सत्यमेव जयते

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

विषय: प्रचालन समन्वय उप-समिति की 230वीं बैठक की कार्यसूची।

Subject: Agenda for the 230th OCC meeting.

प्रचालन समन्वय उप-समिति की **230वीं** बैठक दिनांक **17.04.2025 (सुबह 10:00)** रामनगर, उत्तराखंड में होगी। बैठक की मेजबानी ललितपुर पॉवर जनरेशन कंपनी लिमिटेड द्वारा की जा रही है। उक्त बैठक की कार्यसूची संलग्न है। कृपया बैठक में भाग लेने की कृपा करें।

यह अनुरोध किया जाता है कि प्रतिभागी (**अधिमानतः प्रत्येक संगठन से एक**) एनआरपीसी सचिवालय को अपनी यात्रा का विवरण एक्सेल शीट लिंक पर निर्धारित प्रारूप में 13.04.2025 तक सूचित कर सकते हैं।

The **230th** meeting of the Operation Co-ordination sub-committee (**OCC**) will be held on **17.04.2025** (**10:00 A.M.)** at Ramnagar, Uttarakhand. Meeting is being hosted by Lalitpur Power Generation Company Limited. Agenda for the same is attached. Kindly make it convenient to attend the meeting.

It is requested that participants (**preferably one from each organization**) may intimate NRPC Secretariat, their journey details latest by 13.04.2025 in prescribed format at excel sheet link enclosed in the mail.

Nodal officer(s) for facilitating meeting are as below:

Name	Designation	Contact No
Sh. Avinash Kumar	Vice President-Operation	+91- 9151897401

Signed by Dharmendra Kumar Meena
Date: 10-04-2025 13:05:05

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

सेवा में : प्रचालन समन्वय उप समिति के सभी सदस्य।
To : All Members of OCC

List of addressee (via mail)

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

35	UPCL		cgmupcl@yahoo.com
36	HPSEB		cesysophpsebl@gmail.com
37	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	sanjay.bhargava@tatapower.com
38	Aravali Power Company Pvt. Ltd		amit.hooda01@apcpl.co.in
39	Apraave Energy Ltd.,		rajneesh.setia@apraava.com
40	Talwandi Sabo Power Ltd.		ravinder.thakur@vedanta.co.in
41	Nabha Power Limited		Durvesh.Yadav@larsentoubro.com
42	MEIL Anpara Energy Limited		arun.tholia@meilanparapower.com
43	Rosa Power Supply Company Ltd		Suvendu.Dey@relianceada.com
44	Lalitpur Power Generation Company Ltd		avinashkumar.ltp@lpgcl.com
45	MEJA Urja Nigam Ltd.		rsjuneja@ntpc.co.in
46	Adani Power Rajasthan Limited		manoj.taunk@adani.com
47	JSW Energy Ltd. (KWHEP)		roshan.zipta@jsw.in
48	Transition Cleantech Services Private Limited	IPP having less than 1000 MW installed capacity (alphabetical rotational basis)	nomination awaited (kswamidoss@evrenenergy.com)
49	UT of J&K	From each of the Union Territories in the region, a representative nominated by the administration of the Union Territory concerned out of the entities engaged in generation/ transmission/ distribution of electricity in the Union Territory.	sojpdd@gmail.com
50	UT of Ladakh		cepdladakh@gmail.com
51	UT of Chandigarh		seelo-chd@nic.in
52	Tata Power Delhi Distribution Limited	Private Distribution Company in region (alphabetical rotational basis)	nomination awaited (sandeep.k@tatapower-ddl.com)
53	Gurgaon Palwal Transmission Limited	Private transmission licensee (nominated by central govt.)	nomination awaited (Lokendra.Ranawat@indigrid.com)
54	PTC India Limited	Electricity Trader (nominated by central govt.)	nomination awaited (bibhuti.prakash@ptcindia.com)

Contents

खण्ड-क: उ.क्षे.वि.स. Part-A: NRPC

A.1. Confirmation of Minutes

229th OCC meeting was held on 12.03.2025. Minutes of the meeting were issued vide letter dt. 04.04.2025. No comments received till now.

Decision required from Forum:

Forum may approve the minutes of 229th OCC meeting.

A.2. Status of action taken on decisions of 229th OCC meeting of NRPC

A.2.1. Status of action taken on decisions of 229th NRPC meeting is attached as **Annexure- A.0**.

A.3. Review of Grid operations

A.3.1. **Power Supply Position (Provisional) for March 2025**

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of March-2025 is as under:

State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	130	109	-15.9%	330	229	-30.6%
	(Req)	128	109	-14.9%	289	229	-20.6%
DELHI	(Avl)	3440	2317	-32.7%	5256	4361	-17.0%
	(Req)	2300	2317	0.7%	4800	4361	-9.1%
HARYANA	(Avl)	5880	4544	-22.7%	9435	8750	-7.3%
	(Req)	4448	4544	2.2%	8428	8750	3.8%
HIMACHAL PRADESH	(Avl)	1077	1020	-5.2%	2023	2075	2.6%
	(Req)	1092	1023	-6.3%	2059	2075	0.8%
J&K and LADAKH	(Avl)	1370	1844	34.6%	3240	3024	-6.7%
	(Req)	1977	1848	-6.5%	3634	3095	-14.8%
PUNJAB	(Avl)	6610	4900	-25.9%	10860	10083	-7.2%
	(Req)	5203	4900	-5.8%	9629	10083	4.7%
RAJASTHAN	(Avl)	8790	9291	5.7%	18020	17763	-1.4%
	(Req)	10008	9291	-7.2%	18666	17763	-4.8%
UTTAR PRADESH	(Avl)	11100	11395	2.7%	23300	21869	-6.1%
	(Req)	10950	11398	4.1%	23300	21869	-6.1%
UTTARAKHAND	(Avl)	1280	1213	-5.3%	2300	2202	-4.3%
	(Req)	1287	1213	-5.7%	2350	2202	-6.3%

NORTHERN REGION	(Avl)	39678	36634	-7.7%	77900	65400	-16.0%
	(Req)	37393	36643	-2.0%	65400	65400	0.0%

As per above, negative / significant variation (≥5%) in Actual Power Supply Position (Provisional) vis-à-vis Anticipated figures is observed for the month of March-2025 in terms of Energy Requirement for Chandigarh, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, and Uttarakhand and in terms of Peak Demand similar variation is noted for Chandigarh, Delhi, UTs of J&K and Ladakh, Rajasthan, UP, and Uttarakhand. These states/UTs are requested to submit reason for such variations so that the same can be deliberated in the meeting.

All SLDCs are requested to furnish provisional and revised power supply position in prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

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

A.4.1. Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of May-2025 is scheduled on 15-April-2025 via Video Conferencing.

A.4.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of May-2025 is scheduled on 15-April-2025 via Video conferencing.

A.5. Planning of Grid Operation

A.5.1. Anticipated Power Supply Position in Northern Region for May 2025

The Anticipated Power Supply Position in Northern Region for May 2025 is as under:

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	4000	9030	No Revision submitted
	Requirement	4368	8890	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	-368	140	
	% Surplus / Shortfall	-8.4%	1.6%	
HARYANA	Availability	7200	14430	No Revision submitted
	Requirement	7293	13695	
	Surplus / Shortfall	-93	735	
	% Surplus / Shortfall	-1.3%	5.4%	
HIMACHAL PRADESH	Availability	1225	1948	09-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	No Revision submitted
	Requirement	11662	19082	
	Surplus / Shortfall	-1292	1218	
	% Surplus / Shortfall	-11.1%	6.4%	
UTTAR PRADESH	Availability	17360	31100	07-Apr-25
	Requirement	17515	31100	
	Surplus / Shortfall	-155	0	
	% Surplus / Shortfall	-0.9%	0.0%	
UTTARAKHAND	Availability	1674	2860	05-Apr-25
	Requirement	1643	2820	
	Surplus / Shortfall	31	40	
	% Surplus / Shortfall	1.9%	1.4%	
NORTHERN REGION	Availability	50499	89600	
	Requirement	53421	88500	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	-2922	1100	
	% Surplus / Shortfall	-5.5%	1.2%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of May-2025 and submit the measures proposed to be taken to bridge the gap between demand & availability, as well to dispose-off the surplus, if any, in the prescribed format.

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

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

All utilities are requested to update the status.

A.7. NR Islanding scheme

Latest status of Islanding Scheme of NR is attached as **Annexure-A.II.**

Members may kindly deliberate.

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

A.8.1In 186th OCC meeting, it was agreed that coal stock position of generating stations in northern region may be reviewed in the OCC meetings on the monthly basis.

A.8.2 Accordingly, coal stock position of generating stations in northern region during current month (till 07th April 2025) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	0.86	17	19.6
ANPARA TPS	2630	0.75	17	24.2
BARKHERA TPS	90	0.33	26	53.2
DADRI (NCTPP)	1820	0.58	26	20.5
GH TPS (LEH.MOH.)	920	0.51	26	34.5
GOINDWAL SAHIB TPP	540	0.44	26	44.2
HARDUAGANJ TPS	1265	0.62	26	30.5
INDIRA GANDHI STPP	1500	0.72	26	42.8
KAWAI TPS	1320	0.81	26	19.1
KHAMBARKHERA TPS	90	0.60	26	57.8

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
KOTA TPS	1240	0.68	26	16.2
KUNDARKI TPS	90	0.61	26	37.2
LALITPUR TPS	1980	0.77	26	22.9
MAHATMA GANDHI TPS	1320	0.70	26	32.1
MAQSOODPUR TPS	90	0.61	26	49.3
MEJA STPP	1320	0.38	26	24.1
OBRA TPS	1094	0.40	26	16.6
PANIPAT TPS	710	0.47	26	55.6
PARICHHA TPS	1140	0.52	26	19.3
PRAYAGRAJ TPP	1980	0.82	26	25.9
RAJIV GANDHI TPS	1200	0.34	26	44.6
RAJPURA TPP	1400	0.84	26	21.0
RIHAND STPS	3000	0.92	17	24.2
ROPAR TPS	840	0.83	26	44.6
ROSA TPP Ph-I	1200	0.64	26	27.4
SINGRAULI STPS	2000	0.71	17	23.9
SURATGARH TPS	1500	0.29	26	14.2
TALWANDI SABO TPP	1980	0.43	26	10.8
TANDA TPS	1760	0.85	26	27.5
UNCHAHAR TPS	1550	0.79	26	12.6
UTRAULA TPS	90	0.61	26	40.4
YAMUNA NAGAR TPS	600	0.75	26	29.2
CHHABRA-I PH-1 TPP	500	0.74	26	23.3
KALISINDH TPS	1200	0.82	26	17.5
SURATGARH STPS	1320	0.70	26	28.5
CHHABRA-I PH-2 TPP	500	0.78	26	23.9
CHHABRA-II TPP	1320	0.66	26	30.9
JAWAHARPUR STPP	660	0.51	26	20.9

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

A.9.1. To enhance the monitoring of approved Planned Maintenance schedules, Member (GO&D), CEA has directed that 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 is attached as **Annexure-A.III.**

A.9.4. In this, regard, Generating Station/utilities of NR are requested to submit each month the details of the maintenance activities that transpired against the originally planned schedule. Further, any deviations from the planned schedule shall be explained by the concerned generating entities.

Generating utilities of NR to update status.

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. 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.

A.10.2. 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.10.3. 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.10.4. In 15th NPC meeting held on 14.11.2024 following was approved by the committee

i. 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.

ii. 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.

iii. The implementation of the **AUFLS schemes 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.10.5. In 229th OCC meeting respective SLDCs of NR States/UTs to confirm via mail the relief quantum at different stages of AUFLS as on present date.

A.10.6. As per the information received from SLDC's of NR States/UTs the current relief quantum at different stages of AUFLS i(As on 31st March,2025) s 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.10.7. In 229th OCC meeting, forum suggested to have a separate meeting before next NPC meeting to get the status of feeder-wise, Stage-wise AUFLS quantum data of states till March, 2025.

A.10.8. Henceforth, a physical 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 get the updated status of feeder-wise, Stage-wise AUFLS quantum data of states till March, 2025.

A.10.9. SLDC's and STU's of States/UTs of NR to submit updated status of feeder-wise, Stage-wise AUFLS quantum data as on 31.03.2024 in the requisite format (Copy attached as **Annexure-A.IV.**

Respective SLDC's of NR to update the status.

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

A.11.1. 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."

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

A.11.5. In 73 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. However, the same is still pending.

A.11.6. In 226 OCC meeting, NRLDC representative stated that as the testing plan is yet to be received from utilities, a google sheet has been prepared and it is 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 73 NRPC meeting.

Google sheet link is:

https://docs.google.com/spreadsheets/d/18KTutJ66bK9LdOOhuHfzlmBeYH7_TgMs/edit?gid=849497112#gid=849497112

A.11.7. In 227th OCC meeting, MS NRPC stated that the above agenda would be included in follow up agenda of NRPC for regular monitoring in OCC Meetings.

A.11.8. In view of the above Generators and HVDC/FACT owners are requested to furnish Testing schedule for 2025-26 in the format attached as **Annexure-A.V to seo-nrpc@nic.in .**

Utilities to update status.

A.12. Tower integrity of 400KV Transmission lines emanating from Adani Kawai TPP & frequent porcelain string insulator failures. (Adani Power Limited)

A.12.1. Adani Power Limited has submitted that they have carried out a thorough survey of 400KV Kawai-Anta circuit -1 & 2 transmission line and have been observing recurring issues concerning the Tower integrity of 400KV Transmission lines emanating from Adani Kawai TPP and frequent failures of porcelain string insulators. These challenges are not only impacting the reliability of transmission network but also pose risks to system stability and maintenance efficiency.

A.12.2. The details of the tower related defects and failures of porcelain insulators observed in last two years is attached as **Annexure-A.VI**.

Members may kindly deliberate.

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

A.13.1. NHPC has intimated that Three Units (3X200 MW) of Parabati-2 Hydroelectric Project of capacity 800 MW (4X200 MW) situated in Himachal Pradesh on Parbati river have been declared as Commercial Operation since 01st April 2025 (00:00 Hrs.).

A.13.2. Parbati-2 Hydro Electric Project is on the upstream of Parbati-3 Power Station (4X130 MW).

A.13.3. Regulation 45.8(a) of CERC (IEGC) Regulations, 2023 which came into effect on 01.10.2023 provides that 'Hydro generating stations may declare ex-bus Declared Capacity more than 100% MCR less auxiliary power consumption limited to overload capability during high inflow periods. Further that a high inflow period for this purpose shall be notified by the respective RPC.

A.13.4. Further, Regulation 12.1(a) of CERC (Sharing of ISTS charges and losses) Regulations provides that 'For the purpose of calculation of Transmission Deviation for a hydro generating station by RPC, overload capacity of 10% during peak season shall be taken into account.

A.13.5. In 51st meeting of Commercial Sub-committee of NRPC an additional Agenda was taken up for declaration of High Flow Season for FY 2025-26, wherein, the high inflow period of Parbati-3 Power Station has been considered as June to September.

A.13.6. As stated above, three units of Parbati-2 Hydroelectric project has already been declared under commercial operation and last unit i.e. Unit#4 shall also be declared as Commercial Operation in April 2025 once all the formalities like Trial Run operation and requisite tests as per IEGC, 2023 Regulation are performed.

A.13.7. In view of above, it is proposed that high inflow period of Parbati-2 Hydro electric Project may also be declared as June to September for FY 2025-26 as the project is also situated in same river basin on which Parbati-3 PS is situated.

Members may kindly deliberate.

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

A.14.1. Powergrid NR-3 has submitted following issues in the functionality of PLCC owned by UPPTCL

a) Installation of Redundant PLCC panel for 220 KV D/C Allahabad-Rewa Road Line and Mal-operation of existing PLCC panel: -

As per standard practice for tele-protection of 220 kV Lines, at least 02 PLCC panels are to be commissioned in a double circuit line with cross coupling to provide redundancy in tele-protection. However, in the subject D/C line, only one PLCC panel has been commissioned by UPPTCL. Further, the existing PLCC panel have functionality issue. PLCC fail alarm is persisting and incidents of spurious carrier signals receipt, in bulk, at Allahabad end has been observed many times. Several communications to M/s UPPTCL (dated 07.02.202,06.03.2024 and 14.08.2023) have been made but the issues are still unresolved.

b) PLCC out of service for 220 KV Kanpur-Mainpuri (UP):

Kanpur-Mainpuri line, PLCC is out of service since long time. Several communications regarding the same vide email dtd 29.01.2022, 27.09.2023, 26.11.2024,17.12.2024, 07.01.2025 & 24.01.2025 and vide letter dated 27.01.2022 & 27.09.2023 have been done to M/s UPPTCL

c) PLCC panel unhealthy for 220kV Kanpur-Rania (UP) line :

The PLCC Panel for 220 kV Kanpur- Rania Line is not in healthy condition at Rania Substation end. As per discussion with Rania substation team, Tx level of PLCC Panel is not being receipted in LMU and hence Rx fail alarm is persisting at PGCIL end. Several communications to M/s UPPTCL vide email dtd 27.09.2023, 08.01.2025 & 09.04.2025 and letter dtd 27.09.2023 have been done, however, the issue is still unresolved

d) PLCC mal-operation in 400kV Pilipokhar (UP)-Fatehabad (UP) line:

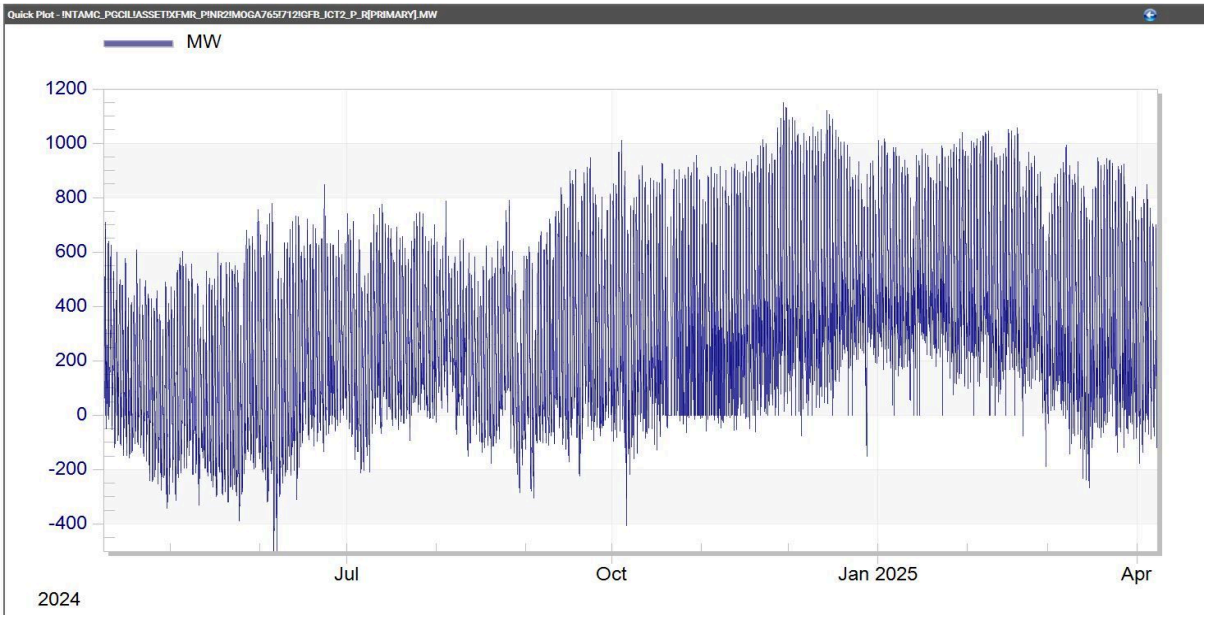
On 21.03.2025 at 17:07 hrs, 400kV Pilipokhar-Fatehabad line was tripped due to maloperation of PLCC. Spurious DT received at Pilipokhar end. Vide letter dated 24.03.25, M/s UPPTCL has been requested to investigate and arrange needful rectification.

Members may kindly deliberate.

A.15. N-1 Contingency violation in 765/400KV 1500MVA ICT at Moga Substation (Agenda by Powergrid NR-2)

A.15.1. 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. Graph showing MVA Loading of each ICT-1 for last one year is as under :



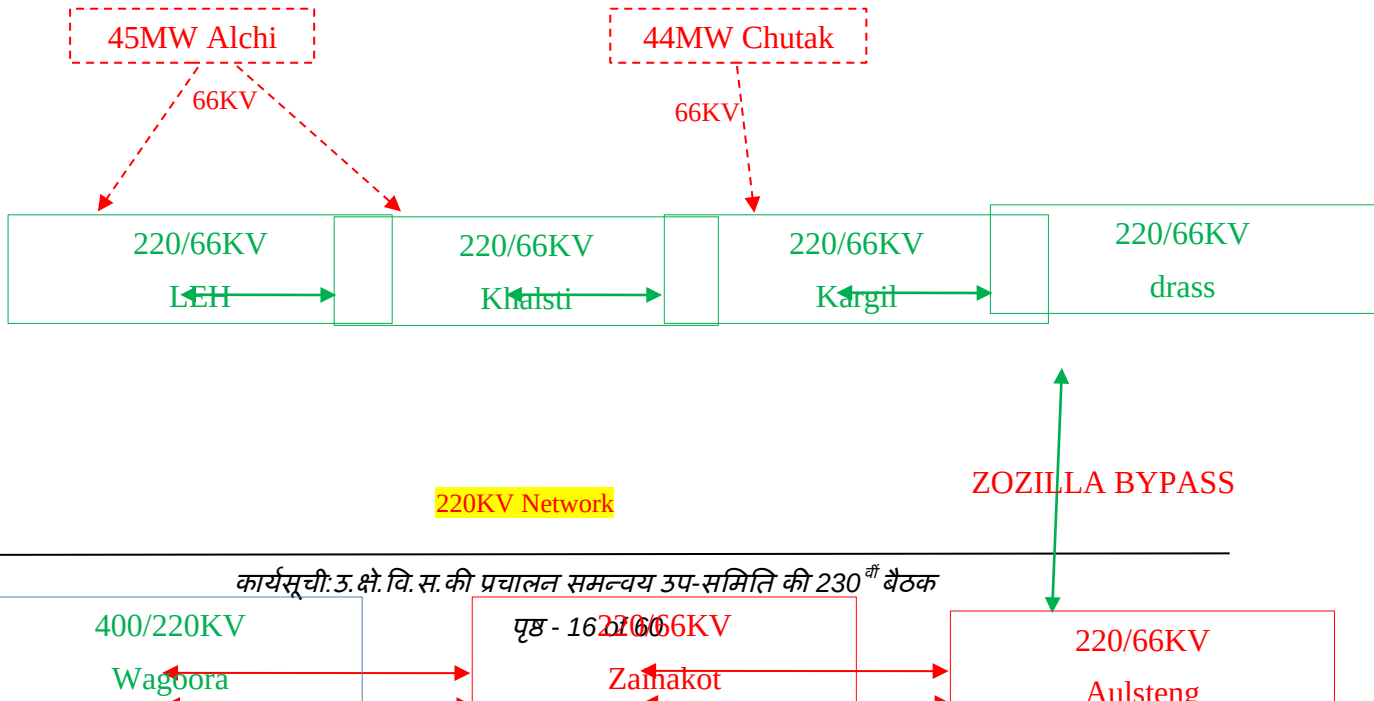
Members may kindly deliberate.

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

A.16.1. Powergrid NR-2 has submitted that in March 2025, voltage of SLTS has reduced to zero at 04 occasions

- 28.03.2025, 18:34 Hrs: Tripping of 2220KV Aulsteng Zainakot 1 &2
- 27.03.2025, 23:17 Hrs: Tripping of 2220KV Aulsteng Zainakot 1 &2
- 01.03.2025, 01:26 Hrs: Tripping of 220kvV Aulsteng Drass due to snow avalanche in Zozilla Bypass area
- 20.03.2025: S/D of 220KV Aulsteng Station

At present LEH transmission system is connected to National GRID through following connectivity.



A.16.2. Temperature in LEH area goes as low as (-)20^0 and complete blackout the area had extreme impacts. Further, as per JKPTCL, load requirement in Aulsteng area is going to increase in near future.

A.16.3. Powergrid has proposed the following:

Direct ISTS connectivity needs to be planned for ISTS from nearest ISTS station i.e. Wagoora, New Wanpoh or Amargarh

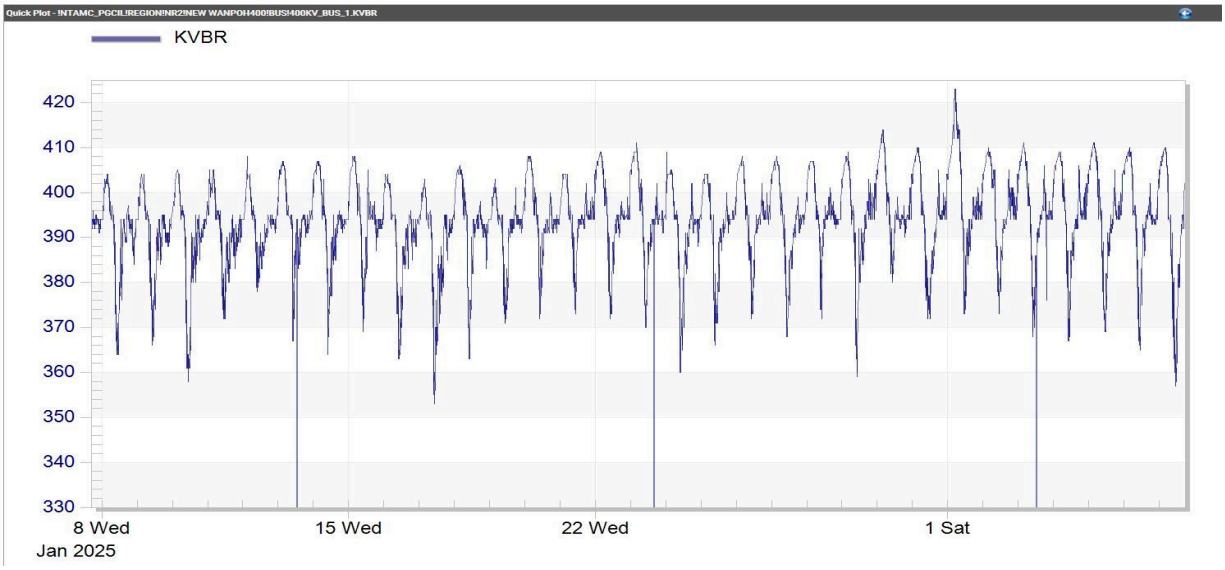
Members may kindly deliberate.

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

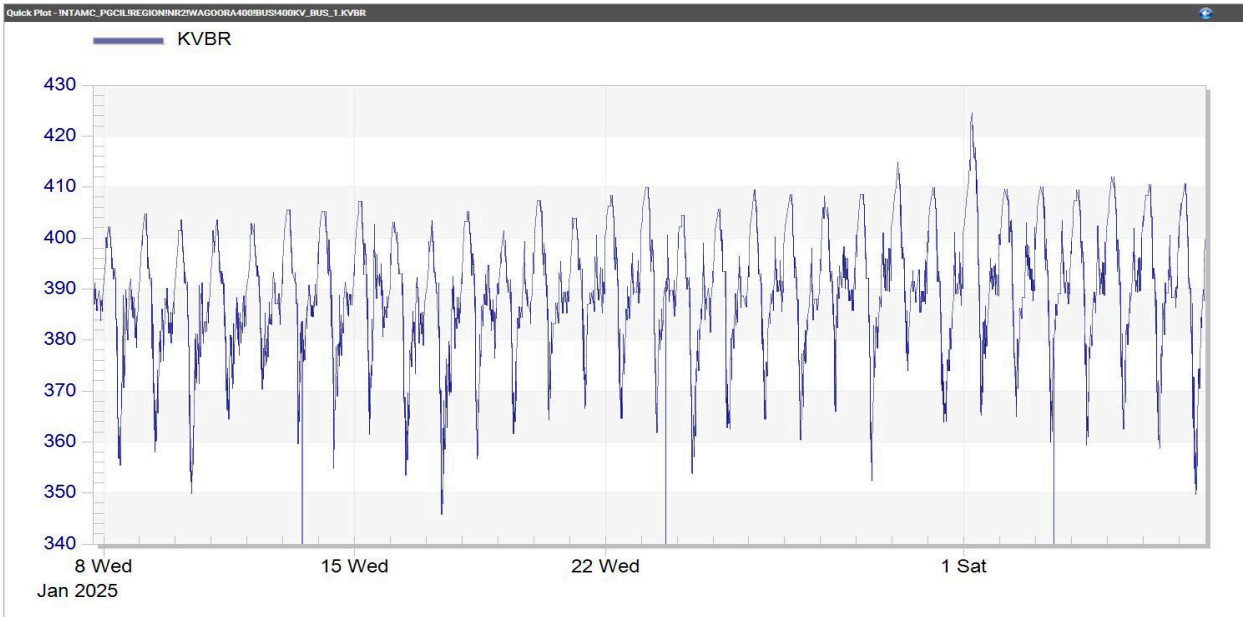
A.17.1. Powergrid NR-2 has mentioned that there is extreme voltage variation in J&K & Ladakh area:

- 400KV Voltage at Wagoora and New Wanpoh goes as low as 350KV
- 220KV Voltage in LEH area goes as low as 190KV and as high as 235KV

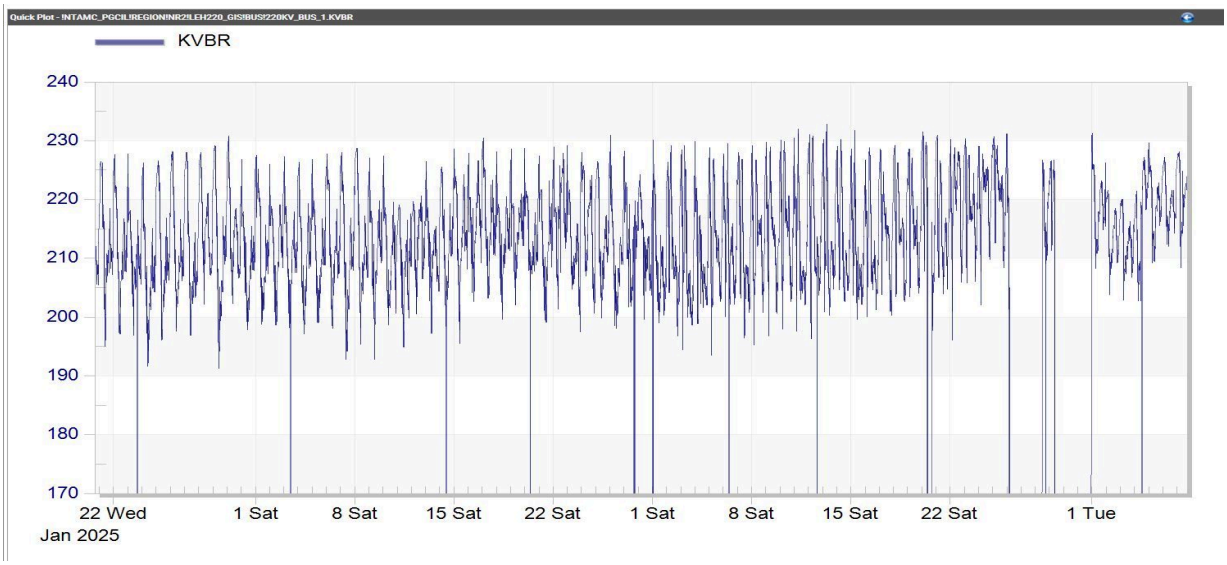
Voltage Graph New Wanpoh (Jan'2025)



Voltage Graph Wagoora (Jan'2025)



Voltage Graph LEH (01 Year)



A.17.2. Powergrid has requested that forum may discuss the requirement of dynamic compensation at LEH & J&K Stations.

Members may kindly deliberate.

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

B.1. NR Grid Highlights for March 2025

Detailed presentation on grid highlights of March'2025 will be shared by NRLDC in OCC meeting.

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)

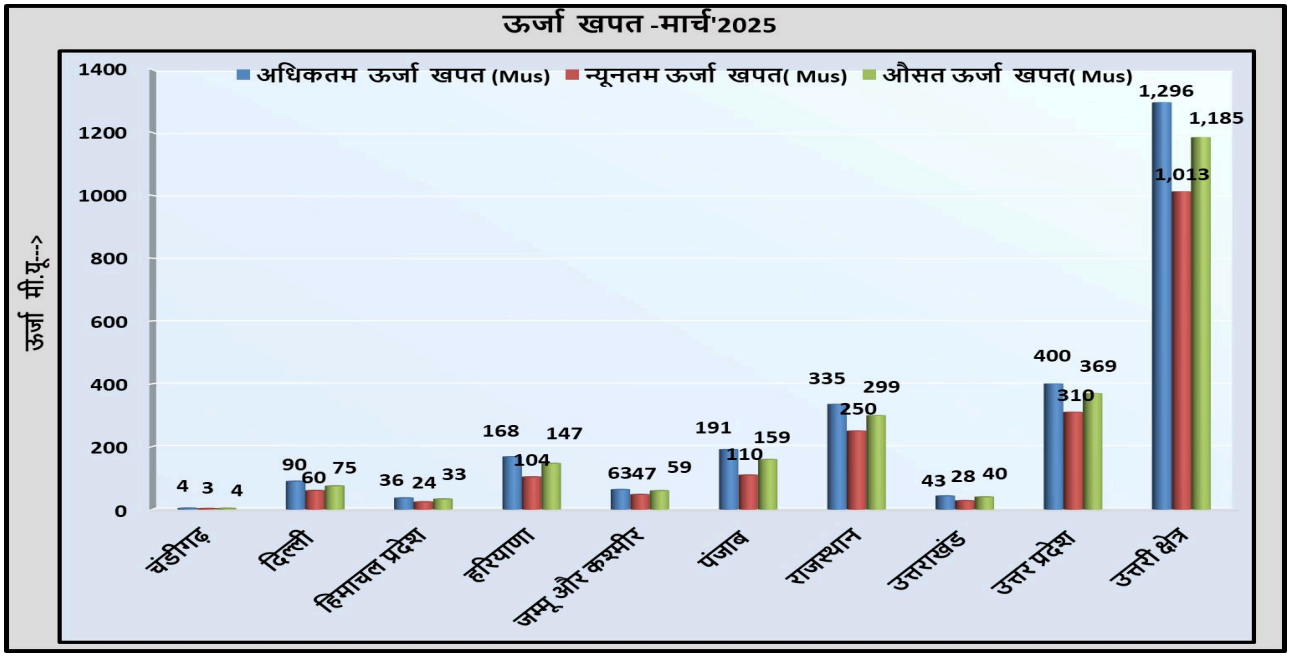
- In Mar'25, the Average energy consumption per day of Northern Region was **1185 MUs** and it was 6.30 % higher than Mar'24 (1115 MUs/day)

- 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	फ़रवरी- 2024	फ़रवरी- 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%**

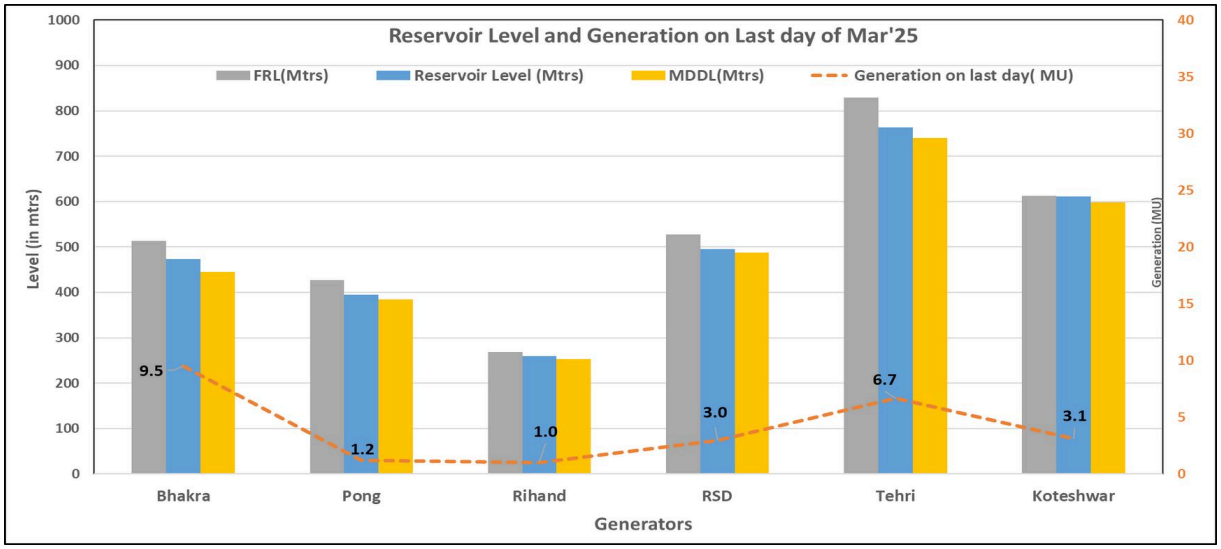
Energy Consumption



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**	**Koteshwar**
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 Mar'2025 will be shared by NRLDC in OCC meeting.

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

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

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.

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.

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 MVA ICT at Kotputli(PG)	Augmentation by 400/220 kV 500 MVA (3rd) ICT at Kotputli (PG) is expected by 31.12.2025
N-1 contingency of 2*315=630 MVA ICT at Deedwana(RVPN)	As per latest status shared by Rajasthan SLDC order for 10 no. ICT has been placed recently. First ICT is expected at Jaisalmer-II in Apr'25. All others expected by Sep'25.
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)	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 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.

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

Uttarakhand:

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

In view of above transmission constraints for all states, it is 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 are 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.

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

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

January 2025 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (February-25)		M-12 (January-26)		M-6 (July-25)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	Yes	Yes	No	Yes	No	No
Himachal	Yes	No	Yes	No	Yes	No
J &K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	No	No	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

February 2025 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (March-25)		M-12 (February-26)		M-6 (August-25)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	No	No	No	No	No	No
Himachal	Yes	No	Yes	No	Yes	No
J &K	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	No	No	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

Submitted with one month delay

March 2025 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (April-25)		M-12 (March-26)		M-6 (September-25)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	No	No	No	No	No	No
Himachal	Yes	No	Yes	No	Yes	No
J &K	Yes	No	Yes	Yes	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	Yes	Yes	Yes	Yes	Yes	Yes
Rajasthan	Yes	Yes	Yes	Yes	Yes	Yes
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

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

All SLDCs except UP are requested to provide update.

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

Members may please discuss.

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

Further, as discussed earlier on numerous occassions, 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

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**.

It is to be noted that details of feeders to be wired under SPS is yet to be received from Haryana SLDC and Rajasthan SLDC.

Haryana and Rajasthan SLDCs are requested to provide update.

POWERGRID may provide update on the implementation of SPS at 765/400kV Jhatikara and 400/220kV Mandola and Maharanibagh.

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.**

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.

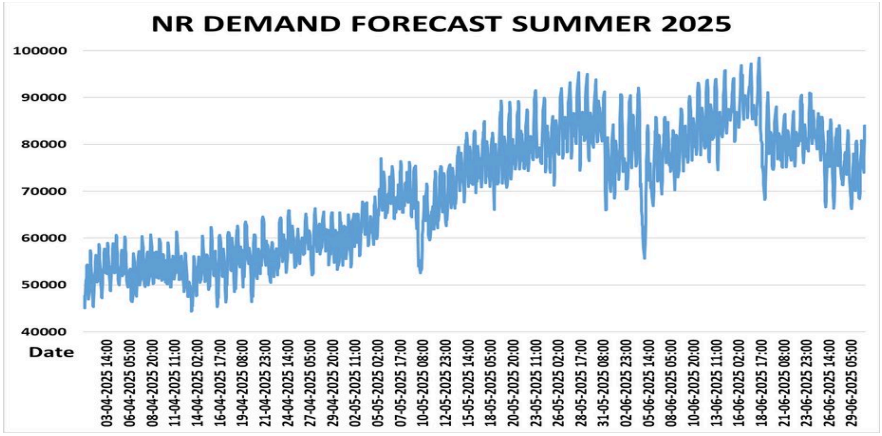
- Considering the last year's maximum loading of ~245-250 MW per ICT, the loading is projected to reach around 280-285 MW per ICT.
- The N-1 loading of the ICTs is estimated to be around 255 MW, which indicates that the ICTs will be significantly stressed post-commissioning of Parbati-II generation.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

Members may please discuss.

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.**

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 defense 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.

  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

To maintain the voltage profile of Grid within IEGC band during summer, following known actions are 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

In this case, the list of radial feeders becomes very important. 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**. Following are the attributes for such feeders:

- Feeders shall be radial in nature
- They should usually have substantial load flow so that reduction of drawl 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.

SLDCs are 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

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

Members may like to discuss.

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 all India level. The significantly higher load loss resulted in the rise in frequency of the Indian power system from 50.03 Hz to 50.68 Hz. The load drop resulted in a rise in the voltages of stations in the Northern region. This high voltage resulted in the tripping of 18 nos. of EHVAC lines in the Northern Region on over-voltage protection. The power system was normalised after the revival of all the poles of HVDC Champa-Kurukshetra by 15:51 Hrs.

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

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

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

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

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

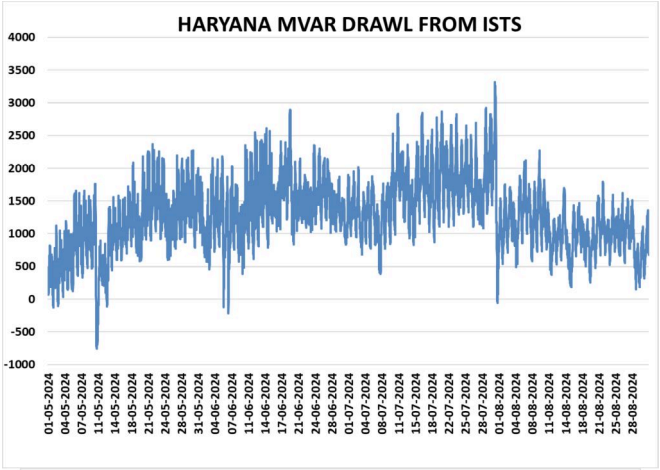
  a. Review of protection schemes to avoid frequent outages.
  b. Review of transmission line design including cross arms, jumpers, etc.
  c. Design of filter switching logic to support system voltage.

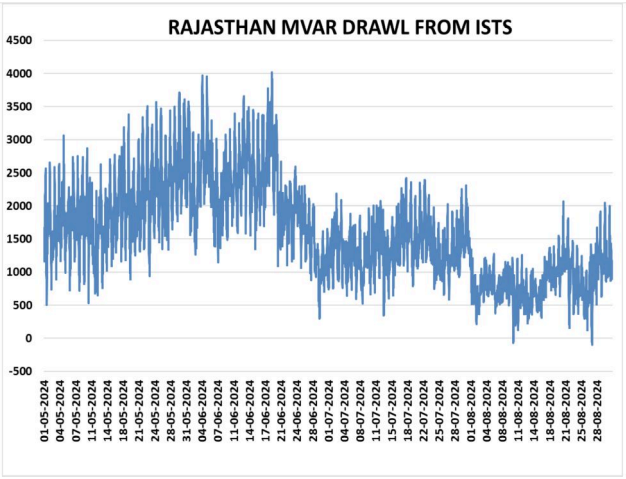
The above agenda point was also discussed in 75th NRPC Meeting held on 28 August 2024 through online mode. Forum acknowledged the sensitivity of event and directed the concerned to take appropriate actions based on the recommendations of Committee.

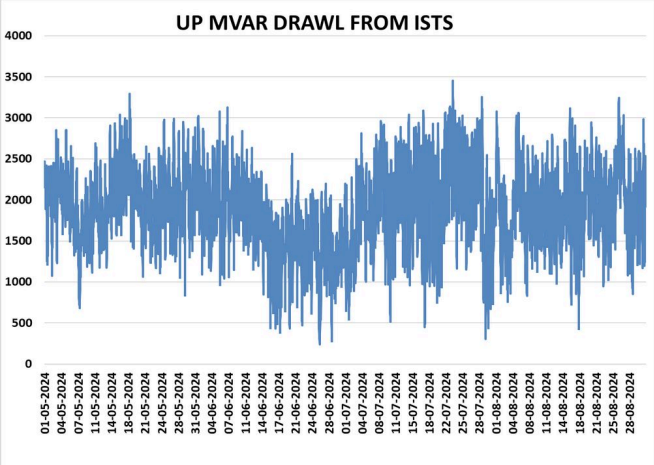
Measures for Low voltages

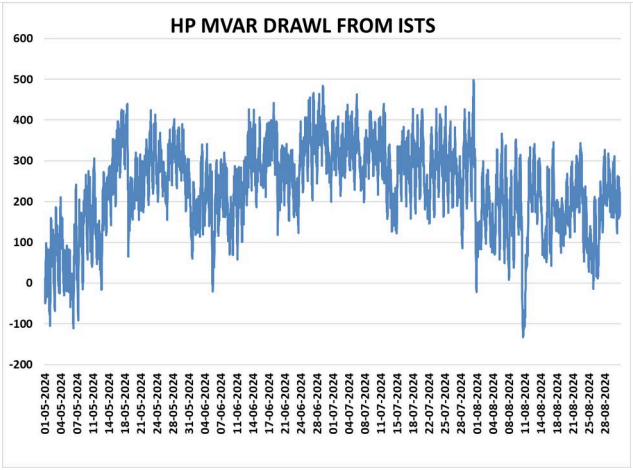
During summer months, reactive power requirement by load also increases due to increased cooling and pumping requirement. Due to lack of sufficient compensation at distribution and transmission level, huge reactive power is being drawn from ISTS network. Due to this high reactive power requirement during 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.









During 229 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 had availed shutdown of HVDC Champa-Kurukshetra poles last year during Sep to attend few issues that were observed in committee recommendations and assured that all identified issues have been attended.

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

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

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

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

Concerned members are requested to provide update on the actions taken at their end in this regard. Members may please discuss.

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:

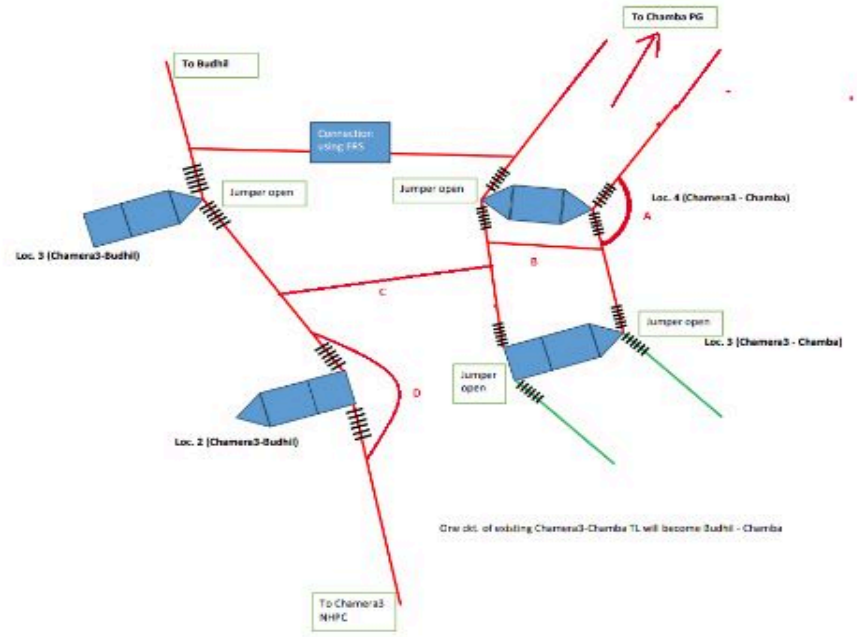
S. No.	Element Name	Owner	Outage (Date & Time)		Reason / Remarks
1	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	UPPTCL	13-03-2020	02:46	Buccholz relay alarm and Local Breaker Backup protection operated. Tripped along with Hapur-Muradnagar line. Flags are not reset because of cable flashover.
2	FSC(40%) of 400 KV Fatehpur-Mainpuri (PG) Ckt-1 at Mainpuri(PG)	POWERGRID	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)	POWERGRID	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	PDDJK	21-06-2024	20:09	Tower foundation damaged . Emergency shutdown of 220k KPTL Kishenpur - Mirbazar Ckt as the landslide occurred at Tower Loc. no. KP-196 at Peerah and tower is on the verge of collapse.
8	400KV Bus 2 at Noida Sec 148(UP)	UPPTCL	08-03-2023	17:28	Bus bar protection operated. GIS duct issue at Noida Sec 148(UP).
9	400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2	UPPTCL	09-03-2023	17:26	Flashover Y-phase earth switch compartment at Noida Sector-148.
10	400/220 KV 500 MVA ICT 1 at Ramgarh(RS)	RRVPNL	26-04-2023	18:06	Preparatory arrangement & dismantling work of ICT-I at Ramgarh
11	FSC(39%) of 765 KV Koteshwar-Meerut (PG) Ckt-1 at Meerut(PG)	POWERGRID	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	UPPTCL	26-10-	20:3	Y-phase bushing has got

It is requested to provide update regarding the likely revival date for these in the meeting/ NRLDC outage portal and expedite revival of these transmission elements.

Member may like to discuss.

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:

a) 220 kV Budhil-Chamba transmission line
b) 220 kV Chamera III-Chamba line

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

I 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.

NHPC/POWERGRID to provide update as the line has not yet been restored.

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.

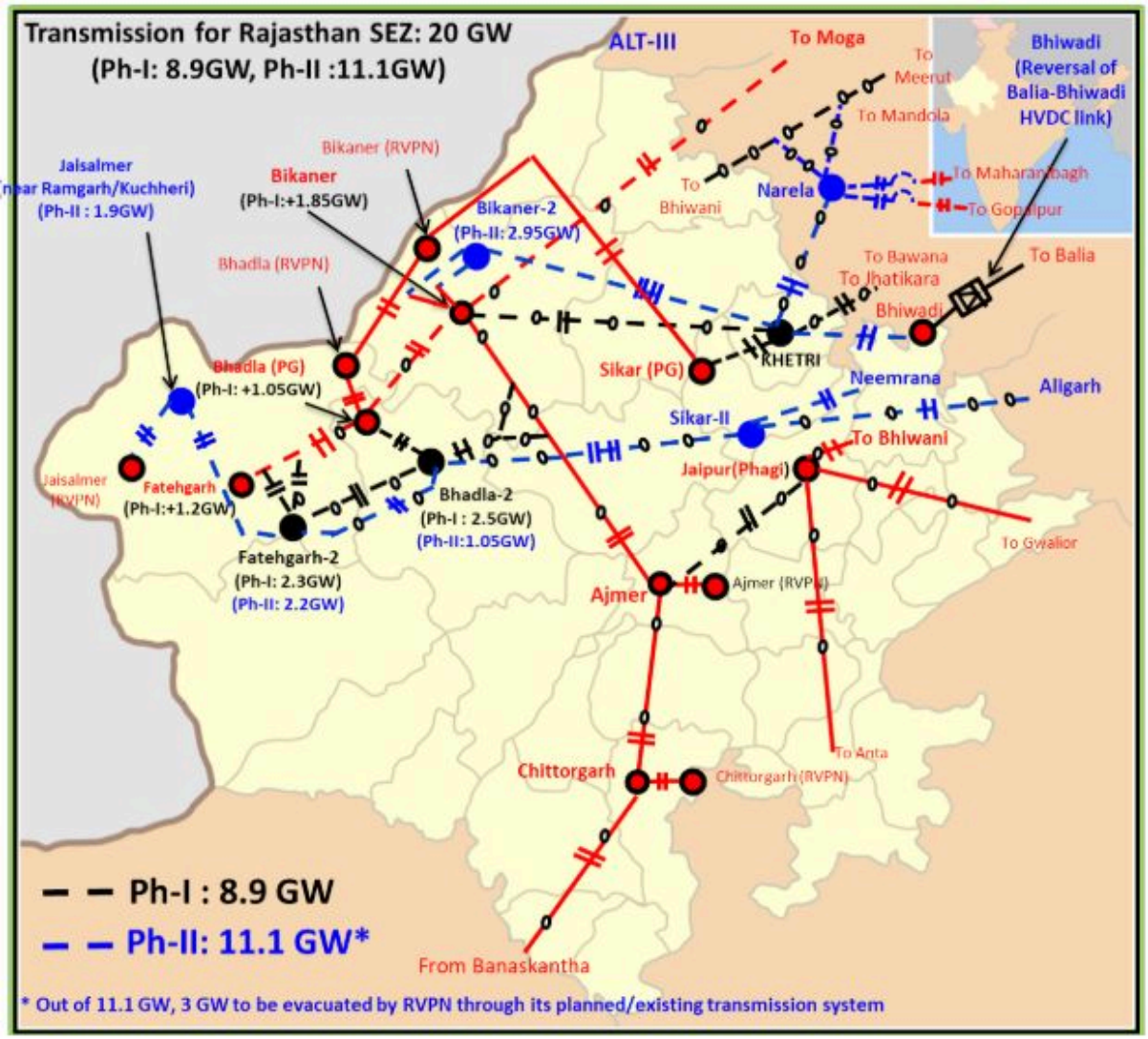
Last updated document is available at following link: https://nrldc.in/documents/Documents

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

Utilities may provide update.

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 the entire transmission lines to identify and mitigate potential issues promptly before summer 2025.

Members may please discuss.

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/1KWY4G9gTBLV5wTJkhGEIeRptKP-QbhjL?usp=drive_link* to NRLDC through mail (nrldcmis@grid-india.in) and FTP as per above timeline.

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

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.

SLDCs are also requested to maintain the reserves as per the allocated quantum by the NLDC as per the Grid Code. SLDCs are also requested to submit data to CERC as mentioned in MoM issued by CERC on 05.03.2025.

Members may please discuss.

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 Ton (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 energlzatIon and Integration

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

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

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

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

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

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

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

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

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

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

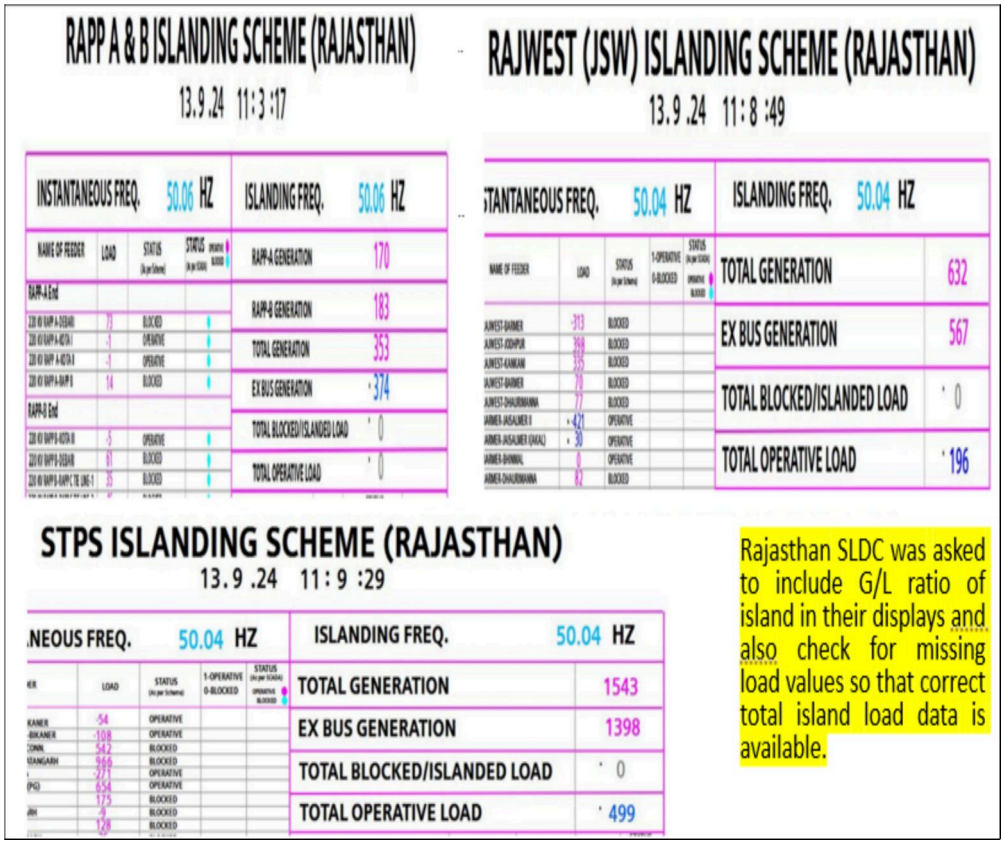
Inputs are yet to be received from SLDCs. All SLDCs are requested to provide update.

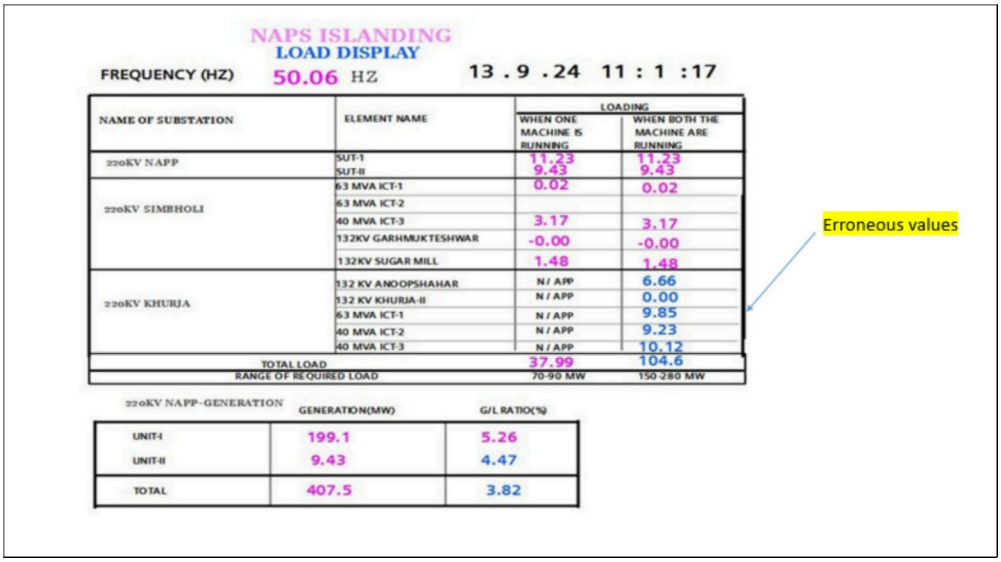
Members may please discuss.

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.





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 Maharanibagh, Bawana, and Electric Lane will be completed within a week, and a consolidated UFR testing report will be submitted to NRLDC thereafter.

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

During 229 OCC meeting, 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)	No	No	No
Bawana Islanding scheme (Delhi)	No	Yes	Yes

**Telemetry not coming properly*
 # one basecase received

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

No update could be received from Punjab SLDC.

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

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

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

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

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

Rajasthan, Punjab and Delhi SLDCs are requested to provide update.

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 in case of high frequency operation of the grid are listed below:

All constituents shall take proactive actions and maintain their drawl 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

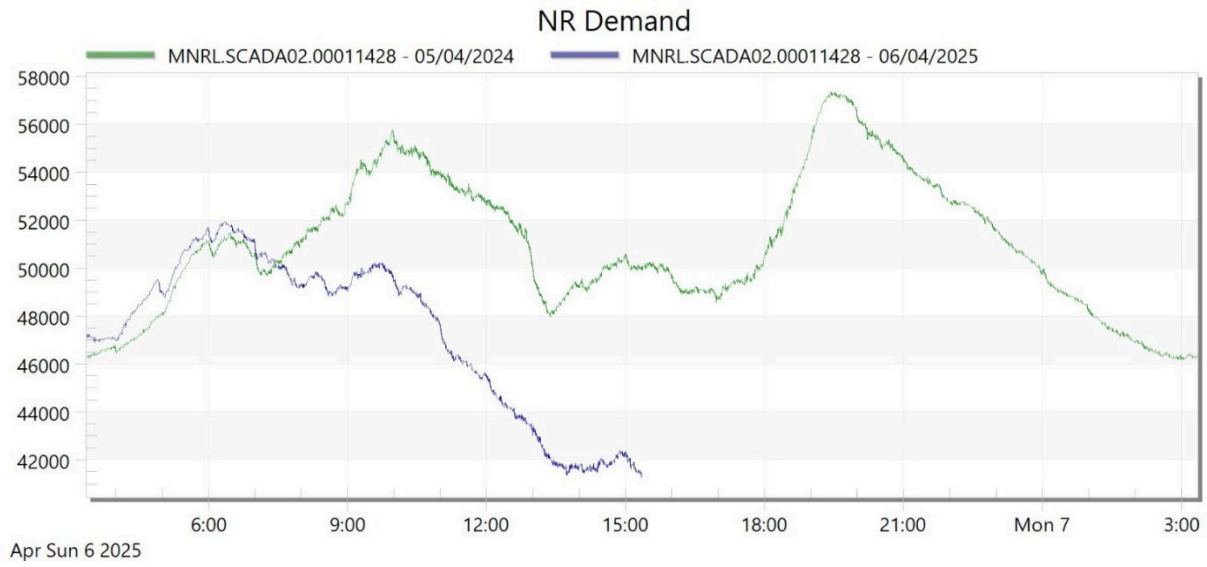
• Generation backing down in coal fired thermal stations & Gas station (within state control area (in case it is under drawing) as per merit order based on variable charges

• Downward revision of requisitions from ISGS as per merit order on request of beneficiaries

• Machines to be brought under RSD in case 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.

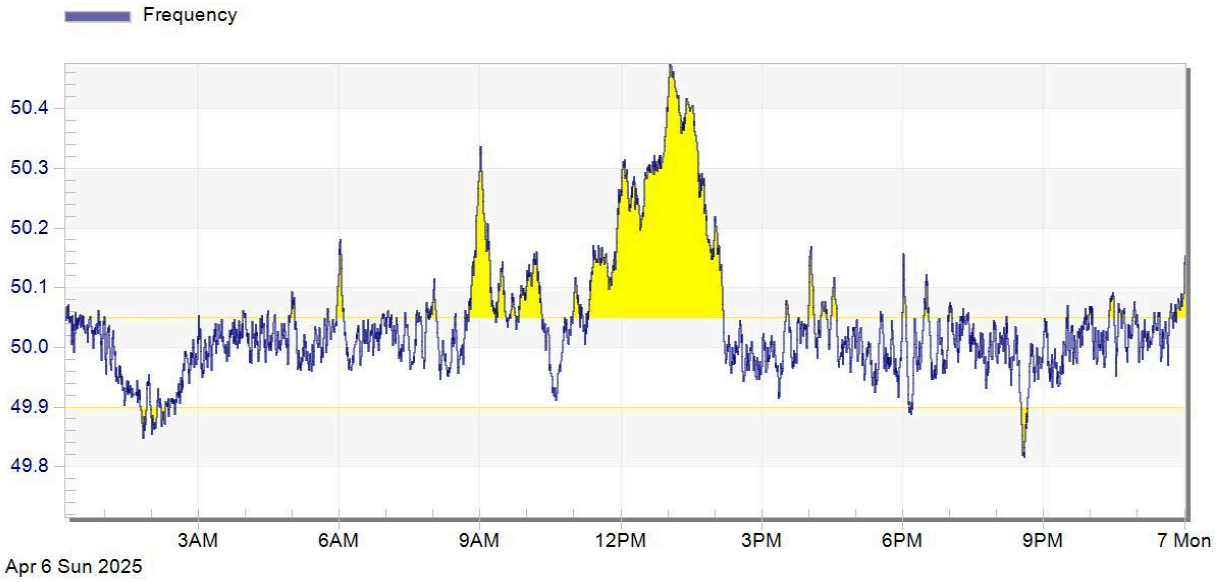
NR demand pattern for 6th April and 7th April 2025 is shown below:



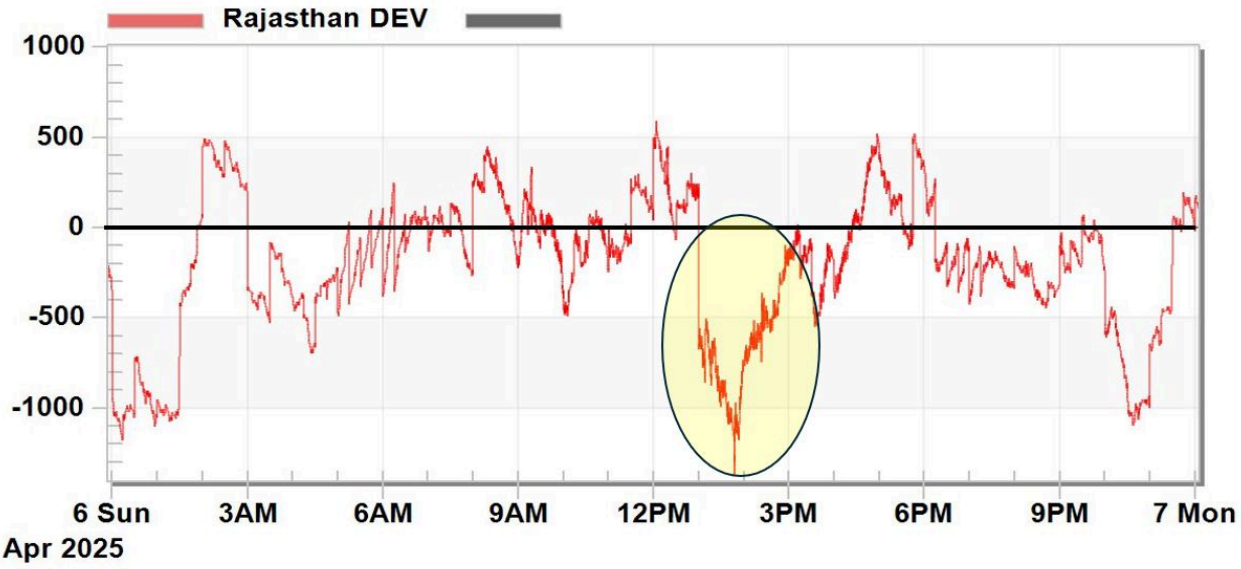
To arrest the high frequency operation of the grid, following actions were taken by NRLDC control room during high frequency period:

1) Schedule of Hydro plants reduced:
   a) Koteshwar: 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 under drawing 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%.

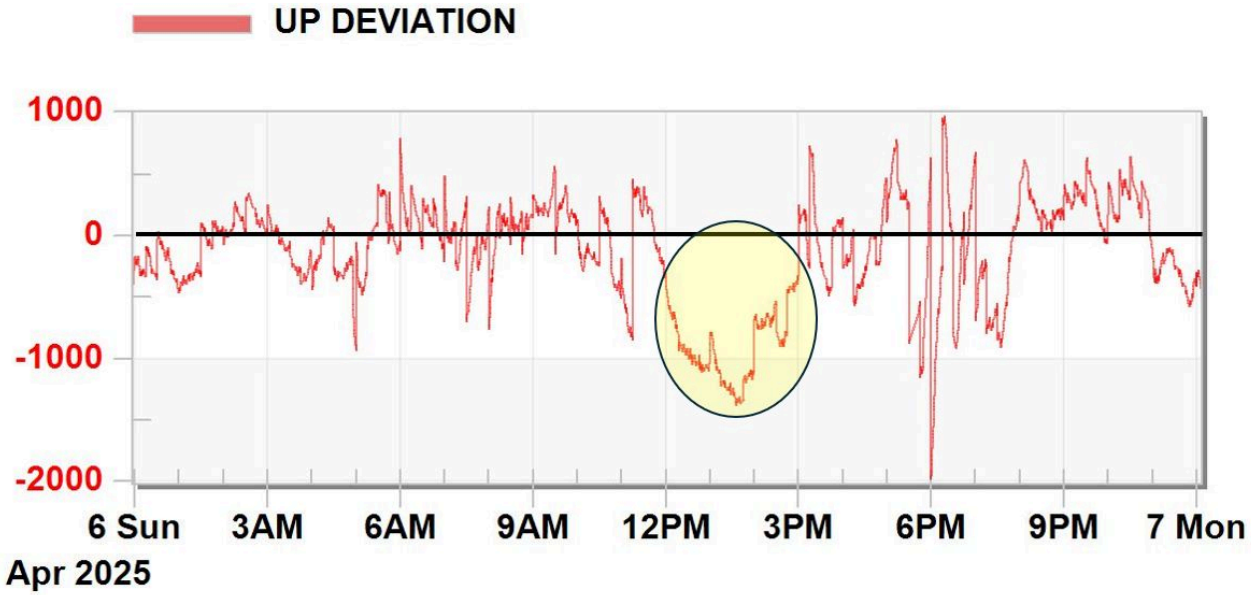
Frequency profile of 6th Apr 2025 (Maximum frequency of 50.49 at 13:03 hrs) is shown below:



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 are requested to share actions taken at their end to control their deviations from ISTS and maintaining grid frequency. Further, all SLDCs are requested to take quick actions at their end incase of sustained under drawl from the grid and high frequency operation of grid.

Members may please discuss.

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:

a) Suppressed demand due to widespread rains and weekend

b) Over-injection by VRE sources

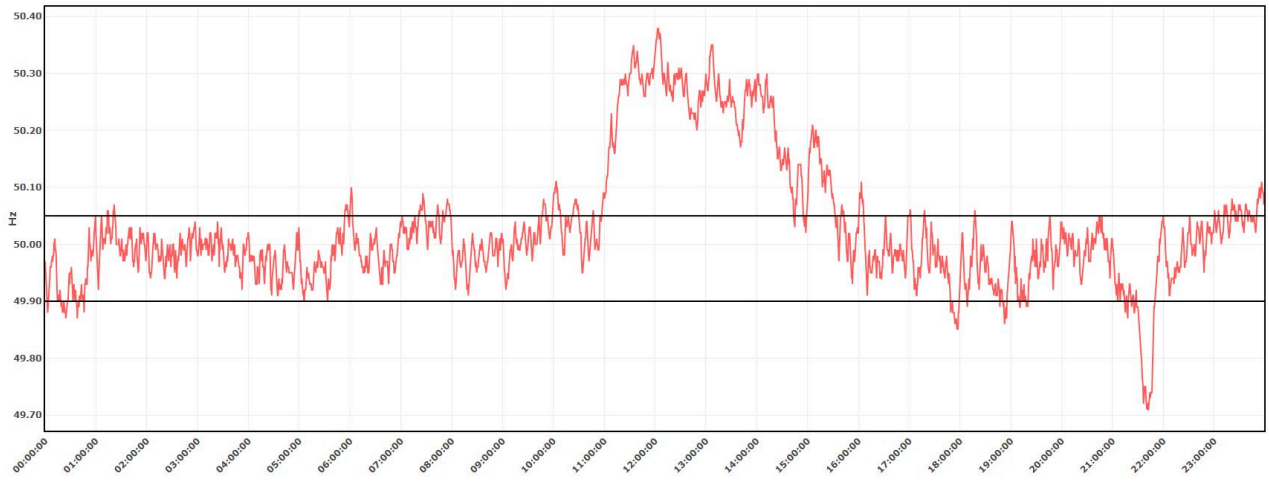
c) Limited flexibility from hydropower stations and pumped storage plants due to high inflows and high reservoir levels

d) Inadequate flexibility of intra-state thermal generating stations and under drawl

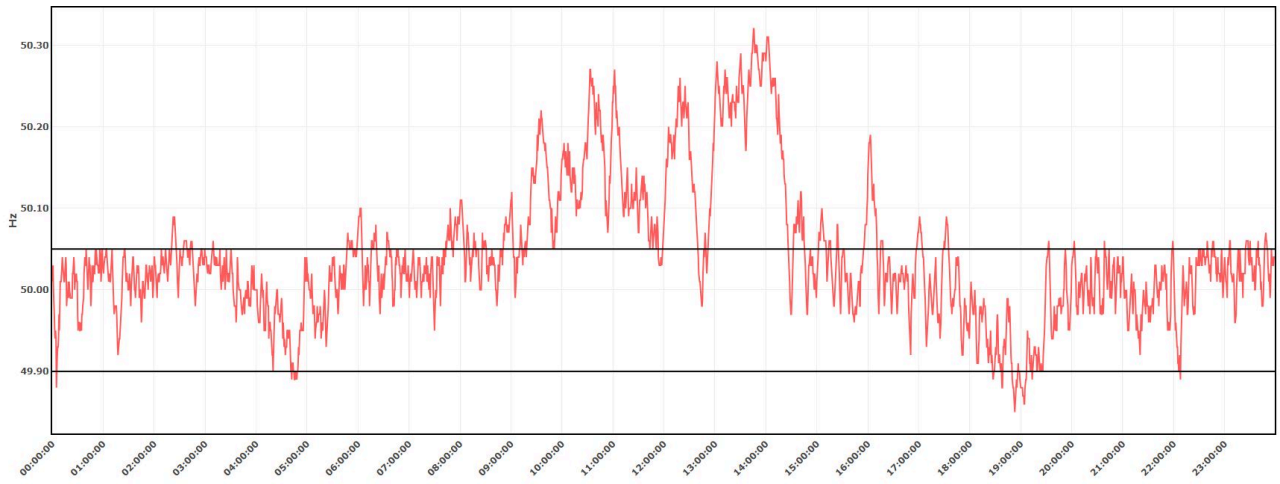
e) Lack of DOWN reserves at the interstate level

f) Inadequate liquidity in DAM/RTM, resulting in the states committing more units.

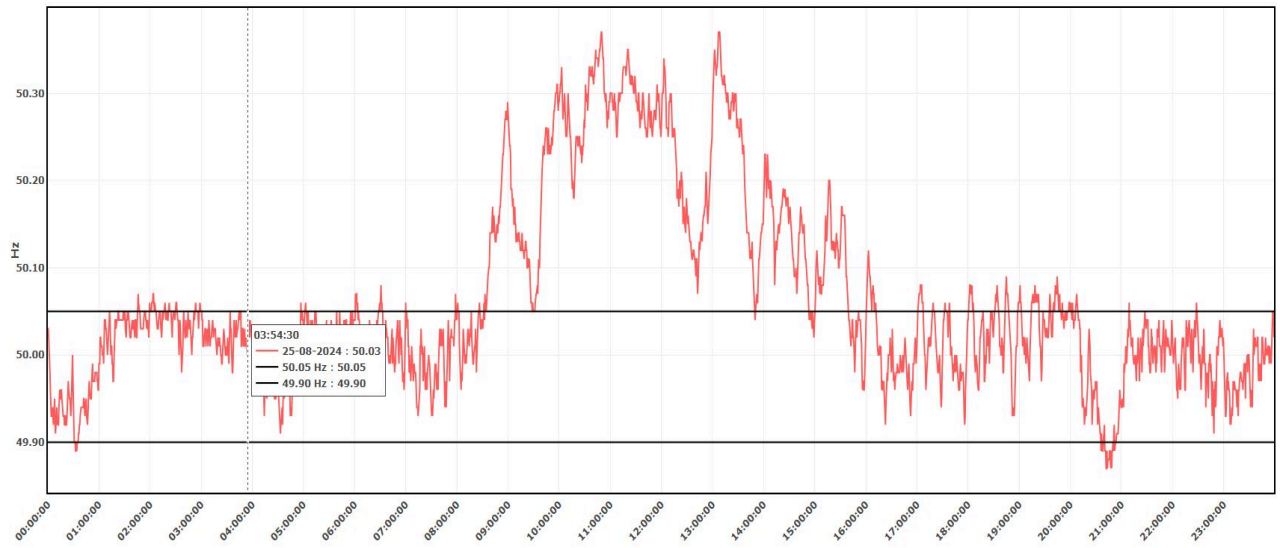
Frequency profile of 4th Aug 2024:



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 (**Annexure-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, 11.08.024, 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.

Members may please discuss.

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 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.	49.979	50.114	50.031	0.05	1.00

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 Ladakh(UT)	Not Received	Not Received
10	Dadri -1 (TH)	Received	Received
11	Dadri -2 (TH)	Received	Received
12	Jhajjar (TH)	Received	Received
13	Rihand-1 (TH)	Received	Received
14	Rihand-2 (TH)	Received	Received
15	Rihand-3 (TH)	Received	Received
16	Shree Cement (TH)	Not Received	Not Received
17	Singrauli (TH)	Not Received	Not Received
18	Tanda-2 (TH)	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

FRC/FRP computation sheet haven't received from Punjab, Haryana, Rajasthan, J&K, Shree Cement TPS, Singrauli & Tanda-2 TPS(NTPC), Rampur HEP, Sorang HEP, Tanakpur HEP and Uri-2 HEP.

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

From the FRP data, it is observed that FRP of many of the control areas are not satisfactory. Therefore, it is requested to review the FRC/FRP, governor actions of your 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 receicved is as follows:

Sl. No.	Entity	Capacity(MW)	Governor Mode (FGMO as per IEGC 2023)	Droop setting (%)	Remarks (if any)

			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 Implementation
5	Rihand-2 (TH)	2*500	Yes	5.0	Under Implementation
6	Rihand-3 (TH)	2*500	Yes	5.0	Under Implementation
7	Shree Cement (TH)	(2 * 150)			
8	Singrauli (TH)	2*500+5*200			
9	Tanda-2 (TH)	2*660			
10	Unchahar stg-4 (TH)	1*500			
11	Unchahar (TH)	2*210			
12	Anta (G)	(1 * 153.2 + 3 * 88.71)			
13	Auraiya (G)	(2 * 109.3 + 4 * 111.19)			
14	Dadri (G)	(2 * 154.51 + 4 * 130.19)			
15	AD Hydro (H)	(2 * 96)	YES	4.0	-
16	Bairasiul (H)	(3 * 60)	Yes	4.0	
17	Bhakra (H)	(5 * 126 + 5 * 157)			
18	Budhil (H)	(2 * 35)			
19	Chamera-1 (H)	(3 * 180)	Yes	5.0	
20	Chamera-2 (H)	(3 * 100)	Yes	5.0	
21	Chamera-3 (H)	(3 * 77)	Yes	4.0	
22	Dehar (H)	(6 * 165)			
23	Dhauliganga (H)	(4 * 70)	Yes	5.0	
24	Dulhasti (H)	(3 * 130)	Yes	5.0	
25	Karcham (H)	(4 * 261.25)	Yes	5.0	
26	Kishenganga	(3 * 110)	Yes	4.0	
27	Koldam (H)	(4 * 200)	Yes	4.0	
28	Koteswar (H)	(4 * 100)	Yes	4.0	
29	Malana-2 (H)	(2 * 50)			
30	Nathpa Jhakri (H)	(6 * 250)	Yes	5.5	
31	Parbati-2 (H)	(4 * 200)			
32	Parbati-3 (H)	(4 * 130)	Yes	4.0	
33	Pong (H)	(6 * 66)			
34	Rampur (H)	(6 * 68.67)			
35	Sainj (H)	(2 * 50)			
36	Salal (H)	(6 * 115)	Yes	3.0	
37	Sewa-II (H)	(3 * 40)	Yes	4.0	

38	Singoli Bhatwari (H)	(3 * 33)			
39	Sorang (H)	(2 * 50)			
40	Tanakpur (H)	(1 * 31.42 + 2 * 31.4)	Yes	4.0	
41	Tehri (H)	(4 * 250)	Yes	4.0	
42	Uri-1 (H)	(4 * 120)	Yes	6.0	
43	Uri-2 (H)	(4 * 60)	Yes	5.0	

Constituents are requested to share the details of the droop w.r.t. their generating stations.

Memebers are 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 is 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/

Members may like to discuss.

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

S.N.	Agenda	Decision of 229th OCC meeting of NRPC	Status of action taken
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.	CTU and NRLDC to update status.
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 augmentation in view of high peak loading during summer season (Agenda by POWERGRID)	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.	POWERGRID to update status.

Follow up issues from previous OCC meetings

Annexure-A.I

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

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

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

Annexure-A-I.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	Mar'25	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to persisting RoW issues. expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 220th OCC by JKPTCL.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	Mar'25	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. RoW issues persisting; At present new-wampoh-mirbazar 5km and harwan-alstung 16km have been completed, expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 214th OCC by JKPTCL.
				• 220 kV New Wanpoh - Mattan D/c Line	End of 2024	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	End of 2024	02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	Mar'25	Under construction.Updated in 222nd OCC by HVPNL
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1	Utilized: 7	• 220 kV D/C Shahajahanpur (PG) - Gola line	Commissioned	Energization date: 26.10.2023 updated by UPPTCL in 215th OCC
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG)	Commissioned	Energization date: 25.02.2022 updated by UPPTCL in 196th OCC
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• 220 kV Hamirpur-Dehan D/c line	Commissioned	HPPTCL has commissioned the Planned 220kV Dehan-Hamirpur TL utilizing 2 No. 220kV Bays.Commisioned date: 09.06.2022. Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Mar'25	Issue related to ROW as intimated in 228th OCC by HVPNL. **Status:** Work was stalled since 29.07.2021 due to ROW issues and farmers agitation and further restarted on 9.10.2023 with the help of district administration. Now, work was again stalled since30.11.2023 due to severe ROW issues. Expected to be completed by 31.12.2024. Foundation 209/212. Erection 193/212. Stinging 37.8/50.3 km
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Oct'25	Line work awarded to M/s R S Infra Projects Pvt. Ltd. Noida, Uttar Pardesh on dated 09.03.2024. Work of route plan and route alignment has been started by the firm as intimated in 218th OCC by HVPNL.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	Mar'25	Erection and stringing work will be completed by 18.12.2024. However, the signing of Connection agreement amongst the Utilities is pending. Updated in 228th 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	20.03.2025	Updated in 229th OCC by HVPNL **Status:-** Connectivity agreement remaining to be signed with CTU expected to be completed by last week of March 2025

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	Mar'25	Roj Ka Meo station is yet to be commissioned. However, this arrangement will not lead to usage of additional bays i.e. no of utilitsed bays at Sohna road will remain same.Updated in 228th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 228th OCC by HVPNL. **Status:-** Earlier 02 nos 220 kV line bays were to be utilized for the 220 kV GIS S/Stn. Sec-77, Gurugram but due to denotification of land of the 220 kV GIS S/Stn. Sec-77 the said substation is now going to be dismantled and a new substation is proposed at Sec-75A, Gurugram. Now, these 02 no. 220 kV line bays may be utilized at 220 kV GIS S/Stn Sec-75A, Gurugram.
15	400/220kV Prithla Sub-station	Commissioned: 8 Aprroved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	Mar'25	Contract awarded on 08.08.23 to M/s Skipper with completion in March 25.Updated in 218th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	Commissioned	Energization date: 31.12.2021. Updated in 198th OCC by HVPNL
				• 220kV D/C for Sector78, Faridabad	31.03.2025	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	Work awarded to M/s Man Structurals Pvt Ltd. JV M/s Aquarian Enterprises on 09.01.2024. Contractual date: 06.05.2025 and Tentative date of completion :06.05.2025 Route has been approved and further work is in progress.Updated in 218th OCC by HVPNL
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	Mar'25	Updated in 228th OCC by HVPNL. **Status:** The stringing work between TL No. 19 & 20, TL No. 22 & 23 and TL No. 22 & 24 is pending for want of necessary consent from the forest department. Forest approval is pending. Presently, forest case is pending in the O/o Technical officer IRO, Chandigarh.
				• Sonepat - HSIISC Rai 220kV D/c line	Commissioned	Energization date: 31.05.2024 updated by HVPNL in 220th OCC
				• Sonepat - Kharkhoda Pocket A 220kV D/c line	08.03.2025	Updated in 228th OCC by HVPNL. **Status:** Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line. Both bays are under construction and erection of electrical equipment is under progress.
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	-	Work is under progres. Stub Setting: 14/2017. Permission for Highway is awaited from concerned department as updated in 218th OCC by RVPNL.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Date of bid opening has been extended up to 30.04.2024 as updated in 218th OCC by RVPNL.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	-	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	Mar'25	Revised target date as confirmed by concerned SDO Construction, Panchkula.Updated in 228th OCC by HVPNL
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	31.08.2024	Issue in connectivity agreement with CTU. CTU asked PSTCL to approach CEA and thereafter CEA may plan a meeting with PSTCL and CTU to resolve the issue. Updated in 225th OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	31.08.2024	Issue in connectivity agreement with CTU. CTU asked PSTCL to approach CEA and thereafter CEA may plan a meeting with PSTCL and CTU to resolve the issue. Updated in 225th OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Approved: 4 Total: 8	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra- Daultabad S/c line at 400 kV Bahadurgarh PGCIL	Mar'25	Proposal turned down by CEA.Updated in 228th OCC by HVPNL.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	Dec'25	Updated in 228th OCC by HVPNL. **Status:** Tender awarded, but work is yet to be started
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	08.03.2025	Updated in 228th OCC by HVPNL. **Status:** Contract awarded on 09.08.23 to M/s R S Infra Noida. Work has been started.
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• LILO of 220 kV S/C Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG)	06.10.2025	Work order has been issued on 06.10.2023, work under progress as updated by RVPNL in 215th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220 kV D/C Kankroli(PG) - Nathdwara line	-	Standard bid document has been finalized on 13.08.2024 and bid is under preparation as updated by RVPN in 222nd OCC.
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	-	Status:- 2nos bays are being utilised for 220 kV D/C Panchgaon (PGCIL)-Panchgaon Ckt-I & 220 kV D/C Panchagon (PGCIL)-Panchgaon Ckt-II, charged on dated 05.09.2022 & 20.10.2022 respectively. The 2nos bays may be utilised by HVPNL in future.
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	Commissioned	Saharanpur(PG)-Devband D/c line (Energization date: 20.04.2023) updated by UPPTCL in 207th OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	Commissioned	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work completed , final agrrement is expected to be signed by May'24. Updated in 218th OCC by PSTCL.
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	Commissioned	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is commissioned on 20.01.2024. Updated in 217th OCC by HPPTCL.
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'25	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. The civil work not started , the civil tender is in process as updated by PSTCL in 220th OCC meeting

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

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	In 225th OCC meeting NRPC representative apprised forum that revised Standard Operating Procedure (SOP) of Automatic Demand ManagementScheme (ADMS) by the DISCOMs in NCT of Delhi has been approved in 51st TCC and 76th NRPC meeting. In 52nd TCC and 77th NRPC DTL intimated that tentative timeline for implemenation is 28th February 2025.DTL intimated that TPPDL has informed that they have engaged SCADA OEM for the implementation of ADMS. However, OEM has confirmed that incorporation of ADMS logic into the current SCADA system is not feasible and it would require an upgrade or refresh of the system, necessitating additional expenditure for which DERC has been approached. The complete implementation cycle is expected to be within 2 years. However, in the meantime considering the criticality, their in-house team is working to develop a trigger notification/alarm system for manual operation of breaker triggering from the control room and thereafter exploring the possibility of automatically triggering the breaker using the trigger notification. TPPDL has stated that they expect to complete it by August 2025, if materialized. BRPL and BYPL have informed that their existing SCADA system is obsolete and it is in the up-gradation phase by OEM. After the up-gradation of SCADA system, the ADMS is expected to be implemented in BRPL & BYPL by Oct 25.
2	HARYANA	Scheme not implemented	Haryana SLDC intimated that as per Joint Roadmap of implementation of ADMS in Haryana supplied to NRPC vide memo dated 17.10.2023 (Annexure-II), the implementation plan was proposed to be carried out in two parts, as mentioned below: PART-I: Control with Transmission Utility PART-II: Control with Distribution Utility It is pertinent to mention that as part of upcoming SCADA-EMS system i.e. upgradation of SCADA-EMS system, a feature in the name of LSS (Load Shedding Software)/ ADMS is part of the Technical Specification of project to be delivered. Therefore, the functionalities of ADMS application will be covered under 'Part-I: Control with Transmission Utility' will already be covered using the RTUs available at select substations along with the ADMS software being delivered by M/s GE under SCADA upgradation project. Hence, there is no need to acquire a separate ADMS application & associated hardware for data centre for implementation of PART-I. Further for Part -II a committee has been constituted for further finalization of the ADMS module with control with Discoms is under discussions for preparation of DPR.
3	HP	Scheme not implemented	HP SLDC imentioned that HPSEB had intimated that initially 142 Nos. of feeders were identified for operation under ADMS functionality but most of these feeders were from same sub-station. Therefore, now they have increased the no. of sub-station and identified the non-critical feeders. Load relief to be given through these feeders is under finalization. The revised feeder list from HPSEBL is awaited as intimated by HPSLDC.

4	PUNJAB	Scheme not implemented	i. A committee comprising of following officers of PSPCL & PSTCL has been constituted to finalize the logic regarding implementation of Automatic Demand Management System in Punjab Control Area. A meeting in this regard was held on dated 26-02-2024 at PSLDC Complex, Patiala. The committee deliberated various loading scenarios and proposed the following logic for the management of demand: 1. If the frequency sustains below 49.90 Hz for duration of 3 minutes, the Automatic Demand Management System will initiate a 50% reduction in the Over Drawl. 2. In case the frequency falls further below 49.85 Hz, the Over Drawl will be reduced to zero. 3. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation. ii. In 222nd OCC, MS NRPC asked Punjab to co-ordiante with Powergrid for integration of their propsoed logic with the ULDC phase-III SCADA system for timely implementation.
5	RAJASTHAN	Under implementation	In 227th OCC meeting, RVPN informed that 215 nos. of circuit breakers have been mapped to ADMS, all 215 circuit breakers tested upto yard individually. Total 650CBs are to be mapped in phased manner.
6	UP	Scheme implemented by NPCIL only	i. A meeting regarding ADMS was held on 15.01.2023 with the UPPCL under the chairmanship of MD UPPTCL ii. A committee formed for identification of load at 33 kV level under the chairmanship of Director (Distribution), UPPCL. iii. Another committee under the chairmanship of Director UPSLDC shall identify the technical and operational requirement for ADMS implementation iv. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation and likely to be commissioned by March 2025. v. In order to operate identified 33 kV feeders under ADMS scheme, integration of 132 kV substations with SCADA system is under implementation in the Reliable Communication Scheme and expected date of completion of the scheme is October 2024. vi. MS, NRPC apprised forum that a letter has been written to Director, SLDC for co-odinatng with Director (Distribution), UPPCL for expediting the finalization of feeder list at 33kV for ADMS implementation. vii. Response from UPPCL regarding the finalization of feeder list at 33kV for ADMS implementation is awaited. vili. 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.
7	UTTARAKHAND	Scheme not implemented	i. UPCL has prepared a system architecture in which all the non-monitored sub-stions have been selected and 11kV feeders have been considered for ADMS operation. For the scheme, discom has also done group-wise selection of feeders and quantum of MW relief to be given for automatic demand response at 11kV level has also been decided. UPCL has awarded the tender for implementation of the aforementioned scheme to M/s Metergy Pvt.Ltd. ii. As per the status report submitted by M/s Metergy Pvt.Ltd, the survey work of 30 nos. incomer sites have been completed and order has been placed by UPCL for hardware equipments. iii. Uttarakhand SLDC informed that feeder list at 11kV level has been finalized and logic of ADMS implementation is under finalization. iv. Uttarakhand has intimated that It is bring to your notice that installation MFT(Multi Function Transducers) at various interstate points at PTCUL Substations under ADRS Project of UPCL is in progress. v. First Phase- Data Acquisition of 32 interstate points completed. vi. Second Phase-95 distribution side Substation work is on progress.

Annexure-A.I.III.

Status of availability of ERS towers in NR

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
1	PTCUL	400kV	418.394	NIL	1		Tender has been scraped due to single bidder.
		220kV	1045.135	NIL	1		
2	Powergrid NR-1	220 KV	1842.88	NIL	1		
		400 KV	11074.26	12 Towers	3	All 400kV ERS at Ballabhgarh	make-Lindsey
		765 KV	4721.85	15 Towers	1	All 765kV ERS at Meerut	Make-SBB
		500 KV HVDC	653.88	NIL	1		
		800 KV HVDC	416.58	NIL	1		
3	Powergrid NR-2	66 KV	37.56	Nil	1		ERS tower available for 400KV rating can be used in place of lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can be erected will reduce due to increase in Tower Hight.
		132 KV	262.7	Nil	1		
		220 KV	2152	Nil	1		
		400 KV	8097.3	02 Set (32 Towers)	2	Kishenpur & Jalandhar	
		765 KV	337.5	Nil	1		
4	Powergrid NR-3	800KV HVDC	2205	NIL	1		400KV ERS will be also be used in other voltage level lines
		500KV HVDC	2566	NIL	1		
		765KV	4396	NIL	1		
		400KV	12254	26 Towers	3	Kanpur	
		220KV	1541	NIL	1		
		132KV	207	NIL	1		
5	PARBATI KOLDAM TRANSMISSION COMPANY LIMITED	400kV	457	NIL	1		Procurement under process.
6	PATRAN TRANSMISSION COMPANY LTD	400kV	0.4	NIL	1	It is kept in Bhopal and on need basis is moved across region	Not available, will tie up based on the requirements in future. However the parent company IndiGrid owns one set of ERS for all five regions.
7	NRSS-XXIX TRANSMISSION LTD	400kV	853	NIL	1		
8	GURGAON PALWAL TRANSMISSION LTD	400kV	272	NIL	1		
9	RAPP Transmission Company Limited.	400kV	402	NIL	1		
10	NRSS XXXVI Transmission Limited	400kV	301.924	NIL	1		Element I - Operational comprising of 3 kms. Element II - Work Under Progress comprising of 221.924 kms. Element II - Work Under Progress comprising of 77 kms.
11	HPPTCL	220 kV	659	NIL	1		
		400 kV	75.7	NIL	1		
12	RVPN	132 kV	18969.958	1	4	01 No. ERS available at 220 kV GSS Heerapura, Jaipur	ERS proposed : 01 Set at 400 kV GSS, Jodhpur. 01 set at 400 kV GSS Ajmer
		220 kV	16227.979		3		
		400 kV	6899.386		2		
		765 kV	425.498		1		
13	DTL	220kV	915.498	NIL	1	400kV Bamnauli Sub station	ERS tower available for 400KV rating can also be used for lower voltage lines as well
		400kV	249.19	02 Sets (32 towers)	1		
14	JKPTCL						JKPTCL, Jammu: being procured JKPTCL, Kashmir:10 tower procured (out of which 3 on loan to JKPTCL, Jammu)

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
15	HVPN						HVPN has apprised that purchase order for procurement of 2 sets of Emergency Restoration System (ERS) in HVPNL has been issued to M/s Jost's Engineering Company Ltd., Mumbai
16	PSTCL	400 kV	1666.43	2	2		
		220 kV	7921.991				
17	UPPTCL 1- Meerut	132KV	27508.321	24 Nos(15 Running+9 Angle)		400 kV S/s Gr. Noida	ERS will be also be used in other voltage level lines.
		220KV	14973.453				
		400KV	6922.828				
	UPPTCL 2-Prayagraj	765KV	839.37	24 Towers		220 kv S/s phulpur	ERS will also be used in other voltage lines.
		400KV	1804.257				
		220KV	2578.932				
		132KV	4714.768				
18	POWERLINK						
19	POWERGRID HIMACHAL TRANSMISSION LTD						
20	Powergrid Ajmer Phagi Transmission Limited						
21	Powergrid Fatehgarh Transmission Limited						
22	POWERGRID KALA AMB TRANSMISSION LTD						
23	Powergrid Unchahar Transmission Ltd						
24	Powergrid Khetri Transmission Limited						
25	POWERGRID VARANASI TRANSMISSION SYSTEM LTD						
26	ADANI TRANSMISSION INDIA LIMITED		2090	1 Set (12 towers)	1 set (12 towers)	Sami (Gujarat)	Make-Lindsey ERS set available for 400KV & 500KV rating can be used for lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can reduce due to increase in Tower Height & nos of conductors.
27	BIKANER KHETRI TRANSMISSION LIMITED		482				
28	FATEHGARH BHADLA TRANSMISSION LIMITED	500 kV HVDC 400 kV HVAC	291				
29	NRSS-XXXI(B) TRANSMISSION LTD	400 kV	577.74	Not Available	Not Available		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			3	30-Jun-23		31-May-25
6	GVK	GOINDWAL SAHIB	1	30-Apr-20	INFO NOT RECEIVED	
7			2	29-Feb-20		
8	NTPC	DADRI NCTPP	1	31-Dec-20	31.12.2019,(DSI - Dry FGD)	
9			2	31-Oct-20	27.12.2019,(DSI - Dry FGD)	
10			3	31-Aug-20	27.07.2020,(DSI - Dry FGD)	
11			4	30-Jun-20	14.07.2020,(DSI - Dry FGD)	
12			5	30-Jun-22	15-Jun-22	
13			6	31-Mar-23	8-Feb-24	
14		RIHAND STPS	1	31-Dec-24		30-Nov-26
			2	30-Jun-26		31-Aug-26
			3	31-Dec-24		31-Dec-26
			4	31-Mar-25		30-Sep-26
			5	30-Jun-25		30-Jun-26
15			6	31-Mar-25		31-Mar-25
16		SINGRAULI STPS	1	31-Dec-24		30-Sep-25
17			2	31-Dec-24		30-Sep-25
18			3	31-Dec-24		30-Sep-25
19			4	31-Dec-24		31-Dec-25
20			5	31-Mar-25		31-Dec-25
21			6	30-Jun-24		31-Aug-25
22			7	31-Mar-24	Hot Gas In completed on 26.03.2025	30-Jun-25
23		UNCHAHAR TPS	1	31-Dec-23	22-Feb-25	
24			2	31-Dec-23	22-Feb-25	
25			3	30-Sep-23		30-May-25
26			4	30-Sep-23		30-May-25
27			5	30-Sep-23		30-May-25
28			6	31-Aug-22	11-Oct-22	
29		MEJA STAGE- 1	1	31-Oct-23	16-Jan-25	
30			2	30-Jun-23	28-Feb-25	
31		TANDA STAGE -1	1	No FGD		
			2	No FGD		
			3	No FGD		
32			4	No FGD		
33		TANDA STAGE -2	5	31-Mar-23	28-Nov-24	
34			6	30-Sep-23		30-May-25
35	L&T POWER DEVELOPMENT	NABHA TPP (RAJPURA TPP)	1	30-Apr-21	NPL has completed construction of FGD units for both	
36			2	28-Feb-21	of its units, which have been ready for commissioning	
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		GGSSTP, Ropar	5	31-Dec-26		
62			6	30-Dec-26		
63	Rosa Power Supply Company	ROSA TPP PH-I	1	31-Dec-26		
64			2	31-Dec-26		
65			3	31-Dec-26		
66			4	31-Dec-26		
67	RRVUNL	KOTA TPS	5	30-Nov-25		
68			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		

MIS Report for Status of Islanding Schemes

Implemented Schemes

Sl. No.	Islanding Scheme	SLDC	Status	Submission of Self Certification of Healitheness	SOP	SCADA Display Page	Remarks
1	NAPS IS	UP	Implemented	Yes (08-10-2021)	Yes	Yes	-
2	RAPS IS	Rajasthan	Implemented	16-Aug-21	Yes	Yes	List of officials in-charge, format for generation, islanding scheme sld and relays in RAPP IS submitted by RVPN on 04.12.2021.
3	Delhi IS	Delhi	Implemented				
4	Pathankot-RSD IS	Punjab	Implemented				

Under Implementation/ Newly Proposed/Under Discussion

Sl. No.	Islanding Scheme	SLDC	Status	Details of progress	DPR for PSDF funding (Required / Not Required)	Timelines Status - Proposed/Actual									
						Study		Design		Approval		Procurement		Commissioning	
						Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
1	Lucknow-Unchahar IS	UP	Under Implementation	Scheme has been approved in 59th NRPC meeting held on 31.10.2022. In the 229th OCC meeting, UPPTCL representative apprised that Unchahar-Lucknow Islanding scheme has been successfully implemented and same is visible at SCADA of UPSLDC (except 01 Substation: Namely 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 April 2025.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Under Implementation	Scheme has been approved in 71th NRPC meeting held on 29.01.2024. In 229th OCC, 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.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 229th OCC, RRVPNL representative mentioned 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.	-	-		-	-	-	-	-	-	-	-
4	Suratgarh IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 229th OCC, 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 IS.	-	-		-	-	-	-	-	-	-	-
5	Patiala-Nabha Power Rajpura IS	Punjab	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 229th OCC, 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. .		-		-	-	-	-	-	-	-	-
6	Kullu-Manali-Mandi IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 228th OCC, HPSLDC representative informed that proposed UFR scheme for Kullu- Manali-Mandi 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. Date of Meeting of Monitoring committee has not yet been decided.		-		-	-	-	-	-	-	-	-
7	Shimla-Solan IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. a separate meeting was conducted by NRPC Sectt. 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. 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, HPSLDC has intimated vide letter dated 06.01.2025 that expect 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 GE.											

											Approved Planned Outage-1			Actual Planned Outage-1		
Capacity (MW) 30-11-2023	Name of Station	UNIT_NM	STN_TYPE_ID	SECTOR	REGION_NM	ST_NM	SH_NM	IPP	FUEL_NM	Capacity (MW) 31-03-2025	Start Date	End Date	Reason	Start Date	End Date	Reason for any deviation
121.2	PRAGATI CCPP	3	T	STATE SECTOR	Northern	Delhi	PPCL	FALSE	NATURAL GAS	121.2	1-Mar-25	4-Mar-25	Boiler Inspection			
250	PRAGATI CCGT-III	5	T	STATE SECTOR	Northern	Delhi	PPCL	FALSE	NATURAL GAS	250	2-Feb-25	2-Mar-25	Boiler Inspection			
600	RAJIV GANDHI TPS	2	T	STATE SECTOR	Northern	Haryana	HPGCL	FALSE	COAL	600	1-Feb-25	17-Mar-25	AOH			
500	INDIRA GANDHI STPP	3	T	CENTRAL SECTOR	Northern	Haryana	APCPL	FALSE	COAL	500	23-Feb-25	1-Mar-25	Boiler License Renewal			
660	MAHATMA GANDHI TPS	1	T	IPP SECTOR	Northern	Haryana	JhPL(HR)	FALSE	COAL	660	10-Feb-25	31-Mar-25	Boiler Overhauling			
250	GH TPS (LEH.MOH.)	3	T	STATE SECTOR	Northern	Punjab	PSPCL	FALSE	COAL	250	10-Feb-25	26-Mar-25	COH			
700	RAJPURA TPP	2	T	IPP SECTOR	Northern	Punjab	NPL	FALSE	COAL	700	18-Feb-25	10-Mar-25	AOH			
220	RAJASTHAN A.P.S.	5	N	CENTRAL SECTOR	Northern	Rajasthan	NPCIL	FALSE	NUCLEAR	220	20-Feb-25	31-Mar-25	Binennial Shutdown			
600	KALISINDH TPS	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	600	1-Mar-25	21-Mar-25	AOH			
660	PRAYAGRAJ TPP	3	T	IPP SECTOR	Northern	Uttar Pradesh	PPGCL (Jaypee)	FALSE	COAL	660	15-Feb-25	18-Mar-25	AOH			
660	LALITPUR TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	LPGCL	FALSE	COAL	660	3-Feb-25	15-Mar-25	AOH			
500	SINGRAULI STPS	6	T	CENTRAL SECTOR	Northern	Uttar Pradesh	NTPC Ltd.	FALSE	COAL-P	500	15-Feb-25	31-Mar-25	COH			
500	RIHAND STPS	6	T	CENTRAL SECTOR	Northern	Uttar Pradesh	NTPC Ltd.	FALSE	COAL-P	500	7-Feb-25	13-Mar-25	AOH			
500	INDIRA GANDHI STPP	1	T	CENTRAL SECTOR	Northern	Haryana	APCPL	FALSE	COAL	500	1-Feb-25	17-Mar-25	COH			
45	MAQSOOD PUR TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	28-Feb-25	30-Mar-25	Boiler Overhauling			
45	KHAMBAR KHERA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	24-Feb-25	26-Mar-25	Boiler Overhauling			
45	KHAMBAR KHERA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	25-Feb-25	27-Mar-25	Boiler Overhauling			
45	BARKHERA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	26-Feb-25	28-Mar-25	Boiler Overhauling			
45	BARKHERA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	27-Feb-25	29-Mar-25	Boiler Overhauling			
45	KUNDARKI TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	28-Feb-25	30-Mar-25	Boiler Overhauling			
45	UTRAULA TPS	1	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	28-Feb-25	30-Mar-25	Boiler Overhauling			
45	UTRAULA TPS	2	T	IPP SECTOR	Northern	Uttar Pradesh	BEPL	FALSE	COAL	45	13-Feb-25	30-Mar-25	Boiler Overhauling			
135	JALIPA KAPURDI TPP	3	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	6-Mar-25	13-Mar-25	AOH			
135	JALIPA KAPURDI TPP	6	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	15-Mar-25	26-Mar-25	Boiler Inspection			
135	JALIPA KAPURDI TPP	7	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	25-Feb-25	4-Mar-25	Boiler Inspection			

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

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

Thermal Generators

Annexure-A.V

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Mode of Fuel Transport (Pit Head/Non 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			Revised Simulation Models		
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks	
1																																
2																																
3																																
4																																
5																																
6																																
7																																
8																																
9																																
10																																

Hydro Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Type (Pondage/RoR etc.)	Name of Utility	Sector	Control Area	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control			Revised Simulation Models		
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)					Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks	
1	Mahi Power House-I	UNIT-I	25 MW	27.778 MVA	BHEL, Bhopal	22/01/1986	11kV/132kV	31.5 MVA	3/5	RoR	RVUN	Power/ Energy																			
2	Mahi Power House-I	UNIT-II	25 MW	27.778 MVA	BHEL, Bhopal	06/02/1986	11kV/132kV	31.5 MVA	3/5	RoR	RVUN	Power/ Energy																			

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

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Type	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			Revised Simulation Models		
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks	

Gas Based Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			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			Revised Simulation Models	
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)					Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks

Renewable Energy Plants

S. No.	Name of Plant	Pooling Station Name	Installed Capacity	Type (Solar/Wind)	COD	Owner	Sector	Control Area	Inverter/ WTG Make	Inverter/ WTG Model	PPC Make	Real and Reactive Power Capability for Generator			Power Plant Controller Function Test			Frequency Response Test			Active Power Set Point change test			Reactive Power (Voltage / Power Factor / Q) Set Point change test			Revised Simulation Models		
												Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks	

HVDC Links

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

STATCOMs/SVCs

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

FSCs/TCSCs

S. No	End 1	End 2	Line No.	Compensator Location	Make	Fixed Compensation	Variable Compensation Positive	Variable Compensation Negative	Agency	Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC			Validation of response by FACTS devices as per settings.			Revised Simulation Models	
										Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks

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.			Revised Simulation Models	
							Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1																	
2																	

Agenda for OCC Meeting from APL, Kawai TPP:

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

400KV Kawai-Anta circuit -1 & 2 plays a very vital role in power evacuation in this power complex. Any interruption / disturbance in these lines is always a bottleneck for power evacuation. We carried out a thorough survey of line. We have been observing recurring issues concerning the integrity of transmission line towers and frequent failures of porcelain string insulators. These challenges are not only impacting the reliability of transmission network but also pose risks to system stability and maintenance efficiency.

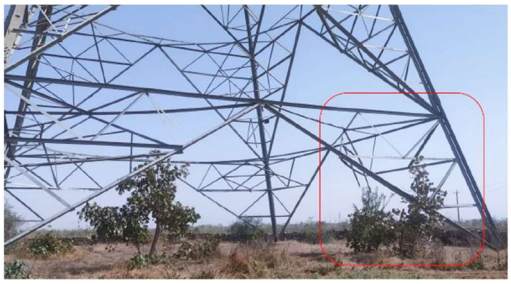
Key concerns to address:

1. Structural integrity of transmission towers
   - Towers (9 & 10) of 400KV Kawai-Anta D/C transmission line located at Ash Dyke area submerged in water permanently. This makes these towers more vulnerable to tower damage. It has become furthermore critical as this region is always exposed to heavy wind and thunderstorms.

   - Missing members in critical towers due to theft or unknown reasons, compromising stability.

Kawai-Anta D/C Transmission Lines Tower related Defect List:

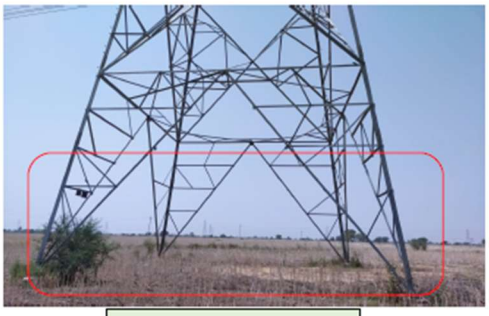
Observation-1- Tower No. 11: Members of tower been theft



Observation-2- Tower No. 17: Members of tower been theft

Tower No. 115

Tower No. 116

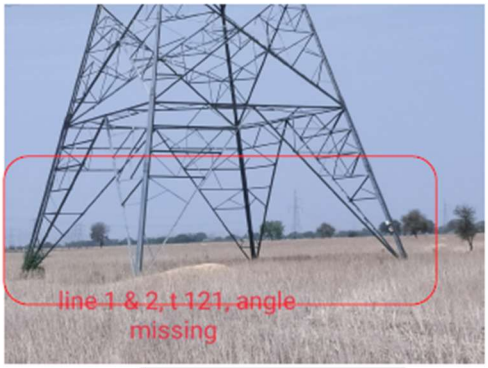


Tower No. 117

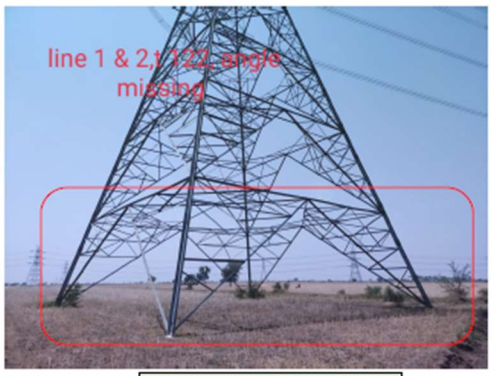
Tower No. 118

Tower No. 119

Tower No. 120



Tower No. 121



Tower No. 122

Observation-3- Tower No. 115 to 122: Members of tower been theft including anti climbing guard

Kawai-Chhabra S/C Transmission Lines Tower Related Defect List:

Tower No. 5: Member Missing

Tower No. 6: Member Missing

Tower No. 7: Member Missing

Tower No. 8: Member Missing

Tower No. 29: Member Missing

2. Frequent failures of porcelain insulators: (41 No's insulators failure observed in last 2 years)
   - Repeated failures of porcelain insulators leading to unplanned outage of transmission lines and maintenance efforts
   - Potential failure causes are identified. It may be quality issues or aging.
   - Need for exploring polymer insulators

Fault statistics of insulator failure for period last 2 Year (2023 & 2024) are as follows:

S. No.	Transmission line	No. of insulator failure			
		R-phase	Y-phase	B-phase	Total
1	400KV Kawai-Anta Line-1	11	5	1	17
2	400KV Kawai-Anta Line-2	12	9	3	24
				Grand Total	41

Communications held with RRVPNL are as follows:

- These issues were communicated on 09.04.2023 to SE T&C throgh email and requested for analysis of failures and necessary actions.
- Follow-up email shared on 20.09.2023 to get update for planned actions.
- Insulator failure incidents occurred shared through email 01.12.2023 & 04.12.2023 and requested for rectification of failed insulators.
- History of Insulator failure incidents occurred in last one year shared through email on 01.01.2024. Requested to update on actions planned.
- A visit was paid to SE T&C office for discussion on these issues on 10.01.2024.
- History of Insulator failure incidents occurred in last two years shared through email on 03.01.2025 and raised concerns.

National Load Despatch Centre
Import Capability of Uttar Pradesh for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-24	18450	600	17850	10165	7685		https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Limiting Constraints	N-1 contingency of 400/220kV Agra(PG), Mau, Panki ICTs							

National Load Despatch Centre
Import Capability of Haryana for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-24	10300	300	10000	5418	4582		https://hvpn.org.in/#/atcttc
Limiting Constraints	N-1 contingency of 400/220kV ICT at Deepalpur, Hisar, Kabulpur and Panipat(BBMB)							

National Load Despatch Centre
Import Capability of Rajasthan for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-24	7600	600	7000	5755	1245		https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
Limiting Constraints		N-1 contingency of 400/220kV Heerapura, Jodhpur, Bikaner, Ajmer, Merta, Hindaun and Ratangarh ICTs. Low voltage issues at Hindaun, Alwar, Bhinmal, Bikaner etc.						

National Load Despatch Centre
Import Capability of Delhi for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-24	7300	300	7000	4810	2190		https://www.delhisldc.org/resources/atcttcreport.pdf
Limiting Constraints	N-1 contingency of 400/220kV Mundka, HarshVihar and Bawana (bus-split) ICTs.							

National Load Despatch Centre
Import Capability of Uttarakhand for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-24	1810	100	1710	1402	308		https://uksldc.in/ttc-atc
Limiting Constraints		N-1 contingency of 400/220kV Kashipur ICTs. High loading of 220kV Roorkee-Roorkee and 220kV CBGanj-Pantnagar lines						

National Load Despatch Centre
Import Capability of HP for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-24	2386	100	2286	1181	1105		https://hpsldc.com/mrm_category/ttc-atc-report/
Limiting Constraints		Overloading of 2*100MVA Giri transformers						

National Load Despatch Centre
Import Capability of J&K for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-09 & 14-24	3500	100	3400	1977	1423		
	09-14	2800	100	2700	1977	723		
Limiting Constraints		N-1 contigency of 400/220KV ICTs at Amargarh 220 kV underlying network at Amargarh, Wagoora Low voltages in J&K control area due to high MVAR drawl						

National Load Despatch Centre
Import Capability of Chandigarh for May 2025

Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st May 2025 to 31st May 2025	00-24	480	20	460	342	118		
Limiting Constraints		N-1 contigency of 220kV Nallagarh-Kishengarh						

Minutes of meeting held on 04.04.2025 for feeders identification for SPS for summer 2025 (upto Sep 2025) in Delhi

General Manager, System Operation, NRLDC welcomed all the participants from DTL, Delhi SLDC, NRPC and POWERGRID.

NRLDC representative stated that as discussed in 229 OCC meeting held on 12.03.2025 and recent meeting held in NRPC on 02.04.2025 this meeting has been called 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.

Accordingly, possible feeders for each SPS were discussed:

1. **SPS for 765/400kV 1500*2 MVA ICTs @ Jhatikara (Dwarka – Bamnauli section)**

It was discussed that to avoid complete loss of 765/400kV 1500*2 MVA ICTs @ Jhatikara (Dwarka – Bamnauli section), it is needed to shed some load so that there is minimum disruption of supply.

As per simulation study following SPS load shedding quantum was envisaged :

2 X 1500 MVA 765/400kV ICTs @ Jhatikara (Dwarka - Bamnauli Section)	
Max cummulative loading reached during 2024	**N-1 Loading limit**
2400 MW	**1920 MW**
Case 1 : Loading of both ICTs > 1920 MW but < 2200 MW and 1 ICT trips **Load shedding required :** *Bamnauli : 580 MW or* *Dwarka : 580 MW or* *Tughlakabad : 1080 MW* **Case 2 : Loading of both ICTs > 2200* MW and 1 ICT trips** **Load shedding required :** *Bamnauli : 1200 MW or* *Dwarka : 1200 MW or* *Tughlakabad : 2250 MW*	

Case 1

Delhi SLDC and DTL submitted the following feeder wiring for load shedding:

1. **220kV Bamnauli – Pappankalan-1 D/C** and **220kV Dwarka – Pappankalan-1 D/C** (~350 MW)
2. **220kV Bamnauli – Najafgarh D/C** (~180 MW)

Total load relief for Case 1: ~530 MW

Minutes of meeting held on 04.04.2025 for feeders identification for SPS for summer 2025 (upto Sep 2025) in Delhi

Additional feeder details for load shedding could not be provided due to the mixed nature of loads on the remaining feeders.

Proposal for Case 2

Given this limitation, it was proposed during discussions that, to save grid from further contingency, **400kV Jhatikara – Bamnauli** line be tripped to compensate for the remaining load relief required.

POWERGRID representative stated that overload settings of 765/400kV ICT at Bamnauli is instantaneous (50ms) for 130% of loading. Therefore, quick load relief would be required incase of N-1 contingency of one ICT.

Furthermore, considering the possibility that the intended load relief may not be effectively harnessed in real-time, and to mitigate the risk of **further tripping of the remaining ICT due to overload based on past loading patterns**, it was agreed that **both Case 1 and Case 2 should be implemented as a single-stage**.

Detailed logic to be shared by NRLDC by 10.04.2025 for comments from DTL/Delhi SLDC/POWERGRID and to be finalised in upcoming OCC meeting.

2. SPS for 765/400kV 1500*2 MVA ICTs @ Jhatikara (Mundka section)

It was discussed that to avoid complete loss of 765/400kV 1500*2 MVA ICTs @ Jhatikara (Mundka section), it is needed to shed some load so that there is minimum disruption of supply.

As per simulation study following SPS load shedding quantum was envisaged :

2 X 1500 MVA 765/400kV ICTs @ Jhatikara (Mundka Section)	
Max cummulative loading reached during 2024	**N-1 Loading limit**
2470 MW	**1950 MW**
Case 1 : Loading of both ICTs > 1950 MW but < 2200 MW and 1 ICT trips **Load shedding required :** *Mundka : 520 MW* **Case 2 : Loading of both ICTs > 2200* MW and 1 ICT trips** **Load shedding required :** *Mundka : 1150 MW*	

Case 1

Delhi SLDC and DTL submitted the following feeder wiring for load shedding:

Minutes of meeting held on 04.04.2025 for feeders identification for SPS for summer 2025 (upto Sep 2025) in Delhi

1. **220kV Mundka – Najafgarh** and **220kV Mundka – Kanjhawala** (~180 MW)
2. **160MVA Transformers 2 & 3** of the existing SPS of 400/220kV ICTs at Mundka(~230 MW)

Total load relief for Case 1: ~410 MW

Case 2

In the event of an **N-1 contingency of a 1500MVA ICT**, when the combined loading of both ICTs exceeds **2200 MW**, the remaining ICT may trip on overload unless additional load shedding is implemented. Failure to do so could lead to critical overloading of the **2 × 1500 MVA ICTs** at Jhatikara (Dwarka-Bamnauli section), potentially causing a cascading failure of all **765/400kV ICTs** at Jhatikara, affecting approximately **50% of Delhi's power supply**.

To mitigate this risk, **all members** agreed to implement additional load shedding beyond Case 1:

- **220kV Mundka – Peeragarhi** (~400 MW)

Total load relief: 410 MW (Case 1) + 400 MW = **~810 MW*.**

*NRLDC and Delhi SLDC to take immediate measures in real-time such as opening of 400kV lines from Bawana supplying power to Haryana (400kV Bawana-Deepalpur or 400kV Bawana-Abdullapur based on loading) to normalise loading of 765/400kV Jhatikara ICTs (Mundka section) and restore load which had shed through SPS.

Detailed logic to be shared by NRLDC by 10.04.2025 for comments from DTL/Delhi SLDC/POWERGRID and to be finalised in upcoming OCC meeting.

3. SPS for 400/220kV 2*500+2*315MVA ICTs @ Maharanibagh

Delhi SLDC and DTL submitted following feeder list for wiring in SPS:

- 220kV Maharanibagh – Gazipur D/C (~160MW)
- 220kV Maharanibagh – Masjid Mod D/C (~60 MW)

Detailed logic to be shared by NRLDC by 10.04.2025 for comments from DTL/Delhi SLDC/POWERGRID and to be finalised in upcoming OCC meeting.

4. SPS for 400/220kV 4*500 @ Mandola

Delhi SLDC and DTL submitted following feeder list for wiring in SPS:

- 220kV Mandola – Narela D/C (~160MW)

Minutes of meeting held on 04.04.2025 for feeders identification for SPS for summer 2025 (upto Sep 2025) in Delhi

Detailed logic to be shared by NRLDC by 10.04.2025 for comments from DTL/Delhi SLDC/POWERGRID and to be finalised in upcoming OCC meeting

SPS logics to be reviewed after complete commissioning of 765/400KV Narela substation.

Action Points:

Detailed logic to be shared by NRLDC by 10.04.2025 for comments from DTL/Delhi SLDC/POWERGRID and to be finalised in upcoming OCC meeting

Based on feeder details provided by Delhi SLDC/DTL, works for implementation of SPS to be started by POWERGRID from 05.04.2025 itself such that SPS gets implemented by 30th April 2025.

Participant list:

Joint discussion and Study Result finalization for implementation of SPS Scheme for Jhatikara,Maharanibagh and Mandola ICTs					
Yamuna Conference Hall, First Floor, Date 04.04.2025					
Sl. No.	**Name**	**Organization**	**Email ID**	**Mobile No.**	**Signature**
1	BIKAS KUMAR JHA	NRLDC	bikaskjha@grid-india.in	9599225814	
2	NEELMANI ANAND	SLDC, HARYANA	neelmaniseldc@gmail.com	3541090871	
3	PANKAJ KUMAR JHA	POWERGRID	Pankaj.Jha@powergrid.in	9634440121	
4	SUNIL AHARWAL	NRLDC	skaharwal@grid-india.in	7738254040	
5	Omkishor	NRPC	omkishor.sahu@gov.in	9179608590	
6	ASHOK KUMAR	SLDC, Delhi	ashok.kumar3@dtl.gov.in	9999533935	
7	नवीन कुमार	दि.मा.पु.लि. दिल्ली	sldelminto roadegmail.com	9999423273	
8	B.L. Gujar	DTL	bl.gujar@dtl.gov.in	9999533985	
9	Gaurav Singh	NRLDC	gauravsingh@grid-india.in	9015194202	
10	GAURAV MALVIYA	NRLDC	gauravmaliya@grid-india.in	9599441301	
11					
12					
13					
14					
15					

SPS logics as discussed in meeting held on 04.04.2025 between NRLDC, NRPC, POWERGRID, DTL and Delhi SLDC

SPS logic for 765/400kV Jhatikara(PG) substation: Dwarka-Bamnauli lines

Item	Information Explanation
Reporting Party	POWERGRID/DTL
Scheme's Name	SPS for Transformers at **765/400kV Jhatikara(PG) substation: Dwarka-Bamnauli lines** section
Classification	SPS related to overloading of Transformers
Operation	Load shedding to avoid overloading of running transformer
Modelling	**Transformer Details: - 2 x 1500 MVA=3000 MVA** **Case-1:** Total antecedent loading on both 765/400kV transformers (ICT-1 and ICT-2) at Jhatikara (PG) crosses 1900MW and below 2200MW continuously for 5 seconds **and** one ICT trips: **Instantaneously tripping of following feeders under SPS operation** a) 220kV Bamnauli – Pappankalan-1 D/C and 220kV Dwarka – Pappankalan-1 D/C (~350 MW) b) 220kV Bamnauli – Najafgarh D/C (~180 MW) **Case-2:** Total antecedent loading on both 765/400kV transformers (ICT-1 and ICT-2) at Jhatikara (PG) crosses 2200MW continuously for 5 seconds **and** one ICT trips: **Instantaneously tripping of following feeders under SPS operation** a) 220kV Bamnauli – Pappankalan-1 D/C and 220kV Dwarka – Pappankalan-1 D/C (~350 MW) b) 220kV Bamnauli – Najafgarh D/C (~180 MW) c) 400kV Jhatikara-Bamnauli line from 400kV Jhatikara end.
Original In-Service Year/ Approved date	NA
Recent Assessment Group	POWERGRID/ DTL/ NRLDC/ NRPC
Recent Assessment Date	04.04.2025

SPS logics as discussed in meeting held on 04.04.2025 between NRLDC, NRPC, POWERGRID, DTL and Delhi SLDC

SPS logic for 765/400kV Jhatikara(PG) substation: Mundka lines section

Item	Information Explanation
Reporting Party	POWERGRID/ DTL
Scheme's Name	SPS for Transformers at **765/400kV Jhatikara(PG) substation: Mundka lines** section
Classification	SPS related to overloading of Transformers
Operation	Load shedding to avoid overloading of running transformer
Modelling	**Transformer Details: - 2 x 1500 MVA=3000 MVA** **Case-1:** Total antecedent loading on both 765/400kV transformers (ICT-3 and ICT-4) at Jhatikara (PG) crosses 1900MW and below 2200MW continuously for 5 seconds **and** one ICT trips: **Instantaneously tripping of following feeders under SPS operation** a) 220kV Mundka – Najafgarh and 220kV Mundka – Kanjhawala (~180 MW) b) 160MVA ICT 2 & 3 of the existing SPS logic of 400/220kV ICTs at Mundka(~230 MW) **Case-2^:** Total antecedent loading on both 765/400kV transformers (ICT-1 and ICT-2) at Jhatikara (PG) crosses 2200MW continuously for 5 seconds **and** one ICT trips a) 220kV Mundka – Najafgarh and 220kV Mundka – Kanjhawala (~180 MW) b) 160MVA ICT 2 & 3 of the existing SPS logic of 400/220kV ICTs at Mundka(~230 MW) c) 220kV Mundka – Peeragarhi ckts. (400MW) ^NRLDC and Delhi SLDC to take immediate measures in real-time such as opening of 400kV lines from Bawana supplying power to Haryana (400kV Bawana-Deepalpur or 400kV Bawana-Abdullapur based on loading) to normalise loading of 765/400kV Jhatikara ICTs (Mundka section) and restore load which had shed through SPS
Original In-Service Year/ Approved date	NA

SPS logics as discussed in meeting held on 04.04.2025 between NRLDC, NRPC, POWERGRID, DTL and Delhi SLDC

Item	Information Explanation
Recent Assessment Group	POWERGRID/ DTL/ NRLDC/ NRPC
Recent Assessment Date	04.04.2025

SPS logic for 400/220kV Mandola(PG)

Item	Information Explanation
Reporting Party	POWERGRID/ DTL
Scheme's Name	SPS for Transformers at Mandola (PG) substation
Classification	SPS related to overloading of Transformers
Operation	Load shedding to avoid overloading of running transformers (complete load loss)
Modelling	**Transformer Details: - 4 x 500 MVA=2000 MVA** **Case-1:** Loading on any of 400/220kV transformer at 400/220kV Mandola(PG) crosses 95% of their rated capacity for 3 seconds **Feeder details for tripping during SPS operation** a) 220kV Mandola-Narela ckt-1&2 (~160MW)
Original In-Service Year/ Approved date	27-11-2010 (Approved Date), Not in service; SPS was disabled by POWERGRID suo-motto after ICT augmentation.
Recent Assessment Group	POWERGRID/ DTL/ NRLDC/ NRPC
Recent Assessment Date	04.04.2025

SPS logics as discussed in meeting held on 04.04.2025 between NRLDC, NRPC, POWERGRID, DTL and Delhi SLDC

SPS logic for 400/220kV Maharanibagh(PG)

Item	Information Explanation
Reporting Party	POWERGRID/ DTL
Scheme's Name	SPS for Transformers at Maharanibagh (PG) substation
Classification	SPS related to overloading of Transformers
Operation	Load shedding to avoid overloading of running transformers (complete load loss)
Modelling	**Transformer Details: - 2 x315 + 2 x 500 MVA=1630 MVA** **Case-1:** Loading on any of 400/220kV transformer at 400/220kV Maharanibagh(PG) crosses 95% of their rated capacity for 3 seconds **Feeder details for tripping during SPS operation** a) 220kV Maharanibagh – Gazipur ckt-1&2 (~160MW) b) 220kV Maharanibagh – Masjid Moth ckt-1&2 (~60 MW)
Original In-Service Year/ Approved date	27-11-2010 (Approved Date), Not in service; SPS was disabled by POWERGRID suo-motto after ICT augmentation.
Recent Assessment Group	POWERGRID/ DTL/ NRLDC/ NRPC
Recent Assessment Date	04.04.2025

Annexure-B.III

एनएचपीसी लिमिटेड
(भारत सरकार का एक नवरत्न उद्यम)
NHPC Limited
(A Government of India Navratna Enterprise)

ट्रांसमिशन एवं रूरल इलेक्ट्रिफिकेशन विभाग
Transmission and Rural Electrification Division
एनएचपीसी ऑफिस कॉम्प्लेक्स, सैक्टर-33,
फ़रीदाबाद (हरियाणा)-121003
NHPC Office Complex, Sector-33,
Faridabad (Haryana)-121003
ईमेल/Email: trenhpc@nhpc.nic.in

संदर्भ /Ref No : NH/T&RE/Parbati-II HEP/2025/ 882 दिनांक/ Date : 20.03.2025

Chief General Manager (NRLDC)
Northern Regional Load Despatch Centre
18-A, Shaheed Jeet Singh Sansanwal Marg,
Katwaria Sarai,
New Delhi -110016

Sub: Evacuation of full quantum of power (800 MW) from Parbati-II HEP w.e.f 1st April 2025

Sir,

This has reference to the matter regarding evacuation of full quantum of power i.e. 800 MW to be generated from Parbati-II HEP w.e.f 01.04.2025. In this regard, it is to intimate that connection agreement in respect of Parbati-II (800 MW) HEP has been signed well before CERC GNA Regulations 2022 came into effect. The Connection offer (CON-5) for connection of Parbati-II (800 MW) HEP of NHPC to ISTS was issued by PGCIL vide letter No. C/CTU/N/Parbati-II/CON-5 dated 13.04.2017. Subsequently, Connection Agreement between NHPC, PKTCL and PGCIL was signed on 13.04.2017 for connection of Parbati-II (800 MW) HEP of NHPC to ISTS. Thereafter, in-firm power generated from Parbati-II HEP is already being injecting through the existing system into grid since year 2018.

Further, it is pertinent to mention here that commissioning activities of all four units (to their full capacity) of Parbati-II HEP, are in full swing and is scheduled to be completed by the end of this month (i.e. 31.03.2025). NHPC has already served notice to NRLDC (Copy enclosed) for trial run of units of Parbati-II HE Project as per Regulation 21 of CERC (IEGC) Regulations 2023 and all the units of Parbati-II HE Project are expected to be declared under Commercial Operation from 0000 hours of 01.04.2025 of their trial run. Once all four units of Parbati-II (800 MW) HEP are declared under Commercial Operation, generation of Parbati-III Power Station to its full capacity i.e. 520 MW shall also be achieved.

Regarding power evacuation of Parbati-II HEP, CTUIL vide their email dated 19.12.2023 has intimated the following:

"As informed in the 23rd CMETS NR meeting (held on 29.08.2023) and subsequent in-principle grant of connectivity, for effectiveness of GNA of Parbati-II HEP (800 MW), 400/220 kV ICT(4th) at

एनएचपीसी लिमिटेड
(भारत सरकार का एक नवरत्न उद्यम)
NHPC Limited
(A Government of India Navratna Enterprise)

ट्रांसमिशन एवं रूरल इलेक्ट्रिफिकेशन विभाग
Transmission and Rural Electrification Division
एनएचपीसी ऑफिस कॉम्प्लेक्स, सैक्टर-33,
फ़रीदाबाद (हरियाणा)-121003
NHPC Office Complex, Sector-33,
Faridabad (Haryana)-121003
ईमेल/Email: trenhpc@nhpc.nic.in

Nallagarh PS is required which is already awarded with implementation schedule of 08/06/2025.(MOM of 23rd CMETS NR meeting and In-principle grant of connectivity issued by CTUIL are enclosed).

However, in case generation project is commissioned earlier on 30.06.2024, as per 22.4 (a) of GNA Regulations, NHPC shall be eligible to get its power scheduled partly or fully of the quantum of Connectivity (800 MW), subject to availability of transmission system by treating such access as deemed T-GNA. (A Copy of email is enclosed).

Further, as mentioned in the CERC (Indian Electricity Grid Code) Regulations, 2023 under clause 45 (5)(iii), you may request RLDC for consideration under Regulation 22.4 of the GNA Regulations, if applicable." (A Copy of email is enclosed).

Accordingly, CTUIL has intimated that effectiveness of GNA shall be from 08.06.2025 as per final grant of connectivity issued by CTUIL on 15.03.2024. (Final grant of connectivity issued by CTUIL is enclosed).

In view of above, NRLDC is requested to take necessary steps to assure evacuation of full quantum of power from Parbati-II (800 MW) HE Project w.e.f. 01.04.2025 besides the evacuation of full capacity of power of Parbati-III (520 MW) HEP.

Thanking You,

Yours Sincerely,

20/03/2025

(M.P.Dinkar)
General Manager (T&RE)

Copy to:

1. **Member Power System, CEA (PSPA-I Division)**
2. **Chief Operating Officer, CTUIL**
3. **Executive Director (CMG), PGCIL**
4. **Executive Director (O&M) Division, NHPC**
5. **Executive Director, HOP, NHPC Parbati-II HEP**
6. **General Manager (E) (Commercial Division) NHPC**

ग्रिड-इंडिया GRID-INDIA
ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
भारत सरकार का उद्यम
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
उत्तर क्षेत्रीय भार प्रेषण केन्द्र / Northern Regional Load Despatch Centre
कार्यालय : 18-ए, शहीद जीत सिंह सनसनवाल मार्ग, कटवारिया सराय, नई दिल्ली-110016
Office : 18-A, Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi-110016
CIN : U40105DL2009GOI188682, Website : www.nrldc.in, E-mail : nrldc@grid-india.in, Tel: 011 26519406, 26523869, Fax: 011 26852747

संदर्भ सं°: उ0क्षे0भा0प्रे0कें0/प्र0सं0/151/694 **दिनांक** : 08.04.2025

सेवा मे,

1. ISTS Transmission licensees
2. State Transmission Utilities and GENCOS (Through SLDC)
3. ISGS Plants
4. SLDC Heads, Northern Region

विषय : Preparedness for upcoming summer months- Operational planning, Resource Adequacy, Transmission line management and Grid stability regarding.

Ref: 1. NRLDC letter उ0क्षे0भा0प्रे0कें0/प्र0सं0/151/75-80/670 dated 18.03.2025
2. NLDC letter NLDC/SO-I/ dated 02.04.2025

महोदय / महोदया,

Please refer to the letter referred above regarding summer preparedness, operational planning, resource adequacy and maintenance of transmission lines to ensure grid stability.

IMD vide its latest forecast dated 31.03.2025 has forecasted above normal number of heatwave days likely to occur in the Northern part of the country. Please refer https://mausam.imd.gov.in/newdelhi/ for weather related updates. As you would be aware that last year continuous heat wave in summers led to record Northern Region demand leading to stressed power infrastructure.

Further Northern Region demand is expected to reach a record high **99000 MW** this summer and the same has been communicated and discussed at various OCC and NRPC forums. **NLDC** vide its letter dated 02.04.2025 as referred above has advised to for summer preparedness in view of higher-than-average temperature forecasted by IMD and take suitable measures for transmission line management and grid stability. Stakeholders are again requested to take following measures for ensuring reliable grid operation:

1. Expedite revival of generating units to meet the increased demand and avoid outages due to any planned activity in this summer season.
2. Meticulous load forecasting on daily/weekly/monthly basis and portfolio management.
3. Maintain drawl from grid as per schedule.
4. Maximize intra state generation including intra-state hydro generation.
5. All generators are advised to maintain injection as per their schedule and avoid under injection during low frequency period.
6.Ensuring fuel adequacy including RLNG and liquid fuel for all Thermal/Gas plants in coordination with concerned authority.
7. Restrict the load variation to the tune of limits specified in IEGC through staggering of load connection/disconnection.

8. ADMS to be kept in service to avoid overdrawl during low frequency conditions.
9. All the defence mechanism like UFR, df/dt, UVLS, SPS etc. to be in service and in healthy condition.
10. Resource Adequacy guidelines issued by CEA to be adhered.
11. Tie up with neighbouring states or hydro rich states to balance portfolio.
12. Ensuring availability of quantum of secondary/tertiary reserve at the state control area
13. Maintaining voltage profile of the network under control area of stakeholders and not leaning on grid for MVAR support. Further taking all necessary precautions to avoid low voltages during summer months.
14. Utilities to update and share coal stock position of thermal plants at least a week in advance.
15. Carry out mock testing of SPS at the earliest.

Further in order to ensure system reliability & stability, transmission licensees are advised to urgently undertake the following measures:

1. Timely completion of planned preventive maintenance of transmission elements with identification of hotspots, conductor sag etc.

2. Clear the Right of Way (RoW) with vegetation as per Govt. norms to avoid flashovers, faults and fire induced failures.

3. Real time patrolling and surveillance through drone to take care of anomalies such as broken strands, hotspots and undesirable sag of conductors.

4. Fire safety guidelines to be adhered and readiness to be ensured to take care of any untoward incident.

5.Inventory management to be given priority to enable rapid response and rectification work as per requirement.

6. Ensuring availability and functionality of synchronizing equipment and trained personnel at all stations and control centre for analysing relay indications in case of faults.

Your cooperation shall be highly appreciated for maintaining the Grid parameters within permissible limits.

सादर धन्यवाद

Encl: Copy of Advisory letters referred above.

सुनील कुमार अहरवाल
महाप्रबंधक (प्रणाली संचालन)
उत्तरी क्षेत्र भार प्रेषण केंद्र,नई दिल्ली

विनम्र सूचनार्थ :

1. सदस्य सचिव, उत्तरी क्षेत्र विद्युत् समिति, नई दिल्ली
2. कार्यपालक निदेशक, उत्तरी क्षेत्र भार प्रेषण केंद्र, नई दिल्ली
3. कार्यपालक निदेशक, राष्ट्रीय भार प्रेषण केंद्र, नई दिल्ली
4. मुख्य महाप्रबंधक (प्रणाली संचालन), उत्तरी क्षेत्र भार प्रेषण केंद्र, नई दिल्ल

ग्रिड-इंडिया GRID-INDIA
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संदर्भ सं°: उ0क्षे0भा0प्रे0कें0/प्र0सं0/151/75-80/670 दिनांक : 18 मार्च 2025

सेवा मे,

As per distribution list

विषय : Operational planning and Grid Security during high demand period.

महोदय/महोदया,

With the onset of summer season and dry weather in the Northern Region, the Northern Region demand is expected to reach its record high this season also. With the increase in temperature and humidity, demand of Northern Region starts increasing particularly the increase in air-conditioning and cooling loads. There has been continuous growth over the years. Last year in 2024 average Northern region energy consumption was higher by 12%, 30%, 24% & 16% in April, May, June & July respectively compared to previous year 2023. This year also it is expected that maximum demand met, and energy consumption of Northern region will reach its record high. The demand of February and March is already on the higher side compared to previous year, (Feb 2025 demand 6% more than Feb 2024). Demand Plot of 2023,2024 & 2025 attached as **Annexure-I**. The heat wave conditions at isolated places in Rajasthan is being observed in early March itself.

Further, as on 18.03.2025, approx. **11822 MW generation is under outage** (planned + forced) in Northern region (**details at Annexure-II**):

Regional Generation Outage Summary (MW) as on 18.03.2025			
	Planned Outage (MW)	Forced Outage (MW)	Total (MW)
Central Sector	4089	640	4729
State Sector	3023	4070	7093
Total Outage (MW)	7112	4710	**11822**

In view of the increasing peak demand which is forecasted to reach its peak of approx. 99000 MW this summer season of Northern Region all NR states are requested to ensure the following to ensure the stability of grid operations:

1. Expedite revival of intra-state generating units including gas units which are under planned/forced outage, to maintain sufficient spinning reserves. Also explore the possibility of bringing on-bar gas based generating stations (ISGS) and schedule of URS in Anta, Auraiya, Dadri available in RLNG to meet high demand. Moreover, too much reliance on DAM/RTM should be avoided specially during high demand period. Please note that hon'ble CERC had conducted a meeting on 14.02.2025 with all NR SLDCs, NRLDC and NRPC to review the actions being taken at SLDC end on measures related to resource adequacy. It was advised that for meeting the required deficit for the upcoming peak months, the states should do advance planning for power procurement including bilateral contract and short-term contract. The States should not be dependent on RTM/ DAM Purchases which was also discussed in detail in OCC 229 meeting of NRPC.

2. Meticulous load forecasting and operational planning may be carried out on daily/weekly/monthly basis, and portfolio management may be done through purchase/sale of power in the market and requisition of available URS in ISGS may also be explored.

3. Maintain drawl from the Grid as per schedule by proper ramping of on-bar own generation in consonance with the demand variation, to mitigate over-drawl/load shedding.

4. Maximize intra-state generation including hydro generation during evening & morning peak hours. The hydro optimization of NR ISGS plants (Installed capacity **-19017 MW**) is already being carried out by NRLDC. The state sector in NR has also installed capacity of **13630 MW and the same needs to be optimized by SLDCs to get maximum benefits in the upcoming high demand season.**

5. All generators are advised to maintain injection as per schedule and avoid under-injection during low frequency period.

6. Ensure fuel adequacy including RLNG and liquid fuel for all thermal/Gas plants in coordination with concerned authority.

7. Restrict the load variation to the tune of limits specified in IEGC through staggering of load connection/disconnection.

8. ADMS (automatic demand management system) to be kept in service to avoid over-drawl during low frequency conditions and power portfolio management may be done meticulously. All the defence mechanism like UFR, df/dt, SPS shall be ensured to be in service and in healthy condition.

Further, some of the key actions that were agreed in past OCC meetings for ensuring safe and secure grid operation during summer months are listed below. It is requested that all concerned may be advised to adhere to these measures for safe and secure grid operation:

- Resource Adequacy guidelines issued by the CEA outline the roles and responsibilities of all stakeholders and provide a framework for RA planning in India. Further, vide Clause 3.2 of Section-3 of CEA Guidelines for Resource Adequacy NLDC has already published a one-year look-ahead Short-term National Resource Adequacy Plan. Significant periods of unmet demand are particularly observed during May and June 2025 thus emphasizing the need for reinforcing the need for planned outage optimization and the importance of integrating flexible generation resources to enhance system adequacy and mitigate supply shortages (Link:https://posoco.in/en/download/short-term-national-resource-adequacy-plan-2025-26/?wpdmdl=60728).

- Apart from GNA/Market arrangements based on forecast, other short-term arrangements should also be planned for real time imbalances including 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.

- Regular monitoring of weather websites for weather forecast information and planning load generation balance accordingly. In case of forecasted thunderstorm or wind storm, generation may be timely backed down so as to avoid any under drawl, high frequency operation of the grid and wastage of precious fuel.

- As per IEGC 2023 clauses, each state control area needs to ensure the availability of the quantum of secondary/ tertiary reserve at the State control area with due regard to the quantum as published by NLDC. NLDC published quantum for 2025-26 is available @ https://posoco.in/en/download/reserves-requirement-of-sras-and-tras-for-2025-26/?wpdmdl=60648. The status is to be furnished to the concerned RLDC and NLDC two days before the day of scheduling.

- In view of high/increasing demand & transmission constraints (if any) in importing the power or in case of any contingency in the system, states to maximize their internal generation to avoid low frequency/low voltage operation or other related issues.

- States to take actions to ensure backing down of thermal generation as per latest regulations issued by CEA regarding thermal plants flexible operation. Non-action by intrastate generators leads to under drawl from grid in case of thunderstorms/ load crash. It becomes all the more important for the states to back down to 55% or below of their MCR.

- Utilities to update & share coal stock position of thermal plants at least a week in advance as agreed earlier in TCC/NRPC meeting, especially in case of anticipation of low coal stock.

- Take all necessary precautions to avoid any issues arising due to low voltages during summer months.

- All state control area/Users shall ensure that their protection and defense system are in working conditions and settings are as per the recommendations of NRPC. It is also suggested to carry out mock testing exercise of important SPS in Northern Region including under state control area and explore SPS requirement for meeting contingency during summer demand.

During the high demand season, the transmission system also 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.

Cooperation from all stakeholders is highly solicited for safe, secure and reliable Grid operation and for ensuring smooth and reliable system operation through proper load-generation balancing and judicious management of power portfolio.

सादर धन्यवाद

सुनील कुमार अहरवाल
महाप्रबंधक (प्रणाली संचालन)
उत्तरी क्षेत्र भार प्रेषण केंद्र,नई दिल्ली

विनम्र सूचनार्थ :

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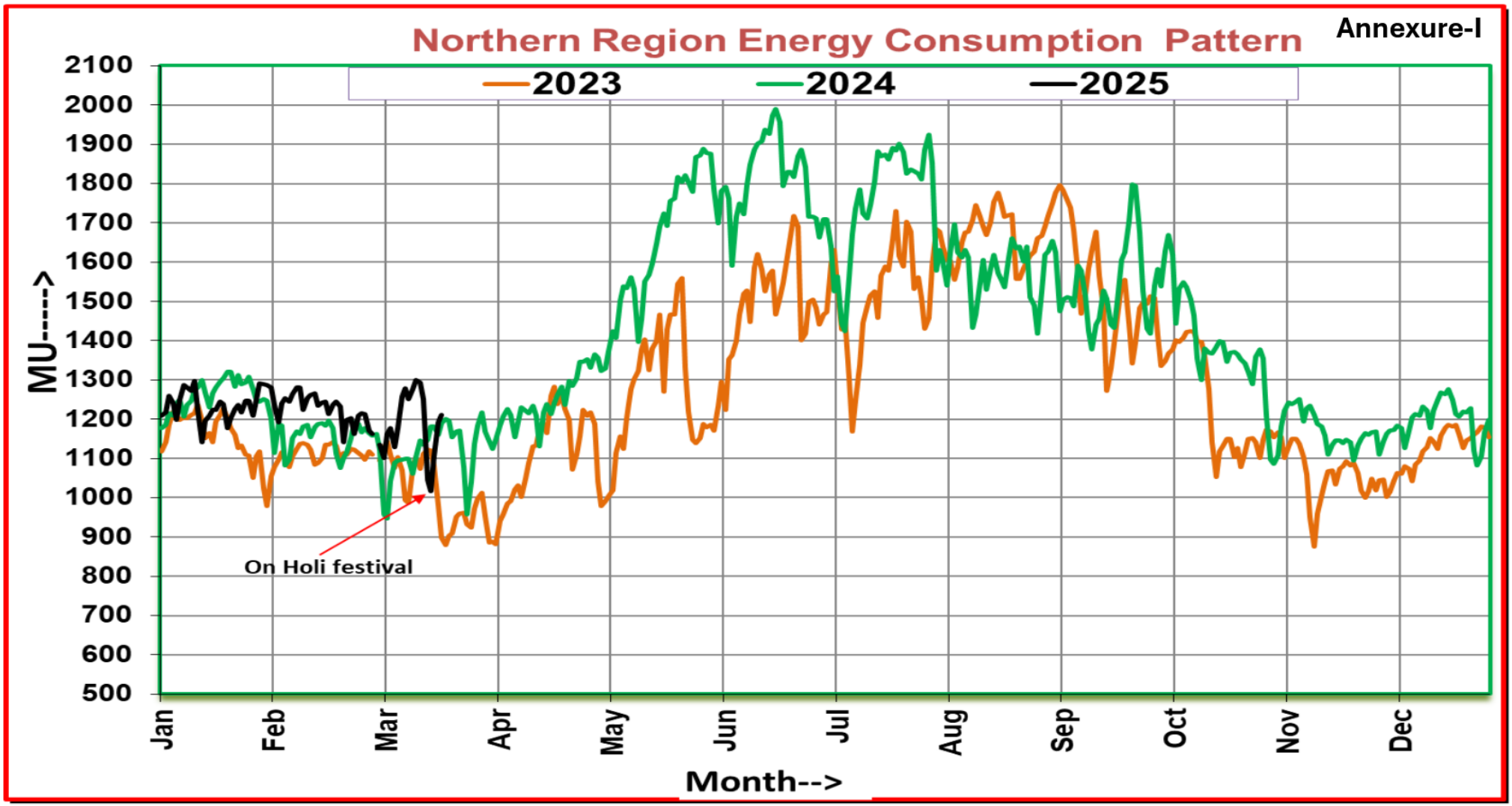
Distribution List :

1. Head of Generating Plants in Northern Region
2. Head of SLDCs in Northern Region

Annexure-I


Northern Region Energy Consumption Pattern
2023
2024
2025
MU---->
2100
2000
1900
1800
1700
1600
1500
1400
1300
1200
1100
1000
900
800
700
600
500
On Holi festival
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month-->

Generating Unit Outage Report 18-03-2025

Annexure-II

A. Planned Outages

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Expected Revival Date	Daily / Continuous
							Date	Time		
	Central Sector (CS)									
1	RAPS-A	RAJASTHAN	NPCIL	1	100	Subject to regulatory clearance. Unit is to be decommissioned.	09-10-2004	22:58	01-01-2030	C
2	Faridabad GPS	HARYANA	NTPC,HVPNL	2	138	Reserve Shutdown . Unit got decoupled and could not be operated in combined cycle so as per NLDC advice it was desynch at 21:29 hrs.	24-06-2024	21:29	-	C
3	Faridabad GPS	HARYANA	NTPC,HVPNL	3	156	Reserve Shutdown	28-06-2024	01:16	-	C
4	Faridabad GPS	HARYANA	NTPC,HVPNL	1	138	Reserve Shutdown	28-06-2024	01:24	-	C
5	Dadri GPS	UP	NTPC	5	155	Reserve Shutdown	18-12-2024	08:23	-	C
6	Auraiya GPS	UP	NTPC	6	109	Reserve Shutdown	18-12-2024	09:02	-	C
7	Auraiya GPS	UP	NTPC	5	109	Reserve Shutdown	18-12-2024	09:05	-	C
8	Dadri GPS	UP	NTPC	6	155	Reserve Shutdown	18-12-2024	09:05	-	C
9	Anta GPS	RAJASTHAN	NTPC	4	153	Reserve Shutdown	18-12-2024	09:27	-	C
10	RAPS-A	RAJASTHAN	NPCIL	2	200	Annual Maintenance Biannual planned shutdown, major jobs are planned in Nuclear side.	31-12-2024	21:44	31-03-2025	C
11	Parbati III HEP	HP	NHPC	3	130	Annual Maintenance	29-01-2025	10:17	25-03-2025	C
12	ISTPP (Jhajjar)	HARYANA	APCPL	1	500	Over hauling	31-01-2025	23:02	25-03-2025	C
13	AD hydro	HP	ADHPL	1	96	Annual Maintenance Approved planned Shutdown taken for replacement of CC lead.	06-02-2025	10:15	18-03-2025	C
14	Salal HPS	J&K	NHPC	2	115	Annual Maintenance	12-02-2025	10:00	22-03-2025	C
15	Singoli Bhatwari HEP	UTTARAKHAND	Singoli(LTUH	2	33	Annual Maintenance	13-02-2025	11:00	18-03-2025	C
16	RAPS-C	RAJASTHAN	NPCIL	1	220	Annual Maintenance for Biannual maintenance activities.	16-02-2025	23:55	28-03-2025	C
17	Tanakpur HPS	HP	NHPC	3	31	Annual Maintenance	22-02-2025	09:00	23-03-2025	C
18	Dadri GPS	UP	NTPC	2	130	Over hauling (OCC approved Overhauling of GT-2).	26-02-2025	06:00	31-03-2025	C
19	Dhauliganga HPS	UTTARAKHAND	NHPC	3	70	Annual Maintenance	02-03-2025	09:30	22-03-2025	C
20	Auraiya GPS	UP	NTPC	4	111	Reserve Shutdown	11-03-2025	10:27	-	C
21	Auraiya GPS	UP	NTPC	3	111	Reserve Shutdown	11-03-2025	10:29	-	C
22	Auraiya GPS	UP	NTPC	2	111	Reserve Shutdown	12-03-2025	23:13	-	C
23	Anta GPS	RAJASTHAN	NTPC	1	89	Reserve Shutdown	12-03-2025	23:13	-	C
24	Auraiya GPS	UP	NTPC	1	111	Reserve Shutdown	12-03-2025	23:13	-	C
25	Anta GPS	RAJASTHAN	NTPC	2	89	Reserve Shutdown	12-03-2025	23:14	-	C
26	Anta GPS	RAJASTHAN	NTPC	3	89	Reserve Shutdown	12-03-2025	23:14	-	C
27	Dadri GPS	UP	NTPC	4	130	Reserve Shutdown	12-03-2025	23:17	-	C
28	Dadri GPS	UP	NTPC	3	130	Reserve Shutdown	12-03-2025	23:21	-	C
29	Dadri GPS	UP	NTPC	1	130	Reserve Shutdown	12-03-2025	23:23	-	C
30	Karcham Wangtoo HPS	HP	JSW	2	250	Annual Maintenance	17-03-2025	00:00	28-03-2025	C
	Sub Total (CS)				4089					
	State Sector (SS)									
1	Pampore GT St - II	J&K	PDD JK	4	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-	C
2	Pampore GT St - I	J&K	PDD JK	3	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-	C
3	Pampore GT St - II	J&K	PDD JK	1	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-	C
4	Pampore GT St - I	J&K	PDD JK	1	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-	C
5	Pampore GT St - II	J&K	PDD JK	2	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-	C
6	Pampore GT St - I	J&K	PDD JK	2	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-	C
7	Pampore GT St - II	J&K	PDD JK	3	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-	C
8	Rithala GPS	DELHI	DTL	3	36	Reserve Shutdown (Plant Life is over as per DERC Order dated 31.08.2017)	31-03-2018	00:00	-	C
9	Rithala GPS	DELHI	DTL	1	36	Reserve Shutdown (Plant Life is over as per DERC Order dated 31.08.2017)	31-03-2018	00:00	-	C
10	Rithala GPS	DELHI	DTL	2	36	Reserve Shutdown (Plant Life is over as per DERC Order dated 31.08.2017)	31-03-2018	00:00	-	C
11	SEPL GPS	UTTARAKHAND	PTCUL	2	75	As per Instruction of SLDC Uttrkahnd (due to high price)	30-06-2023	15:27	-	C
12	Dholpur GPS	RAJASTHAN	RRVPNL	3	110	Reserve Shutdown	31-07-2024	22:29	-	C
13	Dholpur GPS	RAJASTHAN	RRVPNL	2	110	Reserve Shutdown	01-10-2024	23:59	-	C
14	Dholpur GPS	RAJASTHAN	RRVPNL	1	110	Reserve Shutdown	01-10-2024	23:59	-	C
15	Goindwal(GVK)	PUNJAB	PSPCL	1	270	Annual Maintenance	29-01-2025	00:01	01-04-2025	C
16	RGTPP(Khedar)	HARYANA	HVPNL	1	600	Annual Maintenance Over hauling (unit was tripped on 23 feb 21:06 hrs due to BTL and than remain unavaible due to over hauling)	23-02-2025	21:06	12-05-2025	C
17	Guru Gobind Singh TPS (Ropar)	PUNJAB	PSPCL	3	210	Annual Maintenance	06-03-2025	07:15	23-03-2025	C
18	Suratgarh TPS	RAJASTHAN	RRVPNL	2	250	Annual Maintenance	12-03-2025	00:15	31-03-2025	C
19	RGTPP(Khedar)	HARYANA	HVPNL	2	600	Reserve Shutdown	14-03-2025	11:15	-	C
20	Kota TPS	RAJASTHAN	RRVPNL	6	195	Annual Maintenance	15-03-2025	06:20	31-03-2025	C
21	Guru Gobind Singh TPS (Ropar)	PUNJAB	PSPCL	4	210	Annual Maintenance	18-03-2025	03:05	-	D
	Sub Total (SS)				3023					
Total Planned Outage (CS+SS)					7112					

B. Forced Outages

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Expected Revival Date
							Date	Time	
	Central Sector (CS)								
1	Malana2	HP	HPSEB,EVER	2	50	Due to Flash floods, most part of the switchyard damaged	01-08-2024	03:20	-
2	Malana2	HP	HPSEB,EVER	1	50	Due to Flash floods, most part of the switchyard damaged	01-08-2024	03:20	-
3	NAPS	UP	NPCIL	2	220	GT trip	26-02-2025	12:19	20-03-2025
4	Unchahar TPS	UP	NTPC	1	210	GT trip . Unit tripped due to low forward power relay operated.	15-03-2025	16:10	18-03-2025
5	Tanda TPS	UP	NTPC	2	110	Boiler Tube Leakage	16-03-2025	23:18	18-03-2025
	Sub Total (CS)				640				
	State Sector (SS)								
1	Giral (IPP) LTPS	RAJASTHAN	RRVPNL	1	125	Bed Material Leakage . Unit was out on bed material leakage and it is likely to be scrapped.	11-07-2014	08:20	-
2	Giral (IPP) LTPS	RAJASTHAN	RRVPNL	2	125	Bed Material Leakage Unit was out on bed material leakage and it is likely to be scrapped.	27-01-2016	15:27	-
3	Ramgarh GPS	RAJASTHAN	RRVPNL	5	50	GT trip due to SEF Protection operated.	21-09-2023	00:22	28-03-2025
4	Ramgarh GPS	RAJASTHAN	RRVPNL	4	110	All Fuel Loss due to very low gas pressure (FOCOUS Gas).	26-02-2024	10:05	28-03-2025
5	Suratgarh TPS	RAJASTHAN	RRVPNL	3	250	All Fuel Loss	28-11-2024	13:48	05-06-2025
6	Meja TPS	UP	UPPTCL,NTP	2	660	Turbine Bearing Temperature High . TG vibration high.	26-02-2025	22:27	05-04-2025
7	Anpara-C TPS	UP	UPPTCL,LAN	2	600	Boiler Tube Leakage	13-03-2025	02:45	18-03-2025
8	Bara PPGCL TPS	UP	UPPTCL,JPVL	1	660	Boiler Tube Leakage	15-03-2025	11:59	18-03-2025
9	Rajwest (IPP) LTPS	RAJASTHAN	RRVPNL	8	135	Bed Material Leakage	15-03-2025	20:53	18-03-2025
10	Rajwest (IPP) LTPS	RAJASTHAN	RRVPNL	6	135	Bed Material Leakage	16-03-2025	00:45	18-03-2025
11	Anpara TPS	UP	UPPTCL	1	210	Turbine Problem . Tripped due to vibration in turbine.	16-03-2025	03:56	18-03-2025
12	Obra TPS	UP	UPPTCL	12	200	PA fan problem . Tripped due to vibration in PA fan.	16-03-2025	23:04	18-03-2025
13	Kalisindh TPS	RAJASTHAN	RRVPNL	1	600	Oil Leakage . Emergency shutdown to attend oil leakage in PA Fan#1B.	17-03-2025	00:38	18-03-2025
14	Guru Hargobind Singh TPS (Lehra Mo	PUNJAB	PSPCL	2	210	All Fuel Loss . Tripped due to fuel oil constraint and unstable parameters.	17-03-2025	23:33	-
	Sub Total (SS)				4070				
Total Forced Outage (CS+SS)					4710				

Regional Generation Outage Summary (MW)

Central Sector			State Sector			Regional Total Outage(MW)
Planned	Forced	Total(CS)	Planned	Forced	Total(SS)	
4089	640	4729	3023	4070	7093	11822

C. Generating Units Revived during last day which were out before 18-03-2025

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Revival	
							Date	Time	Date	Time
	Central Sector (CS)									
	--No Outages--									
	Sub Total (CS)				0					
	State Sector (SS)									
	--No Outages--									
	Sub Total (SS)				0					
Total (CS+SS)					0					

D. Short Duration Outages during the day

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Revival	
							Date	Time	Date	Time
	Central Sector (CS)									
	--No Outages--									
	Sub Total (CS)				0					
	State Sector (SS)									
--No Outages--										
	Sub Total (SS)				0					
Total (CS+SS)					0					

E. Outages due to Low Demand

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Expected Revival Date
							Date	Time	
	Central Sector (CS)								
1	Faridabad GPS	HARYANA	NTPC,HVPNL	2	138	Reserve Shutdown . Unit got decoupled and could not be operated in combined cycle so as per NLDC advice it was desynch at 21:29 hrs.	24-06-2024	21:29	-
2	Faridabad GPS	HARYANA	NTPC,HVPNL	3	156	Reserve Shutdown	28-06-2024	01:16	-
3	Faridabad GPS	HARYANA	NTPC,HVPNL	1	138	Reserve Shutdown	28-06-2024	01:24	-
4	Dadri GPS	UP	NTPC	5	155	Reserve Shutdown	18-12-2024	08:23	-
5	Auraiya GPS	UP	NTPC	6	109	Reserve Shutdown	18-12-2024	09:02	-
6	Dadri GPS	UP	NTPC	6	155	Reserve Shutdown	18-12-2024	09:05	-
7	Auraiya GPS	UP	NTPC	5	109	Reserve Shutdown	18-12-2024	09:05	-
8	Anta GPS	RAJASTHAN	NTPC	4	153	Reserve Shutdown	18-12-2024	09:27	-
9	Auraiya GPS	UP	NTPC	4	111	Reserve Shutdown	11-03-2025	10:27	-
10	Auraiya GPS	UP	NTPC	3	111	Reserve Shutdown	11-03-2025	10:29	-
11	Anta GPS	RAJASTHAN	NTPC	1	89	Reserve Shutdown	12-03-2025	23:13	-
12	Auraiya GPS	UP	NTPC	2	111	Reserve Shutdown	12-03-2025	23:13	-
13	Auraiya GPS	UP	NTPC	1	111	Reserve Shutdown	12-03-2025	23:13	-
14	Anta GPS	RAJASTHAN	NTPC	3	89	Reserve Shutdown	12-03-2025	23:14	-
15	Anta GPS	RAJASTHAN	NTPC	2	89	Reserve Shutdown	12-03-2025	23:14	-
16	Dadri GPS	UP	NTPC	4	130	Reserve Shutdown	12-03-2025	23:17	-
17	Dadri GPS	UP	NTPC	3	130	Reserve Shutdown	12-03-2025	23:21	-
18	Dadri GPS	UP	NTPC	1	130	Reserve Shutdown	12-03-2025	23:23	-
	Sub Total (CS)				2214				
	State Sector (SS)								
1	Pampore GT St - I	J&K	PDD JK	1	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-
2	Pampore GT St - I	J&K	PDD JK	2	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-
3	Pampore GT St - I	J&K	PDD JK	3	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-
4	Pampore GT St - II	J&K	PDD JK	1	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-
5	Pampore GT St - II	J&K	PDD JK	2	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-
6	Pampore GT St - II	J&K	PDD JK	4	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-
7	Pampore GT St - II	J&K	PDD JK	3	25	Reserve Shutdown . Plant closed due to high running cost.	27-02-2012	00:00	-
8	Rithala GPS	DELHI	DTL	3	36	Reserve Shutdown (Plant Life is over as per DERC Order dated 31.08.2017)	31-03-2018	00:00	-
9	Rithala GPS	DELHI	DTL	1	36	Reserve Shutdown (Plant Life is over as per DERC Order dated 31.08.2017)	31-03-2018	00:00	-
10	Rithala GPS	DELHI	DTL	2	36	Reserve Shutdown (Plant Life is over as per DERC Order dated 31.08.2017)	31-03-2018	00:00	-
11	Dholpur GPS	RAJASTHAN	RRVPNL	3	110	Reserve Shutdown	31-07-2024	22:29	-
12	Dholpur GPS	RAJASTHAN	RRVPNL	2	110	Reserve Shutdown	01-10-2024	23:59	-
13	Dholpur GPS	RAJASTHAN	RRVPNL	1	110	Reserve Shutdown	01-10-2024	23:59	-
14	RGTPP(Khedar)	HARYANA	HVPNL	2	600	Reserve Shutdown	14-03-2025	11:15	-
	Sub Total (SS)				1213				
Total (CS+SS)					3427				

F. Outages due to Coal Shortage

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Expected Revival Date
							Date	Time	
	Central Sector (CS)								
	--No Outages--								
	Sub Total (CS)				0				
	State Sector (SS)								
	--No Outages--								
	Sub Total (SS)				0				
Total (CS+SS)					0				

G. Outages of Nuclear based Generating Units

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Expected Revival Date
							Date	Time	
	Central Sector (CS)								
1	RAPS-A	RAJASTHAN	NPCIL	1	100	Subject to regulatory clearance. Unit is to be decommissioned.	09-10-2004	22:58	01-01-2030
2	RAPS-A	RAJASTHAN	NPCIL	2	200	Annual Maintenance Biannual planned shutdown, major jobs are planned in Nuclear side.	31-12-2024	21:44	31-03-2025
3	RAPS-C	RAJASTHAN	NPCIL	1	220	Annual Maintenance for Biannual maintenance activities.	16-02-2025	23:55	28-03-2025
4	NAPS	UP	NPCIL	2	220	GT trip	26-02-2025	12:19	20-03-2025
	Sub Total (CS)				740				
	State Sector (SS)								
	--No Outages--								
	Sub Total (SS)				0				
Total (CS+SS)					740				

H. Outages of Lignite based Generating Units

S.No	Station	Location	Owner	Unit No	Capacity MW	Reason(s)	Outage		Expected Revival Date
							Date	Time	
	Central Sector (CS)								
	--No Outages--								
	Sub Total (CS)				0				
	State Sector (SS)								
1	Giral (IPP) LTPS	RAJASTHAN	RRVPNL	1	125	Bed Material Leakage . Unit was out on bed material leakage and it is likely to be scrapped.	11-07-2014	08:20	-
2	Giral (IPP) LTPS	RAJASTHAN	RRVPNL	2	125	Bed Material Leakage Unit was out on bed material leakage and it is likely to be scrapped.	27-01-2016	15:27	-
3	Rajwest (IPP) LTPS	RAJASTHAN	RRVPNL	8	135	Bed Material Leakage	15-03-2025	20:53	18-03-2025
4	Rajwest (IPP) LTPS	RAJASTHAN	RRVPNL	6	135	Bed Material Leakage	16-03-2025	00:45	18-03-2025
	Sub Total (SS)				520				
Total (CS+SS)					520				

ग्रिड-इंडिया
GRID-INDIA

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
[formerly Power System Operation Corporation Limited (POSOCO)]
राष्ट्रीय भार प्रेषण केन्द्र / National Load Despatch Centre

आज़ादी का अमृत महोत्सव

कार्यालय : बी-9, प्रथम एवं द्वितीय तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली - 110016
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CIN : U40105DL2009GOI188682, Website : www.grid-india.in, E-mail : gridindiacc@grid-india.in, Tel.: 011- 42785855

Ref: NLDC/SO-I/ **Date: 02-04-2025**

To,

1. ISTS transmission licensees
2. State Transmission Utilities (Through RLDCs)

Subject: Preparedness for Upcoming Summer Months – Transmission Line Management and Grid Stability

Dear Sir,

The All-India peak demand during the summer months is expected to range between 265-270 GW during solar hours and 250-255 GW during non-solar hours. Additionally, India Meteorological Department (IMD) has forecasted higher-than-average temperatures for this period. Elevated ambient temperatures combined with high system loadings may significantly increase the risk of transmission line sagging, reduced ground clearance, conductor snapping, and faults (both transient and permanent), potentially leading to line tripping. Substation elements are also susceptible to failure during extreme temperature conditions. In addition, heatwaves, dust storms, and wildfires may impact the availability and reliability of transmission elements during this period.

Considering these anticipated conditions, proactive vegetation management and preventive maintenance of transmission assets are critical to ensuring the reliability and stability of grid operations. Transmission asset owners are therefore advised to urgently undertake the following measures:

1. **Timely completion of planned preventive maintenance of transmission elements**
   Inspection and maintenance of transmission lines and substation elements, with special focus on identifying hotspots, ensuring adequate ground clearance, and checking for conductor sag to be completed in time.
2. **Vegetation management**
   Undertake proactive vegetation management along the Right of Way (RoW) to eliminate risks of flashovers, line faults and wild-fire induced failures, especially in forested and high-growth areas.

3. **Real-Time patrolling and aerial (drone/helicopter) surveillance**
   Intensify real-time patrolling of critical corridors. Wherever feasible, deploy aerial technology-based surveillance to detect anomalies such as broken strands, hot joints, or sagging conductors.
4. **Fire Safety Readiness**
   Ensure the healthiness and operational readiness of fire hydrant systems and emulsifier systems in all substations.
5. **Inventory Preparedness**
   Ensure adequate availability of emergency restoration materials, spares, and hardware to enable rapid response to contingencies (tower collapse, structural damage) during inclement weather.
6. **Track weather forecast and inclement weather warning by IMD**
   Set up systems for tracking weather forecasts/warning by IMD for contingency preparedness. https://internal.imd.gov.in/power/NRLDC/
7. **Synchronizing Equipment and Skilled Manpower**
   Ensure availability and functionality of synchronizing devices and trained personnel at all stations/control centers to effectively analyse relay indications in case of faults.
8. **Defence Schemes and Communication**
   Ensure healthiness of defence mechanism schemes such as Under Frequency Relays (UFR), Under Voltage Load Shedding (UVLS), Load trimming schemes (LTS), Special Protection Schemes (SPS) etc.

Your cooperation in implementing these measures will be crucial to ensure uninterrupted transmission operations and grid stability during the summer months. Kindly keep us informed of any region-specific challenges so that appropriate interventions can be planned in advance.

Regards

2/4/25

(S. Usha)
Executive Director, NLDC

For kind information:

1. Chairperson, CEA
2. Member (GO&D), CEA
3. MS NPC, CEA
4. COO, CTUIL
5. MS NRPC/ WRPC/SRPC/ERPC/NERPC
6. JS(Trans), MOP
7. Chairman and Managing Director, Grid India
8. Director (SO/MO), Grid India
9. ED - NRLDC/WRLDC/SRLDC/ERLDC/NERLDC

Annex-VII

List of feeders for physical regulation in Supply

Uttar Pradesh

S No	Name of Feeder	Affected area	Approx Load relief (MW)	Remarks
1	220kV Meerut-Gajraula	Gajraula	100	Not Radial
2	220kV Baghpat(PG)-Baghpat D/C	Baghpat	60	Radial
3	220kV Allahabad(PG)-Jhusi	Jhusi	200	Not Radial
4	220kV Sohawal(PG)-Barabanki D/C	Barabanki	120	Not Radial
5	220kV Mainpuri(PG)-Neemkarori D/C	Farukkhabad	120	Not Radial
6	220kV Gorakhpur(PG)-Gola D/C	Gorakhpur	80	Radial
7	132kV Ballia(PG)-Bansdeeh	Ballia	15	Radial
8	132kV Ballia(PG)-Sikandarpur	Ballia	30	Radial

50 no.s 132kV feeders can also be opened from SLDC and testing was also carried out few days back at SLDC level

Punjab

S No	Name of Feeder	Affected area	Approx Load relief (MW)	Remarks
1	132kV Jamalpur-Ghulal D/C	Ghulal	91	High loading during paddy
2	66kV Jamalpur-Chandigarh Road	Chandigarh Road	37	To be preferred
3	66kV Jamalpur-Sherpur	Ludhiana	13	-
4	220/132kV Sangrur ICT 1,2, 3	Shamsabad	166	High loading during paddy
5	220kV Amritsar-Naraingarh D/C	Amritsar adjoining area	100	To be preferred
6	220kV Patiala-Nabha D/C	Nabha	190	To be opened after discussion with SLDC
7	220kV Jalandhar-Kanjli D/C	Kapurthala	64	To be preferred

120 no.s 66kV feeders may be tripped from SLDC control room to control over drawl (usually when freq below 49.8Hz)

Annex-VII

Rajasthan				
S. No.	Transmission line / Transformers to be opened	Power supply interruption	Approx load relief (MW)	Remark
1	220kV Anta-Lalsot	Lalsot	130	The load of 220 kV GSS Lalsot is normally fed from Anta radially. However If ring of 220kV Anta-Lalsot-Dausa is closed then SLDC will open 220 kV Dausa – Lalsot line immediately after physical regulation message received from NRLDC.
2	220 kV Bhinmal (PG) –Sayla Ckt-I & II	Sayla	40	However 220 kV GSS Saylais also fed from 220 kV GSS Jalore. SLDC will open 220 kV Sayla – Jalore line immediately after physical regulation message received from NRLDC.
3	220 kV Bassi(PG) - Bagru line	Bagru	80	However 220 kV GSS Bagruis also fed from 220 kV GSS Phulera. SLDC will open 220kV Bagru – Phulera line immediately after physical regulation message received from NRLDC.
4	220kV Bhiwadi(PG) -Khushkera 220kV Neemrana(PG)-Khushkera	Khushkhera & Kishangarh Bas	170	Limited alternate supply may be available. 220kV Alwar-K.G.Bas - Khushkhera linemay get overloaded.
5	220/132 kV, 160 MVA Transformer at 220kV GSS Behror	Behror	80	SLDC will open 220/132kV transformer of 220kV GSS Behror immediately after physical regulation message received from NRLDC.
J&K				
S No	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	220kV Kishenpur-Baran D/C	Baran	200	Radial feeder
2	220kV New Wampoh-Mirbazar	Mirbazar	200	Radial feeder
3	132kV Gladni-Kalakote S/C	Jammu	80	Priority 1
4	Kashmir Bemina	Kashmir	50	
5	132kV Barn-KalakoteD/C	Jammu	80	Priority 2
6	132kV Zainakote - Pattan D/C	Kashmir	70	
220kV Samba-Hiranagar may not be opened as it also supplies to Railways				

Annex-VII

Uttarakhand				
SNo	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	132kV Pithoragarh(PG)-Pithoragarh	Pithoragarh	50	Radial feeder
2	220kV Sitarganj-Eldeco	Eldeco	40-60	Industrial load (only in caseof extreme situations)
No control available from SLDC control room for physical regulation. It was discussed that such feeders may be identified which are fed from two resources and will provide relief. Compiled list of such feeders after discussion at state level needs to be shared with NRLDC at the earliest. In case it is difficult to identify such feeders, contingency plan needsto be developed at SLDC level and shared with NRLDC.				
Himachal Pradesh				
SNo	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	66kV Bhakra-Rakkar	Rakkar/ Una	10-18	Area being fed from 66kV Rakkar (Una)
2	66kV Pong-Sansarpur	Sansarpur	2-5	Radial feeder
3	132kV Dehar-Kangoo	Kunihar/Shimla	80-140	Priority 1. 400/220kV DeharICT may overload
4	220kV Dehar-Kangoo			
5	220kV Nallagarh-Upernangal D/C	Baddi/ Nallagarh	180-315	Industrial load (only in caseof extreme situations)
6	220kV Khodri-Majri D/C	Kala Amb/ Paonta Sahib/ Nahan	80-190	Limited supply may be available from Kunihar.Many essential loads, Oxygen plants, administrative buildings
7	132kV Kulhal-Giri			
8	66kV Parwanoo-Pinjore	Parwanoo	-	Generally kept open
9	33kV Ganguwal-Bilaspur	Bilaspur	6-8	-
Delhi				
SNo	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	220kV Mundka-Peeragarhi D/C	Peeragarhi	100-150	Radial feeder
2	220kV BTPS-Okhla D/C	Okhla	200-350	Radial feeder
3	33kV Delhi ckts 1,2,3,4feeders from Rohtak road (BBMB)	Rohtak Road	20-30	Radial feeder
4	220kV MaharaniBagh-Lodhi Road D/C	Lodi Road	200-300	May not be opened as VIP area
5	220kV Maharanibagh-Masjid Moth D/C	Masjid Moth		Radial feeder

Annex-VII

Haryana				
S.No.	**Transmission element to be opened**	**Power supply Interruption in**	**Approx Relief (MW}**	**Remarks**
1	Feeders in schedule A Panipat: a) 33kV Panipat-Sewah b) 33kV Panipat-Untla c) 33kV Panipat-lsrana d) 33kV Panipat-Narayana e) 33kV Panipat-Sanoli road Kurukshetra: a) 33kV Kurukshetra-Mathana b) 33kV Kurukshetra-Ajrana c) 33kV Kurukshetra-Kirmich d) 33KV KuruKshetra-REC d) 11kV Kurukshetra-Bahadurpura e) 11kV Kurukshetra-Pipli -2 Dhulkote: a) 66kV Dhulkote-Barnala b) 66kV Dhulkote-Babyal c) 66kV Dhulkote-Sadopur d) Narela: a) 132kV Kundli line emanating from Narela BBMB	Panipat , Kurukshetra, Dhulkote, Kundli (Sonipat)	200 MW (Approx.)	Radial Lines or fed radially (These feeders were already Included In schedule A&B)
2	**Feeders in Schedule B** a) 220kV Sector-72 PG - Sector-33 ckt-1&2 b) 220kV Kaithal PG- Neemwala ckt-1&2	Kaithal, Gurugram,	180 MW (approx.)	Radial Lines (Additional one feeder included in Schedule-B now to achieve desired load relief

Clause No.	Responsible Entity	Compliance Assignment
5.2(i)	Each distribution licensee within a State	Estimate the demand in its control area including the demand of open access consumers and factoring in captive generating plants, energy efficiency measures, distributed generation, demand response, in different time horizons, namely long-term, medium term and short-term.
5.2(ii)	STU (on behanlf of distribution licensee)/other designated agency	Estimate the demand for the entire State duly considering the diversity in different time horizons, namely long-term, medium term and short-term.
5.3(a)	Each distribution licensee	(i) assess the existing generation resources and identify the additional generation resource requirement to meet the estimated demand in different time horizons, (ii) prepare generation resource procurement plan.
5.3(c)	Each distribution licensee	Generation resource procurement planning (specifying procurement from resources under State control area and regional control area) shall be undertaken in different time horizons, namely long-term, medium term and short-term to ensure (i) adequacy of generation resources and (ii) planning reserve margin (PRM) taking into account loss of load probability and energy not served as specified by CEA.
5.3(d)	STU (on behalf of distribution licensee)/other designated agency	STU or other designated agency by state comission shall provide to NLDC, •the details regarding demand forecasting, •assessment of existing generation resources •such other details as may be required for carrying out a national level simulation for generation resource adequacy for States.
5.3(e)	NLDC	Based on the information received, NLDC shall carry out a simulation to assist the States in drawing their optimal generation resource adequacy plan.
5.3(f)	Each distribution licensee	Each distribution licensee shall ensure demonstrable generation resource adequacy for such period as specified by the respective SERC
31.1(a)	NLDC/RLDC/SLDC	Operational planning in advance by NLDC, RLDCs and SLDCs within their respective control areas: Monthly and Yearly time horizons in co-ordination with CTU, RPCs or STUs, as applicable.
31.1(b)	NLDC/RLDC/SLDC	Operational planning shall be carried out in advance by NLDC, RLDCs and SLDCs within their respective control areas on Intra-day, Day Ahead, Weekly time horizons.

31.1(c)	NLDC/RLDC	Procedure and data format by NLDC/RLDC for following activity •Operational planning analysis •Real-time monitoring, •Real-time assessments. Format is available at *https://posoco.in/wp-content/uploads/2024/03/Final-NLDC-Operating-Procedure_as-submitted-to-CERC-dated-290923.pdf*
31.1(d)	SLDC	SLDC may also issue procedures and formats for data collection for the above purposes.
31.2(a)	SLDC	Each SLDC shall carry out demand estimation (active & reactive) as part of operational planning after duly factoring in the demand estimation done by STU as part of resource adequacy planning referred to in Chapter 2 of these regulations.
31.2(b)	SLDC	Each SLDC shall develop methodology for daily, weekly, monthly, yearly demand estimation in MW and MWh for operational analysis as well as resource adequacy purposes
31.2(c)	SLDC	The demand estimation by each SLDC shall be done on day ahead basis with time block wise granularity for the daily operation and scheduling . Revision in real-time demand estimate by SLDC if major change is observed and sharing with RLDC
31.2(d)	SLDC	Each SLDC shall submit node-wise morning peak, evening peak, day shoulder and night off-peak estimated demand in MW and MVA on a monthly and quarterly basis for the nodes 110 kV and above
31.2(e)	SLDC	SLDC shall also estimate peak and off-peak demand (active as well as reactive power) on a weekly and monthly basis for load -generation balance planning as well as for operational planning analysis
31.2(f)	ISTS connected bulk consumers or distribution licensees	The entities such as bulk consumers or distribution licensees that are directly connected to ISTS shall estimate and furnish such a demand estimate to the concerned RLDC
31.2(g)	RLDC/NLDC	Based on the demand estimate furnished by the SLDCs and other entities directly connected to ISTS, each RLDC shall prepare the regional demand estimate and submit it to the NLDC. NLDC, based on regional demand estimates furnished by RLDCs, shall prepare national demand estimate
31.2(h)	SLDC	Submission of demand estimate data by SLDCs or other entities directly connected to ISTS, as applicable, to the respective RLDC and RPC as per below timeline : - Daily: 10:00 hrs of previous day - Weekly: First workinh day of previus week - Monhtly: Fifth day of previous month - Yearly: 30th September of the previous year

31.2(i)	SLDC/RLDC/NLDC	Compute forecasting error for intra-day, dayahead, weekly, monthly and yearly forecasts and analyse the same in order to reduce forecasting error in the future. The computed forecasting errors shall be made available by SLDCs, RLDCs and NLDC on their respective websites.
31.3(a)	SLDC	The generation estimation by each SLDC shall be done on day ahead basis with time block wise granularity for the daily operation and scheduling . Revision in real-time generation estimate by SLDC if major change is observed and sharing with RLDC
31.3(b)	RLDC	RLDC shall forecast generation from wind, solar, ESS and Renewable Energy hybrid generating stations that are regional entities and SLDC shall forecast generation from such sources that are intra-state entities, for different time horizons as referred to in clause (1) of Regulation 31 of these regulations for the purpose of operational planning
31.4(a)	SLDC	SLDCs estimate and ensure the adequacy of resources, identify generation reserves, demand response capacity and generation flexibility requirements with due regard to the resource adequacy framework as specified under Chapter 2 of these regulations
31.4(b)	SLDC	Furnishing time block-wise information for the following day in SLDC respect of all intra-state entities to the concerned RLDC who shall validate the adequacy of resources with due regard to the following: (i) Demand forecast aggregated for the control area; (ii) Renewable energy generation forecast for the control area; (iii) Injection schedule for intra-State entity generating station; (iv) Requisition from regional entity generating stations (v) Secondary and planned procurement through Tertiary reserve requirement; (vi) Planned procurement of power through other bilateral or collective transactions, if any.
33.1	NLDC, RLDC, SLDC & (RPC: Monthly & Yearly)	Based on the operational planning analysis data, operational planning study shall be carried out by various agencies for time horizons such as Real time, Intra Day , Weekly , Monthly & Yearly
33.2	SLDC, RLDCs and NLDC	SLDCs, RLDCs and NLDC shall utilize network estimation tool integrated in their EMS and SCADA systems for the real time operational planning study.

33.3	SLDC	SLDCs shall perform day-ahead, weekly, monthly and yearly operational studies for the concerned State for: (a) assessment and declaration of total transfer capability (TTC) and available transfer capability (ATC) for the import or export of electricity by the State. TTC and ATC shall be revised from time to time based on the commissioning of new elements and other grid conditions and shall be published on SLDC website with all the assumptions and limiting constraints; (b) planned outage assessment; (c) special scenario assessment; (d) system protection scheme assessment; (e) natural disaster assessment; and (f) any other study relevant in operational scenario.
33.4	RLDCs and NLDC	RLDCs and NLDC shall perform day-ahead, weekly, monthly and yearly operational studies for: (a) assessment of TTC and ATC at inter-regional, intra-regional, and inter-state levels; (b) planned outage assessment; (c) special scenario assessment; (d) system protection scheme assessment; (e) natural disaster assessment; and (f) any other study relevant to operational scenarios
33.5	RLDCs	RLDC shall assess intra-regional and inter-state level TTC and ATC and submit them to NLDC. NLDC shall declare TTC and ATC for import or export of electricity between regions including simultaneous import or export capability for a region, and crossborder interconnections 11 (Eleven) months in advance for each month on a rolling basis.
33.6	RLDCs	Operational planning study shall be done to assess whether the planned operations shall result in deviations from any of the system operational limits defined under these regulations and applicable CEA Standards. The deviations, if any, shall be reviewed in the monthly operational meeting of RPC and significant deviations shall be monitored by RPC for early resolution.
33.7	NLDC, RLDCs, RPCs and SLDCs	NLDC, RLDCs, RPCs and SLDCs shall maintain records of the completed operational planning study, including date specific power flow study results, the operational plan and minutes of meetings on operational study.
33.8	NLDC, RLDCs, RPCs and SLDCs	NLDC, RLDCs, RPCs and SLDCs shall have operating plans to address potential deviations from system operational limit identified as a result of the operational planning study.
33.9	SLDCs	Each SLDC shall undertake a study on the impact of new elements to be commissioned in the intra-state system in the next six (6) months on the TTC and ATC for the State and share the results of the studies with RLDC

33.10	RLDCs	Each RLDC shall undertake a study on the impact of new elements to be commissioned in the next six (6) months in (a) the ISTS of the region and (b) the intrastate system on the inter-state system and share the results of the studies with NLDC
33.11	NLDC	NLDC shall undertake study on the impact of new elements to be commissioned in the next six (6) months in (a) inter-regional system, (b) cross-border link and (c) intraregional system on the inter-regional system.
33.12	NLDC, RLDCs and SLDCs	NLDC, RLDCs and SLDCs shall compare the results of the studies of the impact of new elements on the system and transfer capability addition with those of the interconnection and planning studies by CTU and STUs
33.13	concerned user or SLDC or RLDC or NLDC	Defense mechanisms like system protection scheme, load-rejection scheme, generation run-back, islanding scheme or any other scheme for system security shall be proposed by the concerned user or SLDC or RLDC or NLDC and shall be deployed as finalized by the respective RPC

CENTRAL ELECTRICITY REGULATORY COMMISSION
(NEW DELHI)

Suo-Motu Petition No. 2/SM/2025

Coram:
Shri Jishnu Barua, Chairperson
Shri Ramesh Babu V., Member
Shri Harish Dudani, Member
Shri R.S. Dhillon, Member

Date of Order : 29.03.2025

In the matter of :

Measures to mitigate the risks on the power system under Clauses (2) and (3) of the Regulation 30 of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023.

And in the matter of :

1. National Load Despatch Centre,
   Grid Controller of India Ltd. (CIN U40105DL2009GOI188682)
   B-9 (1st Floor), Qutab Institutional Area, Katwaria Sarai,
   New Delhi -110016

2. Northern Regional Load Despatch Centre,
   Grid Controller of India Ltd.
   18-A, Shaheed Jeet Singh Sansanwal Marg,
   Katwaria Sarai, New Delhi -110016

3. Western Regional Load Despatch Centre, Mumbai
   Grid Controller of India Ltd.
   F-3, M.I.D.C. Area, Marol Andheri (East),
   Mumbai -400093

4. Southern Regional Load Despatch Centre
   29, Race Course Cross Road,
   Bangalore -560009

5. Eastern Regional Load Despatch Centre, Kolkata
   Grid Controller of India Ltd.
   14, Golf Club Road, Tollygunge, Kolkata -700 03

6. North Eastern Load Despatch Centre, Shillong
   Grid Controller of India Ltd.
   Lower, Nongrah, Lapalang, Shillong,

Meghalaya 793006

Order

Background:

1. Grid-India, vide its letter dated 17.09.2024, submitted a 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:

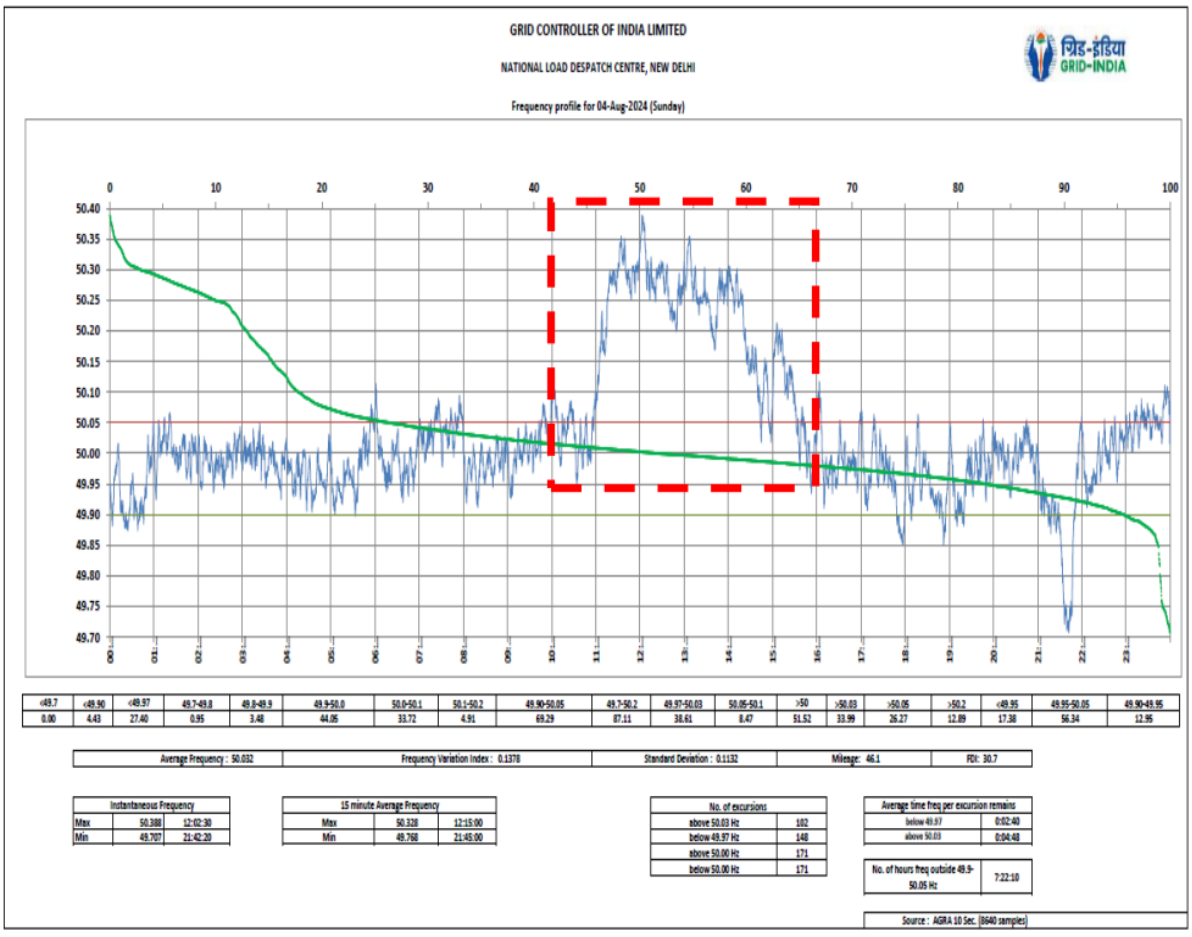
Metric	04 Aug 2024	11 Aug 2024	25 Aug 2024
% of time frequency remained above 50.05 Hz	26.27	33.32	37.97
Duration of continuous high frequency (>50.05 Hz) in minutes	226	120	258
Maximum instantaneous frequency (Hz) and its time of occurrence (hh:mm)	50.39 (12:02)	50.33 (13:44)	50.38 (13:07)

2. As per Grid-India's Report, the contributing factors for high-frequency operation in the Indian power system on 04, 11, and 25 August 2024 are listed below:
   a) Suppressed demand due to widespread rains and weekend
   b) Over-injection by VRE sources
   c) Limited flexibility from hydropower stations and pumped storage plants due to high inflows and high reservoir levels
   d) Inadequate flexibility of intra-state thermal generating stations and under-drawl
   e) Lack of DOWN reserves at the interstate level

f) Inadequate liquidity in DAM/RTM, resulting in the states committing more units.

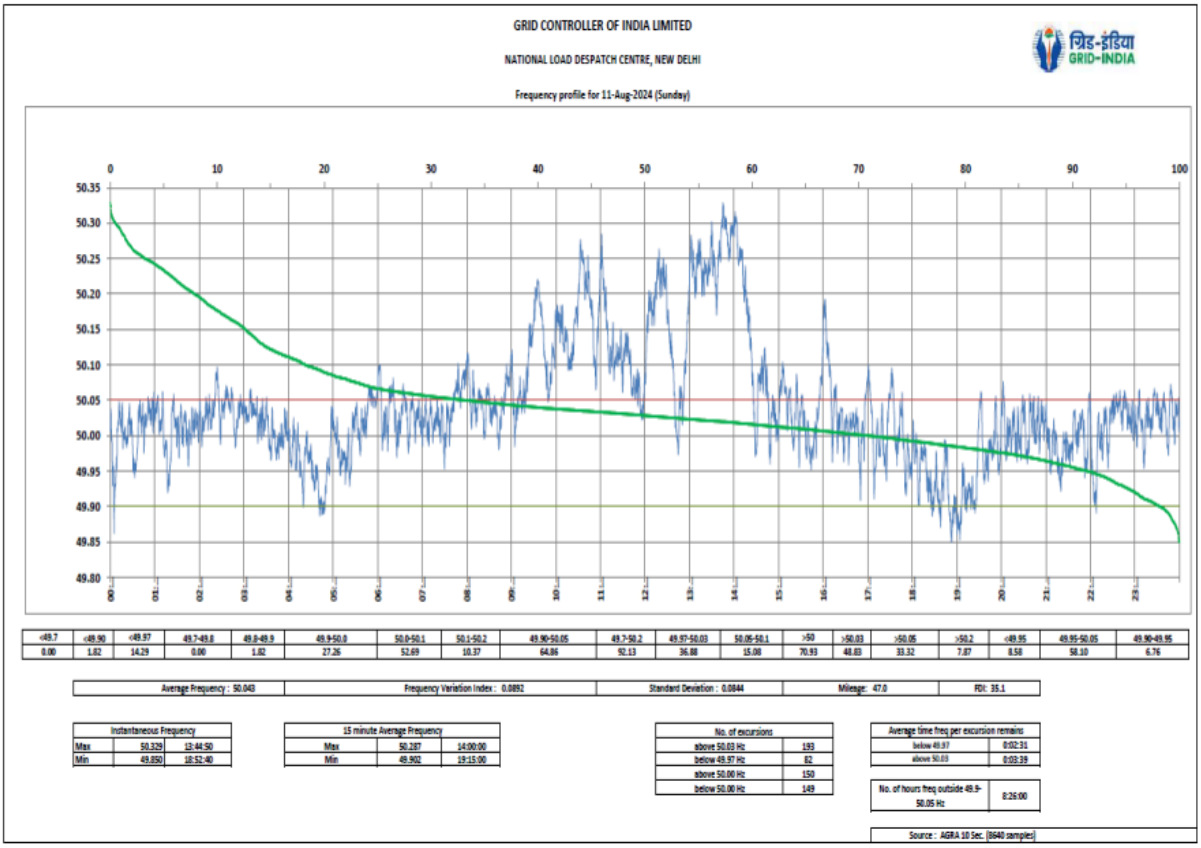
Frequency Profile:

3. **On 04th August 2024,** the frequency of the Indian grid exceeded the upper limit of the IEGC band (50.05 Hz) for a significant portion of the day. Starting at around 11:00 hrs., the frequency rose above 50.05 Hz and remained elevated until approximately 15:30 hrs. The maximum frequency recorded during the day was 50.39 Hz at 12:02:30 hrs. The frequency profile for 04th August 2024 is as under:

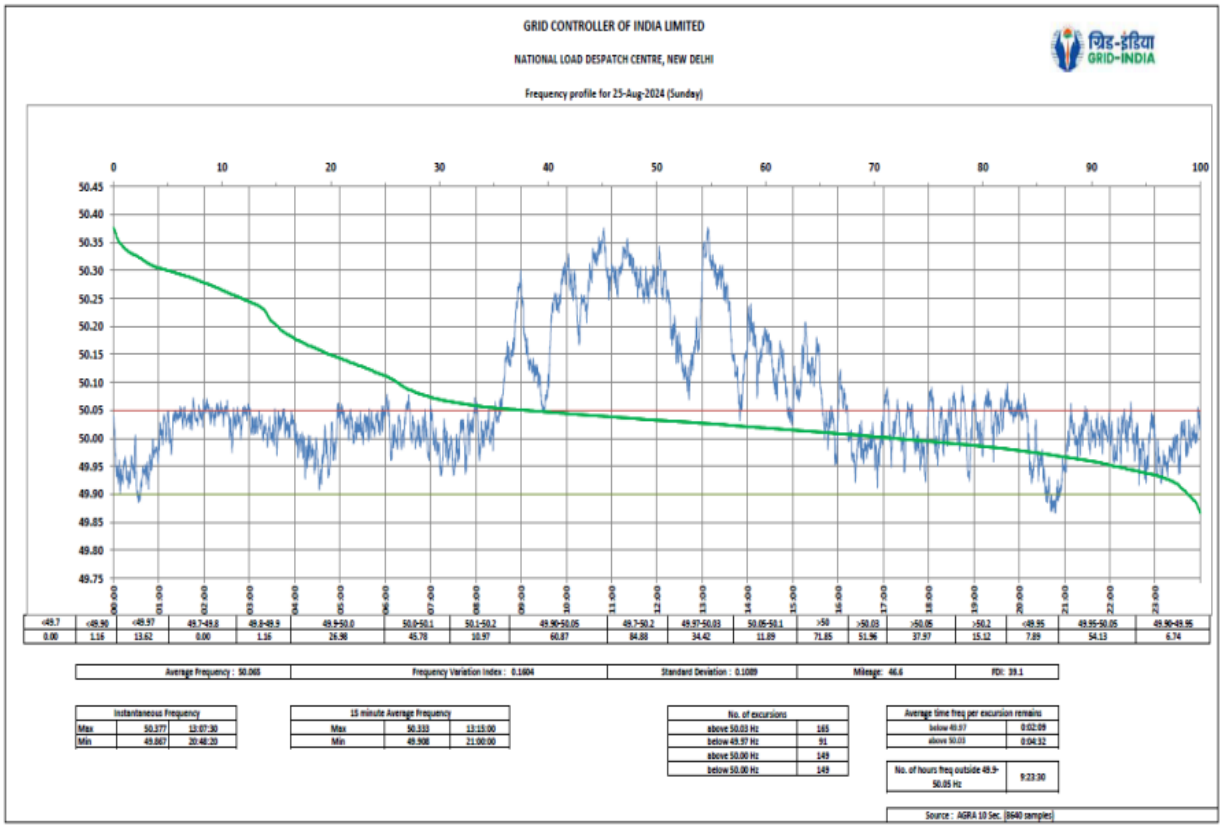


4. **On 11th August 2024,** the All-India power system experienced notable deviations in its frequency profile, with the system frequency consistently remaining above the Indian Electricity Grid Code (IEGC) permissible upper band of 50.05 Hz for a considerable portion of the day. The frequency remained high between 09:30 hrs and 15:00 hrs, barring a few minutes during this period.

The maximum instantaneous frequency recorded was 50.329 Hz at 13:44:50 hrs. Over the course of the day, the average frequency was measured at 50.043 Hz, which, although close to the nominal value of 50 Hz, highlights some deviation from the ideal frequency range. The frequency profile for 11th August 2024 is as under:



5. **On 25th August 2024**, the All-India power system experienced deviations in its frequency profile, with the system frequency staying above the Indian Electricity Grid Code (IEGC) permissible upper band of 50.05 Hz for an extended period. The frequency remained above the IEGC band from approximately 08:30 hrs to 16:00 hrs, except for a few short intervals. The maximum instantaneous frequency recorded during the day was 50.377 Hz at 13:07:50 hrs, and the average frequency for the entire day was 50.065 Hz, which, while close to the nominal 50 Hz, still reflected deviations from the ideal range. The frequency profile for 25th August 2024 is as under:



6. Grid-India, in its report, has suggested the following measures for enhancing flexibility in grid operations:

   a) Reduction in a minimum turn down level of intrastate thermal stations as per CEA regulations
   b) Reduction in a minimum turn down level to 40% of MCR
   c) Two shift operation of selected thermal units with high energy charge rate
   d) Incentivise flexible operation by notification of compensation for part load operation and start/stops
   e) Implementation of resource adequacy framework
   f) Increase the capacity of long duration storage
   g) Power market reforms - reduce fragmentation of the market, raise the market cap, negative pricing
   h) Frequency response from renewable energy sources
   i) Curtailment of renewable energy generation as a last resort during sustained high-frequency

Analysis and Decision

7. CERC (Indian Electricity Grid Code) regulations, 2023 provide as follows:

*"**30.** FREQUENCY CONTROL AND RESERVES*

(1) The National Reference Frequency shall be 50.000 Hz and the allowable band of frequency shall be 49.900-50.050 Hz. The frequency shall be measured with a resolution of +/-0.001 Hz by NLDC, RLDCs and SLDC and such frequency data measured every second shall be archived by RLDCs.

(2) The NLDC, RLDC and SLDC shall endeavour that the grid frequency remains close to 50.000 Hz and in case frequency goes outside the allowable band, ensure that the frequency is restored within the allowable band of 49.900-50.050 Hz at the earliest.

(3) All users shall adhere to their schedule of injection or drawl, as the case may be, and take such action as required under these regulations and as directed by NLDC or respective RLDCs or respective SLDCs so that the grid frequency is maintained and remains within the allowable band."

As per above, the National Reference Frequency is 50.000 Hz, and the allowable band of frequency is 49.900 Hz - 50.050 Hz. IEGC mandates that NLDC, RLDC, and SLDC shall endeavour that the grid frequency remains close to 50.000 Hz, and in case the frequency goes outside the allowable band, they shall ensure that the frequency is restored within the allowable band of 49.900 Hz - 50.050 Hz at the earliest. Accordingly, all users of the grid are required to maintain their drawl as per schedule to ensure frequency remains within the IEGC-specified band.

8. The overall issue of high frequency during the stated days can be broadly summarised due to (a) over-injection by thermal generators to maintain MTL injection (b) over-injection by solar sources (c) under-drawl by States (possibly due to high RE within the State or suppressed demand) (d) high hydro injection due to high inflows as pointed out by Grid India at Paragraph 2 of this Order. We have analysed the data for 25.08.2024 as a sample study in respect of ISGS thermal power plants, RE Generators, and drawl by the States as received from NLDC.

9. A summary of the detailed analysis on aspect of (a) over-injection by thermal generators to maintain MTL injection (b) over-injection by RE sources (c) under-drawl by States, is as under:

A. ISGS Thermal Generators having schedule below Minimum Turndown Level (MTL) on 25.08.2024 (12:00 hrs to 14:00 hrs):

The detail of the thermal generators having scheduled below Technical Minimum on 25.08.2024 (12:00 hrs to 14:00 hrs) is as under. The generators had a schedule below MTL. However, they were continuously over-injecting so as to maintain their generation near MTL.

Over-injection (in MW) by Generators whose Schedule is less than MTL												
Generating Station	**10:30 - 10:45**	**10:45 - 11:00**	**11:00-11:15**	**11:15-11:30**	**11:30-11:45**	**11:45-12:00**	**12:00-12:15**	**12:15-12:30**	**12:30-12:45**	**12:45-13:00**	**13:00-13:15**	**13:15 - 13:30**
DADRIT	61	61	65	59	65	62	63	64	71	72	67	61
Darlipali_NTPC							119		201	385	394	380
KHARGONE	85	83	84	86	154	154	155	153	156	150	147	144
KHSTPP_I		44	45			33	29	23	24	24	23	20
KHSTPP_II				0	16	52	50	53	77	54	52	47
MOUDA1	2		34	176	196	188	159	180	166	156	155	165
MOUDA2			61	221	217	206	172	174	176	176	175	175
NLCEXP	5	29	67	68	67	67	66	66	27	27	35	35
NLCIIST1	13	51	48	47	52	51	48	46			7	12
NLCIIST2	56	122	124	117	101	82	84	86	15	15	4	4
NTPL	5					149		2	10	14	156	
RSTPSU7	103	106	122	118	117	119	115	112	114	115	121	133
SIMHST1			24	166	239	244	247	239	234	236	234	237
SIMHST2	338	335	331	337	334	335	300	305	307	306	307	307
SOLAPUR	105	114	131	138	126	123	221	219	221	220	219	224
UNCHAHAR 1	48	48	48	46	46	50	47	51	49	49	47	47
VALLUR NTECL	113	116	119	118	122	116	103	103	105	108	106	106
VSTPS1							42	43				
	933	**1106**	**1303**	**1697**	**1853**	**2029**	**2021**	**1919**	**1953**	**2107**	**2248**	**2097**

*Only over-injection has been shown. Empty blocks have under-injection

10. A sample schedule during solar hours for generating stations in sub-critical and super-critical categories is as follows:

SIMHST2 (2X500 MW)						
Time Block	**DC (MW)**	**MTL (MW)**	**Schedule(MW)**	**Actual(MW)**	**Actual in % of DC**	**Deviation(MW)**
10:30-10:45	948	521	163	500	53	338
10:45-11:00	948	521	163	497	53	335
11:00-11:15	948	521	163	494	52	331
11:15-11:30	948	521	163	500	53	337
11:30-11:45	948	521	163	497	52	334
11:45-12:00	948	521	163	498	53	335

12:00-12:15	948	521	198	498	53	300
12:15-12:30	948	521	198	503	53	305
12:30-12:45	948	521	198	505	53	307
12:45-13:00	948	521	198	504	53	306
13:00-13:15	948	521	198	505	53	307
13:15-13:30	948	521	198	505	53	307

Solapur (2x660 MW)						
Time Block	**DC (MW)**	**MTL (MW)**	**Schedule(MW)**	**Actual(MW)**	**Actual in % of DC**	**Deviation(MW)**
10:30-10:45	1231	677	512	617	50	105
10:45-11:00	1231	677	500	613	50	114
11:00-11:15	1231	677	489	620	50	131
11:15-11:30	1231	677	478	616	50	138
11:30-11:45	1231	677	483	609	49	126
11:45-12:00	1231	677	483	606	49	123
12:00-12:15	1231	677	389	610	50	221
12:15-12:30	1231	677	388	608	49	219
12:30-12:45	1231	677	388	609	49	221
12:45-13:00	1231	677	388	608	49	220
13:00-13:15	1231	677	388	607	49	219
13:15-13:30	1231	677	388	613	50	224

Darlipalli (2X800 MW)						
Time Block	**DC (MW)**	**MTL (MW)**	**Schedule(MW)**	**Actual(MW)**	**Actual in % of DC**	**Deviation(MW)**
10:30-10:45	1500	825	834	808	54	-27
10:45-11:00	1500	825	833	797	53	-36
11:00-11:15	1500	825	834	813	54	-21
11:15-11:30	1500	825	834	824	55	-10
11:30-11:45	1500	825	834	824	55	-9
11:45-12:00	1500	825	834	830	55	-4
12:00-12:15	1500	825	694	813	54	119
12:15-12:30	1500	825	834	824	55	-10
12:30-12:45	1500	825	618	819	55	201
12:45-13:00	1500	825	428	813	54	385
13:00-13:15	1500	825	424	819	55	394
13:15-13:30	1500	825	422	802	53	380

It is also observed that the Schedule during evening peak hours for abovesaid generating stations, which got scheduled below MTL during the solar hours, was much above MTL. Such schedule above MTL can be met by such generating stations only when they remain on bar.

11. This issue was also raised by NTPC vide its letter dated 30.9.2024 to CERC, whereby NTPC stated as follows:

"

(i) *Infeasible schedules to thermal units:*

IEGC-2023 has put an obligation to supply on Generators but there is no corresponding obligation on beneficiaries to give equal to or more than MTL schedules which is the foremost requirement for safe and reliable operations of these thermal units.

Such dispensation has prompted beneficiaries to give schedules based on their own consideration and keeping aside the technical requirement of the thermal units. This has resulted in a situation wherein stations are continuing to get infeasible schedules i.e., full schedule during peak-hours and negligible or less than MTL schedule during off-peak hours (Annexure A).

It is also observed that instead of giving requisite schedule up to MTL so that the unit to remain on bar to serve during peak hours, many Discoms are driven by purely commercial considerations by purchasing power from market whenever market rates are lower than ECR of the stations. However, when the market rates are high, Discoms again provide full schedules during peak hours and such scheduling pattern is not at all taking care of technical constraints of the machines and endangering the life of machines (Annexure B). Here, it is pertinent to mention that Discoms are giving technical minimum schedule to their own stations.

Due to such infeasible schedules, stations are constrained to over inject to ensure the technical minimum loading of the machines which results in Grid violations, congestion charges & DSM losses. Since the implementation of IEGC 2023 to 09.09.2024, NTPC has incurred loss of around Rs. 335 crores, due to over injections on above accounts (Annexure-C).

It is pertinent to mention that in case a unit decides to go under shut down due to such infeasible schedules, it is required to fulfil the obligation of supply and IEGC 23 provides provisions for meeting the same, However, due to various reasons these provisions are also not feasible.

It is humbly submitted that for safe and reliable operation of the machines which are national assets, it is imperative that units are scheduled at or above MTL and an obligation may also be put on Discoms to provide MTL schedule. Further in case of non-availability of schedules up to MTL, generators may be allowed to take the unit under shut down with no obligation of supply."

As per above, the issue of scheduling below MTL during off peak hours

and above MTL during peak hours, leading to over-injection during off peak hours so as to meet supply obligations during peak hours, has been highlighted.

12. We have analysed the total block-wise over-injection by all the ISGS thermal generating stations having schedule below MTL as under:

Block-wise over-injection (in MW) by thermal generators having schedule below MTL	
25.08.2024	**Over-injection Quantum in MW**
10:30-10:45	933
10:45-11:00	1106
11:00-11:15	1303
11:15-11:30	1697
11:30-11:45	1853
11:45-12:00	2029
12:00-12:15	2021
12:15-12:30	1919
12:30-12:45	1953
12:45-13:00	2107
13:00-13:15	2248
13:15-13:30	2097

As per above, the maximum over-injection in a time block went up to 2200 MW.

NLDC, vide its Report dated 17.09.2024, has also noted DAM prices during the period of high frequency on 25.8.24 as follows:

25th Aug 2024

DAM Results: The prices were low in power exchanges for DAM throughout the day, however prices were comparatively higher during evening hours. The prices in DAM are observed to go as low as Rs.0.50/kWh which rose to around Rs. 4/kWh in the late evening hours. The prices as discovered in DAM are given in Fig 87

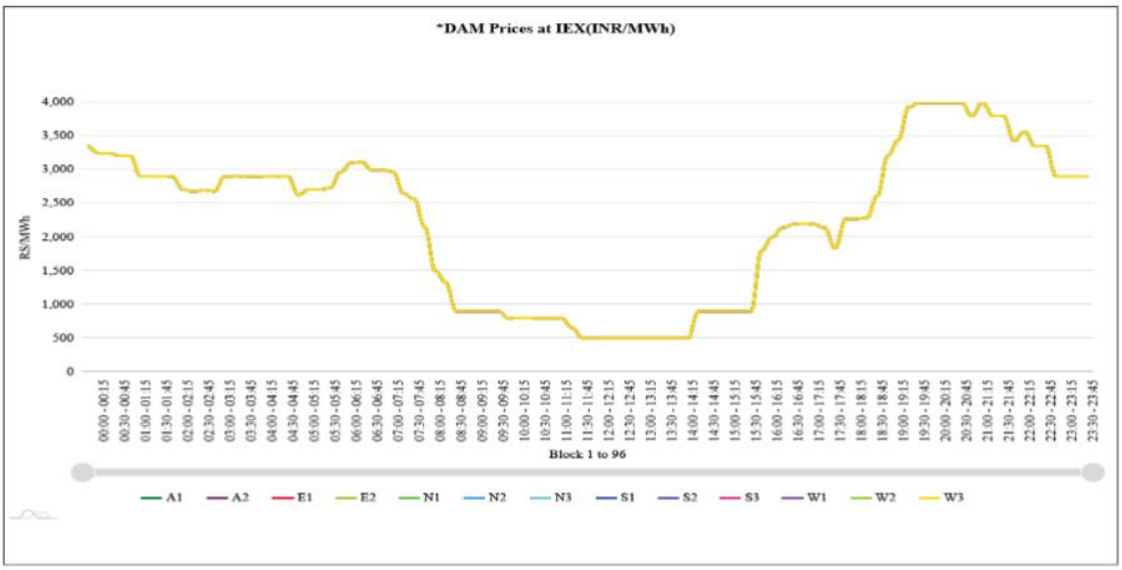


Figure 87: DAM Prices at IEX _25-Aug-24

As per above, DAM prices were close to 50 paise/unit whereas the variable cost of generating stations which got scheduled below MTL was between ~Rs 3/unit to ~ Rs 5/unit power, and hence, power from such generating station with high variable cost becomes unviable for sale in DAM / RTM. It is also observed from the table that DAM prices rose to ~Rs 4/unit in the evening peak hours.

13. Grid Code provides at Regulation 49(1)(f) as follows:

"

(f) Requisition of schedule by the buyers which are GNA grantees:

(i) Based on the entitlement declared in accordance with sub-clause (b) of clause (1) of this Regulation, SLDC on behalf of the intra-State entities which are drawee GNA grantees, shall furnish time block-wise requisition for drawal to the concerned RLDC in accordance with the contracts, by 8 AM of 'D-1' day.

(ii) Other drawee GNA grantees, which are regional entities shall furnish time block-wise requisition for drawal to the concerned RLDC in accordance with contracts, by 8 AM of 'D-1' day.

(iii) The SLDC on behalf of the intra-State entities which are drawee GNA grantees, as well as other drawee GNA grantees while furnishing time block-wise requisition under this Regulation shall subject to technical constraints, duly factor in merit order of the generating stations with which it has entered into contract(s):

Provided that the renewable energy generating stations shall not be subjected to merit order despatch, and subject to technical constraints shall be requisitioned first followed by requisition from other generating stations in merit order. "

As per above, drawee GNA grantees can requisition for drawl schedule duly factoring into merit order despatch where power from renewable energy generating stations are required to be scheduled first and not subjected to merit order despatch.

14. We observe that there was continuous high frequency for hours on the stated days of 4.08.204, 11.08.2024, and 25.08.2024. The situation needs to be addressed keeping in view more additions of RE generation in the future, particularly solar generating stations which would inject power during solar hours and varying demand patterns during such hours. It can also be established that many of such thermal plants, which get scheduled below MTL during solar hours, are required to be On-bar to meet the evening peak. At the same time, distribution licensees are mandated to schedule power from REGS first, which may be one of the reasons for giving a schedule below MTL during solar hours.

15. We have considered the issue of over-injection by thermal generating station to maintain injection upto MTL. Grid India has suggested to operationalise Two shift operation of selected thermal units as mentioned at Paragraph 6 of this Order. Grid India also informed that Two shift operations of Tuticorin and Mettur thermal units was carried out during coal shortage period (from March 2022 to May 2022) and high RE period (From June 2022 to October 2022) (total 308 times) as follows:

Unit wise no of Two shift operations in 2022

Sl.No	Generating Unit	No of Days Two shift operation done
1	Tuticorin - UNIT 1	14
2	Tuticorin - UNIT 2	47
3	Tuticorin - UNIT 3	31
4	Tuticorin - UNIT 4	67
5	Tuticorin - UNIT 5	48
6	Mettur TPS - UNIT 1	4
7	Mettur TPS - UNIT 2	33

8	Mettur TPS - UNIT 3	19
9	Mettur TPS - UNIT 4	43
10	Mettur TPS - UNIT 5	2

Tuticorin Unit#4 was operated with two shifts for more than two months during 2022

16. We have considered the suggestions of Grid-India and we are of the considered view that in order to address the challenges being faced with meeting the demand during evening hours with thermal power and, at the same time, low demand for such power during solar hours, action is required to operationalise two shift operation for some of the thermal plants keeping in view technical feasibility and operational efficiency.

17. The "Standard Technical Specification for Main Plant Package of Sub- critical Thermal Power Project - 2x(500MW or above) " issued by CEA in September 2008 provides as follows:

> *"1.4.3 The unit shall be designed to operate as a base load station. However, continuous operation under two shift and cyclic modes during certain periods of the year is also envisaged. The design should cover adequate provision for quick startup and loading of the unit to full load at a fast rate and apart from constant pressure operation would also have the facility for sliding pressure operation. The design of the equipments and control system would permit participation of the machine in automatic load frequency control."*

Similarly, "Standard Technical Features for BTG System for Supercritical 660/ 800 MW thermal units," issued by CEA in July 2013, provides as follows:

> *"2.1 The plant shall be designed to operate as a base load station and shall have a design life of minimum twenty five (25) years. However, continuous operation under two shift and cyclic modes during certain periods is also envisaged. The design of the plant equipment and control system would permit participation of the plant in automatic load frequency control."*

18. Although the standard specifications provide for two shifts , the thermal units have not been operated in two-shift mode. Hence, there is a need to first operate some of the coal based thermal units on two shifts on a pilot basis to gain experience and address technical issues encountered during the course of such pilot operation. Accordingly, we direct that as a pilot project, regional entity thermal generating stations whose tariff is determined by this Commission under Section 62 of the Act, to be operated in two-shift operations, shall be identified by NLDC in

consultation with the owner 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.

19. We clarify that since the pilot of two shifts is being carried out to gain operational experience, it is not necessary to select units that have the highest variable cost since such units may not give the best solution under operational efficiency. We acknowledge the fact that 600 MW/800 MW, which are newer units, are more efficient as compared to older 500 MW units. Accordingly, to start with rail-fed 500 MW Units may preferably be selected under the pilot project. We are of the considered view that two-shift operation has to be incentivised keeping in view the need for integration of renewables, especially Solar and safe grid operation, and hence, under the pilot, units operating under two shifts shall be paid incentive @20 paise/kwh (the ceiling rate for commitment charge under CERC Central Electricity Regulatory Commission (Ancillary Services) Regulations, 2022). Such incentive of 20 paise /unit shall be given for the down reserve created (below the-Minimum turndown level) for the hours the unit 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, considering MTL of 55%) and such unit shall be paid incentive @ 20 paise x 259.2 x 1000 kW x 10 hr for one day.

20. The broad modalities of the day ahead scheduling for such units identified for two shifts shall be as per Annexure-I to this Order.

21. 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 shall be submitted to the Commission for approval.

22. NLDC in association with owner(s) of the thermal generating units selected for pilot operations 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 owners of the thermal generating units selected for the pilot project shall maintain a record of extra expenditure incurred by it on account of it operating in two shifts, including operational parameters, wear and tear of units on this account.

B. Under-drawal by the States:

23. NLDC vide its report dated 17.09.2024 has emphasized the requirement of intra-state generating stations to operate up to minimum turndown level, especially keeping in view large under-drawl by States during the stated days of 4.08.24, 11.08.2024, and 25.08.2024. The state-wise summary of the down margin availability (based on a technical minimum of 55% of MCR) at the instant of highest recorded frequency of 50.38 Hz at 13:07 hrs as recorded in NLDC Report dated 17.09.24 is as under:

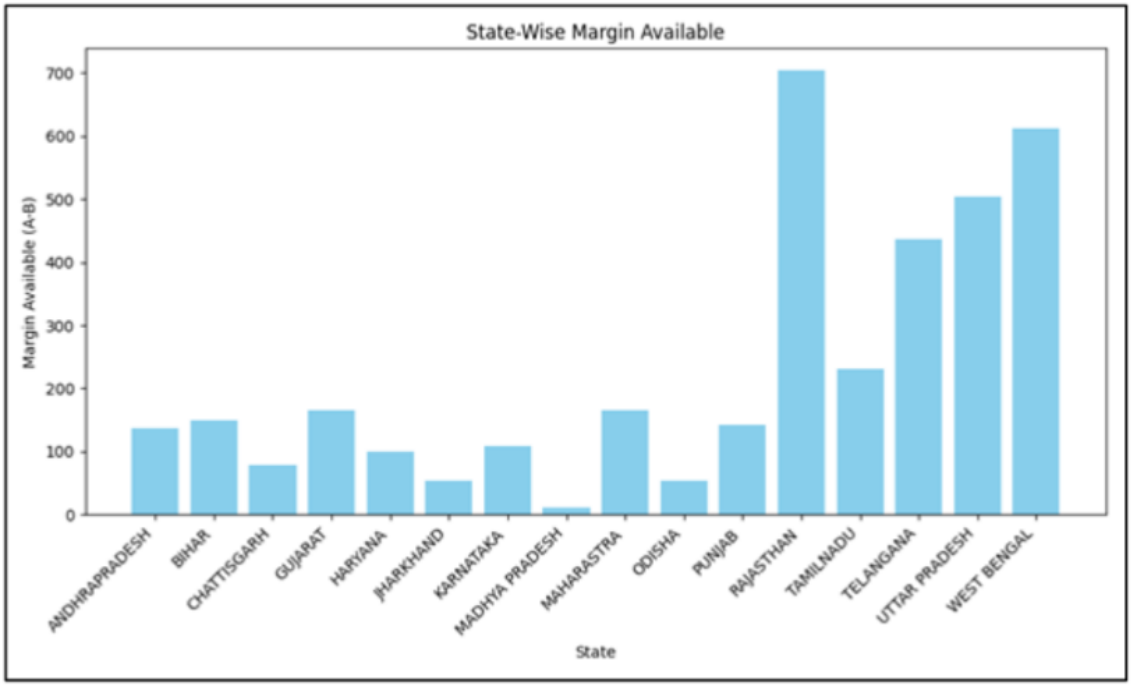


Figure 61: State wise down margin availability

The data of under-drawl by States, based on data obtained from NLDC, have been analysed as follows

(All figures in MW)

	12:30-12:45			12:45-13:00			13:00-13:15			13:15-13:30		
ER	**SD**	**AD**	**Deviation**	**SD**	**AD**	**Deviation**	**SD**	**AD**	**Deviation**	**SD**	**AD**	**Deviation**
BIHAR	**5137**	**5195**	**58**	**5144**	**5173**	**30**	**5285**	**5263**	**-22**	**5310**	**5317**	**7**
JHARKHAND	**1160**	**1230**	**70**	**1162**	**1219**	**57**	**1185**	**1215**	**30**	**1186**	**1197**	**11**
DVC	**-896**	**-727**	**169**	**-903**	**-757**	**146**	**-904**	**-758**	**146**	**-908**	**-732**	**176**
ODISHA	**2608**	**2600**	**-8**	**2610**	**2540**	**-70**	**2652**	**2565**	**-87**	**2653**	**2568**	**-85**
WB	**3105**	**3317**	**211**	**3154**	**3457**	**303**	**3252**	**3554**	**301**	**3320**	**3611**	**291**
SIKKIM	**41**	**40**	**-1**	**41**	**42**	**1**	**43**	**48**	**5**	**43**	**40**	**-3**
BANGLADESH_NVVN	**911**	**905**	**-6**	**911**	**906**	**-5**	**911**	**905**	**-7**	**911**	**906**	**-6**
Nepal	**-620**	**-598**	**22**	**-620**	**-603**	**17**	**-620**	**-586**	**34**	**-620**	**-616**	**4**
ECR	**2**	**6**	**5**	**1**	**6**	**5**	**1**	**6**	**5**	**1**	**7**	**6**
NEA_Bihar	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Bhutan	**-1733**	**-1768**	**-35**	**-1733**	**-1773**	**-40**	**-1733**	**-1771**	**-38**	**-1733**	**-1767**	**-34**
NR												
Uttar Pradesh	**9037**	**11815**	**2778**	**8919**	**11137**	**2218**	**8908**	**10053**	**1145**	**8909**	**9692**	**782**
Haryana	**7360**	**7553**	**193**	**7328**	**7610**	**282**	**7438**	**7571**	**133**	**7437**	**7578**	**141**

Himachal Pardesh	137	199	62	137	209	72	163	204	41	163	176	13
Delhi	4690	4738	48	4663	4763	100	4718	4676	-42	4736	4657	-79
Uttarakhand	646	599	-47	646	585	-61	613	618	5	613	632	20
Rajasthan	2607	2475	-132	2625	2663	38	2686	2543	-142	2693	2421	-272
Punjab	9801	9940	139	9801	10007	206	9866	10053	186	9871	10041	170
Chandigarh	239	262	23	241	267	26	263	272	9	263	277	14
Jammu and Kashmir	1195	1342	147	1195	1302	107	1213	1359	146	1213	1388	176
Nepal PTC	-61	-50	11	-61	-55	6	-61	-59	2	-61	-61	0
SR												
Andhra pradesh	1709	2328	619	1713	2469	756	1618	2145	527	1633	2233	600
Telangana	3867	3994	127	3881	3959	79	3663	3983	320	3567	3833	265
Karnataka	-1302	-1254	48	-1268	-1242	26	-1229	-1325	-96	-1250	-1421	-171
Kerala	2166	2222	56	2127	2235	108	2138	2249	111	2138	2251	113
Tamil nadu	4689	2011	-2677	4745	1898	-2847	4560	1931	-2629	4979	2140	-2838
Pondichery	412	384	-27	413	391	-22	414	398	-16	416	394	-22
Goa-SR	83	82	-1	83	82	-2	83	75	-8	83	78	-5
WR												
Chhattisgarh	2562	2645	83	2576	2548	-28	2233	2525	292	2177	2465	287
Gujarat	5110	5012	-98	5155	5066	-89	5186	4964	-222	5153	4955	-198
Madhya Pradesh	4746	3730	-1016	4767	3755	-1012	4839	4150	-689	4841	4275	-565
Maharashtra	6146	4796	-1350	5849	4774	-1074	5758	4699	-1060	5752	4651	-1101
Goa	445	426	-19	445	412	-33	443	405	-39	443	397	-47
DNH-DD	1175	1214	40	1160	1208	47	1155	1195	40	1155	1195	40
Balco Drawee	526	522	-4	526	521	-5	526	521	-5	526	520	-6
PG DRAWAL	6	5	-1	6	5	-1	6	5	-1	6	5	-1
ESIL	0	286	286	0	394	394	0	510	510	0	353	353
BARC	9	4	-4	9	4	-4	9	4	-4	9	4	-4
NER												
Arunachal Pradesh	105	108	2	105	112	6	105	111	5	105	104	-1
Assam	1492	1511	19	1502	1532	30	1513	1545	32	1523	1565	42
Manipur	103	103	-1	103	104	1	103	102	-1	103	103	0
Meghalaya	-20	-20	0	-24	29	53	-24	81	105	-27	53	80
Mizoram	19	5	-14	19	7	-12	21	8	-12	21	9	-12
Nagaland	100	105	4	100	103	2	101	99	-1	101	100	-1
Tripura	152	153	2	152	153	1	152	154	2	152	141	-10
Overdrawl			5223			5118			4133			3591
Underdrawl			-5442			-5306			-5121			-5464
Net			-219			-189			-988			-1873

As per above, overall under-drawl was more than 5000 MW with simultaneous over-drawl by some states leading to net under-drawl of ~1800 MW in the time block when maximum frequency was observed. As per Figure 61 of the NLDC Report dated 17.9.2024, quoted above, the maximum down reserves that could be despatched were in the States of Rajasthan, UP, Telangana, and West Bengal. Out of these, UP, West Bengal and Telangana were overdrawing during the stated blocks. This implies that resources with down reserve availability within the State need to be seen as a part of the overall generator mix for the Indian grid, which may be despatched as per the requirement.

24. NLDC has suggested operationalising the intra-state generating stations to go upto Minimum turndown level. The issue was discussed during the Second Meeting of the Standing Technical Committee, which was held on September 20, 2024, under the Chairmanship of Shri Ramesh Babu Veeravalli, Member (Technical), CERC, wherein the following was concluded:

> *"2. Representatives of the GRID-India apprised the committee on the framework of minimum turn-down levels and compensation for inter-state and intra-state thermal generating stations . It was highlighted that for inter-State generating stations, a minimum turn-down level of 55% has been specified in IEGC to enable flexible operation in the wake of RE integration into the system. This has also been supported with a corresponding compensation mechanism for the deterioration of heat rates, auxiliary energy consumption and oil support. Representative of Grid-India apprised the Forum that many States are yet to implement the matching provisions of minimum turn down level for intra-state thermal generating stations. Some States have specified a minimum turn--down level up to 55% but have not provided any compensation mechanism for intra-state generators to recover their cost due to heat rate deterioration, auxiliary consumption, or oil support. It was highlighted during the meeting that on a number of instances where even pit head cheaper inter-state generating stations are being backed down by the system operator to accommodate renewable energy. In view of the ambitious RE integration targets by 2030, it was emphasised that the intra-State generating stations also need to be enabled to run at a minimum turn-down level of 55% on lines of inter-state thermal generating stations.*
>
> *3. After deliberations, it was decided that a sub-group of technical experts should be formed to assist state- thermal plant operators in lowering the minimum turn down level upto 55%. This group should consist of representatives from GRID India, NTPC and key states like Uttar Pradesh, Haryana, Maharashtra, Madhya Pradesh, and Karnataka. Further, it was decided that the state thermal generating stations from five states namely, Andhra Pradesh, Telangana, Tamil Nadu, West Bengal and Odisha, may be selected in the initial phase for technical experts to visit and implement the required testing and procedure to implement minimum turn down level for state thermal generating stations."*

The Commission notes that the sub-group shall assist the state level thermal plants to lower their MTL up to 55%. The commission shall review the status of implementation under the aegis of the Standing Technical Committee of FOR.

C. Over-injection by the RE Generators:

25. One of the reasons for the high frequency during the stated days was Over-injection by the RE Generating Stations over and above their schedule. Data for REGS over-injection for 25.08.2024 is as under:

Time block	Over-injection (MW)
10:30-10:45	1737
10:45-11:00	2033
11:00-11:15	1928
11:15-11:30	2094
11:30-11:45	1799
11:45-12:00	2054
12:00-12:15	1849
12:15-12:30	1918
12:30-12:45	1805
12:45-13:00	1723
13:00-13:15	1727
13:15-13:30	1702

26. It is observed that out of the three issues leading to high frequency which are being considered under the instant Order viz (i) over-injection by thermal units to maintain MTL, (ii) under-drawl by States, (iii) over-injection by REGS, it is observed that there was a substantive quantum of over-injection by such REGS leading to high frequency.

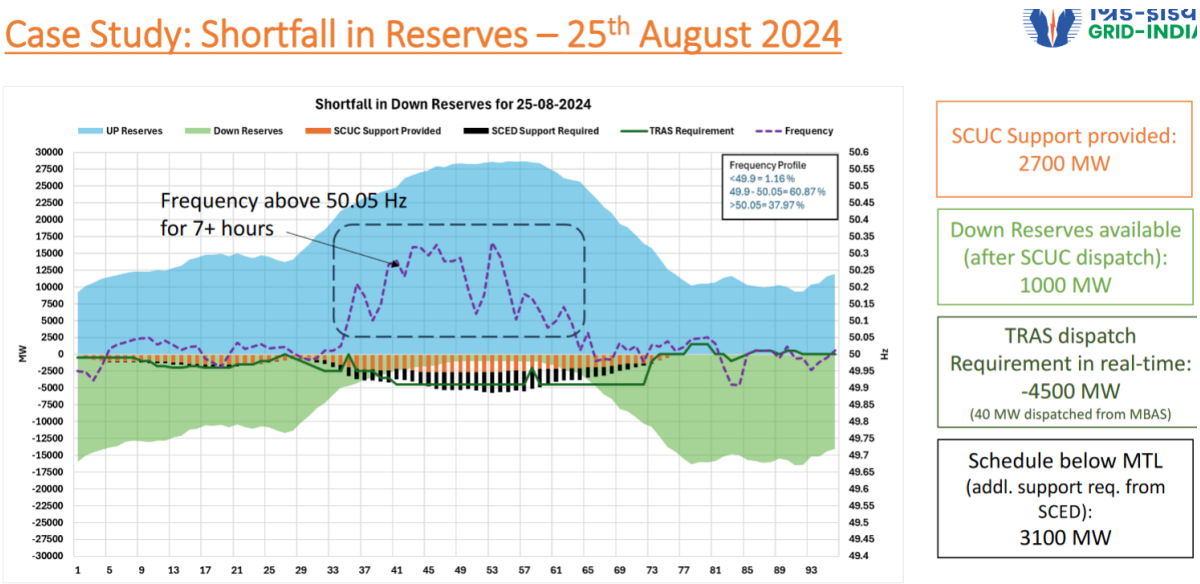
27. We observe that the Deviation settlement mechanism for RE allows over-injection by RE within the allowable band with no penalty, even when the frequency is high. We appreciate that in order to manage the grid in conditions of high frequency, the solution lies in reducing the renewable generation. We note that Regulation 8(8) of

the CERC(Deviation Settlement Mechanism and Related Matters) Regulations,2024 effective from 23.12.2024 have been amended as follows:

> *"(8) The charges for injection of infirm power shall be zero:*
>
> *Provided that if infirm power is scheduled after a successful trial run as specified in the Grid Code, the charges for deviation over the scheduled infirm power shall be as applicable for a general seller or WS seller, as the case may be:*
>
> *Provided further that when the system frequency, f > 50.05Hz, the charges for deviation of scheduled infirm power by way of over injection by a general seller or WS seller, as the case may be, shall be zero."*

As per above charges for over-injection (in case of scheduled infirm power) have been reduced to zero for both general seller and WS seller in case of frequency is more than 50.05 Hz.

28. Further NLDC, in its report dated 17.09.2024, stated that all down reserves in thermal generating stations were exhausted as per Figure below. In fact, we have already observed that many thermal units did not have a schedule up to MTL and were over injecting to remain on bar to meet schedules for the evening.



29. In this situation where there are no thermal reserves to back down, REGS needs to be backed down so that the grid is operated in a safe and secure manner. Grid Code provides at Regulation 30(10(j) as under:

> *"(j)All generating stations, including the WS seller mentioned in Table-4 (under sub-clause (g) of this clause) shall have the capability of reducing output at least by 5% or 10%, as applicable, of their operating level and up to 5% or 10% of their MCR, as applicable, limited to the minimum turndown level when the frequency rises above the reference frequency and thus providing primary response, whenever condition arise. Any generating station not complying with the above requirements shall be kept in operation (synchronized with the regional grid) only after obtaining permission from the concerned RLDC.*
>
> *…*
>
> *(m)The PRAS shall start immediately when the frequency deviates beyond the dead band as specified in sub-clause (k) of this clause and shall be capable of providing its full PRAS capacity obligation within 45 seconds and sustaining at least for the next five (5) minutes. "*

As per above, PRAS for REGS is mandated for the specified WS Sellers. However, there is no record of whether REGS did provide the PRAS, especially keeping in view the high quantum of over-injection by REGS. We direct 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, 11.08.024, and 25.08.2024 within a period of one month of issue of this Order.

30. NLDC has carried out the pilot study at Adani Devikot (180 MW), where the performance baseline established from the tests for the Devikot Solar plant is between 80%-100%. Keeping in view the controllability of REGS with PPC mandated under the Grid Code, there is a need to incentivise REGS to come forward for AGC services. NLDC shall, in consultation with REGS, identify additional REGS, including based on wind sources, for a pilot study for operationalising AGC in REGS. 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 issue of this Order, after consultation with stakeholders.

31. As per the scheduling principles, RE is to be despatched first. However, since the availability of RE sources is not enough to meet the demand in the evening without the thermal sources, hence thermal is required to be on bar to provide power during evening hours. In such a scenario, thermal units that cannot be taken under two shifts , with schedules below MTL, resort to over-injection in to the grid, which is not a desirable & feasible solution. Therefore a framework need to be worked out to install ESS systems at such thermal units to store the excess energy rather than over-injecting in grid leading to wastage of energy, high frequency, which is both technically and commercially unviable. We direct the Commission's staff to work out modalities for the implementation of ESS at thermal generating stations keeping in view the above.

32. The directions under this Order are summarised as follows:

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, 11.08.024, 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.

33. Regulation 60 of the Grid Code provides as follows:

"60. ISSUE OF SUO MOTO ORDERS AND DIRECTIONS
The Commission may from time to time issue suo motu orders and practice directions with regard to implementation of these regulations and matters incidental or ancillary thereto, as the case may be."

34. Accordingly, the directions under this Order are issued under Regulation 60 of the Grid Code, specifically under Clauses (2) and (3) of Regulation 30 of the Grid Code.

35. Accordingly, Suo Motu Petition 2/SM/2025 is disposed of in terms of the above.

Sd/	Sd/	Sd/	Sd/
(R.S. Dhillon)	**(Harish Dudani)**	**(Ramesh Babu V.)**	**(Jishnu Barua)**
Member	**Member**	**Member**	**Chairperson**

Annexure-I

Modalities of day ahead scheduling from units identified under two shifting

1. Generating station shall declare DC on day ahead basis as per the timelines under the Grid Code.
2. Beneficiaries/ buyers shall be eligible to requisition share from such generating station as per the provisions of the Grid Code under GNA / T-GNA under Regulation 49(1)(a)- (j) of the Grid Code.
3. For the time blocks in which generating station is required to be off-bar due to two shifting, the schedules from such generating station as finalised upto Regulation 49(1)(k) of the Grid Code i.e. till issuance of final drawl schedules of T-GNA grantee and release of balance corridors by RLDC for market on 'D-1' day, shall be allowed to be revised by beneficiaries/buyers downwards only. No upward revision shall be permitted for such time blocks in which generating units are off- bar due to two shifting.
4. The schedule for the generating station(s) as finalized on day ahead basis for the time blocks during which the generating station is decided to be off-bar due to two shifting shall be adjusted through SCUC in the real-time prior to running SCED under Regulation 49(2)(a)(iv) as per following
    a. SCUC-Down will be provided for the stations in the time blocks in which generating station is required to be off-bar due to two shifting
    b. To maintain load-generation balance, commensurate SCUC-Up will be provided over and above the schedule of the generating stations on-bar in the merit order of ECR.
    c. This SCUC-Up is in addition to the incremental generation scheduled to bring the generation up to minimum turndown level in the general 'SCUC-Yes' units selected in D-1, but not identified for two-shifting.
5. The accounting and settlement for the two shifting operation shall be as per the modified Detailed Procedure for SCUC to be issued by NLDC considering the following
    a. Deviation and Ancillary Service Pool Account shall be utilized for SCUC
    b. Startup costs, if applicable, shall be paid from the Deviation and Ancillary Service Pool Account for generating stations undertaking two-shifting as per the Detailed Procedure.