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 222वीं बैठक की कार्यसूची।

Subject: Agenda of the 222nd OCC meeting.

प्रचालन समन्वय उप-समिति की 222वीं बैठक का आयोजन वीडियो कॉन्फ्रेंसिंग के माध्यम से दिनांक **14.08.2024** 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 **222nd** meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **14.08.2024** 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: 09-08-2024 17:49:46

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

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

Contents

खण्ड-क: उ.क्षे.वि.स. Part-A: NRPC

A.1. Confirmation of Minutes

221st OCC meeting was held on 19.07.2024. Minutes of the meeting were issued vide letter dt. 08.08.2024.

Decision required from Forum:

Forum may approve the minutes of 221st OCC meeting.

A.2. Status of action taken on decisions of 221st OCC meeting of NRPC

A.2.1. Status of action taken on decisions of 221st NRPC meeting is attached as **Annexure- 0**.

A.3. Review of Grid operations

A.3.1. **Power Supply Position (Provisional) for July 2024**

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

State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% Variation	Anticipated	Actual	% Variation
CHANDIGARH	(Avl)	240	239	-0.6%	400	434	8.5%
	(Req)	192	239	24.0%	391	434	11.1%
DELHI	(Avl)	5790	4359	-24.7%	8382	8175	-2.5%
	(Req)	4500	4360	-3.1%	8300	8181	-1.4%
HARYANA	(Avl)	7829	8344	6.6%	13743	14662	6.7%
	(Req)	7027	8362	19.0%	14261	14662	2.8%
HIMACHAL PRADESH	(Avl)	1128	1183	4.9%	1795	1888	5.2%
	(Req)	1089	1187	9.0%	1846	1888	2.3%
J&K and LADAKH	(Avl)	2180	1665	-23.6%	3300	2635	-20.2%
	(Req)	1753	1672	-4.6%	3115	2635	-15.4%
PUNJAB	(Avl)	9100	10388	14.1%	15300	16006	4.6%
	(Req)	9283	10388	11.9%	16265	16006	-1.6%
RAJASTHAN	(Avl)	9210	9630	4.6%	17450	16371	-6.2%
	(Req)	9300	9715	4.5%	16000	16371	2.3%
UTTAR PRADESH	(Avl)	18290	17079	-6.6%	30000	30298	1.0%
	(Req)	17980	17220	-4.2%	30000	30298	1.0%
UTTARAKHAN	(Avl)	1498	1553	3.7%	2469	2545	3.1%

D	(Req)	1519	1567	3.1%	2500	2545	1.8%
NORTHERN REGION	(Avl)	55265	54440	-1.5%	81000	87300	7.8%
	(Req)	52643	54708	3.9%	86400	87500	1.3%

As per above, negative / significant variation (≥5%) in Actual Power Supply Position(Provisional) vis-à-vis Anticipated figures is observed for the month of July-2024 in terms of Energy Requirement for Chandigarh, Delhi, Haryana, HP, UTs of J&K and Ladakh, Punjab, UP, and in terms of Peak Demand similar variation is noted for Chandigarh, Delhi, UTs of J&K and Ladakh, Punjab, . 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.4. Maintenance Programme of Generating Units and Transmission Lines

A.4.1. Maintenance Programme for Generating Units

The meeting on proposed maintenance programme for Generating Units for the month of September-2024 is scheduled on 13-August-2024 via Video Conferencing

A.4.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of September-2024 is scheduled on 13-August-2024 via Video conferencing.

A.5. Planning of Grid Operation

A.5.1. Anticipated Power Supply Position in Northern Region for September 2024

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

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	210	390	No Revision submitted
	Requirement	196	444	
	Surplus / Shortfall	14	-54	
	% Surplus / Shortfall	7.1%	-12.2%	
DELHI	Availability	3630	6530	18-July-24

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Requirement	3757	7423	
	Surplus / Shortfall	-127	-893	
	% Surplus / Shortfall	-3.4%	-12.0%	
HARYANA	Availability	7430	12900	12-July-24
	Requirement	6809	14164	
	Surplus / Shortfall	621	-1264	
	% Surplus / Shortfall	9.1%	-8.9%	
HIMACHAL PRADESH	Availability	1860	3450	09-July-24
	Requirement	1181	1918	
	Surplus / Shortfall	679	1532	
	% Surplus / Shortfall	57.5%	79.8%	
J&K and LADAKH	Availability	1680	3060	No Revision submitted
	Requirement	1624	3485	
	Surplus / Shortfall	56	-425	
	% Surplus / Shortfall	3.4%	-12.2%	
PUNJAB	Availability	7540	12360	No Revision submitted
	Requirement	8309	16357	
	Surplus / Shortfall	-769	-3997	
	% Surplus / Shortfall	-9.3%	-24.4%	
RAJASTHAN	Availability	9180	18360	No Revision submitted
	Requirement	9598	17878.05	
	Surplus / Shortfall	-418	482	
	% Surplus / Shortfall	-4.4%	2.7%	
UTTAR PRADESH	Availability	17100	31500	08-Aug-24
	Requirement	16800	31500	
	Surplus / Shortfall	300	0	
	% Surplus / Shortfall	1.8%	0.0%	
UTTARAKHAND	Availability	1371	2320	05-Aug-24
	Requirement	1398	2400	
	Surplus / Shortfall	-27	-80	
	% Surplus / Shortfall	-1.9%	-3.3%	
NORTHERN REGION	Availability	50001	83500	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Requirement	49672	87800	
	Surplus / Shortfall	329	-4300	
	% Surplus / Shortfall	0.7%	-4.9%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of September-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.6. 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.7. NR Islanding scheme

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

Members may kindly deliberate.

A.8. Coal Supply Position of Thermal Plants in Northern Region

A.8.1In 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.8.2 Accordingly, coal stock position of generating stations in northern region during current month (till 07th August 2024) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
ANPARA C TPS	1200	0.68	13	11.1
ANPARA TPS	2630	0.71	13	11.1
BARKHERA TPS	90	0.55	21	25.6
DADRI (NCTPP)	1820	0.54	21	27.7
GH TPS (LEH.MOH.)	920	0.61	21	14.6
GOINDWAL SAHIB TPP	540	0.48	21	16.5
HARDUAGANJ TPS	1265	0.55	21	39.7
INDIRA GANDHI STPP	1500	0.64	21	36.2
KAWAI TPS	1320	0.69	21	16.8
KHAMBARKHERA TPS	90	0.45	21	26.9
KOTA TPS	1240	0.67	21	4.6

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd (Days)	Actual Stock (Days)
KUNDARKI TPS	90	0.45	21	27.0
LALITPUR TPS	1980	0.77	21	17.3
MAHATMA GANDHI TPS	1320	0.55	21	28.1
MAQSOODPUR TPS	90	0.55	21	23.4
MEJA STPP	1320	0.54	21	23.3
OBRA TPS	1094	0.49	21	9.8
PANIPAT TPS	710	0.67	21	21.6
PARICHHA TPS	1140	0.48	21	20.0
PRAYAGRAJ TPP	1980	0.56	21	26.5
RAJIV GANDHI TPS	1200	0.60	21	17.5
RAJPURA TPP	1400	0.79	21	23.2
RIHAND STPS	3000	0.88	13	21.2
ROPAR TPS	840	0.69	21	16.1
ROSA TPP Ph-I	1200	0.66	21	21.9
SINGRAULI STPS	2000	0.79	13	10.8
SURATGARH TPS	1500	0.64	21	5.1
TALWANDI SABO TPP	1980	0.52	21	4.0
TANDA TPS	1760	0.65	21	24.9
UNCHAHAR TPS	1550	0.63	21	16.8
UTRAULA TPS	90	0.45	21	26.5
YAMUNA NAGAR TPS	600	0.55	21	25.6
CHHABRA-I PH-1 TPP	500	0.79	21	11.4
KALISINDH TPS	1200	0.61	21	10.2
SURATGARH STPS	1320	0.28	21	8.5
CHHABRA-I PH-2 TPP	500	0.74	21	13.2
CHHABRA-II TPP	1320	0.54	21	17.5

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

A.9.1 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.9.2 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.9.3 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.9.4 In this regard, inputs received from utilities are attached as **Annexure-A.III.**

Transmission utilities of NR to update status.

A.10. Updating outage Details by Generating Station/utilities (Agenda by CEA)

A.10.1. To enhance the monitoring of approved Planned Maintenance schedules, Member (GO&D), CEA has directed that actual maintenance availed against approved planned maintenance is to be updated on priority by respective RPCs regularly on monthly basis.

A.10.2. In the 221st OCC meeting of NRPC, forum asked generating stations of NR to update the status of Planned Maintenance schedules versus actual maintenance availed for the previous month before every OCC meeting and it was decided that to enhance the monitoring of approved Planned Maintenance schedules the said agenda item shall be taken as rolling/follow-up agenda in OCC meetings.

A.10.3. In this regard, list of Planned Maintenance schedules versus actual maintenance availed for the year 2024-25 for the month of July 2024 is attached as **Annexure-A.IV.**

A.10.4. In this, regard, Generating Station/utilities of NR are requested to submit each month the details of the maintenance activities that transpired against the originally planned schedule. Further, any deviations from the planned schedule shall be explained by the concerned generating entities.

Generating utilities of NR to update status.

A.11. Flexible Operation of Coal Based Thermal Power Plants (Agenda by CEA)

A.11.1. As per the CEA Gazette Notification dated January 30, 2023, coal-based thermal power generating units shall have flexible operation capability with a minimum power level 55%, along with specified ramp rates by January 2024. Additionally, a phased implementation plan for achieving a 40% minimum technical load (MTL) has been notified, with specific targets and timelines for compliance.

A.11.2. The said matter was also deliberated in 218th OCC meeting of NRPC, wherein MS, NRPC enquired CEA about the list of thermal generating station in northern region that have not met 55% Technical Minimum Load (TML) till date. CEA has shared the list of thermal generating units in NR which are not complying with 55% MTL regulation. (copy attached as **Annexure-A.V**).

A.9.1. In this regard, CEA vide letter dated 01.08.2024 (copy attached as **Annexure-A.VI**) has requested following information:

1. **Regarding 55% MTL (Minimum Technical Load)**

    a. Achievement of 55% TML: Whether the target of achieving 55% Technical Minimum Load (TML) has been met. If not, please provide

the reasons and the tentative date for achieving the same.

b. Adherence to Ramp Rates: Whether the specified ramp rates, i.e., 3% for 100-70% load and 2% for 70%-55% load, have been adhered to. If not, please provide the reasons and the tentative date for achieving the same.

c. Operator Training: How many operators have been trained in the organization?

Generators are requested to submit Progress report (**Annexure-A.VII**) as per enclosed format.

2. Regarding 40% MTL (Minimum Technical Load) and Status of units under Pilot phase

PILOT PHASE (May, 2023-March, 2024)

Phase	Sector	Organization	Name of Project	Unit No.	Capacity (MW)	Region
Pilot	Central	NTPC	MAUDA TPS	1	500	WR
Pilot	Central	NTPC	SIMHADRI	3	500	SR
Pilot	Central	NTPC	DADRI	6	490	NR
Pilot	Central	DVC	MEJIA TPS	8	500	ER
Pilot	Central	NEYVELI LIGNITE	NEYVELI NEW TPP	2	500	SR
Pilot	State	KPCL	YERMARUS TPS	1	800	SR
Pilot	State	GSECL	WANAKBORI TPP	6	800	WR
Pilot	State	RRVUNL	SURATGARH SCTPP	8	660	NR
Pilot	State	WBPDC	SAGARDIGHI TPS	3	500	ER
Pilot	Private	CEPL	MUTHIARA	2	600	SR
Pilot Phase Total				**10**	**5850**	
Pilot Phase Total (Percentage of Total Capacity)				**1.70%**	**2.76%**	

a. Achievement of 40% TML: Whether the target of achieving 40% Technical Minimum Load (TML) has been met. If not, please provide the reasons and the tentative date for achieving the same.

b. Adherence to Ramp Rates: Whether the specified ramp rates, i.e., 3% for 100-70% load, 2% for 70%-55% load and 1% for 40%-55% load, have been adhered to. If not, please provide the reasons and the tentative date for achieving the same.

Generators are requested to submit duly filled Progress report (**Annexure-A.VIII**) as per enclosed format.

Members may kindly deliberate.

A.12. Installation of Control switch devices in 400KV Kalaamb Wangtoo and Kalaamb Sorang lines at PKATL Substation KALAAMB to control switching surges (Agenda by Powergrid NR-2)

A.12.1 Powergrid NR-2 has mentioned that POWERGRID KALAAMB TRANSMISSION LIMITED (PKATL) has a 400/220KV GIS Substation at Kalaamb commissioned under TBCB project in the year 2017 with following Lines connected to 400KV Bus at Kalaamb:

- 400KV D/C Kalaamb- Abdullapur 1 &2 having line length 39Km.
- 400KV D/C Kalaamb- Kalcham Wangtoo 1 &2, each having Line length 175KM and having 80MVAR non switchable Line Reactor in each Line at KW end. Moreover +534MVAR FSC with 40% compensation has been commissioned in each Line at Kalaamb Substation.

A.12.2 In 2019, LILO of 400KV Kalaamb- Karchamm Wangtoo-1 was done by M/S HPPTCL at Wangtoo. Similarly, LILO of 400KV Kalaamb-Karcham Wangtoo-2 was done in 2021 by M/S Greenco at Sorang. After above LILO arrangements, details of Lines connected to 400KV Bus at Kalaamb were:

- 400KV Kalaamb-Wangtoo Line having line length of 174 KM
- 400KV Kalamb-Sorang line having Line length 160.5KM.

A.12.3 Powergrid has mentioned that above Lines having longer line length are provided with FSC at one end but no Line Reactor at other end. Switching of these lines without Line Reactor had resulted in generation of switching surges and Failure of GIS equipment in these bays at Kalamb during 03 occasions from 2019 onwards may be due to above surges. It is learnt that similar failure of GIS equipment has occurred at HPPTCL Wangtoo also in the year 2021.

A.12.4 To overcome above difficulty, Powergrid had installed CSD relay in one Line as per recommendations of OEM as an experiment and had resulted in reduced switching surges in above Lines. In view of above, it is proposed that CSD must be installed in above Lines at both ends.

A.12.5 As requirement of control switching devices has arisen due to change in network after LILO of Lines at Sorang and Wangtoo, in view of above, Powergrid has requested for approval for installation of CSD at both ends of the line with financial implication of INR 35 Lacs.

Members may kindly deliberate.

A.13. Considering deemed availability of outage of Transmission lines due to tripping of the line caused by flying loose foreign objects during localized winds/storms (Agenda by Powergrid NR2)

A.13.1. Powergrid NR-2 has mentioned that in last 04 months, there are a 06 number tripping caused by loose foreign material like tarpaulin, packing material flying in the air. As tripping due to loose flying material is beyond the control of transmission licensee, Powergrid has requested that such outages may please be considered as deemed available.

Members may kindly deliberate.

A.14. Considering deemed availability of outage of Transmission lines due to Shutdown taken for removal of kite thread (Agenda by Powergrid NR2)

A.14.1 Powergrid NR-2 has mentioned that as present, in case of tripping of a transmission line due to kite thread, Outage of 02 hours per tripping is condoned subject to maximum 02 tripping per line.

A.14.2 Powergrid NR-2 has also stated that during last four months they have availed 08 number shutdowns for removal of kite thread as a proactive measure to prevent tripping of the line. In view of above, Powergrid has requested that outage of the line availed for removal of kite thread may please be considered as deemed available.

Members may kindly deliberate.

A.15. Regarding attempt to create LILO of 132kV Ropar-Pinjore Circuit 1 without FTC clearance and bypassing safety instructions. (Agenda by PSTCL)

A.15.1. PSTCL has mentioned that vide mail SLDC Control Room at 17:05Hrs received information regarding tripping of 132kV Ropar-Pinjore Circuit 1 from SSE/P&M, 132kV Ropar. It was informed that 132kV Ropar-Pinjore Circuit 1 tripped at 13:16Hrs on 07.08.2024. The line was patrolled by HVPNL and as per there finding some wire was found on the line. HVPN requested PTW on said line for minimum 3-4 hours.

A.15.2. PSTCL has stated that representative from 132kv sub-station Ropar visited the fault location site (as per relay indications) and they observed that HVPNL employees were conducting jumpering work to connect this idle line to newly built Nanakpur Substation (HVPNL) without obtaining the necessary FTC clearance and permit to do work on transmission line from PSTCL. On seeing PSTCL team approaching them the officials of HVPNL ran away from the site.

A.15.3. It is evident from narrative of field team of PSTCL who visited the site of LILO, the jumpering of LILO portion was a planned activity of HVPNL officials which was being executed without any FTC clearance, keeping PSTCL substation staff in dark about the same and in an unauthorized way against the safety guidelines. From the preparedness of HVPNL staff at the site of work, it can be easily concluded that the

line was deliberately got tripped by HVPNL official by creating fault on the line to obtain PTW to execute their intended job as their requests to get PTW on the pretext of doing maintenance work have been denied several times by PSTCL.

A.15.4. In view of above, it has been decided by PSTCL not to charge the line till the matter is deliberated in any regional platform.

Members may kindly deliberate.

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

B.1. NR Grid Highlights for July 2024

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

B.2. Status of compliances as per IEGC 2023

a. Mock drill of the islanding schemes:

IEGC regulation 29(11) is reproduced below:

"Mock drill of the islanding schemes shall be carried out annually by the respective RLDCs in coordination with the concerned SLDCs and other users involved in the islanding scheme. In case mock drill with field testing is not possible to be carried out for a particular scheme, simulation testing shall be carried out by the respective RLDC."

Following islanding schemes have been implemented in NR:

1. NAPS (UP)
2. RAPS (Rajasthan)
3. Bawana (Delhi)
4. Pathankot-RSD (Punjab)

All utilities are requested to test the relays one by one involved in the islanding schemes with disabling of actual trimming of load during testing and report may be submitted.

Further, officers involved in preparation of the islanding schemes from states side, may also review the islanding scheme in consultation with NRLDC system studies team and carry out simulation studies.

In addition to this, it is recommended to include the following in Islanding SCADA Display for better monitoring of Island health in real time:

1. Island Generators status with total actual generation in MW (G)
2. Island Load status with actual Load in MW (L)
3. G/L Ratio
4. Islanding Frequency value

The display may be arranged in following fashion.

Island Generators (Unit Wise) with Total MW Generation (G)	Island Total Load in MW (L)	G/L Ratio	Islanding Frequency in Hz
Individual feeder load details of Island			

Moreover, it is also requested to prepare network map of the island for easy visualisation by control room operators. It is also requested to ensure that error-free telemetry of all elements which are part of island is available at SLDC/NRLDC control room. The load and generation may be logged and stored so that periodic analysis of island is possible.

Members may kindly discuss.

b. **Submission of self-audit report in compliance to IEGC regulation 56(2*)***

As per IEGC regulation 56(2), self-audit shall be conducted for compliance of these regulations and reports shall be submitted by the users to concerned RLDC by 31st July 2024.

" (2) Self –Audit:

(a) All users, CTU, STUs, NLDC, RLDCs, RPCs and SLDCs, power exchanges, QCAs, SNAs shall conduct annual self-audits to review compliance of these regulations and submit the reports by 31st July of every year.

(b) The self-audit report shall inter alia contain the following information with respect to non-compliance:

(i) Sufficient information to understand how and why the non-compliance occurred;
(ii) Extent of damage caused by such non-compliance;
(iii) Steps and timeline planned to rectify the same;
(iv) Steps taken to mitigate any future recurrence;

(c) The self-audit reports by users, QCAs, SNAs shall be submitted to the concerned RLDC or SLDC, as the case may be."

All ISGS, IPPs and transmission licensees are requested to kindly conduct the self-audit and submit their self-audit report to NRLDC.

Members may kindly discuss.

c. **Submission of system studies related to implemented SPS in NR**

As per IEGC clause 16.2,

''For the operational SPS, RLDC or NLDC, as the case may be, in consultation with the concerned RPC(s) shall perform regular load flow and dynamic studies and mock testing for reviewing SPS parameters & functions, at least once in a year. RLDC or NLDC shall share the report of such studies and mock testing including any short comings to respective RPC(s). The data for such studies shall be provided by CTU to the concerned RPC, RLDC and NLDC.''

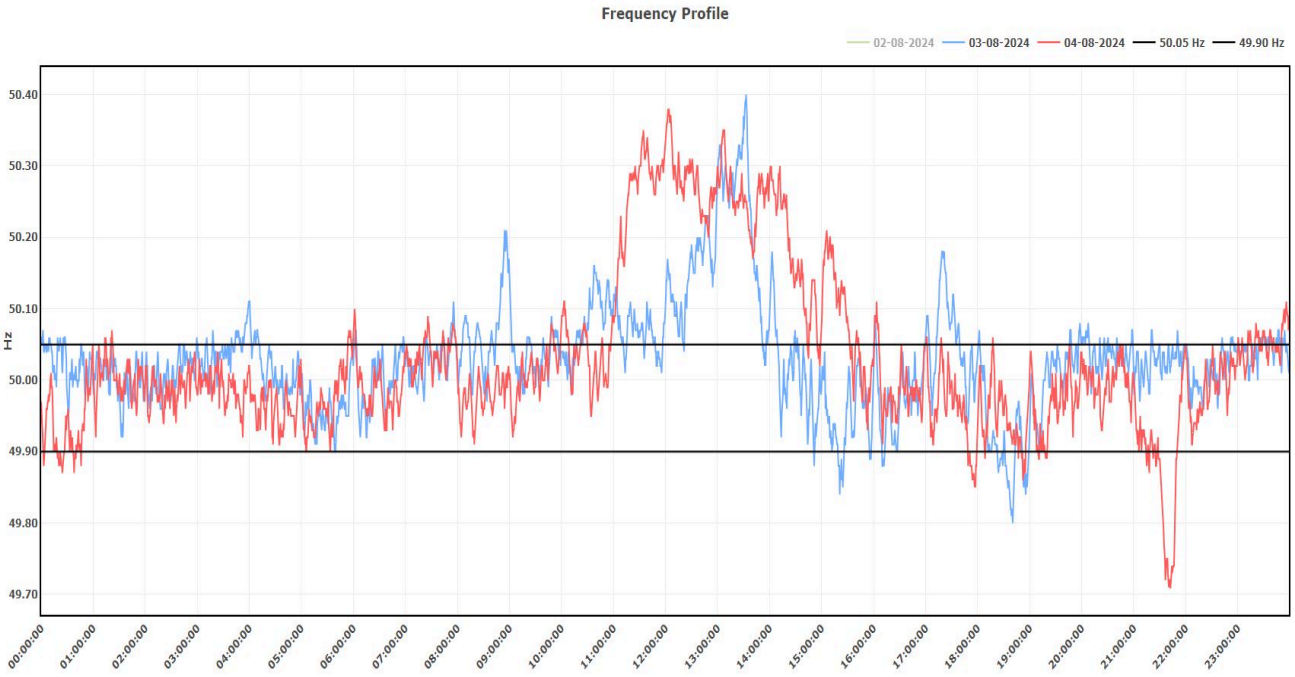
There are 53 numbers of System Protection Scheme (SPS) approved in Northern Region out of which 05 number of SPS are under implementation stage. These SPS are implemented at major generation complexes, important evacuating transmission lines and ICTs which are N-1 non complaint. Details of SPS in Northern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

NRLDC is in the process of carrying out simulation studies for the SPS which were proposed by NRLDC and are of importance at regional level. However, there are number of SPS related to N-1 contingency of 400/220kV ICTs in Rajasthan, Punjab, UP, Haryana, Delhi and Uttarakhand state control area. Details are available in NR-SPS document.

Concerned STUs and SLDCs are requested to share simulation studies from their side for SPS implemented in their respective state control area. Members may please discuss.

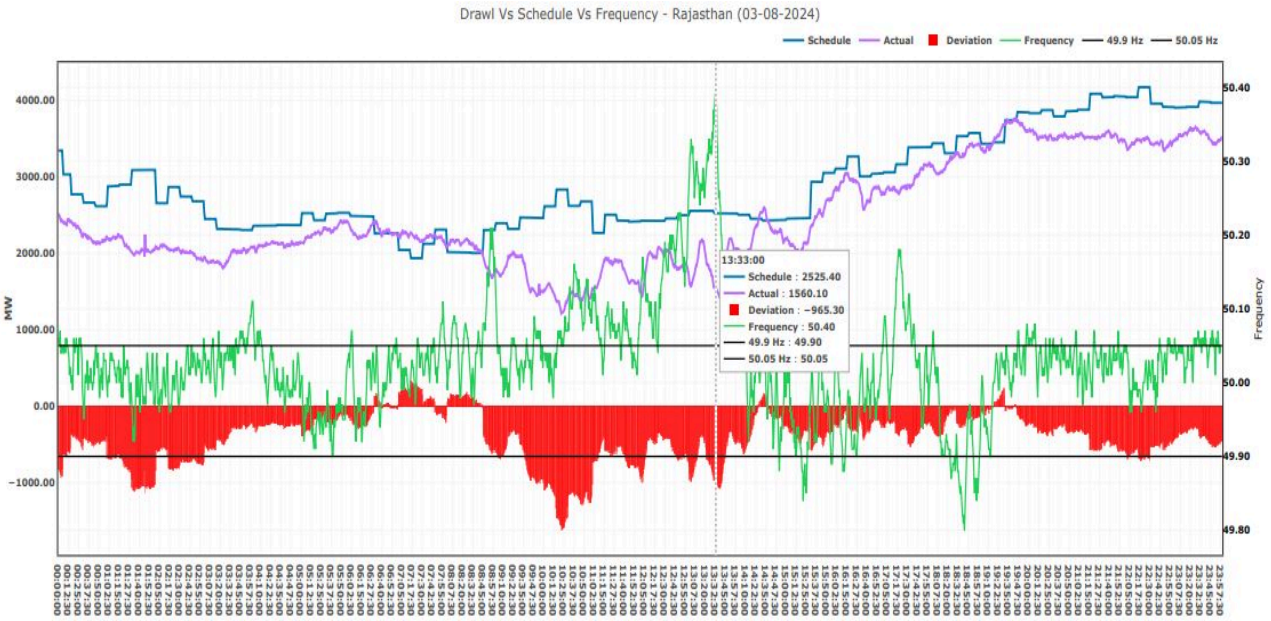
B.3. Continuous high frequency operation of grid on 03.08.2024 & 04.08.2024

On 03.08.2024 and 04.08.2024, continuously high frequencies were observed in the grid. On both the days Rajasthan state control area in NR was found to underdrawing to the tune of 1000MW contributing to the high frequency operation.

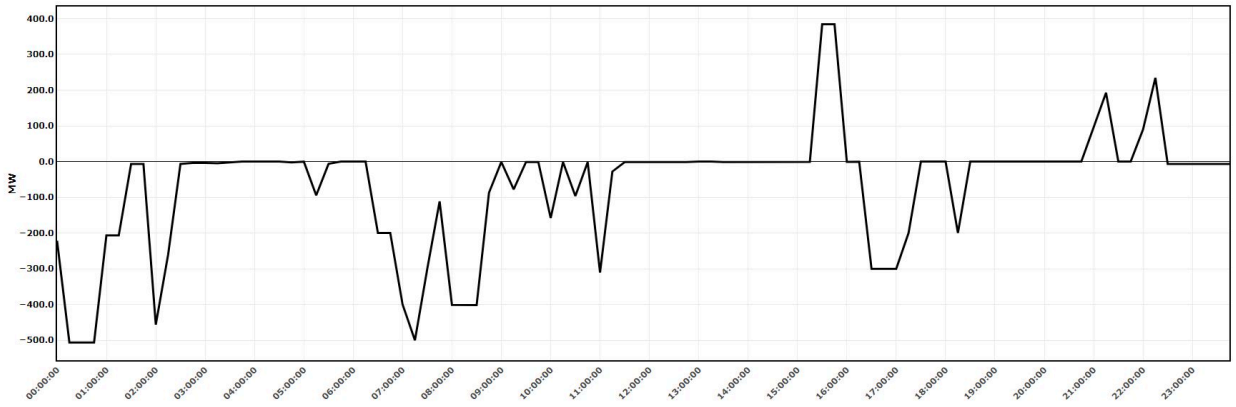


On <u>03.08.2024</u>:

- Grid frequency reached its maximum of 50.40 Hz at 13.33 hrs. As per the PSP report of 03.08.2024, frequency profile was as follows- within IEGC band- 66.25 %, > 50.05-30.91%, >50.2-3.54%.
- Rajasthan was continuously underdrawing from its schedule from 0845 hrs. to 1425 hrs. (340 mins approx.) Frequency was above IEGC band from 12.22 hrs to 1352 hrs (90 mins approx.)
- Rajasthan Under drawl at Highest frequency of 50.40 Hz was ~950 MW



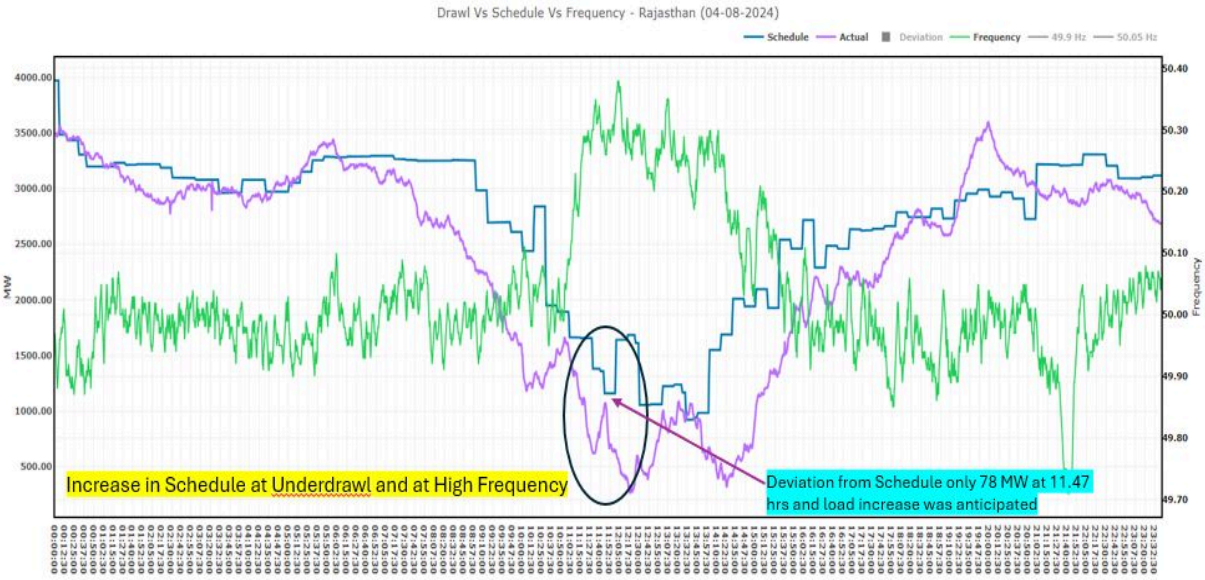
RTM transaction of Rajasthan for 03-08-2024 is shown below:

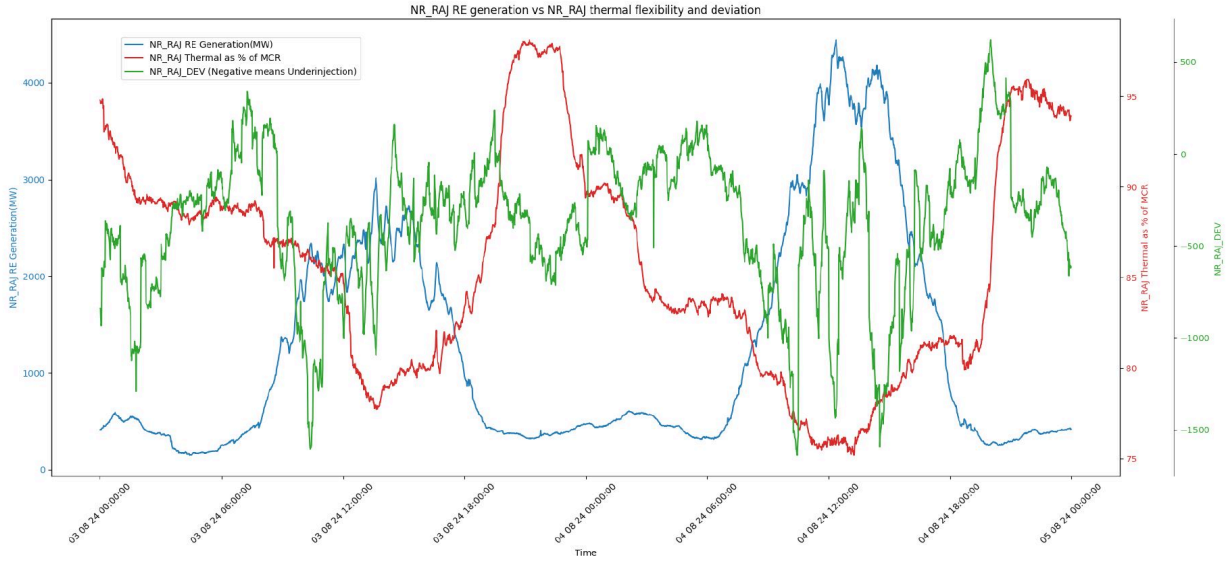


It can be seen that Rajasthan did not sell power in real-time market from 10:00hrs to 14:00hrs even though it was continuously under drawing from the grid.

On 04.08.2024

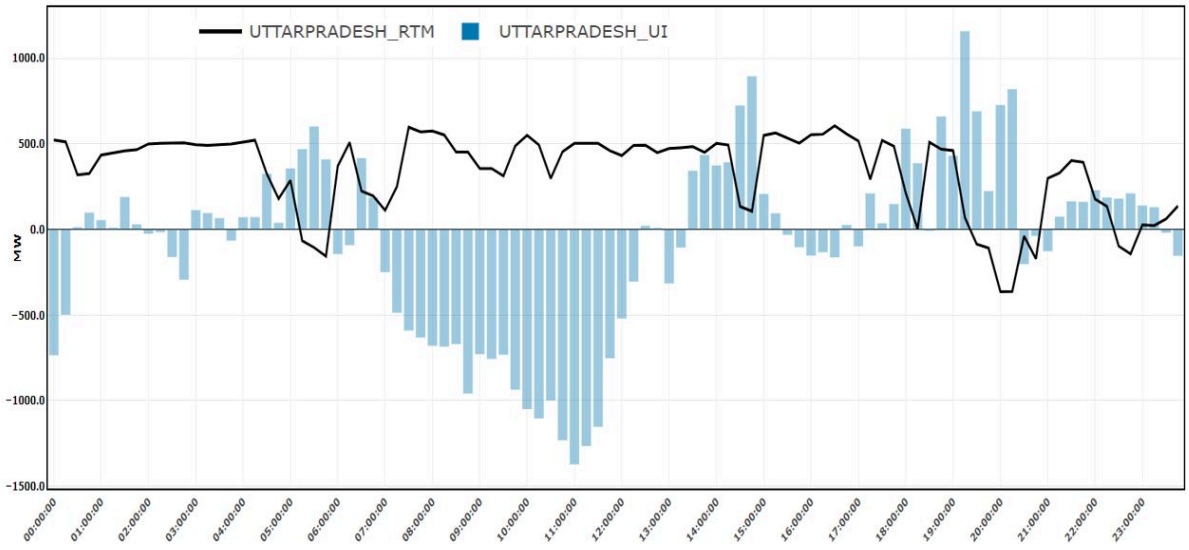
- Grid frequency reached its maximum of 50.38 Hz at 12.02 hrs. As per the PSP report, frequency profile was as follows: within IEGC band- 69.29 %, >50.05- 26.27%, >50.2-12.89%
- Rajasthan was continuously underdrawing from its schedule from 0600 hrs. to 1330 hrs.
- Rajasthan Under drawl at Highest frequency of 50.38Hz was ~1050 MW
- UP Under drawl at Highest frequency of 50.38Hz was ~ 600 MW. However, UP instructed for 7 thermal plants to be under Reserve Shutdown (1050 MW)
- Rajasthan reported curtailment of Wind generation by approx. 700MW.





From the trend shown above, it is clear that intrastate thermal generation of Rajasthan was backed down to 78% of MCR on 03.08.2024 and around 75% of MCR on 04.08.2024. To facilitate further integration of RE generation especially during lower demand period, it is suggested that intrastate thermal genetors may be asked to back down further so as to maintain grid frequency and also avoid huge underdrawl by state.

RTM transaction of UP along with deviations for 04-08-2024 is shown below:



It can be seen that UP did not sell power in real-time market (rather it was purchasing) from 07:00hrs to 12:00hrs even though it was continuously under drawing from the grid.

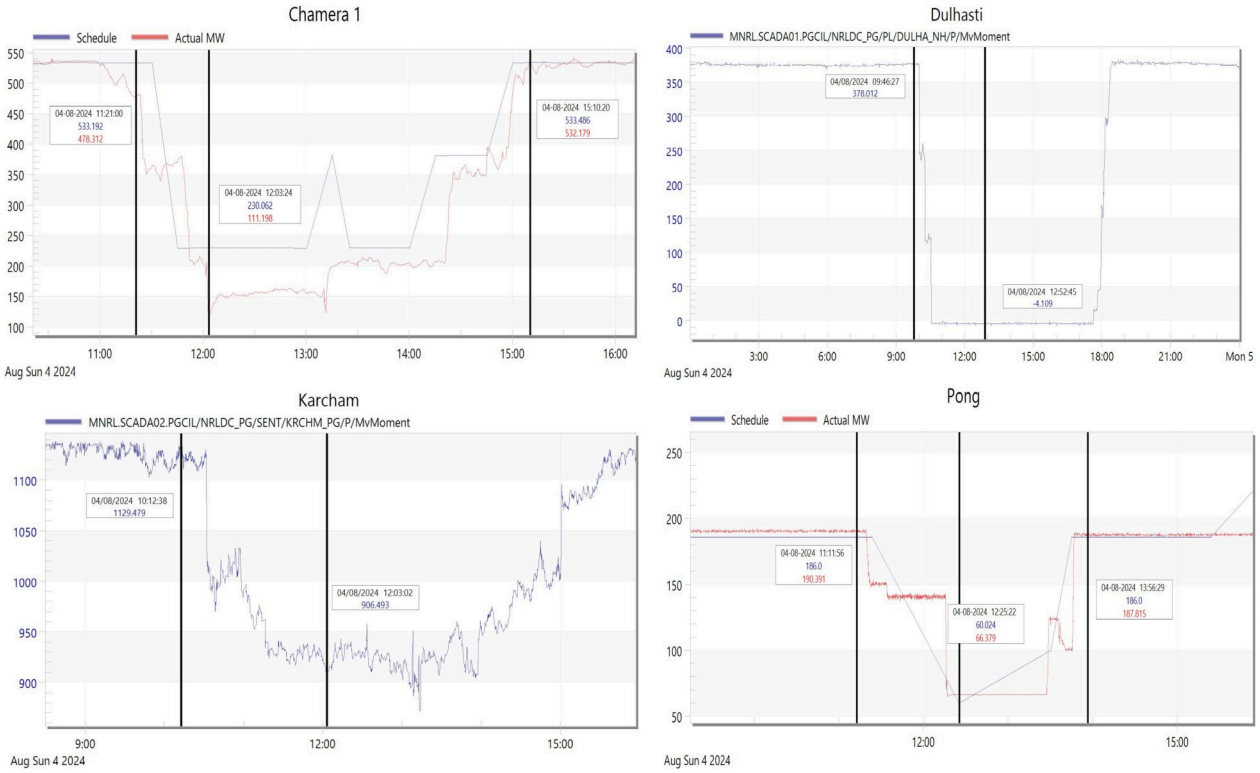
Following units in UP Control Area were made under Reserve Shutdown on 04.08.2024:

S.No	Station	Owner	Unit No	Capacity MW	Reason(s)	Outage	Time
1	Tanda TPS	NTPC	2	110	Reserve Shutdown	04-08-2024	13:40
2	Tanda TPS	NTPC	3	110	Reserve Shutdown	04-08-2024	14:11
3	Tanda TPS	NTPC	4	110	Reserve Shutdown	04-08-2024	14:37

4	Tanda TPS	NTPC	1	110	Reserve Shutdown	04-08-2024	14:44
5	Harduaganj-C TPS	UPPTCL	7	110	Reserve Shutdown	04-08-2024	12:27
6	Harduaganj-D TPS	UPPTCL	8	250	Reserve Shutdown	04-08-2024	19:50
7	Harduaganj-D TPS	UPPTCL	9	250	Reserve Shutdown	04-08-2024	20:05

Following actions were taken at NRLDC level

- Messages issued to SLDC Control Room and senior officials of SLDC Rajasthan to maintain drawl as per schedule through OD/UD portal as well as through emails in addition to regular follow up telephonically.
- Frequency and Deviation Violation Messages of Alert, Emergency and Extreme Emergency categories were issued to SLDC Rajasthan.
- TRAS down of ~55 MW despatched in the Northern Region
- Schedule of Tehri, Chamera-1 and Pong revised w.e.f. 11.30 hrs.



Further suggestions for mitigating high frequency grid operation to be followed by utilities are listed below:

- State control area generators to backdown to their technical minimum. Technical minimum of State control area plants should be set at 55% of the installed capacity minus auxiliary consumption.
- Due to rainy weather conditions particularly in weekends, some of the units on high merit may be put under Reserve Shutdown in the state control area.

- Improvement in demand forecast by states would prevent in wide gaps in anticipated demand and actual drawl.
- Taking cues from Day ahead Market and RTM prices decision on putting higher merit order plants on Reserve Shut down can be taken. If required, power can be purchased in DAM or RTM under such scenarios.
- ISGS Generators particularly thermal stations to maintain generation as per schedule and backdown to technical minimum as per their ramp rates.
- Hydro plants in state control area not under spillage condition may be scheduled as per system requirement.
- Gas plants in state control area which are underdrawing should be put in Reserve Shutdown at the earliest.
- Participation in TRAS of intrastate generators will further improve the system conditions as in case of high frequency TRAS down in intrastate plants can be despatched.

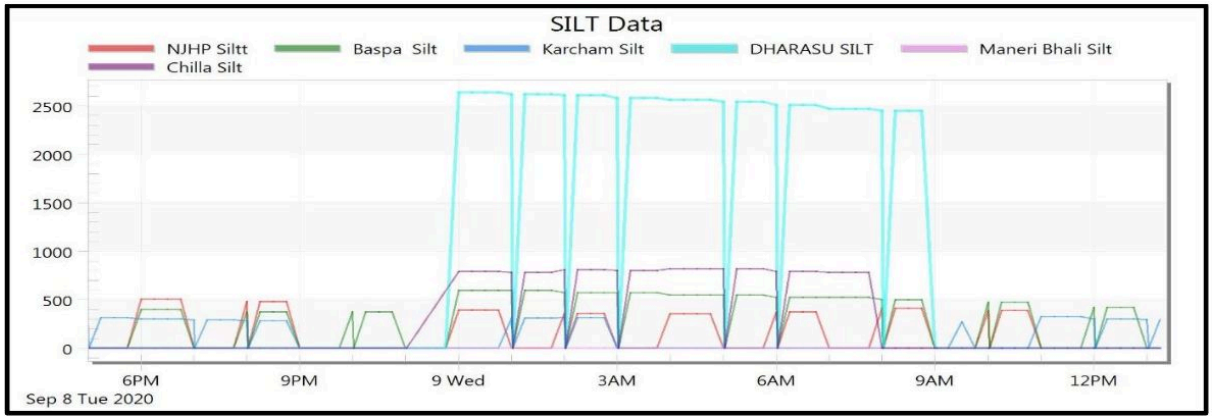
Further, as part of IEGC 2023, under clause 31 (4) Resource adequacy mentions that:

"a) *SLDCs shall estimate and ensure the adequacy of resources, identify generation reserves, demand response capacity and generation flexibility requirements with due regard to the resource adequacy framework as specified under Chapter 2 of these regulations."*

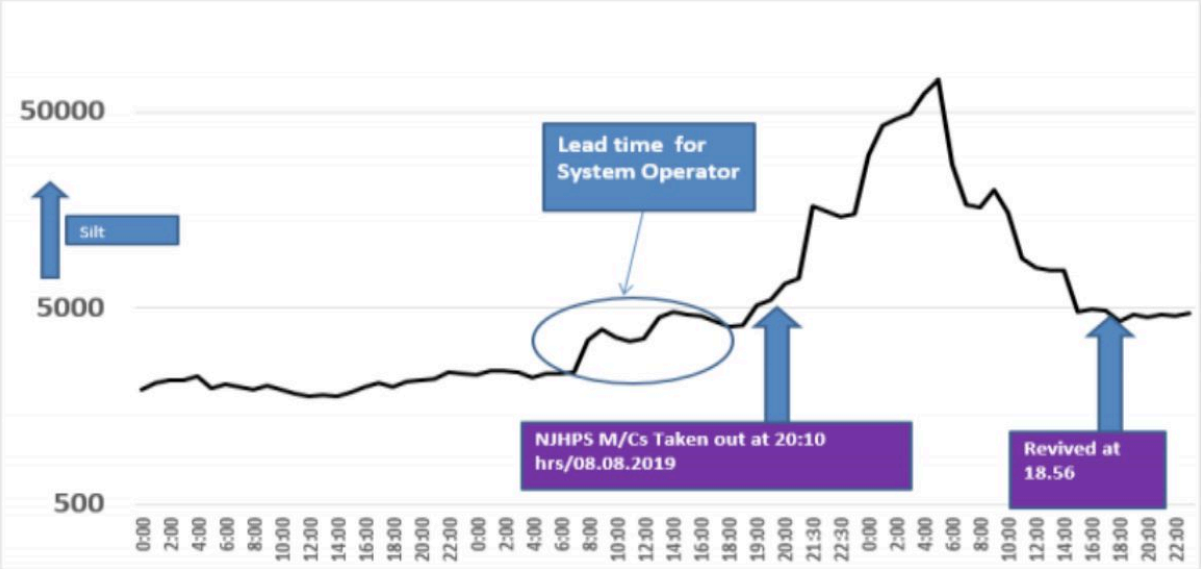
Members may please discuss.

B.4. Sharing of real-time silt monitoring data in real-time by hydro plants

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



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



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

In 220 OCC meeting, members agreed to share the data on real-time basis with NRLDC control room and perform coordinated operations of hydro generators during monsoon season.

As per the latest status available at NRLDC, real-time silt monitoring data is being received from most of the hydro plants. All other hydro generators such as Bairasuil, Chamera-1, Chamera-3, Kishenganga, Salal, Sainj, Maneri Bhali, Chilla, Baspa, Khodri, Chibro are also requested to regularly share data.

Status of NHPC Plants as on 19.07.2024 at 10:00 hrs	
Bairasuil	Not yet
CPS-1	Not yet
Kishenganga	Not yet
Salal	Not yet
Uri-1	Not yet
Uri-2	Not yet
Parbati-3	Last update on 06.07.2027
Tanakpur	only once on 08.07.2027
CPS-2	Last update on 16.07.2024
CPS-3	Last update on 13.07.2025
Dhauliganga	Last update on 17.07.2026
Dulhasti	only once on 08.07.2027
Sewa-2	Updating timely

Status of Other Hydro Plants as on	
Sainj	Not yet
Maneri Bhali	Not yet
Chilla	Not yet
Baspa	Not yet
Khodri	Not yet
Chibro	Not yet

Status of SJVNL Plants and near Complex as on 19.07.2024 at 10:00 hrs	
Nathpa Jhakri HPS	Last update on 18.07.2024
KARCHAM	Last update on 18.07.2025

In 221 OCC meeting, NHPC representative stated that there was some IP address issue in NHPC substations and the issue would be resolved shortly.

NRLDC representative stated that as mentioned above, some NHPC substations are sharing the silt data but frequency of sharing also needs to be improved.

All hydro generators agreed to share the data in real-time with NRLDC control room.

However, following is the latest status as on 08.08.2024 in this regard:

Status of NHPC Plants as on 08.08.2024 at 10:00 hrs	
Kishenganga	Not yet
Salal	Not yet
Uri-1	Not yet
Uri-2	Not yet
Parbati-3	Last update on 06.07.2024
Tanakpur	Last update on 31.07.2024
CPS-3	Last update on 30.07.2024
Dulhasti	Last update on 03.08.2024, Intermitent
CPS-2	Timely
Dhauliganga	Timely
Sewa-2	Timely
Bairasuil	Timely
CPS-1	Timely

Status of Uttrakhand Hydro Plants as on 08.08.2024 at	
Sainj	Not yet
Maneri Bhali	last update on 27.07.2024
Chilla & Khodri	last update on 05.08.2024
Chibro	Timely
Dharasu	Timely

Status of HP Hydro Plants as on 08.08.2024 at 10:00 hrs	
Baspa	Timely

Status of SJVNL Plants and near Complex as on	
Nathpa Jhakri HPS	Timely
KARCHAM	Timely

All hydro generators are requested to share the data in real-time with NRLDC control room as already agreed.

Members may please discuss.

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

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

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

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

Purpose	***S No***	***Action of Stakeholder***	***Responsibility***	***Submission to***	***Data/ Information Submission Time line***
1. Revision 0 TTC/ATC Declaration	*1(a)*	*Submission of node wise Load and generation data along with envisaged* C	*SLD*	*RLDC*	*10th Day of 'M-12' month*

for Month 'M'		*scenarios for assessment of transfer capability*			
		Assessment of TTC/ATC of the import/export capability of the state and intra-state system and sharing of updated network simulation models			
	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 regarding basecase preparation and ATC/TTC assessment, two workshops have been conducted from Grid-India/NRLDC side. One workshop was conducted 31.08.2023 before the finalization of the procedure and another on 10.01.2024 recently to involve further participation from SLDCs.

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

B.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 Aug'25 i.e. Afternoon Peak, Solar Peak, Evening Peak & Off-Peak hours as given below

S. No.	Scenario	Time of Scenario
1	Off-Peak	06:00 Hrs
2	Afternoon Peak	15:00 Hrs
3	Evening Peak	22:30 Hrs
4	Solar Peak	12:00 Hrs

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

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

B.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 within next six months. This needs to be practised as monthly exercise on regular basis.

The agenda 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 TTC/ATC of state control areas for monsoon 2024 (M-1)

As discussed in previous OCC meetings, most of the NR states except Ladakh and Chandigarh U/Ts are sharing basecase and ATC/TTC assessment with NRLDC.

Based on simulation studies and discussions between SLDCs and NRLDC, ATC/TTC limits for NR states for the month of Sep'2024 are attached as **Annexure-B.I.**

OCC has advised all states to timely declare TTC/ATC for prospective months and revise the figures as per requirement.

March 2024 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (Apr-24)		M-11 (Mar-25)		M-6 (Sep-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	Yes	Yes	Yes	Yes	Yes	Yes
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	No	No	No	No	No

April 2024 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (May-24)		M-11 (Apr-25)		M-6 (Oct-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	Yes	Yes	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	No
Uttarakhand	No	No	No	No	No	No

May 2024 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (June-24)		M-11 (May-25)		M-6 (Nov-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	No	No	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	No	Yes	No	Yes	No
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	No	No	Yes	Yes
Uttarakhand	No	No	No	No	No	No

June 2024 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (July-24)		M-11 (June-25)		M-6 (Dec-24)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	Yes	Yes	No	No
Haryana	No	No	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	No	No	Yes	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	Yes	Yes	No	No
Uttarakhand	No	No	No	No	No	No

July 2024 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (August-24)		M-11 (July-25)		M-6 (Jan-25)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh	No	No	No	No	No	No
Delhi	No	No	No	No	No	No
Haryana	No	No	No	No	No	No
Himachal Pradesh	No	No	No	No	No	No
Jammu and Kashmir	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh	No	No	No	No	No	No
Punjab	No	No	No	No	No	No
Rajasthan	No	No	No	No	No	No
Uttar Pradesh	Yes	Yes	Yes	Yes	Yes	Yes
Uttarakhand	No	Shared only for 1 cardinal point	No	No	No	No

August 2024 Mails						
	ATC/TTC Declaration				Interconnection Studies	
	M-1 (September-24)		M-11 (August-25)		M-6 (Feb-25)	
	Data Values	Basecases	Data Values	Basecases	Data Values	Basecases
Chandigarh						
Delhi			Yes	Yes		
Haryana						
Himachal Pradesh						
Jammu and Kashmir	Yes	Yes	Yes	Yes	Yes	Yes
Ladakh						
Punjab					Yes	No
Rajasthan						
Uttar Pradesh						
Uttarakhand						

The agenda was also discussed in 220 & 221 OCC meeting wherein all states agreed to send the data as well as PSSE basecases on time for all three (M-1, M-6, M-11) scenarios.

CGM, NRLDC had asked states to get help from NRLDC in case of any difficulty and emphasized on the need for regularity in sharing the data.

Still it is being observed that response from SLDCs is not as per desired levels. All SLDCs to provide update.

Members may please discuss.

B.6. Frequent Emergency shutdowns availed by DTL and delay in return of shutdowns

It is observed that frequent emergency shutdown are taken in Delhi control area by DTL. Relevant table of emergency shutdown taken during 01.08.23 to 31.07.24 is attached as **Annexure-B.II.** Further, elements taken under emergency shutdown along with number of times during May-Jul 2024 are shown as below:

Transmission element Name	No. of time S/d taken during May-Jul 2024
400 KV Bamnoli(DV)-Jhatikara(PG) (DTL) Ckt-2	4
400 KV Bawana-Mundka (DV) Ckt-1	3
400 KV Jhatikara(PG)-Mundka(DV) (DTL) Ckt-1	3
220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-2	2
400 KV Bawana ccgtb-bawana(dv) (dtl) ckt-2	2
400 KV Jhatikara(PG)-Mundka(DV) (PG) Ckt-2	2
400/220 kV 315 MVA ICT 2 at Bawana(DV)	2
400/220 kV 315 MVA ICT 5 at Bawana(DV)	2
400/220 kV 315 MVA ICT 6 at Bawana(DV)	2

400KV Bus 1 at Mundka(DV)	2

It is to be noted that May-Jul is the high demand period in NR as well as Delhi control area. Such frequent emergency shutdowns are clear threat to safe and secure grid operation.

DTL is requested to minimise the occurrence of emergency shutdown and it is suggested that scheduled maintenance may be done timely by taking shutdown in planned manner. Also, meticulous planning may be done by Delhi SLDC to take shutdown timely and avoid any emergency to maintain Grid security and reliability.

Members may please discuss.

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

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

S. NO.	Element Name	No. of forced outages	Utility/SLDC
1	220 KV Khara(UP)-Saharanpur(PG) (UP) Ckt-1	5	POWERGRID/ UP
2	220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	5	UP/Utt
3	220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1	3	RAPS/Rajasthan
4	400 KV Badaune(UP)-Rosa(UPC) (OCBTL) Ckt-1	4	RAPS/Rajasthan
5	400 KV Bikaner-Bhadla (RS) Ckt-1	3	Rajasthan
6	400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1	4	PG/UP

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

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

Members may like to discuss.

B.8. Multiple element tripping events in Northern region in the month of July '24:

A total of 17 grid events occurred in the month of July'24 of which **07** are of GD-1 category, **09** are of GI-2 Category and **08** are of GI-1 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events is attached at **Annexure-B.IV.**

Maximum delayed clearance of fault observed in event of multiple elements tripping at 400/220kV Patiala(PG) on 19th July, 2024 (As per PMU at Patiala(PG), two consecutive B-N phase to earth faults with delayed fault clearing time of 2400 ms at 18:50:15 hrs and 120 ms at 18:50:33 hrs are observed).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **10** events out of **17** grid events occurred in the month. In 05 (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.

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 July' 24:

A total of 10 inter-regional lines tripping occurred in the month of July'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 July'24.

The status of receipt of DR/EL and tripping report of utilities for the month of July'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 performance for the reportable events of month of July 2024:

In the month of July 2024, only 1 no. of reportable event on 16th July 2024 was notified by NLDC for which FRC/ FRP need to be calculated and the same along with high resolution data need to be submitted to RLDC. 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	16-Jul-24	22:10 hrs	As reported, at 22:10 hrs on 16th July 2024, sparking was observed in 220 KV Sector 52 (HV) (Sec-56 Gurgaon)-Palli (HV) (HVPNL) Ckt-2 isolator at Palli end and then Bus Bar protection operated at 220kV Palli S/S, which led to black out at 220 kV Palli S/S. As per SCADA, during the same time, reduction in demand of approx. 600 MW and 980 MW are observed in Delhi and Haryana Control area respectively. Hence net load loss of 1580 MW is considered for FRC/FRP	50.006	50.136	50.092	0.086	1.46

			Calculation.					

As per IEGC 2023 Clause 30.8, "The primary response of the generating units shall be verified by the Load Despatch Centres (LDCs) during grid events. The concerned generating station shall furnish the requisite data to the LDCs within two days of notification of reportable event by the NLDC."

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 as on 05th August, 2024 is:

S. No	Control Area	Event Date
		16-07-2024
1	Punjab	Not Received
2	Haryana	Not Received
3	Rajasthan	Not Received
4	Delhi	Not Received
5	Uttar Pradesh	Received
6	Uttarakhand	Not Received
7	Chandigarh*	NA
8	Himachal Pradesh	Received
9	J&K(UT) and Ladakh(UT)	Not Received
10	Dadri -1 (TH)	Received
11	Dadri -2 (TH)	Received
12	Jhajjar (TH)	Not Received
13	Rihand-1 (TH)	Received
14	Rihand-2 (TH)	Received
15	Rihand-3 (TH)	Received
16	Shree Cement (TH)	Not Received
17	Singrauli (TH)	Received
18	Tanda-2 (TH)	Received
19	Unchahar stg-4 (TH)	No Gen
20	Unchahar (TH)	Received
21	Anta (G)	Not Received
22	Auraiya (G)	Not Received
23	Dadri (G)	Received
24	AD Hydro (H)	Received

25	**Bairasiul (H)**	Not Received
26	**Bhakra (H)**	Not Received
27	**Budhil (H)**	Not Received
28	**Chamera-1 (H)**	Not Received
29	**Chamera-2 (H)**	Not Received
30	**Chamera-3 (H)**	Not Received
31	**Dehar (H)**	Not Received
32	**Dhauliganga (H)**	Not Received
33	**Dulhasti (H)**	Not Received
34	**Karcham (H)**	Received
35	**Kishanganga**	Not Received
36	**Koldam (H)**	Received
37	**Koteshwar (H)**	Received
38	**Malana-2 (H)**	NA
39	**Nathpa Jhakri (H)**	Received
40	**Parbati-2 (H)**	Not Received
41	**Parbati-3 (H)**	Not Received
42	**Pong (H)**	Not Received
43	**Rampur (H)**	Received
44	**Sainj (H)**	Not Received
45	**Salal (H)**	Not Received
46	**Sewa-II (H)**	Not Received
47	**Singoli Bhatwari (H)**	Not Received
48	**Sorang (H)**	Not Received
49	**Tanakpur (H)**	Not Received
50	**Tehri (H)**	Received
51	**Uri-1 (H)**	Not Received
52	**Uri-2 (H)**	Not Received

Frequency Response Performance (FRP) of generating stations for each reportable event are calculated based on the submitted high resolution data from generating stations. However, the generating stations for which data is not received till 05th August, 2024, FRC/FRP as per NRLDC HDR data is used for computation of Average Monthly Frequency Response Performance, Beta 'β' for Generating Stations.

FRP values as considered (* for NRLDC HDR data/ ^ for generator high resolution data) for the events of July, 2024 is as follows:

S. No	Control Area	Event Date
		16-07-2024
1	**Punjab**	2.64*
2	**Haryana**	2.82*
3	**Rajasthan**	1.21*
4	**Delhi**	-0.17*
5	**Uttar Pradesh**	1.72^
6	**Uttarakhand**	1.06*
7	**Chandigarh***	NA
8	**Himachal Pradesh**	0.70^
9	**J&K(UT) and Ladakh(UT)**	-4.59*

10	**Dadri -1 (TH)**	7.06^
11	**Dadri -2 (TH)**	9.92^
12	**Jhajjar (TH)**	11.78*
13	**Rihand-1 (TH)**	5.34^
14	**Rihand-2 (TH)**	1.67^
15	**Rihand-3 (TH)**	8.20^
16	**Shree Cement (TH)**	0.00*
17	**Singrauli (TH)**	2.27^
18	**Tanda-2 (TH)**	8.00^
19	**Unchahar stg-4 (TH)**	No Gen
20	**Unchahar (TH)**	2.25^
21	**Anta (G)**	-0.01*
22	**Auraiya (G)**	-0.85*
23	**Dadri (G)**	4.71^
24	**AD Hydro (H)**	1.03^
25	**Bairasiul (H)**	0.00*
26	**Bhakra (H)**	0.17*
27	**Budhil (H)**	-0.26*
28	**Chamera-1 (H)**	0.10*
29	**Chamera-2 (H)**	3.19*
30	**Chamera-3 (H)**	1.83*
31	**Dehar (H)**	2.60*
32	**Dhauliganga (H)**	4.80*
33	**Dulhasti (H)**	0.10*
34	**Karcham (H)**	6.48^
35	**Kishenganga**	0.39*
36	**Koldam (H)**	-2.42^
37	**Koteshwar (H)**	15.79^
38	**Malana-2 (H)**	NA
39	**Nathpa Jhakri (H)**	6.76^
40	**Parbati-2 (H)**	0.00*
41	**Parbati-3 (H)**	-4.64*
42	**Pong (H)**	0.43*
43	**Rampur (H)**	4.55^
44	**Sainj (H)**	0.60*
45	**Salal (H)**	-0.14*
46	**Sewa-II (H)**	5.79*
47	**Singoli Bhatwari (H)**	0.87*
48	**Sorang (H)**	-0.08*
49	**Tanakpur (H)**	1.15*
50	**Tehri (H)**	10.46^
51	**Uri-1 (H)**	-0.72*
52	**Uri-2 (H)**	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 as per timeline for ensuring IEGC compliance.

Members are also requested to reconcile the FRP values as considered for the events of July, 2024.

ISGS were requested to confirm whether FGMO as per IEGC 2023 has been implemented at their respective stations or not. Updated sheet on the basis of details receicved is as follows:

Sl. No.	Entity	Capacity(MW)	Governor Mode (FGMO as per IEGC 2023) Yes or No	Droop setting (%)	Remarks (if any)
1	Dadri-1 (TH)	4*200			
2	Dadri -2 (TH)	2*490			
3	Jhajjar (TH)	3*500			
4	Rihand-1 (TH)	2*500	Yes	5.0	Under Implementation
5	Rihand-2 (TH)	2*500	Yes	5.0	Under Implementation
6	Rihand-3 (TH)	2*500	Yes	5.0	Under Implementation
7	Shree Cement (TH)	(2 * 150)			
8	Singrauli (TH)	2*500+5*200			
9	Tanda-2 (TH)	2*660			
10	Unchahar stg-4 (TH)	1*500			
11	Unchahar (TH)	2*210			
12	Anta (G)	(1 * 153.2 + 3 * 88.71)			
13	Auraiya (G)	(2 * 109.3 + 4 * 111.19)			
14	Dadri (G)	(2 * 154.51 + 4 * 130.19)			
15	AD Hydro (H)	(2 * 96)	YES	4.0	-
16	Bairasiul (H)	(3 * 60)	Yes	4.0	
17	Bhakra (H)	(5 * 126 + 5 * 157)			
18	Budhil (H)	(2 * 35)			
19	Chamera-1 (H)	(3 * 180)	Yes	5.0	
20	Chamera-2 (H)	(3 * 100)	Yes	5.0	
21	Chamera-3 (H)	(3 * 77)	Yes	4.0	
22	Dehar (H)	(6 * 165)			
23	Dhauliganga (H)	(4 * 70)	Yes	5.0	
24	Dulhasti (H)	(3 * 130)	Yes	5.0	
25	Karcham (H)	(4 * 261.25)	Yes	5.0	
26	Kishenganga	(3 * 110)	Yes	4.0	
27	Koldam (H)	(4 * 200)	Yes	4.0	
28	Koteswar (H)	(4 * 100)	Yes	4.0	

29	Malana-2 (H)	(2 * 50)			
30	Nathpa Jhakri (H)	(6 * 250)	Yes	5.5	
31	Parbati-2 (H)	(4 * 200)			
32	Parbati-3 (H)	(4 * 130)	Yes	4.0	
33	Pong (H)	(6 * 66)			
34	Rampur (H)	(6 * 68.67)			
35	Sainj (H)	(2 * 50)			
36	Salal (H)	(6 * 115)	Yes	3.0	
37	Sewa-II (H)	(3 * 40)	Yes	4.0	
38	Singoli Bhatwari (H)	(3 * 33)			
39	Sorang (H)	(2 * 50)			
40	Tanakpur (H)	(1 * 31.42 + 2 * 31.4)	Yes	4.0	
41	Tehri (H)	(4 * 250)	Yes	4.0	
42	Uri-1 (H)	(4 * 120)	Yes	6.0	
43	Uri-2 (H)	(4 * 60)	Yes	5.0	

Constituents are requested to share the details at the earliest.

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 a quarterly basis. In this regard, a communication has already been sent to constituents through NRLDC letter dated 24.04.2024.

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

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 share the report of the same.

Members may like to discuss.

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

As per IEGC clause 16.2

''For the operational SPS, RLDC or NLDC, as the case may be, in consultation with the
concerned RPC(s) shall perform regular load flow and dynamic studies and mock testing for reviewing SPS parameters & functions, at least once in a year. RLDC or NLDC shall share the report of such studies and mock testing including any short comings to respective RPC(s). The data for such studies shall be provided by CTU to the concerned RPC, RLDC and NLDC.''

As per IEGC clause 16.3

''The users and SLDCs shall report about the operation of SPS immediately and detailed
report shall be submitted within three days of operation to the concerned RPC and RLDC in the format specified by the respective RPCs.''

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.

This is also to inform you an online meeting was scheduled on 05.08.2024 among NLDC, WRLDC, NRLDC, SLDC Gujarat, SLDC Delhi, SLDC UP, SLDC Haryana, SLDC Punjab, SLDC Rajasthan and ATL team to discuss the mock testing of SPS of 500kV HVDC Mundra-Mahindergarh and some challenges were highlighted during the meeting regarding changes in identified load feeders and load shedding in Punjab, Haryana, Delhi, UP and Rajasthan.

As per IEGC clause 16.1

"SPS for identified system shall have redundancies in measurement of input signals and
communication paths involved up to the last mile to ensure security and dependability."

In view of the above, states may confirm the status of the identified load feeders (whether operational or not) and whether any changes done in the existing load details. SPS scheme of 500kV HVDC Mundra-Mahindergarh is attached as **Annexure-B.IX**.

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 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) and status of work regarding undertaking submitted during First Time Charging of elements:

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 standardization is very important.

Therefore, availability of disturbance recorder with standardization, 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 to share the details w.r.t. availability and standardization of disturbance recorder and event logger at the station of their respective control area in format attached as **Annexure-B.X.**

Details only received from Haryana & UP.

This is also to inform you that in some special cases First Time Charging of Elements were allowed for some critical elements on user request based on undertaking submitted by the user. Majority of these undertaking are related to installation of station event logger or non-functionality of station event logger.

In this view, you are requested to submit the status of work regarding undertaking submitted during First Time Charging of elements listed in **Annexure-B.XI**.

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 are also requested to submit the status of work regarding undertaking submitted during First Time Charging of elements.

Members may like to discuss.

Status of action taken on decision in 221st OCC meeting of NRPC

S.N.	Agenda	Decision of 221st OCC meeting of NRPC	Status of action taken
1	A.12. Increasing capacity of ICT's at 400 KV Agra,400 KV Lucknow, Gorakhpur & Mainpuri Sub-Station (Agenda by Powergrid NR-3)	Forum asked UPPTCL to give their inputs on the said matter to CTU in next 10 days and subsequently the issue may be taken up in the CMETS meeting of CTU.	UPPTCL to update status
2	A.13. Requirement of additional 400/132/33 KV,200 MVA ICT at HVDC Ballia Sub-Station. (Agenda by Powergrid NR-3)	Forum asked UPPTCL to give their views on the Powergrid proposal before the next OCC meeting.	UPPTCL to update status
3	A.15. Revised SPS for 2X315 MVA, 400/220kV ILTs at 400kV GSS Jodhpur (Agenda by RVPN)	Forum asked RVPN to reply vide mail to the above queries of NRLDC and matter may be further deliberated in the upcoming PSC meeting of NRPC.	RVPN replied to NRLDC queries on 26.07.2024 regarding revised SPS at 400kV GSS Jodhpur.

Follow up issues from previous OCC meetings

Annexure-A.I

<table>
<tr><td>1</td><td>Down Stream network by State utilities from ISTS Station</td><td>Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.</td><td>List of downstream networks is enclosed in Annexure-A.I.I.</td></tr>
<tr><td>2</td><td>Progress of installing new capacitors and repair of defective capacitors</td><td>Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.</td><td>Data upto following months, received from various states / UTs:
◎ CHANDIGARH — Sep-2019
◎ DELHI — May-2024
◎ HARYANA — Jun-2024
◎ HP — Feb-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Jun-2024
◎ RAJASTHAN — Jun-2024
◎ UP — Jun-2024
◎ UTTARAKHAND — Jul-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 — Jun-2024
◎ HARYANA — Jun-2024
◎ HP — Jun-2024
◎ J&K and LADAKH — Not Available
◎ PUNJAB — Mar-2024
◎ RAJASTHAN — Mar-2024
◎ UP — Jun-2024
◎ UTTARAKHAND — Jun-2024
◎ BBMB — Jun-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>Jun-2024</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Jun-2024</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Jul-2024</td></tr><tr><td>◎</td><td>UP</td><td>Jan-2024</td></tr><tr><td>◎</td><td>NTPC</td><td>Feb-2023</td></tr></table>FGD status details are enclosed as Annexure-A.I.II.
All States/utilities are requested to update status of FGD installation progress on monthly basis.</td></tr>
<tr><td>5</td><td>Submission of breakup of Energy Consumption by the states</td><td>All states/UTs are requested to submit the requisite data as per the billed data information in the format given as under:
<table><tr><td>Category→</td><td>Consumption by Domestic Loads</td><td>Consumption by Commercial Loads</td><td>Consumption by Agricultural Loads</td><td>Consumption by Industrial Loads</td><td>Traction supply load</td><td>Miscellaneous / Others</td></tr><tr><td><Month></td><td></td><td></td><td></td><td></td><td></td><td></td></tr></table></td><td>Status of the information submission (month) from states / utilities is as under:
<table><tr><td></td><td>State / UT</td><td>Upto</td></tr><tr><td>◎</td><td>CHANDIGARH</td><td>Not Submitted</td></tr><tr><td>◎</td><td>DELHI</td><td>Apr-24</td></tr><tr><td>◎</td><td>HARYANA</td><td>Jun-24</td></tr><tr><td>◎</td><td>HP</td><td>Jun-24</td></tr><tr><td>◎</td><td>J&K and LADAKH</td><td>JPDCL- Mar'24
KPDCL- Not Submitted</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Apr-24</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Apr-24</td></tr><tr><td>◎</td><td>UP</td><td>Mar-24</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Feb-24</td></tr></table>Chandigarh is requested to submit the requisite data w.e.f. April 2018 as per the billed data information in the given format</td></tr>
<tr><td>6</td><td>Information about variable charges of all generating units in the Region</td><td>The variable charges detail for different generating units are available on the MERIT Order Portal.</td><td>All states/UTs are requested to submit daily data on MERIT Order Portal timely.</td></tr>
<tr><td>7</td><td>Status of Automatic Demand Management System in NR states/UT's</td><td>The status of ADMS implementation in NR, which is mandated in clause 5.4.2 (d) of IEGC by SLDC/SEB/DISCOMs is presented in the following table:</td><td>The status of ADMS implementation in NR is enclosed in Annexure-A.I.II.
<table><tr><td>◎</td><td>DELHI</td><td>Scheme Implemented but operated in manual mode.</td></tr><tr><td>◎</td><td>HARYANA</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>HP</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>PUNJAB</td><td>Scheme not implemented</td></tr><tr><td>◎</td><td>RAJASTHAN</td><td>Under implementation.</td></tr><tr><td>◎</td><td>UP</td><td>Scheme implemented by NPCIL only</td></tr><tr><td>◎</td><td>UTTARAKHAND</td><td>Scheme not implemented</td></tr></table></td></tr>
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8	Reactive compensation at 220 kV/ 400 kV level at 15 substations			
	State / Utility	Substation	Reactor	Status
i	POWERGRID	Kurukshetra	500 MVAr TCR	500 MVAr TCR at Kurukshetra has been commissioned on dated 15th December 2023
ii	DTL	Peeragarhi	1x50 MVAr at 220 kV	1x50 MVAr Reactor at Peeragarhi has been commissioned on dated 18.09.2023
iii	DTL	Harsh Vihar	2x50 MVAr at 220 kV	2x50 MVAR Reactor at Harsh Vihar has been commissioned on dated 31th March 2023.
iv	DTL	Mundka	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
v	DTL	Bamnauli	2x25 MVAr at 220 kV	Bay work completed on 25.03.2023. Reactor part tender is dropped and at present same is under revision.
vi	DTL	Indraprastha	2x25 MVAr at 220 kV	Bay work completed on 07.11.2023. Reactor part tender is dropped and at present same is under revision.
vii	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
viii	PUNJAB	Dhuri	1x125 MVAr at 400 kV & 1x25 MVAr at 220 kV	400kV Reactors - 1x125 MVAR Reactor at Dhuri has been commissioned on dated 30th March 2023. 220kV Reactors - 1x25 MVAR Reactor at Dhuri has been commissioned on dated 27th January 2023.
ix	PUNJAB	Nakodar	1x25 MVAr at 220 kV	1x25 MVAR Reactor at Nakodar has been commissioned on dated 13th February 2023.
x	PTCUL	Kashipur	1x125 MVAR at 400 kV	SLDC informed that PTCUL has intimated that bid extension has been done till 18.07.2024.
xi	RAJASTHAN	Akal	1x25 MVAr	1x25 MVAR Reactor at Akal has been commissioned on dated 25th July' 2022.

xii	RAJASTHAN	Bikaner	1x25 MVAr	1x25 MVAR Reactor at Bikaner has been commissioned on dated 24th June 2023.
xiii	RAJASTHAN	Suratgarh	1x25 MVAr	1x25 MVAR Reactor at Suratgarh has been commissioned on dated 25th November 2022.
xiv	RAJASTHAN	Barmer & others	13x25 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 & work order placed on dt. 07.04.2022 to M/s Kanohar Electricals Ltd. Schedule time is 18 months. Out of 13 Nos. of reactors, 07 Nos. have been commissioned and rest are under progress. Tentative charging plan is to be intimated by Rajasthan SLDC.
xv	RAJASTHAN	Jodhpur	1x125 MVAr	Agreement signed on dt. 22.06.2020. Grant of Ist Instalment received on dt.19.02.21 & work order placed on dt. 07.04.2022 to M/s Kanohar Electricals Ltd. Schedule time is 18 months. 01 No. of 125 MVAR reactor is under testing which is expected to done by end of May 2024. Tentaive charging plan is to be intimated by Rajasthan SLDC.

Annexure-A-I.I

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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
1	400/220kV, 3x315 MVA Samba	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays.	Mar'25	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is delayed due to persisting RoW issues. expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 220th OCC by JKPTCL.
2	400/220kV, 2x315 MVA New Wanpoh	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV New Wanpoh - Alusteng D/c Line	Mar'25	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Alusteng D/c Line. RoW issues persisting; At present new-wampoh-mirbazar 5km and harwan-alstung 16km have been completed, expected date of completion is Mar 2025 subject to availability of funds and resolving of RoW issues), Updated in 214th OCC by JKPTCL.
				• 220 kV New Wanpoh - Mattan D/c Line	End of 2024	02 No. of bays are to be utilized for connecting 220kV New Wanpoh-Mattan D/c Line. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
3	400/220kV, 2x315 MVA Amargarh	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220kV D/C line from 400/220kV Kunzar - 220/33kV Sheeri	End of 2024	02 No. of bays are proposed to be utilized for connecting 220/132 kV GSS Loolipora. The funding source for the project is being identified and the project is expected to be completed by ending 2024. Updated in 204th OCC by JKPTCL.
4	400/220kV, 2x500 MVA Kurukshetra (GIS)	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• 220kV Bhadson (Kurukshetra) – Ramana Ramani D/c line	Jul'24	Updated in 205th OCC by HVPNL
5	400/220 kV, 2x315 MVA Dehradun	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• Network to be planned for 4 bays	-	PTCUL to update the status.
6	Shahjahanpur, 2x315 MVA 400/220 kV	Commissioned: 6 Approved/Under Implementation:1	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
9	Bhiwani 400/220kV S/s	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 4	• 220 kV D/C line Bhiwani (PG) – Bhiwani (HVPNL) line	Commissioned	Updated in 202nd OCC by HVPNL
				• 220 kV Bhiwani (PG) - Isherwal (HVPNL) D/c line.	Dec'24	Issue related to ROW as intimated in 218th OCC by HVPNL. **Status:** Work was stalled since 29.07.2021 due to ROW issues and farmers agitation and further restarted on 9.10.2023 with the help of district administration. Now, work was again stalled since30.11.2023 due to severe ROW issues. Expected to be completed by 31.12.2024. Foundation 209/212. Erection 193/212. Stinging 37.8/50.3 km
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Oct'25	Line work awarded to M/s R S Infra Projects Pvt. Ltd. Noida, Uttar Pardesh on dated 09.03.2024. Work of route plan and route alignment has been started by the firm as intimated in 218th OCC by HVPNL.
10	Jind 400/220kV S/s	Commissioned: 4 Approved:4 Total: 8	Utilized: 4 Unutilized: 0	• LILO of both circuits of 220 kV Jind HVPNL to PTPS D/C line at 400 kV substation PGCIL Khatkar (Jind) with 0.5 sq inch ACSR conductor	Dec'24	Work in progress. Updated in 220th OCC by HVPNL.
11	400/220kV Tughlakabad GIS	Commissioned: 6 Under Implementation: 4	Utilized: 6 Unutilized: 0	• 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

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
12	400/220kV Kala Amb GIS (TBCB)	Commissioned: 6 Total: 6	Utilized: 2 Unutilized: 2 Under Implementation:2	• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Kala Amb S/s	Commissioned	Energization date: 31.05.2024 updated by HPPTCL in 220th OCC
				• HPPTCL has planned one no. of 220kV D/c line from Kala Amb 400/220kV S/s to 220/132kV Giri S/s	-	Tendering process is yet to be started.Updated in 219th OCC by HPPTCL
				• Network to be planned for 2 bays	-	HPPTCL to update the status.
13	400/220kV Kadarpur Sub-station	Commissioned: 8 Total: 8	Utilized: 0 Unutilized: 8	• D/C line Kadarpur - Sec-56 Gurugram.	Jul'24	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL
				• S/C line Kadarpur - Sec-52 Gurugram	Jul'24	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL
				• S/C line Kadarpur - Pali	Jul'24	Initial proposal of LILO of 220kV Pali-Sector 56 Line and Pali-Sector 52 line was descoped due to forest issue. Proposl to evacuate power from 220kV D/C Pali-Sector 56 line to Sector 56 and 52 with bunching of lines is under consideration. Updated in 218th OCC by HVPNL
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	Dec'24	Updated in 216th OCC by HVPNL
				• LILO of both circuits of 220kV D/c Badshahpur-Sec77 line at 400kV Sohna Road	-	The matter is subjudice in Hon'ble Punjab & Haryana High court, Chandigarh Updated in 205th OCC by HVPNL. **Status:-** Earlier 02 nos 220 kV line bays were to be utilized for the 220 kV GIS S/Stn. Sec-77, Gurugram but due to denotification of land of the 220 kV GIS S/Stn. Sec-77 the said substation is now going to be dismantled and a new substation is proposed at Sec-75A, Gurugram. Now, these 02 no. 220 kV line bays may be utilized at 220 kV GIS S/Stn Sec-75A, Gurugram.
15	400/220kV Prithla Sub-station	Commissioned: 8 Aprroved: 2 Total: 10	Utilized: 4 Unutilized: 4 Under Implementation:2	• 220kV D/C line from Prithla to Harfali with LILO of one circuit at 220kV Meerpur Kurali	Mar'25	Contract awarded on 8.08.23 to M/s Skipper with completion in March 25.Updated in 218th OCC by HVPNL
				• LILO of both ckt of 220kV D/c Ranga Rajpur – Palwal line	Commissioned	Energization date: 31.12.2021. Updated in 198th OCC by HVPNL
				• 220kV D/C for Sector78, Faridabad	30.09.2024	Issue related to ROW and Pending crossing approval from Northern Railways and DFCCIL. as intimated in 218th OCC by HVPNL.
				• Prithla - Sector 89 Faridabad 220kV D/c line	Jul'25	Work awarded to M/s Man Structurals Pvt Ltd. JV M/s Aquarian Enterprises on 09.01.2024. Contractual date: 06.05.2025 and Tentative date of completion :06.05.2025 Route has been approved and further work is in progress.Updated in 218th OCC by HVPNL
16	400/220kV Sonepat Sub-station	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 2 Unutilized: 4 Under Implementation:2	• LILO of both circuits of 220kV Samalkha - Mohana line at Sonepat	15.07.2024	Updated in 220th OCC by HVPNL. **Status:** Work was held up due to ROW at T.L. No. 7,8,11,12 & 13 by the farmers of Jajji villagers during July'23 and now the matter has been resolve and work under progress from 01.08.2023. The erection work of T.no. 1 is pending due to non availability of shut down at 220KV Mohana-Smk line and 220KV Jajji-Mohana line. • PLCC protection coupler and Forest approval is also pending.
				• Sonepat - HSIISC Rai 220kV D/c line	Commissioned	Energization date: 31.05.2024 updated by HVPNL in 220th OCC
				• Sonepat - Kharkhoda Pocket A 220kV D/c line	08.03.2025	Updated in 212th OCC by HVPNL. **Status:** Work order has been issued to M/s R.S Infra on dated 09.08.2023 by O/o CE/PD&C, Panchkula for construction of line. Both bays are under construction and erection of electrical equipment is under progress. Tetative date of completion of both bays at PGCIL end is end of July 2024.
17	400/220kV Neemrana Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• LILO of Bhiwadi - Neemrana 220kV S/c line at Neemrana (PG)	-	Work is under progres. Stub Setting: 14/2017. Permission for Highway is awaited from concerned department as updated in 218th OCC by RVPNL.
18	400/220kV Kotputli Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Kotputli - Pathreda 220kV D/c line	-	Date of bid opening has been extended up to 30.04.2024 as updated in 218th OCC by RVPNL.
19	400/220kV Jallandhar Sub-station	Commissioned: 10 Total: 10	Utilized: 8 Unutilized: 2	• Network to be planned for 2 bays	Nov'24	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar being planned. Work expected to be completed by May 2024. Updated in 198th OCC by PSTCL. 6 months more are needed due to ROW issues as updated by PSTCL in 220th OCC

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line commissioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	Commissioned	• Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL. _____ • No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Commissioned	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th OCC
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 2 bays	-	• UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years). _____ • No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
24	400/220kV Abdullapur Sub-station	Commissioned: 10 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Sep'24	Line charged from Rajokheri end on 09.02.2020. The work of construction was awarded to M/s IKE ltd but due to non completion of work firm is blacklisted, Now the pending work of SCADA , Telemetry and Data Integration is being carried out departmentally through OeM M/s ZIV . After completion of these statutory requirement of NRLDC the load will be taken from the Abdullapur. Tentative date of completion of work will be 30.09.2024. Updated in 218th OCC by HVPNL
25	400/220kV Pachkula Sub-station	Commissioned: 8 Under tender:2 Total: 10 Out of these 10 nos. 220kV	Utilized: 2 Unutilized: 4 Under Implementation:2	• Panchkula – Pinjore 220kV D/c line	Commissioned	Updated in 218th OCC by HVPNL
				• Panchkula – Sector-32 220kV D/c line	Commissioned	Energization date: 24.05.2024 updated by HVPNL in 220th OCC
				• Panchkula – Raiwali 220kV D/c line	Commissioned	Updated in 194th OCC by HVPNL
				• Panchkula – Sadhaura 220kV D/c line: Sep'23	Jul'24	Updated in 205th OCC by HVPNL
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	31.07.2024	One bay is ready and another bay from Powergrid is pending it would be completed by 31.07.2024. Updated in 220th OCC by PSTCL.
				• Amritsar – Rashiana 220kV S/c line (2 bays shall be required for above lines. However, 1 unutilized bay shall be used for Patti and requirement of one additional bay approved for Rashiana by NRPC)	31.07.2024	One bay is ready and another bay from Powergrid is pending it would be completed by 31.07.2024. Updated in 220th OCC by PSTCL.
27	400/220kV Bagpat S/s	Commissioned: 8 Total: 8	Utilized:6 Unutilized: 2	• Bagpat - Modipuram 220kV D/c line	Commissioned	Updated in 201st OCC by UPPTCL
28	400/220kV Bahardurgarh S/s	Commissioned: 4 Approved: 4 Total: 8	Utilized:2 Unutilized: 2	• LILO of 220 kV Nunamajra- Daultabad S/c line at 400 kV Bahadurgarh PGCIL	Mar'25	Updated in 220th OCC by HVPNL. **Status:** NIT has been floated vide NIT No. EPC-D-96 dated 15.10.23 to be opened on 22.12.23. • Now, the tender has been dropped and likely to be refloated by 31.07.2024.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	Mar'25	Updated in 220th OCC by HVPNL. **Status:** • Revised BOQ forwarded from Design wing to contract wing. • Tender has floated vide NIT No. EPC-D-100 dated 04.01.2024 with tender opening date of 26.02.2024. • Tender has been opened on 26.03.24 and 03 nos. bids has been received. The work is likely to be awarded by the 31.07.2024.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	08.03.2025	Updated in 220th OCC by HVPNL. **Status:** Contract awarded on 09.08.23 to M/s R S Infra Noida. Work has been started.
29	400/220kV Jaipur (South) S/s	Commissioned: 4 Total: 4	Utilized:2 Unutilized: 2	• LILO of 220 kV S/C Dausa – Sawai Madhopur line at 400 kV GSS Jaipur South (PG)	06.10.2025	Work order has been issued on 06.10.2023, work under progress as updated by RVPNL in 215th OCC
30	400/220kV Sohawal S/s	Commissioned: 8 Total: 8	Utilized: 8	• Sohawal - Barabanki 220kV D/c line	Commissioned	Energization date: 14.04.2018 updated by UPPTCL in 196th OCC
				• Sohawal - New Tanda 220kV D/c line	Commissioned	Energization date: 28.05.2019 updated by UPPTCL in 196th OCC
				• Network to be planned for 2 bays	Commissioned	• Sohawal - Gonda 220kV S/c line (Energization date: 27.04.2020) updated by UPPTCL in 196th OCC _____ • Sohawal - Bahraich 220kV S/c line (Energization date: 15.02.2021) updated by UPPTCL in 196th OCC
31	400/220kV, Kankroli	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• 220 kV D/C Kankroli(PG) - Nathdwara line	Jul'24	Price bid opened on 29.01.2024, tender dropped due to price variation. Retendering would be done after general election as updated by RVPN in 218th OCC.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	-	Status:- 2nos bays are being utilised for 220 kV D/C Panchgaon (PGCIL)-Panchgaon Ckt-I & 220 kV D/C Panchagon (PGCIL)-Panchgaon Ckt-II, charged on dated 05.09.2022 & 20.10.2022 respectively. The 2nos bays may be utilised by HVPNL in future.
33	400/220kV, Saharanpur	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	Commissioned	Saharanpur(PG)-Devband D/c line (Energization date: 20.04.2023) updated by UPPTCL in 207th OCC
34	400/220kV, Wagoora	Commissioned: 10 Total: 10	Utilized: 6 Unutilized: 4	• Network to be planned for 4 bays	-	PDD, J&K to update the status.
35	400/220kV, Ludhiana	Commissioned: 9 Total: 9	Utilized: 8 Unutilized: 1	• Network to be planned for 1 bay	Commissioned	Direct circuit from 220 kV Lalton Kalan to Dhandari Kalan to be diverted to 400 kV PGCIL Ludhiana. Work completed , final agrrement is expected to be signed by May'24. Updated in 218th OCC by PSTCL.
36	400/220kV, Chamba (Chamera Pool)	Commissioned: 3 Under tender:1 Total: 4	Utilized:3 Unutilized: 0 Under tender:1	• Stringing of 2nd ckt of Chamera Pool – Karian 220kV D/c line	Commissioned	Stringing of 2nd Circuit of Chamera Pool-Karian Tansmission line has been completed & terminal bay at 400/220 kV chamera pooling substation (PGCIL) is commissioned on 20.01.2024. Updated in 217th OCC by HPPTCL.
37	400/220kV, Mainpuri	Commissioned: 6 Under Implementation:2 Total: 8	Utilized: 6 Unutilized: 0 Under Implementation:2	• Network to be planned for 2 bays	-	• 02 no. of bays under finalization stage updated by UPPTCL in 196th OCC. Mainpuri S/s planned. Land is not finalized, therefore timeline not available as intimated by UPPTCL in 201st OCC.
38	400/220kV, Patiala	Commissioned: 8 Total: 8	Utilized: 6 Unutilized: 2	• Network to be planned for 2 bays	May'25	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Tender is yet to be awarded. Timeline one year communicated by PSTCL in 220th OCC meeting

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	A committee has been constituted under the chairmanship of GM, SLDC Delhi to formulate the logic for implementation of ADMS. Delhi SLDC informed that two meetings have been held by the committee and based on the delibration in those meetings, SoP has been formed by the committee. MS, NRPC asked Delhi SLDC to share the logic for implementation of ADMS with NRLDC for their observation.
2	HARYANA	Scheme not implemented	An internal Committee of HVPNL officers has been constituted for preparation of the Detailed Project Report and Tender Documents for implementation of ADMS. The DPR is under preparation.
3	HP	Scheme not implemented	HP SLDC imentioned that HPSEB had intimated that initially 142 Nos. of feeders were identified for operation under ADMS functionality but most of these feeders were from same sub-station. Therefore, now they have increased the no. of sub-station and identified the non-critical feeders. Load relief to be given through these feeders is under finalization. The revised feeder list would be shared by HPSEBL with the SLDC upon finalization of same.
4	PUNJAB	Scheme not implemented	i. A committee comprising of following officers of PSPCL & PSTCL has been constituted to finalize the logic regarding implementation of Automatic Demand Management System in Punjab Control Area. A meeting in this regard was held on dated 26-02-2024 at PSLDC Complex, Patiala. The committee deliberated various loading scenarios and proposed the following logic for the management of demand: 1. If the frequency sustains below 49.90 Hz for duration of 3 minutes, the Automatic Demand Management System will initiate a 50% reduction in the Over Drawl. 2. In case the frequency falls further below 49.85 Hz, the Over Drawl will be reduced to zero.
5	RAJASTHAN	Under implementation. Likely completion schedule is 31.03.2024	RVPN informed that the issue of cyber security of link between SATNAM centre and SLDC control room has been resolved. Final testing is rescheduled for 02.07.2024.
6	UP	Scheme implemented by NPCIL only	i. A meeting regarding ADMS was held on 15.01.2023 with the UPPCL under the chairmanship of MD UPPTCL ii. A committee formed for identification of load at 33 kV level under the chairmanship of Director (Distribution), UPPCL. iii. Another committee under the chairmanship of Director UPSLDC shall identify the technical and operational requirement for ADMS implementation iv. The software at the SLDC end for ADMS shall be available with ULDC phase –III SCADA system which is under implementation and likely to be commissioned by March 2025. v. In order to operate identified 33 kV feeders under ADMS scheme, integration of 132 kV substations with SCADA system is under implementation in the Reliable Communication Scheme and expected date of completion of the scheme is October 2024.
7	UTTARAKHAND	Scheme not implemented	i. UPCL has prepared a system architecture in which all the non-monitored sub-stions have been selected and 11kV feeders have been considered for ADMS operation. For the scheme, discom has also done group-wise selection of feeders and quantum of MW relief to be given for automatic demand response at 11kV level has also been decided. UPCL has awarded the tender for implementation of the aforementioned scheme to M/s Metergy Pvt.Ltd. ii. As per the status report submitted by M/s Metergy Pvt.Ltd, the survey work of 30 nos. incomer sites have been completed and order has been placed by UPCL for hardware equipments. iii. Uttarakhand SLDC informed that feeder list at 11kV level has been finalized and logic of ADMS implementation is under finalization.

FGD Status

Updated status of FGD related data submission

NTPC (27.02.2023)
MEJA Stage-I
RIHAND STPS
SINGRAULI STPS
TANDA Stage-I
TANDA Stage-II
UNCHAHAR TPS
UPRVUNL (10.01.2024)
ANPARA TPS
HARDUAGANJ TPS
OBRA TPS
PARICHHA TPS

PSPCL (18.06.2024)
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. (10.01.2024)
Lalitpur TPS
Lanco Anpara Power Ltd. (01.01.2024)
ANPARA-C TPS

HGPCL (14.06.2024)
PANIPAT TPS
RAJIV GANDHI TPS
YAMUNA NAGAR TPS

Adani Power Ltd. (18.02.2022)
KAWAI TPS

Rosa Power Supply Company (01.01.2024)
Rosa TPP Phase-I
Prayagraj Power Generation Company Ltd. (05.01.2024)
Prayagraj TPP
APCPL (01.05.2024)
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#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: 31-12-2026), PANIPAT TPS U#7 (Target: 31-12-2026), PANIPAT TPS U#8 (Target: 31-12-2026), 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: 31-12-2025), ANPARA C TPS U#2 (Target: 31-12-2025)
Prayagraj Power Generation Company Ltd.	PRAYAGRAJ TPP U#1 (Target: 31-12-2026), PRAYAGRAJ TPP U#2 (Target: 31-12-2026), PRAYAGRAJ TPP U#3 (Target: 31-12-2026)
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: 31-12-2025), ANPARA TPS U#2 (Target: 31-12-2025), ANPARA TPS U#3 (Target: 31-12-2025), ANPARA TPS U#4 (Target: 31-12-2025), ANPARA TPS U#5 (Target: 31-12-2025), ANPARA TPS U#6 (Target: 31-12-2025), ANPARA TPS U#7 (Target: 31-12-2025), HARDUAGANJ TPS U#8 (Target: 31-12-2026), HARDUAGANJ TPS U#9 (Target: 31-12-2026), OBRA TPS U#9 (Target: 31-12-2026), OBRA TPS U#10 (Target: 31-12-2026), OBRA TPS U#11 (Target: 31-12-2026), OBRA TPS U#12 (Target: 31-12-2026), OBRA TPS U#13 (Target: 31-12-2026), PARICHHA TPS U#3 (Target: 31-12-2026), PARICHHA TPS U#4 (Target: 31-12-2026), PARICHHA TPS U#5 (Target: 31-12-2026), PARICHHA TPS U#6 (Target: 31-12-2026)

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. In the 221st OCC meeting, UPPTCL representative mentioned that telemetry for few stations for Islanding scheme is pending. MS, NRPC asked UPPTCL to provide the sub-station wise timelines for the telemetry work remaining.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Under Implementation	Scheme has been approved in 71th NRPC meeting held on 29.01.2024. In 221st OCC, UPPTCL representative stated that procurement of UFR is under process and tender would be floated within a week.		-		-	-	-	-	-	-	-	-
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 has been prepared. In 220th OCC, RRVPNL representative mentioned that logic for islanding scheme is under implementation.	-	-		-	-	-	-	-	-	-	-
4	Suratgarh IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 220th OCC, RRVPNL representative mentioned DPR for the implementation of Islanding scheme is under finalisation.	-	-		-	-	-	-	-	-	-	-
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 there were some observations from PSDF Sectt. and reviewed scheme has been re-submitted.		-		-	-	-	-	-	-	-	-
6	Kullu-Manali-Mandi IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. HPSLDC representative apprised forum that the appraisal Committee meeting was held on 06.07.2024 and MoM of same is awaited.		-		-	-	-	-	-	-	-	-
7	Shimla-Solan IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. HPSLDC intimated forum HPSEB has been taken up the matter with M/s GE and they have given clearance to enable the UFR setting of Bhaba HEP at 47.5 Hz. M/s GE has submitted a performa invoice for 100% advance payment regarding the same.											

Status of availability of ERS towers in NR

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

Sl. No.	Transmission Utility	Voltage Level (220kV/400kV/765kV/ 500 kV HVDC etc.)	Length of the transmission lines owned by the Utility (Ckt. Kms.)	Number of ERS Sets (towers) available (Nos.)	ERS Set (towers) required as per the Govt. norms.	Location	Remarks
13	DTL	220kV	915.498	NIL	1	400kV Bamnauli Sub station	ERS tower available for 400KV rating can also be used for lower voltage lines as well
		400kV	249.19	02 Sets (32 towers)	1		
14	JKPTCL						JKPTCL, Jammu: being procured
15	HVPN						JKPTCL, Kashmir:10 tower procured (out of which 3 on loan to JKPTCL, Jammu)
16	PSTCL	400 kV	1666.43	2	2		
		220 kV	7921.991				
17	UPPTCL 1- Meerut	132KV	27508.321	24 Nos(15 Running+9 Angle)		400 kV S/s Gr. Noida	ERS will be also be used in other voltage level lines.
		220KV	14973.453				
		400KV	6922.828				
	UPPTCL 2-Prayagraj	765KV	839.37	24 Towers		220 kv S/s phulpur	ERS will also be used in other voltage lines.
		400KV	1804.257				
		220KV	2578.932				
		132KV	4714.768				
18	POWERLINK						
19	POWERGRID HIMACHAL TRANSMISSION LTD						
20	Powergrid Ajmer Phagi Transmission Limited						
21	Powergrid Fatehgarh Transmission Limited						
22	POWERGRID KALA AMB TRANSMISSION LTD						
23	Powergrid Unchahar Transmission Ltd						
24	Powergrid Khetri Transmission Limited						
25	POWERGRID VARANASI TRANSMISSION SYSTEM LTD						
26	ADANI TRANSMISSION INDIA LIMITED		2090	1 Set (12 towers)	1 set (12 towers)	Sami (Gujarat)	Make-Lindsey ERS set available for 400KV & 500KV rating can be used for lower as well as higher voltage Towers. In case used for 765KV Line, No of towers can reduce due to increase in Tower Height & nos of conductors.
27	BIKANER KHETRI TRANSMISSION LIMITED		482				
28	FATEHGARH BHADLA TRANSMISSION LIMITED	500 kV HVDC 400 kV HVAC	291				
29	NRSS-XXXI(B) TRANSMISSION LTD	400 kV	577.74	Not Available	Not Available		In the advance stage of process of finalising arrangement for providing ERS on need basis with other transmission utility (M/s INDIGRID).
30	ARAVALI POWER COMPANY PVT LTD	765 kv HVAC					

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

											Approved Planned Outage-1			Actual Planned Outage-1		
Capacity (MW) 30-11-2023	Name of Station	UNIT_NM	STN_TYPE_ID	SECTOR	REGION_NM	ST_NM	SH_NM	IPP	FUEL_NM	Capacity (MW) 31-03-2025	Start Date	End Date	Reason	Start Date	End Date	Reason for any deviation
110	KOTA TPS	1	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	110	1-Jul-24	21-Jul-24	AOH			
110	KOTA TPS	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	110	23-Jul-24	12-Aug-24	AOH			
210	KOTA TPS	5	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	210	1-Jul-24	21-Jul-24	AOH			
250	SURATGARH TPS	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	250	1-Jul-24	21-Jul-24	AOH			
135	JALIPA KAPURDI TPP	1	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	21-Jul-24	28-Jul-24	Boiler License Renewal			
135	JALIPA KAPURDI TPP	2	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	28-Jul-24	21-Aug-24	COH			
135	JALIPA KAPURDI TPP	5	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	15-Jul-24	22-Jul-24	Boiler License Renewal			
135	JALIPA KAPURDI TPP	6	T	IPP SECTOR	Northern	Rajasthan	JSWBL	FALSE	LIGNITE	135	4-Jul-24	11-Jul-24	Boiler License Renewal			
250	CHHABRA TPP	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	COAL	250	1-Jul-24	20-Jul-24	AOH			
35.5	RAMGARH CCPP	2	T	STATE SECTOR	Northern	Rajasthan	RRVUNL	FALSE	NATURAL GAS	35.5	1-Jul-24	31-Jul-24	Replacement of Diffusor			
214	KASHIPUR CCPP	2	T	IPP SECTOR	Northern	Uttarakhand	SrEPL	FALSE	NATURAL GAS	214	6-Jul-24	9-Jul-24	Offline Waterwash			
225	KASHIPUR CCPP	1	T	IPP SECTOR	Northern	Uttarakhand	SrEPL	FALSE	NATURAL GAS	225	1-Jul-24	3-Jul-24	Offline Waterwash			

Sr. No.	Region	State	Sector	Organisation	Name of Project	Location District	Fuel Used	Unit No	Total Capacity	DT-of COMMISSIONING
1	NR	Punjab	Private Sector	GPGSL (GVK)	GOINDWAL SAHIB	Tarn Taran	Coal	2	270.00	16-Apr-16
2	NR	Punjab	Private Sector	GPGSL (GVK)	GOINDWAL SAHIB	Tarn Taran	Coal	1	270.00	6-Apr-16
3	NR	Haryana	State Sector	HPGCL	PANIPAT TPS	Panipat	Coal	8	250.00	28-Jan-05
4	NR	Haryana	State Sector	HPGCL	PANIPAT TPS	Panipat	Coal	7	250.00	28-Sep-04
5	NR	Haryana	State Sector	HPGCL	PANIPAT TPS	Panipat	Coal	6	210.00	31-Mar-01
6	NR	Uttar Pradesh	Private Sector	LAPPL	ANPARA C TPS	Sonbhadra	Coal	2	600.00	15-Nov-11
7	NR	Uttar Pradesh	Private Sector	LAPPL	ANPARA C TPS	Sonbhadra	Coal	1	600.00	12-Nov-11
8	NR	Uttar Pradesh	Private Sector	RPSCL	ROSA TPP Ph-I	Shahjahanpur	Coal	4	300.00	28-Mar-12
9	NR	Uttar Pradesh	Private Sector	RPSCL	ROSA TPP Ph-I	Shahjahanpur	Coal	3	300.00	28-Dec-11
10	NR	Uttar Pradesh	Private Sector	RPSCL	ROSA TPP Ph-I	Shahjahanpur	Coal	2	300.00	26-Jun-10
11	NR	Uttar Pradesh	Private Sector	RPSCL	ROSA TPP Ph-I	Shahjahanpur	Coal	1	300.00	10-Feb-10
12	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	7	135.00	16-Mar-13
13	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	6	135.00	3-Mar-13
14	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	8	135.00	28-Feb-13
15	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	5	135.00	5-Feb-13
16	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	4	135.00	23-Nov-11
17	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	3	135.00	2-Nov-11
18	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	2	135.00	8-Jul-10
19	NR	Rajasthan	Private Sector	RWPL (JSW)	JALIPA KAPURDI TPP	Barmer	Lignite	1	135.00	16-Oct-09
20	NR	Punjab	State Sector	PSPCL	GH TPS (LEH.MOH.)	Bhatinda	Coal	4	250.00	2-Aug-08
21	NR	Punjab	State Sector	PSPCL	GH TPS (LEH.MOH.)	Bhatinda	Coal	3	250.00	5-Feb-08
22	NR	Punjab	State Sector	PSPCL	GH TPS (LEH.MOH.)	Bhatinda	Coal	2	210.00	26-Nov-98
23	NR	Punjab	State Sector	PSPCL	GH TPS (LEH.MOH.)	Bhatinda	Coal	1	210.00	23-May-98
24	NR	Punjab	State Sector	PSPCL	ROPAR TPS	Rupnagar	Coal	6	210.00	30-Mar-93
25	NR	Punjab	State Sector	PSPCL	ROPAR TPS	Rupnagar	Coal	5	210.00	29-Mar-92
26	NR	Punjab	State Sector	PSPCL	ROPAR TPS	Rupnagar	Coal	4	210.00	29-Jan-89
27	NR	Punjab	State Sector	PSPCL	ROPAR TPS	Rupnagar	Coal	3	210.00	31-Mar-88
28	NR	Rajasthan	State Sector	RRVUNL	KALISINDH TPS	Jhalawar	Coal	2	600.00	25-Jul-15
29	NR	Rajasthan	State Sector	RRVUNL	CHHABRA TPP	Baran	Coal	4	250.00	30-Dec-14
30	NR	Rajasthan	State Sector	RRVUNL	KALISINDH TPS	Jhalawar	Coal	1	600.00	7-May-14
31	NR	Rajasthan	State Sector	RRVUNL	CHHABRA TPP	Baran	Coal	3	250.00	19-Dec-13
32	NR	Rajasthan	State Sector	RRVUNL	CHHABRA TPP	Baran	Coal	2	250.00	15-Oct-11
33	NR	Rajasthan	Central Sector	NLC	BARSINGSAR LIGNITE	Bikaner	Lignite	2	125.00	25-Jan-11
34	NR	Rajasthan	Central Sector	NLC	BARSINGSAR LIGNITE	Bikaner	Lignite	1	125.00	28-Jun-10
35	NR	Rajasthan	State Sector	RRVUNL	KOTA TPS	Kota	Coal	7	195.00	1-Jan-10
36	NR	Rajasthan	State Sector	RRVUNL	SURATGARH TPS	Ganganagar	Coal	6	250.00	30-Dec-09
37	NR	Rajasthan	State Sector	RRVUNL	GIRAL TPS	Barmer	Lignite	2	125.00	6-Nov-09
38	NR	Rajasthan	State Sector	RRVUNL	CHHABRA TPP	Baran	Coal	1	250.00	30-Oct-09
39	NR	Rajasthan	State Sector	RRVUNL	GIRAL TPS	Barmer	Lignite	1	125.00	28-Feb-07
40	NR	Rajasthan	State Sector	RRVUNL	KOTA TPS	Kota	Coal	6	195.00	1-Aug-04
41	NR	Rajasthan	State Sector	RRVUNL	SURATGARH TPS	Ganganagar	Coal	5	250.00	19-Aug-03
42	NR	Rajasthan	State Sector	RRVUNL	SURATGARH TPS	Ganganagar	Coal	4	250.00	31-Jul-02
43	NR	Rajasthan	State Sector	RRVUNL	SURATGARH TPS	Ganganagar	Coal	3	250.00	15-Jan-02
44	NR	Rajasthan	State Sector	RRVUNL	SURATGARH TPS	Ganganagar	Coal	2	250.00	1-Oct-00
45	NR	Rajasthan	State Sector	RRVUNL	SURATGARH TPS	Ganganagar	Coal	1	250.00	1-Feb-99
46	NR	Rajasthan	State Sector	RRVUNL	KOTA TPS	Kota	Coal	5	210.00	18-Jul-95
47	NR	Rajasthan	State Sector	RRVUNL	KOTA TPS	Kota	Coal	4	210.00	16-Jan-90
48	NR	Rajasthan	State Sector	RRVUNL	KOTA TPS	Kota	Coal	3	210.00	11-Mar-89
49	NR	Rajasthan	State Sector	RRVUNL	KOTA TPS	Kota	Coal	2	110.00	1-Apr-84
50	NR	Rajasthan	State Sector	RRVUNL	KOTA TPS	Kota	Coal	1	110.00	1-Apr-83

सत्यमेव जयते

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
तापीय परियोजना नवीनीकरण एवं आधुनिकीकरण प्रभाग
Thermal Project Renovation & Modernization Division

No. 2/3/Flex/2024/ 688 – 692 **Date:** 01.08.2024

Subject: Agenda Note on Flexible Operation of Coal Based Thermal Power Plants for regular discussion in OCC meeting- reg

Reference is invited to letter no. 2/3/Flex/2024/248-255 dated 03.04.2024, wherein the guidelines and action items pertaining to the flexible operation of coal-based thermal power generating units were outlined. As per the CEA Gazette Notification dated January 30, 2023, coal-based thermal power generating units shall have flexible operation capability with a minimum power level of 55%, along with specified ramp rates, by January 2024. Additionally, a phased implementation plan for achieving a 40% minimum technical load (MTL) has been notified, with specific targets and timelines for compliance.

In this regard, it is requested to provide updates on the following agenda items:

Agenda: Regarding 55% MTL (Minimum Technical Load)

a. Achievement of 55% TML: Whether the target of achieving 55% Technical Minimum Load (TML) has been met. If not, please provide the reasons and the tentative date for achieving the same.

b. Adherence to Ramp Rates: Whether the specified ramp rates, i.e., 3% for 100-70% load and 2% for 70%-55% load, have been adhered to. If not, please provide the reasons and the tentative date for achieving the same.

c. Operator Training: How many operators have been trained in the organization?

Agenda: Regarding 40% MTL (Minimum Technical Load) and Status of Units Under Pilot Phase

Phase	Sector	Organisation	Name of Project	Unit No.	Capacity (MW)	Region
Pilot	Central	NTPC	MAUDA TPS	1	500	WR
Pilot	Central	NTPC	SIMHADRI	3	500	SR
Pilot	Central	NTPC	DADRI	6	490	NR
Pilot	Central	DVC	MEJIA TPS	8	500	ER
Pilot	Central	NEYVELI LIGNITE	NEYVELI NEW TPP	2	500	SR
Pilot	State	KPCL	YERMARUS TPS	1	800	SR
Pilot	State	GSECL	WANAKBORI TPP	6	800	WR
Pilot	State	RRVUNL	SURATGARH SCTPP	8	660	NR
Pilot	State	WBPDC	SAGARDIGHI TPS	3	500	ER
Pilot	Private	CEPL	MUTHIARA	2	600	SR
Pilot Phase Total				**10**	**5850**	
Pilot Phase Total (Percentage of Total Capacity)				**1.70%**	**2.76%**	

a. Achievement of 40% TML: Whether the target of achieving 40% Technical Minimum Load (TML) has been met. If not, please provide the reasons and the tentative date for achieving the same.

b. Adherence to Ramp Rates: Whether the specified ramp rates, i.e., 3% for 100-70% load, 2% for 70%-55% load, and 1% for 40%-55% load, have been adhered to. If not, please provide the reasons and the tentative date for achieving the target.

Furthermore, it is requested to provide progress reports and outcomes related to the achievement of both 55% and 40% MTL as early as possible.

Narender Singh
01/08/24.

(Narender Singh)

Chief Engineer, TPRM

To:

1. Member Secretary , NRPC
2. Member Secretary , SRPC
3. Member Secretary , WRPC
4. Member Secretary , ERPC
5. Member Secretary , NERPC

Annexure-A.VII

Progress Report regarding achievement of 55% MTL

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

Annexure-A.VIII

Progress Report regarding achievement of 40% MTL

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

National Load Despatch Centre
Import Capability of Punjab for September 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 September 2024 to 30th September 2024	00-24	9500	500	9000	5497	3503		https://www.punjabsldc.org/ATC_TTC.aspx
Limiting Constraints		N-1 contigency of 400/220KV ICT at Rajpura, Ludhiana, Jalandhar, Muktsar Loading close to N-1 contingency limits of 400/220kV Patran, Malerkotla and Patiala ICTs 220 kV underlying network at Jalandhar, Ludhiana and Amritsar						

National Load Despatch Centre
Import Capability of Uttar Pradesh for September 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 September 2024 to 30th September 2024	00-24	17300	600	16700	10165	6535		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 Obra, Allahabad(PG), Gorakhpur (UP), Agra(PG), Lucknow (PG) ICTs							

National Load Despatch Centre
Import Capability of Haryana for September 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 September 2024 to 30th September 2024	00-24	10300	300	10000	5418	4582		https://hvpn.org.in/#/atcttc
Limiting Constraints	N-1 contingency of 400/220kV ICT at Deepalpur, Hisar, Kabulpur and Panipat(BBMB)							

National Load Despatch Centre
Import Capability of Rajasthan for September 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 September 2024 to 30th September 2024	00-24	7600	600	7000	5755	1245		https://sldc.rajasthan.gov.in/rrvpnl/scheduling/downloads
Limiting Constraints	N-1 contingency of 400/220kV Heerapura, Jodhpur, Bikaner, Ajmer, Merta, Hindaun and Ratangarh ICTs							

National Load Despatch Centre
Import Capability of Delhi for September 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 September 2024 to 30th September 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 Uttarakhand for September 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 September 2024 to 30th September 2024	00-24	1700	100	1600	1402	198		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 HP for September 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 September 2024 to 30th September 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 J&K for September 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 September 2024 to 30th September 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 September 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 September 2024 to 30th September 2024	00-24	400	20	380	342	38		
Limiting Constraints		N-1 contigency of 220kV Nallagarh-Kishengarh						

Element Name	No. of times emergency shutdown taken during (01.08.23-31.07.24)
400/220 kV 315 MVA ICT 1 at Bawana(DV)	6
400 KV Bamnoli(DV)-Jhatikara(PG) (DTL) Ckt-2	5
400 KV Bawana-Mundka (DV) Ckt-1	5
400 KV Jhatikara(PG)-Mundka(DV) (DTL) Ckt-1	5
400KV Bus 1 at Mundka(DV)	5
402 MAIN BAY - 400 KV BAMNOLI(DV)-JHATIKARA(PG) (DV) CKT-2 AND 400KV BUS 2 AT BAMNOLI(DV)	5
220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-2	4
220 KV Mandola(PG)-South Wazirabad(DV) (DTL) Ckt-2	4
400 KV Jhatikara(PG)-Mundka(DV) (PG) Ckt-2	4
400/220 kV 315 MVA ICT 4 at Bamnoli(DV)	4
405 MAIN BAY - 400 KV BAMNOLI(DV)-JHATIKARA(PG) (DV) CKT-1 AND 400KV BUS 2 AT BAMNOLI(DV)	4
422 MAIN BAY - 400/220 KV 500 MVA ICT 2 AT BAMNOLI(DV) AND 400KV BUS 1 AT BAMNOLI(DV)	4
220 KV Ballabhgarh(BB)-Badarpur(NT) (BB) Ckt-2	3
220 KV Mandola(PG)-Gopalpur(DTL) (DTL) Ckt-1	3
220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-1	3
220 KV Panipat(BB)-Narela(DV) (BBMB) Ckt-2	3
400 KV Bawana-Mundka (DV) Ckt-2	3
400/220 kV 315 MVA ICT 4 at Mundka(DV)	3
400/220 kV 315 MVA ICT 5 at Bawana(DV)	3
400 KV Abdullapur(PG)-Bawana(DV) (PG) Ckt-1	2
400 KV Bawana CCGTB(DTL)-Bhiwani(PG) (PG)	2
400 kv bawana ccgtb-bawana(dv) (dtl) ckt-2	2
400 KV Bawana(DV)-Maharanibagh(PG) (DTL) Ckt-2	2
400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-1	2
400 KV Dadri(NT)-Loni Harsh Vihar(DV) (NT) Ckt-2	2
400/220 kV 315 MVA ICT 2 at Bawana(DV)	2
400/220 kV 315 MVA ICT 4 at Bawana(DV)	2
400/220 kV 315 MVA ICT 6 at Bawana(DV)	2
400KV Bus 1 at Bawana(DV)	2
410 MAIN BAY - 400/11 KV 253 MVA GT 4 AT BAWANA CCGTB(DTL) (DTL)	2
412 MAIN BAY - 400 KV ABDULLAPUR(PG)-BAWANA(DV) (PG) CKT-1 (DTL)	2

Sr No	Element Name	Outage Date	Outage Time	Reason
1	220 KV Khara(UP)-Saharanpur(PG) (UP) Ckt-1	06-Jul-24	12:15	Phase to earth fault B-N. As per PMU, fluctuation in voltage is observed, no fault in the system. DR not received from both ends.
		07-Jul-24	16:37	Phase to earth fault B-N. As per PMU and DR (of Saharanpur end), B-N fault with no A/R operation at Saharanpur end and successful A/R operation at Khara end is observed. DR not received from Khara end.
		08-Jul-24	19:41	Phase to earth fault R-N. As per PMU and DR (of Saharanpur end), R-N fault with delayed fault clearance time of 560ms and no A/R operation at Saharanpur end is observed. DR not received from Khara end.
		18-Jul-24	17:06	Phase to earth fault B-N. As per PMU and DR (of Saharanpur end), Y-N fault with no A/R operation at Saharanpur end and unsuccessful A/R operation at Khara end is observed. DR not received from Khara end.
		28-Jul-24	11:02	Phase to earth fault R-N. As per PMU, R-N fault occured, no auto-reclosing is observed.. As per DR (of Saharanpur end), R-Y fault is observed. Time sync issue in DR of Saharanpur end and DR not received from Khara end.
2	220 KV Nara(UP)-Roorkee(UK) (UP) Ckt-1	02-Jul-24	18:32	Phase to Ground Fault R-N. As per PMU, R-N fault occurred and delayed clearance of 400ms with no auto-reclosing observed. Time sync issue in DR of Nara end and (.dat/.cfg) file of DR not received from Roorkee end.
		07-Jul-24	07:29	Phase to earth fault R-N, Dist. 17.09km from Roorkee. As per PMU, R-N fault occured, no auto-reclosing is observed. As per DR (of Nara end), A/R was successful at Nara end and line tripped from Roorkee end. Time sync issue in DR of Nara end and (.dat/.cfg) file of DR not received from Roorkee end.
		12-Jul-24	22:36	Phase to earth fault B-N. As per PMU and DR (of Nara end), R-N fault with unsuccessful A/R operation from Nara end is observed. A/R dead time observed at Nara end is 600ms. Time sync issue in DR of Nara end and (.dat/.cfg) file of DR not received from Roorkee end.
		23-Jul-24	15:41	Phase to earth fault B-N. As per PMU, B-N fault occured, no auto-reclosing is observed. As per DR (of Nara end), A/R was successful at Nara end and line tripped from Roorkee end. Time sync issue in DR of Nara end and (.dat/.cfg) file of DR not received from Roorkee end.
		25-Jul-24	08:03	Phase to earth fault B-N. As per PMU and DR (of Nara end), R-N fault with successful A/R operation from Nara end is observed. Time sync issue in DR of Nara end and (.dat/.cfg) file of DR not received from Roorkee end.
3	220 KV RAPS_B(NP)-Sakatpura(RS) (RS) Ckt-1	09-Jul-24	04:53	Transient fault. As per PMU, B-N fault occured, no auto-reclosing is observed. As per DR (of Sakatpura end), B-N fault with successful A/R is observed. DR not received from RAPS_B end.
		17-Jul-24	20:07	Phase to earth fault R-N. As per PMU, R-B fault is observed. As per DR of Sakatpura end, R-N immediately followed by Y-B fault (with low fault current) within autoreclosing time is observed, A/R successsful from Sakatpura end. DR not received from RAPS_B end.
		27-Jul-24	15:35	Phase to earth fault B-N. As per PMU, Y-B fault with fault clearing time of 400msec is observed. As per DR of Sakatpura end, B-N immediately followed by R-Y fault (with low fault current) within autoreclosing time is observed. Line tripped from both the ends. DR not received from RAPS_B end.
4	400 KV Badaune(UP)-Rosa(UPC) (OCBTL) Ckt-1	03-Jul-24	06:58	Over Voltage. As per PMU, no fault is observed. As per DR, line tripped on DT received from Rosa end and voltage reached upto approx 440kV.
		03-Jul-24	13:01	High Voltage. As per PMU, no fault is observed. As per DR, line tripped on DT received from Rosa end and voltage reached upto approx 465kV.
		11-Jul-24	06:33	Phase to Ground Fault R-N. As per PMU and DR, R-N fault with unsuccessful A/R operation at Rosa end and no A/R operation at Badaune end is observed.
		11-Jul-24	09:08	Earth fault. As per PMU, no fault is observed. As per FIR, line didn't trip.
5	400 KV Bikaner-Bhadla (RS) Ckt-1	04-Jul-24	14:18	Phase to earth fault Y-N. As per PMU, R-N fault occured, no auto-reclosing is observed.
		05-Jul-24	16:12	Phase to earth fault B-N. As per PMU, B-N fault and unsuccessful auto-reclosing observed. Auto-reclosing time is 600msec.
		11-Jul-24	22:27	Transient fault. As per PMU, no fault is observed. As per DR of Bikaner end, Y-N fault is observed and line tripped on DT received from the remote end before completion of auto-reclosing action.
6	400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1	10-Jul-24	15:54	Phase to Ground Fault Y-N. As per PMU and DR, Y-N fault with fault clearing time of 400msec. Fault was in zone-2 from Varanasi end and in zone-4 from Sahupuri end.
		10-Jul-24	19:26	PLCC maloperation. As per PMU and DR, Y-N fault with fault clearing time of 400msec. Fault was in zone-2 from Varanasi end and in zone-4 from Sahupuri end.
		23-Jul-24	11:02	PLCC maloperation. As per PMU, no fault is observed. As per FIR, line tripped only from Varanasi end due to DT receieved at Varanasi end. DR not received from both ends.
		23-Jul-24	17:19	PLCC maloperation. As per PMU, no fault is observed. As per FIR, line tripped only from Varanasi end due to DT receieved at Varanasi end. DR not received from both ends.

Grid Event summary for July 2024

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Duration (hh:mm)	Event (As reported)	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
					Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
1	GD-1	1)220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-1 2)220 kV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2	Uttar Pradesh	PGCIL, UPPTCL	1-Jul-24	21:37	1-Jul-24	23:44	02:07	i)220kV Baghpat(UP) has main and transfer bus scheme at 220kV level. ii)During antecedent condition, incoming power at Baghpat(UP) was approx. 80 MW through 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-1 & 2. 220 KV Baghpat(PG)-Baghpat(UP) (UP) D/C, 220/132kV 160MVA ICT-1 and 220/132kV 100MVA ICT-2 were connected to 220kV main bus. 220 KV Baghpat(PG)-Baghpat(UP) (UP) D/C is on the same towers. iii)As per SCADA SOE, 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2 tripped at 21:37:59.415hrs and 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-1 tripped at 21:37:59.535 hrs. iv)As reported, at 21:37 hrs, 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2 tripped on Y-B-N double phase to earth fault and line tripped on zone-1 distance protection operation from both ends. As per Baghpat(UP) reporting, initially a B-ph fault occurred on 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2 with fault current - 10.39kA in zone-1. At the same time, jumper at tower no 45 of 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-2 got broken which created line-line (Y-B) fault due to which line got tripped from both ends. v)Further 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-1 also tripped on B-N phase to earth fault with fault current of ~9.7kA and fault distance of 11.8km from Baghpat(PG) end. As per DR of Baghpat(PG) end, B-N phase to earth fault with no A/R operation is observed and line tripped on zone-1 distance protection operation. Since there was no source remaining at 220kV Baghpat(UP) hence 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-1 didn't trip from Baghpat(UP) end. vi)As per PMU at Meerut(PG), Y-B phase to phase fault with fault clearance time of 80ms is observed. vii)Due to tripping of 220 KV Baghpat(PG)-Baghpat(UP) (UP) Ckt-1 & 2, Baghpat(UP) lost its connectivity from the grid and 220kV Baghpat(UP) S/s became dead. viii) As per SCADA, change in demand of approx. 68 MW in UP control area. However, SLDC-UP reported 80MW load loss.	0	0.169	0	80	0.000	0.102	55304	78768	80
2	GD-1	1)220 KV Chinhat-Satrikh Road (UP) Ckt 2)220 KV Chinhat-Gomtinagar (UP) Ckt 3)220 KV Chinhat-Kursi Road (UP) Ckt 4)220 KV Chinhat(UP)-Lucknow_1(PG) (UP) Ckt	Uttar Pradesh	PGCIL, UPPTCL	1-Jul-24	00:15	1-Jul-24	00:28	00:13	i)220kV Chinhat(UP) has main and transfer bus scheme at 220kV level. ii)During antecedent condition, incoming power at Chinhat(UP) was through 220kV Satrikh ckt (~100MW), Kursi Road ckt (~30MW) and Lucknow(PG) ckt (~80MW) and outgoing power was through 220kV Gomatinagar ckt (~30MW) and load at Chinhat(UP) S/s (~90MW). All 220kV lines and ICTs connected to 220kV main bus at Chinhat(UP) S/s. 220kV Chinhat-LMRC D/C is radial line from Chinhat(UP) S/s. iii)As reported, at 00:15 hrs, LA of 220 KV Chinhat-Satrikh Road (UP) Ckt bay burst at Chinhat(UP) S/s which caused R-N phase to earth fault. iv)On this fault 220kV lines from Chinhat(UP) to Satrikh Road (UP), Gomtinagar (UP), Kursi Road (UP) & Lucknow_1(PG) tripped (Reason of tripping and type of protection operated for all elements yet to receive). v)Due to these trippings at Chinhat(UP) S/s, 220kV Chinhat-LMRC D/C, 220/132kV ICT-1 & 2 became dead and blackout occurred at 220kV Chinhat(UP) S/s. vi)As per PMU at Lucknow(PG), R-N phase to earth fault with delayed fault clearance of 440msec is observed (reason for delayed fault clearance yet to receive). vii)As per SCADA, change in demand of approx. 195 MW in UP control area.	0	0.042	0	195	0.000	0.267	53003	72935	440
3	GD-1	1)220 KV Vasant Kunj-RK Puram(DTL) Ckt-1 2)220 KV Vasant Kunj-RK Puram(DTL) Ckt-2 3)220 KV Vasant Kunj-Mehrauli(DTL) Ckt-1 4)220/66kV 100MVA ICT-1 at Vasant Kunj(DTL) 5)220/66kV 100MVA ICT-2 at Vasant Kunj(DTL) 6)220/66kV 160MVA ICT-3 at Vasant Kunj(DTL)	Delhi	DTL	4-Jul-24	14:21	4-Jul-24	15:00	00:39	i)220kV Vasant Kunj(DTL) has double main Bus arrangement at 220kV side. ii)During antecedent condition, 220 KV Vasant Kunj-RK Puram(DTL) Ckt-1, 220 KV Vasant Kunj-Mehrauli(DTL) Ckt-1, 220/66kV 100MVA ICT-1 & 2 were connected to 220kV Bus-1 and 220 KV Vasant Kunj-RK Puram(DTL) Ckt-2 & 220/66kV 160MVA ICT-3 connected to 220kV Bus-2 at Vasant Kunj(DTL) S/s. 220 KV Vasant Kunj-Mehrauli (DTL) Ckt-1 & 2 were not in service (ckt-2 opened from Mehrauli end). iii)As reported, at 14:21 hrs, R-phase jumper of 220KV bus coupler connected to 220kV bus-2 got damaged which cause bus fault on both 220kV buses which led to bus bar protection operation on both 220kV buses at Vasant Kunj(DTL) S/s. iv)As per PMU at Dadri Thermal(NTPC), R-B phase to phase fault with fault clearing time of 80ms is observed. v)Due to bus bar protection operation at Vasant Kunj(DTL), all elements connected to 220kV bus-1 & 2 got tripped and blackout of 220kV Vasant Kunj(DTL) S/s occurred. vi)As per SCADA, change in demand of approx. 153 MW in Delhi control area (as per SCADA). However, 106 MW load loss is reported by SLDC-Delhi.	0	0.069	0	106	0.000	0.160	59455	66088	80
4	GI-1	1)220 KV Akal-Akal(Suzlon) (RS) Ckt-2 2)220 KV Akal-Akal(Suzlon) (RS) Ckt-1 3)220 KV Akal-Mulana (RS) Ckt	Rajasthan	RVPNL, Mulana, Suzlon	6-Jul-24	05:26	6-Jul-24	06:30	01:04	i)400/220kV Akal(RS) has one and half breaker scheme at 400kV level and double main and transfer bus scheme at 220kV level. ii)During antecedent condition, incoming power at Akal(RS) S/s through 220 KV Akal-Akal(Suzlon) (RS) D/C and 220 KV Akal-Mulana (RS) Ckt were approx. 235 MW and 125 MW respectively. iii)As reported, at 05:26 hrs, R-phase conductor of 220 KV Akal-Akal(Suzlon) (RS) ckt-2 broke at a distance of approx. 160m from Akal(RS) S/s which caused R-N phase to earth fault and subsequently 220 KV Akal-Akal(Suzlon) (RS) ckt-2 tripped on zone-1 distance protection from Akal(RS) end. iv)As per PMU at ASPS1(IP), R-Y phase to phase fault followed by R-N phase to earth fault with fault clearance time of 80msec and 80msec respectively are observed. v)At the same time, 220 KV Akal-Akal(Suzlon) (RS) Ckt-1 and 220 KV Akal-Mulana (RS) Ckt also tripped from Akal(RS) end (Reason of tripping yet to be received). vi)During this event, dip in Rajasthan wind generation of approx. 1800 MW is observed out of which approx. 1150 MW recovered within 10 minutes. (As per SCADA). vii)As per SCADA, no change in demand is observed in Rajasthan control area. viii)As per SCADA, change in Rajasthan wind generation of approx. 168MW is observed.	0	0	650	0	1.362	0.000	47708	54877	80
5	GI-2	1)400 KV Azamgarh-Mau (UP) Ckt 2)400 KV Mau(UP)-Ballia(PG) (PG) Ckt 3)400/132 kV 200 MVA ICT 3 at Mau(UP)	Uttar Pradesh	PGCIL, UPPTCL	7-Jul-24	11:44	7-Jul-24	14:01	02:17	i)220kV Mau(UP) has double main and transfer bus scheme at 400kV level. ii)During antecedent condition, 400 KV Azamgarh-Mau (UP) Ckt, 400 KV Mau(UP)-Ballia(PG) (PG) Ckt & 400/132 kV 200 MVA ICT-3 connected to 400kV bus-1 and 400kV Mau-Rasra (UP) ckt, 400/132/33kV 200MVA ICT-1 & 2 connected to 400kV bus-2. 400 KV Anpara_B(UPNJ)-Mau(UP) (UP) Ckt was not in service during the event. iii)As reported, at 11:44 hrs, B-phase CT of 400 KV Azamgarh-Mau (UP) Ckt burst which caused bus fault on 400kV bus-1 which led to bus bar protection operation on 400kV bus-1 at Mau(UP) S/s (Reason for delayed operation of bus bar protection yet to be received). iv)As per PMU at Azamgarh(UP), B-N phase to earth fault converted into Y-B phase to phase fault with delayed fault clearance time of 560ms is observed (Reason for delayed fault clearance is yet to receive). v)Due to bus bar protection operation, all elements connected to 400kV bus-1 (400kV Azamgarh(UP) ckt, Ballia(PG) ckt and 400/132 kV 200 MVA ICT-3) tripped at 400kV Mau(UP) S/s. vi)As per SCADA, change in demand of approx. 60 MW in UP control area.	0	0.137	0	60	0.000	0.097	52587	61926	560
6	GI-2	1)400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1 2)400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-2 3)400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-1 4)400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-2 5)400/220 kV 500 MVA ICT 2 at Sahupuri(UP) 6)132 KV Sahupuri(UP)-Karamnasa(BS) (UP) Ckt-1	Uttar Pradesh	PGCIL, UPPTCL	10-Jul-24	15:54	10-Jul-24	17:53	01:59	i)400/220kV Sahupuri(UP) has double main double scheme at 400kV and 220kV level. ii)During antecedent condition at 15:52 hrs, 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-2, 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-1 and 400/220 kV 500 MVA ICT-2 were connected to 400kV bus-1 and 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1 and 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-2 were connected to 400kV bus-2 at 400kV Sahupuri(UP) S/s. 400/220 kV 500 MVA ICT-1 at Sahupuri(UP) is under installation (commissioning) process. iii)As reported, at 15:54 hrs, Y-N phase to earth fault occurred in GIS compartment at 400kV Sahupuri(UP) (exact location of fault is yet to be received). It is suspected that fault location was in the bay of 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-2 in GIS compartment at 400kV Sahupuri(UP). iv)On this fault, 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-1 & 2 (fault current Iy=~1.1kA from Sahupuri end) tripped only from Sahupuri(UP) end on zone-4 distance protection. 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1 & 2 (fault current Iy=~3.3kA from Varanasi end, Iy=~3.6kA from Sahupuri end) tripped only from Varanasi(PG) end on zone-2 distance protection and fault sensed in zone-4 from Sahupuri(UP) end. 400/220 kV 500 MVA ICT 2 at Sahupuri(UP) and also tripped (details of protection operation is yet to receive). v)As reported, from 15:27 hrs to 17:49 hrs, multiple 220 & 132kV line also tripped at 220kV Sahupuri S/s i.e. 220kV Sahupuri-Churk ckt, 220kV Sahupuri-Raja Talab ckt, 220kV Sahupuri(400kV)-Sahupuri(200kV) interconnector, 132kV Sahupuri-Aliapur ckt, 132kV Sahupuri-Karamnasha ckt, 132kV Sahupuri-Chandauli ckt, 132kV Sahupuri-Sadat ckt and 132kV Sahupuri-Dhanapur ckt. Reason of tripping of these lines are yet to be received. vi)As per PMU at Varanasi(PG), at 15:54 hrs, Y-N phase to earth fault with delayed fault clearance time of 400msec is observed (Reason for delayed fault clearance is yet to receive). vii)As per SCADA, at 15:54 hrs, change in demand of approx. 100 MW in UP control area. viii)By 18:29 hrs, 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) D/C and 400/220 kV 500 MVA ICT-2 were charged.	0	0.198	0	100	0.000	0.137	60415	72949	400
7	GI-2	1)400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-1 2)400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-2 3)400/220 kV 500 MVA ICT 2 at Sahupuri(UP)	Uttar Pradesh	PGCIL, UPPTCL	10-Jul-24	18:37	10-Jul-24	22:59	04:22	i)400/220kV Sahupuri(UP) has double main double scheme at 400kV and 220kV level. ii)During antecedent condition at 18:35 hrs, 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-1 and 400/220 kV 500 MVA ICT-2 were connected to 400kV bus-1 and 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) Ckt-2 were connected to 400kV bus-2 at 400kV Sahupuri(UP) S/s. 400/220 kV 500 MVA ICT-1 at Sahupuri(UP) is under installation (commissioning) process. 400 KV Varanasi(PG)-Sahupuri(UP) (PG) D/C was not in service. iii) As reported at 18:37 hrs, Y-N phase to earth fault occurred in GIS compartment at 400kV Sahupuri(UP) (exact location of fault is yet to received). iv) On this fault, 400KV Sahupuri(UP)-Biharshariff(PG) (PG) D/C tripped (fault current Iy=~ 1.3kA from Sahupuri end) only from Sahupuri(UP) end on zone-4 distance protection. 400/220kV 500 MVA ICT-2 at Sahupuri(UP) also tripped (details of protection operation is yet to receive). v)As per PMU at Varanasi(PG), at 18:37 hrs, Y-N phase to earth fault with delayed fault clearance time of 240msec is observed (Reason for delayed fault clearance is yet to receive). vi)As per SCADA, at 18:37 hrs, change in demand of approx. 60 MW in UP control area. vii)At 18:56 hrs 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1 was charged at Sahupuri(UP) S/s. Charging attempt of 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-2 was not taken because it was suspected that fault at 15:54 hrs was in the bay of this line.	0	0.262	0	60	0.000	0.085	53214	70406	240
8	GI-2	1)400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1	Uttar Pradesh	PGCIL, UPPTCL	10-Jul-24	19:25	10-Jul-24	22:57	03:32	i)400/220kV Sahupuri(UP) has double main double scheme at 400kV and 220kV level. ii)During antecedent condition at 19:23 hrs, 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1 was connected to 400kV bus-2 at 400kV Sahupuri(UP) S/s. 400/220 kV 500 MVA ICT-1 at Sahupuri(UP) is under installation (commissioning) process. 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) D/C and 400/220 kV 500 MVA ICT-2 were not in service. iii) As reported, at 19:25 hrs, Y-N phase to earth fault occurred in GIS compartment at 400kV Sahupuri(UP) (exact location of fault is yet to receive). iv) On this fault 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1 tripped (fault current Iy=~ 4.7kA from Varanasi end) only from Varanasi end on zone-2 distance protection. v) As per PMU at Varanasi(PG), at 19:25 hrs, Y-N phase to earth fault with delayed fault clearance time of 400msec is observed (Reason for delayed fault clearance is yet to receive). vi)As per SCADA, at 19:25 hrs, no change in demand in UP control area. vii) During these three tripping events, 400/220kV Sahupuri(UP) S/s connected with grid through 220kV Sahupuri-Bhelpur (UP) ckt and interconnector of 220kV Sahupuri(UP) S/s. viii)Restoration of 400 KV Sahupuri(UP)-Biharshariff(PG) (PG) D/C, 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-1 and 400/220 kV 500 MVA ICT-2 at Sahupuri(UP) started from 22:57 hrs by taking all these elements on 400kV bus-1 at Sahupuri(UP) and 400 KV Varanasi(PG)-Sahupuri(UP) (PG) Ckt-2 is still not charged.	0	0	0	0	0.000	0.000	55759	72471	400
9	GI-2	1)765/400 kV 1500 MVA ICT 1 at Jhatkara(PG) 2)765/400 kV 1500 MVA ICT 2 at Jhatkara(PG) 3)400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-1 4)400 KV Jhatkara(PG)-Mundka(DV) (PG) Ckt-2	Delhi	PGCIL, DTL	12-Jul-24	11:55	12-Jul-24	12:32	00:37	i)765/400kV Jhatkara(PG) has one and half bus arrangement at 400kV side. ii)During antecedent condition, 400 KV Jhatkara-Dwarka (PG) ckt was not in service and due to high loading of 400 KV Bamnoli(DV)-Jhatkara(PG) (DTL) Ckt (~1570MW at 10:15 hrs), 400 KV Jhatkara-Dwarka (PG) ckt taken into service at 10:16 hrs. iii)At 10:20 hrs, 765/400 kV 1500 MVA ICT-1 & 2 were taken into emergency outage due hotspot/sparking in their isolators by opening their tie breakers. This led to reversal of power flow in 400 KV Bamnoli(DV)-Jhatkara(PG) (DTL) Ckt (i.e. Bamnoli to Jhatkara) of approx. 145 MW which was evacuating through 400 KV Jhatkara-Dwarka (PG) ckt. iv)At 11:37 hrs, 400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-1 (~1075MW) hand tripped (emergency shutdown) from Mundka(DV) end due to hotspot on the bay of same line at Mundka(DV) end. v)Due to tripping of 400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-1, the load of ckt-1 shifted on 400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-2 and due to overloading, 400 KV Jhatkara(PG)-Mundka(DV) (DTL) Ckt-2 (~1925 MW) also tripped at 11:55 hrs. vi)As per PMU at Jhatkara(PG), fluctuation in voltage and no fault in system is observed. vii)As per SCADA, no change in demand of Delhi control area.	0	0	0	0	0.000	0.000	65549	73566	NA
10	GI-2	1)765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PBTL) Ckt-3 2)765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1	Rajasthan	PGCIL	13-Jul-24	04:33	13-Jul-24	07:13	02:40	i)765/400/220kV Fatehgarh-2(PG) has one and half bus arrangement at 765kV side. ii)During antecedent condition, power flow from Fatehgarh-2 to Bhadla-2 through 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PBTL) Ckt-3 & 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 were 17 MW and 16 MW respectively. iii)At 04:33:41.642 hrs, 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PBTL) Ckt-3 tripped on R-N phase to earth fault (as reported). iv)As per PMU at Fatehgarh-2(PG), R-N phase to earth fault with fault clearing time of 120msec is observed. v)At 04:33:47.041 hrs, 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1 tripped on overvoltage protection. As per DR, voltage shoot up to 810kV (~1.06 pu) on 765 KV Bhadla_2 (PG)-Fatehgarh_II(PG) (PFTL) Ckt-1. vi)As per SCADA, no change in demand of Rajasthan control area and no change in RE generation.	0	0	0	0	0.000	0.000	50388	66264	120

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Duration (hh:mm)	Event (As reported)	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
					Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
11	GI-2	1)400/220 kV 500 MVA ICT 1 at Lucknow(UP) 2)400/220 kV 500 MVA ICT 2 at Lucknow(UP) 3)220kV Lucknow-Hardoi Road (UP) ckt 4)220kV Lucknow-Unnao (UP) ckt 5)220/132 kV 200 MVA ICT 1 at Lucknow(UP) 6)220/132 kV 200 MVA ICT 2 at Lucknow(UP)	Uttar Pradesh	UPPTCL	14-Jul-24	15:53	14-Jul-24	16:08	00:15	i)220kV Lucknow(UP) has double main and trandfer bus scheme at 220kV level. ii)During antecedent condition, 400/220kV 500 MVA ICT-1 & 2, 220/132kV 200 MVA ICT-1 & 2, 220kV Lucknow-Hardoi Road (UP) ckt & 220kV Lucknow-Unnao (UP) ckt were connected to 220kV bus-1 and 220kV lines from Lucknow(UP) to Bachrawan, Gomatinagar, Kanpur Road & 220/132kV 200MVA ICT-1 & 2 connected to 220kV bus-2 at 220kV Lucknow(UP) S/s. 220kV Lucknow-Kanpur Road (UP) ckt was not in service during the event. iii)As reported, at 15:53 hrs, R-N phase to earth fault occurred on 220kV bus-1 which led to tripping of all elements connected to 220kV bus-1 at 220kV Lucknow(UP). Bus bar protection failed to operate and 400/220 kV 500 MVA ICT-1 & 2 tripped on LBB protection (Type of protection operated in tripping of other elements is yet to receive) iv)As per PMU at Lucknow(PG), R-N phase to earth fault with delayed fault clearance time of 880ms is observed (Reason for delayed fault clearance is yet to receive). v)As per SCADA, change in demand of approx. 280 MW in UP control area. However, approx. 250 MW load loss in UP control area as per SLDC-UP.	0	0.063	0	250	0.000	0.342	56035	73115	880
12	GD-1	1) 220 KV Samaypur (BB)-Palli (HV) (HVPNL) Ckt-1 2) 220 KV Samaypur (BB)-Palli (HV) (HVPNL) Ckt-2 3) 220 KV Badshahpur (HV)-Palli (HV) (HVPNL) Ckt-1 4) 220 KV Badshahpur (HV)-Palli (HV) (HVPNL) Ckt-2 5) 220 KV Palla (HV) (Sec-46) -Palli (HV) (HVPNL) Ckt-1 6) 220 KV Palla (HV) (Sec-46) -Palli (HV) (HVPNL) Ckt-2 7) 220 KV Sector 52 (HV) (Sec-56 Gurgaon)-Palli (HV) (HVPNL) Ckt-1 8) 220 KV Sector 52 (HV) (Sec-56 Gurgaon)-Palli (HV) (HVPNL) Ckt-2	Haryana and Delhi	BBMB, HVPNL	16-Jul-24	22:10	17-Jul-24	00:30	02:20	i)During antecedent condition, 220 kV Palli S/S importing load from 220 KV Samaypur (BB)-Palli (HV) (HVPNL) Ckt-1 & Ckt-2, 220 KV Badshahpur (HV)-Palli (HV) (HVPNL) Ckt-1 & ckt-2 and 220 KV Sector-56 (Gurgaon) -Palli (HV) (HVPNL) Ckt-1 & Ckt-2 and feeding that load to 220 KV Palla (HV) (Sec-46) & 220 KV Palli (2*100MVA+1*160MVA) S/S. ii)As reported, to manage the line loading on sector-72 Gurgaon ckt, 220 KV Sector 52 (HV) (Sec-56 Gurgaon)-Palli (HV) (HVPNL) Ckt-1 was opened at 22:10 hrs on the instruction of SLDC-Haryana. This led to sparking on the 220 KV Sector 52 (HV) (Sec-56 Gurgaon)-Palli (HV) (HVPNL) Ckt-2 at Palli S/S end. iii)At the same time, busbar protection operated at 220kV Palli(HV) due to which all the elements connected to 220kV Bus-1 and 2 at Palli(HV) tripped and complete blackout occurred at Palli(HV) S/s. iv)As per PMU, R-Y phase to phase fault with delayed fault clearing time of 880 ms was observed. v)As per SCADA, change in demand of approx. 600 MW and 980 MW in Delhi and Haryana control area respectively were observed. However, as reported, approx. 400 MW load loss occurred at Palli & Sec-46 (Faridabad). Rest of the change in demand is suspected due to stalling of induction motor.	0	0.933	0	1580	0.000	1.956	56799	80778	880
13	GI-1	1) 220 KV Amargarh (INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 2) 220 KV Amargarh (INDIGRID)-Ziankote(JK) (PDD JK) Ckt-2	Jammu and Kashmir	PDD JK, INDIGRID	18-Jul-24	11:01	18-Jul-24	12:51	01:50	i)220/132kV Ziankote S/s have two bus at 220kV side i.e., main bus & reserve bus. 220kV Amargarh-Ziankote ckt-1&2 are on the same tower (D/C tower) and line length is ~21.4km. ii)During antecedent condition, 220kV Amargarh(INDIGRID) –Ziankote(JK) D/C was carrying 109 MW each and feeding Ziankote load. iii)As reported, at 11:01 hrs, 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) D/C tripped from both ends on B-N phase to earth fault. During patrolling it was found that fault occurred due to vegetation fire in bottom of the line. iv)As per DR of both the circuits of Amargarh end, Amargarh end distance protection relay sensed B-N fault in Z-1 (15.66km) in line-1 and in Z-2(21.69km) in line-2. Both the lines tripped instantaneously from Amargarh end. Fault current was ~4kA. v)As confirmed by Amargarh(INDIGRID), in view of non-availability of carrier communication and A/R scheme at Ziankote end, A/R has been kept disabled at Amargarh end and time delay of Z-2 also kept as instantaneous at Amargarh end. vi)As per PMU at Amargarh(PG), B-N phase to earth fault which cleared within 120 msec is observed. vii)As per SCADA, change in demand of approx. 210MW is observed in J&K control area.	0	0.385	0	210	0.000	0.257	69460	81592	120
14	GD-1	1) 220 KV Khodri(UK)-Majri(HP) (UK) Ckt-1 2) 220 KV Khodri(UK)-Majri(HP) (UK) Ckt-2 3) 220 KV Khodri(UK)-Saraswan(UP) (UP) Ckt 4) 220 KV Khodri(UK)-Saharanpur(UP) (UP) Ckt 5) 220 KV Khodri-Chhibro (UK) Ckt-1 6) 220 KV Khodri-Chhibro (UK) Ckt-2 7) 30 MW Khodri Unit-1, 2, 3 & 4 8) 60 MW Chhibro Unit-1, 2, 3 & 4	Uttarakhand	PTCUL, HPPTCL, UPPTCL	19-Jul-24	21:31	19-Jul-24	22:03	00:32	i)During antecedent condition, all the four 30MW units of Khodri and 60 MW units of Chhibro were running and total active power generation of Khodri and Chhibro was approx. 89 MW and 196 MW (as per SCADA). Total generation of Chhibro was evacuating through 220 KV Khodri-Chhibro (UK) Ckt-1 & 2. ii)As reported, at 21:31 hrs, while taking out 30MW Khodri Unit-2, B-phase pole of CB of Unit-2 did not open. This led to LBB protection operation which further resulted in tripping of all the elements connected to both the buses at 220kV Khodri(UK) and complete blackout occurred at 220kV Khodri(UK) S/s. iii)Due to tripping of 220 KV Khodri-Chhibro (UK) Ckt-1 & 2, 60 MW Chhibro Unit-1, 2, 3 & 4 also tripped due to loss of evacuation path and complete blackout occurred at 220kV Chhibro(UK) S/s. iv)As per PMU, no fault was observed in the system. v)As per SCADA, change in demand and generation of approx. 30 MW and 300 MW respectively in Uttarakhand control area were observed. vi)As remedial action taken, over hauling & testing of generator CB has been performed and found satisfactory.	0	0.016	300	30	0.526	0.037	57033	80484	NA
15	GI-2	1)220kV Bus 1 at Patiala(PG) 2)400/220 kV 315 MVA ICT 1 at Patiala(PG) 3)400/220 kV 315 MVA ICT 3 at Patiala(PG) 4)220 kV Bahadurgarh(PS)-Patiala(PG) (PSTCL) Ckt-1 5)220 kV Patiala(PG)-Ablowal(PS) (PSTCL) Ckt-1 6)220 kV Patiala(PG)-Nabha(PS) (PSTCL) Ckt-1 7)220 kV Bahadurgarh(PS)-Patiala(PG) (PSTCL) Ckt-2 8)220 kV Patiala(PG)-Ablowal(PS) (PSTCL) Ckt-2 9)220 kV Patiala(PG)-Nabha(PS) (PSTCL) Ckt-2	Punjab	POWERGRID	19-Jul-24	18:50	19-Jul-24	20:27	01:37	i)400/220kV Patiala(PG) has one and half bus scheme at 400kV level and double main & transfer bus scheme at 220kV level. ii)During antecedent condition, 400/220kV 315 MVA ICT-1 & 500 MVA ICT-3, 220kV Bahadurgarh-I, Nabha-I, Ablowal-I were connected at 220kV Bus-1 and 400/220kV 315 MVA ICT-2 & 500 MVA ICT-4, 220kV Bahadurgarh-II, Nabha-II, Ablowal-II were connected at 220kV Bus-2. 400/220kV ICT-1,2,3 & 4 were carrying approx. 156MW, 153MW, 243MW & 238 MW respectively. 220kV D/C to Nabha, Bahadurgarh & Ablowal were carrying approx. 171MW, 98MW & 127MW respectively per circuit. iii)As reported at 18:50 hrs, B-N phase to earth fault occurred on 220 KV Patiala(PG)-Nabha(PS) (PSTCL) Ckt-1. Fault location was ~7.3km from Nabha end. Distance protection at Patiala end sensed fault in Z-2 and initiated tripping command however, breaker at Patiala end failed to open. This further led to the operation of LBB protection of Nabha-I bay at Patiala(PG). iv)On the result of LBB protection operation, 400/220kV 315 MVA ICT-1, Ablowal-I, bus coupler tripped however, 400/220kV 500 MVA ICT-3 & 220kV Bahadurgarh-I didn't trip. v)Further, 400/220kV 500 MVA ICT-3 tripped on over current earth fault protection operation and 220kV Bahadurgarh-I tripped from Bahadurgarh end only. vi)Further, at the same time, Nabha-II, Ablowal-II also tripped due to overloading. vii)At 18:50:33 hrs, 220 KV Bahadurgarh(PS)-Patiala(PG) (PSTCL) Ckt-2 tripped on another B-N fault. As reported, fault occurred due to conductor snapping at distance ~1.5km from Bahadurgarh end. viii)As per PMU at Patiala(PG), B-N phase to earth fault at 18:50:15 hrs & 18:50:33 hrs with fault clearance time of 2400 msec at 18:50:15 hrs and 120 msec at 18:50:33 hrs is observed. ix)As per SCADA, change in demand of approx. 245MW is observed in Punjab control area. x)As reported by POWERGRID(NR-2), CB operating mechanism problem of 220kV Nabha-I line has been rectified and reason of non-tripping of 400/220kV 500 MVA ICT-3 & 220kV Bahadurgarh-I at Patiala(PG) on LBB operation is under investigation.	0	0.396	0	245	0.000	0.322	57860	76105	2400
16	GI-1	1) 66 kV incomer of 200/66 kV 100 MVA ICT-1 at Mehrauli(DTL) 2) 66 kV incomer of 200/66 kV 100 MVA ICT-2 at Mehrauli(DTL) 3) 66 kV incomer of 200/66 kV 100 MVA ICT-3 at Mehrauli(DTL)	Delhi	DTL	20-Jul-24	10:46	20-Jul-24	11:02	00:16	i)During antecedent condition, 220/66 kV 160 MVA ICT-4 at Mehrauli(DTL) was under shutdown (as informed by SLDC Delhi). ii)As reported, at 10:45 hrs, 66 kV incomers of 200/66 kV 100 MVA ICT-1, 2 & 3 at Mehrauli(DTL) tripped on over-current protection operation (exact reason, location and nature of fault yet to be shared). iii)As per PMU, B-N phase to earth fault with delayed fault clearing time of 400 ms followed by Y-N phase to earth fault with fault clearing time of 120 ms was observed. iv)As per SCADA, change in demand of approx. 290 MW was observed in Delhi. However, as reported by SLDC-Delhi, load loss of approx. 227 MW occurred in Delhi.	0	0.061	0	227	0.000	0.283	68287	80318	400
17	GI-2	1) 400 KV Mandaula(PG)-Maharani Bagh(PG) (DTL) Ckt-1 2) 400 KV Mandaula(PG)-Maharani Bagh(PG) (DTL) Ckt-2 3) 400 KV Bawana(DTL)-Maharani Bagh(PG) (DTL) Ckt-1	Delhi	DTL, PGCIL	28-Jul-24	18:24	28-Jul-24	18:46	00:22	i)400 KV Mandaula(PG)-Maharani Bagh(PG) (DTL) D/C and 400 KV Bawana(DTL)-Maharani Bagh(PG) (DTL) D/C are on same towers. ii)During antecedent condition, incoming power at Maharani Bagh(PG) through 400 KV Mandaula(PG)-Maharani Bagh(PG) (DTL) D/C and 400 KV Bawana(DTL)-Maharani Bagh(PG) (DTL) Ckt-1 was approx. 295 MW and 292 MW respectively (as per SCADA). iii)As reported, at 18:24 hrs, 400 KV Bawana(DTL)-Maharani Bagh(PG) (DTL) Ckt-1 and 400 KV Mandaula(PG)-Maharani Bagh(PG) (DTL) Ckt-2 tripped on Y-B phase to phase fault and at the same time 400 KV Mandaula(PG)-Maharani Bagh(PG) (DTL) Ckt-1 also tripped from Mandaula(PG) end (reason of tripping is yet to be received). iv)During patrolling of Ckts, it was found that Y-B phase to phase fault occurred on 400 KV Bawana(DTL)-Maharani Bagh(PG) (DTL) Ckt-1 and 400 KV Mandaula(PG)-Maharani Bagh(PG) (DTL) Ckt-2 due to kite thread. v)As per PMU at Maharani Bagh(PG), Y-B followed by Y-B phase to phase fault with fault clearing time of 120msec & 120msec is observed. vi)As per DR of Bawana(DTL) end of 400 KV Bawana(DTL)-Maharani Bagh(PG) (DTL) Ckt-1, Y-B phase to phase fault (Iy=~9.8kA & Ib=~10.3kA) sensed in zone-2 with carrier signal received is observed. Fault distance was 39.58km from Bawana(DTL) end (as reported). vii)As per SCADA, change in demand of approx. 95 MW in Delhi control area.	0	0.035	0	95	0.000	0.134	53018	70818	120
18	GI-1	1) 200/66 kV 100 MVA ICT-1 at Mehrauli(DTL) 2) 66 kV incomer of 200/66 kV 100 MVA ICT-3 at Mehrauli(DTL)	Delhi	DTL	28-Jul-24	21:53	28-Jul-24	22:14	00:21	i)During antecedent condition, 200/66 kV 100 MVA ICT-1 & 3 at Mehrauli(DTL) were connected to 220kV Bus-1 at Mehrauli(DTL) and 220/66 kV 100MVA ICT-3 and 160 MVA ICT-4 at Mehrauli(DTL) were connected to 220kV Bus-2 at Mehrauli(DTL). 220kV Bus coupler was in ON position whereas 66kV Bus coupler was in OFF position (as informed by SLDC Delhi). ii)As reported, at 21:53 hrs, 200/66 kV 100 MVA ICT-1 at Mehrauli(DTL) tripped on Restricted earth fault protection operation (exact nature, location and reason of fault yet to be shared). iii)During the same time, 66 kV incomer of 200/66 kV 100 MVA ICT-3 at Mehrauli(DTL) tripped without any relay indication (exact reason of tripping yet to be shared). iv)As per PMU, no fault is observed in the system at 21:53 hrs. v)As reported by SLDC Delhi, load loss of approx. 110 MW occurred at 21:53hrs. Major affected load areas were Vasant Kunj C Block, C Dot, Fatehpur Beri, Caffims and 220kV Mehrauli.	0	0.039	0	110	0.000	0.136	56168	81095	NA
19	GI-1	1) 66 kV incomer of 200/66 kV 100 MVA ICT-2 at Mehrauli(DTL) 2) 66 kV incomer of 200/66 kV 160 MVA ICT-4 at Mehrauli(DTL)	Delhi	DTL	28-Jul-24	22:05	28-Jul-24	22:14	00:09	i)As reported, at 22:05 hrs, 66 kV incomers of 200/66 kV 100 MVA ICT- 2 at Mehrauli(DTL) tripped on over-current (B-ph) protection operation. ii)During the same time, 66 kV incomers of 200/66 kV 160 MVA ICT- 4 at Mehrauli(DTL) tripped without any relay indication (exact reason of tripping yet to be shared). iii)As per PMU, no fault is observed in the system at 22:05 hrs. iv)As per SCADA, change in demand of approx. 240 MW is observed in Delhi control area. However, as reported by SLDC Delhi, load loss of approx. 198 MW occurred at 21:53hrs. Major affected load areas were Vasant Kunj C Block, Malviya Nagar, Shivalik, TKD, DC Saket, IGNOU, C Dot, Fatehpur Beri, Caffims, Bijwashan and 220kV Mehrauli.	0	0.03	0	198	0.000	0.242	56370	81704	NA
20	GI-1	1) 220 KV Bawana- Shalimarbagh (DTL) Ckt-2 2) 220/33kV 100 MVA ICT-1 at Shalimarbagh(DTL) 3) 220/66kV 100 MVA ICT-2 at Shalimarbagh(DTL) 4) 220/33kV 100 MVA ICT-3 at Shalimarbagh(DTL)	Delhi	DTL	29-Jul-24	14:40	29-Jul-24	15:03	00:23	i)220/66/33kV Shalimarbagh(DTL) has double main Bus arrangement at 220kV side. ii)During antecedent condition, 220 kV Shalimarbagh-Rohini Ckt-1 (No load), 220kV Shalimargarh-SGTN Ckt-1 & 2, 220kV Shalimarbagh-DMRC Ckt-1, 220kV Shalimarbagh-Wazirpur Ckt-1 & 2 and 220 kV Bawana-Shalimarbagh Ckt-1 were connected to 220kV Bus-1 and 100 MVA 220/33kV ICT-1 & 3 and 220/66kV ICT-2 at Shalimarbagh(DTL), 220 kV Shalimarbagh-Rohini Ckt-2 (No load), 220kV Shalimarbagh-DMRC Ckt-2 and 220 kV Bawana- Shalimarbagh Ckt-2 were connected to 220kV Bus-2 at Shalimarbagh(DTL) S/s. 220kV bus coupler was in ON position (as informed by SLDC Delhi). iii)As reported, at 14:40 hrs, heavy flashover was observed in R-ph line isolator at Bawana end of 220 KV Bawana- Shalimarbagh (DTL) Ckt-2 and line tripped from Shalimarbagh end. As reported and as per SCADA SOE, line was manually opened from Bawana end at 14:42:17hrs. iv)During the same time, 100 MVA 220/33kV ICT-1 & 3 and 220/66kV ICT-2 at Shalimarbagh(DTL) also tripped (exact nature of protection operated yet to be shared). v)As per PMU at Abdullapur(PG), no fault is observed in the system. vi)As per SCADA, change in demand of approx. 185 MW in Delhi control area. However, as reported by SLDC-Delhi, load loss of approx. 125 MW occurred. Major load affected area were Tiglpur, Haiderpur, Pitampura-III & I, Rohini-I, Wazirpur-II, Ranibagh, SMB-FC and SMB-Khosla.	0	0.048	0	125	0.000	0.146	70093	85659	NA

S.No.	Category of Grid Disturbance (GD-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Revival		Duration (hh:mm)	Event (As reported)	Energy Unserved due to Generation loss (MU)	Energy Unserved due to Load loss (MU)	Loss of generation / loss of load during the Grid Disturbance		% Loss of generation / loss of load w.r.t Antecedent Generation/Load in the Regional Grid during the Grid Disturbance		Antecedent Generation/Load in the Regional Grid		Fault Clearance time (in ms)
					Date	Time	Date	Time					Generation Loss(MW)	Load Loss (MW)	% Generation Loss(MW)	% Load Loss (MW)	Antecedent Generation (MW)	Antecedent Load (MW)	
21	GD-1	1) 220 KV Singoli Bhatwari (Singoli(LTUHP))-Srinagar(UK) (PTCUL) Ckt-1 2) 33MW Unit-1 at Singoli Bhatwari HEP 3) 33MW Unit-2 at Singoli Bhatwari HEP 4) 33MW Unit-3 at Singoli Bhatwari HEP	Uttarakhand	Singoli Bhatwari, PTCUL	29-Jul-24	13:56	29-Jul-24	14:28	00:32	i)During antecedent condition, 33MW Unit-1, 2 and 3 at Singoli Bhatwari HEP were generating approx. 36MW each. 220 KV Singoli Bhatwari (Singoli(LTUHP))-Srinagar(UK) (PTCUL) Ckt-2 was under planned outage. Total generation of 108MW of Singoli Bhatwari was evacuating through 220 KV Singoli Bhatwari (Singoli(LTUHP))-Srinagar(UK) (PTCUL) Ckt-1. ii)As reported, at 13:56 hrs, 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(UK) (PTCUL) Ckt-1 tripped on R-N phase to ground fault (exact reason of fault yet to be shared). iii)As per DR, fault current was ~2.44kA and fault distance was 53.2 km (69.1%) from Srinagar(UK) end; fault sensed in zone-1 and fault clearing time was ~50 ms.. iv)Due to tripping of 220 KV Singoli Bhatwari(Singoli(LTUHP))-Srinagar(UK) (PTCUL) Ckt-1, 33MW Unit-1, 2 and 3 at Singoli Bhatwari HEP tripped due to loss of evacuation path and blackout occurred at 220kV Singoli Bhatwari HEP. v)As per PMU at Roorkee(PG), R-N phase to ground fault is observed with fault clearing time of 80 ms. vi)As per SCADA, generation loss of approx. 108MW at Singoli Bhatwari HEP is observed.	0	0	108	0	0.152	0.000	70868	84775	80
22	GI-1	1) 220kV Bhadla(RS)-Saurya Urja Ckt-2 2) 220 kV Bus sectionalizer-I (Bay no. 09) 3) 220 kV Bus Coupler-I (Bay no. 13) 4) 220kV Bhadla(RS)-RSDCL I Ckt-2	Rajasthan	RVPNL	30-Jul-24	11:38	30-Jul-24	12:52	01:14	i)400/220kV Bhadla(RS) has double main and transfer bus arrangement at 220kV side. ii)During antecedent condition, 220 kV Bhadla(RS)-Saurya Urja-2 and 220kV Bhadla(RS)-RSDCL I Ckt-2 were carrying approx. 242 MW & 128 MW respectively (reported data). iii)As reported, at 11:38hrs, B-ph jumper of 220kV Bhadla(RS)-Saurya Urja Ckt-2 snapped from Main Bus at Bhadla(RS) which led to tripping of 220kV Bhadla(RS)-Saurya Urja Ckt-2. iv)During the same time, 220 kV Bus sectionalizer-I (Bay no. 09) and 220 kV Bus Coupler-I (Bay no. 13) at Bhadla(RS) also tripped due to B-N phase to ground fault (As per PMU, Y-N fault; phase sequence issue is observed). v)Further as reported, 220kV Bhadla(RS)-RSDCL I Ckt-2 also tripped from RSDCL I end only due to LBB operation at the same time (exact reason of LBB operation yet to be shared). vi)As per PMU at Bhadla(PG), Y-N phase to ground fault is observed with delayed fault clearing time of 160 ms. vii) As per SCADA, change in solar generation of approx. 905MW is observed in Rajasthan control area. viii)As reported by SLDC Rajasthan, approx. 370 MW of solar generation loss occurred in Rajasthan control area and there is total approx. 730 MW reduction in solar generation by RE plants connected at Bhadla(RS).	0	0	370	0	0.524	0.000	70619	86135	160
23	GD-1	1) 220KV Bamanauli-Najafgarh (DTL) Ckt-1 2) 220KV Bamanauli-Najafgarh (DTL) Ckt-2	Delhi	DTL	30-Jul-24	14:55	30-Jul-24	15:05	00:10	i)220kV Najafgarh(DTL) has double main bus arrangement at 220kV level. ii)During antecedent condition, incoming power at Najafgarh(DTL) S/s was approx. 335 MW through 220KV Bamanauli-Najafgarh (DTL) D/C. 220kV Najafgarh-Mundka (DTL) Ckt & 220kV Najafgarh-Kanjhawala (DTL) Ckt were not in service. iii)As reported, at 14:55 hrs, 220KV Bamanauli-Najafgarh (DTL) Ckt-2 tripped on B-N phase to earth fault and 220KV Bamanauli-Najafgarh (DTL) Ckt-1 tripped on O/C protection. iv)As reported, 220KV Bamanauli-Najafgarh (DTL) Ckt-2 tripped on zone-1 distance protection on B-N fault with fault distance of 6.3km from Najafgarh(DTL) end and on differential protection from Bamanauli(DTL) end. v)As 220KV Bamanauli-Najafgarh (DTL) Ckt-2 tripped, complete load shifted on 220KV Bamanauli-Najafgarh (DTL) Ckt-1 and Ckt-1 also tripped on overcurrent protection from Najafgarh(DTL) end. vi)As per PMU at Dwarka(PG), B-N phase to earth fault with fault clearing time of 120msec is observed. vii)As 220kV Najafgarh-Mundka (DTL) Ckt & 220kV Najafgarh-Kanjhawala (DTL) Ckt were not in service and 220KV Bamanauli-Najafgarh (DTL) D/C also tripped, Najafgarh (DTL) lost its connectivity from Grid and blackout occurred at 220kV Najafgarh(DTL) S/s. viii)As per SCADA, change in demand of approx. 285 MW in Delhi control area. However, SLDC-Delhi reported load loss of approx. 304 MW in Delhi control area.	0	0.051	0	304	0.000	0.347	71027	87542	120
24	GI-1	1) 220 KV Khodri(UK)-Majri/Giri(HP) (UK) ckt-2 2) 220/132kV 100 MVA ICT-1 at Giri(HP) 3) 220/132kV 100 MVA ICT-2 at Giri(HP)	Himachal Pradesh	PTCUL, HPPTCL	31-Jul-24	22:40	31-Jul-24	23:33	00:53	i)220kV Giri(HP) S/s has double main bus arrangement at 220kV level. ii)During antecedent condition, incoming power at Giri(HP) S/s through 220kV Khodri(UK)-Giri(HP) (UK) D/C was 105MW. iii)As reported, at 22:40 hrs, Y-phase LA of 220/132kV 100 MVA ICT-2 at Giri(HP) S/s blasted which caused Y-N phase to earth fault. On this fault 220/132kV 100 MVA ICT-1 & 2 tripped on overcurrent earth fault protection (ICT-1 at Giri(HP) should not trip on this fault, reason for the same is yet to be received). iv)On the same fault, 220kV Khodri(UK)-Giri(HP) (UK) Ckt-2 tripped only from Khodri(UK) end on Y-N phase to earth fault. Fault sensed in zone-3 with fault current of Iy=~2.4kA from Khodri(UK) end. v)As per PMU at Saharanpur(PG), Y-N phase to earth fault with fault clearing time of 120msec is observed. vi)As per SCADA, change in demand of approx. 110 MW in HP control area. However, SLDC-HP reported load loss of approx. 140 MW in HP control area.	0	0.124	0	140	0.000	0.203	54106	68837	120

S. No.	Name of Transmission Element Tripped	Owner/ Utility	Outage		Load Loss/ Gen. Loss	Brief Reason (As reported)	Category as per CEA Grid standards	# Fault Clearance Time (>100 ms for 400 kV and 160 ms for 220 kV)	*FIR Furnished (YES/NO)	DR/EL provided in 24 hrs (YES/NO)	Other Protection Issues and Non Compliance (inference from PMU, utility details)	Suggestive Remedial Measures	Remarks
			Date	Time									
1	800 KV HVDC Kurukshetra(PG) Pole-2	POWERGRID	05-Jul-24	11:52	Nil	Relay maloperation	NA	NA	YES (After 24 hrs)	YES (After 24 hrs)			As per PMU, fluctuation in voltage is observed. As reported, Pole 2 blocked due to CAT A1 sequence initiated due to tripping issued by VBE system.
2	132 KV Anpara(UP)-Morwa(MP) (UP) Ckt-1	UPPTCL	06-Jul-24	17:31	Nil	DC Supply Fail	NA	NA	YES (After 24 hrs)	NO			As per PMU, no fault in the system is observed. DR not received.
3	800 KV HVDC Kurukshetra(PG) Pole-2	POWERGRID	06-Jul-24	15:05	Nil	Tripped due to S 5005 card failure in VBE panel at Kurukshetra.	NA	NA	YES (After 24 hrs)	YES (After 24 hrs)			As per PMU, fluctuation in voltage is observed. As reported, pole-2 tripped due to S 5005 card failure in VBE panel at Kurukshetra.
4	220 KV Auraiya(NT)-Malanpur(MP) (PG) Ckt-1	POWERGRID	09-Jul-24	18:12	Nil	Phase to earth fault R-N	NA	NA	NO	NO			As per PMU, R-N fault with no A/R operation is observed. DR not received.
5	400 KV Gorakhpur(PG)-Motihari(BS) (PG) Ckt-2	POWERGRID	09-Jul-24	05:40	Nil	Phase to earth fault R-N	NA	NA	YES	YES (After 24 hrs)			As per PMU and DR (of Gorakhpur end), R-N fault with unsuccessful A/R operation is observed from Gorakhpur end.
6	400 KV Kankroli-Zerda (PG) Ckt-1	POWERGRID	13-Jul-24	06:39	Nil	Phase to earth fault B-N	NA	NA	YES (After 24 hrs)	YES (After 24 hrs)			As per PMU and DR (of Kankroli end), B-N fault with unsuccessful A/R operation is observed from Kankroli end.
7	765 KV Orai-Jabalpur (PG) Ckt-1	POWERGRID	14-Jul-24	08:30	Nil	Snapping of Conductor	NA	NA	YES	NO			As per PMU, R-N fault with no A/R operation is observed. DR not received. As reported, emergency shutdown taken by WR-2 for attending damaged conductor strands at loc 917,920,922.
8	400 KV Gorakhpur(PG)-Motihari(BS) (PG) Ckt-1	POWERGRID	15-Jul-24	04:30	Nil	Phase to earth fault B-N	NA	NA	YES	YES (After 24 hrs)			As per PMU and DR (of Gorakhpur end), B-N fault with unsuccessful A/R operation is observed from Gorakhpur end.
9	132 KV Rihand(UP)-Garwa(JS) (UP) Ckt-1	UPPTCL	15-Jul-24	03:58	Nil	Phase to Ground Fault B-N	NA	NA	YES	YES			As per DR (of Rihand end), B-N fault is observed. (.dat/.cfg file) of DR not receieved.
10	220 KV Auraiya(NT)-Malanpur(MP) (PG) Ckt-1	POWERGRID	19-Jul-24	05:11	Nil	Phase to earth fault B-N	NA	NA	NO	YES			As per PMU, B-N fault with no A/R operation. As per DR (of Auraiya end), B-N fault 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 July 2024 - 31st July 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	CPCC3	46	10	**22**	5	7	**13**	5	7	**13**	6	0	**13**	
2	SLDC-UK	20	0	**0**	2	5	**13**	2	2	**11**	0	0	**0**	
3	CPCC2	31	3	**10**	3	3	**11**	3	3	**11**	3	0	**10**	
4	SLDC-UP	151	8	**5**	9	41	**8**	10	49	**10**	11	5	**8**	DR, EL & Tripping report not submitted
5	CPCC1	67	2	**3**	7	15	**13**	9	15	**17**	8	0	**12**	
6	SLDC-HR	18	7	**39**	9	7	**82**	9	7	**82**	7	0	**39**	
7	INDIGRID	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
8	SALAL-NH	7	3	**43**	3	3	**75**	3	2	**60**	3	0	**43**	
9	SINGOLI	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
10	SLDC-DV	24	2	**8**	10	1	**43**	10	1	**43**	11	0	**46**	
11	BBMB	43	10	**23**	9	14	**31**	11	16	**41**	11	5	**29**	
12	SLDC-HP	10	0	**0**	8	0	**80**	8	0	**80**	8	0	**80**	
13	KARCHAM	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
14	SLDC-RS	75	7	**9**	14	11	**22**	14	11	**22**	23	0	**31**	
15	AHEJ4L	4	4	**100**	4	0	**100**	4	0	**100**	4	0	**100**	
16	RAPPB	3	2	**67**	3	0	**100**	3	0	**100**	3	0	**100**	
17	RAPPA	5	3	**60**	5	0	**100**	5	0	**100**	5	0	**100**	
18	DADRI-NT	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	
19	ANTA-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
20	TANAKPUR-NH	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
21	SLDC-JK	11	0	**0**	11	0	**100**	11	0	**100**	11	0	**100**	DR, EL & Tripping report not submitted
22	NAPP	5	0	**0**	0	2	**0**	0	2	**0**	0	0	**0**	Details received
23	NJPC	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
24	AD HYDRO	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
25	BAIRASUIL-NH	3	1	**33**	1	2	**100**	1	1	**50**	1	0	**33**	
26	AVAADA RJHN	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
27	RENEW	3	3	**100**	3	0	**100**	3	0	**100**	3	0	**100**	
28	SLDC-PS	19	0	**0**	11	3	**69**	11	3	**69**	14	0	**74**	DR, EL & Tripping report not submitted

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

Time Period: 1st July 2024 - 31st July 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		%	
29	STERLITE	3	0	**0**	0	0	**0**	0	0	**0**	1	0	**33**	submitted
30	SINGRAULI-NT	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	
31	AURAIYA-NT	2	2	**100**	1	0	**50**	1	0	**50**	2	0	**100**	
32	RAPPC	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
33	CHAMERA-I-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
34	PARBATI-III-NH	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	DR, EL & Tripping report not submitted
35	SHREE CEMENT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
36	SEWA-2-NH	4	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
37	TANDA-NT	2	1	**50**	1	1	**100**	1	0	**50**	1	0	**50**	DR, EL & Tripping report not submitted
38	UNCHAHAR-NT	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
39	RENEW SURYARAVI (RSRPL)	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
40	PKTSL	1	0	**0**	0	1	**0**	0	1	**0**	0	0	**0**	
41	DULHASTI-NH	1	0	**0**	0	1	**0**	0	0	**0**	0	0	**0**	Details received
42	DHAULIGANGA-NH	3	0	**0**	0	3	**0**	0	0	**0**	0	0	**0**	
43	RENEW SURYA VIHAAN PRIVATE LI	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
44	FARIDABAD-NT	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	
Total in NR Region		**583**	**84**	**14**	**135**	**120**	**29**	**140**	**120**	**30**	**152**	**10**	**27**	

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

Sr. No.	Scheme Name	State Control Area	Date of review of SPS	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	counducted on 21.05.2024	
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			SPS Unhealthy	
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	SPS Unhealthy	
28	SPS for Transformers at 220kV Unnao (UPPTCL) Substation	Uttar Pradesh				
29	SPS for Transformers at 400kV Sultanpur (UPPTCL) Substation	Uttar Pradesh			SPS Unhealthy	
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	counducted on 06-05-2024	
32	SPS for Transformers at 400kV Mau (UPPTCL) Substation	Uttar Pradesh		17-01-2019	counducted on 27-04-2024	
33	SPS for Transformers at 400kV Gorakhpur (UPPTCL) Substation	Uttar Pradesh		14-05-2023	counducted on 27-04-2024	
34	SPS for Transformers at 400kV Sarnath (UPPTCL) Substation	Uttar Pradesh		19-05-2023	counducted on 23-05-2024	
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			counducted on 20-05-2024	
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				

Mock trial run/black start schedule plan for 2024-25						Remarks
S.No.	Name of Generatiing Station	Fuel Type	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	16-Dec-23	31-Oct-24	NA	
2	Anta GPS	Gas	29-Feb-24			
3	Auraiya GPS	Gas		09-07-2024	09-07-2024	
4	Faridabad GPS	Gas				
5	Koldam HEP	Hydro	14-Mar-24	12-03-2025	12-03-2025	
NHPC						
6	Bairasuil	Hydro	30-Nov-22	2nd week of November	2nd week of November	
7	Salal Stage-I	Hydro	02-Nov-18	3rd week of October	3rd week of October	
8	Salal Stage-II	Hydro		3rd week of October	3rd week of October	
9	Tanakpur HPS	Hydro		4th week of December	4th week of December	
10	Chamera HPS-I	Hydro	02-Dec-22	1st week of December	1st week of December	
11	Chamera HPS-II	Hydro	02-Dec-22	1st week of December	1st week of December	
12	Chamera HPS-III	Hydro	04-Dec-17	1st week of December	1st week of December	
13	URI-I	Hydro	20-Dec-16	1st week of December	1st week of December	
14	URI-II	Hydro	20-Dec-16	1st week of December	1st week of December	
15	Dhauliganga	Hydro	28-Dec-21	4th week of December	4th week of December	
16	Dulhasti	Hydro		4th week of November	4th week of November	
17	Sewa-II	Hydro	29-May-22	3rd week of November	3rd week of November	
18	Parbati-3	Hydro	22-Dec-20	4th week of December	4th week of December	
19	Kishanganga	Hydro		4th week of October	4th week of October	
SJVNL						
20	Nathpa-Jhakri	Hydro	09-Dec-22	20.11.2024	20.11.2024	
21	Rampur	Hydro	09-Dec-22	20.11.2024	20.11.2024	
THDC						
22	Tehri	Hydro	07-11-23	06-11-24	06-11-24	
23	Koteshwar	Hydro	14-Mar-24	Dec-24	Dec-24	
BBMB						
24	Bhakra (L)	Hydro	31-Dec-22			
25	Bhakra (**R**)	Hydro	26-Dec-22			
26	Ganguwal	Hydro				
27	Kotla	Hydro				
28	Dehar	Hydro				
29	Pong	Hydro	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	20-Feb-19	10-04-2024	10-04-2024	Conducted
31	Pragati Gas Turbine (PPCL)	Gas				
32	Bawana GT	Gas				
33	Rithala(TPPDL)	Gas				Not in operation
Haryana						
34	Western Yamuna Canal (WYC-I & II)	Hydro				
Himachal Pradesh						
35	Bhabha	Hydro				
36	Bassi	Hydro				
37	Ghanvi	Hydro				
38	Giri	Hydro				
39	Larji	Hydro				
40	Phojal	Hydro				
41	Sainj HEP	Hydro				
42	Swara Kuddu HEP	Hydro				
43	Bajoli Holi HEP	Hydro				
Malana Power Company Ltd.						

Mock trial run/black start schedule plan for 2024-25						Remarks
S.No	Name of Generatiing	Fuel	Compliance to 34.3 of IEGC for mock trial runs (Last date on	Tentaive schedule plan for mock trial run		
44	Malana-I	Hydro	12-Mar-24			
Everest Power Company Ltd.						
45	Malana-II	Hydro	03-Jan-19			
AD Hydro Power Ltd.						
46	AD Hydro	Hydro	27-Jan-23	**24-02-2025**	**24-02-2025**	
JSW						
47	Karcham Wangtoo	Hydro	29-Dec-21			It is submitted that we shall perform black start Mock trial test after completion of M4 and M5 of GIS overhauling. In the meantime, Karcham Wangtoo HEP can carry out black start exercise of generating unit only at this point (dead bus charging).
48	Baspa	Hydro				
Greenco						
49	Budhil	Hydro				inability to carry out Mock Black start exercise keeping in view the Unit safety being installed capacity low and issue of Governing system. The Governing system of Budhil HEP is of M/S Dong Fong China make and we are not ge□ng any support from OEM a□er COVID-19.. The planning for changing the governing system is in Process.
50	Sorang HEP	Hydro				
Jammu & Kashmir						
51	Baghlihar-I	Hydro				
52	Baghlihar-II	Hydro				
53	Lower Jhelum	Hydro	20-Dec-16			
54	Upper Sindh	Hydro	20-Dec-16			
Punjab						
55	Jogendernagar/ Shanan	Hydro				
56	UBDC	Hydro				
57	Mukerian	Hydro				
58	Anandpur Sahib (APS)	Hydro				
59	Ranjit Sagar (Thein Dam)	Hydro		04-05-2024	04-05-2024	
Rajasthan						
60	Ramgarh GT Extn.	Gas				
61	Dholpur CCPP	Gas				
62	Rana Pratap Sagar (RPS)	Hydro	16-Jan-11			
63	Jawahar Sagar	Hydro				
64	Mahi Bajaj Sagar I	Hydro	21-Jul-15			
65	Mahi Bajaj Sagar II	Hydro	24-Mar-16			
Uttar Pradesh						
66	Rihand (H) or Pipri	Hydro	16-Feb-24			
67	Obra(H)	Hydro	16-Feb-24			
68	Khara	Hydro				
69	Matatila	Hydro				
GVK						
70	Alaknanda HEP	Hydro				
Jaiprakash power Venture Ltd.						
71	Vishnu Prayag IPP	Hydro				
Uttrakhand						
72	Ramganga	Hydro				
73	Chibro	Hydro				
74	Dhalipur	Hydro				
75	Khodri	Hydro				
76	Khatima	Hydro				
77	Chilla	Hydro				
78	Maneri Bhali-I	Hydro				
79	Maneri Bhali-II	Hydro				
80	Vyasi HEP	Hydro				
81	Dhakrani HEP	Hydro				
82	Kulhal HEP	Hydro				
83	Gamma GPS	Gas				
84	Sravanti GPS	Gas	NA	NA	NA	
L&T						

Mock trial run/black start schedule plan for 2024-25						Remarks
S.No	Name of Generatiing	Fuel	Compliance to 34.3 of IEGC for mock trial runs (Last date on	Tentaive schedule plan for mock trial run		
85	Singoli Bhatwari	Hydro	Not done yet	03rd Dec 2024	03rd Dec 2024	Consent did not given for mock drill by SLDC Dehradun due to constraint of partial power evacuation

Northern Region SPS Details

Item	Information Explanation
Reporting Party	NRLDC/ ATIL/ Punjab/ Haryana/ Rajasthan/ Uttar Pradesh/ Delhi
Scheme's Name	HVDC Mundra-Mahendergarh SPS
Classification	SPS related to safe evacuation of generation, overloading of line.
Reference No.	SPS/NR/LINE/02
Operating Procedure	Refer to Chapter 12, Point No 12.5 of Operating Procedure of NR
Design Objectives	To Avoid Loading/ Cascade Tripping of High Capacity Tie Lines between NR and WR
Operation	Load shedding in Northern Region and Generation backing down in Western Region depending on the system condition/ SPS operation.
Modelling	1. **Case-1**: Blocking of (one pole or Bipole) AND Reduction in power injection at Mahendergarh by more than 600 MW and up to 900 MW *Action-1: Generation reduction of equivalent amount in Mundra Stage-III (WR) through the run back scheme* *Action-2: Shed 300 MW (Haryana: 150 MW, Punjab: 50 MW, Rajasthan: 50 MW, UP: 50 MW) identified load in Northern Region within 500 ms (including all signal propagation / breaker opening time delay).* 2. **Case-2**: Blocking of (one pole or Bipole) AND Reduction in power injection at Mahendergarh by more than 900 MW and up to 1250 MW *Action-1: Generation reduction of equivalent amount in Mundra Stage-III (WR) through the run back scheme.* *Action-2: Shed 600 MW (Haryana: 300 MW, Punjab: 100 MW, Rajasthan: 100 MW, UP: 100 MW) identified load in Northern Region within 500 ms (including all signal propagation / breaker opening time delay).* 3. **Case-3**: Blocking of (one pole or Bipole) AND Reduction in power injection at Mahendergarh by more than 1250 MW and up to 2000 MW *Action-1: Generation reduction of equivalent amount in Mundra Stage-III (WR) through the run back scheme.*

Northern Region SPS Details

Item	Information Explanation
	Action-2: Shed 1400 MW (Haryana: 600 MW, Punjab: 200MW, Rajasthan: 200 MW, UP: 200 MW, Delhi: 200 MW) identified load in Northern Region within 500 ms (including all signal propagation / breaker opening time delay). 4. **Case-4**: Blocking of (one pole or Bipole) AND Reduction in power injection at Mahendergarh by more than 2000 MW - *Action-1: Generation reduction of equivalent amount in Mundra Stage-III (WR) through the run back scheme.* *Action-2: Shed 1900 MW (Haryana: 700 MW, Punjab:300MW, Rajasthan: 300 MW, UP: 300 MW, Delhi: 300 MW) identified load in Northern Region within 500 ms (including all signal propagation / breaker opening time delay).* Feeder details are separately tabulated.
Original In-Service Year/ Approved date	Approved date: 13-07-12
Recent Assessment Group	NRLDC/ NRPC/ ATIL/ NLDC/ WRLDC/ APL
Recent Assessment Date	No modification in the logic 08.07.2014 (Last date of mock testing)

Northern Region SPS Details

Load Details for tripping of HVDC Mundra-Mahendergarh

S. No.	State/ L.S. quantum	Name of feeding substation	Feeder/ line/ equipment	MW	Case-1 300MW	Case-2 600MW	Case-3 1400MW	Case-4 2000MW
1	Rajasthan Case-1: 50MW Case-2: 100MW Case-3: 200MW Case-4: 300MW	220/132kV Alwar	132kV Mandawar	25	1	1	1	1
2			132kV Bansoor	45		1	1	1
3			132kV Ramgarh	14		1	1	1
4			132kV Malakheda	10			1	1
5			132kV Alwar(local load)	50				1
6		220/132kV Ratangarh	132kV Sardar Shahar	26	1	1	1	1
7		220/132kV Bhilwara	132kV Gangapur	20			1	1
8			132kV Danta	15			1	1
9			132kV Devgarh	10			1	1
10			132kV Kareda	10			1	1
11		220/132kV Merta	132kV Kuchera	35			1	1
12			132kV Lamaba	25				1
13			132kV Gotan	25				1
14	Haryana Case-1: 150MW Case-2: 300MW Case-3: 600MW Case-4: 700MW	400/220kV Bhiwani_BBMB	220kV Bapora D/C	65+65			1	1
15		400/220kV Hissar_PG	220kV Isharwal D/C	40+35			1	1
16		400/220kV Dhanonda through 220kV Lula Ahir	220kV Rewari D/C (3x100MVA)	95+90	1	1	1	1
17		400/220kV Bahadurgarh	220kV Nuna Majra D/C (3x100MVA)	80+80		1	1	1
18		132kV Charkhi Dadri	132kV Kalanaur	50			1	1
19	Punjab Case-1: 50MW Case-2: 100MW Case-3: 200MW Case-4: 300MW	220/66kV Gobindgarh	66kV Talwara-1	35			1	1
20			66kV Talwara-2	35				1
21		220/66kV Laltokalan	66kV Gill Road-1	50		1	1	1
22			66kV Gill Road-2	50	1	1	1	1
23			66kV Dugri	65			1	1
24		220/66kV Malerkotla	66kV Malerkotla	35				1
25			66kV Lasoi Amargarh	45				1
26			66kV Malaud$	20				
27			66kV Siarh$	20				
28	Uttar Pradesh Case-1: 50MW Case-2: 100MW Case-3: 200MW Case-4: 300MW	Shamli	Thana Bhagwan-1	25	1	1	1	
29			Thana Bhagwan-2	25	1	1	1	
30			Jasala-1	25		1	1	
31			Jasala-2	25		1	1	
32			Kharad-1	50			1	
33			Kharad-2	50			1	
34			Baraut-1	150				1
35			Baraut-2	150				1
36	Delhi Case-1: 50MW Case-2: 100MW Case-3: 200MW Case-4: 300MW	400/220kV Bamnauli	Papankalan1 ckt-1	100			1	1
37			Papankalan1 ckt-2	100			1	1
38		400/220kV Mandola	Gopalpur-1	150			1	1
39			Gopalpur-2	150			1	1

$: New feeder added in Punjab for peak demand period

Fig 2- Load Detail