सत्यमेव जयते

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

उत्तर क्षेत्रीय विद्युत समिति

Northern Regional Power Committee

विषय: प्रचालन समन्वय उप-समिति की 219वीं बैठक की कार्यसूची।

Subject: Agenda of the 219th OCC meeting.

प्रचालन समन्वय उप-समिति की **219वीं** बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **15.05.2024** को **10:30** बजे से किया जायेगा । उक्त बैठक की कार्यसूची उत्तर क्षेत्रीय विद्युत् 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 द्वाराप्रदान किया जाएगा।

कृपया बैठक में उपस्थित होने की सुविधा प्रदान करें।

The **219th** meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **15.05.2024** 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.

Signed by Dharmendra Kumar Meena
Date: 10-05-2024 10:38:11

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

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

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खण्ड-क: उ.क्षे.वि.स. Part-A: NRPC

A.1. Confirmation of Minutes

218th OCC meeting was held on 18.04.2024. Minutes of the meeting were issued vide letter dt. 03.05.2024.

Decision required from Forum:

Forum may approve the minutes of 218th OCC meeting.

A.2. Review of Grid operations

A.2.1. Power Supply Position (Provisional) for April 2024

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of April-2024 is as under:

State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	160	131	-18.3%	360	258	-28.3%
	(Req)	133	131	-2.1%	288	258	-10.3%
DELHI	(Avl)	3613	2858	-20.9%	6000	5447	-9.2%
	(Req)	2700	2859	5.9%	6000	5447	-9.2%
HARYANA	(Avl)	6300	4644	-26.3%	9700	9502	-2.0%
	(Req)	5494	4644	-15.5%	10390	9502	-8.5%
HIMACHAL PRADESH	(Avl)	1030	940	-8.7%	1902	1819	-4.4%
	(Req)	1054	943	-10.5%	1875	1819	-3.0%
J&K and LADAKH	(Avl)	1430	1511	5.7%	3290	2924	-11.1%
	(Req)	1766	1521	-13.9%	3169	2924	-7.7%
PUNJAB	(Avl)	6910	4595	-33.5%	11230	10061	-10.4%
	(Req)	5150	4595	-10.8%	10863	10061	-7.4%
RAJASTHAN	(Avl)	9230	8142	-11.8%	17180	14283	-16.9%
	(Req)	8700	8147	-6.4%	15800	14283	-9.6%
UTTAR PRADESH	(Avl)	11700	13099	12.0%	25800	25462	-1.3%
	(Req)	11400	13104	14.9%	25800	25462	-1.3%
UTTARAKHAND	(Avl)	1263	1304	3.2%	2340	2357	0.7%
	(Req)	1290	1306	1.2%	2430	2357	-3.0%
NORTHERN REGION	(Avl)	41635	37224	-10.6%	77400	62900	-18.7%
	(Req)	37687	37249	-1.2%	67600	62900	-7.0%

As per above, negative / significant variation (≥5%) in Actual Power Supply Position(Provisional) vis-à-vis Anticipated figures is observed for the month of April-2024 in terms of Energy Requirement for Chandigarh, Delhi, Haryana, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, UP, and in terms of Peak Demand similar variation is noted for Chandigarh, Delhi, Haryana, HP, UTs of J&K and Ladakh, Punjab, Rajasthan, UP, and Uttarakhand. These states/UTs are requested to submit reason for such variations so that the same can be deliberated in the meeting.

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

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

A.3.1 Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of June-2024 is scheduled on 14-May-2024 via Video Conferencing

A.3.2 Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of June-2024 is scheduled on 14-May-2024 via Video conferencing.

A.4. Planning of Grid Operation

A.4.1. Anticipated Power Supply Position in Northern Region for June 2024

The Anticipated Power Supply Position in Northern Region for June 2024 is as under:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	190	380	No Revision submitted
	Requirement	189	428	
	Surplus / Shortfall	1	-48	
	% Surplus / Shortfall	0.5%	-11.3%	
DELHI	Availability	4090	7400	No Revision submitted
	Requirement	4063	8109	
	Surplus / Shortfall	27	-709	
	% Surplus / Shortfall	0.7%	-8.7%	
HARYANA	Availability	7671	11918	09-May-24
	Requirement	6477	14287	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	1194	-2369	
	% Surplus / Shortfall	18.4%	-16.6%	
HIMACHAL PRADESH	Availability	1178	1787	08-May-24
	Requirement	1158	1824	
	Surplus / Shortfall	20	-37	
	% Surplus / Shortfall	1.7%	-2.0%	
J&K and LADAKH	Availability	2040	3310	No Revision submitted
	Requirement	1842	3121	
	Surplus / Shortfall	198	189	
	% Surplus / Shortfall	10.7%	6.1%	
PUNJAB	Availability	7480	12240	No Revision submitted
	Requirement	8561	16378	
	Surplus / Shortfall	-1081	-4138	
	% Surplus / Shortfall	-12.6%	-25.3%	
RAJASTHAN	Availability	9830	18340	No Revision submitted
	Requirement	8613	17238	
	Surplus / Shortfall	1217	1102	
	% Surplus / Shortfall	14.1%	6.4%	
UTTAR PRADESH	Availability	15900	29130	09-May-24
	Requirement	15900	29130	
	Surplus / Shortfall	0	0	
	% Surplus / Shortfall	0.0%	0.0%	
UTTARAKHAND	Availability	1482	2560	08-May-24
	Requirement	1500	2600	
	Surplus / Shortfall	-18	-40	
	% Surplus / Shortfall	-1.2%	-1.5%	
NORTHERN REGION	Availability	49861	80000	
	Requirement	48303	85500	
	Surplus / Shortfall	1558	-5500	
	% Surplus / Shortfall	3.2%	-6.4%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of June-2024 and submit the measures proposed to be taken to bridge the gap between demand & availability, as well to dispose-off the surplus, if any, in the prescribed format.

A.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.

A.6. NR Islanding scheme

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

Members may kindly deliberate.

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

A.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.

A.7.2. Accordingly, coal stock position of generating stations in northern region during current month (till 07th May 2024) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	0.93	17	1.4
ANPARA TPS	2630	0.85	17	13.8
BARKHERA TPS	90	0.62	26	67.1
DADRI (NCTPP)	1820	0.66	26	32.9
GH TPS (LEH.MOH.)	920	0.51	26	27.7
GOINDWAL SAHIB TPP	540	0.70	26	28.6
HARDUAGANJ TPS	1265	0.63	26	33.5
INDIRA GANDHI STPP	1500	0.66	26	35.2
KAWAI TPS	1320	0.85	26	20.6
KHAMBARKHERA TPS	90	0.61	26	59.5
KOTA TPS	1240	0.81	26	8.7
KUNDARKI TPS	90	0.60	26	42.1
LALITPUR TPS	1980	0.68	26	23.6
MAHATMA GANDHI TPS	1320	0.79	26	36.9
MAQSOODPUR TPS	90	0.60	26	51.2
MEJA STPP	1320	0.90	26	27.5
OBRA TPS	1094	0.56	26	10.5
PANIPAT TPS	710	0.85	26	45.9
PARICHHA TPS	1140	0.68	26	23.8
PRAYAGRAJ TPP	1980	0.84	26	33.2
RAJIV GANDHI TPS	1200	0.71	26	23.2
RAJPURA TPP	1400	0.82	26	25.4

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
RIHAND STPS	3000	0.92	17	24.3
ROPAR TPS	840	0.64	26	30.3
ROSA TPP Ph-I	1200	0.71	26	23.8
SINGRAULI STPS	2000	0.97	17	14.0
SURATGARH TPS	1500	0.71	26	6.0
TALWANDI SABO TPP	1980	0.65	26	7.4
TANDA TPS	1760	0.77	26	28.4
UNCHAHAR TPS	1550	0.64	26	23.8
UTRAULA TPS	90	0.58	26	39.7
YAMUNA NAGAR TPS	600	0.81	26	29.4
CHHABRA-I PH-1 TPP	500	0.80	26	12.4
KALISINDH TPS	1200	0.83	26	7.0
SURATGARH STPS	1320	0.75	26	4.8
CHHABRA-I PH-2 TPP	500	0.84	26	4.3
CHHABRA-II TPP	1320	0.67	26	5.3

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

A.8.1. In the 68th meeting of NRPC issues arising due to non-availability of sufficient ERS were discussed and it was decided that ERS availability monitoring shall be taken as rolling/follow-up agenda in OCC meetings for regular monitoring of ERS under different utilities in Northern region.

A.8.2. Subsequently matter was deliberated in 211th OCC meeting wherein NRLDC representative briefed about the Requirement of ERS, recent experience in Northern Region, CEA Regulation on ERS, Govt. Guidelines and Present situation on ERS.

A.8.3. NRPC Sectt. vide letter dated 26.09.2023 requested all transmission utilities of NR to furnish the length of transmission line (ckt-kms) and number of ERS towers available with them at different voltage levels (e.g. 220 kV, 400 KV 765 KV and + -500 kV HVDC via email at **seo-nrpc@nic.in**.

A.8.4. In this regard, inputs received from utilities are attached as **Annexure-A.III.**

Transmission utilities of NR to update status.

A.9. System Protection Scheme (SPS) to address Overloading of 3x315 MVA ICTs at Allahabad SS (Agenda by Powergrid NR-3)

A.9.1. Powergrid NR-3 vide mail dated 09.05.2024 has intimated that 400/220 kV PG Allahabad Sub-Station has currently 3x315 MVA ICTs in Service. During recent years, issue of Overloading of 3x315 MVA ICTs at Allahabad SS has been

observed particularly during the period of May-September. The issue of overloading of 3x315 MVA ICTs and violation of N-1 contingency at Allahabad SS has previously been discussed in 207th OCC meeting.

A.9.2. During 207th OCC Meeting of NRPC, issue of violation of N-1 contingency of 3X315 MVA ICTs at POWERGRID Allahabad SS was discussed and POWERGRID was asked to propose a System Protection Scheme at 400/220 kV Allahabad substation in consultation with UP to address the overloading issue till capacity augmentation.

A.9.3. Powergrid Allahabad has deliberated with officials of UPPTCL and it was mutually agreed that a System Protection Scheme (SPS) at 400/220 kV Allahabad substation shall be devised in such a manner that in case load on any of the 3x315 MVA ICTs at Allahabad SS goes beyond 300 MW, SPS will automatically switch-off both circuits of 220 kV Allahabad (PG)-Rewa Road (UP).

A.9.4. Accordingly, a System Protection Scheme (SPS) logic for 400/220 kV PG Allahabad substation has been devised (copy attached as **Annexure-A.IV**) and is being put up for consent of all stakeholders before implementation of the same.

Members may kindly deliberate.

A.10. Commissioning work of Tehri PSP and its impact on operation of Tehri HPP and Koteshwar HEP (agenda by THDCIL)

A.10.1 The Civil, EM & HM works of Tehri PSP is in full swing and as per the present pace of work, the likely commissioning date of 1st Unit is July-2024. However, before commissioning of Tehri PSP, the following river joining works are required to be completed:

- Two nos baffle walls are required to be constructed to avoid the entry of debris etc in the water conductor system of PSP from TRT side during Pumping Mode of operation. The location of the proposed baffle wall is as below:
  - U/s of HPP TRT from EL.600.00m to El.607.00m.
  - U/s of PSP TRT from EL.597.00m to El.603.00m.

- During operation of HPP & KHEP, the water level is generally above El.603.00m. Hence, the above two nos Baffle wall cannot be constructed without complete shutdown of HPP & KHEP.
- The adjacent rock condition of river valley near U/s of PSP TRT area is filled with loose materials & required to be protected before operation of PSP. Further, the proposed approach road for the treatment (left & right bank) is required upto EL.597.00m. Hence, to take up the work of slope protection with construction of approach road for baffle wall & as well as for slope protection works, the proposed complete shutdown of HPP & KHEP is required.

- The existing Flood protection wall at PSP TRT outfall area (from El.616.00m to El.597.00m) is required to be removed before operation of PSP and

subsequently raft at EL. 598.00m and U/s & D/s guide walls upto El.616.00m are required to be constructed.

A.10.2 In order to complete the above work, the following nature of shutdown of Tehri HPP & Koteshwer HEP is required:

a. **Partial Shutdown (THPP & KHEP): 1st April-24 to 14th May-24.**

b. **Complete Shutdown (THPP & KHEP): 15th May-24 to 30th Jun-24.**

A.10.3 The schedule of the activities from 1st April-24 to 30th Jun-2024 is placed at **Annexure-A.V**.

Members may kindly deliberate.

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

B.1. NR Grid Highlights for April 2024

Major grid highlights of Northern region grid for April 2024 is shown below:

Demand met details of NR

S.No.	Constituents	Max Demand met (in MW)	Date & Time of Max Demand met	Max Consumption (in MUs)	Date of Max Consumption	Average Demand met (in Mus)
1	Chandigarh	258	26.04.24 at 15:00	5.2	26.04.2024	4.4
2	Delhi	5447	26.04.24 at 15:20	108.8	26.04.2024	94.8
3	H.P.	9502	27.04.24 at 22:45	173.6	26.04.2024	155.7
4	Haryana	1819	09.04.24 at 07:00	33.8	12.04.2024	31.4
5	J&K	2924	10.04.24 at	55.8	10.04.2024	50.4

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

*As per SCADA

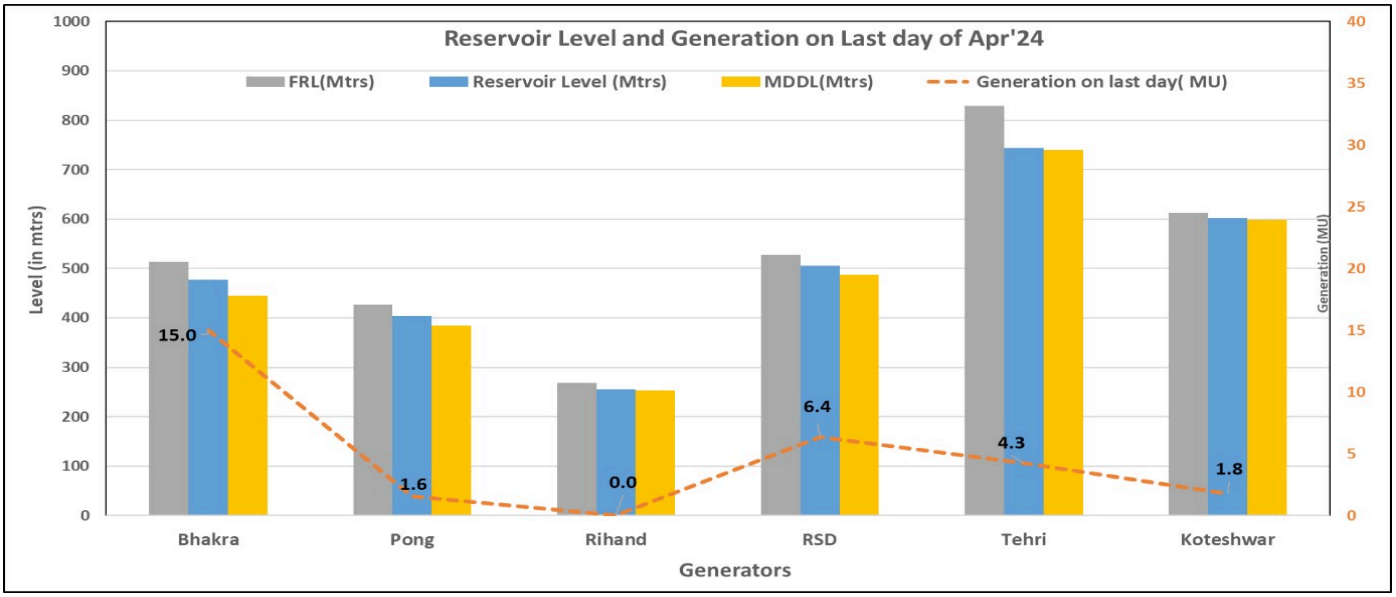
Northern Region all-time high value recorded in April'24:

Nil

Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Apr'24	50.00	50.43 (18.04.24 at 18:04:20 hrs)	49.55 (06.04.24 at 11:24:10 hrs)	5.3	78.6	16.2
Apr'23	49.99	50.33	49.49	10.5	67.9	21.6

Reservoir Level and Generation on Last Day of Month



	Parameters			Present Parameters		LAST YEAR	
RESERVOIR	MDDL (Mts)	FRL (Mts)	Energy Content at FRL	Level (Mts)	Energy (MU)	Level (Mts)	Energy (MU)
Bhakra	445.62	513.59	1,728.8	**475.89**	368	**477.36**	401
Chamera-I	748.75	760	753.95	**756.49**	8	**-**	-
Koteshwar	598.5	612.5	610.73	**602.33**	1	**602.66**	1
Pong	384.05	426.72	1,084	**403.23**	297	**405.96**	370
RSD	487.91	527.91	390.3	**505.65**	173	**511.86**	240
Tehri	740.04	830	1,164.11	**742.12**	12	**752.95**	78

Detailed presentation on grid highlights of Apr'2024 will be shared by NRLDC in OCC meeting.

B.2. Tower collapse in J&K valley:

Due to massive landslides and hill sinking in the Ramban-Gool area of Jammu and Kashmir, a significant number of villages have been isolated from the affected area.

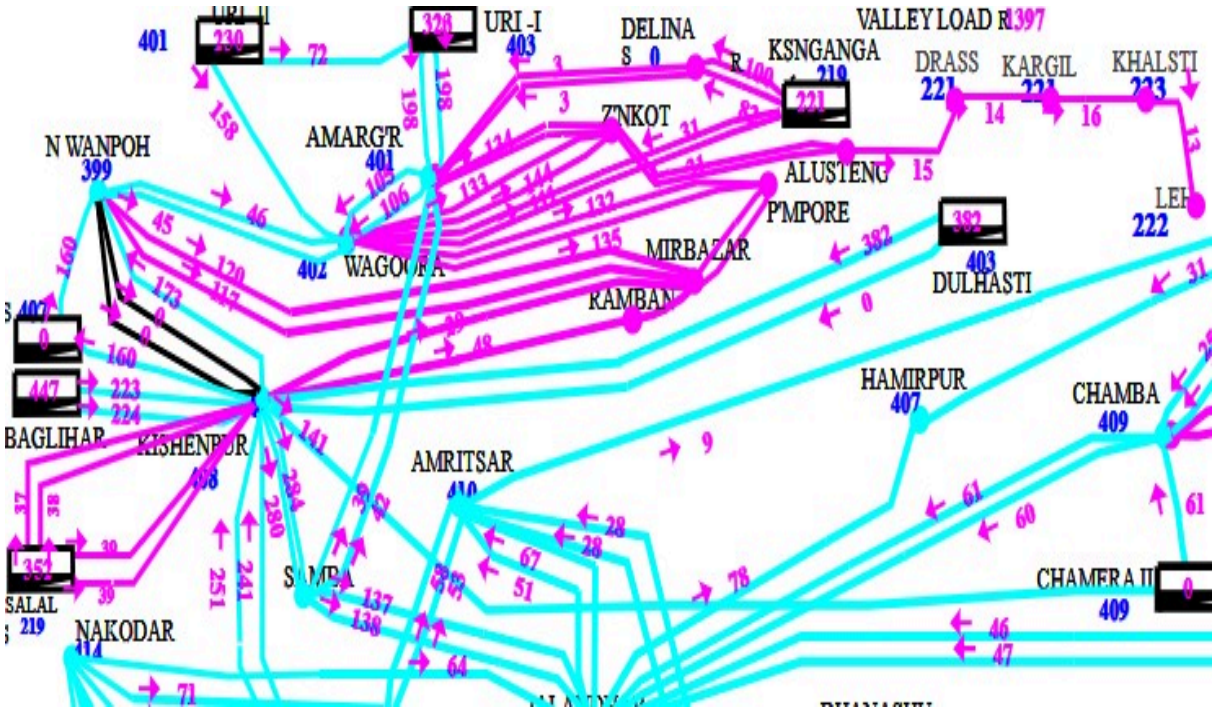
As per request of Powergrid, NR-2, in response to directives from the district administration and M/S JKPTCL officials, following transmission lines were taken under emergency shutdown:

Element	**Outage Time**
Out on Tower Collapse	
400kV Kishenpur-New Wanpoh -3	21:22 Hrs / 25.04.2024
400kV Kishenpur-New Wanpoh -4	21:22 Hrs / 25.04.2024

Taken out as preventive measure

S. No.	Line Name	Owner	Outage Date & Time		Revival Date & Time	
1	400 KV Kishenpur-NewWanpoh (PG) Ckt-1	POWERGRID	26-04-2024	10:30	30-04-2024	13:17
2	400 KV NewWanpoh(PG)-Baglihar(JK) (JKSPDCL) Ckt-1	POWERGRID, JKSPDCL	26-04-2024	10:52	30-04-2024	13:59
3	220 KV Kishenpur(PG)-Mir Bazar(PDD) (PDD) Ckt-1	PDD JK	26-04-2024	12:35	02-05-2024	13:11

Due to outage of the above mentioned transmission lines, Kashmir valley has remained connected to the Grid through 400kV Samba-Amargarh Ckt-1 & 2 only for 4-5 days. Even at present the connectivity of valley to the rest of the grid is through 4 lines only as shown below:



Powergrid is requested to expedite the restoration work of 400kV Kishenpur-New Wanpoh ckt 3 and 4 to ensure reliable power supply to Kashmir valley.

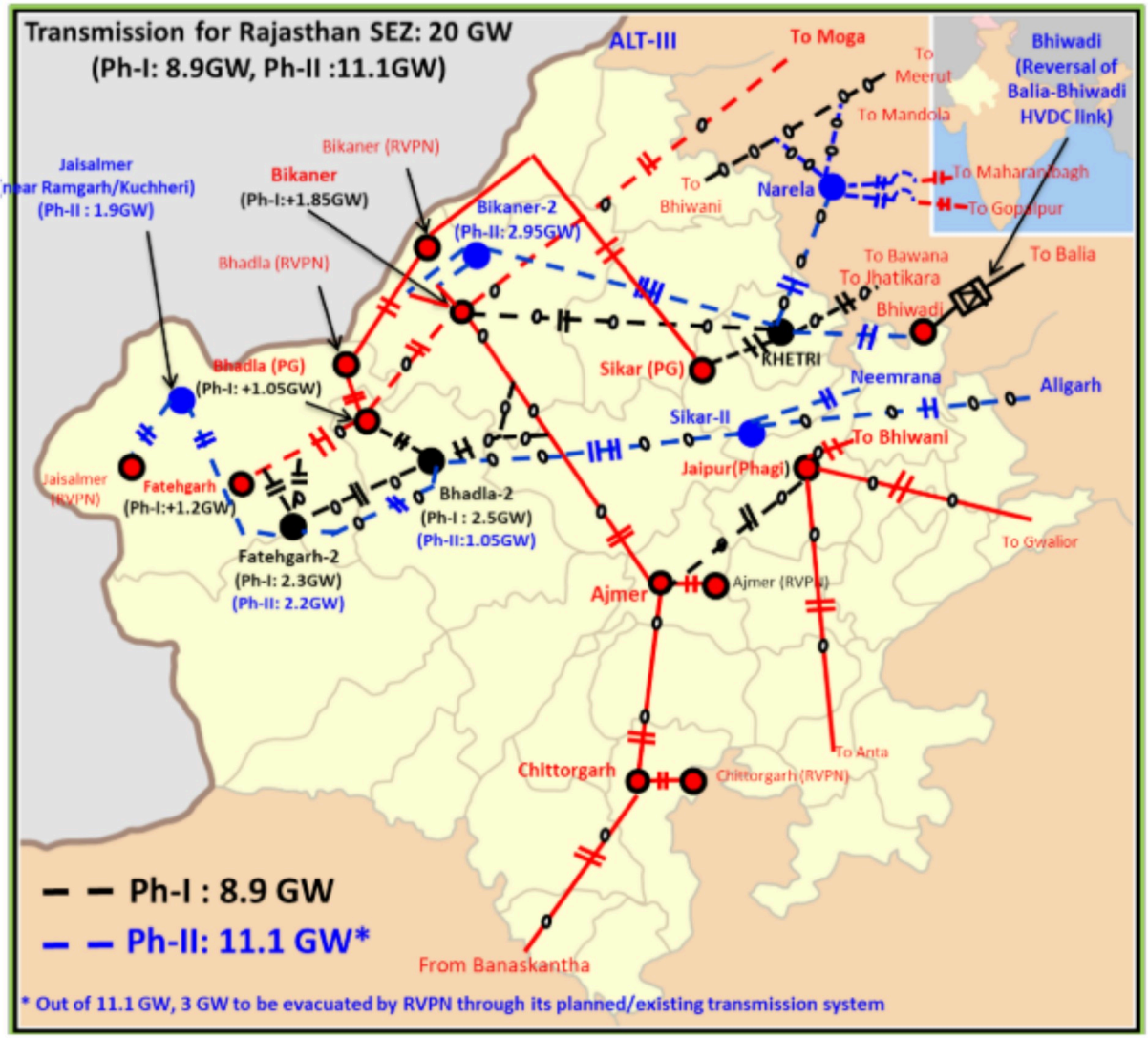
Members may please discuss.

B.3. Expediting commissioning of Sikar-II transmission system

Transmission system strengthening scheme for evacuation of power from solar energy zones in Rajasthan (8.1 GW) under phase II –Part C was approved in 5th meeting of NRSCT held on 13.09.2019. Subsequently, SPV named POWERGRID Sikar Transmission Ltd., was acquired on 04.06.2021 and as per TSA implementation

schedule was provided as Dec 2022 for commissioning of 765/400kV Sikar-II and associated transmission system.

There has been delay of more than one and half year with respect to commissioning of 765 KV Sikar 2 PG sub-station. Due to non-availability of Sikar 2 sub-station the Rajasthan ISTS RE system is already deeply stressed and the lines from RE complex remain heavily loaded. Nearly 2500-3000 MW RE generation has been connected in Western Rajasthan which does not have its associated EHVAC transmission system. There are issues related to high loadings in the RE complex and not feasible to provide major shutdowns of existing transmission lines such as outage of 765 KV Bikaner-Moga D/C line as it would further stress the available transmission system



In case of availability of 765 KV Bhadla2-Sikar-2 line, 765 KV-Bhadla 2-Sikar-2 lines and 765kV Sikar2- Aligarh and 400kV Sikar-2-Neemrana lines, the RE complex would be connected to load centers. Interconnection with load will also help to stabilise the grid and the impact of frequent transient fault impact could be minimized.

Recently, the proposed shutdown of 765kV Bikaner-Moga was discussed at NRPC level, wherein it was discussed that if this shutdown is allowed at present, there shall be RE curtailment of the order of 1500 MW to 3500 MW under different scenarios. In view of above, shutdown of 765 KV Bikaner - Moga D/C cannot be allowed in the present scenario considering the quantum of RE curtailment.

Accordingly, POWERGRID is requested to expedite commissioning of 765 KV-Bhadla 2-Sikar-2 lines and 765kV Sikar2- Aligarh and 400kV Sikar-2-Neemrana lines transmission lines along with Sikar2 substation and also 765kV Fatehgarh2-Bhadla2 2nd double circuit to ensure safe evacuation of RE generation and also to facilitate required shutdowns in RE complex.

Members may please discuss.

B.4. Periodic Testing of Transmission elements and generating units

As per IEGC 2023 clause 40,

"40. PERIODIC TESTING

(1) There shall be periodic tests, as required under clause (3) of this Regulation, carried out on power system elements for ascertaining the correctness of mathematical models used for simulation studies as well as ensuring desired performance during an event in the system.

(2) General provisions

(a) The owner of the power system element shall be responsible for carrying out tests as specified in these regulations and for submitting reports to NLDC, RLDCs, CEA and CTU for all elements and to STUs and SLDCs for intra-State elements.

(b) ***All equipment owners shall submit a testing plan for the next year to the concerned RPC by 31st October to ensure proper coordination during testing as per the schedule****. In case of any change in the schedule, the owners shall inform the concerned RPC in advance.*

(c) The tests shall be performed once every five (5) years or whenever major retrofitting is done. If any adverse performance is observed during any grid event, then the tests shall be carried out even earlier, if so advised by SLDC or RLDC or NLDC or RPC, as the case may be.

(d) The owners of the power system elements shall implement the recommendations, if any, suggested in the test reports in consultation with NLDC, RLDC, CEA, RPC and CTU.

(3) Testing requirements

The following tests shall be carried out on the respective power system elements:

TABLE 9 : TESTS REQUIRED FOR POWER SYSTEM ELEMENTS

Power System Elements	Tests	Applicability
Synchronous Generator	(1) Real and Reactive Power Capability assessment. (2) Assessment of Reactive Power Control Capability as per CEA Technical Standards for Connectivity (3) Model Validation and verification test for the complete Generator and Excitation System model including PSS. (4) Model Validation and verification of Turbine/Governor and Load Control or Active Power/ Frequency Control Functions. (5) Testing of Governor performance and Automatic Generation Control.	Individual Unit of rating 100MW and above for Coal/lignite, 50MW and above gas turbine and 25 MW and above for Hydro.
Non synchronous Generator (Solar/Wind)	(1) Real and Reactive Power Capability for Generator (2) Power Plant Controller Function Test (3) Frequency Response Test (4) Active Power Set Point change test. (5) Reactive Power (Voltage / Power Factor / Q) Set Point change test	Applicable as per CEA Technical Standards for Connectivity.
HVDC/FACTS Devices	(1) Reactive Power Controller (RPC) Capability for HVDC/FACTS (2) Filter bank adequacy assessment based on present grid condition, in consultation with NLDC. (3) Validation of response by FACTS devices as per settings.	To all ISTS HVDC as well as Intra-State HVDC/FACTS, as applicable

In accordance with above, Generators and HVDC/FACT owners were required to furnish the Testing schedule for 2024-25 by 31st October 2023.

The procedure for testing is available at the NLDC website at *https://posoco.in/wp-content/uploads/2023/09/Final-Procedure-of-Periodic-Testing-for-Power-System-Elements-submitted-to-CERC.pdf*. This may be used for testing.

Along with testing, the mathematical models(preferably PSSE models) based on the results of testing need to be provided, so that All India case can be build with the respective generic models.

Hence it is requested to submit the information with regard to testing plan as per IEGC 2023 including following details:

- The names of the Synchronous generators, Non Synchronous generators, HVDC and FACTS mentioned in the respective sheet.
- In case the name of any generator is missed, the SLDC may add the generators by adding additional rows. For the states, SLDCs to co-ordinate and furnish the testing schedule for all generators in their control area.
- For SPD, WPD the applicability of testing is as per IEGC 2023/ CEA technical standards for Connectivity. It is the responsibility of the SLDC to add the SPD, WPD connected to the STU network in the Non Synchronous generators sheet and furnish the testing schedule to NRPC.

Members may please discuss.

B.5. Sharing of ATC/TTC assessment and basecase with NRLDC

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

CERC vide their order dated 29.09.2023 has granted approval of "'Detailed Procedure for Allocation of Transmission Corridor for Scheduling of General Network Access and Temporary General Network Access under Central Electricity Regulatory Commission (Connectivity and General Network Access to the inter-State Transmission System) Regulations, 2022".

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

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

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

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

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

B.5.1 ATC/TTC assessment sharing 11 months in advance

The procedure mentions that:

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

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

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

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

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

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

Members may please discuss.

B.5.2 Sharing of Data and study results for interconnection studies

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

(9) Each SLDC shall undertake a study on the impact of new elements to be commissioned in the intra-state system in the next six (6) months on the TTC and ATC for the State and share the results of the studies with RLDC.
(10) Each RLDC shall undertake a study on the impact of new elements to be commissioned in the next six (6) months in (a) the ISTS of the region and (b) the intra-state system on the inter-state system and share the results of the studies with NLDC.
(11) NLDC shall undertake study on the impact of new elements to be commissioned in the next six (6) months in (a) inter-regional system, (b) cross-border link and (c) intra-regional system on the inter-regional system.

In line with above, utilities are requested to share the list of elements/LGB data/interconnection study results etc as per the approved procedure which are expected to be commissioned up to November 2024, before 08.05.2024. Above was also requested vide mails dated 29.04.2024 by NRLDC. This needs to be practised as monthly exercise on regular basis.

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

B.5.3 ATC/TTC of states for summer 2024 (M-1)

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

In 218 OCC meeting, it was discussed that:

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

Subsequently, ATC/TTC figures were received from HP SLDC.

Rajasthan, Punjab and Delhi are requested to expedite their ATC/TTC assessment. Members may please discuss.

B.5.4 Constraints observed during last month

It is being observed that loading of 400/220kV ICTs at number of RVPN substations continue to be on the higher side. Stations for which 400/220kV ICTs of Rajasthan and other states were not N-1 non-compliant are attached as **Annexure-B.II**.

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

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

- All SLDCs assess and share ATC/TTC assessment for Summer 2024 at the earliest. ATC/TTC assessment has not been received from Punjab, Rajasthan and Delhi for summer 2024.
- All states to share data and base case for M-6 & M-11 timelines as discussed in the agenda.
- SLDCs to take actions to ensure that loading of ICTs and lines under their jurisdiction are below their N-1 contingency limits.
- Maximize internal generation in case of drawl near to the transfer capability limits.
- Forum agreed that in case no assessments for eleven months in advance are shared by SLDC, the existing ATC/TTC assessment could be published on website and considered for the said month.

Members may please discuss.

B.6. Grid Operation related issues in Northern region

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

In line with Chapter 6 section 29.2.(b) of IEGC, list of important grid elements in Northern region has to be compiled by NRLDC. Such elements shall be opened/closed only on instructions from NRLDC. It is requested to submit the list of all elements with details charged under their jurisdiction from 1.4.2023 till date including those expected to be commissioned till May 2024 so that the same could be included in the list.

However, response from most of the utilities is still pending.

The agenda was also discussed in 218 OCC meeting in which all utilities agreed to provide details before 30th April 2024. Indigrid, BBMB and HP SLDC have submitted data to NRLDC.

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

https://docs.google.com/spreadsheets/d/1rAbpBcZmAMZFM8SCuQgkCokOaXGHxf99/edit?usp=sharing&ouid=101952646418859842988&rtpof=true&sd=true

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

Utilities may provide update.

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

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

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

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

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

Further, reservations have also been observed on loading limit of 765kV lines in RE complex. In the mail it is being mentioned that the safe loading limit of line is as per SIL i.e. 2200MW. This is different from the understanding at NRLDC level. It is understood that the transmission lines could be loaded to their thermal limits in case of N-1 contingency for short duration. The thermal limit for 765kV lines comes out as nearly 4200MW, however, considering high power flow and issues related to angular differences, limit of 3500MW is being considered while performing simulation studies. The issue was recently observed while studies were being done for shutdown of 765kV Bikaner-Moga D/C line for NHAI related works.

Following was discussed in 218 OCC meeting,

- CTUIL representative stated that limit of 30 degrees is being considered as per CEA planning criteria. Further, in the criteria it is mentioned that stability studies may be done incase angular separation is higher than 20 degrees which is also generally not required in case line length is not too much. Further, during planning stage, limit of 3400-3500MW is being considered for long 765kV EHVAC lines as the angular separation becomes high when loading crosses 3500MW incase of long lines although thermal limit is 4200MW. Further, incase the line length is more than 300km, generally inter-regional lines, the lines can be loaded upto 3100-3200MW during N-1 contingency.
- POWERGRID representative informed that the set angular difference is being revised at substations after communication was received from NRLDC side. At some substations, the limit shall be changed in consultation with OEM and it is pending for 765kV Bhadla2-Ajmer D/C would be changed after S/S OEM i.e. GE visit.
- OCC forum agreed that:
    - Maximum loading limit of 765kV lines to be considered as 3500MW for simulation studies as well as real-time grid operation
    - All transmission licensees to check and make sure that limit of atleast 30 degrees is provided in BCU logic to avoid any issues during charging of line due to such angle limit in real-time grid operation

Accordingly, all transmission licensees are requested to confirm whether limit of atleast 30 degrees has been provided in BCU logic.

Members may please discuss.

c) Request for Rooftop Solar Installed Capacity and Monitoring Information

As discussed in OCC-217, with the announcement of the 'PM Suryodaya Yojana', which aims to provide rooftop solar installations to 1 crore households, and the ambitious target of achieving 40 GW of rooftop solar capacity by 2026, it has become increasingly crucial to establish robust monitoring mechanisms for rooftop solar

generation. In view of this, actions are required at SLDC/RLDC level for providing essential details regarding rooftop solar installations. A format outlining the necessary information, including rooftop solar installed capacity, regulatory frameworks followed, monitoring processes, and future plans for monitoring at SLDC and DISCOM level is shown below:

S No	State/ SLDC	Discoms Name(s)	Rooftop Solar Installed Capacity as on date(MW)	Any Regulation/Framework Followed pertaining to rooftop solar? (Y/N) If yes, explain and share the copy/link of the same	Monitoring Process followed at Discom level (App based/ Manual/other means)	Monitoring Process followed at SLDC level (App based/ Manual/other means)	Future Plans for Real time Monitoring. Details, if any.	Any Periodical reports being sent to MoP/RPC regarding rooftop generation by SLDC/Discom? If yes, enclose a copy of the same.
1	Punjab	1. 2.						
2	Haryana							
3	Delhi							
4	Rajasthan							
5	Uttar Pradesh							
6	Himachal Pradesh							
7	Uttarakhand							
8	Jammu and Kashmir (UT)							
9	Ladakh (UT)							
10	Chandigarh (UT)							

Given the significant scale and importance of rooftop solar installations in ensuring the stability and security of our grid infrastructure, real-time monitoring is very much necessary. Your prompt response and cooperation in providing the requested information at the earliest will greatly assist us in implementing necessary measures for rooftop solar monitoring.

All are requested to send the details at the earliest for further course of action in this regard.

Members may please discuss.

B.7. Frequent tripping of transmission elements in the month of April'24:

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

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Auraiya(NT)-Sikandra(UP) (PG) Ckt-1	3	NTPC/UP
2	220 KV Baghpat(PG)-Shamli(UP) (UP) Ckt-1	4	POWERGRID/ UP
3	220 KV Ballabhgarh-Charkhi Dadri (BB) Ckt-1	3	BBMB
4	220 KV Ganguwal(BB)-Mohali(PS) (PSTCL) Ckt-1	3	BBMB/Punjab
5	220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-2	3	POWERGRID/ Delhi
6	220 KV Sarsawan(UP)-Khodri(UK) (UP) Ckt-1	3	Uttarakhand/UP
7	400 KV Bareilly-Unnao (UP) Ckt-2	3	UP
8	400 KV Lucknow(UP)-Bareilly(PG) (PG) Ckt-1	4	POWERGRID/ UP

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

It may be noted that frequent tripping 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.

B.8. Multiple elements tripping events in Northern region in the month of April '24:

A total of 12 grid events occurred in the month of March'24 of which **06** are of GD-1 category, **01** are of GI-1 Category and **05** are of GI-2 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.IV.**

Maximum delayed clearance of fault observed in event of multiple elements tripping at 132kV Sewa-II(NHPC) on 29th April, 2024 (As per PMU at Kishenpur(PG), 3-phase fault with delayed fault clearance time of 400ms is observed).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **02** events out of **12** grid events occurred in the month. In 02 (no.) of grid events, there was no fault in the grid.

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

As per IEGC clause 37.2 (c), Disturbance Recorder (DR), station Event Logger (EL), Data Acquisition System (DAS) shall be submitted within 24 hrs of the event and as per IEGC clause 37.2 (e), the user shall submit a detailed report in the case of grid disturbance or grid incidence within one (1) week of the occurrence of event to RLDC and RPC.

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

a) 220kV Uperlanangal(HPSEBL) on 19th April'24

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

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

Members may like to discuss.

B.9. Details of tripping of Inter-Regional lines from Northern Region for April' 24:

A total of 10 inter-regional lines tripping occurred in the month of April'24. The list is attached at **Annexure-B.V.** The status of receipt of preliminary reports, DR/EL within 24hrs of the event and fault clearing time as per PMU data has also been mentioned in the table. The non-receipt of DR/EL & preliminary report within 24hrs of the event from SLDCs / ISTS licensees / ISGSs is in violation of regulation 37.2(c) of IEGC and regulation 15(3) of CEA Grid Standards. As per regulations, all the utilities shall furnish the DR/EL, flag details & preliminary report to RLDC/RPC within 24hrs of the event. They shall also furnish the detailed investigation report within 7 days of the event if fault clearance time is higher than that mandated by CEA (Grid Standard) Regulations.

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

Members may like to discuss.

B.10. Status of submission of DR/EL and tripping report of utilities for the month of April'24.

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

the occurrence of the event. However, it is evident from the submitted data that reporting status is not satisfactory and needs improvement.

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

Members may like to discuss.

B.11. Frequency response characteristic:

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

S. No.	Event Date	Time (In hrs.)	Event Description	Starting Frequency (in Hz)	Nadir Frequency (in Hz)	End Frequency (in Hz)	*Δf*	NR FRP during the event
1	03-Apr-24	05:30hrs	On 03 April 2024, at 05:30 hrs (non-solar hours), 220kV Suhela-Bhatapara ckt 1 tripped on single phase to ground fault. Subsequently other ckt II tripped on overloading. This resulted in blackout of 220kV Shuhela, Paraswani, Bemitara & Saraipalli s/s of Chhattisgarh(WR). The load loss of 1235 MW as per SCADA data has been considered for	49.96	50.075	50.02	0.064	1.01

			FRC computation.					
2	06-Apr-24	11:24hrs	On 06th April, 2024, at 11:24 hrs(solar hrs), 400kV Bhadla(RS)-Bikaner(RS) ckt 1 tripped due to R-Y phase to phase fault. As per PMU at Bhadla2(PG), R-Y phase to phase observed, which cleared within 100msec. As per SCADA, total NR RE generation loss of 4870MW (ISTS RE loss:3884MW & Rajasthan Solar loss: 986MW) was observed. Punjab, Uttar Pradesh and Rajasthan has reported load shedding of 339MW, 124MW & 165MW respectively due to df/dt relay operation. Therefore net generation loss of 4242MW (4870-339-124-165) has been considered for FRC computation.	50.03	49.537	49.766	-0.27	0.85
3	19-Apr-24	10:28hrs	On 19th April 2024, at 10:28 generation loss of approx. 1040 MW occurred in					

			RE complex of Rajasthan. At the same instant, as per PMU at 400kV Fatehgarh2(PG), a voltage dip of approx. 24kV (ph-ph) was observed across all phases. Therefore, generation loss of 1040MW has been considered for FRC computation.	50.06	49.93	50.006	-0.05	1.64
4	23-Apr-24	20:14hrs	On 23 April 2024, at 20:15 hrs, 400 kV Tiroda-Warora-2 tripped on R-E fault from both ends. 400 kV Tiroda-Warora-1 also tripped on R-E fault Zone 2 from Warora end but did not tripped from Tiroda end. It resulted in busbar protection to operate on both buses at 400 kV Tiroda substation leading to tripping of APML Tiroda Unit-1,2 & 3 (660 MW) ;765/400 kV ICT-1 and Bus	50.06	49.912	49.97	-0.08	0.83

			reactor-1 & 2. As per SCADA data, generation loss of around 1800 MW was observed due to loss of evacuation path.					

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

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

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

Status of details received from constituents is:

FRC data submission status					
S. No	Control Area	Event Date			
		03-04-2024	06-04-2024	19-04-2024	23-04-2024
1	Punjab	Received	Received	Received	Received
2	Haryana	Received	Not Received	Not Received	Not Received
3	Rajasthan	Received	Received	Received	Received
4	Delhi	Not Received	Not Received	Not Received	Not Received
5	Uttar Pradesh	Received	Received	Received	Received
6	Uttarakhand	Not Received	Not Received	Not Received	Not Received
7	Chandigarh*	Not Received	Not Received	Not Received	Not Received
8	Himachal Pradesh	Received	Received	Received	Received
9	J&K(UT) and Ladakh(UT)	Not Received	Not Received	Not Received	Not Received
10	Dadri -2 (TH)	Not Received	Not Received	Not Received	Not Received
11	Jhajjar (TH)	Not Received	Not Received	Not Received	Not Received
12	Rihand-1 (TH)	Received	Received	Received	Received
13	Rihand-2 (TH)	Received	Received	Received	Received
14	Rihand-3 (TH)	Received	Received	Received	Received
15	Shree Cement (TH)	Not Received	Not Received	Not Received	Not Received
16	Singrauli (TH)	Not Received	Not Received	Not Received	Not Received
17	Tanda-2 (TH)	Not Received	Not Received	Not Received	Not Received
18	Unchahar stg-4 (TH)	Not Received	Not Received	Not Received	Not Received
19	Unchahar (TH)	Not Received	Not Received	Not Received	Not Received
20	Anta (G)	No Gen	No Gen	Not Received	Not Received
21	Auraiya (G)	No Gen	No Gen	Not Received	Not Received
22	Dadri (G)	No Gen	No Gen	Not Received	Not Received
23	AD Hydro (H)	No Gen	No Gen	No Gen	No Gen
24	Bairasiul (H)	Not Received	Not Received	Not Received	Not Received
25	Bhakra (H)	Not Received	Not Received	Not Received	Not Received
26	Budhil (H)	No Gen	No Gen	No Gen	Not Received
27	Chamera-1 (H)	Not Received	Not Received	Not Received	Not Received
28	Chamera-2 (H)	Not Received	Not Received	Not Received	Not Received
29	Chamera-3 (H)	Not Received	No Gen	Not Received	Not Received
30	Dehar (H)	Not Received	Not Received	Not Received	Not Received
31	Dhauliganga (H)	No Gen	No Gen	Not Received	Not Received
32	Dulhasti (H)	Not Received	Not Received	Not Received	Not Received
33	Karcham (H)	No Gen	Received	No Gen	Received
34	Kishenganga	Not Received	Not Received	Not Received	Not Received
35	Koldam (H)	No Gen	No Gen	No Gen	Received
36	Koteswar (H)	Received	Received	Received	Received
37	Malana-2 (H)	Not Received	Not Received	Not Received	Not Received
38	Nathpa Jhakri (H)	Received	Not Received	No Gen	Received
39	Parbati-2 (H)	No Gen	No Gen	No Gen	No Gen
40	Parbati-3 (H)	No Gen	No Gen	No Gen	Not Received
41	Pong (H)	No Gen	No Gen	No Gen	Not Received
42	Rampur (H)	Not Received	Not Received	No Gen	Not Received
43	Sainj (H)	No Gen	No Gen	No Gen	Not Received
44	Salal (H)	Not Received	Not Received	Not Received	Not Received
45	Sewa-II (H)	Not Received	Not Received	Not Received	Not Received
46	Singoli Bhatwari (H)	Not Received	Not Received	Not Received	Not Received
47	Sorang (H)	No Gen	No Gen	No Gen	Not Received
48	Tanakpur (H)	Not Received	Not Received	Not Received	Not Received
49	Tehri (H)	Received	No Gen	No Gen	Received
50	Uri-1 (H)	Not Received	Not Received	Not Received	Not Received
51	Uri-2 (H)	Not Received	Not Received	No Gen	Not Received

Control area wise FRP during the aforementioned events are as follows:

Frequency response Performance					
S. No	Control Area	Event Date			
		03-04-2024	06-04-2024	19-04-2024	23-04-2024
1	Punjab	0.80	0.23	0.99	3.00
2	Haryana	0.32	0.54	1.03	-0.48
3	Rajasthan	0.99	2.82	1.20	0.52
4	Delhi	-0.48	0.75	-2.70	-1.35
5	Uttar Pradesh	0.85	0.46	0.27	0.92
6	Uttarakhand	1.51	0.13	-1.33	-1.05
7	Chandigarh*	NA	NA	NA	NA
8	Himachal Pradesh	0.06	-0.40	0.50	4.20
9	J&K(UT) and Ladakh(UT)	-0.07	0.20	-0.17	-3.10
10	Dadri -1 (TH)	-4.28	1.81	5.45	2.02
11	Dadri -2 (TH)	0.76	1.94	-0.26	-5.25
12	Jhajjar (TH)	0.00	2.11	4.07	8.80
13	Rihand-1 (TH)	-0.90	0.00	5.11	1.77
14	Rihand-2 (TH)	2.56	0.02	-8.46	1.81
15	Rihand-3 (TH)	0.00	0.54	-2.80	3.37
16	Shree Cement (TH)	1.83	1.72	4.42	-1.42
17	Singrauli (TH)	1.60	0.81	0.41	4.06
18	Tanda-2 (TH)	2.62	0.71	4.79	-8.01
19	Unchahar stg-4 (TH)	-1.09	-0.16	5.28	3.26
20	Unchahar (TH)	0.36	-0.12	0.00	4.77
21	Anta (G)	No Gen	No Gen	-0.01	-0.31
22	Auraiya (G)	No Gen	No Gen	-0.02	0.29
23	Dadri (G)	No Gen	No Gen	-0.13	7.21
24	AD Hydro (H)	No Gen	No Gen	No Gen	No Gen
25	Bairasiul (H)	0.00	0.00	0.00	0.02
26	Bhakra (H)	0.09	0.02	0.08	-0.01
27	Budhil (H)	No Gen	No Gen	No Gen	0.00
28	Chamera-1 (H)	-0.65	0.00	-0.10	3.51
29	Chamera-2 (H)	0.00	0.14	2.66	-0.93
30	Chamera-3 (H)	Poor	No Gen	2.11	4.19
31	Dehar (H)	-6.31	0.09	0.15	0.42
32	Dhauliganga (H)	No Gen	No Gen	3.41	4.92
33	Dulhasti (H)	5.69	0.00	-2.35	3.14
34	Karcham (H)	-0.01	1.86	0.00	-115.44
35	Kishenganga	0.00	0.00	0.03	0.00
36	Koldam (H)	No Gen	No Gen	No Gen	38.77
37	Koteswar (H)	2.51	0.00	-2.01	1.94
38	Malana-2 (H)	NA	NA	NA	NA
39	Nathpa Jhakri (H)	2.81	1.42	No Gen	6.09
40	Parbati-2 (H)	No Gen	No Gen	No Gen	No Gen
41	Parbati-3 (H)	No Gen	No Gen	No Gen	9.50
42	Pong (H)	No Gen	No Gen	No Gen	0.85
43	Rampur (H)	1.57	-0.25	No Gen	9.72
44	Sainj (H)	No Gen	No Gen	No Gen	0.31
45	Salal (H)	-0.28	-0.38	0.37	0.14
46	Sewa-II (H)	0.00	1.20	0.00	14.81
47	Singoli Bhatwari (H)	-0.18	No Gen	No Gen	-1.06
48	Sorang (H)	No Gen	No Gen	-0.15	-0.22
49	Tanakpur (H)	-3.76	0.01	-0.34	0.35
50	Tehri (H)	1.40	No Gen	No Gen	7.90
51	Uri-1 (H)	0.01	1.89	-0.16	0.92
52	Uri-2 (H)	0.00	0.00	No Gen	0.00

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

Members may like to discuss.

B.12. Mock trial run and testing of black start facilities at generating stations in Northern Region

As per Indian Electricity Grid Code (IEGC) clause 34.3

" *Detailed procedures for restoration post partial and total blackout of each user system within a region shall be prepared by the concerned user in coordination with the concerned SLDC, RLDC or NLDC, as the case may be. The concerned user shall review the procedure every year and update the same. The user shall carry out a mock trial run of the procedure for different sub-systems including black-start of generating units along with grid forming capability of inverter based generating station and VSC based HVDC black-start support at least once a year under intimation to the concerned SLDC and RLDC. Diesel generator sets and other standalone auxiliary supply source to be used for black start shall be tested on a weekly basis and the user shall send the test reports to the concerned SLDC, RLDC and NLDC on a quarterly basis*".

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

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

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

Details only received from AD Hydro HEP, Anta GPS, Koteshwar HEP, SJVN, Budhil, Chamera-III, Auraiya GPS, Punjab and Uttarakhand.

Members are requested to share the tentative schedule of mock black start exercise of generating stations in their respective control area. SLDCs are also

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

Members may like to discuss.

B.13. Mock testing of System Protection Schemes (SPS) in Northern Region

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

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

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

Details only received from Uttarakhand & UP.

Members are requested to share the tentative schedule of mock testing of SPS implemented on their control area and also share the report of the same.

Members may like to discuss.

B.14. Availability and Standardization of recording instrument (Disturbance recorder and Station Event Logger):

As per IEGC clause 17

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

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

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

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

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

Details only received from Haryana & UP.

Members are requested to share the share the details w.r.t. availability and standardization of disturbance recorder and event logger at the station of their respective control area.

Members may like to discuss.

Follow up issues from previous OCC meetings

Annexure-A.I

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.</td><td>List of downstream networks is enclosed in Annexure-A.I.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Sep-2019
◎ DELHI — Jan-2024
◎ HARYANA — Dec-2023
◎ HP — Feb-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Mar-2023
◎ RAJASTHAN — Mar-2024
◎ UP — Mar-2024
◎ UTTARAKHAND — Mar-2024
All States/UTs are requested to update status on monthly basis.</td></tr>
<tr><td>3</td><td>Healthiness of defence mechanism: Self-certification</td><td>Report of mock exercise for healthiness of UFRs carried out by utilities themselves on quarterly basis is to be submitted to NRPC Secretariat and NRLDC. All utilities were advised to certify specifically, in the report that “All the UFRs are checked and found functional”.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Not Available
◎ DELHI — Dec-2023
◎ HARYANA — Dec-2023
◎ HP — Apr-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Dec-2023
◎ RAJASTHAN — Dec-2023
◎ UP — Mar-2024
◎ UTTARAKHAND — Mar-2024
◎ BBMB — Mar-2024
All States/UTs are requested to update status for healthiness of UFRs on monthly basis for islanding schemes and on quartely basis for the rest .</td></tr>
<tr><td></td><td></td><td>In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.</td><td>Status:
◎ CHANDIGARH — Not Available
◎ DELHI — Increased
◎ HARYANA — Increased
◎ HP — Increased
◎ J&K and LADAKH — Increased
◎ PUNJAB — Increased
◎ RAJASTHAN — Increased
◎ UP — Increased
◎ UTTARAKHAND — Increased
◎ BBMB — Increased</td></tr>
</table>

<table>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>4</td><td>Status of FGD installation vis-à-vis installation plan at identified TPS</td><td>List of FGDs to be installed in NR was finalized in the 36th TCC (special) meeting dt. 14.09.2017. All SLDCs were regularly requested since 144th OCC meeting to take up with the concerned generators where FGD was required to be installed.
Further, progress of FGD installation work on monthly
basis is monitored in OCC
meetings.</td><td>Status of the information submission (month) from states / utilities is as under:
<table><tr><td>◎</td><td>HARYANA</td><td>Sep-2023</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Mar-2024</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Jul-2023</td></tr><tr><td>◎</td><td>UP</td><td>Jan-2024</td></tr><tr><td>◎</td><td>NTPC</td><td>Feb-2023</td></tr></table>FGD status details are enclosed as Annexure-A.I.II.
All States/utilities are requested to update status of FGD installation progress on monthly basis.</td></tr>
<tr><td>5</td><td>Submission of breakup of Energy Consumption by the states</td><td>All states/UTs are requested to submit the requisite data as per the billed data information in the format given as under:
<table><tr><td>Category→</td><td>Consumption by Domestic Loads</td><td>Consumption by Commercial Loads</td><td>Consumption by Agricultural Loads</td><td>Consumption by Industrial Loads</td><td>Traction supply load</td><td>Miscellaneous / Others</td></tr><tr><td><Month></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>Status of the information submission (month) from states / utilities is as under:
<table><tr><td></td><td>State / UT</td><td>Upto</td></tr><tr><td>◎</td><td>CHANDIGARH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>DELHI</td><td>Jan-24</td></tr><tr><td>◎</td><td>HARYANA</td><td>Mar-24</td></tr><tr><td>◎</td><td>HP</td><td>Mar-24</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Jan-24</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Mar-24</td></tr><tr><td>◎</td><td>UP</td><td>Dec-23</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Feb-24</td></tr></table>J&K and Ladakh and Chandigarh are requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format</td></tr>
<tr><td>6</td><td>Information about variable charges of all generating units in the Region</td><td>The variable charges detail for different generating units are available on the MERIT Order Portal.</td><td>All states/UTs are requested to submit daily data on MERIT Order Portal timely.</td></tr>
<tr><td>7</td><td>Status of Automatic Demand Management Sysytem in NR states/UT's</td><td>The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:</td><td>The status of ADMS implementation in NR is enclosed in Annexure-A.I.II.
<table><tr><td>◎</td><td>DELHI</td><td>Scheme Implemented but operated in manual mode.</td></tr><tr><td>◎</td><td>HARYANA</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>HP</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Under implementation.</td></tr><tr><td>◎</td><td>UP</td><td>Scheme implemented by NPCIL only</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Scheme not implemented</td></tr></table></td></tr>
</table>

8	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	500 MVAr TCR at Kurukshetra has been commissioned on dated 15th December 2023
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	1x50 MVAr Reactor at Peeragarhi has been commissioned on dated 18.09.2023
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	2x50 MVAR Reactor at Harsh Vihar has been commissioned on dated 31th March 2023.
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work completed on 07.11.2023. Reactor part tender is dropped and at present same is under revision.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - 1x125 MVAR Reactor at Dhuri has been commissioned on dated 30th March 2023. 220kV Reactors - 1x25 MVAR Reactor at Dhuri has been commissioned on dated 27th January 2023.
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	1x25 MVAR Reactor at Nakodar has been commissioned on dated 13th February 2023.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	SLDC informed that PTCUL has intimated that tender has been scrapped. Retendering will be done after confirmation of PSDF funding validity extension.
xi	RAJASTHAN	Akal	1x25 MVAr	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022.

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

Annexure-A-I.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	Mar'24	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to severe ROW problem at Location No. 1 near Grid Substation Jatwal where the Land owner is not allowing erection of Tower. The Deputy Commissioner Samba has been approached for intervention and facilitating the erection of Tower. He is persuading the Land owner to get the work completed. Updated in 210th OCC by JKPTCL.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	Mar'25	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. RoW issues persisting; At present new-wampoh-mirbazar 5km and harwan-alstung 16km have been completed, expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 214th OCC by JKPTCL.
				• 220 kV New Wanpoh - Mattan D/c Line	End of 2024	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	End of 2024	02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	Jul'24	Updated in 205th OCC by HVPNL
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1 Total: 7	Utilized: 7	• 220 kV D/C Shahajahanpur (PG) - Gola line	Commissioned	Energization date: 26.10.2023 updated by UPPTCL in 215th OCC
				• LILO of Sitapur – Shahjahanpur 220 kV SC line at Shahjahanpur (PG)	Commissioned	Energization date: 25.02.2022 updated by UPPTCL in 196th OCC
7	Hamirpur 400/220 kV Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• 220 kV Hamirpur-Dehan D/c line	Commissioned	HPPTCL has commissioned the Planned 220kV Dehan-Hamirpur TL utilizing 2 No. 220kV Bays.Commisioned date: 09.06.2022. Updated in 198th OCC by HPPTCL
				• Network to be planned for 4 bays	-	HPPTCL to update the status.
8	Sikar 400/220kV, 1x 315 MVA S/s	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• LILO of 220 kV Sikar (220 kV GSS)-Dhod S/c line at Sikar (PG)	Commissioned	LILO of 220 kV S/C Sikar-Dhod line at 400 kV GSS PGCIL, Sikar has been charged on dt. 31.03.2022
				• Network to be planned for 2 bays.	-	Against the 3rd ICT at 400 kV GSS Sikar, only 2 bays were constructed and same has been utilized by RVPN by constructing LILO of 220 kV S/C Sikar – Dhod line as updated by RVPNL in 195th OCC
				• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Apr'24	Issue related to ROW as intimated in 215th 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 GIS	Commissioned: 6 Under Implementation: 4 Total: 10	Utilized: 6 Unutilized: 0 Under Implementation:4	• RK Puram – Tughlakabad (UG Cable) 220kV D/c line – March 2023.	Commissioned	Updated in 216th OCC by DTL
				• Masjid Mor – Tughlakabad 220kV D/c line.	Commissioned	Updated in 216th OCC by DTL
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 2 Under Implementation:2	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Mar'24	Work completed and the line is ready for charging however connection agreement with CTU and PKATL is under process thereafter line shall be charged.Updated in 217th 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.	Mar'24	Forest approval is pending for 220 KV Pali - Sector 56 D/C line. Updated in 215th 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	Mar'24	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	Dec'24	Updated in 216th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 205th OCC by HVPNL. **Status:-** Earlier 02 nos 220 kV line bays were to be utilized for the 220 kV GIS S/Stn. Sec-77, Gurugram but due to denotification of land of the 220 kV GIS S/Stn. Sec-77 the said substation is now going to be dismantled and a new substation is proposed at Sec-75A, Gurugram. Now, these 02 no. 220 kV line bays may be utilized at 220 kV GIS S/Stn Sec-75A, Gurugram.
15	400/220kV Prithla Sub-station	Commissioned: 8 Aprroved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	Mar'24	Updated in 216th OCC by HVPNL. **Status:** Work was held up due to ROW at T.L. No. 7,8,11,12 & 13 by the farmers of Jajji villagers during July'23 and now the matter has been resolve and work under progress from 01.08.2023. The erection work of T.no. 1 is pending due to non availability of shut down at 220KV Mohana-Smk line and 220KV Jajji-Mohana line. • PLCC protection coupler and Forest approval is also pending.
				• Sonepat - HSIISC Rai 220kV D/c line	Mar'24	Updated in 212th 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. Now, the matter is under approval from competent authority of Nigam.,
				• Sonepat - Kharkhoda Pocket A 220kV D/c line	31.07.2024	Updated in 212th OCC by HVPNL. **Status:** Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line. The Survey work has been completed.
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	-	Work is under progres. Stub Setting: 02/2017. Permission for forest, Highway & pipeline crossing is awaited from concerned department as updated in 215th OCC by RVPNL.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Date of bid opening has been extended up to 28.02.2024 as updated in 216th OCC by RVPNL.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	May'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line commissioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	Commissioned	• Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL. _____ • No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Commissioned	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th OCC

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
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	Mar'24	SCDA System & PLCC work pending at 220 KV S/stn. Rajokheri Updated in 215th OCC by HVPNL
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV Line Bays, 2 bays would be used by the lines being constructed by POWERGRID (Chandigarh-2) and balance 8 nos. bays would be used by HVPNL	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	Mar'24	Updated in 217th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	Mar'24	Updated in 217th 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
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	Mar'24	Work is completed, agreement is expected to be signed by March 2024. Updated in 216th OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	Mar'24	Work is completed, agreement is expected to be signed by March 2024. Updated in 216th OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Approved: 4 Total: 8	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra-Daultabad S/c line at 400 kV Bahadurgarh PGCIL	Mar'25	Updated in 205th OCC by HVPNL. **Status:** Under Tendering process
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	Mar'25	Updated in 216th OCC by HVPNL. **Status:** Tendering under progress.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	Jul'24	Updated in 212th OCC by HVPNL. **Status:** Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line. The Survey work has been completed.
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• LILO of 220 kV S/C Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG)	06.10.2025	Work order has been issued on 06.10.2023, work under progress as updated by RVPNL in 215th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220 kV D/C Kankroli(PG) - Nathdwara line	Mar'24	Price bid opened on 29.01.2024 as updated bu RVPN in 216th OCC.
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	-	Status:- 2nos bays are being utilised for 220 kV D/C Panchgaon (PGCIL)-Panchgaon Ckt-I & 220 kV D/C Panchagon (PGCIL)-Panchgaon Ckt-II, charged on dated 05.09.2022 & 20.10.2022 respectively. The 2nos bays may be utilised by HVPNL in future.
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	Commissioned	Saharanpur(PG)-Devband D/c line (Energization date: 20.04.2023) updated by UPPTCL in 207th OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	Mar'24	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work completed , final agrrement is expected to be signed by Mar'24. Updated in 216th OCC by PSTCL.
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	Commissioned	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is commissioned on 20.01.2024. Updated in 217th OCC by HPPTCL.
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'24	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL.

Annexure-A-I.II

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	A committee has been constituted under the chairmanship of GM, SLDC Delhi to formulate the logic for implementation of ADMS. Delhi SLDC informed that two meetings have been held by the committee.
2	HARYANA	Scheme not implemented	An internal Committee of HVPNL officers has been constituted for preparation of the Detailed Project Report and Tender Documents for implementation of ADMS. The DPR is under preparation.
3	HP	Scheme not implemented	HP SLDC imentioned that HPSEB had intimated that initially 142 Nos. of feeders were identified for operation under ADMS functionality but most of these feeders were from same sub-station. Therefore, now they have increased the no. of sub-station and identified the non-critical feeders. Load relief to be given through these feeders is under finalization. The revised feeder list would be shared with the SLDC upon finalization of same.
4	PUNJAB	Scheme not implemented	i. A committee comprising of following officers of PSPCL & PSTCL has been constituted to finalize the logic regarding implementation of Automatic Demand Management System in Punjab Control Area. A meeting in this regard was held on dated 26-02-2024 at PSLDC Complex, Patiala. The committee deliberated various loading scenarios and proposed the following logic for the management of demand: 1. If the frequency sustains below 49.90 Hz for duration of 3 minutes, the Automatic Demand Management System will initiate a 50% reduction in the Over Drawl. 2. In case the frequency falls further below 49.85 Hz, the Over Drawl will be reduced to zero.
5	RAJASTHAN	Under implementation. Likely completion schedule is 31.03.2024	RVPN informed that the issue of cyber security of link between SATNAM centre and SLDC control room is still pending. Final testing is scheduled for 24.04.2024.
6	UP	Scheme implemented by NPCIL only	i. A meeting regarding ADMS was held on 15.01.2023 with the UPPCL under the chairmanship of MD UPPTCL ii. A committee formed for identification of load at 33 kV level under the chairmanship of Director (Distribution), UPPCL. iii. Another committee under the chairmanship of Director UPSLDC shall identify the technical and operational requirement for ADMS implementation iv. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation and likely to be commissioned by March 2025. v. In order to operate identified 33 kV feeders under ADMS scheme, integration of 132 kV substations with SCADA system is under implementation in the Reliable Communication Scheme and expected date of completion of the scheme is October 2024.
7	UTTARAKHAND	Scheme not implemented	i. UPCL has prepared a system architecture in which all the non-monitored sub-stions have been selected and 11kV feeders have been considered for ADMS operation. For the scheme, discom has also done group-wise selection of feeders and quantum of MW relief to be given for automatic demand response at 11kV level has also been decided. UPCL has awarded the tender for implementation of the aforementioned scheme to M/s Metergy Pvt.Ltd. ii. As per the status report submitted by M/s Metergy Pvt.Ltd, the survey work of 30 nos. incomer sites have been completed.

FGD Status

Updated status of FGD related data submission

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

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

Updated status of FGD related data submission

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

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

Adani Power Ltd. (18.02.2022)
KAWAI TPS

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

Pending submissions

GVK Power Ltd.
GOINDWAL SAHIB

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

Target Dates for FGD Commissioning (Utility-wise)

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

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

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

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

MIS Report for Status of Islanding Schemes

Implemented Schemes

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

Under Implementation/ Newly Proposed/Under Discussion

Sl. No.	Islanding Scheme	SLDC	Status	Details of progress	DPR for PSDF funding (Required / Not Required)	Timelines Status - Proposed/Actual									
						Study		Design		Approval		Procurement		Commissioning	
						Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual	Proposed	Actual
1	Lucknow-Unchahar IS	UP	Under Implementation	Scheme has been approved in 59th NRPC meeting held on 31.10.2022. Installation of Ufrs is completed as informed by NTPC.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Under Implementation	Scheme has been approved in 71th NRPC meeting held on 29.01.2024. UPSLDC is in discussion with STU regarding list of locations where UFRs are to be installed.		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. DPR for Jodhpur-Barmer-Rajwest IS is still awaited.	-	-		-	-	-	-	-	-	-	-
4	Suratgarh IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. DPR for Suratgarh IS is still awaited.	-	-		-	-	-	-	-	-	-	-
5	Patiala-Nabha Power Rajpura IS	Punjab	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. Punjab SLDC informed that DPR for PSDF funding has been approved from their management and it will be submitted within one week. Implementation timeline: March,2025		-		-	-	-	-	-	-	-	-
6	Kullu-Manali-Mandi IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. HPSEB representative informed that the proposal for procurement of UFR is submitted to Chief Engineer (System Planning) for approval on 29th December 2023.Purchasing and installation of UFRs is pending. Approval in this regard is still awaited from higher management of HPSEB. Timeline to be intimated by HPSLDC		-		-	-	-	-	-	-	-	-
7	Shimla-Solan IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. GE Officials to visit Bhabha HEP by 20th March 2024 to inspect the changes if required in the Contro System. Timeline to be intimated by HPSLDC.											

Status of availability of ERS towers in NR

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

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
14	JKPTCL			10			JKPTCL, Kashmir:10 procured (out of which 3 on loan to JKPTCL, Jammu)
15	HVPN						HVPN does not have ERS Set. Technical Specifications have been finalized
16	PSTCL	400 kV	1666.43	2	2		
		220 kV	7921.991				
17	UPPTCL 1- Meerut	132KV	27508.321	24 Nos(15 Running+9 Angle)		400 kV S/s Gr. Noida	ERS will be also be used in other voltage level lines.
		220KV	14973.453				
		400KV	6922.828				
	UPPTCL 2-Prayagraj	765KV	839.37	24 Towers		220 kv S/s phulpur	ERS will also be used in other voltage lines.
		400KV	1804.257				
		220KV	2578.932				
		132KV	4714.768				
18	POWERLINK						
19	POWERGRID HIMACHAL TRANSMISSION LTD						
20	Powergrid Ajmer Phagi Transmission Limited						
21	Powergrid Fatehgarh Transmission Limited						
22	POWERGRID KALA AMB TRANSMISSION LTD						
23	Powergrid Unchahar Transmission Ltd						
24	Powergrid Khetri Transmission Limited						
25	POWERGRID VARANASI TRANSMISSION SYSTEM LTD						
26	ADANI TRANSMISSION INDIA LIMITED		2090	1 Set (12 towers)	1 set (12 towers)	Sami (Gujarat)	Make-Lindsey ERS set available for 400KV & 500KV rating can be used for lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can reduce due to increase in Tower Height & nos of conductors.
27	BIKANER KHETRI TRANSMISSION LIMITED		482				
28	FATEHGARH BHADLA TRANSMISSION LIMITED	500 kV HVDC 400 kV HVAC	291				
29	NRSS-XXXI(B) TRANSMISSION LTD	400 kV	577.74	Not Available	Not Available		In the advance stage of process of finalising arrangement for providing ERS on need basis with other transmission utility (M/s INDIGRID).
30	ARAVALI POWER COMPANY PVT LTD	765 kv HVAC					

*The transmission Utility with line length less than 500 ckt kms (of 400 KV lines) may be given option either to procure ERS or have agreement with other transmission utilities for providing ERS on mutually agreed terms, when need arises. (As per MoP directions)

Agenda for 219th OCC meeting

System Protection Scheme (SPS) to address Overloading of 3x315 MVA ICTs at Allahabad SS

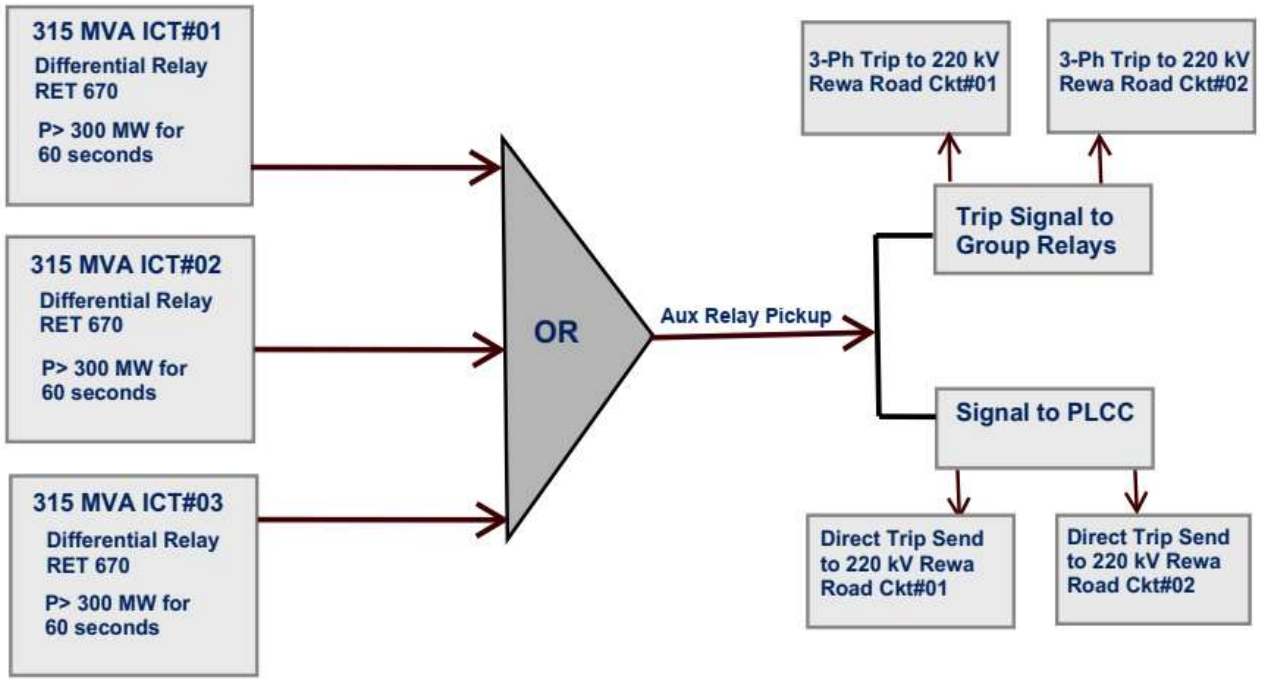
400/220 kV PG Allahabad Sub-Station has currently 3x315 MVA ICTs in Service. During recent years, issue of Overloading of 3x315 MVA ICTs at Allahabad SS has been observed particularly during the period of May-September. The issue of overloading of 3x315 MVA ICTs and violation of N-1 contingency at Allahabad SS has previously been discussed in 207th OCC meeting.

During 207'th OCC Meeting of NRPC, issue of violation of N-1 contingency of 3X315 MVA ICTs at POWERGRID Allahabad SS was discussed and POWERGRID was asked to propose a System Protection Scheme at 400/220 kV Allahabad substation in consultation with UP to address the overloading issue till capacity augmentation.

PG Allahabad has deliberated with officials of UPPTCL and it was mutually agreed that a System Protection Scheme (SPS) at 400/220 kV Allahabad substation shall be devised in such a manner that in case load on any of the 3x315 MVA ICTs at Allahabad SS goes beyond 300 MW, SPS will automatically switch-off both circuits of 220 kV Allahabad (PG)-Rewa Road (UP).

Accordingly, a System Protection Scheme (SPS) logic for 400/220 kV PG Allahabad substation has been devised as below and is being put up for consent of all stakeholders before implementation of the same.

SYSTEM PROTECTION SCHEME LOGIC TO ADDRESS OVERLOADING OF 3X315 MVA ICTS AT ALLAHABAD SS



Members may kindly deliberate.

S. No.	Task Name	Total Scope		Start Date	Likely Completion Date	Partial Shutdown						Complete Shutdown					
						Apr'24				May'24				Jun'24			
		Unit	Qty.			W-1	W-2	W-3	W-4	W-1	W-2	W-3	W-4	W-1	W-2	W-3	W-4
1	**Work during Partial Shutdown Period (1st April 24 to 15th May 24)**																
A.	**Balance work of BAFFLE WALL CONSTRUCTION AT HPP – TRT OUTLET**																
1	Construction of approach road up to El.611.00m	Rm	70.0	4/1/2024	4/20/2024	40	30										
2	Upstream and downstream ramp construction	Cum	2450	4/1/2024	5/15/2024	300	350	400	400	500	500						
3	Drilling and Grouting at center portion of baffle wall	Rm	280	4/1/2024	5/15/2024	45	45	45	45	45	55						
4	Partial Micro piling work in front of 3A & 3B.	Nos	58	4/1/2024	5/15/2024		18		22		18						
5	Slope Protection work (Left Bank)	Sqm	2640	4/1/2024	5/15/2024	440	440	440	440	440	440						
6	Slope Protection work (Right Bank)	Sqm	1110	4/1/2024	5/15/2024	185	185	185	185	185	185						
B.	**Approach road construction PSP – TRT OUTLET**																
1	Construction of access road upto Baffle wall at EL 603.0m.	Rm	90	4/15/2024	5/6/2024			30	30	30							
C. a	**TRT OUTFALL –** Breaking of Flood Protection Wall upto EL 609.00m	Cum	8000	4/1/2024	5/15/2024	1000	1000	1500	1500	1500	1500						
b.	Extension of raft (Upto EL 598.50m)	Cum	450	4/15/2024	5/7/2024			200		250							
C.	Curtain Grouting from EL 598.00 m			4/24/2024	5/14/2024				200	200	200						
2	**Work during Complete Shutdown Period (16th May'24 to 30th June'24)**																
	WORKS OF TRT OUTFALL																
1	The entire dismantling of FPW from EL 609.00m to EL 596.50m.	Cum	19000	5/16/2024	6/30/2024							1500	1500	4000	4000	4000	4000
2	Extension of approach from baffle wall to flood protection wall at EL 598m.	RM	20	5/16/2024	5/30/2024							10	10				
3	Balance micro piling (200 Nos Approx.)	Nos	70	5/25/2024	6/15/2024								22	24	24		
4	Extension of raft (Upto EL 598.50m)	Cum	650	5/16/2024	6/24/2024							200		250	200	200	
5	Extension of U/s & D/s Guide wall up to river. (about 30m each from EL 598m to EL616m)	Cum	800	5/16/2024	6/30/2024										250	250	300
6	Construction of access road at left bank, reaching up to the River bank	RM	60	5/16/2024	6/30/2024							10	10	10	10	10	10
7	BAFFLE WALL,Construction of access road from El 603.0m to EL598.0m & RAMP CONSTRUCTION PSP – TRT OUTLET	Cum	2970	5/16/2024	6/30/2024							470	500	500	500	500	500
8	Concrete in U/S and D/s Guide wall extension	Cum	800	6/8/2024	6/30/2024										250	250	300
9	Curtain Grouting from EL 598.00 m	RM	1400	5/16/2024	6/30/2024							200	200	250	250	250	250
10	Slope Protection work (Left Bank)	Sqm	2640	5/16/2024	6/30/2024							440	440	440	440	440	440
11	Slope Protection work (Right Bank)	Sqm	1110	5/16/2024	6/30/2024							185	185	185	185	185	185

National Load Despatch Centre
Import Capability of Punjab for June 2024

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	9500	500	9000	5497	3503		https://www.punjabsldc.org/ATC_TTC.aspx
Limiting Constraints		N-1 contigency of 400/220KV ICTs at Rajpura, Ludhiana, Jalandhar Loading close to N-1 contingency limits of 400/220kV Patran, Malerkotla, Moga and Patiala ICTs 220 kV underlying network at Jalandhar, Ludhiana and Amritsar						

National Load Despatch Centre
Import Capability of Uttar Pradesh for June 2024

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	16300	600	15700	9779	5921		https://www.upsldc.org/documents/20182/0/ttc_atc_24-11-16/4c79978e-35f2-4aef-8c0f-7f30d878dbde
Limiting Constraints	N-1 contingency of 400/220kV Azamgarh, Allahabad(PG), Gorakhpur (UP), Sarnath, Lucknow (PG) ICTs							

National Load Despatch Centre
Import Capability of Haryana for June 2024

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	9300	250	9050	5418	3632		https://hvpn.org.in/#/atcttc
Limiting Constraints	N-1 contingency of 400/220kV ICTs at Deepalpur and Panipat(BBMB)							

National Load Despatch Centre
Import Capability of Rajasthan for June 2024

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	7600	600	7000	5689	1311		https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
Limiting Constraints		N-1 contingency of 400/220kV Heerapura, Jodhpur, Bikaner, Ajmer, Merta, Hindaun and Bhinmal ICTs						

National Load Despatch Centre
Import Capability of Delhi for June 2024

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	7300	300	7000	4810	2190		https://www.delhisldc.org/resources/atcttcreport.pdf
Limiting Constraints	N-1 contingency of 400/220kV Mundka, HarshVihar and Bawana (bus-split) ICTs.							

National Load Despatch Centre
Import Capability of HP for June 2024

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	850	100	750	1130	-380		https://hpsldc.com/mrm_category/ttc-atc-report/
Limiting Constraints		High loading of 220kV Hamirpur-Hamirpur D/C. Overloading of 2*200MVA Kunihar transformers						

National Load Despatch Centre
Import Capability of Uttarakhand for June 2024

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

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	1800	100	1700	1402	298		https://uksldc.in/ttc-atc
Limiting Constraints		N-1 contingency of 400/220kV Kashipur ICTs. High loading of 220kV Roorkee-Roorkee and 220kV CBGanj-Pantnagar lines						

National Load Despatch Centre
Import Capability of J&K for June 2024

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

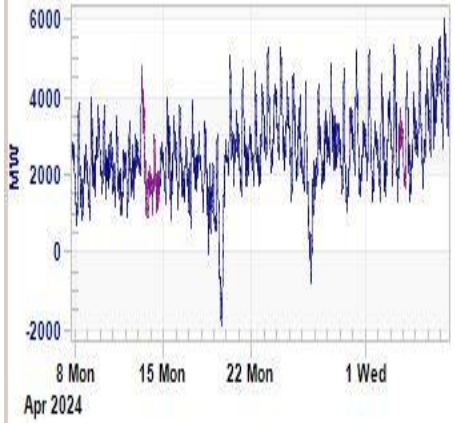
Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	2500	100	2400	1977	423		
Limiting Constraints		N-1 contigency of 400/220KV ICTs at Amargarh 220 kV underlying network at Amargarh, Wagoora						

National Load Despatch Centre
Import Capability of Chandigarh for June 2024

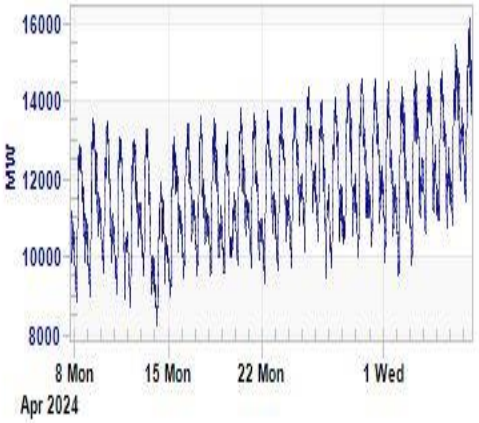
Issue Date: - Issue Time: 1600 Revision No. 0

Date	Time Period in IST (hrs)	Total Transfer Capability (TTC) (MW)	Reliability Margin (MW)	Available Transfer Capability (ATC) (MW)	Approved General Network Access (MW)	Margin Available for Temporary General Network Access(MW)	Changes in TTC w.r.t. Last Revision	Comments
1st June 2024 to 30th June 2024	00-24	400	20	380	342	38		
Limiting Constraints		N-1 contigency of 220kV Nallagarh-Kishengarh						

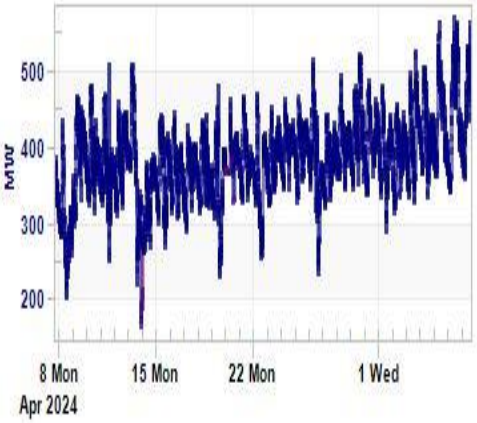
Rajasthan import



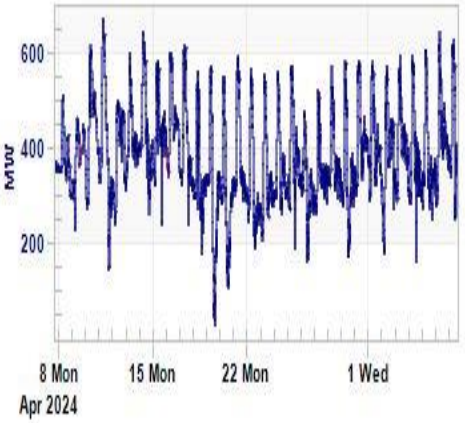
Rajasthan Load



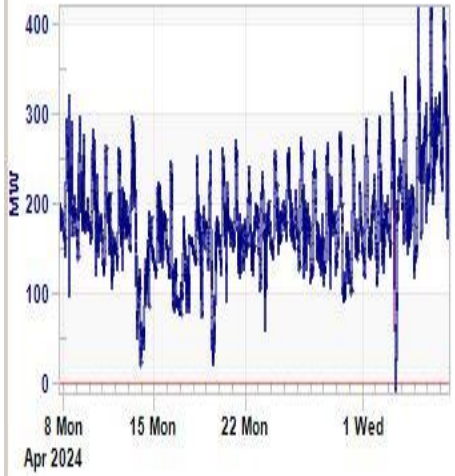
Ajmer ICT loading



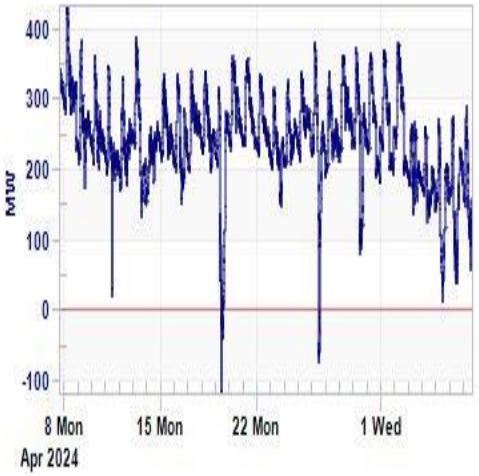
Chittorgarh ICT loading



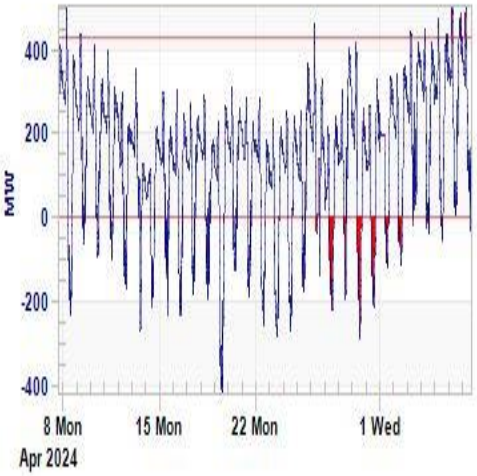
Jodhpur ICT loading



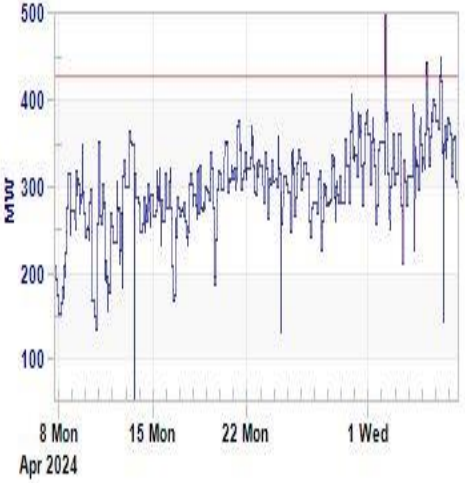
Merta ICT loading



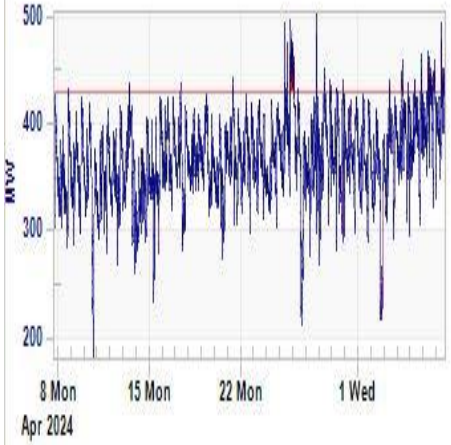
Bikaner ICT loading



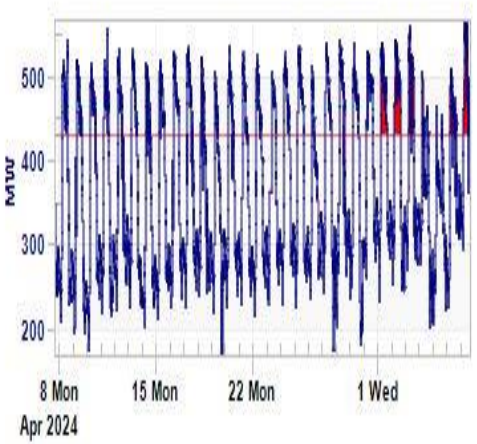
Bhilwara ICT loading



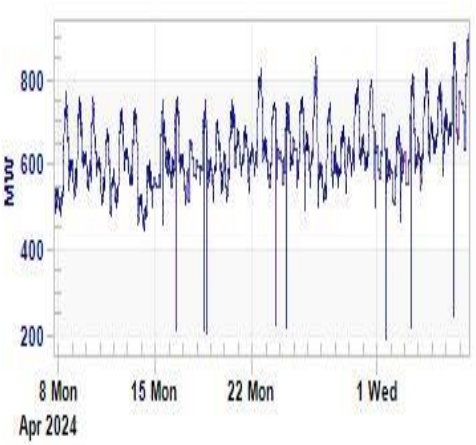
Hindaun ICT loading



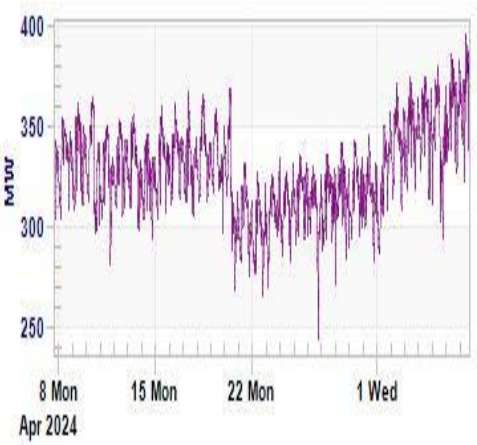
Bhinmal ICT loading



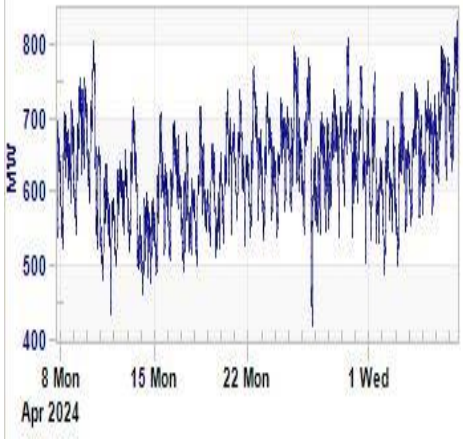
Heerapura ICT loading



Kotputli ICT loading



Bassi ICT loading



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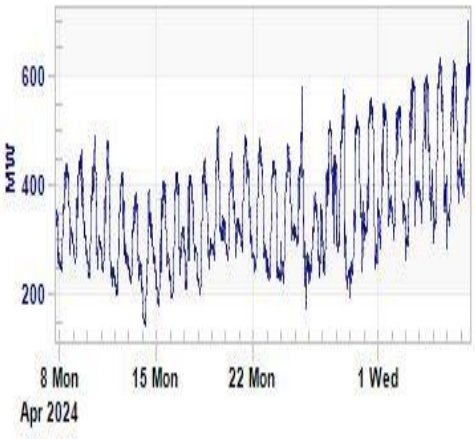
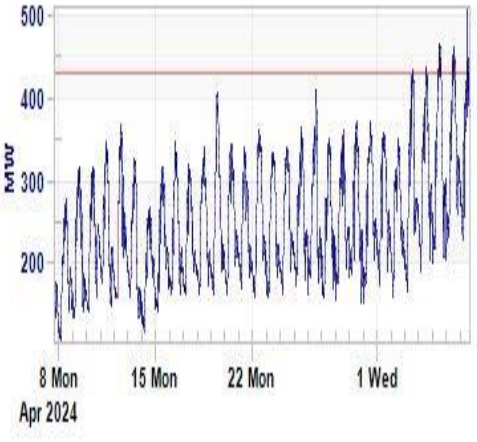
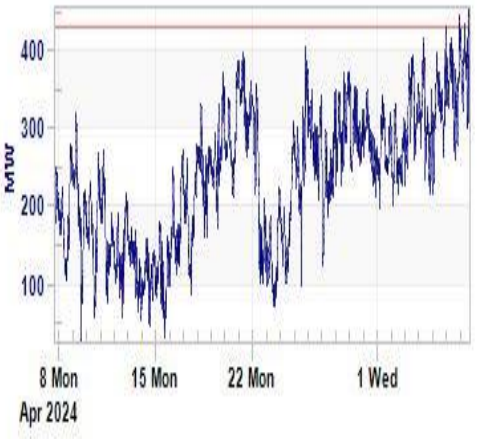


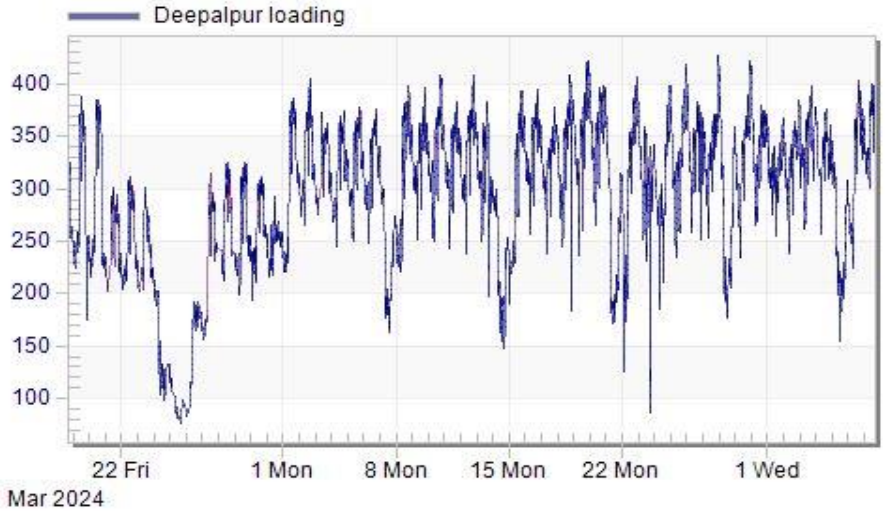
Deedwana ICT loading



Suratgarh ICT loading



Deepalpur ICT loading



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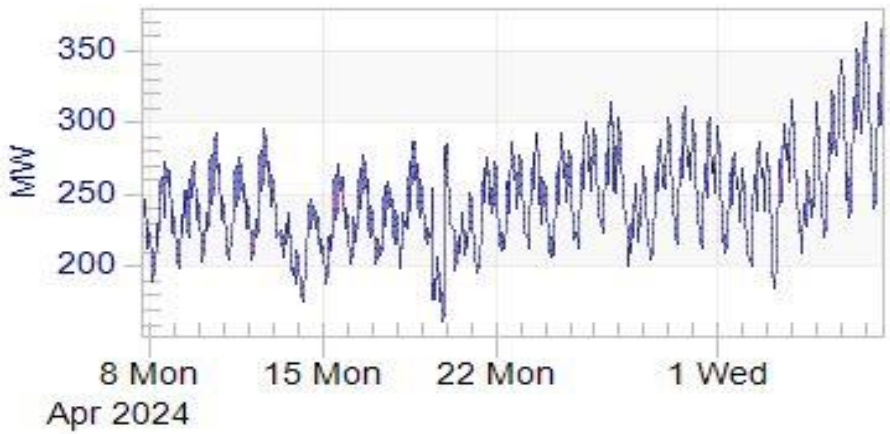

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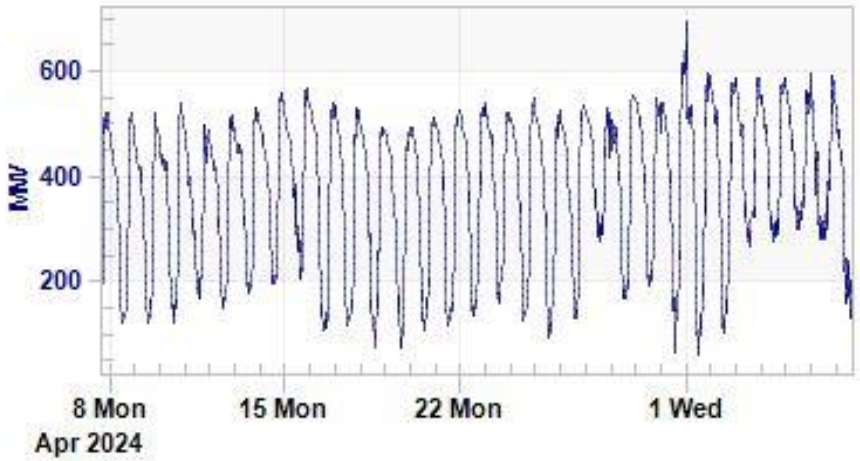

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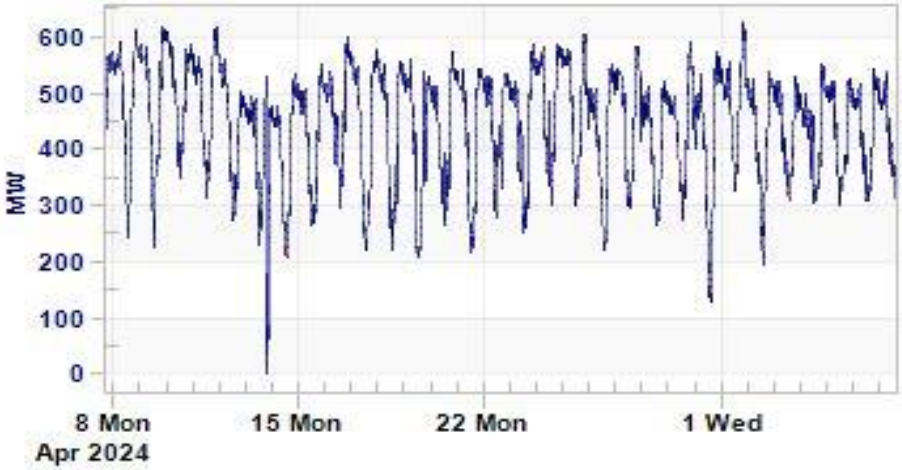

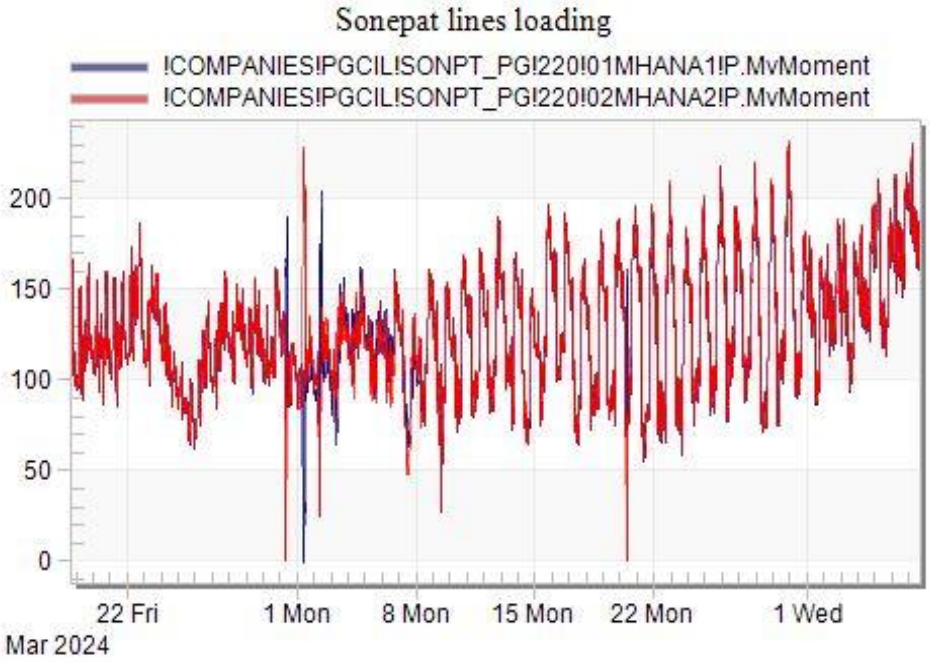
Sonepat lines loading
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150
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1 Wed
Mar 2024

Sr No	Element Name	Outage Date	Outage Time	Reason
1	220 KV Auraiya(NT)-Sikandra(UP) (PG) Ckt-1	10-Apr-24	17:18	Phase to earth fault B-N. As per PMU & DR (of Sikandra end), line tripped on Y-N phase to earth fault in reclaim time. DR of Auraiya end not received.
		10-Apr-24	20:40	Phase to earth fault B-N. As per PMU & DR (of Sikandra end), line tripped on Y-N phase to earth fault in reclaim time. DR of Auraiya end not received.
		17-Apr-24	09:34	Y Phase Jumper Broken. As per PMU, no fault is observed.
2	220 KV Baghpat(PG)-Shamli(UP) (UP) Ckt-1	12-Apr-24	20:50	Phase to earth fault B-N. DR of both ends not recieved. As per PMU, B-N fault occured, no auto-reclosing is observed.
		18-Apr-24	23:12	Phase to earth fault B-N. DR of both ends not recieved. As per PMU, B-N fault occured, no auto-reclosing is observed.
		26-Apr-24	11:37	Phase to earth fault R-N. As per PMU, B-N fault occured, no auto-reclosing is observed. DR(.dat/.cfg) file not received.
		28-Apr-24	10:48	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed. DR(.dat/.cfg) file not received.
3	220 KV Ballabhgarh-Charkhi Dadri (BB) Ckt-1	02-Apr-24	13:01	Phase to earth fault B-N. As per PMU & DR, B-N fault with no A/R is observed. DR not received from Charkhi Dadri end.
		05-Apr-24	16:06	Phase to earth fault R-N. As per PMU and DR (of Ballabhgarh end), Y-N phase to earth fault with no A/R operation is observed. DR not received from Charkhi Dadri end.
		13-Apr-24	15:27	Phase to earth fault B-N. As per PMU and DR (of Ballabhgarh end), Y-N phase to earth fault with no A/R operation is observed. DR not received from Charkhi Dadri end.
4	220 KV Ganguwal(BB)-Mohali(PS) (PSTCL) Ckt-1	13-Apr-24	10:54	Phase to earth fault R-N. DR not received from both ends. As per PMU, R-N fault occured, no auto-reclosing is observed.
		18-Apr-24	17:57	Phase to earth fault B-N. DR not received from both ends. As per PMU, B-N fault occured, no auto-reclosing is observed.
		24-Apr-24	15:20	Phase to earth fault B-N. DR not received from both ends. As per PMU, B-N fault occured, no auto-reclosing is observed.
5	220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-2	01-Apr-24	07:14	Phase to Phase Fault Y-B. As per DR of both ends, Y-B phase to phase fault is observed. As per PMU, Y-B fault is observed.
		04-Apr-24	09:03	Phase to earth fault B-N. As per PMU and DR (of Mandola end), B-N phase to earth fault with no A/R operation is observed with delayed clearance time of 600ms. DR not received from Gopalpur end.
		12-Apr-24	13:26	Phase to Ground Fault B-N. As per PMU & DR of both end, B-N phase to earth fault with successful A/R operation at Gopalpur end and no A/R operation at Mandola end with delayed clearance of fault in ~200msec is observed.
6	220 KV Sarsawan(UP)-Khodri(UK) (UP) Ckt-1	19-Apr-24	10:39	Phase to earth fault B-N. DR not received from both ends. As per PMU, B-N fault occured, no auto-reclosing is observed..
		19-Apr-24	13:10	Phase to Phase Fault R-Y. DR not received from both ends. As per PMU, no fault is observed..
		26-Apr-24	12:36	Phase to Phase Fault R-Y. DR not received from both ends. As per PMU, R-Y fault is observed..
7	400 KV Bareilly-Unnao (UP) Ckt-2	08-Apr-24	07:56	Failure of CB. As per DR of Unnao end, no fault and no tripping is observed. DR not received from Gopalpur end. As per PMU, no fault is observed.
		23-Apr-24	17:10	Phase to Phase Fault R-B. As per PMU and DR (of Bareilly end), R-B double phase to ground fault is observed. DR not received from Unnao end.
		24-Apr-24	12:21	Snapping of Earth wire. DR not received from both ends. As per PMU, no fault is observed.
8	400 KV Lucknow(UP)-Bareilly(PG) (PG) Ckt-1	09-Apr-24	12:11	Phase to earth fault Y-N. As per PMU and DR (of both ends), Y-N phase to earth fault is observed with unsuccessful A/R operation is observed.
		09-Apr-24	13:54	Phase to earth fault Y-N. As per DR of both ends and PMU, line tripped on Y-N phase to earth fault in reclaim time.
		28-Apr-24	15:28	Phase to Ground Fault R-N. As per PMU, R-N fault with no A/R operation and delayed clearance of 840msec is observed.
		29-Apr-24	11:58	Phase to earth fault Y-N. As per PMU and DR (of Bareilly end), Y-N phase to earth fault with unsuccessful A/R operation is observed. DR of Lucknow end is not received.

Grid Event summary for April 2024

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Fault Clearance time (in ms)
					Date	Time		
1	GI-2	1) 100 MW Chamera II HPS- UNIT 1 2) 100 MW Chamera II HPS- UNIT 2 3) 100 MW Chamera II HPS- UNIT 3	Himachal Pradesh	NHPC	1-Apr-24	18:37	i)During antecedent condition, 100 MW Chamera II HPS- UNIT 1, 2 & 3 were generating approx. 100MW each. ii)As reported, at 18:37 hrs, the inverter supply to butterfly valve got disrupted due to malfunction of inverter system. This led to closing of butterfly valve. iii)As per scheme, due to sudden closure of butterfly valve while unit circuit breaker is in closed condition, lockout relay got activated and initiate emergency trip command to all units. This led to tripping of 100 MW Chamera-II HPS UNIT 1, 2 & 3. iv)As per PMU at Jalandhar(PG), no fault is observed in the system. v)As per SCADA, loss of generation of approx. 300MW is observed at Chamera-II(NHPC).	NA
2	GI-2	1) 400kV Bhadla(RS)-Bikaner(RS) Ckt-1 2) 400kV Jodhpur(RS)-Rajwest(RS) Ckt 3) 135 MW Rajwest (IPP) LTPS - UNIT 5	Rajasthan	RVPNL, RVUNL	6-Apr-24	11:24	i)As reported, at 11:24hrs, 400kV Bhadla(RS)-Bikaner(RS) Ckt-1 tripped from Bhadla(RS) end only on R-Y phase to phase fault with fault distance of 49.19km and fault current of 8.002kA and 8.29kA in R and Y phase respectively from Bhadla(RS) and fault distance of 129.2km from Bikaner(RS) end. As per information received from SLDC Rajasthan, M/s Ramelex Pvt. Ltd. was asked to carry out patrolling of line and it was found that fault occurred due to conductor snapping between loc. no.171-172. ii)As per DR at Bikaner(RS) end of 400kV Bhadla(RS)-Bikaner(RS) Ckt-1, fault was sensed in zone-1; fault current was 4.18kA and 4.37kA in R and Y phase respectively from Bikaner(RS) end and fault clearing time was ~50ms. Time sync issue is observed. iii)As per PMU at Bhadla(PG), R-Y phase to phase fault is observed with fault clearance time of 80 ms. Voltage dipped upto 0.844 p.u. at Bhadla(PG). iv)As per SCADA, total NR RE generation drop/loss was approx.4870MW (~3884MW ISTS RE generation and ~986MW Rajasthan RE generation). Due to significant dip in RE generation frequency dropped by 0.49Hz (from 50.029Hz to 49.539Hz). v)As per details received from SLDCs, total load relief of approx. 630 MW observed in NR region (UP: ~125MW, Rajasthan: ~165MW, Punjab: ~340MW) on df/dt operation. vi)Due to significant dip in RE generation (as RE generation failed to recover 90% of pre-fault active power within 1 sec and further inverters tripping on OV, LVRT/HVRT Non-compliant), over voltage (1.114pu at 400kV Bhadla(PG)) scenario occured immediately after the fault. vii)As per SCADA SOE, 400kV Jodhpur(RS)-Rajwest(RS) Ckt also tripped during the same time. (Exact reason yet to be shared) It is suspected that line tripped due to over-voltage that occurred immediately after the fault. viii)At the same time, 135 MW Rajwest (IPP) LTPS - UNIT 5 also tripped due to GT tripped, as reported (further details yet to be received). ix)After rectification work (de-stringing,stringing,spacering,Jointing and repairing) at Loc No. 170-173 (Top Phase), 400kV Bhadla(RS)-Bikaner(RS) Ckt-1 was charged at 21:40hrs on 08th April, 2024.	80
3	GI-2	1) 800 kV HVDC Kurukshetra(PG) Pole-01 2) 800 kV HVDC Kurukshetra(PG) Pole-03	Haryana	PGCIL	7-Apr-24	18:07	i)During antecedent condition, 800kV HVDC Champa-Kurukshetra was carrying total 1940MW (approx. 485MW by each Pole). ii)As reported at 18:07hrs, 800 kV HVDC Kurukshetra (PG) Pole-01 blocked on T-zone protection operation at Kurukshetra end. iii)During the same time, 800 kV HVDC Kurukshetra (PG) Pole-03 also blocked on CAT-B sequence initiated by parallel Pole-01 due to latching of T-zone protection. iv)As further reported, sequence of event is as follows: a.17:52:34:291 –Pole-1 lane 2 to Bipole1 Lane 1 and Lane 2 Optic link was toggling (This link is used to transmit parallel pole data between Pole-1 and Pole-3) b.17:52:34:290 –Pole-1 lane 2 become unavailable c.17:57:48:481 – Pole-1 lane 2 Main 1 and Main 2, T-Zone protection got latched due to toggling of optic between Pole-1 Lane-2 and Bipole-1 d.18:07:13:502 – Pole-1 lane 2 become available automatically, due to already latched T-Zone protection, 2 out of 4 logic got satisfied after availability of Pole-1 Lane-2 and it initiated CAT B protection. e.18:07:13:502 – CAT-B got latched in Pole-1 lane 2 because of T-Zone protection f.18:07:13:639 – Pole-1 blocked g.18:07:13:594 – Pole-3 blocked v)Due to tripping of two poles (Pole-01 and Pole-03), power order reduced from 1940MW to 1855MW and shifted to the other two Poles. vi)As per PMU, fluctuation in voltage was observed. vii)As per SCADA, no change in demand is observed in Haryana control area. viii)As toggling of optics can be due to several reasons, so the 5003 card of Pole-1 Lane-2 where both the fiber were connected was replaced and Pole-1 Lane-2 was kept in maintenance mode for observation.	80
4	GI-2	1) 220/33 kV 100 MVA ICT 3 at RSDCL(PSS4)_SL_BHD2_PG 2) 400 KV Abdullapur-Kurukshetra (PG) Ckt-2	Rajasthan	RSDCL, PGCIL	7-Apr-24	10:24	i)As reported, at 10:24hrs, 400 KV Abdullapur-Kurukshetra (PG) Ckt-2 tripped on Y-N phase to earth fault due to insulator flashover with fault distance of 1.5km and fault current of ~19kA from Abdullapur(PG) end. ii)As per DR at Bikaner(RS) end of 400kV Bhadla(RS)-Bikaner(RS) Ckt-1, fault was sensed in zone-1; fault current was 4.18kA and 4.37kA in R and Y phase respectively from Bikaner(RS) end and fault clearing time was ~50ms. Time sync issue is observed. iii)As per PMU at Abdullapur(PG), Y-N phase to earth fault with unsuccessful A/R is observed. Voltage dipped upto 0.388 p.u. and 0.195p.u. respectively at Abdullapur(PG). iv)As per PMU at Bhadla(PG), voltage dipped upto 0.888 p.u. at Bhadla(PG). v)At the same time, 220/33 kV 100 MVA ICT 3 at RSDCL(PSS4)_SL_BHD2_PG also tripped due to over-flux protection operation (mal-operation suspected, exact details yet to be shared). vi)As per SCADA, during fault, total NR RE generation dip of approx. 1680MW is observed and almost all RE generation recovered within 04 minutes. vii)Due to significant dip in RE generation, frequency dropped by 0.132Hz (from 49.997Hz to 49.865Hz) viii)As per SCADA SOE, 33/4X.66kV 12.5MVA IDT-7 at MRPL(IP)_SL_BHDL_PG also tripped during the same time. (Exact reason yet to be shared)	120
5	GD-1	1) 220 KV Ganguwal(BB)-Gobindgarh-2(PS) (BB) Ckt 2) 220 KV Bhari (PS)- Gobindgarh-2(PS) Ckt	Punjab	PSTCL, BBMB	11-Apr-24	03:01	i)220/66kV Gobindgarh-2(PS) has single bus arrangement at 220kV and 66kV side. Gobindgarh-2(PS) is connected to 220/66kV Bhari(PS), 220/132 kV Ganguwal(BB) and 220/66kV Gobindgarh-1(PS)(D/C) form 220kV side. ii)During antecedent condition, 220kV Gobindgarh-1(PS)-Gobindgarh-2 (PS) D/C were not in service. iii)As reported, at 03:01 hrs, B-phase CT at Gobindgarh S/s end of 220kV Bhari(PS)-Gobindgarh-2(PS) ckt blasted and the line tripped. iv)During the same time, 220kV Ganguwal(BB)-Gobindgarh-2(PS) (BB) Ckt tripped only from Ganguwal(BB) end on B-N phase to earth fault with fault distanace of 94.63km (121.32%) and fault current of 2.64kA from Ganguwal(BB) end. v)As per SCADA SOE, no CB tripping is observed at Gobindgarh(PS). Hence it is suspected that line CB of 220 KV Bhari (PS)-Gobindgarh-2(PS) ckt at Gobindgarh-2 end didn't open which led to tripping of 220kV Ganguwal(BB)-Gobindgarh-2(PS) (BB) Ckt from Ganguwal(BB) end. (details of the same yet to be shared) vi)As per PMU at Jalandhar(PG), B-N phase to earth fault with unsuccessful A/R operation is observed in the system. Fault clearing time was 80ms. vii)As per SCADA, load loss of approx. 175MW is observed in Punjab control area.	80
6	GD-1	1) 400/220 kV 315 MVA ICT 2 at Gr.Noida(UP) 2) 400/220 kV 500 MVA ICT 6 at Gr.Noida(UP) 3) 220/132 kV 200 MVA ICT 3 at Gr.Noida(UP) 4) 220/132 kV 200 MVA ICT 4 at Gr.Noida(UP) 5) 220kV Greater Noida - RC Green ckt-1 6) 220kV Greater Noida - RC Green ckt-2 7) 220kV Greater Noida - Jalpura ckt 8) 220KV Bus-2 at Gr.Noida(UP)	Uttar Pradesh	UPPTCL	11-Apr-24	00:31	i)220kV side of 400/220/132kV Gr.Noida(UP) has double main & transfer bus scheme. ii)As reported, at 00:31 hrs, Y phase CT at 220kV side of 400/220kV 315MVA ICT-2 at Gr.Noida (UP) blasted which led to busbar protection operation at 220KV Bus-2 at Gr.Noida (UP). iii)Due to this, all the elements connected to 220KV Bus-2 at Gr.Noida (UP) tripped and Bus-2 became dead. iv)As per PMU at Meerut(PG), Y-N phase to phase fault with delayed fault clearance time of 280 ms is observed. v)As per SCADA, change in demand of approx. 150MW in UP control area.	280
7	GI-2	1) 400/220kV 315 MVA ICT 2 at Obra_B(UP) 2) 400/220kV 240 MVA ICT 3 at Obra_B(UP)	Uttar Pradesh	UPPTCL	13-Apr-24	19:06	i)During antecedent condition, 400/220kV 315 MVA ICT 1 at Obra_B(UP) was already under shutdown for replacement of broken conductor. Active power flow in 400/220kV 315 MVA ICT 2 and 240 MVA ICT-3 at Obra_B(UP) were 297MW and 230MW respectively. ii)As reported, after work completion and during closing of 220kV sequential isolator, its support structure of male portion of 220kV B-phase broke and dropped down. At the same, time extension of shutdown also requested. iii)At 19:06hrs, both ICT-2 and 3 tripped due to directional O/C protection operation. iv)During the incident "SPS for Transformers at Obra TPS(UPRVUNL) substation" didn't operate. As reported, optical fibre cable for SPS signal communication found damaged, which has been replaced with spare core. However, follow up is being done with OEM to implement an alarm system for identification of such failure of communication cable which is not available in current system. v)As per PMU at Singrauli(NT), no fault is observed in the system. vi)As per SCADA, change in demand of approx. 225MW is observed in UP control area.	NA

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Fault Clearance time (in ms)
					Date	Time		
8	GD-1	1) 220 kV Uperlanangal-Kinvan (HP) Ckt 2) 220 kV Nallagarh(PG)-Uperlanangal (HP) (HPSEB) Ckt-1 3) 220 kV Nallagarh(PG)-Uperlanangal (HP) (HPSEB) Ckt-2 4) 220 kV Uperlanangal-Wardthman (HP) Ckt 5) 220 kV Uperlanangal-Baddi (HP) Ckt 6) 220/66kV 80/100MVA ICT-1 at Uperlanangal(HP) 7) 220/66kV 80/100MVA ICT-2 at Uperlanangal(HP)	Himachal Pradesh	HPPTCL, PGCIL	19-Apr-24	04:30	i)220/66kV Uperlanangal (HP) has double main bus scheme at both 220kV & 66kV level. During antecedent condition, power was flowing through 220/66kV 80/100MVA ICT-1 & 2 at Uperlanangal(HP) to the feeders connected at 66kV level of Uperlanangal (HP). ii)As reported, at 04:30 hrs, 220 kV Uperlanangal-Kinvan (HP) Ckt tripped on Y-N phase to earth fault due to Y-phase jumper broken. But as line CB at Uperlanangal(HP) end of 220 kV Uperlanangal-Kinvan (HP) Ckt didn't open, LBB operated. iii)Due to this, all other 220kV lines along with 220/66kV 80/100MVA ICT-1 & 2 at Uperlanangal(HP) tripped which led total blackout at Uperlanangal (HP). iv)As per SCADA SOE, 5.65MW Unit-1 at Ghanvi(HP) also tripped during the same time (exact reason yet to be shared). v)As per PMU at 400kV Nallagarh(PG), Y-N phase to earth fault is observed in the system with fault clearing time of 80ms. vi)As per SCADA, change in demand of approx. 150MW is observed in HP control area.	80
9	GD-1	1) 220 KV Alusteng-Drass (PG) Ckt	Jammu & Kashmir	PGCIL	29-Apr-24	06:06	i)Power flows from Alusteng(PG) to Drass(PG) to Kargil to Khalsti to Leh (radial connection). Generation of Chutak is connected to Kargil and generation of Nimoo bazgo is connected to Leh. ii)As reported, at 06:06 hrs, 220 KV Alusteng-Drass (PG) Ckt tripped on R-B phase to phase fault with fault distance of 38.4km from Drass(PG). iii)With the tripping of 220 KV Alusteng-Drass (PG) Ckt, complete blackout occurred at 220/66kV Drass(PG) and supply to Kargil, Khalsti and Leh also failed. iv)Generation of Chutak and Nimoo Bazgo tripped due to loss of evacuation path resulting in generation loss of approx. 7MW each at Chutak and Nimoo Bazgo (as per SCADA). v)As per PMU at Amargarh(INDIGRID), R-B phase to phase fault is observed with fault clearing time of 120ms. vi)As per SCADA, change in demand of approx. 15MW is observed in J&K control area.	120
10	GI-1	1) 132 KV Sewa_2(NH)-Kathua(JK) (PG) Ckt 2) 132 KV Sewa_2(NH)- Hiranagar(PDD) (PG) Ckt-2 3) 40 MW Sewa-II HPS- UNIT 1 4) 40 MW Sewa-II HPS- UNIT 2 5) 132 KV Kathua(JK)-Mahanpur(JK) (PG) Ckt	Jammu & Kashmir	JKPTCL, NHPC, PGCIL	29-Apr-24	01:43	i)132kV Sewa-II(NHPC) has double main bus scheme. During antecedent condition, 132 KV Sewa_2(NH)-Mahanpur(JK) (PG) Ckt, 132 KV Sewa_2(NH)- Hiranagar(PDD) (PG) Ckt-1 and 40 MW Sewa-II HPS- UNIT 3 were connected to 132kV Bus-1 at Sewa-II(NHPC) and 132 KV Sewa_2(NH)-Kathua(JK) (PG) Ckt, 132 KV Sewa_2(NH)- Hiranagar(PDD) (PG) Ckt-2 and 40 MW Sewa-II HPS- UNIT 1 & 2 were connected to 132kV Bus-2 at Sewa-II (NHPC). 40 MW Sewa-II HPS- UNIT 1, 2 & 3 were generating approx. 40MW each. At 132kV Mahanpur(JK), power was coming from Sewa-II(NHPC) and going to Kathua(JK). ii)As reported, at 01:43 hrs, bottom conductor of 220 kV Thein - Ghatti Ckt (JKPDD) snapped over Gantry tower location no. 158 - 159. iii)As per DR of 132 KV Sewa_2(NH) (end)-Kathua(JK) (PG) Ckt , 3-phase fault is observed; fault current: Ir=~2127A, Iy=~2306A, Ib=~2214A. Fault was sensed in zone-2 at Sewa-II(NHPC) end and carrier received signal was already persisting throughout the DR time. As carrier received signal was already triggered, on operation of zone-2 protection, relay issued 3-phase trip command. But line CB didn't open and after a delay of 300ms LBB operated. iv)Due to LBB operation, all the elements connected to bus-2 tripped and Bus-2 became dead. v)During the same time, 132 KV Kathua(JK)-Mahanpur(JK) (PG) Ckt also tripped as reported (exact reason yet to be shared). Hence, 132 KV Sewa_2(NH)-Mahanpur(JK) (PG) Ckt also tripped due to loss of evacuating line. vi)As per PMU at Kishenpur(PG), 3-phase fault with delayed fault clearance time of 400ms is observed. vii)As per SCADA, change in demand of approx. 35MW and loss of generation of approx. 80MW at Sewa-II are observed. viii)40 MW Sewa-II HPS- UNIT 1 & 2 were revived at 02:59 hrs and 02:51 hrs respectively.	400
11	GD-1	1) 132 KV Sewa_2(NH)- Hiranagar(PDD) (PG) Ckt-1 2) 40 MW Sewa-II HPS- UNIT 1 3) 40 MW Sewa-II HPS- UNIT 2 4) 40 MW Sewa-II HPS- UNIT 3	Jammu & Kashmir	JKPTCL, NHPC, PGCIL	29-Apr-24	03:35	i)132kV Sewa-II(NHPC) has double main bus scheme. During antecedent condition, only 132 KV Sewa_2(NH)- Hiranagar(PDD) (PG) Ckt-1 was in service through which all the generation of Sewa-II(NHPC) was evacuating. 40 MW Sewa-II HPS- UNIT 1, 2 & 3 were generating approx. 40MW each. ii)As reported, at 03:35 hrs, 132 KV Sewa_2(NH)- Hiranagar(PDD) (PG) Ckt-1 tripped only from Sewa-II(NHPC) end (line has no auto reclose facility) on Y-N phase to earth fault. iii)As per DR of 132 KV Sewa_2(NH) (end)- Hiranagar(PDD) (PG) Ckt-1, fault was sensed in zone-1 at Sewa-II(NHPC) end; Y-ph voltage (ph) reduced upto ~59.42kV and Y-ph current increased upto ~1035A. iv)As 132 KV Sewa_2(NH) (end)- Hiranagar(PDD) (PG) Ckt-1 was the only evacuating line available during antecedent condition, frequency swing was observed which led to the tripping of all the three running units on operation of over speed protection. v)As per PMU at Kishenpur(PG), two consecutive Y-N phase to earth faults with fault clearance time of 80ms are observed in the system. vi)As per SCADA, change in demand of approx. 25MW and loss of generation of approx. 120MW at Sewa-II are observed.	80
12	GD-1	1)400 KV Vishnuprayag(UP)-Muzaffarnagar (UP) (UP) Ckt 2)400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (UP) Ckt 3)400KV Bus 1 at Muzaffarnagar(UP) 4)400/220 kV 315 MVA ICT 2 at Muzaffarnagar(UP) 5)400/220 kV 315 MVA ICT 3 at Muzaffarnagar(UP) 6)400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt 7)110 MW Vishnuprayag HPS - UNIT 1 8)220 KV Singoli Bhatwari (Singoli(LTUHP)) (end)-Srinagar(UK) (PTCUL) Ckt-1 9)220 KV Singoli Bhatwari (Singoli(LTUHP)) (end)-Srinagar(UK) (PTCUL) Ckt-2 10)33 MW Singoli Bhatwari (Singoli(LTUHP)) HPS - UNIT 2 11)33 MW Singoli Bhatwari (Singoli(LTUHP)) HPS - UNIT 3	Uttar Pradesh and Uttarakhand	UPPTCL, PTCUL, PGCIL, Singoli Bhatwari	30-Apr-24	00:16	i)Power of 82.5*4 MW Alaknanda HEP, 110*4MW Vishnuprayag HEP and 33*3MW Singoli Bhatwari HEP evacuates through 400 KV Alaknanda GVK (UPC)-Muzaffarnagar(UP) ckt and 400 KV Vishnuprayag(UP)-Muzaffarnagar (UP) (UP) Ckt. During antecedent condition, only 110MW unit-1 at Vishnuprayag HEP and 33MW unit-2 & 3 at Singoli Bhatwari HEP were in running condition and generating approx. 91MW, 28MW and 27MW respectively. No generation was there at Alaknanda HEP, ii)As reported, at 22:59 hrs on 29th Apr'24, 400 KV Vishnuprayag(UP)-Muzaffarnagar (UP) (UP) Ckt tripped on R-N phase to earth fault. As per PMU, fault current was ~2.7kA from Muzaffarnagar end. As per DR, fault was sensed in zone-1 at Muzaffarnagar end and fault current was 3.787kA from Muzaffarnagar end. A/R started in R-ph; R-ph CB closed from Vishnuprayag after ~750ms. Three phase tripping occurred from Muzaffarnagar end after ~1090ms due to A/R lockout. iii)Further, as reported, at 00:16 hrs, bus bar protection operated (zone-1 in bus bar differential relay) at 400KV Bus 1 at Muzaffarnagar(UP) due to damage of B-ph CB pole PIR (Pre Insertion Resistor) of 400 KV Vishnuprayag(UP)-Muzaffarnagar (UP) (UP) Ckt. Due to this all the elements connected to Bus 1, e.g., 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (UP) Ckt, 400/220 kV 315 MVA ICT 2 and 3 at Muzaffarnagar(UP) tripped and Bus 1 became dead. 400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt was hand tripped due to isolator sparking at Muzaffarnagar end. iv)With the tripping of both 400 KV Vishnuprayag(UP)-Muzaffarnagar(UP) (UP) Ckt and 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) (UP) Ckt, 110MW unit-1 at Vishnuprayag HEP tripped due to unavailability of power evacuating path. v)During the same time, 220 KV Singoli Bhatwari(Singoli(LTUHP)) (end)-Srinagar(UK) (PTCUL) Ckt-1 & 2 also tripped. As reported, DT received at Singoli Bhatwari end (exact reason yet to be shared). vi)Due to tripping of 220 KV Singoli Bhatwari(Singoli(LTUHP)) (end)-Srinagar(UK) (PTCUL) Ckt-1 & 2, 33 MW Singoli Bhatwari(Singoli (LTUHP)) HPS - UNIT 2 & 3 tripped due to unavailability of power evacuating path. vii)Due to this event, complete blackout occurred at 400kV Vishnuprayag HPS(UP) and 220kV Singoli Bhatwari HEP(Singoli(LTUHP)) S/s. viii)As per PMU at Muzaffarnagar(UP), Y-B phase to phase fault with fault clearance time of 120 ms is observed. ix)As per SCADA, no change in demand in UP control area and change in demand of approx. 60MW in Uttarakhand control area are observed. Generation loss of approx. 91MW and 55MW are observed at Vishnuprayag HEP and Singoli Bhatwari HEP respectively.	120

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per	# Fault Clearance	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs	Other Protection	Suggestive Remedial	Remarks
			Date	Time									
1	400 KV Gorakhpur(PG)-Motihari(BS) (PG) Ckt-2	POWERGRID	1-Apr-24	11:56	Nil	Phase to earth fault B-N	NA	NA	YES	YES (After 24 hrs)			As per DR and PMU, 3-ph trip on B-N fault in reclaim time is observed from Gorakhpur end. However, by voltage waveform it seems line didn't trip from the other end (Motihari(BS) end). DR of remote end need to be studied for the further analysis.
2	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	2-Apr-24	20:04	Nil	Maloperation of Relay	NA	NA	NO	NO			As per PMU, fluctuation in Voltage is observed. No fault in system is observed
3	132 KV Anpara(UP)-Morwa(MP) (UP) Ckt-1	UPPTCL	6-Apr-24	11:26	Nil	Maloperation of Relay	NA	NA	YES (After 24 hrs)	NO			DR/EL not received. As per PMU, no fault in system is observed.
4	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	6-Apr-24	15:51	Nil	Maloperation of Relay	NA	NA	NO	NO			As per PMU, fluctuation in Voltage is observed. No fault in system is observed
5	800 KV HVDC Kurukshetra(PG) Pole-1	POWERGRID	7-Apr-24	18:07	Nil	Earth fault	NA	NA	NO	NO			As per PMU, fluctuation in Voltage is observed. No fault in system is observed
6	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	7-Apr-24	18:07	Nil	Earth fault	NA	NA	NO	NO			As per PMU, fluctuation in Voltage is observed. No fault in system is observed
7	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	8-Apr-24	11:35	Nil	Three phase to earth fault	NA	NA	YES	YES			As per DR, B-N phase to earth fault is observed and line tripped on transient earth fault relay operation. Fault current Ib = 626.23A.
8	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	8-Apr-24	18:20	Nil	Phase to Ground Fault R-N	NA	NA	YES	YES			As per DR, line tripped on over current protection relay operation. Ir= 831.95A, Iy= 784.5A, Ib= 516A. As per PMU, no fault is observed.
9	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	12-Apr-24	19:34	Nil	Earth fault	NA	NA	NO	YES (After 24 hrs)			As per DR, line tripped on transient earth fault. As per PMU, no fault is observed.
10	800 KV HVDC Kurukshetra(PG) Pole-03	POWERGRID	25-Apr-24	17:25	Nil	Operation of transformer protection	NA	NA	NO	NO			As per PMU, fluctuation in Voltage is observed. No fault in system is observed

 # 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 37.2(c) 2. CEA Grid Standard 15.3
3	FIR Not Furnished	1. IEGC 37.2(b) 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 April 2024 - 30th April 2024

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		%	
1	ABC RENEWABLE_RJ01	1	1	100	1	0	100	1	0	100	1	0	100	
2	ACME_HEERGARH	1	1	100	1	0	100	1	0	100	1	0	100	
3	ADANI	3	3	100	3	0	100	3	0	100	3	0	100	
4	AMP Energy Green Private Limited	2	2	100	2	0	100	2	0	100	2	0	100	DR, EL & Tripping report not submitted
5	ANTA-NT	2	2	100	2	0	100	2	0	100	2	0	100	
6	APMPL	1	1	100	1	0	100	1	0	100	1	0	100	
7	AURAIYA-NT	3	3	100	3	0	100	3	0	100	3	0	100	
8	BAIRASUIL-NH	1	0	0	0	0	0	0	0	0	0	0	0	Details received
9	BBMB	43	11	26	11	7	31	11	19	46	11	3	28	DR, EL & Tripping report not submitted
10	CHAMERA-III-NH	1	0	0	0	1	0	0	1	0	0	0	0	Details received
11	CHAMERA-II-NH	5	0	0	0	1	0	0	1	0	0	0	0	
12	CHAMERA-I-NH	2	1	50	1	0	50	1	0	50	1	0	50	DR, EL & Tripping report not submitted
13	CPCC1	36	1	3	3	7	10	3	7	10	2	0	6	
14	CPCC2	28	1	4	1	5	4	1	5	4	1	0	4	
15	CPCC3	29	0	0	0	5	0	1	5	4	0	0	0	Details received
16	DADRI-NT	6	6	100	6	0	100	6	0	100	6	0	100	
17	DULHASTI-NH	8	8	100	8	0	100	8	0	100	8	0	100	DR, EL & Tripping report not submitted
18	JHAJJAR	3	0	0	1	0	33	1	0	33	3	0	100	
19	KARCHAM	1	1	100	1	0	100	1	0	100	1	0	100	
20	KISHENGANGA-NH	2	1	50	1	0	50	1	0	50	1	0	50	
21	NAPP	2	0	0	0	0	0	0	0	0	0	0	0	Details received
22	PARBATI-III-NH	1	0	0	0	1	0	0	1	0	0	0	0	Details received
23	RAPPA	5	1	20	5	0	100	5	0	100	5	0	100	
24	RAPPB	1	1	100	1	0	100	1	0	100	1	0	100	DR, EL & Tripping report not submitted
25	RSDCL	1	1	100	1	0	100	1	0	100	1	0	100	
26	SALAL-NH	3	3	100	3	0	100	3	0	100	3	0	100	
27	SEWA-2-NH	8	0	0	0	3	0	0	3	0	0	0	0	Details received
28	SHREE CEMENT	1	1	100	1	0	100	1	0	100	1	0	100	
29	SINGOLI	4	0	0	0	0	0	0	0	0	2	0	50	DR, EL & Tripping report not submitted
30	SLDC-DV	9	0	0	2	0	22	2	0	22	3	0	33	
31	SLDC-HP	4	0	0	1	2	50	1	3	100	0	0	0	Details received

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

Time Period: 1st April 2024 - 30th April 2024

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		%	
32	SLDC-HR	18	2	**11**	1	2	**6**	4	2	**25**	1	1	**6**	
33	SLDC-JK	13	6	**46**	7	1	**58**	8	1	**67**	6	0	**46**	DR, EL & Tripping report not submitted
34	SLDC-PS	28	5	**18**	21	3	**84**	21	3	**84**	23	1	**85**	
35	SLDC-RS	62	12	**19**	11	5	**19**	10	5	**18**	20	0	**32**	
36	SLDC-UK	14	0	**0**	0	6	**0**	0	7	**0**	0	0	**0**	Details received
37	SLDC-UP	102	13	**13**	13	12	**14**	13	23	**16**	16	3	**16**	DR, EL & Tripping report not submitted
38	STERLITE	8	4	**50**	4	0	**50**	4	0	**50**	6	2	**100**	
39	TANAKPUR-NH	4	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
40	TANDA-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
41	UNCHAHAR-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
42	URI-II-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
Total in NR Region		**469**	**95**	**20**	**120**	**61**	**29**	**124**	**86**	**32**	**138**	**10**	**30**	

As per the IEGC provision under clause 37.2 (c), detailed tripping report along with DR & EL has to be furnished within 24 hrs of the occurrence of the event

Mock trial run/black start schedule plan for 2024-25

S.No.	Name of Generatiing Station	Fuel Type	Installed Capacity (in MW)	Whether Generating station has black start capability (Yes/ No)	Type of Black Start Source (DG set etc.)	Capacity of DG Set / Small Generator / Battery	Source of power supply to Communication and Telemetry during black start.	Compliance to 34.3 of IEGC for mock trial runs (Last date on which mock drill carried out)	Tentaive schedule plan for mock trial run	
									Black start exercise of generating unit (dead bus charging)	Mock black start of subsytem (black start of generating unit / island operation / synchronidation)
NTPC										
1	Dadri GPS	Gas	4*130.19 + 2*154.51	Yes				16-Dec-23		
2	Anta GPS	Gas	3*88.71 + 1*153.2	Yes				29-Feb-24		
3	Auraiya GPS	Gas	4*111.19 + 2*109.3	Yes					09-07-2024	09-07-2024
4	Faridabad GPS	Gas	2*137.75 + 1* 156.07	Yes						
5	Koldam HEP	Hydro	4*200	Yes				14-Mar-24		
NHPC										
6	Bairasuil	Hydro	3*60	Yes				30-Nov-22		
7	Salal Stage-I	Hydro	3*115	Yes				02-Nov-18		
8	Salal Stage-II	Hydro	3*115	Yes						
9	Tanakpur HPS	Hydro	3*31.4	Yes						
10	Chamera HPS-I	Hydro	3*180	Yes				02-Dec-22		
11	Chamera HPS-II	Hydro	3*100	Yes				02-Dec-22		
12	Chamera HPS-III	Hydro	3*77	Yes				04-Dec-17		
13	URI-I	Hydro	4*120	Yes				20-Dec-16		
14	URI-II	Hydro	4*60	Yes				20-Dec-16		
15	Dhauliganga	Hydro	4*70	Yes				28-Dec-21		
16	Dulhasti	Hydro	3*130							
17	Sewa-II	Hydro	3*40	Yes				29-May-22		
18	Parbati-3	Hydro	4*130	Yes				22-Dec-20		
19	Kishanganga	Hydro	3*110	Yes						
SJVNL										
20	Nathpa-Jhakri	Hydro	6*250	Yes	DG Sets	2x750 kVA	DC Battery Bank/DG sets	09-Dec-22	20.11.2024	20.11.2024
21	Rampur	Hydro	6*68.67	Yes	DG Sets	2x1010 kVA	DC Battery Bank/DG sets	09-Dec-22	20.11.2024	20.11.2024
THDC										
22	Tehri	Hydro	4*250	Yes				07-Nov-23		
23	Koteshwar	Hydro	4*100	Yes	DG Set	2*1010 kVA	UPS	14-Mar-24	Dec-24	Dec-24
BBMB										
24	Bhakra (L)	Hydro	3*108 + 2*126	Yes				31-Dec-22		
25	Bhakra (**R**)	Hydro	5*157	Yes				26-Dec-22		
26	Ganguwal	Hydro	1*27.99 + 2*24.2							
27	Kotla	Hydro	1*28.94 + 2*24.2							
28	Dehar	Hydro	6*165							
29	Pong	Hydro	6*66					08-Jun-14		
*: Rampur can be black started only after starting of Nathpa Jhakri units due to Tandem operation										
IPPGCL(Indraprashta power generating Corporation Ltd.)/ Delhi Gencos										
30	I.P. Gas Turbine (IPGCL G.T.)	Gas	6*30+ 3*30	Yes				20-Feb-19	10-04-2024	10-04-2024
31	Pragati Gas Turbine (PPCL)	Gas	2*104.6 + 1*121.2							
32	Bawana GT	Gas	2*253+4*216							
33	Rithala(TPPDL)	Gas	3*36							
Haryana										
34	Western Yamuna Canal (WYC-I & II)	Hydro	6*8+ 2*7.2							
Himachal Pradesh										
35	Bhabha	Hydro	3*40							
36	Bassi	Hydro	4*16.5							
37	Ghanvi	Hydro	2*11.25							
38	Giri	Hydro	2*30							
39	Larji	Hydro	3*42							
40	Phojal	Hydro	24							
41	Sainj HEP	Hydro	2*50							
42	Swara Kuddu HEP	Hydro	3*37							
43	Bajoli Holi HEP	Hydro	3*60							
Malana Power Company Ltd.										
44	Malana-I	Hydro	2*43	Yes				12-Mar-24		
Everest Power Company Ltd.										
45	Malana-II	Hydro	2*50	Yes				03-Jan-19		
AD Hydro Power Ltd.										
46	AD Hydro	Hydro	2*96	Yes				27-Jan-23	**24-02-2025**	**24-02-2025**
JSW										
47	Karcham Wangtoo	Hydro	4*250	Yes				29-Dec-21		
48	Baspa	Hydro	3*100	Yes						
Greenco										

Mock trial run/black start schedule plan for 2024-25

S.No	Name of Generatiing	Fuel	Installed Capacity (in	Whether Generating station has black	Type of Black Start Source	Capacity of DG Set / Small	Source of power supply to Communication	Compliance to 34.3 of IEGC for mock trial runs (Last date on	Tentaive schedule plan for mock trial run	
49	Budhil	Hydro	2*35	Yes						
50	Sorang HEP	Hydro	2*50							
Jammu & Kashmir										
51	Baghlihar-I	Hydro	3*150							
52	Baghlihar-II	Hydro	3*150							
53	Lower Jhelum	Hydro	3*35					20-Dec-16		
54	Upper Sindh	Hydro	2*11.3+ 3*35	Yes				20-Dec-16		
Punjab										
55	Jogendernagar/ Shanan	Hydro	4*15+ 1*50							
56	UBDC	Hydro	3*15+ 3*15.45							
57	Mukerian	Hydro	6*15+ 6*19.5							
58	Anandpur Sahib (APS)	Hydro	4*33.5							
59	Ranjit Sagar (Thein Dam)	Hydro	4*150	Yes					04-05-2024	04-05-2024
Rajasthan										
60	Ramgarh GT Extn.	Gas	1*3+1*35.5+2 *37.5+1*110+ 1*50							
61	Dholpur CCPP	Gas	3*110							
62	Rana Pratap Sagar (RPS)	Hydro	4*43	Yes				16-Jan-11		
63	Jawahar Sagar	Hydro	3*33							
64	Mahi Bajaj Sagar I	Hydro	2*25	Yes				21-Jul-15		
65	Mahi Bajaj Sagar II	Hydro	2*45	Yes				24-Mar-16		
Uttar Pradesh										
66	Rihand (H) or Pipri	Hydro	6*50	Yes				16-Feb-24		
67	Obra(H)	Hydro	3*33	Yes				16-Feb-24		
68	Khara	Hydro	3*24							
69	Matatila	Hydro	3*10.2	Yes						
GVK										
70	Alaknanda HEP	Hydro	4*82.5							
Jaiprakash power Venture Ltd.										
71	Vishnu Prayag IPP	Hydro	4*100							
Uttrakhand										
72	Ramganga	Hydro	3*66							
73	Chibro	Hydro	4*60	Yes						
74	Dhalipur	Hydro	3*17							
75	Khodri	Hydro	4*30							
76	Khatima	Hydro	3*13.8							
77	Chilla	Hydro	4*36							
78	Maneri Bhali-I	Hydro	3*30							
79	Maneri Bhali-II	Hydro	4*76							
80	Vyasi HEP	Hydro	2*60							
81	Dhakrani HEP	Hydro	3*11.25							
82	Kulhal HEP	Hydro	3*10							
83	Gamma GPS	Gas	3*75							
84	Sravanti GPS	Gas	3*75	No	NA	NA	NA	NA	NA	NA
L&T										
85	Singoli Bhatwari	Hydro	3*33							

Sr. No.	Scheme Name	State Control Area	Last date on which Mock testing carried out	Tentaitve schedule of SPS Mock testing during 2024-25	Remarks
1	SPS for WR-NR corridor - 765kV Agra-Gwalior D/C	POWERGRID	12-03-2024		
2	SPS for contingency due to tripping of HVDC Mundra-Mahendergarh	ADANI			
3	SPS for high capacity 400 kV Muzaffarpur-Gorakhpur D/C Inter-regional tie-line related contingency	POWERGRID			
4	SPS for 1500 MW HVDC Rihand-Dadri Bipole related contingency	POWERGRID			
5	System Protection Scheme (SPS) for HVDC Balia-Bhiwadi Bipole	POWERGRID			
6	SPS for contingency due to tripping of multiple lines at Dadri(NTPC)	NTPC			
7	SPS for reliable evacuation of power from NJPS, Rampur, Sawra Kuddu, Baspa Sorang and Karcham Wangtoo HEP	SJVN/HPPTCL/JSW			
8	SPS for Reliable Evacuation of Ropar Generation	Punjab			
9	SPS for Reliable Evacuation of Rosa Generation	Uttar Pradesh	07-05-2022	counducted on 20-04-2024	
10	SPS for contingency due to tripping of evacuating lines from Narora Atomic Power Station	NAPS			
11	SPS for evacuation of Kawai TPS, Kalisindh TPS generation complex	Rajasthan			
12	SPS for evacuation of Anpara Generation Complex	Uttar Pradesh	06-07-2020		
13	SPS for evacuation of Lalitpur TPS Generation	Uttar Pradesh	14-07-2018		
14	SPS for Reliable Evacuation of Bara TPS Generation	Uttar Pradesh			
15	SPS for Lahal Generation	Himachal Pradesh	08-07-2020		
16	SPS for Transformers at Ballabhgarh (PG) substation	POWERGRID			
17	SPS for Transformers at Maharanibagh (PG) substation	POWERGRID			
18	SPS for Transformers at Mandola (PG) substation	POWERGRID			
19	SPS for Transformers at Bamnauli (DTL) Substation	Delhi			
20	SPS for Transformers at Moradabad (UPPTCL) Substation	Uttar Pradesh		counducted on 20-04-2024	
21	SPS for Transformers at Muradnagar (UPPTCL) Substation	Uttar Pradesh	07-02-2023	counducted on 20-04-2024	
22	SPS for Transformers at Muzaffarnagar(UPPTCL) Substation	Uttar Pradesh		counducted on 20-04-2024	
23	SPS for Transformers at Greater Noida(UPPTCL) Substation	Uttar Pradesh			
24	SPS for Transformers at Agra (UPPTCL) Substation	Uttar Pradesh	12-07-2023		
25	SPS for Transformers at 400kV Sarojininagar (UPPTCL) Substation	Uttar Pradesh	17-05-2023		
26	SPS for Transformers at 220kV Sarojininagar (UPPTCL) Substation	Uttar Pradesh	18-05-2022		
27	SPS for Transformers at 400kV Unnao (UPPTCL) Substation	Uttar Pradesh	19-05-2023		
28	SPS for Transformers at 220kV Unnao (UPPTCL) Substation	Uttar Pradesh			
29	SPS for Transformers at 400kV Sultanpur (UPPTCL) Substation	Uttar Pradesh			
30	SPS for Transformers at 400kV Bareilly (UPPTCL) Substation	Uttar Pradesh			
31	SPS for Transformers at 400kV Azamgarh (UPPTCL) Substation	Uttar Pradesh	14-05-2023		
32	SPS for Transformers at 400kV Mau (UPPTCL) Substation	Uttar Pradesh	17-01-2019		
33	SPS for Transformers at 400kV Gorakhpur (UPPTCL) Substation	Uttar Pradesh	14-05-2023		
34	SPS for Transformers at 400kV Sarnath (UPPTCL) Substation	Uttar Pradesh	19-05-2023		
35	SPS for Transformer at 400kV Rajpura (PSTCL) Substation	Punjab			
36	SPS for Transformers at 400kV Mundka (DTL) Substation	Delhi	19-06-2023		
37	SPS for Transformers at 400kV Deepalpur (JKTPL) Substation	Haryana			
38	SPS for Transformers at 400kV Ajmer (RVPN) Substation	Rajasthan			
39	SPS for Transformers at 400kV Merta (RVPN) Substation	Rajasthan			
40	SPS for Transformers at 400kV Chittorgarh (RVPN) Substation	Rajasthan			
41	SPS for Transformers at 400kV Jodhpur (RVPN) Substation	Rajasthan			
42	SPS for Transformers at 400kV Bhadla (RVPN) Substation	Rajasthan			
43	SPS for Transformers at 400kV Ratangarh (RVPN) Substation	Rajasthan			
44	SPS for Transformers at 400kV Nehtaur(UPPTCL) Substation	Uttar Pradesh	05-07-2022		
45	SPS for Transformers at Obra TPS	Uttar Pradesh			
46	SPS for Transformers at 400KV Kashipur (PTCUL) substation	Uttarakhand	03-09-2023	Septemeber 2024	
47	SPS for Transformers at 400KV Fatehgarh Solar Park (AREPRL)	ADANI			
48	SPS to relive transmission congestion in RE complex (Bhadla2)	POWERGRID			
49	SPS for Transformers at 400kV Bikaner (RVPN) Substation	Rajasthan			
50	SPS for Transformers at 400kV Bawana (DTL) Substation	Delhi	06-09-2023		
51	SPS for Transformers at 400kV Bhilwara (RVPN) Substation	Rajasthan			
52	SPS for Transformers at 400kV Hinduan (RVPN) Substation	Rajasthan			
53	SPS for Transformers at 400kV Suratgarh (RVPN) Substation	Rajasthan			

Status of Recording Instruments (220kV & above stations)						
Sr. No	**Station Name**	**Voltage Level**	**Disturbance Recorder/Station Event logger healthy (Yes or No)**	**Standardisation (Yes or No)**	**Time Sync (Yes or No)**	**Remarks**