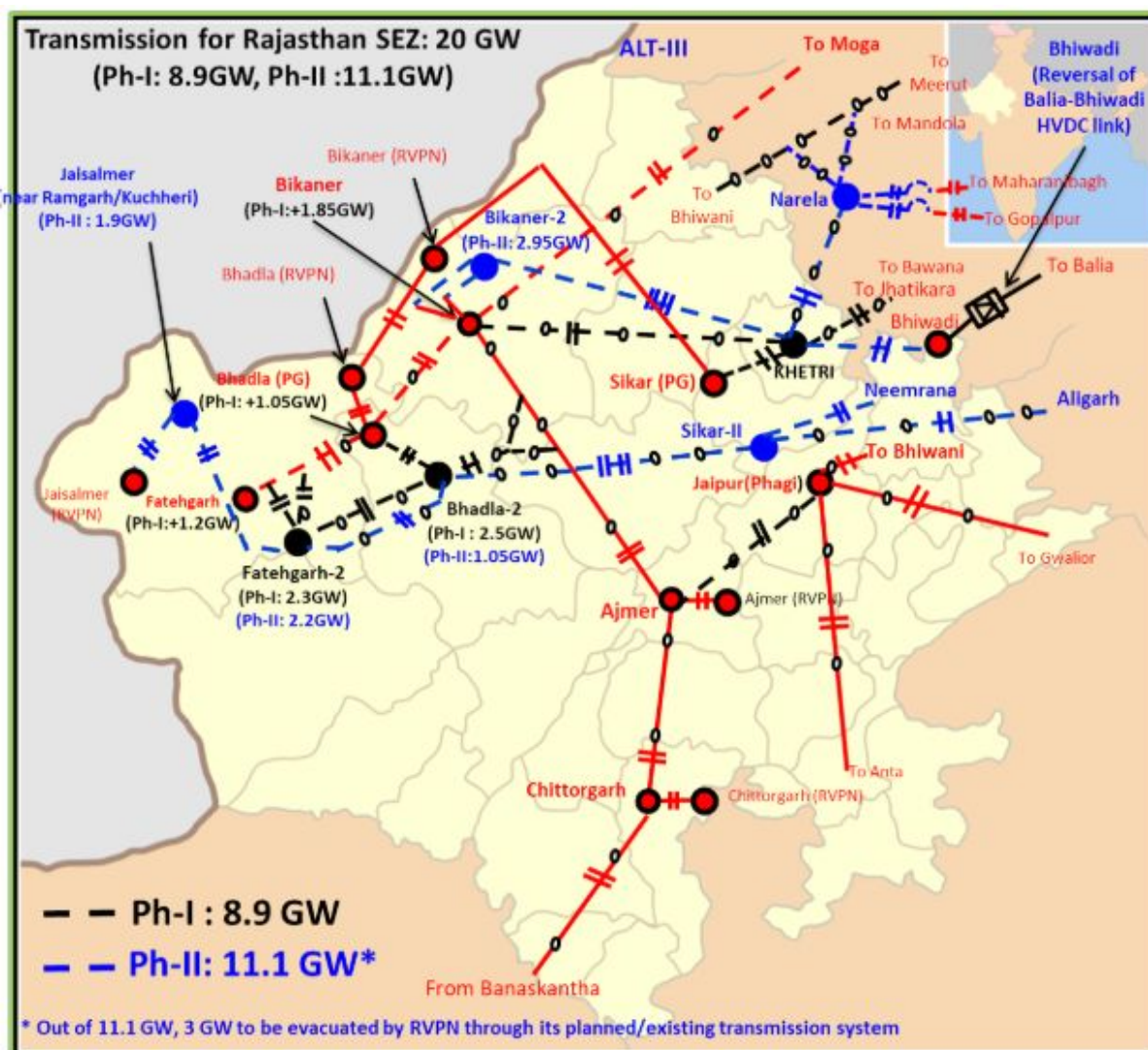
Last updated document is available at following link:
<https://nrlcdc.in/documents/Documents>

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

NRLDC representative stated that details in this regard are received from Ayana Renewable and POWERGRID(NR-2) only. Utilities were requested to share the input for important grid elements document of NR at the earliest.

d) Frequent tripping of 765kV Bhadla2-Sikar2 ckt 2 during high solar generation

A total of 19.3 GW of ISTS connected RE generation in Rajasthan is being scheduled out of which ~5.2GW is being scheduled under T-GNA. The agenda related to delay in planned RE evacuation transmission system and possibility of stranding of RE generation have been discussed in past TCC/NRPC meetings also wherein timelines provided by POWERGRID for commissioning of 765/400kV Narela system could not be met.



It is to be further noted that 765 kV Bhadla_2 (PG)-Sikar 2 Circuit-2 has experienced repeated tripping incidents over 06-08 April 2025, as summarised below

- **06 April 2025:** Circuit-2 tripped at 12:18 hrs due to a Y-N fault at 134.8 km with a fault current of 4.03 kA recorded at Sikar_2. RE generation was curtailed by approximately 1000 MW from 14:45 hrs to 15:30 hrs. The circuit was restored at 20:17 hrs
- **07 April 2025:** Circuit-2 tripped again at 12:04 hrs due to a Y-N fault at 185 km with a fault current of 3.1 kA at Sikar_2. Consequently, RE generation was curtailed by approximately 2500 MW. The circuit was restored at 20:22 hrs.
- **08 April 2025:** Circuit-2 tripped today at 12:45 hrs due to an R-phase fault. To manage network loading, around 2000 MW RE curtailment (ISGS & Rajasthan State) was implemented from 13:00 hrs onwards.

In the event on 07th April 2025,

- 400kV Bhadla - Bikaner was running 750 MW each. After tripping of 765kV Bhadla2-Sikar2-2 @ 1204 Hrs, loading of 400kV Bhadla-Bikaner D/C reached **>800 MW** (short time loading limit as specified by Rajasthan)
- **Generation curtailment of 1000 MW** carried out at Bhadla2(PG) w.e.f. 1215 – 1500 Hrs to bring the loading of 400kV Bhadla-Bikaner D/C to 750 MW per circuit
- In the mean time, 400kV Bhadla-Bikaner- ckt 2 got tripped at the time loading on parallel circuit reached **>1100 MW**. Rajasthan SLDC was instructed to back down their solar generation by 1000 MW to bring the loading under control. Rajasthan SLDC curtailed only 400 MW till 1238 Hrs.
- Both 400kV Bhadla - Bikaner D/C got tripped and loading of 765kV Bhadla2-Ajmer D/C reached **>2150 MW** per ckt. With sensitivity of 35%, under N-1 loading was expected to reach ~3000 MW risking voltage oscillations.
- Rajasthan SLDC gradually further curtailed 700 MW after tripping of 400kV Bhadla-Bikaner D/C
- To mitigate this, TGNA of **~1000 MW @ Bikaner(PG)/Bikaner_2(PG)** with 20% sensitivity on 765kV Bhadla2-Ajmer D/C was curtailed w.e.f 1315 Hrs – 1500 Hrs in real time

In view of importance of line and requirement of RE curtailment in case of tripping of 765kV lines from RE complex, it is once again requested that any possible issues that can result in tripping of line are attended well in time so as to avoid backing down of RE generation. It is requested that POWERGRID:

- I. Share the patrolling report of the lines tripping from RE complex.
- II. Immediately inspect and perform necessary maintenance at the identified fault locations to prevent recurrence.
- III. Conduct proactive patrolling along with thermal scanning of all the 765kV lines in Western Rajasthan region to identify and mitigate potential issues promptly before summer 2025.

NRLDC requested POWERGRID to conduct proper patrolling of all the 765kV lines in Rajasthan RE complex and submit the patrolling report. Any clearance related issues due to sand dunes or due to any other reasons may be rectified.

POWERGRID agreed to conduct the patrolling of all the 765kV lines in RE complex. POWERGRID further suggested that a sensor to measure the dynamic line loading capacity may also be installed in the line. It will provide the critical information such as quantum of margin available in the line on real time basis. This will also helpful real time grid operator in their decision making and grid operation. Such sensors are in use in some of the lines in Southern Region.

MS NRPC requested POWERGRID to share the details of the device to NRPC/ NRLDC for study and further discussion on this may be done during next OCC meeting.

NRLDC further asked POWERGRID to provide the updated on timeline of 765kV Khetri-Narela D/C, 765kV Bhadla2-Sikar2 D/C(2nd) and LILO of 765kV Meerut-Bhiwani line. Approx. ~1200 MW RE generation is being curtailed on daily basis due to unavailability of transmission system.

POWERGRID stated that exact timeline couldn't be mentioned due to uncertainty of ROW related issues in Delhi region. However, continuous efforts are being done to make the lines available by June 2025.

OCC requested POWERGRID to take necessary follow-up actions to make the required 765kV transmission system available as soon as possible. Further, POWERGRID shall conduct the patrolling report of all the 765kV lines in RE complex to inspect and rectify any possible clearance related issues. POWERGRID shall share the patrolling report to NRPC /NRLDC.

B.7 Demand forecasting and resource adequacy related

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

Commission has 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. Further, as per MOM issued by Hon'ble CERC on 05.03.2025, following points are to be noted:

- (a) Only few of the NR SLDCs are furnishing the demand estimation and resource adequacy data as per the specified timelines.

(b) NRLDC shall hold discussions and interactions with NR SLDCs to ensure they are well-equipped to assess their resource adequacy and reserve requirements effectively. This may include providing the necessary tools and frameworks for better forecasting and planning.

(c) NR SLDCs are not maintaining the reserves as per the allocated quantum by the NLDC as per the Grid Code. If reserves are to be maintained, a specific portion of capacity must be earmarked exclusively as a reserve and that quantum may not be scheduled unless under contingency. All states must ensure maintaining the reserve for their control area as per the allocation done by the NLDC as per the Grid Code.

(d) To meet the required deficit for the upcoming peak months, the states should do the advance planning for power procurement including bilateral contract and short-term contract. The States should not be dependent on RTM/ DAM Purchases.

(e) The implementation of the SAMAST Project is required to be pushed by SLDCs of Haryana, Uttarakhand, Punjab, J&K, Punjab and Delhi. A specific timeline should be fixed for installation of the SAMAST Project.

(f) The SLDCs having shortage of manpower should proactively take up the matter with the concerned competent authorities for the requirement of additional manpower as per the present sanctioned strength and also for approval of revised sanction strength as per the MoP Workforce Adequacy Guidelines for Load Despatch Centres.

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

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

Status of Day Ahead Forecasting, week ahead, month-ahead and year-ahead submission status for 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	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	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, all SLDCs are requested to timely furnish the demand estimation data along with generation adequacy data as per the formats available at https://drive.google.com/drive/folders/1KWY4G9gTBLV5wTJkhGEleRptKP-QbhjL?usp=drive_link to NRLDC through mail (nrlcmis@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.VI 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 your end to ensure compliance of listed clauses of IEGC 2023 as Annex-B.VI.

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 Annexure-II of the NLDC operating procedure (Link: https://posoco.in/wp-content/uploads/2024/08/NLDC-Operating-Procedure_2024.pdf).

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.

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.

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

During 229 OCC meeting, OCC had asked all states to take actions at their end to ensure compliance of all regulations and guidelines w.r.t. resource adequacy framework.

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.

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 a 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 atleast three scenarios of a day***
- 3. Action by NRLDC/SLDC/DISCOM for PMU placement on the radial supply feeder.***

NRLDC representative requested states to share the details of existing data centers or electrolysers in their respective control area.

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.

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

None of the four utilities have yet created a SCADA network map for their island areas. However, Uttar Pradesh and Rajasthan have developed SCADA displays with partial island summaries, although telemetry issues still need resolution.

RAPP A & B ISLANDING SCHEME (RAJASTHAN)					
13.9.24 11:3:17					
INSTANTANEOUS FREQ. 50.06 HZ		ISLANDING FREQ. 50.06 HZ			
NAME OF FEEDER	LOAD	STATUS (Operational)	STATUS (Islanded)	STATUS (Blocked)	
RAPP-A End					RAPP-A GENERATION 170
233 60 WPP A-1000	31	BLOCKED			RAPP-A GENERATION 183
233 60 WPP A-1001	1	OPERATIVE			TOTAL GENERATION 353
233 60 WPP A-1002	1	OPERATIVE			EX BUS GENERATION -374
233 60 WPP A-1003	14	BLOCKED			TOTAL BLOCKED/ISLANDED LOAD 0
RAPP-B End					TOTAL OPERATIVE LOAD 0
233 60 WPP B-1000	3	OPERATIVE			
233 60 WPP B-1001	81	BLOCKED			
233 60 WPP B-1002	35	BLOCKED			
233 60 WPP B-1003	1	OPERATIVE			
233 60 WPP B-1004	1	OPERATIVE			
233 60 WPP B-1005	1	OPERATIVE			
233 60 WPP B-1006	1	OPERATIVE			
233 60 WPP B-1007	1	OPERATIVE			
233 60 WPP B-1008	1	OPERATIVE			
233 60 WPP B-1009	1	OPERATIVE			
233 60 WPP B-1010	1	OPERATIVE			
233 60 WPP B-1011	1	OPERATIVE			
233 60 WPP B-1012	1	OPERATIVE			
233 60 WPP B-1013	1	OPERATIVE			
233 60 WPP B-1014	1	OPERATIVE			
233 60 WPP B-1015	1	OPERATIVE			
233 60 WPP B-1016	1	OPERATIVE			
233 60 WPP B-1017	1	OPERATIVE			
233 60 WPP B-1018	1	OPERATIVE			
233 60 WPP B-1019	1	OPERATIVE			
233 60 WPP B-1020	1	OPERATIVE			
233 60 WPP B-1021	1	OPERATIVE			
233 60 WPP B-1022	1	OPERATIVE			
233 60 WPP B-1023	1	OPERATIVE			
233 60 WPP B-1024	1	OPERATIVE			
233 60 WPP B-1025	1	OPERATIVE			
233 60 WPP B-1026	1	OPERATIVE			
233 60 WPP B-1027	1	OPERATIVE			
233 60 WPP B-1028	1	OPERATIVE			
233 60 WPP B-1029	1	OPERATIVE			
233 60 WPP B-1030	1	OPERATIVE			
233 60 WPP B-1031	1	OPERATIVE			
233 60 WPP B-1032	1	OPERATIVE			
233 60 WPP B-1033	1	OPERATIVE			
233 60 WPP B-1034	1	OPERATIVE			
233 60 WPP B-1035	1	OPERATIVE			
233 60 WPP B-1036	1	OPERATIVE			
233 60 WPP B-1037	1	OPERATIVE			
233 60 WPP B-1038	1	OPERATIVE			
233 60 WPP B-1039	1	OPERATIVE			
233 60 WPP B-1040	1	OPERATIVE			
233 60 WPP B-1041	1	OPERATIVE			
233 60 WPP B-1042	1	OPERATIVE			
233 60 WPP B-1043	1	OPERATIVE			
233 60 WPP B-1044	1	OPERATIVE			
233 60 WPP B-1045	1	OPERATIVE			
233 60 WPP B-1046	1	OPERATIVE			
233 60 WPP B-1047	1	OPERATIVE			
233 60 WPP B-1048	1	OPERATIVE			
233 60 WPP B-1049	1	OPERATIVE			
233 60 WPP B-1050	1	OPERATIVE			
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233 60 WPP B-1052	1	OPERATIVE			
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233 60 WPP B-1062	1	OPERATIVE			
233 60 WPP B-1063	1	OPERATIVE			
233 60 WPP B-1064	1	OPERATIVE			
233 60 WPP B-1065	1	OPERATIVE			
233 60 WPP B-1066	1	OPERATIVE			
233 60 WPP B-1067	1	OPERATIVE			
233 60 WPP B-1068	1	OPERATIVE			
233 60 WPP B-1069	1	OPERATIVE			
233 60 WPP B-1070	1	OPERATIVE			
233 60 WPP B-1071	1	OPERATIVE			
233 60 WPP B-1072	1	OPERATIVE			
233 60 WPP B-1073	1	OPERATIVE			
233 60 WPP B-1074	1	OPERATIVE			
233 60 WPP B-1075	1	OPERATIVE			
233 60 WPP B-1076	1	OPERATIVE			
233 60 WPP B-1077	1	OPERATIVE			
233 60 WPP B-1078	1	OPERATIVE			
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233 60 WPP B-1080	1	OPERATIVE			
233 60 WPP B-1081	1	OPERATIVE			
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233 60 WPP B-1096	1	OPERATIVE			
233 60 WPP B-1097	1	OPERATIVE			
233 60 WPP B-1098	1	OPERATIVE			
233 60 WPP B-1099	1	OPERATIVE			
233 60 WPP B-1100	1	OPERATIVE			
233 60 WPP B-1101	1	OPERATIVE			
233 60 WPP B-1102	1	OPERATIVE			
233 60 WPP B-1103	1	OPERATIVE			
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233 60 WPP B-1224	1	OPERATIVE			

NAPS ISLANDING LOAD DISPLAY			
FREQUENCY (HZ)		50.06 HZ	13.9.24 11:1:17
NAME OF SUBSTATION	ELEMENT NAME	LOADING	
		WHEN ONE MACHINE IS RUNNING	WHEN BOTH THE MACHINES ARE RUNNING
220KV NAPP	SUT-I	11.23	11.23
	SUT-II	9.43	9.43
220KV SIMBHOLI	63 MVA ICT-1	0.02	0.02
	63 MVA ICT-2		
	40 MVA ICT-3	3.17	3.17
	132KV GARHMUKTESHWAR	-0.00	-0.00
	132KV SUGAR MILL	1.48	1.48
220KV KHURJA	132 KV ANDOPSHAHAR	N / APP	6.66
	132 KV KHURJA-B	N / APP	0.00
	63 MVA ICT-1	N / APP	9.85
	40 MVA ICT-2	N / APP	9.23
	40 MVA ICT-3	N / APP	10.12
TOTAL LOAD		37.99	104.6
RANGE OF REQUIRED LOAD		70-90 MW	150-280 MW
220KV NAPP-GENERATION			
	GENERATION(MW)	G/L RATIO(%)	
UNIT-I	199.1	5.26	
UNIT-II	9.43	4.47	
TOTAL	407.5	3.82	

Erroneous values

During 224 OCC meeting, NRLDC representative mentioned that only the NAPS Islanding Scheme of UP has incorporated the G/L ratio in its SCADA display according to the shared format. UP representative added that due to a recent fire incident at Khurja S/S, the telemetry from the 220kV Khurja S/S is currently unavailable, and they promised to share an update on the restoration of telemetry from Khurja as soon as possible.

NRLDC representative also requested that all concerned utilities provide updated islanding base cases for different load-generation balance scenarios (Summer: Peak/Off-peak and Winter: Peak/Off-peak) along with dynamic data of the generators in the island for conducting dynamic simulation studies. He reiterated that the Islanding SCADA display should be made available at NRLDC as per the format shared in previous OCC meetings.

During 225 OCC meeting, UP, Rajasthan, Punjab and Delhi SLDC were requested to provide update.

UP SLDC representative informed that NAPS has been asked to carry out mock testing of ufr which are part of islanding scheme. After receiving testing report from NAPS, same shall be shared with OCC forum.

No other update could be received from other SLDCs.

OCC asked all SLDCs to proactively take actions as discussed in the meeting. Further, NRLDC had also conducted an online meeting on 03.12.2024 with all relevant stakeholders from UP, Rajasthan, Delhi and Punjab regarding any issues being faced in carrying out mock testing exercise of islanding scheme.

Following updates were received in the meeting:

1. Uttar Pradesh (NAPS Islanding Scheme)

- Field testing of relays has been completed; a detailed report will be shared by 15th December 2024.

- PSSE basecase files will be submitted within one month.
 - NRLDC demonstrated modelling the island in PSSE using the Bawana Island example (Delhi SLDC).
2. Rajasthan (RAPS Islanding Scheme)
 - Regular UFR testing is ongoing and will extend to Islanding UFR relays.
 - A detailed report as per the SOP will be submitted by the first week of January 2025.
 - PSSE basecase files will be provided within one month.
 3. Delhi (Bawana Islanding Scheme)
 - DTL will conduct field mock testing as per the SOP within one month and submit a detailed report accordingly.
 - PSSE basecase files will be shared within one month.
 4. Punjab (RSD Islanding Scheme)
 - Field mock testing as per SOP will be conducted within one month, and a detailed report will follow.
 - PSSE basecase files will be submitted within one month.

Recently, a meeting was also convened by NRLDC with states on 06.02.2025 to review the progress.

Following was discussed during the meeting:

Updates from States:

1. Uttar Pradesh (NAPS Islanding Scheme)
 - Dynamic testing done on basecase shared by UP-SLDC.
 - UFR testing report submitted by UP-SLDC
 - SCADA display made by UP-SLDC, however some telemetry data is not coming in display.
2. Rajasthan (RAPS Islanding Scheme)
 - UFR testing report submitted on 06.02.2025 by Rajasthan SLDC
 - PSSE basecase files will be provided by 14.02.2025
3. Delhi (Bawana Islanding Scheme)
 - Mock testing of islanding scheme UFR relays was withheld due to scheduled assembly elections in Delhi. UFR testing report will be submitted by 14.02.2025
 - PSSE basecase files will be shared by 14.02.2025
 - SCADA display is outdated and new one will be made operational by 21.02.2025
4. Punjab (RSD Islanding Scheme)
 - Punjab SLDC is awaiting dynamic data of RSD and load data from site for islanding scheme and will be shared after receiving them. No firm timeline provided.
 - UFR testing report and SCADA display update will be provided on mail to NRLDC due to non-availability of concerned person in the meeting.

NLDC Recommendations:

The NLDC emphasized the urgency of receiving the PSSE files for the four scenarios to facilitate a dynamic health assessment of the islands and urged all NR states to prioritize sharing these files promptly.

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 Maharaniabagh, 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 Maharaniabagh 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.

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

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

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.

NRLDC requested Rajasthan, Punjab and Delhi SLDCs to provide update on pending work.

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.

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.

B.10 Continuous high frequency operation of grid on 06.04.2025

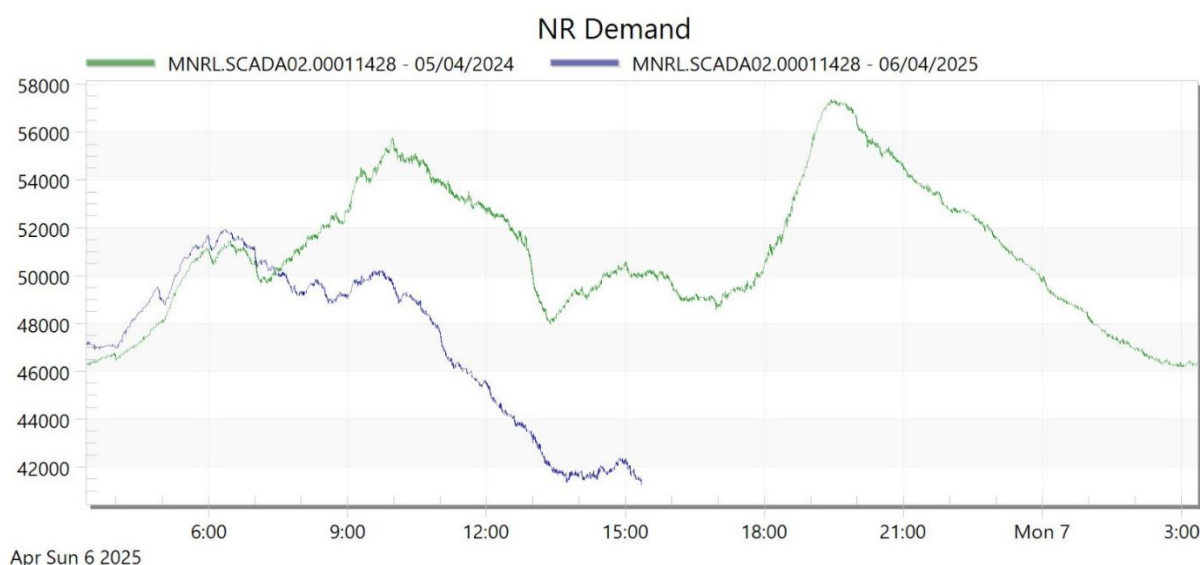
Measures required from utilities incase of high frequency operation of grid has been discussed on numerous occasions and is also part of NRLDC operating procedure document. Further, underdrawl from the grid during high frequency operation of grid also has financial implication on a control area as frequency linked DSM charges are payable for the same. Measures required from utilities incase of high frequency operation of the grid are listed below:

All constituents shall take proactive actions and maintain their drawal within the schedule. In view of this, if required following action may be prioritise:

- Portfolio management through sale/purchase of power in T-GNA
- Lifting of planned load shedding, curtailments, if any
- Generation backing down in coal fired thermal stations & Gas station (within state control area (in case it is under drawing) as per merit order based on variable charges
- Downward revision of requisitions from ISGS as per merit order on request of beneficiaries
- Machines to be brought under RSD incase of sustained under drawls

On 06.04.2025, NR demand was considerably lower than previous day and big states like Rajasthan and Uttar Pradesh were heavily under drawing from the grid.

NR demand pattern for 6th April and 7th April 2025 is shown below:

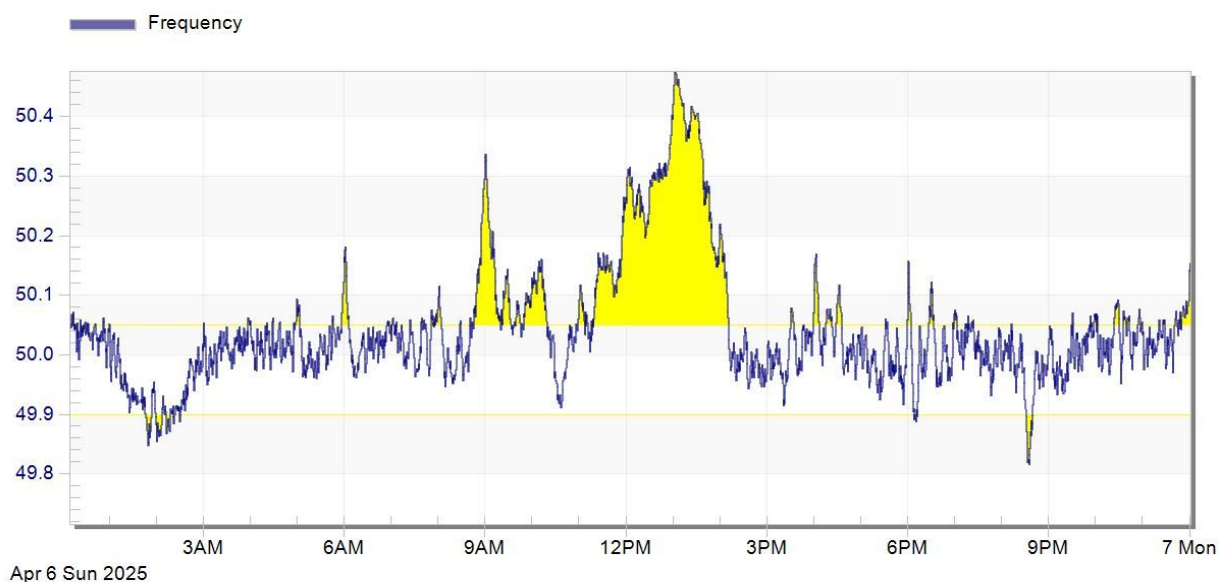


To arrest the high frequency operation of the grid, following actions were taken by NRLDC control room during high frequency period:

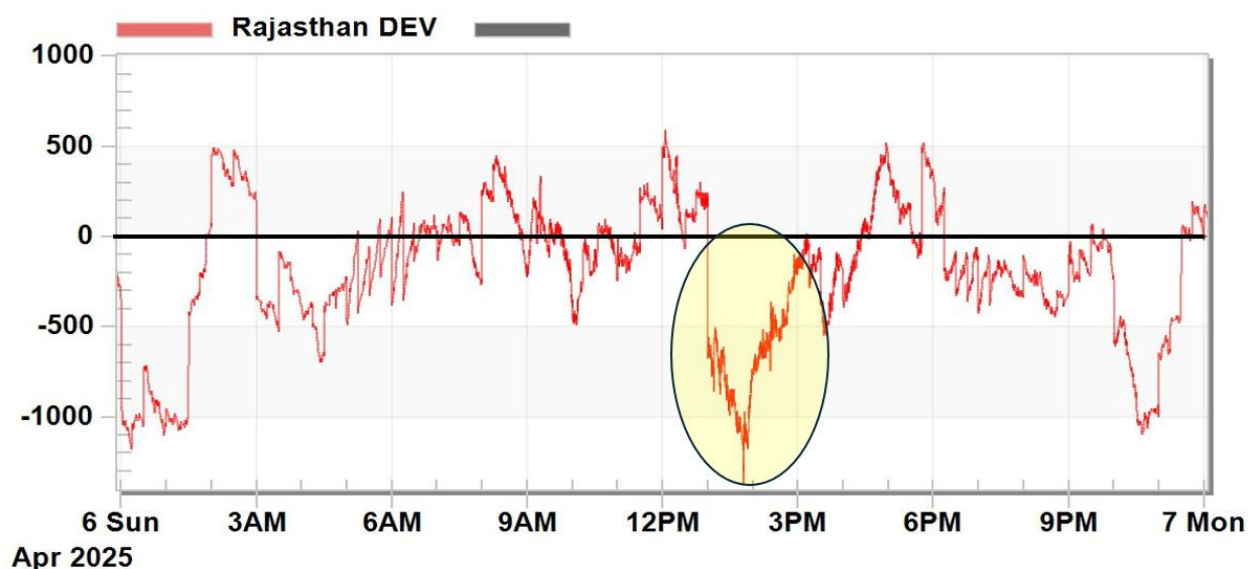
- 1) Schedule of Hydro plants reduced:
 - a) Koteswar: 25 MW reduction from 13:15 hrs to 14:00 hrs
 - b) Dulhasti: 85 MW reduction from 13:00 hrs to 14:00 hrs
- 2) Under-drawl messages were issued to states underdrawing from grid.
- 4) All RE plants were asked to avoid over-injection through mail and telephone.
- 5) All States were asked to run their thermal plants at technical minimum.

6) All ISGS thermal generators were brought down to technical minimum of 55%.

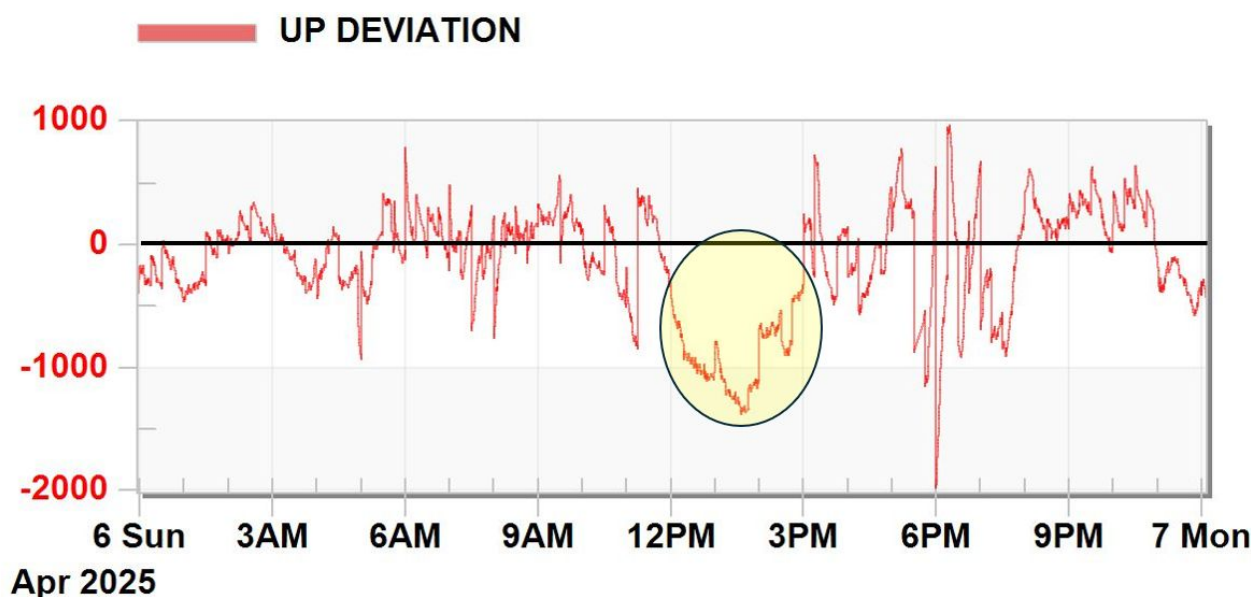
Frequency profile of 6th Apr 2025 (Maximum frequency of 50.49 at 13:03 hrs) is shown below:



Deviation by Rajasthan state control area for 6th Apr 2025 is shown below:



Deviation by UP state control area for 6th Apr 2025 is shown below:



Rajasthan and UP SLDC were requested to share actions taken at their end to control their deviations from ISTS and maintaining grid frequency.

Rajasthan representative informed that due to inclement weather conditions, wind generation was also on higher side and load was also on lower side as compared to the forecasted load. However, generation backdown and RE curtailment were done. He further stated that supercritical thermal units comfortably back down their generation to technical minimum however other thermal generating units are reluctant in backing down till technical minimum due to some technical issue. However, continuous follow ups are being done with all the generating stations for backing down of generating unit to technical minimum during load crash and critical scenarios.

CGM NRLDC requested Rajasthan to explore alternate actions such as taking out the small units during such scenarios and restoring back during peak hours. And prompt decision is required during such grid scenarios.

Rajasthan, Punjab, Haryana, Uttarakhand and Delhi were requested to take prompt actions to ensure backing down of generators to 55% of their capacity in case of critical situations.

OCC requested all SLDCs to take quick actions at their end incase of sustained underdrawl from the grid and high frequency operation of grid.

B.11 CERC order in suo-Motu Petition No. 2/SM/2025 dated 29.03.2025

Continuous high frequency operation of Indian grid was observed in Aug 2025 months on Sundays. To analyse the same, GRID-INDIA prepared a report and vide letter dated 17.09.2024, submitted the Report to the Commission on high-frequency operation on 4th, 11th, and 25th August 2024. Grid-India, in its report, submitted that persistent high-frequency operation was observed on the 4th, 11th, and 25th of August

2024 in India's power system, with frequency remaining above 50.05 Hz for around 26%, 33%, and 38% of the time during the day, respectively.

The key highlights with regard to high frequency of the grid on 4th, 11th and 25th August 2024 are as under:

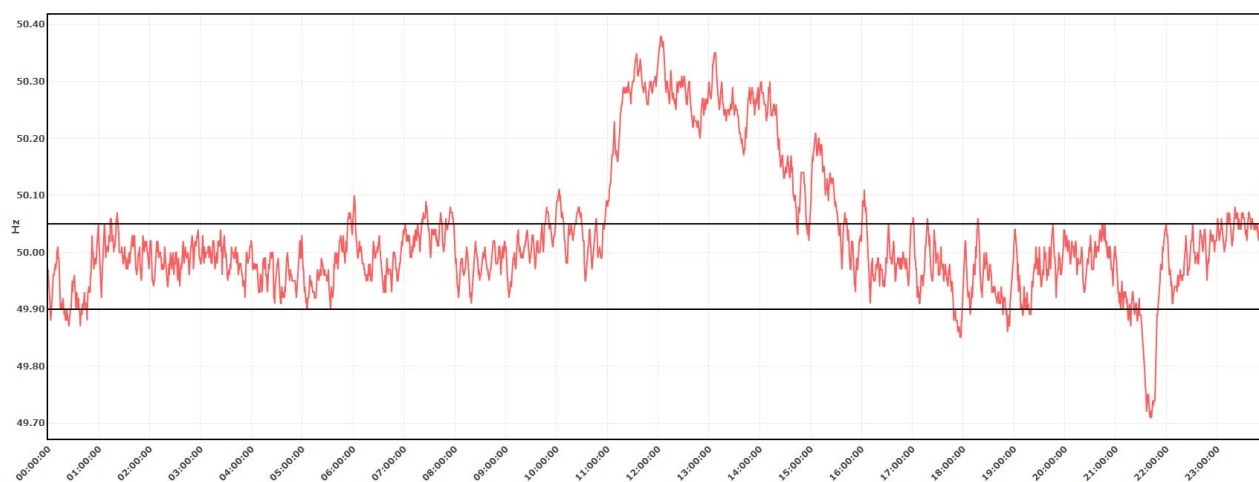
Frequency Data Table - August 2024

Metric	04 Aug 2024	11 Aug 2024	25 Aug 2024
% of time frequency remained above 50.05 Hz	26.27	33.32	37.97
Duration of continuous high frequency (>50.05 Hz) in minutes	226	120	258
Maximum instantaneous frequency (Hz) and its time of occurrence (hh:mm)	50.39 (12:02)	50.33 (13:44)	50.38 (13:07)

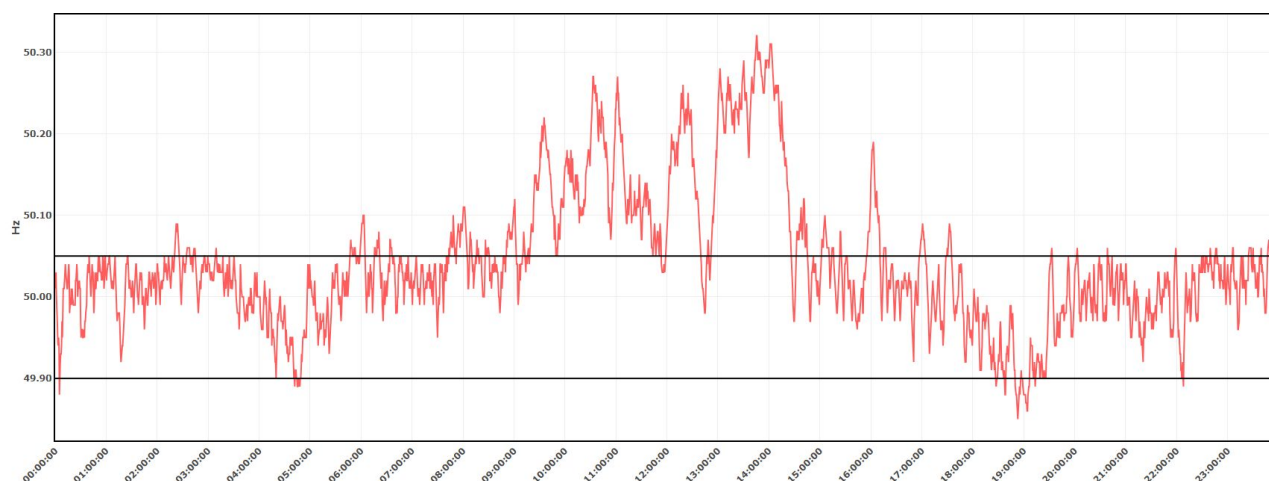
The contributing factors for high-frequency operation in the Indian power system on 04, 11, and 25 August 2024 were identified as:

- Suppressed demand due to widespread rains and weekend
- Over-injection by VRE sources
- Limited flexibility from hydropower stations and pumped storage plants due to high inflows and high reservoir levels
- Inadequate flexibility of intra-state thermal generating stations and underdrawl
- Lack of DOWN reserves at the interstate level
- Inadequate liquidity in DAM/RTM, resulting in the states committing more units.

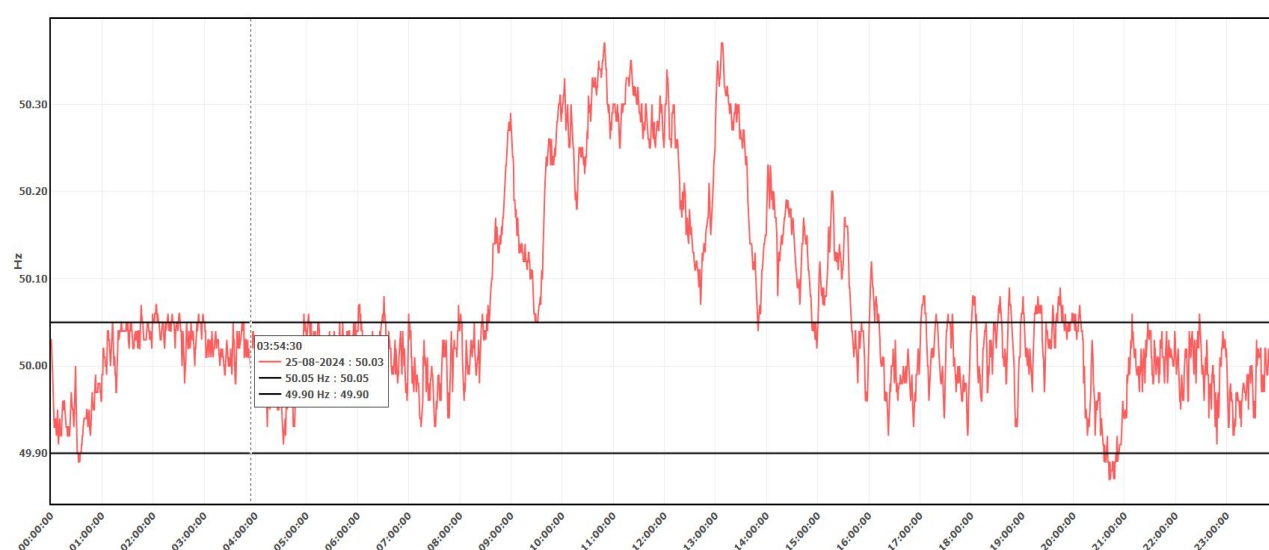
Frequency profile of 4th Aug 2024:



Frequency profile of 11th Aug 2024:



Frequency profile of 25th Aug 2024:



Based on the report and issues highlighted by GRID-INDIA, commission vide their order 2/SM/2025 dated 29.03.2025 (**Annex-B.VII**) has ordered that:

- a) As a pilot, regional entity thermal generating stations whose tariff is determined by this Commission under Section 62 of the Act, to be operated in two-shift operation, shall be identified by NLDC in consultation with the owner(s) of such thermal units and CEA. While identifying the units for such pilot, the experience of Tuticorin and Mettur as stated in Paragraph 15 of this Order shall be taken into account. To start with, rail-fed 500 MW Units may preferably be selected under the pilot. ***NLDC is directed to identify such pilot thermal units and issue a detailed procedure for operating such units under a two-shift cycle, within two months of the issue of this Order. The Detailed Procedure shall contain the guidelines regarding operational aspects, including scheduling, dispatch, accounting, settlement, compensation on account of expenses due to two-shift operation (including start-up cost, heat rate, etc.), and any residual matter. The same shall be shared with stakeholders and submitted to the Commission for approval.***
- b) ***Under the pilot, units operating under two shifts shall be paid incentive @20 paise/kwh for the down reserve created (below the Minimum Turndown Level) for the hours it is kept off-bar during the day.*** For instance if a 500 MW unit (ex-bus as 471.25 MW – after deducting normative auxiliary power consumption) is taken off-bar for 10 hours of the day under two shift operation, the down reserve works out as 259.2 MW (= 55% of 471.25 MW, considering MTL of 55%), and such unit shall be paid incentive @ 20 paise x 259.2 x 1000 kW x 10 hrs for one day.
- c) ***NLDC and the owner(s) of the thermal generating units selected for this pilot project are directed to apprise the Commission regarding the experience gained in the form of a feedback report covering all the aspects within a month of completion of the six months of pilot operation including financial impact of running a thermal station in Two shift operations, assessment of Two shift operation on plant viability and plant damage if any and impact on useful life of the plant.*** For this purpose, the owner of the thermal generating units selected for the pilot project shall maintain a record of extra expenditure incurred by it due to operating two shifts, including operational parameters, wear and tear of units on this account.

- d) NLDC to furnish the PRAS response given by REGS (which is mandated to provide PRAS Under the Grid Code and CEA Standards) during the events of high frequency on 4.08.2024, 11.08.2024, and 25.08.2024 within a period of one month of issue of this Order.
- e) **NLDC is directed to submit implementation modalities and suitable commercial mechanisms to facilitate such AGC services from REGS within a period of three months of the issue of this Order, after consultation with stakeholders.**
- f) The Commission's staff to work out modalities for the implementation of ESS at thermal generating stations.

NRLDC representative requested all the SLDCs to go through this CERC order, refer suggested actions and take necessary actions at their end.

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

In the month of March 2025, 2 no. of reportable event were notified by NLDC for which FRC/ FRP need to be calculated. FEC/FRP computation along with the high-resolution data need to be submitted to RLDC. Description of the event is as given in the Table below:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	Nadir Frequency (in Hz)	End Frequency (in Hz)	Δf	NR FRP during the event
1	12-Mar-25	14:51 hrs	As reported, at 14:51 hrs on 12th March 2025, net load loss event of 2290 MW occurred in Maharashtra and Gujarat (WR). Hence net load loss of 2290 MW is considered for FRC/FRP Calculation.	49.915	50.199	50.004	0.09	1.73
2	12-Mar-25	15:37 hrs	As reported, at 15:37 hrs on 12th March 2025, net	49.979	50.114	50.031	0.05	1.00

			load loss event of 1318 MW occurred in Maharashtra and Gujarat (WR). Hence net load loss of 1318 MW is considered for FRC/FRP Calculation.					
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As per IEGC 2023 Clause 30.8, "The primary response of the generating units shall be verified by the Load Despatch Centres (LDCs) during grid events. The concerned generating station shall furnish the requisite data to the LDCs within two days of notification of reportable event by the NLDC."

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

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

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

Status of details received from constituents as on 07th April 2025 is:

FRC computation and data submission status			
S. No	Control Area	Event Date	
		12-03-2025_14:51hrs	12-03-2025_15:37hrs
1	Punjab	Not Received	Not Received
2	Haryana	Not Received	Not Received
3	Rajasthan	Not Received	Not Received
4	Delhi	Received	Received
5	Uttar Pradesh	Received	Received
6	Uttarakhand	Received	Received
7	Chandigarh*	NA	NA
8	Himachal Pradesh	Received	Received
9	J&K(UT) and	Not Received	Not Received

	Ladakh(UT)		
10	Dadri -1 (TH)	Received	Received
11	Dadri -2 (TH)	Received	Received
12	Jhajjar (TH)	Received	Received
13	Rihand-1 (TH)	Received	Received
14	Rihand-2 (TH)	Received	Received
15	Rihand-3 (TH)	Received	Received
16	Shree Cement (TH)	Not Received	Not Received
17	Singrauli (TH)	Not Received	Not Received
18	Tanda-2 (TH)	Not Received	Not Received
19	Unchahar-I (TH)	Received	Received
20	Unchahar-II (TH)	Received	Received
21	Unchahar-III (TH)	Received	Received
22	Unchahar-IV (TH)	Received	Received
23	Anta (G)	No Gen	No Gen
24	Auraiya (G)	No Gen	No Gen
25	Dadri (G)	No Gen	No Gen
26	AD Hydro (H)	No Gen	No Gen
27	Bairasiul (H)	Received	Received
28	Bhakra (H)	Received	Received
29	Budhil (H)	No Gen	No Gen
30	Chamera-1 (H)	No Gen	No Gen
31	Chamera-2 (H)	No Gen	No Gen
32	Chamera-3 (H)	No Gen	No Gen
33	Dehar (H)	No Gen	No Gen
34	Dhauliganga (H)	No Gen	No Gen
35	Dulhasti (H)	Received	Received
36	Karcham (H)	No Gen	No Gen
37	Kishenganga	No Gen	No Gen
38	Koldam (H)	No Gen	No Gen
39	Koteshwar (H)	Received	Received
40	Malana-2 (H)	NA	NA
41	Nathpa Jhakri (H)	No Gen	No Gen
42	Parbati-2 (H)	Not Received	Not Received
43	Parbati-3 (H)	No Gen	No Gen
44	Pong (H)	Received	Received
45	Rampur (H)	Not Received	Not Received
46	Sainj (H)	No Gen	No Gen
47	Salal (H)	Received	Received
48	Sewa-II (H)	Received	Received
49	Singoli Bhatwari (H)	No Gen	No Gen
50	Sorang (H)	Not Received	Not Received
51	Tanakpur (H)	Not Received	Not Received
52	Tehri (H)	Received	Received
53	Uri-1 (H)	Received	Received

54	Uri-2 (H)	Not Received	Not Received
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NRLDC representative highlighted the list of generating stations and control area who haven't shared the FRC/FRP computation details. Details are pending from Punjab, Haryana, Rajasthan, J&K, Shree Cement TPS, Singrauli & Tanda-2 TPS(NTPC), Rampur HEP, Sorang HEP, Tanakpur HEP and Uri-2 HEP.

Members were requested to share the FRC/FRP computation as per timeline.

Frequency Response Performance (FRP) of generating stations for each reportable event are calculated based on the submitted high resolution data from generating stations. However, the generating stations for which data is not received till 07th April 2025, FRC/FRP as per NRLDC HDR data is used for computation of Average Monthly Frequency Response Performance, Beta 'β' for Generating Stations.

FRP values as considered (as per NRLDC HDR data/ generator high resolution data) for the event of March 2025 is as follows:

Frequency response Performance			
S. No	Control Area	Event Date	
		12-03-2025_14:51hrs	12-03-2025_15:37hrs
1	Punjab	2.03	0.94
2	Haryana	1.40	1.06
3	Rajasthan	2.68	-3.23
4	Delhi	0.74	4.49
5	Uttar Pradesh	0.66	-0.13
6	Uttarakhand	-0.14	1.70
7	Chandigarh*	NA	NA
8	Himachal Pradesh	-0.10	-0.85
9	J&K(UT) and Ladakh(UT)	0.45	-0.26
10	Dadri -1 (TH)	10.31	10.52
11	Dadri -2 (TH)	9.34	0.00
12	Jhajjar (TH)	8.70	9.82
13	Rihand-1 (TH)	13.21	12.36
14	Rihand-2 (TH)	11.03	11.43
15	Rihand-3 (TH)	3.65	3.07
16	Shree Cement (TH)	-1.95	0.12
17	Singrauli (TH)	4.23	2.86
18	Tanda-2 (TH)	8.48	5.68
19	Unchahar-I (TH)	11.10	10.84
20	Unchahar-II (TH)	18.16	20.55
21	Unchahar-III (TH)	15.97	14.28
22	Unchahar-IV (TH)	11.66	7.50
23	Anta (G)	No Gen	No Gen

24	Auraiya (G)	No Gen	No Gen
25	Dadri (G)	No Gen	No Gen
26	AD Hydro (H)	No Gen	No Gen
27	Bairasiul (H)	-0.01	0.42
28	Bhakra (H)	0.01	-0.01
29	Budhil (H)	No Gen	No Gen
30	Chamera-1 (H)	No Gen	No Gen
31	Chamera-2 (H)	No Gen	No Gen
32	Chamera-3 (H)	No Gen	No Gen
33	Dehar (H)	No Gen	No Gen
34	Dhauliganga (H)	No Gen	No Gen
35	Dulhasti (H)	2.33	0.00
36	Karcham (H)	No Gen	No Gen
37	Kishenganga	No Gen	No Gen
38	Koldam (H)	No Gen	No Gen
39	Koteshwar (H)	8.23	8.05
40	Malana-2 (H)	NA	NA
41	Nathpa Jhakri (H)	No Gen	No Gen
42	Parbati-2 (H)	0.00	0.00
43	Parbati-3 (H)	No Gen	No Gen
44	Pong (H)	-0.04	0.02
45	Rampur (H)	0.00	0.00
46	Sainj (H)	No Gen	No Gen
47	Salal (H)	-1.98	0.30
48	Sewa-II (H)	4.98	4.98
49	Singoli Bhatwari (H)	No Gen	No Gen
50	Sorang (H)	-0.14	0.01
51	Tanakpur (H)	0.06	-0.88
52	Tehri (H)	9.08	6.89
53	Uri-1 (H)	-0.47	-0.08
54	Uri-2 (H)	-2.04	-1.74

NRLDC representative stated that from the FRP data, it is observed that FRP of many of the control areas are not satisfactory. Concerned constituents were requested to review the FRC/FRP, governor actions of their respective control area, necessary actions may be taken for improvement in the FRC/FRP.

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

Sl. No.	Entity	Capacity(MW)	Governor Mode (FGMO as per IEGC)	Droop setting (%)	Remarks (if any)
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			2023) Yes or No		
1	Dadri-1 (TH)	4*200			
2	Dadri -2 (TH)	2*490			
3	Jhajjar (TH)	3*500			
4	Rihand-1 (TH)	2*500	Yes	5.0	Under Implementati on
5	Rihand-2 (TH)	2*500	Yes	5.0	Under Implementati on
6	Rihand-3 (TH)	2*500	Yes	5.0	Under Implementati on
7	Shree Cement (TH)	(2 * 150)			
8	Singrauli (TH)	2*500+5*200			
9	Tanda-2 (TH)	2*660			
10	Unchahar stg-4 (TH)	1*500			
11	Unchahar (TH)	2*210			
12	Anta (G)	(1 * 153.2 + 3 * 88.71)			
13	Auraiya (G)	(2 * 109.3 + 4 * 111.19)			
14	Dadri (G)	(2 * 154.51 + 4 * 130.19)			
15	AD Hydro (H)	(2 * 96)	YES	4.0	-
16	Bairasiul (H)	(3 * 60)	Yes	4.0	
17	Bhakra (H)	(5 * 126 + 5 * 157)			
18	Budhil (H)	(2 * 35)			
19	Chamera-1 (H)	(3 * 180)	Yes	5.0	
20	Chamera-2 (H)	(3 * 100)	Yes	5.0	
21	Chamera-3 (H)	(3 * 77)	Yes	4.0	
22	Dehar (H)	(6 * 165)			
23	Dhauliganga (H)	(4 * 70)	Yes	5.0	
24	Dulhasti (H)	(3 * 130)	Yes	5.0	
25	Karcham (H)	(4 * 261.25)	Yes	5.0	
26	Kishenganga	(3 * 110)	Yes	4.0	
27	Koldam (H)	(4 * 200)	Yes	4.0	
28	Koteswar (H)	(4 * 100)	Yes	4.0	
29	Malana-2 (H)	(2 * 50)			
30	Nathpa Jhakri (H)	(6 * 250)	Yes	5.5	
31	Parbati-2 (H)	(4 * 200)			
32	Parbati-3 (H)	(4 * 130)	Yes	4.0	

33	Pong (H)	(6 * 66)			
34	Rampur (H)	(6 * 68.67)			
35	Sainj (H)	(2 * 50)			
36	Salal (H)	(6 * 115)	Yes	3.0	
37	Sewa-II (H)	(3 * 40)	Yes	4.0	
38	Singoli Bhatwari (H)	(3 * 33)			
39	Sorang (H)	(2 * 50)			
40	Tanakpur (H)	(1 * 31.42 + 2 * 31.4)	Yes	4.0	
41	Tehri (H)	(4 * 250)	Yes	4.0	
42	Uri-1 (H)	(4 * 120)	Yes	6.0	
43	Uri-2 (H)	(4 * 60)	Yes	5.0	

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

Members were requested to analyse the frequency response of their respective control area and share the FRC/FRP analysis of generating stations along with unit wise 01 sec data as per timeline for ensuring IEGC compliance.

Further it was also informed that NLDC, in consultation with RLDCs, has assessed Frequency Response Obligation (FRO) of each control area under RLDC jurisdiction for FY 2025-26 in compliance with Reg. 30 (10) (f) and as per Annexure-2 of the CERC (Indian Electricity Grid Code), Regulations 2023. The FRO has been assessed based on minimum All India target frequency response characteristics (FRC), giving due consideration to generation and load within each control area during CY 2024 and the details as given in Table 4 under Reg. 30 (10) (g) of CERC (IEGC), 2023.

The FRO of each control area under RLDC jurisdiction for FY 2025-26 is enclosed herewith. It may also be downloaded from this link: <https://grid-india.in/enfirc/important-documents/>

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

Meeting ended with vote of thanks to the chair.

List of participants of 230th OCC meeting

SL No	Name	Designation	Utility
1	V. K. Singh	Member Secretary NRPC	NRPC
2	VKS Bankoti	Managing Director Bajaj Power Business	Bajaj Power
3	D. K. Meena	Superintendent Engineer NRPC	NRPC
4	Reeturaj Pandey	Dy Director	NRPC
5	Omkishor	Executive Engineer NRPC	NRPC
6	Vipul Kumar	Executive Engineer NRPC	NRPC
7	Somara Lakra	Chief General Manager NRLDC, Grid-India	NRLDC
8	Mahavir Prasad Singh	Dy. General Manager NRLDC, Grid-India	NRLDC
9	Deepak Kumar	Dy. Manager NRLDC, Grid-India	NRLDC
10	Avinash Kumar	Avinash Kumar Sr.Vice President Lalitpur Power Generation Co. Ltd.	Lalitpur Power Generation Co. Ltd.
11	Raguvendra Singh Dewra	Senior Manager	Adani Power Limited
12	Surya Prakash Yogi	Manager	Adani Power Limited
13	Rajiv Sood	Managing Director	HPPTCL
14	BL Thakur	Managing Director	HPSLDC
15	Rohit Kumar	Assistant Engineer	HPSLDC
16	Ashok Kumar	Dy. General Manager (Tech)	DELHI SLDC
17	Abdhesh Kumar	General Manager, Operation	Rosa Power Supply Co Ltd
18	Er. Rohit Sharda	General Manager	HPPTCL
19	Bhanu Pratap Sharma	Assistant Engineer	UPSLDC
20	Er. Karan Bansal	Sr. XEN	Punjab SLDC
21	Vijay Srivastava	Sr DGM	POWERGRID Northern Region II
22	Sanjay Jaiswal	Executive Engineer	UPSLDC
23	Amit Hooda	Sr. Manager	APCPL-IGSTPS Jhajjar
24	Ashok Kumar	HOD/General Manager	SJVN Shimla
25	Aman katoch	General Manager	SJVN Shimla
26	avinash jakhar	Senior Manager	SJVN Shimla
27	Ishwar Chandar Jaiswal	DGM	POWERGRID Northern Region III
28	Naveen C. Sharma	Addl General Manager (T)	IPGCL-PPCL, NEW DELHI
29	Amit Kumar Singh	Superintending Engineer	Uttarakhand SLDC
30	Ankit Kumar	Assistant Engineer	Uttarakhand SLDC
31	H S Hyanki	Chief Engineer	PTCUL
32	Naresh Kumar Agarwal	Executive Engineer	Rajasthan SLDC
33	Vijay Kumar Gupta	Assistant Engineer	Rajasthan SLDC
34	Sandeep kumar	Addl. SE	PSPCL
35	Pankaj saxena	SE	UP-STU
36	Vijay Kumar	Dy. General Manager (O&M)	NHPC
37	Sanjay Bhargava	Head - C&R	PPGCL Bara - Tata Power
38	Rajeev Kumar Tayal	Chief Engineer	Haryana SLDC
39	Hemant Dhurandhar	Operations	PPGCL Bara
40	Samriddhi Gogoi	Associate	IndiGrid
41	Munish Kumar Satija	Executive Engineer	Haryana SLDC
42	Vivek Kumar	Dy.Chief Engineer	PSTCL
43	Sahil Kumar Singla	Addl. Superintending Engineer	PSTCL
44	Varinder Vinayak	Assistant Engineer	PSTCL
45	Prasun Kumar	Manager	MEIL Anpara Energy Limited
46	Madan Lal Sukhija	SE	DHBVN
47	A.J. Siddiqui	Chief Engineer	UPSLDC
48	SUNEEL KUMAR	EE	UPRVUNL
49	Sanjay Kumar Sekhri	Addl. S.E.	BBMB
50	Shankar Kumar	Sr. Manager(Tech)	DTL

51	Vishal Roy	Sr DGM	POWERGRID NR-1 (RTAMC)
52	Kuleshwar Sahu	CGM	POWERGRID NR-1,AM
53	Yatin Sharma	Manager	CTUIL
54	Kapil Gupta	AEN	RVPNL

Status of action taken on decision of 229th OCC meeting of NRPC

S.N.	Agenda	Decision of 229 th OCC meeting of NRPC	Status of action taken and further deliberation in the 230 th OCC meeting
1	A.15. Capacity Augmentation of existing ICT-1 & 2 at Hisar in place of commissioning of new ICT-4 (Agenda by POWERGRID)	Forum asked NRLDC and CTU to do load flow study and submit the observation before next OCC Meeting. POWERGRID was also directed to submit a third-party report confirming the condition of ICTs.	NRLDC representative stated that as per last year loading pattern, loading of 400/220kV ICTs at Hissar(PG) were in the range of 700-900 MVA during summer (peak demand season). The present ICT MVA capacity is 945MVA and with the new 4th ICT of 500MVA capacity, it would become 1445 MVA. And as POWERGRID has also proposed for augmentation of existing 315 MVA ICT-1&2 by new 500MVA ICT, the total MVA capacity of Hissar(PG) will become 1815MVA. He further stated that against the approx. demand of max 1000 MVA at Hissar(PG), whether capacity augmentation upto 1815 MVA is required or not. He requested SLDC-Haryana to comment on load increase projection and requirement of additional ICT at Hissar(PG). Representative of Haryana SLDC informed that 220kV Hisar S/S of HVPN draws Power from Hisar (PG). From 220kV Hisar S/S of HVPN power goes to Hisar

Status of action taken on decision of 229th OCC meeting of NRPC

			(BBMB) from where Punjab also draws Power. Considering of loading of ICT's at Hisar, Haryana SLDC representative agreed to the proposal of replacement of existing ICT-1 & 2 at Hisar. NRLDC representative stated that majority of the cost of these ICT's would be born by Haryana as it is major beneficiary of these ICT's. MS, NRPC stated that as Haryana being the major beneficiary of these ICT's has agreed for the Augmentation of existing ICT-1 & 2 at Hisar, forum may also agree for the same. OCC forum agreed for replacement of existing ICT-1 & 2 at Hisar with 500 MVA ICT's. Forum asked Powergrid to submit the agenda in the upcoming NRPC meeting for approval of NRPC forum.
2	A.16. Complete Shutdown of 200KV Buses at Hisar substation for replacement of 200KV Jack bus Single Moose conductor with Twin Moose for capacity	Forum asked POWERGRID to coordinate with HVPN, BBMB and Haryana SLDC and conduct a physical visit at site and to submit to this forum a	POWERGRID representative stated that shutdown of 200KV Buses at Hisar substation is urgently required for replacement of 200KV Jack bus Single Moose conductor with Twin Moose for capacity augmentation in view of

Status of action taken on decision of 229th OCC meeting of NRPC

	augmentation in view of high peak loading during summer season (Agenda by POWERGRID)	joint proposal for discussion in next OCC Meeting.	high peak loading during summer season. Representative of Haryana SLDC informed that 220kV Isharwal and Sagwan substations of HVPN draws Power from Hisar (PG) and there is no alternate source available for these substations. He stated that works of 220 KV Bhiwani-Isharwal line is going on. After completion of this line alternate source would be available for 220kV Isharwal and Sagwan substations of HVPN. Thereafter, they would be able to provide consent for Shutdown of 200KV Buses at Hisar substation.
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Follow up issues from previous OCC meetings

Annexure-A. III

1	Down Stream network by State utilities from ISTS Station	Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.	List of downstream networks is enclosed in Annexure-A. III. I.																																																																									
2	Progress of installing new capacitors and repair of defective capacitors	Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.	<table><tr><td colspan="3">Data upto following months, received from various states / UTs:</td></tr><tr><td>⊙</td><td>CHANDIGARH</td><td>Sep-2019</td></tr><tr><td>⊙</td><td>DELHI</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>HARYANA</td><td>Jan-2025</td></tr><tr><td>⊙</td><td>HP</td><td>Sep-2024</td></tr><tr><td>⊙</td><td>J&K and LADAKH</td><td>Not Available</td></tr><tr><td>⊙</td><td>PUNJAB</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>RAJASTHAN</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>UP</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>UTTARAKHAND</td><td>Mar-2025</td></tr><tr><td colspan="3">All States/UTs are requested to update status on monthly basis.</td></tr></table>	Data upto following months, received from various states / UTs:			⊙	CHANDIGARH	Sep-2019	⊙	DELHI	Mar-2025	⊙	HARYANA	Jan-2025	⊙	HP	Sep-2024	⊙	J&K and LADAKH	Not Available	⊙	PUNJAB	Mar-2025	⊙	RAJASTHAN	Mar-2025	⊙	UP	Mar-2025	⊙	UTTARAKHAND	Mar-2025	All States/UTs are requested to update status on monthly basis.																																										
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3	Healthiness of defence mechanism: Self-certification	<table><tr><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><table><tr><td colspan="3">Data upto following months, received from various states / UTs:</td></tr><tr><td>⊙</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>⊙</td><td>DELHI</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>HARYANA</td><td>Dec-2024</td></tr><tr><td>⊙</td><td>HP</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>J&K and LADAKH</td><td>Not Available</td></tr><tr><td>⊙</td><td>PUNJAB</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>RAJASTHAN</td><td>Dec-2024</td></tr><tr><td>⊙</td><td>UP</td><td>Dec-2024</td></tr><tr><td>⊙</td><td>UTTARAKHAND</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>BBMB</td><td>Dec-2024</td></tr><tr><td colspan="3">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></table></td></tr><tr><td></td><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td><table><tr><td colspan="3">Status:</td></tr><tr><td>⊙</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>⊙</td><td>DELHI</td><td>Increased</td></tr><tr><td>⊙</td><td>HARYANA</td><td>Increased</td></tr><tr><td>⊙</td><td>HP</td><td>Increased</td></tr><tr><td>⊙</td><td>J&K and LADAKH</td><td>Increased</td></tr><tr><td>⊙</td><td>PUNJAB</td><td>Increased</td></tr><tr><td>⊙</td><td>RAJASTHAN</td><td>Increased</td></tr><tr><td>⊙</td><td>UP</td><td>Increased</td></tr><tr><td>⊙</td><td>UTTARAKHAND</td><td>Increased</td></tr><tr><td>⊙</td><td>BBMB</td><td>Increased</td></tr></table></td></tr></table>	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” .	<table><tr><td colspan="3">Data upto following months, received from various states / UTs:</td></tr><tr><td>⊙</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>⊙</td><td>DELHI</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>HARYANA</td><td>Dec-2024</td></tr><tr><td>⊙</td><td>HP</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>J&K and LADAKH</td><td>Not Available</td></tr><tr><td>⊙</td><td>PUNJAB</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>RAJASTHAN</td><td>Dec-2024</td></tr><tr><td>⊙</td><td>UP</td><td>Dec-2024</td></tr><tr><td>⊙</td><td>UTTARAKHAND</td><td>Mar-2025</td></tr><tr><td>⊙</td><td>BBMB</td><td>Dec-2024</td></tr><tr><td colspan="3">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></table>	Data upto following months, received from various states / UTs:			⊙	CHANDIGARH	Not Available	⊙	DELHI	Mar-2025	⊙	HARYANA	Dec-2024	⊙	HP	Mar-2025	⊙	J&K and LADAKH	Not Available	⊙	PUNJAB	Mar-2025	⊙	RAJASTHAN	Dec-2024	⊙	UP	Dec-2024	⊙	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.				In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.	<table><tr><td colspan="3">Status:</td></tr><tr><td>⊙</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>⊙</td><td>DELHI</td><td>Increased</td></tr><tr><td>⊙</td><td>HARYANA</td><td>Increased</td></tr><tr><td>⊙</td><td>HP</td><td>Increased</td></tr><tr><td>⊙</td><td>J&K and LADAKH</td><td>Increased</td></tr><tr><td>⊙</td><td>PUNJAB</td><td>Increased</td></tr><tr><td>⊙</td><td>RAJASTHAN</td><td>Increased</td></tr><tr><td>⊙</td><td>UP</td><td>Increased</td></tr><tr><td>⊙</td><td>UTTARAKHAND</td><td>Increased</td></tr><tr><td>⊙</td><td>BBMB</td><td>Increased</td></tr></table>	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
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4	Status of Automatic Demand Management System in NR states/UT's	The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:	The status of ADMS implementation in NR is enclosed in Annexure-A.III.II. <table><tr><td>⊙ DELHI</td><td>Scheme Implemented but operated in manual mode.</td></tr><tr><td>⊙ HARYANA</td><td>Scheme not implemented</td></tr><tr><td>⊙ HP</td><td>Scheme not implemented</td></tr><tr><td>⊙ PUNJAB</td><td>Scheme not implemented</td></tr><tr><td>⊙ RAJASTHAN</td><td>Under implementation.</td></tr><tr><td>⊙ UP</td><td>Scheme implemented by NPCIL only</td></tr><tr><td>⊙ UTTARAKHAND</td><td>Scheme not implemented</td></tr></table>		⊙ DELHI	Scheme Implemented but operated in manual mode.	⊙ HARYANA	Scheme not implemented	⊙ HP	Scheme not implemented	⊙ PUNJAB	Scheme not implemented	⊙ RAJASTHAN	Under implementation.	⊙ UP	Scheme implemented by NPCIL only	⊙ UTTARAKHAND	Scheme not implemented																														
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5	Status of availability of ERS towers in NR	As per the 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.	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.III.III.																																													
6	Submission of breakup of Energy Consumption by the states	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>	Category→	Consumption by Domestic Loads	Consumption by Commercial Loads	Consumption by Agricultural Loads	Consumption by Industrial Loads	Traction supply load	Miscellaneous /Others	<Month>							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>Feb-25</td></tr><tr><td>⊙</td><td>HP</td><td>Jan-25</td></tr><tr><td>⊙</td><td>J&K and LADAKH</td><td>JPDCI- 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>Dec-24</td></tr><tr><td>⊙</td><td>UP</td><td>Feb-25</td></tr><tr><td>⊙</td><td>UTTARAKHAND</td><td>Dec-24</td></tr></table> Chandigarh is requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format			State / UT	Upto	⊙	CHANDIGARH	Not Submitted	⊙	DELHI	Feb-25	⊙	HARYANA	Feb-25	⊙	HP	Jan-25	⊙	J&K and LADAKH	JPDCI- Mar' 24 KPDCL- Not Submitted	⊙	PUNJAB	Mar-25	⊙	RAJASTHAN	Dec-24	⊙	UP	Feb-25	⊙	UTTARAKHAND	Dec-24
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⊙	UTTARAKHAND	Dec-24																																														
7	Status of FGD installation vis-à-vis installation plan at identified TPS	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.	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. III. IV. All States/utilities are requested to update status of FGD installation progress on monthly basis.		⊙	HARYANA	Jun-2024	⊙	PUNJAB	Feb-2025	⊙	RAJASTHAN	Feb-2025	⊙	UP	Jan-2024	⊙	NTPC	Mar-2025																													
⊙	HARYANA	Jun-2024																																														
⊙	PUNJAB	Feb-2025																																														
⊙	RAJASTHAN	Feb-2025																																														
⊙	UP	Jan-2024																																														
⊙	NTPC	Mar-2025																																														
8	Information about variable charges of all generating units in the Region	The variable charges detail for different generating units are available on the MERIT Order Portal.	All states/UTs are requested to submit daily data on MERIT Order Portal timely.																																													

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-III.1
1. Down Stream network by State utilities from ISTS Station:						
Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	Mar'25	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to persisting RoW issues. expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 220th OCC by JKPTCL.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	Mar'25	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. RoW issues persisting; At present new-wampoh-mirbazar 5km and harwan-alstung 16km have been completed, expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 214th OCC by JKPTCL.
				• 220 kV New Wanpoh - Mattan D/c Line	End of 2024	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	End of 2024	02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	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	Utilized: 7	• 220 kV D/C Shahajahanpur (PG) - Gola line	Commissioned	Energization date: 26.10.2023 updated by UPPTCL in 215th OCC
		Approved/Under Implementation:1		• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG)	Commissioned	Energization date: 25.02.2022 updated by UPPTCL in 196th OCC
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• 220 kV Hamirpur-Dehan D/c line	Commissioned	HPPTCL has commissioned the Planned 220kV Dehan-Hamirpur TL utilizing 2 No. 220kV Bays.Commissioned date: 09.06.2022. Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	-	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	Apr'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 utilised bays at Sohna road will remain same.Updated in 230th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 228th OCC by HVPNL. Status:- Earlier 02 nos 220 kV line bays were to be utilized for the 220 kV GIS S/Stn. Sec-77, Gurugram but due to denotification of land of the 220 kV GIS S/Stn. Sec-77 the said substation is now going to be dismantled and a new substation is proposed at Sec-75A, Gurugram. Now, these 02 no. 220 kV line bays may be utilized at 220 kV GIS S/Stn Sec-75A, Gurugram.
15	400/220kV Prithla Sub-station	Commissioned: 8 Approved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	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 Sonapat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonapat	Apr'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.
				• Sonapat - HSIISC Rai 220kV D/c line	Commissioned	Energization date: 31.05.2024 updated by HVPNL in 220th OCC
				• Sonapat - Kharkhoda Pocket A 220kV D/c line	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 Jalandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar	-	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar 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 & 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 230th 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 Bahadurgarh S/s	Commissioned: 4 Approved: 4 Total: 8	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra- Daultabad S/c line at 400 kV Bahadurgarh PGCIL	-	Proposal turned down by CEA.Updated in 230th OCC by HVPNL.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	15.06.2026	Updated in 230th OCC by HVPNL. Status: The work stands awarded to the M/s KRR and the execution work has been started at site. Partial route stands approved by the competent authority of the HVPNL. Further, 06 no. Foundation has been casted.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	30.06.2025	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 agrement 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 Management Scheme (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 implementation 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 intimated 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 HPSEB 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-ordinate with Powergrid for integration of their proposed 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-ordinating 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-stations have been selected and 11kV feeders have been considered for ADMS operation. For the scheme, discom has also done group-wise selection of feeders and quantum of MW relief to be given for automatic demand response at 11kV level has also been decided. UPCL has awarded the tender for implementation of the aforementioned scheme to M/s Metergy Pvt.Ltd. ii. As per the status report submitted by M/s Metergy Pvt.Ltd, the survey work of 30 nos. incomer sites have been completed and order has been placed by UPCL for hardware equipments. iii. Uttarakhand SLDC informed that feeder list at 11kV level has been finalized and logic of ADMS implementation is under finalization. iv. Uttarakhand has intimated that It is bring to your notice that installation MFT(Multi Function Transducers) at various interstate points at PTCUL Substations under ADRS Project of UPCL is in progress. v. First Phase- Data Acquisition of 32 interstate points completed. vi. Second Phase-95 distribution side Substation work is on progress. vii In 230th OCC meeting Uttarakhand SLDC representative informed that Harbour installation and communication establishment has been done on 35 11kV feeders out of total 195 11kV feeders. The work is expected to be completed by December, 2025.

Status of availability of ERS towers in NR

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
1	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 Ballabgarh	make-Lindsey
		765 KV	4721.85	15 Towers	1	All 765kV ERS at Meerut	Make-SBB
		500 KV HVDC	653.88	NIL	1		
		800 KV HVDC	416.58	NIL	1		
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		In the advance stage of process of finalising arrangement for providing ERS on need basis with other transmission utility (M/s INDIGRID).
30	ARAVALI POWER COMPANY PVT LTD	765 kv HVAC					

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

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	GVK	GOINDWAL SAHIB	3	30-Jun-23		31-May-25	
6			1	30-Apr-20	INFO NOT RECEIVED		
7	NTPC	DADRI NCTPP	2	29-Feb-20			
8			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		RIHAND STPS	6	31-Mar-23	8-Feb-24		
14			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		SINGRAULI STPS	6	31-Mar-25		31-Mar-25	
16			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		UNCHAHAH TPS	6	30-Jun-24		31-Aug-25	
22			7	31-Mar-24	Hot Gas In completed on 26.03.2025	30-Jun-25	
23			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		MEJA STAGE- 1	5	30-Sep-23		30-May-25	
28			6	31-Aug-22	11-Oct-22		
29			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	Rosa Power Supply Company	ROSA TPP PH-I	6	30-Dec-26			
63			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.IV

Capacity (MW) 30- 11-2023	Name of Station	UNIT_NM	STN_TYP E_ID	SECTOR	REGION_ NM	ST_NM	SH_NM	IPP	FUEL_NM	Capacity (MW) 31- 03-2025	Approved Planned Outage-1			Actual Planned Outage-1		
											Start Date	End Date	Reason	Start Date	End Date	Reason for any deviation
121.2	PRAGATI CCPP	3	T	STATE SECTOR	Northern	Delhi	PPCL	FALSE	NATURAL GAS	121.2	01-Mar-25	04-Mar-25	Boiler Inspection	12-Apr-25	12-Apr-25	
250	PRAGATI CCGT-III	5	T	STATE SECTOR	Northern	Delhi	PPCL	FALSE	NATURAL GAS	250	02-Feb-25	02-Mar-25	Boiler Inspection	29-Mar-25	29-Mar-25	Due to non availability of Boiler Inspecting Authority, inspection could not be done as per approved planned outage. The same has been carried out on 29.03.2025 after the availability of Boiler Inspecting Authority.
600	RAJIV GANDHI TPS	2	T	STATE SECTOR	Northern	Haryana	HPGCL	FALSE	COAL	600	01-Feb-25	17-Mar-25	AOH	28-Feb-25	12-May-25	Shutdown to be availed till 12.05.2025 for Capital overhauling
500	INDIRA GANDHI STPP	3	T	CENTRAL SECTOR	Northern	Haryana	APCPL	FALSE	COAL	500	23-Feb-25	01-Mar-25	Boiler License Renewal			Unit outage was not required.
660	MAHATMA GANDHI TPS	1	T	IPP SECTOR	Northern	Haryana	JhPL(HR)	FALSE	COAL	660	10-Feb-25	31-Mar-25	Boiler Overhauling	25-Oct-25	10-Dec-25	Unavailability of Chimney borocilicate liners application (Membrane Hardner), this job was the major activity in critical path of the outage.
250	GH TPS (LEH.MOH.)	3	T	STATE SECTOR	Northern	Punjab	PSPCL	FALSE	COAL	250	10-Feb-25	26-Mar-25	COH			The shutdown on Unit -3 will be taken in the month of Nov-25 as Unit-1 was under E/F
700	RAJPURA TPP	2	T	IPP SECTOR	Northern	Punjab	NPL	FALSE	COAL	700	18-Feb-25	10-Mar-25	AOH	13-Feb-25	02-Mar-25	
220	RAJASTHA N.A.P.S.	5	N	CENTRAL SECTOR	Northern	Rajasthan	NPCIL	FALSE	NUCLEAR	220	20-Feb-25	31-Mar-25	Binennial Shutdown	17-Feb-25	27-Mar-25	As per LGBR and grid OCC approval
600	KALISIND H TPS	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	600	01-Mar-25	21-Mar-25	AOH	Not Taken in FY_2024-25		Deferred due to Power demand in State is running.
660	PRAYAGR AJ TPP	3	T	IPP SECTOR	Northern	Uttar Pradesh	PPGCL (Jaypee)	FALSE	COAL	660	15-Feb-25	18-Mar-25	AOH	03-Mar-25	06-Mar-25	Shut-down availed for Boiler Certificate Renewal only. Overhaul differed till Nov'25-Dec'25
660	LALITPUR TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	LPGL	FALSE	COAL	660	03-Feb-25	15-Mar-25	AOH	10-Feb-25	05-Mar-25	
500	SINGRAULI STPS	6	T	CENTRAL SECTOR	Northern	Uttar Pradesh	NTPC Ltd.	FALSE	COAL-P	500	15-Feb-25	31-Mar-25	COH	29-Mar-25	04-Apr-25	COH not approved,planned S/D taken for Boiler license renewal
500	RIHAND STPS	6	T	CENTRAL SECTOR	Northern	Uttar Pradesh	NTPC Ltd.	FALSE	COAL-P	500	07-Feb-25	13-Mar-25	AOH			Not approved so not yet availed
500	INDIRA GANDHI STPP	1	T	CENTRAL SECTOR	Northern	Haryana	APCPL	FALSE	COAL	500	01-Feb-25	17-Mar-25	COH	01-Feb-25	25-Mar-25	HP turbine inner casing replacement planned due to continious groove af approx 0.3 mm to 0.4 mm depth found in the U seal ring seating area of inner casing.
45	MAQSOOD PUR TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	28-Feb-25	30-Mar-25	Boiler Overhauling	02-Feb-25	27-Mar-25	Turbine Overhauling duration incresed due to cracks observed in control valve cages
45	KHAMBAR KHERA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	24-Feb-25	26-Mar-25	Boiler Overhauling	15-Feb-25	27-Mar-25	Preponed due to Turbine Gearbox emmergency inspection
45	KHAMBAR KHERA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	25-Feb-25	27-Mar-25	Boiler Overhauling	18-Feb-25	27-Mar-25	Preponed due to pre availability of S/D Spares & Manpower
45	BARKHER A TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	26-Feb-25	28-Mar-25	Boiler Overhauling	13-Mar-25	27-Mar-25	Delayed due to non availability of Spares
45	BARKHER A TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	27-Feb-25	29-Mar-25	Boiler Overhauling	05-Feb-25	04-Apr-25	Turbine Overhauling duration incresed due to cracks observed in control valve cages
45	KUNDARKI TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	28-Feb-25	30-Mar-25	Boiler Overhauling	22-Feb-25	30-Mar-25	Annual Overhauling
45	UTRAULA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	28-Feb-25	30-Mar-25	Boiler Overhauling	20-Feb-25	30-Mar-25	Delayed due to non availability of Spares
45	UTRAULA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	13-Feb-25	30-Mar-25	Boiler Overhauling	28-Feb-25	30-Mar-25	Generator Inspection

135	JALIPA KAPURDI TPP	3	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	06-Mar-25	13-Mar-25	AOH	25-Dec-24	19-Jan-25	Turbine Major Overhauling
135	JALIPA KAPURDI TPP	6	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	15-Mar-25	26-Mar-25	Boiler Inspection	20-Feb-25	30-Mar-25	Generator Emmergency Inspection & Overhauling
135	JALIPA KAPURDI TPP	7	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	25-Feb-25	04-Mar-25	Boiler Inspection	27-Feb-25	01-Mar-25	

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Mode of Fuel Transport (Pit Head/No n Pit-head)	Name of Utility	Sector	Control Area	Type	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control		
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date
1																													
2																													
3																													
4																													
5																													
6																													
7																													
8																													
9																													
10																													

Revised Simulation Models

Whether Revised Models Submitted? Remarks

Hydro Generators

[illegible]

Revised Simulation Models

Whether Revised Models Submitted?	Remarks
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As per guidelines the OEM representative must remain present at the time of Generator periodic testing hence looking to the age and present status of Units at Mahi PH-I, Letters Dated 12/07/2024 and 19/12/2024 have been sent to the OEM M/s BHEL, Bhopal, and accordingly the plan may be scheduled .

Nuclear Generators

[illegible]

Revised Simulation Models

Whether Revised Models Submitted?	Remarks
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Gas Based Generators

[illegible]

Revised Simulation Models

Whether Revised Models Submitted?	Remarks
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Renewable Energy Plants

[illegible]

HVDC Links

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

Revised Simulation Models

Whether Revised Models Submitted? Remarks

STATCOMs/SVCs

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

Revised Simulation Models

Whether Revised Models Submitted? Remarks

FSCs/TCSCs

[illegible]

Series Reactor

S.No	End 1	End 2	Line No.	End	Capacity	Make	Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC			Validation of response by FACTS devices as per settings.		
							Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date
1															

Revised Simulation Models

Whether Revised Models Submitted? Remarks



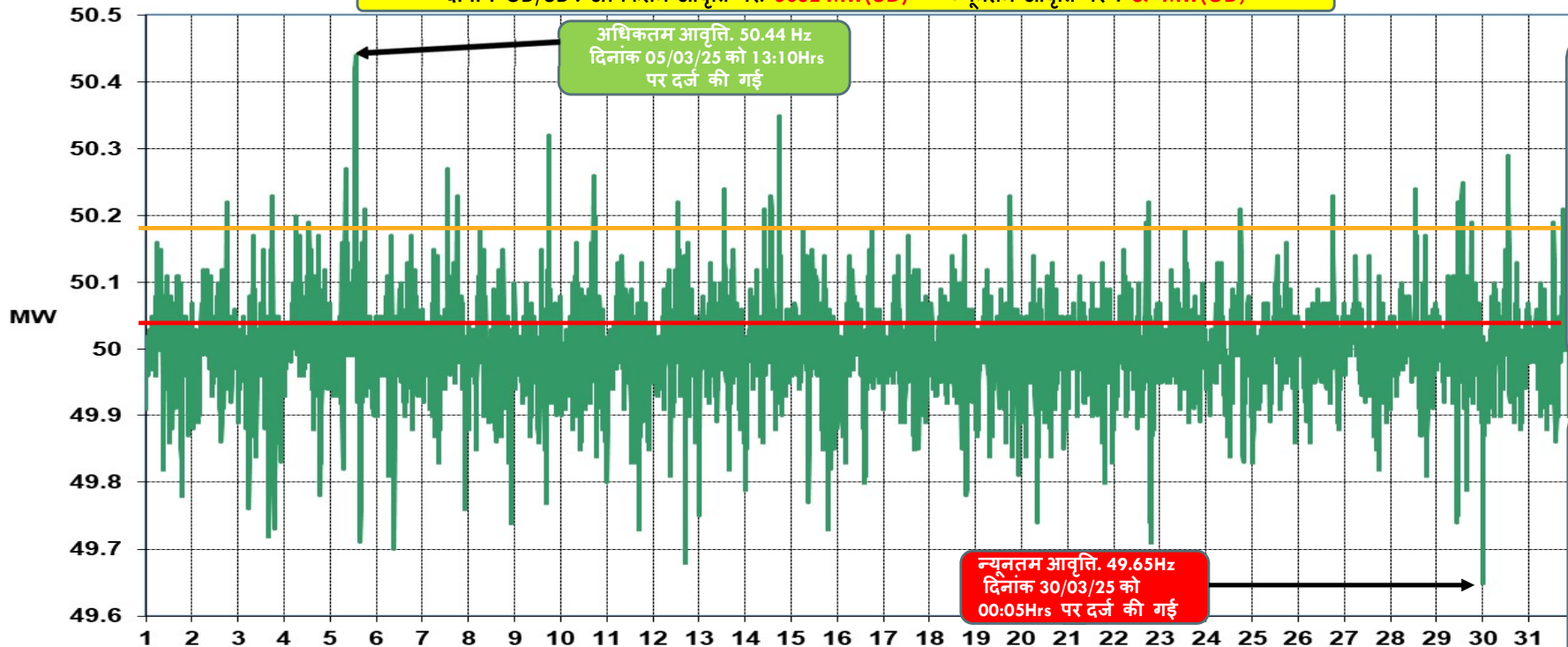
**प्रचालन समन्वय उपसमिति की बैठक
मार्च- 2025**

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



FREQ

क्षेत्रीय OD/UD : अधिकतम आवृत्ति पर: 5062 MW(UD) न्यूनतम आवृत्ति पर : 37 MW(OD)



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

UP -3164
Raj -676
Har -437
Utt -291
Pun -177
HP -146
Del -95
JK -69
Chd -5

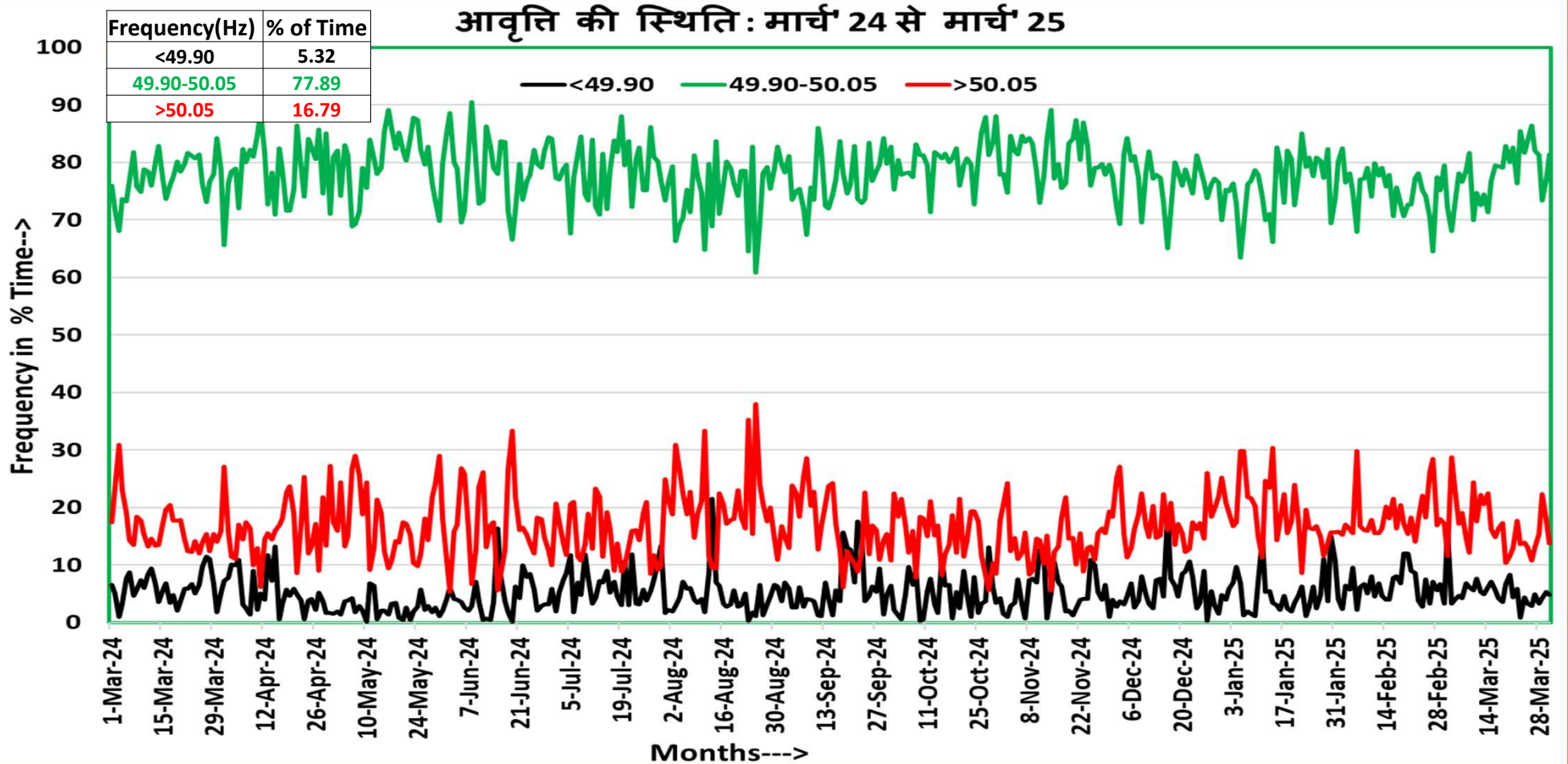
OD(+)/UD(-) at
Min Freq

Del +18
Pun +349
JK -72
Raj -18
Chd -5
UP -64
Utt -138
Har -17
HP -16

Max Demand Met = 66353 MW "Min Demand Met=31531MW"Ave Demand Met=49705MW

DATE

आवृत्ति की स्थिति: मार्च -2024 से 2025



पिछले एक साल में आवृत्ति की स्थिति



आवृत्ति बैंड	मार्च 2024	अप्रैल 2024	मई 2024	जून 2024	जुलाई 2024	अगस्त 2024	सितम्बर 2024	अक्टूबर 2024	नवम्बर 2024	दिसंबर 2024	जनवरी 2025	फ़रवरी 2025	मार्च 2025
< 49.7 Hz(%)	0.065	0.030	0.000	0.02	0.054	0.176	0.18	0.14	0.10	0.29	0.18	0.12	0.05
<49.8 Hz(%)	0.479	0.432	0.059	0.31	0.621	0.631	0.89	0.60	0.66	0.97	0.92	0.73	0.61
<49.9 Hz(%)	6.022	5.254	2.490	4.50	6.406	4.660	6.09	4.86	5.15	5.58	5.23	6.24	5.32
49.90-50.05 Hz(%)	77.51	78.56	80.045	79.177	78.424	75.012	77.130	80.27	80.80	76.45	76.05	75.35	77.89
50.05-50.10 Hz(%)	12.262	11.178	13.839	13.34	12.122	13.334	10.36	12.18	10.90	14.59	15.09	14.23	13.12
>50.10 Hz(%)	4.204	5.010	3.627	2.99	3.047	6.992	6.42	2.49	3.15	3.38	3.63	4.18	3.67
>50.20 Hz(%)	0.657	0.539	0.285	0.12	0.280	1.725	1.03	0.20	0.21	0.37	0.33	0.55	0.63
औसत आवृत्ति	50.00	50.00	50.00	50.002	49.997	50.008	50.000	49.998	49.995	49.998	49.998	49.999	50.001

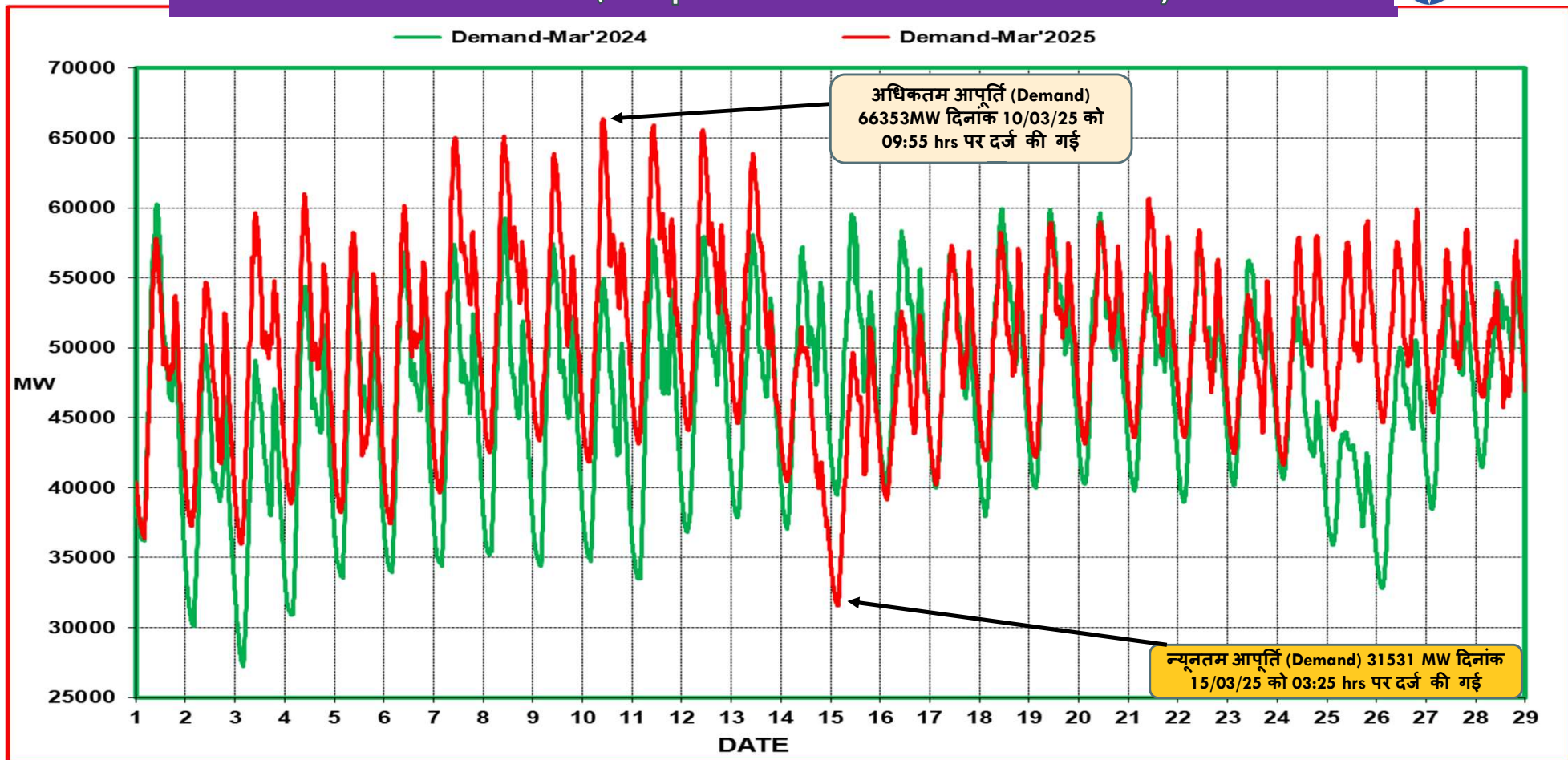
मार्च-2025 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)



राज्य	अधिकतम मांग (MW) (in Mar'25)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Feb'25)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in Mar'25)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Feb'25)	दिनांक
पंजाब	10083	08.03.25 at 11:00	16089	29.06.24 at 12:45	190.9	08.03.25	366.8	21.07.2024
हरियाणा	8750	11.03.25 at 10:00	14662	31.07.24 at 14:30	167.9	05.03.25	293.4	30.07.2024
राजस्थान	17580	07.03.25 at 09:00	19165	12.02.25 at 11:00	335.2	11.03.25	379.1	30.05.2024
दिल्ली	4361	27.03.25 at 19:05	8656	19.06.24 at 15:06	89.8	27.03.25	177.7	18.06.2024
उत्तर प्रदेश	21869	26.03.25 at 19:39	30618	13.06.24 at 22:00	400.3	12.03.25	658.7	17.06.2024
उत्तराखंड	2202	06.03.25 at 07:00	2863	14.06.24 at 22:00	42.9	28.03.25	62.1	14.06.2024
हिमाचल प्रदेश	2075	05.03.25 at 08:00	2273	17.01.25 at 09:00	36.5	11.03.25	41.3	20.12.24
जम्मू और कश्मीर (UT) तथा लद्दाख (UT)	3024	17.03.25 at 19:00	3200	07.01.25 at 10:00	63.2	07.03.25	70.3	04.02.25
चंडीगढ़	229	05.03.25 at 07:00	482	18.06.24 at 15:28	4.0	27.03.25	9.1	18.06.2024
उत्तरी क्षेत्र #	66353.0	10.03.25 at 09:55	91234	19.06.24 at 14:37	1295.9	11.03.25	1990.4	18.06.2024

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

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

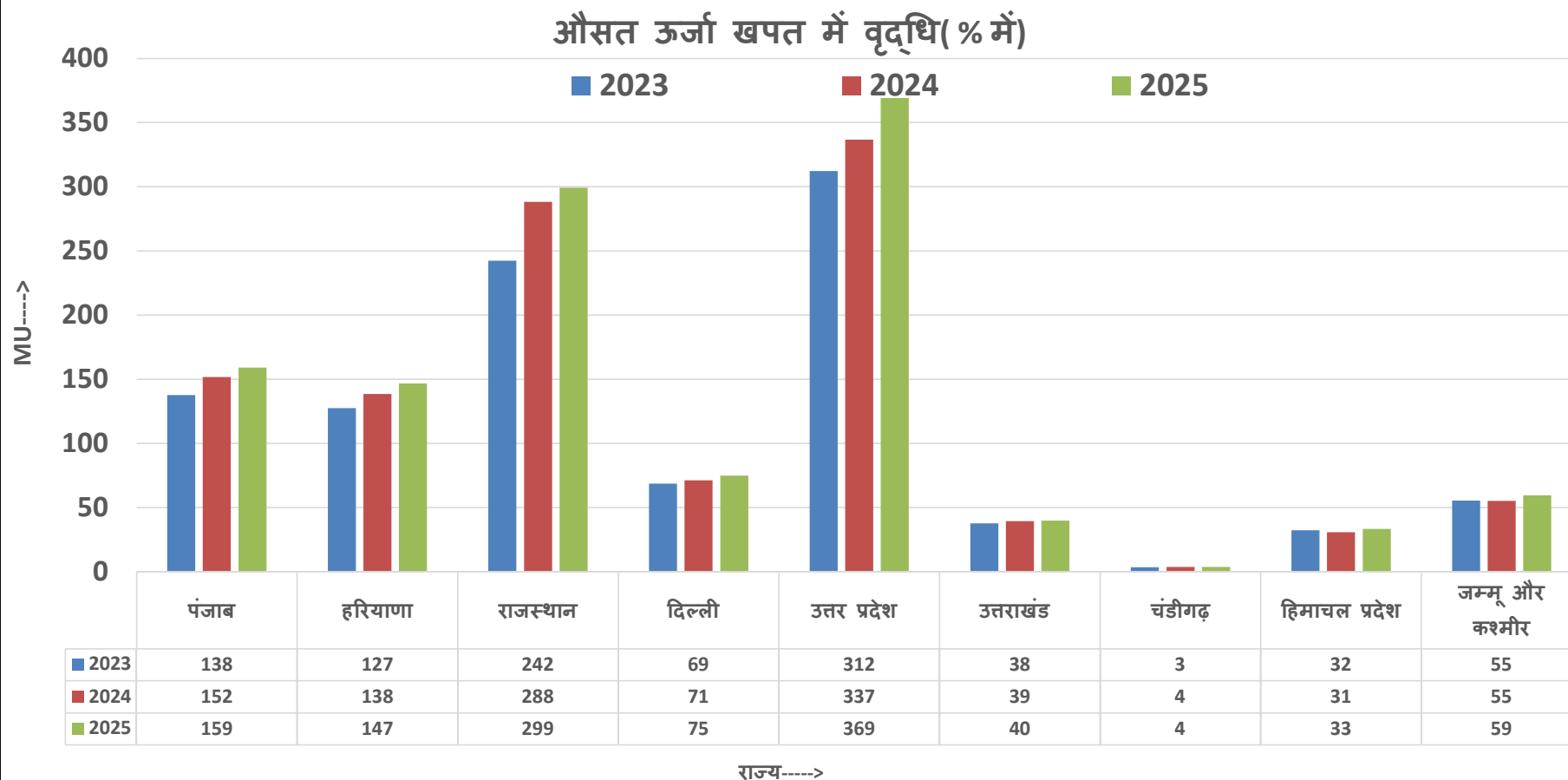


फरवरी -2024 की तुलना में फरवरी -2025 की औसत विद्युत आपूर्ति में 6.4 % (~3023MW) वृद्धि हुई

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

राज्य	मार्च -2023	मार्च -2024	मार्च -2025	% वृद्धि (मार्च -2024 vs मार्च -2023)	% वृद्धि (मार्च -2025 vs मार्च -2024)
पंजाब	138	152	159	10.1%	5.0%
हरियाणा	127	138	147	8.6%	6.0%
राजस्थान	242	288	299	18.9%	3.8%
दिल्ली	69	71	75	3.7%	5.3%
उत्तर प्रदेश	312	337	369	7.8%	9.6%
उत्तराखंड	38	39	40	4.9%	0.9%
चंडीगढ़	3	4	4	7.0%	0.6%
हिमाचल प्रदेश	32	31	33	-4.4%	8.2%
जम्मू और कश्मीर (UT) तथा लद्दाख (UT)	55	55	59	-0.6%	8.0%
उत्तरी क्षेत्र	1017	1118	1189	10.0%	6.3%

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

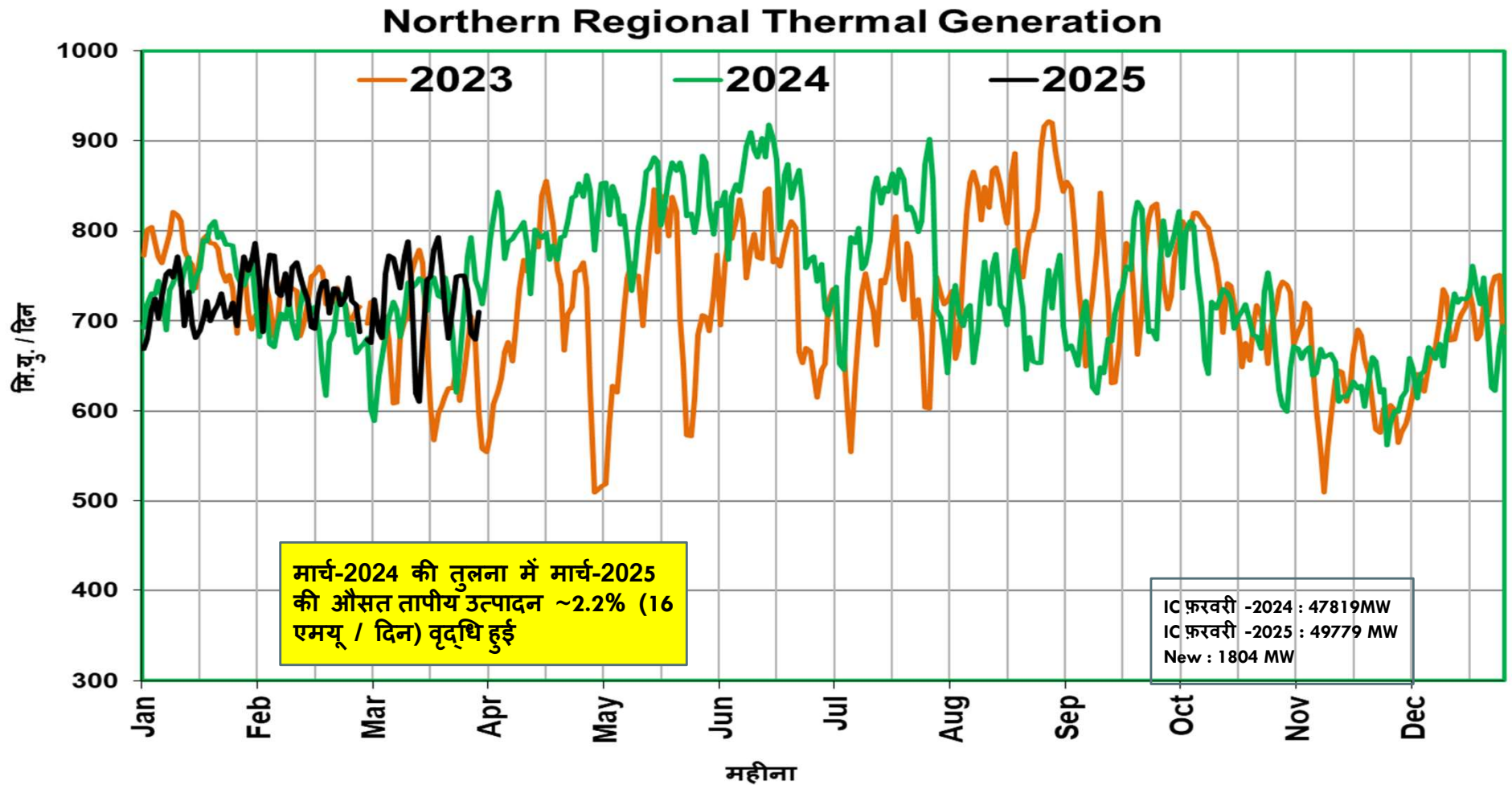


उत्तरी क्षेत्र की ऊर्जा खपत(MUs)

Northern Region Energy Consumption Pattern

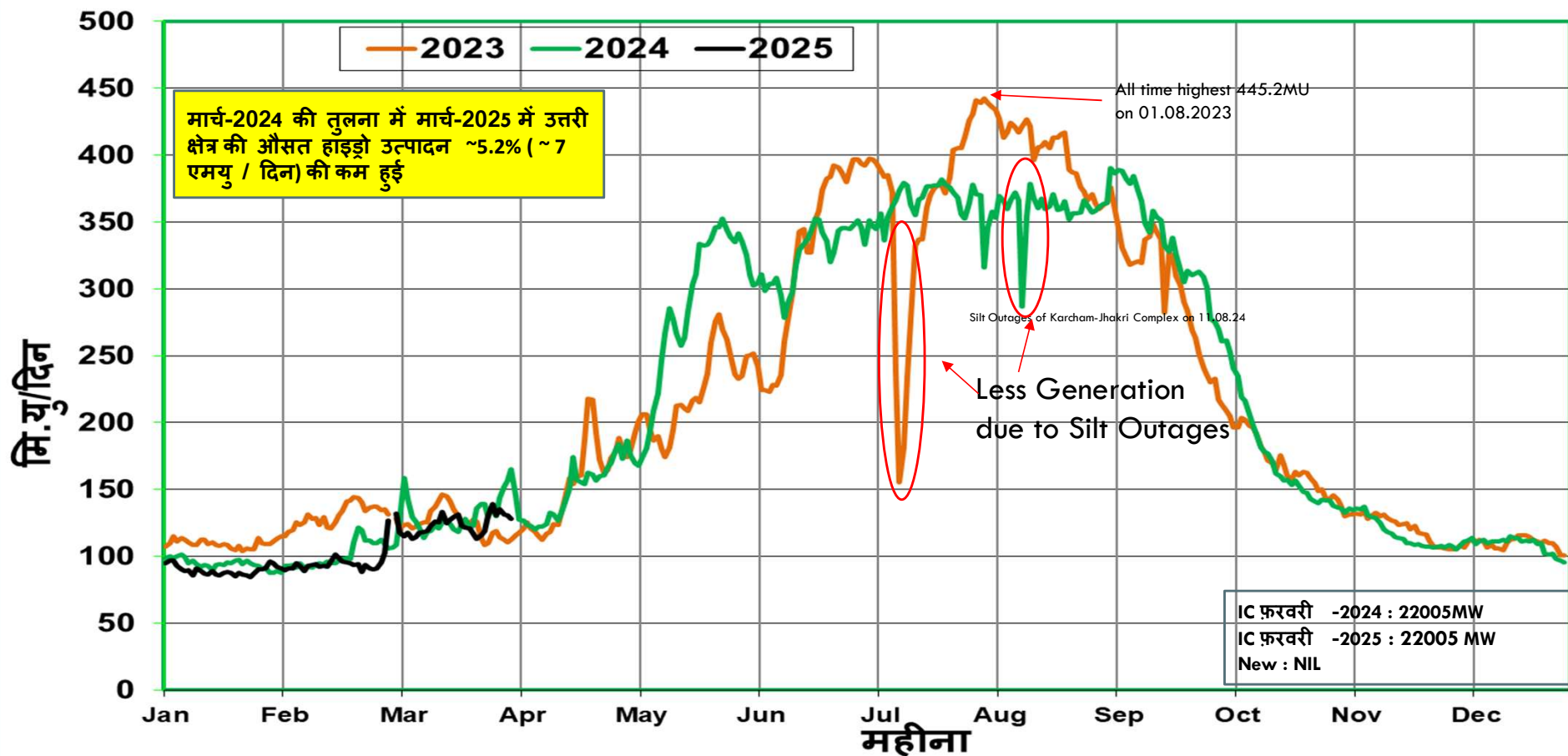


उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति (MU_s/Day)

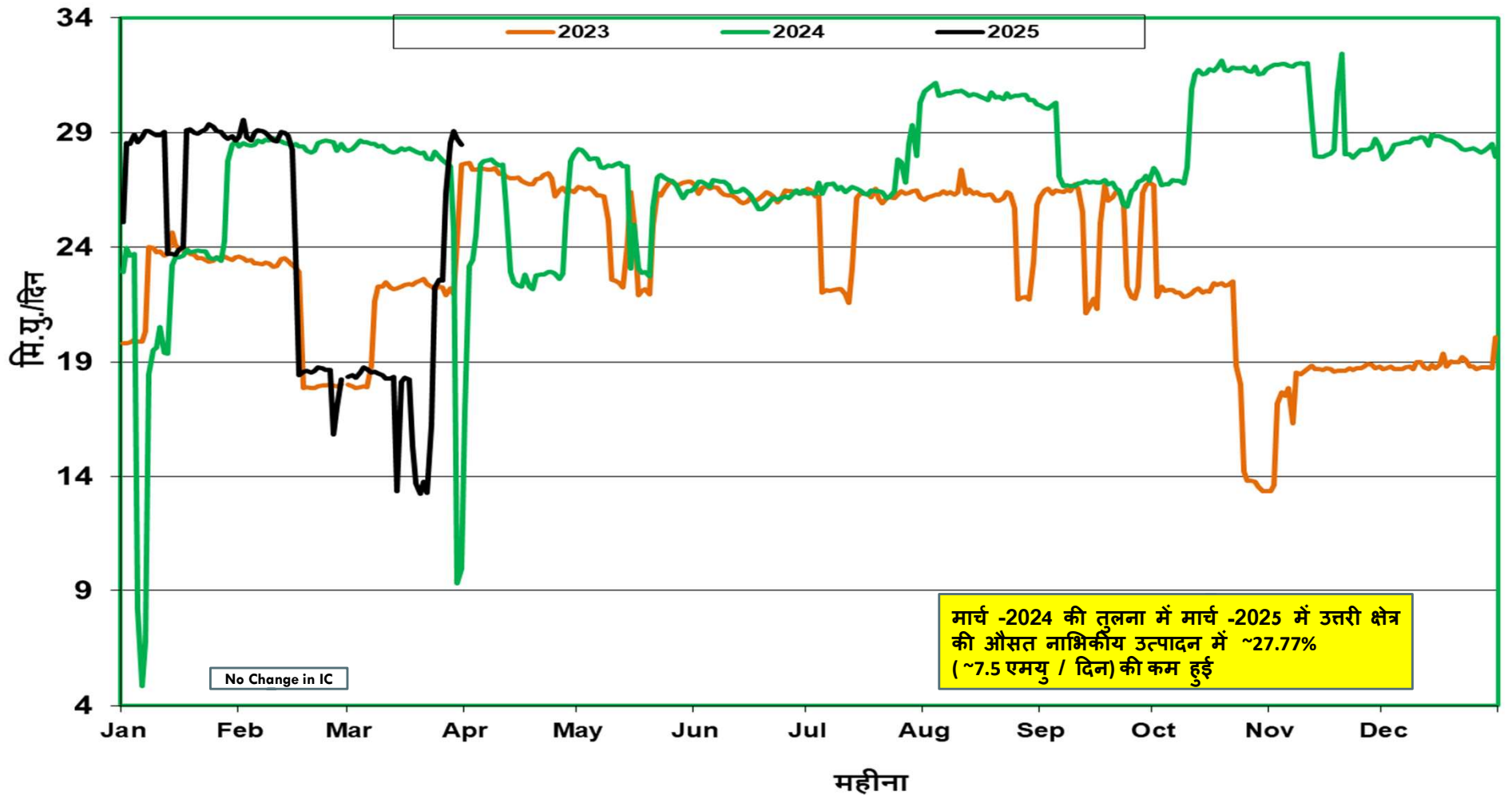


उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति (MU's/Day)

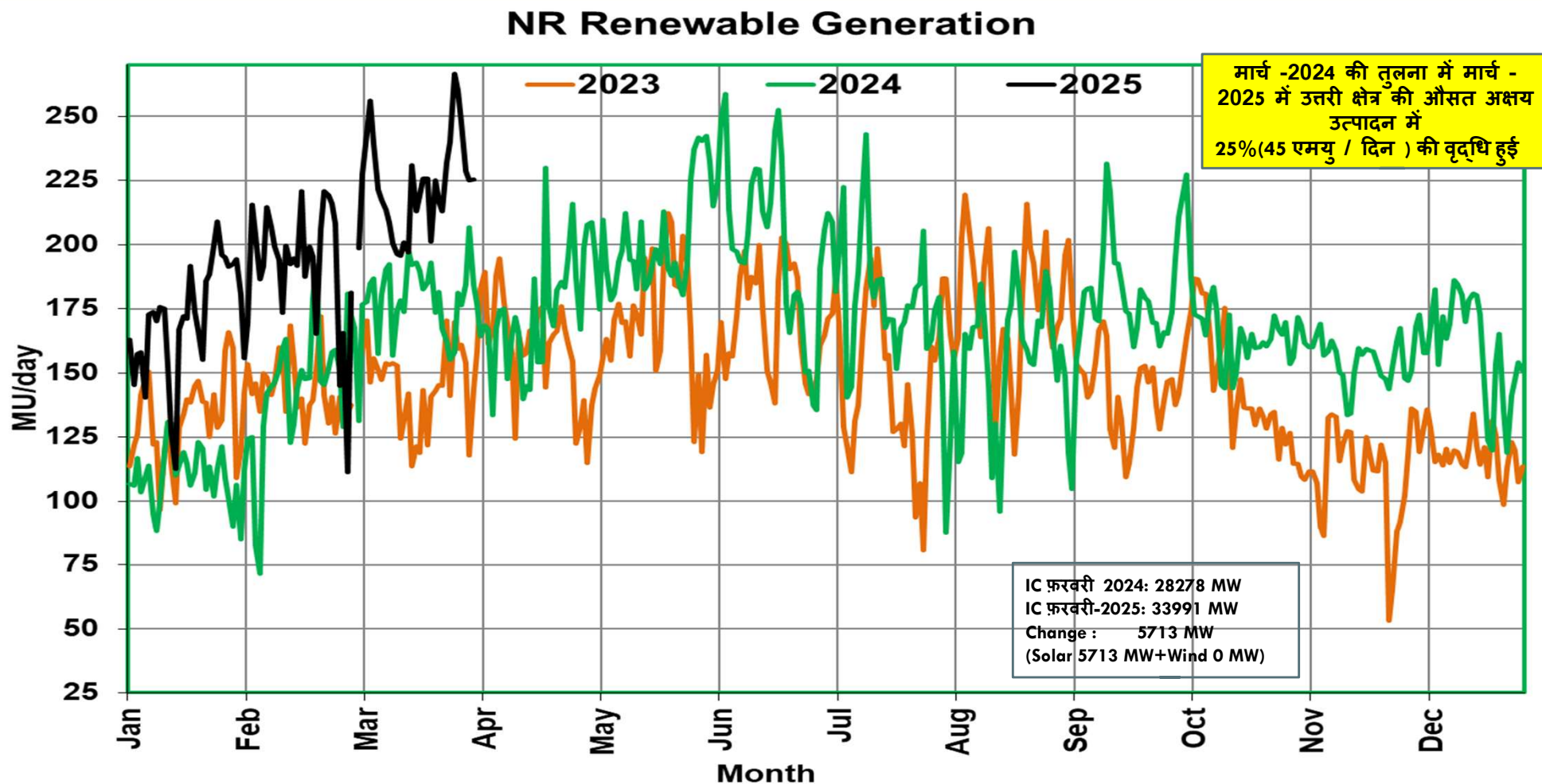
Northern Regional Hydro Generation



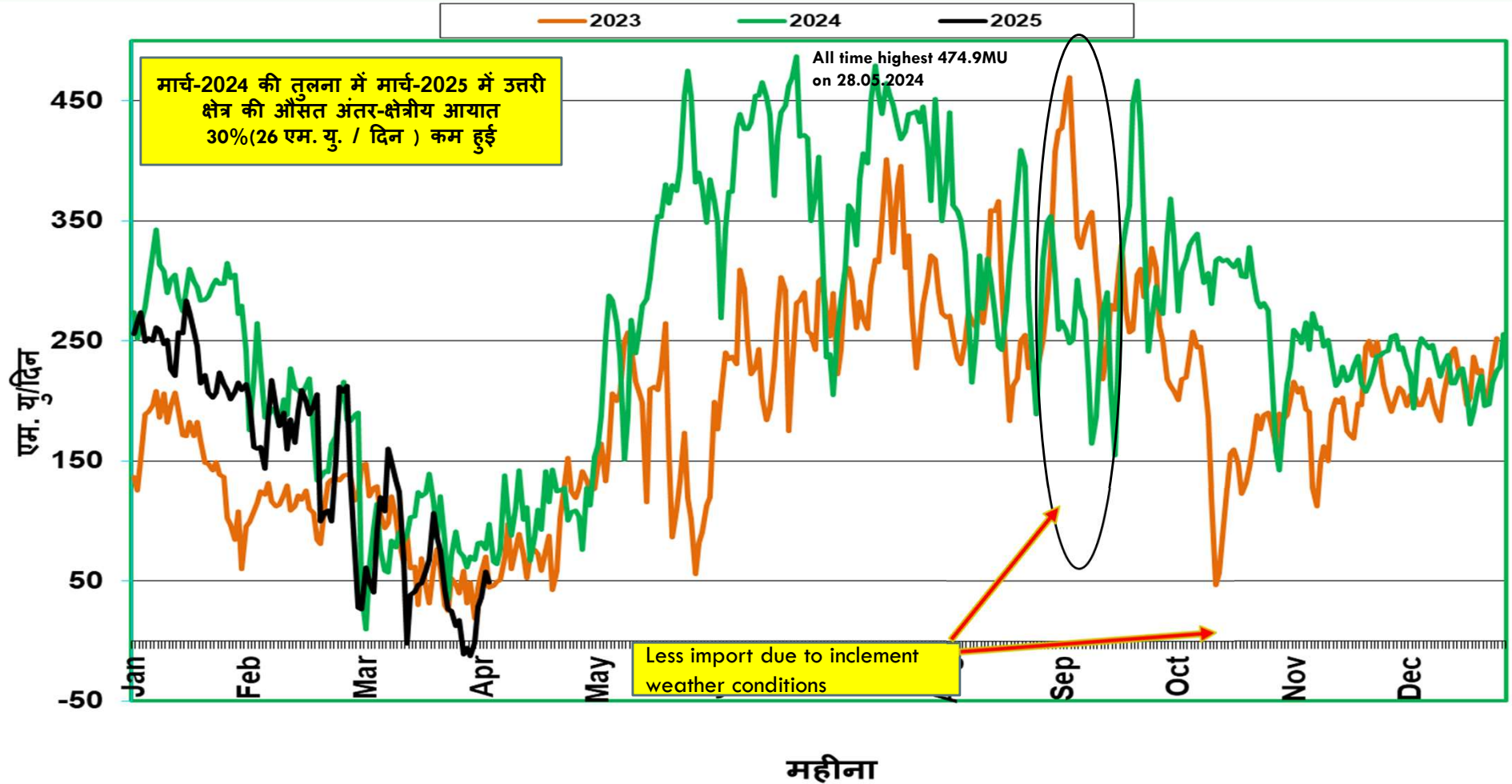
उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)



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



अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



वास्तविक सारांश -
मार्च-2024 बनाम मार्च-2025

	मार्च-2024 (मि.यु. /दिन)	मार्च-2025 (मि.यु. /दिन)	मार्च माह में वृद्धि (मि.यु./दिन)
तापीय (Thermal) उत्पादन	708	724	16
जलीय (Hydro) उत्पादन	131	124	-7
नाभिकीय (Nuclear) उत्पादन	27	19	-8
अंतर-क्षेत्रीय (Inter- Regional) कुल आयात	88	62	-26
अक्षय (Renewable) उत्पादन	178	223	45

RE Penetration

Maximum Daily MU Penetration

	Mar'2025		Record upto Feb '2025	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	5.17	02-03-2025	12.28	01-04-2020
Rajasthan	29.71	26-03-2025	36.47	22-10-2021
UP	6.03	05-03-2025	5.50	05-03-2024
NR	23.0	15-03-2025	20.69	02-04-2023

DEMAND FORECAST STATUS OF SLDC

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

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

- The following is the status regarding forecast data submission.

Demand Estimation and Resource data submission by SLDCs (Recent status)

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

Outage Summary For March 2025

CONSTITUENTS	PLANNED (A)	FORCED OUTAGES (B=C+D)	EMERGENCY SHUTDOWNS (C)	TRIPPING	% PLANNED SHUTDOWNS (A/(A+C))	% EMERGENCY SHUTDOWNS(C/(A +C)	% ESD SHUTDOWNS(C/B)	% TRIPPING	TOTAL OUTAGES (A+B)
				(D)				(D/B)	
POWERGRID	444	211	127	84	77.8%	22.2%	60.2%	39.8%	655
UPPTCL	203	177	66	111	75.5%	24.5%	37.3%	62.7%	380
RRVPL	131	153	80	73	62.1%	37.9%	52.3%	47.7%	284
BBMB	66	36	17	19	79.5%	20.5%	47.2%	52.8%	102
PSTCL	76	25	14	11	84.4%	15.6%	56.0%	44.0%	101
HVPNL	52	26	12	14	81.3%	18.8%	46.2%	53.8%	78
ADHPL	39	3	0	3	100.0%	0.0%	0.0%	100.0%	42
DTL	15	19	10	9	60.0%	40.0%	52.6%	47.4%	34
HPPTCL	15	16	4	12	78.9%	21.1%	25.0%	75.0%	31
PTCUL	11	18	3	15	78.6%	21.4%	16.7%	83.3%	29
NRSS36	2	24	24	0	7.7%	92.3%	100.0%	0.0%	26
NTPC	7	12	3	9	70.0%	30.0%	25.0%	75.0%	19
AHEJ4L	12	4	4	0	75.0%	25.0%	100.0%	0.0%	16
PDD JK	5	7	3	4	62.5%	37.5%	42.9%	57.1%	12
THDC	5	4	2	2	71.4%	28.6%	50.0%	50.0%	9
AMP Energy Green Private L	5	3	1	2	83.3%	16.7%	33.3%	66.7%	8
AHEJOL	1	6	3	3	25.0%	75.0%	50.0%	50.0%	7
NHPC	1	6	5	1	16.7%	83.3%	83.3%	16.7%	7
PKTCL	3	4	3	1	50.0%	50.0%	75.0%	25.0%	7
Adani	3	3	2	1	60.0%	40.0%	66.7%	33.3%	6
MAHINDRA	3	2	0	2	100.0%	0.0%	0.0%	100.0%	5
Sekura	2	3	3	0	40.0%	60.0%	100.0%	0.0%	5
Azure	1	3	3	0	25.0%	75.0%	100.0%	0.0%	4
RAILWAYS	0	4	1	3	0.0%	100.0%	25.0%	75.0%	4
ESUCRL	1	2	1	1	50.0%	50.0%	50.0%	50.0%	3
Renew Solar Urja (RSUPL)	1	1	1	0	50.0%	50.0%	100.0%	0.0%	2
Total	1104	772	392	380	73.8%	26.2%	50.8%	49.2%	1876

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))	
Dec-24	1131	882	450	432	71.5%	28.5%	2013
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

New Elements First Time Charged During Mar 2025

S. No.	Type of transmission element	Total No
1	AC Lines	6
2	LILO AC Lines	4
3	Antitheft AC Lines	1
4	Transformer	16
5	Solar plant	10
6	Nuclear plant	1
7	Thermal plant	2
8	Bus Reactor	2
9	Harmonic Filter Capacitor Bank	1
Total New Elements charged		43

New AC Lines

S.No	Name of element	Owner	Voltage Level (in kV)	Circuit No	Line Length(Km)	Conductor Type	Actual date of charging
1	220kV Bhadla_2 (PG)-GSPL_SL_BHD2_PG-1	Gorbea_SPL	220kV	1	6.139	AL59 Moose	19-Mar-2025
2	400kV SJVN_GEL_SL_BKN2-Bikaner_2 (PBTSL)-1	SJVNGEL_BKN2	400kV	1	17.8	Quad Moose	21-Mar-2025
3	220kV KSP_NHPC_LTD_SL_BKN2-Bikaner_2 (PBTSL)-1	NHPC	220kV	1	22.8	AL59 Moose	28-Mar-2025
4	220kV RSJPL_SL_Ftg3(PG)-Fatehgarh_III(PG)-1	ReNew_SJPL	220kV	1	10.605	MOOSE	30-Mar-2025
5	220kV Neemba_SPRVPL_SL-RSJPL_SL_Ftg3(PG)-1	Neemba_SPRVPL	220kV	1	2.01	MOOSE	31-Mar-2025
6	220kV Jauljivi (PG)-Baram_Jauljibi GIS(UK)-2	PTCUL	220kV	2	12.593	ZEBRA	31-Mar-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	220kV Palwal(HV)-Harfali-1(After LILO of 220kV Samaypur (BBMB) - Palwal (HVPNL) Ckt-2 at 220kV Harfali (HVPNL))	220kV	220kV Samaypur (BBMB) - Palwal (HVPNL) Ckt-2	10.86	0.331	ZEBRA	HVPNL	07-Mar-2025
2	220kV Samaypur(BB)-Harfali-1(After LILO of 220kV Samaypur (BBMB) - Palwal (HVPNL) Ckt-2 at 220kV Harfali (HVPNL))	220kV	220kV Samaypur (BBMB) - Palwal (HVPNL) Ckt-2	8.6	0.331	ZEBRA	HVPNL	07-Mar-2025
3	400kV Khurja STPP (TH)-Shamli(UP)-1(After LILO of 400 KV ALIGARH - SHAMLI CKT-I at KHURJA(THDC))	400kV	400 KV ALIGARH - SHAMLI CKT-I	193.399	11.69	Twin Moose	TTL,UPPTCL	10-Mar-2025
4	400kV Aligarh(UP)-Khurja STPP (TH)-1(After LILO of 400 KV ALIGARH - SHAMLI CKT-I at KHURJA(THDC))	400kV	400 KV ALIGARH - SHAMLI CKT-I	71.125	11.69	Twin Moose	TTL,UPPTCL	11-Mar-2025

Antitheft AC Lines

S.No	Name of element	Voltage Level (in kV)	Line to be charged upto(Km)	Line Length (In Km)	Conductor Type	Tower Configuration	Agency/Owner	Actual date of charging
1	Antitheft charging of 400kV Kishenpur(PG)-Kishtwar(Sterlite) CKT-1 from Kishenpur(PG)	400kV	98	120.64	Quad Moose	Double	POWERGRID	28-Mar-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	765/22kV, 3*275 MVA, 3x1-Phase, GE T&D, GT - 2 at Obra_C_TPS(UP)	UPRVUNL	765/22kV	825	New	NA	06-Mar-2025
2	400/13.8kV, 246 MVA, 3x1-Phase, BHEL, GT - 2 at Parbati_2(NH)	NHPC	400/13.8kV	246	New	NA	18-Mar-2025
3	220/33kV, 160 MVA, 3-Phase, IndoTech, Power Transformer - 1 at GSPL_SL_BHD2_PG	Gorbea_SPL	220/33kV	160	New	NA	20-Mar-2025
4	220/33kV, 160 MVA, 3-Phase, IndoTech, Power Transformer - 2 at GSPL_SL_BHD2_PG	Gorbea_SPL	220/33kV	160	New	NA	20-Mar-2025
5	400/13.8kV, 246 MVA, 3x1-Phase, BHEL, GT - 3 at Parbati_2(NH)	NHPC	400/13.8kV	246	New	NA	21-Mar-2025
6	400/33-33kV, 250MVA MVA, 3-Phase, T&R, Power Transformer - 1 at SJVN_GEL_SL_BKN2	SJVNGEL_BKN2	400/33/33kV	250	New	NA	22-Mar-2025
7	400/33-33kV, 250 MVA, 3-Phase, T&R, Power Transformer - 3 at SJVN_GEL_SL_BKN2	SJVNGEL_BKN2	400/33/33kV	250	New	NA	22-Mar-2025
8	400/33-33kV, 250 MVA, 3-Phase, T&R, Power Transformer - 2 at SJVN_GEL_SL_BKN2	SJVNGEL_BKN2	400/33/33kV	250	New	NA	22-Mar-2025
9	400/33-33kV, 250MVA MVA, 3-Phase, T&R, Power Transformer - 4 at SJVN_GEL_SL_BKN2	SJVNGEL_BKN2	400/33/33kV	250	New	NA	22-Mar-2025
10	400/220/33kV, 500 MVA, 3-Phase, CGL make, ICT - 4 at Jaisalmer(RS)	RRVPNL	400/220/33kV	500	New	NA	25-Mar-2025
11	400/13.8kV, 246 MVA, 3x1-Phase, BHEL, GT - 1 at Parbati_2(NH)	NHPC	400/13.8kV	246	New	NA	28-Mar-2025
12	220/33kV, 125MVA MVA, 3-Phase, Toshiba, Power Transformer - 1 at KSP_NHPC_LTD_SL_BKN2	NHPC	220/33kV	125	New	NA	28-Mar-2025
13	220/33kV, 125MVA MVA, 3-Phase, Toshiba, Power Transformer - 2 at KSP_NHPC_LTD_SL_BKN2	NHPC	220/33kV	125	New	NA	28-Mar-2025
14	220/33kV, 125MVA MVA, 3-Phase, Toshiba, Power Transformer - 3 at KSP_NHPC_LTD_SL_BKN2	NHPC	220/33kV	125	New	NA	28-Mar-2025
15	400/220/33kV, 500 MVA MVA, 3-Phase, T & R, ICT - 8 at Bikaner_2 (PBTSL)	PBTSL	400/220/33kV	500	New	NA	29-Mar-2025
16	220/33kV, 210 MVA, 3-Phase, Indotech, Power Transformer - 1 at RSJPL_SL_Ftg3(PG)	Renew Surya Jyoti Private Limited	220/33kV	210	New	NA	30-Mar-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	Adani Green Energy Twenty Five Limited	Bhadla_2(PG)	72	500	Solar	6	AGE25L	04-Mar-2025
2	Adani Green Energy Twenty Four Limited	Fatehgarh_2	71	500	Solar	6	AGE24L	05-Mar-2025
3	Adani Green Energy Twenty Four Limited	Fatehgarh_2	24	500	Solar	2	AGE24L	05-Mar-2025
4	Nokh Solar Power Plant NTPC Limited(NSPPNL)	Bhadla_2(PG)	245	735	Solar	33	Nokh_SPPNL	11-Mar-2025
5	Adani Green Energy Twenty Five Limited	Bhadla_2(PG)	71	500	Solar	6	AGE25L	12-Mar-2025
6	GORBEA SOLAR PRIVATE LIMITED(GSPL)	Bhadla_2(PG)	100	300	Solar	13	Gorbea_SPL	22-Mar-2025
7	SJVN Green Energy Ltd	Bikaner_2(PBTSL)	163.55	320	Solar	23	SJVNGEL_BKN2	25-Mar-2025
8	SJVN Green Energy Ltd	Bikaner_2(PBTSL)	92.44	320	Solar	13	SJVNGEL_BKN2	27-Mar-2025
9	Karinsar Solar Plant NHPC Ltd(KSP_NHPC)	Bikaner_2(PBTSL)	53.57	300	Solar	5	NHPC	30-Mar-2025
10	Karinsar Solar Plant NHPC Ltd(KSP_NHPC)	Bikaner_2(PBTSL)	43.21	300	Solar	4	NHPC	31-Mar-2025

Nuclear plant

S.No	Name of element	Owner	Voltage Level	Installed Capacity (MW)	MVA Capacity	Actual date of charging
3	700 MW, 842.942 MVA 21 KV Make BHEL Unit No 7 at 2*700 MW Rajasthan atomic power project-7&8(RAPP-7&8)	NPCIL	21kV	700 MW	842.942 MVA	17-Mar-2025

Thermal plant

S.No	Name of element	Owner	Voltage Level	Installed Capacity (MW)	MVA Capacity	Actual date of charging
1	660 MW, 776.5 MVA 22 KV Make GE Unit No II at 2*660 OBRA C TPS(Stage OBRA EXTENSION)	UPRVUNL	22kv	660 MW	776.5 MVA	06-Mar-2025
2	660 MW, 776.5 MVA 22 KV Make GE Unit No II at 2*660 MW JAWAHARPUR TPS(Stage UNIT-II)	UPRVUNL	22kv	660 MW	776.5 MVA	13-Mar-2025

Bus Reactor

S.No	Name of element	Owner	Voltage Level	MVAR Capacity	Bus Reactor Details	OLD MVAR Capacity	Actual date of charging
1	400kV, 125 MVAR Bus Reactor 1 at GSS Pachpadra(RS)	RRVPNL	400kv	125 MVAR	New	NA	12-Mar-2025
2	220kV, 25 MVAR Bus Reactor 1 at Alusteng(PG)	POWERGRID	220kv	25 MVAR	New	NA	16-Mar-2025

Harmonic Filter Capacitor Bank

S.No	Name of element	Owner	Voltage Level (in kV)	Capacitor Bank No	Sub Capacitor Bank MVAR Rating	Capacitor MVAR Rating	Actual date of charging
1	33kV,Harmonic Filter Capacitor Bank, 6 MVAR at KSP_NHPC_LTD_SL_BKN2	NHPC	33kv	1	1x6 MVAR, 4.95th Harmonic single tuned filter bank as per compliance sheet	6	29-Mar-2025

