सत्यमेव जयते

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

संख्या: उ.क्षे.वि.स./प्रचालन/106/01/2023/5037-5078 दिनांक: 15.05.2023

विषय: उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 206वीं बैठक का कार्यवृत।

Subject: Minutes of 206th OCC meeting of NRPC.

उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 206वीं बैठक दिनांक 18.04.2023 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।

206th meeting of the Operation Co-ordination Sub-Committee of NRPC was held on 18.04.2023. The Minutes of this meeting has been uploaded on the NRPC website http://164.100.60.165. Any comments on the minutes may kindly be submitted within a week of issuance of the minutes.

संलग्नक: यथोपरि

Santosh
15/5/23
(संतोष कुमार)
अधीक्षण अभियंता (प्रचालन)

सेवा में,

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

18-ए, शहीद जीतसिंह मार्ग, कटवरिया सराय, नई दिल्ली दूरभाष:011-26513265 ई-मेल: seo-nrpc@nic.in वेबसाईट: www.nrpc.gov.in
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उत्तर क्षेत्रीय विद्युत समिति की प्रचालन समन्वय उप-समिति की 206वीं बैठक का कार्यवृत्त

206th meeting of OCC of NRPC was held on 18.04.2023 through video conferencing.

खण्ड-क:उ.क्षे.वि.स. **PART-A:NRPC**

1. Confirmation of Minutes

Minutes of 205th OCC meeting was issued on 12.04.2023.OCC confirmed the minutes.

2. Review of Grid operations of March 2023

Anticipated vis-à-vis Actual Power Supply Position (Provisional) for March 2023

Reasons submitted by States for significant deviation of actual demand from anticipated figures during the month of March 2023 are as under:

- **Delhi**

  Average Temperature in second half of March-2023 was less & temperature could not pick up due to rain and cloudy weather. Hence peak demand didn't pick up as expected in 2nd fortnight of March-2023.

- **Himachal Pradesh**

  The Anticipation in Energy Requirement and Peak Demand in respect of Himachal Pradesh for the month of March 2023 came on the lower side due to bad weather conditions and less demand.

- **Haryana**

  The variation between actual & anticipated demand for March-2023 is within 5% and variation in actual & anticipated energy consumption for March-2023 is due to unexpected rainfall observed.

- **Punjab**

  It is intimated that actual maximum demand and actual energy requirement are more as compared to anticipated maximum demand and anticipated energy requirement respectively because of long dry spell, increase in overall demand of consumers, especially domestic consumers in the state of Punjab during the month of February 2023.

- **Rajasthan**

  The Energy consumption w.r.t. Anticipated Energy requirement for March' 2023 has a variation of -16.1% which is due to various unexpected spell of rain in Rajasthan state.

- **Uttar Pradesh**

  Due to rains and low atmospheric temperature in 2nd half of March 2023, peak demand requirement (in MW) and Energy Consumption was less than anticipated peak demand.

- **Uttarakhand**

  The Energy consumption decreased by 6.1% w.r.t. anticipated Energy requirement due to surplus rainfall recorded (13% surplus rain) in the month of March,2023 as compared to 2021 and 2022, causing drop in temperature in all areas of Uttarakhand.

3. Maintenance Programme of Generating units and Transmission Lines

The maintenance programme of generating units and transmission lines for the month of May 2023 was deliberated in the meeting on 17.04.2023.

4. Anticipated Power Supply Position in Northern Region for May 2023

The updated anticipated Power Supply Position for May 2023 is as below:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	170	340	No Revision submitted
	Requirement	192	400	
	Surplus / Shortfall	-22	-60	
	% Surplus / Shortfall	-11.5%	-15.0%	
DELHI	Availability	5120	7400	17-Apr-23
	Requirement	3950	7400	
	Surplus / Shortfall	1170	0	
	% Surplus / Shortfall	29.6%	0.0%	
HARYANA	Availability	6030	9412	07-Apr-23
	Requirement	6030	10541	
	Surplus / Shortfall	0	-1129	
	% Surplus / Shortfall	0.0%	-10.7%	
HIMACHAL PRADESH	Availability	1083	1782	10-Apr-23
	Requirement	1085	1755	
	Surplus / Shortfall	-2	27	
	% Surplus / Shortfall	-0.2%	1.5%	
J&K and LADAKH	Availability	2110	3530	No Revision submitted
	Requirement	1610	2780	
	Surplus / Shortfall	500	750	
	% Surplus / Shortfall	31.1%	27.0%	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
PUNJAB	Availability	6570	12330	17-Apr-23
	Requirement	6620	11320	
	Surplus / Shortfall	-50	1010	
	% Surplus / Shortfall	-0.8%	8.9%	
RAJASTHAN	Availability	10270	18410	17-Apr-23
	Requirement	9300	14900	
	Surplus / Shortfall	970	3510	
	% Surplus / Shortfall	10.4%	23.6%	
UTTAR PRADESH	Availability	15345	23900	12-Apr-23
	Requirement	15190	27200	
	Surplus / Shortfall	155	-3300	
	% Surplus / Shortfall	1.0%	-12.1%	
UTTARAKHAND	Availability	1365	2370	12-Apr-23
	Requirement	1387	2380	
	Surplus / Shortfall	-23	-10	
	% Surplus / Shortfall	-1.6%	-0.4%	
NORTHERN REGION	Availability	48063	73400	
	Requirement	45364	72700	
	Surplus / Shortfall	2699	700	
	% Surplus / Shortfall	5.9%	1.0%	

5. Submission of breakup of Energy Consumption by the states

5.1. The updated status on the submission of energy consumption breakup is presented below:

State / UT	From	To
Delhi	Apr-2018	Feb-2023
Haryana	Apr-2018	Feb-2023
Himachal Pradesh	Apr-2018	Feb-2023
Punjab	Apr-2018	Feb-2023
Rajasthan	Apr-2018	Feb-2023
Uttar Pradesh	Apr-2018	Jan-2023
Uttarakhand	Apr-2018	Dec-2022

5.2. OCC forum again expressed concern on non-submission of energy breakup data by UTs of J&K &Ladakh, and Chandigarh despite repeated reminders.

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

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

6.2. In 206thOCC, 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.

7. NR Islanding scheme

7.1. In the meeting (206th OCC), AEE(SS) apprised forum that a physical meeting was called on 28.03.2023 with DTL, DELHI SLDC, NRLDC at NRPC Secretariat to deliberate on steady state analysis of PSSE basecase of Delhi islanding scheme. Delhi SLDC has already submitted the revised base case for Islanding scheme and NRLDC was requested to securitize the same and submit its observation.

7.2. AEE(SS) apprised forum that a meeting was held on 11.04.2023 among NRPC, NRLDC, HPSLDC, HPSEBL, HPPTCL and various generators involved in Shimla-Solan islanding scheme to review the progress of the Shimla-Solan islanding scheme wherein HPSLDC has been asked to take up the matter with concerned generators and HPSEBL.

7.3. In the meeting, HPSLDC representative informed that they have already intimated the matter regarding UFR required for islanding scheme to Chief Engineer (HPSEBL), however confirmation from them is awaited.

7.4. SE(O), NRPC stated that a letter may be sent to Govt. of Himachal Pradesh in this regard.

7.5. UPSLDC representative apprised forum about the draft report submitted by CPRI for Agra-Lalitpur Islanding scheme.

7.6. During discussion, forum observed following issues to be taken up by UPSLDC with CPRI & Generators:

- ROCOF (Rate of Change of Frequency) considered in Islanding scheme.
- Automatic reconnection of load in Islanding scheme.
- Automatic tap changing during island.
- Reactive compensation during island.
- Review of 3 sec delay for tripping of generator at 47.5 Hz.

7.7. UPSLDC representative intimated that they will take up the matter with the concerned entities and will inform NRPC Sectt. if a separate meeting is required.

7.8. RVPN representative intimated that DPR for both the islanding scheme is partially ready and the same will be concluded soon.

7.9. Punjab representative informed that RSD islanding scheme is operational since last week and he was requested to intimate the implementation date of Islanding scheme along with test report. to NRPC Sectt.

8. Coal Supply Position of Thermal Plants in Northern Region

8.1. In the meeting, NRPC representative apprised the forum about the coal stock position of generating stations in northern region during current month (till 10thApril 2023).

8.2. Average coal stock position of generating stations in northern region, having critical stock, during first ten days of April 2023 is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd. (Days)	Actual Stock (Days)
SURATGARH TPS	1500	45.47	26	3.3

8.3. In the meeting, above mentioned generating stations were requested to take adequate measures.

9. SPS protection logic review at PPGCL (Agenda by UPSLDC)

9.1. UPSLDC vide its letter dated 13.04.2023 has intimated that 1500MVA, 765/400kV ICT-2 has been commissioned on 31.03.2023 at Bara TPS.

9.2. Following the commissioning of aforementioned ICT, SPS installed at Bara TPS needs to be revised. (Copy of old SPS scheme and revised proposed scheme is attached as **Annexure-A.III. of agenda**).

9.3. As per the discussion held in the meeting, MS NRPC asked UPSLDC to submit the revised logic and thereafter NRLDC shall call a separate meeting among officials of NRPC, NRLDC, UPSLDC and Bara TPS for finalization and approval of the revised SPS scheme.

10. Table Agenda No.1: Regarding certification of availability of an element as deemed available in case element is in service through a contingency arrangement approved by OCC forum. (Agenda by Powergrid/NR-2)

10.1. In regard to cited matter, NR-2 Powergrid representative requested for consideration of 400KV Kala Amb- Wangtoo line as deemed availableon power flow through the line during period of bypassing arrangement provided due todelay in rectification of GIS at Kala Amb substation.

10.2. The details of outage and restoration events of 400KV Kala Amb-Wangtoo for which NR-2 Powergrid requested for consideration as deemed available is as under:

Sr No.	Outage date	Restoration date	Status of the Line	Remarks
1	24/11/21 19:09	28/11/21 9:46	Line was in service through bypass arrangement.	Line remain in service during above period and requested for deemed availability consideration.
2	30/11/21 15:00	07/12/21 11:36	Line was in service through bypass arrangement.	Line remain in service during above period and requested for deemed availability consideration

10.3. NRLDC representative mentioned that as there was no generation loss due to by-pass arrangement therefore outage hours of transmission licensee are not doubled.

10.4. Further, he stated that outage hours during by-pass arrangement shall be considered as per CERC tariff regulation, 2019.

10.5. OCC forum agreed to NRLDC view.

11. Table Agenda No.2: Non-compliance of N-1 contingency in ICTs at Moga, Malerkotla, Nalagarh and New Wanpoh Substations of POWERGRID NR-2 (Agenda by Powergrid/NR-2)

11.1. In the meeting, NR-2 Powergrid representative highlighted that presently there is non- compliance of N-1 contingency in ICTs at Moga, Malerkotla, Nalagarh and New Wanpoh Substations of POWERGRID NR-2.

11.2. He mentioned that at Moga S/S there are two 765/400kV ICT's of 1500 MVA each and Peak loading in ICTs reaches as high as 1900MW during Oct'2022 to Feb'2023. (2*950MW).

11.3. Further, he intimated that in case 400kV Kishenpur-Moga line is shifted to 765kV thereafter these ICT's will become further overloaded.

11.4. NRLDC representative was of view that CTU may be asked to deliberate on this agenda in the upcoming 'consultation meeting for evolving transmission schemes' and thereafter CTU's views may be shared with NRLDC. Further, he also mentioned that they will get this matter examined internally also.

11.5. NRLDC representative stated that Punjab STU views shall also be taken on the cited matter.

11.6. OCC forum agreed to NRLDC view.

12. Table Agenda No.3: Unwanted outage of the Lines due to Nonfunctioning of A/R scheme at remote end (Agenda by Powergrid/NR-2)

12.1. In the meeting, NR-2 Powergrid representative highlighted lately that there have been few tripping events wherein Lines Auto reclosed successfully at one end on transient earth fault but from other end due to non-functioning of A/R scheme at remote end there was unwanted outage of lines.

12.2. NRLDC asked Powergrid NR-2 Powergridto kindly share with them the details of these tripping events for detailed examination at their end.

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

13. NR Grid Highlights for March2023

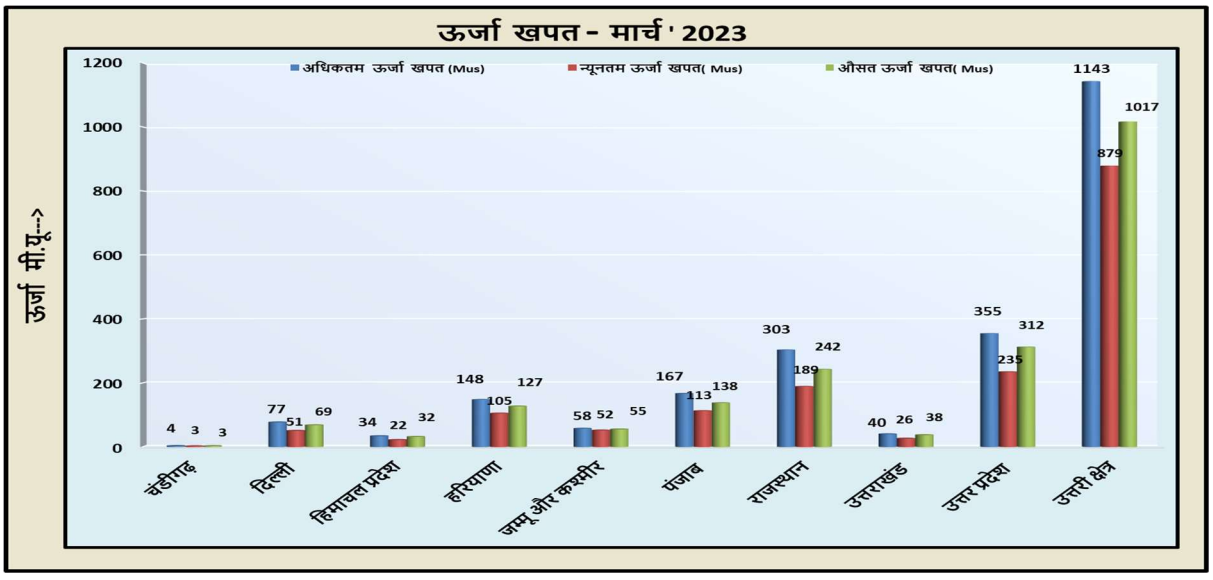
NRLDC representative highlighted the major grid highlights of Mar 2023:

- Maximum energy consumption of Northern Region was **1143 Mus** on 03rd March'23 and it was 3.3 % lower than March' 2022 (1182 Mus 31st March'22)
- Average energy consumption per day of Northern Region was **1017 Mus** and it was 7.0 % lower than March'22 (1093 Mus per day)
- Maximum Demand met of Northern Region was **56004 MW** on 03rd March'23 @10:00 hours (*based on data submitted by Constituents)* as compared to 53577 MW on 21st March'22 @20:00 hours.

Northern Region all time high value recorded in March'23:

	All Time High Record	
Solar Generation	**Value (MU)**	**Achieved on**
	142.8	**28.03.2023**

Energy Consumption:



- **Comparison of Average Energy Consumption (MUs/Day) of NR States for the March'22 vs March '23**

क्षेत्र/राज्य	मार्च - 2022	मार्च - 2023	%अंतर
चंडीगढ़	3.5	3.3	-5.6%
दिल्ली	73.2	68.6	-6.2%
हिमाचलप्रदेश	30.0	32.1	6.9%
हरियाणा	135.5	127.4	-6.0%
जम्मूऔरकश्मीर	51.1	55.4	8.5%
पंजाब	148.9	137.6	-7.6%
राजस्थान	261.1	242.4	-7.2%
उत्तराखंड	37.4	37.5	0.3%
उत्तरप्रदेश	352.7	312.3	-11.5%
उत्तरीक्षेत्र	**1093.4**	**1016.5**	**-7.0%**

Frequency Data

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Mar'23	50.03	50.48	49.82	9.0	65.4	25.6
Mar'22	50.02	50.30	49.81	14.6	73.4	12.0

Detailed presentation on grid highlights of Mar'2023 as presented by NRLDC representative in OCC meeting is attached as Annexure-B.I.

CGM (SO), NRLDC asked all utilities to maintain their drawl close to their schedule and avoid deviations. It was also highlighted that last year number of states were overdrawing leading to low frequency operation in Apr 2022. Utilities were asked to take actions to avoid such situation this year.

14. Data Preparation for Resource Adequacy Studies

In 206 OCC meeting, it was discussed that Ministry of Power has notified the Electricity (Amendment) Rules, 2022, which inter alia, aims to implement Resource Adequacy (RA) Framework to ensure reliable supply of Electricity to the consumers.

As per Rule 16 of the Electricity (Amendment) Rules, 2022 Ministry of Power has to issue guidelines for assessment of resource adequacy during the generation and operational planning stages. Accordingly, CEA has prepared draft Resource Adequacy Guidelines, which are currently in approval stage. As per the draft Resource Adequacy Guidelines published in September 2022, Central Electricity

Authority is entrusted to prepare Long Term-National Resource Adequacy Plan (LT-NRAP). Further Distribution Utility need to carry out LTDRAP (Long term Discom Resource Adequacy Plan) to meet the utility peak and energy requirement reliably.

A letter dated 25th Jan 2023 was sent to all the States, regulatory commission, and NDLC/RLDC/SLDCs for collection of data from CEA office. For preparing the LT-NRAP State-wise information viz. Demand, Installed Capacity, Generation (both RE and conventional), financial data etc. is required

Chairperson CEA vide their letter dated 29.03.2023 (Annexure-B.I of agenda) has asked all utilities to assign this task to a team of officers for data preparation and to carry out RA studies. CEA will guide & hand hold the team of officers in data collection, power system modelling and analysis of result for carrying out state specific resource adequacy studies. Format in which data is to be submitted by respective utilities is available @

https://docs.google.com/spreadsheets/d/1yHDNxVEUHuWdCunNLr7vg009LZX7JMkf/edit?usp=share_link&ouid=101952646418859842988&rtpof=true&sd=true.

NRLDC representative presented the letter from Chairperson, CEA and excel sheet in which data was requested by CEA and explained all the data requirements as mentioned in excel file.

All state utilities were asked to furnish the data and nomination of officers for data preparation and to carry out RA studies to CEA with copy to NRPC/ NRLDC. ISGS generators were asked to submit the data to NRLDC in attached format for compilation and further sharing with CEA. OCC members agreed to provide the data by 30th Apr 2023.

15. TTC/ATC of state control areas for summer 2023 & Revision in Reliability Margin

Most of the NR states except J&K, 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.

Based on feedbacks received till date, SLDCs were requested to go through the tentative ATC/TTC limits for May 2023 as shown below and provide comments. If no comments are received, these limits will be assumed confirmed and uploaded on NLDC website. SLDCs were also requested to upload these limits in their respective websites. States were also requested to regularly provide update

regarding the upcoming transmission elements which would improve import capability of respective state control area.

STATE	PRESENT IMPORT TRANSFER CAPABILITY	CONSTRAINTS	REMEDIAL ACTION TO MITIGATE THE CONSTRAINTS (DISCUSSION IN 206 OCC MEETING)
Haryana	TTC: 9100MW RM: 600MW ATC: 8500MW	N-1 Contingency of 2*315 MVA ICT at Deepalpur	New 500MVA ICT approved in 4 NRPCTP held on 05.10.2021. SPS commissioned as immediate measure. ICT commissioning delayed to PPP substation model issues as informed by HVPN. In 204 OCC meeting, it was informed by Indigrid representative that talks are underway between Indigrid and HVPN to resolve issues for commissioning of new ICT at Deepalpur. No progress reported in 205 OCC meeting. ***In 206 OCC meeting, Indigrid representative informed that talks are going on and some points are yet to be finalised between HVPN and Indigrid.***
		N-1 Contingency of 3*150+500 MVA ICT at Panipat BBMB	Proposal for new ICT to be given by HVPN/DTL. Drawl to be planned from other nearby stations. Lack of space at Panipat as informed by BBMB in OCC meeting. Other options to be explored by HVPN. ***No progress reported in 206 OCC meeting.***
		N-1 Contingency of 2*500 MVA ICT at Kurukshetra (PG)	New 500MVA ICT approved in 4 NRPCTP held on 05.10.2021. ***In 206 OCC meeting, it was informed that ICT is expected by end of May 2023.***
		High loading of 220kV Hissar (PG)-	Following was agreed in meeting taken by CEA on 20.03.2023:

		Hissar (IA)	(i) Reconductoring of 220 kV Hisar (PG) - Hisar (IA) D/c line with HTLS conductor was agreed. PGCIL to intimate the type of HTLS conductor which can be implemented on towers of existing 220 kV Hisar (PG) - Hisar (IA) D/c line within two weeks. (ii) HVPNL to carry out the augmentation of line bay equipment at Hisar (IA) substation in the matching time frame of reconductoring of the 220 kV Hisar (PG) - Hisar (IA) D/c line. (iii) HVPNL to examine the issue of high loading on Hisar (IA) - Hisar (BBMB) 220 kV D/c line and plan adequate measures to relieve loading on the line. HVPNL to submit the relevant system studies with CEA/CTUIL. (iv) HVPNL to plan necessary augmentation /network strengthening so as to meet the future load growth in and around Hisar. ***In 206 OCC meeting, no update was provided.***
		As informed by Haryana SLDC, upcoming following transmission elements would help increase import capability of Haryana: • ***220kV Sec 32 Panchkula and 220kV lines to Panchkula (PG) (expected by Jun 2023 end)*** • ***220kV lines from Panchkula(PG) to Pinjore (expected by Jun 2023 end)*** • ***220kV Rai Substation and 220kV lines to Sonepat (PG)) (not expected in next few months)*** • ***400/220kV Bhiwani(BBMB) ICT (revived on 11.04.2023)***	
Punjab	TTC: 9000MW	N-1 Contingency of 2*500 MVA ICT at	New 500MVA ICT approved in 11 CMETS held on 30.09.2022. (Expected May'2024)

		Patran	
		N-1 Contingency of 2*315 MVA ICT at Nakodar	ICT capacity at Nakodar would be augmented from 315MVA to 500MVA by July 2023 (1st ICT) and Sep 2023 (2nd ICT). One 315MVA ICT damaged, to be borrowed from POWERGRID. (***Expected by May'23)***
	RM: 500MW	N-1 Contingency of 2*500+1*250+1*315 MVA ICT at Moga	One 250MVA ICT to be replaced by 500MVA ICT. Bay equipment of higher ratings to be used. Approved in 11 CMETS held on 30.09.2022 (***Expected by May'23***)
	ATC: 8500MW	N-1 Contingency of 2*315+2*500 MVA ICT at Ludhiana	One 315MVA ICT to be replaced by 500MVA ICT (expected May 2023). Approved in 11 CMETS held on 30.09.2022. (***Expected by May'23***)
		400/220kV Dhanansu S/s along with ICT and lines at both 220kV and 400kV voltage level	***Expected in July 2023.***
Rajasthan	TTC: 7600MW	N-1 Contingency of 2*315 MVA ICT at Chittorgarh	***RVPN representative stated that they have planned and implemented SPS at these locations. (except Bhilwara & Hindaun)***
	RM: 600MW	N-1 Contingency of 2*315 MVA ICT at Jodhpur	
	ATC: 7000MW	N-1 Contingency of 2*315 MVA ICT at Ajmer	

	(Issues observed with load >14500MW)	N-1 Contingency of 2*315 MVA ICT at Bikaner	***New 1*500MVA ICT under bidding at these S/s by RVPNL.*** ***Capacity augmentation at Chittorgarh expected by July 2023, for all other substations after next winter season.***
		N-1 Contingency of 2*315 MVA ICT at Merta	
		N-1 Contingency of 2*315 MVA ICT at Hindaun	
		N-1 Contingency of 1*315+1*500 MVA ICT at Bhilwara	***Regarding data sharing of PMU, RVPN representative stated that cybersecurity certificate is now received and PMU data sharing with SLDC and NRLDC would be done by end of April 2023.***
		Low voltage issues at Hindaun, Alwar.	New 400/220kV Dholpur S/s likely to provide some relief, however approved by CEA on 27Jan 2023, so issue likely to persist for next 1-2 winter seasons. Other immediate measures required by RVPN. 400kV Bharatpur is under internal approval with LILO of 400kV Agra-Sikar. Severe issues observed during Dec 2022-Jan 2023 months.
		Low voltage issues in RE generation pockets	Additional reactive power support devices for maintaining grid voltages within IEGC prescribed limits to be planned. Intrastate RE generators to support the grid by operating in voltage control mode.
		N-1 contingency of 400kV	Commissioning of 765kV Jodhpur (Kankani) to be expedited. Additional transmission system requirement to be assessed by

		Barmer-Bhinmal D/C (under high wind gen.)	RVPN
		Huge MVAR drawl at RVPN during winter months (even below 0.8 at number of 400/220kV ICTs)	***As intimated by RVPN in 206 OCC meeting, PO for capacitors at transmission level is not completed as clearance is awaited from PSDF.*** ***Proposal for capacitor at distribution level is under discussion in NRPC system studies sub committee and would be taken up after obtaining necessary approval from the sub committee.***
Uttar Pradesh	TTC: 15100MW RM: 600MW ATC: 14500MW	N-1 Contingency of 2*500 MVA ICT at Azamgarh	New ICT/ Capacity augmentation to be planned by UPPTCL. SPS implemented. Commissioning of 400/220kV Jaunpur S/S likely to provide relief (commissioned).
		N-1 Contingency of 3*315+1*500 MVA ICT at Sarnath	New ICT/ Capacity augmentation to be planned by UPPTCL. SPS implemented. Commissioning of 400/220kV Sahupuri S/S likely to provide relief (Expected by Oct'2023)
		N-1 Contingency of 2*315+1*240 MVA ICT at Obra	New ICT/ Capacity augmentation to be planned by UPPTCL. SPS has been implemented by UPPTCL as confirmed in meeting.
		N-1 Contingency of 3*315 MVA ICT at Allahabad	New ICT/ Capacity augmentation may be proposed by UPPTCL. Commissioning of 400/220kV Jaunpur S/s likely to provide relief (commissioned).
		N-1 Contingency of 2*315 MVA ICT at Sohawal(P	New 500MVA ICT approved in 3 NRPCTP held on 19.02.2021. ***Informed in 206 OCC meeting that new ICT expected by end of May 2023. SPS***

		G)	***has already been commissioned.*** ***NRLDC representative further suggested that mock testing may be carried out at all 400/220kV S/S in UPPTCL where SPS has been implemented.*** ***UP SLDC stated that mock testing has already been carried out at Nehtaur S/s and would also be carried out at other substations shortly.***
		N-1 Contingency of 1*240+1*315+1*500 MVA ICT at Gorakhpur (UP)	Capacity augmentation at Gorakhpur (UP) from 1055MVA to 1315MVA to be expedited. SPS implemented. ***It was informed that capacity augmentation would be done in 2-3 months time.***
Delhi	TTC: 7100MW RM: 300MW ATC: 6800MW	N-1 contingency of 2*315 MVA ICT at Bawana	After bus -split due to high fault level at Bawana, ICTs N-1 non-compliant. Additional ICT/ load shifting to other station to be planned. Delhi SLDC to make sure that essential loads such as hospitals, DMRC, other important loads have alternate supply available so as to avoid load loss in case of N-1 contingency. In 205 OCC meeting, DTL representative agreed to provide SPS logic for SPS implementation at Bawana (2 ICTs section) in next OCC meeting. ***In 206 OCC meeting, no update was provided regarding SPS. Delhi SLDC representative stated that bus split and radial operation would be done at Bawana 2 ICT section (in case of high loading) till the implementation of SPS.***

			NRLDC representative asked Delhi SLDC to submit which feeders would be opened, Radial network details & Bus split to be implemented during high demand. ***Delhi SLDC agreed to submit these details along with ATC/TTC limits at the earliest.***
		N-1 Contingency of 3*315 MVA ICT at Mundka	New ICT/ Capacity augmentation to be planned by DTL. One ICT under prolonged outage to be revived (to be borrowed from Ludhiana(PG)). SPS implemented ***In 206 OCC meeting, Delhi SLDC representative stated that new ICT at Mundka is not expected by May 2023 end.*** ***NRLDC representative stated that non-availability of ICT at Mundka would create N-1 related issues at Mundka. Last year, even with three ICTs, N-1 non-compliance was observed and presently, only two ICTs are available. It was also mentioned that given the criticality, mock testing of already implemented SPS may be carried out at 400/220kV Mundka.*** ***Delhi SLDC representative agreed for the same.***
Himachal Pradesh	TTC: 1400MW RM: 100MW ATC: 1300MW (lean hydro) No major	N-1 Contingency of 3*315 MVA ICT at Nallagarh High loading of 220kV Nallagarh-Upernangal	New ICT/ Capacity augmentation to be proposed by HPPTCL/ PSTCL, based on future load growth. Drawl by Punjab, Chandigarh & HP from 400/220kV Nallagarh ***CT ratio at Nallagarh end to be uprated for utilising full line capacity of 220kV Nallagarh- Upernangal D/C. HP representative informed work to be done in next shutdown of line (7 & 14 May 2023).***

	transmission issues during summer/ monsoon	D/C line	
Uttarakhand	T TC: 1700MW RM: 100MW ATC: 1600MW	N-1 Contingency of 2*315 MVA ICT at Kashipur	New ICT/ Capacity augmentation to be planned by PTCUL. SPS implemented at Kashipur. As intimated by SLDC Uttarakhand, no Bid received for new 315MVA ICT at Kashipur
		High loading of 220kV CB Ganj-Pantnagar	400kV Pantnagar is under study to relieve loading of 220kV CBGanj-Pantnagar ***In 206 OCC meeting, Uttarakhand representative stated that they would submit their ATC/TTC assessment for summer 2023 at the earliest.***
		High loading of 220kV lines from Roorkee (PG)	Additional connectivity/ conductor upgradation to be planned by PTCUL (400kV Landhora S/S by LILO of 400kV Kashipur-Roorkee line under discussion). Under discussion with CTUIL and CEA.
J&K	TTC: 2200MW RM: 100MW ATC: 2100MW (lean hydro) No major transmission issues	N-1 Contingency of 2*315 MVA ICT at Amargarh	New ICT/ Capacity augmentation may be expedited by NRSSXXIX (planned for Mar'2026). Additional planned 220kV and low voltage lines to be expedited to manage drawl from Amargarh. As per latest discussion held in 16 CMETS held on 28.02.2023, new ICT to be implemented in next 21 months. ***J&K representative was not available for comments***
		High loading of 220kV	Additional connectivity to be planned and already approved schemes to be expedited

	during summer/ monsoon	lines from Wagoora(PG)	by JKPTCL
		Low voltage issues during winter season	Large dependency on SVC at New Wanpoh for MVAR support. Capacitor installation at low voltage level to be expedited.

J&K

Loading of 400/220kV Amagarh ICTs was above N-1 contingency limits for last 30 days. 220kV Amargarh-Ziankote D/C lines are also N-1 non-compliant for most of the time during winter months.

Apart from above, there are issues related to huge MVAR drawl by J&K control area during winter season.

Not assessing its ATC. J&K representatives had intimated during 47th TCC and 49th NRPC meeting that they would be sharing ATC/TTC assessment with NRLDC from October 2021, however the same is still awaited.

NRLDC had taken online training sessions for J&K representative on 20th& 21st Feb 2023 and 9th March 2023. J&K and Ladakh U/Ts are once again requested to advise the concerned officers to evaluate their ATC/TTC limits in coordination with NRLDC and share latest assessment with NRLDC and NRPC.

In the meeting, it was informed that Punjab, Haryana, HP & UP are communicating with NRLDC regularly regarding ATC/TTC assessment for summer/monsoon 2023. However, other states such as Delhi, Rajasthan, Uttarakhand and J&K are yet to provide their ATC/TTC assessments for summer/monsoon 2023. All states were requested to assess ATC/TTC limits of their respective state control area for summer 2023 and share with NRLDC/ NRPC at the earliest.

It was again requested that SLDCs may ensure that loading of ICTs and lines are below their N-1 contingency limits. While requisitioning power from various sources, states should take care to limit their scheduled drawl as well as actual drawl in real time within the Available Transfer Capability (ATC) limits assessed by SLDC and NRLDC. NRLDC is continuously sending emails in real-time for ensuring N-1 compliances as well as restricting schedule till ATC limit and maximizing internal generation. SLDCs need to ensure this during real-time operation.

In the meeting, it was discussed that CEA has recently published manual on transmission planning criteria which is available *@https://cea.nic.in/wp-*

content/uploads/psp___a_ii/2023/03/Manual_on_Transmission_Planning_Criteria_2023.pdf

In the published document, definition of reliability margin has been provided under section 3.15.2 which is quoted below:

"3.15.2 "Transmission Reliability Margin (TRM)" means the margin kept in the total transfer capability necessary to ensure that the interconnected transmission network is secure under a reasonable range of uncertainties in the system conditions. The ***TRM may be considered as minimum of 2% of demand of area/region or size of largest generating unit in that area/region****"*

Presently, most of the NR states are declaring their TRM based on largest unit size as per the CERC congestion management procedure available @ https://cercind.gov.in/2013/regulation/26_4.pdf.

Since now, it has been exclusively mentioned in Transmission planning criteria to take reliability margin as minimum of 2% of demand of area/region or size of largest generating unit in that area/region, states were requested to provide revised ATC/TTC limits based on above consideration.

As discussed in last several OCC meetings, all SLDCs need to furnish ATC/TTC details of their control area at respective SLDC websites. Now, it is being observed that most of the SLDCs except J&K are uploading ATC/TTC limits on their websites.

SLDC	Link for ATC on website
UP	https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Punjab	https://www.punjabsldc.org/downloads/ATC-TTC0321.pdf
Haryana	https://hvpn.org.in/#/atcttc
Delhi	https://www.delhisldc.org/resources/atcttcreport.pdf
Rajasthan	https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
HP	https://hpsldc.com/mrm_category/ttc-atc-report/
Uttarakhand	https://uksldc.in/ttc-atc

J&K and Ladakh U/T	**NA**

It is seen that most of the links are old and have old ATC/TTC limits. It was requested to regularly update ATC/TTC limits as agreed between SLDC and NRLDC & also discussed in OCC forum.

All states agreed for taking necessary actions as agreed above.

16. AMC (Annual Maintenance) extension of AMR (Automatic Meter Reading) meters in NR region

According to Sub-proviso (22) of proviso (4) of Regulation 6 of Indian Electricity Grid Code 2010, NRLDC is responsible for processing SEM data on a weekly basis for Northern region and forwarding the processed meter data to NLDC for loss calculation and to NRPC for issuing Deviation Settlement Account on weekly basis.

To perform the statutory function mentioned above, NRLDC requires meter data, which is provided either online via AMR or collected via DCD by individual stations and sent to us.

Currently, there are approximately 2700 SEMs installed in the Northern region, out of which about 1800 meter data is provided to NRLDC via AMR and the rest is provided by individual stations after collecting via DCD. Powergrid has a contract with a third-party vendor M/s Kalkitech to fetch meter data online via AMR on a weekly basis and provide to NRLDC.

In the meeting, NRLDC representative state that the contract with M/s Kalkitech is going to expire in June month of 2023.

Powergrid was requested to take up the matter regarding contract renewal and the copy of the letter was also given to NRPC Sectt for kind information vide letter dtd. 23rd Feb 2023 (Annexure- B.II of agenda).

NRLDC representative further stated that detailed project report has to be submitted by CTUIL for 5 min meters to PSDF which is likely to take some time. As the present AMC contract between Powergrid and M/s Kalkitech is going to expire in June 2023, POWERGRID may provide update regarding contract renewal.

POWERGRID representative stated that Kalkitech has refused to extend this contract and POWERGRID would place new contract to vendor by June 2023 (contract amount is close to 1.75 Cr).

NRLDC representative stated that the award of contract should be such that there is no break in data being received at NRLDC end i.e. as the contract is expiring in June 2023, new contract should start immediately so that meter data is made available at NRLDC for timely issuance of loss calculation and Deviation Settlement Account.

POWERGRID assured that there will not be any break in service of meter data being provided to NRLDC via AMR.

OCC forum agreed for the same.

17. Grid Operation related issues

a) Procedure for integration of power system element into the grid

An online session was taken by NRLDC FTC team on 03.04.2023 to familiarize the "procedure for integration of power system element into the grid" for new and modified elements. NRLDC officials from SCADA, Metering, Protection department and FTC coordinator explained the requirement and issued faced during the process of new element charging. Various officials from Powergrid, RTAMCs and site were present during the session.

It was a healthy discussion between the Powergrid and NRLDC officials and it is expected that utilities will be benefited from such session as well it will ease the coordination between the two while facilitating the new element charging.

List of the participant is attached as Annexure-B.III of agenda.

NRLDC representative further stated that such session would also be taken for other utilities shortly. OCC forum appreciated the efforts of NRLDC.

b) Long outage of transmission elements

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

NRLDC representative listed out some of the key elements that need to be revived at the earliest:

- 765 KV Anpara_D-Unnao (UP) Ckt-1
- 400/220 kV 240 MVA ICT 2 at Orai(UP)
- 400/220 kV 315 MVA ICT 2 at Mundka(DV)
- 400/220 kV 500 MVA ICT 1 at Bhiwani(BB)
- 400/220 KV 240 MVA ICT 3 AT Moradabad (UP)
- 400KV Bus 1 at Vishnuprayag(JP)
- 400KV Bus 2 at Parbati_2(NH)
- 400KV Bus 2 at Parbati_3(NH)
- 400KV Bus 2 at Noida Sec 148(UP)
- 400 KV Jodhpur-Kankani (RS) Ckt-1
- 400 KV NOIDA SEC 148-NOIDA SEC 123 (UP) CKT-2
- 400 KV Gr.Noida_2(UPC)-Noida Sec 148 (UP) Ckt-1

- 220 KV Gazipur(DTL)-Noida Sec62(UP) (UP) Ckt-1
- 220 KV Gazipur(DTL)-Shahibabad(UP) (UP) Ckt-2
- 220 KV Kishenpur (PG)-Mir Bazar (PDD) Ckt-1
- 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1

List of generating units under long outage is attached as Annexure-B.IV of agenda. It can be seen that number of thermal generating units are under outage in Rajasthan.

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

Members agreed to update regarding the likely revival date of transmission elements and generating units in NRLDC outage portal.

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

In line with section 5.2. (c) of IEGC, list of important grid elements in Northern region would be compiled by NRLDC shortly. Such elements shall be opened/closed only on instructions from NRLDC. NRLDC has requested utilities to submit the list of all elements with details charged under their jurisdiction from 1.4.2022 till date including those expected to be commissioned till May 2023 so that the same could be included in the list vide email dated 23rd March 2022.

However, response from most of the utilities is still pending. It is requested to provide details before 30th April 2023. Last updated document is available at following link https://nrldc.in/download/important-grid-element-of-northern-region-may-2022/?wpdmdl=10389. Any other feedback related to inclusion/deletion of elements may also be provided.

All utilities agreed to provide update by 30th April 2023.

18. Frequent forced outages of transmission elements in the month of March'23:

The following transmission elements were frequently under forced outages during the month of **March 23**:

S. No.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1	6	NPCIL/Rajasthan
2	400 KV Aligarh-Muradnagar_1 (UP) Ckt-1	4	UP
3	400 KV Anpara_B(UPUN)-Mau(UP) (UP) Ckt-1	3	UP
4	400 KV Bareilly-Unnao (UP) Ckt-1	3	UP
5	400 KV Gumma (HP)-Panchkula(PG) (PG) Ckt-1	3	HP/POWERGRID

6	400 KV Suratgarh(RVUN)-Bikaner(RS) (RS) Ckt-1	3	Rajasthan

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

Discussion during the meeting:

- **220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt-1:***NRLDC representative raised concern over frequent faults in line. Rajasthan representative informed that line passes through forest area so frequent faults occurred due to vegetation clearance issue. It was further informed that line was taken under shutdown from 10th April to 13th April 2023, patrolling of the line and tree cutting was done, no fault observed thereafter till now.*

- **400 KV Aligarh-Muradnagar_1 (UP) Ckt-1:** *NRLDC representative asked the reason of non-operation of A/R at Aligarh end. Uttar Pradesh representative informed that A/R is functional at Aligarh end however due to issue in Circuit Breaker, A/R operation didn't occur. It was further informed that transmission wing has attended the issue with the Circuit Breaker. NRLDC representative asked to submit the report of the work done. UP representative agreed to share the report.*

- ***400 KV Anpara_B(UPUN)-Mau(UP) (UP) Ckt-1:****UP representative informed that A/R is operational at both the ends, unsuccessful A/R operation is observed in all three trippings as fault was of permanent nature. It was further informed that transmission wing has done the patrolling and cleaning of line.*

- **400 KV Bareilly-Unnao (UP) Ckt-1:***UP representative informed that there is some issue in Main-2 relay at Bareilly end due to which sometimes A/R operation don't occur and sometimes line gets trip after 5-6sec of successful A/R operation during single phase to earth fault. Replacement work of Main-2 relay is in process. NRLDC representative emphasized to expedite the work of replacement of Main-2 relay and take corrective actions to minimise the frequent occurrence of faults in line. UP representative agreed to replace the Main-2 relay at the earliest.*

- **400 KV Gumma (HP)-Panchkula(PG) (PG) Ckt-1:** *HP representative informed that tripping occurred on 1st& 2nd March 2023 occurred due to maloperation of protection system, protection wing has attended the issue. Tripping on 16th March occurred due to non-operation of A/R at Gumma end due to issue in circuit breaker, issue has been taken up with relay engineer. NRLDC representative emphasized to expedite the corrective actions to*

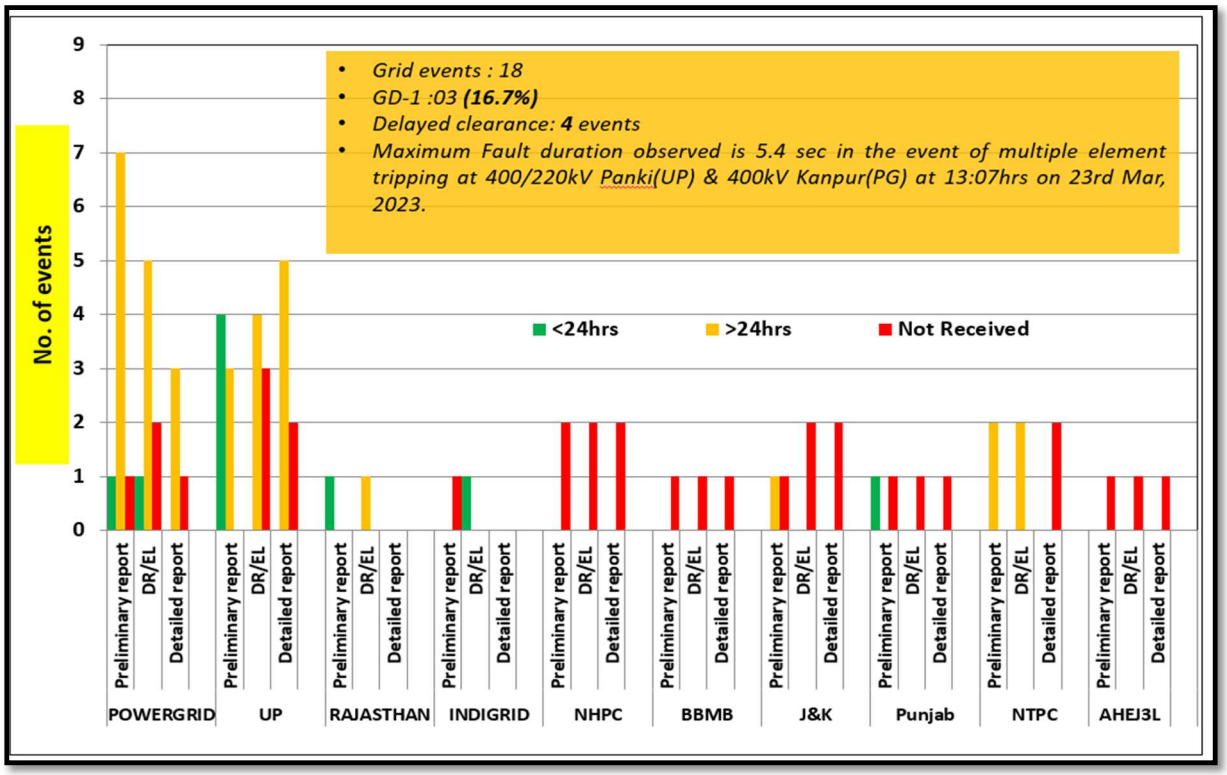
avoid undesired tripping of the line. HP representative agreed to review the protection system at Gumma and to ensure its healthiness.

- **400 KV Suratgarh(RVUN)-Bikaner(RS) (RS) Ckt-1:** *Rajasthan representative informed that there is issue related to A/R operation at Bikaner end. NRLDC representative emphasized to expedite the required corrective actions at both the stations to ensure proper A/R operation during single phase to earth fault. Rajasthan representative agreed to take corrective actions to ensure A/R operation at both the ends.*

NRLDC representative emphasized that A/R (auto re-closer) issue was found in many of these tripping. He sensitized all the utilities to ensure healthiness/ in service of A/R in 220 kV and above transmission lines in compliance to CEA Grid Standards. He further informed that most of the tripping are transient in nature but due to non-operation of A/R, it resulted into tripping of the transmission element thus reducing the reliability of the grid. All the utilities shall endeavor to keep auto re-closer in service and healthy condition of 220 kV and above voltage level transmission line. All utilities agreed for the same.

Frequent outages of such elements affect the reliability and security of the grid. Hence, utilities are once again requested to look into such frequent outages and share the remedial measures taken/being taken in this respect

19. Multiple element tripping events in Northern region in the month of March'23:



A total of 18 grid events occurred in the month of March'23 of which **03** are of GD-1 category, **07** are of GI-2 Category &**08** is of GI-1 category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.VI.**

Further, despite persistent discussions/follow-up in various OCC/PCC meetings, it is observed that provisions 5.2(r) and 5.9.4(d) of the IEGC, pertaining to reporting of events / tripping to RLDC, is not being complied with by many utilities.

Maximum Fault duration observed is 5.4 secs in the event of multiple element tripping at 400/220kV Panki(UP) & 400kV Kanpur(PG) at 13:07hrs on 23rd Mar, 2023. During the event, R & Y ph pole of CB at Panki end of 220kV Panki-Kanpur South ckt damaged.

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total 4events out of **18** grid events occurred in the month. The other events with delayed clearance of faults are as follows:

i. Multiple elements tripping at 400/220kV Panki(UP) & 400kV Kanpur(PG) at 13:07hrs on 23rd March, 2023, fault clearance time of 5400ms:

UP representative stated that event is not completely analysed due to lack of details received from Panki S/s. NRLDC representative suggested to schedule a meeting with Panki S/s to discuss the analysis and follow-up of the tripping event.

ii. Multiple elements tripping at 400kV Koldam(NTPC) at 17:00hrs on 13th March, 2023, fault clearance time of 320ms:

NRLDC representative asked the reason of LBB operation and status of remedial action at Koldam end. NTPC representative stated that tripping occurred due to Y-N fault on 400kV Koldam-Banala line, further analysis detail of the event will be shared.

iii. Multiple elements tripping at 220kV Moga(PG) & Mogan(PS) at 19:07hrs on 27th March, 2023, fault clearance time of 1560ms:

NRLDC representative informed that as reported, differential protection in line is not healthy. He further requested to take corrective actions to ensure its healthiness. It was also requested to Punjab representative to share the details of protection system available at Mogan (PS) along with protection setting and review the same at their end also to avoid any non-operation of protection system. Punjab representative agreed to review the protection system at Mogan(PS) and to take corrective actions to ensure its healthiness of differential protection in line.

iv. Multiple elements tripping at 220/66kV Jamalpur(BBMB) at 21:17hrs on 30th March, 2023, fault clearance time of 240ms:

BBMB representative informed that fault was at 220kV Dandharikalan end due to break of optical wire and line length of 220kV Jamalpur-Dandharikalan ckt is small

(~3.5km). NRLDC representative asked the reason of tripping of other elements at Jamalpur(BBMB). BBMB representative agreed to share the detail report of the event.

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

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

20. Details of tripping of Inter-Regional lines from Northern Region for March' 23:

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Brief Reason (As reported)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Remarks
			Date	Time				
1	400 KV RAPS_D(NP)-Shujalpur(PG) (RTCL) Ckt-1	POWERGRID	30-Mar-23	18:12	Phase to earth fault R-N	No	No	As per PMU & DR submitted, line tripped after unsuccessful A/R operation on permanent R-N fault.
2	765 KV Varanasi-Gaya (PG) Ckt-2	POWERGRID	21-Mar-23	20:41	Y-N fault, Varanasi End Details: FC- 22.42 KA, FD- 200m; and Gaya End : FD-263.4KM,FC-1.68KA. In investigation, external flash (Corona shield to bottom flange) on Line Y-Phase SF6 to Air bushing has been observed at Varansi end	yes (After 24 hrs)	yes (After 24 hrs)	As per PMU & DR submitted, line tripped on Y-N fault in zone-1 from Varanasi end on restricted earth fault protection(64R) operation of line reactor.
3	400 KV Varanasi-Biharshariff (PG) Ckt-2	POWERGRID	21-Mar-23	5:49	Phase to earth fault R-N	yes (After 24 hrs)	yes (After 24 hrs)	As per PMU & DR submitted, line tripped after unsuccessful A/R operation on R-N fault in zone-1 from Varanasi end.
4	400 KV Gorakhpur(PG)-Motihari(BS) (PG) Ckt-2	POWERGRID	18-Mar-23	19:37	R-N fault, Dist. 163.4km, Fault current 2.11kA from Gorakhpur & Fault current 9.69kA, Dist. 7.1km from Motihari.	yes	yes	As per PMU & DR submitted, line tripped after R-N fault in zone -1 from Gorakhpur end. Carrier was received.
5	765 KV Agra-Gwalior (PG) Ckt-1	POWERGRID	18-Mar-23	1:04	Phase to earth fault Y-N	yes	yes	As per PMU & DR submitted, line tripped after unsuccessful A/R operation on on permanent Y-N fault in zone-1. from Agra end.

6	765 KV Chittorgarh-Banaskantha (PG) Ckt-1	POWERGRID	18-Mar-23	0:33	R-B Fault, Dist. 117.306km, Fault current 5.2kA from Chittorgarh & Dist. 185.09km, Fault current 4.8kA from Banaskantha.	yes (After 24 hrs)	yes (After 24 hrs)	As per PMU & DR submitted, line tripped on R-B phase-phase fault in zone-1 from Chittorgarh end.
7	765 KV Chittorgarh-Banaskantha (PG) Ckt-2	POWERGRID	17-Mar-23	15:21	R-B fault, Dist. 130km, Fault current Ir 5.45kA, Ib 6.35kA from Chittorgarh.	yes (After 24 hrs)	yes (After 24 hrs)	As per PMU & DR submitted, line tripped on R-B phase-phase fault in zone-1 from Chittorgarh end.
8-9	800 KV HVDC Kurukshetra(PG) Pole-2 & 4	POWERGRID	14-Mar-23	20:03	due to T-zone protection operated at Kurukshetra end as a result of which the parallel pole i.e. Pole-4 also got blocked at same time.	yes (After 24 hrs)	No	As per PMU & EL, fluctuationin voltage is observed. T-zone protection of Pole-2 operated at Kurukshetra end and initiated CAT B protection as a result of which the parallel pole i.e. Pole-4 also got blocked at same time.
10	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	9-Mar-23	19:35	Due to blackout at 132kv obra hydro s/s ,Rihand main bus trip and this line manually open for safety purpose	yes (After 24 hrs)	No	As per PMU and DR, no fault is observed. Voltage dip of approx. 2kV is observed in B-phase.
11	400 KV RAPS_D(NP)-Shujalpur(PG) (RTCL) Ckt-1	POWERGRID	8-Mar-23	16:48	Phase to earth fault R-N	No	No	As per PMU, Line tripped on multiple R-N phase-phase fault.

A total of 11 inter-regional lines tripping occurred in the month of March'23. The list is attached at **Annexure-B.VII** 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 5.2(r) 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.

NRLDC representative asked the reason of frequent tripping at Rihand(UP). As line is inter regional, healthiness of protection of the line need to be ensured on priority to avoid unwanted tripping of the line. UP representative agreed to look into the issue and take necessary remedial actions.

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.

21. Status of submission of DR/EL and tripping report of utilities for the month of March'23.

The status of receipt of DR/EL and tripping report of utilities for the month of March'2023 is attached at **Annexure-B.VIII** of Agenda**.** It is to be noted that as per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL

has to be furnished within 24 hrs of the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement.

S. No.	Utility	Total No. of tripping	First Information Report (Not Received)		Disturbance Recorder (Not Received)	Disturbance Recorder (NA) as informed by utility	Disturbance Recorder (Not Received)	Event Logger (Not Received)	Event Logger (NA) as informed by utility	Event Logger (Not Received)	Tripping Report (Not Received)	Tripping Report (NA) as informed by utility	Tripping Report (Not Received)
			Value	%	Value		%	Value		%	Value		%
1	AHEJ2L	1	1	100	1	0	100	1	0	100	1	0	100
2	APFOL	1	1	100	1	0	100	1	0	100	1	0	100
3	APMPL	1	1	100	1	0	100	1	0	100	1	0	100
4	ARP1PL	1	1	100	1	0	100	1	0	100	1	0	100
5	AVAADA_SUNRAYS	1	1	100	1	0	100	1	0	100	1	0	100
6	BBMB	35	11	31	12	6	41	14	10	56	15	2	45
7	CHAMERA-I-NH	2	2	100	2	0	100	2	0	100	2	0	100
8	CLEANSOLAR_JODHPUR	1	1	100	1	0	100	1	0	100	1	0	100
9	CPCC1	32	1	3	4	4	14	3	4	11	6	2	20
10	CPCC2	29	3	10	3	2	11	3	2	11	3	0	10
11	CPCC3	45	5	11	5	4	12	5	5	13	7	0	16
12	DADRI-NT	4	2	50	2	0	50	2	0	50	2	0	50
13	DULHASTI-NH	1	0	0	0	0	0	0	0	0	0	0	0
14	KOLDAM-NT	3	0	0	0	0	0	0	0	0	0	0	0
15	NAPP	1	0	0	0	0	0	0	0	0	0	0	0
16	NJPC	1	0	0	0	1	0	0	0	0	0	0	0
17	NTPC_KOLAYAT SL	3	3	100	3	0	100	3	0	100	3	0	100
18	RAPPA	10	0	0	3	0	30	10	0	100	10	0	100
19	RAPPB	1	1	100	1	0	100	1	0	100	1	0	100
20	RAPPC	2	2	100	2	0	100	2	0	100	2	0	100
21	SAURYA	1	1	100	1	0	100	1	0	100	1	0	100
22	SINGOLI	2	2	100	2	0	100	2	0	100	2	0	100
23	SINGRAULI-NT		1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
24	SLDC-DV		14	2	**14**	4	6	**50**	4	6	**50**	5	5	**56**
25	SLDC-HP		8	0	**0**	0	5	**0**	0	4	**0**	0	0	**0**
26	SLDC-HR		9	0	**0**	0	1	**0**	0	1	**0**	0	0	**0**
27	SLDC-JK		7	6	**86**	6	0	**86**	6	0	**86**	6	0	**86**
28	SLDC-PS		16	3	**19**	11	3	**85**	12	1	**80**	15	0	**94**
29	SLDC-RS		46	0	**0**	2	0	**4**	2	0	**4**	10	0	**22**
30	SLDC-UK		12	0	**0**	0	2	**0**	0	5	**0**	0	0	**0**
31	SLDC-UP		148	46	**31**	58	12	**43**	54	13	**40**	61	1	**41**
32	STERLITE		2	2	**100**	0	0	**0**	0	0	**0**	0	2	**0**
33	TANAKPUR-NH		2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**
34	TANDA-NT		2	1	**50**	1	1	**100**	1	1	**100**	1	1	**100**
35	UNCHAHAR-NT		2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**
Total in NR Region			**447**	**101**	**23**	**130**	**47**	**33**	**135**	**52**	**34**	**160**	**13**	**37**

As per the IEGC provision under clause 5.2 (r), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event

NRLDC representative stated that reporting status has been improved from POWERGRID (NR-2, NR-3), UP, HP, Haryana, Rajasthan & Uttarakhand in March'2023 compared to the previous month. However, reporting status from POWERGRID (NR-1), Punjab, Delhi, J&K & RE stations need improvement.

Members agreed to take necessary follow-up actions to improve the reporting status.

Members may please note and advise the concerned for timely submission of the information. It is requested that DR/EL of all the trippings shall be uploaded on Web Based Tripping Monitoring System "http://103.7.128.184/Account/Login.aspx" within 24 hours of the events as per IEGC clause 5.2.r 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.

22. Status of PSS tuning/ re-tuning and Step Response Test of generator

Since 182nd OCC meeting, this point was discussed and Utilities were requested to submit the present status of PSS tuning/re-tuning and Step Response Test of their respective generators as per the below mentioned format.

S. No.	Name of the Generating Station	Date of last PSS tuning / re-tuning performed (in DD/MM/YYYY format)	Date of last Step Response Test performed (in DD/MM/YYYY format)	Report submitted to NRLDC (Yes/ No)	Remarks (if any)

The status of test performed till date is attached at **Annexure-B.IX** of Agenda**.**

It is to be noted that as per regulation 5.2(k) of IEGC, Power System Stabilizers (PSS) in AVRs of generating units (wherever provided), shall be got properly tuned by the respective generating unit owner as per a plan prepared for the purpose by the CTU/RPC from time to time.

Members were requested to update about their future plan for PSS tuning as there is no significant progress despite including this agenda in every OCC meeting and a separate meeting may be called for detail discussion on this matter.

NRLDC representative informed that all the units who have done Step response test before 2018 were requested to plan the exciter step-response test as soon as possible and submit the tentative schedule of step-response test on the units with NRPC/ NRLDC. He further requested that members may kindly accord due priority in this regard and update about their future plan for PSS tuning as there is little progress despite including this agenda in every OCC meeting. Members agreed for the same.

23. Frequency response characteristic:

Three FRC based event occurred in the month of **March-2023**. Description of the event is as given below:

Table:

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	End Frequency (in Hz)	*Δf*
1	16-Mar-23	09:16hrs	On 16th March 2023, as reported, at 09:16 hrs, both running units of MB Power tripped due to loss of evacuation path and resulted in generation loss of around 1102 MW. Hence, same figure has been considered in FRC Calculation.	50.03	50.00	0.03
2	28-Mar-23	10:37hrs	KSTPS 400kV Bus-4 was under Emergency shutdown. On 28th March, 2023 at 10:37 Hrs, 400kV Bus-1, 2 & 3 also got tripped due to fault in 400kV Bus-3. It resulted in black out of KSTPS Station and generation loss of 2416 MW occurred. Hence, same figure has been considered in FRC Calculation.	50.01	49.93	0.08

Details of 16th March 2023 event:

Status of Data received till date:

Status of Field Data received of FRC of Grid event occurred at MB Power in Western Region at 09:16 Hrs on 16.03.2023			
Data Received from		Data Not Received from	
Koteshwar HEP*	TSPL	Uttarakhand	APCPL Jhajjar
Chhabra TPS*	Singrauli NTPC	Haryana	Rihand NTPC
Tehri HEP*	Rajasthan*	Punjab	Unchhahar NTPC
Rosa Reliance	Anpara D	Delhi	NHPC
UP	Nathpa Jhakri	BBMB	Dadri NTPC
		HP	

*Unit wise raw data not shared

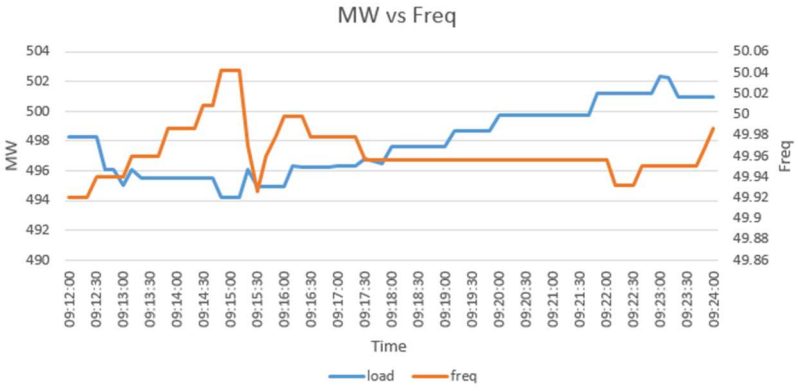
FRC of ISGS generators:

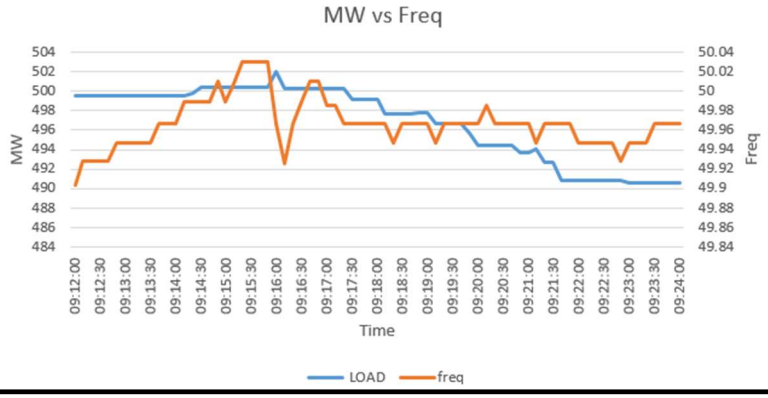
Generator	16-Mar-23 event	Generator	16-Mar-23 event
Singrauli TPS	93%	Salal HEP	29%
Rihand-1 TPS	-31%	Tanakpur HEP	131%
Rihand-2 TPS	-52%	Uri-1 HEP	-2%
Rihand-3 TPS	36%	Uri-2 HEP	-34%
Dadri-1 TPS	56%	Dhauliganga HEP	No generation
Dadri -2 TPS	357%	Dulhasti HEP	No generation
Unchahar TPS	-4%	Sewa-II HEP	0%
Unchahar stg-4 TPS	34%	Parbati-3 HEP	No generation
Jhajjar TPS	174%	Jhakri HEP	-441%
Dadri GPS	0%	Rampur HEP	-1255%
Anta GPS	-2%	Tehri HEP	148%
Auraiya GPS	-16%	Koteswar HEP	-98%
Narora APS	15%	Karcham HEP	No generation
RAPS-B	12%	Malana-2 HEP	No generation
RAPS-C	31%	Budhil HEP	0%
Chamera-1 HEP	No generation	Bhakra HEP	-1%
Chamera-2 HEP	-43%	Dehar HEP	37%
Chamera-3 HEP	-54%	Pong HEP	1%
Bairasiul HEP	No generation	Koldam HEP	No generation
		AD Hydro HEP	No generation

FRC of State generators:

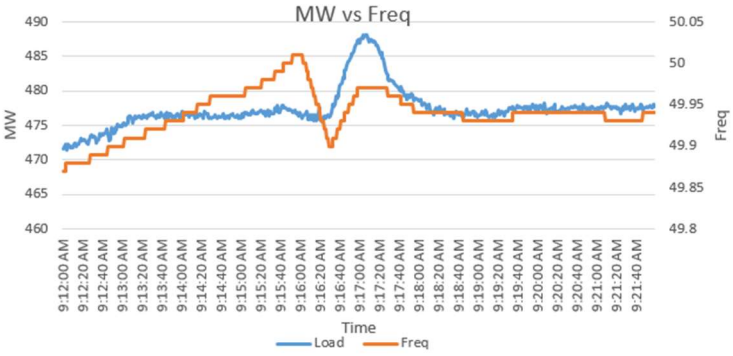
Generator	16-Mar-23 event
PUNJAB	
Ropar TPS	11%
L.Mohabbat TPS	236%
Rajpura TPS	118%
T.Sabo TPS	9%
Goindwal Sahib TPS	497%
Ranjit Sagar HEP	-12%
Anandpur Sahib HEP	-8%
HARYANA	
Panipat TPS	29%
Khedar TPS	26%
Yamuna Nagar TPS	No generation
CLP Jhajjar TPS	5%
Faridabad GPS	No generation
RAJASTHAN	
Kota TPS	-6%
Suratgarh TPS	8%
Kalisindh TPS	0%
Chhabra TPS	No generation
Chhabra stg-2 TPS	-9%
Kawai TPS	184%
Dholpur GPS	No generation
Mahi-1 HEP	0%
Mahi-2 HEP	No generation
RPS HEP	0%
JS HEP	0%
DELHI	
Bawana GPS	No generation
Pragati GPS	No generation

Generator	16-Mar-23 event
UP	
Obra TPS	-11%
Harduaganj TPS	358%
Paricha TPS	196%
Rosa TPS	0%
Anpara TPS	-14%
Anpara C TPS	132%
Anpara D TPS	1%
Bara TPS	75%
Lalitpur TPS	0%
Meja TPS	0%
Vishnuprayag HEP	20%
Alaknanda HEP	No generation
Rihand HEP	No generation
Obra HEP	No generation
UTTARAKHAND	
Gamma Infra GPS	No generation
Shravanti GPS	No generation
Ramganga HEP	No generation
Chibra HEP	6%
Khodri HEP	0%
Chilla HEP	-29%
HP	
Baspa HEP	-20%
Malana HEP	No generation
Sainj HEP	No generation
Larji HEP	-5%
Bhabha HEP	No generation
Giri HEP	131%
J&K	
Baglihar-1&2 HEP	No generation
Lower Jhelum HEP	No generation



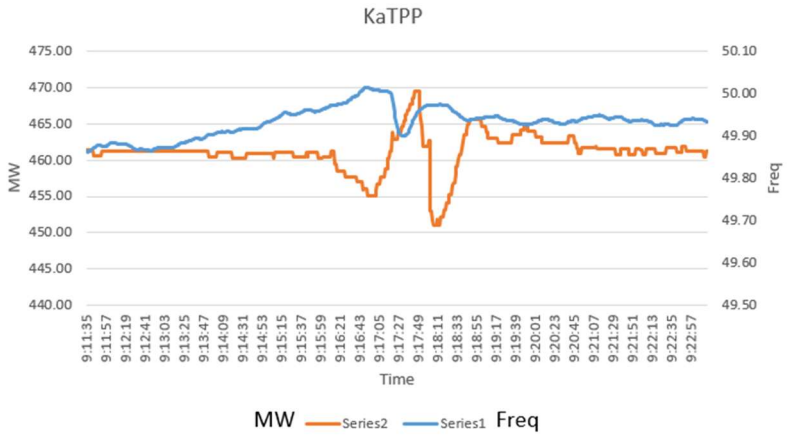


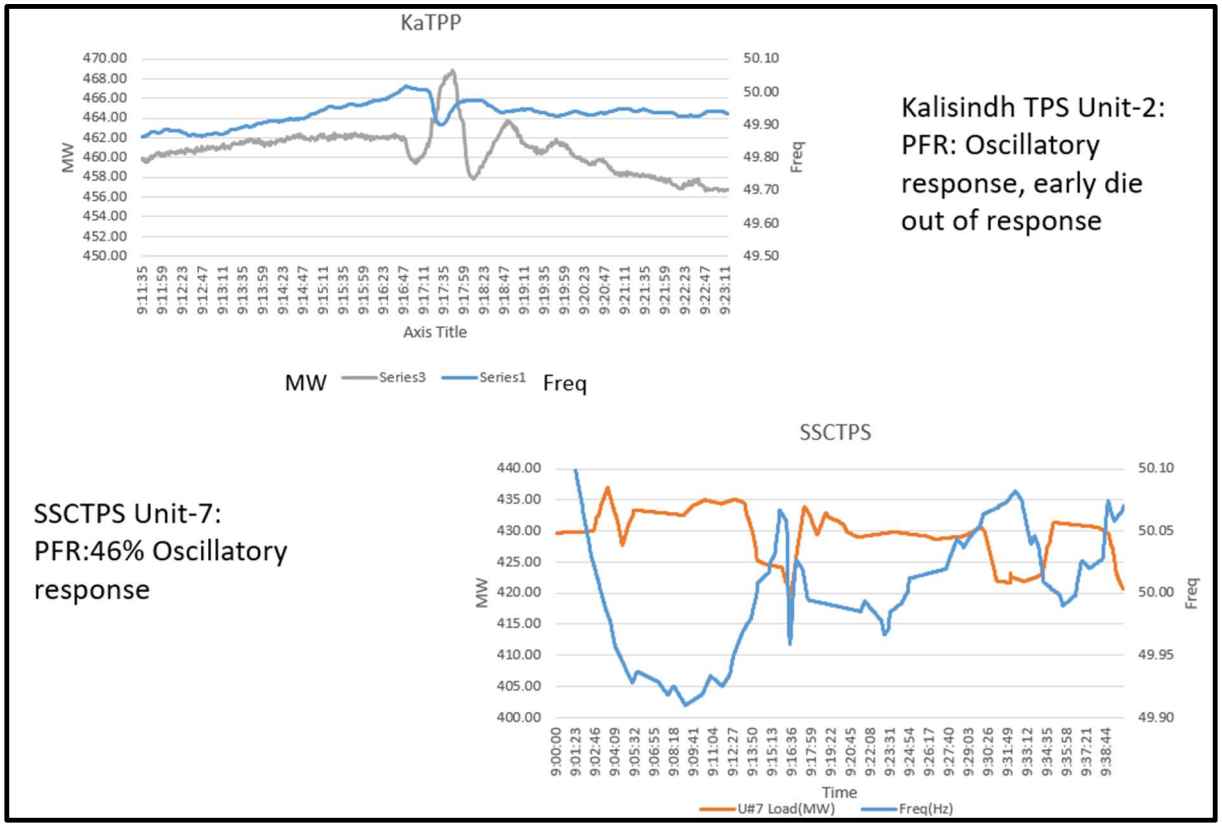
Anpara D Unit-1 & 2: Data resolution is not proper

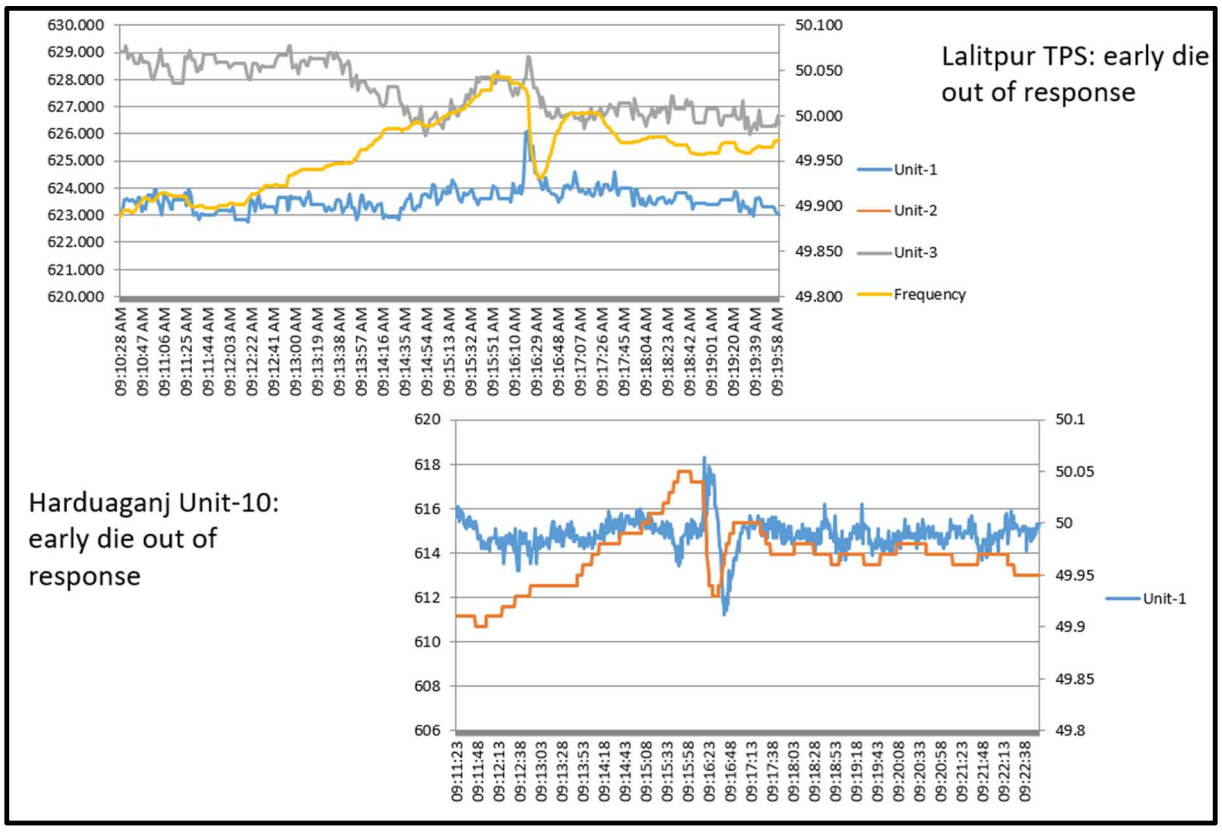


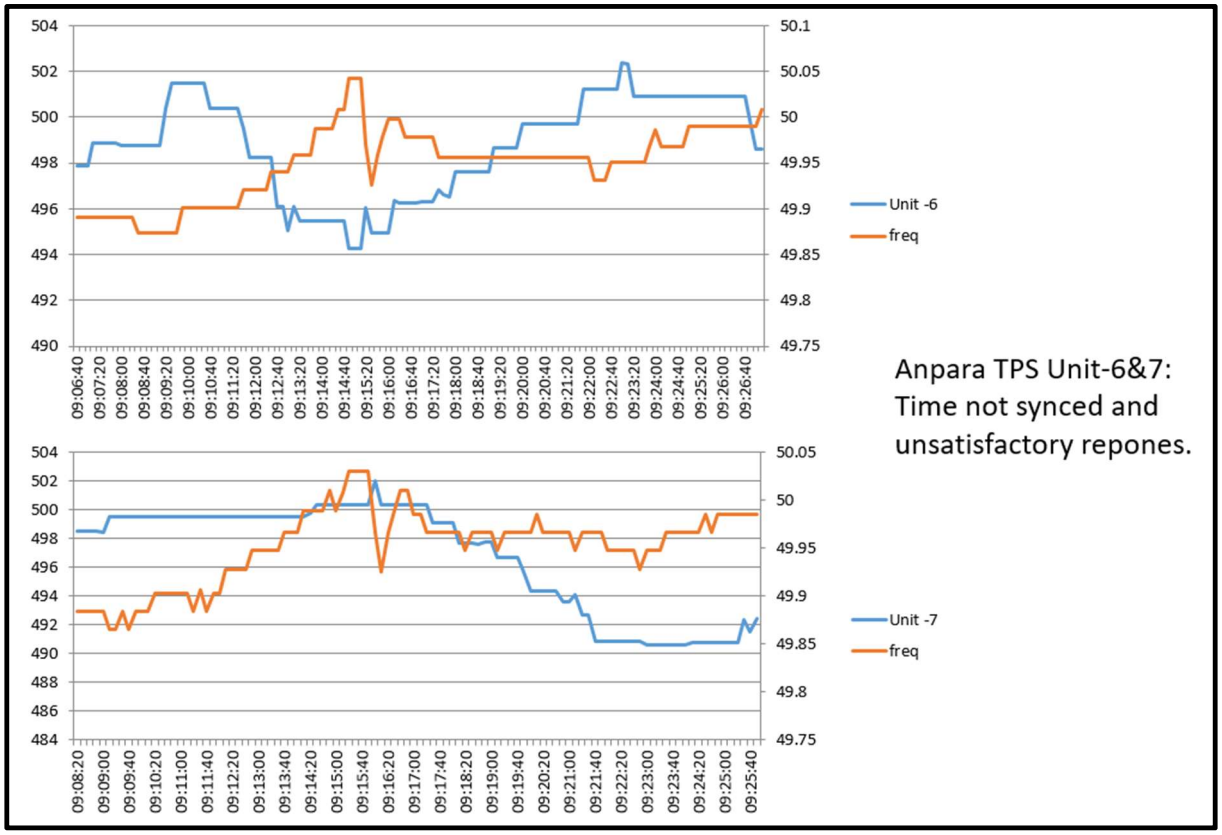
Singrauli Unit-7 : PFR: ~105% of ideal response, early die out of response observed

Kalisindh TPS Unit-1: PFR: Oscillatory response, early die out of response




KaTPP
MW
Freq
Axis Title
MW
Series3
Series1
Freq
Kalisindh TPS Unit-2: PFR: Oscillatory response, early die out of response
SSCTPS Unit-7: PFR:46% Oscillatory response
SSCTPS
MW
Freq
Time
U#7 Load(MW)
Freq(Hz)


Lalitpur TPS: early die out of response
Unit-1
Unit-2
Unit-3
Frequency
Harduaganj Unit-10: early die out of response
Unit-1



Details of 28th March 2023 event:

Status of Data received till date:

Status of Field Data received of FRC of Grid event occurred at Korba STPS in Western Region at 10:37 Hrs on 28.03.2023			
Data Received from		Data Not Received from	
Koteshwar HEP*	TSPL	Uttarakhand	APCPL Jhajjar
Tehri HEP*	Singrauli NTPC	Haryana	Rihand NTPC
UP	Rajasthan	Punjab	Unchhahar NTPC
Dadri NTPC	Kawai TPS	Delhi	NHPC
		BBMB	
		HP	

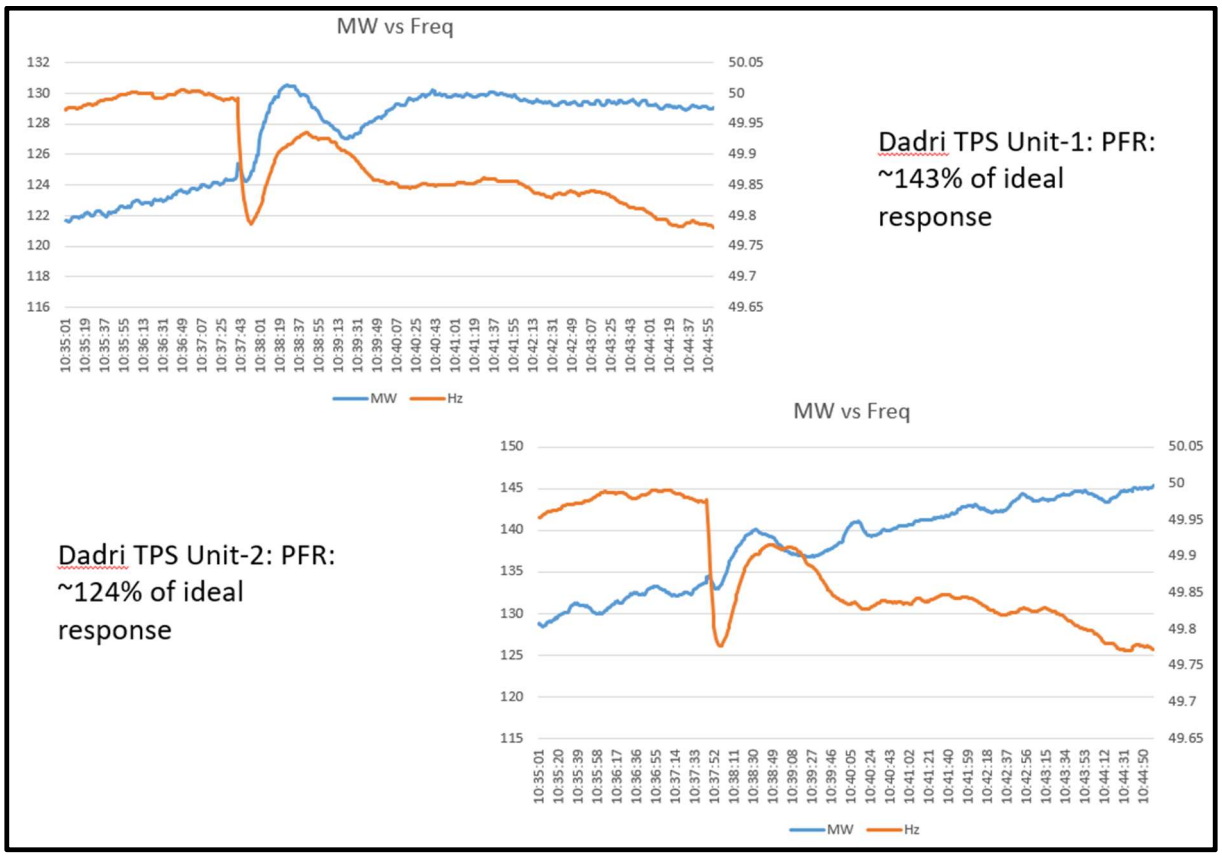
*Unit wise raw data not shared

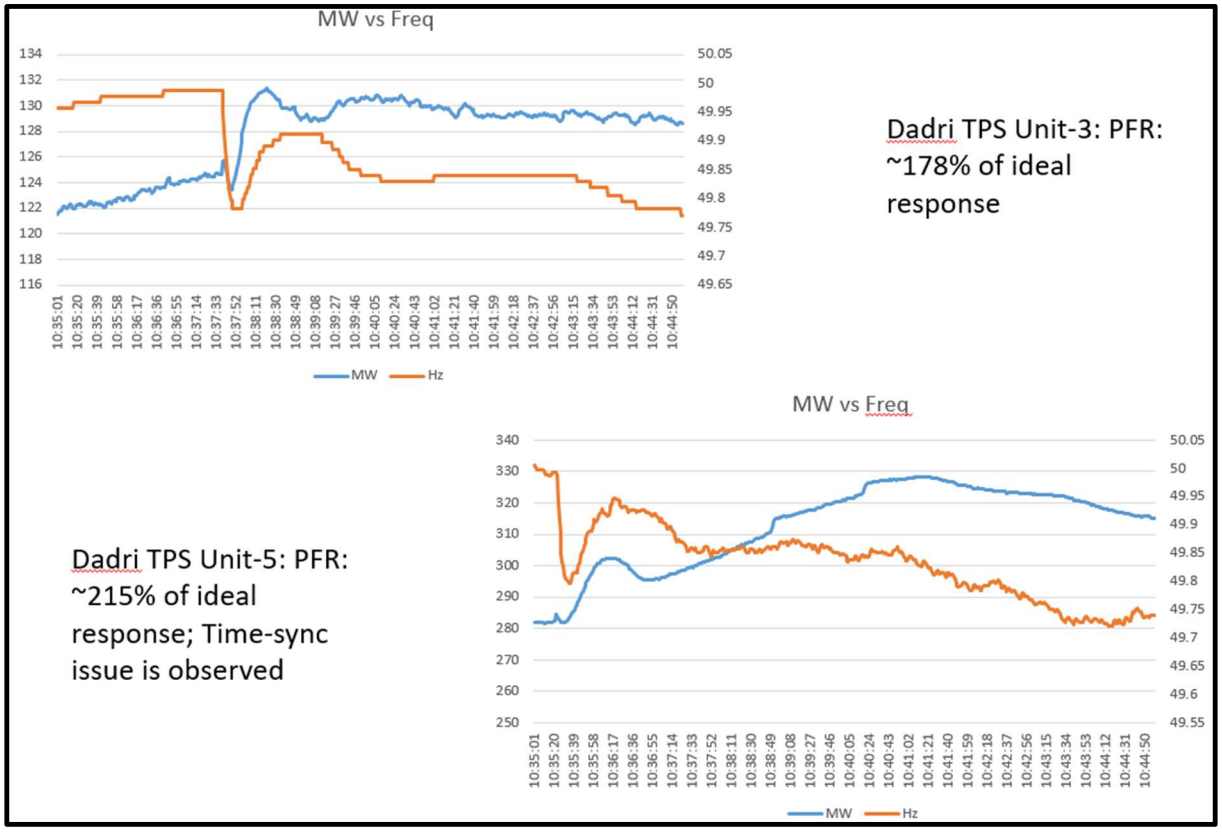
FRC of ISGS generators:

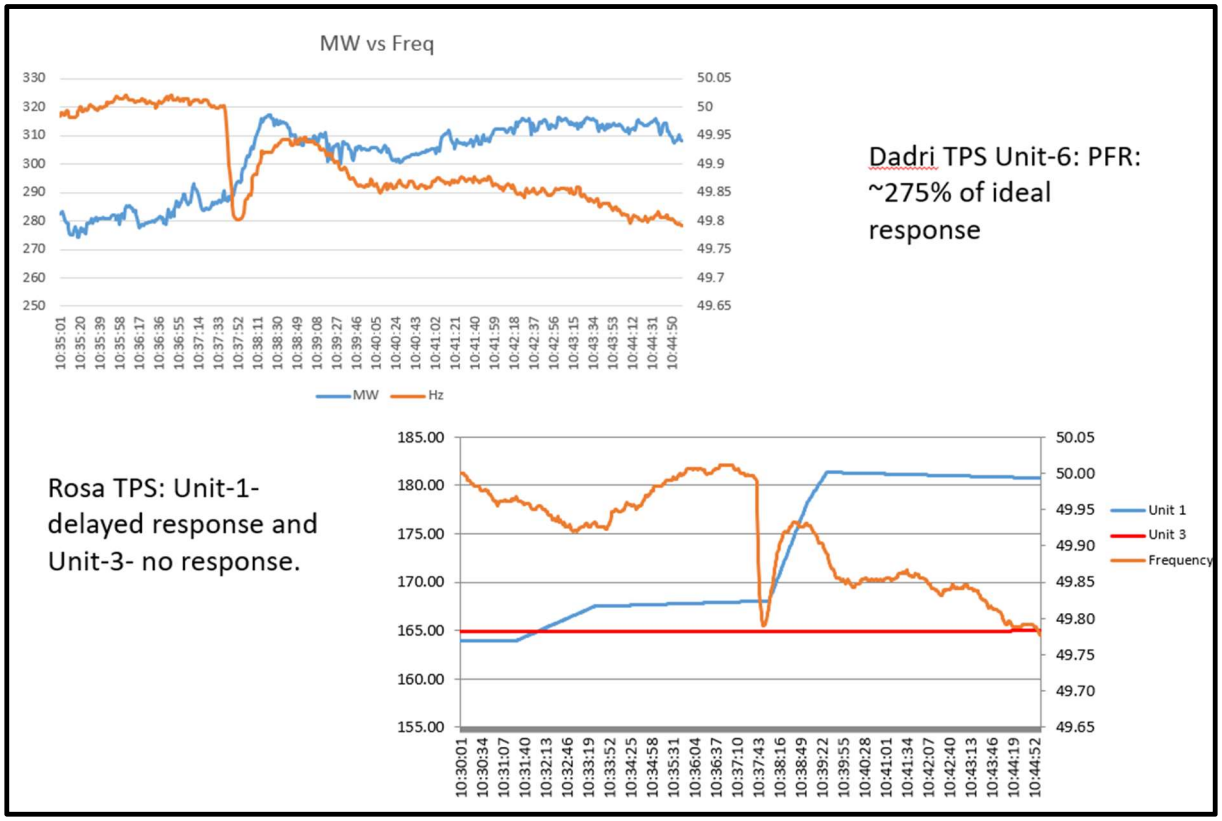
Generator	28-Mar-23 event	Generator	28-Mar-23 event
Singrauli TPS	-3%	Salal HEP	-2%
Rihand-1 TPS	6%	Tanakpur HEP	10%
Rihand-2 TPS	12%	Uri-1 HEP	2%
Rihand-3 TPS	7%	Uri-2 HEP	-13%
Dadri-1 TPS	179%	Dhauliganga HEP	No generation
Dadri -2 TPS	269%	Dulhasti HEP	0%
Unchahar TPS	No generation	Sewa-II HEP	0%
Unchahar stg-4 TPS	No generation	Parbati-3 HEP	No generation
Jhajjar TPS	179%	Jhakri HEP	No generation
Dadri GPS	No generation	Rampur HEP	No generation
Anta GPS	No generation	Tehri HEP	8%
Auraiya GPS	No generation	Koteswar HEP	0%
Narora APS	-10%	Karcham HEP	0%
RAPS-B	2%	Malana-2 HEP	0%
RAPS-C	3%	Budhil HEP	No generation
Chamera-1 HEP	No generation	Bhakra HEP	4%
Chamera-2 HEP	No generation	Dehar HEP	-4%
Chamera-3 HEP	No generation	Pong HEP	No generation
Bairasiul HEP	No generation	Koldam HEP	No generation
		AD Hydro HEP	No generation

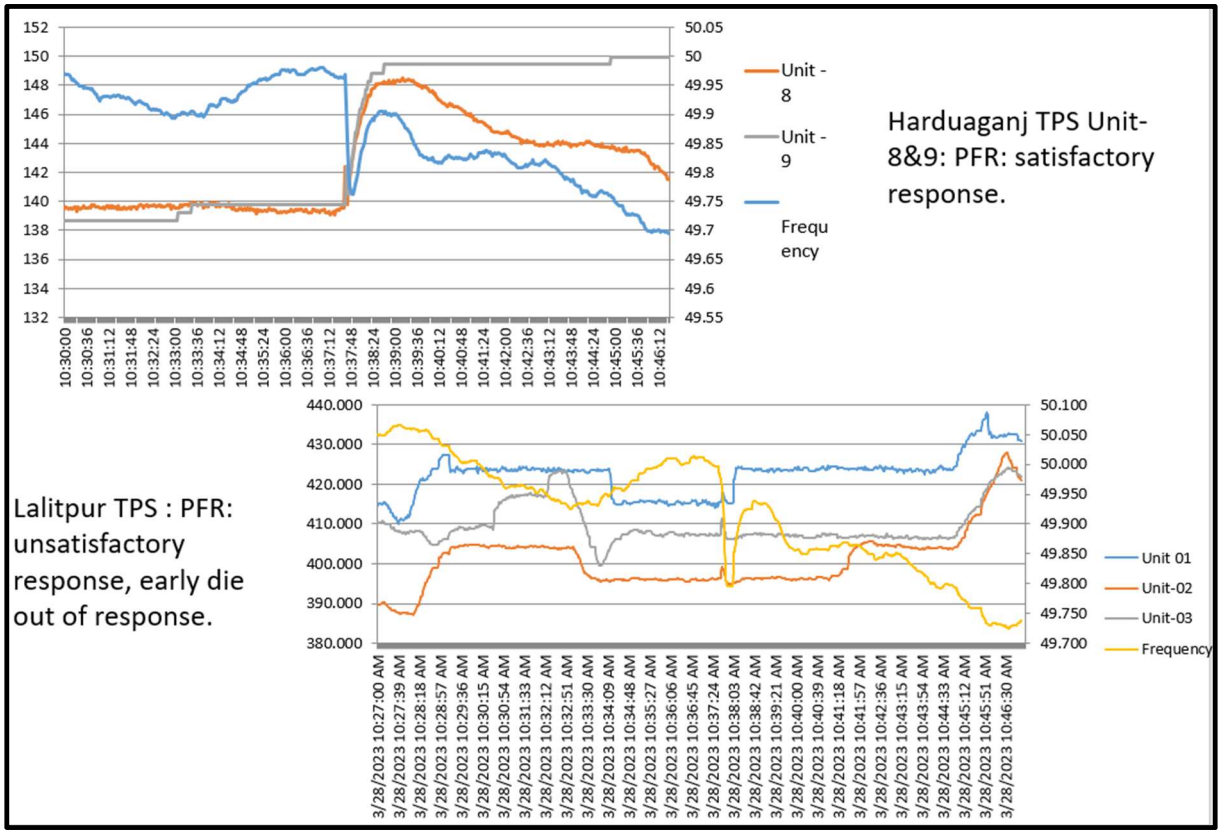
FRC of State generators:

Generator	28-Mar-23 event	Generator	28-Mar-23 event
PUNJAB		UP	
Ropar TPS	No generation	Obra TPS	23%
L.Mohabbat TPS	No generation	Harduaganj TPS	193%
Rajpura TPS	37%	Paricha TPS	-12%
T.Sabo TPS	7%	Rosa TPS	45%
Goindwal Sahib TPS	278%	Anpara TPS	-2%
Ranjit Sagar HEP	No generation	Anpara C TPS	57%
Anandpur Sahib HEP	No generation	Anpara D TPS	-8%
HARYANA		Bara TPS	137%
Panipat TPS	0%	Lalitpur TPS	1%
Khedar TPS	23%	Meja TPS	-18%
Yamuna Nagar TPS	No generation	Vishnuprayag HEP	0%
CLP Jhajjar TPS	27%	Alaknanda HEP	No generation
Faridabad GPS	No generation	Rihand HEP	No generation
RAJASTHAN		Obra HEP	No generation
Kota TPS	-53%	UTTARAKHAND	
Suratgarh TPS	-6%	Gamma Infra GPS	No generation
Kalisindh TPS	6%	Shravanti GPS	No generation
Chhabra TPS	No generation	Ramganga HEP	No generation
Chhabra stg-2 TPS	-2%	Chibra HEP	8%
Kawai TPS	No generation	Khodri HEP	0%
Dholpur GPS	No generation	Chilla HEP	-17%
Mahi-1 HEP	No generation	HP	
Mahi-2 HEP	No generation	Baspa HEP	0%
RPS HEP	No generation	Malana HEP	No generation
JS HEP	No generation	Sainj HEP	-15%
DELHI		Larji HEP	-4%
Bawana GPS	34%	Bhabha HEP	0%
Pragati GPS	No generation	Giri HEP	0%
		J&K	
		Baglihar-1&2 HEP	No generation
		Lower Jhelum HEP	No generation




MW vs Freq
MW
Hz
Dadri TPS Unit-3: PFR: ~178% of ideal response
Dadri TPS Unit-5: PFR: ~215% of ideal response; Time-sync issue is observed
MW vs Freq
MW
Hz


MW vs Freq
MW
Hz
Dadri TPS Unit-6: PFR: ~275% of ideal response
Rosa TPS: Unit-1- delayed response and Unit-3- no response.
Unit 1
Unit 3
Frequency



NRLDC representative requested all the constituents to timely share the details of FRC w.r.t. their control area and also analyse the FRC of generating units of their control area. He further requested to take corrective actions and also take initiative of conducting PFR testing of generating units for further turning and improvement. Members agreed for the same.

Rajasthan representative informed that they have started the process for conducting PFR testing of generating units of their control area.

Punjab representative informed that Rajpura TPS, TSPL & Goindwal Sahib TPS have earlier intimated for conducting PFR testing before paddy season however PFR testing haven't conducted yet at these TPS. It was further informed that L. Mohabbat TPS is in discussion with M/S SOLVINA regarding conducting PFR testing.

24. Details of the major trippings in UP control area and status of action taken:

Multiple grid incident/disturbances in UP control area has been reported during March 2023. Needless to emphasize that such frequent grid events endanger the security and reliability of the state grid as well as that of the regional and national grid. In this connection, your kind attention is drawn to the multiple elements tripping at 400kV Jehta Hardoi(UP) on 22nd March 2023, at 400/220kV Panki(UP) on 23rd March 2023 and at 400/220kV Agra(UP) on 28th March 2023. Tripping

incidents were analysed based on PMU & SCADA data and details received from sites. However, few of the points are still not clear. For reference, tripping report of the events is attached as **Annexure-B.X** of Agenda. Further, it is requested to share the details of all three incidents w.r.t. following points:

I. Multiple elements tripping at 400kV Jehta Hardoi(UP) on 22nd March 2023:

a) Exact location and nature of fault?

b) Reason of occurrence of fault?

c) Why did bus bar protection of both the 400kV Bus (Bus-1 & 2) operate?

UP representative informed that fault occurred at Y-ph bus side isolator of 400kV Unnao-Jehra Hardoi ckt-2 at Jehta Hardoi end. Both the bus tripped due to delayed opening of bus coupler breaker. T&C wing have taken up the issue with OEM, further update will be shared.

II. Multiple elements tripping at 400/220kV Panki(UP) on 23rd March 2023:

a) Exact location and nature of fault?

b) It seems that protection didn't clear from 220kV side of Panki(UP) which further led to the tripping of elements at 400kV level on back up protection. Reason of delayed clearance of fault from Panki(UP) end?

c) As per current status, no DR/EL of 220kV side of Panki(UP) received. Details need to be shared at the earliest.

d) Remedial action taken report to be shared.

UP representative stated that event is not completely analysed due to lack of details received from Panki S/s. NRLDC representative suggested to schedule a meeting with Panki S/s to discuss the analysis and follow-up of the tripping event.

III. Multiple elements tripping at 400/220kV Agra(UP) on 28th March 2023:

a) Why did LBB protection operate during charging of 400kV Agra(PG)-Agra(UP) ckt?

b) What was the bus-wise arrangement of elements during the antecedent condition of the event? Why did elements connected at both the bus trip?

c) Disturbance recorder file of LBB relay need to be shared.

d) As reported, bus bar protection is obsolete and new panel for bus bar protection has been procured and implementation work is in process. Status of completion of the same need to be shared.

UP representative informed that LBB relay of 400kV Agra(PG)-Agra(UP) ckt maloperated. As line is maintained by POWERGRID, LBB relay was replaced by POWERGRID on 29th March 2023. Further it was informed that existing bus bar protection at 400kV Agra(UP) is obsolete and implementation of new bus bar panel is under process. NRLDC representative asked to review the details if feeders mapped in Agra(UP) SPS as few of the 220kV feeders mentioned in implements SPS logic didn't trip on SPS operation. UP representative agreed to review the SPS at 400/220kV Agra(UP) S/s.

25. Status of Bus bar protection:

Clause - 4 in schedule - V of Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric Lines) Regulations, 2010 reads as

"Bus bar protection and local breaker backup protection shall be provided in 220kV and higher voltage interconnecting sub- stations as well as in all generating station switchyards".

During analysis of many grid incidents/disturbances, it has been found that the Busbar protection at the affected substation was **not present or non-operational** which resulted in considerably increasing both the number of affected elements and fault clearance time. Accordingly, it becomes critical to monitor and keep Busbar protection at all the 220 kV and above voltage level substations healthy and operational.

Constituents were requested vide NRLDC letter dated 28th Dec 2022 to furnish status of Busbar protection in the following format in your control area positively by **15 January 2023.**

As of now details are received from POWERGRID(NR-1 & NR-2), Haryana, NTPC, BBMB, Uttarakhand, HP and UP

Constituent wise status of bus bar protection where bus bar protection is either not installed or installed but not operational is attached as **Annexure-B.XI** of Agenda. Constituents are requested to share the present status w.r.t. to the same.

Uttarakhand representative informed that it won't be possible to off the 400kV Kashipur & 220kV Rishikesh S/s due to lack of alternate connectivity. Hence implementing bus bar protection at these S/s is not possible as of now.

Haryana & UP representative said that they will share the updated information.

NRLDC representative requested all the constituents to update the status of bus bar protection at S/s of their control area and also expedite the commissioning and implementation work of bus bar protection system. Members agreed for the same.

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:
<table><tr><td>◎</td><td>CHANDIGARH</td><td>Sep-2019</td></tr><tr><td>◎</td><td>DELHI</td><td>Mar-2023</td></tr><tr><td>◎</td><td>HARYANA</td><td>Dec-2022</td></tr><tr><td>◎</td><td>HP</td><td>Jan-2023</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Available</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Jul-2022</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Feb-2023</td></tr><tr><td>◎</td><td>UP</td><td>Mar-2023</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Mar-2023</td></tr></table>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:
<table><tr><td>◎</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>◎</td><td>DELHI</td><td>Dec-2022</td></tr><tr><td>◎</td><td>HARYANA</td><td>Mar-2023</td></tr><tr><td>◎</td><td>HP</td><td>Feb-2023</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Available</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Jun-2022</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Dec-2022</td></tr><tr><td>◎</td><td>UP</td><td>Mar-2023</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Mar-2023</td></tr><tr><td>◎</td><td>BBMB</td><td>Mar-2023</td></tr></table>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:
<table><tr><td>◎</td><td>CHANDIGARH</td><td>Not Available</td></tr><tr><td>◎</td><td>DELHI</td><td>Increased</td></tr><tr><td>◎</td><td>HARYANA</td><td>Increased</td></tr><tr><td>◎</td><td>HP</td><td>Increased</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not increased</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Increased</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Increased</td></tr><tr><td>◎</td><td>UP</td><td>Increased</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Increased</td></tr></table></td></tr>
</table>

			◎	BBMB	Increased
			J&K and LADAKH were requested to update status for increasing settings of UFRs.		
4	Status of FGD installation vis-à-vis installation plan at identified TPS	List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed. Further, progress of FGD installation work on monthly basis is monitored in OCC meetings.	Status of the information submission (month) from states / utilities is as under:		
			◎	HARYANA	Sep-2022
			◎	PUNJAB	Mar-2023
			◎	RAJASTHAN	Mar-2023
			◎	UP	Apr-2023
			◎	NTPC	Feb-2023
			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.		
5	Information about variable charges of all generating units in the Region	The variable charges detail for different generating units are available on the MERIT Order Portal.	All states/UTs are requested to submit daily data on MERIT Order Portal timely.		
6	Status of Automatic Demand Management Sysytem in NR states/UT's	The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:	Status:		
			◎	DELHI	Fully implemented
			◎	HARYANA	Scheme not implemented
			◎	HP	Scheme not implemented
			◎	PUNJAB	Scheme not implemented
			◎	RAJASTHAN	Under implementation. Likely completion schedule is 30.06.2023.
			◎	UP	Scheme implemented by NPCIL only

7	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	Anticipated commissioning: May'23
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under final stage inspection. GIS Bay is already available.
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	PO awarded to M/s Kanohar Electricals Ltd. Drawings approved and under final stage inspection. GIS Bay is already available.
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work awarded to M/s. Ethos. Bay work is expected to be completed by Dec.21. 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 - LOA issued on dated. 17.08.2021 and date of completion of project is 18 months from the date of LOA. 220kV Reactors - LOA issued on dated 19.07.2021 and date of completion of project is 18 months from the date of LOA. Commsioned 27th Jan'23
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	Price bid has been opened and is under evaluation. Retendered in Jan'23
xi	RAJASTHAN	Akal	1x25 MVAr	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022.

xii	RAJASTHAN	Bikaner	1x25 MVAr	Main bus shutdown is required for commissioning of 1x25 MVAR reactor at Bikaner, same is expected upto March’ 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.
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.

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'23	02 No. of bays shall be utilized for LILO-II of 220kV Hiranagar Bishnah Transmission Line, the work of which is under progress and shall be completed by March'2023. Updated in 204th 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	End of 2023	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. The work is in progress and expected to be commission by the end of 2023. Updated in 204th 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: 5 Unutilized: 1 (1 bays to be utilized shortly) Approved/Under Implementation:1	• 220 kV D/C Shahajahanpur (PG) - Gola line	Apr'23	Updated in 205th OCC by UPPTCL
				• 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 (2 bays to be utilized shortly)	• 220 kV Hamirpur-Dehan D/c line	Commissioned	Commisioned date: 09.06.2022. Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Jun'23	Issue related to ROW as intimated in 202nd OCC by HVPNL.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Apr'24	Issue related to ROW as intimated in 192nd OCC by HVPNL.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	May'24	Tender is under process Updated in 205th OCC by HVPNL.
11	400/220kV Tughlakabad	Commissioned: 6 Under Implementation: 4	Utilized: 6 Unutilized: 0	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	-	DTL to update the status.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
	GIS	Total: 10	Under Implementation:4	• Masjid Mor – Tughlakabad 220kV D/c line.	-	DTL to update the status.
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 0 Unutilized: 6	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Jun'23	Updated in 205th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• LILO of both circuits of 220 KV Pali - Sector 56 D/C line at Kadarpur along with augmentation of existing conductor from 220 KV Sector-56 to LILO point with 0.4 sq inch AL-59 conductor.	Dec'23	Forest approval is pending for 220 KV Pali - Sector 56 D/C line. Updated in 205th OCC by HVPNL
				• LILO of both circuits of 220KV Sector 65 - Pali D/C line at Kadarpur along with augmentation of balance 0.4 sq. inch ACSR conductor of 220 kV Kadarpur - Sector 65 D/C line with 0.4sq inch AL-59 conductor	Dec'23	Updated in 205th OCC by HVPNL
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 2 Unutilized: 4	• LILO of both circuits of 220kV D/c Sector-69 - Roj Ka Meo line at 400kV Sohna Road	Jun'23	Updated in 197th 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 Total: 8	Utilized: 4 Unutilized: 4 Under Implementation:2	• Prithla - Harfali 220kV D/c line with LILO of one ckt at Meerpur Kurali	31.03.2024	Updated in 205th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	Commissioned	Commisioned date: 31.12.2021. Updated in 198th OCC by HVPNL
				• 220kV D/C for Sector78, Faridabad	31.03.2024	Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 205th OCC by HVPNL.
				• Prithla - Sector 89 Faridabad 220kV D/c line	31.03.2024	Updated in 205th OCC by HVPNL
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	05.10.2023	Updated in 205th OCC by HVPNL
				• Sonepat - HSIISC Rai 220kV D/c line	-	Updated in 205th OCC by HVPNL. **Status:** Due to non-performance of work of 220KV GIS Rai S/Stn, the Contract has been terminated & blacklisted by O/o XEN/WB O/o CE/PD&C, HVPNL, Panchkula vide Ch-100/HDP-2418/REC-254/Xen(WB) Dated 24.02.2023. Now pending work will be caried out by HVPNL/ Departmentely

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
		Total: 8	Implementation:2	• Sonepat - Kharkhoda Pocket A 220kV D/c line	31.07.2024	Updated in 205th OCC by HVPNL. **Status:** The Possession of land for construction of 220KV S/Stn. Pocket-A i.e 6.33 Acres and for Pocket-B is 5.55 Acres has been taken over by HVPNL. Work order yet to be issued by O/o CE/PD&C, Panchkula for construction of 2 no. 220KV GIS S/Stn Pocket-A & Pocket-B.
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 order is finalized as updated in 201st OCC by RVPNL. 5 months from layout finalization.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Bid documents under approval as updated in 195th OCC by RVPNL.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	May'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line comiisioned 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	Jun'23	• Lucknow -Kanduni, 220 kV D/C line expected energization date Jun'23 updated by UPPTCL in 205th OCC due to sub-station commissioning delay _____ • 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	Apr'23	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line expected energization date is 15.04.2023 updated by UPPCL in 205th 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	Jul'23	SCDA System work pending at 220 KV S/stn. Rajokheri Updated in 205th OCC by HVPNL
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 – Pinjore 220kV D/c line	Sep'23	Updated in 205th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	Sep'23	Updated in 205th OCC by HVPNL
				• 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
		Commissioned:7	Utilized: 6	• Amritsar – Patti 220kV S/c line	May'23	Route survey/tender under process. Work expected to be completed by May 2023. Updated in 198th OCC by PSTCL.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
26	400/220kV Amritsar S/s	Approved in 50th NRPC- 1 no. Total: 8	Unutilized: 1 Approved in 50th NRPC- 1 no.	• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	May'23	Route survey/tender under process. Work expected to be completed by May 2023. Updated in 198th 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 Total: 4	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra-Daultabad S/c line at 400 kV Bahadurgarh PGCIL	31.03.2024	Updated in 205th OCC by HVPNL. **Status:** Tentative route stands submitted by TS wing and accordingly BOQ has been submitted by design wing to contracts wing for award of work.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	31.03.2024	Updated in 205th OCC by HVPNL. **Status:** Tentative route stands submitted by TS wing and accordingly BOQ has been submitted by design wing to contracts wing for award of work.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	31.07.2024	
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• Network to be planned for 2 bays.	-	LILO case of 220 kV Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG) is under WTD approval as updated by RVPNL in 195th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	-	RVPNL to update the status
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 4 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	Mar'23	Saharanpur(PG)-Devband D/c line expected energization date last week of March'23 updated by UPPTCL in 205th 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	May'23	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work expected to be completed by May 2023.Updated in 205th OCC by PSTCL.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	-	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is not ready.Updated in 198th OCC by HPPTCL
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'24	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.

2. Establishment of new 400/220kV substations in Northern Region:

Sl. No.	Name of Substation	MVA Capacity	Expected Schedule		Downstream connectivity by States
1	400/220kV Dwarka-I GIS (8 nos. of 220kV bays)	4x 500	Mar'22		DTL to update the status
2	220/66kV Chandigarh GIS (8 nos. of 66kV bays)	2x 160	Apr'22		Chandigarh to update the status.
3	400/220kV Jauljivi GIS Out of these 8 nos. 220kV Line Bays, 4 nos. (Pithoragath-2, & Dhauliganga-2) would be used by the lines being constructed by POWERGRID and balance 4 nos. bays would be used by the lines being constructed by PTCUL.	2x315	Feb'22		• 220kV Almora-Jauljibi line • 220kV Brammah-Jauljibi line PTCUL to update the status of lines.

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 (15.02.2023)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (16.02.2023)
GGSSTP, Ropar
GH TPS (LEH.MOH.)
RRVUNL (16.03.2023)
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)

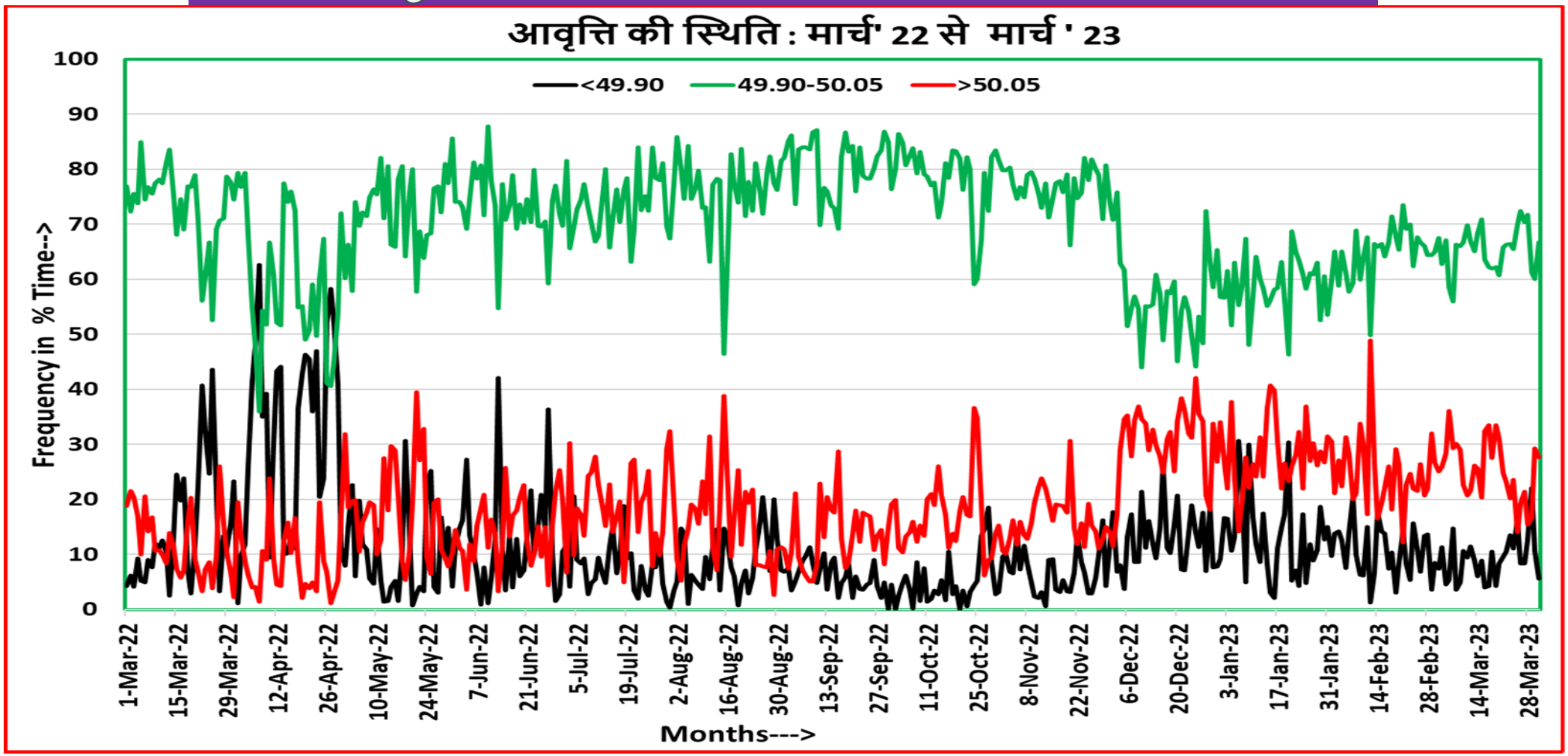
Rosa Power Supply Company	ROSA TPP Ph-I U#1 (Target: 31-12-2026), ROSA TPP Ph-I U#2 (Target: 31-12-2026), ROSA TPP Ph-I U#3 (Target: 31-12-2026), ROSA TPP Ph-I U#4 (Target: 31-12-2026)
RRVUNL	KOTA TPS U#5 (Target: 31-08-2024), KOTA TPS U#6 (Target: 31-08-2024), KOTA TPS U#7 (Target: 31-08-2024), SURATGARH 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)

प्रचालन समन्वय उपसमिति की बैठक
मार्च - 2023

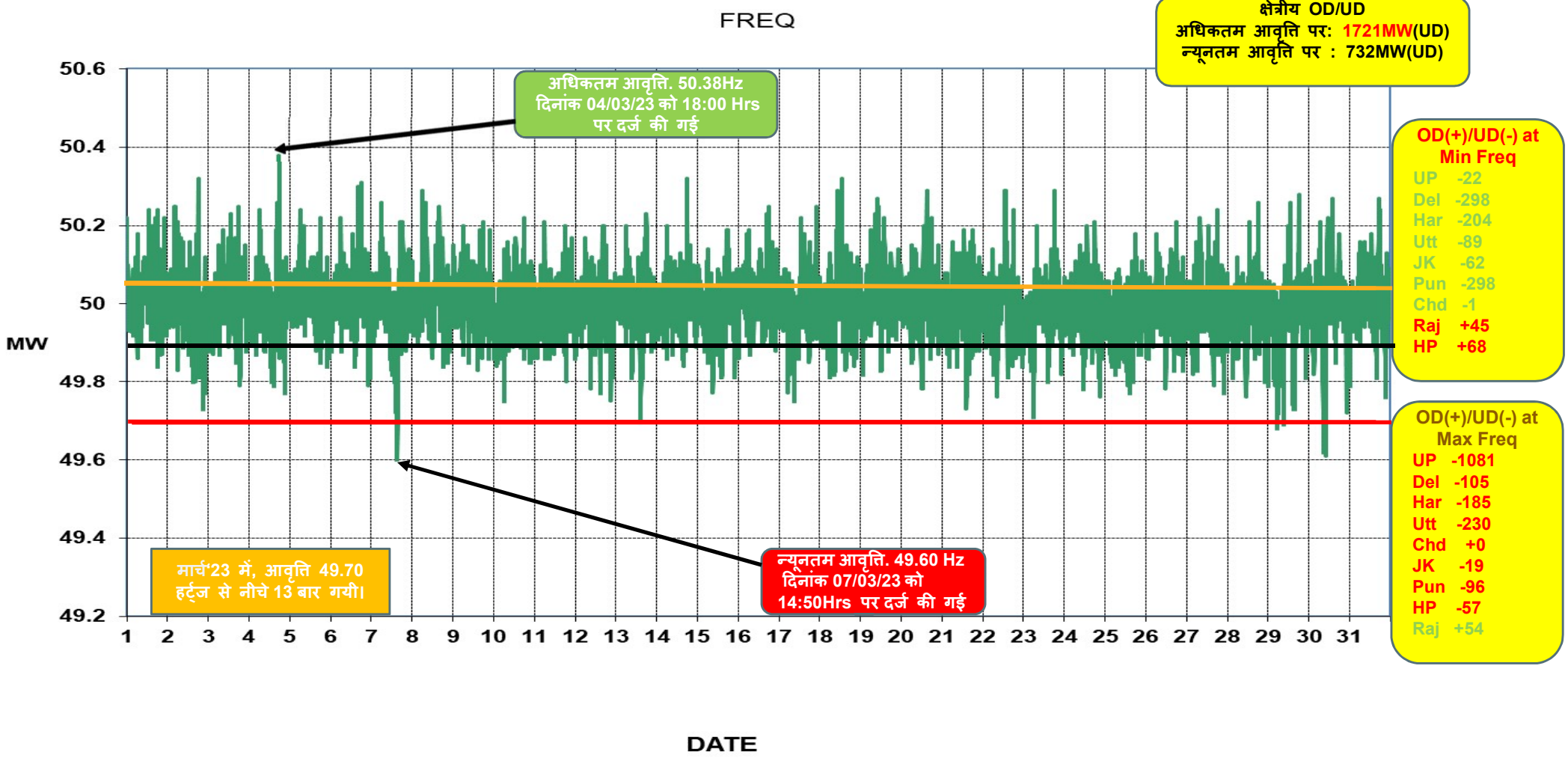
पिछले एक साल मे आवृत्ति की स्थिति

आवृत्ति बैंड	मार्च 2022	अप्रैल 2022	मई 2022	जून 2022	जुलाई 2022	अगस्त 2022	सितम्बर 2022	अक्टूबर 2022	नवम्बर 2022	दिसंबर 2022	जनवरी 2023	फ़रवरी 2023	मार्च 2023
< 49.7 Hz(%)	0.46	4.94	0.27	0.42	0.42	0.49	0.17	0.04	0.13	1.11	1.25	0.32	0.16
<49.8 Hz(%)	2.92	13.60	1.94	2.41	1.78	2.02	0.91	0.46	0.76	3.96	3.60	1.95	1.26
<49.9 Hz(%)	14.50	31.98	9.83	12.45	7.82	8.77	5.94	4.88	6.70	12.78	13.30	10.75	9.03
49.90-50.05 Hz(%)	**73.42**	**59.30**	**72.23**	**73.38**	**73.45**	**75.77**	**80.77**	**78.27**	**77.00**	**57.39**	**58.70**	**64.68**	**63.84**
50.05-50.10 Hz(%)	10.28	7.35	12.95	11.46	14.84	11.99	11.55	14.04	13.88	11.99	15.26	14.59	17.86
>50.10 Hz(%)	1.72	1.35	4.11	2.43	3.58	3.00	1.65	2.63	2.30	17.84	12.34	8.49	7.99
>50.20 Hz(%)	0.08	0.08	0.88	0.28	0.31	0.47	0.08	0.18	0.12	4.07	1.83	1.49	1.28
औसत आवृत्ति	49.98	49.93	50.00	49.99	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00

आवृत्ति की स्थिति: मार्च -2022 से 2023



मार्च -2023 के दौरान आवृत्ति की स्थिति
(As per 5 Minute SCADA data)



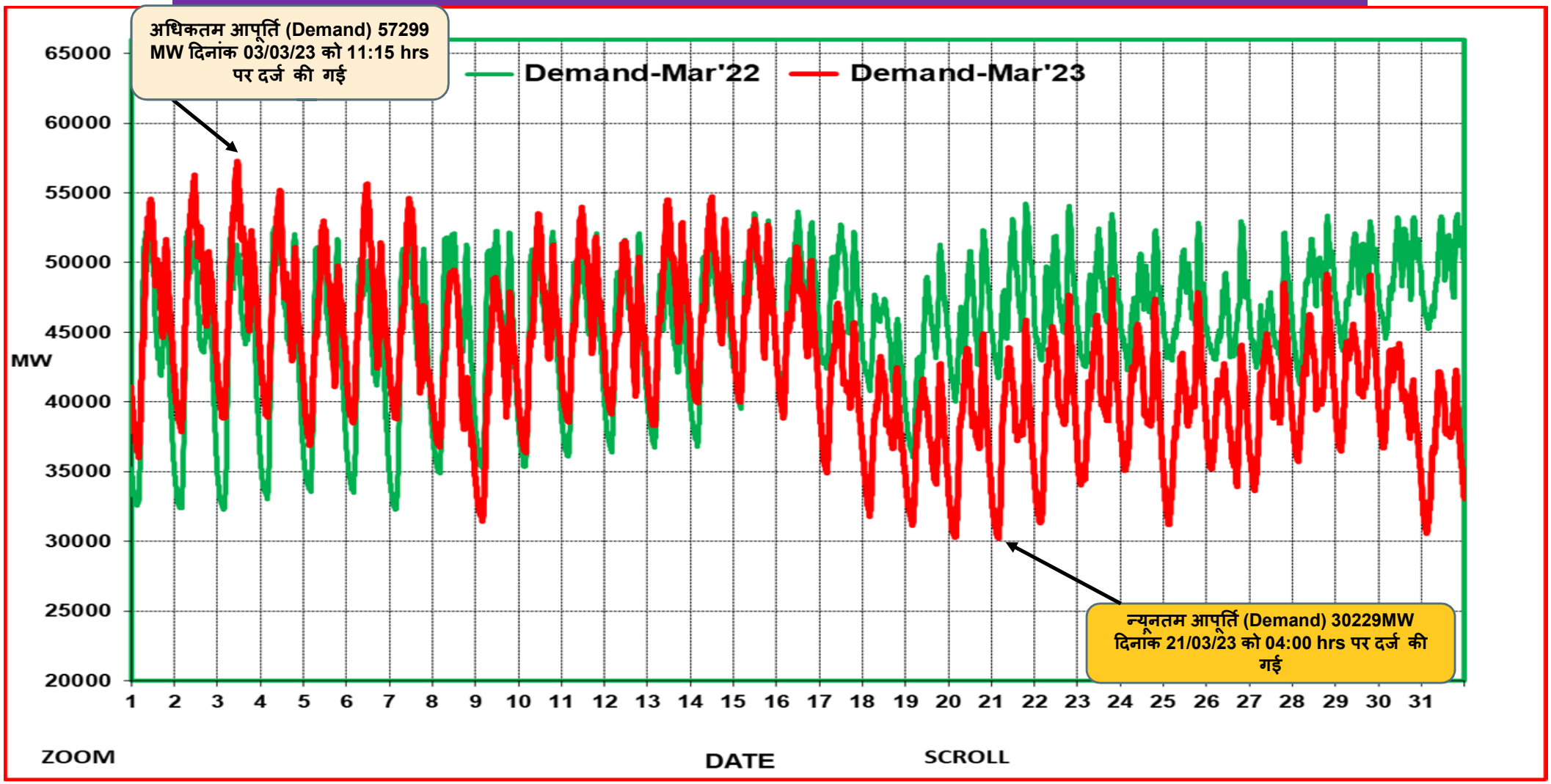
मार्च-2023 के दौरान अधिकतम मांग (Demand Met), अधिकतम ऊर्जा खपत (Energy consumption) और अब तक का कीर्तिमान (राज्यों द्वारा जमा आंकड़ों के अनुसार)

ग्रिड-इंडिया GRID-INDIA

राज्य	अधिकतम मांग (MW) (in Mar'23)	दिनांक / समय	रिकॉर्ड अधिकतम मांग (in MW) (upto Feb'22)	दिनांक / समय	अधिकतम ऊर्जा खपत (MU) (in Mar'23)	दिनांक	रिकॉर्ड अधिकतम ऊर्जा खपत (MU) (Upto Feb'22)	दिनांक
पंजाब	8840	08.03.23 at 12:15	14295	22.08.22 को 14:45 बजे	167.0	08.03.23	334.45	29.06.22
हरियाणा	7732	03.03.23 at 12:30	12768	28.06.22 को 11:56 बजे	147.8	14.03.23	266.15	07.07.21
राजस्थान	15637	03.03.23 at 10:45	17206	18.01.23 को 14:30 बजे	303.3	03.03.23	328.86	09.09.22
दिल्ली	3979	03.03.23 at 10:29	7695	29.06.22 को 15:10 बजे	77.4	16.03.23	153.52	28.06.22
उत्तर प्रदेश	19572	01.03.23 at 19:24	26589	09.09.22 को 21:39 बजे	354.5	02.03.23	547.360	19.08.22
उत्तराखंड	2185	22.03.23 at 07:00	2594	14.06.22 को 21:00 बजे	40.4	16.03.23	54.27	15.06.22
हिमाचल प्रदेश	1922	22.03.23 at 08:00	2071	06.01.23 को 09:45 बजे	34.3	24.03.23	37.0	06.01.23
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	2859	31.03.23 at 19:00	3044	02.02.23 को 20:00 बजे	57.7	28.03.23	64.6	20.01.23
चंडीगढ़	204	03.03.23 at 07:00	426	08.07.21 को 15:00 बजे	3.6	17.03.23	8.41	08.07.21
उत्तरी क्षेत्र #	57299	03.03.23 at 11:15	77006	28.06.22 को 11:50 बजे	1142.7	17.03.23	1737.09	28.06.22

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

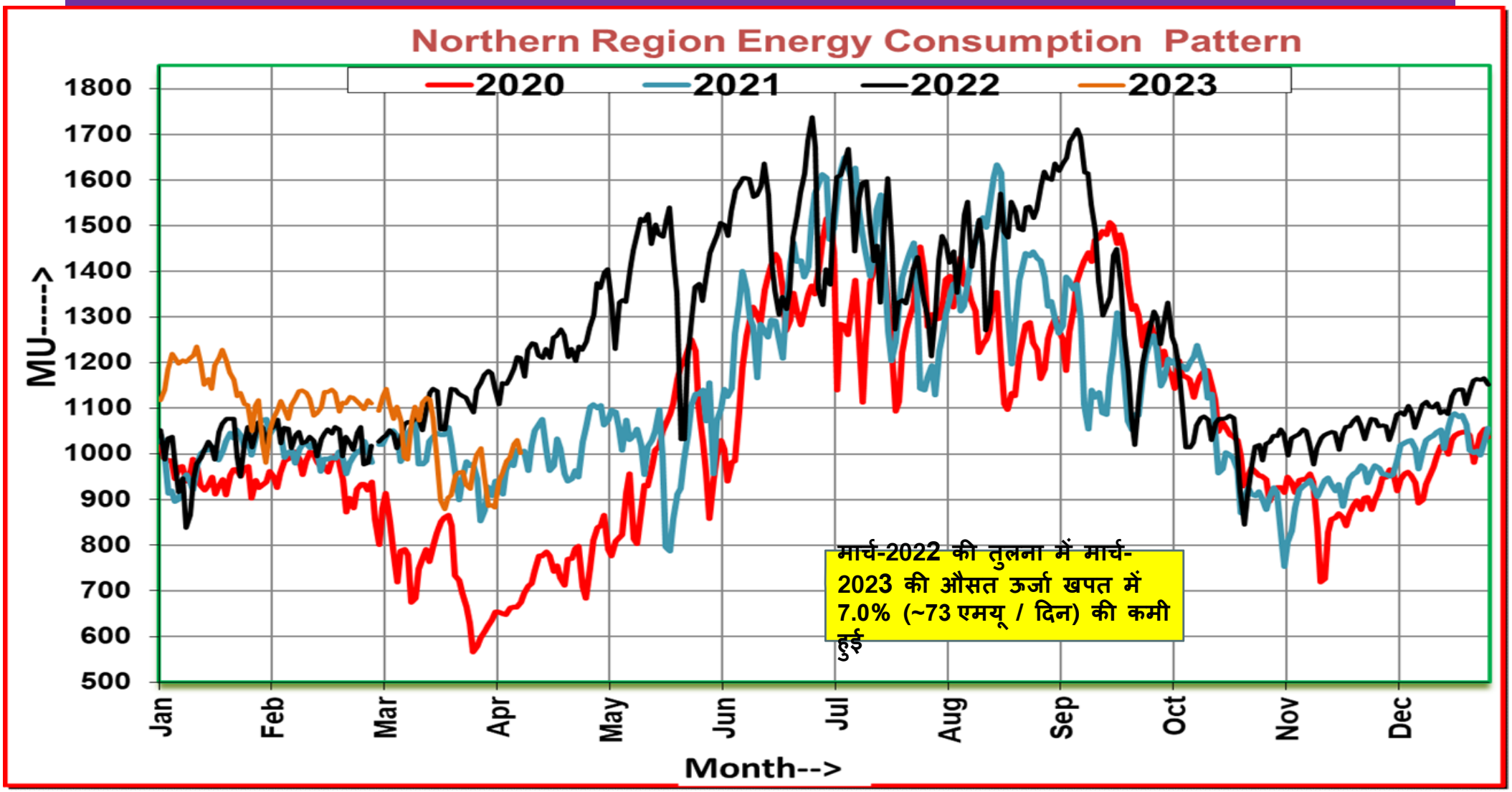
क्षेत्रीय विद्युत आपूर्ति (Demand) मार्च 2022 बनाम मार्च 2023 (As per 5 Minute SCADA data)



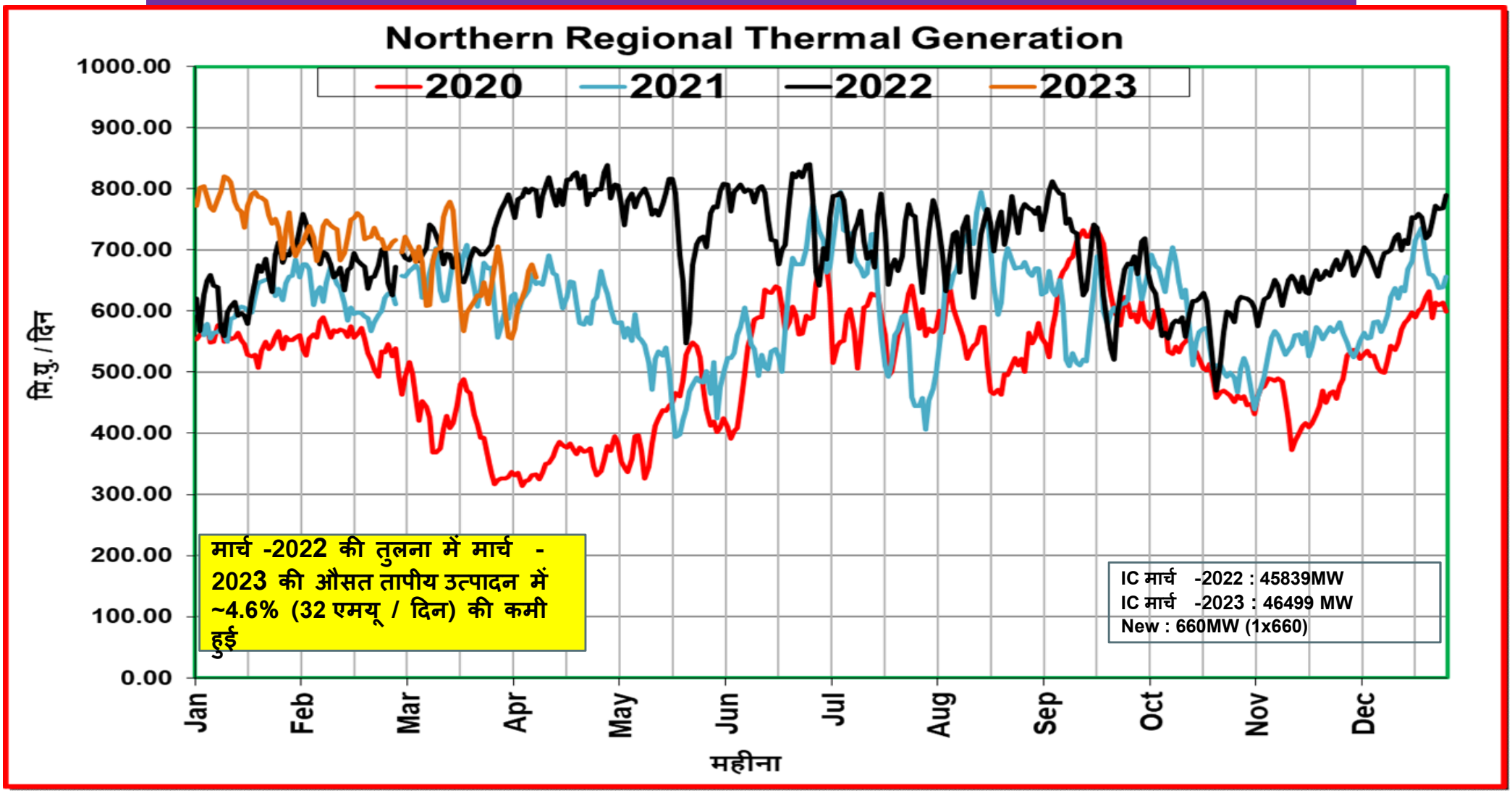
उत्तरी क्षेत्र की औसत ऊर्जा खपत में वृद्धि(% में) मार्च-2023/ मार्च-2022 / मार्च-2021

राज्य	मार्च -2021	मार्च -2022	मार्च -2023	% वृद्धि (मार्च -2022 vs मार्च -2021)	% वृद्धि (मार्च -2023 vs मार्च -2022)
पंजाब	130.45	148.94	137.61	14.17%	-7.61%
हरियाणा	128.53	135.51	127.38	5.42%	-6.00%
राजस्थान	234.13	261.12	242.41	11.53%	-7.17%
दिल्ली	67.00	73.16	68.60	9.19%	-6.23%
उत्तर प्रदेश	317.32	352.70	312.26	11.15%	-11.47%
उत्तराखंड	36.82	37.40	37.51	1.56%	0.29%
चंडीगढ़	3.20	3.47	3.28	8.65%	-5.62%
हिमाचल प्रदेश	30.14	29.99	32.05	-0.50%	6.87%
जम्मू और कश्मीर (UT) तथा लद्दाख़ (UT)	50.20	51.09	55.42	1.77%	8.48%
उत्तरी क्षेत्र	997.80	1093.38	1016.52	9.58%	-7.03%

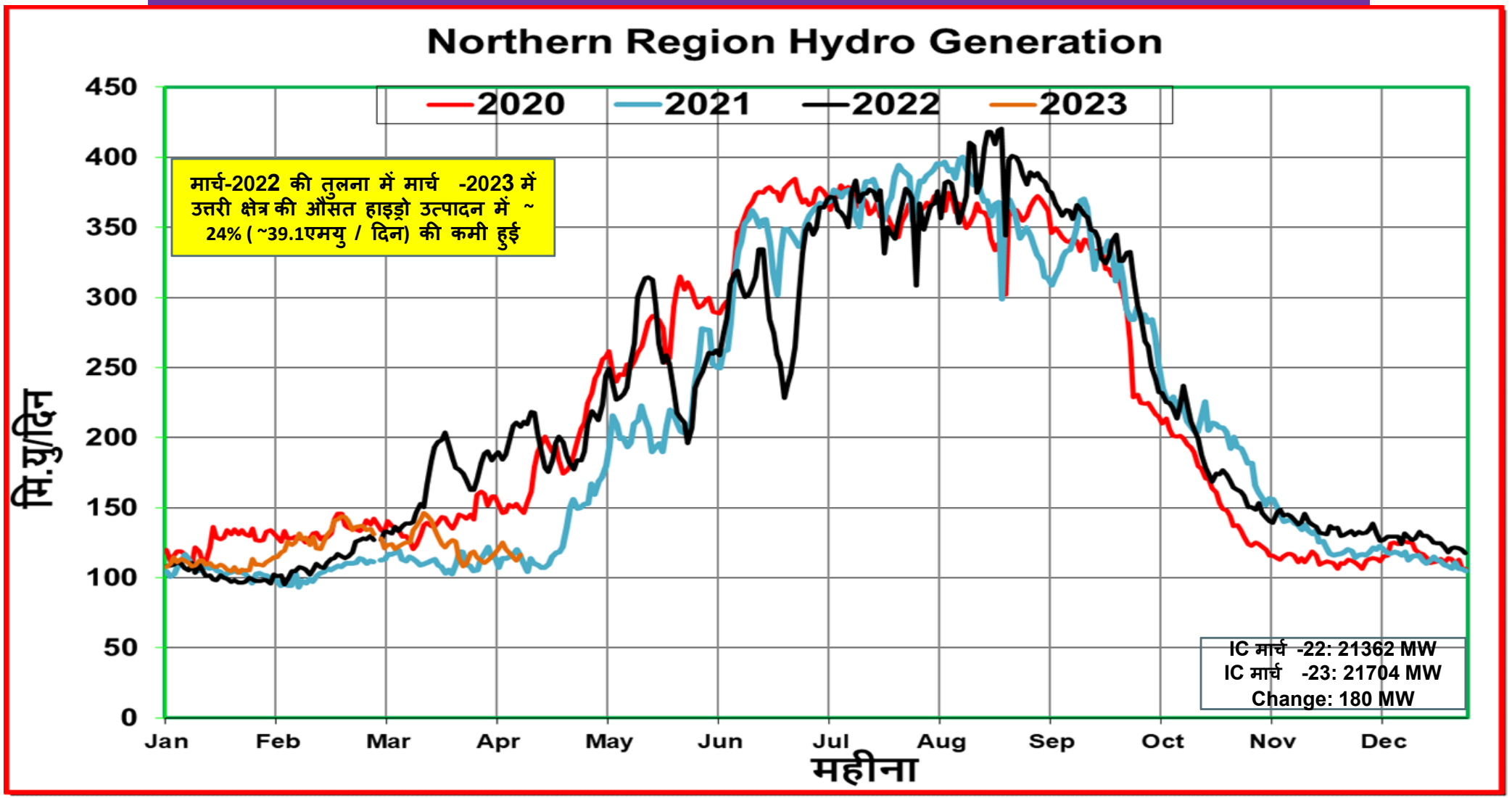
उत्तरी क्षेत्र की ऊर्जा खपत(MUs)



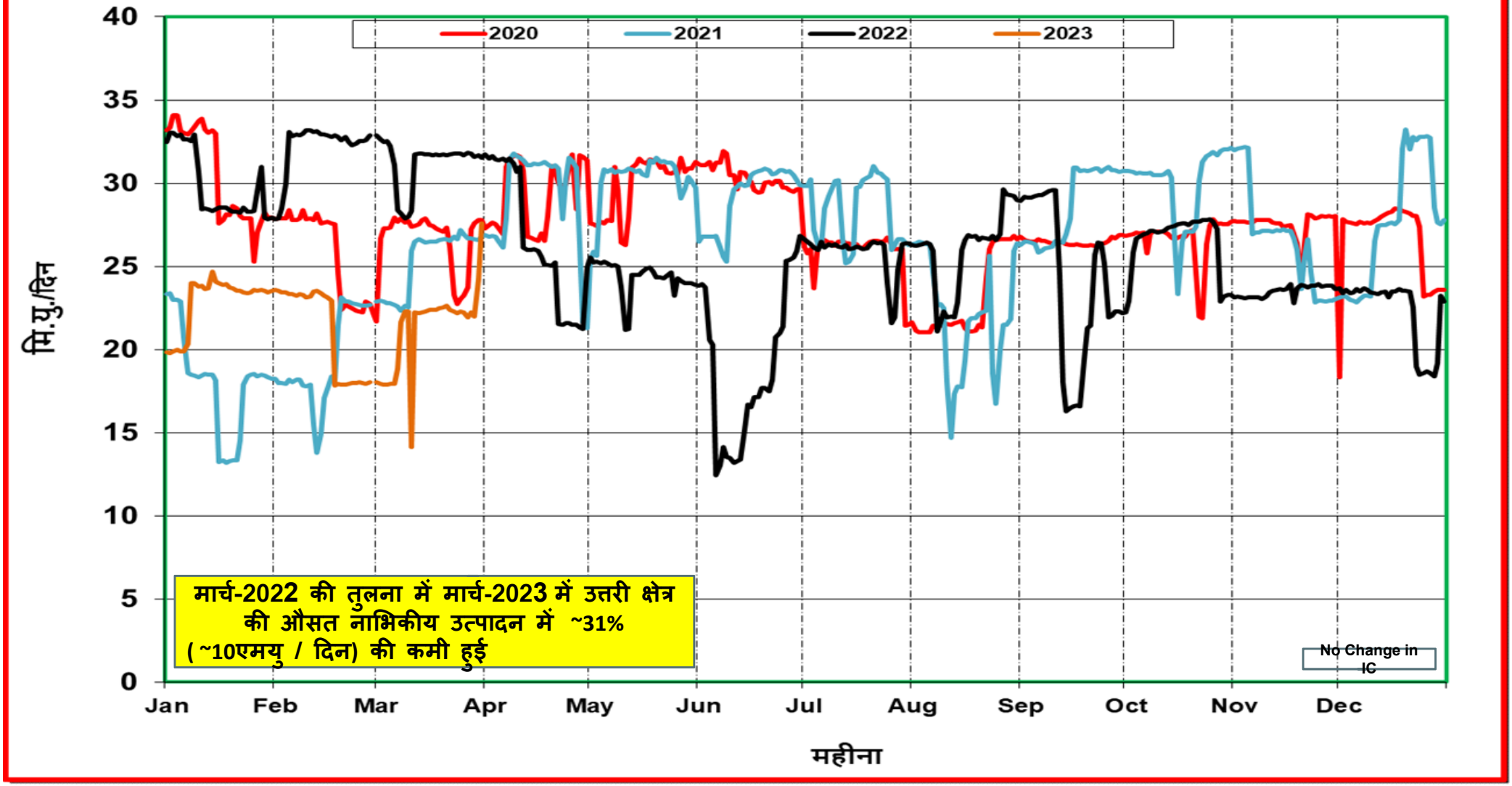
उत्तरी क्षेत्र की तापीय (Thermal) उत्पादन की स्थिति(Mus/Day)



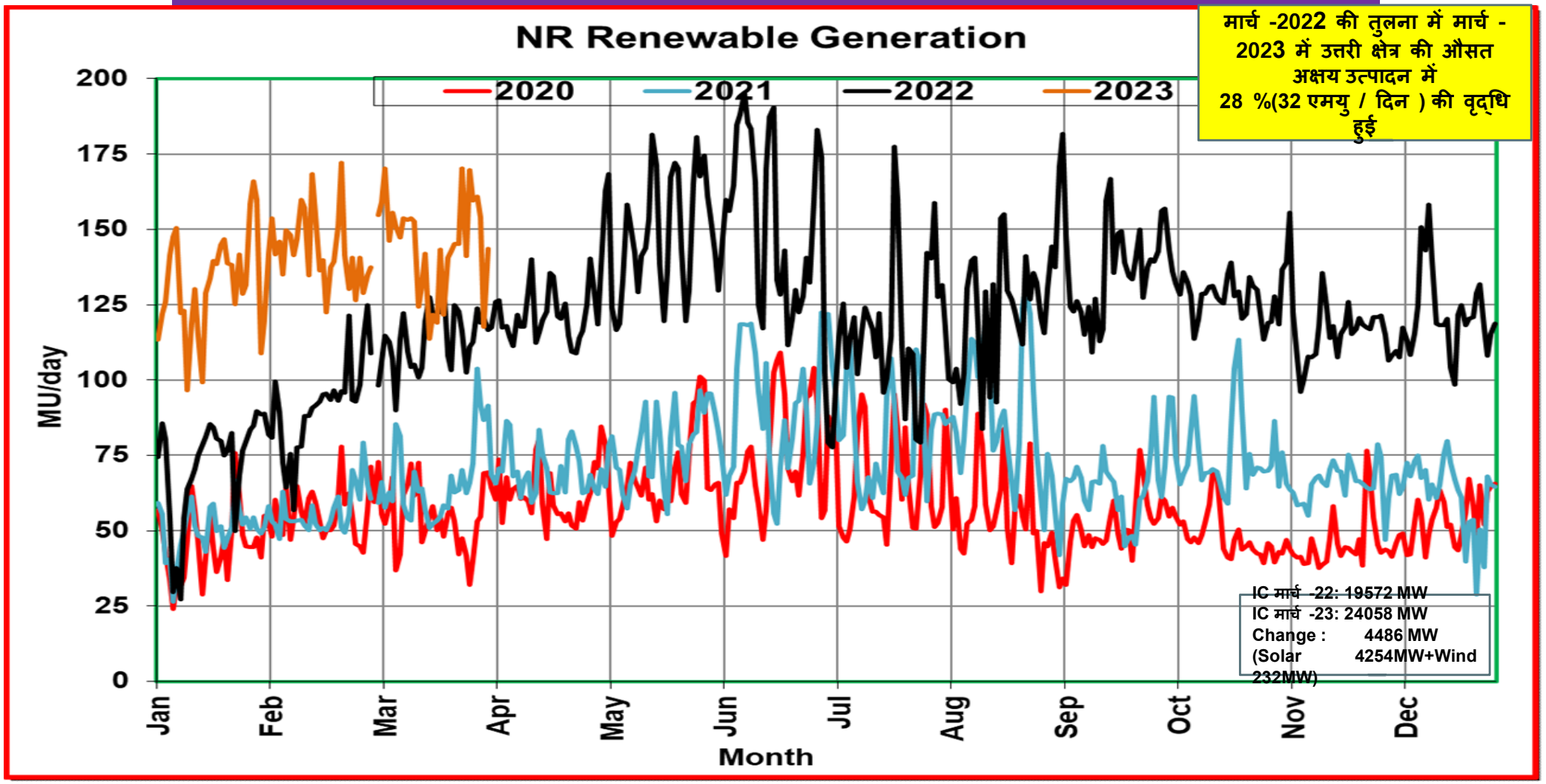
उत्तरी क्षेत्र की जलीय (हाइड्रो) उत्पादन की स्थिति(Mus/Day)



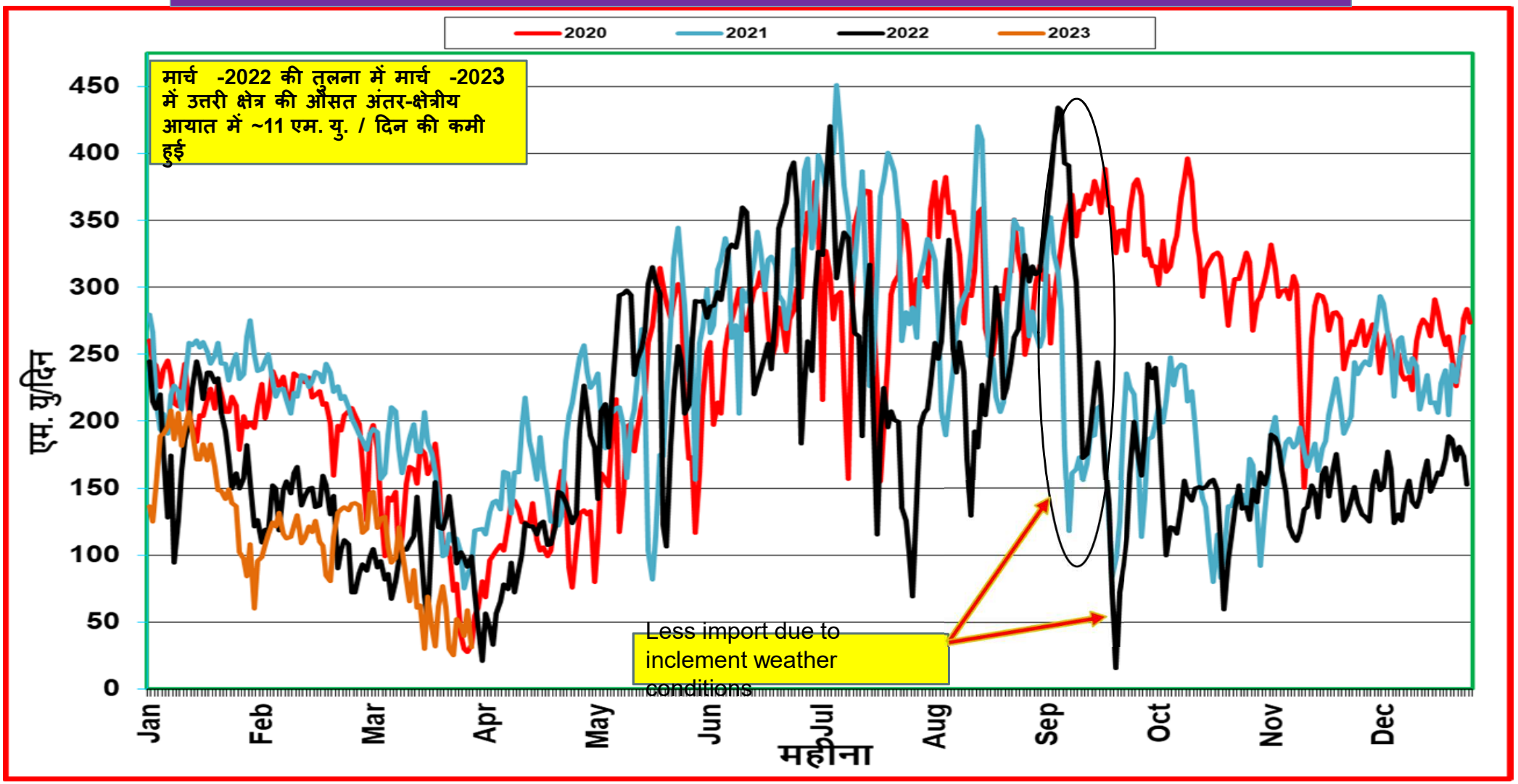
उत्तरी क्षेत्र की नाभिकीय उत्पादन की स्थिति (Mus/Day)



(Mus/Day)


NR Renewable Generation
2020
2021
2022
2023
MU/day
200
175
150
125
100
75
50
25
0
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep
Oct
Nov
Dec
Month
मार्च -2022 की तुलना में मार्च - 2023 में उत्तरी क्षेत्र की औसत अक्षय उत्पादन में 28 %(32 एमयु / दिन) की वृद्धि हुई
IC मार्च -22: 19572 MW
IC मार्च -23: 24058 MW
Change : 4486 MW
(Solar 4254MW+Wind 232MW)

अंतर-क्षेत्रीय आयात(Mus/Day) की स्थिति



वास्तविक सारांश -
मार्च-2021 बनाम मार्च-2022

	मार्च -2022 (मि.यु. /दिन)	**मार्च -2023 (मि.यु. /दिन)**	**मार्च माह में वृद्धि (मि.यु./दिन)**
तापीय (Thermal) उत्पादन	701.02	668.51	-32.51
जलीय (Hydro) उत्पादन	163.72	124.64	-39.09
नाभिकीय (Nuclear) उत्पादन	31.26	21.28	-9.98
अंतर-क्षेत्रीय (Inter-Regional) कुल आयात	102.57	79.00	-23.57
अक्षय (Renewable) उत्पादन	113.44	145.31	31.87
कुल	**1112.01**	**1038.74**	**-73.28**

RE Penetration

	Maximum Daily MU Penetration			
	February '2023		Record upto January '2023	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	6.01	26-03-2023	12.28	01-04-2020
Rajasthan	26.51	24-03-2023	36.47	22-10-2021
UP	4.72	22-03-2023	4.07	30-10-2021
NR	18.36	26-03-2023	15.90	25-10-2022

	Maximum Instantaneous Penetration in MW			
	February '2023		Record upto January '2023	
	Max % Penetration	Date	Max % Penetration	Date
Punjab	12.21	26-03-2023	26.87	22-04-2020
Rajasthan	50.66	24-03-2023	68.38	31-03-2020
UP	16.70	25-03-2023	17.78	13-02-2023
NR	46.75	26-03-2023	42.96	25-10-2022

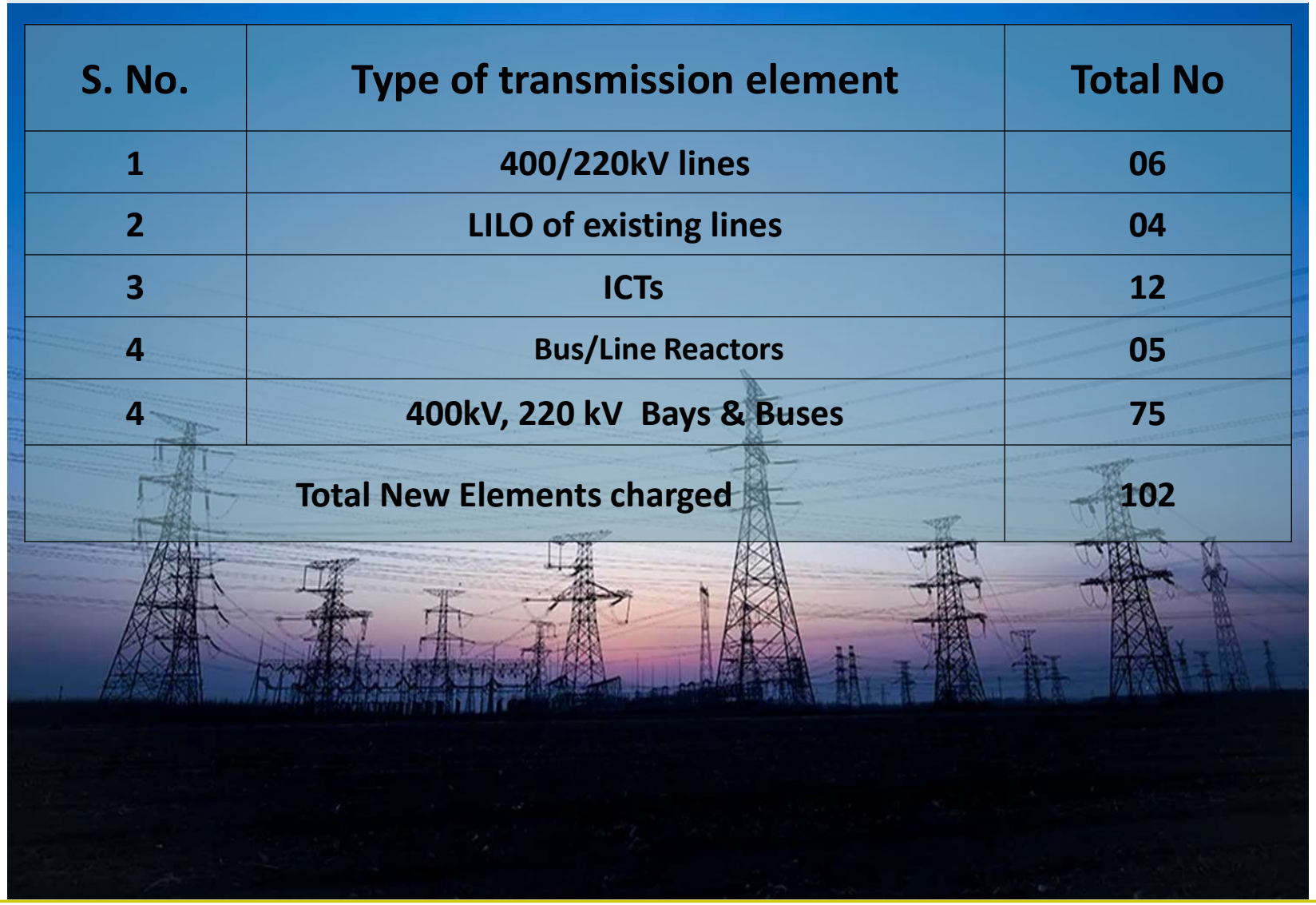
Outage Summary For March 2023									
CONSTITUENTS	PLANNED (A)	FORCED OUTAGES (B=C+D)	EMERGENCY SHUTDOWNS (C)	TRIPPING (D)	% PLANNED SHUTDOWNS (A/(A+C))	% EMERGENCY SHUTDOWNS(C/(A+C)	% ESD SHUTDOWNS(C/B)	% TRIPPING (D/B)	TOTAL OUTAGES (A+B)
POWERGRID	333	166	91	75	78.5%	21.5%	54.8%	45.2%	499
UPPTCL	112	156	42	114	72.7%	27.3%	26.9%	73.1%	268
RRVPNL	91	78	40	38	69.5%	30.5%	51.3%	48.7%	169
PSTCL	73	23	11	12	86.9%	13.1%	47.8%	52.2%	96
BBMB	44	26	7	19	86.3%	13.7%	26.9%	73.1%	70
HVPNL	55	13	6	7	90.2%	9.8%	46.2%	53.8%	68
DTL	18	14	6	9	75.0%	25.0%	42.9%	57.1%	33
ADHPL	29	0	0	0	100.0%	0.0%	0.0%	0.0%	29
HPPTCL	15	10	3	7	83.3%	16.7%	30.0%	70.0%	25
PTCUL	6	13	2	11	75.0%	25.0%	15.4%	84.6%	19
NTPC	7	11	7	4	50.0%	50.0%	66.8%	36.4%	18
Renew Power	14	2	0	2	100.0%	0.0%	0.0%	100.0%	16
Chandigarh SEB	11	0	0	0	100.0%	0.0%	0.0%	0.0%	11
PDD JK	6	5	1	4	85.7%	14.3%	20.0%	80.0%	11
Adani	5	4	1	3	83.3%	16.7%	25.0%	75.0%	9
PKTCL	6	3	0	3	100.0%	0.0%	0.0%	100.0%	9
PAPTL	4	3	0	3	100.0%	0.0%	0.0%	100.0%	7
ATIL	6	0	0	0	100.0%	0.0%	0.0%	0.0%	6
MAHINDRA	6	0	0	0	100.0%	0.0%	0.0%	0.0%	6
NHPC	5	1	0	1	100.0%	0.0%	0.0%	100.0%	6
GPTL	5	0	0	0	100.0%	0.0%	0.0%	0.0%	5
Greenko Budhil	5	0	0	0	100.0%	0.0%	0.0%	0.0%	5
HPPTCL,JPL	5	0	0	0	100.0%	0.0%	0.0%	0.0%	5
NTPC Solar	1	4	1	3	50.0%	50.0%	25.0%	75.0%	5
PKATL,HPPTCL,JPL	3	2	1	1	75.0%	25.0%	50.0%	50.0%	5
Saurya Urja	3	2	0	2	100.0%	0.0%	0.0%	100.0%	5
TPGEL	5	0	0	0	100.0%	0.0%	0.0%	0.0%	5
ABC RJ01	1	1	1	0	50.0%	50.0%	100.0%	0.0%	2
FBTL	1	1	1	0	50.0%	50.0%	66.8%	0.0%	2
PVTSL	2	0	0	0	100.0%	0.0%	0.0%	0.0%	2
AEPL	0	2	1	1	0.0%	100.0%	66.8%	50.0%	2
Azure	0	2	0	2	0.0%	0.0%	0.0%	100.0%	2
EDEN (ERCPL)	1	0	0	0	100.0%	0.0%	0.0%	0.0%	1
ACME	0	1	1	0	0.0%	100.0%	100.0%	0.0%	1
POWERGRID,POWERLINK	0	1	2	2	0.0%	100.0%	200.0%	200.0%	1
Cleansolar_Jodhpur	0	1	0	1	0.0%	0.0%	0.0%	100.0%	1
Total	878	545	225	324	**79.6%**	**20.4%**	41.3%	59.4%	1423

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))	
December-22	933	731	351	380	72.7%	27.3%	1664
January-23	761	826	370	456	67.3%	32.7%	1587
February-23	939	456	238	218	79.8%	20.2%	1395
March-23	**878**	**545**	**225**	**324**	**79.6%**	**20.4%**	**1423**

New Elements First Time Charged During March 2023

S. No.	Type of transmission element	Total No
1	400/220kV lines	06
2	LILO of existing lines	04
3	ICTs	12
4	Bus/Line Reactors	05
4	400kV, 220 kV Bays & Buses	75
Total New Elements charged		102



Transmission Lines

S.NO.	LINE NAME	Owner	Length (KM)	Conductor Type	DATE
1	400kV Bhiwani(PG)-Mahindergarh(APL)-3	POWERGRID	55.813	Twin Moose	20-Mar-2023
2	400kV Bhiwani (PG)-Mahindergarh(APL)-4	POWERGRID	55.813	Twin Moose	20-Mar-2023
3	220kV Chandigarh Sec-47 (PG)-Panchkula(PG)-1	POWERGRID	14.282	ZEBRA	22-Mar-2023
4	400kV Simbholi_PMSTL (UP)-Meerut_PMSTL (UP)-1	PMSTL (UP)	28.71	Twin Moose	25-Mar-2023
5	400kV Simbholi_PMSTL (UP)-Meerut_PMSTL (UP)-2	PMSTL (UP)	28.71	Twin Moose	25-Mar-2023
6	400kV Panki(UP)-Panki TPS (UP)-1	UPPTCL	0.756	Twin Moose	28-Mar-2023

LILO of Transmission Lines

S.NO.	LINE NAME	Owner	Length (KM)	Conductor Type	DATE	REMARKS
1	400kV Rampur_PRSTL (UP)-Moradabad(UP)	PGCIL, PGYTL	57.382	Twin Moose	01-Mar-2023	After LILO of 400 KV BAREILLY(PG)-MORADABAD(UPPTCL) CIRCUIT-II at RAMPUR(PRSTL).
2	400kV Nathpa Jhakri(SJ)-Gumma (HP)-1	HPPTCL	54.5	Tripple Snowbird	01-Mar-2023	After LILO of 400 kV Jhakri - Panchkula Ckt.-1 at 400/220 kV GIS Gumma.
3	765kV Hapur(UP)-Meerut_PMSTL (UP)	WUPPTCL, PMSTL (UP)	36.553	ACSR Quad Bersimis	18-Mar-2023	After LILO of 765 KV GREATER NOIDA(WUPPTCL)- HAPUR (WUPPTCL) LINE at 765 KV Meerut_PMSTL.
4	765kV Gr.Noida_2(UPC)-Meerut_PMSTL (UP)-1	WUPPTCL, PMSTL (UP)	100.384	Quad Bersimis	20-Mar-2023	After LILO of 765 KV GREATER NOIDA (WUPPTCL) – HAPUR (WUPPTCL) LINE at 765 KV MEERUT(PMSTL)

ICTs/GTs/Transformers

S.NO.	SUB-STATION	Voltage Level (kV)	CAPACITY (MVA)	ICT NO	DATE
1	Rampur_PRSTL (UP)	765/400/33	1500	1	06-Mar-2023
2	Rampur_PRSTL (UP)	765/400/33	1500	2	22-Mar-2023
3	Meerut_PMSTL (UP)	400/220/33	500	2	25-Mar-2023
4	Fatehgarh_II(PG)	400/220/33	500	7	27-Mar-2023
5	Simbholi_PMSTL (UP)	400/220/33	500	2	28-Mar-2023
6	Simbholi_PMSTL (UP)	400/220/33	500	1	28-Mar-2023
7	Bhadla(PG)	400/220/33	500	8	28-Mar-2023
8	Meerut_PMSTL (UP)	400/220/33	500	1	29-Mar-2023
9	Panki TPS (UP)	400/11.5	110	1	30-Mar-2023
10	Bhadla_2 (PG)	400/34.5	550	1	31-Mar-2023
11	Nehtaur(UP)	400/132/33	200	3	31-Mar-2023
12	Bara(UP)	765/400/33	1500	2	31-Mar-2023

Bus/Line Reactors

S.NO.	SUB-STATION	Voltage Level (kV)	CAPACITY (MVAR)	NO	DATE
1	240 MVAr Bus Reactor 1	765	240	1	20-Mar-2023
2	330 MVAr Bus Reactor 1	765	330	1	23-Mar-2023
3	80 MVAr Bus Reactor 1	400	80	1	24-Mar-2023
4	125 MVAr Bus Reactor 1	400	125	1	30-Mar-2023
5	240 MVAr Switchable Line reactor of Ghatampur line at Rampur_PRSTL (UP)	765	240	1	27-Mar-2023

Generating Units

SL. NO.	OWNER NAME	Pooling Station at Rajasthan	Unit No/Source	Capacity added (MW)	Installed Capacity (MW)	DATE
1	Azure Maple	Bhadla (PG)	Solar	43	300	29-Mar-2023
2	Renew Surya Ravi	Bikaner (PG)	Solar	150	300	31-Mar-2023
	Total ISTS Solar capacity addition: 193 MW					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