



सत्यमेव जयते

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

सं: उ.क्षे.वि.स./प्रचालन/106/01/2023/6181-6222

दिनांक: 17.07.2023

विषय: प्रचालन समन्वय उप-समिति की 209^{वीं} बैठक की कार्यसूची।

Subject: Agenda of the 209th OCC meeting.

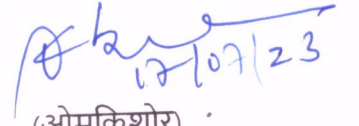
प्रचालन समन्वय उप-समिति की 209^{वीं} बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **19.07.2023** को **10:30** बजे से किया जायेगा। उक्त बैठक की कार्यसूची उत्तर क्षेत्रीय विद्युत समिति की वेबसाइट <http://164.100.60.165> पर उपलब्ध है।

बैठक में सम्मिलित होने के लिए लिंक व पासवर्ड सभी सदस्यों को ई-मेल द्वारा प्रदान किया जाएगा। कृपया बैठक में उपस्थित होने की सुविधा प्रदान करें।

The 209th meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **19.07.2023** from **10:30 Hrs.** The agenda of this meeting has been uploaded on the NRPC web-site <http://164.100.60.165>.

The link and password for joining the meeting will be e-mailed to respective e-mail IDs in due course.

Kindly make it convenient to attend the meeting.



(ओमकिशोर)

कार्यपालक अभियंता(प्रचालन)

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

1. Confirmation of Minutes

The minutes of the 208th OCC meeting were issued vide letter of even number dated 11.07.2023.

Sub-committee may kindly confirm the Minutes.

2. Review of Grid operations

2.1 Power Supply Position (Provisional) for June 2023

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of June-2023 is as under:

State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	190	182	-4.0%	330	393	19.1%
	(Req)	208	182	-12.3%	440	393	-10.7%
DELHI	(Avl)	5284	3673	-30.5%	8050	7226	-10.2%
	(Req)	4100	3674	-10.4%	8050	7226	-10.2%
HARYANA	(Avl)	5880	6114	4.0%	11830	11634	-1.7%
	(Req)	6700	6136	-8.4%	13410	11634	-13.2%
HIMACHAL PRADESH	(Avl)	1125	952	-15.4%	1798	1753	-2.5%
	(Req)	1106	954	-13.7%	1791	1753	-2.1%
J&K and LADAKH	(Avl)	2260	1560	-31.0%	3540	2847	-19.6%
	(Req)	1610	1586	-1.5%	2830	2847	0.6%
PUNJAB	(Avl)	6720	7059	5.0%	12460	15293	22.7%
	(Req)	7700	7059	-8.3%	14880	15293	2.8%
RAJASTHAN	(Avl)	10300	8134	-21.0%	19450	15840	-18.6%
	(Req)	9150	8137	-11.1%	16200	15840	-2.2%
UTTAR PRADESH	(Avl)	15000	15095	0.6%	25900	27611	6.6%
	(Req)	14700	15102	2.7%	27000	27611	2.3%
UTTARAKHAND	(Avl)	1383	1484	7.3%	2440	2436	-0.2%
	(Req)	1404	1489	6.0%	2520	2436	-3.3%
NORTHERN REGION	(Avl)	48142	44255	-8.1%	78900	72600	-8.0%
	(Req)	46678	44320	-5.1%	79900	72600	-9.1%

As per above, negative / significant variation ($\geq 5\%$) in Actual Power Supply Position(Provisional) vis-à-vis Anticipated figures is observed for the month of June-2023 in terms of Energy Requirement for Chandigarh, Delhi, Haryana, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, and Uttarakhand and in terms of Peak Demand similar variation is noted for Chandigarh, Delhi, Haryana, HP, Rajasthan, and Uttarakhand. These states/UTs are requested to submit reason for such variations so that the same can be deliberated in the meeting.

All SLDCs are requested to furnish provisional and revised power supply position in

prescribed formats on NRPC website portal by 2nd and 15th day of the month respectively for the compliance of Central Electricity Authority (Furnishing of Statistics, Returns and Information) Regulations, 2007.

3. Maintenance Programme of Generating Units and Transmission Lines

3.1. Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of August-2023 is scheduled on 18-July-2023 via Video Conferencing

3.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of August-2023 is scheduled on 18-July-2023 via Video conferencing.

4. Planning of Grid Operation

4.1. Anticipated Power Supply Position in Northern Region for August 2023

The Anticipated Power Supply Position in Northern Region for August 2023 is as under:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	220	350	No Revision submitted
	Requirement	220	420	
	Surplus / Shortfall	0	-70	
	% Surplus / Shortfall	0.0%	-16.7%	
DELHI	Availability	2880	6120	No Revision submitted
	Requirement	3920	7090	
	Surplus / Shortfall	-1040	-970	
	% Surplus / Shortfall	-26.5%	-13.7%	
HARYANA	Availability	5750	11700	No Revision submitted
	Requirement	7200	12590	
	Surplus / Shortfall	-1450	-890	
	% Surplus / Shortfall	-20.1%	-7.1%	
HIMACHAL PRADESH	Availability	1145	1725	11-Jul-23
	Requirement	1102	1744	
	Surplus / Shortfall	43	-19	
	% Surplus / Shortfall	3.9%	-1.1%	
J&K and LADAKH	Availability	2340	3490	No Revision submitted
	Requirement	1690	2920	
	Surplus / Shortfall	650	570	
	% Surplus / Shortfall	38.5%	19.5%	
PUNJAB	Availability	6700	12320	No Revision submitted
	Requirement	9500	15280	
	Surplus / Shortfall	-2800	-2960	
	% Surplus / Shortfall	-29.5%	-19.4%	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
RAJASTHAN	Availability	9570	18080	No Revision submitted
	Requirement	7780	14500	
	Surplus / Shortfall	1790	3580	
	% Surplus / Shortfall	23.0%	24.7%	
UTTAR PRADESH	Availability	14520	25890	13-Jul-23
	Requirement	15680	26900	
	Surplus / Shortfall	-1160	-1010	
	% Surplus / Shortfall	-7.4%	-3.8%	
UTTARAKHAND	Availability	1440	2830	No Revision submitted
	Requirement	1510	2460	
	Surplus / Shortfall	-70	370	
	% Surplus / Shortfall	-4.6%	15.0%	
NORTHERN REGION	Availability	44565	76400	
	Requirement	48602	77700	
	Surplus / Shortfall	-4037	-1300	
	% Surplus / Shortfall	-8.3%	-1.7%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of August-2023 and submit the measures proposed to be taken to bridge the gap between demand & availability, as well to dispose-off the surplus, if any, in the prescribed format.

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

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

All utilities are requested to update the status.

6. NR Islanding scheme

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

Members may kindly deliberate.

7. Coal Supply Position of Thermal Plants in Northern Region

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

7.2 Accordingly, coal stock position of generating stations in northern region during current month (till 10th July 2023) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	89.39	16	6.2
ANPARA TPS	2630	74.29	16	23.8
BARKHERA TPS	90	38.42	25	37.5
DADRI (NCTPP)	1820	61.77	25	14.5

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
GH TPS (LEH.MOH.)	920	48.35	25	34.9
GOINDWAL SAHIB TPP	540	52.88	25	6.4
HARDUAGANJ TPS	1265	54.10	25	8.4
INDIRA GANDHI STPP	1500	60.45	25	23.2
KAWAI TPS	1320	65.50	25	19.3
KHAMBARKHERA TPS	90	37.30	25	52.8
KOTA TPS	1240	77.94	25	8.0
KUNDARKI TPS	90	38.88	25	54.8
LALITPUR TPS	1980	77.99	25	22.4
MAHATMA GANDHI TPS	1320	66.27	25	24.3
MAQSOODPUR TPS	90	42.56	25	45.4
MEJA STPP	1320	76.33	25	22.9
OBRA TPS	1094	47.67	25	10.5
PANIPAT TPS	710	53.94	25	40.7
PARICHA TPS	1140	49.22	25	10.1
PRAYAGRAJ TPP	1980	73.95	25	23.0
RAJIV GANDHI TPS	1200	47.36	25	16.5
RAJPURA TPP	1400	89.53	25	23.4
RIHAND STPS	3000	91.82	16	28.1
ROPAR TPS	840	48.40	25	53.9
ROSA TPP Ph-I	1200	73.60	25	16.0
SINGRAULI STPS	2000	91.47	16	16.6
SURATGARH TPS	1500	49.66	25	10.1
TALWANDI SABO TPP	1980	70.80	25	3.7
TANDA TPS	1760	56.43	25	22.4
UNCHA HAR TPS	1550	60.68	25	21.6
UTRAULA TPS	90	36.74	25	59.0
YAMUNA NAGAR TPS	600	71.35	25	20.8
CHHABRA-I PH-1 TPP	500	73.47	25	7.3
KALISINDH TPS	1200	72.33	25	6.7
SURATGARH STPS	1320	59.30	25	6.3
CHHABRA-I PH-2 TPP	500	49.05	25	12.9
CHHABRA-II TPP	1320	62.12	25	5.4

8. Declaration of high demand season and low demand season (Agenda by NRPC Sect..)

8.1 CERC has notified regulatory framework of differential tariff, applicable to thermal

generating station, during peak and off-peak hours, during high demand season of three months and low demand season of remaining nine months in Tariff Regulations, 2019. In view of above, concerned RLDC has to declare high demand season and low demand season in region after consultation with stakeholders in accordance with 2019 Tariff Regulations, six months before any financial year.

8.2 Based on the deliberations in 176th OCC meeting, it was decided that peak season be decided after considering average NR consumption data of all months for previous five years.

8.3 In the same manner, energy demand data (in MU) has been compiled from CEA website and is as under:

Year	April	May	June	July	August	September
2019	30147	37338	41624	41377	39153	38422
2020	22290	30905	37782	41309	39527	40958
2021	30391	32109	39393	45180	44175	36878
2022	38566	43463	46083	47240	46450	46040
2023	33583	39086	44429	46650*	48630*	45220*
Average	30995	36580	41862	44351	43587	41504

* Demand data as per CEA's LGBR report for FY 2023-24.

From the above, it may be seen that three high demand months for next FY may be **June, July and August**.

Members may kindly deliberate.

9. Electricity generation Program for the year FY 2024-25 (Agenda by NRPC Sect..)

9.1 Central Electricity Authority vide its letter dated 11.07.2023 (**copy attached as Annexure-A.III**) has sought certain (**details enclosed in the cited letter**) information from generating utilities of the country for the preparation of electricity generation program for the year 2024-25.

9.2 The above information in respect of NR generating units may kindly be submitted in the prescribed format by email to seo-nrpc@nic.in by **20th August 2023**.

Members may kindly deliberate.

10. Proposed SPS for 400/220 kV ICTs at RVPN's 400kV GSS Bhilwara and 400kV GSS Hindaun (Agenda by RVPN)

10.1 RVPN vide letter dated 19.06.2023 has proposed a SPS for 400/220 kV ICTs at RVPN's 400kV GSS Bhilwara and 400kV GSS Hindaun (details of the SPS is attached as **Annexure-A.IV**).

Members may kindly deliberate.

11. Shutdown on 400kV Bhinmal Zerda & 400kV Bhinmal Kankroli Line for making bypass arrangement at LILO point of 400 KV Kankroli-Bhinmal-Zerda TL Agenda by Powergrid NR-1)

- 11.1. Powergrid NR-1 vide letter dated 13.07.2023 (copy attached as **Annexure-A.V**) has informed that scheme to relieve high loading of WR-NR Inter- Regional Corridor (Bay upgradation at 400 kV Bhinmal SS) was approved in 9th Meeting of NCT on 28th September 2022. Bay upgradation work at 400kV Bhinmal substation is started with full swing and the completion schedule of the work in 8th month from NOA i.e. 29th November 2023.
- 11.2. For further execution of work , 400kV Bhinmal -Zerda & 400kV Bhinmal-Kankroli Line is to be bypassed through jumper at LILO point (Tower Loc no: - 02) temporary.
- 11.3. Henceforth, it has requested for simultaneous shut down on 400kV Bhinmal -Zerda & 400kV Bhinmal-Kankroli in the month of August 2023 for above bypassing required for the bays construction work at Bhinmal Substation to relieve the high loading WR-NR Inter- Regional Corridor & further strengthening the GRID.

Members may kindly deliberate.

खण्ड-ख: उ.क्षे.भा.प्रे.के.	Part-B: NRLDC
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12. NR Grid Highlights for June 2023

Following are major grid highlights of June 2023:

- Maximum energy consumption of Northern Region was **1714 MUs** on 23rd June'23
- Average energy consumption per day of Northern Region was **1477 MUs**
- Maximum Demand met of Northern Region was **77898 MW** on 23rd June'23 @22:00 hours (based on data submitted by Constituents).

All-time high value recorded in June'23

States	Max. Demand Met during the day (MW)		As per SCADA instantaneous data	Energy Consumption (MU)	
	As per hourly data Submitted by States (MW)/Format28	As on date		As per PSP (Mus)	As on date
Punjab	15256	24-06-2023	15267	343.54	24.06.23
		11:00 hrs	11:13 hrs		
Uttar Pradesh	27292	13-06-2023	27565	568.49	17.06.23
		23:00 hrs	23:45 hrs		
Rajasthan	-	-	-	332.15	13.06.23
Uttarakhand	-	-	-	55.84	17.06.23
		-	-		

Demand met details of NR

S.No	Constituents	Max Demand met (in MW)	Date & Time of Max Demand met	Max Consumption (in MUs)	Date of Max Consumption	Average Demand met (in Mus)
1	Chandigarh	393	21.06.23 at 14:00	8	22.06.2023	6
2	Delhi	7226	14.06.23 at 15:24	144	13.06.2023	122
3	H.P.	1753	30.06.23 at 10.15	36	30.06.2023	31
4	Haryana	11634	23.06.23 at 23.45	251	24.06.2023	205
5	J&K	2847	12.06.23 at 16:00	59	12.06.2023	52
6	Punjab	15293	24.06.23 at 11.45	344	24.06.2023	236
7	Rajasthan	15840	13.06.23 at 12:30	332	13.06.2023	271
8	Uttarakhand	2436	17.06.23 at 21:00	56	17.06.2023	50
9	U.P.	27611	13.06.23 at 23:33	568	17.06.2023	504
10	Northern Region	77898	23.06.23 at 22:00	1714	23.06.2023	1477

Frequency Data

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
June' 23	50.01	50.41 on 14.06.23	49.51 on 14.06.23	6.5	67.8	25.7

		at 08:00:10 hrs	at 22:33:50 hrs			
June' 22	49.99	50.36 on 19.06.22 at 13:07:00 hrs	49.48 on 13.06.22 at 16:45:50 hrs	12.5	73.4	14.2

Detailed presentation on grid highlights of June'2023 will be shared by NRLDC in OCC meeting.

13. Update of Operating Procedure document of Northern region

Regulation 5.1(f) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010, stipulates that a set of detailed internal operating procedure for each regional grid shall be developed and maintained by respective Regional Load Despatch Centres, in consultation with the regional constituents. In compliance with the above regulations, this document viz. "Operating Procedures for Northern Region" has been prepared by the Northern Regional Load Despatch Centre.

Major changes done in the Operating procedure document would be presented in the OCC forum by NRLDC in OCC meeting. The draft version of document is available on following link:

https://docs.google.com/document/d/1kTm9Z5115gXh3lxvZsgCStk-C2gqAW9A/edit?usp=drive_link&oid=101952646418859842988&rtpof=true&sd=true

Members are requested to go through the document and provide any comments. Members may please discuss.

14. Tower collapse in lines in RVPN control area

As per Central Electricity Regulatory Commission (Standards of Performance of inter-State transmission licensees) Regulations, 2012 (Chapter 2 (5-b)), restoration time of lines in plain areas after tower collapse shall not exceed thirty (30) days.

Towers of following lines have collapsed in Western Rajasthan (Renewable Energy area):

- I. 400 KV Bhadla(RVPN)-Bikaner(RVPN) Ckt-1 (out since 15.05.2023)
- II. 400 KV Bhadla(RVPN)-Bikaner(RVPN) Ckt-2 (out since 15.05.2023)
- III. 400 KV Akal-Jodhpur (out since 05.06.2023)
- IV. 400 KV Bhadla(RVPN)-Jodhpur (out since 25.05.2023)
- V. 400 KV Bhadla-Merta (out since 08.07.2023)

Lines at s.no. I & II were antitheft charged from Bhadla (RVPN) end and provided voltage support during high RE generation. Lines at s.no. III & IV are for evacuating wind generation from Akal/Jaisalmer area.

The outage of these lines is resulting in fault level of few nodes dropping significantly and making the system vulnerable. Further, these outages have created serious N-1 issues in RE rich region and thus, curtailment is being implemented by SLDC Rajasthan.

There has been frequent tripping of transmission lines that happened in the month of May & June 2023 in the Rajasthan RE pocket during inclement weather conditions. These transmission lines are important and critical for safe evacuation of power from RE plants and simultaneously frequent tripping of these lines can lead to threat to system security and grid stability.

Therefore, it is requested to take proactive measures to revive these lines at the earliest & minimize such tripping in future during inclement weather conditions. Rajasthan may confirm the expected revival date of these lines.

Members may like to discuss.

15. SPS in Western Rajasthan ISTS RE Complex

The renewable generation in Rajasthan RE complex, most of which is photovoltaic solar, is connected to five ISTS pooling stations namely Fatehgarh-1, Fatehgarh-2, Bhadla, Bhadla-2 and Bikaner. More than 30 grid events involving RE generation loss (maximum 7120 MW on 15th May 2023), were observed in Northern Region over the period January 2022 to May 23. The largest generation loss (7120MW (~6410MW ISTS RE generation and ~710MW Rajasthan RE generation) occurred on 15th May 23 due to Y-B fault on 765kV Bhadla-Bikaner (PG) ckt-1. Low frequency voltage oscillation (of amplitude 40-80 kV, 0.03 - 0.06 Hz and 2-3 Hz) leading to eight consecutive events involving generation loss of 2270 MW to 4460 MW were observed on 09th February 2023 in the RE complex of Rajasthan in Northern Region within a short span of 45 minutes (1145 Hrs. to 1230 Hrs.). All such events pose a serious threat to grid security as they have a propensity to lead to cascade failures and loss of supply in a wide area.

As on 30th June 2023, nearly 12.4 GW Solar/wind resources are connected are Bhadla (PG) (3130MW), Bikaner (PG) (3213MW), Fatehgarh-II(PG) (3180MW), Bhadla-II(PG) (1870), Fatehgarh-I(Adani) (996MW). India's first Hybrid (Solar+Wind) plants at Fatehgarh-II(PG) and Fatehgarh-I(Adani) has also been integrated in this Rajasthan complex.

To evacuate more than 12GW renewable generation, around sixteen 765kV ISTS lines are in operation and are being added further with addition of more RE capacity in the region. In addition to interstate capacity of 12 GW in Rajasthan, around 8466 MW capacity of RE has been integrated in intra-state grid of Rajasthan. Out of which 4136 MW is solar and 4327 MW is wind.

Tripping of multiple lines during inclement weather especially due to tower collapse/damage is a matter of serious concern and following measures are suggested in order to avoid such incidents in future.

- Review of the Wind Zones in Rajasthan RE Complex on priority
- Enhancing resiliency of the transmission system through:
 - Planning of single ckt lines in place of double ckt lines in critical/high loading corridors

- Applicability of N-2 reliability criteria or beyond may be considered on case to case basis in natural disaster/inclement weather prone areas. Historical data of multiple element outage in such areas and feedback of system operator may be referred in this regard while planning of the transmission system.

However, till the time the above suggestions are implemented on field, to make sure that the system remains stable even during N-1-1/N-2 contingency, it is proposed to install SPS in the ISTS RE complex as below:

Assessment of Generation backdown of n-2 SPS requirement for 765kV lines of Rajasthan RE pocket				
Basecase assumption				
400kV Bhadla(RS)-Bikaner(RS) D/C	in service			
400kV Bikaner(PG)-Bikaner_2(PG) D/C	in service			
STATCOM -1 and 2 @ Bhadla_2	in service			
STATCOM-1 @ Bikaner_2	in service			
All 400kV lines presently out in Rajasthan	in service			
Rajasthan demand	15500 MW			
Raj Solar	3400 MW			
Raj Wind	1500 MW			
Result :				
Contingency / ISGS RE generation	ISGS RE generation < 10000MW	ISGS RE generation >10000 MW and < 11000 MW	ISGS RE generation > 11000 MW and < 12000MW	Full ISGS RE generation of 12389 MW
765kV Fatehgarh2-Bhadla D/C	no SPS required	no SPS required	200 MW generation backdown at Fatehgarh-1/2	500 MW backing at Fatehgarh-1/2
765kV Fatehgarh2-Bhadla2 D/C	no SPS required	100 MW backing at Fatehgarh_1	500 MW backing at Fatehgarh-1/2	800 MW backing at Fatehgarh-1/2
765kV Bhadla-Bikaner D/C	no SPS required	no SPS required	no SPS required	no SPS required
765kV Bhadla2-Bikaner D/C	no SPS required	no SPS required	no SPS required	no SPS required
765kV Bhadla2-Ajmer D/C	no SPS required	no SPS required	400 MW backing at Bhadla_2 (due to overloading of Jodhpur-Kankroli/ Bhadla-Jodhpur)	500 MW backing at Bhadla_2 (due to overloading of Jodhpur-Kankroli/ Bhadla-Jodhpur)
765kV Bikaner- Moga D/C	no SPS required	no SPS required	no SPS required	no SPS required
765kV Bikaner- Khetri D/C	no SPS required	no SPS required	no SPS required	no SPS required

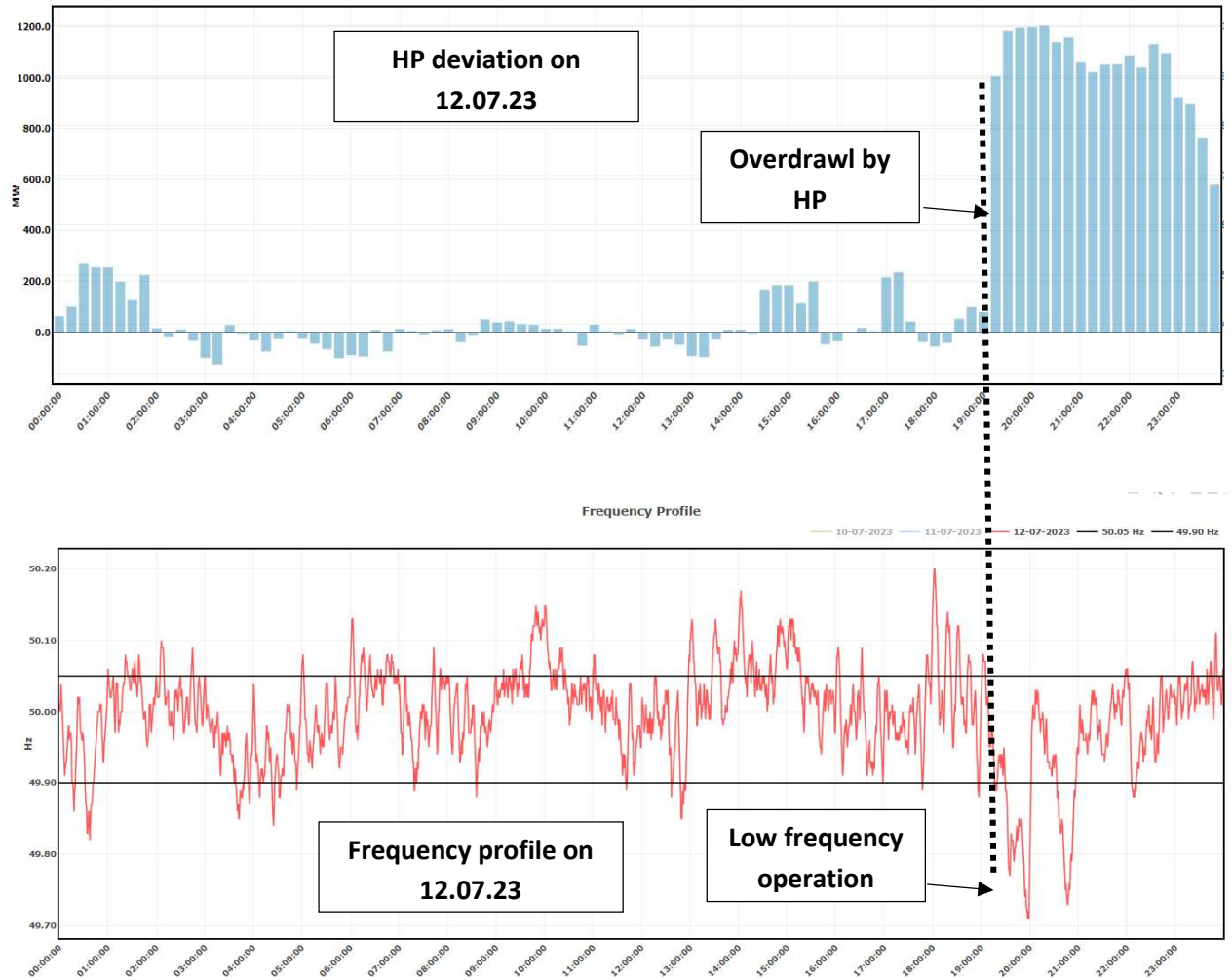
Members may please discuss.

16. Overdrawl by HP state control area

NRLDC has been taking up the issue of overdrawal of HP state control area from the grid at different fora as well as through direct communications. Despite, above HP state control area overdrawal is still continuing. Operational data for last few days is given below. It is evident that the state of Himachal Pradesh is excessively overdrawing from the grid and at the same time there is power sale by the state through Short Term Open Access (STOA).

Date	Overdrawal(MUs)	Sale of power through STOA(MUs)
08-07-2023	0.47	41.93
09-07-2023	3.45	22.24
10-07-2023	2.45	21.54
11-07-	3.76	18.33

2023		
12-07-2023	6.19	21.42



It is evident from the pattern that the overdrawal is almost continuous and at time causing low frequency. Therefore, there is still vast scope for improvement in demand/generation forecasting and portfolio management of the state. This overdrawal becomes severe during the outage of large hydro stations in NR due to high silt conditions. During preparatory meetings for summer/monsoon months, NRLDC had suggested certain measures during such conditions.

HP SLDC is requested to take corrective measures so that overdrawal of HP is avoided during normal conditions as well as during outage of hydro generation.

Members may like to discuss.

17. Transmission related issues observed during high demand season

As discussed in previous OCC meetings, 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.

Latest state wise issues are listed below:

Haryana:

TTC: 9100MW
ATC: 8800MW

In 207 OCC meeting, Haryana representative stated that following works are expected by Jun'23:

- New 500MVA ICT at Kurukshetra(PG)
- Connection of one circuit of 220 KV Jhajji - Rai D/C line and 220 kV Rai - RGEN D/C line on terminal towers outside 220 KV GIS S/Stn. HSIIDC, Rai (U/C) to give relief at 400 KV S/Stn Deepalpur
- 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)
- Matter regarding new ICT at Deepalpur is under discussion with Indigrd.

In 208 OCC meeting, Haryana SLDC representative informed:

- Revised ATC/TTC has been shared with NRLDC
- 220kV lines from Panchkula are expected by July end

HVPN to expedite commissioning of new elements which would help to meet higher demand with minimal transmission related issues.

Punjab:

TTC: 9500MW
ATC: 9000MW

In 207 OCC meeting, Punjab representative stated that following works are expected shortly:

- 315MVA ICT to 500MVA ICT at Nakodar (second week of Jun)
- 400/220kV Dhanansu S/s (mid-July)

In 208 OCC meeting, Punjab SLDC representative informed:

- 315MVA ICT to 500MVA ICT at Nakodar is expected by 20 Jun'23
- 400/220kV Dhanansu S/s is expected by Aug 2023.

Punjab SLDC was asked to ensure that loading of 400/220kV ICTs is within their N-1 contingency limit during the paddy season.

Punjab SLDC is requested to share provide update regarding 400/220kV Dhanansu S/s.

Delhi:

TTC: 7100MW
ATC: 6800MW

In 208 OCC meeting,

Delhi SLDC has shared ATC/TTC limits for summer/ monsoon 2023 on 12.06.2023. NRLDC has shared few queries on 13.06.2023 regarding assessment done by Delhi SLDC. Delhi SLDC informed that they have submitted reply on 16.06.2023.

DTL representative stated that Bawana SPS was discussed in last OCC meeting. NRLDC representative stated that SPS logic was found in order. DTL representative agreed to implement Bawana SPS scheme at the earliest.

DTL representative further requested that ICT capacity is to be augmented at Bawana. NRLDC representative stated that the matter may be conveyed to CEA PSPA division by DTL first for approval.

Rajasthan:

TTC: 7600MW
ATC: 7000MW

Raj SLDC was requested to share ATC/TTC limits for summer/ monsoon 2023 at the earliest. NRLDC has shared comments on limits and basecase submitted by RVPN

In 208 OCC meeting, RVPN representative informed that:

- Reply submitted to queries of PSDF for new capacitor installation, meeting is scheduled on 20.05.2023 with NRPC, NRLDC and PSDF, CEA regarding proposal for capacitor bank installation.
- Third party compliance check is pending. Certificate expected by 22 June 2023 after which PMU data sharing would be completed.

Raj SLDC is requested to share ATC/TTC limits for summer/ monsoon 2023 at the earliest

UP:

TTC: 15100MW
ATC: 14500MW

In 207 OCC meeting, UP representative stated that new ICT at 400/220kV Sohawal is expected shortly whereas at Gorakhpur (UP), ICT replacement is not expected in this summer. UP representative stated that mock testing has already been carried out at Nehtaur & Gorakhpur S/s and would also be carried out at other substations shortly.

In 208 OCC meeting, UP SLDC representative informed that:

- Major issue is being observed at Gorakhpur(UP), Sohawal(PG) and Allahabad(PG) during high demand season.
- Load has been shifted to Jhusi to relieve loading of Allahabad(PG) and new ICT is expected at Sohawal(PG)
- They shall share revised ATC/TTC limits at the earliest.

UP SLDC is requested to share revised ATC/TTC limits for paddy 2023 at the earliest.

NRLDC had taken online training sessions for J&K representative (two in Feb 2023, two in March 2023 and two in Apr 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.

Punjab, Haryana, HP, Uttarakhand, Rajasthan, Delhi & UP are communicating with NRLDC regularly regarding ATC/TTC assessment for summer/monsoon 2023. However, J&K are yet to provide their ATC/TTC assessments for summer/monsoon 2023.

Punjab, Haryana and UP have shared their ATC/TTC assessment considering number of transmission elements that were anticipated to be commissioned. Based on actually commissioned transmission elements, these states are requested to review and submit their ATC/TTC for summer/monsoon 2023.

At number of substations, loading of major 400/220kV ICTs were observed to be beyond their N-1 contingencies. Plots attached as Annexure-B.I.

It is 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.

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/rrvpl/scheduling/downloads
HP	https://hpsldc.com/mrm_category/ttc-atc-report/
Uttarakhand	https://uksldc.in/ttc-atc
J&K and Ladakh U/T	NA

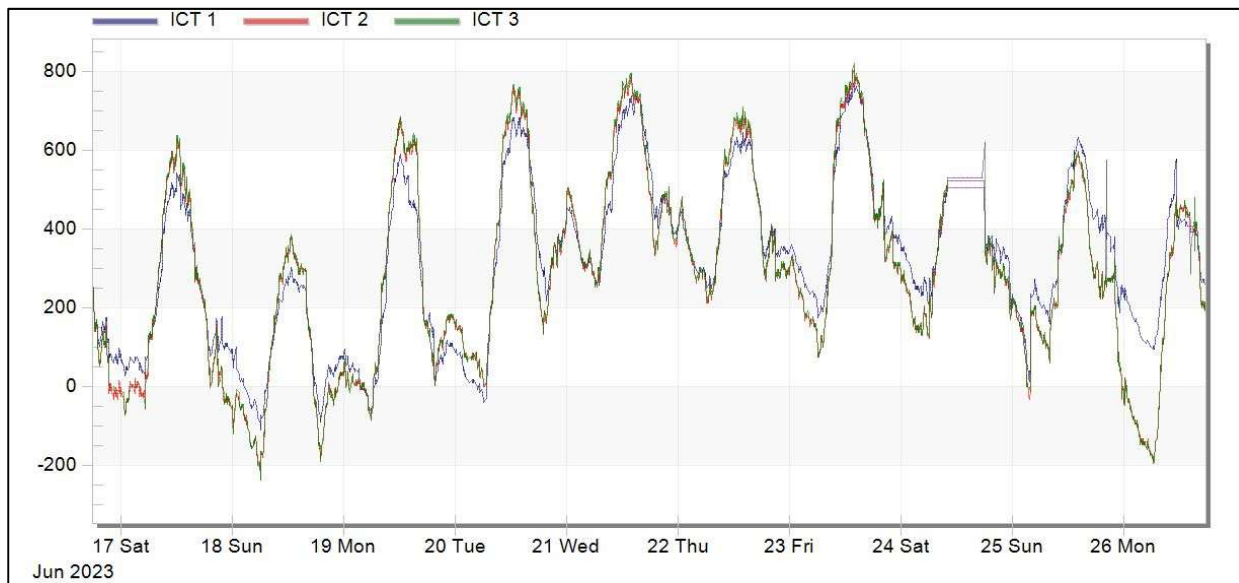
It is seen that most of the links are old and have old ATC/TTC limits.

All SLDCs are requested to regularly update ATC/TTC limits after mutually agreement between SLDC and NRLDC.

N-1 non-compliance of 765/400kV Bhiwani(PG) ICTs:

765/400kV has 3*1000MVA ICTs of which two 1000MVA ICTs are connected to one side of 400kV bus and the other 1000MVA ICT is connected to other side of 400kV

bus. The 400kV buses are connected to each other through a series bus reactor. It has been observed that during high solar generation hours, the loading of 765/400kV 3*1000MVA Bhiwani ICTs is above N-1 loading limit. Maximum ICT loading was observed sometimes 2300MW-2500MW (violated its N-1 loading limit of 2100MW).



Proposal for additional 1500MVA ICT at 765/400kV Bhiwani may be expedited in line with other RE evacuation transmission network in the corridor so that there is no restriction in RE evacuation or on changing power order of Mundra-Mahendragarh HVDC.

Members may please discuss.

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

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

S. NO.	Element Name	No. of forced outages	Utility/SL DC
1	220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	3	UP/UK
2	220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-1	3	BBMB/Delhi
3	220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2	4	PG/JK
4	220 KV New Tanda (UP)-Sohawal(PG) (UP) Ckt-1	4	PG/UP
5	400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-2	4	PG/PS
6	220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-2	6	BBMB/Delhi

The complete details are attached at **Annexure-B.II**.

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

Members may like to discuss.

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

A total of 19 grid events occurred in the month of June'23 of which **09** are of GD-1 category, **06** are of GI-2 Category & **04** 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.III.**

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 **800msec** in the event of multiple element tripping at 220kV Pinjore(HR) at 18:52hrs on 13th June, 2023. During the event, 220kV Panchkula(HR) - Pinjore(HR) Ckt 1 & 2 tripped during stormy weather (DPR operated). As per PMU, B-N phase to earth fault with delayed clearance of 280msec followed by R-N phase to earth fault with delayed clearance of 800msec is observed.

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **09** events out of **19** grid events occurred in the month. The other events with delayed clearance of faults (>500ms) are as follows:

1. Multiple elements tripping at 400/220kV Mau(UP) at 23:59hrs on 06th Jun, 2023 & 16:15hrs on 10th Jun,2023, fault clearance time: 400msec & 720msec.
2. Multiple elements tripping at 220/66kV Palwal(HR) at 01:06hrs on 06th Jun, 2023, fault clearance time: 360msec
3. Multiple elements tripping at 220/132kV Mohana(HR) at 21:09hrs on 09th Jun, 2023, fault clearance time: 360msec
4. Multiple elements tripping at 220/66kV Khassa(PS) at 20:08hrs on 14th Jun, 2023, fault clearance time: 520msec
5. Multiple elements tripping at 220/132/66kV Wadala(PS) at 00:07hrs on 18th Jun, 2023, fault clearance time: 440msec
6. Multiple elements tripping at 400/220kV Ratangarh(RS) at 05:21hrs on 20th Jun, 2023, fault clearance time: 600msec

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

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

Members may like to discuss.

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

A total of 16 inter-regional lines tripping occurred in the month of Jun'23. The list is attached at **Annexure-B.IV**. 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.

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

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

The status of receipt of DR/EL and tripping report of utilities for the month of Jun'2023 is attached at **Annexure-B.V**. 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. Also, it is observed that reporting status has been improved from Delhi & Punjab in Jun, 2023 compared to the previous month. However, reporting status from J&K & HP need improvement.

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

In last 24 OCC meetings, 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)

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

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 are requested to update about their future plan for PSS tuning and share the reports of PSS tuning/re-tuning and Step Response Test if conducted in their control area.

Members may like to discuss.

23. Frequency response characteristic:

Two FRC based event occurred in the month of **June-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	NR FRC during the event (%)
1	28-Jun-23	02:28hrs	At 02:28 hrs on 28-06-2023 400kV Teesta -Rangpo S/C, 400kV Teesta III-Dikchu S/C and 400kV Dikchu-Rangpo S/C tripped simultaneously. Fault was present in 400kV Dikchu-Rangpo S/C & Teesta III -Rangpo line. 400 kV Dikchu-Teesta III tripped from Teesta III end in Back up overcurrent protection. The above tripping led to loss of complete evacuation path for Dikchu and Teesta III substation leading to generation loss of 1304 MW at Teesta III and 106 MW at Dikchu respectively.	50.02	50.00	0.02	48

			Hence, generation loss of 1410MW has been considered for FRC calculation.				
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Status of Data received till date for 28th June 2023 event:

Status of Field Data received of FRC of Grid event occurred at Sikkim hydro complex in Eastern Region at 02:28 Hrs on 28.06.2023			
Data Received from		Data Not Received from	
Koteshwar HEP	TSPL	Uttarakhand	APCPL Jhajjar
UP	Kawai TPS	Haryana	Rihand NTPC
Tehri HEP	NJPS	Punjab	Unchhahar NTPC
Delhi	Singrauli NTPC	HP	Dadri NTPC
		BBMB	NHPC
		Rajasthan	

Members who haven't shared the data yet are requested to share the data and analysis of FRC of their control area.

Members may like to discuss.

24. 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.

Details are yet to be received from J&K.

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.VII**.

Constituents agreed in last OCC meeting to share the current status of the bus bar protection, however no details received as of now. Constituents are requested to share the present status w.r.t. to the same.

Members may like to discuss.

25. Replacement of electromechanical relays with numerical relays:

Clause-5.2(r) of IEGC, clause-15(4) of CEA Grid standards and clause-48(4) of CEA Construction Standards 2022 mandates that *“each line or transformer or reactor or any other bay shall be provided with facility for disturbance recording, event logging and time synchronizing equipment”*.

During analysis of grid incidents/disturbances, it has been found that there are few stations where electromechanical relays are still in use and thus disturbance recorder are not available there which accounts for violation of Clause-5.2(r) of IEGC, clause-15(4) of CEA Grid Standards and clause 48(4) CEA Construction Standards 2022.

In addition, clause-3 in part III (Grid Connectivity Standards applicable to Transmission Line and Sub-Station) of Standards for Connectivity to the Grid, 2007 reads as

“Two main numerical Distance Protection Schemes shall be provided on all the transmission lines of 220 kV and above for all new sub-stations. For existing sub-stations, this shall be implemented in a reasonable time frame”

It is known that Disturbance recorder (DR) is essential for analysis of grid incidents/disturbances. Its non-availability eventually affects the proper analysis of grid incidents/disturbances and monitoring of protection system.

Deliberation on same subject has also been done during 207 OCC. During the meeting, all the constituents/SLDC/STU were requested to review the same in their control area and take expedite actions to replace electromechanical relays with numerical relays. Constituents are requested to share the status of remedial action taken/to be taken regarding replacement of electromechanical relays with numerical relays w.r.t. their control area.

Members may like to discuss.

Follow up issues from previous OCC meetings

Annexure-A. I

1	Down Stream network by State utilities from ISTS Station	Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.	List of downstream networks is enclosed in Annexure-A. I. I.																																								
2	Progress of installing new capacitors and repair of defective capacitors	Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.	<p>Data upto following months, received from various states / UTs:</p> <table border="1" data-bbox="951 801 1548 1070"> <tr><td>⊙ CHANDIGARH</td><td>Sep-2019</td></tr> <tr><td>⊙ DELHI</td><td>Jun-2023</td></tr> <tr><td>⊙ HARYANA</td><td>May-2023</td></tr> <tr><td>⊙ HP</td><td>Jan-2023</td></tr> <tr><td>⊙ J&K and LADAKH</td><td>Not Available</td></tr> <tr><td>⊙ PUNJAB</td><td>Jan-2023</td></tr> <tr><td>⊙ RAJASTHAN</td><td>May-2023</td></tr> <tr><td>⊙ UP</td><td>Jun-2023</td></tr> <tr><td>⊙ UTTARAKHAND</td><td>Apr-2023</td></tr> </table> <p>All States/UTs are requested to update status on monthly basis.</p>	⊙ CHANDIGARH	Sep-2019	⊙ DELHI	Jun-2023	⊙ HARYANA	May-2023	⊙ HP	Jan-2023	⊙ J&K and LADAKH	Not Available	⊙ PUNJAB	Jan-2023	⊙ RAJASTHAN	May-2023	⊙ UP	Jun-2023	⊙ UTTARAKHAND	Apr-2023																						
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3	Healthiness of defence mechanism: Self-certification	<p>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” .</p> <p>In compliance of NPC decision, NR states/constituents agreed to raise the AUFRR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</p>	<p>Data upto following months, received from various states / UTs:</p> <table border="1" data-bbox="951 1261 1548 1563"> <tr><td>⊙ CHANDIGARH</td><td>Not Available</td></tr> <tr><td>⊙ DELHI</td><td>Mar-2023</td></tr> <tr><td>⊙ HARYANA</td><td>Jun-2023</td></tr> <tr><td>⊙ HP</td><td>May-2023</td></tr> <tr><td>⊙ J&K and LADAKH</td><td>Not Available</td></tr> <tr><td>⊙ PUNJAB</td><td>Mar-2023</td></tr> <tr><td>⊙ RAJASTHAN</td><td>Mar-2023</td></tr> <tr><td>⊙ UP</td><td>Jun-2023</td></tr> <tr><td>⊙ UTTARAKHAND</td><td>Mar-2023</td></tr> <tr><td>⊙ BBMB</td><td>Jun-2023</td></tr> </table> <p>All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quarterly basis for the rest .</p> <p>Status:</p> <table border="1" data-bbox="951 1776 1548 2078"> <tr><td>⊙ CHANDIGARH</td><td>Not Available</td></tr> <tr><td>⊙ DELHI</td><td>Increased</td></tr> <tr><td>⊙ HARYANA</td><td>Increased</td></tr> <tr><td>⊙ HP</td><td>Increased</td></tr> <tr><td>⊙ J&K and LADAKH</td><td>Not increased</td></tr> <tr><td>⊙ PUNJAB</td><td>Increased</td></tr> <tr><td>⊙ RAJASTHAN</td><td>Increased</td></tr> <tr><td>⊙ UP</td><td>Increased</td></tr> <tr><td>⊙ UTTARAKHAND</td><td>Increased</td></tr> <tr><td>⊙ BBMB</td><td>Increased</td></tr> </table> <p>J&K and LADAKH were requested to update status for increasing settings of UFRs.</p>	⊙ CHANDIGARH	Not Available	⊙ DELHI	Mar-2023	⊙ HARYANA	Jun-2023	⊙ HP	May-2023	⊙ J&K and LADAKH	Not Available	⊙ PUNJAB	Mar-2023	⊙ RAJASTHAN	Mar-2023	⊙ UP	Jun-2023	⊙ UTTARAKHAND	Mar-2023	⊙ BBMB	Jun-2023	⊙ CHANDIGARH	Not Available	⊙ DELHI	Increased	⊙ HARYANA	Increased	⊙ HP	Increased	⊙ J&K and LADAKH	Not increased	⊙ PUNJAB	Increased	⊙ RAJASTHAN	Increased	⊙ UP	Increased	⊙ UTTARAKHAND	Increased	⊙ BBMB	Increased
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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: <table border="1"> <tr><td>☉ HARYANA</td><td>Sep-2022</td></tr> <tr><td>☉ PUNJAB</td><td>May-2023</td></tr> <tr><td>☉ RAJASTHAN</td><td>Jun-2023</td></tr> <tr><td>☉ UP</td><td>May-2023</td></tr> <tr><td>☉ NTPC</td><td>Feb-2023</td></tr> </table> FGD status details are enclosed as Annexure-A. I. II. All States/utilities are requested to update status of FGD installation progress on monthly basis.	☉ HARYANA	Sep-2022	☉ PUNJAB	May-2023	☉ RAJASTHAN	Jun-2023	☉ UP	May-2023	☉ NTPC	Feb-2023																								
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5	Submission of breakup of Energy Consumption by the states	All states/UTs are requested to submit the requisite data as per the billed data information in the format given as under: <table border="1"> <thead> <tr> <th>Category→</th> <th>Consumption by Domestic Loads</th> <th>Consumption by Commercial Loads</th> <th>Consumption by Agricultural Loads</th> <th>Consumption by Industrial Loads</th> <th>Traction supply load</th> <th>Miscellaneous / Others</th> </tr> </thead> <tbody> <tr> <td><Month></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>	Category→	Consumption by Domestic Loads	Consumption by Commercial Loads	Consumption by Agricultural Loads	Consumption by Industrial Loads	Traction supply load	Miscellaneous / Others	<Month>							Status of the information submission (month) from states / utilities is as under: <table border="1"> <thead> <tr> <th>State / UT</th> <th>Upto</th> </tr> </thead> <tbody> <tr><td>☉ CHANDIGARH</td><td>Not Submitted</td></tr> <tr><td>☉ DELHI</td><td>May-23</td></tr> <tr><td>☉ HARYANA</td><td>Mar-23</td></tr> <tr><td>☉ HP</td><td>Jun-23</td></tr> <tr><td>☉ J&K and LADAKH</td><td>Not Submitted</td></tr> <tr><td>☉ PUNJAB</td><td>Apr-23</td></tr> <tr><td>☉ RAJASTHAN</td><td>May-23</td></tr> <tr><td>☉ UP</td><td>Apr-23</td></tr> <tr><td>☉ UTTARAKHAND</td><td>Mar-23</td></tr> </tbody> </table> J&K and Ladakh and Chandigarh are requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format	State / UT	Upto	☉ CHANDIGARH	Not Submitted	☉ DELHI	May-23	☉ HARYANA	Mar-23	☉ HP	Jun-23	☉ J&K and LADAKH	Not Submitted	☉ PUNJAB	Apr-23	☉ RAJASTHAN	May-23	☉ UP	Apr-23	☉ UTTARAKHAND	Mar-23
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☉ UTTARAKHAND	Mar-23																																				
6	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.																																		
7	Status of Automatic Demand Management System in NR states/UT's	The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:	Status: <table border="1"> <tr><td>☉ DELHI</td><td>Fully implemented</td></tr> <tr><td>☉ HARYANA</td><td>Scheme not implemented</td></tr> <tr><td>☉ HP</td><td>Scheme not implemented</td></tr> <tr><td>☉ PUNJAB</td><td>Scheme not implemented</td></tr> <tr><td>☉ RAJASTHAN</td><td>Under implementation. Likely completion schedule is 30.06.2023.</td></tr> <tr><td>☉ UP</td><td>Scheme implemented by NPCIL only</td></tr> </table>	☉ 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																						
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8	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVar TCR	Anticipated commissioning: Jul'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.

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.	Jun'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 end of Jun'2023. Updated in 207th 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	15.07.2023	Due to ROW issue work was delayd.Updated in 208th 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.	Dec'23	Issue related to ROW as intimated in 208th 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	Sep'23	Updated in 208th OCC by HPPTCL
				• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Giri S/s	-	HPPTCL to update the status.
				• Network to be planned for 2 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• 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: 4 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	Jan'24	Updated in 208th 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 Approved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	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 Sonapat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonapat	05.10.2023	Updated in 205th OCC by HVPNL
				• Sonapat - 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
			Implementation:2	• Sonapat - 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 Jalandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	May'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line commissioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	10.07.2023	• Lucknow -Kanduni, 220 kV D/C line expected energization date Jul'23 updated by UPPTCL in 208th OCC due to sub-station commissioning delay • No planning for 2 no. of bays updated 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	15.07.2023	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line expected energization date is 15.07.2023 updated by UPPTCL in 208th 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	Dec'23	SCDA System & PLCC work pending at 220 KV S/stn. Rajokheri Updated in 209th OCC by HVPNL
25	400/220kV Panchkula 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	15.07.2023	Route survey/tender under process. Work expected to be completed by 15th July 2023. Updated in 208th 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)	15.08.2023	Route survey/tender under process. Work expected to be completed by 15th August 2023. Updated in 208th OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahadurgarh S/s	Commissioned: 4 Approved: 4 Total: 8	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra-Daultabad S/c line at 400 kV Bahadurgarh PGCIL	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 2 bays	-	Status:- 2nos bays are being utilised for 220 kV D/C Panchgaon (PGCIL)-Panchgaon Ckt-I & 220 kV D/C Panchgaon (PGCIL)-Panchgaon Ckt-II, charged on dated 05.09.2022 & 20.10.2022 respectively. The 2nos bays may be utilised by HVPNL in future.
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	Commissioned	Saharanpur(PG)-Devband D/c line (Energization date: 20.04.2023) updated by UPPTCL in 207th OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	30.06.2023	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work expected to be completed by 30.06.2023.Updated in 208th 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 Transmission 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.

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

UNCHA HAR TPS

UPRVUNL (17.05.2023)

ANPARA TPS

HARDUAGANJ TPS

OBRA TPS

PARICHHA TPS

PSPCL (16.02.2023)

GGSSSTP, Ropar

GH TPS (LEH.MOH.)

RRVUNL (09.07.2023)

CHHABRA SCPP

CHHABRA TPP

KALISINDH TPS

KOTA TPS

SURATGARH SCTPS

SURATGARH TPS

Updated status of FGD related data submission

**Lalitpur Power Gen. Co. Ltd.
(17.10.2022)**

Lalitpur TPS

**Lanco Anpara Power Ltd.
(18.06.2022)**

ANPARA-C TPS

HGPCL (14.09.2022)

PANIPAT TPS

RAJIV GANDHI TPS

YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)

KAWAI TPS

**Rosa Power Supply Company
(18.06.2022)**

Rosa TPP Phase-I

**Prayagraj Power Generation
Company Ltd. (17.10.2022)**

Prayagraj TPP

APCPL (25.02.2022)

INDIRA GANDHI STPP

Pending submissions

GVK Power Ltd.

GOINDWAL SAHIB

NTPC

DADRI (NCTPP)

Talwandi Sabo Power Ltd.

TALWANDI SABO TPP

L&T Power Development Ltd.

Nabha TPP (Rajpura TPP)

Target Dates for FGD Commissioning (Utility-wise)

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

NTPC

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

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

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



भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
 प्रचालन निष्पादन प्रबोधन प्रभाग प्रभाग
Operation Performance Monitoring Division

विषय: Electricity Generation Program for the year 2024-25.

महोदय,

While monitoring the generation performance during the current financial year, it has been observed that power utilities are facing the problem of loss of generation due to no / low schedules and losses accounted on other technical and commercial reason. Accordingly, it is requested to pursue with all generating utilities of the Region in your OCC meeting so that the following inputs may kindly be submitted to this office as per the enclosed annexure:

- i) Unit-wise yearly generation (with unit-wise monthly breakup) proposed during 2024-25 along with the fuel availability, the anticipated loss of generation on account of various factors such as grid constraint, low schedule/ Reserve shut down due to high cost, coal/lignite quality etc., if any **(Annex- I (point no. 1 to 5))**.
- ii) Details of Power Purchase Agreement (PPA) with various Discoms, Trader, States etc, (details may be furnished in MW capacity tied up with each party) for Long, Medium and short term and expected generation for next year **(Annex – I (point no 6))**.
- iii) The details of coal linkage from coal agencies and availability of secondary fuel oil/gas/ liquid fuel **(Annex- I (point no 7 (a) and (b))**.
- iv) Unit wise cost of generation and rate of sale of power **(Annex – I (point 8))**.
- v) Details of unit-wise schedule of planned Maintenance as approved by the respective RPCs (Regional Power Committees), and unit-wise R&M planned to be carried out during 2024-25. The same may also be appropriately considered while furnishing expected generation **(Annex-IIA)**.


- vi) In addition to above, it is also requested for furnishing details of unit-wise schedule of planned and actual Maintenance during the remaining period of 2023-24 (**Annex- IIB**).

In this regard, it is requested to furnish above mentioned details along with unit wise outage schedule of generating stations of your region for 2024-25 (as approved by Regional Power Committee in excel file format prescribed in Annex-III) and month wise, state wise energy requirement for 2024-25 to this division by **31st August, 2023**.

The information may please be furnished electronically at the email address targetopmcea@gmail.com or ceopm-cea@gov.in

For any other query/ clarification any of the following officers may be approached.

1. I.K.Mehra, Director, ikmehra@nic.in , 011- 26732660
2. Sumit Goel, Deputy Director, sumit.goelcea@gov.in , 011-26732602
3. Gaurav Goyal, Assistant Director, gaurav.goyal@gov.in , 011-26732691


11/7/2023
(बी. लिंगखोई)
मुख्य अभियंता

Member Secretary (NRPC/WRPC/ERPC/SRPC/NERPC)

CEA-GO-11-24/1/2023-OPM Division

दिनांक: 11.07.2023

प्रतिलिपि: मुख्य अभियंता , Grid Management प्रभाग, केंद्रीय विद्युत् प्राधिकरण



RVPN
An ISO 9001:2000
Certified Company

RAJASTHAN RAJYA VIDYUT PRASARAN NIGAM LIMITED.
[Corporate Identity Number (CIN):U40109RJ2000SGC016485]
(Regd. Office: VidyutBhawan, Jan Path, Jyoti Nagar, Jaipur - 302 005)
OFFICE OF THE SUPERINTENDING ENGINEER (PROJECT & PLANNING)
☎ +91-141-2740623, Fax: +91-141-2740794;
e-mail: se.pp@rvpn.co.in; website: www.rvpn.co.in

710
27/6/23

No. RVPN/SE(P&P)/XEN-2(P&P)/AE-2/F. /D 161 Jaipur, Dt. 19/06/2023

To
The General Manager (NRLDC)
Grid Controller of India Limited,
18-A, Shaheed Jeet Singh Marg, Katwaria Sarai,
New Delhi-110016.

Sub:-Proposed SPS for 400/220 KV ICTs at RVPN's 400 KV GSS Bhilwara and 400 KV GSS Hindaun.

Sir,

On the above captioned subject, please find attached the proposed SPS for 1x315 MVA+1x500MVA, 400/220 KV ICTs at 400 KV GSS Bhilwara and 2x315 MVA, 400/220 KV ICTs at 400 KV GSS Hindaun with request to please include in the next meeting of OCC for discussion and necessary approval of the OCC forum.

Encl: As above

Your's Faithfully,

(S.C. Meena)
Chief Engineer (PP&D)
RVPNL, Jaipur.

Copy to the following for information and necessary action please-

1. The Member Secretary (NRPC), 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016
2. The Chief Engineer (LD/T&C/MPT&S), RVPN, Jaipur/Jodhpur/Jodhpur.
3. The Chief Engineer, Power System Planning & Appraisal-I Division, CEA, Sewa Bhawan, RK Puram-I, New Delhi-110066
4. The Superintending Engineer (Operation), NRPC, 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016.
5. The System Operator-2, NRLDC, 18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016

Encl: As above

Chief Engineer (PP&D)
RVPNL, Jaipur

Signature valid

Digitally signed by Suresh Chand Meena
Designation : Additional Chief Engineer
Date: 2023.06.20 07:27:56 IST
Reason: Approved

Rajka. Ref No. 2042375

EE(O)
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SE(O)
114
27/6/23



Proposed SPS for 2x315 MVA, 400/220 KV ICTs at 400 KV GSS Hindaun

1. Details of Installed ICTs at 400kV Hindaun and Transmission Lines

- Percentage impedance of 315 MVA, 400/220/33 KV (Telk -Make) ICT-Ist is 11.86%.
- Percentage impedance of 315 MVA, 400/220/33 KV, (CGL -Make) ICT-IIInd is 13.04%.
- Load sharing of ICT-I is more in respect of ICT-II about 20-30MVA due to different percentage impedance.
- During Overloading condition, 315 MVA, 400/220/33 KV (Telk -Make) ICT-Ist will trip first. Auxiliary supply of 400 KV GSS Hindaun is fed from 400/220/33 KV ICT-Ist. Hence, when ICT-Ist trips then auxiliary supply of GSSs also fail which is restored using DG set.
- Power map of transmission system associated with 400 kV GSS Hindaun is shown in Fig. 1

Fig. 1

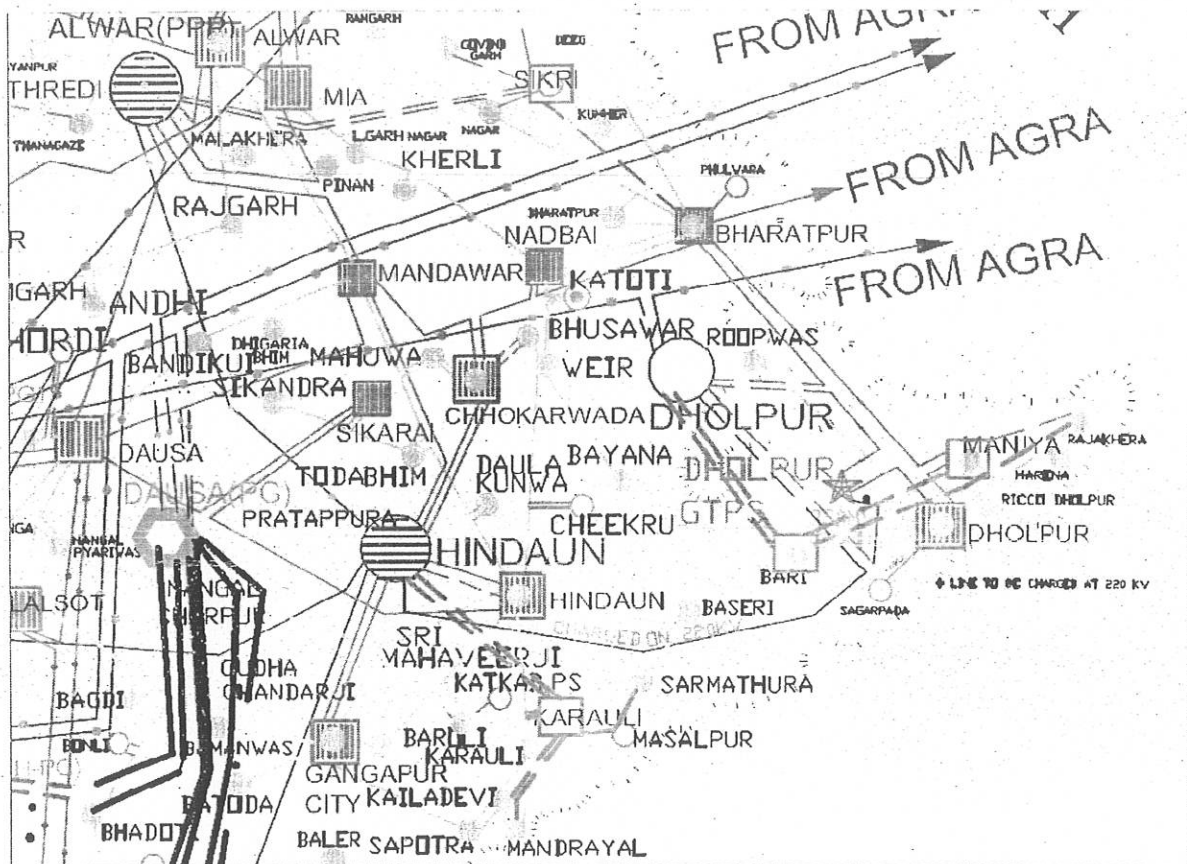


Figure 1: Power map of transmission system associated with 400 kV GSS Hindaun

2. Load Details of Installed ICTs and Transmission lines Associated with 400kV GSS Hindaun and Transmission Lines

- Peak loads recorded on 400/220 kV ICTs and 400kV and 220 kV lines associated with 400 KV GSS, RVPNL, Hindaun are detailed below in Table 1.
- Proposed groups of 220 kV lines to be tripped for SPS are also shown in Table 1.

Table 1: Load Details of ICTs and Transmission Lines Associated with 400 kV GSS Hindaun

S. No.	Name of Lines/ICTs	Peak Load (MVA)	Average Load (MVA)	Remark
1	315 MVA, 400/220/33 kV ICT-I	308	269	Load sharing of ICT-I is more in respect of ICT-II about 20-30MVA due to different percentage impedance.
2	315 MVA, 400/220/33 kV ICT-II	276	243	
3	400 kV S/C Hindaun-DCCP line charged on 220 kV voltage	208	188	Proposed for SPS
4	220 kV Hindaun-Gangapur Line CKT-I	93	69	Proposed for SPS
5	220 kV Hindaun-Gangapur Line CKT-II	79	68	Proposed for SPS
6	220 kV Hindaun-Mandawar Line	82	55	Not included in SPS
7	220 kV Hindaun-Chhonkarwada Line CKT-I	48	32	Not included in SPS
8	220 kV Hindaun-Chhonkarwada Line CKT-II	51	30	Not included in SPS
9	220 kV S/C Hindaun (400 kV GSS)-Hindaun (220 kV GSS) line (Interconnector-I)	252	205	Tripping of this line will result in overloading of 220 kV D/C Bassi-Dausa line. Hence, this line is not considered for SPS. Not included in SPS

3. Proposed SPS for ICTs at 400 kV GSS Hindaun

- After detailed analysis of above loading conditions and grid power flow pattern, following lines are considered for tripping for SPS of ICTs:-
 - 400 kV S/C Hindaun-DCCP line charged on 220 kV voltage
 - 220 kV Hindaun-Gangapur Line CKT-I
 - 220 kV Hindaun-Gangapur Line CKT-II
- Tripping command for 220 kV lines are to be taken from overload relay/over current back up relay on 400 kV and/or 220 kV side of ICTs considering 100% loading of 315 MVA, 400/220/33 KV (Telk -Make) ICT-I and 90% loading of 315 MVA, 400/220/33 KV (CGL -Make) ICT-II with appropriate time delay (3 to 5 second) to avoid tripping

during the through faults. Further, time grading of the back-up elements may also be correlated for time delay of overloading.

- Schematic diagram for tripping of 220 kV lines included in SPS for 2x315 MVA, 400/220kV ICTs at 400 kV GSS Hindaun is shown below:-

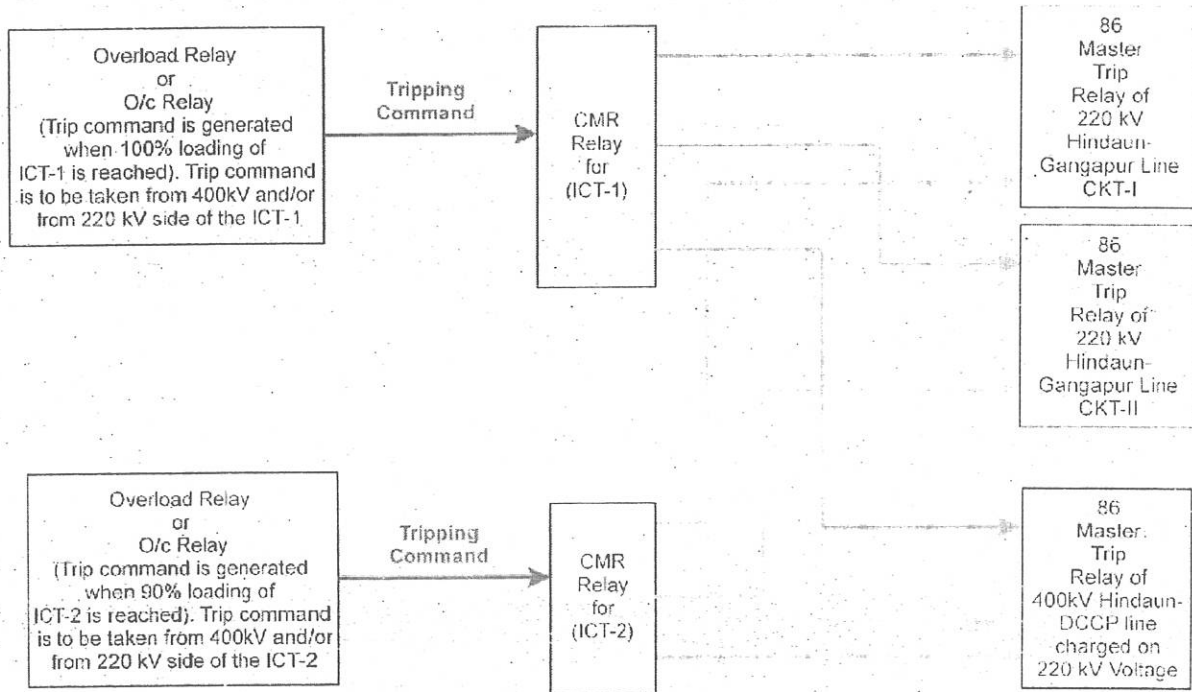


Figure 2: Schematic diagram of proposed logics for SPS of 2x315MVA, 400/220 kV ICTs at 400 kV GSS Hindaun

Proposed SPS for 1x315 MVA+1x500MVA, 400/220 KV ICTs at 400 KV GSS Bhilwara

1. Details of Installed ICTs at 400kV GSS Bhilwara and Transmission Lines
 - Percentage impedance of 500 MVA, 400/220 kV ICT-1 is HV-IV: 11.95%, HV-LV:40.30%, IV-LV:26.17% @ Normal Tap:09
 - Percentage impedance of 315 MVA, 400/220 kV ICT-2 is HV-IV: 13.04%, HV-LV:40.51%, IV-LV:25.69% @ Normal Tap:09.
 - 500 MVA, 400/220 kV ICT-1 will be loaded to full capacity first and then 315 MVA, 400/220 kV ICT-2. There will be difference of loading approximately 25MVA i.e. when ICT-1 is loaded to full capacity then loading on ICT-2 will be 92% (approximately).
 - Power Map of Transmission System associated with 400 KV GSS Bhilwara is shown in Figure 1.

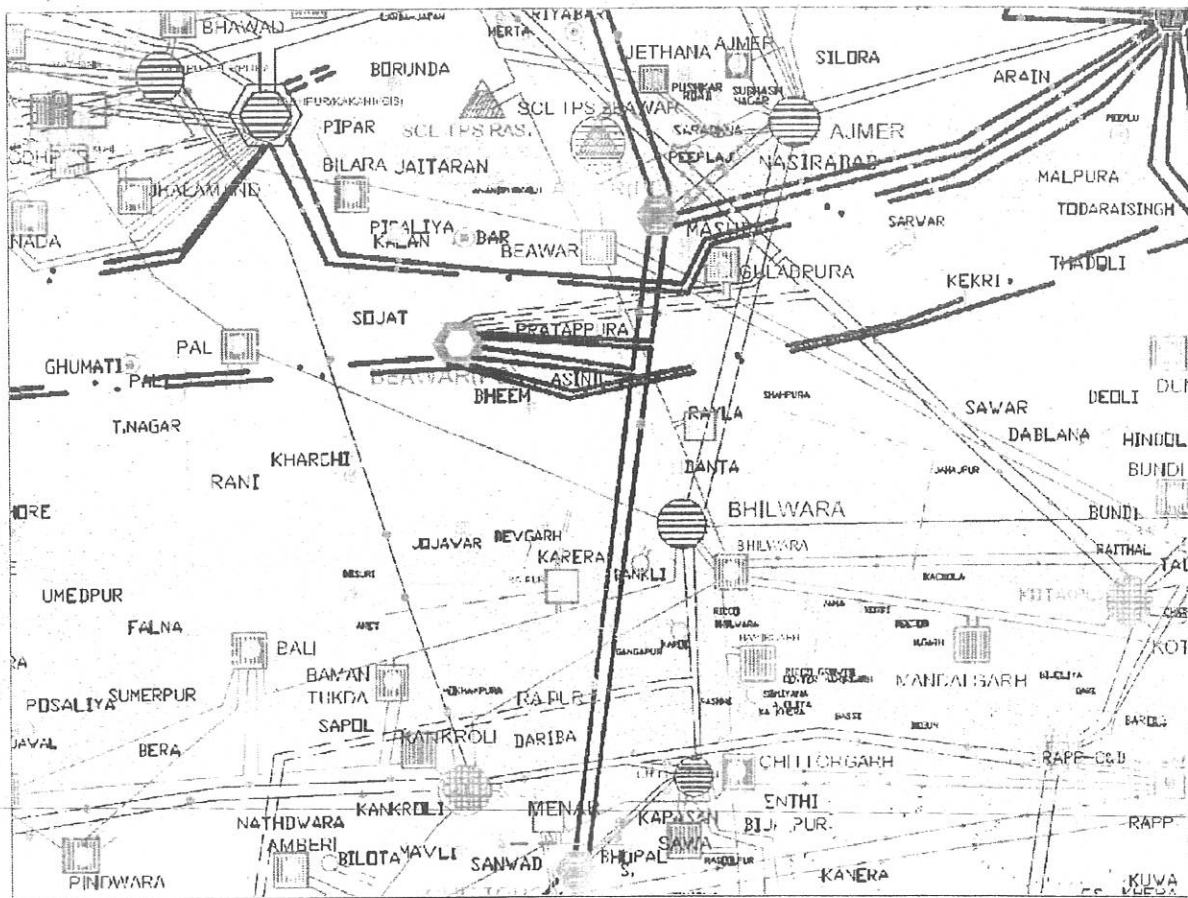


Figure 1: Power map of transmission system associated with 400 KV GSS Bhilwara

2. **Load Details of Installed ICTs and Transmission lines Associated with 400kV GSS Bhilwara and Transmission Lines**

- Peak load recorded on the 400/220 kV ICTs and 220 kV lines associated with 400 kV GSS Bhilwara are detailed below in Table 1.
- Proposed groups of 220 kV lines to be tripped for SPS are also shown in Table 1.

Table 1: Load Details of ICTs and Transmission Lines Associated with 400 kV GSS Bhilwara

S. No.	Name of Lines/ICTs	Peak Load (MVA)	Average Load (MVA)	Remark
1	500 MVA, 400/220/33 kV ICT-I	368	299	Load sharing of ICT-I is more in respect of ICT-II about 10 MVA due to different percentage impedance
2	315 MVA, 400/220/33 kV ICT-II	278	187	
3	220 KV Bhilwara Interconnector-1	258	190	Proposed for SPS Group-1
4	220 KV Bhilwara Interconnector-2	203	152	Proposed for SPS Group-1
5	220 KV S/C Bhilwara-Bamantukda line	187	152	Proposed for SPS Group-2
6	220 KV S/C Bhilwara-Pali line	143	101	Proposed for SPS Group-2
7	220 KV Bhilwara-Jindal Saw line	25	22	Industrial Feeder(not proposed for SPS)

3. **Proposed SPS for ICTs at 400 kV GSS Bhilwara**

- No spare carrier protection channel is available on any of 220 kV feeders emerging from 400 KV GSS Bhilwara to trip the transformers at 220 KV GSS which are being fed from 400 kV GSS Bhilwara.
- After detailed analysis of above loading conditions and grid power flow pattern, two groups of 220 kV lines are identified which are proposed for tripping for SPS. Following 220 kV lines are considered, for tripping for SPS of ICTs:-

Proposed for SPS Group-1

- 220 KV Bhilwara Interconnector-1 Line
- 220 KV Bhilwara Interconnector-2 Line

Proposed for SPS Group-2

- 220 KV S/C Bhilwara-Bamantukda line
- 220 KV S/C Bhilwara-Pali line

- Tripping command for 220 kV lines are to be taken from overload relay/over current back up relay on 400 kV and/or 220 kV side of ICTs considering 100% loading of 500MVA, 400/220/33 KV ICT-I and 90% loading of 315 MVA, 400/220/33 KV ICT-II with appropriate time delay (3 to 5 second) to avoid tripping during the through faults. Further, time grading of the back-up elements may also be correlated for time delay of overloading.
- Schematic diagram for tripping of 220 kV lines included in SPS for 1x500MVA+1x315MVA, 400/220 KV ICTs at 400 KV GSS Bhilwara is shown below:-

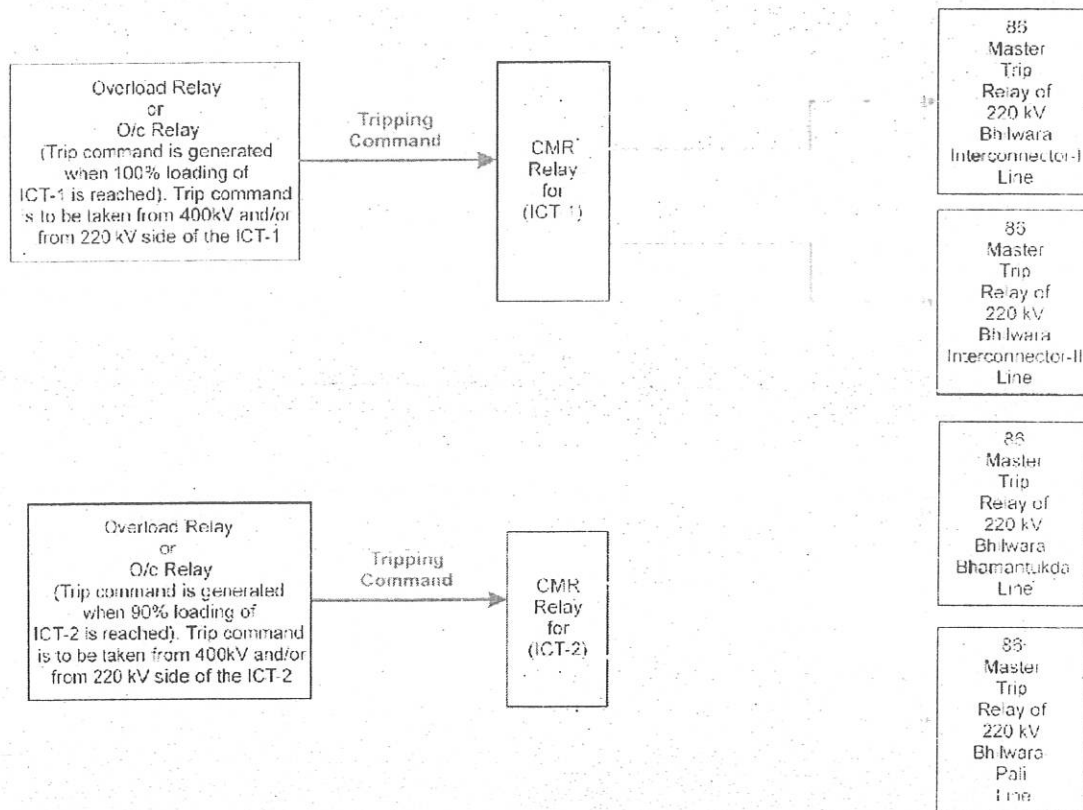


Figure 2: Schematic diagram of proposed logics for SPS of 1x500 MVA+1x315MVA, 400/220 KV ICTs at 400 KV GSS Bhilwara



पावर ग्रिड कॉर्पोरेशन ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
POWER GRID CORPORATION OF INDIA LIMITED
(A Government of India Enterprise)

सन्दर्भ सं.: - उ.क्षे.-1/Faridabad/ भीनमाल/

दिनांक: 13.07.2023

To,
The Member Secretary
NRPC, New Delhi

Subject: Shutdown on 400kV Bhinmal Zerda & 400kV Bhinmal Kankroli Line for making bypass arrangement at LILO point of 400 KV Kankroli-Bhinmal-Zerda TL.

Dear Sir,

This is to bring in your kind information that Scheme to relieve high loading of WR-NR Inter- Regional Corridor. (Bay upgradation at 400 kV Bhinmal SS) was approved in 9th Meeting of NCT on 28th September 2022. Consequent to the approval, the work of bay upgradation at 400kV Bhinmal substation was awarded to M/s Apar industries on 1st March 2023. Bay upgradation work at 400kV Bhinmal substation is started with full swing and the completion schedule of the work in 8th month from NOA i.e. 29th November 2023. For further execution of work , 400kV Bhinmal -Zerda & 400kV Bhinmal-Kankroli Line is to be bypassed through jumper at LILO point (Tower Loc no: - 02) temporary. Existing and proposed arrangement at jumper point are attached for your reference.

Accordingly, simultaneous shut down on 400kV Bhinmal -Zerda & 400kV Bhinmal-Kankroli may please be provided in the month of August 2023 for above bypassing required for the bays construction work at Bhinmal Substation to relieve the high loading WR-NR Inter- Regional Corridor & further strengthening the GRID.

Thanking you sir,

Your Sincerely

Gyaneshwar Prasad Payasi
Chief General Manager (Project /Engineering)
NR-1 Faridabad

Copy for kind information and consideration, please.

1. ED (NRLDC), POSOCO, New Delhi
2. CGM (NTAMC), POWERGRID, Manesar

Copy for kind information, please.

1. ED (NR-1), POWERGRID, Faridabad
2. CGM (AM), NR-1, Faridabad

क्षेत्रीय मुख्यालय/उप-केन्द्र/साइट ऑफिस : 400/220 के.वी. उपकेन्द्र, रामसेन रोड, भीनमाल-343029 दूरभाष नं.: +91 9116170723

RHQ/Sub-station/Site Office : 400/220 kV Sub Station, Ramseen Road, Bhinmal-343029 Tel.: +91 9116170723

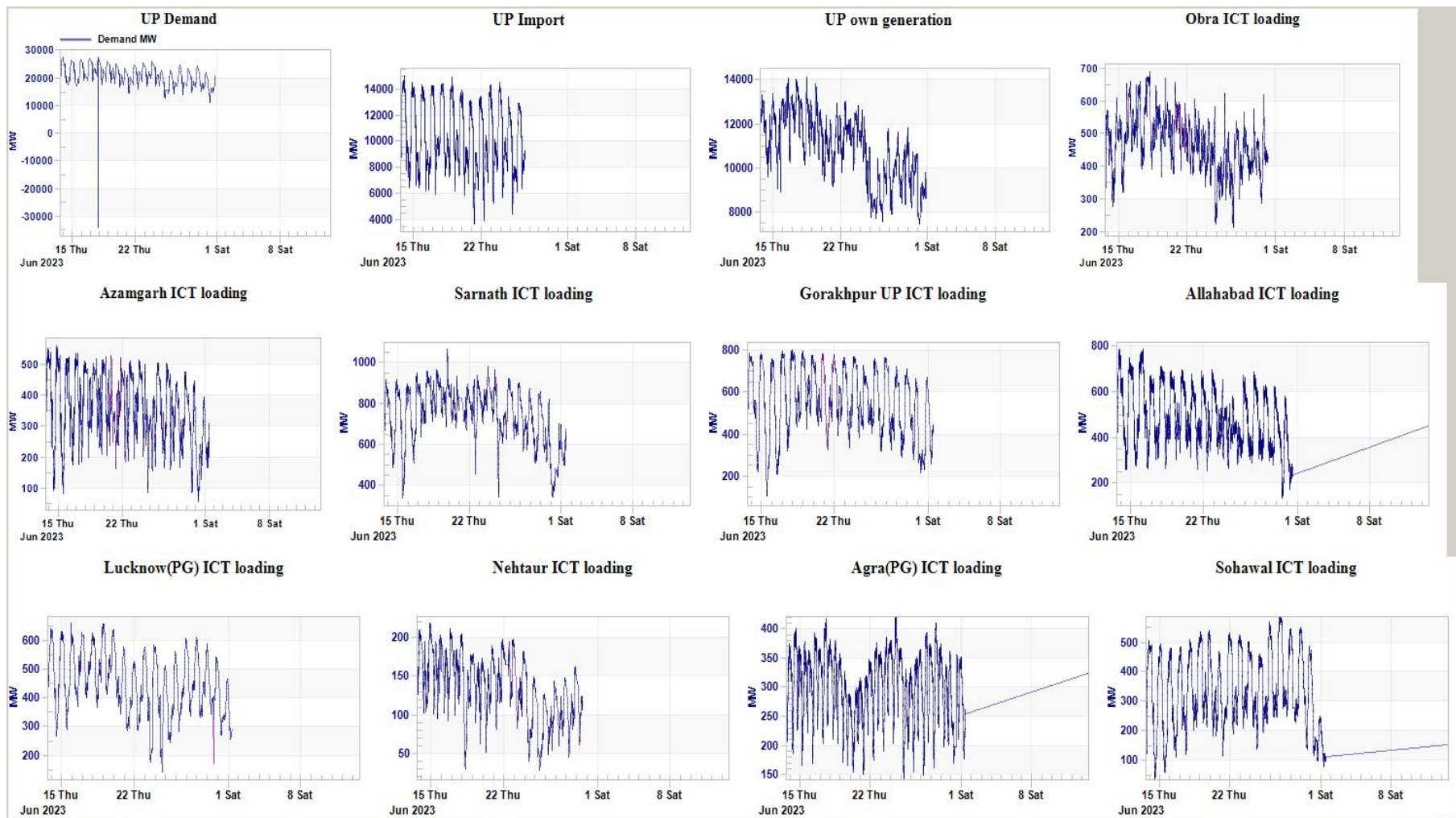
केन्द्रीय कार्यालय : "सौदामिनी", प्लॉट नं.: 2, सेक्टर-29, गुरुग्राम-122001, (हरियाणा), दूरभाष 0124-2571700-719

Corporate Office : "Saudamini", Plot No. 2, Sector-29, Gurugram-122001, (Haryana) Tel : 0124-2571700-719

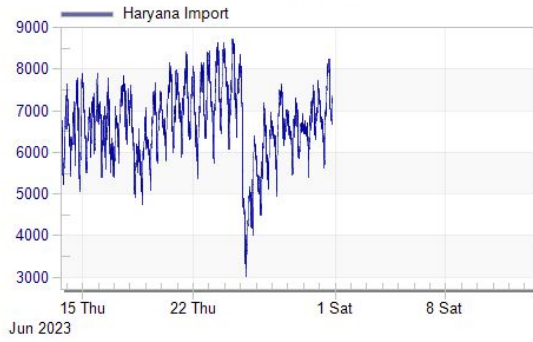
पंजीकृत कार्यालय : बी-9, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली - 110 016 दूरभाष : 011-26560112, 26560121, 26564812, 26564892, सीआईएन : L40101DL1989GOI038121

Registered Office : B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi-110 016. Tel : 011-26560112, 26560121, 26564812, 26564892, CIN : L40101DL1989GOI038121

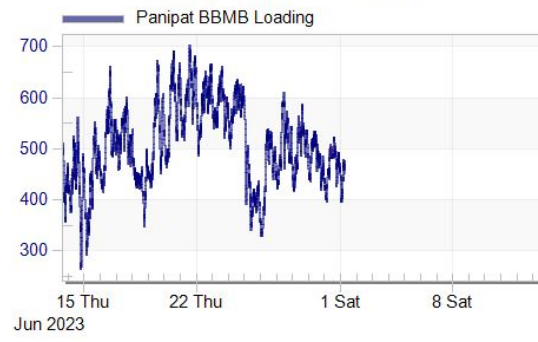
Website : www.powergridindia.com



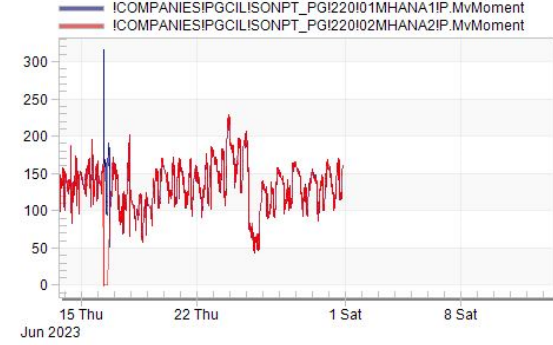
Haryana Import



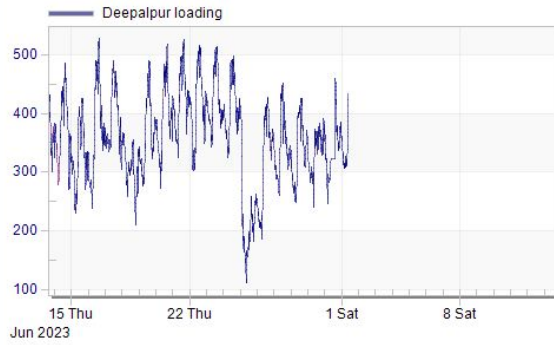
Panipat BBMB ICT loading



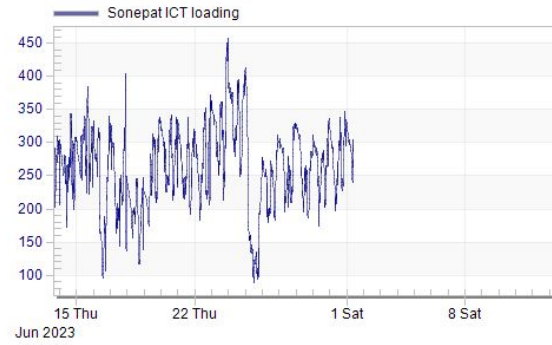
Sonepat lines loading



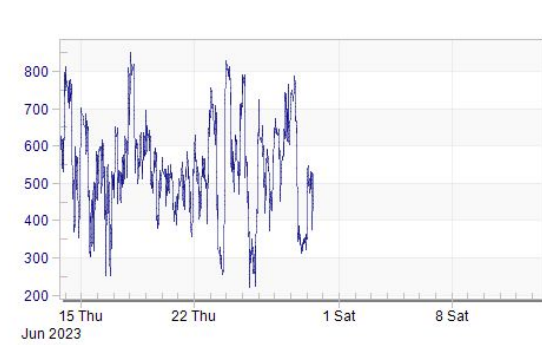
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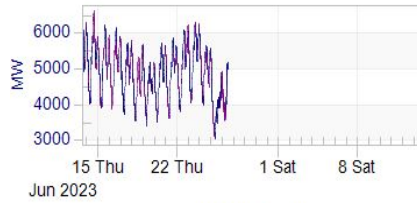
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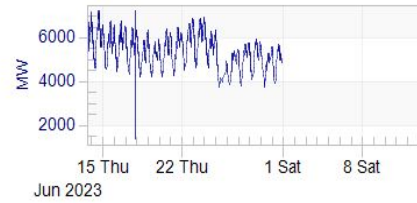
Kurukshetra ICT



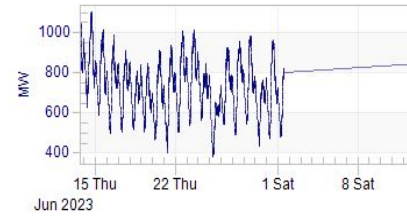
Delhi Import



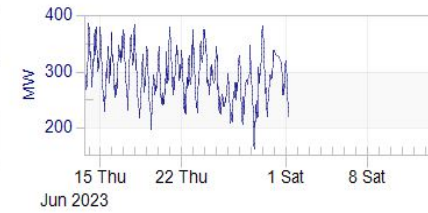
Delhi load



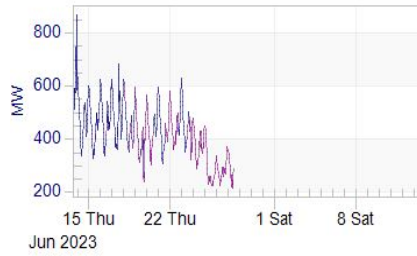
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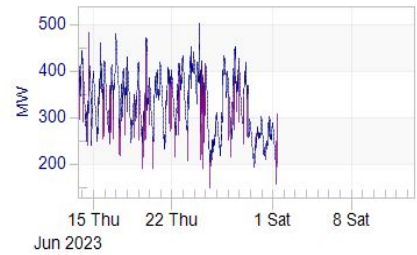
Harshvihar ICT loading



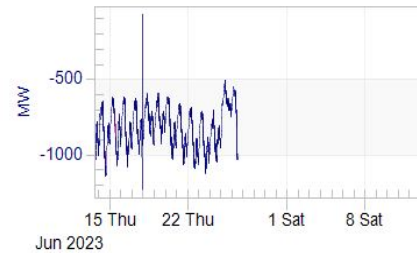
Bamoli ICT loading



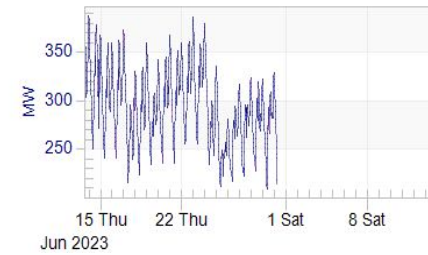
Mundka ICT loading



Mandola ICT loading



Bawana ICT loading



Sr No	Element Name	Outage Date	Outage Time	Reason
1	220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	03-Jun-23	17:30	B-N Fault. As per PMU, B-N fault occurred, no auto-reclosing is observed.
		04-Jun-23	15:14	Flags CP-A/R Lockout, Breaker Auto trip, RP-Z-1, Relay Trip 86, Distance 10.07 km, Ia=175.0 A, Ib=353.4A, Ic=199.0A. As per PMU, B-N fault occurred and delayed clearance of 480ms with no auto-reclosing observed.
		08-Jun-23	05:04	R-N fault, Zone-1. Line tripped from Nara end. As per PMU, B-N fault occurred and delayed clearance of 480ms with no auto-reclosing observed.
2	220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-1	03-Jun-23	10:55	Tripped due to VT fuse fail from Panipat end only. As per PMU, no fault is observed.
		10-Jun-23	09:50	CKT TRIPPED FROM PANIPAT END ONLY WITHOUT INDICATION. As per PMU, no fault is observed.
		25-Jun-23	06:55	Phase to earth fault R-N. As per PMU, R-N fault occurred, no auto-reclosing is observed.
3	220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2	19-Jun-23	08:30	Phase to earth fault B-N. As per PMU, B-N fault occurred, no auto-reclosing is observed.
		21-Jun-23	19:10	Snapping of Jumper. As per PMU, R-N fault occurred, no auto-reclosing is observed.
		26-Jun-23	15:02	CKT-2 tripped alongwith tripping of CKT-1 on phase-to-phase fault due to snapping of conductor.
		26-Jun-23	20:58	Earth fault. As per PMU, no fault is observed.
4	400 KV Amritsar(PG)-Makhu(PS) (PSTCL) Ckt-2	19-Jun-23	17:07	Phase to earth fault B-N. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
		20-Jun-23	16:01	Phase to Ground Fault Y-N. As per PMU, Y-N fault and unsuccessful auto-reclosing observed.
		21-Jun-23	19:44	Phase to Ground Fault B-N. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
		22-Jun-23	20:48	Phase to earth fault B-N. As per PMU, B-N fault and unsuccessful auto-reclosing observed.
5	220 KV Delhi RR(BB)-Narela(DV) (BBMB) Ckt-2	02-Jun-23	17:18	Phase to earth fault B-N. As per PMU, B-N fault occurred, no auto-reclosing is observed.
		04-Jun-23	07:56	Phase to earth fault R-N. As per PMU, R-N fault occurred, no auto-reclosing is observed.
		06-Jun-23	00:54	Phase to earth fault B-N. As per PMU, no fault is observed.
		12-Jun-23	18:09	Phase to earth fault B-N. As per PMU, Y-N fault occurred, no auto-reclosing is observed.
		14-Jun-23	20:09	Phase to earth fault B-N. As per PMU, no fault is observed.
		25-Jun-23	05:19	Phase to earth fault R-N. As per PMU, R-N fault occurred, no auto-reclosing is observed.

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Duration (hh:mm)	Event (As reported)	Energy Unserviced due to Generation loss (MU)	Energy Unserviced due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
					Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
13	GI-1	1) 220/132kV ICT 1 at Wadala(PS) 2) 220/132kV ICT 4 at Wadala(PS) 3) 220/132kV ICT 3 at Verpal(PS) 4) 220/132kV ICT 4 at Verpal(PS) 5) 220/132kV ICT 5 at Verpal(PS) 6) 220 kv Verpal(PS) –Wadala(PS) ckt-1 7) 220 kv Verpal(PS) –Wadala(PS) ckt-2 8) 220 kv Verpal(PS) –Amritsar(PG) ckt-1 9) 220 kv Verpal(PS) –Amritsar(PG) ckt-2	Punjab	PGCIL, PSTCL	18-Jun-23	00:07	18-Jun-23	01:30	01:23	i) 220/132/66kV Wadala(PS) and 220/132/66kV Verpal(PS) has double main bus scheme at 220kV level. ii) As reported, at 00:07hrs, 220/132kV ICT 1 & 4 at Wadala(PS) tripped (exact reason of tripping yet to be shared). As per SCADA, during the same time, 220/132kV ICT 3, 4 & 5 at Verpal(PS) along with all the 132kV feeders at Verpal(PS) also tripped and 132kV buses at Verpal(PS) became dead. iii) As per SCADA SOE, 132kV Wadala-Batla ckt-1, 2 & 3, 132kV Wadala-Hargo ckt-1 and 132/11kV ICT 2 at Wadala(PS) also tripped during the same time. iv) As per information received from SLDC Punjab, at 00:14 hrs, R-phase CT of 220 kv Verpal(PS) –Amritsar(PG) ckt-2 blasted at Verpal(PS) end. Further, fire was also observed in the cable of 220 kv Verpal(PS) –Amritsar(PG) ckt-1. As per SCADA, during the same time, 220 kv Verpal(PS) –Wadala(PS) ckt-1 and 220 kv Verpal(PS) –Wadala(PS) ckt-2 also tripped. v) As per information received from CPCC, 220kV Verpal(PS) –Amritsar(PG) ckt-1 tripped only from Verpal(PS) end and line remained charged from Amritsar(PG) end. vi) As per DR of 220 kv Verpal(PS) –Amritsar(PG) end ckt-2, R-N phase to earth fault (fault sensed in zone-2) is observed with fault current of approx. 27.65kA in R-phase and fault clearing time of 145ms. vii) As per PMU at Amritsar(PG), Y-N phase to earth fault with delayed clearance of 440msec is observed at 00:07hrs and R-N phase to earth fault with delayed clearance of 240msec is observed at 00:14hrs. viii) As per SCADA, change in demand of approx. 315MW at 00:07hrs and 350MW at 00:14hrs is observed in Punjab control area.	0	0.484	0	350	0.000	0.516	52638	67807	440
14	GD-1	1) 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 2) 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2	J&K	PDD-JK, PGCL	19-Jun-23	08:28	19-Jun-23	11:44	03:16	i) During antecedent condition, active power loading of 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 & 2 was approx. 98MW each. ii) As reported, at 08:28hrs, 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 & 2 tripped on B-N phase to phase fault from Barn end only. iii) As per DR of 220 KV Barn(JK)-Kishenpur(PG) Ckt-1 & 2 at Kishenpur end, B-N fault in Z-2 is observed which cleared in ~160msec. iv) As per PMU at Kishenpur(PG), B-N fault which cleared in 160msec is observed. v) As per SCADA, load loss of approx. 190MW occurred in J&K control area.	0	0.62	0	190	0.000	0.329	57677	57677	160
15	GD-1	1) 400/220 kv 315 MVA ICT 2 at Ratangarh(RS) 2) 220 kv Ratangarh(RS)-Sikar(PG) (PG) Ckt-1 3) 220 kv Ratangarh(RS)-Sikar(PG) (PG) Ckt-2 4) 220 kv Ratangarh-Badnu (Ra) Ckt 5) 220 kv Ratangarh-Ratangarh220 (Ra) Ckt-1 6) 220 kv Ratangarh-Khetri (Ra) Ckt-1	Rajasthan	RVPNL, POWERGRID	20-Jun-23	05:21	20-Jun-23	07:36	02:15	i) 400/220kV Ratangarh(Ra) has double main bus & transfer bus scheme at 220kV side. ii) During antecedent condition, 400/220 kv 315 MVA ICT 2 at Ratangarh(RS) and 220kV feeders to Badnu, Sikar(PG)-H, Ratangarh-1 and Khetri-1 connected at 220kV Bus-B. Remaining elements were connected at 220kV Bus-A. iii) As reported at 05:21 hrs, B-ph bus jumper of 220 kv Ratangarh-Badnu (Ra) Ckt broke and created B-N phase to earth bus fault on 220kV bus-B. 220kV Badnu ckt tripped in Z-1 from Ratangarh end (distance relay at Ratangarh end sensed fault in Z-1, forward direction due to issue of improper fault selection by relay in case of near fault). iv) 220kV Bus bar protection was in blocked condition due to some circuitry fault and hence, bus bar protection didn't operate. v) Continuous pickup and reset of Z-4 is observed in adjacent 220kV lines connected at 220kV Bus-B due to which none of the lines tripped in Z-4 from Ratangarh end (Z-4 time delay setting is kept as 160msec at Ratangarh end). As fault was still persisting 220kV lines connected at 220kV Bus-B tripped from remote end on distance protection operation in Z-2. Rajasthan has been communicated to check the operation of Z-4 distance protection at Ratangarh end. vi) 220kV Ratangarh-Sikar ckt-1 connected at 220kV Bus-A also tripped in Z-4 as bus coupler breaker opened with the time delay more than Z-4 time delay (160msec). vii) After approx. 600msec of the fault, 400/220kV 315MVA ICT-2 at Ratangarh(Ra) tripped on over current E/F protection operation and fault cleared with the tripping of this ICT. viii) 220kV Badnu S/s became dead during the tripping event as it was having feeding from 400/220kV Ratangarh(Ra) only. ix) As per SCADA, change in load of approx. 280MW is observed in Rajasthan control area. x) As informed by Rajasthan, issue w.r.t. bus bar protection at 220kV side of 400/220kV Ratangarh(Ra) has been corrected and bus bar protection is now healthy and in service.	0	0.63	0	280	0.000	0.480	58276	58276	600
16	GD-1	1) 220 KV Mir Bazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2	J&K	PDD-JK, PGCL	25-Jun-23	16:36	25-Jun-23	18:25	01:49	i) During antecedent condition, 220 kv MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1, 220kV Pampore- Mirbazar D/C were not in service. 220 kv MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-1 was out since 14:55 hrs of the 25th June 2023 for routine maintenance of the line. Active power loading of 220 kv MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2 was 231MW. ii) As reported, at 16:36hrs, 220 kv MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2 tripped on R-N fault in line. iii) As per DR at NewWanpoh(PG) end of 220 kv MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2, zone-1 distance protection operated with fault current of 8.7kA. iv) Due to tripping of 220 kv MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2, supply to Mirbazar S/s got affected. v) As per PMU at Kishenpur(PG), R-N fault which cleared within 100msec is observed. vi) As per SCADA, load loss of approx. 230MW occurred in J&K control area. vii) Further, at around 17:12hrs, ~80MW load was restored by charging 220kV Pampore- Mirbazar D/C and complete load of Mirbazar restore at 18:25 hrs with the charging of 220 kv MirBazar(PDD)-NewWanpoh(PG) (PDD JK) Ckt-2.	0	0.417	0	230	0.000	0.440	52294	52294	80
17	GD-1	1) 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 2) 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2	J&K	PDD-JK, PGCL	26-Jun-23	14:56	26-Jun-23	17:56	03:00	i) During antecedent condition, active power loading of 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 & 2 was approx. 112MW each. Both the circuit are on same tower and line length is 35km. ii) As reported, at 16:56hrs, 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2 tripped on R-Y phase to phase fault. Fault currents were Ir=6kA & Iy=3kA and fault distance was ~20km from Kishenpur end. At the same time, 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 also tripped. Fault distance ~32km from Kishenpur end. iii) As per DR of 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 & 2 at Kishenpur end, 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-1 tripped on R-Y fault in Z-1 from Kishenpur end instantaneously and 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2 tripped with delay of ~160msec from Kishenpur end on R-Y fault in Z-2. iv) As per SCADA, load loss of approx. 225MW occurred in J&K control area. v) Further at 17:56hrs, 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2 was charged which again tripped at 20:38hrs on phase to earth fault and revived back at 21:49hrs. vi) Later at 00:11hrs on 27th June 2023, 220 KV Kishenpur(PG)-Barn(JK) (PDD JK) Ckt-2 was taken under shutdown and both the circuits revived at 04:02 hrs.	0	0.62	0	225	0.000	0.369	54411	61047	160
18	GI-2	1) 220KV Bus 2 at Shahjahanpur(PG) 2) 400/220 kv 500 MVA ICT 1 at Shahjahanpur(PG) 3) 220 kv Azitpur (UP)-Shahjahanpur(PG) (UP) Ckt-2 4) 220 kv Shahjahanpur(PG)-Shahjahanpur(UP) (UP) Ckt-1	Uttar Pradesh	UPPTCL, PGCL	26-Jun-23	06:37	26-Jun-23	08:37	02:00	i) 400/220kV Shahjahanpur (PG) has double main transfer bus scheme at 220kV level. During antecedent condition, 400/220 kv 500 MVA ICT 1 & 2 at Shahjahanpur (PG) were carrying approx. 40MW and 36MW respectively. Bus coupler was in closed condition. ii) As reported, at 06:37 hrs, bus bar protection of 220kV Bus-2 operated on R-N bus fault and elements connected to bus-2 i.e., 400/220 kv 500 MVA ICT 1 at Shahjahanpur(PG), 220 kv Azitpur (UP)-Shahjahanpur(PG) (UP) Ckt-2 and 220 kv Shahjahanpur(PG)-Shahjahanpur(UP) (UP) Ckt-1 tripped. iii) Bus coupler breaker opened instantaneously and 220kV bus-1 at Shahjahanpur (PG) and elements connected to it remained intact. iv) As per PMU at Lucknow(PG), R-N phase to earth fault which cleared within 80msec is observed. v) As per SCADA, no change in demand in Uttar Pradesh control area.	0	0	0	0	0.000	0.000	44268	49165	80
19	GD-1	1) 220 KV Moga(PG)-Mehal- Kalan(PS) (PSTCL) Ckt-1 2) 220 KV Moga(PG)-Mehal- Kalan(PS) (PSTCL) Ckt-2 3) 220 KV Moga(PG)-Ajitwal(PS) (PSTCL) Ckt-1 4) 220 KV Moga(PG)-Mogan(PS) (PSTCL) Ckt-4 5) 400/220 kv 500 MVA ICT 1 at Moga(PG) 6) 400/220 kv 315 MVA ICT 4 at Moga(PG)	Punjab	PGCIL, PSTCL	29-Jun-23	21:07	29-Jun-23	22:50	01:43	i) As reported, at 21:07hrs, earth wire of 220 KV Moga(PG)-Mehal- Kalan(PS) (PSTCL) Ckt-1 & 2 snapped between Moga S/s Gantry and tower location no. 1. Fault current was around 30kA. On this fault, bus bar protection at 220kV Bus-1 at Moga(PG) maloperated and elements connected to 220kV Bus-1 i.e., 220 kv Moga(PG)-Mogan(PS) (PSTCL) Ckt-4, 400/220 kv 500 MVA ICT 1 at Moga(PG) and 400/220 kv 315 MVA ICT 4 at Moga(PG) tripped. (Bus bar relay at 220kV Moga(PG) is of static type and sometimes maloperates during high current through fault. POWERGRID(NR-2) intimated that new bus bar relay (numerical type) will be commissioned in next 3 months tentatively). ii) 220 kv Moga(PG)-Mehal- Kalan(PS) (PSTCL) Ckt-1 (connected at 220kV Bus-2) tripped due to DT received at Moga(PG) end. (Punjab has been communicated to share the reason of DT sent). During the same time, 220 kv Moga(PG)-Ajitwal(PS) (PSTCL) Ckt-1 (connected at 220kV bus-2) also tripped on R-Y-N double phase to earth fault. iii) As per DR of Moga(PG) end, R-N phase to earth fault (Ir=30.73kA, Iy=30.56kA) are observed in 220 kv Moga(PG)-Mehal-Kalan(PS) (PSTCL) Ckt-2, fault distance was 70m from Moga(PG) end. At the same time, R-N double phase to earth fault (Ir=42.66kA, Iy=44.11kA) with fault clearance time of 90ms is observed in 220 kv Moga(PG) (end)-Ajitwal(PS) (PSTCL) Ckt-1, fault distance was 0.6m from Moga(PG) end. iv) As per SCADA SOE, 220/66 kv ICT 2 at Mehal- Kalan(PS) and 220kV Mogan(PS)-Baghapurana(PS) Ckt-1 also tripped during the same time (Reason yet to be shared). v) As per PMU at Allahabad(PG), multiple faults are observed. vi) Whole event leads to load loss of Baghapurana (feeding through Mogan (Punjab)), Jagraon (feeding through Ajitwal) and load of Mehal-Kalan. As per SCADA, change in demand of approx. 995 MW is observed in Punjab control area. vii) As reported, 220 kv Baghapurana & Jagraon load revived within 5-10 minutes.	0	1.708	0	995	0.000	1.512	47358	65805	120

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	# Fault Clearance Time (>100 ms for 400 kV and 160 ms for 220 kV)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Other Protection Issues and Non Compliance (inference from PMU, utility details)	Suggestive Remedial Measures	Remarks
			Date	Time									
1	800 KV HVDC Kurukshetra(PG) Pole-2	POWERGRID	7-Jun-23	21:55		Blocked due to TEED protection operated at Champa end. Contactor got burnt at Champa end.	NA	NA	NO	NO			As per PMU, fluctuation in voltage is observed.
2	765 KV Agra-Gwalior (PG) Ckt-2	POWERGRID	9-Jun-23	14:08		Y-N fault , FC=7.6KA , 45 km from Agra	NA	NA	YES	YES (After 24hrs)			As per PMU & DR at Agra end, line tripped on Y-N fault in reclaim time. As per DR summary of Agra end, Y-N fault at distance ~35km(27.2%, Z-1) from Agra end is observed.
3	765 KV Phagi(RS)-Gwalior (PG) (PG) Ckt-2	POWERGRID	20-Jun-23	17:34		Transient fault	NA	NA	YES	YES			As per PMU at Ajmer(PG) and as per DR of Phagi end, no fault is observed. As reported, PRD-2 Relay of B-ph Line Reactor at Phagi end operated, and DT sent to Gwalior end. Limit switch of PRD relay of Line reactor has been replaced
4	500 KV HVDC Mahindergarh(APL)-Adani Mundra(APL) (ATIL) Ckt-2	APL	14-Jun-23	14:50		Tripped due to DC Line fault.	NA	NA	YES	YES (After 24hrs)			As per EL, DC line fault is observed.
5	500 KV HVDC Mahindergarh(APL)-Adani Mundra(APL) (ATIL) Ckt-2	APL	30-Jun-23	12:26		Earth fault	NA	NA	YES	YES			As per EL, DC line fault is observed.
6	220 KV Sahupuri(UP)-New Karamnsa (BS) (BSEB) Ckt-1	UPPTCL	19-Jun-23	20:38		Transient fault	NA	NA	YES	NA			As per PMU, fluctuation in voltage is observed.
7	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	21-Jun-23	16:24		Phase to earth fault B-N	NA	NA	YES	YES			As per DR summary of Rihand end, B-N fault at distance ~75km(73.5%, Z-1) from Rihand end is observed.
8	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	22-Jun-23	23:49		Phase to earth fault Y-N	NA	NA	YES	YES			As per DR summary of Rihand end, Y-N fault at distance ~1.8km(1.8%, Z-1) from Rihand end is observed.
9	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	29-Jun-23	03:46		Phase to Phase Fault R-Y	NA	NA	YES	YES			As per DR summary of Rihand end, R-Y fault at distance ~42.5km(76.5%, Z-1) from Rihand end is observed.
10	132 KV Rihand(UP)-Nagar Untari(JS) (UP) Ckt-1	UPPTCL	26-Jun-23	19:08		Phase to Phase Fault R-N	NA	NA	YES	YES			DR are not time synced. As per DR summary of Rihand end, R-N fault at distance ~45.3km(76.5%, Z-1) from Rihand end is observed.

11	132 KV Rihand(UP)-Nagar Untari(JS) (UP) Ckt-1	UPPTCL	29-Jun-23	02:26		Phase to Phase Fault R-N	NA	NA	YES	YES		DR are not time synced. As per DR summary of Rihand end, R-N fault at distance ~27.8km(46.9%, Z-1) from Rihand end is observed.
12	400 KV Balia-Patna (PG) Ckt-1	POWERGRID	21-Jun-23	20:53		Phase to Ground Fault R-N	NA	NA	YES	YES (After 24hrs)		As per PMU & DR of Balia end, line tripped after unsuccessful A/R operation on permanent R-N fault. As per DR summary of Balia end, R-N fault at distance ~58km(30%, Z-1) from Balia end is observed.
13	400 KV Balia(PG)-Naubatpur(BS) (PG) Ckt-1	POWERGRID	29-Jun-23	07:01		Phase to Ground Fault Y-N	NA	NA	NO	NO		As per PMU at Balia(PG) end, line tripped after unsuccessful A/R operation on permanent Y-N fault.
14	765 KV Varanasi-Gaya (PG) Ckt-1	POWERGRID	19-Jun-23	18:11		Phase to earth fault R-N	NA	NA	YES	YES (After 24hrs)		As per DR of Varanasi end, line tripped after unsuccessful A/R operation on permanent R-N fault.
15	765 KV Varanasi-Gaya (PG) Ckt-2	POWERGRID	21-Jun-23	14:29		Phase to Ground Fault R-N	NA	NA	YES	YES		As per PMU & DR of Varanasi end, line tripped on R-N fault in reclaim time.
16	800 KV HVDC Agra-Bishwanath Chariali (PG) Ckt-2	POWERGRID	23-Jun-23	11:39		Snapping of Conductor	NA	NA	NO	NO		

Fault Clearance time has been computed using PMU Data from nearest node available and/or DR provided by respective utilities (Annexure- II)

*Yes, if written Preliminary report furnished by constituent(s)

R-Y-B phase sequencing (Red, Yellow, Blue) is used in the list content.All information is as per Northern Region unless specified.

^^ tripping seems to be in order as per PMU data, reported information. However, further details may be awaited.

Reporting of Violation of Regulation for various issues for above tripping

1	Fault Clearance time(>100ms for 400kV and >160ms for 220kV)	1. CEA Grid Standard-3.e 2. CEA Transmission Planning Criteria
2	DR/EL Not provided in 24hrs	1. IEGC 5.2(r) 2. CEA Grid Standard 15.3
3	FIR Not Furnished	1. IEGC 5.9.6.a 2. CEA Grid Standard 12.2 (Applicable for SLDC, ALDC only)
4	Protection System Mal/Non Operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.A 2. CEA (Technical Standards for connectivity to the Grid) Regulation, 2007: Schedule Part 1. (6.1, 6.2, 6.3)
5	A/R non operation	1. CEA Technical Standard of Electrical Plants and Electric Lines: 43.4.C 2. CEA Technical Planning Criteria

Status of submission of FIR/DR/EL/Tripping Report on NR Tripping Portal

Time Period: 1st Jun 2023 - 30th Jun 2023

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)	Remark
			Value	%	Value	%	Value	%	Value	%	Value	%		
24	RAPPB	1	1	100	1	0	100	1	0	100	1	0	100	DR, EL & Tripping report need to be submitted
25	RAPPC	1	1	100	1	0	100	1	0	100	1	0	100	
26	SBSRPC-11	1	1	100	1	0	100	1	0	100	1	0	100	
27	SEWA-2-NH	2	1	50	1	0	50	1	0	50	1	0	50	
28	SINGRAULI-NT	6	0	0	3	0	50	3	0	50	3	0	50	
29	SLDC-DV	28	1	4	3	11	18	3	12	19	2	0	7	Details received
30	SLDC-HP	2	0	0	1	0	50	1	0	50	0	0	0	
31	SLDC-HR	24	6	25	8	2	36	7	0	29	9	0	38	DR, EL & Tripping report need to be submitted
32	SLDC-JK	16	1	6	1	15	100	1	15	100	2	3	15	
33	SLDC-PS	34	0	0	11	7	41	9	6	32	14	0	41	
34	SLDC-RS	52	4	8	16	1	31	17	0	33	31	0	60	Details received
35	SLDC-UK	11	0	0	0	3	0	0	7	0	0	0	0	
36	SLDC-UP	113	10	9	15	23	17	12	32	15	11	16	11	DR, EL & Tripping report need to be submitted
37	STERLITE	4	0	0	0	0	0	0	0	0	0	1	0	Details received
38	TANAKPUR-NH	1	0	0	0	0	0	0	0	0	0	0	0	
39	TANDA-NT	2	0	0	0	2	0	0	0	0	0	0	0	DR, EL & Tripping report need to be submitted
40	TATAPOWER	1	1	100	1	0	100	1	0	100	1	0	100	
41	TPGEL_SL	1	1	100	1	0	100	1	0	100	1	0	100	Details received
42	UNCHAHAR-NT	1	0	0	0	1	0	0	1	0	0	0	0	
43	URI-I-NH	1	0	0	0	0	0	0	0	0	0	0	0	Details received
Total in NR Region		541	74	14	111	127	27	105	136	26	126	24	24	

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

S. No.	Name of the Generating Station (Capacity in MW)	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/NRPC (Yes/No)	Remarks (if any)	Tentative schedule for PSS tuning / re-tuning
1 THDC						
	TEHRI HPS(4 * 250)	15.12.2021 to 20.12.2021	15.12.2021 to 20.12.2021	Yes	(Report shared vide email dt.19.01.2019)	
	KOTESHWAR HPS(4 * 100)	17/03/2019 to 19/03/2019	17/03/2019 to 19/03/2019	Yes	(Report shared vide email dt.11.02.2021)	
2 SJVNL						
	NATHPA-JHAKRI HPS(Unit1 #250)	10.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit2 #250)	14.03.2013	-	No	The upgradation of old excitation system of Unit No.#2&4 will be carried out during Annual Plant Maintenance of FY 2022-23, therefore PSS tuning shall be carried out at the time of upgradation of unit. It is also submitted that step response test of other Units shall also be carried out during upgradation work of Unit # 2 & 4 by the OEM, being a system and software specific job.	
	NATHPA-JHAKRI HPS(Unit3 #250)	03.03.2020	-	No	Excitation system upgraded in 2020	
	NATHPA-JHAKRI HPS(Unit4 #250)	14.03.2013	-	NO	The upgradation of old excitation system of Unit No.#2&4 will be carried out during Annual Plant Maintenance of FY 2022-23, therefore PSS tuning shall be carried out at the time of upgradation of unit. It is also submitted that step response test of other Units shall also be carried out during upgradation work of Unit # 2 & 4 by the OEM, being a system and software specific job.	
	NATHPA-JHAKRI HPS(Unit5 #250)	14.05.2016	14.05.2016	NO	Excitation system upgraded in 2013	
	NATHPA-JHAKRI HPS(Unit6 #250)	14.05.2017	14.05.2017	NO	Excitation system upgraded in 2013	
	RAMPUR HEP(6 * 68.67)	29.11.2014	27.10.2020,10.02.2021	YES	PSS Response and Step Test response was checked in February, 2021 by Rampur HPS and report of the same was submitted to NRLDC. Now the work of PSS tuning and step response testing has been awarded to BHEL, Bengaluru. Testing shall be carried out in November, 2022.	
3 HVPNL						
	PANIPAT TPS(unit1# 250)	29.03.2016	29.03.2016	YES	--	
	PANIPAT TPS(unit2# 250)	15.01.2018	15.01.2018	YES	--	
	DCRTPP (YAMUNA NAGAR)(unit1#300)	19-12-2018	19-12-2018	YES	(Report attached)	
	DCRTPP (YAMUNA NAGAR)(unit1#300)	Will be carried out shortly				
	RGTPP(KHEDAR) (2*600)	5th to 6th July 2013	5th to 6th July 2013	Report attached. Previous record being looked into	No MW capacity addition after 2013 at RGTPP Khedar. No new line addition in vicinity of station	
	JHAJJAR(CLP) (2*660)	20-05-2017	20-05-2017	YES	--	
4 NTPC						
	Rihand (Unit1#500)	03-03-2017	03-03-2017	YES	Next test will be done during re-commissioning of unit after O/H	
	Rihand (Unit2#500)	02-07-2016	02-07-2016	YES	Next test will be done during re-commissioning of unit after O/H	
	Rihand (Unit3#500)	15-08-2015	15-08-2015	YES	Next test will be done during re-commissioning of unit after O/H	
	Rihand (Unit4#500)	25-05-2017	25-05-2017	YES	Next test will be done during re-commissioning of unit after O/H	
	Rihand (Unit4#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	
	Rihand (Unit5#500)	11-12-2014	11-12-2014	YES	Next test will be done during re-commissioning of unit after O/H	
	SINGRAULI STPS(Unit1#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit2#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit3#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit4#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit5#200)	-	-	-	Not done in last three years	
	SINGRAULI STPS(Unit6#500)	02.05.2018	02.05.2018	NO	--	
	SINGRAULI STPS(Unit7#500)	15.07.2018	15.07.2018	NO	--	

	UNCHAHAHAR I (2 * 210)	29-03-2016	29-03-2016	YES	--	
	UNCHAHAHAR II TPS(unit1# 210)	13-07-2019	13-07-2019	YES	--	
	UNCHAHAHAR II TPS(unit2# 210)	10-08-2018	10-08-2018	YES	--	
	UNCHAHAHAR UNIT6#500	-	31.03.2017	YES	--	
	KOLDAM HPS(4 * 200)	01-07-2015	01-07-2015	YES	--	
	DADRI GPS(2 * 154.51) (ST- Steam Turbine)	-	18-11-2015	YES	Next test will be done during re-commissioning of unit after O/H	
	DADRI GPS(2 * 154.51) (GT- Steam Turbine)	2017-18	2017 & 2018	YES	Next test will be done during re-commissioning of unit after O/H	
	ANTA GPS GT-1 (88.71)(GT- Gas Turbine)	10-10-2021	10-10-2021	YES		
	ANTA GPS GT-2 (88.71)(GT- Gas Turbine)	10-10-2021	10-10-2021	YES		
	ANTA GPS GT-3 (88.71)(GT- Gas Turbine)	08-08-2014	08-08-2014	YES	Next test will be done when Station will get opportunity to have shchedule to run on full load.	
	ANTA GPS(1 * 153.2)(ST- Steam Turbine)	08-08-2014	08-08-2014	YES	Next test will be done when Station will get opportunity to have shchedule to run on full load.	
5	Aravali Power Company Private Ltd					
	ISTPP (JHAJJAR)(3 * 500)	-	25-08-2015	YES	--	
6	NHPC					
	CHAMERA HPS (3*180)	06-08-2020	27-12-2019	YES	--	
	CHAMERA II HPS(3 * 100)	11-10-2015	11-10-2015	NO	Replacement of Excitation system in two units	
	CHAMERA III HPS(Unit1#77)	29-10-2015	07-01-2012	YES	--	
	CHAMERA III HPS(Unit2,3#77)	29-10-2015	19-06-2012	YES	--	
	PARBATI III HEP (Unit1# 130)	21-01-2016	21-01-2016	YES	Have been done recetly. The report on PSS turning shall be submitted seperately.	
	DULHASTI HPS(Unit2#130)	21-01-2020	21-01-2020	YES	--	
	DULHASTI HPS(Unit1#130)	29-12-2019	29-12-2019	YES	--	
	URI HPS(Unit3# 120)	10-01-2021	10-01-2021	YES	--	
	URI HPS(Unit4# 120)	15-02-2021	15-02-2021	YES	--	
	URI HPS(Unit2# 120)	07-03-2016	07-03-2016	YES	--	
	URI-II HPS(4 * 60)	Mar-14	Mar-14		2021-22	
	SALAL HPS (Unit-3,4,5,6 # 115)	16-12-2014	16-12-2014	YES	--	
	KISHANGANGA(3 * 110)	18-05-2018	18-05-2018	YES	--	
	BAIRASIUL HPS(3 * 60)	30-07-2015	30-07-2016	YES	--	
	SEWA-II HPS(3 * 40)	09-07-2016	09-07-2016	YES	--	
	PARBATI III HEP(4 * 130)	16-12-2016	16-12-2016	YES	--	
	TANAKPUR HPS(Unit1# 31.42)	09-01-2015	09-01-2015	YES	--	
	TANAKPUR HPS(Unit2,3#31.4)	24-05-2014	24-05-2014	YES	--	
	DHAULIGANGA HPS(Unit1 ,2# 70)	04-05-2014	17-04-2018	YES	--	
	DHAULIGANGA HPS(Unit3,4# 70)	26-06-2014	17-04-2018	YES	--	
7	PUNJAB					
	RAJPURA(NPL) TPS(2 * 700)	22-04-2014	22-04-2014	YES	--	
8	Rajasthan					
	KAWAI TPS(Unt1# 660)	03-02-2023	03-02-2023	YES	--	
	KAWAI TPS(Unt2# 660)	03-02-2023	03-02-2023	YES	--	
	CHHABRA TPS(Unit 1#250)	28-02-2023	28-02-2023	NO	--	
	CHHABRA TPS(Unit 2,3,4#250)	28-02-2023	28-02-2023	NO	--	
	CHHABRA TPS(Unit5# 660)	10-02-2016	10-02-2016	YES	--	
	CHHABRA TPS(Unit6# 660)	7/28/2018	7/28/2018	YES	--	
	KALISINDH TPS(Unit1# 600)	03-02-2023	03-02-2023	YES	--	
	KALISINDH TPS(Unit2# 600)	03-02-2023	03-02-2023	YES	--	
	KOTA TPS(Unit1#110)					
	KOTA TPS(Unit2#110)				--	
	KOTA TPS(Unit3#195)				--	
	KOTA TPS(Unit4#195)				--	
	KOTA TPS(Unit6#110)				--	
	KOTA TPS(Unit7#110)				--	
	SURATGARH TPS (Unit5#250)	14-03-2022	14-03-2022	Yes	--	
	SURATGARH TPS (Unit2,4#250)	06-06-2022		Yes	--	
	SURATGARH TPS (Unit1,3,,6#250)	05.02.22 & 06.02.22		Yes	--	
	SURATGARH SSCTPS (Unit 7&8)	PSS tuning and step response test of Unit#7&8 were carried out on 28.11.20 & 30.03.21.				
	RAJWEST (IPP) LTPS(Unit1# 135)	26-04-2016	26-04-2016	No	--	
	RAJWEST (IPP) LTPS(Unit2# 135)	14-07-2016	14-07-2016	No	--	
	RAJWEST (IPP) LTPS(Unit3# 135)	03-01-2014	03-01-2014	No	--	
	RAJWEST (IPP) LTPS(Unit4# 135)	03-11-2015	03-11-2015	No	--	
	RAJWEST (IPP) LTPS(Unit5# 135)	21-09-2014	21-09-2014	No	--	
	RAJWEST (IPP) LTPS(Unit6# 135)	14-08-2014	14-08-2014	No	--	
	RAJWEST (IPP) LTPS(Unit7# 135)	20-02-2016	20-02-2016	No	--	
	RAJWEST (IPP) LTPS(Unit8# 135)	11-06-2014	11-06-2014	No	--	
9	UTTAR PRADESH					
	ANPARA-C TPS(Unit1# 600)	22-08-2015	22-08-2015	Yes	--	

	ANPARA-C TPS(Unit2# 600)	08-03-2016	08-03-2016	Yes	--	
	ROSA TPS(Unit1 #300)	05-10-2021	05-10-2021	Yes	--	
	ROSA TPS(Unit2# 300)	15-01-2022	15-01-2022	Yes	--	
	ROSA TPS(Unit3 # 300)	03-02-2017	03-02-2017	Yes	--	
	ROSA TPS(Unit4# 300)	05-10-2021	05-10-2021	Yes	--	
	Anpara-A (Unit1#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit2#210)	27.09.2021	27.09.2021	Yes	--	
	Anpara-A(Unit3#210)	25.09.2020	25.09.2020	Yes	--	
	Anpara-B(Unit4#500)	07.12.2014	07.12.2014	Yes	--	
	Anpara-B (Unit5#500)	17.08.2014	Dec., 2019	Yes	--	
	Anpara-D(Unit6#500)	15.11.2016	15.11.2016	No	--	
	Anpara-D (Unit7#500)	15.04.2017	15.04.2017	No	--	
	Obra-B(Unit9#200)	22.03.2016	22.03.2016	Yes	Report enclosed.	
	Obra-B(Unit10#200)	28.06.2016	20.06.2016	Yes	Report enclosed.	
	Obra-B (Unit11#200)	21.01.2017	21.01.2017	Yes	Report enclosed.	
	Obra-B (Unit12#200)	Unit taken on load after R&M on 22		-	PSS tuning and SRT scheduled in April, 2021.	
	Obra-B(Unit13#200)	Unit closed under R&M.		-	PSS tuning and SRT scheduled in April, 2021.	
	Parichha-B(Unit3#210)	08.01.2016	08.01.2016	Yes	--	
	Parichha-B (Unit4#210)	08.01.2016	08.01.2016	Yes	--	
	Parichha-C (Unit5#250)	08.02.2020	08.02.2020	No	--	
	Parichha-C(Unit3#250)	09.01.2016	09.01.2016	No	--	
	Harduaganj (Unit8#250)	20.08.2015	20.08.2015	No	--	
	Harduaganj (Unit3#250)	13.04.2016	13.04.2016	No	--	
	Harduaganj(Unit7#105)	16.07.2021	16.07.2021	yes	--	
	Harduaganj(Unit9#250)	16.07.2021	16.07.2021	yes	--	
	LALITPUR TPS(Unit1# 660)	23.02.2022	23.02.2022	yes	--	
	LALITPUR TPS(Unit2# 660)	30.03.2021	30.03.2021	yes	--	
	LALITPUR TPS(Unit3# 660)	15.01.2022	15.01.2022	yes	--	
	ALAKNANDA HEP(Unit1# 82.5)	12.072017	12.072017	No	--	
	ALAKNANDA HEP(Unit2# 82.5)	12.072017	12.072017	No	--	
	ALAKNANDA HEP(Unit3# 82.5)	12.072017	12.072017	No	--	
	ALAKNANDA HEP(Unit4# 82.5)	12.072017	12.072017	No	--	
	MEJA TPS(Unit1#660)	16.10.2018	05.09.2017	yes	--	
	MEJA TPS(Unit2#660)	16.01.2021	18.05.2020	yes	--	
	Bara Unit#1				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Bara Unit#2	01.02.2022	01.02.2022	Yes		
	Bara Unit#3				Step test for PSS checking was not performed since commissioning by erstwhile owner as per information available. PSS tuning along with step test will be performed in next AOH (May 2022 or planned shutdown)	
	Vishnuprayag Unit#1	06/02/2021	06/02/2021	Submitted in the prescribed format provided by NRLDC to SE (R&A)		
	Vishnuprayag Unit#2	06/04/2021	06/04/2021			
	Vishnuprayag Unit#3	06/04/2021	06/04/2021			
	Vishnuprayag Unit#4	05/02/2021	05/02/2021			
10	BBMB					
	BHAKRA HPS(Unit1#108)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit1#108)	24.07.2015	24.07.2015	No	--	
	BHAKRA HPS(Unit3#126)	--	--	No	PSS is not provided ,shall be provided in ongoing RM&U	
	BHAKRA HPS(Unit4#126)	--	--	No	--	
	BHAKRA HPS(Unit5#126)	--	--	No	--	
	BHAKRA HPS(Unit6#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	--	--	No	The original Rusian excitation system is under replacement PO issued Hence,PSS not got tuned.	
	BHAKRA HPS(Unit7#157)	18.02.2016	18.02.2016	No	--	
	BHAKRA HPS(Unit7#157)	18.02.2017	18.02.2017	No	--	
	DEHAR HPS(Unit#1 165)	08.08.2017	08.08.2017	No	--	
	DEHAR HPS(Unit#2 165)	08.08.2018	08.08.2018	No	--	
	DEHAR HPS(Unit#3 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#4 165)	02.07.2017	02.07.2017	No	--	
	DEHAR HPS(Unit#5 165)	08.08.2019	08.08.2019	No	--	
	DEHAR HPS(Unit#6 165)	02.07.2017	02.07.2017	No	--	
	PONG HPS(6 * 66)	--	--	--	PSS not provided.RM&U agenda under considration.	

Status of Bus bar protection				
Constituent Name	Name of Station	Status of Bus bar protection(as reported)	Expected date of revival(as reported)	Present Status
Uttarakhand	220 KV Substation, Ramnagar, Roorkee	Blocked due to more elements added at 220 KV Voltage level.		
	220 KV Sub Station, SIDCUL, Haridwar			
	220KV Jhajhra, Dehradun	Not commissioned yet		
	400KV Kashipur	Available but Non operational		Work is under Tendering process.
	220kv Haldwani	Not Available		It has been Taken inBudget for FY 2023-24.
	220kv Pantnagar	Available but Non operational		Proposal has been madeand submitted forapproval.
	220kv Rishikesh	Available but Non operational		
	220kv Chamba	Not commissioned yet		
Haryana	220kV S/Stn Badshahpur	Not Installed	15.01.2023	
	220kV S/Stn Sec-52A, Gurgaon	Not installed	31.03.2023	
	220kV S/Stn Sec-1 Manesar	Installed, Non-Operational	31.01.2023	
	220kV S/Stn Panchgaon	Not Installed	31.03.2023	
	220kV S/Stn Rewari	Not installed	31.08.2023	
	220kV S/Stn Narnaul	Not Installed	31.03.2023	
	220kV S/Stn Mohinder Garh	Not Installed	01.06.2023	
	220 KV S/Stn Palwal	Not Installed	30.06.2023	
	220 KV S/Stn Rangala Rajpur	Installed but Non-Operational	31.03.2023	
	220 kV Unispur	Installed but Non-Operational	Mar-23	
	220 kV Mund	Installed but Non-Operational	Feb-23	
	220 kV Nissing	Installed but Non-Operational	May-23	
	220KV Pehowa	Installed but Non-Operational	BBP will be commissioned within 2 Months after receiving of material Within 2month After Allocation of Bus-Bar Protection Panel	
	220kV Kaithal	Not Installed		
	220 KV Sonapat	Not Installed	220 KV Bus Bar Protection Scheme will be installed within a month after the availability of the necessary material required for commissioning	
	220 KV REGC, Sonapat	Not Installed	220 KV Bus Bar Protection Scheme will be installed within a month after the availability of the necessary material required for commissioning	
	220KV Jind	Installed but Non-Operational	31.01.2023	
	220 KV Fatehabad	Installed but Non-Operational		
	220 KV Bhuna	Installed but Non-Operational		
	220 KV Sirsa	Not Installed		
	220 KV Rania	Not Installed	31.03.2023	
	220 KV Bhiwani	Not Installed	Work likely to be completed in FY 2023- 24.	
	220kv Madanpur	Not Installed		
	220kv Tepla	Installed but Non-Operational		
	220kv Rajokheri	Installed but Non-Operational		
BBMB	220kV Charkhi Dadri	Installed, under commissioning yet	15.01.2023	
	220kV Samaypur	Installed but Non-Operational	30.04.2023	
	220kV Barnala	Not installed		
	220kV Dhulkote	Not installed		
	220kV Jagadhari	Not installed		
	220kV Narela	Not installed		
UP	220kV Parichha	Installed but Non-Operational	30.06.2023	
	220kV Partapur	Installed but Non-Operational	Jan-23	
	220kV Nirpura	Installed but Non-Operational	Jan-23	
	220kV IITGNL	Installed but Non-Operational	Mar-23	
	220kV Rampur	Installed but Non-Operational		
	220kV Chandausi	Not Installed		
	220kV Rampur	Installed but Non-Operational		
	220kV Sec. - 148, Noida	Installed but Non-Operational	Jan-23	
	220kV sec. 38A, Botanicla Garde	Not Installed		
	220kV sec.-62, Noida	Not Installed	Feb-23	
	220kV Dadri	Not Installed	Sep-23	
	400kV S/S Agra	Installed but Non-Operational	2023	
	220kV S/S Bah	Not Installed		
	220kV Sirsaganj	Not Installed		
	220kV S/S Farrukhabad (New)	Not Installed		
	220kV Boner	Not Installed		
	220kV Kasganj (Soron)	Installed but Non-Operational		
	220kV Khair	Installed but Non-Operational		
	220kV Kidwainagar	Installed but Non-Operational		
	220kV Chhata	Installed but Non-Operational		
	Harduaganj	Installed but Non-Operational	31.12.2023	
	220kV Lalitpur	Not Installed	23-Apr	
220kV Sarnath	Installed but Non-Operational	Mar-23		
220kV Sirathu, Kaushambi	Not Installed	Mar-23		

	220kV substation Fatehpur	Installed but Non-Operational	Mar-23	
	220kV S/S Raja Talab	Installed but Non-Operational	Mar-23	
	220kV S/S Bhelupur	Not Installed	Mar-23	
	20kV S/S Harahua	Installed but Non-Operational	Mar-23	
	220kV S/S Sahupuri	Installed but Non-Operational	Mar-23	
	220kV S/S Mirzapur	Installed but Non-Operational	Mar-23	
HP	220kV Chamba	Main-2 non operational	30.04.2023	taken up with OEM
	220kV MattaSidh	Installed but Non-Operational		ABB has started the review work and within 02 months all the bus bar protection will be made operational
	220kV kangoo	Installed but Non-Operational		
	220kV Nangal	Installed but Non-Operational	Jun-23	
220kV Katha Baddi	Installed but Non-Operational	Jun-23		
Punjab	220 KV S/S Kottisurat Malhi	Not Installed		within next 06 months (by Dec 2023) bus bar protection will be commissioned at these 09 substations
	220 KV S/S Maur	Not Installed		
	220 KV S/S Science city	Not Installed		
	220 KV S/S Banga	Not Installed		
	220 KV S/S Hoshiarpur	Not Installed		
	220 KV S/S Goraya	Not Installed		
	220 KV S/S Badhni kalan	Not Installed		
	220 KV S/S Bhari	Not Installed		
	220 KV S/S Bhawanigarh	Not Installed		