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 220 वीं बैठक का कार्यवृत |

Subject: Minutes of the 220th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 220 वीं बैठक दिनांक 19.06.2024 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 220th meeting of the Operation Co-ordination Sub-Committee (OCC) of NRPC was held on 19.06.2024. 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:यथोपरिI

Signed by Dharmendra Kumar Meena
Date: 10-07-2024 13:25:33

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

सेवा में,

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

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Member Secretary, NRPC welcomed all the participants to the 220th OCC meeting. He thanked APCPL for hosting the meeting and for the wonderful arrangements for meeting. He hoped that the deliberations in the meeting would help in resolving the issues affecting the Northern Region. He stated that some of the agenda's approved in this meeting would be taken up for approval in the upcoming NRPC meeting.

List of participants of 220th OCC meeting is attached at ***Annexure-A.***

खण्ड-क:उ.क्षे.वि.स. PART-A:NRPC

A.1. Confirmation of Minutes

Minutes of the 219th OCC meeting was issued on 28.05.2024.

In regard to agenda No. B.I, HPSLDC representative mentioned that figures for Himachal Pradesh and Haryana have been inadvertently swapped with regard to "Demand met details of NR" table. Further, figures for UP and Uttarakhand have also been mistakenly swapped.

OCC confirmed the minutes of the meeting with following modifications in regard to agenda B.I:

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	258	26.04.24 at 15:00	5.2	26.04.2024	4.4
2	Delhi	5447	26.04.24 at 15:20	108.8	26.04.2024	94.8
3	H.P.	1819	09.04.24 at 07:00	33.8	12.04.2024	31.4
4	Haryana	9502	27.04.24	173.6	26.04.2024	155.7

			at 22:45			
5	J&K	2924	10.04.24 at 07:00	55.8	10.04.2024	50.4
6	Punjab	9821	26.04.24 at 07:00	170.1	26.04.2024	153.7
7	Rajasthan	14283	29.04.24 at 10:30	292.0	25.04.2024	271.2
8	Uttarakhand	2357	26.04.24 at 20:00	48.1	26.04.2024	43.5
9	U.P.	25462	30.04.24 at 22:21	511.4	29.04.2024	436.4
10	**Northern Region**	**62884**	**25.04.24 at 22:00**	**1360.3**	**29.04.2024**	**1241.4**

A.2. Status of action taken on decisions of 219th OCC meeting of NRPC

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

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

Decision of OCC Forum:

Concerned utilities submitted the status of action taken and the same has been complied as ***Annexure- 0****.*

A.3. Review of Grid operations of May 2024

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

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

- **Delhi**

  Delhi experienced unexpected scorching heat wave in month of May-2024. So, actual peak demand and energy consumption in May-2024 are much higher than expected.

- **Himachal Pradesh**

  The Anticipation in Energy Requirement & Peak Demand in respect of Himachal Pradesh for the month of April, 2024 came on the lower side due to consistent bad weather.

- **Punjab**

It is intimated that actual maximum demand and actual energy requirement are more than anticipated maximum demand and anticipated energy requirement because of prolonged dry spell and higher temperatures in the month of May 2024. Further, it is intimated that actual peak demand is also higher than anticipated peak demand as Agriculture load of the state has been aligned in solar hours as per mandate of GoI and CEA.

- **Rajasthan**

The Actual Energy requirement w.r.t. Anticipated Energy requirement increased by 14.5% due to unexpected load growth (25.07% w.r.t. May’ 2023) during the month as unexpected temperature rise & heat waves in the state control area was observed and Actual Peak Demand w.r.t. Anticipated Peak Demand increased by 3.3% for May' 2024 is within permissible limit.

- **Haryana**

It is intimated that there was unprecedented increase in demand in Agriculture sector to the extent of 88.16% in comparison to the last year. Similarly, demand in RDS, Urban & industry rose to the extent of 38.83%, 41.27% &16.22% respectively. The cumulative increase in demand during May'24 was 35.56%. Thus, the actual demand felt was more than the anticipated demand.

- **Uttar Pradesh**

Actual energy consumption and demand was higher than anticipated due to severe heat wave and persistent 3-4 degree higher temperature in May 2024 in comparison to May 2023.

- **Uttarakhand**

The reason for significant variation in energy requirements and Peak Demand for month of May'24 against anticipated figures were due to unexpected heat wave conditions along with 6-7 degree increase in temperature throughout the month without intermittent rainfall as compared to previous years. Further, there was unexpected increase in pilgrims for Char Dham Yatra in comparison to previous year, which resulted into significant increase in demand in yatra route e.g Haridwar, Rishikesh etc.

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

The maintenance programme of generating units and transmission lines for the month of July 2024 was deliberated in the meeting on 14.06.2024.

A.5. Anticipated Power Supply Position in Northern Region for July 2024

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Availability	240	400	
CHANDIGARH	Requirement	192	391	No Revision submitted
	Surplus / Shortfall	48	9	
	% Surplus / Shortfall	24.8%	2.4%	
DELHI	Availability	5790	8382	14-Jun-24
	Requirement	4500	8300	
	Surplus / Shortfall	1290	82	
	% Surplus / Shortfall	28.7%	1.0%	
HARYANA	Availability	7829	13743	04-Jun-24
	Requirement	7027	14261	
	Surplus / Shortfall	802	-518	
	% Surplus / Shortfall	11.4%	-3.6%	
HIMACHAL PRADESH	Availability	1128	1795	05-Jun-24
	Requirement	1089	1846	
	Surplus / Shortfall	39	-51	
	% Surplus / Shortfall	3.6%	-2.8%	
J&K and LADAKH	Availability	2180	3300	No Revision submitted
	Requirement	1753	3115	
	Surplus / Shortfall	427	185	
	% Surplus / Shortfall	24.4%	5.9%	
PUNJAB	Availability	9100	15300	19-Jun-24
	Requirement	9283	16265	
	Surplus / Shortfall	-183	-965	
	% Surplus / Shortfall	-2.0%	-5.9%	
RAJASTHAN	Availability	9210	17450	14-Jun-24
	Requirement	9300	16000	
	Surplus / Shortfall	-90	1450	
	% Surplus / Shortfall	-1.0%	9.1%	
UTTAR PRADESH	Availability	18290	30000	10-Jun-24
	Requirement	17980	30000	
	Surplus / Shortfall	310	0	
	% Surplus / Shortfall	1.7%	0.0%	
UTTARAKHAND	Availability	1498	2469	04-Jun-24
	Requirement	1519	2500	
	Surplus / Shortfall	-21	-31	
	% Surplus / Shortfall	-1.4%	-1.2%	
NORTHERN REGION	Availability	55265	83700	
	Requirement	52643	83500	
	Surplus / Shortfall	2621	200	
	% Surplus / Shortfall	5.0%	0.2%	

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

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

A.6.2. In 220th 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.6.3. MS, NRPC suggested States/UTs of NR to constitute state operation co-ordinate committee with participation from SLDC, STU, State Discoms and State GENCOs to address their internal grid/operation issues regularly and in effective manner.

A.7. NR Islanding scheme

A.7.1. In the meeting (220th OCC), UPPTCL representative mentioned that telemetry for few stations for Unchahar islanding scheme is pending.

A.7.2. With regard to Agra islanding scheme, UPPTCL representative apprised forum that procurement of UFR is under process and tender would be floated next week.

A.7.3. RRVPNL representative mentioned that logic for Jodhpur-Barmer-Rajwest islanding scheme is being reviewed and DPR for implementation of Suratgarh islanding scheme is under finalization.

A.7.4. 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.7.5. With regard to Kullu-Manali Islanding scheme, HPSLDC representative apprised forum that the Scheme is being examined by HPSLDC before approval from appraisal committee of State Commission for funding from State PSDF.

A.7.6. With regard to Shimla-Solan Islanding scheme representative from HPSLDC intimated forum HPSEB has been taken up the matter 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.8. Coal Supply Position of Thermal Plants in Northern Region

A.8.1. In the meeting, NRPC representative apprised forum about the coal stock position of generating stations in northern region during current month (till 09th June 2024).

A.8.2. Average coal stock position of generating stations in northern region, having critical stock, during first nine days of June 2024 is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd. (Days)	Actual Stock (Days)
CHHABRA-I PH-2 TPP	500	0.68	26	3.6

A.9. Status of availability of ERS towers in Northern Region (Agenda by NRPC Sectt.)

A.9.1 In the meeting, EE(O) NRPC apprised forum updated inputs received from utilities are attached as **Annexure-A.II.**

A.9.2 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.10. System Protection Scheme (SPS) for 2X315MVA, 400/220kV ICTs at 400kV GSS Babai (RVPN)

A.10.1 NRPC representative apprised forum that the cited matter was deliberated in 217th OCC meeting of NRPC, wherein forum asked RVPN to discuss the issues highlighted by NRLDC internally and accordingly submit revised SPS proposal.

A.10.2 Subsequently, RVPN vide letter dated 05.06.2024 has intimated that they have submitted pointwise reply to the queries raised by NRLDC and thereafter has submitted revised SPS proposal for 2X315MVA, 400/220kV ICTs at 400kV GSS Babai (copy attached as Annexure-A.IV of Agenda).

A.10.3 In the meeting, NRLDC intimated that the revised SPS proposal submitted by RVPN is in order.

Decision of OCC Forum:

Forum approved the revised SPS proposal of RVPN for 2X315MVA, 400/220kV ICTs at 400kV GSS Babai.

A.11. Requirement of additional 500 MVA, 400/220/33kV ICT at Samba (PG) Substation to meet increasing load demand of Jammu city (Agenda by JKPTCL)

A.11.1. NRPC representative apprised forum that JKPTCL has informed that presently ICT capacity at 400/220/33kV Samba substation is 945 MVA (3*315 MVA). Peak loading observed at 400/220/33kV Samba substation is 720 MVA (3*240 MVA).

A.11.2. Further, JKPTCL has intimated that following new load is expected:

- 364 MW industrial load in New 220/66kV substation Kathua
- 120 MW Load expected in case tripping of 220kV Jammu Salal

A.11.3. CTU representative asked JKPTCL to submit them details regarding the timeframe the downstream network is expected and meanwhile CTU would confirm with Powergrid

whether space is available for additional 01 no. of 500 MVA 400/220/33kV ICT at Samba (PG) Substation.

Decision of OCC Forum:

Forum asked JKPTCL that since it is an ISTS network they may approach CTU along with details regarding the timeframe the downstream network is expected.

A.12. Construction of 320MVA, 220/66 KV, Grid Sub-Station, Bhaathall Kathua (Agenda by JKPTCL)

A.12.1. NRPC representative apprised forum that JKPTCL has informed that under the industrial policy in UT of J&K, Industrial Estate Bhagthali is being proposed to be set up in Jammu region.

A.12.2. For this, JKPTCL has proposed the requirement of 320MVA (07x 53.33MVA single phase units), 220/66 KV, Grid Sub-Station along with feeding 220 KV transmission lines to meet the load requirement.

A.12.3. This being non-ISTS network, MS, NRPC asked JKPTCL to approach CEA on the cited matter.

Decision of OCC Forum:

Forum asked JKPTCL to approach CEA on the cited matter.

A.13. Revised System Protection Scheme (SPS) scheme for Anpara Complex (Agenda by UPSLDC)

A.13.1. NRPC representative apprised forum that UPSLDC has intimated that after commissioning of 2X1000 MVA ICTs at Obra C TPS, SPS for Anpara complex needs to be revised.

A.13.2. Further, UPSLDC has carried out study considering loading scenario for various contingencies in Anpara complex. (Copy of the revised SPS proposed by UPSLDC for Anpara Complex is attached as Annexure-A.V. of agenda)

A.13.3. In the meeting, UPSLDC mentioned that in case of single contingency, there is no constraint is observed.

A.13.4. UPSLDC presented to the forum SPS logic for contingency related to overloading of 400 kV Obra C-Obra B line and overloading of 400 kV Anpara-Obra B line.

A.13.5. UPRVUNL requested that provision of unit tripping may be reviewed when loading of 400kV Anpara-Obra line is between 1000 MW to 1100 MW.

A.13.6. CGM(SO), NRLDC asked UPSLDC to share the basecase with them and subsequently next week NRLDC and UPSLDC can have an internal meeting for further deliberation on the cited matter.

Decision of OCC Forum:

Forum directed that a separate meeting among constituents may be held next week to review the SPS scheme for Anpara Complex.

A.14. N-1 contingency violation in 400/220/33KV 315MVA ICT-I at BBMB Dehar (Agenda by Powergrid NR-2)

A.14.1. In the meeting, Powergrid NR-2 intimated forum that 315 MVA ICT at 400/220KV BBMB Dehar S/s is overloaded. On 315MVA ICT, load remains in the range of 300-315MW.

A.14.2. Punjab SLDC highlighted that they have also experienced problems due to the overloading of BBMB Dehar S/s.

A.14.3. Powergrid mentioned that ICT at BBMB Dehar is an ISTS element.

A.14.4. MS, NRPC asked Powergrid, PSTCL, HPPTCL and BBMB to internally discuss and thereafter submit a proposal for SPS as temporary relief for Transformer overloading. Further, for installation of new transformer at BBMB Dehar S/s, proposal may be submitted by Powergrid to CTU for study.

Decision of OCC Forum:

Forum asked Powergrid, PSTCL, HPPTCL and BBMB to internally have a discussion/study on the SPS as temporary relief for Transformer overloading at BBMB Dehar and submit accordingly. Further, for installation of new *transformer at BBMB Dehar S/s, proposal may be submitted by Powergrid to CTU for study.*

A.15. Failure of 400/220/33KV, 315 MVA ICT-1 at Kaithal on dated 11.05.2024 (Agenda by Powergrid NR-2)

A.15.1. Powergrid NR-2 intimated forum that 315 MVA ICT-1 at Kaithal failed while feeding persistent fault in 220KV Lines of HVPNL at 00:51 Hrs of 11.05.2024. Just before the failure, Fault current in 220KV Kaithal (PG)- Kaithal1 Line and 220KV Kaithal(PG)-Neemwala-2 and fed by above transformer was 20KA and 24KA respectively.

A.15.2. Powergrid NR-2 mentioned that in past also, the ICTs at Kaithal(PG) have faced circuit faults due to frequent faults in 220KV Lines Network of SEB with fault current in the range of 15-25KA and after each fault, Line is cleared by the owner with the comments that nothing is found abnormal even when fault current is in the range of 20 to 24KA.

A.15.3. In last one year, above ICT had faced more than 12 dead faults with fault current. Moreover, keeping A/R in auto mode results in 02 jerks to transformer for each fault.

A.15.4. Powergrid stated that AMP of ICT was carried out as per schedule and all test results including DGA results were normal before failure.

A.15.5. In the meeting, POWERGRID mentioned that Failed ICT is being replaced by them at its own cost.

A.15.6.In the meeting, HVPN mentioned that vide letter dated 14.06.2024 (copy enclosed as **Annexure-A.III)** on the cited matter they have submitted their observations for trippings 220kV lines emanating from POWERGRID Kaithal since May 2023.

A.15.7.MS, NRPC mentioned that with regard to the request of Powergrid for consideration of Outage of ICT at Kaithal due to above as deemed available, the said case would be examined by NRPC Sectt. as per CERC Tariff Regulation, 2024.

A.15.8.Further, MS NRPC mentioned that Root cause analysis for such faults would be deliberated in the upcoming Protection sub-committee meeting of NRPC scheduled in the second week of July 2024.

Decision of OCC Forum:

Forum stated that root cause analysis of fault at ICT Kaithal would be deliberated in the next Protection sub-committee meeting of NRPC, while request of POWERGRID for consideration of outage of ICT Kaithal would be examined by NRPC Sectt. as per CERC Tariff Regulation, 2024.

A.16. Tapping Tertiary of 765/400/33 kV ICT -2 for Reliable Auxiliary Power Supply to ±500kV HVDC Ballia Sub-Station (Agenda by POWERGRID, NR3)

A.16.1 NRPC representative apprised forum that the said matter was also deliberated in the 213th and 215th OCC meeting of NRPC wherein Powergrid NR-3 had highlighted the issue of reliable auxiliary supplies to ±500kV HVDC Ballia Sub-Station.

A.16.2 Presently, two auxiliary supplies have been provisioned at Ballia for HVDC and HVAC system. One is from tertiary of 200 MVA,400/132 KV ICT and another is UPPTCL feeder at 33 KV Levels.

A.16.3 In the meeting, Powergrid NR-3 mentioned that 400/132/33 KV, 200 MVA ICT is feeding 02 nos 132 KV Transmission Lines of UPPTCL connected to UPPTCL Sub-Station. In past, large no. of frequent faults have been detected in UPPTCL lines.

A.16.4 Further, Powergrid NR-3 has intimated that 33kV auxiliary supply from dedicated UPPTCL feeder is also not reliable and sometimes it fails 3-4 times in a month and outage duration in number of cases is more than 12 Hrs.

A.16.5 Considering the above, in 215th OCC meeting of NRPC, OCC Forum decided to form a committee under the chairmanship of Sr. GM(SO), NRLDC with members from POWERGRID, CTUIL and UPPTCL to examine the requirement of additional Auxiliary Power Supply to ±500kV HVDC Ballia Substation.

A.16.6 The recommendations of the committee are attached as AnnexureA.VI of agenda, wherein they have concurred with Powergrid proposal of *Additional source of Auxiliary Power connectivity from tertiary of 765/400/33 KV ICT-2 for reliable auxiliary supply to HVDC Ballai Sub-Station.*

A.16.7 Based on the recommendation of the committee MS, NRPC mentioned that forum may agree with the Powergrid proposal of Additional source of Auxiliary Power connectivity from tertiary of 765/400/33 KV ICT-2 for reliable auxiliary supply to HVDC Ballai Sub-Station and since POWERGRID has submitted that cost estimate may be ***considered under ADD-Cap therefore the same may be brought up as Agenda by POWERGRID in the NRPC board meeting for approval of NRPC forum.***

Decision of OCC Forum:

Forum agreed with the Powergrid proposal of Additional source of Auxiliary Power connectivity from tertiary of 765/400/33 KV ICT-2 for reliable auxiliary supply to HVDC Ballai Sub-Station and asked POWERGRID that since they have submitted that cost estimate may be considered under ADD-Cap therefore the same may be brought up as Agenda by POWERGRID in the NRPC board meeting for approval of NRPC Forum.

A.17. Implementation of System Protection Scheme (SPS) to address Overloading of 3x315 MVA ICTs at Allahabad SS (Agenda by POWERGRID, NR3)

A.17.1.NRPC representative mentioned that the cited matter was also deliberated in the 219th OCC Meeting of NRPC, wherein forum was of view that time delay for SPS activation w.r.t. overcurrent settings of ICT need to be checked by POWERGRID.

A.17.2.In the meeting, Powergrid NR-3 apprised forum that they have discussed the matter with NRLDC and submitted that the SPS Time delay has been revised to 5sec.

A.17.3.CGM(SO), NRLDC mentioned that SPS proposed by Powergrid may be approved with time delay of 5 sec. (Copy of SPS proposed by Powergrid with revised time delay of 5 sec. is attached as Annexure-A.VII of agenda)

Decision of OCC Forum:

Forum approved the System Protection Scheme (SPS) to address Overloading of 3x315 MVA ICTs at Allahabad SS with time delay of 5 sec.

A.18. Implementation of 3-phase Auto-Reclosure for the Phase-to-Phase Tripping of Transmission Lines due to Kite threads. (Agenda by POWERGRID, NR3)

A.18.1.Powergrid NR-3 intimated forum that as per the analysis of the Tripping Incidents of the Phase-to-Phase Tripping of the transmission lines at NR-III Region of POWERGRID, it has been observed that the majority of the Phase-to phase Tripping of the Transmission Lines have occurred due to the presence of foreign material (such as Kite Threads)

A.18.2.Further, NR-3 Powergrid mentioned that as per the protection scheme implemented at POWERGRID for Transmission Line Distance Protection, Auto Reclosure is only attempted in case of 1-phase to earth Faults. And if the fault is phase-to-phase/3-phase in nature, 3-phase tripping of the transmission line is issued and Auto-Reclosure is blocked.

A.18.3.Powergrid NR-3 proposed that the 3-phase Auto Reclosure for phase-to-phase faults may be implemented in such lines having tripping on account of kite thread so that the number of trippings and outage duration of the transmission line during phase-to-phase fault may be reduced.

A.18.4.MS, NRPC mentioned that the scheme proposed by Powergrid for 3-phase auto-reclosure may be discussed with protection expert and therefore advised that it would be suitable to discuss this agenda in the upcoming Protection sub-committee meeting of NRPC.

Decision of OCC Forum:

Forum was of view that the scheme for 3-phase Auto-Reclosure for the Phase-to-Phase Tripping of Transmission Lines due to Kite threads may be deliberated in the upcoming Protection sub-committee meeting of NRPC.

A.19. Restoration of damaged tower No.4 (C-Type) of double circuit line connecting Noida Sector-62 and Sahibabad to DTL 220kV Gazipur S/Stn. [Delhi-UP Corridor]. (Agenda by DTL)

A.19.1.DTL apprised forum that narrow base Tower 4 of double circuit line owned by UPPTCL emanating from 220kV DTL Gazipur S/Stn. to 220kV UPPTCL Noida Sector-62 and Sahibabad S/Stn. which is passing through Gazipur dumping site has got tilted due to nearby pressure of MCD Delhi, waste and hence, the conductor of the referred section of transmission line had been dismantled. Further, they also intimated that UPPTCL has approached to MCD for reimbursement of cost of repair of this tower.

A.19.2.Moreover, DTL has rigorously followed up with MCD for compensation of amount to be incurred in repairing of the tower line as asked by UPPTCL. However, no response has been received from MCD so far.

A.19.3.DTL vide letter dt.20.03.2024 (copy attached as Annexure-A.VIII of agenda) has requested UPPTCL for early restoration of these lines by incurring the expenditure of repair in R&M head of UPPTCL in view of overall interest of the power system of Northern region due to the fact that the expenditure is of the order of lacs of rupees. However, no response from UPPTCL site has been received so far and the transmission lines are still under breakdown since 2022.

A.19.4.MS, NRPC mentioned that considering the reliability of the system, he would be writing to CMD, DTL and CMD, UPPTCL for early restoration of these lines and also advised DTL to take up the matter with higher officials of MCD for reimbursement of cost of repair of this tower.

Decision of OCC Forum:

Forum asked DTL to take up the matter with the higher officials of MCD for reimbursement of cost of repair of this tower.

A.20. Regional Transmission Deviation Charges on Hydro Generation Station during Peak

Season and Spillage Condition (Agenda By SJVN)

A.20.1. SJVNL representative apprised that high inflow season for SJVN's Hydro Generating stations namely Nathpa Jhakri HPS and Rampur HPS has been finalised from 1st June, 2024 to 30th September, 2024. Whereas, SJVN has declared DC of both the Generating Stations upto installed capacity including overload capability from 18.05.2024 onwards due to unprecedented increase in inflow of River Satluj during this time, SJVN will be levied transmission deviation charges. Therefore, overload capacity of 10% during spillage conditions may be taken into account while calculating transmission deviation charges.

A.20.2. EE(C) NRPC mentioned that a similar proposal has been received from KWHEP and noted that there is no provision for considering overload capacity during spillage conditions under the CERC Sharing Regulations 2020. The declaration of the high inflow season is essentially a forecasting exercise based on historical water availability data. Based on actual conditions, he suggested that the high inflow season for any generator should be revised while maintaining the duration of four months.

A.20.3. Representatives from SJVNL and NTPC proposed that the high flow season for their generators be declared from 18th May to 31st May, in addition to the previously declared season.

A.20.4. EE(C) further suggested that the high flow season should be a continuous period of four months of high inflows, in line with the Northern Region River basin studies conducted by MoEF&CC. However, if high inflows leading to spillage conditions are observed in any river for more than four continuous months, the high flow season may be revised accordingly. Thus, he recommended revising the high flow season for hydro stations on the Satluj River, namely Kolam, Rampur, Naptha Jhakri, and Karcham Wangtoo, to 18th May 2024 to 17th September 2024 for FY 2024-25.

Decision of OCC Forum:

High flow season for Koldam, Rampur, Naptha Jhakri, and Karcham Wangtoo hydro generators is revised to 18th May 2024 to 17th September 2024 for FY 2024-25.

High flow season for all hydro generators (regional entities) is subject to real time conditions and may be revised by the forum given inflows are observed in any river for more than four continuous months.

A.21. Submission of protection performance indices to NRPC Secretariat on monthly basis (Agenda by NRPC Secretariat)

A.21.1. SE(O), NRPC apprised forum that as per clause 15(6) of IEGC, users shall submit the protection performance indices of previous month to their respective RPC and RLDC on monthly basis for 220 kV and above (132 kV and above in NER) system, which shall be reviewed by the RPC.

A.21.2. AEE(P), NRPC highlighted that most of the utilities have not been submitting the required data.

A.21.3. AEE(P) also highlighted that in the submitted indices reports, UPPTCL has not mentioned the reason and corrective actions taken for indices less than unity. UPPTCL was requested to submit the same for the related events in the months of April and May, 2024 and may mention the same at the time of indices reporting in future.

A.21.4. As per the information available with NRPC Sectt., status of the protection performance indices reported for the months from April-2024 and May-2024 is attached as Annexure-A.IV.

A.21.5. MS, NRPC asked utilities to submit the protection performance indices of previous month by 7th day of next month element wise along with the reason for indices less than unity and required corrective action.

Decision of OCC Forum:

Forum asked utilities to submit the information regarding the protection performance indices of previous month by 7th day of next month element wise along with the reason for indices less than unity and required corrective action.

A.22. Annual protection audit plan for FY 2024-25 and third party protection audit plan (agenda by NRPC Secretariat)

A.22.1. SE(O), NRPC apprised forum that as per clause 15 of IEGC 2023:

- *All users shall conduct internal audit of their protection systems annually, and any shortcomings identified shall be rectified and informed to their respective RPC. The audit report along with action plan for rectification of deficiencies detected, if any, shall be shared with respective RPC for users connected at 220 kV and above (132 kV and above in NER).*
- *Annual audit plan for the next financial year shall be submitted by the users to their respective RPC by 31st October. The users shall adhere to the annual audit plan and report compliance of the same to their respective RPC.*

A.22.2. In view of above, some utilities have submitted their annual audit plans (enclosed as Annexure-A.X of agenda). In last PSC meeting (held on 29.4.2024), it was requested to submit annual audit plan for FY 2024-25 in next 15 days and comply the same timely. However, most of the utilities have not submitted the same yet.

A.22.3. Further, SE(O) asked the utilities to submit the protection audit report (for audited S/s as per submitted plan) to NRPC Secretariat and update the compliance status regularly.

A.22.4. SE(O), NRPC also informed forum that as per clause 15 of IEGC 2023:

- *All users shall also conduct third party protection audit of each sub-station at 220 kV and above (132 kV and above in NER) once in five years* ***or earlier as advised by the respective RPC.***

A.22.5.In view of above, some utilities have submitted their third-party protection audit plans (enclosed as Annexure-A.XI of agenda) and other remaining may submit the same at the earliest.

A.22.6.Chief Engineer, UPRVUNL informed that third party protection audit of Anpara-D has not been conducted.

A.22.7.UPSLDC representative informed that WUPPTCL has not conducted third party protection audit as per submitted schedule.

A.22.8.Further, SE(O) asked the utilities to update the status of 3rd party protection audit as per the submitted audit plans. Subsequently, the audit reports along with compliance status may be submitted to NRPC Secretariat regularly.

A.22.9.As per the information available with NRPC Sectt., status of Annual protection audit plan for FY 2024-25 and third party protection audit plan is attached as Annexure-A.V and Annexure-A.VI respectively.

Decision of OCC Forum:

Forum asked utilities to expedite and submit the Annual protection audit plan for FY 2024-25 and third party protection audit plan to NRPC Sectt. along with the audited report and its compliance as per IEGC 2023.

A.23. Protection philosophy for Power Transformer and Reactor of Northern Region (agenda by NRPC Secretariat)

A.23.1.SE(O), NRPC apprised forum that 71st NRPC meeting finalized the protection philosophy for Northern Region in line with the decision of 49th Protection Sub-Committee meeting. In addition to that, draft protection philosophy for power transformer and reactor has been added (Annexure-A.XII of agenda).

A.23.2.The detailed discussion on the draft protection philosophy for power transformer and reactor was done in the 50th Protection Sub-Committee meeting (held on 29.04.2024).

A.23.3.In the same meeting, the draft could not be finalized and it was suggested utilities to go through the draft and mail the observations/ suggestions within a week to finalize the draft in the next meeting of PSC.

A.23.4.However, AEE(P) apprised that no recommendation has been received at NRPC Secretariat as of now.

A.23.5.MS, NRPC again requested utilities to submit the recommendations /inputs /suggestions on draft protection philosophy for power transformer and reactor to NRPC Secretariat before the next meeting of PSC.

Decision of OCC Forum:

Forum asked utilities to submit the recommendations/inputs/suggestions on draft protection philosophy for power transformer and reactor to NRPC Secretariat before the next protection sub-committee meeting.

A.24. Table Agenda 1: Charging of 132 kV substation Nanakpur and associated LILO of existing 132kV Ropar-Pinjore lines without FTC approval of NRLDC and consent of PSTCL (Agenda by PSTCL)

A.24.1. In the meeting, PSTCL informed that work regarding LILO of 132KV Ropar-Pinjore D/C at Nanakpur has been under progress for a few months. The said circuits were opened on 20th March 2024, for jumpering of the LILO portion. Being ISTS elements, the circuits were to be charged after due First Time Charging (FTC) approval of NRLDC. However, the said circuits were charged on no-load conditions on dated 21st March 2024 from Ropar end, after receiving charging code through the NRLDC OMS portal. However, the requisite approval from NRLDC (through the FTC portal) was not obtained by HVPNL, before the said charging.

A.24.2. Further, there is an ongoing issue regarding bilateral agreement amongst PSTCL & HVPNL, in this regard, owing to the maintenance charges of 132kV bays at Ropar end. However, it has been noticed that one of the circuits (Ckt no. 2) has been put-on-load by HVPNL on 30th May 2024 by charging the 132kV Bays, 132kV Bus & 132/11kV 10/16 MVA PTF at Nanakpur, without the consent of PSTCL as well as that of NRLDC FTC portal.

A.24.3. Since the requisite FTC issues as well as the bilateral issues between PSTCL & HVPNL have not been resolved, PSTCL requested that the said circuits be opened from Ropar (PSTCL) end till the resolution of the pending issues.

A.24.4. Haryana SLDC representative mentioned that after the shutdown in March, HVPN had applied FTC documents as per the requisite formats to PSTCL, and Punjab was requested to upload the same on NRLDC OMS portal but there was no response from Punjab leading to unnecessary delay.

A.24.5. PSTCL representative replied that HVPN has been asked on regular basis to sign a MOU with PSTCL for the bay maintenance charges but there is no response from HVPN side on this till date and without the consent of PSTCL, HVPN has charged the 132kV Bays, 132kV Bus & 132/11kV 10/16 MVA PTF at Nanakpur S/s.

A.24.6. MS, NRPC asked PSTCL and HVPN to bilaterally resolve this issue at the earliest and such disputes shall be avoided in future, and no ISTS element must be charged without the First Time Charging (FTC) approval of NRLDC.

Decision of OCC Forum:

Forum asked PSTCL and HVPN to bilaterally resolve this issue at the earliest and such disputes shall be avoided in future, and no ISTS element must be charged without the First Time Charging (FTC) approval of NRLDC.

A.25. Table Agenda 2: Proposal for implementation of SPS at 400/200kV ICTs at 400kV S/S Muktsar (PSTCL) (Agenda by PSTCL)

A.25.1. In the meeting, PSTCL mentioned that NRLDC issued detailed report in respect of Punjab's ATC/TTC limits for Summer 2024 on dated 24-05-2024. Vide the said report, NRLDC directed PSTCL to implement the SPS at 400/200kV ICTs at 400kV Substation Muktsar (PSTCL), considering the N-1 contingency at Muktsar substation.

A.25.2. It is brought out that there are 3 no. 400/220Kv ICTs (2 x 315MVA + 1 x 500MVA) at 400kV Muktsar substation. Further, there are 6 no. 220kV downstream circuits at Muktsar.

A.25.3. A brief report / SPS logic regarding implementation of SPS at 400kV Muktsar substation proposed by PSTCL is attached as Annexure-A.VII.

A.25.4. CGM(SO), NRLDC asked PSTCL to share the base case with them and subsequently after study they would share their observation with PSTCL.

Decision of OCC Forum:

Forum asked PSTCL to submit the basecase of SPS at 400kV S/S Muktsar to NRLDC for examination.

A.26. Table Agenda 3: Review of System Protection Scheme (SPS) at 400kV substation Obra and Nehtaur. (Agenda by UPSLDC)

A.26.1. The cited matter was also deliberated in 219th OCC meeting wherein forum asked UPSLDC to co-ordinate SPS operation delay with the Overcurrent Settings of ICTs at 400kV Substations Obra and Nehtaur.

A.26.2. In view of the above, UPSLDC has again proposed revised SPS) at 400kV substation Obra and Nehtaur along with overcurrent settings of ICTs.

A.26.3. Revised and existing SPS scheme for both the substations proposed by UPSLDC is attached as Annexure-A.VIII.

A.26.4. NRLDC representative mentioned that the revised SPS at 400kV Obra and Nehtaur is in order. However, NRLDC asked UPSLDC to submit to them the priority logic for Nehtaur SPS as discussed. UPSLDC agreed to furnish the same to NRLDC.

Decision of OCC Forum:

Forum approved the revised System Protection Scheme (SPS) at 400kV substation Obra and Nehtaur and asked UPSLDC to submit to NRLDC the priority logic for Nehtaur SPS.

A.27. Table Agenda 4: Proposed System Protection Scheme (SPS) at 400kV substation Jaunpur (Agenda by UPSLDC)

A.27.1. In the meeting, UPSLDC informed that 2X315 MVA ICT at 400kV Jaunpur substation is not N-1compliant.

A.27.2. In order to ensure the reliability of said substation during peak demand, SPS is required. Proposed logic for SPS of 2X315 MVA ICT at 400kV Jaunpur substation submitted by UPSLDC is attached as Annexure-A.IX.

A.27.3. UPSLDC presented to the forum the SPS logic for ICTs at 400kV Jaunpur S/s.

A.27.4. MS, NRPC opined that the said SPS may be deliberated in upcoming Protection Sub Committee meeting of NRPC. Meanwhile NRLDC may examine and submit its observation on the proposed SPS.

Decision of OCC Forum:

Forum was of view that NRLDC may examine and submit its observation, thereafter the proposed SPS at 400kV substation Jaunpur may be deliberated in upcoming Protection subcommittee meeting of NRPC.

A.28. Table Agenda 5: Consideration of Declared Capacity of NJHPS and RHPS based on Actual Auxiliary Energy Consumption in Centralized Web Based Energy Scheduling Software (WBES) of GRID INDIA (Agenda by SJVN)

A.28.1. SJVN Representative stated that DC is capped to 110% and 100% of Ex-bus MCR during high flow season/spillage condition and other season respectively. Whereas normative APC is considered while calculating this capacity in WBES, reading provisions of tariff regulations combined with those of IEGC suggests that actual APC should be considered while calculating this capacity in WBES.

A.28.2. CGM, NRLDC opined that normative APC should be considered while calculating DC and actual APC have no bearing in it. Although he suggested to take this matter in upcoming Commercial Sub-Committee meeting.

Decision of OCC Forum:

Forum was of view that agenda shall be taken up in upcoming Commercial Sub-Committee meeting by SJVNL.

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

B.1 NR Grid Highlights for May 2024

Major grid highlights of Northern region grid for May 2024 are 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	432	30.05.24 at 14:00	8.6	30.05.24	6.8
2	Delhi	8302	29.05.24 at 15:36	163.8	31.05.24	135.7
3	Haryana	12336	24.05.24 at 15:00	259.6	31.05.24	220.6

4	H.P.	1827	31.05.24 at 10:00	39.2	30.05.24	34.6
5	J&K	2750	05.05.24 at 21:00	56.6	20.05.24	52.9
6	Punjab	14519	20.05.24 at 15:15	288.6	23.05.24	233.5
7	Rajasthan	17460	30.05.24 at 12:00	379.1	30.05.24	331.6
8	U.P.	29727	31.05.24 at 21:45	642.3	27.05.24	563.1
9	Uttarakhand	2781	29.05.24 at 21:00	60.7	31.05.24	53.8
10	Northern Region	86773	30.05.24 at 14:13	1882.1	29.05.24	1637.0

***As per SCADA**

Northern Region all-time high value recorded in May'24 against previous peak values:

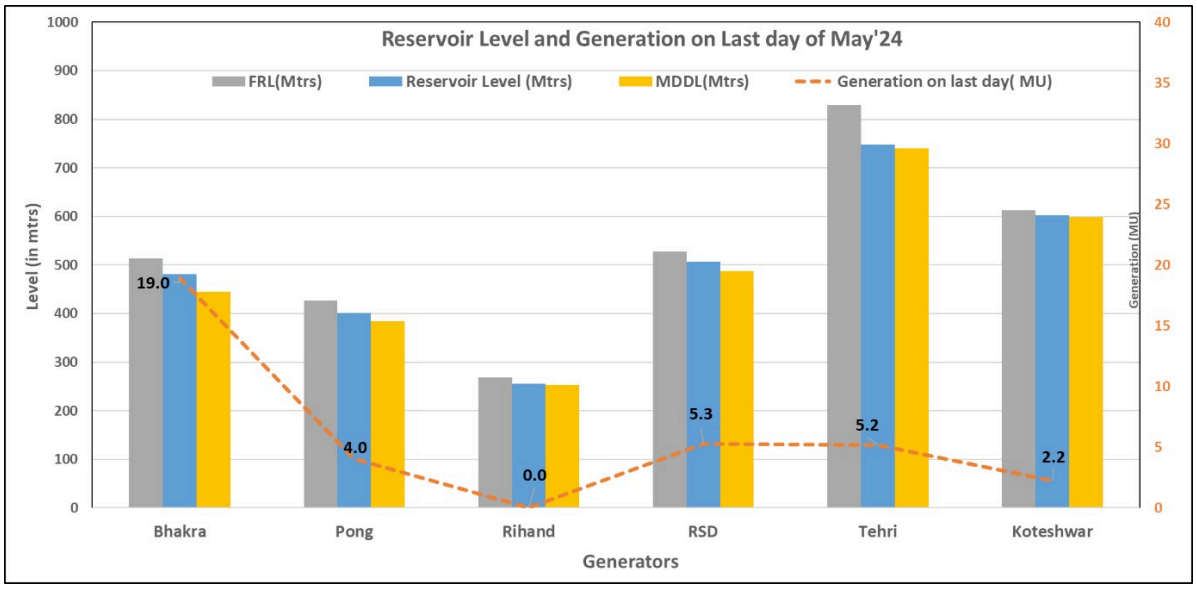
States	**Max. Demand Met during the day (MW)**		**Energy Consumption (MU)**		**Max. Demand Met during the day (MW)**		**Energy Consumption (MU)**	
	As per Format28 / hourly data Submitted by States (MW)	**As on date**	**As per PSP (Mus)**	**As on date**	**As per Format28 / hourly data Submitted by States (MW)**	**As on date**	**As per PSP (Mus)**	**As on date**
Rajasthan	--	--	379.1	30.05.24	--	--	371.6	04.09.23
Delhi	8302	29-05-2024 at 15:36 hrs.	163.8	31.05.24	7695	29-06-2022 at 15:10 hrs.	153.52	28.06.22
Uttarakhand	2781	29-05-2024 at 21:00 hrs.	60.7	31.05.24	2594	14-06-2022 at 21:00 hrs.	56.2	17.06.23
Uttar Pradesh	29727	31-05-2024 at 21:45 hrs.	642.3	27.05.24	28284	24.07.2023 at 21:43 hrs.	580	03.09.23
Chandigarh	432	30-05-2024 at 14:00 hrs.	8.56	30.05.24	426	08-07-2021 at 15:00 hrs.	8.41	08.07.21
Northern Region	86773	30-05-2024 at 14:13 hrs.	1882.1	29.05.24	81048	04-09-2023 at 14:15 hrs.	1792.7	04.09.2023

All Time High Record		
Generation	**Value (MU)**	**Achieved on**
Thermal Generation	**942.5**	**30.05.2024**

Frequency profile

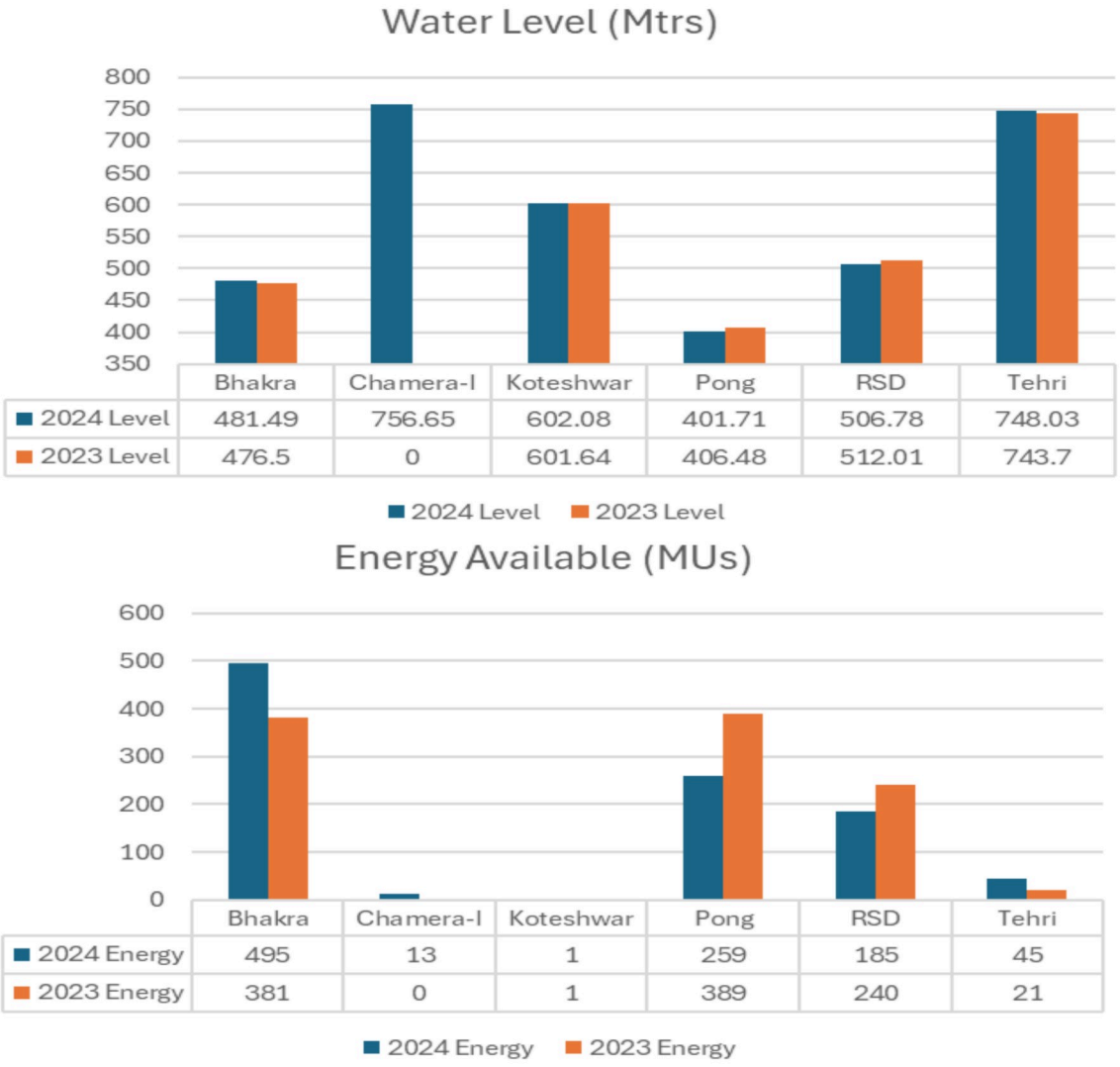
Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
May'24	50.01	50.50 (07.05.24 at 18:02:40 hrs)	49.72 (11.05.24 at 00:02:40 hrs)	2.49	80.04	17.47
May'23	49.99	50.43 (18.05.23)	49.48 (15.05.23)	9.8	68.5	21.7

Reservoir Level and Generation on Last Day of Month



	Parameters			Present Parameters		LAST YEAR	
RESERVOIR	MDDL (Mts)	FRL (Mts)	Energy Content at FRL	Level (Mts)	Energy (MU)	Level (Mts)	Energy (MU)
Bhakra	445.62	513.59	1,728.8	**481.49**	495	**476.5**	381
Chamera-I	748.75	760	753.95	**756.65**	13	-	-
Koteshwa	598.5	612.5	610.73	**602.08**	1	**601.64**	1

r							
Pong	384.05	426.72	1,084	**401.71**	259	**406.48**	389
RSD	487.91	527.91	390.3	**506.78**	185	**512.01**	240
Tehri	740.04	830	1,164.11	**748.03**	45	**743.7**	21



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

B.2 Sharing of ATC/TTC assessment and basecase with NRLDC

All NR states except Chandigarh UT 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	***S No***	***Action of Stakeholder***	***Responsibility***	***Submission to***	***Data/ Information Submission Timeline***
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. Interconnection Studies for elements to be integrated in the month 'M'	*2(a)*	*Submission of node-wise load and generation data & sharing of network simulation models for intra-state elements coming in the next six months*	*SLDC*	*RLDC*	*8th Day 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 Assessment of TTC/ATC of the intra- state system and sharing of updated network simulation models*	*SLDC*	*RLDC*	*8th Day of 'M-1' month*
	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 regarding 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.2.1 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 June'25 i.e. Afternoon Peak, Solar Peak, Evening Peak & Off-Peak hours as given below

S. No.	Scenario	Time of Scenario
1	Off-Peak	06:00 Hrs
2	Afternoon Peak	15:00 Hrs
3	Evening Peak	22:30 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, the above exercise needs to be carried out regularly monthly.

Basecase & ATC/TTC assessment was received from Delhi, Uttar Pradesh, Punjab and J&K for M-11 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 is requested to submit the basecase as well as ATC/TTC assessments.

B.2.2 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 December 2024, before 08.06.2024. Above was also requested vide mails dated 24.05.2024 by NRLDC. This needs to be practised as monthly exercise on regular basis.

It was discussed in last several OCC meetings & all utilities were requested to share list of elements/LGB data/interconnection study results etc as per the approved procedure on monthly basis.

B.2.3 TTC/ATC of state control areas for monsoon 2024 (M-1)

As discussed in previous OCC meetings, most of the NR states except Ladakh and 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.

January 2024 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (Feb-24)		M-11 (Jan-25)		M-6 (July-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	No	No	No	No
Haryana	No	No	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	No	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	Yes	No	Yes	Yes
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	No	No	No	No	Yes	Yes
Uttarakhand	No	No	No	No	No	No

February 2024 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (Mar-24)		M-11 (Feb-25)		M-6 (August-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	No	No	No	No
Haryana	No	No	No	Yes	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	Yes	No	Yes	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	No	No	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

March 2024 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (Apr-24)		M-11 (Mar-25)		M-6 (Sep-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	Yes	Yes	Yes	Yes	Yes	Yes
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

April 2024 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (May-24)		M-11 (Apr-25)		M-6 (Oct-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	No	No	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	No
Uttarakhand	No	No	No	No	No	No

May 2024 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (June-24)		M-11 (May-25)		M-6 (Nov-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	No	No	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	No	No	Yes	Yes
Uttarakhand	No	No	No	No	No	No

June 2024 Mails

	ATC/TTC Declaration				Interconnection Studies	
	M-1 (July-24)		M-11 (June-25)		M-6 (Dec-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	No	No	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	No	No	Yes	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	Yes	Yes	No	No
Uttarakhand	No	No	No	No	No	No

All states have agreed to send the data as well as PSSE basecases on time for all three (M-1, M-6, M-11) scenarios.
NRLDC CGM has asked states to get help from NRLDC in case of any difficulty and emphasized on the need for regularity in sharing the data.

B.3 Loading on various Grid Elements

Latest state wise issues are listed below:

TTC & ATC of states, N-1 Non compliant & N-1 Likely non compliant ICTs of Northern Region for Summer'24
Punjab

Sl No.	State	TTC	ATC	Name of Substation	ICTs Capacity (MVA)	N-1 loading limit (MW)	N-1 loading limit (MW) with effective SPS	Whether Violation observed
1	Punjab	**10000**	**9500**	Rajpura	3*500	1135	1135	Max 1100 MW
2				Nakodar (SPS effective till 600MW)	1*315 + 1*500	450	600	Max 585 MW
3				Ludhiana	1*315+3*500	1450	1450	Max 1340 MW
4				Jalandhar	2*315+1*500	860	860	Max 852 MW
5				Patran	2*500	640	640	Max 570 MW
6				Malerkotla	2*315+1*500	820	820	Max 835 MW
Haryana								
Sl No.	**State**	**TTC**	**ATC**	**Name of Substation**	**ICTs Capacity (MVA)**	**N-1 loading limit (MW)**	**N-1 loading limit (MW) with effective SPS**	**Whether Violation observed**
1	Haryana	**9336**	**9086**	Deepalpur (SPS effective till 500MW)	2*315	380	500	Max 540 MW
2				Panipat BBMB	3*150+1*500	540	540	Max 710 MW
3				Kabulpur	2*315	440	440	Max 550 MW
4				220kV Sonepat-Mohana D/C line	2*230	250	250	Max 260 MW
5				Bhiwani (765kV/400kV) ICT-2 & ICT-3	2*1000	1460	1460	Max 1800 MW
Rajasthan								
Sl No.	**State**	**TTC**	**ATC**	**Name of Substation**	**ICTs Capacity (MVA)**	**N-1 loading limit (MW)**	**N-1 loading limit (MW) with effective SPS**	**Whether Violation observed**
1	Rajasthan	**7600**	**7000**	Jodhpur (SPS effective till 450MW)	2*315	420	450	Max 550 MW

2				Bikaner (SPS effective till 445MW)	2*315	410	445	Max 600 MW
3				Ajmer (SPS effective till 455MW)	2*315	415	455	Max 600 MW
4				Merta (SPS effective till 470MW)	2*315	410	470	Max 520 MW
5				Hindaun (SPS effective till 475MW)	2*315	350	475	Max 520 MW
6				Heerapura	3*250+1*315	890	890	Max 950 MW
7				Bhinmal	2*315	360	360	Max 550 MW
8				Bhilwara (SPS effective till 580MW)	1*315+1*500	490	580	Max 500 MW
9				Deedwana	2*315	410	410	Max 580 MW
10				Bassi	2*315+1*500	820	820	Max 950 MW
11				Kankani	1*315+1*500	540	540	Max 750 MW
12				Ratangarh (SPS effective till 750MW)	3*315	730	750	Max 800 MW
13				Neemrana	1*315+1*500	485	485	Max 450MW
14				Suratgarh TPS (SPS effective till 490MW)	2*315	400	490	Max 500 MW
Delhi								
Sl No.	**State**	**TTC**	**ATC**	**Name of Substation**	**ICTs Capacity (MVA)**	**N-1 loading limit (MW)**	**N-1 loading limit (MW) with effective SPS**	**Whether Violation observed**
1	Delhi	**7300**	**7000**	Mundka (SPS effective till 820MW)	3*315	670	820	Max 750 MW
2				Harshvihar	3*315	610	610	Max 620 MW
3				Bawana (400/220kV) (SPS effective till 420MW)	2*315	320	420	Max 450 MW
4				Maharanibagh	2*315+2*500	1250	1250	Max 1200 MW
5				Mandola	4*500	1550	1550	Max 1500

								MW
6				Jhatikara (765kV/400kV) (ICT-I & ICT-II)	2*1500	1810	1810	Max 2300 MW
UP								
Sl No.	**State**	**TTC**	**ATC**	**Name of Substation**	**ICTs Capacity (MVA)**	**N-1 loading limit (MW)**	**N-1 loading limit (MW) with effective SPS**	**Whether Violation observed**
1	Uttar Pradesh	**16500**	**15900**	Lucknow(PG)	2*500	680	680	Max 800 MW
2				Allahabad	3*315	760	760	Max 850 MW
3				*Gorakhpur (SPS effective till 570MW)	1*500+1*240	350	570	Max 700 MW
4				Agra PG	2*315	440	440	Max 550 MW
**Gorakhpur (UP) is having 1*500+1*240+1*315 MVA ICTs, presently 240MVA ICT is under outage for augmentation from 240MVA to 500MVA, expected revival of ICT is July'24 after which N-1 loading limit will increase*								
Uttarakhand								
Sl No.	**State**	**TTC**	**ATC**	**Name of Substation**	**ICTs Capacity (MVA)**	**N-1 loading limit (MW)**	**N-1 loading limit (MW) with effective SPS**	**Whether Violation observed**
1	Uttarakhand	**1700**	**1600**	Kashipur (SPS effective till 450MW)	2*315	400	450	Max 400 MW
2				220kV Roorkee-Roorkee		230	230	Max 240 MW
3				220kV CB Gunj-Pantnagar		230	230	Max 200 MW
HP								
Sl No.	**State**	**TTC**	**ATC**	**Name of Substation**	**ICTs Capacity (MVA)**	**N-1 loading limit (MW)**	**N-1 loading limit (MW) with effective SPS**	**Whether Violation observed**
1	Himachal Pradesh	**1680**	**1580**	Nallagarh	3*315	720	720	Max 700 MW
2				Kunihar (220/132kV)	2*200	240	240	Max 320 MW
J&K and Laddakh UT								

Sl No.	State	TTC	ATC	Name of Substation	ICTs Capacity (MVA)	N-1 loading limit (MW)	N-1 loading limit (MW) with effective SPS	Whether Violation observed
1	Jammu & Kashmir	**2800**	**2700**	220kV New Wanphoo-Mirbazar Ckt-1 & 2 (sum of both)		230	230	Max 370 MW
2				220kV Wagoora-Pampore Ckt-1 & 2 (sum of both)		235	235	Max 320 MW
**N-1 loading limit is evaluated considering tripping of largest ICT for respective Nodes*								
Single 400/220kV, 315MVA ICT at Rajwest Single 400/220kV, 315MVA ICT at Kalisindh Single 400/220kV, 315MVA ICT at Dehar HEP								

The latest ATC/TTC figures available with NRLDC for the month of June 2024 are attached as Annexure-B.I of agenda. States are requested to go through these figures and provide any comments.

ATC/TTC assessment for summer 2024 received for all constituents.

As discussed in last few OCC meeting, it is requested that,

- 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.

CTU representative has informed that 765/400 kV ICT at Bhiwani has been awarded to Powergrid in November 2023 and 765/400 kV ICT at Jhatikara has been awarded in February 2024. Powergrid has informed that 765/400 kV Bhiwani ICT is expected to be commissioned by June 2025 and 765/400 kV ICT at Jhatikara will also by commissioned by August 2025.

Also, NRLDC representative inquired about the expected timeline for 765 kV Narela which may be able to provide some relief on the loading of these ICTs, Powergrid representative replied that Narela is expected by Sep-2024.

NRLDC representative highlighted that all ICTs in Punjab control area are almost touching their n-1 limits, hence, very small scope of load growth to be met by Punjab.

Punjab representative replied that

- ***Rajpura 4th ICT will be commissioned by May-2025,***
- ***Nakodar 3rd ICT will be commissioned after this paddy,***
- ***Ludhiana ICT will be relieved after commissioning of 2nd ICT at 400kV Dhanasu substation,***
- ***Patran will be commissioning 3rd ICT in end of July 2024,***
- ***commissioning of 3rd ICT at Nakodar will relieve loading at Jalandhar also,***
- ***for 4th ICT at Malerkotla Powergrid has been issued letter on 14th June 2024 by CTU.***

Haryana representative informed that

- ***due to commissioning of 220kV Rai substation loading at Deepalpur has reduced a lot,***
- ***with commissioning of Lilo of 220kV Samalkha Mohana at Sonipat (PG) previously pending due to forest clearance will relieve loading on both 220kV Sonipat Mohana D/C as well as ICTs at Panipat BBMB. LILO is expected to be commissioned by 15th July.***
- ***Kabulpur substation is owned by JKTPL and Haryana is still deliberating on expansion of the substation, but no plan has been formulated till now.***

Rajasthan representative updated the forum that

- ***5 number of 500MVA 400/220 kV ICTs order has been placed by Rajasthan one each to be installed at Jodhpur, Bikaner, Ajmer, Merta, Hindaun.***
- ***Rajasthan is undergoing feasibility studies at Heerapura, Kankani, Ratangarh.***
- ***Suratgarh TPS ICTs will be relieved by commissioning 400kV Hanumangarh.***
- ***Bhinmal 3rd ICT is already under commissioning by Powergrid and will be done by 30th June 2024.***

Delhi representative informed the forum that

- ***4th ICT at Mundka is being transported from Ballabhgarh,***
- ***plan is under discussion to replace 315 MVA ICTs at Bawana by 500 MVA ICTs.***
- ***Delhi also has a plan of installing 9 transformers of 500MVA each at various locations in Delhi control area to meet future load.***

MS-NRPC and CGM-NRLDC have asked Delhi to submit detailed plan of locations as well as timelines of commissioning of these nine 500MVA ICTs.

CTU representative has informed that loading status of ICTs at MaharaniBagh will be reviewed after commissioning of 765kV Narela (expected in July-Sep 2024 quarter as per Powergrid representative) as well as the planned bus-split arrangement and ICTs at Mandola are highlighted 1st time at OCC forum and CTU will be reviewing this.

UP representative stated that

- ***ICTs at Lucknow (PG) are generally n-1 compliant, and these only gets over n-1 limit when there is some extra 220kV drawl by rearrangement during facilitating of shutdown at other stations,***

- ***SPS is being planned at Allahabad (PG),***
- ***240MVA ICT at Gorakhpur is being replaced by 500 MVA ICT,***
- ***Powergrid representative has informed the forum at Agra (PG) there is space constraint for installing new ICT, Powergrid is under process to study the feasibility of replacing 315 MVA ICTs with 500 MVA ICTs.***

NRLDC representative informed the forum that continuous operation of Gas generators at 220 kV level has resulted in relief in loading of ICTs at Kashipur but as all India demand will reduce and NLDC will remove TRAS support to the generators, will result in n-1 violation of ICTs.

- ***CGM-NRLDC highlighted that tendering issue of Kashipur ICTs has been going on from last one and half years without any solution. NRPC representative inquired about the status of commissioning of reactor at Kashipur.***

Uttarakhand representative informed that

- ***they are facing difficulty in procuring single ICT of 315 MVA as manufacturers are not very keen to participate in bidding for single ICT. Uttarakhand representative stated the same reason of unsuccessful tendering process.***
- ***Forum has suggested Uttarakhand to seek help from Powergrid to procure the ICT and reactor on its behalf and Powergrid representative has agreed that they can supply the ICT for Uttarakhand.***
- ***220kV Roorkee-Roorkee will be relieved after the commissioning of 400kV Roorkee (UK), DPR of which is under preparation.***
- ***For relief on loading of 200kV CB Ganj-Pant Nagar, a new 400kV substation is being planned near Pant Nagar.***

NRLDC representative advised that until these stations are charged Uttarakhand should plan for SPS as an immediate solution.

Powergrid representative has informed that 4th ICT of 500 MVA at Nallagarh will be commissioning in September-2025.

HP representative explained that

- ***Kunihar ICTs will be off-loaded with the commissioning of 220kV Kala Amb (HP) as the load will be shifted to 400/220kV ICTs at Kala Amb (PG).***
- ***220kV Kala Amb (HP) and associated lines were delayed due to forest clearance which resulted in re-routing of the lines. Now, this project is almost complete and there will be a load relief on Kunihar ICTs.***

NRLDC representative expressed concern about the frequent D/C tripping in JK control area leading to load loss.

JK representative informed the forum that

- ***220kV New Wanpoh- Mirbazaar D/C will be off loaded after 220kV New Wanpoh-Alstung line gets charged where only one tower is left for construction due to railway crossing which is expected to be completed by the end of this year.***
- ***220kV Wagoora Pampore D/C are 400kV lines charged at 220kV with twin moose conductors hence, they have higher load carrying capacity. However, Power representative informed the forum that due to non-clearance of faults in the lower level of Pampore, these lines trip on Zone-3 protection and result in load loss.***

All states have agreed to send the data for plans to mitigate n-1 non-compliance of each ICT via mail to NRLDC and NRPC.

B.4 Grid Operation related issues in Northern region

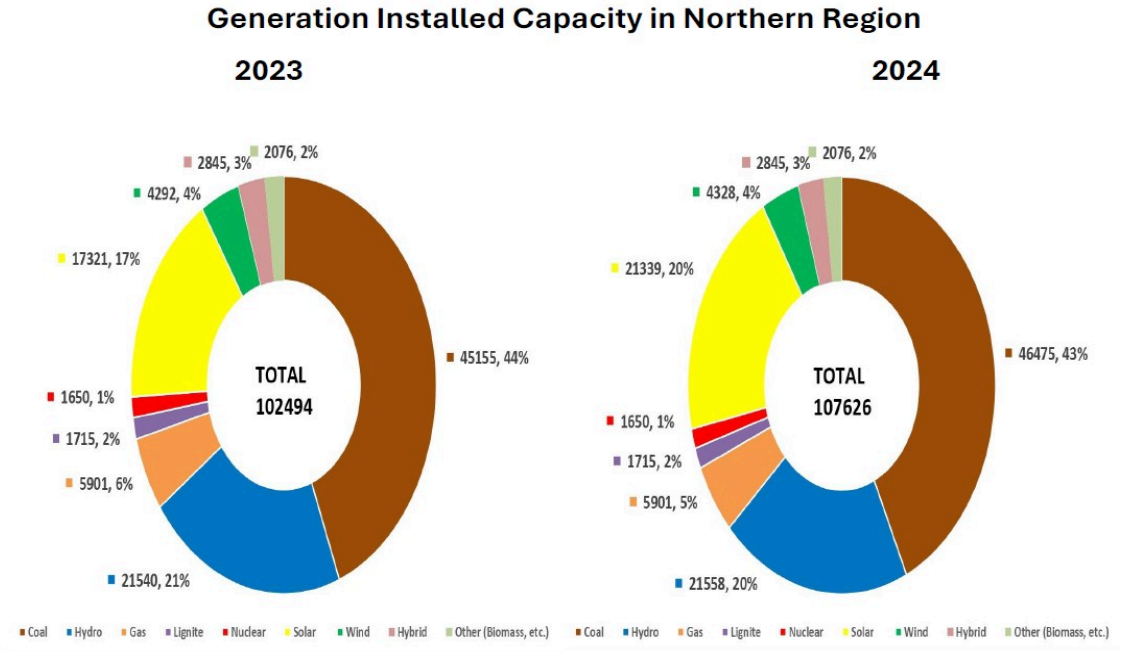
a) Update of Important grid element document in line with IEGC:

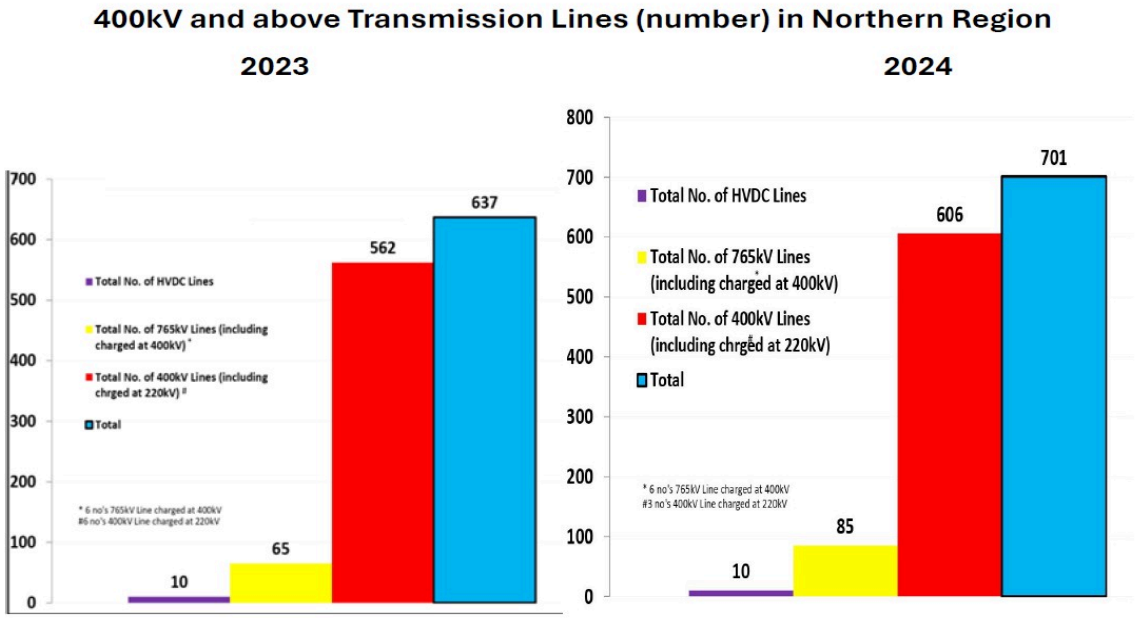
In line with Section 29.2.(b) of IEGC, list of important grid elements in Northern region must be compiled by NRLDC. Such elements shall be opened/closed only on instructions from NRLDC.

The agenda was also discussed in 218, 219 OCC meetings in which all utilities agreed to provide details.

Based on data received from utilities and data available at NRLDC, updated document is available at following link.

https://nrldc.in/download/important-grid-elements-of-northern-region-may-2024/?wpdmdl=13452&lang=en





OCC forum noted the same.

Further, NLDC has circulated a new format with additional data inputs required to bring harmony among all RLDCs. All constituents have been mailed and letter has been sent from GM, NRLDC to provide the data inputs. Till now, only few data inputs have been received. Request all members to kindly provide data for updating of the document.

Members agreed to provide data related to elements owned by them.

b) Update of Operating Procedure document in line with IEGC:

In compliance with Regulation 28.4 of Indian Electricity Grid Code-2023, Operating Procedure document would be updated by NRLDC in mid-July 2024. Latest available document is available at

https://nrldc.in/download/rev1_operating-procedure-for-northern-region-2023-24-iegc-2023/?wpdmdl=12993&lang=en

Members agreed to provide their comments latest by 30th June 2024.

c) Uprating of low rating switchgear at 400kV Bamnauli

Due to LILO of 400kV Jhatikara Bamnauli ckt-1 at Dwarka, loading on 400kV Jhatikara Bamnauli ckt-2 has increased above 1300MW frequently. As per mail received from Delhi, CTs installed at this ckt are quite old and have a capacity of 2000A. This ckt carrying more than 2000A continuously may deteriorate the health of old CTs.

It is important to note that the 400kV Jhatikara-Bamnauli line is a Quad-Bersimis line with a thermal rating of 1900 MW. According to the CEA TPC 2023 guidelines:

"The loading limit for a transmission line shall be its thermal loading limit."

Hence, CTs are acting as limiting factors for loading of transmission line. Delhi SLDC is requested to update the CTs at their end for complete utilization of line.

Delhi representative has informed the forum that earlier mail sent by SLDC-Delhi contained wrong information. Rating of CTs installed at Bamnauli is 3150 Amp. Powergrid representative confirmed that rating of CTs at Jhatikara end is 3150 Amp.

Hence, there is no constraint on loading of line as per Quad Bersimis limits. Forum agreed for the same.

NRLDC CGM has also asked DTL representative to have a physical meeting in NRLDC as per mutually agreed time in case there are any more concerns regarding the line loading.

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 every day.

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 in case angular difference between two adjacent substations is higher than 15 degrees, then line cannot be closed. This led to a 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 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.

Following was discussed in 218 OCC meeting,

- 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 in case 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 in case of long lines although thermal limit is 4200MW. Further, in case the line length is more than 300km, generally inter-regional lines, the lines can be loaded upto 3100-3200MW during N-1 contingency.

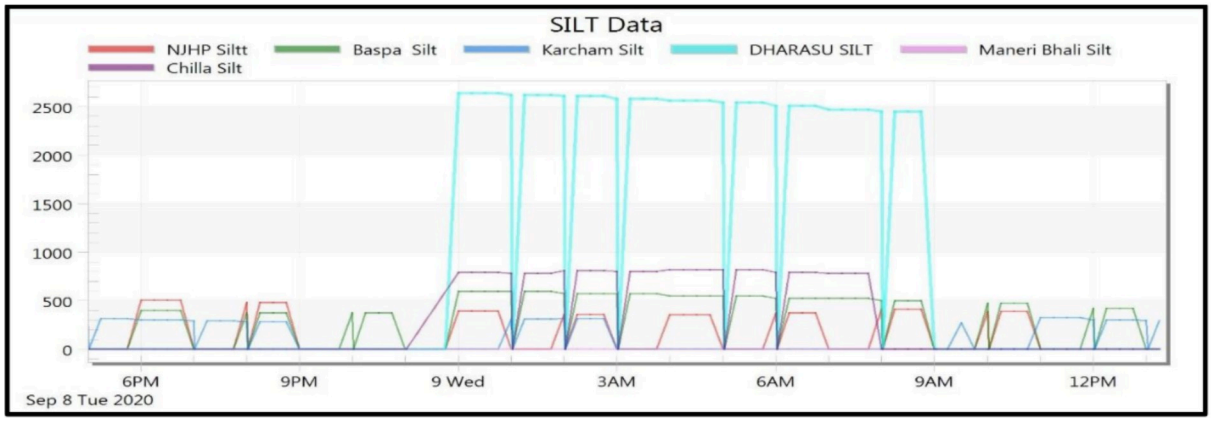
- POWERGRID representative informed that the set angular difference is being revised at substations after communication was received from NRLDC side. At some substations, the limit shall be changed in consultation with OEM and it is pending for 765kV Bhadla2-Ajmer D/C which would be changed after S/S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

In 219 OCC meeting, POWERGRID representative stated that angular difference setting revision is pending at Fatehgarh-II and Chittorgarh Substations. Apart from this, setting has been increased at all other substations of POWERGRID NR-1.

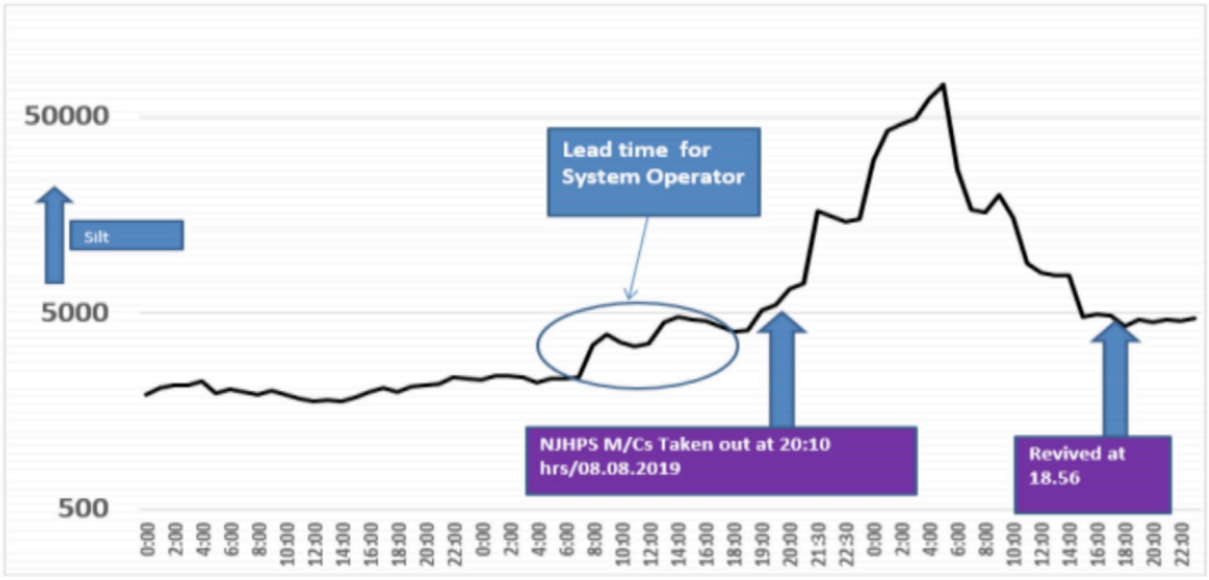
In OCC-220, Powergrid representative has confirmed that angular difference setting revision has been increased at all substations of POWERGRID.

e) Near Real Time Silt Monitoring of hydro stations

Availability of near real time silt measurement data to NRLDC/ SLDCs will be helpful for real time system operation in view of frequent hydro generation outage due to silt. PPM numbers are being punched directly from the site/control room at NRLDC server providing silt measurement at NRLDC control room. During previous years also, for Nathpa Jhakri, Baspa, Karcham and other small HEPs of Uttarakhand, trends of silt data were made available at NRLDC & being monitored by system operators in real-time.



Sample available data of silt shown below suggests that there is some lead-time (varying from few hours to several hours) available with system operators to accommodate outage of hydro generators on account of high silt level.



All hydro stations are requested to take actions to provide this near-real time silt measurement to control centers (RLDCs/SLDCs) as this would help them gain some lead-time for better tackling of hydro generator outage on silt.

Members agreed to share the data on real-time basis with NRLDC control room and perform coordinated operations of hydro generators during monsoon season.

f) Non-satisfactory operation of SPS in Rajasthan control area

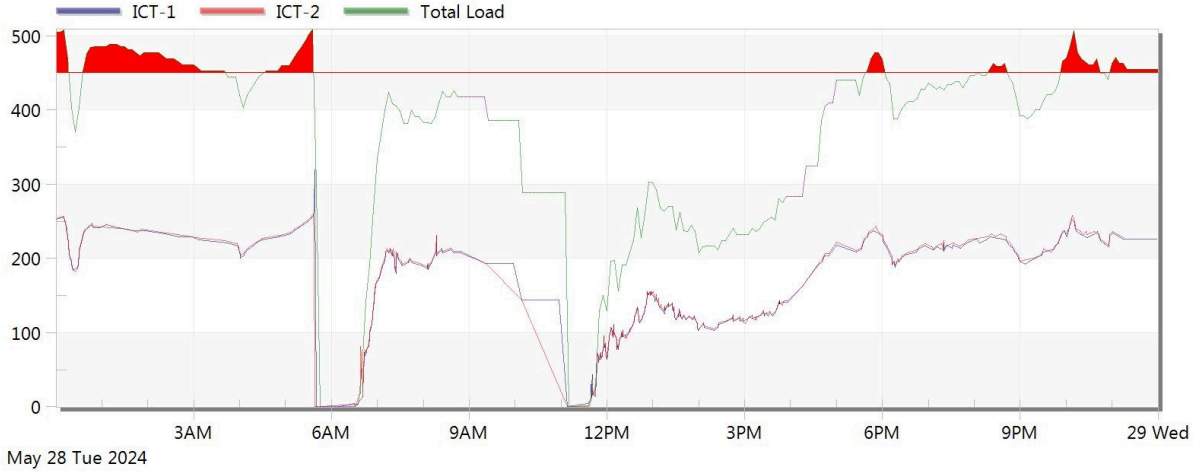
It is being noticed that several SPS are implemented in Rajasthan control area due to N-1 violations at multiple locations. During discussion at OCC forum, it is expected that implemented SPS shall provide relief in case of any N-1 contingency of 400/220kV RVPN substations. Such SPS have been implemented at following substations: Jodhpur, Bikaner, Ajmer, Merta, Hindaun, Bhilwara, Ratangarh, Suratgarh.

Name of Substation	ICTs Capacity (MVA)	N-1 loading limit (MW)	N-1 loading limit (MW) with effective SPS
Jodhpur (SPS effective till 450MW)	2*315	420	450
Bikaner (SPS effective till 445MW)	2*315	410	445
Ajmer (SPS effective till 455MW)	2*315	415	455
Merta (SPS effective till 470MW)	2*315	410	470
Hindaun	2*315	350	475

(SPS effective till 475MW)			
Bhilwara (SPS effective till 580MW)	1*315+1*500	490	580
Ratangarh (SPS effective till 750MW)	3*315	730	750
Suratgarh TPS (SPS effective till 490MW)	2*315	400	490

- As reported by SLDC-Rajasthan, on 28-05-2024 at 05:36 hrs, 400/220 KV 315 MVA ICT-2 At Bikaner (RS) tripped due to Winding Temperature High and 400/220 KV 315 MVA ICT-1 At Bikaner (RS) tripped due to overcurrent, A-phase, Ia: - 539.9 A, resulting in load loss of around 630 MW. Preliminary report has been attached as Annexure-B.II of agenda. SPS was unable to provide required relief (point 10.v) resulting in both ICTs getting tripped.

- As reported by SLDC-Rajasthan, on 28-05-2024 at 10:43 hrs. 400/220 KV 315 MVA ICT 1 tripped due to over current and 400/220 KV 315 MVA ICT 2 AT BIKANER(RS) tripped due to overloading, resulting in the disconnection of the entire 220 kV network in Bikaner S/s. A dip in demand of around 504 MW was observed as per SCADA. Preliminary report has been attached as Annexure-B.III of agenda. SPS was again unable to provide required relief (point 10.vi) resulting in both ICTs getting tripped. Also, SCADA data for ICT load at this time was frozen.



During these tripping, 220kV line which was supposed to be tripped during SPS operation was already under outage, SLDC needs to take special precautions while allowing shutdown of the feeders selected for SPS operation.

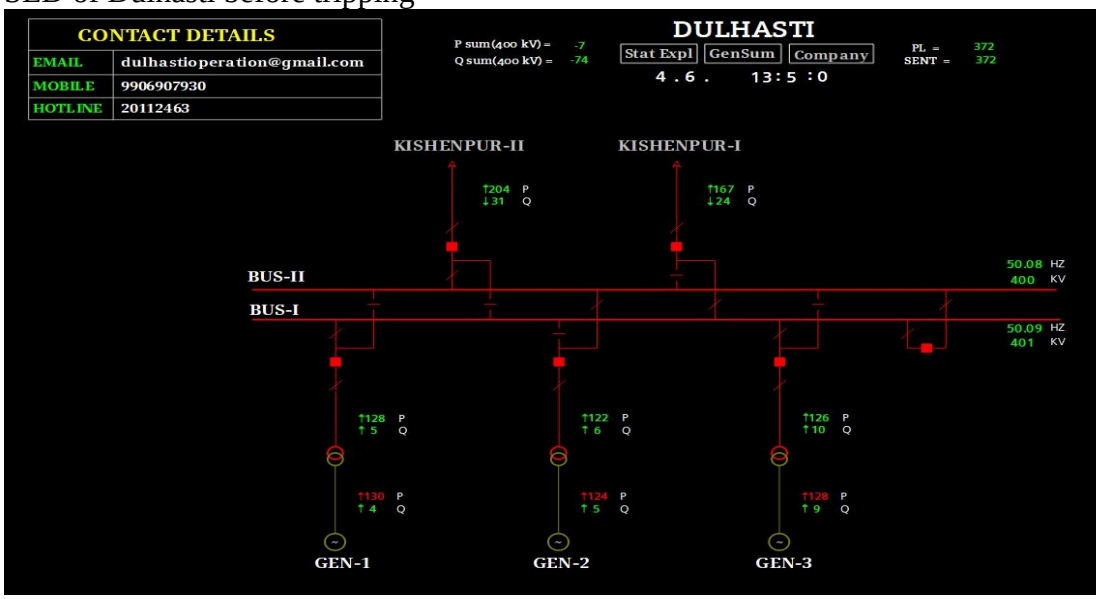
NRLDC representative has expressed grave concern regarding this failure of SPS in reducing the load loss in the system. Since there are multiple locations in Rajasthan area to avoid the tripping of parallel ICTs, healthiness as well as accurate functioning of SPS is very critical for safe and reliable operation of grid in Rajasthan control area.

Rajasthan representative informed the forum that wiring of SPS at Bikaner was wrong resulting in the said tripping. Wiring has been corrected now.
NRPC representative asked Rajasthan to report the performance of SPS via mail to NRPC.

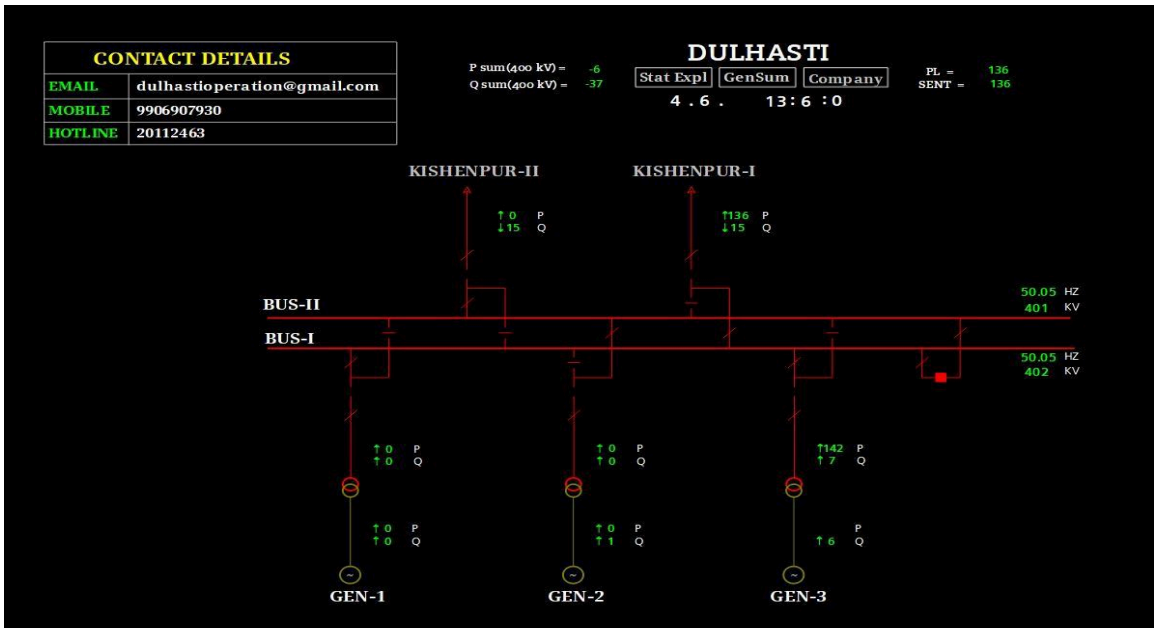
i) Generation loss at Dulhasti

As reported by Dulhasti, on 04-06-2024 at 13:05, 400 KV DULHASTI(NH)-KISHENPUR(PG) (PG) CKT-2 tripped on R-Y fault, at the same time 130 MW DULHASTI HPS - UNIT 1 & 2 also tripped. As per SCADA around 255 MW of Generation loss observed. Unit 1&2 revived at 13:31 hrs and 13:25 hrs respectively. **Since Ckt-1 was still in service NHPC-Dulhasti can provide any reasons why the generation loss was observed**.

SLD of Dulhasti before tripping



SLD of Dulhasti after tripping



SOE during the tripping

Time stamp	Milliseconds	System comment							Path 1	Path 2	Path 3	Path 4	Path
06-04-2024 13:05:12	592	04.06.24 13:05:12,592 KISHENPUR	400kV	04DULHA2	Circuit Breaker	Open	Main	MeC1 02	KISHN_PG	400	04DULHA2	CB	Status
06-04-2024 13:05:12	606	04.06.24 13:05:12,606 KISHENPUR	400kV	08DU2SMB	Circuit Breaker	Open	Main	MeC1 02	KISHN_PG	400	08DU2SMB	CB	Status
06-04-2024 13:05:12	690	04.06.24 13:05:12,690 DULHASTI	400kV	08KISHN2	Circuit Breaker	disturbe	Main	MeC1 02	DULHA_NH	400	08KISHN2	CB	Status
06-04-2024 13:05:12	710	04.06.24 13:05:12,710 DULHASTI	400kV	05KISHN2	Circuit Breaker	Open	Main	MeC1 02	DULHA_NH	400	05KISHN2	CB	Status
06-04-2024 13:05:12	890	04.06.24 13:05:12,890 DULHASTI	400kV	01U01	Circuit Breaker	disturbe	Main	MeC1 02	DULHA_NH	400	01U01	CB	Status
06-04-2024 13:05:12	910	04.06.24 13:05:12,910 DULHASTI	400kV	01U01	Circuit Breaker	Open	Main	MeC1 02	DULHA_NH	400	01U01	CB	Status
06-04-2024 13:05:12	950	04.06.24 13:05:12,950 DULHASTI	400kV	02U02	Circuit Breaker	disturbe	Main	MeC1 02	DULHA_NH	400	02U02	CB	Status
06-04-2024 13:05:12	970	04.06.24 13:05:12,970 DULHASTI	400kV	02U02	Circuit Breaker	Open	Main	MeC1 02	DULHA_NH	400	02U02	CB	Status

NHPC representative informed the forum that it was a mal operation of protection at Dulhasti end which has been analyzed and rectified by NHPC.

j) Violation of GNA limit

Honourable CERC vide regulation 18.1 of Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022 has granted GNA to the states. The relevant clause is mentioned below:

Quote

"18.1. On the date, these regulations come into force,
(a) GNA for a (i) State including intra-State entity(ies) and (ii) other drawee entities, shall be the average of 'A' for the financial years 2018- 19, 2019-20 and 2020-21: where, 'A' = {0.5 X maximum ISTS drawal in a time block during the year} + {0.5 X [average of (maximum ISTS drawal in a time block in a day) during the year]}
(b) GNA computed as per clause (a) of this Regulation is given at Annexure-I to these regulations"

Unquote

The GNA limits of the states as on 30.04.24 are as follows:

State	Region	Total GNA granted in MW
Chandigarh	NR	342
Delhi	NR	4810
Haryana	NR	5418
Haryana-Adani Power (Mundra)	NR	1495
Himachal Pradesh	NR	1130
Jammu & Kashmir	NR	1977
Punjab	NR	5497
Rajasthan	NR	5755
Uttar Pradesh	NR	10513
Uttarakhand	NR	1402
Railways-NR-ISTS-UP	NR	130
PG-HVDC-NR	NR	8

It is also pertinent to mention that as per clause-45(14) of IEGC-23, a drawee entity shall be allowed to schedule drawl only up to its effective GNA quantum and T-GNA quantum, as applicable, in accordance with the GNA Regulations. The relevant clause is mentioned below:

Quote

"(14) A generating station or ESS or a drawee entity shall be allowed to schedule injection or drawal only up to its effective GNA quantum and T-GNA quantum, as applicable, in accordance with the GNA Regulations."

Unquote

However, it has been observed that the total requisitions placed by SLDCs against GNA contracts are exceeding the GNA limits of the respective states thus leading to curtailment on account of GNA violations.

Keeping in view of the above, all the SLDCs are requested to ensure that the requisitions placed against GNA contracts do not exceed the GNA limit.

In the past one-month schedules of multiple states have been curtailed frequently following the priority: -

1. Gas based plants
2. Thermal plants
3. Hydro (storage)
4. Hydro (ROR with pondage)
5. Hydro (ROR)

Forum has asked states to punch their day-ahead schedules strictly within their GNA limits as it must be curtailed at NRLDC end creating an unnecessary exercise.
Delhi representative stated that they are pursuing the different discoms in their control area to adhere to their limits. Forum has suggested that in their internal OCC meeting of Delhi SLDC should highlight this matter along with the letters and mails received from NRLDC and manage the schedules of discoms on daily basis. Also, Delhi was asked to buy T-GNA in advance for the expected schedule.

UP representative informed that they have devised a method to curtail the schedule of only that discom which is overscheduling. Forum has asked Delhi to seek help from UP on how to manage multiple discoms for which UP representative has agreed to provide support on how they are managing different discoms with curtailing only that discom which is violating the limits.
HP has informed the forum that due to different entities in state periphery, it is facing a problem that over-scheduling is done by hydro generators, however, while doing curtailment thermal is being curtailed first, this results in imbalance of schedule of entities. Forum replied that this issue is within state periphery and states need to device mechanisms on their own to solve this.
Punjab and Haryana have started violating during the paddy season, both states representatives have assured the forum that they will also have increased vigilance to avoid any over-scheduling.

All member states have agreed to adhere to GNA limits of the states and create mechanisms to control over-scheduling by state internal entities.

B.5 Frequent tripping of transmission elements in the month of May'24:

The following transmission elements were frequently tripping during the month of **May'24**:

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Amberi(RS)-Kankroli(PG) (RS) Ckt-1	4	POWERGRID/ Rajasthan
2	220 KV Baghpat(PG)-Shamli(UP) (UP) Ckt-1	7	POWERGRID/UP
3	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	4	RAPP/Rajasthan
4	220 KV Duni(RS)-Kota(PG) (RS) Ckt-1	5	POWERGRID/ Rajasthan
5	220 KV Kaul (HV)-Kurukshetra(PG) (HVPNL) Ckt-2	5	POWERGRID/ Haryana
6	220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-2	5	BBMB/Delhi
7	220 KV Panipat-Kurukshetra (BB) Ckt-1	5	BBMB
8	400 KV Bamnoli(DV)-Tughlakabad(PG) (DTL) Ckt-2	4	POWERGRID/Delhi

The complete details are attached at **Annexure-B.IV of agenda**.

It may be noted that frequent tripping of such elements affects the reliability and security of the grid. Hence, utilities are requested to analyze the root cause of the tripping and share the remedial measures taken/being taken in this respect.

Rajasthan representative informed that due to a fault in 220kV Chittorgarh-Debari and breaker failed to operate at Chittorgarh end, it was expected that 220kV Amberi-Debari to trip in Zone-3 protection (1000ms), however setting for Amber- Kankroli was (850ms) which resulted in tripping of this line beyond its Zone-3 range. Also, there was an issue in Auto-reclosure operation at Amberi end. Now this has been resolved.

Rajasthan representative has highlighted that there has been an issue of old insulators in 220kV Debari Rapp-A. Rajasthan is in process of tendering for replacement of insulators on the whole line. Also, Rapp-A doesn't have auto-reclosure enable for the line.

Rajasthan representative informed that there is an ongoing issue with the contractor for tree cutting in Duni-Kota line which resulted in over-growth of vegetation and results in frequent tripping. Now, all issues have been resolved and it is expected that further tripping will not take place.

UP representative stated that on 4th and 12th (double events) fault was on bus isolator and A/R went into lockout. On 17th & 28th it was Y-B & R-B fault hence no operation of A/R, these faults were due to low clearance between the lines at location 105 and 106. On 27th and 28th A/R operated successfully at Shamli end only. POWERGRID representative highlighted that as substation is GIS type, issue of partial discharge have been arisen due to frequent faults in line. This issue has been frequent, and both the utilities were coordinating to resolve the issue.

Haryana representative informed that on 31st May, CT was damaged resulting in the tripping.

BBMB representative informed the forum that there have been instances of tripping during bad weather. Auto reclosure was operating at Panipat end, but there was a problem in relay at Narela end.

BBMB representative informed the forum that on 10th May local villagers informed that some miscreant elements have thrown conducting material on the line. HR PwD has increased the height of a road near tower no 108 which has resulted in low clearance from the ground, and on 19th and 28th during the passage of tall vehicle, tripping occurred. The issue has been taken up by BBMB to raise the height of tower. On 20th May, there is a lower kV Line going under the 220kV line during bad weather this line tripped, BBMB has written to Haryana to maintain proper clearance between the lines.

Delhi representative has informed the forum that there was a large bird died on the line which resulted in frequent tripping of the line. After taking shutdown of the line, its remains have been removed and the line is healthy.

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 in 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 May ’24:

A total of **49** grid events occurred in the month of May’24 of which **24** are of GD-1 category, **08** are of GI-1 Category and **17** 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.V of agenda.**

Maximum delayed clearance of fault observed in event of multiple elements tripping at 220kV Sultanpur(Punjab) on 07th May, 2024 (As per PMU at Amritsar(PG), R-N phase to earth fault converted to 3-phase fault with delayed fault clearing time of 2120ms is observed.).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **20** events out of **49** grid events occurred in the month. In 11 (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) 220kV GGSTPS(PS) on 05th May’24
b) 220kV Pong(BBMB) on 06th & 12th May’24
c) 400kV Singrauli(NTPC) on 09th May’24
d) 400/220kV Bhiwadi(PG) on 13th May’24 (Partial data received)
e) 220kV IIP Harrawala(Utt) on 15th May’24
f) 220kV Jamalpur(BBMB) on 19th May’24
g) 220kV Baghapurana(PS) on 21st May’24
h) 220kV Kanpur Naubasta(UP) on 23rd May’24
i) 220kV Pragati GPS on 25th May’24
j) 220/132kV Heerapura(RS) on 27th May’24
k) 400kV Jhajjar(APCPL) on 27th May’24
l) 400/132kV Masoli(UP) on 29th May’24
m) 220kV Pinjore(HR) on 31st May’24 (Partial data received)

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

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

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 act in this regard.

B.7 Review and uniformity of df/dt (ROCOF) protection philosophy in Northern Region

Multiple incidents of load shedding on df/dt (ROCOF) protection operation have been reported during recent past. Major operations were reported from Punjab control area. Delhi, Rajasthan & UP have also reported load shedding on df/dt operation during some of the incidents. Incidents during which df/dt operation have reported are as follows:

a) 25th May 2024 at 12:46hrs: 172MW in UP; 82MW in Delhi; 1375MW in Punjab and 140MW in Rajasthan (as reported by SLDCs)
b) 27th May 2024 at 14:36hrs: 540MW in Haryana; 280MW in Delhi; 140MW in UP, 100MW in Uttarakhand (as per SCADA data at NRLDC, SLDCs have not confirmed yet)
c) 01st June 2024 at 13:26hrs: 440MW in Punjab and 100MW in UP (as per SCADA data at NRLDC, SLDC-Punjab have confirmed)
d) 01st June 2024 at 13:44hrs: 120MW in Haryana; 270MW In Delhi; 580MW in Punjab and 220MW in UP (as per SCADA data at NRLDC, SLDC-Punjab & UP have confirmed)
e) 03rd June 2024 at 05:28hrs: Punjab have reported load shed of ~300MW of df/dt operation
f) 04th June 2024 at 12:35hrs: 400MW in Punjab (as per SCADA data at NRLDC, SLDC-Punjab have confirmed)
g) 09th June 2024 at 11:21hrs: 450MW in Punjab (as per SCADA data at NRLDC, SLDC-Punjab have confirmed)

In view of frequent incidents of tripping of distribution feeders on df/dt operation, analysis and review of df/dt operation is necessary. Communication has already been sent to SLDCs via mail to provide list of feeders tripped on df/dt during said incidents, DR(.dat/.cfg) files of tripped feeders and adopted df/dt relay setting (average cycle considered and time delay).

Punjab & UP have shared the list of feeders tripped on df/dt operation. df/dt Relay setting file of a zone is received from Punjab & Delhi.

SLDCs are requested to share the adopted philosophy of df/dt protection and confirm whether uniform philosophy has been adopted throughout the state or not. Kindly share the details at the earliest so that analysis and review of df/dt operation and its philosophy may be done.

Punjab representative has agreed to share all the details relevant to NRLDC.

OCC forum requested all the states to share the details of df/dt operation in their respective control area during aforementioned events and share the protection setting of df/dt relay implemented in the state.

Forum agreed that settings of df/dt relays will be discussed in next Protection Coordination Meeting.

B.8 Details of tripping of Inter-Regional lines from Northern Region for May' 24:

A total of 15 inter-regional lines tripping occurred in the month of May'24. The list is attached at **Annexure-B.VI 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.

Members may please note and advise the concerned for taking corrective action to avoid such tripping as well as timely submission of the information.

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 minimize such tripping in future.

B.9 Status of submission of DR/EL and tripping report of utilities for the month of May'24.

The status of receipt of DR/EL and tripping report of utilities for the month of May'24 is attached at **Annexure-B.VII of agenda**. It is to be noted that as per the IEGC provision under clause 37.2 (c), tripping report along with DR/EL must 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.

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.

NRLDC will be issuing a letter to the constituents having major underreporting regarding non-receipt of DR/EL.

OCC forum emphasized the importance of DR/EL & tripping report data for analysis of the tripping. In addition, these data are also the base for the availability verification. The unavailability of these details delays the availability verification process also. Hence,

timely submission of DR/EL & tripping report is very much necessary. Members were requested to comply with IEGC 37.2(c) and submit the details in time. Members agreed to take necessary follow-up actions to improve the reporting status.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the tripping shall be uploaded on Web Based Tripping Monitoring System "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.

B.10 Frequency response characteristic:

The FRC based event occurred in the month of **May-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 FRP during the event
1	02-May-24	14:40 hrs	On 02nd May, 2024, at 14:41 hrs(solar hours), dip in NR solar generation of around 1840 MW (~180MW in Rajasthan) (as per SCADA) was observed. As per SCADA data dip in following RE Plants are observed: 1. At Fatehgarh2: RSUPL, AHEJ2L, RSWPL, RSBPL, Devikot Solar 2. At Bikaner 765: Azzure 43 PSS, Azzure 43 RSS 3. At Bhadla2: Amp Energy 4. At Bhadla: SB Energy (Surya Urja), TPREL, Azure Maple. Therefore, generation loss of 1840MW has been considered for FRC computation.	50.024	49.874	49.983	-0.04	1.17

2	10-May-24	19:35 hrs	On 10th May, 2024, at 19:35 hrs(non-solar hours), 400 kV Khedar- Kirori Ckt-1 &2 tripped on directional earth fault protection. 400 KV Khedar – Fatehabad loading increased to 860 MW and later at 19:35 hrs both the units-1 & 2 at Khedar (RGTPS) tripped. As per SCADA, around 1071 MW of Generation loss observed at Khedar. Therefore, generation loss of 1071MW has been considered for FRC computation.	49.986	49.905	49.941	-0.04	2.24
3	28-May-24	17:59 hrs	As reported, at 17:59 hrs on 28th May 2024, due to failure of 125 MVA Transformer -2 Bay Bus-1 isolator chamber (GIS), Bus Bar Protection operated at 220kV Gorai EHV station. It led to tripping of 220kV Gorai – Versova Line, 220kV Gorai – Ghodbundar Line, 220kV Gorai – MSETCL Borivali Line 1, 220kV Gorai – MSETCL Borivali Line 2, 125 MVA Transformer-1 and 125 MVA Transformer-2.	50.09	50.244	50.140	0.05	2.43

			Maharashtra SLDC have mentioned a load drop of 1045 MW for Mumbai area only. Further, the load drop calculated based on the drop in ICT loadings of nearby 400kV substations in Maharashtra is 1587 MW. Therefore load loss of 1587MW has been considered for FRC computation.					

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

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

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

Status of details received from constituents is:

FRC computation and data submission status				
S. No	**Control Area**	**Event Date**		
		02-05-2024	**10-05-2024**	**28-05-2024**
1	**Punjab**	Not Received	Not Received	Not Received
2	**Haryana**	Not Received	Not Received	Not Received
3	**Rajasthan**	Not Received	Not Received	Not Received
4	**Delhi**	Not Received	Not Received	Not Received
5	**Uttar Pradesh**	Received	Received	Received
6	**Uttarakhand**	Not Received	Not Received	Not Received
7	**Chandigarh***	NA	NA	NA
8	**Himachal Pradesh**	Received	Received	Not Received
9	**J&K(UT) and Ladakh(UT)**	Not Received	Not Received	Not Received
10	**Dadri -1 (TH)**	Not Received	Not Received	Not Received
11	**Dadri -2 (TH)**	Not Received	Not Received	Not Received
12	**Jhajjar (TH)**	Not Received	Not Received	Not Received

13	**Rihand-1 (TH)**	Received	Received	Not Received
14	**Rihand-2 (TH)**	Received	Received	Not Received
15	**Rihand-3 (TH)**	Received	Received	Not Received
16	**Shree Cement (TH)**	Not Received	Not Received	Not Received
17	**Singrauli (TH)**	Not Received	Not Received	Received
18	**Tanda-2 (TH)**	Not Received	Not Received	Received
19	**Unchahar stg-4 (TH)**	Not Received	Not Received	Received
20	**Unchahar (TH)**	Not Received	Not Received	Received
21	**Anta (G)**	Not Received	Not Received	Not Received
22	**Auraiya (G)**	Not Received	Not Received	Not Received
23	**Dadri (G)**	Not Received	Not Received	Not Received
24	**AD Hydro (H)**	No Gen	Received	Received
25	**Bairasiul (H)**	Not Received	Not Received	Not Received
26	**Bhakra (H)**	Received	Received	Not Received
27	**Budhil (H)**	No Gen	Not Received	Not Received
28	**Chamera-1 (H)**	Not Received	Not Received	Not Received
29	**Chamera-2 (H)**	No Gen	Not Received	Not Received
30	**Chamera-3 (H)**	No Gen	Not Received	Not Received
31	**Dehar (H)**	Received	Received	Not Received
32	**Dhauliganga (H)**	No Gen	Not Received	Not Received
33	**Dulhasti (H)**	Not Received	Not Received	Not Received
34	**Karcham (H)**	Not Received	Received	Received
35	**Kishanganga**	Not Received	Not Received	Not Received
36	**Koldam (H)**	No Gen	Not Received	Received
37	**Koteshwar (H)**	No Gen	Received	No Gen
38	**Malana-2 (H)**	NA	NA	NA
39	**Nathpa Jhakri (H)**	No Gen	Received	Received
40	**Parbati-2 (H)**	No Gen	No Gen	No Gen
41	**Parbati-3 (H)**	No Gen	Not Received	Not Received
42	**Pong (H)**	Received	Received	Not Received
43	**Rampur (H)**	No Gen	Not Received	Not Received
44	**Sainj (H)**	No Gen	Not Received	Not Received
45	**Salal (H)**	Not Received	Not Received	No Gen
46	**Sewa-II (H)**	Not Received	Not Received	Not Received
47	**Singoli Bhatwari (H)**	No Gen	Not Received	Not Received
48	**Sorang (H)**	Not Received	Not Received	Not Received
49	**Tanakpur (H)**	Not Received	Not Received	Not Received
50	**Tehri (H)**	No Gen	Received	Received
51	**Uri-1 (H)**	Not Received	Not Received	Not Received
52	**Uri-2 (H)**	Not Received	Not Received	Not Received

FRC/FRP as per SCADA data at NRLDC is as follows:

Frequency response Performance				
S. No	Control Area	Event Date		
		02-05-2024	10-05-2024	28-05-2024
1	Punjab	0.83	5.58	1.84
2	Haryana	-0.31	3.93	0.89
3	Rajasthan	-9.56	-0.41	0.34
4	Delhi	-6.53	0.34	7.52
5	Uttar Pradesh	0.62	1.04	1.92
6	Uttarakhand	-1.29	-3.10	1.12
7	Chandigarh*	NA	NA	NA
8	Himachal Pradesh	2.33	3.87	-11.31
9	J&K(UT) and Ladakh(UT)	-0.29	-0.20	4.10
10	Dadri -1 (TH)	4.46	10.96	9.68
11	Dadri -2 (TH)	-23.97	-13.11	11.26
12	Jhajjar (TH)	0.00	-3.04	0.00
13	Rihand-1 (TH)	-1.82	8.96	17.74
14	Rihand-2 (TH)	3.04	-0.24	11.51
15	Rihand-3 (TH)	7.54	-2.51	0.58
16	Shree Cement (TH)	-1.87	-2.64	2.43
17	Singrauli (TH)	1.41	1.63	4.88
18	Tanda-2 (TH)	2.65	-13.46	18.65
19	Unchahar stg-4 (TH)	-0.04	-3.46	14.93
20	Unchahar (TH)	-0.43	1.80	0.17
21	Anta (G)	0.54	-0.32	-0.83
22	Auraiya (G)	0.70	0.52	8.31
23	Dadri (G)	-0.93	4.75	16.57
24	AD Hydro (H)	No Gen	0.00	0.00
25	Bairasiul (H)	0.18	-0.03	0.08
26	Bhakra (H)	0.07	-0.26	1.47
27	Budhil (H)	No Gen	0.49	0.00
28	Chamera-1 (H)	4.23	2.62	1.03
29	Chamera-2 (H)	No Gen	-0.09	8.62
30	Chamera-3 (H)	No Gen	3.74	3.21
31	Dehar (H)	-0.24	1.58	1.65
32	Dhauliganga (H)	No Gen	-3.06	30.92
33	Dulhasti (H)	0.00	0.00	-4.53
34	Karcham (H)	0.00	7.38	41.15
35	Kishenganga	0.00	0.34	0.00
36	Koldam (H)	No Gen	28.61	21.64
37	Koteshwar (H)	No Gen	0.00	No Gen
38	Malana-2 (H)	NA	NA	NA
39	Nathpa Jhakri (H)	No Gen	-2.77	20.55
40	Parbati-2 (H)	No Gen	No Gen	No Gen
41	Parbati-3 (H)	No Gen	0.00	8.15
42	Pong (H)	-0.24	-2.82	0.32
43	Rampur (H)	No Gen	-13.60	10.41

44	**Sainj (H)**	No Gen	0.00	0.00
45	**Salal (H)**	0.47	1.08	No Gen
46	**Sewa-II (H)**	0.00	11.06	0.00
47	**Singoli Bhatwari (H)**	No Gen	0.21	0.19
48	**Sorang (H)**	0.33	-3.83	0.25
49	**Tanakpur (H)**	0.10	3.92	3.09
50	**Tehri (H)**	No Gen	2.82	20.07
51	**Uri-1 (H)**	0.18	-0.16	3.44
52	**Uri-2 (H)**	2.21	-3.13	-2.88

Memebers are requested to analyse the frequency response of their respective control area and share the FRC/FRP analysis of generating stations along with unit wise 01 sec data of for the aforementioned event.

ISGS were requested to confirm whether FGMO as per IEGC 2023 has been implemented at their respective stations	Entity	Capacity(MW)	Governor Mode (FGMO as per IEGC 2023) Yes or No	Drrop setting (%)	Remarks (if any)

or not. Updated sheet on the basis of details received is as follows :Sl. No.					
1	Dadri-1 (TH)	4*200			
2	Dadri -2 (TH)	2*490			
3	Jhajjar (TH)	3*500			
4	Rihand-1 (TH)	2*500	Yes	5.0	Under Implementation
5	Rihand-2 (TH)	2*500	Yes	5.0	Under Implementation
6	Rihand-3 (TH)	2*500	Yes	5.0	Under Implementation
7	Shree Cement (TH)	(2 * 150)			
8	Singrauli (TH)	2*500+5*200			
9	Tanda-2 (TH)	2*660			
10	Unchahar stg-4 (TH)	1*500			
11	Unchahar (TH)	2*210			
12	Anta (G)	(1 * 153.2 + 3 * 88.71)			
13	Auraiya (G)	(2 * 109.3 + 4 * 111.19)			
14	Dadri (G)	(2 * 154.51 + 4 * 130.19)			
15	AD Hydro (H)	(2 * 96)	YES	4.0	-
16	Bairasiul (H)	(3 * 60)	Yes	4.0	
17	Bhakra (H)	(5 * 126 + 5 * 157)			
18	Budhil (H)	(2 * 35)			
19	Chamera-1 (H)	(3 * 180)	Yes	5.0	
20	Chamera-2 (H)	(3 * 100)	Yes	5.0	

21	Chamera-3 (H)	(3 * 77)	Yes	4.0	
22	Dehar (H)	(6 * 165)			
23	Dhauliganga (H)	(4 * 70)	Yes	5.0	
24	Dulhasti (H)	(3 * 130)	Yes	5.0	
25	Karcham (H)	(4 * 261.25)	Yes	5.0	
26	Kishenganga	(3 * 110)	Yes	4.0	
27	Koldam (H)	(4 * 200)	Yes	4.0	
28	Koteswar (H)	(4 * 100)	Yes	4.0	
29	Malana-2 (H)	(2 * 50)			
30	Nathpa Jhakri (H)	(6 * 250)	Yes	5.5	
31	Parbati-2 (H)	(4 * 200)			
32	Parbati-3 (H)	(4 * 130)	Yes	4.0	
33	Pong (H)	(6 * 66)			
34	Rampur (H)	(6 * 68.67)			
35	Sainj (H)	(2 * 50)			
36	Salal (H)	(6 * 115)	Yes	3.0	
37	Sewa-II (H)	(3 * 40)	Yes	4.0	
38	Singoli Bhatwari (H)	(3 * 33)			
39	Sorang (H)	(2 * 50)			
40	Tanakpur (H)	(1 * 31.42 + 2 * 31.4)	Yes	4.0	
41	Tehri (H)	(4 * 250)	Yes	4.0	
42	Uri-1 (H)	(4 * 120)	Yes	6.0	
43	Uri-2 (H)	(4 * 60)	Yes	5.0	

Constituents were requested to share the details at the earliest.

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

Members have asked NRLDC to conduct a workshop on how to calculate FRC and other handholding.

B.11 Mock trial run and testing of black start facilities at generating stations in Northern Region

As per Indian Electricity Grid Code (IEGC) clause 34.3

"Detailed procedures for restoration post partial and total blackout of each user system within a region shall be prepared by the concerned user in coordination with the concerned SLDC, RLDC or NLDC, as the case may be. The concerned user shall review the procedure every year and update the same. The user shall carry out a mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming

capability of inverter based generating station and VSC based HVDC black-start support at least once a year under intimation to the concerned SLDC and RLDC. Diesel generator sets and other standalone auxiliary supply source to be used for black start shall be tested on a weekly basis and the user shall send the test reports to the concerned SLDC, RLDC and NLDC on a quarterly basis".

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

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

Therefore, regional entity generating stations and SLDCs are requested to share the annual schedule plan for conducting dead bus charging / mock black start exercise of generating stations / sub-systems during 2024-25 in the format attached as **Annexure-B.VIII of agenda**. Constituents are also requested to share the test report of diesel generators / auxiliary supply on a quarterly basis. In this regard, a communication has already been sent to constituents through NRLDC letter dated 24.04.2024.

Details received from AD Hydro HEP, Tehri HEP, Karcham Wangtoo HEP, Koteshwar HEP, SJVN, Budhil, Chamera-III, Auraiya GPS, Singoli Bhatwari HEP, Koldam HEP, Dadri GPS, Delhi, Punjab and Uttarakhand.

Forum requested to share the tentative schedule of mock black start exercise of generating stations in their respective control area. SLDCs are also requested to share the tentative schedule plan of mock black start exercise of generating stations in their respective control area and share the report of the same.

Members have agreed to share the details with NRLDC soon.

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

There are 53 numbers of System Protection Scheme (SPS) approved in Northern Region out of which 05 number of SPS are under implementation stage. These SPS are implemented at major generation complexes, important evacuating transmission lines and ICTs which are N-1 non complaint. Details of SPS in Northern Region is available on NRLDC website at link https://nrldc.in/download/nr-sps-2024/?wpdmdl=13255&lang=en .

SPS is designed to detect abnormal system conditions and take predetermined, corrective action to preserve system integrity and provide acceptable system performance. Therefore, correct operation of SPS as per designed logic is important to serve its purpose. To ensure this, mock testing of SPS needs to be conducted at a regular period. Clause 16.2 of IEGC 2023 also

mandates the mock testing of SPS for reviewing SPS parameters & functions, at least once a year.

In view of the above, concerned constituents / utility are requested to share the tentative schedule plan for conducting mock testing of SPS in their respective control area during 2024-25 in format attached as **Annexure-B.IX of agenda.** In this regard, a communication has already been sent to constituents through NRLDC letter dated 01.05.2024.

Details only received from Uttarakhand & UP.

Members have agreed to share the tentative schedule of mock testing of SPS implemented on their control area and report of the same.

B.13 Availability and Standardization of recording instrument (Disturbance recorder and Station Event Logger):

As per IEGC clause 17

1) *All users shall keep the recording instruments (disturbance recorder and event logger) in proper working condition.*
2) *The disturbance recorders shall have time synchronization and a standard format for recording analogue and digital signals.*

IEGC clause 37.2 (c) also mandates the submission of Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) within 24 hrs of the event.

Data of recording instruments (DR/EL) are very helpful in grid event analysis and also is being used in availability verification of transmission lines. Complete and conclusive analysis of any grid event is not possible without these recording instruments and thus their standardisation is very important.

Therefore, availability of disturbance recorder with standardisation, time sync and correct nomenclature and station event logger need to be ensured by users at the station of their respective control area.

In view of the above, all the constituents are requested share the details w.r.t. availability and standardization of disturbance recorder and event logger at the station of their respective control area in format attached as **Annexure-B.X of agenda.**

Details only received from Haryana & UP.

OCC forum requested all the members to share the status of their control area and ensure the standardization of recording instruments at all the stations of their control area.

Forum highlighted the need for standardization of the equipment.
Members have agreed to share the details with NRLDC soon.

B.14 Additional Agenda-1: Opening of 400 KV Singrauli(NT)-Anpara(UP) to control fault level:

As per the recommendations of the 1st Meeting of Northern Regional Power Committee (Transmission Planning) (NRPCTP), 400 kV Singrauli – Anpara has to be opened to control the high fault levels in Anpara – Singrauli – Rihand complex.

Extract from the meeting are shown below:

6.13. After deliberations, following was agreed:

(i) The transmission system for evacuation of power from Singrauli III:

I. LILO of both circuits of Tie line (Vindhyachal Stage-IV to Vindhyachal Stage-V 400kV D/C Twin Moose line) at Singrauli Stage-III- under the scope of NTPC.

II. Reconductoring of Singrauli Stage-III - Vindhyachal stage-IV 400 kV D/C TM line (formed after above proposed LILO) with HTLS conductor - under the scope of NTPC

III. Singrauli-III–Rihand-III 400kV D/c line- under ISTS scope

IV. 2x125 MVAR Bus Reactor at Singrauli-III generation switchyard- under scope of NTPC

(ii) Singrauli- Anpara 400 kV line will be kept normally open (can be closed in emergency conditions) after commissioning of Anpara D –Unnao 765kV line to restrict high short circuit level in Singrauli-Anpara complex.

(iii) The short circuit level in Singrauli will again be studied by CEA and CTU and accordingly, would be discussed in the next NRPCTP meeting.

The above scheme may also be rectified in next NRPCTP meeting.

The agenda was discussed in 210, 211 & 212 OCC meetings. In 212 OCC meeting, NRLDC representative requested UP SLDC to provide their comments after discussion with stakeholders. UP SLDC representative stated that based on above study and concerns raised by Executive Engineer Anpara BTPS vide Letter no 373 EMD-III/BTPS/SLDC dated 11.09.2023 (copy attached) following are the recommendations:-

1. 400 kV Anpara-Singrauli line should remain in services 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.

2. In case of single contingency that is tripping of either 765 kV Anpara C-Unnao OR 765 kV Anpara D-Obra C-Unnao line, 400 KV 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.

3. 400kV SIngrauli-Anpara may be kept antitheft charged/ charged from one end.

CTUIL was also requested to provide comments on high loading of 400kV Ballia-Mau line. No comments were received from CTUIL

No comment was received from POWERGRID or NTPC, accordingly it was agreed that as requested by UP, 400 kV Anpara-Singrauli line should remain in service till commissioning of 2X1000 MVA ICTs at Obra C and revised SPS for Anpara Complex is commissioned. Thereafter, the line may be opened after discussion at OCC level.

At the time of discussion in 212 OCC meeting held in October 2023, NR import had reduced considerably and it was informed that 2X1000 MVA ICTs at Obra C would also be commissioned shortly. Therefore, opening of 400kV Anpara-Singrauli was linked with commissioning of 2X1000 MVA ICTs at Obra C as winter was approaching and fog related tripping were also suspected.

Subsequently, the matter was also discussed in first meeting of Standing Committee on Short Term & Perspective Power System Planning- Northern Region (SCSTPPSP-NR) held on 14.03.2024 at NRPC, New Delhi. In the meeting, it was recorded that

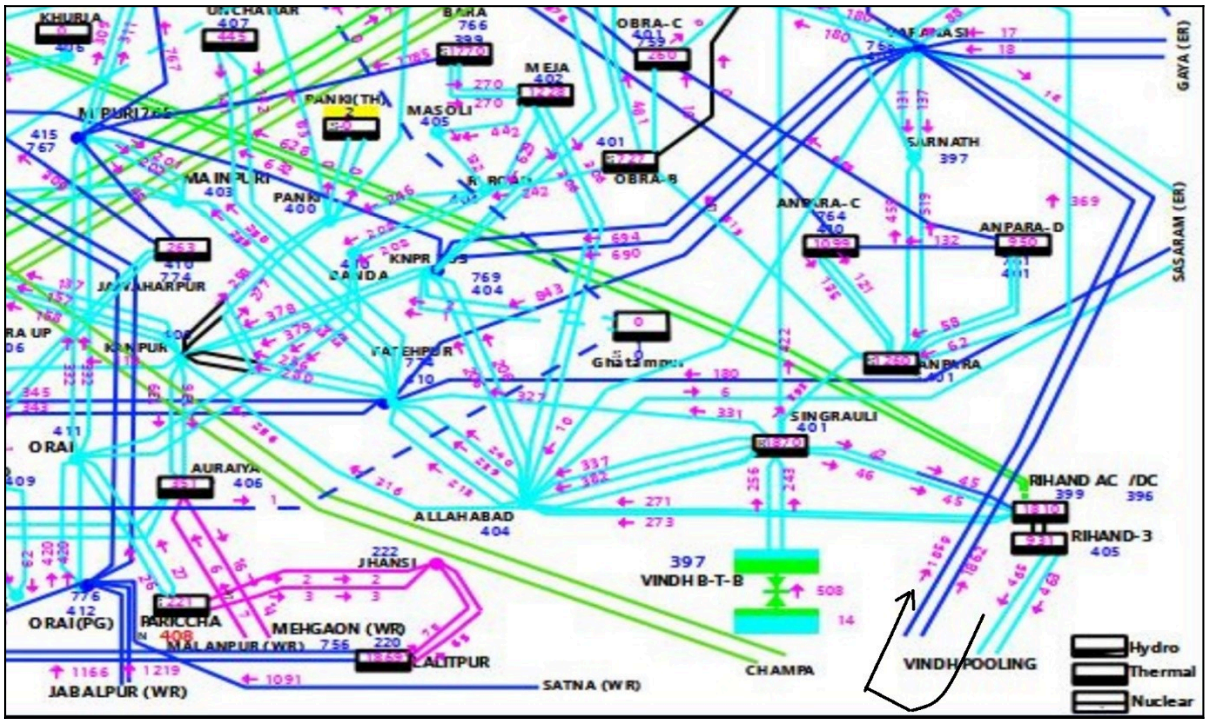
"*During the meeting, UPPTCL representative informed that the 765/400 kV ICTs at Obra C are expected to be charged this summer (one in April and another in June) along with associated 400 kV lines from Obra C. This is expected to provide relief in the complex*"

However, due to delay in commissioning of 765/400kV ICTs at Obra C and violations of WR-NR ATC/TTC limits, the agenda for opening of 400 kV Anpara-Singrauli line needs to be deliberated again.

With opening of 400kV Singrauli-Anpara line, following relief in 3-ph fault levels would be achieved:

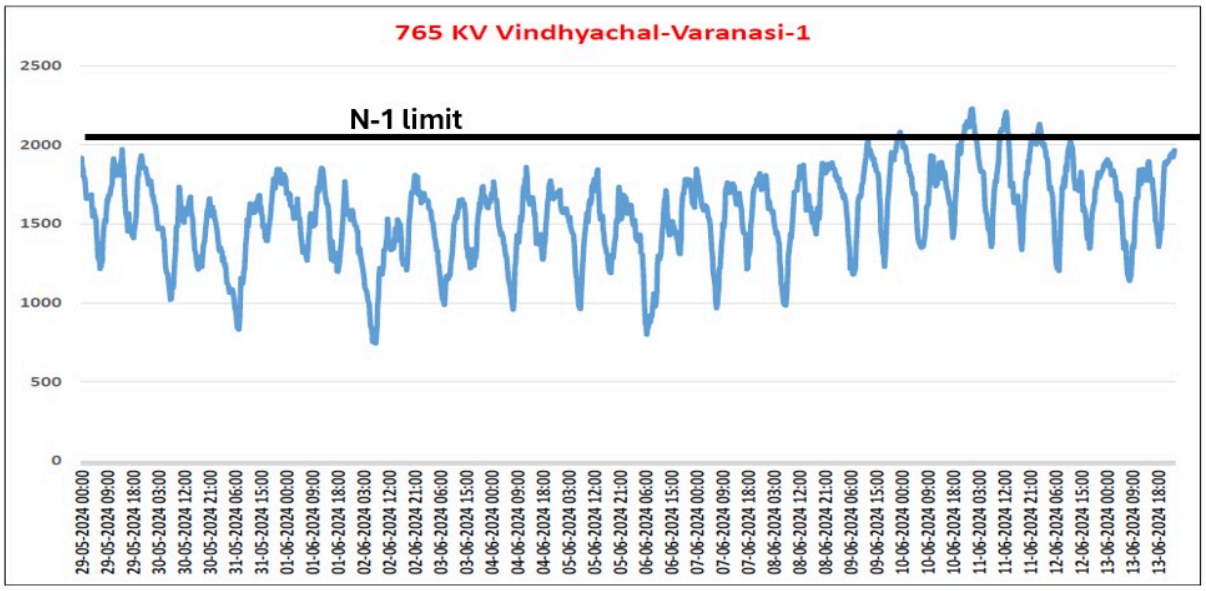
- 400kV Singrauli by 16kA (below 40kA)
- 400kV Anpara by 14kA (below 40kA)
- 400kV Anpara C by 13kA (below 40kA)
- 400kV Anpara D by 11kA (below 40kA)
- 400kV Rihand by 5kA (below 40kA)

Opening of 400kV Anpara-Singrauli would also facilitate shifting of Rihand-III generation to NR and disconnection from Vindhyachal Pool in WR. Therefore power of Rihand-III generators which is getting evacuated through Vindhyachal and again being pooled to NR through 765kV Vindhyachal-Varanasi D/C line would directly be evacuated to NR from Rihand. This shall help NR to import more power from WR-NR path and violations of WR-NR ATC and NR simultaneous import ATC could be minimised.



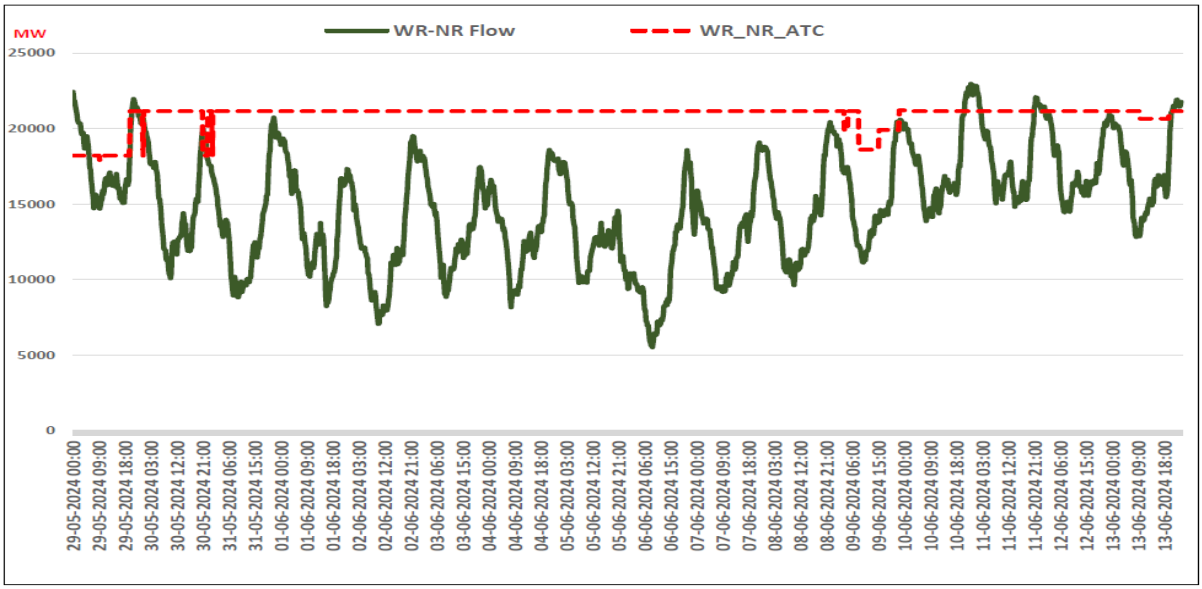
Network diagram showing power of Rihand-III evacuated to Vindhyachal Pool and again flowing to NR through 765kV Vindhyachal-Varanasi D/C lines

At the time of high demand in UP, it is being observed that the flow on WR-NR corridor is very high and issues related to high loading of 765 kV Vindhyachal – Varanasi D/C during high NR Import are being observed in real-time:



High loading, beyond N-1 limits of 765kV Vindhyachal-Varanasi D/C lines

Further, due to this high loading of 765kV Vindhyachal-Varanasi D/C, violation of WR-NR ATC and NR simultaneous import is also being observed in real-time. WR-NR ATC violations in real-time would lead to situation wherein NR states would not be able to draw further power from Western region and as a result, may need to resort to overdrawl or load shedding incase internal generation in NR is not available.



Violations of WR-NR ATC for 29.05.2024-13.06.2024

With 1000 MW generation at Rihand - III, shifting of Rihand - III to NR will result in **>250 MW** loading relief in each circuit of 765 kV Vindhyachal - Varanasi D/C. With the proposed arrangement WR-NR ATC/TTC would be enhanced by 1300MW which shall help NR states to import more power from Western region and avoid congestion on WR-NR corridor.

Sl No	Corridor	Current Declared TTC	Simulated Revised Figures			Limiting Constraints
			TTC	RM	ATC	
1	NR Import	24950	25200 **(+250)**	1400	23800	1. N-1 contingency of one ckt of 765 kV Vindhyanchal-Varanasi will overload the other circuit 2. N-1 contingency of one ckt of 2*1500 MVA 765/400 kV ICTs at Agra-PG will overload the remaining ICT
2	WR -> NR	22150	23450 **(+1300)**	1000	22450	
3	ER -> NR	6700	6700	400	6300	

Accordingly, an urgent meeting was convened on 14.06.2024 between NRLDC, NLDC, UP SLDC, UPPTCL, UPRVUN, NTPC to discuss the opening of 400kV Singrauli-Anpara line and subsequently connecting Rihand-III to Northern region.

In the meeting, it was agreed that:

1. Opening of 400kV Singrauli-Anpara line as per the decision taken in 1st NRPCTP meeting (to control high fault levels in the complex) was agreed. The above issue would also be discussed in upcoming 220 NR-OCC meeting scheduled on

19.06.2024 for any other inputs/comments from the stakeholders. After discussion at NR-OCC level, 400 kV Singrauli-Anpara line shall be opened.

2. The agenda regarding shifting of Rihand stage-III to NR by closing the bus coupler and disconnecting from WR by opening 400 KV Rihand stage-III- Vindhyachal PS-D/C shall be discussed in 220 NR-OCC as well as next WR-OCC meeting. Subsequently, the same shall be implemented.

3. Instructions will be issued to NRLDC, UP SLDC, UPPTCL, Anpara TPS, POWERGRID and NTPC to take 400kV Singrauli-Anpara in service on priority basis in case of any grid requirements.

To implement the decision of 1 NRPCTP and to enhance WR-NR ATC/TTC limits during the ongoing high demand season, OCC forum is requested to approve:

- Opening of 400kV Singrauli-Anpara line as per decision of 1NRPCTP
- Connecting Rihand-III to Northern region and disconnecting 400kV Rihand III-Vindhyachal D/C lines

OCC forum has decided to discuss this issue in the upcoming 74th Northern Regional Power Committee (NRPC) & 50th Technical Co-ordination Committee (TCC) meeting.

List of Participants 220th OCC Meeting of NRPC: 19th June 2024			
S.N.	**Organization**	**Name**	**Designation**
1	NRPC	V K Singh	Member Secretary
2		D K Meena	Superintending Engineer
3		Praveen Jangra	Executive Engineer
4		Ravi Kant	Executive Engineer
5		Vipul Kumar	AEE
6		Lokesh Agarwal	AEE
7	NRLDC	Somara Lakra	Chief General Manager
8		Akash Tomar	Deputy Manager
9		Satish Kumar	Engineer
12	APCPL	Sanjib Suar	CGM
13		Prashant Jain	AGM
14		BS Nathawat	DGM
15		Amit Hooda	Sr. Manager
16		Surender	Sr. Manager
17		Rajesh Nagrath	Manager
10	CTUIL	Narendra Sathvik Ranganth	Ch. Manager
11		Madhusudan Meena	Engineer
18	HPSLDC	Brij Lal Thakur	Managing Director
19		Rakesh Negi	Superintending Engineer
20		Rohit Kumar	AE
21	HPSEBL	Mandeep Singh	Chief Engineer
22	HPPTCL	Virender Kumar	DGM
23		Sanjeev Kumar Rawat	DGM
24	NTPC	Hitesh Rastogi	DGM
25	NHPC Ltd.	Dharmendra Kumar	DGM (E)
26		Nandkishore Bhammarkar	DM (E)
27	SJVN	Ashok Kumar	General Manager
28		Rajeev Aggarwal	DGM
29	THDC	Ganjesh Mishra	Sr. Manager (O & M)
30		Ashish Dabral	Sr. Manager (O & M)
31	BBMB	Sanjay Kumar Sekri	Addl. SE
32		Jatinder Singh	Dy. Power Controller
33	POWERGRID NR1	Vishal Roy	Sr. DGM
34	POWERGRID NR2	Rakesh Kumar Gupta	Chief Manager
35	POWERGRID NR3	Abhay Kumar Tiwari	Chief Manager
36	SLDC Rajasthan	M.P. Sharma	Executive Engineer
37		Vijay Kumar Gupta	Assistant Engineer
38	UPSLDC	Mohsin Khan	Executive Engineer
39		Sanjay Jaiswal	Executive Engineer
40	SLDC Haryana	Sushil Kumar	SE/SLDC Operation
41		Arun Kumar	AEE
42	SLDC Delhi	S.K. Sinha	AGM (T)
43	PSPCL	Sanjeevan Preet Singh Bhatti	Sr. Executive Engineer
44	Punjab SLDC	Nitish Bansal	Sr. Executive Engineer/ SLDC Operation
45	PSTCL (STU)	Rajbir Walia	Addl. SE/P&OS/PSTCL
46	SLDC Uttarakhand	Amit Kumar Singh	Superintending Engineer
47	PTCUL	H S Hyanki	Chief Engineer
48	JKPTCL Jammu	Kamal Kishore Thappa	Superintending Engineer
49	SLDC J&K	Vishal Chowhan	AEE
50	JKPTCL Kashmir	Dalbir Singh	Superintending Engineer
51	RVUN, Rajasthan	N.K. Gupta	Superintending Engineer
52	UP-STU	Pankaj Saxena	Superintending Engineer
53	DTL	B L Gujar	AGM (T)
54	UPRVUNL	D K Sharma	Chief Engineer
55	JSWHEL	Roshan Zipta	Head Operation
56	TPREL	Rajesh Pawar	Head Testing
57	PPGCL	Biplab Chatterjee	Head-Operations
58	LPGCL Lalitpur	Avinash Kumar	Vice President-Operation
59	Jhajjar Power Limited	Navin Chaturvedi	Head Electrical
60		Niraj Gupta	Head Commercial

Status of action taken on decision in 219th OCC meeting of NRPC

S.N.	Agenda	Decision of 219th OCC meeting of NRPC	Status of action taken
1	A.9 System Protection Scheme (SPS) to address Overloading of 3x315 MVA ICTs at Allahabad SS (Agenda by Powergrid NR-3)	Forum agreed that although no major issues are observed in SPS, time delay for SPS activation w.r.t. overcurrent settings of ICT need to be checked by POWERGRID. Further, as per suggestion of UP SLDC time delay in SPS logic may be explored by POWERGRID. Accordingly, the scheme may be deliberated in next OCC meeting.	POWERGRID has submitted agenda.
2	A.10 Commissioning work of Tehri PSP and its impact on operation of Tehri HPP and Koteshwar HEP (agenda by THDCIL)	Forum accorded in-principal approval for the said work subject to clearance from MoP	Shutdown taken by THDC from 02th June (06:00 hrs.)
3	A.11 Review of System Protection Scheme (SPS) at 400kV substation Obra and Nehtaur. (Agenda by UPSLDC)	Forum agreed with proposed revision in SPS. Further, with regard to NRLDC comments on implemented logic which decides priority in Nehtaur SPS and time delay to be kept, agenda may be brought by UPSLDC in next OCC meeting.	UPSLDC has submitted agenda.

Status of action taken on decision in 219th OCC meeting of NRPC

4	A.12 Request to consider Off-load 400 kV Bus Split arrangement at 400/220 kV Maharanibagh Substation (Agenda by Powergrid NR-1)	Forum was of view that a committee of members from NRLDC, CTU, DTL, HVPN and UPPTCL may be constituted under chairmanship of Superintending Engineer (Operation), NRPC that would visit 400/220 kV Maharanibagh Substation and submit its report before the next OCC meeting regarding the need to consider the Off-load 400 kV Bus Split arrangement at 400/220 kV Maharanibagh Substation.	Committee visited Maharanibagh station on 12.06.2024 and report is under finalization.
5	A.13 Low voltage at RVPN's 220 kV GSSs in the vicinity of 400 kV GSS Bhinmal (PG) - (Agenda by RVPN)	Forum was of view that since ICT-3 at Bhinmal is expected, there would be slight improvement in voltage profile of Bhinmal. Further, as agreed earlier Rajasthan SLDC may discuss with DISCOM to shift some load of Bhinmal area to night time. In case the issue is still not resolved after load shifting, the matter may be further deliberated. Meanwhile, Rajasthan may share studies done at their end with NRLDC.	RVPN informed that they have taken up the matter with DISCOM for shifting some load of Bhinmal area to night time. POWERGRID stated that ICT-3 at Bhinmal is expected by June end.

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 — May-2024
◎ HARYANA — Mar-2024
◎ HP — Feb-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — May-2024
◎ RAJASTHAN — Apr-2024
◎ UP — May-2024
◎ UTTARAKHAND — May-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 — Mar-2024
◎ HARYANA — Mar-2024
◎ HP — May-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Mar-2024
◎ RAJASTHAN — Mar-2024
◎ 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>
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<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>Apr-24</td></tr><tr><td>◎</td><td>HARYANA</td><td>Apr-24</td></tr><tr><td>◎</td><td>HP</td><td>Apr-24</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Mar-24</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Apr-24</td></tr><tr><td>◎</td><td>UP</td><td>Mar-24</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Feb-24</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 System in NR states/UT's</td><td>The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:</td><td>The status of ADMS implementation in NR is enclosed in Annexure-A.I.II.
<table><tr><td>◎</td><td>DELHI</td><td>Scheme Implemented but operated in manual mode.</td></tr><tr><td>◎</td><td>HARYANA</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>HP</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Under implementation.</td></tr><tr><td>◎</td><td>UP</td><td>Scheme implemented by NPCIL only</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Scheme not implemented</td></tr></table></td></tr>
</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 bid extension has been done till 30.05.2024.
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, 07 Nos. have been commissioned and rest are under progress. Tentative charging plan is to be intimated by Rajasthan SLDC.
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 testing which is expected to done by end of May 2024. Tentaive charging plan is to be

Annexure-A-I.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	Mar'25	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to persisting RoW issues. expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 220th OCC by JKPTCL.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	Mar'25	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. RoW issues persisting; At present new-wampoh-mirbazar 5km and harwan-alstung 16km have been completed, expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 214th OCC by JKPTCL.
				• 220 kV New Wanpoh - Mattan D/c Line	End of 2024	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	End of 2024	02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	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	Dec'24	Work in progress. Updated in 220th 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	Commissioned	Energization date: 31.05.2024 updated by HPPTCL in 220th OCC
				• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Giri S/s	-	Tendering process is yet to be started.Updated in 219th OCC by HPPTCL
				• Network to be planned for 2 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• D/C line Kadarpur - Sec-56 Gurugram.	Jul'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	Jul'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	Jul'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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	Dec'24	Updated in 216th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 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	Energization 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	15.07.2024	Updated in 220th 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	Commissioned	Energization date: 31.05.2024 updated by HVPNL in 220th OCC

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	Nov'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. 6 months more are needed due to ROW issues as updated by PSTCL in 220th OCC
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line commissioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	Commissioned	• Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL. _____ • No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Commissioned	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th OCC
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 2 bays	-	• UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years). _____ • No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
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
				• Panchkula – Pinjore 220kV D/c line	Commissioned	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 Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 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	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Sector-32 220kV D/c line	Commissioned	Energization date: 24.05.2024 updated by HVPNL in 220th OCC
				• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	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	31.07.2024	One bay is ready and another bay from Powergrid is pending it would be completed by 31.07.2024. Updated in 220th OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	31.07.2024	One bay is ready and another bay from Powergrid is pending it would be completed by 31.07.2024. Updated in 220th 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 220th OCC by HVPNL. **Status:** NIT has been floated vide NIT No. EPC-D-96 dated 15.10.23 to be opened on 22.12.23. • Now, the tender has been dropped and likely to be refloated by 31.07.2024.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	Mar'25	Updated in 220th OCC by HVPNL. **Status:** • Revised BOQ forwarded from Design wing to contract wing. • Tender has floated vide NIT No. EPC-D-100 dated 04.01.2024 with tender opening date of 26.02.2024. • Tender has been opened on 26.03.24 and 03 nos. bids has been received. The work is likely to be awarded by the 31.07.2024.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	08.03.2025	Updated in 220th OCC by HVPNL. **Status:** Contract awarded on 09.08.23 to M/s R S Infra Noida. Work has been started.
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• LILO of 220 kV S/C Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG)	06.10.2025	Work order has been issued on 06.10.2023, work under progress as updated by RVPNL in 215th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	Commissioned	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work completed , final agrrement is expected to be signed by May'24. Updated in 218th OCC by PSTCL.
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	Commissioned	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is commissioned on 20.01.2024. Updated in 217th OCC by HPPTCL.
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'25	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Tender is yet to be awarded. Timeline one year communicated by PSTCL in 220th OCC meeting

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 and based on the delibration in those meetings, SoP has been formed by the committee. MS, NRPC asked Delhi SLDC to share the logic for implementation of ADMS with NRLDC for their observation.
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 by HPSEBL 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 has been resolved. Final testing is rescheduled for 02.07.2024.
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 and order has been placed by UPCL for hardware equipments. iii. Uttarakhand SLDC informed that feeder list at 11kV level has been finalized and logic of ADMS implementation is under finalization.

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						JKPTCL, Jammu: being procured
15	HVPN						JKPTCL, Kashmir:10 tower procured (out of which 3 on loan to JKPTCL, Jammu)
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)

HARYANA VIDYUT PRASARAN NIGAM LIMITED
(Registered Office: - Shakti Bhawan, Sector-6, Panchkula)
Corporate
IdentityNumber:U40101HR1997SGC033683Website: www.hvpn.gov.in

O/o Executive Engineer, Transmission System Division, HVPNL, Kaithal
E-mail xentsktl@hvpn.org.in Tel. 01746-224456

To

Executive Engineer/LD&PC
HVPNL, Sewah Panipat.

Memo No. Ch-328/DB-4/Vol-VI Dated: 14/06/2024

Sub: Reg. 315 MVA ICT-1 Blast at POWERGRID Kaithal Substation due to tripping of 220KV HVPNL Kaithal &HVPNL Neemwala line at on dated 11.05.2024.

Please refer to your office email dated 14.06.2024 regarding reply of OCC agenda point No.-15 – Failure of 400/220/33 kV, 315 MVA ICT-1 at Kaithal on dated 11.05.2024

In this connection it is intimated that the detailed reason of various trippings of 220kv lines emanating from POWERGRID Kaithal since May 2023 is as under:-

Sr No	Name of equipment	Trip Date	Start Time	Fault Type	Fault Current(Kamp)M 1	Reason of Tripping
1	203L Kaithal-2	13.05.2023	10:27:33:798	B-G	Ib=10.16	Line triiped due to transient fault as the tree branch was fallen on 11kv feeder Sangmeshwar and rise of 11kV Conductor of 11kV Sangmeshwar Feeder came in the induction zone of B-Phase conductor (Lower side) of 220kV Kaithal-PGCIL Ckt-2 near Sangmeshwer Rice Mill on Kaithal-Chandana Road as the tree cutting work was carried out by UHBVNL, staff on dated 13.05.23 before tripping of line **Matter taken up with UHBVNL and set right the same. Further no tripping has been occurred such type of fault.**
2	210L NEEMWALA-1	18.05.2023	00:34:09:296	B-G	10.61	Line was tripped during heavy/windstorm/dust storm in which it might be possible that tripping may be occurred due to flying loose tree bushes, polythene in the environment due to high pressure/force/velocity of wind storm. It **may be the reason for tripping due to induction affect and having transient nature of fault. Line tripped instantly.**
3	211L NEEMWALA-2	18.05.2023	00:31:04:020	B-G	23.05	
4	202L CHEEKA-2	18.05.2023	00:54:10:377	YB-G	Iy=17.53,Ib=17.44	
5	210L NEEMWALA-2	24.05.2023	03:51:43:118	B-G	23.5	
6	211L NEEMWALA-1	24.05.2023	03:51:54:438	B-G	22.93	
7	210L NEEMWALA-1	05.07.2023	14:40:15:547	Y-G	4.8	This tripping occurs at 400 kV PGCIL Kaithal end only, line was intact at 220 kV Neemwala end. It means line is already in energized /charged condition from 220 kV Neemwala end and 220 kV Bus coupler is also in charged condition at 220 kV Neemwala., said tripping is due to non-activation of autorecloser at 400 kV PGCIL Kaithal. Autorecloser was not functional at PGCIL end, which was set right lateron, after updation of software of relay .
8	201L CHEEKA-1	13.10.2023	22:52:25:785	R-G	16.74	Line might be tripped due to passing of extra height paddy straw (parali) trally under the lineof Bottom side R- phase conductor due to paddy crop cutting season. It was found during patrolling that parali was spreading in surrounding area and nothing observed in the line. Line tripped instantly.
9	204L Kaithal-1	13.02.2024	04:43:21:524	B-G	4.57	220kV B-Phase LA got damaged of 220kv PGCIL Kaithal- kaithal Ckt-2 at 220kv Substation kaithal. Line tripped instantly.
10	205 Kaithal-2	13.02.2024	04:43:22:023	B-G	4.66	
11	204 Kaithal-1	11.05.2024	00:51:10:818	B-G	First fault-20.41/second fault	Fault Occurred in CKt-1 OPGW Broken between tower location 52- 53 near 400KV PGCIL. Line tripped instantly.
12	210L NEEMWALA-2	11.05.2024	00:51:06:827	B-G	First fault-24/second fault23	The line tripped at 400kV PGCIL end and energized at PGCIL Kaithal.

In addition to above remarks some other facts are also need to be mentioned as detailed below –

- All the line DPRs protection are healthy and tripped the breaker within milliseconds of time due to permanent fault as well as transient fault.
- No frequent tripping of 220kV PGCIL Kaithal-Kaithal ckt-2 occurred after 13.05.2023 ; of time span of 8 months during windstorm, foggy season, rain also as the next tripping of this line occurred on dated 13.02.2024 due to damage of 220kV LA at 220kV S/Stn. Kaithal end.
- 220kV PGCIL Kaithal-Kaithal ckt-I previously tripped on 13.02.2024 due to damage of LA of PGCIL-Kaithal Ckt-2of time span after 8 months. No any tripping occurred during windstorm, foggy season, rain also.
- No frequent tripping of 220kV PGCIL Kaithal-Neemwala ckt-I occurred after 24.05.2023 ; of time span of 12 months upto 01.06.20204 during windstorm, foggy season, rain also. No fault in the line
- No frequent tripping of 220kV PGCIL Kaithal-Neemwala ckt-2 occurred after 24.05.2023 ; of time span of 12 months upto 01.06.20204 during windstorm, foggy season, rain also. No fault in the line
- No frequent tripping of 220kV PGCIL Kaithal-Cheeka ckt-2 occurred after 18.05.2023 ; of time span of 12 months and 26 days to till date during windstorm, foggy season, rain also. No fault in the line. Before this, previous tripping occurred on dated 19.12.2022 within time gap of 5 months, due to punctured of B-Phase disc insulator at TL -88.
- No frequent tripping of 220kV PGCIL Kaithal-Cheeka ckt-I occurred after 13.10.2023 ; of time span of 08 months during windstorm, foggy season, rain also. No fault in the line
- **Transient fault**:- Line was tripped during heavy/windstorm/dust storm in which it might be possible that tripping may be occurred due to flying loose tree bushes, polythene in the environment due to high pressure/force/velocity of wind storm. Act of GOD is beyond the reach of human.
- ***All the lines were patrolled thoroughly and no try was taken on the persisting permanent fault/dead fault of the line. After assurance of fully clearance of the line, required process for energization of the line initiated.***
- Trippings of the transmission line/system cannot be avoided during occurrence of permanent nature of fault i.e. broken of conductor, damage of LA,CTs etc.
- Maintenance of line carried out timely i.e. as per Nigam schedule like Half yearly mtc., Pre-monsoon mtc., Pre- winter mtc., Hotline Mtc. Night patrolling of all the lines carried out and hot spot observed if any, attended on immediate basis to avoid any unnecessary tripping/breakdown of lines.
- Lines and ICTs protection are provided with separate protection to protect the line faults and ICTs faults. There are various sensitive numerical relay protection at line/Incomer/Transformer element.The main function of the protection system to isolate the system during fault, not to damage the equipment.
- **It is also gathered that Autorecloser function is also disabled after dated 11.05.2024 from 400 kV PGCIL end of all 220 kV emanating lines, 220 kV PGCIL- Kaithal Ckt-1 and Ckt-2, 220 kV PGCIL-Cheeka Ckt-1 and Ckt-2, 220 kV PGCIL- Neemwala Ckt-1 and Ckt-2 for precautionary measure. But it need to be activated to avoid unnecessary trippings.**
- ***There are 03 nos. ICTs of 315 MVA, 400/220 kV capacity installed at 400 kV PGCIL Kaithal which are running in parallel. But fault created in ICT -1 on dated 11.05.2024 despite of instant trippings of lines, this seems to be that ICT-1 got failed due to its internal faults otherwise fault may be travelled in B-phase of other two ICTs.***

So, in view of above, it seems to be that above ICT-1 315 MVA at 400 kV PGCIL Kaithal got blasted due to internal faults, it may not be relate to particular trippings of lines of HVPNL.

This is submitted for your kind information and necessary action please.

Executive Engineer, TS Divn,
HVPNL, Kaithal

CC to:

1. The CE/TS HVPNL Panchkula for kind information please.
2. The CE/SO & Comml HVPNL Panchkula for kind information please.
3. The SE/TS HVPNL Karnal for kind information please.
4. The SE/SLDC Operation HVPNL Panchkula for kind information please.
5. The DGM, 400 kV PGCIL Kaithal in reference of his letter no. –N2KTL/SS/UHBVN/2024-25 dated b11.05.2024 for kind information please.

Status of perfomance indices report of April 2024		
S. No.	**Utility**	**Status of Protection Performance indices**
1	PGCIL	Received (NR-2,3)
2	NTPC	Not Recevied
3	BBMB	Received (Transmission)
4	THDC	Received
5	SJVN	Received (RHPS)
6	NHPC	Received
7	NPCIL	Received from RAP (1-8) , NAP (1-2)
8	DTL	Received
9	HVPNL	Received
10	RRVPNL	Received
11	UPPTCL	Received combinedly
12	PTCUL	Received
13	PSTCL	Received
14	HPPTCL	Received
15	IPGCL	Not Recevied
16	HPGCL	Not Recevied
17	RRVUNL	Received
18	UPRVUNL	Received from DTPS Anpara
19	UJVNL	Received (Khodri, chibro, vyasi, Dharasu)
20	HPPCL	Not Recevied
21	PSPCL	Not Recevied
22	HPSEBL	Not Recevied
23	Prayagraj Power Generation Co. Ltd.	Received
24	Aravali Power Company Pvt. Ltd	Received
25	Apraava Energy Private Limited	Received
26	Talwandi Sabo Power Ltd.	Not Recevied
27	Nabha Power Limited	Received
28	Lanco Anpara Power Ltd	Not Recevied
29	Rosa Power Supply Company Ltd	Received
30	Lalitpur Power Generation Company Ltd	Received
31	MEJA Urja Nigam Ltd.	Not Recevied
32	Adani Power Rajasthan Limited	Received (Kawai)
33	JSW Energy Ltd. (KWHEP)	Not Recevied
34	AESL	Received
35	Tata Power Renewable Energy Ltd.	Received
36	UT of J&K	Recevied (Udhampur, Ramban, Bishnah, Budgam, Alusteng, Harwan, Glandi, Chowdi)
37	UT of Ladakh	Not Recevied
38	UT of Chandigarh	Not Recevied
39	ATIL, BKTL, FBTL	Not Recevied
40	INDIGRID	Received
41	POWERLINK	Not Recevied
42	ADHPL	Received
43	Sekura Energy Limited	Not Recevied
44	WUPPTCL	Received
45	SEUPPTCL	Received
46	Vishnuprayag Hydro Electric Plant (J.P.)	Received
47	Alaknanda Hydro Electric Plant (GVK)	Not Recevied

Status of perfomance indices report of May 2024		
S. No.	**Utility**	**Status of Protection Performance indices**
1	PGCIL	Received (NR-2)
2	NTPC	Recevied (Unchahar, Tanda, Rihand)
3	BBMB	Received (Transmission)
4	THDC	Recevied (Tehri, Koteshwar HEP)
5	SJVN	Recevied (RHPS)
6	NHPC	Recevied
7	NPCIL	Recevied (RAP- 1-6), NAP (1-2)
8	DTL	Recevied
9	HVPNL	Recevied
10	RRVPNL	Not Recevied
11	UPPTCL	Recevied
12	PTCUL	Recevied
13	PSTCL	Recevied
14	HPPTCL	Recevied
15	IPGCL	Not Recevied
16	HPGCL	Not Recevied
17	RRVUNL	Recevied
18	UPRVUNL	Recevied (DTPS-Anpara)
19	UJVNL	Received (Dharshu, Uttrakashi, Khodri, chibro, Vyasi)
20	HPPCL	Not Recevied
21	PSPCL	Not Recevied
22	HPSEBL	Not Recevied
23	Prayagraj Power Generation Co. Ltd.	Not Recevied
24	Aravali Power Company Pvt. Ltd	Recevied
25	Apraava Energy Private Limited	Recevied
26	Talwandi Sabo Power Ltd.	Not Recevied
27	Nabha Power Limited	Recevied
28	Lanco Anpara Power Ltd	Not Recevied
29	Rosa Power Supply Company Ltd	Recevied
30	Lalitpur Power Generation Company Ltd	Recevied
31	MEJA Urja Nigam Ltd.	Not Recevied
32	Adani Power Rajasthan Limited	Received (Kawai)
33	JSW Energy Ltd. (KWHEP)	Not Recevied
34	AESL	Not Recevied
35	Tata Power Renewable Energy Ltd.	Recevied
36	UT of J&K	Not Recevied
37	UT of Ladakh	Not Recevied
38	UT of Chandigarh	Not Recevied
39	ATIL, BKTL, FBTL	Recevied (ATIL)
40	INDIGRID	Recevied
41	POWERLINK	Not Recevied
42	ADHPL	Recevied
43	Sekura Energy Limited	Not Recevied
44	WUPPTCL	Recevied
45	SEUPPTCL	Not Recevied
46	Vishnuprayag Hydro Electric Plant (J.P.)	Not Recevied
47	Alaknanda Hydro Electric Plant (GVK)	Not Recevied

Status of Protection Audit Plan for FY 2024 -25

S. No.	NRPC Member	Category	Status
1	PGCIL	Central Government owned Transmission Company	Received (NR-1,3)
2	NTPC	Central Generating Company	Received
3	BBMB		Received
4	THDC		Received
5	SJVN		
6	NHPC		Received
7	NPCIL		
8	DTL	State Transmission Utility	Received
9	HVPNL		Received
10	RRVPNL		
11	UPPTCL		Received for Jhansi, Lucknow, Meerut zone
12	PTCUL		Received
13	PSTCL		
14	HPPTCL		Received
15	IPGCL	State Generating Company	
16	HPGCL		
17	RRVUNL		Received
18	UPRVUNL		
19	UJVNL		
20	HPPCL		
21	PSPCL	State Generating Company & State owned Distribution Company	
22	HPSEBL	Distribution company having Transmission connectivity ownership	
23	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	Received
24	Aravali Power Company Pvt. Ltd		
25	Apraava Energy Private Limited		Received
26	Talwandi Sabo Power Ltd.		
27	Nabha Power Limited		
28	Lanco Anpara Power Ltd		
29	Rosa Power Supply Company Ltd		
30	Lalitpur Power Generation Company Ltd		Received
31	MEJA Urja Nigam Ltd.		
32	Adani Power Rajasthan Limited		Received (Kawai)
33	JSW Energy Ltd. (KWHEP)		
34	AESL	Other Transmission licensee	
35	Tata Power Renewable Energy Ltd.	IPP having less than 1000 MW installed capacity (alphabetical rotaional basis)	
36	UT of J&K	UT of Northern Region	
37	UT of Ladakh		
38	UT of Chandigarh		
39	ATIL	Other transmission licensee in NR	
40	INDIGRID		Received
41	POWERLINK		
42	ADHPL		Received
43	Sekura Energy Limited		
44	WUPPTCl	Other transmission licensee in UP	
45	SEUPPTCL	Other transmission licensee in UP	
46	Vishnuprayag Hydro Electric Plant (J.P.)	Other Generating Units in UP	
47	Alaknanda Hydro Electric Plant (GVK)	Other Generating Units in UP	

Status of 3rd Party Protection Audit Plan

S. No.	NRPC Member	Category	Status	Schedule submitted as per utililty	Present Status Comlpeted (yes/no)
1	PGCIL	Central Government owned Transmission Company			
2	NTPC	Central Generating Company	Received (Tanda)	By 17.07.2025	
3	BBMB				
4	THDC				
5	SJVN				
6	NHPC		Received	FY-2025-26	
7	NPCIL				
8	DTL	State Transmission Utility			
9	HVPNL				
10	RRVPNL				
11	UPPTCL				
12	PTCUL				
13	PSTCL				
14	HPPTCL				
15	IPGCL	State Generating Company			
16	HPGCL				
17	RRVUNL				
18	UPRVUNL		Received (DTPS-Anpara)	01.05.2024	
19	UJVNL				
20	HPPCL				
21	PSPCL	State Generating Company & State owned Distribution Company			
22	HPSEBL	Distribution company having Transmission connectivity ownership			
23	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity			
24	Aravali Power Company Pvt. Ltd				
25	Apraava Energy Private Limited		Received	By May, 2025	
26	Talwandi Sabo Power Ltd.				
27	Nabha Power Limited				
28	Lanco Anpara Power Ltd				
29	Rosa Power Supply Company Ltd		Received	By 30.09.2024	
30	Lalitpur Power Generation Company Ltd				
31	MEJA Urja Nigam Ltd.				
32	Adani Power Rajasthan Limited		Received (Kawai)	September, 2024	
33	JSW Energy Ltd. (KWHEP)				
34	AESL	Other Transmission licensee			
35	Tata Power Renewable Energy Ltd.	IPP having less than 1000 MW installed capacity (alphabetical rotaional basis)			
36	UT of J&K	UT of Northern Region			
37	UT of Ladakh				
38	UT of Chandigarh				
39	ATIL	Other transmission licensee in NR			
40	INDIGRID				
41	POWERLINK				
42	ADHPL		Received	30.09.2024	
43	Sekura Energy Limited				
44	WUPPTCI	Other transmission licensee in UP	Received	*2024-25	
45	SEUPPTCL	Other transmission licensee in UP			
46	Vishnuprayag Hydro Electric Plant (J.P.)	Other Generating Units in UP			
47	Alaknanda Hydro Electric Plant (GVK)	Other Generating Units in UP			

* Revised Schedule

SPS for 400/220KV ICTs at 400KV Muktsar Substation, PSTCL	
Reporting Party	PSTCL/Punjab
Scheme's Name	SPS for 400/220 KV ICTs at 400KV Muktsar Substation, PSTCL
Classification	SPS related to overloading of remaining ICTs after tripping of 500MVA ICT at 400KV Muktsar Substation, PSTCL
Reference No.	NRLDC report dated 24-05-2024 regarding Punjab's ATC/TTC limits
Design Objective	To avoid overloading of remaining 2 no. 315MVA ICTs due to tripping of 500MVA ICT
Operation	During tripping of 400/220kV 500MVA ICT
Modelling	**400/220kV ICT Details at 400kV Muktsar:** 2 x 315MVA + 1 x 500MVA = 1130 MVA **220kV Transmission Lines at 400kV Muktsar:** 1. 220kV Muktsar-Abohar Ckt-1 2. 220kV Muktsar-Abohar Ckt-2 3. 220kV Muktsar-Ghubaya Ckt-1 4. 220kV Muktsar-Ghubaya Ckt-2 5. 220kV Muktsar-Katorewala Ckt 6. 220 Muktsar-Sandhwan Ckt **N-1 Contigency:** During tripping of 400/220KV 500MVA ICT at 400KV PSTCL Muktsar, the following feeders shall also be tripped automatically, to provide relief to the remaining 2 no. 400/220KV 315MVA ICTs at 400KV Substation Muktsar (PSTCL): **Feeder details for tripping during SPS operation** **Case 1.** After tripping of 400/220KV 500MVA ICT, 220kV Muktsar-Sandhwan Ckt will be disconnected if loading at remaining ICTs is more than **95% for 5 sec** **Case 2.** After tripping of 400/220KV 500MVA ICT, 220kV Muktsar-Sandhwan Ckt & 220kV Muktsar-Katorewala Ckt will be disconnected if loading at remaining ICTs is more than **100% for 8 sec** **NOTE: No load shedding shall be done during implementation of this SPS**
In-Service Period	Will be implemented at site after approval of the OCC Forum

Tentative Loading Scenario of 400/220 KV ICTs at 400KV Muktsar Substation, PSTCL				
Sr. No.	**Normal Loading on 3 no. ICTs**	**Loading on 2 no. 315MVA ICTs during N-1 Contingency**	**Loading after tripping of 220kV Muktsar-Sandhwan Ckt**	**Loading after tripping of 220kV Muktsar-Katorewala Ckt**
1	**~ 70%**	**~ 100-107%**	**~ 95-100%**	**~ 85-90%**

उत्तरप्रदेशराज्य भारप्रेषणकेन्द्रलि०
यू0पी0एस0एल0डी0सी0परिसर, विभूति
खण्ड–।।,गोमतीनगर, लखनऊ–226010
ई–मेल : sera@upsldc.org

U.P. State Load Despatch Centre Ltd.
UPSLDC Complex, Vibhuti Khand – II
Gomti Nagar, Lucknow- 226010
E-mail:sera@upsldc.org

No: **2003** /SE(R&A)/EE-II/ SPS Dated: - **14.06.** 2024

SE (Operations), 18 – A SJSS Marg,
Katwaria Sarai, New Delhi,
110016. (seo-nrpc@nic.in)

Subject: - Additional Agenda on review of System Protection Scheme (SPS) at 400kV substation Obra and Nehtaur.

It is to inform that UPSLDC has reviewed the SPS scheme installed at 400kV S/S Obra and Nehtaur. Based on review, UPSLDC proposed some changes in the settings and logic of aforementioned schemes and the same was discussed in 219th OCC meeting of NRPC. In the meeting UPSLDC was requested to coordinate SPS operation delay with the Overcurrent Settings of ICTs at 400 kV Substations Obra and Nehtaur. In view of above, UPSLDC again proposes revised SPS at 400 kV Substations Obra and Nehtaur along with Overcurrent Settings of ICTs.

Revised and existing SPS scheme of both the substations is enclosed for inclusion in the agenda of 220th OCC meeting of NRPC, so that the same may be discussed and approved.

Enclosure: As above

(Amit Narain)
Superintending Engineer (R&A)

No: /SE(R&A)/EE-II/ SPS Dated: - 2024

Copy forwarded to via e-mail following for information and necessary action:-

1. Chief Engineer (PSO), UPSLDC Vibhuti Khand – II, Gomti Nagar, Lucknow.
2. Chief General Manager, (Obra) Thermal Power Station, Obra, Sonbhadra Pin code-231219.
3. General Manager, NRLDC 18-A, SJSS Marg, Katwaria Sarai, New Delhi–110016.
4. Superintending Engineer (System Control), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.
5. M/s Western UPPTCL400/220/33kV Substation, Kalapathar, Indirapuram, Ghaziabad, Uttar Pradesh- 201014 (wupptcl.ro@gmail.com).

(Amit Narain)
Superintending Engineer (R&A)

Revised Logic for proposed SPS (System Protection Scheme) for ICTs at 400 kV substation Nehtaur and load relief

Name of Substation	ICT Rating	Tripping Logic -I			Tripping Logic -II		
		%setting	Time Delay	Priority of feeder for load cut off	%setting	Time Delay	Priority of feeder for load cut off
400 kV substation Nehtaur	200 MVA ICT -I	100-110% of rated current	5 sec	1. 132 kV Nagina 2.132 kV Kiratpur 3 132 kV Morna 4 132 kV Chandpur	Above 110% of rated current	1500 msec	1. 132 kV Nagina 2.132 kV Kiratpur 3 132 kV Morna 4 132 kV Chandpur
	200 MVA ICT -II	100-110% of rated current	5 sec		Above 110% of rated current	1500 msec	
	200 MVA ICT -III	100-110% of rated current	5 sec		Above 110% of rated current	1500 msec	

Sl.No.	Load relief	
1	132kV Nagina feeder	36 MW
2	132kV Kiratpur feeder	33 MW
3	132kV Morna feeder	11MW
4	132kV Chandpur feeder	52MW

Pick up value (115) as % of full load current- NEHTAUR SPS	
Fault current with respect to full load (FL) current	OC trip time (in Sec)
105% of FL	-
110% of FL	-
120% of FL	40.406
130% of FL	12.618
150% of FL	5.650
200% of FL	2.672

o/c

Existing Approved Logic for proposed SPS (System Protection Scheme) for ICTs at 400 kV substation Nehtaur and load relief

Name of Substation	ICT Rating	Tripping Logic -I			Tripping Logic -II			Tripping Logic –III (Applicable when one of the 200 MVA ICT trip)		
		%setting	Time Delay	Priority of feeder for load cut off	%setting	Time Delay	Action	%setting	Time Delay	Action
400 kV substation Nehtaur	200 MVA ICT -I	Above 100% of rated current	5 sec	1. 132 kV Nagina 2.132 kV Kiratpur	Above 110% of rated current	Instantaneous	132 kV Nagina and 132 kV Kiratpur shall trip simultaneously	Above 55% of rated current prior to tripping of 200 MVA ICT	Instantaneous	132 kV Kiratpur, Morna, Chandpur and Nagina shall trip simultaneously
	200 MVA ICT -II	Above 100% of rated current	5 sec		Above 110% of rated current	Instantaneous		Above 55% of rated current prior to tripping of 200 MVA ICT	Instantaneous	

Note- 1-SPS shall operate if any one of the condition is met that is logic mentioned above is OR.

2- In Tripping logic III, pre disturbance loading has been used for actuation of SPS in order to avoid inherent time taken by SPS . SPS shall operate instantaneously if predisturbance loading is above 55 % AND any one of the 200 MVA ICT gets tripped.

Sl.No.	Load relief	
1	132kV Nagina feeder	36 MW
2	132kV Kiratpur feeder	33 MW
3	132kV Morna feeder	11MW
4	132kV Chandpur feeder	52MW

O/C

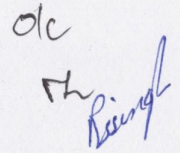
Existing Approved Logic for proposed SPS (System Protection Scheme) for ICTs at Obra TPS and load relief

Name of Substation	ICT Rating	Tripping Logic -I			Tripping Logic -II			Tripping Logic –III (Applicable when one of the 315 MVA ICT trip)		
		%setting	Time Delay	Priority of feeder for load cut off	%setting	Time Delay	Priority of feeder for load cut off	%setting	Time Delay	Action
400kV Obra TPS	315 MVA ICT -I	Above 95% of rated current	5 sec for Group 1. 2 min for Group 2	Group 1. 220 kV Obra-Rewa Road ckt 1 &2 Group 2. 220 kV Obra-Mirzapur line	Above 105% of rated current	Instantaneous	220 kV Obra-Rewa Road ckt 1 &2 and 220 kV Obra- Mirzapur lines trip simultaneously	Above 70% of rated current prior to tripping	Instantaneous	220 kV Obra-Rewa Road ckt 1 &2 and 220 kV Obra-Mirzapur lines trip simultaneously
	315 MVA ICT -II	Above 95% of rated current	5 sec for Group 1. 2 min for Group 2		Above 105% of rated current	Instantaneous		Above 70% of rated current prior to tripping of 315 MVA ICT	Instantaneous	
	240 MVA ICT -III	Above 95% of rated current	5 sec for Group 1. 2 min for Group 2		Above 105% of rated current	Instantaneous		Above 70% of rated current prior to tripping of 315 MVA ICT	Instantaneous	

Note- 1-SPS shall operate if any one of the condition is met that is logic mentioned above is OR.

2- In Tripping logic III, pre disturbance loading has been used for actuation of SPS in order to avoid inherent time taken by SPS . SPS shall operate instantaneously if predisturbance loading is above 70 % AND any one of the 315 MVA ICT gets tripped.

Load relief :		
Group 1	220 kV Obra-Rewa Road ckt 1	50 MW
	220 kV Obra-Rewa Road ckt 2	50 MW
Group 2	220 kV Obra- Mirzapur line	150 MW



Revised Logic for SPS (System Protection Scheme) for ICTs at Obra TPS and load relief

Name of Substation	ICT Rating	Tripping Logic -I			Tripping Logic -II		
		%setting	Time Delay	Priority of feeder for load cut	%setting	Time Delay	Priority of feeder for load cut off
400kV Obra TPS	315 MVA ICT -I	95-105 % of rated current	5 sec for Group 1. 2 min for Group 2	**Group 1.** 220 kV Obra-Rewa Road ckt 1 &2 simultaneously **Group 2.** 220 kV Obra-Mirzapur line	Above 105% of rated current	1500 msec	**1.**220 kV Obra-Rewa Road ckt 1 &2 simultaneously **2.**220 kV Obra- Mirzapur lines trip
	315 MVA ICT -II	95-105 % of rated current	5 sec for Group 1. 2 min for Group 2		Above 105% of rated current	1500 msec	
	240 MVA ICT -III	95-105 % of rated current	5 sec for Group 1. 2 min for Group 2		Above 105% of rated current	1500 msec	

Load relief :			Pick up value (110 %) as % of full load current- ICTs at 5X200MW BTPS OBRA	
Group 1	220 kV Obra-Rewa Road ckt 1	50 MW	Fault current with respect to full load (FL) current	OC trip time (in Sec)
	220 kV Obra-Rewa Road ckt 2	50 MW		
Group 2	220 kV Obra- Mirzapur line	150 MW	110% of FL	18.11
			120% of FL	9.47
			130% of FL	6.58
			150% of FL	4.25
			200% of FL	2.49

o/c

उत्तरप्रदेशराज्य भारप्रेषणकेन्द्रलि०
यू0पी0एस0एल0डी0सी0परिसर, विभूति
खण्ड–।।,गोमतीनगर, लखनऊ–226010
ई–मेल : sera@upsldc.org

U.P. State Load Despatch Centre Ltd.
UPSLDC Complex, Vibhuti Khand – II
Gomti Nagar, Lucknow- 226010
E-mail:sera@upsldc.org

No: **2034** /SE(R&A)/EE-II/ SPS Dated: - **15.06.** 2024

SE (Operations), NRPC
18 – A SJSS Marg,
Katwaria Sarai, New Delhi,
110016. (seo-nrpc@nic.in)

Subject: - Additional Agenda for approval of Proposed System Protection Scheme (SPS) at 400kV substation Jaunpur.

It is to inform that 2X315 MVA ICT at 400 kV substation Jaunpur is not N-1 compliant. In order to ensure the reliability of said substation during peak demand, System Protection Scheme is required. Proposed Logic for SPS of 2X315 MVA ICT at 400 kV substation Jaunpur is enclosed.

It is requested to kindly include Proposed SPS logic as an agenda of 220th OCC meeting of NRPC, so that the same may be discussed and approved.

Enclosure: As above

(Amit Narain)
Superintending Engineer (R&A)

No: /SE(R&A)/EE-II/ SPS Dated: - 2024

Copy forwarded to via e-mail following for information and necessary action:-

1. Director (Operation), UPPTCL, 11th Floor, Shakti BhawanExtn.,Lucknow.
2. Chief Engineer (PSO), UPSLDC Vibhuti Khand – II, Gomti Nagar, Lucknow.
3. Chief Engineer (Trans. South - East), U.P. Power Transmission Corporation Ltd., 57, George Town, Prayagraj - 211003.
4. General Manager, NRLDC 18-A, SJSS Marg, Katwaria Sarai, New Delhi–110016.
5. Superintending Engineer (System Control), UPSLDC, Vibhuti Khand – II, Gomti Nagar, Lucknow.

(Amit Narain)
Superintending Engineer (R&A)

Logic for proposed SPS (System Protection Scheme) for ICTs at 400kV Substation Jaunpur

Name of Substation	ICT Rating	Tripping Logic-I			Tripping Logic-II		
		% Setting	Time Delay	Priority of feeder for load cut off	% Setting	Time Delay	Priority of feeder for load cut off
400kV Substation Jaunpur	315MVA ICT- I	100-110% of rated current	5 sec	1. 132kV Machhalishahar 2. 132kV Mungrabadshahpur 3. 220kV Bhadohi 4. 220kV Azamgarh(II)	Above 110% of rated current	1500 msec	1. 132kV Machhalishahar 2. 132kV Mungrabadshahpur 3. 220kV Bhadohi 4. 220kV Azamgarh(II)
	315MVA ICT- II	100-110% of rated current	5 sec	1. 132kV Machhalishahar 2. 132kV Mungrabadshahpur 3. 220kV Bhadohi 4. 220kV Azamgarh(II)	Above 110% of rated current	1500 msec	1. 132kV Machhalishahar 2. 132kV Mungrabadshahpur 3. 220kV Bhadohi 4. 220kV Azamgarh(II)

Note-132kV Machhalishahar and 132kV Mungrabadshahpur is likely to be charged in 15 days

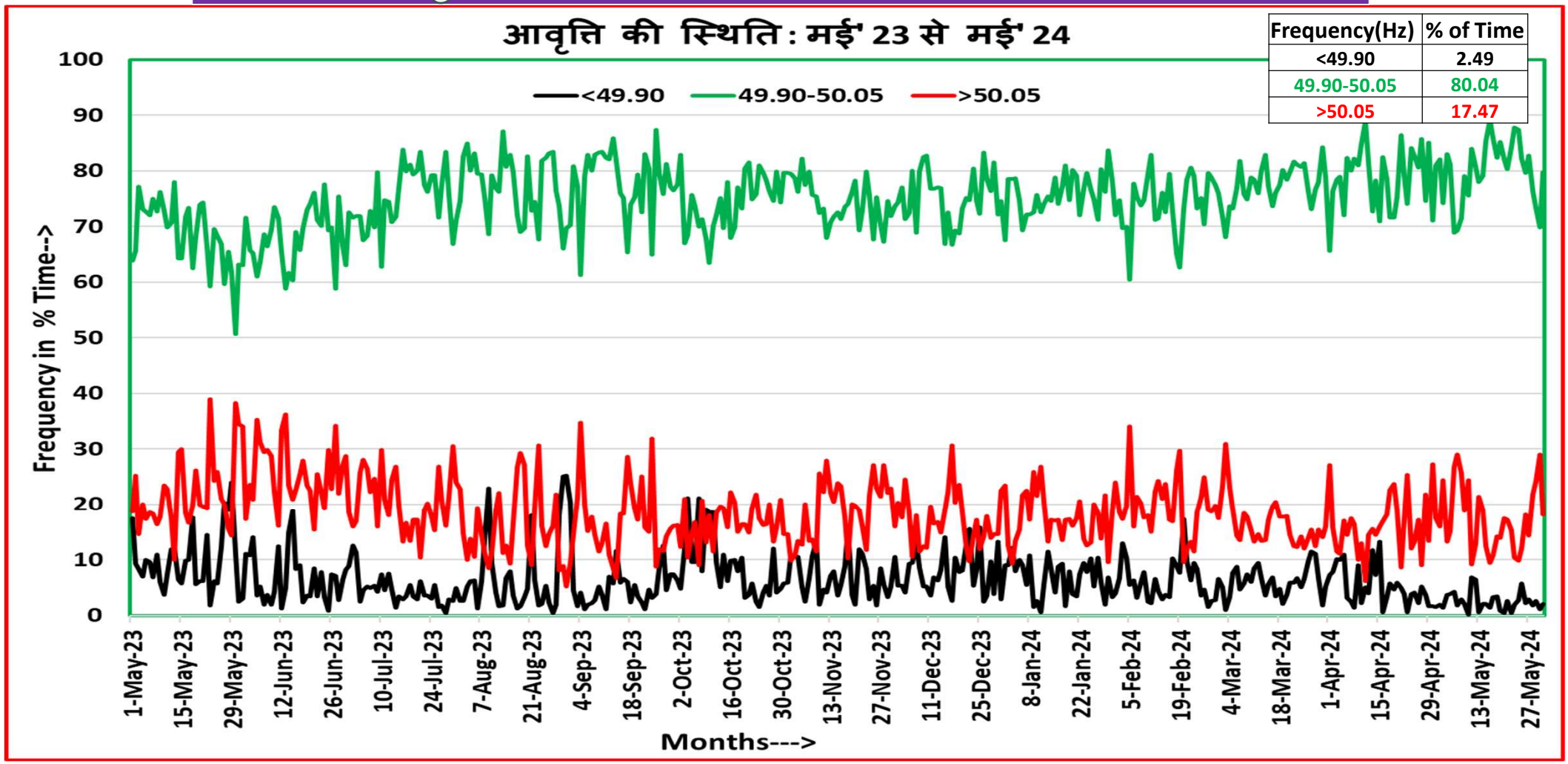
Overcurrent setting of ICTs at Jaunpur

Fault current with respect to full load (FL) current	OC trip time (in Sec)
100% of FL	Pickup
105% of FL	43.02346548
110% of FL	22.01532991
120% of FL	11.50012415
130% of FL	7.986157208
150% of FL	5.161265654

O/c

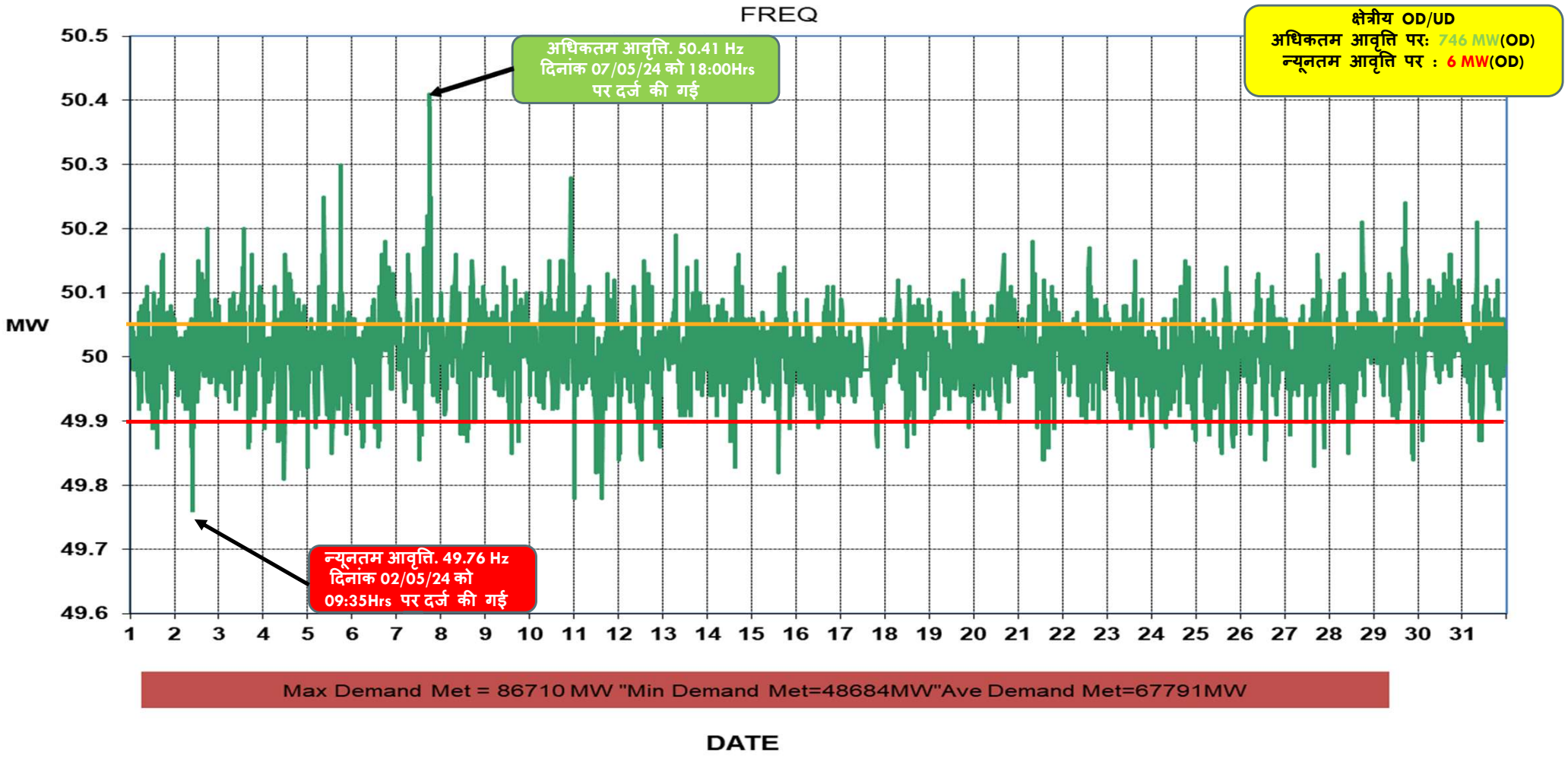
प्रचालन समन्वय उपसमिति की बैठक
मई- 2024

आवृत्ति की स्थिति: मई -2023 से 2024



Frequency(Hz)	% of Time
<49.90	2.49
49.90-50.05	80.04
>50.05	17.47

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



पिछले एक साल मे आवृत्ति की स्थिति

आवृत्ति बैंड	मई 2023	जून 2023	जुलाई 2023	अगस्त 2023	सितम्बर 2023	अक्टूबर 2023	नवम्बर 2023	दिसंबर 2023	जनवरी 2024	फ़रवरी 2024	मार्च 2024	अप्रैल 2024	मई 2024
< 49.7 Hz(%)	0.24	0.22	0.09	0.47	0.11	0.53	0.10	0.17	0.12	0.095	0.065	0.030	0.000
<49.8 Hz(%)	1.48	0.86	0.66	1.63	0.57	1.99	0.96	1.40	0.92	0.797	0.479	0.432	0.059
<49.9 Hz(%)	9.83	8.42	4.60	7.11	5.21	8.87	6.83	7.83	6.80	6.239	6.022	5.254	2.490
49.90-50.05 Hz(%)	*68.48*	*67.83*	*74.96*	*77.25*	*77.86*	*74.42*	*74.36*	*75.21*	*75.83*	*74.06*	**77.51**	**78.56**	**80.045**
50.05-50.10 Hz(%)	13.25	15.59	15.64	13.28	13.32	13.53	13.74	10.47	11.91	14.118	12.262	11.178	13.839
>50.10 Hz(%)	8.44	8.15	4.79	2.35	3.61	3.18	5.06	6.49	5.47	5.581	4.204	5.010	3.627
>50.20 Hz(%)	0.77	1.09	0.80	0.23	0.32	0.14	0.66	0.53	0.41	0.565	0.657	0.539	0.285
औसत आवृत्ति	49.99	50.01	50.01	50.00	50.00	49.99	50.00	49.99	49.99	50.00	50.00	50.00	50.00

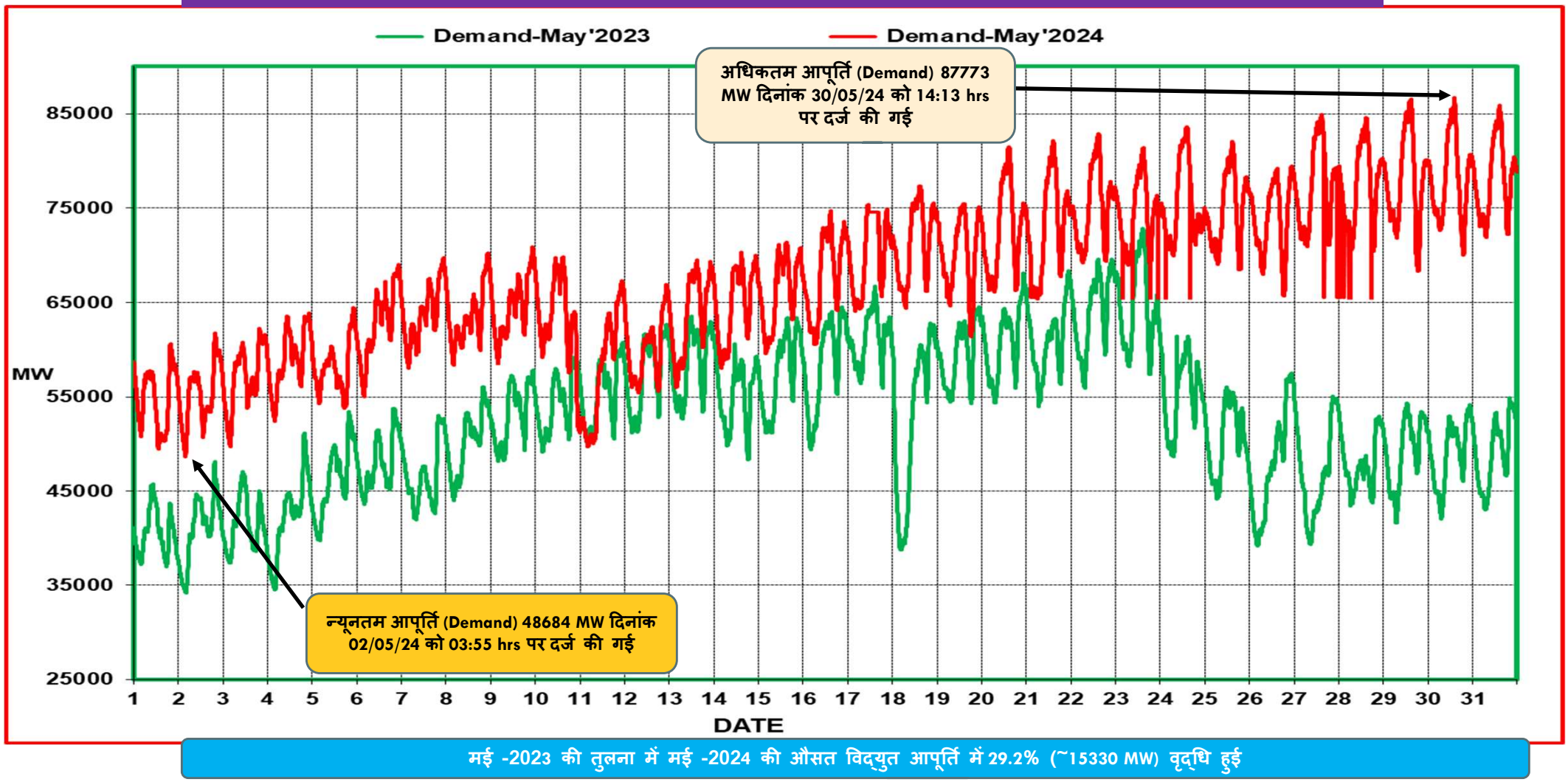
मई-2024 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

ग्रिड-इंडिया GRID-INDIA

राज्य	अधिकतम मांग (MW) (in May'24)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Apr'24)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in May'24)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Apr'23)	दिनांक
पंजाब	14519	20.05.24 at 15:15	15293	24.06.23 को 11:45 बजे	288.6	23.05.2024	344.1	24.06.2023
हरियाणा	12336	24.05.24 at 15:00	12768	28.06.22 को 11:56 बजे	259.6	31.05.2024	273.1	18.08.2023
राजस्थान	17460	30.05.24 at 12:00	17949	20.01.24 को 11:00 बजे	379.1	30.05.2024	371.6	04.09.2023
दिल्ली	8302	29.05.24 at 15:36	7695	29.06.22 को 15:10 बजे	163.8	31.05.2024	153.5	28.06.2022
उत्तर प्रदेश	29727	31.05.24 at 21:45	28284	24.07.23 को 21:43 बजे	642.3	27.05.2024	580	03.09.2023
उत्तराखंड	2781	29.05.24 at 21:00	2594	14.06.22 को 21:00 बजे	60.7	31.05.2024	56.2	17.06.2023
हिमाचल प्रदेश	1827	31.05.24 at 10:00	2235	20.01.24 को 07:00 बजे	39.2	30.05.2024	39.29	24.01.2024
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	2750	05.05.24 at 21:00	3107	12.01.24 को 20:00 बजे	56.6	20.05.2024	66.8	26.01.2024
चंडीगढ़	432	30.05.24 at 14:00	426	08.07.21 को 15:00 बजे	8.6	30.05.2024	8.4	08.07.2021
उत्तरी क्षेत्र #	86773	30.05.24 at 14:13	81048	04.09.23 को 14:50 बजे	1882.1	29.05.2024	1792.7	04.09.2023

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

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

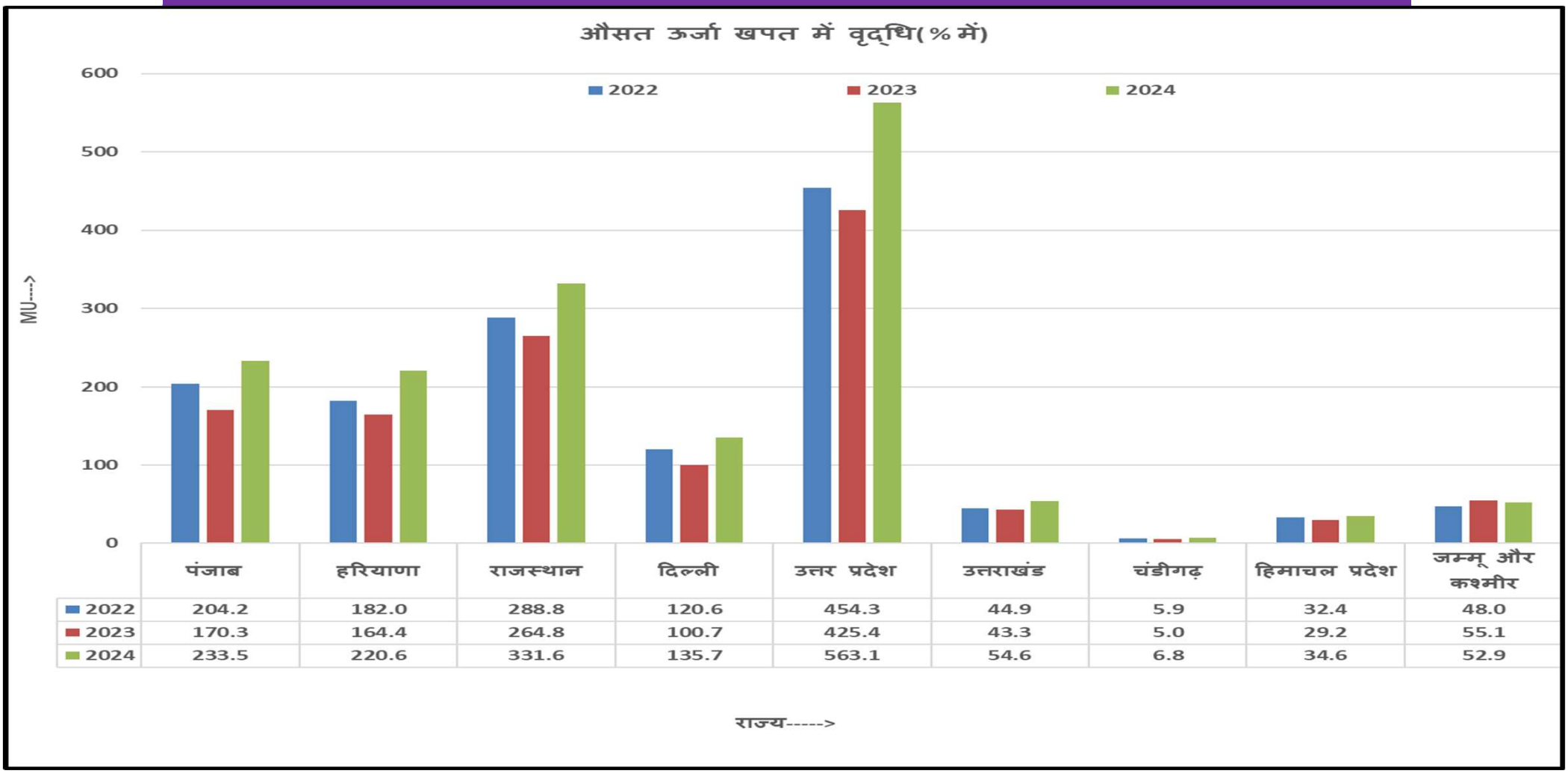


मई -2023 की तुलना में मई -2024 की औसत विद्युत आपूर्ति में 29.2% (~15330 MW) वृद्धि हुई

उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि(% में) मई -2024/ मई -2023 / मई -2022

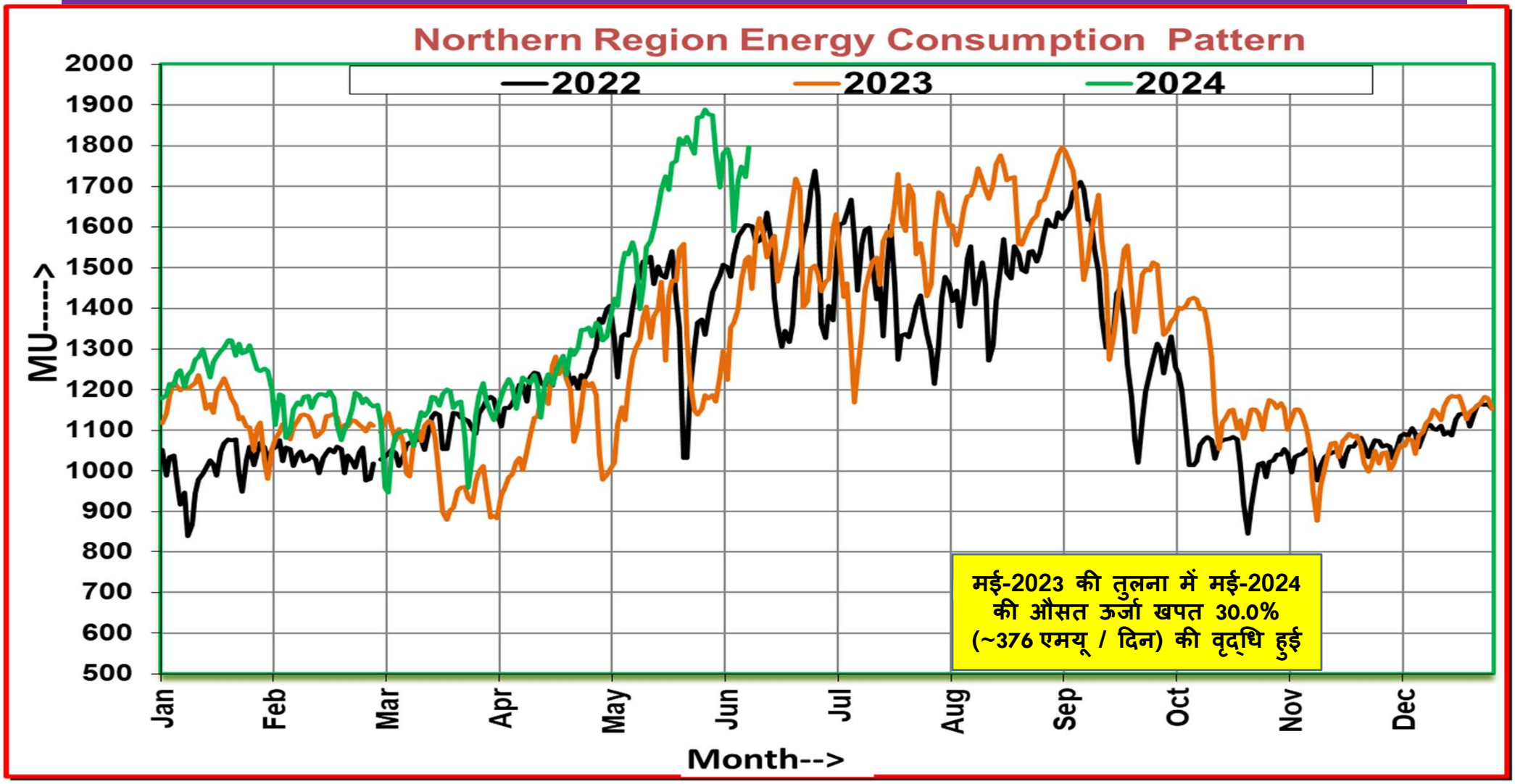
राज्य	मई -2022	मई -2023	मई -2024	% वृद्धि (मई -2023 vs मई -2022)	% वृद्धि (मई -2024 vs मई -2023)
पंजाब	204.2	170.3	233.5	-16.6%	37.1%
हरियाणा	182.0	164.4	220.6	-9.6%	34.2%
राजस्थान	288.8	264.8	331.6	-8.3%	25.2%
दिल्ली	120.6	100.7	135.7	-16.5%	34.9%
उत्तर प्रदेश	454.3	425.4	563.1	-6.4%	32.4%
उत्तराखंड	44.9	43.3	54.6	-3.7%	26.2%
चंडीगढ़	5.9	5.0	6.8	-16.3%	36.5%
हिमाचल प्रदेश	32.4	29.2	34.6	-9.7%	18.4%
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	48.0	55.1	52.9	14.9%	-3.9%
उत्तरी क्षेत्र	1381.1	1262.0	1637.8	-8.6%	29.8%

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

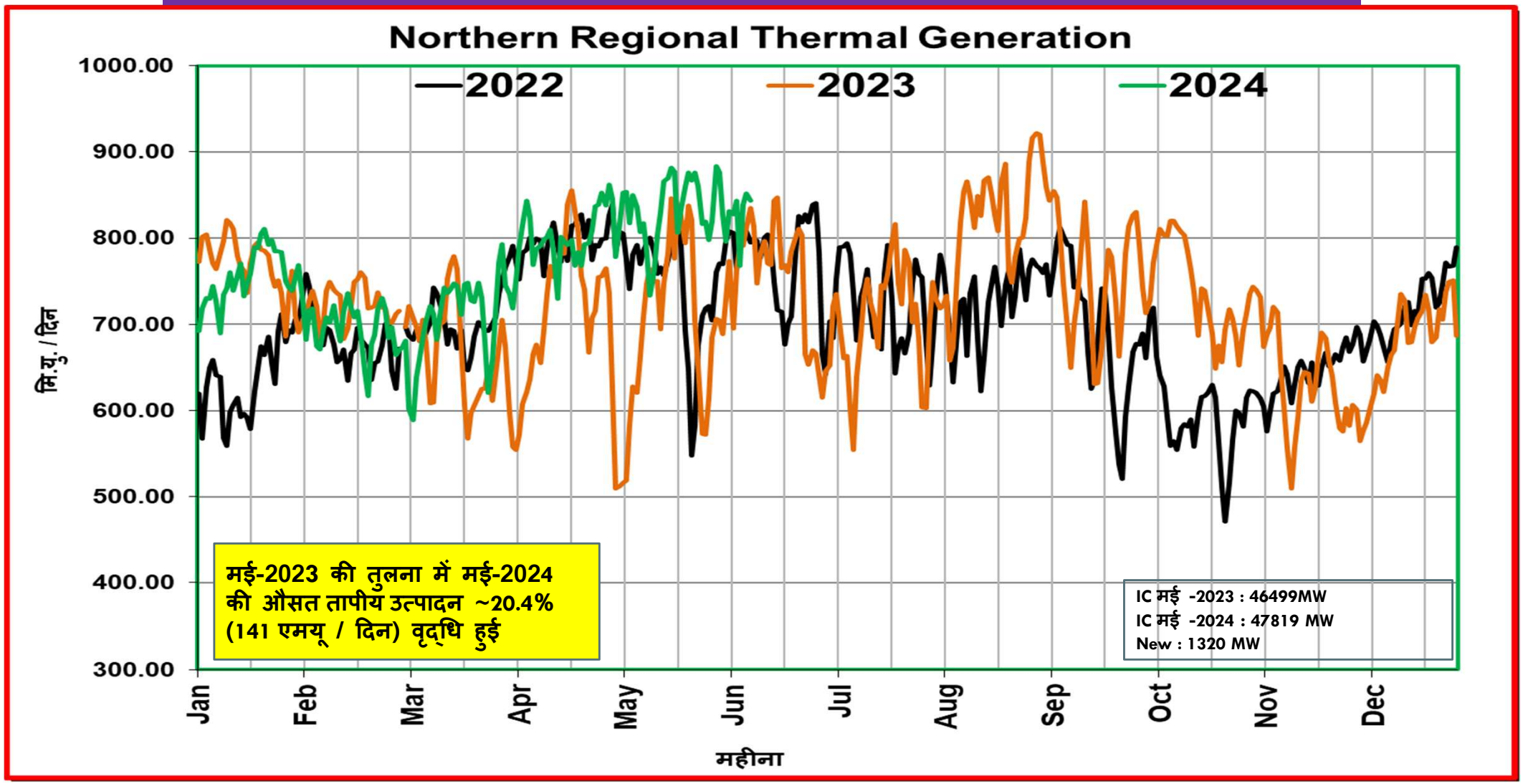


	पंजाब	हरियाणा	राजस्थान	दिल्ली	उत्तर प्रदेश	उत्तराखंड	चंडीगढ़	हिमाचल प्रदेश	जम्मू और कश्मीर
2022	204.2	182.0	288.8	120.6	454.3	44.9	5.9	32.4	48.0
2023	170.3	164.4	264.8	100.7	425.4	43.3	5.0	29.2	55.1
2024	233.5	220.6	331.6	135.7	563.1	54.6	6.8	34.6	52.9

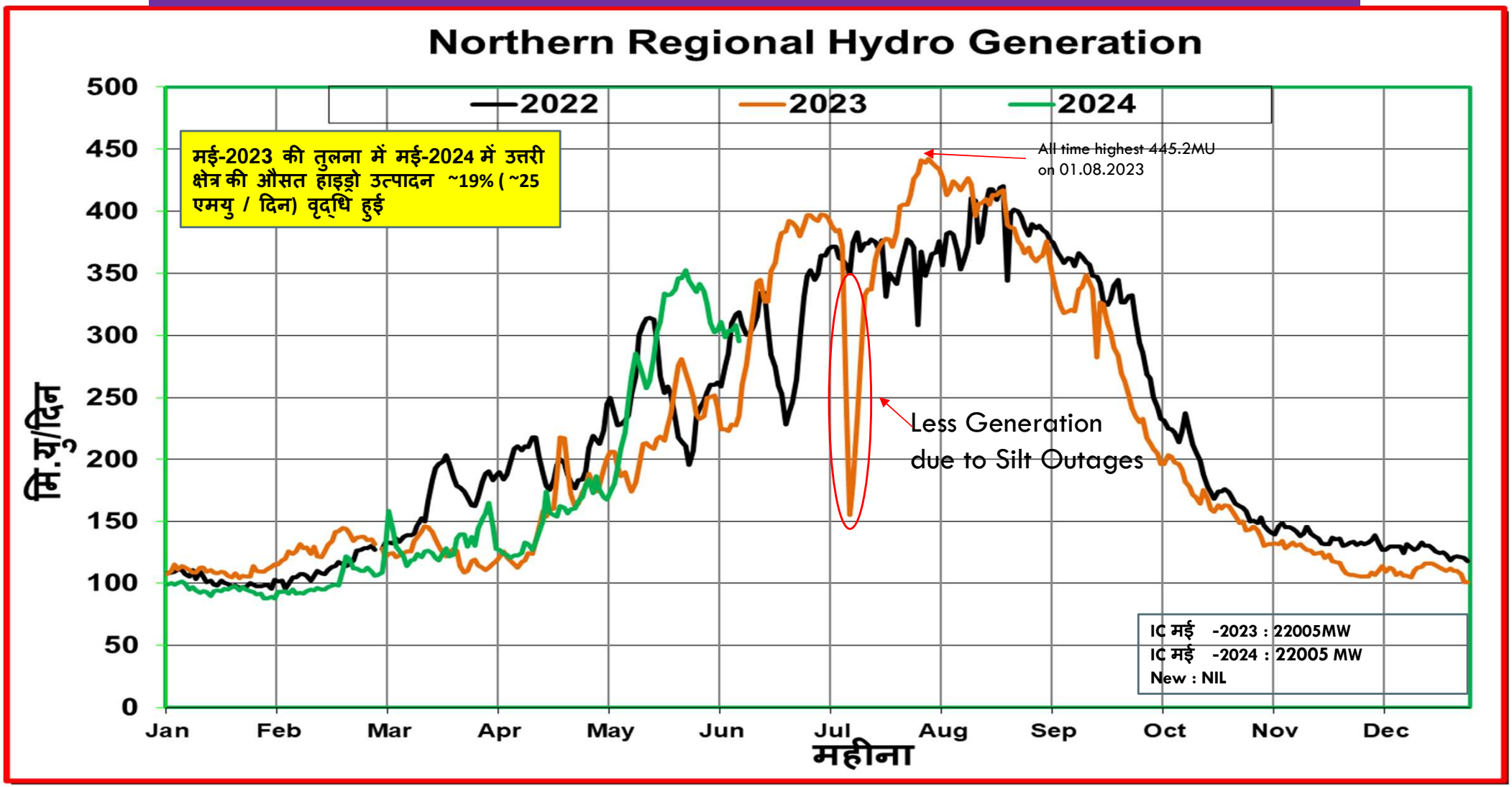
उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



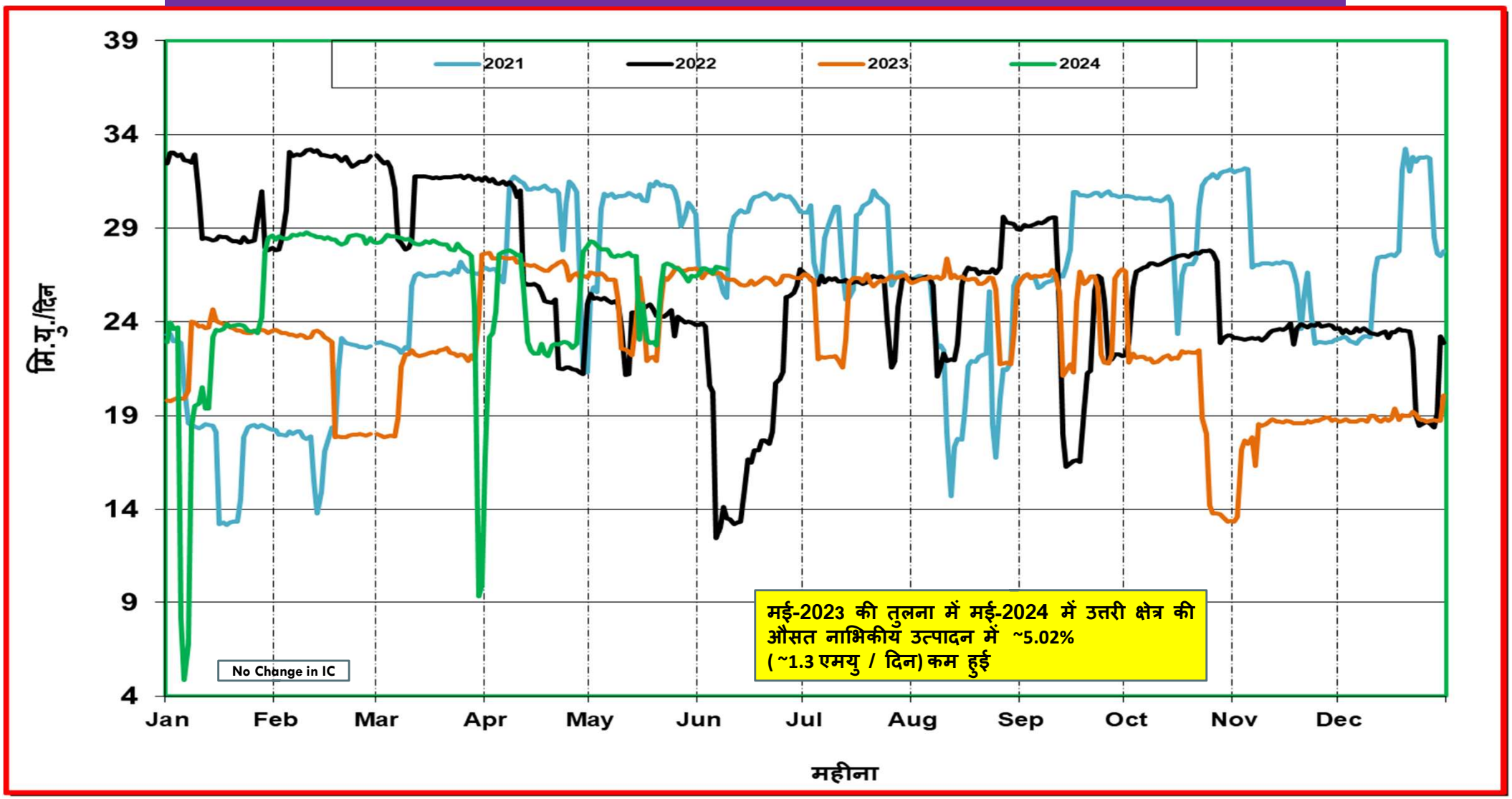
उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(MUs/Day)



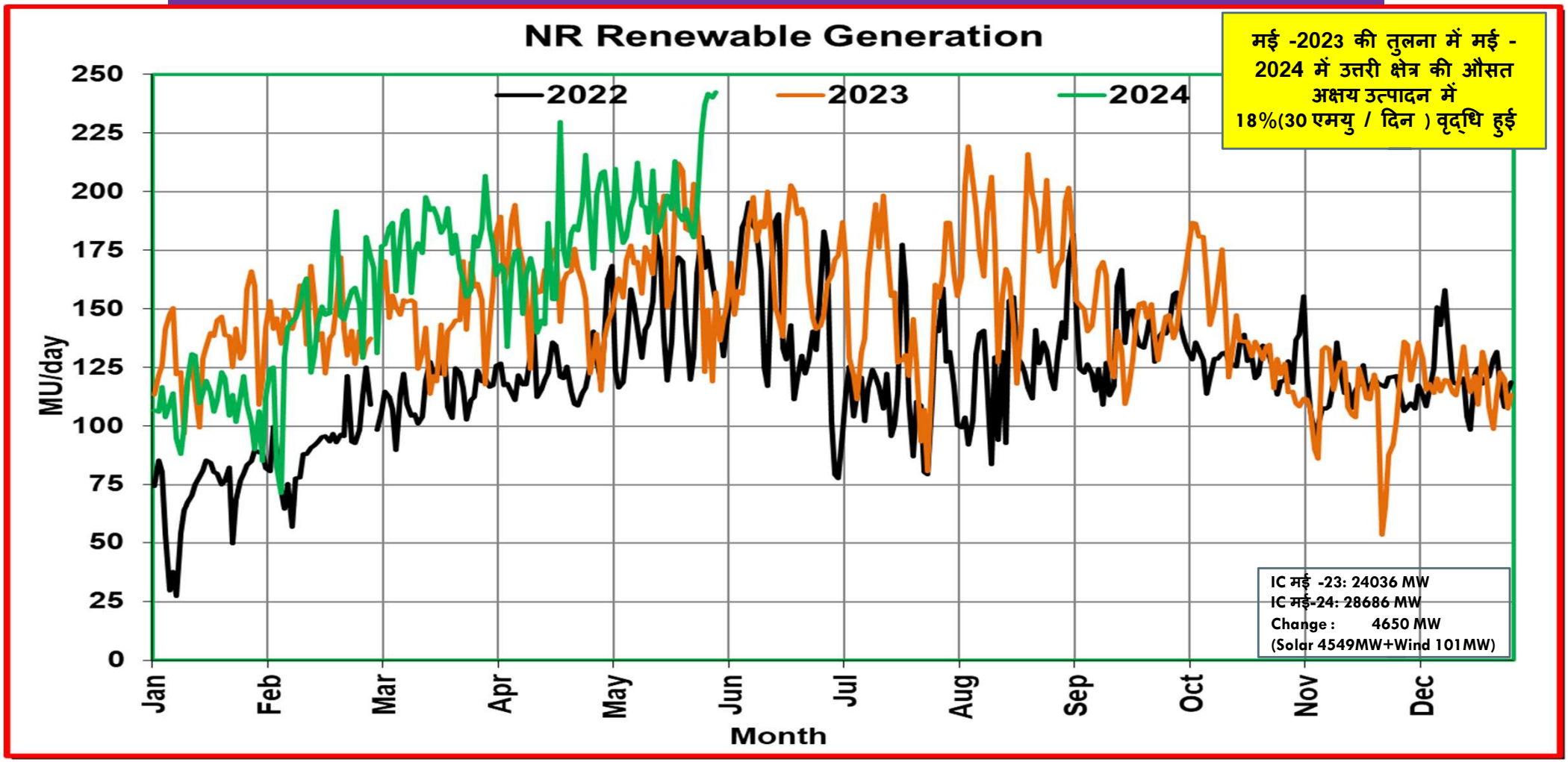
उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(MUs/Day)



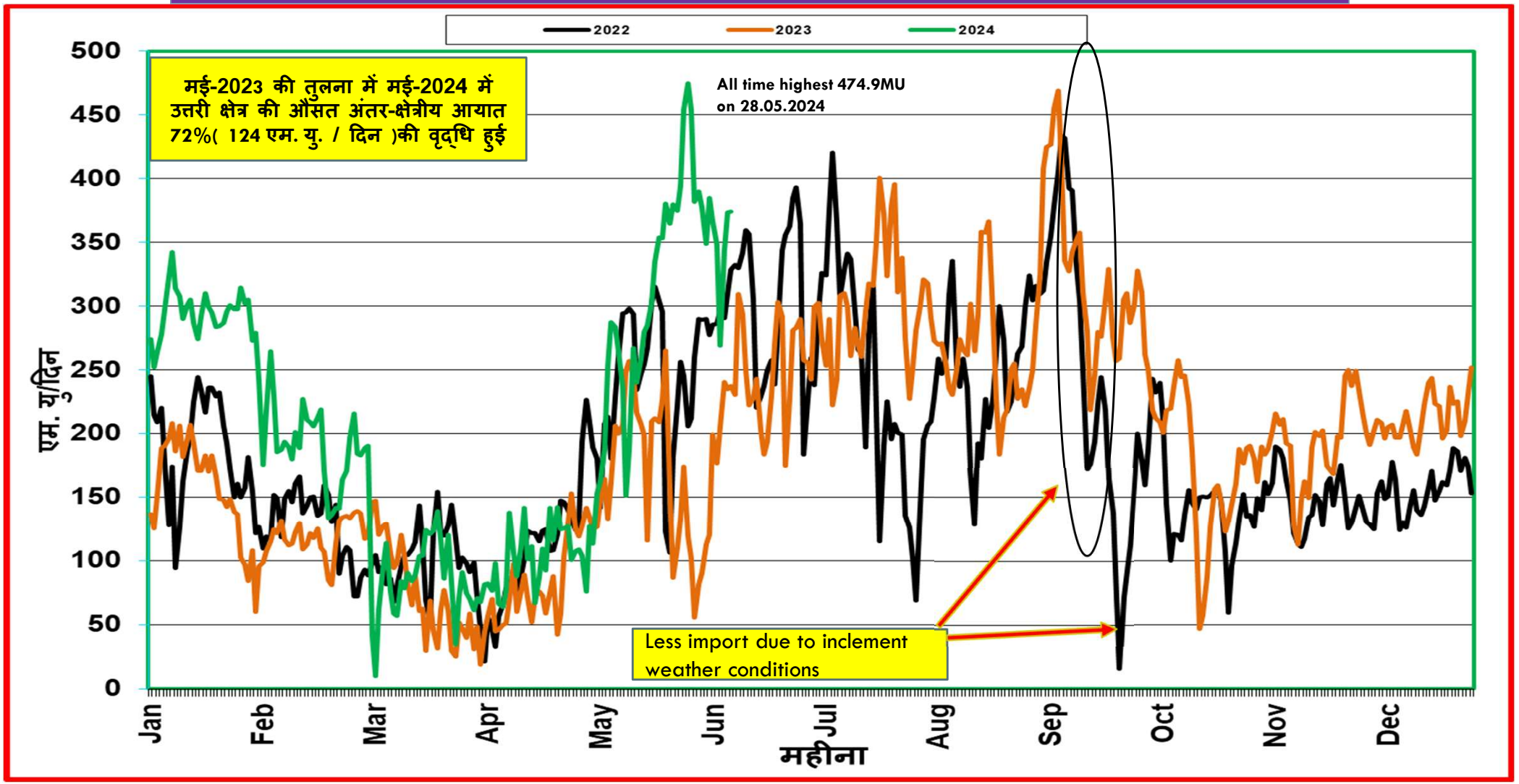
उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (MUs/Day)



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



अंतर-क्षेत्रीय आयात(MUs/Day) की स्थिति



वास्तविक सारांश -
मई-2023 बनाम मई-2024

	मई-2023 (मि.यु. /दिन)	मई-2024 (मि.यु. /दिन)	मई माह में वृद्धि (मि.यु./दिन)
तापीय (Thermal) उत्पादन	691.88	833.20	141.32
जलीय (Hydro) उत्पादन	128.47	153.36	24.89
नाभिकीय (Nuclear) उत्पादन	25.23	26.49	1.27
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	170.82	294.57	123.75
अक्षय (Renewable) उत्पादन	169.18	200.03	30.85

RE Penetration

	Maximum Daily MU Penetration			
	May '2024		Record upto Apr '2024	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	5.75	01-05-2024	12.28	01-04-2020
Rajasthan	20.86	31-05-2024	36.47	22-10-2021
UP	3.39	02-05-2024	5.50	05-03-2024
NR	15.78	01-05-2024	20.69	02-04-2023

Outage Summary For May 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	330	370	201	169	62.1%	37.9%	54.3%	45.7%	700
UPPTCL	130	236	91	145	58.8%	41.2%	38.6%	61.4%	366
RRVPNL	79	161	68	93	53.7%	46.3%	42.2%	57.8%	240
HVPNL	44	92	36	56	55.0%	45.0%	39.1%	60.9%	136
BBMB	38	94	18	76	67.9%	32.1%	19.1%	80.9%	132
PSTCL	45	42	23	19	66.2%	33.8%	54.8%	45.2%	87
DTL	25	27	15	12	62.5%	37.5%	55.6%	44.4%	52
NTPC	26	13	2	11	92.9%	7.1%	15.4%	84.6%	39
PTCUL	13	17	4	13	76.5%	23.5%	23.5%	76.5%	30
PDD JK	0	23	5	18	0.0%	100.0%	21.7%	78.3%	23
Renew Power	17	3	2	1	89.5%	10.5%	66.7%	33.3%	20
HPPTCL	9	9	5	4	64.3%	35.7%	55.6%	44.4%	18
ESUCRL	12	3	1	2	92.3%	7.7%	33.3%	66.7%	15
Tata Power	12	1	0	1	100.0%	0.0%	0.0%	100.0%	13
MAHINDRA	8	4	0	4	100.0%	0.0%	0.0%	100.0%	12
Adani	1	4	1	3	50.0%	50.0%	25.0%	75.0%	5
Azure	2	3	2	1	50.0%	50.0%	66.7%	33.3%	5
Cleansolar_Jodhpur	5	0	0	0	100.0%	0.0%	NA	NA	5
THDC	0	5	2	3	0.0%	100.0%	40.0%	60.0%	5
PFTL	2	2	1	1	66.7%	33.3%	50.0%	50.0%	4
ACME	3	0	0	0	100.0%	0.0%	NA	NA	3
AEPL	2	1	0	1	100.0%	0.0%	0.0%	100.0%	3
AMP Energy Green Private L	3	0	0	0	100.0%	0.0%	NA	NA	3
NRSS36	3	0	0	0	100.0%	0.0%	NA	NA	3
AHEJ3L	1	1	1	0	50.0%	50.0%	100.0%	0.0%	2
ARP1PL	1	1	1	0	50.0%	50.0%	100.0%	0.0%	2
Saurya Urja	1	1	0	1	100.0%	0.0%	0.0%	100.0%	2
Total	812	1113	479	634	62.9%	37.1%	43.0%	57.0%	1925

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))	
Feb-24	946	728	361	367	72.4%	27.6%	1674
Mar-24	927	788	380	408	70.9%	29.1%	1715
Apr-24	838	724	366	358	69.6%	30.4%	1562
May-24	**812**	**1113**	**469**	**634**	**62.9%**	**37.1%**	**1925**

New Elements First Time Charged During May 2024

S. No.	Type of transmission element	Total No
1	Transmission Lines	06
2	LINE REACTOR	01
3	ICTs/GTs/Transformers	02
4	SOLAR ICR/BLOCK	05
5	LILO Line Charging	02
Total New Elements charged		16


धन्यवाद