सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

विषय: उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 218 वीं बैठक का कार्यवृत |

Subject: Minutes of the 218th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 218 वीं बैठक दिनांक 18.04.2024 को आयोजित की गयी थी। उक्त बैठक का कार्यवृत्त उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट http://164.100.60.165 पर उपलब्ध है। यदि कार्यवृत पर कोई टिप्पणी हो तो कार्यवृत जारी करने के एक सप्ताह के अन्दर इस कार्यालय को भेजें |

The 218th meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 18.04.2024. The Minutes of this meeting has been uploaded on the NRPC website http://164.100.60.165. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

संलग्नक: यथोपरि।

Signed by Dharmendra Kumar Meena
Date: 03-05-2024 18:33:13

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

सेवा में,

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

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उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 218 वीं बैठक का कार्यवृत्त

The 218th OCC meeting of NRPC was held on 18.04.2024 through video conferencing. MS, NRPC welcomed all participants.

खण्ड-क:उ.क्षे.वि.स. PART-A:NRPC

A.1. Confirmation of Minutes

Minutes of the 217th OCC meeting was issued on 27.03.2024. OCC confirmed the minutes of the meeting.

A.2. Review of Grid operations of March 2024

Anticipated vis-à-vis Actual Power Supply Position (Provisional) for March 2024

Reasons submitted by States for significant deviation of actual demand from anticipated figures during the month of March 2024 are as under:

- **Himachal Pradesh**

  The Anticipation in Energy Requirement & Peak Demand in respect of Himachal Pradesh for the month of March, 2024 came on the lower side due to pleasant weather throughout the State (specially in lower belt).

- **Punjab**

  It is intimated that actual maximum demand is more as compared to anticipated maximum demand due to dry weather and increased demand of all categories of consumers in the state of Punjab, in the third week of March 2024. However, during first and last week of the month, there was comfortable weather due to rainfall/cloudy conditions which resulted in less Actual Energy Requirement of the month of March in the state of Punjab.

- **Rajasthan**

  The Actual Energy requirement w.r.t. Anticipated Energy requirement for the month March' 2024 decreased by 7.0% due to early reduction of Agriculture load and the Actual peak demand w.r.t. Anticipated peak demand for the month March' 2024 increased by 0.2 % which is within permissible limit.

- **Haryana**

  It is intimated that the (-)ve variation (≥5%) in Actual Power Supply Position (Provisional) vis-à-vis Anticipated figure is observed for the month of March-2024 in terms of Peak Demand for Haryana as weather has been comparatively cold during March-24.

A.3. Maintenance Programme of Generating units and Transmission Lines

The maintenance programme of generating units and transmission lines for the month of May 2024 was deliberated in the meeting on 16.04.2024.

A.4. Anticipated Power Supply Position in Northern Region for May 2024

The updated anticipated Power Supply Position for May 2024 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	180	360	No Revision submitted
	Requirement	170	361	
	Surplus / Shortfall	10	-1	
	% Surplus / Shortfall	6.1%	-0.2%	
DELHI	Availability	4392	7200	15-Apr-24
	Requirement	3800	7200	
	Surplus / Shortfall	592	0	
	% Surplus / Shortfall	15.6%	0.0%	
HARYANA	Availability	7370	12240	No Revision submitted
	Requirement	5839	11388	
	Surplus / Shortfall	1531	852	
	% Surplus / Shortfall	26.2%	7.5%	
HIMACHAL PRADESH	Availability	1093	1885	09-Apr-24
	Requirement	1108	1780	
	Surplus / Shortfall	-16	105	
	% Surplus / Shortfall	-1.4%	5.9%	
J&K and LADAKH	Availability	1950	3300	No revision submitted
	Requirement	1860	3069	
	Surplus / Shortfall	90	231	
	% Surplus / Shortfall	4.8%	7.5%	
PUNJAB	Availability	7220	11610	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Requirement	6000	12557	17-Apr-24
	Surplus / Shortfall	1220	-947	
	% Surplus / Shortfall	20.3%	-7.5%	
RAJASTHAN	Availability	9510	18280	18-Apr-24
	Requirement	9040	17000	
	Surplus / Shortfall	470	1280	
	% Surplus / Shortfall	5.2%	7.5%	
UTTAR PRADESH	Availability	14570	27500	09-Apr-24
	Requirement	14260	27500	
	Surplus / Shortfall	310	0	
	% Surplus / Shortfall	2.2%	0.0%	
UTTARAKHAND	Availability	1418	2505	06-Apr-24
	Requirement	1442	2550	
	Surplus / Shortfall	-24	-45	
	% Surplus / Shortfall	-1.6%	-1.8%	
NORTHERN REGION	Availability	47703	78400	
	Requirement	43519	77000	
	Surplus / Shortfall	4184	1400	
	% Surplus / Shortfall	9.6%	1.8%	

A.5. Follow-up of issues from various OCC Meetings - Status update

A.5.1. The updated status of agenda items is enclosed at ***Annexure-A.I.***

A.5.2. In 218th OCC, SLDCs were requested again to coordinate with respective Transmission Utilities of states/UTs and submit details about the updated status of Down Stream network by State Utilities from ISTS Station (enclosed as ***Annexure-A-I.I***) before every OCC meeting.

A.6. NR Islanding scheme

A.6.1. In the meeting (218th OCC), UPSLDC representative mentioned that SCADA implementation for **Unchahar** islanding scheme is under progress.

A.6.2. With regard to **Agra** islanding scheme, UPPTCL representative apprised forum that procurement of UFR is under process and tender would be floated after general election 2024.

A.6.3. Representative from RRVPNL intimated forum that DPR for **Jodhpur-Barmer Rajwest** has submitted to NRPC. NRLDC stated that providing comments on the DPR falls beyond the work area and expertise of NRLDC. Further, NRLDC mentioned that RVPNL, being the nodal authority overseeing this project in coordination with Rajasthan SLDC, possesses the requisite expertise and resources to ensure the DPR's compliance with the approved scheme.

A.6.4. With regard to DPR for **Suratgarh** Islanding scheme, RRVPN representative informed that it would be on similar lines as the DPR for Rajwest and same is under preparation.

A.6.5. With regard to Patiala-Nabha Power **Rajpura** islanding scheme representative from Punjab SLDC informed that DPR for PSDF funding has been approved from their management and it has been submitted to PSDF Secretariat.

A.6.6. With regard to **Kullu-Manali** Islanding scheme, HPSLDC representative apprised forum that a meeting was held on 19.03.2024 between officials of HPSLDC and HPSEB wherein Chief Engineer (System Operation) HPSEB mentioned that he would take up the cited matter with their higher management to expedite the approval for UFR procurement for the said islanding scheme.

A.6.7. With regard to **Shimla-Solan** Islanding scheme representative from HPSLDC stated that HPSEB has intimated that for machines in Bhaba HEP to run in islanding scheme the frequency settings needs to be activated. The matter has been taken up with M/s GE and they have given clearance to enable the UFR setting of Bhaba HEP at 47.5 Hz. M/s GE has submitted a performa invoice for 100% advance payment regarding the same.

A.7. Coal Supply Position of Thermal Plants in Northern Region

A.7.1. In the meeting, NRPC representative apprised forum about the coal stock position of generating stations in northern region during current month (till 10th April 2024).

A.7.2. Average coal stock position of generating stations in northern region, having critical stock, during first ten days of April 2024 is NIL.

A.8. Status of availability of ERS towers in Northern Region (Agenda by NRPC Sectt.)

A.8.1. In the meeting, EE(O) NRPC apprised forum updated inputs received from utilities are attached as **Annexure-A.II.**

A.8.2. MS, NRPC asked transmission utilities of NR that have not submitted the status of ERS set/towers available with them to submit the requisite information before next OCC meeting.

Decision of the OCC forum

- *Forum asked the transmission utilities of NR that have not submitted the status of ERS set/towers available with them to submit the requisite information before next OCC meeting.*

A.9. Flexible Operation of Coal Based Thermal Power Plants (Agenda by CEA)

A.9.1. In the meeting, CEA representative presented the matter to the forum.

A.9.2. MS, NRPC enquired CEA about the list of thermal generating station in northern region that have not met 55% Technical Minimum Load (TML) till date.

A.9.3. CEA representative replied that as desired by MS NRPC they would share above mentioned list vide email with NRPC.

A.9.4. CGM NRLDC mentioned that presently ISGS stations are being scheduled with technical minimum load of 55% as per IEGC.

A.9.5. MS, NRPC asked the thermal generating stations of NR that are not able to achieve technical minimum level of 55% to take necessary action so as to comply with CEA (Flexible operation of Coal Based Thermal Power Generating Units) regulations, 2023. Further, he requested all thermal generating station of NR to submit the requisite information as per **Annexure-A.III** to CEA at cetprm-cea@gov.in.

A.9.6. Representative of CEA mentioned that in compliance of CEA (Flexible operation of Coal Based Thermal Power Generating Units) regulations, 2023, CEA has prepared a roadmap for achieving the minimum load operation of 40% in a phased manner. Under the Pilot Phase of the phasing plan, 2 no. of thermal generating stations of NR namely, **Suratgarh SCTPP unit 8** and **Dadri TPS unit 6** has been considered.

A.9.7. MS, NRPC enquired NTPC and RRVUN whether their above mentioned units have been able to achieve technical minimum load of 40%.

A.9.8. Representative of NTPC informed that they are facing certain operational issues in achieving minimum load operation of 40% and these issues resolved in a phased manner.

A.9.9. MS, NRPC asked NTPC and RRVUN to submit the requisite information regarding pilot phase of phasing plan as per **Annexure-A.IV** to CEA at cetprm-cea@gov.in.

Decision of the OCC forum

- *Forum requested all thermal generating station of NR to submit the requisite information as per **Annexure-A.III** to CEA at cetprm-cea@gov.in. Frther, forum requested NTPC and RRVUN to submit the requisite information regarding pilot phase of phasing plan as per **Annexure-A.IV** to CEA at cetprm-cea@gov.in.*

A.10. Review of SPS at Jawaharpur TPS (Agenda by UPSLDC)

A.10.1. In the meeting, UPSLDC intimated that 660MW unit – 01 of Jawaharpur TPS tripped on SPS at 09:49 hrs. on 07.04.2024. At present SPS is in disabled condition to avoid generation outage.

A.10.2. Therefore, UPSLDC has stated that system protection scheme needs to be reviewed on the basis of load flow study of sub-stations connected with Jawaharpur TPS. Representative of UPSLDC presented to the forum detailed load flow study.

A.10.3. He mentioned that earlier there was single 1000 MVA ICT at Mainpuri S/s for evacuation of power from Bara TPS. On tripping of 765kV Jawaharpur-Gr. Noida line power of both Jawaharpur TPS and Bara TPS was routed towards the single 1000 MVA ICT at Mainpuri S/s.

A.10.4. UPSLDC representative also stated that now with the commissioning of both second 1000 MVA ICT at Mainpuri S/s and 765kV Mainpuri- Hapur line there is now sufficient evacuating capability at Mainpuri S/s. therefore SPS at Jawaharpur TPS is not required.

A.10.5. NRLDC representative mentioned that proposal submitted by UPSLDC seems to be in order and implemented SPS may be disabled now after commissioning of 2nd ICT at 765/400kV Mainpuri. Further, UPSLDC was requested that that 765/400kV ICT commissioning at Jawaharpur TPS may also be expedited.

A.10.6. OCC forum agreed for disabling of existing SPS at Jawaharpur TPS.

Decision of the OCC forum

- *OCC forum agreed for disabling of existing SPS at Jawaharpur TPS.*

A.11. Review of SPS for safe evacuation of power from Anpara Complex in view of commissioning of 2X1000 MVA ICT at Obra C (Agenda by UPSLDC)

A.11.1. In the meeting, UPSLDC informed that the expected date of commissioning of 2X1000 MVA ICT at Obra C TPS i.e. ICT-I and ICT-II is April 2024 and September 2024 respectively.

A.11.2. In view of commissioning of 2X1000 MVA ICT at Obra C, UPSLDC has requested that SPS installed at Anpara D TPS for safe evacuation of power from Anpara Complex need to be reviewed.

A.11.3. UPSLDC representative presented to the forum detailed basecase and proposed revised logic. (copy attached as Annexure-A.X. of agenda).

A.11.4. In the meeting, UPSLDC mentioned that based on the said study and concerned raised by Anpara B TPS following are their recommendations:

- 400kV Anpara-Singrauli line should remain in service and flow on HVDC Vindhyachal BTB should be from NR-WR until 2X1000 MVA ICTs at Obra C and revised SPS for Anpara Complex is commissioned.
- In case of single contingency that is tripping of either 765kV Anpara C-Unnao or 765kV Anpara D-Obra C -Unnao line, 400kV Anpara-Singrauli line should be connected (in case it is opened) as a standard operating procedure and flow on HVDC Vindhyachal BTB should be from NR to WR.

A.11.5. NRLDC representative stated that they had mailed their comments to UPSLDC vide email dated 12.04.2024. Following comments were provided:

- It was requested to consider 400kV Singrauli-Anpara out of service for simulation studies (agreed in 212th OCC)
- It was requested to consider slightly lower generation may be considered at Obra-B for any issues in that scenario (2-3 machines may be considered in service)
- It was also suggested that UP SLDC may also explore possibility of tripping/ backing down of Anpara TPS generation, rather than Anpara C or Anpara D generation as in this case minimum generation backing down/ tripping would be required.

A.11.6. MS, NRPC stated that UPSLDC and NRLDC may discuss the proposal separately and after mutual agreement, the agenda may be once again discussed in OCC meeting.

Decision of the OCC forum

- *OCC forum was of view that the proposal may be discussed separately between UPSLDC and NRLDC and after mutual agreement, the agenda may be once again discussed in OCC meeting.*

A.12. Commissioning work of Tehri PSP and its impact on operation of Tehri HPP and Koteshwar HEP (agenda by THDCIL)

A.12.1 The cited matter was deliberated in the outage meeting of 218th NRPC and forum advised THDC to approach MoP/CEA on the said subject.

Decision of the OCC forum

- *OCC forum advised THDC to approach MoP/CEA for the proposed shutdown of Tehri HPP and Koteshwar HEP.*

A.13. In-Principle approval for diversion of old transmission lines due to change in soil and land profile in Singrauli / Rihand complex under ADD-CAP. (Agenda by Powergrid NR-3)

A.13.1. In the meeting, Powergrid NR-3 representative informed that 07 No. of the lines in Singrauli/Rihand complex have completed its useful life of 35 years and 02 No. of lines are more than 32 years old (details of the said lines mentioned in the agenda. Due to long period of time and change in profile of soil and land, leg of many towers got rusted /over soiled.

A.13.2. Powergrid NR-3 representative stated that the profile of land is 1-2 mtr above concrete level. After removing excess soil near tower leg, a pit is formed near leg and water starts logging due to which rusting again started resulting in damaging tower leg. Removing excess soil near tower leg every time is not a permanent solution.

A.13.3. Representative of CTU stated that proposal may be validated from third party/independent agency.

A.13.4. MS, NRPC suggested Powergrid NR-3 to get their proposal validated from third party/independent agency and thereafter again submit to NRPC forum the detailed proposal including cost-wise analysis.

Decision of the OCC forum

- *OCC forum advised Powergrid NR-3 to get their proposal validated from third party/independent agency and thereafter again submit to NRPC forum the detailed proposal including cost-wise analysis.*

A.14. Table Agenda 1: Provision of Phasor Measurement Units (PMUs) at POI in RE feeders in Rajasthan (Agenda by Powergrid NR-1)

A.14.1 Powergrid NR-1 representative informed that in the 62nd NRPC Meeting, 8 nos of PMUs were approved for installation at each Bus of POI sub-stations namely Fatehgarh-II, Bhadla, Bikaner, and Bhadla-II. Now PMUs has been delivered at all sub-stations, for integration of PMUs with NRLDC, database/IP address were requested but they requested to shift 2 nos of PMUs from Bhadla-2 (PG) and Bikaner (PG) which was considered for POI on 400kV Bus.

A.14.2 Further, he intimated that SO Department/NRLDC dtd 03.04.2024 mentioned that PMUs (2 nos) envisaged for 400kV bus at Bhadla-2(PG) and Bikaner(PG) RE pooling stations may be shifted on newly commissioned 220kV bus at Fatehgarh-3(PG) & Bikaner-2(PG) pooling stations.

As per discussions with NRLDC, 8 nos. of PMU shall be installed in following manner:

1) 220kV Bikaner-I Bus-1 & 2

2) 220kV Bhadla-I Bus-1 & 2
3) 220kV Bhadla-II Bus-1A & 2A
4) 220kV Bhadla-II Bus-1C & 2C
5) 220kV Fatehgarh-2 Bus-1B & 2B
6) 220kV Fatehgarh-2 Bus-3B & 4B
7) 220kV Bus at Fatehgarh-3
8) 220kV Bus at Bikaner-2

A.14.3 NRLDC requested for shifting 2 nos of PMUs from 400kV bus at Bhadla-2(PG) and Bikaner(PG) RE pooling stations to newly commissioned 220kV bus at Fatehgarh-3(PG) & Bikaner-2(PG) pooling stations.

Decision of the OCC forum

- *OCC forum agreed to NRLDC request for shifting 2 nos of PMUs from 400kV bus at Bhadla-2(PG) and Bikaner(PG) RE pooling stations to newly commissioned 220kV bus at Fatehgarh-3(PG) & Bikaner-2(PG) pooling stations.*

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

B.1 NR Grid Highlights for March 2024

NRLDC representative presented the major grid highlights of Northern region grid for March 2024 as shown below:

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	237	05.03.24 at 07:00	4.00	29.03.2024	3.51
2	Delhi	4482	08.03.24 at 09:43	84.82	30.03.2024	71.10
3	H.P.	1982	01.03.24 at 08:00	35.36	01.03.2024	30.63
4	Haryana	7747	18.03.2	152.27	19.03.2024	138.36

			4 at 12:30			
5	J&K	2910	05.03.24 at 07:00	60.01	05.03.2024	55.08
6	Punjab	10214	20.03.24 at 10:45	184.73	20.04.2024	151.56
7	Rajasthan	16773	01.03.24 at 10:00	307.59	12.03.2024	288.30
8	Uttarakhand	2260	01.03.24 at 08:00	43.18	29.03.2024	39.34
9	U.P.	21243	30.03.24 at 19:44	407.91	30.03.2024	336.74
10	**Northern Region**	**60002**	**19.03.24 at 10:00**	**1212.50**	**29.03.2024**	**1114.61**

***As per SCADA**

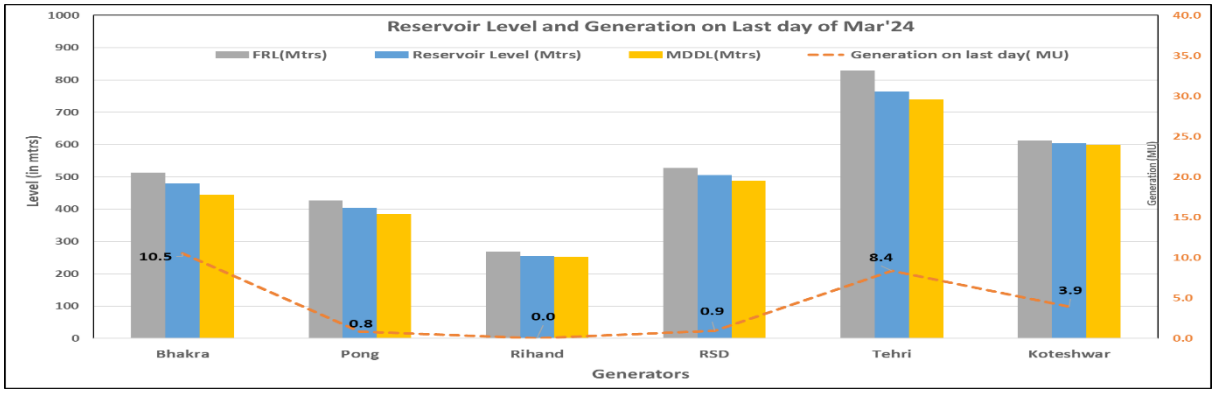
Northern Region all-time high value recorded in March'24:

Nil

Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
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
Mar'23	50.00	50.48	49.56	9.0	65.4	25.6

Reservoir Level and Generation on Last Day of Month

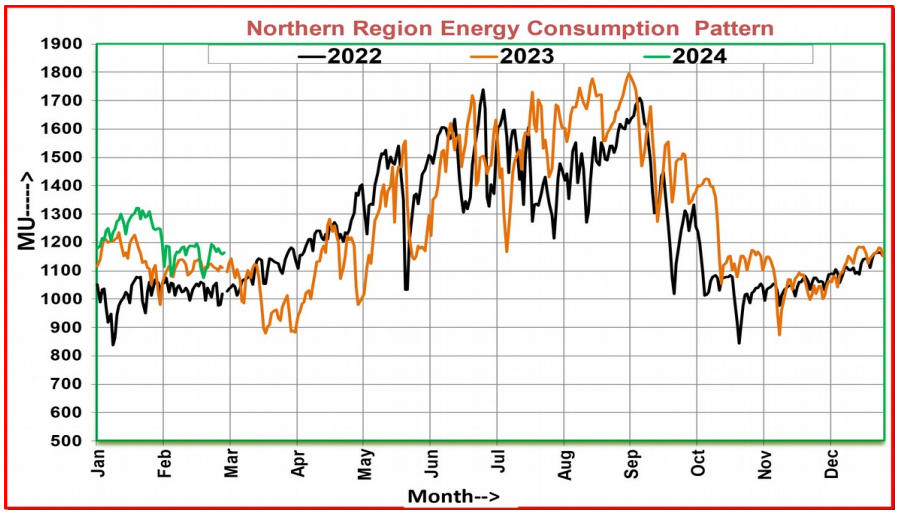


Detailed presentation on grid highlights of Mar'2024 as shared by NRLDC in OCC meeting is attached as Annexure-B.I.

B.2 Summer Preparedness 2024

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

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 distribution level are big challenge to safe and secure grid operation. The energy consumption pattern of Northern region for last 3 years as presented in the meeting is shown below:



To overcome the commonly encountered challenges during summer months and ensuring smooth grid operation, following are some of the key actions that were agreed in last OCC meeting for ensuring safe and secure grid operation during summer 2024 are listed below:

- Apart from GNA/Market 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.

- Regular monitoring of weather websites for weather forecast information and plan 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.
- 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.
- SLDCs to arrange for 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.
- Some states continue to connect/ disconnect large quantum of load at hourly boundaries resulting in frequency spikes and instantaneous over voltages. Such actions to be avoided especially during high demand season.
- States to take actions to ensure backing down of thermal generation as per latest regulations issued by CEA regarding thermal plants flexible operation.
- 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.
- 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.
- Latest status regarding availability of ERS to be submitted by all transmission utilities to NRPC/ NRLDC.
- Take all necessary precautions to avoid any issues arising due to low voltages during summer months.
- All state control area/Users shall ensure before start of summer that their protection and defence system are in working conditions and settings are as per the recommendations of NRPC. It is also suggested to carry out mock testing exercise of important SPS in Northern region including under state control area.
- All utilities to ensure the telemetry of all analog & digital points of all stations at respective control centers.

All utilities were requested to ensure that above agreed measures are implemented by utiltities.

Regarding feeders for physical regulation, list is attached as Annexure B.I of agenda of 217th OCC meeting, during the meeting SLDCs were 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

In 217th OCC meeting, UP SLDC representative informed that there has been change in the list of feeders, as some of the feeders are not radial now. The details shared by UP SLDC representative is shown below:

Changes in the List of feeders for physical regulation in supply				
Uttar Pradesh				
Sl.No.	**Name of Feeder**	**Affected Area**	**Previous Status Remarks**	**Updated Status Remarks**
1	220kV Meerut-Gajraula	Gajraula	Radial	Not Radial
2	220kV Baghat (PG)- Baghpat D/C	Baghpat	Radial	Radial
3	220kV Allahabad (PG)-Jhusi	Jhusi	Radial	Not Radial
4	220kV Sohawal (PG)-Barabanki D/C	Barabanki	Not Radial	Not Radial
5	220kV Mainpuri (PG)-Neemkarori D/C	Farukkhabad	Radial	Not Radial
6	220kV Gorakhpur (PG)- Gola D/C	Gorakhpur	Radial	Radial
7	132kV Ballia(PG)- Bansdeeh	Ballia	Radial	Radial
8	132kV Ballia (PG)- Sikandarpur	Ballia	Radial	Radial
50 no.s 132kV feeders can also be opened from SLDC snad testing was also carried out few days back at SLDC level				

NRLDC representative requested UP SLDC to check for other possible radial feeders in view that some of the feeders are not radial now.

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.

NRLDC representative presented list of radial feeders for all NR states as available with NRLDC and also attached as Annexure B.I of agenda of 217th OCC meeting.

All SLDCs were once again requested to verify that

- list of feeders is 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 drawal at low frequencies as per the IEGC.

All utilities agreed to implement discussed measures for summer preparedness. All states agreed to check and provide comments from their side on the radial feeder list presented in the meeting within one week. In case no feedback is received within one week, it would be assumed that there is no update in the list and accordingly the available list will be used in real-time.

B.3 Sharing of ATC/TTC assessment and basecase with NRLDC

All NR states Chandigarh U/Ts are sharing basecase and ATC/TTC assessment with NRLDC. OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement.

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".

Detailed roles and responsibilities for State Load Dispatch Centers in various timelines of the approved procedure are provided in the table below.

Purpose	***Sl No***	***Action of Stakeholder***	***Responsibility***	***Submission to***	***Data/ Information Submission Time line***
1. Revision 0 TTC/ATC Declaration for Month 'M'	*1(a)*	*Submission of node wise Load and generation data along with envisaged scenarios for assessment of transfer capability Assessment of TTC/ATC of the import/export capability of the state and intra-state system and sharing of updated network simulation models*	*SLDC*	*RLDC*	*10th Day of 'M-12' month*
	1(b)	*Declaration of TTC/ATC of the intra- state system by SLDC in consultation with RLDC*			*26th Day of 'M-12' month*
2.	*2(a)*	*Submission of node-wise*	*SLDC*	*RLD*	*8th Day*

Interconnection Studies for elements to be integrated in the month 'M'		*load and generation data & sharing of network simulation models for intra-state elements coming in the next six months*	*C*		*of 'M- 6' month*
	2(b)	*Sharing of inter-connection study results*			*21st Day of 'M-6' month*
3. Month Ahead TTC/ATC Declaration & Base case for Operational Studies for Month 'M'	*3(a)*	*Submission of node wise Load and generation data along with envisaged scenarios for assessment of transfer capability*	*SLDC*	*RLDC*	*8th Day of 'M- 1' month*
		Assessment of TTC/ATC of the intra- state system and sharing of updated network simulation models			
	3(b)	*Declaration of TTC/ATC of the intra- state system in consultation with RLDC*	*SLDC*	*RLDC*	*22nd Day of 'M-1' month*

To encourage participation from SLDCs with regard to basecase preparation and ATC/TTC assessment, two workshops have been conducted from Grid-India/NRLDC side. One workshop was conducted 31.08.2023 before the finalization of the procedure and another on 10.01.2024 recently to involve further participation from SLDCs.

Although all SLDCs are now involved in preparation of basecase & ATC/TTC assessment, it is seen that the timelines as per CERC approved procedure are not being followed and number of times basecases are not received from SLDC side.

B.3.1 ATC/TTC assessment sharing 11 months in advance

The procedure mentions that:

"SLDCs in consultation with RLDCs shall declare the import and export TTC, ATC, and TRM of the individual control/bid areas within the region in accordance with Regulation 44 (3) of the Grid Code 2023. RLDCs shall assess the import and export TTC, TRM and ATC for the group of control/bid areas within the region (if required). The computed TTC, TRM and ATC figures shall be published on the website of respective SLDCs and RLDCs, along with the details of the basis of calculations, including assumptions, if any, **at least eleven (11) months in advance**. The specific constraints indicated in the system study shall also be published on the website."

Accordingly, SLDCs are requested to send the PSSE cases for four scenarios for April'25 i.e. Morning Peak, Solar Peak, Evening Peak & Off-Peak hours as given below

S. No.	Scenario	Time of Scenario
1	Off-Peak	03:00 Hrs
2	Morning Peak	10:30 Hrs
3	Evening Peak	18:45 Hrs
4	Solar Peak	12:00 Hrs

It is requested that the basecases as well as ATC/TTC assessments may be shared with NRLDC as per CERC approved procedure. Further, above exercise needs to be carried out regularly on monthly basis.

Basecase & ATC/TTC assessment was received from only Haryana, UP and J&K SLDC for M-12 scenarios.

It was discussed in last several OCC meetings & all states were requested to share basecase as well as ATC/TTC assessments for M-11 scenarios on monthly basis with NRLDC as per CERC approved procedure. Accordingly, it was requested to submit the basecase as well as ATC/TTC assessments.

Basecase & ATC/TTC assessment received from Delhi, J&K, UP & Haryana only

All other states were also requested to submit the basecase and ATC/TTC assessment as per the CERC approved procedure.

B.3.2 Sharing of Data and study results for interconnection studies

As per **Regulation 33 of IEGC 2023,**

(9) 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.
(10) 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 intra-state system on the inter-state system and share the results of the studies with NLDC.
(11) 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) intra-regional system on the inter-regional system.

In line with above, utilities are requested to share the list of **elements/LGB data/interconnection study results** etc as per the approved procedure which are expected to be commissioned up to **October 2024, before 08.04.2024. Above was also requested vide mails dated 27.03.2024 by NRLDC. This needs to be practised as monthly exercise on regular basis.**

All utilities were requested to share list of elements/LGB data/interconnection study results etc as per the approved procedure on monthly basis.

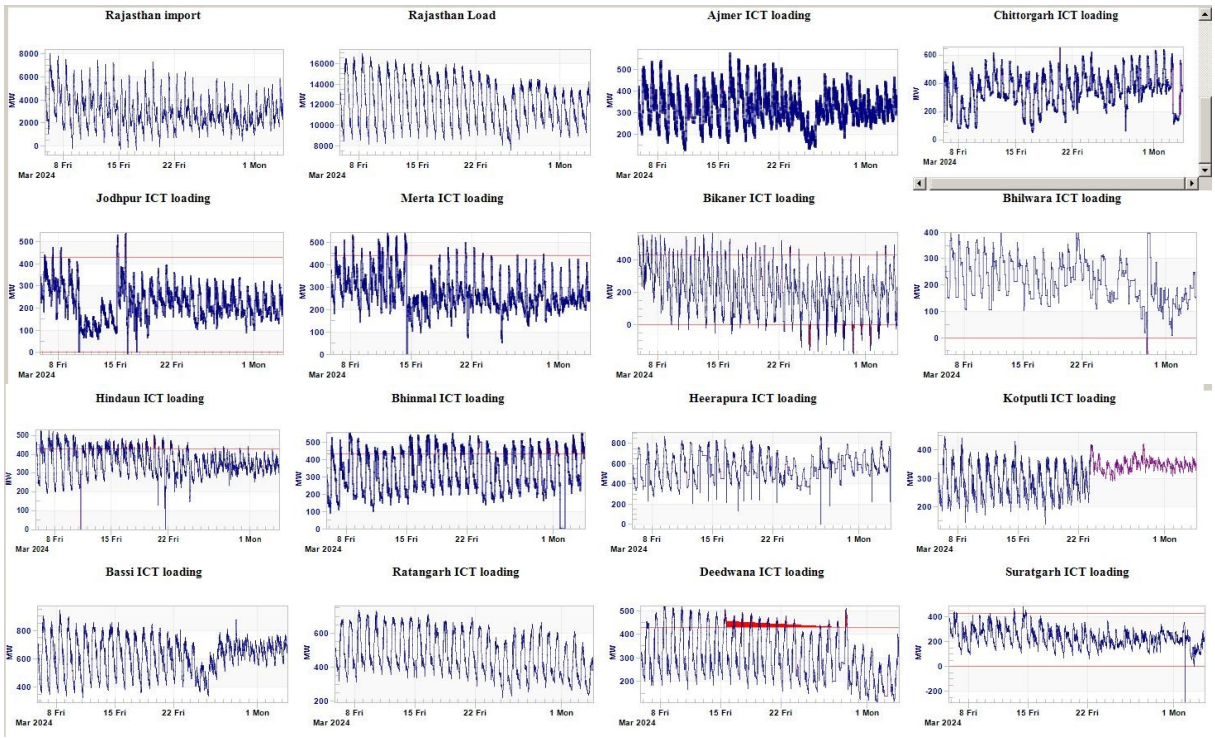
B.3.3 ATC/TTC of states for summer 2024 (M-1)

Latest ATC/TTC figures as available with NRLDC for the month of May 2024 is attached as Annexure-B.I of agenda. States are requested to go through these figures and provide any comments.
In the meeting, it was discussed that:

- ***ATC/TTC assessment for summer 2024 received from UP, Haryana, J&K, Uttarakhand.***
- ***Punjab, Rajasthan, HP and Delhi were asked to assess and share ATC/TTC assessment for summer 2024 at the earliest***
- ***CGM, SO, NRLDC highlighted that Punjab state is separate bid area and accordingly they need to assess and share their ATC/TTC assessments with NRLDC at the earliest.***
- ***Punjab SLDC representative stated that they shall submit their ATC/TTC assessments within one week.***

B.3.4 Constraints observed during last month

It is being observed that loading of 400/220kV ICTs at number of RVPN substations continue to be on the higher side. Some of the such stations are shown below along with loading of 400/220kV ICTs for last 30 days:



From the data available at NRLDC, it is being observed that the loading of almost all 400/220kV substations (intrastate as well as interstate) in Rajasthan is beyond their N-1 contingency limit during day-time. Such situation may always cause load loss in particular area of N-1 non-compliance apart from possibilities of major grid disturbance in Rajasthan control area.

As discussed in last two OCC meeting, it was requested that,

- All SLDCs assess and share ATC/TTC assessment for Summer 2024 at the earliest. ATC/TTC assessment has been received from UP SLDC which is being examined at NRLDC end.
- All states to share data and base case for M-6 & M-11 timelines as discussed in the agenda.
- SLDCs to take actions to ensure that loading of ICTs and lines under their jurisdiction are below their N-1 contingency limits.
- Maximize internal generation in case of drawl near to the transfer capability limits.
- Forum agreed that in case no assessments for eleven months in advance are shared by SLDC, the existing ATC/TTC assessment could be published on website and considered for the said month.

All states agreed to take actions as agreed above.

B.4 Grid Operation related issues in Northern region

a) Long outage of transmission elements

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

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

S. No.	Element Name	Outage Date
1	400/220 kV 315 MVA ICT 2 at Mundka(DV)	20-09-2019
2	400/220 kV 315 MVA ICT 4 at Mundka(DV)	19-03-2024
3	400/220 kV 315 MVA ICT 1 at Muradnagar_1(UP)	13-03-2020
4	50 MVAR Bus Reactor No 1 at 400KV Moradabad(UP)	03-12-2021
5	400/220 kV 240 MVA ICT 3 at Moradabad(UP)	13-12-2021
6	220 KV Gazipur(DTL)-Noida Sec62(UP) (UP) Ckt-1	30-04-2022
7	220 KV Gazipur(DTL)-Shahibabad(UP) (UP) Ckt-2	30-04-2022
8	125 MVAR Bus Reactor NO 1 AT 400KV PARICHA(UPUN)	03-03-2023
9	400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2	09-03-2023
10	400/220 KV 500 MVA ICT 1 AT RAMGARH(RS)	26-04-2023
11	400/220 kV 240 MVA ICT 1 at Muradnagar_2(UP)	05-06-2023

12	400KV Bus 2 at Parbati_3(NH)	21-08-2023
13	400/220 kV 500 MVA ICT 1 at Rasra (UP)	26-10-2023
14	400/220 kV 240 MVA ICT 3 at Gorakhpur(UP)	11-11-2023
15	400 KV DULHASTI(NH)-KISHENPUR(PG) (PG) CKT-2	09-01-2024
16	400/220 KV 315 MVA ICT 2 AT UNNAO(UP)	11-01-2024
17	225 MVAR Bus Series Reactor No 1 at 400 KV Ballabhgarh(PG)	02-02-2024
18	63 MVAR Bus Reactor No 1 at 400KV Unnao(UP)	21-02-2024
19	400/220 kV 450 MVA ICT 1 at Panipat(BB)	28-03-2024

Following information was shared by representatives from different utilities in the meeting:

- BBMB representative stated that 400/220 kV 450 MVA ICT 1 at Panipat(BB) is expected by April end
- POWERGRID representative stated that 400 KV DULHASTI(NH)-KISHENPUR(PG) (PG) CKT-2 would be charged within two days as and when NHPC provides consent.
- NHPC representative stated that CEA inspection is planned in next week for 400KV Bus 2 at Parbati_3(NH).
- UPPTCL representative stated that 315 MVA ICT 1 at Muradnagar_1(UP) would be replaced by 500MVA ICT and it is under procurement stage, there is no major loading issue. 240 MVA ICT 3 at Moradabad(UP) is under commissioning and would be charged shortly. 400 KV Noida Sec 148-Noida Sec 123 (UP) Ckt-2 line is not being charged due to GIS issue at Noida Sec 148 substation end. 500 MVA ICT 1 at Rasra (UP) is also delayed as new ICT is yet to be received at site. 240 MVA ICT 3 at Gorakhpur(UP) is being replaced by 500MVA capacity and is expected shortly. 315 MVA ICT 2 AT UNNAO(UP) is also expected shortly.
- Delhi SLDC representative informed that 315 MVA ICT 2 at Mundka(DV) was removed once 315MVA ICT4 was charged at Mundka. DTL is in process to procure/borrow ICT for commissioning in bay of 315 MVA ICT 2

List of generating units under long outage is attached as Annexure-B.II of agenda. NRLDC representative stated that it can be seen that number of thermal generating units are under outage.

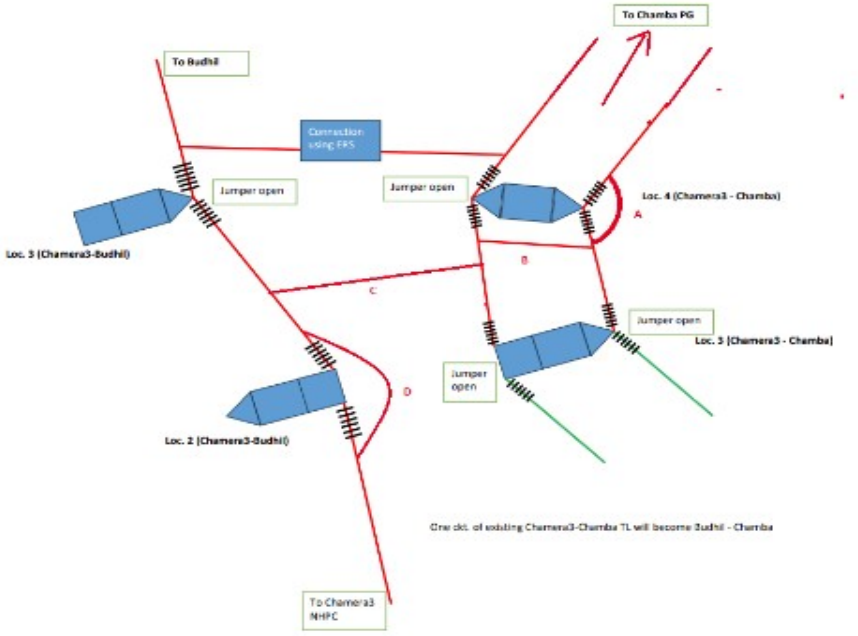
Punjab SLDC representative informed that Lehramohabbat Unit2 is expected by Dec 2024.

NHPC representative stated that Unit 2 of Uri and Unit3 of Parbati-3 HEP are expected to be revived by end of this month.

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

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

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



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

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.

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.***

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 1.4.2023 till date including those expected to be commissioned till May 2024 so that the same could be included in the list.

However, response from most of the utilities is still pending. It ws requested to provide details before 30th April 2024. Last updated document is available at following link. https://nrldc.in/download/important-grid-element-of-northern-region-may-2023/?wpdmdl=12562&lang=en

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

All utilities agreed to provide their inputs by 30th April 2024.

d) Synchronisation issue of 765kV Bhadla2-Ajmer ckt 1 during high solar generation

EHV lines are generally being manually opened during evening time to control high voltages in the RE complex of Western Rajasthan owing to no solar generation. As a practice, in case of two ckts, the ckts are kept open on alternate basis everyday.

Recently, 765kV Bhadla2-Ajmer ckt 1 was opened to control high voltages in the RE complex as routine activity. The line was opened on 30-03-2024 at 18:04. The next day, given the rising trend in solar generation and as per normal practice, code was issued from NRLDC control room to charge the line at 08:39 on 31-03-2024. However, it was observed that there was delay in charging of line from POWERGRID side and the line was charged at 11:10 hrs, when the solar generation had already increased and oscillations to the tune of 15-20kV were being observed in the grid.

On enquiry, it was informed that there was some issue at Bhadla-2 end and the angular difference between 765kV Ajmer and Bhadla-2 substations was higher than 15degrees. Logic has been implemented in Bay Control Unit that incase angular difference between two adjacent substations is higher than 15 degrees, then line can not be closed. This led to delay in charging of important line in the RE complex.

It is to be noted that the angular difference considered as 15 degrees, is on the lower side in case of N-1 contingency. CEA manual on transmission planning criteria also specifies that angular difference of upto 30 degrees may be allowed in case of N-1 contingency.

Further, reservations have also been observed on loading limit of 765kV lines in RE complex. In the mail it is being mentioned that the safe loading limit of line is as per SIL i.e. 2200MW. This is different from the understanding at NRLDC level. It is understood

that the transmission lines could be loaded to their thermal limits in case of N-1 contingency for short duration. The thermal limit for 765kV lines comes out as nearly 4200MW, however, considering high power flow and issues related to angular differences, limit of 3500MW is being considered while performing simulation studies. The issue was recently observed while studies were being done for shutdown of 765kV Bikaner-Moga D/C line for NHAI related works.

In view of the above issues, it was requested that:

- POWERGRID may provide reasons for keeping limit of 15 degrees in angular difference between buses for closing of 765kV line
- POWERGRID/BKTL/CTUIL may confirm the maximum loading limit of 765kV lines to be considered for simulation studies as well as real-time grid operation.
- All transmission licensees are requested to check and make sure that limit of atleast 30 degrees is provided in BCU logic to avoid any issues during charging of line due to such angle limit in real-time grid operation

CTUIL representative stated that limit of 30 degrees is being considered as per CEA planning criteria. Further, in the criteria it is mentioned that stability studies may be done incase angular separation is higher than 20 degrees which is also generally not required in case line length is not too much. Further, during planning stage, limit of 3400-3500MW is being considered for long 765kV EHVAC lines as the angular separation becomes high when loading crosses 3500MW incase of long lines although thermal limit is 4200MW. Further, incase the line length is more than 300km, generally inter-regional lines, the lines can be loaded upto 3100-3200MW during N-1 contingency.

POWERGRID representative informed that the set angular difference is being revised at substations after communication was received from NRLDC side. At some substations, the limit shall be changed in consultation with OEM and it is pending for 765kV Bhadla2-Ajmer D/C would be changed after S/S OEM i.e. GE visit.

OCC forum agreed that:

- ***Maximum loading limit of 765kV lines to be considered as 3500MW for simulation studies as well as real-time grid operation***
- ***All transmission licensees to check and make sure that limit of atleast 30 degrees is provided in BCU logic to avoid any issues during charging of line due to such angle limit in real-time grid operation***

NRLDC representative also raised issue regarding concern raised by POWERGRID regarding loading limit of 400kV Kankroli-Zerda D/C line. It was mentioned that loading limit of 400kV Kankroli-Zerda D/C has significant impact on NR-WR TTC/ATC figures. 400kV Kankroli-Zerda D/C is limiting constraint for transfer of power from NR to WR.

Considering 400kV Chittorgarh-Neemuch D/C,

Thermal limit of 400kV Kankroli-Zerda line	NR-WR TTC/ATC
850MW/880MVA	6700/6200

700MVA	3100/2600

POWERGRID vide email dated 12.03.2024 had given limit for 400kV D/C Kankroli-Bhinmal-Zerda TL as 698MW

Limit of NR-WR TTC may lead to market splitting and different market prices in Northern region and Western region during the upcoming summer season

CTUIL representative stated that limit for 400kV Kankroli-Zerda line is being considered as 850MW/880MVA in planning stage. CTUIL representative added that transmission system is being planned for 85deg conductor and 45 deg ambient temperature.

POWERGRID representative informed that limit was given in consultation with their engg. Team. They shall further recheck at their end.

OCC forum agreed that limit of 850MW/880MVA should be considered for 400kV D/C Kankroli-Bhinmal-Zerda. Further, in case in real-time any issues are observed by POWERGRID during grid operation, the loading limit may be deliberated once again.

B.5 Frequent forced outages of transmission elements in the month of March'24:

The following transmission elements were frequently under forced outages during the month of **March'24**:

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	132 KV Mahendra Nagar(PG)-Tanakpur(NH) (PG) Ckt-1	3	POWERGRID/ NHPC
2	220 KV Agra(PG)-Tundla (UP) (UP) Ckt-1	4	POWERGRID/UP
3	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1	4	Rajasthan/RAPS
4	220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-2	4	Rajasthan/RAPS
5	220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1	3	Rajasthan/RAPS
6	220 KV Sitarganj(PG)-CBGanj(UP) (PG) Ckt-1	3	POWERGRID/UP
7	400 KV Ajmer-Bhilwara (RS) Ckt-2	4	Rajasthan
8	400 KV Akal-Jodhpur (RS) Ckt-1	3	Rajasthan
9	400 KV Bareilly-Unnao (UP) Ckt-2	3	UP
10	400 KV Bikaner-Bhadla (RS) Ckt-2	3	Rajasthan
11	400 KV Dehar(BB)-Panchkula(PG) (PG) Ckt-1	3	POWERGRID/ BBMB

The complete details are attached at Annexure-B.III of Agenda.

Discussion during the meeting:

- **220 KV Agra(PG)-Tundla (UP) (UP) Ckt-1:** *NRLDC representative raised concerned on frequent fault in line and issue of PLCC maloperation. UP representative informed that frequent fault occurred due to tree near to the line. Tree trimming was done as a precautionary measure and issue w.r.t. PLCC has been attended. There is A/R related issue at Tundla end, autorecloser is going under lockout condition. Follow-up has been taken up to resolve the issue related to A/R operation.*

- **220 KV RAPS_A(NP)-Sakatpura(RS) (RS) Ckt-1 & 2 and 220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt :** *NRLDC representative raised concerned on frequent tripping of line and asked Rajasthan regarding status of remedial actions taken. Rajasthan representative informed that shutdown of 220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt was taken on 15th March, issue in Main-2 relay setting was found and same has been corrected on 28th March. Thereafter, no unwanted tripping of this line is observed. In view of frequent tripping of aforementioned lines and that too on R-N fault in each case, NRLDC representative requested Rajasthan to advice protection wing to analyse the tripping in this complex in details so that necessary remedial actions may be taken. Rajasthan agreed for the same.*

- **400 KV Akal-Jodhpur (RS) Ckt-1 & 400 KV Ajmer-Bhilwara (RS) Ckt-2:** *NRLDC representative raised concern frequent tripping of line. Issue related to A/R operation observed in 400 KV Akal-Jodhpur (RS) Ckt-1 and issue of PLCC maloperation reported in 400 KV Ajmer-Bhilwara (RS) Ckt-2. Rajasthan representative stated that they will follow up with the protection wing and share the details of remedial actions taken w.r.t. these tripping incidents.*

- **400 KV Bikaner-Bhadla (RS) Ckt-2:** *NRLDC representative raised concerned on frequent tripping of line and non-operation of A/R in the line. Rajasthan representative informed that autorecloser was found disabled in the line which has been enabled on 17th April. Further analysis is being done.*

- **400 KV Dehar(BB)-Panchkula(PG) (PG) Ckt-1:** *NRLDC representative raised concerned on frequent tripping of line and non-operation of A/R in the line. BBMB representative stated that they will follow up with the protection wing and share the details.*

- **400kV Bareilly-Unnao D/C:** *NRLDC representative raised concern over frequent tripping of the line due to protection related issues at both the ends. Issue related to non-proper operation of autorecloser at both the ends was also raised. Issues has been highlighted in previous OCC meetings also, however no remedial actions have been taken yet. UP representative stated*

that A/R is healthy and operational at Unnao end and details not received form Bareilly end. Protection settings also not received from Bareilly end. NRLDC representative requested UP to take up the protection related issues with STU. STU may be requested to review of protection settings of 400kV Bareilly-Unnao(UP) D/C and if necessary protection audit also may be conducted. UP agreed to take suitable remedial actions to rectify the same at the earliest.

NRLDC representative emphasized that A/R (auto re-closer) issue was found in many of these tripping. He sensitized all the utilities to ensure healthiness/in service of A/R in 220 kV and above transmission lines in compliance to CEA Grid Standards. He further informed that most of the tripping are transient in nature but due to non-operation of A/R, it resulted into tripping of the transmission element thus reducing the reliability of the grid. All the utilities shall endeavor to keep auto re-closer in service and healthy condition of 220 kV and above voltage level transmission line. The issue of time syncing of DR/EL at many of the stations was highlighted, constituents were requested to ensure the time syncing of DR/EL. In addition, necessary actions also need to be taken to ensure the Right of Way and other operation & maintenance issues to minimize the frequent faults in the line. All utilities agreed for the same.

OCC forum reiterated that frequent outages of such elements affect the reliability and security of the grid. Members were requested to investigate such frequent outages and share the suitable remedial measures taken/being taken in this respect.

B.6 Multiple element tripping events in Northern region in the month of March'24:

A total of 20 grid events occurred in the month of March'24 of which **11** are of GD-1 category, **02** are of GI-1 Category and **07** are of GI-2 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.IV of agenda.**

Maximum delayed clearance of fault observed in event of multiple elements tripping at 400/220kV Merta(RS) on 14th March, 2024 (As per PMU at Merta(RS), R-N phase to earth fault is observed with delayed fault clearance time of 880 ms).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **06** events out of **20** grid events occurred in the month. In 06 (no.) of grid events, there was no fault in the grid.

Remedial actions taken by constituents to avoid such multiple elements tripping may be shared.

As per IEGC clause 37.2 (c), Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) shall be submitted within 24 hrs of the event and as per IEGC clause 37.2 (e), the user shall submit a detailed report

in the case of grid disturbance or grid incidence within one (1) week of the occurrence of event to RLDC and RPC.

DR/EL of the following grid events not received till date:

a) 800 KV HVDC Kurukshetra(PG) on 2nd , 29th March'24
b) 220kV Hissar(BBMB) on 23rd March'24 (partial data received)
c) 220kV Upper Nangal(HP) on 19th March'24

Detail report of majority of the grid events not received yet.

On multiple elements tripping at 400/220kV Merta (RS), Rajasthan representative informed that fault occurred due to snapping of R-phase jumper of 220kV Merta(RS)-Bhopalgarh(RS) Ckt at Merat end, fault was of bus fault nature. As bus bar protection is not available, fault cleared with the tripping of ICTs on overcurrent earth fault protection operation. NRLDC representative raised concern over non availability of bus bar protection at 220kV side of multiple substation in Rajasthan control area which leads to delayed clearance of fault and tripping of multiple elements. Rajasthan was requested to expedite the work of commissioning of bus bar protection. Rajasthan agreed the same and stated that they will share the present status of bus bar protection.

NRLDC representative raised concern over delayed submission of DR/EL, submission of incorrect files and non-submission of detail tripping report by the constituents. Non availability of tripping details leads to incomplete analysis of grid incidents which may lead to further delay in remedial actions.

Uttar Pradesh representative stated that continuous follow-up with the stations involved in grid events are being done and it is expected that status of data submission and tripping event analysis will improve.

Himachal Pradesh, Haryana, BBMB & Rajasthan representative also agreed to take necessary follow-up actions with the concerned stations and transmission wing to improve the status of data submission and tripping event analysis.

NRLDC representative requested concerned utilities to analyse the tripping incidents at their end and taken necessary actions to avoid the similar events in future. Also share the detailed report of the tripping incidents along with remedial action taken. Utilities agreed for the same.

OCC forum suggested all the NR constituents to update the information on tripping portal developed by NRLDC. All the constituents agreed to take proactive remedial actions in this regard to minimize the tripping.

Members were asked to take expeditious actions to avoid such tripping in future, Moreover, utilities may impress upon all concerned for providing the preliminary report, DR/EL & detailed Report of the events in line with the regulations. Members were further requested to ensure the time syncing of recording devices (DR, EL etc.) with GPS/NAVIK at substation of their respective control area. Members agreed to take action in this regard.

B.7 Details of tripping of Inter-Regional lines from Northern Region for March' 24:

A total of 17 inter-regional lines tripping occurred in the month of March'24. The list is attached at **Annexure-B.V of agenda.** The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 37.2(c) of IEGC and regulation 15(3) of CEA Grid Standards. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

On frequent tripping of HVDC Champa-Kurukshetra link, NRLDC representative requested POWERGRID to share the details of root cause of maloperation, status of follow-up actions with GE and identified remedial measure to avoid such unwanted tripping in future.

NRLDC representative requested members to advise the concerned for taking corrective action to avoid such tripping as well as timely submission of the information. Members agreed for the same.

OCC forum emphasized the importance of inter- regional links and requested all the concerned utilities to take necessary corrective to minimise such tripping in future.

B.8 Status of submission of DR/EL and tripping report of utilities for the month of March'24.

The status of receipt of DR/EL and tripping report of utilities for the month of March'24 is attached at **Annexure-B.VI of agenda**. It is to be noted that as per the IEGC provision under clause 37.2 (c), tripping report along with DR/EL has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement. Also, it is observed that reporting status has improved however, reporting status from BBMB, Punjab, Delhi, HP, Rajasthan & J&K need further improvement.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall be **uploaded on Web Based Tripping Monitoring System "http://103.7.128.184/Account/Login.aspx"** within 24 hours of the events as per IEGC clause 37.2(c) and clause 15.3 of CEA grid standard. Apart from prints of DR outputs, the corresponding COMTRADE files may please also be submitted in tripping portal / through email.

OCC forum emphasized the importance of DR/EL & tripping report data for analysis of the trippings. In addition, these data are also base for the

availability verification. Unavailability of these details delays the availability verification process also. Hence, timely submission of DR/EL & tripping report is very much necessary. Members were requested to comply the IEGC 37.2(c) and submit the details in time. Members agreed to take necessary follow-up actions to improve the reporting status

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall be uploaded on Web Based Tripping Monitoring System "http://103.7.128.184/Account/Login.aspx" within 24 hours of the events as per IEGC clause 37.2.c and clause 15.3 of CEA grid standard. Apart from prints of DR outputs, the corresponding COMTRADE files may please also be submitted in tripping portal / through email.

B.9 Frequency response characteristic:

The FRC based event occurred in the month of **March-2024**. Description of the event is as given below:
Table:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	Nadir Frequency (in Hz)	End Frequency (in Hz)	*Δf*	NR FRC during the event (%)
1	03-Mar-24	14:01 hrs	On 03rd March, 2024, at 14:01 hrs, 400 KV Kankani-Jaisalmer (RS) Ckt-2 tripped on R-Y phase to phase fault. As per PMU at Bhadla2(PG), R-Y phase to phase observed, which cleared within 100msec. At the same time, drop in RE generation of approximately 2510 MW is observed as per SCADA data. Hence, generation loss considered for Frequency	50.30	50.055	50.128	0.17	51

			Restoration Capability (FRC) computation is 2510 MW.					

FRC response of ISGS:

Generator	03-Mar-24 event	Generator	03-Mar-24 event
Singrauli TPS	-9%	Salal HEP	0%
Rihand-1 TPS	-8%	Tanakpur HEP	-33%
Rihand-2 TPS	-4%	Uri-1 HEP	47%
Rihand-3 TPS	-36%	Uri-2 HEP	0%
Dadri-1 TPS	-60%	Dhauliganga HEP	No generation
Dadri -2 TPS	-14%	Dulhasti HEP	No generation
Unchahar TPS	16%	Sewa-II HEP	0%
Unchahar stg-4 TPS	-3%	Parbati-3 HEP	No generation
Jhajjar TPS	37%	Jhakri HEP	No generation
Dadri GPS	No generation	Rampur HEP	No generation
Anta GPS	No generation	Tehri HEP	259%
Auraiya GPS	No generation	Koteswar HEP	0%
Narora APS	-3%	Karcham HEP	No generation
RAPS-B	-12%	Malana-2 HEP	No generation
RAPS-C	3%	Budhil HEP	No generation
Chamera-1 HEP	0%	Bhakra HEP	-3%
Chamera-2 HEP	No generation	Dehar HEP	-14%
Chamera-3 HEP	No generation	Pong HEP	-16%
Bairasiul HEP	0%	Koldam HEP	No generation
		AD Hydro HEP	No generation

FRC response of state control area:

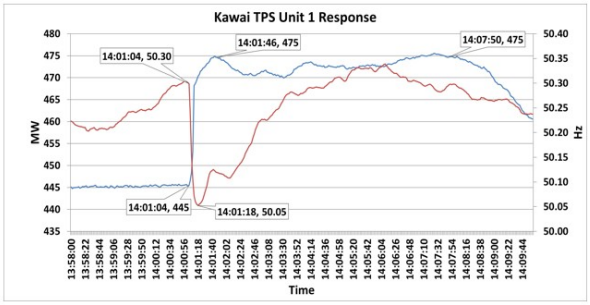
Generator	03-Mar-24 event	Generator	03-Mar-24 event
PUNJAB		UP	
Ropar TPS	2%	Obra TPS	33%
L.Mohabbat TPS	48%	Harduaganj TPS	No generation
Rajpura TPS	19%	Paricha TPS	7%
T.Sabo TPS	16%	Rosa TPS	-4%
Goindwal Sahib TPS	-10%	Anpara TPS	-7%
Ranjit Sagar HEP	No generation	Anpara C TPS	39%
Anandpur Sahib HEP	No generation	Anpara D TPS	0%
HARYANA		Bara TPS	-41%
Panipat TPS	1%	Lalitpur TPS	0%
Khedar TPS	4%	Meja TPS	-63%
Yamuna Nagar TPS	No generation	Vishnuprayag HEP	44%
CLP Jhajjar TPS	-62%	Alaknanda HEP	-2%
Faridabad GPS	No generation	Rihand HEP	No generation
RAJASTHAN		Obra HEP	No generation
Kota TPS	0%	UTTARAKHAND	
Suratgarh TPS	-4%	Gamma Infra GPS	No generation
Kalisindh TPS	48%	Shravanti GPS	0%
Chhabra TPS	No generation	Ramganga HEP	0%
Chhabra stg-2 TPS	-1%	Chibra HEP	No generation
Kawai TPS	108%	Khodri HEP	No generation
Dholpur GPS	No generation	Chilla HEP	0%
Mahi-1 HEP	2%	HP	
Mahi-2 HEP	No generation	Baspa HEP	No generation
RPS HEP	0%	Malana HEP	No generation
JS HEP	0%	Sainj HEP	No generation
DELHI		Larji HEP	No generation
Bawana GPS	-30%	Bhabha HEP	0%
Pragati GPS	No generation	Giri HEP	No generation
		J&K	
		Baglihar-1&2 HEP	No generation
		Lower Jhelum HEP	No generation

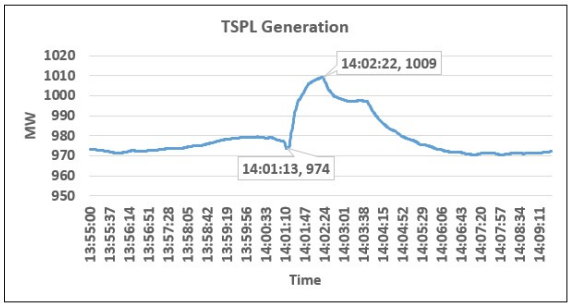
As per IEGC 2023 Clause 30.10.(n), "Each control area shall assess its frequency response characteristics and share the assessment with the concerned RLDC along with high resolution data of at least 1 (one) second for regional entity generating stations and energy storage systems and 10 (ten) seconds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

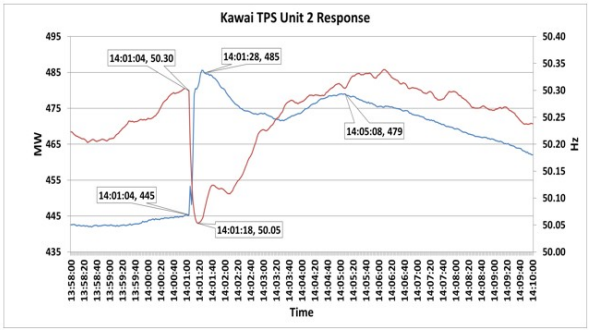
As per sub-clause (a(v)) of clause (9) of IEGC 2023 Annexure-2, "All the SLDCs shall work out FRC for all the intra-state entities (for events indicated by the Regional Load Despatch Centres) based on the HDR available at their respective SLDCs and submit the same to respective RLDC within six (6) working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

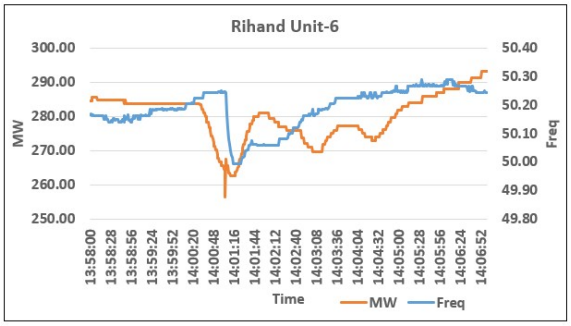
As per sub-clause (a(vi)) of clause (9) of IEGC 2023 Annexure-2, "All regional entity generating stations shall also assess the FRC for their respective stations and submit the same to respective RLDC within six (6) working days. (Format as per Table-B). The high resolution data (1 second or better resolution)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

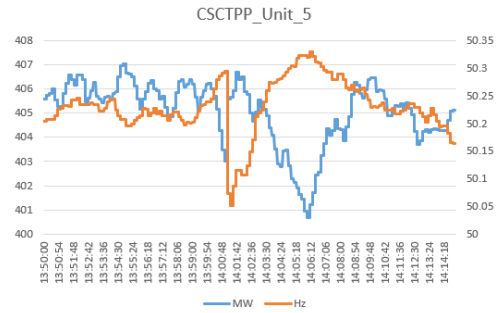
Details received from Haryana, Rajasthan, UP, Rosa(relaiance), kawai TPS, Koteshwar, Rihand TPS, Tehri HEP and TSPL TPS only.

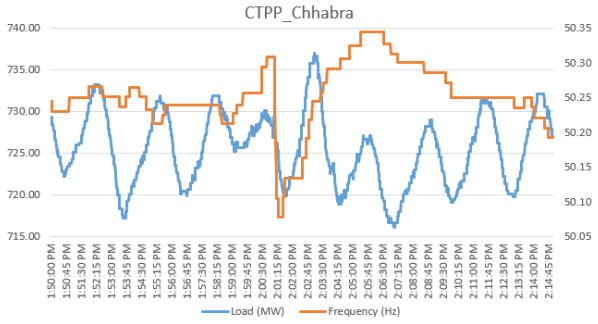


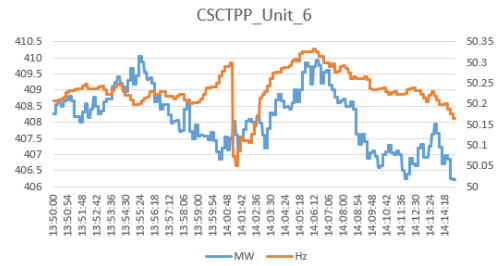












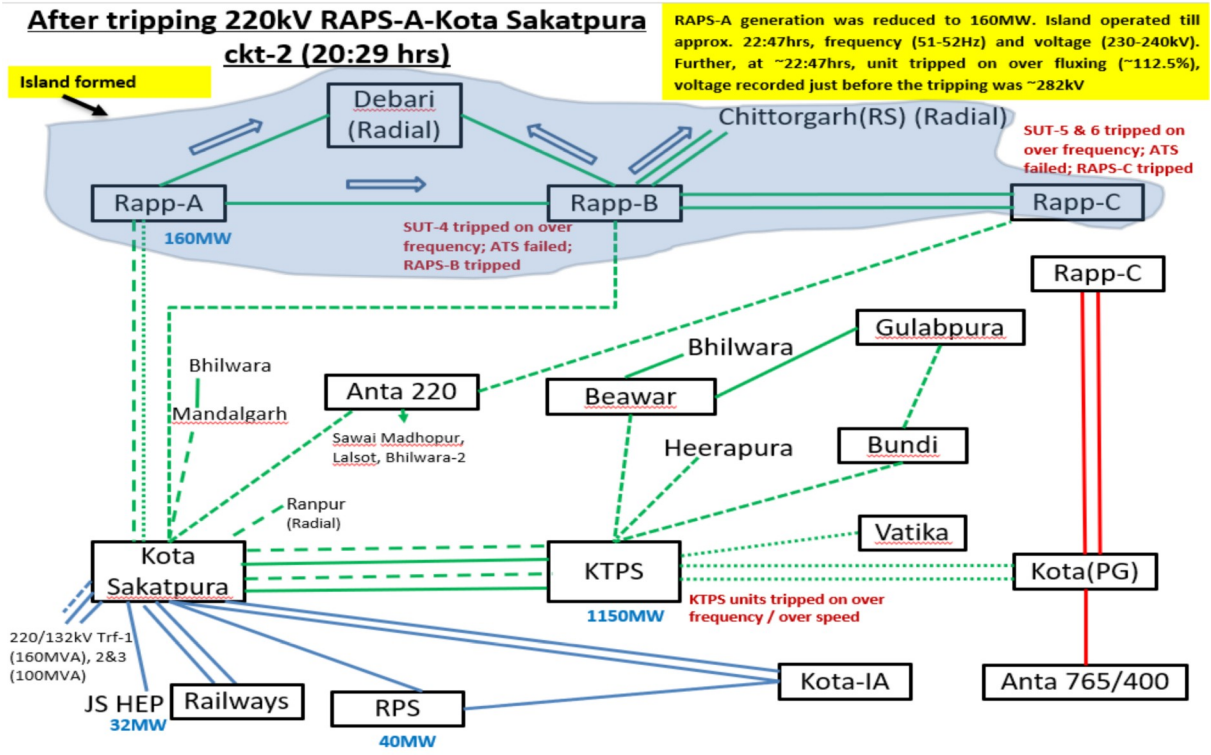
NRLDC representaitve higlighted unsatisfactory response of some of the generating stations during the event and requested to take necessary remedial actions to improve the governor response.

Memebers were requested to share the data and analysis of FRC of their control area. States were requested to follow-up with the generating stations of their respective control area and share the unit wise 01 sec data of respective generating stations along with the anaysis of FRC response for the aforementioned event.

OCC forum requested members to share the FRC data and analysis fo FRC response of their respective control area and also to ensure the complaince w.r.t. IEGC 2023.

B.10 Grid Disturbance in RAPS, KTPS generation complex on 29th March 2024

On 29th March at 20:22hrs, multiple elements tripping occurred in RAPS, KTPS generation complex. KTPS, RAPS-A, RAPS-B & RAPS-C generation station got blackout during this incident. Initiating incident was blast of R-ph CT at 220kV side of 220/132kV 160MVA ICT-1 at Kota Sakatpura(Raj). As bus bar protection is not available at Kota Sakatpura S/s, few of the 220kV lines tripped on Z-4 protection operation and Z-2 protection operation at Kota Sakatpura & KTPS respectively. Simultaneously, the remaining 220kV lines got significantly overloaded and tripped on distance protection operation during power swing. Thereafter due to lack of evacuation path, over frequency occurred in systems and KTPS units tripped on over frequency. SUTs at RAPS-B tripped for initiation of house load operation but it failed. SUTs of RAPS-C also tripped for switching of auxiliary supply to UTs but it also failed due to mismatch in frequency. It resulted in the tripping of RAPS-B & C units. Island formed with RAPS-A unit with the load of Debari and Chittorgarh which operated till 20:47hrs and later collapsed due to tripping of turbine generator on over fluxing. Brief f details are attached as **Annexure B.VII**. of agenda



Similar events of blackout in KTSP, RAPS generation complex occurred on 05th Jaunuary'24. Frequent disturbance in this complex having significant quantum of nuclear generation is serious issue. Necessary remedial actions at RAPS, KTPS and RVPN end need to be expedited to avoid any such event in future.

Deliberation on 05th January'24 event was done during 216 OCC meeting. KTPS, RAPS & Rajasthan are requested to share the details of remedial actions taken as agreed during discussion in 216 OCC meeting. Further, an online meeting was conducted on 05th April 2024, RAPS, KTPS & SLDC-Rajasthan agreed to take following remedial actions:

NRLDC representative highlighted following points during the meeting:

- Limited connectivity to the grid, lack of evacuation path after tripping of 2-3 lines. (RAPS is connected to Debari and Chittorgarh radially)
- Bus bar protection is not available at 220/132kV Kota Sakatpura S/s.
- Keeping 220kV KTPS-Kota (PG) D/C in closed condition will relieve the loading of other 220kV lines. Line was closed on 01st April 2024 at 20:00hrs. 220kV KTPS-Kota (PG) D/C need to be kept in closed condition in normal scenario.
- Auto Transfer Scheme failed at RAPS-B & C after tripping of SUTs at respective stations. Any review in ATS design if needed may be explored.
- Separate display of RAPS, KTPS generation complex to be made at SLDC control room for effective decision monitoring and decision making.
- Frequent tripping of 220kV lines in this complex have been highlighted on various forums. Necessary operation and maintenance related measured need to be taken on priority to avoid frequent tripping of lines.
- Review of protection system at KTPS, Kota Sakatpura and RAPS complex need to be done to ensure its proper operation and to avoid any maloperation.
- Necessary corrective actions need to be taken to ensure the healthiness and availability of SCADA data.

Rajasthan representative informed following points during the meeting:

- 220kV Chittorgarh has been connected with 400/220kV Chittorgarh hence, 220kV RAPS-B-Chittorgarh D/C is not radial now. No issue related to overloading observed as of now. Issue of overloading of 220kV RAPS-A-RAPS-B tie line will arise in case of outage of unit at RAPS-B.
- Tie lines between KTPS and Kota(PG) has also been closed and power flow is towards Kota(PG) only.
- SCADA display for monitoring of RAPS, KTPS generation complex has already been made and same is being use by control room operator for effective monitoring in this complex.
- Regarding frequent tripping of 220kV lines to RAPS_A & B from Kota Sakatpura, a letter has been sent to transmission & protection wing take necessary corrective actions.
- On operating Debari in grid mode, it was informed that 220kV Debari-Chittorgarh ckt get overloaded (~200MW) as Debari starts drawing load majorly from Chittorgarh.

NPCIL representative informed following points during the meeting:

- Auto Transfer Scheme (ATS) at RAPS-B & RAPS-C have been reviewed. In case of RAPS-B, no change in ATS scheme design is needed, an interlock has been added to ensure successful auto transfer in case auxiliary of other unit are also fed through same SUT.
- In case of RAPS-C, revised ATS scheme has been forwarded to RAPS site for review, same will be finalised within a week. Revised ATS scheme design will get implemented on site at RAPS-C during shutdown of units tentatively on 31st May. NRLDC representative requested NPCIL to share the revised Auto Transfer Scheme (ATS) at RAPS_B & C after finalisation.

In view of frequent major grid disturbance in KTPS, RAPS generation complex, NRLDC representative requested forum to constitute a committee to review the protection and operation related aspects in this complex.

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 — Jan-2024
◎ HARYANA — Dec-2023
◎ HP — Feb-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Dec-2023
◎ RAJASTHAN — Feb-2024
◎ UP — Mar-2024
◎ UTTARAKHAND — Mar-2024
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td>3</td><td>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 — Dec-2023
◎ HARYANA — Dec-2023
◎ HP — Mar-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Dec-2023
◎ RAJASTHAN — Dec-2023
◎ UP — Mar-2024
◎ UTTARAKHAND — Mar-2024
◎ BBMB — Mar-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></td><td></td><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>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></td><td></td><td></td><td></td></tr>
<tr><td>4</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>Sep-2023</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Mar-2024</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Jul-2023</td></tr><tr><td>◎</td><td>UP</td><td>Jan-2024</td></tr><tr><td>◎</td><td>NTPC</td><td>Feb-2023</td></tr></table>FGD status details are enclosed as Annexure-A.I.II.
All States/utilities are requested to update status of FGD installation progress on monthly basis.</td></tr>
<tr><td>5</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>Jan-24</td></tr><tr><td>◎</td><td>HARYANA</td><td>Feb-24</td></tr><tr><td>◎</td><td>HP</td><td>Feb-24</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Jan-24</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Feb-24</td></tr><tr><td>◎</td><td>UP</td><td>Dec-23</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Dec-23</td></tr></table>J&K and Ladakh and Chandigarh are 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>6</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>
<tr><td>7</td><td>Status of Automatic Demand Management Sysytem 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>
</table>

8	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	500 MVAr TCR at Kurukshetra has been commissioned on dated 15th December 2023
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	1x50 MVAr Reactor at Peeragarhi has been commissioned on dated 18.09.2023
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	2x50 MVAR Reactor at Harsh Vihar has been commissioned on dated 31th March 2023.
iv	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.
v	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.
vi	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.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - 1x125 MVAR Reactor at Dhuri has been commissioned on dated 30th March 2023. 220kV Reactors - 1x25 MVAR Reactor at Dhuri has been commissioned on dated 27th January 2023.
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	1x25 MVAR Reactor at Nakodar has been commissioned on dated 13th February 2023.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	SLDC informed that PTCUL has intimated that tender has been scrapped. Retendering will be done after confirmation of PSDF funding validity extension.
xi	RAJASTHAN	Akal	1x25 MVAr	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022.

xii	RAJASTHAN	Bikaner	1x25 MVAr	1x25 MVAR Reactor at Bikaner has been commissioned on dated 24th June 2023.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	1x25 MVAR Reactor at Suratgarh has been commissioned on dated 25th November 2022.
xiv	RAJASTHAN	Barmer & others	13x25 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 & work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd. Schedule time is 18 months. Out of 13 Nos. of reactors, 10 Nos. have been erected and three are under erection. Tentative charging plan is 31.03.2024.
xv	RAJASTHAN	Jodhpur	1x125 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 & work order placed on dt. 7.04.2022 to M/s Kanohar Electricals Ltd. Schedule time is 18 months. 01 No. of 125 MVAR reactor is under final inspection. Tentaive charging plan is 31.03.2024.

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'24	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to severe ROW problem at Location No. 1 near Grid Substation Jatwal where the Land owner is not allowing erection of Tower. The Deputy Commissioner Samba has been approached for intervention and facilitating the erection of Tower. He is persuading the Land owner to get the work completed. Updated in 210th 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	Jul'24	Updated in 205th 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 Total: 7	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
				• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Dec'24	Issue related to ROW as intimated in 218th 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	May'24	Tender is under process Updated in 205th OCC by HVPNL.
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4 Total: 10	Utilized: 6 Unutilized: 0 Under Implementation:4	• 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	May'24	Work completed and FTC is pending.Updated in 218th OCC by HPPTCL
				• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Giri S/s	-	HPPTCL to update the status.
				• 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 - Sec-56 Gurugram.	May'24	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration.. Updated in 218th OCC by HVPNL
				• S/C line Kadarpur - Sec-52 Gurugram	May'24	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration.. Updated in 218th OCC by HVPNL
				• S/C line Kadarpur - Pali	May'24	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration.. Updated in 218th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	Dec'24	Updated in 216th OCC by HVPNL

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 Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 205th 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 8.08.23 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	Commisioned date: 31.12.2021. Updated in 198th OCC by HVPNL
				• 220kV D/C for Sector78, Faridabad	30.09.2024	Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 218th 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'24	Updated in 216th OCC by HVPNL. **Status:** Work was held up due to ROW at T.L. No. 7,8,11,12 & 13 by the farmers of Jajji villagers during July'23 and now the matter has been resolve and work under progress from 01.08.2023. The erection work of T.no. 1 is pending due to non availability of shut down at 220KV Mohana-Smk line and 220KV Jajji-Mohana line. • PLCC protection coupler and Forest approval is also pending.
				• Sonepat - HSIISC Rai 220kV D/c line	Mar'24	Updated in 218th OCC by HVPNL. **Status:** Provision PTCC clearance received on 21.02.2024. The interstate connectivity aggremment has also been completed on 19.04.2024. Integration of telemetry data is pending, which is under process. FTC documents also submitted on Portal.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
				• Sonepat - Kharkhoda Pocket A 220kV D/c line	08.03.2025	Updated in 212th 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. Tetative date of completion of both bays at PGCIL end is end of July 2024.
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	May'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.
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.
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	Sep'24	Line charged from Rajokheri end on 09.02.2020. The work of construction was awarded to M/s IKE ltd but due to non completion of work firm is blacklisted, Now the pending work of SCADA , Telemetry and Data Integration is being carried out departmentally through OeM M/s ZIV . After completion of these statutory requirement of NRLDC the load will be taken from the Abdullapur. Tentative date of completion of work will be 30.09.2024. Updated in 218th OCC by HVPNL
	400/220kV Panchkula	Commissioned: 8 Under tender:2 Total: 10	Utilized: 2 Unutilized: 4	• Panchkula – Pinjore 220kV D/c line	Commissioned	Updated in 218th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	May'24	All Line work stands completed, The integration work with SLDC,Panipat at 220kV Sector-32,Panchkula end is in progress.Updated in 218th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
25	400/220kV Panchkula Sub-station	Out of these 10 nos. 220kV Line Bays, 2 bays would be used by the lines being constructed by POWERGRID (Chandigarh-2) and balance 8 nos. bays would be used by HVPNL	Unutilized: 4 Under Implementation:2	• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	Jul'24	Updated in 205th 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	May'24	Work is completed, agreement is expected to be signed by May 2024. Updated in 218th 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)	May'24	Work is completed, agreement is expected to be signed by May 2024. Updated in 218th 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	Updated in 205th OCC by HVPNL. **Status:** Under Tendering process
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	Mar'25	Updated in 216th OCC by HVPNL. **Status:** Tendering under progress.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	08.03.2025	Updated in 218th 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. The Survey work has been completed.
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	Jul'24	Price bid opened on 29.01.2024, tender dropped due to price variation. Retendering would be done after general election as updated by RVPN in 218th 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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	May'24	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'24	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.

Annexure-A-I.II

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	A committee has been constituted under the chairmanship of GM, SLDC Delhi to formulate the logic for implementation of ADMS. Delhi SLDC informed that two meetings have been held by the committee.
2	HARYANA	Scheme not implemented	An internal Committee of HVPNL officers has been constituted for preparation of the Detailed Project Report and Tender Documents for implementation of ADMS. The DPR is under preparation.
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 would be shared with the SLDC upon finalization of same.
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.
5	RAJASTHAN	Under implementation. Likely completion schedule is 31.03.2024	RVPN informed that the issue of cyber security of link between SATNAM centre and SLDC control room is still pending. Final testing is scheduled for 24.04.2024.
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.
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.

FGD Status

Updated status of FGD related data submission

NTPC (27.02.2023)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (18.07.2023)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (18.07.2023)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (09.07.2023)
CHHABRA SCPP
CHHABRA TPP
KALISINDH TPS
KOTA TPS
SURATGARH SCTPS
SURATGARH TPS

Updated status of FGD related data submission

Lalitpur Power Gen. Co. Ltd. (17.10.2022)
Lalitpur TPS
Lanco Anpara Power Ltd. (18.06.2022)
ANPARA-C TPS

HGPCL (14.09.2022)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)
KAWAI TPS

Rosa Power Supply Company (18.06.2022)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (17.10.2022)
Prayagraj TPP
APCPL (25.02.2022)
INDIRA GANDHI STPP

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

NTPC
DADRI (NCTPP)
Talwandi Sabo Power Ltd.
TALWANDI SABO TPP
L&T Power Development Ltd.
Nabha TPP (Rajpura TPP)

Target Dates for FGD Commissioning (Utility-wise)

Adani Power Ltd.	KAWAI TPS U#1 (Target: 31-12-2024), KAWAI TPS U#2 (Target: 31-12-2024)
APCPL	INDIRA GANDHI STPP U#1 (Target: 31-01-2022), INDIRA GANDHI STPP U#2 (Target: 30-09-2023), INDIRA GANDHI STPP U#3 (Target: 30-06-2023)
GVK Power Ltd.	GOINDWAL SAHIB U#1 (Target: 30-04-2020), GOINDWAL SAHIB U#2 (Target: 29-02-2020)
HGPCL	PANIPAT TPS U#6 (Target: 31-12-2022), PANIPAT TPS U#7 (Target: 31-12-2022), PANIPAT TPS U#8 (Target: 31-12-2022), RAJIV GANDHI TPS U#1 (Target: 31-12-2024), RAJIV GANDHI TPS U#2 (Target: 31-12-2024), YAMUNA NAGAR TPS U#1 (Target: 31-12-2024), YAMUNA NAGAR TPS U#2 (Target: 31-12-2024)

NTPC	DADRI (NCTPP) U#1 (Target: 31-12-2020), DADRI (NCTPP) U#2 (Target: 31-10-2020), DADRI (NCTPP) U#3 (Target: 31-08-2020), DADRI (NCTPP) U#4 (Target: 30-06-2020), DADRI (NCTPP) U#5 (Target: 30-06-2022), DADRI (NCTPP) U#6 (Target: 31-03-2023), RIHAND STPS U#1 (Target: 31-10-2025), RIHAND STPS U#2 (Target: 30-06-2026), RIHAND STPS U#3 (Target: 31-12-2024), RIHAND STPS U#4 (Target: 31-03-2025), RIHAND STPS U#5 (Target: 30-06-2025), RIHAND STPS U#6 (Target: 31-10-2025), SINGRAULI STPS U#1 (Target: 31-12-2024), SINGRAULI STPS U#2 (Target: 31-12-2024), SINGRAULI STPS U#3 (Target: 31-12-2024), SINGRAULI STPS U#4 (Target: 31-12-2024), SINGRAULI STPS U#5 (Target: 31-03-2025), SINGRAULI STPS U#6 (Target: 31-06-2024), SINGRAULI STPS U#7 (Target: 31-03-2024), UNCHAHAR TPS U#1 (Target: 31-12-2023), UNCHAHAR TPS U#2 (Target: 31-12-2023), UNCHAHAR TPS U#3 (Target: 30-09-2023), UNCHAHAR TPS U#4 (Target: 30-09-2023), UNCHAHAR TPS U#5 (Target: 30-09-2023), UNCHAHAR TPS U#6 (Target: 31-08-2022), MEJA Stage-I U#1 (Target: 31-10-2023), MEJA Stage-I U#2 (Target: 30-06-2023), TANDA Stage-I U#3 (Target:), TANDA Stage-I U#4 (Target:), TANDA Stage-II U#3 (Target: 31-03-2023), TANDA Stage-II U#4 (Target: 30-09-2023)

L&T Power Development Ltd (Nabha)	Nabha TPP (Rajpura TPP) U#1 (Target: 30-04-2021), Nabha TPP (Rajpura TPP) U#2 (Target: 28-02-2021)
Lalitpur Power Gen. Company Ltd.	LALITPUR TPS U#1 (Target: 31-12-2026), LALITPUR TPS U#2 (Target: 30-09-2026), LALITPUR TPS U#3 (Target: 30-06-2026)
Lanco Anpara Power Ltd.	ANPARA C TPS U#1 (Target: 31-12-2023), ANPARA C TPS U#2 (Target: 31-12-2023)
Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP U#1 (Target: 31-12-2024), PRAYAGRAJ TPP U#2 (Target: 31-12-2024), PRAYAGRAJ TPP U#3 (Target: 31-12-2024)
PSPCL	GH TPS (LEH.MOH.) U#1 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#2 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#3 (Target: 31-12-2026), GH TPS (LEH.MOH.) U#4 (Target: 31-12-2026), GGSSTP, Ropar U#3 (Target: 31-12-2026), GGSSTP, Ropar U#4 (Target: 31-12-2026), GGSSTP, Ropar U#5 (Target: 31-12-2026), GGSSTP, Ropar U#6 (Target: 30-12-2026)

Rosa Power Supply Company	ROSA TPP Ph-I U#1 (Target: 31-12-2026), ROSA TPP Ph-I U#2 (Target: 31-12-2026), ROSA TPP Ph-I U#3 (Target: 31-12-2026), ROSA TPP Ph-I U#4 (Target: 31-12-2026)
RRVUNL	KOTA TPS U#5 (Target: 31-08-2024), KOTA TPS U#6 (Target: 31-08-2024), KOTA TPS U#7 (Target: 31-08-2024), SURATGARH TPS U#1 (Target: 31-12-2026), SURATGARH TPS U#2 (Target: 31-12-2026), SURATGARH TPS U#3 (Target: 31-12-2026), SURATGARH TPS U#4 (Target: 31-12-2026), SURATGARH TPS U#5 (Target: 31-12-2026), SURATGARH TPS U#6 (Target: 31-12-2026), SURATGARH SCTPS U#7 (Target: 28-02-2025), SURATGARH SCTPS U#8 (Target: 28-02-2025), CHHABRA TPP U#1 (Target: 31-12-2026), CHHABRA TPP U#2 (Target: 31-12-2026), CHHABRA TPP U#3 (Target: 31-12-2026), CHHABRA TPP U#4 (Target: 31-12-2026), CHHABRA SCPP U#5 (Target: 28-02-2025), CHHABRA SCPP U#6 (Target: 28-02-2025), KALISINDH TPS U#1 (Target: 28-02-2025), KALISINDH TPS U#2 (Target: 28-02-2025)
Talwandi Sabo Power Ltd.	TALWANDI SABO TPP U#1 (Target: 28-02-2021), TALWANDI SABO TPP U#2 (Target: 31-12-2020), TALWANDI SABO TPP U#3 (Target: 31-10-2020)
UPRVUNL	ANPARA TPS U#1 (Target: 31-12-2023), ANPARA TPS U#2 (Target: 31-12-2023), ANPARA TPS U#3 (Target: 31-12-2023), ANPARA TPS U#4 (Target: 31-12-2023), ANPARA TPS U#5 (Target: 31-12-2023), ANPARA TPS U#6 (Target: 31-12-2023), ANPARA TPS U#7 (Target: 31-12-2023), HARDUAGANJ TPS U#8 (Target: 31-12-2024), HARDUAGANJ TPS U#9 (Target: 31-12-2024), OBRA TPS U#9 (Target: 31-12-2024), OBRA TPS U#10 (Target: 31-12-2024), OBRA TPS U#11 (Target: 31-12-2024), OBRA TPS U#12 (Target: 31-12-2024), OBRA TPS U#13 (Target: 31-12-2024), PARICHHA TPS U#3 (Target: 30-04-2022), PARICHHA TPS U#4 (Target: 31-12-2024), PARICHHA TPS U#5 (Target: 31-12-2024), PARICHHA TPS U#6 (Target: 31-12-2024)

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 invited for procurement of one set of ERS for 400/220/132 voltage level each for PTCUL transmission lines on 15/03/2024 by Contract & Purchase wing of PTCUL.
		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 Bikaner
		220 kV	16227.979		3		
		400 kV	6899.386		2		
		765 kV	425.498		1		

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
13	DTL	220kV	915.498	NIL	1	400kV Bamnauli Sub station	ERS tower available for 400KV rating can also be used for lower voltage lines as well
		400kV	249.19	02 Sets (32 towers)	1		
14	JKPTCL						
15	HVPN						HVPN does not have ERS Set. Technical Specifications have been finalized
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)

Annexure-A.III

Progress Report regarding achievement of 55% MTL

S. No	Details	Unit 1	Unit2	Unit3	-------
1	Name of Utility				
2	Plant Name and Address				
3	Capacity, MW				
4	Date of Commissioning				
5	Type of Unit: Supercritical/Subcritical/....				
6	Net Heat rate: Design/Actual				
7	Coal Quality (i) GCV (ii) Volatile matter (iii) Ash Content				
8	Maximum Generation (last 2 years) MW				
9	Minimum Generation (last 2 years) MW				
10	Maximum Ramp Rate Up (last 2 years)				
11	Maximum Ramp Rate Down (last 2 years)				
12	Whether 55% Minimum load Achieved (YES/NO) (i) If YES, specify the duration and time (ii) If NO, specify the reason for the same				
14	Any other details				

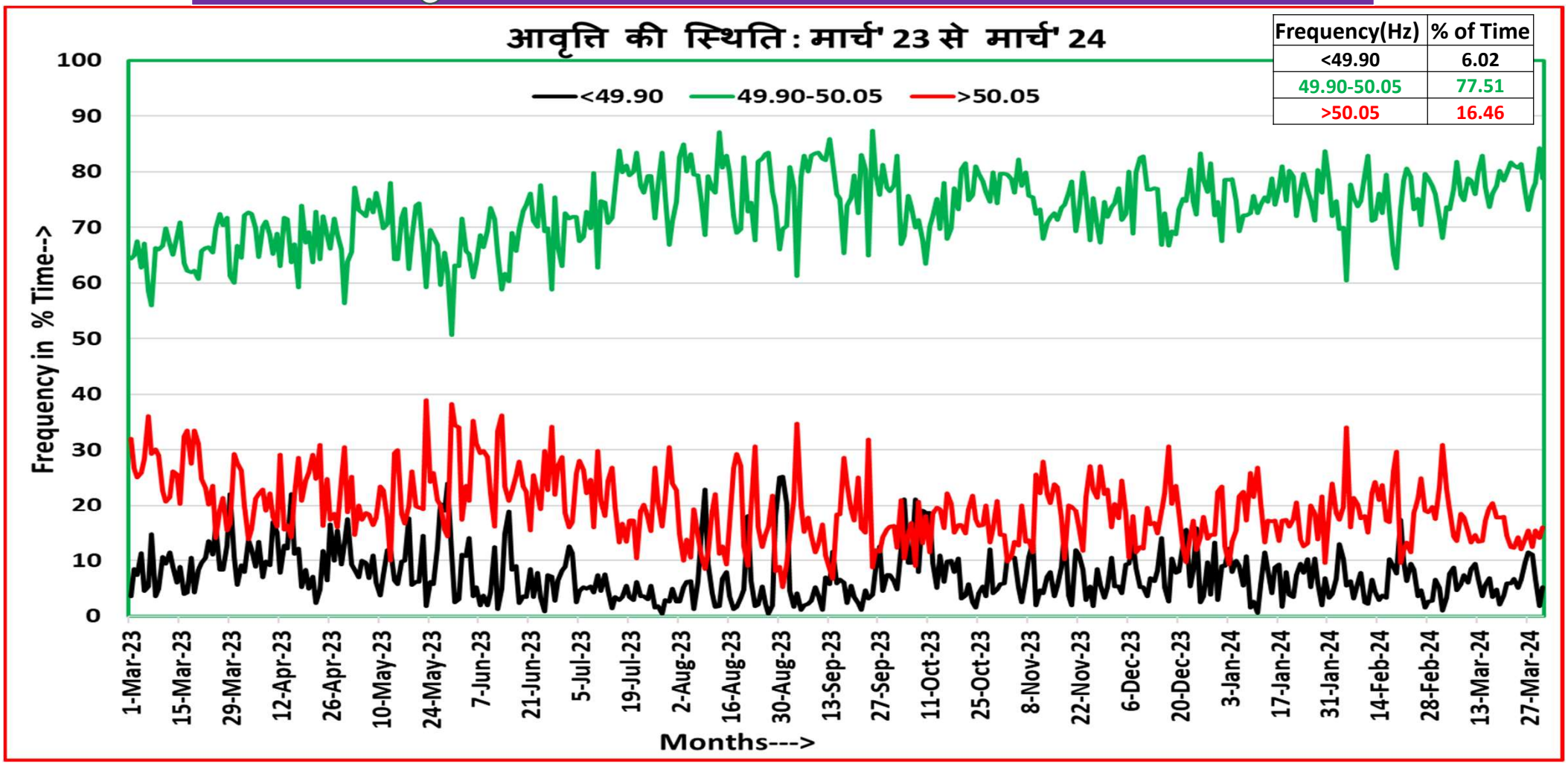
Annexure-A.IV

Progress Report regarding achievement of 40% MTL

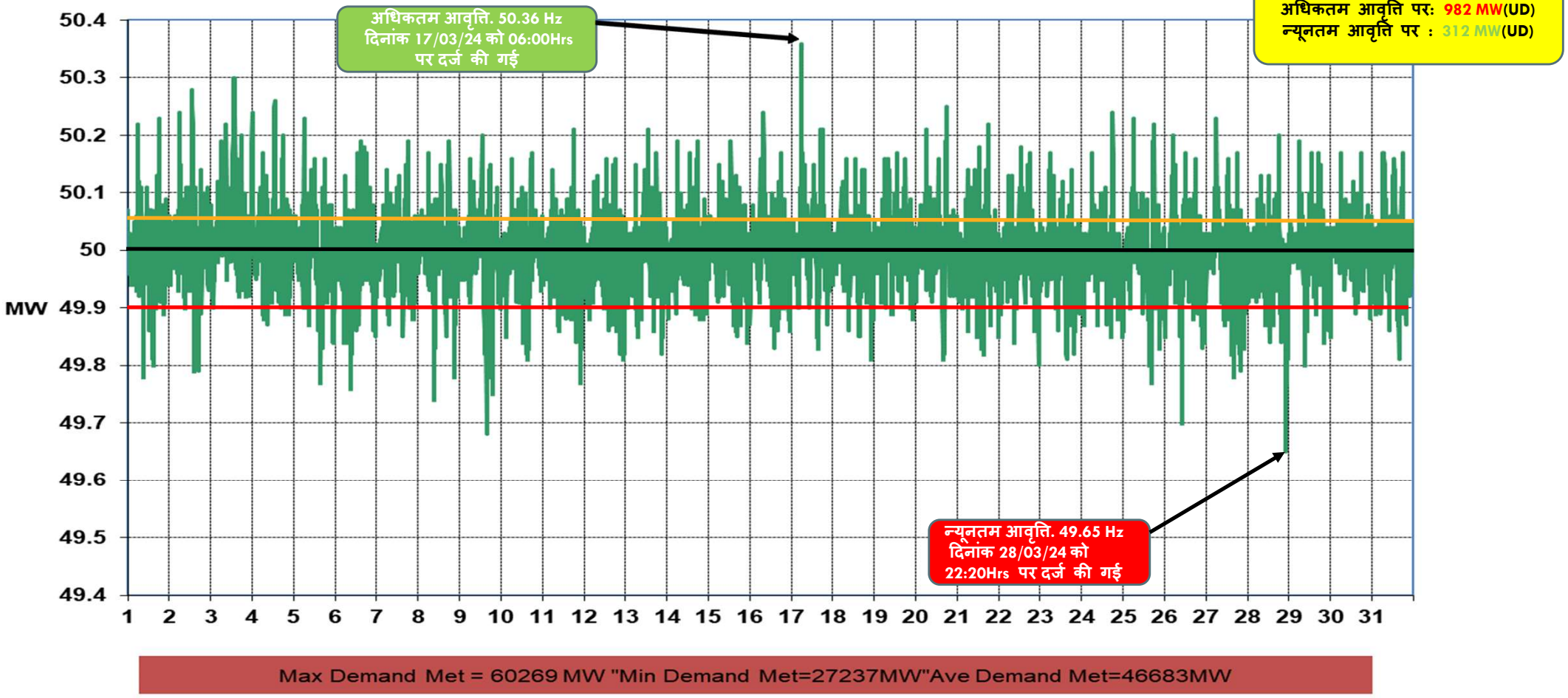
S. No	Details	Unit 1	Unit2	Unit3	-------
1	Name of Utility				
2	Plant Name and Address				
3	Capacity, MW				
4	Date of Commissioning				
5	Type of Unit: Supercritical/Subcritical/....				
6	Net Heat rate: Design/Actual				
7	Coal Quality (i) GCV (ii) Volatile matter (iii) Ash Content				
8	Maximum Generation (last 2 years) MW				
9	Minimum Generation (last 2 years) MW				
10	Maximum Ramp Rate Up (last 2 years)				
11	Maximum Ramp Rate Down (last 2 years)				
12	Whether 40% Minimum load Achieved (YES/NO) (i) If YES, specify the duration and time (ii) If NO, specify the reason for the same (iii) Whether low load test conducted at 40% (YES/NO) (a) If YES, measures identified/implemented for achieving the same. (b) If No, any action taken in this regard				
14	Any other details				

प्रचालन समन्वय उपसमिति की बैठक
मार्च- 2024

आवृत्ति की स्थिति: मार्च -2023 से 2024



मार्च -2024 के दौरान आवृत्ति की स्थिति
(As per 5 Minute SCADA data)



Max Demand Met = 60269 MW "Min Demand Met=27237MW"Ave Demand Met=46683MW

पिछले एक साल मे आवृत्ति की स्थिति

आवृत्ति बैंड	मार्च 2023	अप्रैल 2023	मई 2023	जून 2023	जुलाई 2023	अगस्त 2022	सितम्बर 2023	अक्टूबर 2023	नवम्बर 2023	दिसंबर 2023	जनवरी 2024	फ़रवरी 2024	मार्च 2024
< 49.7 Hz(%)	0.16	0.24	0.24	0.22	0.09	0.47	0.11	0.53	0.10	0.17	0.12	0.095	0.065
<49.8 Hz(%)	1.26	1.68	1.48	0.86	0.66	1.63	0.57	1.99	0.96	1.40	0.92	0.797	0.479
<49.9 Hz(%)	9.03	10.54	9.83	8.42	4.60	7.11	5.21	8.87	6.83	7.83	6.80	6.239	6.022
49.90-50.05 Hz(%)	*63.84*	*67.90*	*68.48*	*67.83*	*74.96*	*77.25*	*77.86*	*74.42*	*74.36*	*75.21*	*75.83*	*74.06*	**77.51**
50.05-50.10 Hz(%)	17.86	12.54	13.25	15.59	15.64	13.28	13.32	13.53	13.74	10.47	11.91	14.118	12.262
>50.10 Hz(%)	7.99	6.46	8.44	8.15	4.79	2.35	3.61	3.18	5.06	6.49	5.47	5.581	4.204
>50.20 Hz(%)	1.28	0.88	0.77	1.09	0.80	0.23	0.32	0.14	0.66	0.53	0.41	0.565	0.657
औसत आवृत्ति	50.00	49.99	49.99	50.01	50.01	50.00	50.00	49.99	50.00	49.99	49.99	50.00	50.00

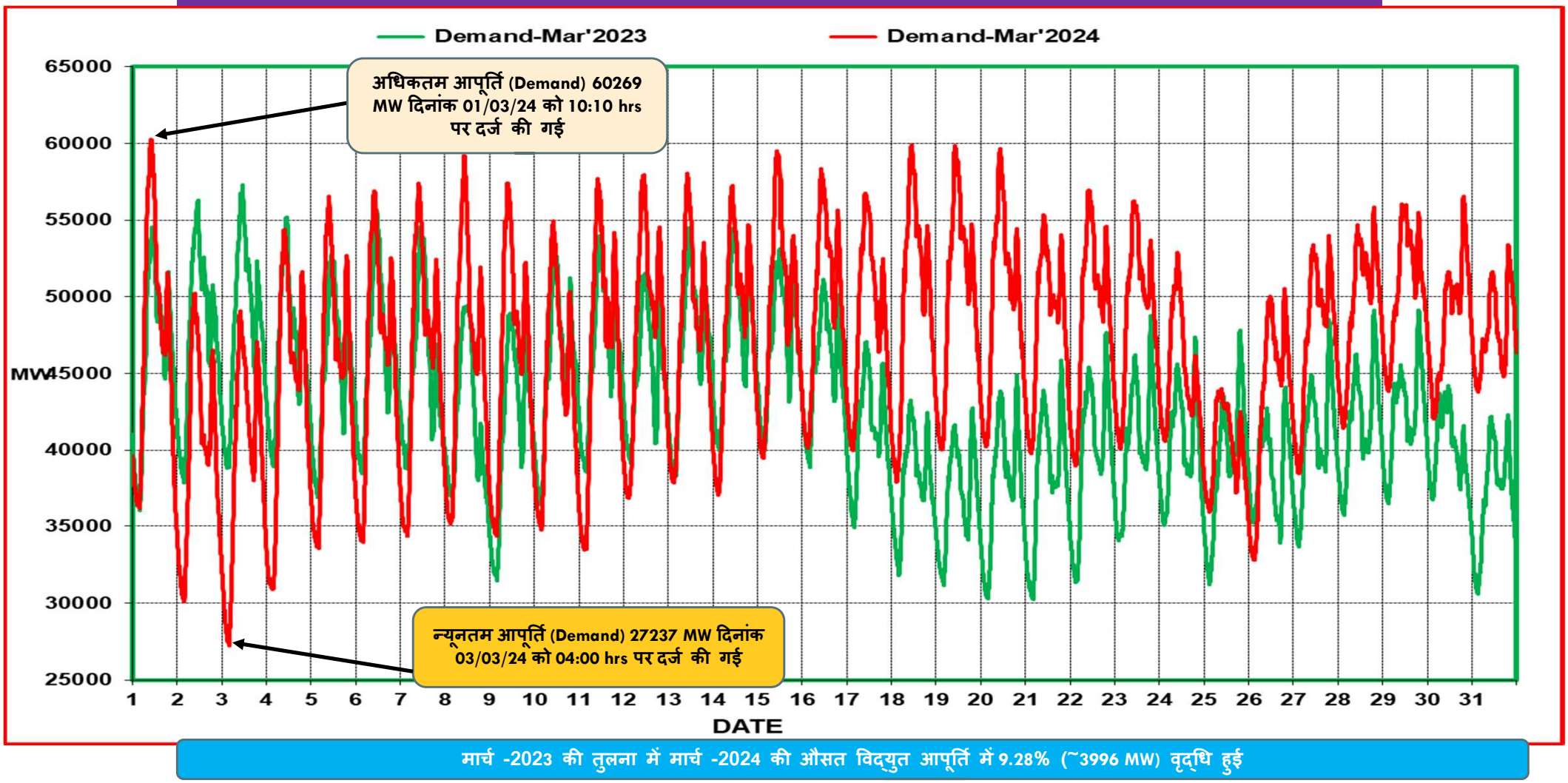
मार्च-2023 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

ग्रिड-इंडिया GRID-INDIA

राज्य	अधिकतम मांग (MW) (in Mar'24)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Feb'24)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in Mar'24)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Feb'23)	दिनांक
पंजाब	10214	20.03.24 at 10:45	15293	24.06.23 को 11:45 बजे	184.73	20.03.2024	344.1	24.06.2023
हरियाणा	7747	18.03.24 at 12:30	12768	28.06.22 को 11:56 बजे	152.27	19.03.2024	273.1	18.08.2023
राजस्थान	17030	01.03.24 at 10:00	17949	20.01.24 को 11:00 बजे	307.59	12.03.2024	371.6	04.09.2023
दिल्ली	4482	08.03.24 at 09:43	7695	29.06.22 को 15:10 बजे	84.82	30.03.2024	153.5	28.06.2022
उत्तर प्रदेश	21243	30.03.24 at 19:44	28284	24.07.23 को 21:43 बजे	407.91	30.03.2024	580	03.09.2023
उत्तराखंड	2260	01.03.24 at 08:00	2594	14.06.22 को 21:00 बजे	43.18	29.03.2024	56.2	17.06.2023
हिमाचल प्रदेश	1982	01.03.24 at 08:00	2235	20.01.24 को 07:00 बजे	35.36	01.03.2024	39.29	24.01.2024
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	2896	05.03.24 at 07:00	3107	12.01.24 को 20:00 बजे	60.01	05.03.2024	66.8	26.01.2024
चंडीगढ़	237	05.03.24 at 07:00	426	08.07.21 को 15:00 बजे	4.00	29.03.2024	8.4	08.07.2021
उत्तरी क्षेत्र #	60269	01.03.24 at 10:10	81048	04.09.23 को 14:50 बजे	1212.50	29.03.2024	1792.7	04.09.2023

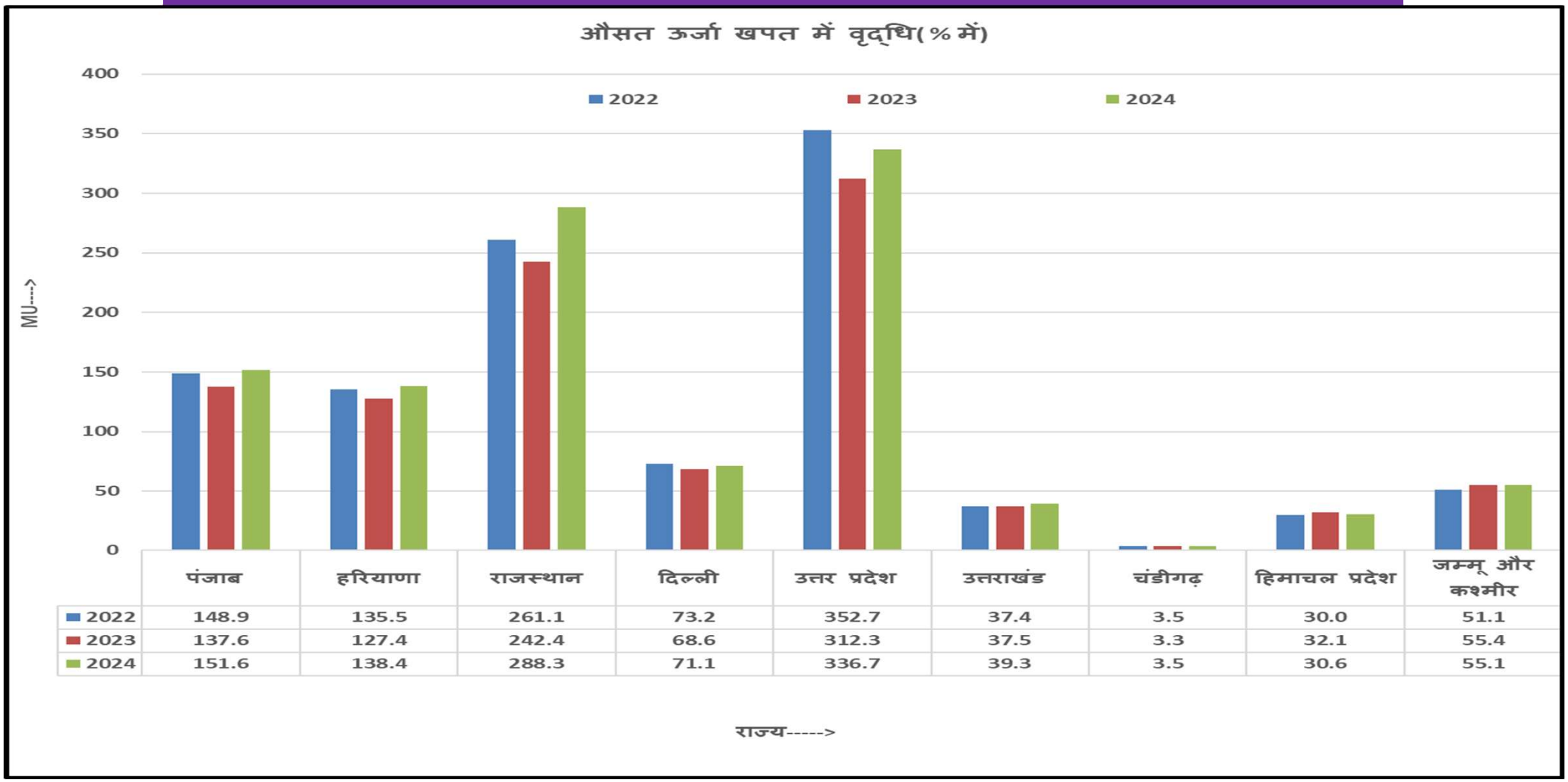
उत्तरी क्षेत्र अधिकतम मांग (Demand Met) as per SCADA Data

क्षेत्रीय विद्युत आपूर्ति (Demand) मार्च 2023 बनाम मार्च 2024 (As per 5 Minute SCADA data)



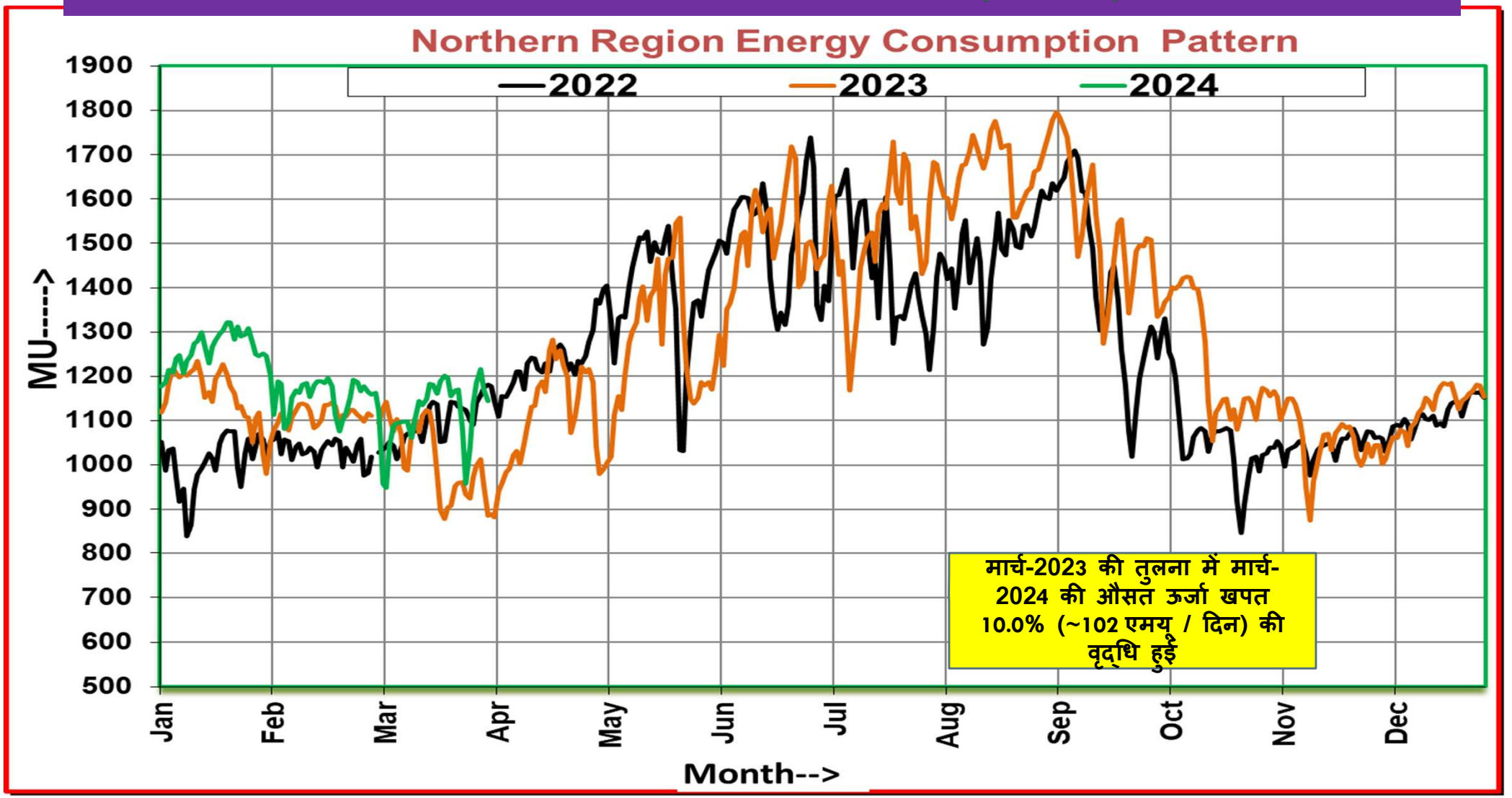
मार्च -2023 की तुलना में मार्च -2024 की औसत विद्युत आपूर्ति में 9.28% (~3996 MW) वृद्धि हुई

उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृदधि(% में) मार्च-2024/ मार्च-2023 / मार्च-2022

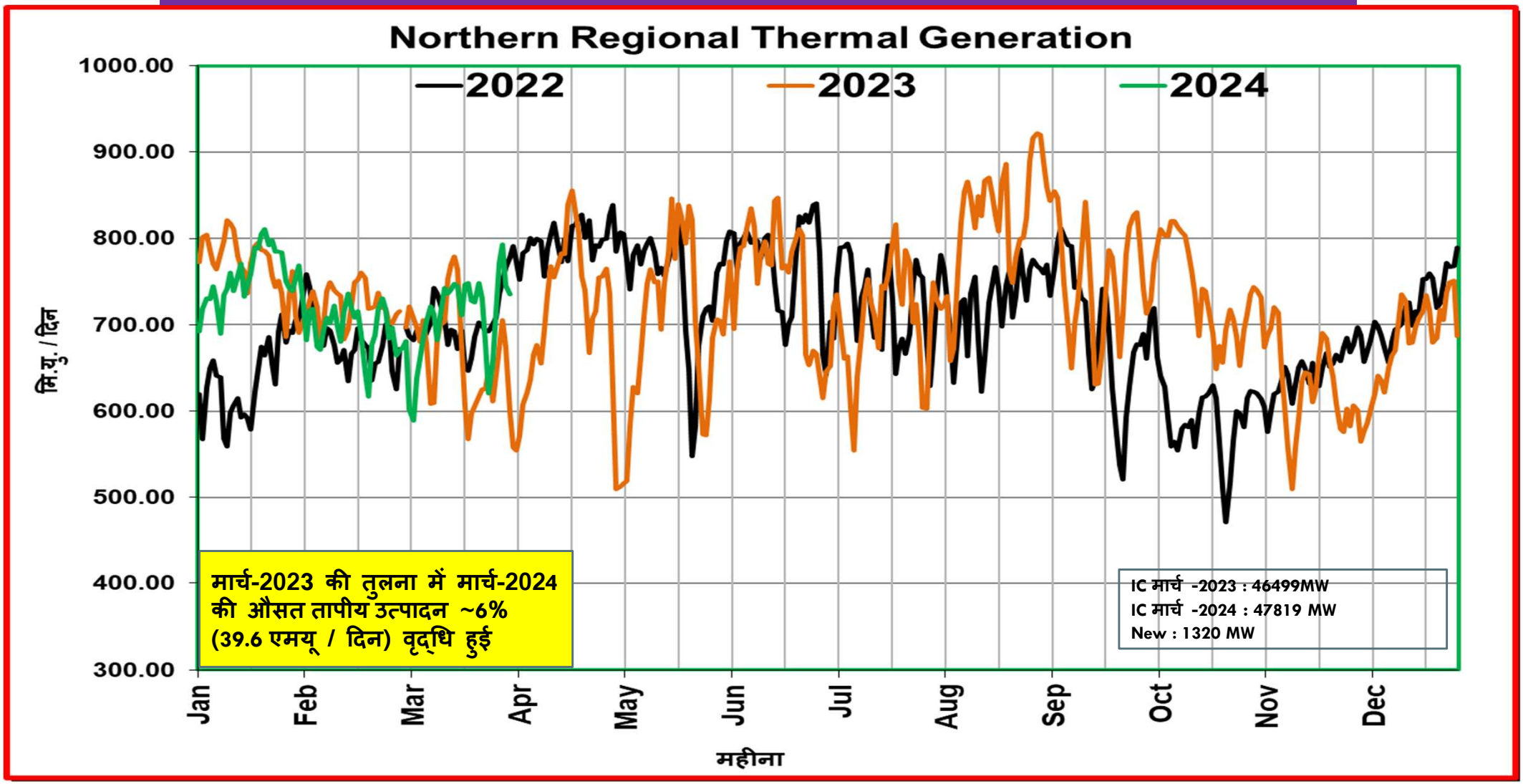


	पंजाब	हरियाणा	राजस्थान	दिल्ली	उत्तर प्रदेश	उत्तराखंड	चंडीगढ़	हिमाचल प्रदेश	जम्मू और कश्मीर
2022	148.9	135.5	261.1	73.2	352.7	37.4	3.5	30.0	51.1
2023	137.6	127.4	242.4	68.6	312.3	37.5	3.3	32.1	55.4
2024	151.6	138.4	288.3	71.1	336.7	39.3	3.5	30.6	55.1

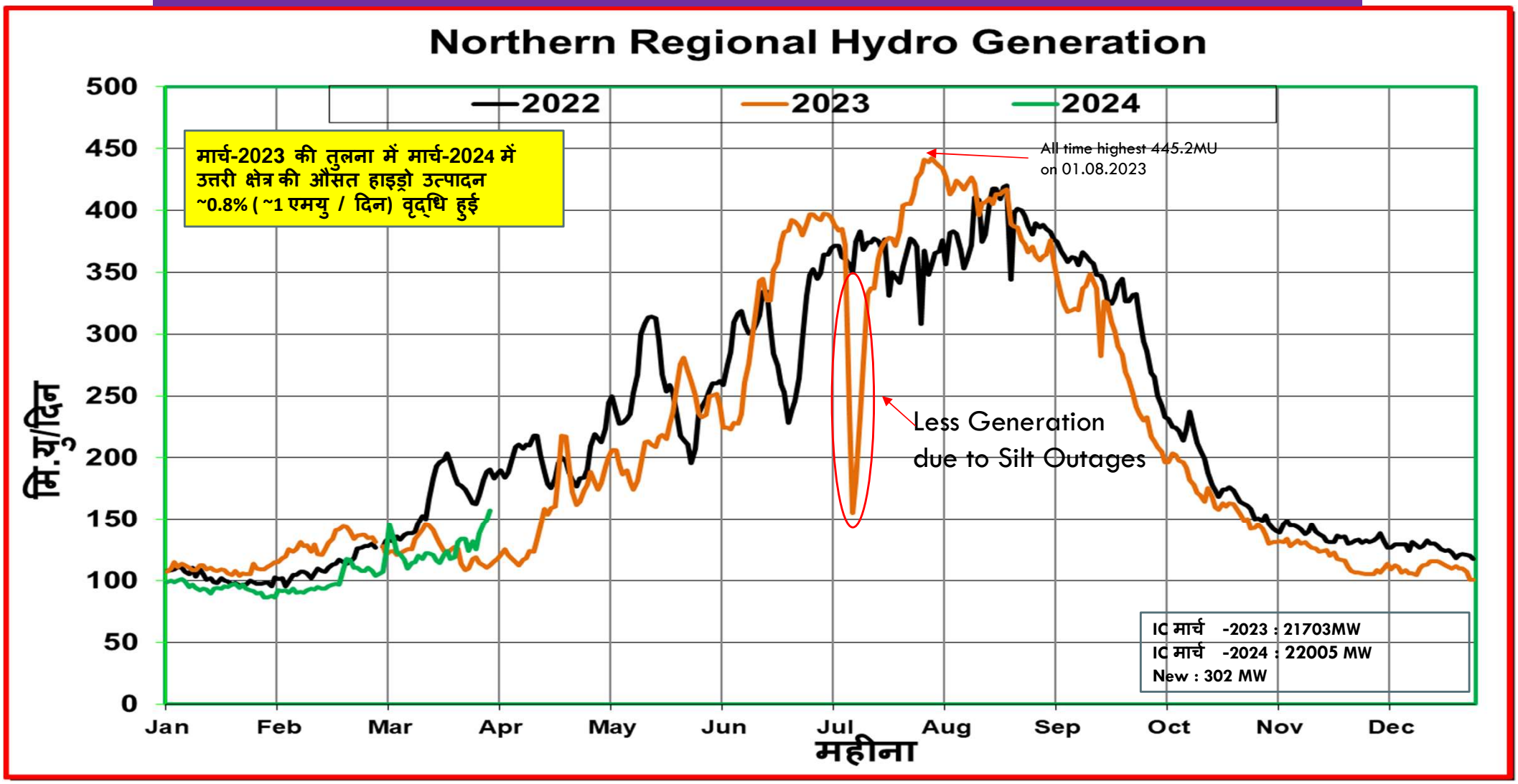
उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



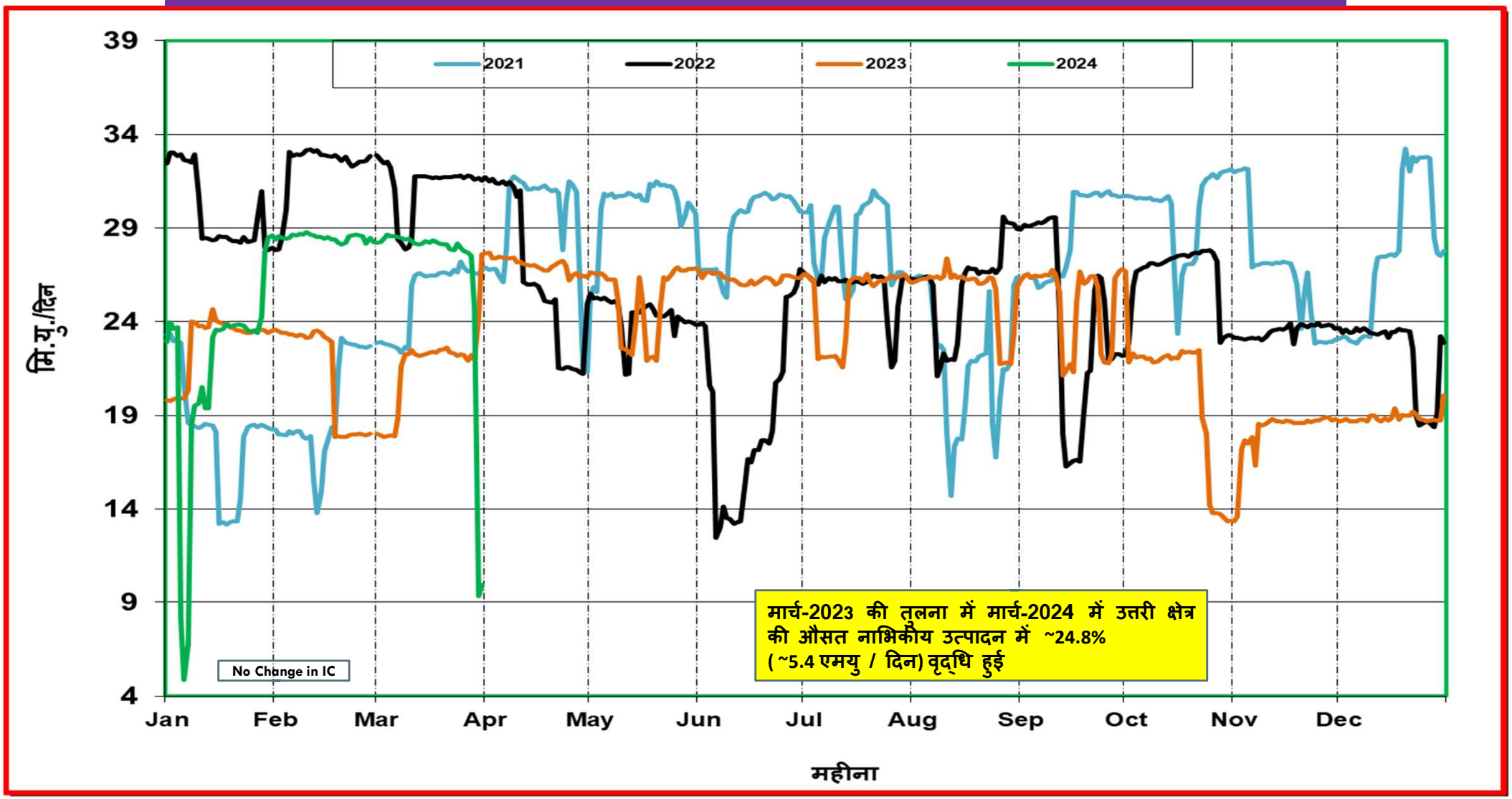
उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(MUs/Day)



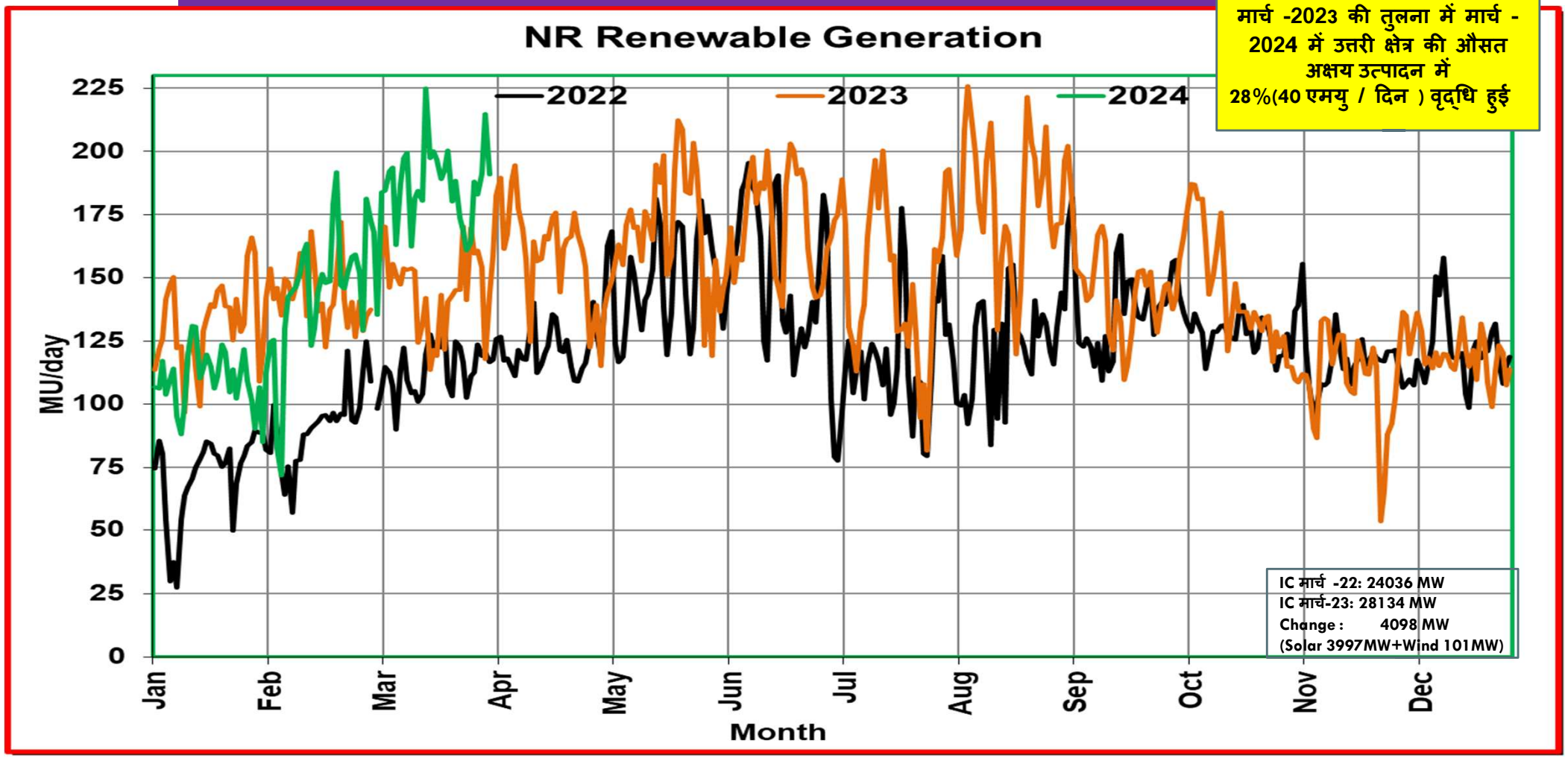
उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(MUs/Day)



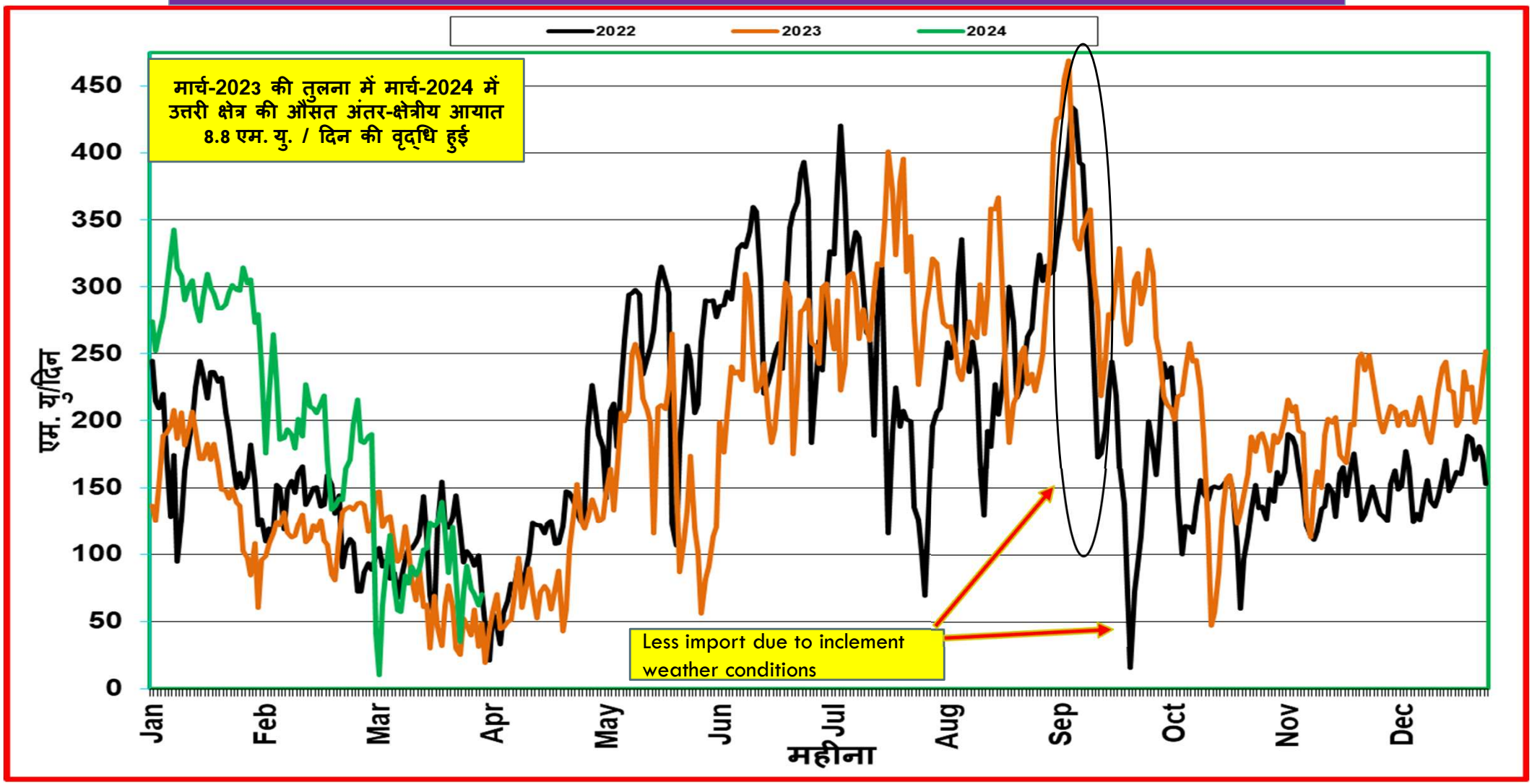
उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)



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



अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



वास्तविक सारांश -
मार्च-2023 बनाम मार्च-2024

	मार्च-2023 (मि.यु. /दिन)	मार्च-2024 (मि.यु. /दिन)	मार्च माह में वृद्धि (मि.यु./दिन)
तापीय (Thermal) उत्पादन	668.51	708.08	39.57
जलीय (Hydro) उत्पादन	124.73	125.70	0.96
नाभिकीय (Nuclear) उत्पादन	21.55	26.89	5.35
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	79.00	87.86	8.86
अक्षय (Renewable) उत्पादन	145.313	185.407	40.09

RE Penetration

	Maximum Daily MU Penetration			
	Mar '2024		Record upto Feb '2024	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	6.41	31-03-2024	12.28	01-04-2020
Rajasthan	23.99	02-03-2024	36.47	22-10-2021
UP	5.50	05-03-2024	4.72	22-03-2023
NR	19.58	14-03-2024	20.69	02-04-2023

OUTAGE SUMMARY OF LAST THREE MONTHS

MONTH	PLANNED	FORCED OUTAGES	EMERGENCY SHUTDOWNS	TRIPPING	% PLANNED as of TOTAL S/D	% EMERGENCY SHUTDOWNS	TOTAL OUTAGES (A+B)
	(A)	(B=C+D)	(C)	(D)	(A/(A+C))	(C/(A+C))	
Dec-23	1078	658	331	327	76.5%	23.5%	1736
Jan-24	711	827	401	426	63.9%	36.1%	1538
Feb-24	946	728	361	367	72.4%	27.6%	1674
Mar-24	**927**	**788**	**380**	408	**70.9%**	**29.1%**	**1715**

Outage Summary For Mar 2024									
CONSTITUENTS	PLANNED (A)	FORCED OUTAGES (B=C+D)	EMERGENCY SHUTDOWNS (C)	TRIPPING (D)	% PLANNED SHUTDOWNS (A/(A+C))	% EMERGENCY SHUTDOWNS(C/(A+C)	% ESD SHUTDOWNS(C/B)	% TRIPPING (D/B)	TOTAL OUTAGES (A+B)
POWERGRID	366	269	153	116	70.5%	29.5%	56.9%	43.1%	635
UPPTCL	132	151	51	100	72.1%	27.9%	33.8%	66.2%	283
RRVPNL	109	160	83	77	56.8%	43.2%	51.9%	48.1%	269
PSTCL	70	37	19	18	78.7%	21.3%	51.4%	48.6%	107
BBMB	40	32	6	26	87.0%	13.0%	18.8%	81.3%	72
HVPNL	44	23	10	13	81.5%	18.5%	43.5%	56.5%	67
HPPTCL	23	18	5	13	82.1%	17.9%	27.8%	72.2%	41
DTL	20	11	6	5	76.9%	23.1%	54.5%	45.5%	31
ADHPL	28	0	0	0	100.0%	0.0%	NA	NA	28
NTPC	18	7	2	5	90.0%	10.0%	28.6%	71.4%	25
ARP1PL	16	4	3	1	84.2%	15.8%	75.0%	25.0%	20
Azure	12	7	5	2	70.6%	29.4%	71.4%	28.6%	19
PTCUL	6	11	1	10	85.7%	14.3%	9.1%	90.9%	17
Adani	12	2	0	2	100.0%	0.0%	0.0%	100.0%	14
NRSS36	1	13	13	0	7.1%	92.9%	100.0%	0.0%	14
Saurya Urja	10	0	0	0	100.0%	0.0%	NA	NA	10
THDC	0	10	8	2	0.0%	100.0%	80.0%	20.0%	10
PKATL	3	4	2	2	60.0%	40.0%	50.0%	50.0%	7
AHEJ4L	2	4	2	2	50.0%	50.0%	50.0%	50.0%	6
RENEW SURYARAVI (RSRPL)	0	6	2	4	0.0%	100.0%	33.3%	66.7%	6
AMP Energy Green Private L	3	2	0	2	100.0%	0.0%	0.0%	100.0%	5
NHPC	1	4	1	3	50.0%	50.0%	25.0%	75.0%	5
PDD JK	0	4	1	3	0.0%	100.0%	25.0%	75.0%	4
PKTSL	2	2	2	0	50.0%	50.0%	100.0%	0.0%	4
ACME	3	0	0	0	100.0%	0.0%	NA	NA	3
AHEJOL	2	1	1	0	66.7%	33.3%	100.0%	0.0%	3
ESUCRL	2	1	1	0	66.7%	33.3%	100.0%	0.0%	3
MAHINDRA	1	2	1	1	50.0%	50.0%	50.0%	50.0%	3
AHEJ3L	0	2	1	1	0.0%	100.0%	50.0%	50.0%	2
ATIL	1	1	1	0	50.0%	50.0%	100.0%	0.0%	2
Total	927	788	380	408	70.9%	29.1%	48.2%	51.8%	1715

New Elements First Time Charged During March 2024

S. No.	Type of transmission element	Total No
1	Transmission Lines	06
2	LINE REACTOR	04
3	ICTs/GTs/Transformers	14
4	SOLAR ICR/BLOCK	09
5	LILO Line Charging	04
6	BUS REACTOR	03
7	AC Transmission line Shifting	01
Total New Elements charged		41


धन्यवाद