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 240 वीं बैठक की कार्यसूची ।

Subject: Agenda of the 240th OCC meeting.

प्रचालन समन्वय उप-समिति की **240** वीं बैठक का आयोजन वीडियो कॉन्फ़्रेंसिंग के माध्यम से दिनांक **17.02.2026** 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 द्वारा प्रदान किया जाएगा।

कृपया बैठक में उपस्थित होने की सुविधा प्रदान करें।

The **240th** meeting of the Operation Co-ordination sub-committee will be conducted through Video Conferencing on **17.02.2026** 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.

DHARMENDER KUMAR MEENA
Digitally signed by DHARMENDER KUMAR MEENA
Date: 2026.02.12 12:43:21 +05'30'

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

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

18-ए, शहीदजीतसिंहमार्ग, कटवारियासराय, नईदिल्ली- 110016 फोन:011-26513265 ई-मेल: seo-nrpc@nic.in वेबसाईट: www.nrpc.gov.in
18-A, Shaheed Jeet Singh Marg, Katwaria Sarai, New Delhi-110016 Phone: 011-26513265 e- mail: seo-nrpc@nic.in Website: www.nrpc.gov.in

OCC Members for FY 2025-26

S. No.	OCC Member	Category	E-mail
1	NLDC	National Load Despatch Centre	nomination awaited (mkagarwal@grid-india.in)
2	NRLDC	Northern Regional Load Despatch Centre	ashokkr@grid-india.in
3	CTUIL	Central Transmission Utility	sandeepk@powergrid.in
4	PGCIL	Central Government owned Transmission Company	rtamc.nr1@powergrid.in rtamcjammu@powergrid.in cpcc.nr3@powergrid.in
5	NTPC	Central Generating Company	RAMESHSINGH@NTPC.CO.IN
6	BBMB		powerc@bbmb.nic.in
7	THDC		bhagatsingh@thdc.co.in
8	SJVN		sjvn.cso@sjvn.nic.in
9	NHPC		surendramishra@nhpc.nic.in
10	NPCIL		df@npcil.co.in
11	Delhi SLDC	State Load Despatch Centre	gmsldc@delhisldc.org
12	Haryana SLDC		cesocomml@hvpn.org.in
13	Rajasthan SLDC		ce.ld@rvpn.co.in
14	Uttar Pradesh SLDC		cepso@upsldc.org
15	Uttarakhand SLDC		se_sldc@ptcul.org
16	Punjab SLDC		ce-sldc@pstcl.org
17	Himachal Pradesh SLDC		cehpsldc@gmail.com
18	DTL	State Transmission Utility	bl.gujar@dtl.gov.in
19	HVPNL		cetspkl@hvpn.org.in
20	RRVPNL		ce.ppm@rvpn.co.in
21	UPPTCL		smart.saxena@gmail.com
22	PTCUL		ce_oandmk@ptcul.org
23	PSTCL		ce-tl@pstcl.org
24	HPPTCL		gmprojects.tcl@hpmail.in
25	IPGCL	State Generating Company	ncsharma@ipgcl-ppcl.nic.in
26	HPGCL		seom2.rgtpp@hpgcl.org.in
27	RRVUNL		ce.ppmcit@rrvun.com
28	UPRVUNL		cgm.to@uprvunl.org
29	UJVNL		gm_engg_ujvn@yahoo.co.in
30	HPPCL		gm_generation@hppcl.in
31	PSPCL	State Generating Company & State owned Distribution Company	ce-ppr@pspcl.in
32	DHBVN	State owned Distribution Company (alphabetical rotational basis/nominated by state govt.)	nomination awaited (md@dhbvn.org.in)
33	Ajmer Vidyut Vitran Nigam Ltd.		nomination awaited (md.avvnl@rajasthan.gov.in)
34	Purvanchal Vidyut Vitaran Nigam Ltd.		nomination awaited (mdpurvanchalvvnl@gmail.com)
35	UPCL		cgmupcl@yahoo.com

OCC Members for FY 2025-26			
36	HPSEB		cesysophpsebl@gmail.com
37	Prayagraj Power Generation Co. Ltd.	IPP having more than 1000 MW installed capacity	sanjay.bhargava@tatapower.com
38	Aravali Power Company Pvt. Ltd		amit.hooda01@apcpl.co.in
39	Apraave Energy Ltd.,		niraj.gupta@apraava.com
40	Talwandi Sabo Power Ltd.		arun.kumar@vedanta.co.in
41	Nabha Power Limited		Durvesh.Yadav@larsentoubro.com
42	MEIL Anpara Energy Limited		arun.tholia@meilanparapower.com
43	Rosa Power Supply Company Ltd		Suvendu.Dey@relianceada.com
44	Lalitpur Power Generation Company Ltd		avinashkumar.ltp@lpgcl.com
45	MEJA Urja Nigam Ltd.		amitkumarmaithil@ntpc.co.in
46	Adani Power Rajasthan Limited		Raguvendral.Dewra@adani.com
47	JSW Energy Ltd. (KWHEP)		roshan.zipta@jsw.in
48	Transition Cleantech Services Private Limited	IPP having less than 1000 MW installed capacity (alphabetical rotational basis)	nomination awaited (kswamidoss@evrenenergy.com)
49	UT of J&K	From each of the Union Territories in the region, a representative nominated by the administration of the Union Territory concerned out of the entities engaged in generation/ transmission/ distribution of electricity in the Union Territory.	sojpdd@gmail.com
50	UT of Ladakh		cepdladakh@gmail.com
51	UT of Chandigarh		seelo-chd@nic.in
52	NVVN	Nodal Agency appointed by the Government of India for coordinating cross-border power transactions	ceonvvn@ntpc.co.in
53	Tata Power Delhi Distribution Limited	Private Distribution Company in region (alphabetical rotational basis)	nomination awaited (sandeep.k@tatapower-ddl.com)
54	Gurgaon Palwal Transmission Limited	Private transmission licensee (nominated by central govt.)	(lokendra.ranawat@indigrid.com)
55	PTC India Limited	Electricity Trader (nominated by central govt.)	nomination awaited (bibhuti.prakash@ptcindia.com)

OCC Members for FY 2025-26			
56	ReNew Power Private Limited	RE Generating Company having more than 1000 MW installed capacity	sumant@renew.com
57	NTPC Green Energy Limited		rajivgupta@ntpc.co.in
58	Azure Power India Pvt. Limited		sunil.gupta@azurepower.com
59	Avaada Energy Private Limited		kishor.nair@avaada.com
60	Adani Green Energy Limited		sanjay.bhatt@adani.com

Contents

खण्ड-क: उ.क्षे.वि.स. Part-A: NRPC

A.1. Confirmation of Minutes

239th OCC meeting was held on 16.01.2026. Minutes of the meeting were issued vide letter dt. 09.02.2026. No comments received till date.

Decision required from Forum:

Forum may approve the minutes of 239th OCC meeting.

A.2. Status of action taken on decisions of 239th OCC meeting of NRPC

A.2.1. Status of action taken on decisions of 239th OCC meeting is attached as **Annexure- A.I**.

A.3. Review of Grid operations

A.3.1. **Power Supply Position (Provisional) for January 2026**

Anticipated Power Supply Position v/s Actual Power Supply Position (Provisional) of Northern Region during the month of January-2026 is as under:

State / UT	Req. / Avl.	Energy (MU)			Peak (MW)		
		Anticipated	Actual	% variation	Anticipated	Actual	% variation
CHANDIGARH	(Avl)	120	149	24.1%	350	340	-2.9%
	(Req)	173	149	-13.9%	341	340	-0.3%
DELHI	(Avl)	3110	2799	-10.0%	6810	6087	-10.6%
	(Req)	2766	2800	1.2%	6738	6087	-9.7%
HARYANA	(Avl)	5580	5179	-7.2%	9815	10156	3.5%
	(Req)	4927	5179	5.1%	9651	10156	5.2%
HIMACHAL PRADESH	(Avl)	1326	1199	-9.6%	2400	2310	-3.8%
	(Req)	1342	1204	-10.3%	2380	2310	-2.9%
J&K and LADAKH	(Avl)	1050	1961	86.8%	2460	3362	36.7%
	(Req)	2349	1966	-16.3%	3737	3362	-10.0%
PUNJAB	(Avl)	4510	5158	14.4%	10670	10661	-0.1%
	(Req)	5511	5176	-6.1%	10868	10661	-1.9%
RAJASTHAN	(Avl)	9200	10314	12.1%	19690	19617	-0.4%
	(Req)	10200	10314	1.1%	19200	19617	2.2%
UTTAR PRADESH	(Avl)	15000	12122	-19.2%	28230	23716	-16.0%
	(Req)	11851	12122	2.3%	27641	23976	-13.3%
UTTARAKHAND	(Avl)	1433	1447	1.0%	2600	2766	6.4%
	(Req)	1449	1451	0.1%	2675	2766	3.4%
NORTHERN REGION	(Avl)	41329	40328	-2.4%	78400	75600	-3.6%
	(Req)	40568	40360	-0.5%	80800	75600	-6.4%

As per above, negative / significant variation (≥5%) in Actual Power Supply Position(Provisional) vis-à-vis Anticipated figures is observed for the month of January-2026 in terms of Energy Requirement for Chandigarh, Haryana, HP, UTs of J&K and Ladakh, Punjab, and in terms of Peak Demand similar variation is noted for Chandigarh, Delhi, Haryana, HP, UTs of J&K and Ladakh, Punjab, UP, . 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 March-2026 is scheduled on 13-February-2026 via Video Conferencing.

A.4.2. Outage Programme for Transmission Elements

The meeting on proposed outage programme of Transmission elements for the month of March-2026 is scheduled on 13-February-2026 via Video conferencing.

A.5. Planning of Grid Operation

A.5.1. Anticipated Power Supply Position in Northern Region for March 2026

The Anticipated Power Supply Position in Northern Region for March 2026 is as under:

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
CHANDIGARH	Availability	120	350	No Revision submitted
	Requirement	133	308	
	Surplus / Shortfall	-13	42	
	% Surplus / Shortfall	-9.8%	13.6%	
DELHI	Availability	3060	6590	No Revision submitted
	Requirement	2359	5081	
	Surplus / Shortfall	701	1509	
	% Surplus / Shortfall	29.7%	29.7%	
HARYANA	Availability	5450	10610	No Revision
	Requirement	5401	9224	

State / UT	Availability / Requirement	Revised Energy (MU)	Revised Peak (MW)	Date of revision
	Surplus / Shortfall	49	1386	submitted
	% Surplus / Shortfall	0.9%	15.0%	
HIMACHAL PRADESH	Availability	1036	2271	7-Feb-2026
	Requirement	1147	2158	
	Surplus / Shortfall	-111	113	
	% Surplus / Shortfall	-9.6%	5.2%	
J&K and LADAKH	Availability	1150	2520	No Revision submitted
	Requirement	2063	3913	
	Surplus / Shortfall	-913	-1393	
	% Surplus / Shortfall	-44.3%	-35.6%	
PUNJAB	Availability	4630	10310	No Revision submitted
	Requirement	5515	10322	
	Surplus / Shortfall	-885	-12	
	% Surplus / Shortfall	-16.0%	-0.1%	
RAJASTHAN	Availability	9200	19340	No Revision submitted
	Requirement	10686	20356	
	Surplus / Shortfall	-1486	-1016	
	% Surplus / Shortfall	-13.9%	-5.0%	
UTTAR PRADESH	Availability	10360	22500	5-Feb-2026
	Requirement	10276	22500	
	Surplus / Shortfall	84	0	
	% Surplus / Shortfall	0.8%	0.0%	
UTTARAKHAND	Availability	1209	2250	4-Feb-2026
	Requirement	1232	2275	
	Surplus / Shortfall	-23	-25	
	% Surplus / Shortfall	-1.9%	-1.1%	
NORTHERN REGION	Availability	42570.0	79400	
	Requirement	42174.0	70500	
	Surplus / Shortfall	396.0	8900	
	% Surplus / Shortfall	0.9%	12.6%	

SLDCs are requested to update the anticipated power supply position of their respective state / UT for the month of March-2026 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.II**.

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.III.**

Members may kindly deliberate.

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

A.8.1 In 186th OCC meeting, it was agreed that coal stock position of generating stations in northern region may be reviewed in the OCC meetings on the monthly basis.

A.8.2 Accordingly, coal stock position of generating stations in northern region during current month (till 09th February 2026) is as follows:

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd. (Days)	Actual Stock (Days)
ANPARA C TPS	1200	0.70	16	6.4
ANPARA TPS	2630	0.68	16	23.1
BARKHERA TPS	90	0.23	25	41.1
DADRI (NCTPP)	1820	0.38	25	18.8
GH TPS (LEH.MOH.)	920	0.70	25	26.2
GOINDWAL SAHIB TPP	540	0.46	25	26.8
HARDUAGANJ TPS	1265	0.29	25	34.8
INDIRA GANDHI STPP	1500	0.46	25	31.9
KAWAI TPS	1320	0.64	25	19.9
KHAMBARKHERA TPS	90	0.23	25	44.3
KOTA TPS	1240	0.52	25	22.3
KUNDARKI TPS	90	0.22	25	40.1
LALITPUR TPS	1980	0.60	25	21.3
MAHATMA GANDHI TPS	1320	0.52	25	27.4
MAQSOODPUR TPS	90	0.23	25	44.1
MEJA STPP	1320	0.60	25	19.2
OBRA TPS	1094	0.32	25	16.3
PANIPAT TPS	710	0.47	25	42.7

Station	Capacity (MW)	PLF % (prev. months)	Normative Stock Reqd. (Days)	Actual Stock (Days)
PARICHHA TPS	1140	0.42	25	14.2
PRAYAGRAJ TPP	1980	0.63	25	27.4
RAJIV GANDHI TPS	1200	0.45	25	36.6
RAJPURA TPP	1400	0.73	25	24.4
RIHAND STPS	3000	0.70	16	23.2
ROPAR TPS	840	0.49	25	36.2
ROSA TPP Ph-I	1200	0.56	25	32.8
SINGRAULI STPS	2000	0.73	16	12.6
SURATGARH TPS	1500	0.29	25	21.1
TALWANDI SABO TPP	1980	0.60	25	17.1
TANDA TPS	1760	0.46	25	25.7
UNCHAHAR TPS	1550	0.59	25	23.0
UTRAULA TPS	90	0.22	25	40.4
YAMUNA NAGAR TPS	600	0.53	25	37.4
CHHABRA-I PH-1 TPP	500	0.47	25	24.0
KALISINDH TPS	1200	0.45	25	20.5
SURATGARH STPS	1320	0.48	25	27.1
CHHABRA-I PH-2 TPP	500	0.68	25	19.7
CHHABRA-II TPP	1320	0.46	25	27.4
JAWAHARPUR STPP	660	0.03	25	26.7

A.9. Periodic testing of generators and FACTS/HVDC Devices (Agenda by NRPC Sectt.)

A.9.1. Regulation 40 (1) of CERC (IEGC) Regulations, 2023 stipulate that there shall be periodic tests, as required under clause (3) of this Regulation, carried out on power system elements for ascertaining the correctness of mathematical models used for simulation studies as well as ensuring desired performance during an event in the system.

A.9.2. The tests shall be performed once every five (5) years or whenever major retrofitting is done. If any adverse performance is observed during any grid event, then the tests shall be carried out even earlier, if advised by SLDC/RLDC/NLDC/RPC, as the case may be.

A.9.3. Further, Regulation 40(1)(b) stipulate that “All equipment owners shall submit a testing plan for the next year to the concerned RPC by 31st October to ensure proper coordination during testing as per the schedule. In case of any change in the schedule, the owners shall inform the concerned RPC in advance.”

Extract of IEGC 2023 clause 40,

"40. PERIODIC TESTING

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

(2) General provisions

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

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

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

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

(3) Testing requirements

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

TABLE 9 : TESTS REQUIRED FOR POWER SYSTEM ELEMENTS

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

A.9.4. In view of the above Generators and HVDC/FACT owners are requested to furnish Testing schedule for 2026-27 in the format attached as **Annexure-A.IV.a** to seo-nrpc@nic.in .

A.9.5. List of Generating station from which information is received is attached as **Annexure-A.IV.b.**

A.9.6. List of Generating station from which information is not received is attached as **Annexure-A.IV.c.**

Generating Utilities to update status.

A.10. Monthly Review of LGBR for the next 11 months (Availability & Requirement) (Agenda by NRPC Secretariat)

A.10.1. In 236th OCC meeting matter regarding monthly Review of LGBR for the next 11 months (Availability & Requirement) was discussed and it was agreed that NR States/UTs shall submit the data for the monthly Review of LGBR for the next 11 months including the break-up of sources through which demand is proposed to be met, such as ISGS, internal generation, bilateral arrangements, DAM/RTM transactions, or other contracts, shall also be provided.

A.10.2. In 237th OCC meeting, OCC forum requested NR States/UT's to submit the data for monthly Review of LGBR for the next 11 months in the google sheet to be shared by NRPC Secretariat.

A.10.3. Accordingly, NR States/UTs are requested to update the data for the monthly Review of LGBR for the next 11 months (Mar'26 to Jan'27) in the google sheet. Link to access the google sheet is mentioned below:

https://docs.google.com/spreadsheets/d/1LmYwSHcFCaRAniwHUlpoiWFwaFCmKnQjIPqFDvWYy1k/edit?usp=sharing

SLDC's to update status.

A.11. Data Collection for Monitoring Pan-India Captive Generating Capacity (Agenda by NRPC Secretariat)

A.11.1 GM division, CEA has informed that in the meeting taken by Secretary (Power) on 17.12.2025, it was decided that the State Chief Electrical Inspectors (CEIs) / State Load Despatch Centres (SLDCs) shall act as the nodal agencies for collection of Captive Generation & Open Access data for their respective States.

A.11.2 It was further decided that the Regional Power Committees (RPCs) shall act as the nodal coordinating agencies for consolidation and compilation of the data at the regional level and shall forward the same to the GM Division, CEA for All-India level compilation on monthly basis.

A.11.3 In this regard all the SLDCs of NR Region are hereby requested to kindly submit the requisite details (in attached format) for each month (starting from December 2025 onwards) by 7th of the following month in the format attached at **Annexure-A.V** to the NRPC Secretariat at seo-nrpc@nic.in .

SLDC's to update status.

A.12. Analysis of Partial Outages of Thermal Power Plants (Agenda by NRPC Secretariat)

A.12.1 A meeting was taken by Member (GO&D), CEA on 28th Jan, 2026 to discuss the partial outages of thermal power plants and its related issues.

A.12.2 In the said meeting, RPC's were directed to monthly review in the OCC meeting the station-wise major incidences of partial outages in last month and seek remedial measures form the concerned generating stations.

A.12.3 Details of generating stations in NR that had reported incidences of partial outage in January'26 is attached as **Annexure-A.VI.**

A.12.4 Generating Utilities as per above mentioned list to submit reasons for partial outages of thermal power plants and the remedial measures taken by utilities to mitigate the partial outages.

Generating Utilities to update status.

A.13. Feasibility of operating retiring/old thermal units as synchronous (Agenda by NRPC Secretariat)

A.13.1. A meeting was taken by Member (GO&D), CEA on 28th Jan, 2026 to discuss the partial outages of thermal power plants and its related issues.

A.13.2. In the said meeting, RPC's were requested to access the feasibility of operating retiring/old thermal units as synchronous condensers to enhance grid stability.

A.13.3. A study on the requirements of Synchronous Condenser in Northern Region for grid stability has been done by NRPC, CEA, GRID-INDIA and CTU wherein it is recommended to install synchronous condenser in Rajasthan to meet inertia and reactive power requirements to the grid.

Members may kindly deliberate.

A.14. Random UFR inspection at various substations of NR as IEGC 2023 (Agenda by NRPC Secretariat)

A.14.1. As per Clause 29(13)(e) of IEGC-2023, RPC's is required to conduct random inspections of Under Frequency Relays (UFRs).

A.14.2. In this regard, random UFR inspection of various substations of NR was carried out by NRPC Sectt. and NRLDC in co-ordination with the respective STU's of NR.

A.14.3. Major observation of the inspection report is tabulated below:

Sl. No.	Name of substation	Observations	Actions to be taken
1	132kV Majra S/s of PTCUL	i. Time delay of 200 micro-sec was found in UFR setting	ii. Time delay to be removed
2	132kV Bindal S/s of PTCUL	i. Time delay of 200 micro-sec was found in	i. Time delay to be removed

		UFR setting ii. 33 Kv Niranjanpur feeder was found mapped in both UFR Stage III & IV	ii. 33 kV Niranjanpur to be kept in only one stage.Other feeder need to be identified for another stage.
3	132kV Etawah S/s of UPPTCL	i. Time delay of 200 msec was found in UFR setting for 49.4 and 49.0 Hz	i. Time delay to be removed
4	220kV Safai S/s of UPPTCL	i. No time delay was observed ii. RIMS feeded from Saifai II	i. Utility is advised to revive the critical feeders from BD/SD and to avoid supplying power to critical loads by tapping from feeders under UFR
5	220kV Madri S/s of RRVPN	i. UFR operated when frequency reached below 48.1 Hz instantaneously	i. UFR Frequency to be discussed with Rajasthan SLDC for both feeders.
6	220 kV Sawa S/s of RRVPN	i. No time delay in relay setting.	--
7	132 kV Sarnath S/s of UPPTCL	i. Sensitivity issues were observed (relay was picking in Stage I at 49.415 Hz, Stage III at 49.02 Hz and Stage IV at 48.82 Hz) ii. Few feeders are spare with no load.	i. Sensitivity issues of relay may be reviewed and corrected. ii. Spare feeders may be removed from the UFR circuit.
8	132 kV Manduadih S/s of UPPTCL	i. Sensitivity of 20mHz at 48.8 Hz was observed with no delay.	i. Sensitivity issues of relay may be reviewed and corrected.
9	132 kV Ghazipur S/s of UPPTCL	i. Sensitivity issues were observed (relay was picking in Stage I at 49.46 Hz, Stage III at 49.12 Hz and Stage IV at 48.945 Hz)	i. Sensitivity issues of relay may be reviewed and corrected. ii. Calibration of testing kit may also be checked.

Members may kindly deliberate.

A.15. Inclusion of OPGW Link/ Communication Equipment Outages in Transmission Outage Planning (Agenda by NRPC Secretariat)

A.15.1. As per Central Electricity Regulatory Commission (Communication System for inter-State transmission of electricity) Regulations, 2017, the Communication Outage for the Region shall be carried out by RPC Secretariat:

Quote:

7.3 Role of National Power Committee (NPC) and Regional Power Committee (RPC):

……………………

(iv) The RPC Secretariat shall be responsible for outage planning for communication system in its region. RPC Secretariat shall process outage planning such that uninterrupted communication system is ensured.

……………………

Unquote

A.15.2. In compliance with the above provisions, communication outage planning for the Northern Region has been commenced from October 2025 in accordance with the Standard Operating Procedure (SOP) finalized by the National Power Committee (NPC) for communication outage planning.

A.15.3. Subsequently, the first Communication Outage Planning Meeting for the Northern Region was convened on 27th January 2026. During the meeting, the process for handling outages of OPGW communication links associated with transmission lines was also deliberated. (Minutes attached)

A.15.4. It was discussed that OPGW link outages frequently arise due to activities such as line diversions, crossings, and diamond creation works, which are normally undertaken as part of approved transmission outages. At present, such OPGW outages are generally coordinated along with the corresponding transmission line outages through the OCC forum.

A.15.5. In this regard, it was suggested that OPGW link outages associated with approved transmission outages may be formally integrated into the transmission outage planning mechanism. It was also proposed that the existing transmission outage proposal format may be suitably modified to include a separate provision for capturing details of associated OPGW links. A separate column for OPGW links/ communication equipments may be added to the transmission outage format. Such outages, when linked with approved transmission outages, may be treated as deemed communication outages, while other standalone communication outages may continue to be processed through dedicated Communication Outage Planning Meetings.

Members may kindly deliberate.

A.16. Detailed Procedure for Assessment of Quantum of Secondary & Tertiary Reserve Capacity, along with Information Exchange and Timelines under Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 (Agenda by NRPC Secretariat)

A.16.1. Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 require National Load Despatch Centre (NLDC) to assess secondary and tertiary reserve requirements for the regional entities on a year ahead basis. The detailed procedure approved by CERC (mentioned in the reference) provides modalities for the estimation.

A.16.2. CERC Study Report dated 29.04.2025 on Planning for Safe, Secure, and Reliable Integrated Operation of the Power System during Critical Periods, has documented feedback received from stakeholders regarding the quantum of reserves. These suggestions were subsequently highlighted in the CERC Order in Suo-Motu Petition No. 9/SM/2024 dated 05.10.2025. In line with the suggestions received from the States, and as an interim measure, the tertiary reserve requirement has been assessed without including 50% of the largest unit size in the estimation of intra-state up tertiary reserves for the States having largest unit size of less than 500 MW. Further, in the estimation of intra-state down tertiary reserves, 50% of the largest unit size has not been considered for all the states.

A.16.3. The quantum of secondary and tertiary reserves requirement computed by GRID-INDIA at all India level is given as below:

Type of Reserve	All India Up Reserve Requirement (MW)	All India Down Reserve Requirement (MW)
Secondary Reserve	10883	13213
Tertiary Reserve	16243	13213
Total	27127	26427

A.16.4. Without the above interventions of harnessing diversity and moderated consideration of unit sizes, all India secondary reserve requirement would have been 13327 MW for up reserve and 18225 MW for down reserve. Similarly, the tertiary reserve requirement would have been 19081 MW for up reserve and 24146 MW for down reserve.

A.16.5. The reserve requirement apportioned to regional entities is attached in **Format-RAS4. as Annexure-A.VII**

A.16.6. GRID-INDIA has informed that it is observed that States like Odisha, Delhi, Tripura, Sikkim, West Bengal, Jharkhand and Chandigarh have demonstrated effective ACE management during the previous year, helping them reduce their up reserve requirement.

A.16.7. In contrast, for some States, namely Manipur, Gujarat, Tamil Nadu, Nagaland, Mizoram, Arunachal Pradesh, and Maharashtra, higher ACE during the previous year resulted in an increased up reserve requirement for these States.

A.16.8. Apart from the above, Reference Contingency applicable for FY 2026-27 as per **Format RAS-3** has been made available in the GRID-INDIA website at https://grid-india.in/en/operations/reference-contingency. The quantum considered for the Reference Contingency are 7000 MW for the solar hours and 4500 MW for the non-solar hours.

Members to kindly note.

A.17. Strengthening of Transmission Network between J&K and Ladakh — Plan of Alternate 220 kV Transmission Line between Alustang and Leh (Agenda by JKPTCL)

Background:

A.17.1 At present, the 220 kV Single Circuit SLTS connecting Kashmir and Leh is the sole transmission corridor between J&K and Ladakh. The line is part of the Inter-State Transmission System (ISIS) and is being maintained by PGCIL.

A.17.2 Seasonal power exchange takes place through this line:

- During winter, approximately 50 MW is supplied from Kashmir to Leh.
- During summer, nearly 70 MW flows from Leh to Kashmir.

A.17.3 PGCIL has conveyed to LPDD that a maximum of 180 MW can be imported/exported through this single circuit 220 kV transmission line.

Upcoming Generation and System Constraints:

A.17.4 A 37 MW Solar Power Plant is planned to be commissioned in Ladakh by 2027, the power from which shall also be evacuated through the existing 220 kV S/C line.

A.17.5 The transmission line traverses extremely difficult and snow-bound terrain of Zojila and Drass and is highly prone to:

- Frequent faults
- Prolonged outages during winter snowfall

A.17.6 Due to the absence of an alternate transmission path, these outages result in significant generation loss, impacting both:

- Solar generation, and
- Hydro generation

Need for Alternate Transmission Corridor:

A.17.7 JKPTCL has mentioned that considering the Increasing seasonal power exchange, limited transfer capacity (180 MW), harsh terrain and frequent outages, and upcoming —200 MW Solar capacity under SASCI scheme in Ladakh, there is an urgent requirement for an alternate 220 kV transmission line between Alustang and Leh to provide redundancy and reliability, Improved grid security, Evacuation of additional renewable energy and Reduction in generation loss.

Long-Term System Strengthening:

A.17.8 JKPTCL has submitted that:

- A 400 kV Sub-Station in Central Kashmir has been proposed by JKPTCL Kashmir during the NRPC meeting held at Srinagar.
- The proposal was subsequently discussed by Chief Engineer, JKPTCL Kashmir with CTUIL on 18th December 2025 at CTUIL Office, Gurgaon.
- A 400 kV Transmission Line between Ladakh and Kashmir has also been proposed as part of long-term transmission planning

A.17.9 In view of the above, JKPTCL has requested OCC forum for consideration of Alternate 220 kV Transmission Line between Alustang and Leh, and Associated system strengthening measures to facilitate reliable power transfer and evacuation of renewable energy from Ladakh.

Members may kindly deliberate.

A.18. Status of availability of ERS towers in NR (Agenda by NRPC Secretariat)

A.18.1 The measures required for tower strengthening and availability of Emergency Restoration System are being regularly discussed in OCC meeting. There have been many past events of tower collapse especially during summer and monsoon season and accordingly all utilities have been requested to take necessary actions.

A.18.2 It may be noted that MoP, Govt of India had already issued instructions for procurement of ERS by all transmission utilities (attached as **Annexure-A.VIII.a**) which was discussed in 150th OCC meeting (held on 21.08.2018) and CEA (Grid Standards) Regulations, 2010 also suggests keeping necessary arrangement for ERS. The instructions also suggest strategy to determine ERS requirement by utilities:

- "For any transmission utility, one set of ERS has been planned to cater to failure of towers for transmission line lengths of up to 5000 Ckt. Kms.
- Accordingly, two (2) sets of ERS have been planned for transmission line lengths of about 5000 to 10,000 Ckt. Kms, and three (3) sets for more than 10,000 Ckt. Kms and so on.
- The transmission Utility with line length less than 500 ckt kms (of 400kV 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."

A.18.3 Given the increase in line length under jurisdiction of different utilities over the years, nos of ERS requirement is reviewed and regularly monitored at OCC level.

A.18.4 In this regard, all the transmission utilities in NR are requested to kindly update the voltage-level-wise cumulative transmission line length (ckm) & ERS availability as per the format enclosed as **Annexure-A.VIII.b.**

Members may kindly deliberate.

A.19. Diversion/Relocation of EHV Transmission lines hindering the construction of NHAI Expressway across carriage way of road alignment-maintaining adequate safety clearance as per CEA regulation dated 14.01.2025 (Agenda by NHAI)

A.19.1 NHAI has submitted the following:

a) During Construction of National Highway, Number of Extra High Voltage transmission lines relocation and shifting to be done in order to provide safe horizontal and vertical clearance across the Carriage Way of National Highway Route Alignment as per SOP circulated by Govt. of India Ministry of Power CEA Dated: 14.01.2025.

b) While doing survey for the relocation of transmission line Towers, often Transmission Utilities/Licensee ask to relocate all the towers of the section crossing the carriage way of National Highway. **They insist to create a parallel route of transmission line in the crossing section from angle tower to angle tower, changing the complete existing route of the of transmission line.**

c) While creating a parallel loop,

   I. It involves normally relocation of minimum 10 to 20 numbers of transmission towers, creating a new alignment.

   II. They are of the opinion that it may reduce the shutdown period of the EHV transmission line.

   III. However, it is not at all optimum solution in view of costing and shutdown period of transmission line due to huge work. Further it creates severe ROW issues hampering working at site.

d) NHAI representative proposed to adequately use only Two Numbers of Tension Towers with adequate extension in the alignment of existing transmission line across the carriage way of National Highway maintaining the safe horizontal and vertical clearance as per CEA regulation.

   I. Two Nos Tower has to be placed in the existing route alignment; no major relocation of the existing towers has to be done.

   II. Two Nos Towers has to be erected during the shutdown period by use of Cranes for each location, section by section which (each section of towers) has to be kept ready before taking the shutdown. **Towers erection can be completed within one day and tower tightening can we done in subsequent day, while doing parallel activities during shutdown period. Reducing the shutdown requirement as volume of the work reduced substantially.**

   III. This may ease the Relocation/Shifting of transmission lines without major implication of cost & shutdown period by use of adequate Hydraulic Crane at each location.

e) The relocation and shifting/transmission line tower Hindering across the carriage way of Expressway alignment tower Erection can be carried out Fastly by Use of Heavy Hydraulic Cranes being used by NHAI in their construction activities and besides road alignment, crane placement in not a challenge

Members may kindly deliberate.

A.20. Augmentation of 400KV sub-station BBMB, Siwah (Panipat) from (1x450 + 1x500)MVA, 400/220KV + 2x100MVA, 220/132KV +1x60MVA, 220/33kV transformers to 3x500MVA, 400/220KV + 2x160MVA 220/132KV +1x60MVA, 220/33kV transformers along with augmentation of 220KV Sewah (Panipat BBMB) – Chhajpur D/C line from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having ampacity of 1200Amp to meet N-1 contingency (Agenda by HVPNL)

A.20.1 HVPNL has informed that State-wise operational issues observed in NR-region were deliberated in 1st meeting of Standing Committee on Short Term & Perspective Power System Planning (SCSTPPSPNR) held on dated 14.03.2024 **(Annexure-IX.a)** wherein the issue regarding 'N-1' contingency criteria of (1x500+1x450) MVA, 400/220KV ICTs at 400kV sub-station BBMB Siwah (Panipat) was also included.

A.20.2 CE/SO & Commercial, HVPNL, Panchkula vide letter memo no Ch-43/SO-PNP-PCP-218 DT 22.11.2024 **(Annexure-IX.b)** addressed to CE/PD&C, HVPNL, Panchkula also identified 1x450MVA+1x500MVA, 400/220kV ICTs at Panipat BBMB as 'N-1' noncompliant in real time System Operation during the year 2024-25. The maximum loading recorded on 400/220kV ICTs at Panipat BBMB in summer' 24 is 399 MW and 448 MW and in FY 2025-26 is 405 MW and 449 MW.

A.20.3 The above agenda was deliberated in 152nd meeting of Power Sub-Committee of BBMB on dated 07.02.2025 **(Annexure-IX.c)** wherein it was desired the proposal be first taken up with NRPC/CMETS, CTU as the BBMB system is an ISTS system.

A.20.4 Accordingly, the agenda was placed before the CEA which was discussed in the meeting held on dated 17.04.2025. Minutes of meeting attached as **(Annexure-IX.d).**

A.20.5 The above agenda was again deliberated in 153rd meeting of Power Sub-Committee of BBMB on dated 11.07.2025 **(Annexure-IX.e).** HVPNL has submitted that after deliberations, PSC members approved the following: -

- For further deliberation, NRPC approval to be first obtained by the HVPNL.
- The O&M arrangement and commercial & regulatory modalities are to be first discussed and decided in the committee constituted vide office order no 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025.

A.20.6 HVPNL has submitted the following proposal for deliberation in the OCC meeting:

Sr. No	Description of work

1.	(i) To expedite the augmentation work of 400kV sub-station BBMB, Siwah (Panipat) at 400/220kV level from **1x500MVA + 1x450MVA, 400/220kV T/Fs** to **2x500MVA, 4001220kV TFs** by BBMB and the cost of augmentation will be borne by BBMB. (ii) To concur for the augmentation of 400kV sub-station BBMB, Siwah (Panipat) at 400/220kV level from **2x500MVA, 400/220kV T/Fs to 3x500MVA, 400/220kV TFs** by BBMB during FY 2026-27 and the cost of augmentation will be borne by HVPNL.
2.	To concur for the augmentation of 400kV sub-station BBMB, Siwah (Panipat) at 220/132kV level from **2x100MVA 220/132KV** transformers to **2x160MVA, 220/132kV** transformers by BBMB during FY 2026-27 and the cost of augmentation will be borne by HVPNL. Note: HVPNL will retain spared 2 nos **100MVA 220/132KV** transformers after aforesaid augmentation of 400kV sub-station BBMB Panipat.
3.	To concur for the **augmentation of 220KV Sewah (Panipat BBMB) — Chhajpur D/C line** from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having current carrying capacity of 1200Amp during FY 2026-27 by HVPNL

Members may kindly deliberate.

A.21. Generator and Transmission lines Electrical Parameter variation at RAPP-A (Agenda by RAPS)

A.21.1 RAPS has intimated that on dated 04.02.2026 wide variation in electrical parameter of RAPP-A Generator and Transmission lines were recorded and tabulated in the table below:

S.No.	Equipment/System	Parameter	Max Variation Range
1	Bus A1/B1	Bus Voltage	219.84-223.32 kV
2	Bus A2/B2	Bus Voltage	220.80-224.40 kV
3	Grid	Frequency	49.73-49.99 Hz
4	RAPP-A Generator RAPS-2	MW(e)	152-256 MW(e)
		MVAR	+3 to +35 MVAR
		Current	4000 A-6000 A
5	220 kV RAPP-A Sakatpura Ckt-1	MW(e)	-10 to -40 MW(e)[1]
6	220 kV RAPP-A Sakatpura Ckt-2	MW(e)	-10 to -40 MW(e)
7	220 kV RAPP-A RAPP-B tieline	MW(e)	90-150 MW(e)

Line MW is negative due to Power inflow to RAPP-A switchyard from Sakatpura GSS.

- Time of disturbance: 11:05-11:46 hrs and 12:06 -12:20 hrs, Total Duration:55 minutes

A.21.2 RAPS mentioned that RAPP-A control room contacted the LDC and this hunting was controlled.

1

Hunting in generation was observed at all the above operating stations during this period

Members may kindly deliberate.

A.22. Hunting in Generating Parameters due to fluctuations in Grid at all generating units of RRVUNL, Rajasthan (Agenda by RRVUNL)

A.22.1 RRVUNL has informed that during recently hunting have been observed in the Grid parameters in running units of the Generating Stations at STPS-O&M and STPS-SC (Suratgarh), CTPP and CSCTPP (Chhabra), KTPS (Kota), KaTPP (Jhalawar). Consolidated data of hunting/variation in Grid parameters are as under:

STPS-O&M and STPS-SC (Suratgarh):

(a) Disturbance observed in U#3-6 (connected on 400KV system) on various occasions from the last week of Dec'25 to 22.01.26

(b) Hunting observed in U#1 &2 connected on 220KV system on 23.01.26

(c) Hunting in both 220 and 400KV side w.e.f. 01.02.26 and affected STPS, SSCTPP and CSCTPP.

(d) **Longest hunting for 42 minutes (11:03 am to 11:45 am) observed on 04.02.26** and it kept repeating in gap of 2-3 hours. Hunting of 12KV & 0.2Hz (Grid voltage & frequency) and 120MW with 50MVAR in individual running unit was observed.

A.22.2 RRVUNL has stated that thermal power plant is not designed to take up these abnormal hunting in repeated manner. Due to rapid changes in MW & MVAR, following abnormalities were observed at various fronts in STPS:

a) Bearing Vibrations of Generator and Turbine were found increased. This incident is very harmful to Generator and Turbine and can damage if the phenomenon repeats frequently.

b) Humming sound was also heard in AVR panels in U#2 during Hunting on 04.02.26.

c) This sudden variation also harms the working of running drives and Unit trippings have also been observed in the past.

d) Wide/Abnormal variations in Grid Voltage i.e. it is lower side during day time and higher side during night hours.

e) There is excessive loading of MVARs on the Generators due to nearby Solar plants and the Reactors installed in SSCTPP which restricts active power generation. Following Bus & Lines reactors are operational at SSCTPP, Suratgarh:

S. No.	Reactors installed at SSCTPP	Remark
1.	2x125 MVAR Bus Reactor (Switchable)	Switched on/off by LD during RE hours almost on daily basis
2.	2x80 MVAR Reactor (Switchable) on 2x400KV Babai Lines	These are always in service.
3.	2x50 MVAR Reactor(Switchable)	These are always in service.

	on 2x400KV Bikaner lines	

f) It is well known fact that U#3 & 6 of STPS came back to bar after a long-long breakdown in Generator(U#3) & Turbine (U#6) and coping with abnormal condition might be vulnerable to power sector.

A.22.3 RRVUNL has mentioned that it appears that the solar generation and the associated equipment's for the compensation of MVARs are not stabilizing due to weather conditions. It is seen that this pattern in hunting in Grid remains active during winter and rainy season.

A.22.4 RRVUNL has submitted that the Generating units of STPS are almost 25-28 years old and will not take up especially impact of Vibration in longer run.

CTPP (Chhabra):

A.22.5 RRVUNL has stated that very heavy fluctuations were observed on dtd. 04/02/2026 the details of voltage and load fluctuation unit wise are as follows:-

Sr. No.	Date & Time duration	Variation in Grid voltage	Variation in Load in Unit-1	Variation in Load in Unit-2	Variation in Load in Unit-3	Variation in Load in Unit-4
1	28/12/2025, 10:37 to 11.31 Hrs	402.24KV to 409.51 KV	196-208 MW	207-227 MW	184-187 MW	228-231 MW
2	23/01/2026, 14:53 to 15:10 Hrs	405.48KV to 419.15KV	125-205 MW	109-198 MW	Under shutdown	164-166 MW
3	25/01/2026, 10:26 to 10:29 Hrs	400.68KV to 408.78KV	159-167 MW	167-177 MW	175-180 MW	170-174 MW
4	28/01/2026, 15:02 to 15:10 Hrs	409.05KV to 417.29KV	158-177 MW	149-165 MW	155-186 MW	162-185 MW
5	01/02/2026, 11:29 to 11:35 Hrs	409.45KV to 418.32KV	147-190 MW	149-185 MW	168-177 MW	172-182 MW

A.22.6 Load fluctuations at CTPP, Chhabra during 11:03 Hrs to 11:45 Hrs observed as under:

Unit	Running load	Load fluctuation	Running MVAR	MVAR fluctuation	Grid voltage fluctuation
1	165 MW	91-233 MW	+40	-26 to +48	401 to 420 KV
2	190 MW	119-230 MW	+49	+12 to +61	

3	190 MW	159-209 MW	+1	-17 to +56	
4	196 MW	167-211 MW	-1	-20 to +40	

A.22.7 Load fluctuations at CTPP during 12:05 Hrs to 12:19 Hrs observed as under:

Unit	Running load	Load fluctuation	Running MVAR	MVAR fluctuation	Grid voltage fluctuation
1	185 MW	167-196 MW	+6	+10 to +30	406 to 420 KV
2	180 MW	165-194 MW	+39	+37 to +57	
3	170 MW	167-174 MW	+35	+32 to +60	
4	179 MW	158-180 MW	+20	+24 to +47	

A.22.8 RRVUNL has mentioned that on every frequent fluctuation in Grid Parameters, the Unit Load fluctuates rapidly resulting in deterioration of the insulation of Generator, overheating of stator and rotor winding of Generator and damaging of rotor due to hunting/oscillations and also increases the possibility of failure of AVR cards/ components.

A.22.9 This has also resulted in huge change in steam flow, which caused hunting of various steam lines. This also deteriorates life of Boiler and Turbine. There is possibility of tripping of the units also. Humming sound was also heard in AVR panels in all four units during fluctuations.

KTPS (Kota):

A.22.10 RRVUNL stated that the KSTPS, Kota generating plant observed continuous and abnormal Oscillations (hunting) in major electrical parameters such as voltage, frequency, active power (MW), reactive power (MVAR), power factor & generator field current etc. The disturbance persisted from 11:00 to 11:45 hrs on 04.02.2026.

A.22.11 During the aforementioned disturbance, voltage fluctuation of approximately 4 kV was observed on the 220 kV bus, indicating unstable grid conditions. The 220 kV bus voltage trend during the disturbance period is enclosed for reference.

A.22.12 Although no tripping or protection operation occurred during the event, the following are the concerns:

- Unstable operation of generating units
- Increased risk of unit tripping and protection mal-operations
- It may further damage the primary equipment.

CSCTPP (Chhabra):

A.22.13 RRVUNL has submitted that very rapid fluctuations in grid voltage have occurred at CSCTPP, Chhabra 6-8 times in the last one month.

Consolidated data of hunting/variation in Grid/Generator parameters are as under:

Sr No.	Date & time duration	Variation in Grid voltage, MW & MVAR in milliseconds/seconds	Remark
1	28/12/2025, 11.05 to 11.31 hrs	404KV to 408KV, 609MW to 631MW, 80MVAR to 92MVAR	Trends of voltage fluctuations, MW & MVAR fluctuations are attached for your ready reference
2	23/01/2026, 15.00 to 15.10 hrs	408KV to 413KV, 368MW to 391MW, 36MVAR to 75MVAR	
3	25/01/2026, 10.25 to 10.30	400KV to 408KV, 629MW to 659MW, 89MVAR to 101MVAR	
4	28/01/2026, 15.02 to 15.10 hrs	407KV to 415KV, 430MW to 467MW	
5	01/02/2026, 11.29 to 11.31 hrs	408KV to 415KV, 572MW to 602MW, (-)1.8 MVAR to 50.4MVAR	
6	02/02/2026, 11.02 to 11.10 hrs	409KV to 411KV, 616MW to 631MW, 63MVAR to 73MVAR	
7	04/02/2026 11.10 to 11.35 hrs	398KV to 412KV, 523MW to 689MW, 14MVAR to 50MVAR	

Longest hunting for 25 minutes (11:10AM to 11:35AM) observed on 04.02.26.

On 04/02/2026, 11.27AM, 400KV Grid voltage hunts from 405KV to 418KV in just 1.2 minutes.

A.22.14 RRVUNL has mentioned that thermal power plants are not designed to take up these abnormal hunting in repeated manner. Due to rapid variations in grid voltage, following abnormalities may occur:

i. Harms the working of running drives and units may get tripped.
ii. Increases the possibility of failure of AVR cards/components.
iii. Deteoriation of the insulation of Generator, overheating of stator winding of Generator and damaging of Rotor due to hunting/oscillations.

iv. The governing valves also fluctuate higher/lower in respect of fixed set point as per the declared MW to feed the steam in the turbine, resulting possibility of higher vibrations in turbine.

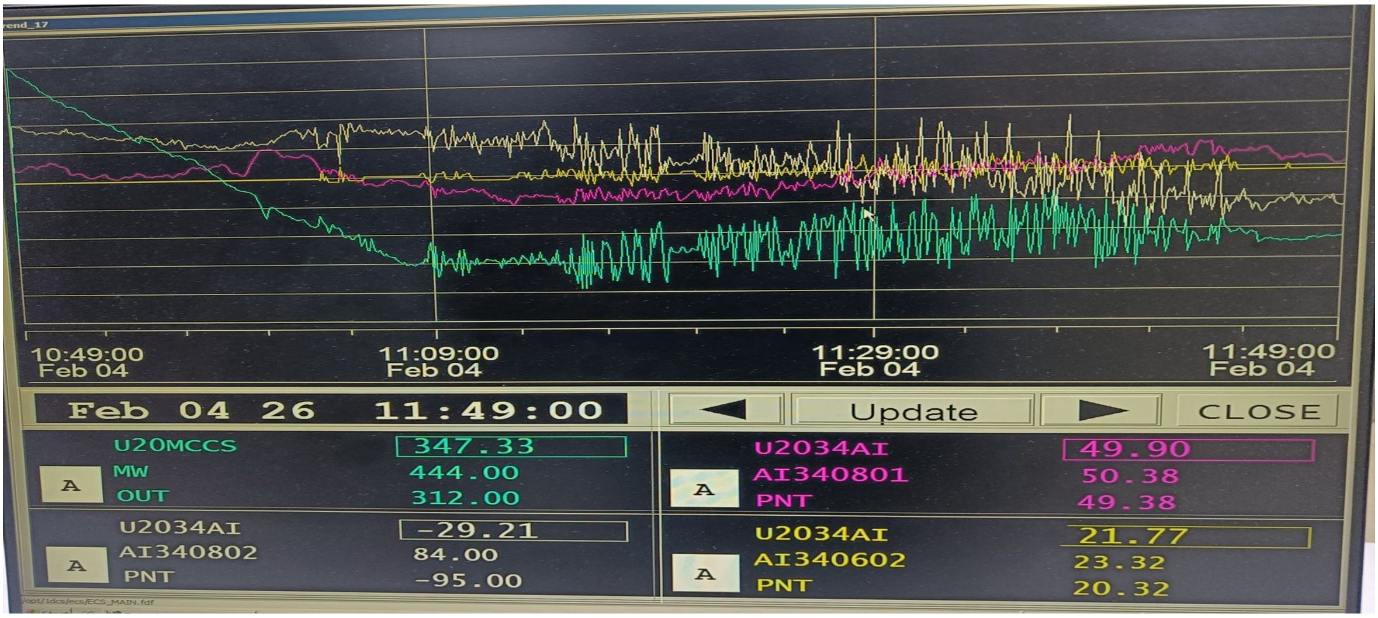
KaTPP (Jhalawar):

A.22.15 RRVUNL has submitted that the KaTPP, Jhalawar generating plant observed continuous and abnormal Oscillations (hunting) in major electrical parameters such as voltage, frequency, active power (MW), reactive power (MVAR), power factor & generator field current etc. The disturbance persisted from 11:10 hrs to 11:49 hrs on 04.02.2026.

Unit No.	Running Load MW	Hunting in MW	Running MVAR	Hunting in MVAR
1	343 MW	30-35 MW	20	20 to -9
2	327 MW	35-45 MW	28	28 to -14

Unit #1 trend of MW,MVAR

Unit #2 trend of MW, MVAR



A.22.16 RRVUNL has mentioned that although no tripping or protection operation occurred during the event, the following are the concerns:

- Unstable operation of generating units
- Increased risk of unit tripping and protection mal-operations
- It may further damage the primary equipment.

Members may kindly deliberate.

A.23. Proposed Islanding Schemes in UP Control Area (Agenda by UPSLDC)

A.23.1 UPSLDC has submitted the following islanding schemes for discussion in OCC meeting:

- Ayodhya/Gorakhpur- Tanda TPS Islanding Scheme- Annexure-A.X.
- Kanpur-Panki TPS Islanding Scheme -Annexure-A.XI.
- Bareilly- Rosa TPS Islanding Scheme- Annexure-A.XII.
- Aligarh- Harduaganj TPS Islanding Scheme- Annexure-A.XIII.
- Prayagraj-Meja TPS Islanding Scheme -Annexure-A.XIV.
- Meerut-Alaknanda HEP Islanding Scheme- Annexure-A.XV.

A.23.2 For all the Islanding Schemes above, steady state feasibility study has been done by UPSLDC.

A.23.3 UPSLDC has mentioned that success rate of Islanding Schemes depends on load-generation balance of island. However, the success rate of proposed Islanding schemes can be increased by incorporating df/dt relays with associated time delay, which shall take care of any excess or deficit in load/generation. Settings of df/dt relays can only be arrived at after dynamic study.

A.23.4 Therefore, UPSLDC has requested that the proposal for aforementioned Islanding Schemes may be accepted and approval may be given for carrying out their dynamic study.

Members may kindly deliberate.

A.24. Revision of SPS at Bara TPS in view of commissioning of 765 kV Bara-Mainpuri ckt -1 and 765 kV Unnao - Mainpuri line (Agenda by UPSLDC)

A.24.1 UPSLDC has submitted for A.24. Revision of SPS at Bara TPS in view of commissioning of 765 kV Bara- Mainpuri ckt -1 and 765 kV Unnao - Mainpuri line.

A.24.2 Revised SPS logics is attached as **Annexure-A.XVI**.

Members may kindly deliberate.

A.25. Proposed SPS at 400kV s/s Jehta, 400kV s/s Shamli and 400kV s/s Sahupuri (Agenda by UPSLDC)

A.25.1 UPSLDC has submitted that at 400kV s/s Shamli (1X500 MVA) there is a single ICT and loading on said ICT is reaching 460 MW. To avoid any overloading in upcoming summer season, SPS is proposed.

A.25.2 Further, UPSLDC has stated that at 400kV s/s Jehta (2x500 MVA) and 400kV s/s Sahupuri (2x500 MVA), ICTs may reach N-1 limit in upcoming summer season therefore SPS is proposed.

A.25.3 Logics and Priority of feeders at 400kV s/s Shamli, 400kV s/s Jehtaa and 400kV s/s Sahupuri is attached as **Annexure-A.XVII**, **Annexure-A.XVIII** and **Annexure-A.XIX** respectively.

Members may kindly deliberate.

A.26. Operational Challenges at Kutehr HEP Arising from Uncoordinated Water Releases by Bajoli-Holi HEP (Agenda by JSW Hydro Energy)

A.26.1 JSW Hydro Energy intimated that in 236th OCC meeting, a committee was constituted by OCC forum with representative from HPSLDC, Kutehr HEP, Bajoli-Holi HEP and NHPC for establishment of a joint operational protocol between Bajoli-Holi HEP, Kutehr HEP and NHPC Power Stations. OCC Forum directed that committee may finalize joint operational protocol within two months and submit the same to the OCC forum.

A.26.2 In this regard, a meeting was held under the chairmanship of CE, HPSLDC on cited subject matter (copy of MoM attached as **Annexure-A.XX**)

HPSLDC to update status.

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

B.1. NR Grid Highlights for January 2026

Demand met and Consumption details of NR

S.No.	Constituen	Max	Date &	All time	Date & Time of

	ts	Demand met (in MW)	Time of Max Demand met	Max. Demand	All time Max Demand met
1	Chandigarh	340	14-01-2026 10:00	482	18.06.24 at 15:28
2	Delhi	6087	09-01-2026 10:39	8656	19.06.24 at 15:06
4	Haryana	10156	15-01-2026 10:00	14662	31.07.24 at 14:30
3	H.P.	2310	09-01-2026 09:15	2310	09-01-2026 09:15
5	J&K	3362	07-01-2026 10:00	3362	07-01-2026 10:00
6	Punjab	10661	16-01-2026 10:30	16754	28.06.25 at 15:00
7	Rajasthan	19282	09-01-2026 09:00	19282	09-01-2026 09:00
9	U.P.	23716	07-01-2026 19:30	31486	11.06.25 at 00:45
8	Uttarakhand	2766	16-01-2026 09:00	2910	11.06.25 at 22:00
10	**Northern Region**	75554	09-01-2026 10:00	91234	19.06.24 at 14:37

S.No.	Constituents	Max Consumption (in MUs)	Date of Max Consumption	Average Demand met (in Mus)	All time Max consumption	Date of All time Max Consumption
1	Chandigarh	5.83	14-01-2026	4.8	9.3	12.06.2025
2	Delhi	99.34	16-01-2026	90.6	177.7	18.06.2024
4	Haryana	185.1	14-01-2026	167.2	293.4	30.07.2024

3	H.P.	41.83	09-01-2026	38.8	42.6	11.06.2025
5	J&K	68.1	09-01-2026	63.3	70.3	04.02.2025
6	Punjab	188.6	16-01-2026	168.2	366.8	21.07.2024
7	Rajasthan	347.5	09-01-2026	332.2	388.0	11.06.2025
9	U.P.	422.7	06-01-2026	391.3	658.7	17.06.2024
8	Uttarakhand	51.6	14-01-2026	47.4	62.1	14.06.2024
10	**Northern Region**	1394.6	16-01-2026	1303.7	2022.9	12.06.2025

In January’26,

- Maximum energy consumption of Northern Region was **1394.6 MUs** on 16th January’26 and it was 7.7% higher than January’25 (1272.95 MUs on 10th January’25).

- Average energy consumption per day of Northern Region was **1303.7 MUs** and it was 5.7% higher than January’25 (1233.9 MUs/day)

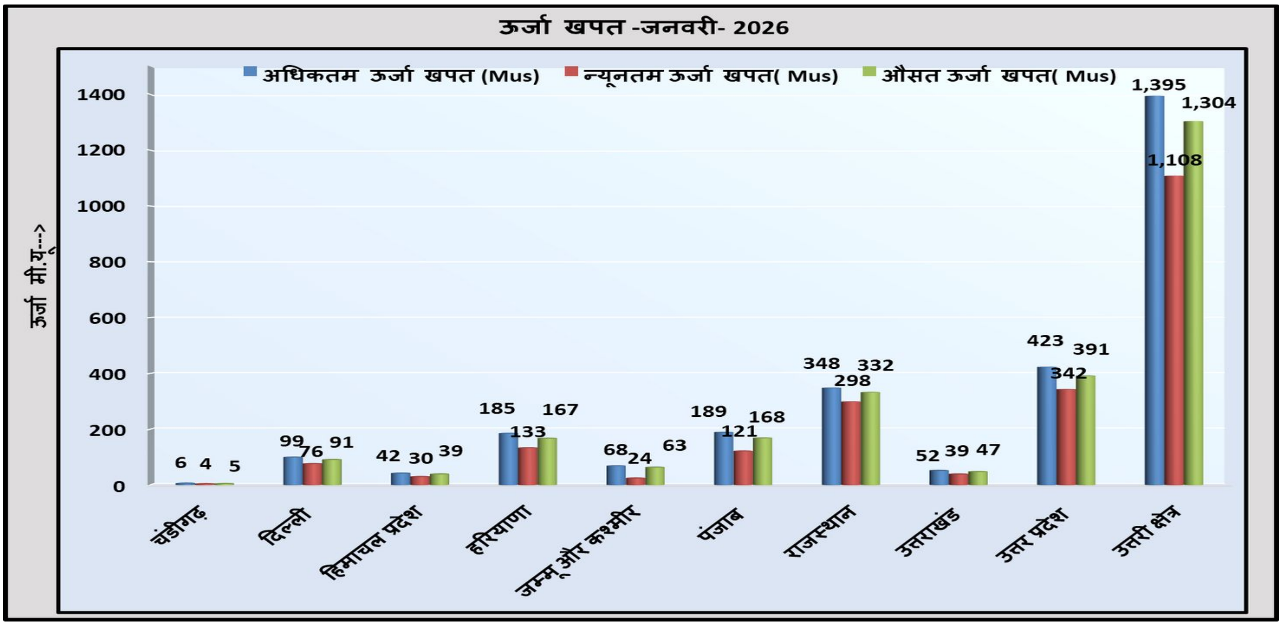
- Maximum Demand met of Northern Region was **75554 MW** on 09th January’26 @10:00 Hrs as compared to **69109 MW** 10th January’25 @10:00 Hrs.

Comparison of Average Energy Consumption (MUs/Day) – January ’25 vs January ‘26

क्षेत्र/राज्य	**जनवरी- 2025**	**जनवरी- 2026**	**% अंतर**
चंडीगढ़	4.4	4.8	8.17%
दिल्ली	83.4	90.6	8.69%
हिमाचल प्रदेश	38	38.8	2.20%
हरियाणा	152.5	167.2	9.65%

जम्मू और कश्मीर	67	63.3	-5.52%
पंजाब	153.5	168.2	9.55%
राजस्थान	326.3	332.2	1.81%
उत्तराखंड	44.4	47.4	6.74%
उत्तर प्रदेश	364.5	391.3	7.37%
उत्तरी क्षेत्र	1233.9	1303.74	5.66%

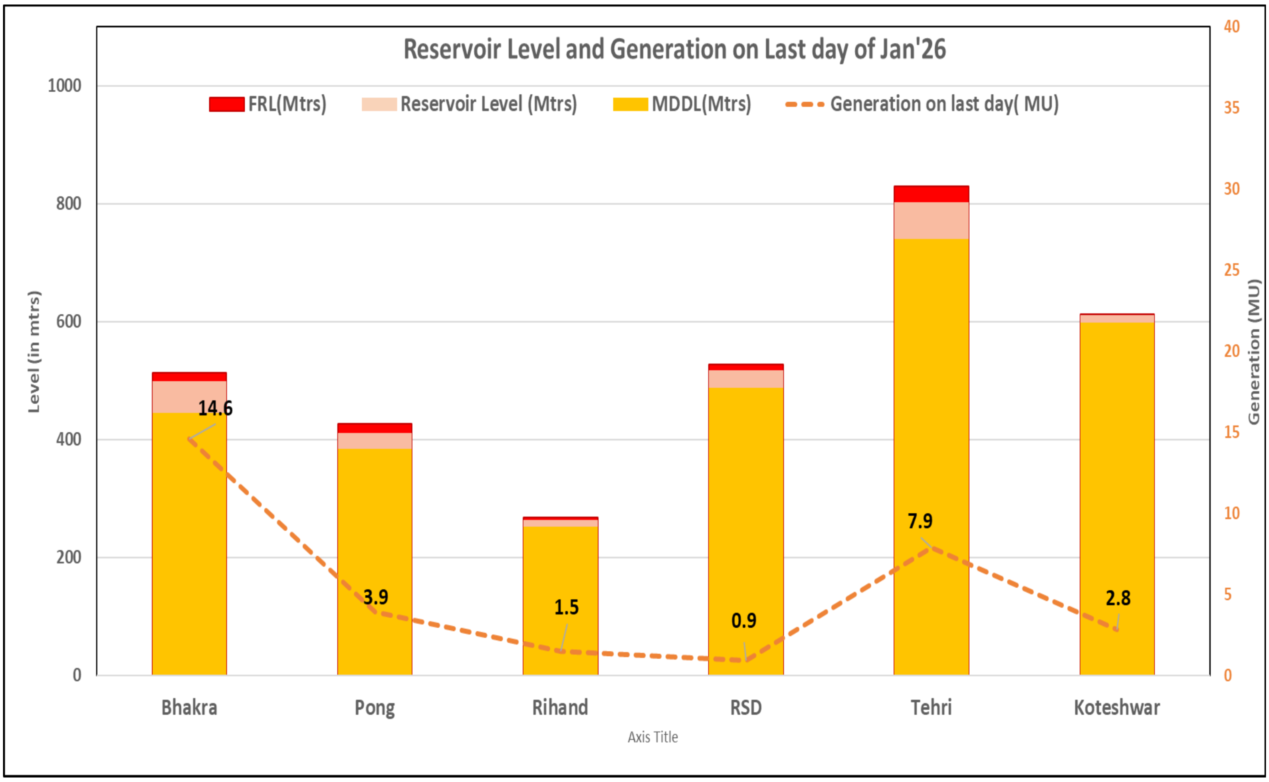
Energy Consumptions



Frequency profile

Month	Avg. Freq. (Hz)	Max. Freq. (Hz)	Min. Freq. (Hz)	<49.90 (% time)	49.90 – 50.05 (% time)	>50.05 (% time)
Jan'26	50.000	50.349 (12.01.26 at 08:59:10 hrs)	49.585 (09.01.26 at 11:44:00 hrs)	4.58	78.26	17.16
Jan'25	50.001	50.309 (26.01.25 at 14:01:10 hrs)	49.600 (11.01.25 at 09:07:30 hrs)	5.23	76.05	18.72

Reservoir Level and Generation on Last Day of Month



Reservoir Level on last day of January month				(Low: -ve)		(High: +ve)
Year	**Bhakra**	**Pong**	**Rihand HPS**	**RSD**	**Tehri**	**Koteshwar**
2026	499	411.56	263.28	517.81	802.20	611.45
2025	487	399	263	500	802.41	611.15
Diff (in m)	12	12.56	0.28	17.81	-0.21	0.3

Detailed presentation on grid highlights of Jan'2026 will be shared by NRLDC in OCC meeting.

B.2. Demand forecasting and resource adequacy related: CERC order dated 05.10.2025

Hon'ble CERC In the matter of Planning for safe, secure, and reliable integrated operation of the power system during critical periods arising on account of seasonal variations wherein the electricity demand increases rapidly by undertaking specific measures to mitigate the risks on the power system, under clause (h) of sub-section (1) of Section 79 of the Electricity Act, 2003 and the Regulation 31 of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 hadissued suo-motto order 9/SM/2024 dated 07.10.2024.

Subsequently, a meeting was taken by Hon'ble CERC on 14.02.2025 with all NR SLDCs, NRLDC and NRPC to review the actions being taken at SLDC end on measures related to resource adequacy.

CERC has also released "Report on Planning for safe, secure, and reliable integrated operation of the power system during critical periods arising on account of seasonal variations wherein the electricity demand increases rapidly by undertaking specific measures to mitigate the risks on the power system under Order dated 07.10.2024 in Suo-Moto Petition No. 9/SM/2024" on 29.04.2025.

With reference to the Clause 31(2) of Central Electricity Regulatory Commission-IEGC Regulations, 2023 and the Operating Procedure of NRLDC prepared in accordance with the same, each SLDC has to furnish the demand estimation for day ahead, week ahead, month ahead (with time block wise granularity) and demand estimation for year ahead (with hour granularity). The sub-clause 31(2) (h) of IEGC-2023 states the following timeline for the submission of demand estimate data to RLDC.

Type of Demand Estimation	**Timeline**
Daily	10:00 hours of previous day
Weekly	First working day of previous week
Monthly	Fifth day of previous month

Status of Day Ahead Forecasting, week ahead, month-ahead and year-ahead submission status for Jan-2025 as per Clause 31(4) (a) & (b) of IEGC-2023 is shown below:

State/Entity	Day Ahead	Week Ahead	Month Ahead	Year-Ahead(2026-27)
Punjab	As per Format	As per Format	As per Format	Only Demand
Haryana	As per Format	As per Format but irregular	As per Format	Not received
Delhi	As per Format	As per Format	As per Format	As per Format
Rajasthan	As per Format	As per Format	As per Format	As per Format
Uttar Pradesh	As per Format	As per Format	As per Format	As per Format
Uttarakhand	As per Format	As per Format	As per Format	Only Demand
Himachal Pradesh	As per Format	As per Format	As per Format	As per Format
J&K and Ladakh (UT)	As per Format	As per Format but irregular	As per Format	Only Demand
Chandigarh (UT)	As per Format	As per Format but irregular	As per Format but irregular	Not received

In accordance with above, all SLDCs are requested to timely furnish the demand estimation data along with generation adequacy data as per the formats available at *https://drive.google.com/drive/folders/1KWY4G9gTBLV5wTJkhGEIeRptKP-QbhjL?usp=drive_link* to NRLDC through mail (nrldcmis@grid-india.in) and FTP as per above timeline.

All SLDCs need to take actions at their end for timely submission of demand forecasting and resource adequacy data on day-ahead, week-ahead, month ahead and year ahead basis.

Portal has been prepared for submission of data by states. The user credentials have been provided to all states of Northern region.

Considering the high demand expected in the upcoming months, the Ministry of Power (MoP), in the meeting held on 15-01-2026, has directed RLDCs to carry out Resource Adequacy studies for all States of their respective control regions *(**MoM Quote: Grid-India to carry out short-term Resource Adequacy assessments for the States and take up the matter with those States that have projected shortages in their control area**).*

Accordingly, NRLDC has conducted Resource Adequacy studies for all the northern region states for the period April-June 2026. The RA study results are enclosed as **Annexure-B.I** indicate an elevated adequacy gap in forecasted demand and available generation from all sources in the April-June period, particularly during non-solar hours. A higher risk of unserved energy is observed during this period, highlighting the need for timely and firm power arrangements to meet the State demand smoothly.

Following was communicated vide NRLDC letter dated 04.02.2026:

- All NR States are advised to plan in advance for power procurement for the entire summer period (April–June and beyond).
- Early finalisation of firm GNA and bilateral arrangements may be ensured to adequately meet peak and shoulder-hour demand while maintaining sufficient reserve margins.
- Reliance on short-term market purchases for meeting peak summer demand should be minimised and treated only as supplementary.
- States may review the enclosed Resource Adequacy (RA) study and undertake detailed State-level analysis in coordination with DISCOMs / Power Management Companies, considering local demand patterns and resource availability.
- States are further requested to review their demand forecast submissions.
- A detailed source-wise bifurcation of ISGS allocations, in the prescribed format, along with updated details of any new or revised GNA / bilateral contracts for April–June 2026, may be furnished to facilitate refinement of the RA assessment and proactive summer preparedness planning.

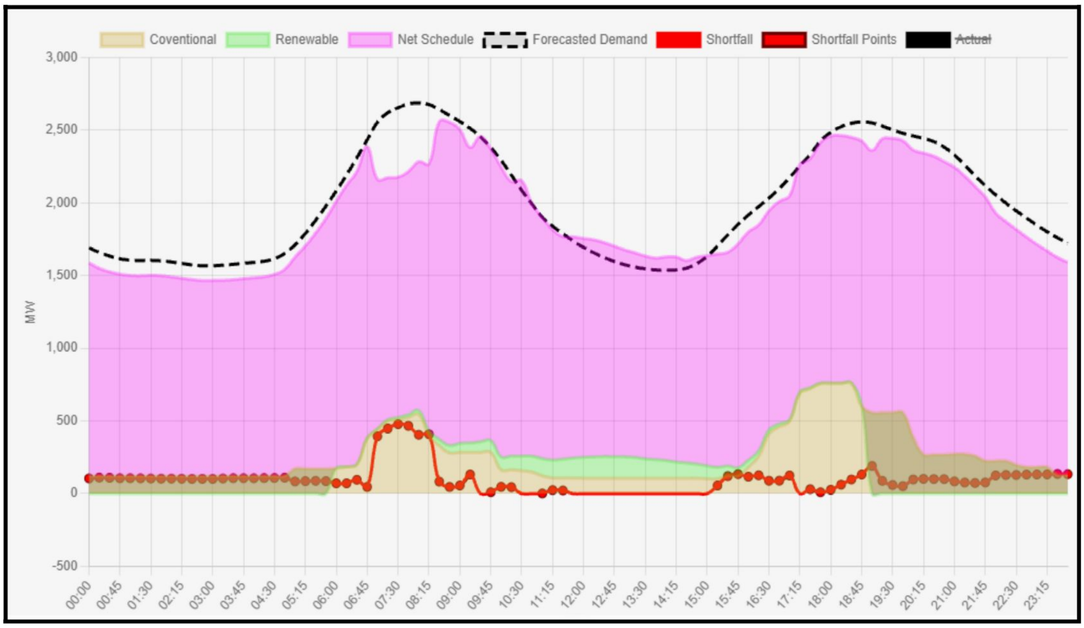
As per IEGC clause 31

Quote

(4) Adequacy of Resources (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.

Unquote

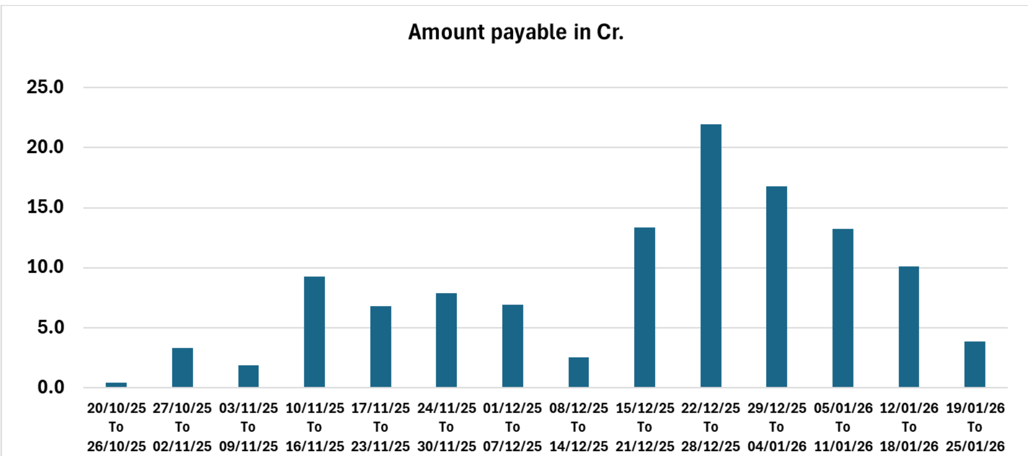
Accordingly, NRLDC is also regularly sending emails based on day ahead resource adequacy exercise being carried out at NRLDC end. In case of major shortfall seen for a state based on demand forecast and generation adequacy data submitted by state, NRLDC communicates the actions required from state side in real-time also. Some sample snapshots emailed to respective states are shown below for reference:



However, it is being observed that states are only submitting the generation availability and not the actual internal generation schedule. This leads to a situation wherein only surplus/shortage values are checked. This does not take into account the schedule changes in internal thermal generation which may be happening based on merit order to accommodate high solar generation during daytime.

During 238 OCC meeting, MS NRPC stated that all concerned SLDCs may take necessary actions as discussed in previous OCC meetings also. It was mentioned that special attention may be given by SLDCs on demand estimation and Resource Adequacy data submission & ensuring adequate manpower in SLDCs.

Deviation amount payable by Rajasthan for last 3 months is shown below which suggests improvement requirement in resource adequacy planning by Rajasthan SLDC and RUVITL:



All SLDCs are requested to review the resource adequacy results and provide their comments along with the proposed tie-ups to avoid shortfall during Apr-Jun 2026.

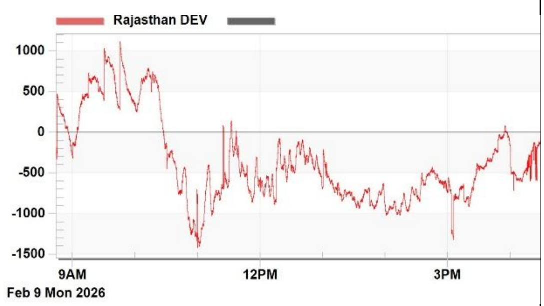
Members may please discuss.

B.3. Summer Preparedness 2026

With the increase in temperature, demand of Northern Region starts increasing from March onwards every year. Summer of Northern region are typically hot and demand is also high during this time, therefore advance actions help in better grid operation.

To overcome the commonly encountered challenges during summer months and ensuring smooth grid operation, following are few points which have been discussed on many occasions in previous OCC and TCC/ NRPC meetings and are required to be followed by all:

S. No.	Issues	Action plan	Action by
1	**Maintenance of reserves** During summer, in anticipation of increasing demand, adequate reserves shall be maintained. During summer, sudden outage of hydro units on silt or other major generation outage affects frequency/voltage, line loading, reliability and security of the corridor/control area/Generation complex etc. In events of sudden load crash, ISGS generators are being instructed to back down to 55% of their installed capacity.	In such cases, apart from portfolio management based on proper forecast as discussed above, re-starting of units under reserve shutdown at state as well as Inter-state level through appropriate transactions is required. Moreover, display window showing reserve available in ISGS generators has been developed at NRLDC. SLDCs are also requested to arrange for such display window at their control centers so that system operators readily know quantum of reserve available and hence better real-time actions can be taken. Rajasthan, Punjab and Haryana are requested to take actions to ensure backing down of generators to 55% of their capacity in case of critical situations. This would ensure reserves in the system and also make us prepared for extreme situations.	NRLDC, SLDCs, Generators
2	**Telemetry**	All are requested to ensure the telemetry of all analog & digital points of all stations at respective control centers. Large number of telemetry	SLDCs STUs

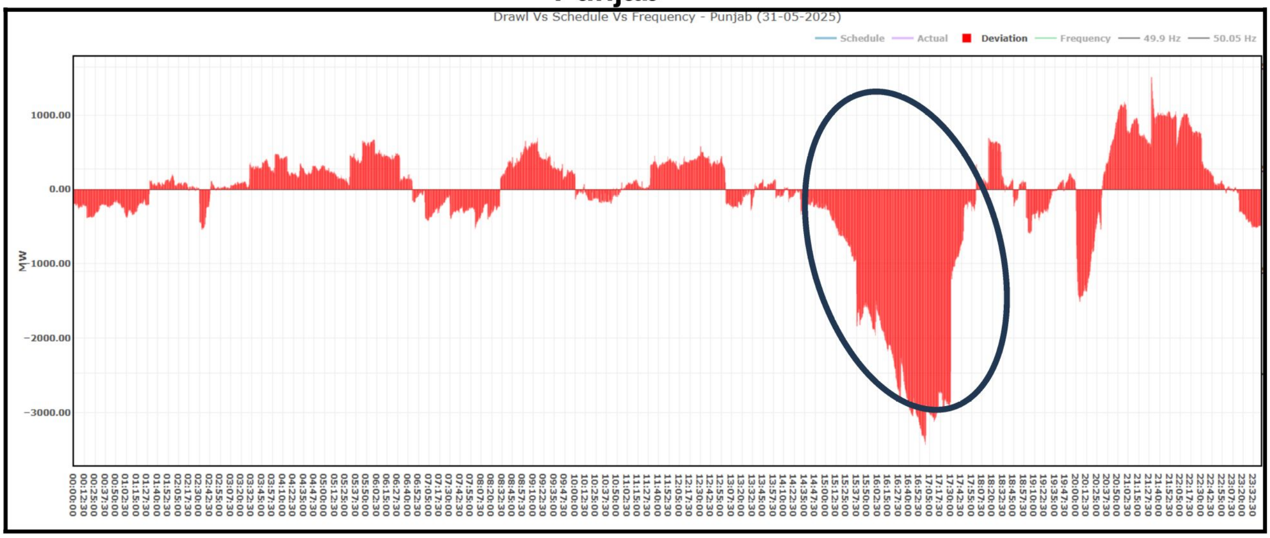
	It has been observed number of times, that telemetry of large nos of stations is affected during contingency, inclement weather, or in day to day switching operations etc.	issues are also encountered with newly commissioned elements.	
3	**Portfolio Management, load staggering** As discussed in previous OCC meetings states such as UP, Rajasthan and Haryana connect/ disconnect large quantum of load at hourly boundaries resulting in frequency spikes and instantaneous over voltages. This has also resulted in tripping of lines on overvoltage in recent past. In view of high/increasing demand & transmission constraints (if any) in importing the power or in case of any contingency in the system, states are requested to maximize their internal generation to avoid low frequency/low voltage operation or other related issues.	Apart from GNA based arrangements based on forecast, other short term arrangements should also be planned for real time imbalances. For example, ensuring adequate margin while scheduling own thermal generation, units on bar, maintenance of reserves, technical minimum operation of thermal units in case of load crash, tie up with neighbor states or hydro rich states and utilization of real-time market etc. to bridge the load-generation gap in real time. **For instance, recently on 09.02.2026, it was observed that in the morning when state solar generation was slightly less, Rajasthan was overdrawing to the tune of 1000MW and shortly thereafter Rajasthan was having continuous under drawl throughout the day time.** 	SLDCs
4	**Tower Strengthening and availability of ERS** There have been number of instances of tower collapse & damage in the	All utilities are requested to ensure availability of Emergency Restoration System (ERS) for early restoration of supply. Each utility shall work on plan for tower repairing work before April.	STUs and POWERGRID

	past during thunder storms which resulted in constraints in power transmission for extended duration of time. Number of tower collapse incidents occurred during last summer also in May/Jun 2024 & 2025 in which many EHV lines including 765kV lines were out on tower collapse. Number of 400kV lines were also out in Rajasthan control area leading to curtailment of RE in Western Rajasthan.	Extra precautions need to be taken care for important lines which have history of tripping during thunderstorm/ windstorm. **As per latest status, PTCUL, HPPTCL, RRVPNL, JKPTCL and HVPNL are not having ERS as per the government norms**. ERS procurement may be expedited by licensees having deficit ERS than requirement as per the Govt. norms	
5	**Reactive power management** Over the years during summer months, it has been observed that voltage profile during summer has improved. However, it is always essential to remain alert and take all necessary precautions to avoid any issues arising due to low voltages during summer months.	To maintain the voltage profile of Grid within IEGC band during summer, following known actions are suggested: • Switching ON Capacitor/Switching OFF reactor as per system requirement • Tap Optimization at 400/220kV by NRLDC and 220/132kV by respective state control area based on scatter plots of ICTs, offline studies, NRPC RE account etc. • Dynamic reactive support from Generator as per their capability curve. SLDC to monitor the same for intrastate generators. • SCADA Displays for better visualization during real-time	NRLDC, SLDCs
6	**Defense Mechanism** Several defense mechanism schemes have been recommended by various committees and advantages of such	Till date it has been observed that performance of SPS is considerably low. Accurate operation of SPS is very essential and hence, mapping of SPS in SCADA is also being done. It is suggested that all state control area/Users shall ensure before start	Transmissi on utilities (STU/ISTS

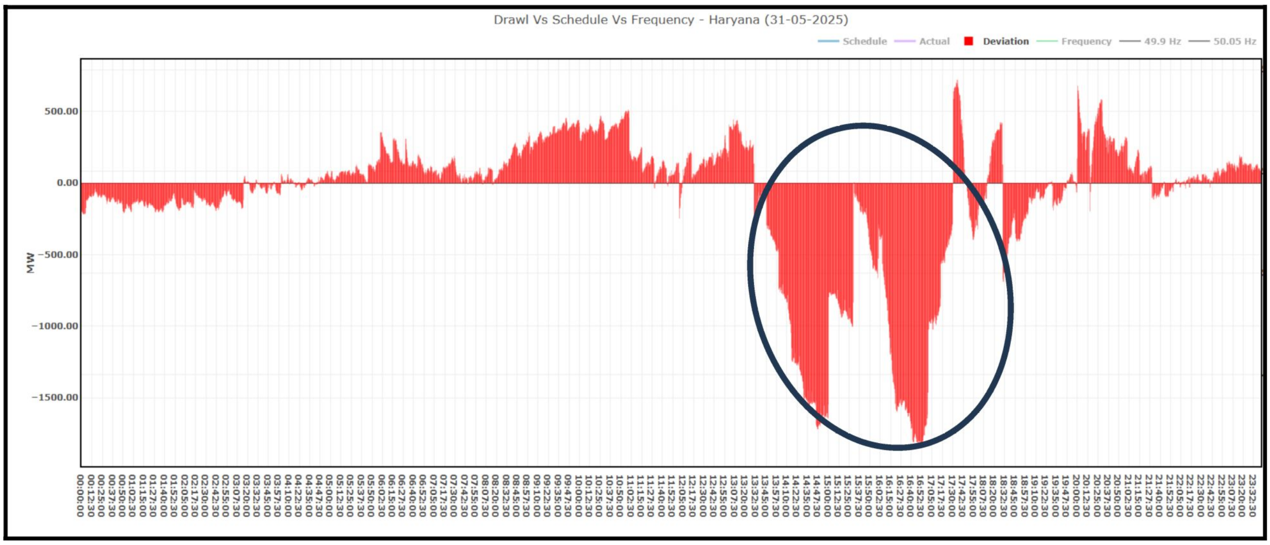
	defense schemes have been discussed in many fora too. Majority of defense mechanism are to cover protection for under voltage, under frequency, rate of change of frequency, SPS for line/ICTs loading/generator complex evacuation etc. It is pertinent to mention here that SPS is only for operational defense and should not be considered as long term solution.	of summer that their protection and defense system are in working conditions and settings are as per the recommendations of NRPC. In addition, all states/user need to provide update for changes or modifications carried out if any.	) and SLDCs

Some of the past events of huge under drawl by NR states during thunderstorms are shown below:

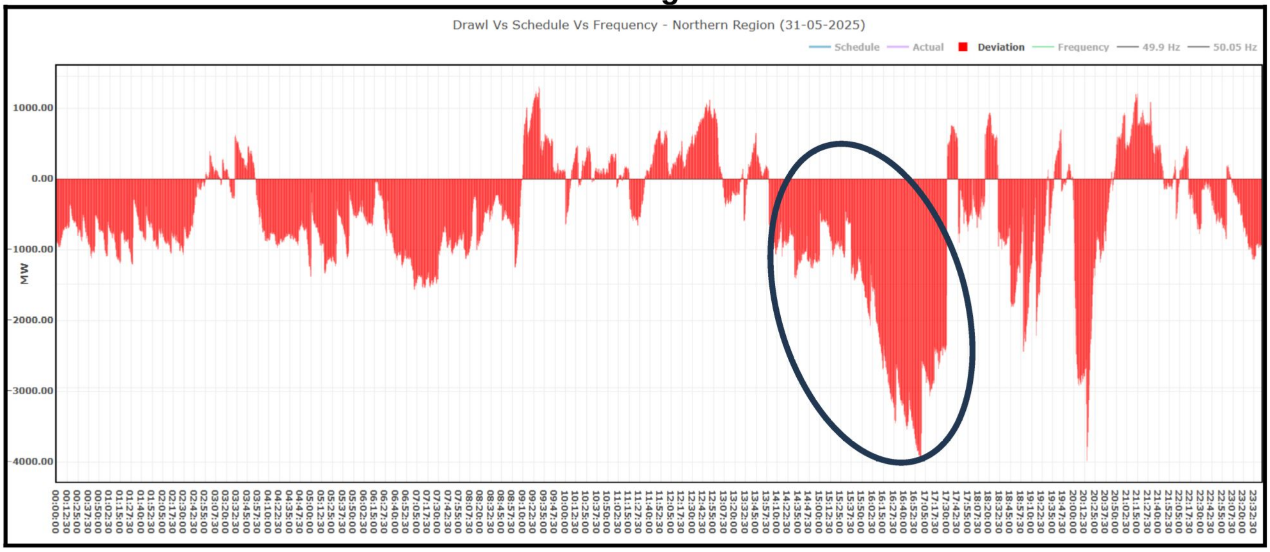
Punjab



Haryana



Northern region



Due to unfavourable weather conditions during summer months, All India demand remains on the higher side. On several days, it is observed that frequency is below the band for most of the time. In order to maintain the Grid security all SLDCs are requested to take proactive steps as follows:

- Ensure that ADMS is in service and expedite its implementation if not commissioned. Latest status for NR states is shown below:

State	**Status**
DELHI	Scheme Implemented but operated in manual mode.
HARYANA	Scheme not implemented
HP	Scheme not implemented
PUNJAB	Scheme not implemented
RAJASTHAN	Under implementation.
UP	Scheme implemented by NPCIL only
UTTARAKHAND	Scheme not implemented

- Ensure healthiness and availability of AUFLS and df/dt load shedding.

- Ensure revival of intra-state generators under economic shutdown/RSD based on requirement
- Ensure portfolio balancing through T-GNA/RTM market segments
- Ensure no under injection by the generators from schedule
- In case of inadequate margins in intrastate generators measures for emergency load regulation measures may be taken in interest of grid security.
- Pursue generators to expedite revival of thermal units under forced outage wherever feasible.
- ***As per the directions from Ministry, no planned outages of generating units to be approved for Apr-June period. Accordingly, all planned outages may be expeditiously taken and work may be completed by March 2026.***

In this case, the list of radial feeders becomes very important. Utilities have been requested number of times to update list of radial feeders which can be opened on the directions of NRLDC to regulate the demand. List of such radial feeders has been provided by respective utilities and is part of 'Operating Procedure of Northern Region'. Latest list of radial feeders is also attached as **Annexure-B.II**. Following are the attributes for such feeders:

- Feeders shall be radial in nature
- They should usually have substantial load flow so that reduction of drawal can be prominently noticed on opening of such lines.

The opening of feeders is generally an extreme step which shall be required in case of threat to grid security and non-adherence to RLDC instructions to manage overdrawl by SLDCs/ DISCOMs. In such a case, every utility needs to take actions to support RLDC by following their instructions including opening of feeders.

SLDCs are once again requested to verify that

- List of feeders are actually radial in nature and are likely to provide the expected relief
- such feeders are not part of any other scheme such as any SPS, UFR or df/dt actuated shedding

Telemetry is to be ensured for all such feeders for monitoring in real time by SLDC/ NRLDC. States are also advised to take remedial measures for minimizing sustained over drawal at low frequencies as per the IEGC.

Members may like to discuss.

B.4. SPS proposals in Rajasthan

Majority of 400/220kV ICTs in Rajasthan state (both interstate as well as intrastate are N-1 non-compliant). List of N-1 non-compliant ISTS substations is shown below:

Constrained location	SPS Status as available with NRLDC
3*315=945 MVA ICT at Bhiwadi(PG)	Approved and to be implemented
2*315+500=1130 MVA ICT at Bassi(PG)	Approved and to be implemented

315+500=815 MVA ICT at Neemrana(PG)	Approved and to be implemented
2*315+500=1130 MVA ICT at Sikar(PG)	Approved and to be implemented
3*315=945 MVA ICT at Kankroli(PG)	Approved and to be implemented
2*315=630 MVA ICT at Kotputli(PG)	Implemented
2*315=630 MVA ICT at Deedwana(RVPN)	Not planned

NRLDC vide email dated 02.12.2025 had communicated that the stage wise logic for SPS of ICTs at POWERGRID stations in Rajasthan control area was discussed in 64th PSC meeting held on 21.11.2025. The time delay logic proposed by Rajasthan was agreed and POWERGRID was requested to start the implementation process of the SPS at designated stations.

Time delay for stage-1&2 of SPS was decided as:

1. Stage-1: 105% loading with 1 sec delay
2. Stage-2: 105% loading with 1.5 sec delay

During 239 OCC meeting,

- POWERGRID representative informed that separate meeting was convened on 12.01.2026 to discuss list of feeders which are being reviewed at SLDC end. Rajasthan SLDC representative stated that they are reviewing the list of feeders.

- OCC forum asked POWERGRID and RRVPNL to quickly converge and expedite commissioning of SPS.

POWERGRID and RRVPNL may provide update.

B.5. State-wise transmission constraints anticipated during high demand season of 2026

During the high demand season, the transmission system in Northern region remains heavily loaded. Transmission constraints observed in the grid during high demand period are regularly being highlighted in OCC meetings. Same is also being submitted to CTUIL and CEA through quarterly operational feedback.

Even after several follow-ups, it is observed that progress of several transmission elements are not upto the mark and expeditious actions from transmission utilities are required so that minimal issues are observed at transmission level during the high demand season.

State-wise issues and measures required thereof are listed below. Concerned transmission utilities are requested to provide update and ensure that these transmission elements are expeditiously commissioned.

Punjab:

During OCC 239,

Punjab SLDC representative stated that they have reassessed the ATC/TTC limit for paddy 2026. State level ATC/TTC committee has submitted the report to increase

ATC/TTC by 11600/12100MW before paddy 2026 with subject to the condition of commissioning of some elements.

Punjab SLDC was asked to share basecase along with ATC/TTC limits for paddy 2026 with NRLDC at the earliest.

Punjab SLDC may provide update.

Haryana:

SPS proposals in Haryana

For SPS at 400/220kV Hissar(PG) ICTs:

During 239 OCC meeting,

NRLDC representative asked POWERGRID to plan & implement SPS in such a manner that SPS is surely implemented by Apr 2026.

POWERGRID representative stated that DTPC has been received at Hisar(PG) and the logic to be implemented may be shared by NRPC. The work is expected to be completed in next 2 months.

OCC forum asked Haryana SLDC and NRLDC to prepare SPS logic for 400/220kV Hissar(PG) ICTs before next OCC meeting.

Accordingly, a mail was received from Haryana SLDC side regarding proposal for SPS at 400/220kV Hissar(PG) ICTs. **Following SPS logic is proposed at 400/220kV Hissar(PG) ICTs:**

Loading of any of the 400/220kV Hissar(PG) ICTs crosses, 105 % for 3 seconds, tripping of following lines:
- **220 kV Hisar (BBMB) - Sangrur D/C line**
- **220 kV Hisar (BBMB) - Chirawa line**

OCC may approve the proposed SPS logic.

For SPS at 400/220kV Panipat ICTs:

During 239 OCC meeting, OCC forum discussed that a separate meeting was convened on 02.01.2026 under chairmanship of SE(O), NRPC to discuss the issue. The feeders and priority for wiring under SPS were approved.

HVPNL may update on implementation status of SPS at 400/220kV Panipat ICTs.

POWERGRID may update status of commissioning of:

- ***765/400kV Bhiwani ICT-IV***
- ***765/400kV Jhatikara ICT-V***
- ***Reconductoring of 220kV Hisar (PG)-Hisar(IA) line***

Uttar Pradesh:

In 239 OCC meeting,

POWERGRID representative stated that 500MVA ICT-4 at Allahabad is expected to be commissioned by Jan 2026 and First Time Charging is under process.

It was also informed by UPPTCL representative that old 240MVA ICT at Obra is expected to be revived by Jan 2026 whereas 315MVA ICTs at Obra would be revived after some time due to requirement of procurement of ICTs.

CTUIL representative stated that ICT capacity augmentation at 400/220kV Sohawal(PG) shall be taken up in next CMETS meeting.

SPS proposals in Uttar Pradesh

UP SLDC informed that work order for SPS logic of 400/220kV Bareilly S/s has been placed. SPS at both 400/220kV Panki and Bareilly substation are expected to be commissioned by Mar 2026.

POWERGRID representative stated that SPS at Agra(PG) would be commissioned by Jan 2026 end.

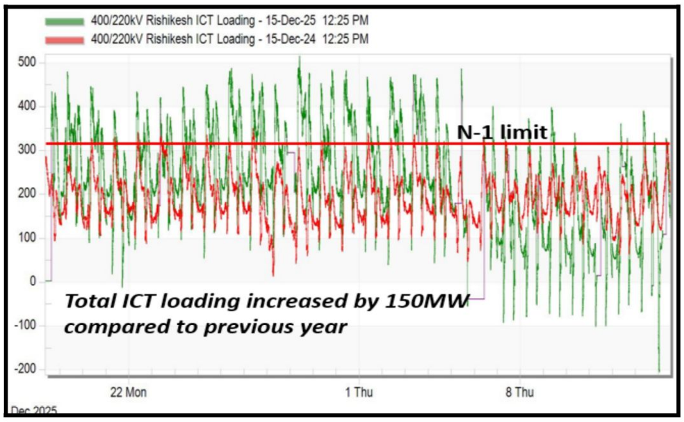
POWERGRID, UPPCL, CTUIL and UP SLDC are requested to provide update.

Uttarakhand:

In 239 OCC meeting, NRLDC representative stated that:

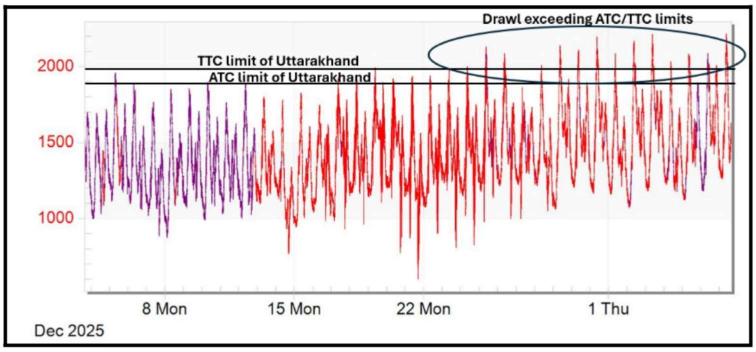
Continuous violation of ATC/TTC limits and loading of 400/220kV Rishikesh ICTs beyond their N-1 limit is being observed since the commissioning of 400kV Koteshwar-Rishikesh D/C line.

Loading pattern of 400/220kV Rishikesh ICTs for Dec 2025 is shown below:



Further, with the commissioning of 400kV Koteshwar-Rishikesh D/C line, the loading of Rishikesh ICTs is heavily dependent on mode of operation of Tehri PSP.

ATC/TTC limits and import by Uttarakhand state for the month of Dec 2025 is shown below wherein it can be clearly seen that there is ATC/TTC limits violation almost on daily basis especially during 0800-1200 hrs in morning and 19-22 hrs in evening.



PTCUL representative stated that they shall plan for new 500MVA ICT at 400/220kV Rishikesh.

CTUIL representative stated that 400kV Koteshwar-Rishikesh D/C line was approved in 2015-16 and the demand of Uttarakhand was much lower during that period. When studies were done back then, no constraint at 400/220kV Rishikesh ICTs was envisaged.

OCC forum asked CTUIL and PTCUL planning team to study loadings of line and ICTs in Rishikesh area in 2028-29 time frame.

Uttarakhand SLDC representative stated that they have kept opened 220kV lines (220kV Rishikesh-SIDCUL and 220kV Rishikesh-IIP) to control loading of 400/220kV Rishikesh ICTs, but this has reduced reliability of power as some 220kV stations are being supplied form only single source.

Uttarakhand SLDC was asked to plan for SPS for 400/220kV Rishikesh ICTs.

PTCUL and Uttarakhand SLDC may provide update.

ATC/TTC limits of states for the month of March 2026 are attached as **Annexure-B.III** of agenda. Utilities are requested to go through these limits and provide comments.

Members may please discuss.

B.6. SPS for Champa-Kurukshetra HVDC

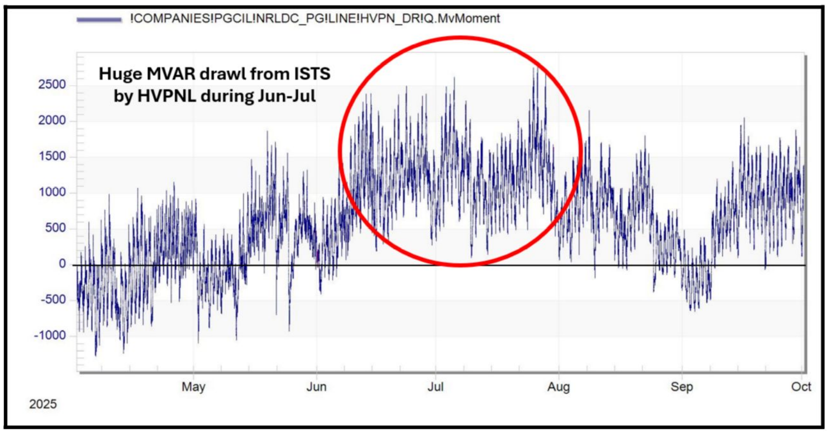
As discussed in recent OCC meetings, there have been concerns regarding reliability of Champa-Kurukshetra HVDC. There have been unplanned load loss that has taken place in two events related to simultaneous all poles outage of HVDC Champa-Kurukshetra namely,

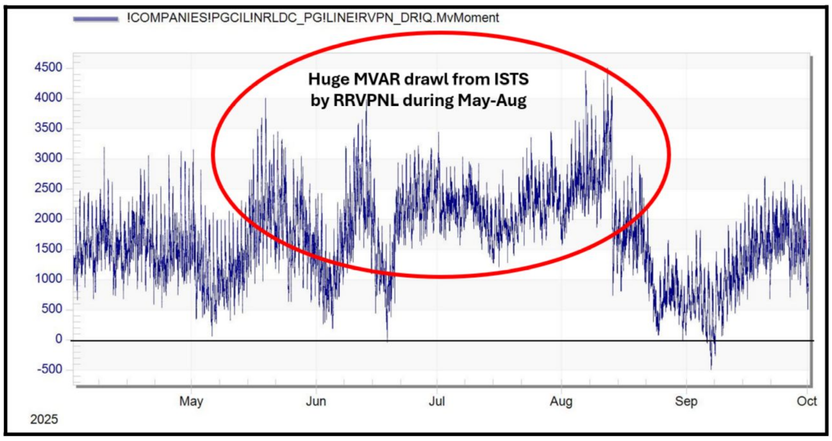
1. 16.5GW load loss event on 17.06.2024 due to tripping of Champa-Kurukshetra all poles carrying 4000MW with NR total load as 89.4GW
2. 0.9GW load loss event on 09.06.2025 due to tripping of Champa-Kurukshetra all poles carrying 4300MW with NR total load as 82.6GW

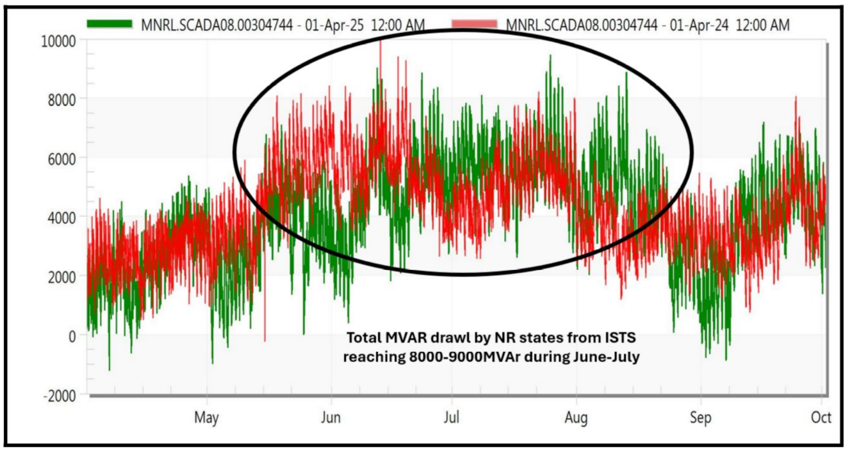
The recommendations of Committee formed under Member (GO&D), CEA] to analyse 17th June 2024 are attached as **Annexure-B.IV**. NRLDC has been continuously pursuing with NR states to take measures for reactive power support at local level so that reactive power exchange from ISTS is minimal. However, as per discussions held in OCC meetings, no progress is being reported. There is huge MVAR drawl by NR states during May-Sep months.

NRLDC has analysed reactive power flow of all states of NR for last year i.e. 2024. The points which are used to calculate MW drawl of state from ISTS have been used to calculate the MVAr drawl by state from ISTS.

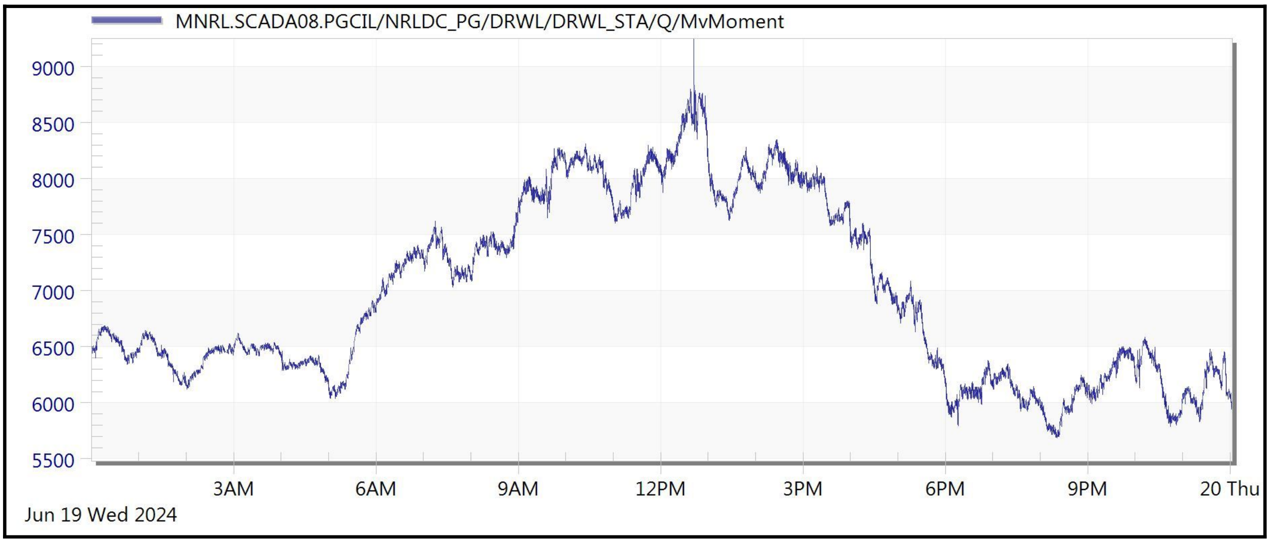
Following is the analysis:







Moreover, on 19th June 2024, the day NR demand reached maximum of 91.2 GW it can be seen that there was huge MVAR drawl by NR states from ISTS and seems to be following pattern of solar generation (maximum MVAr drawl at around 1pm) as shown below:



Accordingly, in 233 OCC meeting it was agreed to implement a SPS scheme which can shed loads in case of simultaneous outage of all poles of HVDC Champa-Kurukshetra. Since, identification and wiring of new load groups may be difficult for implementation in short time frame and further utilities have also expressed concerns in identifying further new feeders for UFR or other load shedding schemes, it was suggested to utilise the wired loads of existing Agra-Gwalior or Rihand-Dadri SPS scheme. Signal of multiple HVDC pole outage can be extended from Kurukshetra station to Dadri/Agra SPS scheme and some load relief can be obtained. The automatic disconnection of wired loads post outage of multiple HVDC Poles at Kurukshetra may provide some relief and may help in containing the voltages till suitable static and dynamic compensation devices are commissioned.

Accordingly, a separate meeting was convened on 04.09.2025 by NRLDC with participation from SLDCs, POWERGRID and NRPC.

CEA vide letter dated 22.09.2025 had communicated that a committee has been constituted to study the issue of frequent outages of HVDC Champa-Kurukshetra line and recommend mitigation measures. The committee conducted its first meeting on 12.12.2025 wherein it was discussed that:

- NRPC and Grid-India to furnish the Compliance/ Implementation Status of recommendations of MoP Committee [constituted under Member (GO&D), CEA] Report on HVDC Champa-Kurukshetra link trippings
- Grid India to carry out the proper Study regarding Voltage dip occurring at Kurukshetra Station end below 0.7 p.u. and

During 237 OCC meeting, OCC forum asked POWERGRID to examine and confirm how SPS signal can be transmitted from Kurukshetra to Agra/Dadri and what impact it would have on the effectiveness of SPS. POWERGRID may provide update.

Tentative logics for SPS may be:

Case-1: Voltage at 400kV Kurukshetra less than 380kV & more than 50kV for 200ms: Shed Loads in Groups C and D

Case-2: Voltage at 400kV Kurukshetra less than 360kV & more than 50kV for 200ms: Shed Loads in all Groups

As the operation of SPS will result in load loss in NR, it is necessary that commensurate generation backing down in WR may also be done simultaneously which is already the case with existing Gwalior-Agra SPS. Accordingly, same backing down in WR may be done for this SPS of Champa-Kurukshetra HVDC link as for Gwalior-Agra SPS scheme.

Other OCC members are requested to:

- ***Provide actions taken at their end in compliance to recommendations of MoP Committee constituted under Member (GO&D), CEA to analyse 17th June 2024.***
- ***Approve proposed SPS logic***

B.7. Database of transmission lines having terminal equipments rating lower than transmission line conductor capacity

For conducting studies for assessment of inter control-area transfer capability or any other related simulation studies, thermal ratings of lines as specified in CEA's Manual on Transmission Planning Criteria 2023 are being considered as safe capacity limit of lines based on anticipated ambient temperature.

However, it is being observed in number of cases, that the rating of terminal equipment is lower than thermal capacity of transmission line. This is leading to under-utilisation of line capacity due to limited switchgear rating and even leading to constraints in RE evacuation from Western Rajasthan RE complex.

As per the data available at NRLDC, following are few transmission lines in Northern region having terminal equipments of lower capacity than conductor capacity:

Name of Transmission line	Line length (km)	Owner	Conductor Type	Conductor Rating @45deg for 75deg design	Switchgear rating End-1 (MVA)	Switchgear rating End-2 (MVA)
400kV Bhadla-Bikaner D/C	189	RRVPNL	Quad Moose	1701	1386	1386
400kV Jaisalmer-Kankani S/C	177	RRVPNL	Quad Moose	1701	1386	1386
400kV Akal-Kankani S/C	223	RRVPNL	Quad Moose	1701	1386	1386
400kV Akal-Jaisalmer S/C	61	RRVPNL	Quad Moose	1701	1386	1386
400kV Suratgarh SCTPS-Babai D/C	245	RRVPNL	Quad Moose	1701	1386	1386
400kV Mahendragarh-Dhanonda D/C	5	ATIL	Quad Moose	1701	1386	1386
400kV Gr. Noida-Nawada D/C	30	POWERGRID	Quad Bersimis	1978	1386	1386
400kV Vishnuprayag-Muzaffarnagar S/C	280	UPPTCL	Twin Moose	850	693	NA
400kV Vishnuprayag-Alakhnanda D/C	109	UPPTCL	Twin Moose	850	693	NA
400kV Rampur-Nallagarh D/C	128	POWERGR	Triple	1275/	1386	1386

		ID	Snowbird	1625*		
400kV Jhakri-Gumma D/C	55	POWERGRID	Triple Snowbird	1275/ 1625*	1386	NA
400kV Gumma-Panchkula D/C	112	POWERGRID	Triple Snowbird	1275/ 1625*	NA	1386
400kV Jhakri-Rampur D/C	21	POWERGRID	Triple Snowbird	1275/ 1625*	1386	1386

*Considering ambient temp of 40deg (lower in Hilly areas)

During 239 OCC meeting,

- SJVNL representative stated that matter was internally discussed. There are technical as well as financial constraints in uprating the terminal equipment. Even after uprating the terminal equipments, bus bar capacity will not be sufficient to carry this power. All upgradation works would require shutdown of approx. 1 year to complete all works. During the shutdown period, NJPC and Rampur will not be generating and power of Karcham HEP may also get stranded. Ambient temperature may also exceed 40 degrees, therefore the line rating may not increase especially during summer months.
- OCC forum asked SJVNL to submit the above through letter to NRPC with copy to CEA and CTUIL.
- UP SLDC representative informed that line capacity is upto 1200A but the switchgear capacity is only 1kA with setting at 10% extra margin.
- NRLDC representative asked UP SLDC to submit the line capacity along with terminal equipment rating at UPPTCL end through email to NRLDC/NRPC.
- Haryana SLDC representative informed that switchgear upgradation works are under progress at Nawada and expected to be completed by Jan 2026. Upgradation works at Dhanonda are under progress and will take some more time.
- RRVPNL representative informed that NIT has been issued for terminal equipments of all transmission lines.
- MS NRPC asked RRVPNL to submit line wise status in upcoming meeting scheduled on 19.01.2026 at NRPC.
- OCC forum asked all members to take necessary actions as discussed above.

Concerned transmission utilities, SJVNL and SLDCs may provide update:

- ***Written submission from SJVN regarding possibility of terminal equipment upgradation at their plant switchyard***
- ***UP SLDC to confirm thermal rating of transmission lines from 400kV Vishnuprayag***
- ***Rajasthan and Haryana to update on upgradation of terminal equipment works.***

Members may please discuss.

B.8. Issues in grid operation in Rajasthan RE pocket

Voltage and power (active and reactive) oscillations are observed in the Rajasthan Renewable Energy (RE) complex during peak solar generation hours. During severe high-magnitude oscillation events in Rajasthan, frequency oscillations and hunting of synchronous generators in other regions have also been observed.

During solar hours, the following abnormalities are consistently observed on a daily basis:

i. Continuous low-amplitude oscillations (2–4 kV peak-to-peak, 0.3 – 0.7 Hz, 3-6 Hz) persisting during solar hours.

ii. High-amplitude oscillations (20–50 kV peak-to-peak, 3-6 Hz) – were previously originating following amplification by STATCOMs or due to suspected interactions among RE plants.

   These oscillations usually damp out after switching the STATCOM to manual mode and/or reducing solar generation.

To overcome these, number of actions are already being taken at NRLDC end such as:

- Switching of EHV lines and reactors are avoided in the Rajasthan RE complex during solar hours (10:00–16:00 hrs). However, in case of variability of solar generation either due to foggy weather/moving cloud or implementation of TRAS up/down, Bus reactors (B/Rs) may be switched-In/out as per real-time voltage condition of the RE pooling S/s. Switching-out of B/R carried out first at RE pooling S/s and then at nearby connected S/s during solar ramping-up. Switching-In of B/R carried out first at nearby connected S/s and then at RE pooling S/s during solar ramping-down
- Total RE generation from the ISTS NR RE complex restricted within the permissible evacuation limits. Messages with flag Alert/Emergency/Extreme emergency are being issued to NRLDC / RE plants for curtailment of generation in case of violation in evacuation limits.
- Over-injection from VRE plants during solar hours being monitored and messages with flag Alert/Emergency/Extreme emergency RE plants in case of violations.
- Bus voltage at the VRE pooling stations (interstate as well as intrastate) are closely monitored to maintain it within the dead-band of STATCOMs. Dead band of STATCOMs at Bhadla-2 and Fatehgarh-2 has been set as 380 – 420 kV. During non-solar hours, the dead-band of the STATCOMs are reduced to control voltages.
- Adequate reactive power support, as per prevailing grid conditions, is ensured from RE plants. Instructions to plants operating in Fixed-Q Mode revised based on changing grid conditions, including line outages, TRAS operation, or STATCOM mode changes.
- Further, NRLDC has taken up with NLDC to trigger TRAS up/down in staggered manner across successive time blocks, avoiding large changes in PPC set points. TRAS down implementation/removal shall be intimated at least one time block (15 minutes) in advance to NRLDC C/R to take appropriate measures to ensure good voltage profile.

Due to above measures, no voltage oscillations were reported in NR grid from 05.02.2026 to 09.02.2026, even though NR solar reached an all time high of 29.9GW.

However, following challenges persist which are causing challenges in secure operation of RE complex in Western Rajasthan:

- No PMU data availability from old ISTS RE plants and intrastate RE plants of Rajasthan. It is desired that PMU is available at all RE plants so that it is possible to identify the defaulting plants and swift messages are issued to them. Rajasthan SLDC is requested to share availability of PMU data at their end and analysis of OMU being done at their end including for oscillation events and RE plant non-compliant events.
- Slow actions from POWERGRID end and response is sluggish on few occasions as seen on 04.02.2026 & 14.01.2026 when there was delay in execution of instructions issued from NRLDC control room. For instance, on 04.02.2026, when high voltage oscillations were being observed in the grid, NRLDC first asked POWERGRID to take STATCOMs at Fatehgarh-II and Bhadla-II in manual mode as was being done previously on many occasions. As the oscillations still persisted, NRLDC asked POWERGRID to take out the STATCOMs at Fatehgarh-II at 11:30 hrs. STATCOM-2 was taken under outage at 11:38 hrs and STATCOM-1 was taken under outage at 11:45 hrs, after which oscillations died out. Such delay in operation at crucial moments even with remote operation is extremely dangerous and also causes hunting in thermal generators. The voltage oscillations were so high that they reached other regions also.
- It is to be noted that due to huge concentration of RE power in Western Rajasthan which is intermittent as well as creating challenges such as oscillation in the grid due to interactions between inverter controlled devices of RE plants as well as STATCOMs, it is required that swift actions are taken at both RE plant end as well as POWERGRID especially in case of observation of high voltage oscillations (04.02.2026) or tripping of evacuating 765kV lines as seen on 14.01.2026. If required, additional manpower can also be deployed by RE plants as well as POWERGRID in their control room especially during the morning shift period.

Members may please discuss.

B.9. Multiple element tripping events in Northern region in the month of January 2026:

A total of **22** grid events occurred in the month of **January 2026** of which **17** are of GD-1 category and **05** are of GI-2 Category. The tripping report of all the events have been issued from NRLDC. A list of all these events along with the status of DR/EL & tripping detail submission is attached at **Annexure-B.V.**

Maximum delayed clearance of fault observed in event of tripping event at 400/220kV Kanpur(PG) at 16:47 hrs on 07th January 2026 (As per PMU at Lucknow(PG), Three phase to ground fault was observed with delayed fault clearing time of 1560ms).

Delayed clearance of fault (more than 100ms for 400kV and 160ms for 220kV system) observed in total **08** events out of **22** grid events occurred in the month. In **03** (no.) of grid events, there was no fault in the grid.

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.

It is observed that DR/EL & tripping report of most of the grid events are not being submitted as per timeline specified in IEGC 2023. Non availability to tripping details further hampers the grid event analysis at RLDC level.

Members may take necessary preventive measures to avoid such grid incidents / disturbances in future and share the report of actions taken by respective utilities. 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 IEGC clause 37.2 (c) & (e).

Members may like to discuss.

B.10. Status of submission of DR/EL and tripping report of utilities for the month of January 2026:

The status of receipt of DR/EL and tripping report of utilities for the month of **January 2026** is attached at **Annexure-B.VI**. It is to be noted that as per the IEGC provision under clause 37.2 (c), the 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 of RE stations(ACME, ADANI. AMPIN, EDEN, KSP, KREPL, RDUPL, RSDCL, SJVN, TPGEL), CPCC2, SLDC-HR, SLDC-PS, SLDC-J&K, SLDC-Delhi, INDIGRID, BBMB, NTPC, NHPC, Sterlite and RAPS 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 "https://postda.nrldc.in/Default.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 (.cfg/.dat) may please also be submitted in tripping portal.

Members may like to discuss.

B.11. Frequency response performance for the reportable events of month of January 2026:

During the month of **January 2026, 4 no. of reportable events** were notified by NLDC for which FRC/ FRP need to be calculated. Description of the event is as given in the Table below:

S. No.	**Event Date**	**Time (In hrs.)**	**Event Description**	**Starting Frequency (in Hz)**	**Nadir Frequency (in Hz)**	**End Frequency (in Hz)**	***Δf(Hz)***	**NR FRP during the event**
1	14-Jan-26	13:38 hrs	As reported, at 13:38 Hrs on 14th January 2026, generation loss event of 2281 MW occurred in RE complex and RAPP-D, NR. Hence generation loss of 2281 MW is considered for FRC/FRP Calculation.	50.070	49.940	49.958	-0.112	1.37
2	14-Jan-26	14:05 hrs	As reported, at 14:05 Hrs on 14th January 2026, generation loss event of 3787 MW occurred in RE complex, NR. Hence generation loss of 3787 MW is considered for FRC/FRP Calculation.	49.991	49.755	49.823	-0.168	0.91
3	14-Jan-26	14:09 hrs	As reported, at 14:09 Hrs on 14th January 2026, generation loss event of 925 MW occurred in RE complex, NR. Hence generation loss of 925 MW is considered for FRC/FRP Calculation.	49.852	49.723	49.803	-0.049	-0.47
4	30-Jan-26	11:08 hrs	As reported, at 11:08 Hrs on 30th January 2026, load loss event of 1214 MW occurred in Simhadri, SR.	49.892	49.998	49.948	0.056	0.55

			Hence load loss of 1214 MW is considered for FRC/FRP 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."

Members are requested to share the FRC/FRP computation of their respective control area as per the timeline specified in IEGC 2023.

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 09th February 2026**, FRC/FRP as per NRLDC HDR data is used for computation of Average Monthly Frequency Response Performance, Beta 'β' for Generating Stations.

From the FRP data, it is observed that FRP of many of the control areas are not satisfactory. Therefore, it is requested to review the FRC/FRP, governor actions of your respective control area, necessary actions may be taken for improvement in the FRC/FRP.

Status of details received from constituents and FRP values as considered for the events of **January 2026** are attached as **Annexure-B.VII.**

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

Sl. No.	Entity	Governor Mode (FGMO as per IEGC 2023) Yes or No	Droop setting (%)	Remarks (if any)

1	**Dadri -1 (TH)**	Yes	6%	
2	**Dadri -2 (TH)**	Yes	6%	
3	**Jhajjar (TH)**	Yes	5%	
4	**Rihand-1 (TH)**	Yes	5%	
5	**Rihand-2 (TH)**	Yes	5%	
6	**Rihand-3 (TH)**	Yes	5%	
7	**Shree Cement (TH)**			
8	**Singrauli (TH)**	Yes	5%	
9	**Tanda-2 (TH)**	Yes	6%	
10	**Unchahar-I (TH)**	Yes	5%	
11	**Unchahar-II (TH)**	Yes	5%	
12	**Unchahar-III (TH)**	Yes	5%	
13	**Unchahar-IV (TH)**	Yes	5%	
14	**Anta (G)**			
15	**Auraiya (G)**			
16	**Dadri (G)**			
17	**AD Hydro (H)**	Yes	4%	
18	**Bairasiul (H)**	Yes	4%	
19	**Bhakra (H)**			
20	**Budhil (H)**			
21	**Chamera-1 (H)**	Yes	5%	
22	**Chamera-2 (H)**	Yes	5%	
23	**Chamera-3 (H)**	Yes	4%	
24	**Dehar (H)**			
25	**Dhauliganga (H)**	Yes	5%	
26	**Dulhasti (H)**	Yes	5%	
27	**Karcham (H)**	Yes	5%	
28	**Kishenganga**	Yes	4%	
29	**Koldam (H)**	Yes	9%	
30	**Koteshwar (H)**			
31	**Malana-2 (H)**			
32	**Nathpa Jhakri (H)**	Yes	9%	
33	**Parbati-2 (H)**	Yes	4%	
34	**Parbati-3 (H)**	Yes	4%	
35	**Pong (H)**			
36	**Rampur (H)**			
37	**Sainj (H)**			
38	**Salal (H)**	Yes	5%	
39	**Sewa-II (H)**	Yes	4%	
40	**Singoli Bhatwari (H)**			
41	**Sorang (H)**	No	4%	ROR, no storage
42	**Tanakpur (H)**	Yes	4%	
43	**Tehri (H)**	Yes	4%	
44	**Uri-1 (H)**	Yes	6%	
45	**Uri-2 (H)**	Yes	5%	

Constituents are requested to share the details of the droop w.r.t. their generating stations.

Members 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 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 2025-26. The present status of mock black start of generating units is attached as **Annexure-B.VIII**. Constituents are also requested to share the test report of diesel generators / auxiliary supply on a quarterly basis.

Mock black start exercised conducted during FY 2025-26 are as follows:

Sr. No.	Name of Generating station	Date of Mock Black Start Exercise conducted

1.	Parbati_III HEP	17.05.2025
2.	Sewa_II HEP	16.05.2025 & 30.01.2026
3.	Rihand & Obra HEP(UP)	02.06.2025
4.	Ramgarh GPS	11.05.2025
5.	RSD HEP(Punjab)	01.12.2025
6.	Tehri HEP	11.11.2025
7.	Ranjit Sagar (Thein Dam)	01.12.2025
8.	URI-I	24.01.2026
9.	URI-II	26.01.2026
10.	Tanakpur	28.01.2026
11.	Bairasiul	30.01.2026
12.	Chamera-I	30.01.2026
13.	Sewa-II	30.01.2026
14.	Kishanganga	31.01.2026
15.	Dhauliganga	05.02.2026
16.	Chamera-II	06.02.2026

Therefore, ISGS and SLDCs are requested to take following actions:

- **To share the tentative schedule of mock black start exercise of generating stations in their respective control area.**
- **SLDCs are requested to share the tentative schedule plan of mock black start exercise of generating stations in their respective control area.**
- **To conduct dead bus charging after self-starting the generating station if schedule with load is not available.**
- **To share the test report of mock black start exercise conducted along with weekly DG testing on monthly/quarterly basis.**

Members may like to discuss.

B.13. Revision of document for System Restoration Procedure Document of Northern Region:

NRLDC has been issuing '**System Restoration Procedure Document of Northern Region**' on annual basis. The document was last revised on 29th January 2026 & updated document is available on NRLDC website in document section, the web link of the same is as below:

https://nrldc.in/documents/Documents

The document is password protected and password has already been informed to all the NR constituents.

Constituents are requested to note and go through the same and provide feedback or suggestion, if any.

B.14. Revision of document for System Protection Scheme Document of Northern Region:

NRLDC has been issuing '**System Protection Scheme Document of Northern Region**' on annual basis. The document was last revised on 30th January 2026 & updated document is available on NRLDC website in document section, the weblink of the same is as below:

https://nrldc.in/documents/Documents

The document is password protected and password has already been informed to all the NR constituents.

Constituents are requested to note and go through the same and provide feedback or suggestion, if any.

Annexure-A.I

Status of action taken on decision of 239th OCC meeting of NRPC

S.N.	Agenda	Decision of 239th OCC meeting of NRPC	Status of action taken
1.	A.17. Review the technical requirement of the non-switchable reactor installed at 400kV Kota-Merta line after implementation of Rajasthan Phase III, Part F scheme (Agenda by CTUIL)	POWERGRID/RRVPNL to check the availability of space for a separate bay and to confirm, before the next OCC meeting, to GRID-INDIA and CTUIL the network arrangement for controlling the proposed NGR-bypassed LR as a bus reactor.	POWERGRID/RRVPNL to update the status.
2.	A.21. Installation of 3x41.67 MVAR, 420 KV Reactor at Parbati-II HEP (Agenda by NHPC)	a) CTU to assess the feasibility of installing the 3 × 41.67 MVAR, 420 kV bus reactor at an alternative suitable location in the region based on the present system conditions. b) Powergrid to confirm the availability of space for installing the 3 × 41.67 MVAR, 420 kV bus reactor at the Banala ISTS Pooling Station.	CTUIL/POWERGRID to update the status.
3.	A.22. Exemption from the requirement of 220 kV Double busbar arrangement at 220kV Substation Derabassi (Agenda by PSTCL)	CTUIL to coordinate a joint team visit comprising CEA, CTUIL, GRID-INDIA, Powergrid, and NRPC to 220 kV Derabassi substation to assess space availability for a second 220 kV busbar and team to submit its recommendation on space availability for construction of a second 220 kV busbar.	CTUIL to update the status.

Follow up issues from previous OCC meetings

Annexure-A.II

1	Down Stream network by State utilities from ISTS Station	Augmentation of transformation capacity in various existing substations, addition of new substations along with line bays as well as requirement of line bays by STUs for downstream network are under implementation at various locations in Northern Region. Further, 220kV bays have already been commissioned at various substations in NR. For its utilization, downstream 220kV system needs to be commissioned.	List of downstream networks is enclosed in **Annexure-A.II.I.**
2	Progress of installing new capacitors and repair of defective capacitors	Information regarding installation of new capacitors and repair of defective capacitors is to be submitted to NRPC Secretariat.	Data upto following months, received from various states / UTs: ◎ CHANDIGARH — Sep-2019 ◎ DELHI — Dec-2025 ◎ HARYANA — Sep-2025 ◎ HP — Oct-2025 ◎ J&K and LADAKH — Not Available ◎ PUNJAB — Nov-2025 ◎ RAJASTHAN — Dec-2025 ◎ UP — Jan-2026 ◎ UTTARAKHAND — Jan-2026 All States/UTs are requested to update status on monthly basis.
3	Healthiness of defence mechanism: Self-certification	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".	Data upto following months, received from various states / UTs: ◎ CHANDIGARH — Not Available ◎ DELHI — Dec-2025 ◎ HARYANA — Sep-2025 ◎ HP — Nov-2025 (tripping report) ◎ J&K and LADAKH — Not Available ◎ PUNJAB — Dec-2025 ◎ RAJASTHAN — Dec-2025 ◎ UP — Jan-2026 ◎ UTTARAKHAND — Dec-2025 ◎ BBMB — Dec-2025 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.
		In compliance of NPC decision, NR states/constituents agreed to raise the AUFR settings by 0.2 Hz in 47th TCC/49th NRPC meetings.	Status: ◎ CHANDIGARH — Not Available ◎ DELHI — Increased ◎ HARYANA — Increased ◎ HP — Increased ◎ J&K and LADAKH — Increased ◎ PUNJAB — Increased ◎ RAJASTHAN — Increased ◎ UP — Increased ◎ UTTARAKHAND — Increased

<table>
<tr><td></td><td></td><td></td><td><table><tr><td>◎</td><td>BBMB</td><td>Increased</td></tr></table></td></tr>
<tr><td>4</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.II.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>
<tr><td>5</td><td>Status of availability of ERS towers in NR</td><td>As per the decesion of 68th NRPC and 211th OCC meeting, ERS availability monitoring is being taken as rolling/follow-up agenda in OCC meetings for regular monitoring of ERS under different utilities in Northern region.</td><td>As per the information received from different utilities in Northern region, updated status of availability of ERS towers in Northern Region attached as Annexure-A.II.III.</td></tr>
<tr><td>6</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>Oct-25</td></tr>
<tr><td>◎</td><td>HARYANA</td><td>Nov-25</td></tr>
<tr><td>◎</td><td>HP</td><td>Dec-25</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>Nov-25</td></tr>
<tr><td>◎</td><td>RAJASTHAN</td><td>Aug-25</td></tr>
<tr><td>◎</td><td>UP</td><td>Dec-25 (NPCL)</td></tr>
<tr><td>◎</td><td>UTTARAKHAND</td><td>Mar-25</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>
</table>

9	Reactive compensation at 220 kV/ 400 kV level at 5 substations			
	State / Utility	Substation	Reactor	Status
i	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.
ii	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.
iii	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.
iv	DTL	Electric Lane	1x50 MVAr at 220 kV	Under Re-tendering due to Single Bid
v	PTCUL	Kashipur	1x125 MVAR at 400 kV	The Letter of Award for "Procurement of 125 MVAR Reactor, Online DGA, ODS, NIFPS along with its accessories at 400 KV Sub-station Kashipur" against Tender Specification no. PTCUL/E-Tender/C&P-II/SS-12/2024-25 has been issued to M/s Bharat Heavy Electricals Limited, New Delhi on 26.06.2025.

Annexure-A-II.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.	-	02 No. of bays shall be utilized for LILO-II of 220kV Jatwal-Bishnah Transmission Line, the work of which is expected to begin on 16th July 2025. Updated in 233rd 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	Commissioned	Updated by HVPNL in 235th OCC.
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.	Jan'26	Line work already completed. Signing of Connectivity agreement with CTU is under process. Likely to be commissioned by end of January-2026 as intimated in 239th OCC by HVPNL.
				• 220 kV Bhiwani (PG) - Dadhibana (HVPNL) D/c line.	Mar'26	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 234th 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	Mar'26	220kV Jind PG - Jind D/C line commissioned. Further, 220kV Jind PG - Nain (HVPNL) D/C will be commissioned after completion of new 220kV Substation Nain (HVPNL) which is under construction. And likely to be comissioned by 15.03.2026.
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
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 - Pali D/C line Kadarpur - Sec-65	Commissioned	Updated in 232nd OCC by HVPNL **Status:-** A-formats for FTC of line submitted on FTC portal of NRLDC on dated 09.04.25.

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
14	400/220kV Sohna Road Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• LILO of both circuits of 220kV D/c Sohna-Rangla Rajpur at Roj Ka Meo line at 400kV Sohna Road	Mar'26	Line work completed, Substation is under construction. However, this arrangement will not lead to usage of additional bays i.e. no of utilitsed bays at Sohna road will remain same.Updated in 230th 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 228th 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'26	Contract awarded on 08.08.23 to M/s Skipper with completion in December 25.Likely date of commissioning of the project has been revised as 31.03.2026 due to slow progress of the work by the firm. Updated in 238th 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	Mar'26	Issue related to ROW. Likely date of commissioning of the project has been revised as 31.03.2026 due to slow progress of the work by of the firm.
				• Prithla - Sector 89 Faridabad 220kV D/c line	Mar'26	Stringing is in progress at TL No.25 to 35 of Prithla - Sector 78 section as updated in 238th 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	Commissioned	Commissioned as updated by HVPNL in 233rd OCC
				• 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	Commissioned	Commissioned on dated 02.12.2025
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	• LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar	-	LILO of 220 kV BBMB Jalandhar - Butari line at 400 kV PGCIL Jalandhar is under consideration with upcoming CMETS-NR as updated by PSTCL in 238th OCC
20	400/220kV Roorkee Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Roorkee (PG)-Pirankaliyar 220kV D/c line	Commissioned	Roorkee (PG)-Pirankaliyar 220kV D/c line commissioned in 2020 as intimated by PTCUL in 197th OCC
21	400/220kV Lucknow Sub-station	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	Commissioned	• Lucknow -Kanduni, 220 kV D/C line work energized on 05.10.2023. Updated in 212th OCC by UPPTCL. ________________ • No planning for 2 no. of bays upated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
22	400/220kV Gorakhpur Sub-station	Commissioned: 6 Total: 6	Utilized: 4 Unutilized: 2	• Network to be planned for 2 bays	Commissioned	• Gorakhpur(PG)- Maharajganj, 220 kV D/C line energized on 27.09.2023 updated by UPPTCL in 212th OCC
23	400/220kV Fatehpur Sub-station	Commissioned: 8 Under Implementation:2 Total: 10	Utilized: 6 Unutilized: 2 Under Implementation:2	• Network to be planned for 2 bays	-	• UPPTCL intimated that 02 no. of bays under finalization stage. In 201st OCC, UPPTCL intimated that it is finalized that Khaga s/s will be connected (tentative time 1.5 years). ________________ • No planning for 2 no. of bays updated by UPPTCL in 196th OCC. The same has been communicated to Powergrid.
24	400/220kV Abdullapur Sub-station	Commissioned: 10 Under Implementation:2 Total: 12	Utilized: 10 Unutilized: 0 Under Implementation:2	• Abdullapur – Rajokheri 220kV D/c line	Commissioned	Ckt-1 commissioned at 16:13hrs on dated 06.08.24 & Ckt-2 commissioned at 20:10 hrs on dated 05.08.24. Updated in 223rd 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	Jan'26	Revised target date as confirmed by concerned XEN TS, Panchkula.Updated in 234th OCC by HVPNL

Sl. No.	Substation	Downstream network bays	Status of bays	Planned 220 kV system and Implementation status	Revised Target	Remarks
26	400/220kV Amritsar S/s	Commissioned:7 Approved in 50th NRPC- 1 no. Total: 8	Utilized: 6 Under Implementation:2	• Amritsar – Patti 220kV S/c line	31.01.2026	Commissioning of 220kv S/C Amritsar -Patti S/c and 220kV Amritsar – Rashiana S/c may be done by 31.01.2026. Updated in 238th 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)	31.01.2026	Draft connectivity agreements for 220kV Rashiana-Amritsar & 220kV Patti-Amritsar lines are under consideration by CTU. CTU is processing the agreement and PSTCL has provided with the requisite inputs/data to CTU. Updated in 238th 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	-	Proposal turned down by CEA.Updated in 230th OCC by HVPNL.
				• Bahadurgarh - METL 220kV D/c line (Deposit work of M/s METL)	15.06.2026	Updated in 230th OCC by HVPNL. **Status:** The work stands awarded to the M/s KRR and the execution work has been started at site. Partial route stands approved by the competant authority of the HVPNL. Further, 06 no. Foundation has been casted.
				• Bahadurgarh - Kharkhoda Pocket B 220kV D/c line	30.06.2026	Updated in 234th OCC by HVPNL. **Status:** RoW issues which are being resolved with the help of Duty Magistrate.
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	-	Standard bid document has been finalized on 13.08.2024 and bid is under preparation as updated by RVPN in 222nd OCC.
32	400/220kV, Manesar	Commissioned: 8 Total: 8	Utilized: 4 Unutilized: 4	• Network to be planned for 2 bays	-	Status:- A proposal is being prepared for the creation of another 220kV D/C line from the 400kV substation Panchgaon (PG) to the 220kV substation Panchgaon (HVPNL), along with the LILO of one circuit of the 220kV D/C Panchgaon (PG) – Mau line at the 220kV substation Panchgaon to utilize two bays at the 400kV substation Panchgaon. The load flow study for this has already been completed.
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	• 400 kV PGCIL Patiala - 220 kV Bhadson (D/C)	-	2 Nos. bays for 400 kV PGCIL Patiala - 220 kV Bhadson (D/C) line being planned. Construction of boundary wall has started at 220 kv ss bhadson.yard work could not be started as approval for dismantaling existing 517 no tress is pending at district level committee which is competent for giving approval of dismantling of trees. Chairman of committee is DC pataiala.. as updated by PSTCL in 233th OCC meeting

Status of ADMS implementation in NR:

Sl. No.	State / UT	Status	Remarks
1	DELHI	Scheme Implemented but operated in manual mode.	In 236th OCC meeting, Delhi SLDC representative stated that as informed by BRPL and BYPL, SCADA upgradation work of would be completed by Dec'25. Further, SCADA upgradation work of TPDDL would be completed by Dec'26.
2	HARYANA	Scheme not implemented	Haryana SLDC intimated that as per Joint Roadmap of implementation of ADMS in Haryana supplied to NRPC vide memo dated 17.10.2023 (Annexure-II), the implementation plan was proposed to be carried out in two parts, as mentioned below: PART-I: Control with Transmission Utility PART-II: Control with Distribution Utility It is pertinent to mention that as part of upcoming SCADA-EMS system i.e. upgradation of SCADA-EMS system, a feature in the name of LSS (Load Shedding Software)/ ADMS is part of the Technical Specification of project to be delivered. Therefore, the functionalities of ADMS application will be covered under 'Part-I: Control with Transmission Utility' will already be covered using the RTUs available at select substations along with the ADMS software being delivered by M/s GE under SCADA upgradation project. Hence, there is no need to acquire a separate ADMS application & associated hardware for data centre for implementation of PART-I. Further for Part -II a committee has been constituted for further finalization of the ADMS module with control with Discoms is under discussions for preparation of DPR. In 239th OCC Meeting, Haryana SLDC informed that the matter of feeder identification has been taken up with the DISCOMs. Member Secretary, NRPC advised Haryana SLDC to first identify the feeders at the SLDC level, as decided in the 238th OCC Meeting, and thereafter obtain consent from DISCOMs in State OCC and submit the final list of feeders to NRPC.
3	HP	Scheme not implemented	In 237th OCC meeting, HPSDLC representative informed that vide letter dated 25.10.2025 they have requested HPSEBL to expedite the feeder list. However, reply of HPSEBL is awaited. Further, they have also requested MD, HPSEBL for a suitable date for a meeting in this regard.
4	PUNJAB	Scheme not implemented	In 238th OCC meeting, Punjab SLDC representative informed that testing of SCADA upgradation under ULDC phase III is underway. All the material may be commissioned by March-26 and implementation of logic of ADMS may be executed by Sept-26.Punjab has submitted list of feeders vide mail dated 16.01.2026
5	RAJASTHAN	Under implementation	RVPN has pilot tested the logic of ADMS which is to be implemented for Rajasthan. In 232th OCC meeting, RVPN informed that 351 nos. of circuit breakers have been mapped to ADMS, all 351 circuit breakers tested upto yard individually. Total 650CBs are to be mapped in phased manner.
6	UP	Scheme implemented by NPCIL only	In 236th OCC meeting, UP SLDC representative stated that 300 No. of 132 KV Substations have been integrated with SCADA. SCADA upgradation under ULDC phase III is likely to be completed in the next 3 to 4 months. List of 33kV feeders to be mapped under ADMS is required from the Discoms. In the meeting held in Aug'25, UPSLDC had requested Discoms to provide the feeders list. Reminders were also sent to Discoms. However, 33 kV feeder list is still pending from the Discoms. MS, NRPC asked UPSLDC to have meeting with Discoms in its control areas and finalize of feeder list before next OCC meeting. In the 239th OCC Meeting, UPSLDC representative informed that 46 feeders have been identified and that the same would be updated to the NRPC after receiving consent from the DISCOMs in the SPC meeting scheduled to be held on 21.01.2026.

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. iv. Uttarakhand has intimated that It is bring to your notice that installation MFT(Multi Function Transducers) at various interstate points at PTCUL Substations under ADRS Project of UPCL is in progress. v. First Phase- Data Acquisition of 32 interstate points completed. vi. Second Phase-95 distribution side Substation work is on progress. vii In 230th OCC meeting Uttarakhand SLDC representative informed that Harbour installation and communication establishment has been done on 35 11kV feeders out of total 195 11kV feeders. The work is expected to be completed by December, 2025.

Annexure-A.II.III.

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 scraped due to single bidder.
		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	1 ERS set is available and 3 ERS set have been procured for which schedule bidding is in March 2026.
		220 kV	16227.979		3		
		400 kV	6899.386		2		
		765 kV	425.498		1		
13	DTL	220kV	915.498	NIL	1	400kV Bamnauli Sub station	2 ERS tower available.
		400kV	249.19	02 Sets (32 towers)	1		
14	JKPTCL						JKPTCL, Jammu: being procured JKPTCL, Kashmir:10 tower procured (out of which 3 on loan to JKPTCL, Jammu)

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
15	HVPN						ERS towers (6 nos tension and 6 nos suspension type 400kv level) in Haryana have been procured and already dispatched to 220kv Substation karnal and DD store Hisar.
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		Tied up with M/s INDIGRID for providing ERS on need basis.
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)

Annexure-A.III

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		Yes	Yes	Scheme under revision
3	Delhi IS	Delhi	Implemented				DTL may review existing islanding scheme in Delhi with planned connectivity of 400kV Narela to Maharanibagh and removal of LILO of 400kV Mandola-Bawana at Maharanibagh.
4	Lucknow-Unchahar IS	UP	Implemented				UPPTCL representative apprised forum that 132 KV S/S Husainganj --- line is on H-pole therefore OPGW laying is not possible on this line. However, the data of 132 KV S/S Husainganj is made available through GPRS.

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	Pathankot-RSD IS	Punjab	Dismantled	In 236th OCC meeting MS, NRPC asked PSTCL to get the designing aspect of both the islanding schemes in Punjab control area vetted by Punjab SLDC and thereafter submit the proposal to NRPC with the undertaking that earlier PSDF funding was not availed for these schemes. In the 239th OCC meeting, the Punjab SLDC representative informed that the DPRs for both schemes had been received from PSTCL and are under examiantion.		-		-	-	-	-	-	-	-	-
2	Agra IS	UP	Under Implementation	Scheme has been approved in 71th NRPC meeting held on 29.01.2024. In 228th OCC, UPPTCL representative apprised forum that management is of view that procurement of UFRs for the Lalitpur-Agra islanding scheme should be explored through PSDF funding. During the meeting held on 07.03.2025, PSDF Secretariat raised some queries regarding the scheme and UPPTCL was asked to submit their board approval. In 235th OCC meeting, UPPTCL representative informed the forum that the proposal has been resubmitted to the PSDF Secretariat for funding under PSDF, following approval by the UPPTCL Board		-		-	-	-	-	-	-	-	-
3	Jodhpur-Barmer-Rajwest IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 228th OCC, RRVPNL representative mentioned that they have submitted their proposal of Jodhpur-Barmer- Rajwest islanding scheme to PSDF Secretariat on 16.01.2025 for PSDF funding. During the meeting held on 07.03.2025, PSDF Secretariat raised some queries regarding the scheme. In 232nd OCC, RRVPNL representative informed that responses to these queries have been replied on 30.05.2025.	-	-		-	-	-	-	-	-	-	-
4	Suratgarh IS	Rajasthan	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 228th OCC, RRVPNL representative mentioned that DPR for implementation of Suratgarh islanding scheme would be submitted after confirmation of status of PSDF funding from PSDF Sectt for Jodhpur-Barmer Rajwest IS.	-	-		-	-	-	-	-	-	-	-
5	Patiala-Nabha Power Rajpura IS	Punjab	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 236th OCC meeting MS, NRPC asked PSTCL to get the designing aspect of both the islanding schemes in Punjab control area vetted by Punjab SLDC and thereafter submit the proposal to NRPC with the undertaking that earlier PSDF funding was not availed for these schemes.In the 239th OCC meeting, the Punjab SLDC representative informed that the DPRs for both schemes had been received from PSTCL and are under examiantion.		-		-	-	-	-	-	-	-	-
6	Kullu-Manali-Mandi IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 231st OCC, HPSLDC representative informed that the Monitoring committee of State PSDF has provided approval for State PSDF funding for implementation of proposed UFR scheme for Kullu- Manali islanding scheme in the meeting held on 22nd April, 2025. In the 237th OCC meeting, the HPSLDC representative informed that HPSEBL has awarded the tender for implementation of both schemes on 27.10.2025, with a work completion period of six months.		-		-	-	-	-	-	-	-	-
7	Shimla-Solan IS	HP	Under Implementation	Scheme has been approved in 60th NRPC meeting held on 30.11.2022. In 232nd OCC, HPSLDC representative informed that HPSEBL has done the testing and requisite frequency settings of their generators for Shimla-Solan islanding scheme. HPSLDC representative further informed that the Monitoring committee of State PSDF has provided approval for State PSDF funding for implementation of proposed UFR scheme for Shimla-Solan islanding scheme in the meeting held on 22nd April, 2025. In the 237th OCC meeting, the HPSLDC representative informed that HPSEBL has awarded the tender for implementation of both schemes on 27.10.2025, with a work completion period of six months.											

Thermal Generators

Annexure-A.IV.a

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Mode of Fuel Transport (Pit Head/Non Pit-head)	Name of Utility	Sector	Control Area	Type	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control			Revised Simulation Models	
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1																															
2																															
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															

Hydro Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Type (Pondage/RoR etc.)	Name of Utility	Sector	Control Area	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control			Revised Simulation Models	
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)					Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1	Mahi Power House-I	UNIT-I	25 MW	27.778 MVA	BHEL, Bhopal	22/01/1986	11kV/132kV	31.5 MVA	3/5	RoR	RVUN	Power/ Energy																		As per guidelines the OEM representative must remain present at the time of Generator periodic testing hence looking to the age and present status of Units at Mahi PH-I, Letters Dated 12/07/2024 and 19/12/2024 have been sent to the OEM M/s BHEL, Bhopal, and accordingly the plan may be scheduled .
2	Mahi Power House-I	UNIT-II	25 MW	27.778 MVA	BHEL, Bhopal	06/02/1986	11kV/132kV	31.5 MVA	3/5	RoR	RVUN	Power/ Energy																		

Nuclear Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Type	Name of Utility	Sector	Control Area	Type	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control			Revised Simulation Models	
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks

Gas Based Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Name of Utility	Sector	Control Area	Type	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control			Revised Simulation Models	
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)					Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks

Renewable Energy Plants

S. No.	Name of Plant	Pooling Station Name	Installed Capacity	Type (Solar/Wind)	COD	Owner	Sector	Control Area	Inverter/ WTG Make	Inverter/ WTG Model	PPC Make	Real and Reactive Power Capability for Generator			Power Plant Controller Function Test			Frequency Response Test			Active Power Set Point change test			Reactive Power (Voltage / Power Factor / Q) Set Point change test			Revised Simulation Models	
												Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks

HVDC Links

S. No	Name of Link	Type (LCC/VSC/Back-to-Back)	HVDC_Voltage (kV)	Converter-1		Converter-2		Master Converter Station	Pole_number	Length (km)	Capacity (MW)	Owner	Forward Direction			Reverse Direction			Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC.			Revised Simulation Models	
				Station Name	Region	Station Name	Region						Maximum Capacity	Minimum Capacity	Ground_return_capacity	Maximum Capacity	Minimum Capacity	Ground_return_capacity	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1			500	APL-Mundra	WR	Mohindargarh	NR		1	989	1,250	ATIL	150	500	1250					Due			Due			
2			500	APL-Mundra		Mohindargarh			2	989	1,250	ATIL	150	500	1250					Due			Due			
3		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	1	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			
4		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	2	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			
5		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	3	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			
6		LCC	800	Champa_HVDC	WR	Kurukshetra	NR	Champa_HVDC	4	1,306	1,500	POWERGRID	150	1,500	DMR path	NA	NA	NA		Due	Apr-2025		Due			

STATCOMs/SVCs

S.No	Station	Statcom	Capacity (MVAR)	Owner	Make	Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC			Validation of response by FACTS devices as per settings.			Revised Simulation Models	
						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1	Kurukshetra	TCR	500	POWERGRID	GE Vernova T&D	NA	NA	NA	NA	NA	NA	Nov-2023	No	Sep-2028		
2	Fatehgarh-2	STATCOM	.+/-600	POWERGRID	SIEMENS	Oct-2023	No	Sep-2028	NA	NA	NA	Oct-2023	No	Sep-2028		
3	Bhadla-2	STATCOM	.+/-600	POWERGRID	SIEMENS	Jun-2023	No	May-2028	NA	NA	NA	Jun-2023	No	May-2028		
4	Bikaner-2	STATCOM	.+/-300	POWERGRID	SIEMENS	Jul-2023	No	Jun-2028	NA	NA	NA	Jul-2023	No	Jun-2028		

FSCs/TCSCs

S. No	End 1	End 2	Line No.	Compensator Location	Make	Fixed Compensation	Variable Compensation Positive	Variable Compensation Negative	Agency	Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC			Validation of response by FACTS devices as per settings.			Revised Simulation Models	
										Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks

Series Reactor

S.No	End 1	End 2	Line No.	End	Capacity	Make	Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC			Validation of response by FACTS devices as per settings.			Revised Simulation Models	
							Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Whether Revised Models Submitted?	Remarks
1																	
2																	

Annexure-A.IV.b

Hydro Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Type (Pondage/RoR etc.)	Name of Utility	Sector	Control Area	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance			Automatic Generation Control		
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)					Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date
1	Bairasiul	UNIT-I	60 MW	67 MVA	M/S BHEL	18.05.1980	11kV/220kV	25 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
2	Bairasiul	UNIT-II	60 MW	67 MVA	M/S BHEL	19.05.1980	11kV/220kV	25 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
3	Bairasiul	UNIT-III	60 MW	67 MVA	M/S BHEL	13.09.1981	11kV/220kV	25 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
4	Salal	UNIT-I	115 MW	127.8 MVA	M/S BHEL	November'87	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
5	Salal	UNIT-II	115 MW	127.8 MVA	M/S BHEL	November'87	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
6	Salal	UNIT-III	115 MW	127.8 MVA	M/S BHEL	November'87	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
7	Salal	UNIT-IV	115 MW	127.8 MVA	M/S BHEL	March'93	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
8	Salal	UNIT-V	115 MW	127.8 MVA	M/S BHEL	May'94	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
9	Salal	UNIT-VI	115 MW	127.8 MVA	M/S BHEL	February'95	11kV/220kV	43.33 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
10	Tanakpur	UNIT-I	31.4 MW	45 MVA	M/S BHEL	31.03.1992	11kV/220kV	49.5 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
11	Tanakpur	UNIT-II	31.4 MW	45 MVA	M/S BHEL	06.04.1992	11kV/220kV	49.5 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
12	Tanakpur	UNIT-III	31.4 MW	45 MVA	M/S BHEL	04.04.1992	11kV/220kV	49.5 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
13	Chamera-I	UNIT-I	180 MW	200 MVA	GE, Canada	28.04.1992	13.8KV/400 KV	75 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
14	Chamera-I	UNIT-II	180 MW	200 MVA	GE, Canada	25.04.1993	13.8KV/400 KV	75 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
15	Chamera-I	UNIT-III	180 MW	200 MVA	GE, Canada	22.04.1994	13.8KV/400 KV	75 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
16	Uri-I	UNIT-I	120 MW	136 MVA	ABB	10.04.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
17	Uri-I	UNIT-II	120 MW	136 MVA	ABB	27.01.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
18	Uri-I	UNIT-III	120 MW	136 MVA	ABB	03.03.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
19	Uri-I	UNIT-IV	120 MW	136 MVA	ABB	13.03.1997	13.8KV/400 KV	50 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
20	Chamera-II	UNIT-I	100 MW	111.1 MVA	GE	04.10.2003	11KV/400 KV	41 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
21	Chamera-II	UNIT-II	100 MW	111.1 MVA	GE	05.12.2003	11KV/400 KV	41 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
22	Chamera-II	UNIT-III	100 MW	111.1 MVA	GE	26.02.2004	11KV/400 KV	41 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
23	Dulhasti	UNIT-I	130 MW	145 MVA	GEC ALSTHOM	28.03.2007	11KV/400 KV	48.33 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
24	Dulhasti	UNIT-II	130 MW	145 MVA	GEC ALSTHOM	28.02.2007	11KV/400 KV	48.33 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
25	Dulhasti	UNIT-III	130 MW	145 MVA	GEC ALSTHOM	18.03.2007	11KV/400 KV	48.33 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
26	Dhauliganga	UNIT-I	70 MW	78 MVA	Alstom/GE	14.10.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
27	Dhauliganga	UNIT-II	70 MW	78 MVA	Alstom/GE	01.09.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
28	Dhauliganga	UNIT-III	70 MW	78 MVA	Alstom/GE	28.07.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
29	Dhauliganga	UNIT-IV	70 MW	78 MVA	Alstom/GE	26.07.2005	11kV/220kV	29 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
30	Sewa-II	UNIT-I	40 MW	50 MVA	M/S BHEL	27.06.2010	11kV/132kV	50 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
31	Sewa-II	UNIT-II	40 MW	50 MVA	M/S BHEL	10.07.2010	11kV/132kV	50 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
32	Sewa-II	UNIT-III	40 MW	50 MVA	M/S BHEL	27.07.2010	11kV/132kV	50 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
33	Uri-II	UNIT-I	60 MW	67 MVA	Alstom	25.09.2013	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
34	Uri-II	UNIT-II	60 MW	67 MVA	Alstom	25.11.2013	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
35	Uri-II	UNIT-III	60 MW	67 MVA	Alstom	27.09.2013	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
36	Uri-II	UNIT-IV	60 MW	67 MVA	Alstom	02.02.2014	11KV/400 KV	25 MVA		RoR	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
37	Chamera-III	UNIT-I	77 MW	85.56 MVA	Alstom	27.06.2012	11kV/220kV	32 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
38	Chamera-III	UNIT-II	77 MW	85.56 MVA	Alstom	10.06.2012	11kV/220kV	32 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
39	Chamera-III	UNIT-III	77 MW	85.56 MVA	Alstom	07.06.2012	11kV/220kV	32 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026

40	Parbati-III	UNIT-I	130 MW	145 MVA	M/S BHEL	17.02.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
41	Parbati-III	UNIT-II	130 MW	145 MVA	M/S BHEL	27.02.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
42	Parbati-III	UNIT-III	130 MW	145 MVA	M/S BHEL	15.03.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
43	Parbati-III	UNIT-IV	130 MW	145 MVA	M/S BHEL	22.05.2014	13.8KV/400 KV	53 MVA		Pondage	NHPC	Power/Energy	Northern		Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
44	Kishanganga	UNIT-I	110 MW	122.22 MVA	M/S BHEL	13.03.2018	13.8KV/220 KV	45 MVA		Pondage	NHPC	Power/Energy	Northern	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
45	Kishanganga	UNIT-II	110 MW	122.22 MVA	M/S BHEL	21.03.2018	13.8KV/220 KV	45 MVA		Pondage	NHPC	Power/Energy	Northern	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
46	Kishanganga	UNIT-III	110 MW	122.22 MVA	M/S BHEL	30.03.2018	13.8KV/220 KV	45 MVA		Pondage	NHPC	Power/Energy	Northern	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026	3/1/2018	Yes	Jan-Feb 2026			Jan-Feb 2026			Jan-Feb 2026
47	Parbati-II	UNIT-I	200 MW	222.22 MVA	M/S BHEL	01.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
48	Parbati-II	UNIT-II	200 MW	222.22 MVA	M/S BHEL	01.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
49	Parbati-II	UNIT-III	200 MW	222.22 MVA	M/S BHEL	01.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
50	Parbati-II	UNIT-IV	200 MW	222.22 MVA	M/S BHEL	16.04.2025	13.8KV/400 KV	82 MVA		Pondage	NHPC	Power/Energy	Northern	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030	March/April 2025	No	2030
51	Tehri HPP(4*250 MW)	1	250 MW	278 MVA	Power Machine	09.07.2007	420/15.75 kV	306	0.4 (2/5)		THDC India Limited	Power Generation	Northern	–	Yes	Mar-26	–	Yes	Mar-26	–	Yes	Mar-26	Apr-23	No	Mar-28	Apr-23	No	Mar-28	Mar-2021	Yes	Mar-26
52		2	250 MW	278 MVA		30.03.2007	420/15.75 kV	306	0.4 (2/5)																						
53		3	250 MW	278 MVA		09.11.2006	420/15.75 kV	306	0.4 (2/5)																						
54		4	250 MW	278 MVA		22.09.2006	420/15.75 kV	306	0.4 (2/5)																						
55	NJHPS	1	250 MW	278 MVA	EUCONA (Voith Siemens(Germany), GE Hydro (Oslo/Norway), Alstom(Germany), VA Tech(Italy), BHEL(India))	18.05.2004	15.75kV/ 400kV	3 x 102 MVA	Tap Ratio - 2/5	RoR	SJVN	Power/Energy	NRLDC	18.02.2023	No	–	18.02.2023	No	–	18.02.2023	No	–	05.05.2022	No	–	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
56	NJHPS	2	250 MW	278 MVA		06.05.2004					SJVN		NRLDC	28.02.2023	No	–	28.02.2023	No	–	28.02.2023	No	–	05.05.2022	No	–	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
57	NJHPS	3	250 MW	278 MVA		31.03.2004					SJVN		NRLDC	20.02.2023	No	–	20.02.2023	No	–	20.02.2023	No	–	05.05.2022	No	–	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
58	NJHPS	4	250 MW	278 MVA		30.03.2004					SJVN		NRLDC	19.02.2023	No	–	19.02.2023	No	–	19.02.2023	No	–	05.05.2022	No	–	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
59	NJHPS	5	250 MW	278 MVA		06.10.2003					SJVN		NRLDC	10.02.2023	No	–	10.02.2023	No	–	10.02.2023	No	–	05.05.2022	No	–	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
60	NJHPS	6	250 MW	278 MVA		02.01.2004					SJVN		NRLDC	11.02.2023	No	–	11.02.2023	No	–	11.02.2023	No	–	03.11.2023	No	–	09.02.2021	Yes	08.02.2026	09.02.2021	Yes	08.02.2026
61	Rampur HPS, SJVNL	1	25 MW								SJVN	Power/Energy	NRLDC	June. 2023	Yes	June. 2028	June. 2023	Yes	June. 2028	June. 2023	Yes	June. 2028	Nov. 2023	Yes	Nov. 2028	Nov. 2023	Yes	Nov. 2028			
62		2	25 MW								SJVN		NRLDC	June. 2024	Yes	June. 2028	June. 2024	Yes	June. 2028	June. 2024	Yes	June. 2028	Nov. 2023	Yes	Nov. 2028	Nov. 2023	Yes	Nov. 2028			
63		3	25 MW								SJVN		NRLDC	June. 2025	Yes	June. 2028	June. 2025	Yes	June. 2028	June. 2025	Yes	June. 2028	Nov. 2023	Yes	Nov. 2028	Nov. 2023	Yes	Nov. 2028			
64		4	25 MW								SJVN		NRLDC	June. 2026	Yes	June. 2028	June. 2026	Yes	June. 2028	June. 2026	Yes	June. 2028	Jun. 2022	Yes	Jan. 2027	Jun. 2022	Yes	Jan. 2027			
65		5	25 MW								SJVN		NRLDC	June. 2027	Yes	June. 2028	June. 2027	Yes	June. 2028	June. 2027	Yes	June. 2028	Jun. 2022	Yes	Jan. 2027	Jun. 2022	Yes	Jan. 2027			
66		6	25 MW								SJVN		NRLDC	June. 2028	Yes	June. 2028	June. 2028	Yes	June. 2028	June. 2028	Yes	June. 2028	Jun. 2022	Yes	Jan. 2027	Jun. 2022	Yes	Jan. 2027			
67	Karcham Wangtoo Hydro-Electric Plant	1	261.25 MW								JSW Hydro	Power/Energy	NRLDC		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027			
68		2	261.25 MW								JSW Hydro		NRLDC		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027			
69		3	261.25 MW								JSW Hydro		NRLDC		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027			
70		4	261.25 MW								JSW Hydro		NRLDC		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027		Yes	Dec 2026 to Feb 2027			
71	AD Hydro Power Ltd.	Unit-1	96MW	106.667 MVA	BHEL BHOPAL	16.09.2010	11kv/ 220kv	135MVA	4/9	ROR	AD Hydro Power Ltd.	Power/ Energy	NRLDC			Nov 26			Nov 26	2/9/2021		Nov 26	7/10/2021		Nov 26	N.A	N.A	N.A	N.A	N.A	N.A
72	AD Hydro Power Ltd.	Unit-2	96MW	106.667 MVA	BHEL BHOPAL	18.09.2010	11kv/ 220kv	135MVA	4/9	ROR	AD Hydro Power Ltd.	Power/ Energy	NRLDC			Nov 26			Nov 26	2/9/2021		Nov 26	7/10/2021		Nov 26	N.A	N.A	N.A	N.A	N.A	N.A
	Notice: 1. Only PSS RG Mo testing done in 2021 2. AGC not implemented																														
73	MPCL	Unit-1	43MW	57.5 MVA	BHEL BHOPAL	05.07.2001	11kV/ 132kV	58MVA	3/9	ROR	MPCL	Power/ Energy	HPSLDC			Nov 26			Nov 26	6/11/2023		Nov 26			Nov 26	N.A	N.A	N.A	N.A	N.A	N.A
74	MPCL	Unit-2	43MW	57.5 MVA	BHEL BHOPAL	05.07.2001	11kV/ 132kV	58MVA	3/9	ROR	MPCL	Power/ Energy	HPSLDC			Nov 26			Nov 26	6/11/2023		Nov 26			Nov 26	N.A	N.A	N.A	N.A	N.A	N.A
75	Singoli Bhatwari HEP	1	33	36.67	Voith	19.11.2020	11/220 KV	42	6-Mar	ROR	ReNew Jal Urja Private Limited	Power/Energy	NR		YES	31.03.2026		YES	31.03.2026		YES	31.03.2026		YES	31.03.2026		YES	31.03.2026	N.A	N.A	N.A
		2	33	36.67	Voith	29.12.2020	11/220 KV	42	6-Mar																						
		3	33	36.67	Voith	01.01.2021	11/220 KV	42	6-Mar																						
77	Vishnuprayag Hydro Electric Plant	1	100 MW	111.1 MVA	Alstom (Now GE)	6/17/2006	13.8 kV/400 kV (in bank)	Single Phase 3 X 41 MVA	3 Total TAPS -	RoR	JPVL	Private	UPSLDC, Uttar Pradesh		Not Applicable					2/6/2021		Jan-Feb, 2027	16.04.2021		Feb.-March 2027	Not Applicable					
		2	100 MW	111.1 MVA	Alstom (Now GE)	7/14/2006	13.8 kV/400	Single Phase	Present TAP -	RoR	JPVL	Private								4/6/2021			17.04.2021		Feb.-March						
		3	100 MW	111.1 MVA	Alstom (Now GE)	8/31/2006	13.8 kV/400	Single Phase	Present TAP -	RoR	JPVL	Private								4/6/2021			16.04.2021		Feb.-March						
		4	100 MW	111.1 MVA	Alstom (Now GE)	10/13/2006	13.8 kV/400	Single Phase	Present TAP -	RoR	JPVL	Private								2/5/2021			14.04.2021		Feb.-March						
78	Baspa II HPS	1	100 MW								JSW Hydro											Dec-26 to Feb-27			Dec-26 to Feb-27			Dec-26 to Feb-27			Dec-26 to Feb-27
		2	100 MW								JSW Hydro																				
		3	100 MW								JSW Hydro																				
	Notice: 1. Only RG Mo testing done in 2023 2. AGC not implemented																														
79	Bhaba Power House	3	120	132	Bhel	May-89	11/220 KV	50	08/13	Hydro	HPSEBL	SSGS	HP Control Area	5/17/2021	No	Nov-26	1989	yes	Nov-26	5/17/2021	No	Nov-26	5/17/2021	no	Nov-26	5/17/2021	no	Nov-26	5/17/2021	no	Nov-26
80	Giri power House	Unit-1	30MW	33.4	BHEL Haridwar	16.04.1978	11/132KV	40MVA	4:05	R.O.R	HPSEBL	SSGS	HP Control Area	-	Yes	25.02.2026	-	Yes	25.02.2026	-	Yes	25.02.2026	-	Yes	25.02.2026	-	Yes	25.02.2026	-	Yes	25.02.2026
		Unit-2	30MW			30.06.1978	11/132KV	40MVA	4:05	R.O.R	HPSEBL			-	Yes	25.05.2026	-	Yes	25.05.2026	-	Yes	25.05.2026	-	Yes	25.05.2026	-	Yes	25.05.2026	-	Yes	25.05.2026
81	Malana-1 HEP	2	86	47.78	BHEL	7/5/2001	11/132	58	3/9	Hydro	MPCL	IPP	HP Control Area	-	No	12/21/2026	-	No	12/21/2026	11/5/2023	No	12/21/2026	-	No	12/21/2026	11/5/2023	No	11/5/2028	11/5/2023	No	11/5/2028
82	Malana-II HEP	1	50 MW	55.56 MVA	DEC China	12.07.2012	11/132 KV	63.9 Mva	11/132 Kv (4 No/ 6 No)	Hydro Electric Project	Everest Power Pvt. Ltd.	Private (IPP)	HP Control	3/8/2011	Yes	28/02/2026	3/8/2011	Yes	28/02/2026	3/8/2011	Yes	28/02/2026	3/8/2011	Yes	28/02/2026	3/8/2011	Yes	28/02/2026	3/8/2011	Yes	28/02/2026

82	Malana-II HEP	2	50 MW	55.56 MVA	DEC China	12.07.2012	11/132 KV	63.9 Mva	11/132 Kv (4 No/ 6 No)	Hydro Electric Project	Everest Power Pvt. Ltd.	Private (IPP)	Area	12/8/2011	Yes	15/03/2026	12/8/2011	Yes	15/03/2026	12/8/2011	Yes	15/03/2026	12/8/2011	Yes	15/03/2026	12/8/2011	Yes	15/03/2026	12/8/2011	Yes	15/03/2026
83	Bajoli Holi HEP	1	60	66.67	GE Hydro	28.03.2022	11/220 kV	81 MVA	2:05	Hydro	Bajoli Holi Hydro Power Pvt. Ltd.	IPP	HP Control Area	05.04.2022	No	Mar-27	30.03.2022	No	Mar-27	30.03.2022	No	Mar-27	30.03.2022	No	Mar-27	30.03.2022	No	Mar-27	30.03.2022	No	Mar-27
		2	60	66.67	GE Hydro									09.04.2022																	
		3	60	66.67	GE Hydro									02.04.2022																	
84	Naitwar Mori Hydro Power Station	UNIT-I	30 MW	35.290 MVA	VOITH	24/11/23	11kV/220kV	3 x 13 MVA	Tap Ratio - 4/5	RoR	RoR	SJVN	HP Control Area	21/11/23	NO	NA	18/11/23	NO	NA	21/11/23	NO	NA	19/11/23	NO	NA	12/3/2023	NA	NA	12/3/2023	NA	NA
	Naitwar Mori Hydro Power Station	UNIT-II	30 MW	35.290 MVA	VOITH	12/04/23	11kV/220kV	3 x 13 MVA	Tap Ratio - 4/5		RoR	SJVN		12/05/23	NO	NA	12/02/23	NO	NA	12/05/23	NO	NA	12/03/23	NO	NA	11/19/2023	NA	NA	11/19/2023	NA	NA
85	Sawra Kuddu HEP	I	37	41.1	ANDRITZ Hydro Pvt Ltd	21.01.2021	220/11kV	45 MVA	Tap 9b/Tap 17	Hydro	HPPCL	SSGS	HP Control Area	Nov-20	YES	Nov-26	Nov-20	YES	Nov-26	Nov-20	YES	Nov-26	Dec-21	YES	Nov-26	Dec-21	YES	Nov-26	Dec-21	YES	Nov-26
		II	37	41.1										Nov-20	YES	Nov-26	Nov-20	YES	Nov-26	Nov-20	YES	Nov-26	Dec-21	YES	Nov-26	Dec-21	YES	Nov-26	Dec-21	YES	Nov-26
		III	37	41.1										Nov-20	YES	Nov-26	Nov-20	YES	Nov-26	Nov-20	YES	Nov-26	Dec-21	YES	Nov-26	Dec-21	YES	Nov-26	Dec-21	YES	Nov-26
86	Kashang HEP	3	195	72.2	ANDRITZ Hydro	01.09.2016	11 KV / 220/√3 KV	26.5	Ratio - 01 (09 & Total -17 Nos)	Hydro	HPPCL	SSGS	HP control area	During 2016	Yes	Dec-26	During 2016	Yes	Dec-26	During 2016	Yes	Dec-26	During 2016	Yes	Dec-26	During 2016	Yes	Dec-26	During 2016	Yes	Dec-26
87	Uhl Stage-III,HEP, Chullah	1	33.33MW	34MVA	BHEL	08.02.2025	11KV/132KV	41 MVA	5/13	Hydro Electric Power Generating Station	BVPCL/HPSEBL	SSGS	HP control area	21.02.2025	No	21.02.2030	21.02.2025	No	21.02.2030	04.02.2025 to 07.02.2025	No	11.02.2030	29.01.2025 to 03.02.2025	No	13.02.2030	03.01.2025 TO 10.02.2025	No	10.02.2030	03.01.2025 TO 10.02.2025	No	10.02.2030
		2	33.33MW	34MVA		28.01.2025	11KV/132KV	41 MVA	5/13		BVPCL/HPSEBL	SSGS		20.02.2025	No	20.02.2030	20.02.2025	No	20.02.2030	24.01.2025 to 27.01.2025	No	21.01.2030	19.01.2025 to 23.01.2025	No	23.01.2030	03.01.2025 TO 19.01.2025	No	19.01.2030	03.01.2025 TO 19.01.2025	No	19.01.2030
		3	33.33MW	34MVA		18.02.2025	11KV/132KV	41 MVA	5/13		BVPCL/HPSEBL	SSGS		20.02.2025	No	20.02.2030	20.02.2025	No	20.02.2030	14.02.2025 to 17.02.2025	No	19.02.2030	09.02.2025 to13.02.2025	No	21.02.2030	29.01.2025 TO 17.02.2025	No	17.02.2030	29.01.2025 TO 17.02.2025	No	17.02.2030
88	Koldam	1	200								NTPC Limited	Central	NRLDC			12/20/2027			12/20/2027			12/20/2027			12/20/2027			12/20/2027			12/20/2027
89	Koldam	2	200								NTPC Limited	Central	NRLDC			12/22/2027			12/22/2027			12/22/2027			12/22/2027			12/22/2027			12/22/2027
90	Koldam	3	200								NTPC Limited	Central	NRLDC			12/20/2028			12/20/2028			12/20/2028			12/20/2028			12/20/2028			12/20/2028
91	Koldam	4	200								NTPC Limited	Central	NRLDC			12/22/2028			12/22/2028			12/22/2028			12/22/2028			12/22/2028			12/22/2028
92	Singrauli Hydro	1	4								NTPC Limited	Central	NRLDC			12/20/2028			12/20/2028			12/20/2028			12/20/2028			12/20/2028			12/20/2028
93	Singrauli Hydro	2	4								NTPC Limited	Central	NRLDC			12/22/2028			12/22/2028			12/22/2028			12/22/2028			12/22/2028			12/22/2028
94	3*42MW Larji HEP	3	126	138	BHEL Haridwar	Unit I: 19.02.2007 Unit II: 12.10.2006 Unit III: 25.09.2006	11/132 KV	52 MVA	05/13	HPSEBL	SSGS	HP Control Area	Hydro	UnitI: Jan - 2007 UnitII: Sep - 2006 UnitIII: August - 2006	Yes	Aug-27	2006	yes	2027	2024-25 (Excitation system upgraded with latest BHEL excitation system during capital maintenance and upgradation) UnitI : April 2024 UnitII: July 2024 UnitIII: December 2024	Yes	UnitI: March 2029 UnitII: Febuary 2029 UnitIII: October 2029	2025-26 (G-40 Governor is replaced with latest servo valve based HMC Governor including PP set, MIV HCP and ECP during capital maintenance and upgradation) **UnitI: May 2025 UnitII: Not yet UnitIII: Not yet**	Yes	UnitI: April 2030 UnitII: Febuary 2026 UnitIII: March 2026	2025-26 (G-40 Governor is replaced with latest servo valve based HMC Governor including PP set, MIV HCP and ECP during capital maintenance and upgradation) **UnitI: May 2025 UnitII: Not yet UnitIII: Not yet**	Yes	UnitI: April 2030 UnitII: Febuary 2026 UnitIII: March 2026	2025-26 (G-40 Governor is replaced with latest servo valve based HMC Governor including PP set, MIV HCP and ECP during capital maintenance and upgradation) **UnitI: May 2025 UnitII: Not yet UnitIII: Not yet**	Yes	UnitI: April 2030 UnitII: February 2026 UnitIII: March 2026

Thermal Generators

S. No.	Name of Plant	Unit	Installed Capacity	MVA Rating	Make of Units	COD	GT Details			Mode of Fuel Transport (Pit Head/Non Pit-head)	Name of Utility	Sector	Control Area	Type	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control		
							Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date
1	Rosa Power Supply Co Ltd	I	300 MW	353	Shanghai Electric Co Ltd, China	12.03.2010 00:00 Hrs	20KV / 220 KV	370 OFAF	5	Non-Pit Head	Rosa Power Supply Co Ltd	Private	Reliance Power	Coal Based	Real and Reactive Power Capability assessment was completed during unit commisioning.All units are runing with dual channel auto mode AVR with governor in auto control mode.		FY 2028-29	Reactive Power Control Capability as per CEA Technical Standards for connectivity was completed during unit commisioning		FY 2028-29	24.09.2024		FY 2028-29	Turbine/Governor and Load Control or Active Power/frequency Control Functions are enabled & working fine in all units.Load correction in auto as per frequency variation is enabled & same has been verified by UPSLDC.		FY 2028-29	Governor performance testing done during comssioning of the units , also all units are runing in auto governor mode.		FY 2028-29
2	Rosa Power Supply Co Ltd	II	300 MW	353	Shanghai Electric Co Ltd, China	30.06.2010	20KV / 220 KV	370 OFAF	5	Non-Pit Head	Rosa Power Supply Co Ltd	Private	Reliance Power	Coal Based			FY 2028-29			FY 2028-29	15.01.2022		FY 2028-29			FY 2028-29			FY 2028-29
3	Rosa Power Supply Co Ltd	III	300 MW	353	Shanghai Electric Co Ltd, China	01.01.2012 24:00 hrs	20 KV / 400 KV	370 OFAF	5	Non-Pit Head	Rosa Power Supply Co Ltd	Private	Reliance Power	Coal Based			FY 2028-29			FY 2028-29	Not Tested		FY 2028-29			FY 2028-29			FY 2028-29
4	Rosa Power Supply Co Ltd	IV	300 MW	353	Shanghai Electric Co Ltd, China	31.03.2012 24:00 hrs	20 KV / 400 KV	370 OFAF	5	Non-Pit Head	Rosa Power Supply Co Ltd	Private	Reliance Power	Coal Based			FY 2028-29			FY 2028-29	05.10.2021		FY 2028-29			FY 2028-29			FY 2028-29
7	LPGCL	1	660	777	BHEL	1-Oct-15	800/√3/21/√3	3x275	0505	Railway	LPGCL, Lalitpur	Private	Northen region		Not applicable		10/25/2026	Not applicable		10/25/2026	Not applicable		10/25/2026	Not applicable		10/25/2026	Not applicable		10/25/2026
8	LPGCL	2	660	777	BHEL	14-Oct-16	800/√3/21/√3	3x275	0505	Railway	LPGCL, Lalitpur	Private	Northen region		Not applicable		1/20/2027	Not applicable		1/20/2027	Not applicable		1/20/2027	Not applicable		1/20/2027	Not applicable		1/20/2027
9	LPGCL	3	660	777	BHEL	23-Dec-16	800/√3/21/√3	3x275	0505	Railway	LPGCL, Lalitpur	Private	Northen region		Not applicable		12/15/2027	Not applicable		12/15/2027	Not applicable		12/15/2027	Not applicable		12/15/2027	Not applicable		12/15/2027
10	PPGCL	I	660 MW	777	BHEL	29.02.2016	KV	3X275	4 out of 5	Head	PPGCL, Prayagraj	IPP	SLDC Lucknow	STU	-	-	2026	-	-	2026	Nov 2022	No	27-Nov	13-11-2024	-	-	9/15/2025	-	-
11	PPGCL	II	660 MW	777	BHEL	10.09.2016	KV	3X275	4 out of 5	Head	PPGCL, Prayagraj	IPP	SLDC Lucknow	STU	-	-	2027	-	-	2027	Nov 2022	No	27-Nov	14-11-2024	-	-	9/15/2025	-	-
12	PPGCL	III	660 MW	777	BHEL	26.05.2017	KV	3X275	4 out of 5	Head	PPGCL, Prayagraj	IPP	SLDC Lucknow	STU	-	-	2026	-	-	2026	Nov 2022	No	27-Nov	-	Yes	26-Nov	9/15/2025	-	-
13	GATP	1	270	315	BHEL	4/5/2016	235KV/16.5KV	315	13/17	THROUGH RAIL	GATP	POWER/ENERGY	PSPCL	CRITICAL	NOT DONE			NOT DONE	YES	Dec-26	NOT DONE	YES	Dec-26	NOT DONE	YES	Dec-26	NOT DONE	YES	Dec-26
14	GATP	2	270	315	BHEL	4/15/2026	235KV/16.5KV	315	13/17	THROUGH RAIL	GATP	POWER/ENERGY	PSPCL	CRITICAL	NOT DONE			NOT DONE	YES	Dec-26	NOT DONE	YES	Dec-26	NOT DONE	YES	Dec-26	NOT DONE	YES	Dec-26
15	APCPL-IGSTPS Jhajjar	1															Jan-2026 13-02-2027			13-02-2027			14-02-2027						Dec-26
16	APCPL-IGSTPS Jhajjar	2															FEB-2026 25-10-2025			25-10-2025			26-10-2025						Dec-26
17	APCPL-IGSTPS Jhajjar	3															May-2026 30-01-2026			30-01-2026			31-01-2026						Dec-26
18	TSPL	Unit-2	660MW	MVA	SEPCO	5th July-2014	22 /420 KV	3*270	3/5	TSPL	IPP	SLDC Punjab	STU	07.05.2022		25-Nov	Same as PSS Schedule			22.10.2021									
19	TSPL	Unit-1	660MW	MVA	SEPCO	16-Aug	22 /420 KV	3*270	3/5	TSPL	IPP	SLDC Punjab	STU	25.12.2023		26-Nov	Same as PSS Schedule			24.10.2021									
20	TSPL	Unit-3	660MW	MVA	SEPCO	15-Nov	22 /420 KV	3*270	3/5	TSPL	IPP	SLDC Punjab	STU	25.12.2024		27-Feb	Same as PSS Schedule			15.12.2021									
21	Jawaharpur Thermal Power Station	1	660 MW	776.471	GE	21.02.2024	22kV/765kV	825	3					Thermal	12.08.2024	No	11.08.2029	12.08.2024	No	11.08.2029	12.08.2024	No	11.08.2024	Not done	Yes	Feb, 2026	Not done	Yes	Feb, 2026
22	Jawaharpur Thermal Power Station	2	660MW	776.471	GE	25.12.2024	22kV/765kV	825	3	Non Pit Head	UPRVUNL	Power	UP	Thermal	02.12.2024	No	01.12.2029	02.12.2024	No	01.12.2029	02.12.2024	No	01.12.2029	Not done	Yes	March, 2026	Not done	Yes	March, 2026
23	BTPS Anpara Thermal power project	4	500 MW	589	Toshiba	01.03.1994	21KV/420 KV	200MVA	2.5%(3/5)	Pit head	UPRVUNL	Power	N-2	Thermal	Data not available	Yes	26-Nov	Data not available	Yes	26-Nov	2014	Yes	26-Nov	Data not available	Yes	26-Nov	Not applicable		
24	BTPS Anpara Thermal power project	5	500 MW	589	Toshiba	01.10.1994	21KV/420 KV	200MVA	2.5%(3/5)	Pit head	UPRVUNL	Power	N-2	Thermal	Data not available	Yes	26-Nov	Data not available	Yes	26-Nov	23-Apr	Yes	26-Apr	Data not available	Yes	26-Nov	Not applicable		
25	ANPARA	1	210 MW	247	BHEL	1983	15.75/400KV	250	3	Pit Head	UPRVUNL	Power	N-2	Thermal	Data not Available	Yes	2027	Data not Available	Yes	2027	24-Mar	Yes	2027	Data not Available	Yes	2027			
26	ANPARA	2	210 MW	247	BHEL	1983	15.75/400KV	250	3	Pit Head	UPRVUNL	Power	N-2	Thermal	Data not Available	Yes	26-Dec	Data not Available	Yes	26-Dec	23-Oct	Yes	26-Dec	Data not Available	Yes	26-Dec			
27	ANPARA	3	210 MW	247	BHEL	1983	15.75/400KV	250	3	Pit Head	UPRVUNL	Power	N-2	Thermal	Data not Available	Yes	2027	Data not Available	Yes	2027	23-Jan	Yes	2027	Data not Available	Yes	2027	N/A		
28	Rajpura TPP	1	700	828	L&T MHI	2/1/2014	20 / 420	3*283	3/5	Non Pit head	Nabha Power Ltd	Thermal	(PSTCL)	IPP		NA			NA		3/8/2022				Yes	2026			
29	Rajpura TPP	2	700	828	L&T MHI	7/10/2014	20 / 420	3*283	3/5	Non Pit head	Nabha Power Ltd	Thermal	(PSTCL)	IPP		NA			NA		11/15/2021				Yes	2026			
30	Barsingsar Thermal Power Station	1	125	147	BHEL	20.01.2012	230/10.5	150	7/9	Pit Head	JdVVNL, AVVNL, JVVNL	Distribution	SLDC	SLDC		Yes	30.06.2026		Yes	30.06.2026		Yes	30.06.2026		Yes	30.06.2026		Yes	30.06.2026
31	Barsingsar Thermal Power Station	2	125	147	BHEL	29.12.2011	230/10.5	150	7/9	Pit Head	JdVVNL, AVVNL, JVVNL	Distribution	SLDC	SLDC		Yes	30.06.2026		Yes	30.06.2026		Yes	30.06.2026		Yes	30.06.2026		Yes	30.06.2026
	Remarks by Barsingsar Thermal Power Station														Remarks: As per OEM (BHEL) recommendations, above tests may be completed by 30.06.2026									Remarks: As per OEM (BHEL) recommendations, as the modelling procedure to carry out the above tests is under development, and may be available after April-25, the above tests may be completed by 30.06.2026			Remarks: AGC is not a part of the original Main plant Erection package, hence the same may be excluded from the list of tesing to be carried out by BTPS. However possiblities will be explored for completion of Testing of Governer performance by 30.06.2026		
32	Singrauli	1	200							Coal	NTPC Limited	Central	NRLDC	Thermal			3/19/2028						3/19/2028			3/19/2028			3/19/2028
33	Singrauli	2	200							Coal	NTPC Limited	Central	NRLDC	Thermal			3/21/2028						3/21/2028			3/21/2028			3/21/2028
34	Singrauli	3	200							Coal	NTPC Limited	Central	NRLDC	Thermal			3/23/2028						3/23/2028			3/23/2028			3/23/2028
35	Singrauli	4	200							Coal	NTPC Limited	Central	NRLDC	Thermal			3/25/2028						3/25/2028			3/25/2028			3/25/2028
36	Singrauli	5	200							Coal	NTPC Limited	Central	NRLDC	Thermal			3/27/2028						3/27/2028			3/27/2028			3/27/2028
37	Singrauli	6	500							Coal	NTPC Limited	Central	NRLDC	Thermal			3/29/2028						3/29/2028			3/29/2028			3/29/2028
38	Singrauli	7	500							Coal	NTPC Limited	Central	NRLDC	Thermal			3/31/2028						3/31/2028			3/31/2028			3/31/2028
39	Rihand	1	500	588.235	GEC	01.01.1990	20/400 KV	3X201.67 MVA	14/19	Coal	NTPC Limited	Central	NRLDC	Thermal			18.11.2026			18.11.2026	03.03.2017	Yes	18.11.2026			3/21/2028			3/21/2028
40	Rihand	2	500	588.235	GEC	01.01.1991	20/400 KV	3X201.67 MVA	2R & 2B- 4/9 2Y- 12/19	Coal	NTPC Limited	Central	NRLDC	Thermal			9/30/2027			9/30/2027	02.07.2016	Yes	9/30/2027			3/23/2028			3/23/2028
41	Rihand	3	500	588	BHEL	15.08.2005	21/400 KV	3X200 MVA	6/9	Coal	NTPC Limited	Central	NRLDC	Thermal			03.08.2026			03.08.2026	15.08.2015	Yes	03.08.2026			3/25/2028			3/25/2028
42	Rihand	4	500	588	BHEL	01.04.2006	21/400 KV	3X200 MVA	6/9	Coal	NTPC Limited	Central	NRLDC	Thermal			28.02.2026			10/31/2025	25.05.2017	yes	28.02.2026			3/27/2028			3/27/2028
43	Rihand	5	500	588	BHEL	19.11.2012	21/400 KV	3X200 MVA	6/9	Coal	NTPC Limited	Central	NRLDC	Thermal			2/28/2026			2/28/2026	11.12.2014	Yes	2/28/2026			3/29/2028			3/29/2028
44	Rihand	6	500	588	BHEL	27.03.2014	21/400 KV	3X200 MVA	6/9	Coal	NTPC Limited	Central	NRLDC	Thermal			3/31/2027			3/31/2027	11.12.2014	Yes	18.11.2026			3/31/2028			3/31/2028
45	Tanda	5	660	776.50	GE					Coal	NTPC Limited	Central	NRLDC	Thermal			1/15/2027			1/15/2027			1/15/2027			3/29/2028			3/29/2028
46	Tanda	6	660	776.50	GE					Coal	NTPC Limited	Central	NRLDC	Thermal			4/15/2026			4/15/2026			4/15/2026			3/31/2028			3/31/2028
47	Unchahar	1	210	247	BHEL		15.75/242	250	4/5	Coal (Non-Pit head)	NTPC Limited	Central	NRLDC	Thermal			2/23/2026			2/23/2026			2/23/2026			3/21/2028			3/21/2028
48	Unchahar	2	210	247	BHEL		15.75/242	250	4/5	Coal (Non-Pit head)	NTPC Limited	Central	NRLDC	Thermal			2/24/2026			2/24/2026			2/24/2026			3/23/2028			3/23/2028
49	Unchahar	3	210	247	BHEL		15.75/237	250	3/5	Coal (Non-Pit head)	NTPC Limited	Central	NRLDC	Thermal			2/25/2026			2/25/2026			2/25/2026			3/25/2028			3/25/2028
50	Unchahar	4	210	247	BHEL		15.75/237	250	3/5	Coal (Non-Pit head)	NTPC Limited	Central	NRLDC	Thermal			2/26/2026			2/26/2026			2/26/2026			3/27/2028			3/27/2028
51	Unchahar	5	210	247	BHEL		15.75/237	250	3/5	Coal (Non-Pit head)	NTPC Limited	Central	NRLDC	Thermal			2/27/2026			2/27/2026			2/27/2026			3/29/2028			3/29/2028
52	Unchahar	6	500	588	BHEL		21/(420/√3)	3X200	4/9	Coal (Non-Pit head)	NTPC Limited	Central	NRLDC	Thermal			2/28/2026			2/28/2026			2/28/2026			3/31/2028			3/31/2028
53	Dadri Thermal	1	210							Coal	NTPC Limited	Central	NRLDC	Thermal			3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
54	Dadri Thermal	2	210							Coal	NTPC Limited	Central	NRLDC	Thermal			6/30/2026			9/30/2027			6/30/2026			6/30/2026			6/30/2026
55	Dadri Thermal	3	210							Coal	NTPC Limited	Central	NRLDC	Thermal			6/30/2026			10/31/2026			6/30/2026			6/30/2026			6/30/2026
56	Dadri Thermal	4	210							Coal	NTPC Limited	Central	NRLDC	Thermal			6/30/2026			3/31/2027			6/30/2026			6/30/2026			6/30/2026

57	Dadri Thermal	5	490							Coal	NTPC Limited	Central	NRLDC	Thermal			3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
58	Dadri Thermal	6	490							Coal	NTPC Limited	Central	NRLDC	Thermal			12/30/2026			12/30/2026			12/30/2026			12/30/2026			12/30/2026
59	APCPL-Jhajjar	1	500	588	BHEL	05.03.2011	409.5/21	3X200	409.5/21KV, 9	Non Pit Head	APCPL	Central	NRLDC	Thermal		Yes	31/01/2026		Yes	31/01/2026		Yes	31/01/2026			3/27/2028			3/27/2028
60	APCPL-Jhajjar	2	500	588	BHEL	21.04.2012	409.5/21	3X200	409.5/21KV, 9	Non Pit Head	APCPL	Central	NRLDC	Thermal	31/10/2025	No		31/10/2025	No		31/10/2025	No				3/29/2028			3/29/2028
61	APCPL-Jhajjar	3	500	588	BHEL	26.04.2013	409.5/21	3X200	409.5/21KV, 9	Non Pit Head	APCPL	Central	NRLDC	Thermal		Yes	31/01/2026		Yes	31/01/2026		Yes	31/01/2026			3/31/2028			3/31/2028

HVDC Links

S. No	Name of Link	Type (LCC/VSC/ Back-to-Back)	HVDC_Voltage (kV)	Converter-1		Converter-2		Master Converter Station	Pole_number	Length (km)	Capacity (MW)	Owner	Forward Direction			Reverse Direction			Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC.		
				Station Name	Region	Station Name	Region						Maximum Capacity	Minimum Capacity	Ground_return_capacity	Maximum Capacity	Minimum Capacity	Ground_return_capacity	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date
	Rihand - Dadri LCC																							Mar'26
	Champa-Kurukshetra LCC																							Apr'26
	Ballia-Bhiwadi LCC																							Apr'26
	Vindhyachal BtB																							Sep'26

Tentative schedule for Periodic testing of HVDC/Facts Devices iro NR-III Region of POWERGRID

Sr. No.	HVDC Link/ FACTS	Proposed date of periodic testing
1	Rihand - Dadri LCC	Mar'26
2	Ballia-Bhiwadi LCC	Apr'26
3	NEA LCC	Aug'25
4	Vindhyachal BtB	Sep'26
5	Lucknow STATCOM	Apr'26

Gas Based Generators

MVA Rating	Make of Units	COD	GT Details			Name of Utility	Sector	Control Area	Type	Real and Reactive Power Capability assessment.			Assessment of Reactive Power Control Capability as per CEA Technical Standards for connectivity			Model Validation and verification test for the complete Generator and Excitation System model including PSS.			Model Validation and verification of Turbine/Governor and Load Control or Active Power/frequency Control Functions.			Testing of Governor performance and Automatic Generation Control		
			Voltage Ratio	GT MVA Capacity	Tap Ratio of GT (Present Tap/Total Taps)					Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date
						NTPC Limited	Central	NRLDC				3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
						NTPC Limited	Central	NRLDC				3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
						NTPC Limited	Central	NRLDC				3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
						NTPC Limited	Central	NRLDC				3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
						NTPC Limited	Central	NRLDC				3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
						NTPC Limited	Central	NRLDC				3/31/2026			3/31/2026			3/31/2026			3/31/2026			3/31/2026
						NTPC Limited	Central	NRLDC				6/7/2028			6/5/2028			6/6/2028			6/6/2028			6/6/2028
						NTPC Limited	Central	NRLDC				6/10/2028			6/8/2028			6/9/2028			6/9/2028			6/9/2028
						NTPC Limited	Central	NRLDC				6/14/2028			6/12/2028			6/13/2028			6/13/2028			6/13/2028
						NTPC Limited	Central	NRLDC				6/17/2028			6/15/2028			6/16/2028			6/16/2028			6/16/2028
						NTPC Limited	Central	NRLDC				6/22/2028			6/20/2028			6/21/2028			6/21/2028			6/21/2028
						NTPC Limited	Central	NRLDC				6/25/2028			6/23/2028			6/24/2028			6/24/2028			6/24/2028
						NTPC Limited	Central	NRLDC				7/31/2026			4/30/2026			3/31/2026			3/31/2026			3/31/2026
						NTPC Limited	Central	NRLDC				8/28/2026			10/31/2026			12/24/2026			12/24/2026			12/24/2026
						NTPC Limited	Central	NRLDC				10/30/2026			9/30/2026			11/27/2026			11/27/2026			11/27/2026
						NTPC Limited	Central	NRLDC				4/30/2026			4/30/2026			4/30/2026			4/30/2026			4/30/2026
						NTPC Limited	Central	NRLDC				2/15/2027			2/15/2027			2/15/2027			2/15/2027			2/15/2027
						NTPC Limited	Central	NRLDC				12/30/2026			12/30/2026			12/30/2026			12/30/2026			12/30/2026
						NTPC Limited	Central	NRLDC				12/25/2027			12/25/2027			12/25/2027			12/25/2027			12/25/2027

STATCOMs/SVCs

S.No	Station	Statcom	Capacity (MVAR)	Owner	Make	Reactive Power Controller (RPC) Capability for HVDC/FACTS			Filter bank adequacy assessment based on present grid condition, in consultation with NLDC			Validation of response by FACTS devices as per settings.		
						Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date	Last tested on (dd/mm/yyyy)	Whether due?	Tentative Schedule date
1	Bhadla-2	STATCOM-1&2	.+/- 600 MVAr, 400kV	POWERGRID	SIEMENS	July-2023.	NO	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	July-2023.	NO	NOT APPLICABLE
2	Fatehgarh-2	STATCOM-1&2	.+/- 600 MVAr, 400kV	POWERGRID	SIEMENS	Oct-2023.	NO	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	Oct-2023.	NO	NOT APPLICABLE
3	Bikaner-2	STATCOM	.+/- 300 MVAr, 400kV	POWERGRID	SIEMENS	Aug-2023.	NO	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	Aug-2023.	NO	NOT APPLICABLE
4	KANKROLI	SVC	.+400 MVAr, -300MVAr, 400kV	POWERGRID	SIEMENS	Dec-2016.	YES	Nov-2025.	NOT APPLICABLE	NOT APPLICABLE	NOT APPLICABLE	Dec-2016.	YES	Nov-2025.
5	Nalagarh	STATCOM											YES	Oct-25
6	Ludhiana	SVC											YES	Oct-25
7	New Wanpoh	SVC											YES	Oct-25
8	Lucknow	STATCOM											YES	26-Apr

List of generators who have not furnished the testing schedule for FY 2026-2027

Operator	Generating Unit	Installed Capacity	Tests for which schedule is to be furnished
ADANI POWER LTD.	KAWAI TPS (ADANI POWER) Unit 1	660	No schedule given
ADANI POWER LTD.	KAWAI TPS (ADANI POWER) Unit 2	660	No schedule given
ADPCL	ALLAIN DUHANGAN HPS Unit 1	96	No schedule given
ADPCL	ALLAIN DUHANGAN HPS Unit 2	96	No schedule given
AHPCL	ALAKNANDA HPS Unit 1	82.5	No schedule given
AHPCL	ALAKNANDA HPS Unit 2	82.5	No schedule given
AHPCL	ALAKNANDA HPS Unit 3	82.5	No schedule given
AHPCL	ALAKNANDA HPS Unit 4	82.5	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit L-1	126	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit L-2	126	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit L-3	126	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit L-4	126	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit L-5	126	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit R-1	157	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit R-2	157	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit R-3	157	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit R-4	157	No schedule given
BBMB	BHAKRA LEFT & RIGHT HPS Unit R-5	157	No schedule given
BBMB	GANGUWAL HPS Unit 1	27.99	No schedule given
BBMB	GANGUWAL HPS Unit 2	24.2	No schedule given
BBMB	GANGUWAL HPS Unit 3	24.2	No schedule given
BBMB	KOTLA HPS Unit 1	28.94	No schedule given
BBMB	KOTLA HPS Unit 2	24.2	No schedule given
BBMB	KOTLA HPS Unit 3	24.2	No schedule given
BBMB	DEHAR HPS Unit 1	165	No schedule given
BBMB	DEHAR HPS Unit 2	165	No schedule given
BBMB	DEHAR HPS Unit 3	165	No schedule given
BBMB	DEHAR HPS Unit 4	165	No schedule given
BBMB	DEHAR HPS Unit 5	165	No schedule given
BBMB	DEHAR HPS Unit 6	165	No schedule given
BBMB	PONG HPS Unit 1	66	No schedule given
BBMB	PONG HPS Unit 2	66	No schedule given
BBMB	PONG HPS Unit 3	66	No schedule given
BBMB	PONG HPS Unit 4	66	No schedule given
BBMB	PONG HPS Unit 5	66	No schedule given
BBMB	PONG HPS Unit 6	66	No schedule given
CLP India	MAHATMA GANDHI TPS (CLP JHAJJAR) Unit 1	660	Periodic testing is scheduled tentatively in Oct'28
CLP India	MAHATMA GANDHI TPS (CLP JHAJJAR) Unit 2	660	Periodic testing is scheduled tentatively in Oct'28
GAMA INFRAPROP PVT.	GAMA CCPP Unit GT-1	75	No schedule given
GAMA INFRAPROP PVT.	GAMA CCPP Unit GT-2	75	No schedule given
GAMA INFRAPROP PVT.	GAMA CCPP Unit ST	75	No schedule given
Greenko	BUDHIL HPS Unit 1	35	No schedule given
Greenko	BUDHIL HPS Unit 2	35	No schedule given
HP Sorang	HP SORANG HPS Unit 1	100	No schedule given
HPGCL	PANIPAT TPS Unit 6	210	No schedule given
HPGCL	PANIPAT TPS Unit 7	250	No schedule given
HPGCL	PANIPAT TPS Unit 8	250	No schedule given
HPGCL	RAJIV GANDHI TPS HISAR Unit 1	600	No schedule given
HPGCL	RAJIV GANDHI TPS HISAR Unit 2	600	No schedule given
HPGCL	DCR TPS YAMUNA NAGAR Unit 1	300	No schedule given
HPGCL	DCR TPS YAMUNA NAGAR Unit 2	300	No schedule given
HPPCL	SAINJ HPS Unit 1	50	No schedule given
HPPCL	SAINJ HPS Unit 2	50	No schedule given
JAYPEE	CHURK TPS (JAYPEE) Unit NA	90	No schedule given
JKSPDC	BAGLIHAR HPS Unit 1	150	No schedule given

JKSPDC	BAGLIHAR HPS Unit 2	150	No schedule given
JKSPDC	BAGLIHAR HPS Unit 3	150	No schedule given
JKSPDC	BAGLIHAR II HPS Unit 1	150	No schedule given
JKSPDC	BAGLIHAR II HPS Unit 2	150	No schedule given
JKSPDC	BAGLIHAR II HPS Unit 3	150	No schedule given
JKSPDC	LOWER JHELUM HPS Unit 1	35	No schedule given
JKSPDC	LOWER JHELUM HPS Unit 2	35	No schedule given
JKSPDC	LOWER JHELUM HPS Unit 3	35	No schedule given
JKSPDC	UPPER SINDH-II HPS Unit 1	35	No schedule given
JKSPDC	UPPER SINDH-II HPS Unit 2	35	No schedule given
JKSPDC	UPPER SINDH-II HPS Unit 3	35	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 1	135	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 2	135	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 3	135	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 4	135	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 5	135	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 6	135	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 7	135	No schedule given
JSW ENERGY LTD.	JSW ENERGY (BARMER) TPP Unit 8	135	No schedule given
MEIL	ANPARA C TPS (LANCO) Unit 1	600	No schedule given
MEIL	ANPARA C TPS (LANCO) Unit 2	600	No schedule given
NLC+UPRVUNL	GHATAMPUR TPP Unit 1	660	No schedule given
NLC+UPRVUNL	GHATAMPUR TPP Unit 2	660	No schedule given
NLC+UPRVUNL	GHATAMPUR TPP Unit 3	660	No schedule given
NTPC	MEJA STPP Unit 1	660	No schedule given
NTPC	MEJA STPP Unit 2	660	No schedule given
NTPC	TANDA TPS Unit 1	110	No schedule given
NTPC	TANDA TPS Unit 2	110	No schedule given
NTPC	TANDA TPS Unit 3	110	No schedule given
NTPC	TANDA TPS Unit 4	110	No schedule given
PPCL	PPS-III BAWANA Unit GT-1	216	No schedule given
PPCL	PPS-III BAWANA Unit GT-2	216	No schedule given
PPCL	PPS-III BAWANA Unit GT-3	216	No schedule given
PPCL	PPS-III BAWANA Unit GT-4	216	No schedule given
PPCL	PPS-III BAWANA Unit ST-1	253.6	No schedule given
PPCL	PPS-III BAWANA Unit ST-2	253.6	No schedule given
PPCL	PPS-I PPCL Unit GT-1	104	No schedule given
PPCL	PPS-I PPCL Unit GT-2	104	No schedule given
PPCL	PPS-I PPCL Unit ST	122	No schedule given
PSPCL	ANANDPUR SAHIB-I HPS Unit 1	33.5	No schedule given
PSPCL	ANANDPUR SAHIB-II HPS Unit 2	33.5	No schedule given
PSPCL	GHTPS (LEHRA MOHBBAT) Unit 1	210	No schedule given
PSPCL	GHTPS (LEHRA MOHBBAT) Unit 2	210	No schedule given
PSPCL	GHTPS (LEHRA MOHBBAT) Unit 3	250	No schedule given
PSPCL	GHTPS (LEHRA MOHBBAT) Unit 4	250	No schedule given
PSPCL	RANJIT SAGAR DAM HPS Unit 1	150	No schedule given
PSPCL	RANJIT SAGAR DAM HPS Unit 2	150	No schedule given
PSPCL	RANJIT SAGAR DAM HPS Unit 3	150	No schedule given
PSPCL	RANJIT SAGAR DAM HPS Unit 4	150	No schedule given
PSPCL	GGSSTP ROPAR Unit 3	210	No schedule given
PSPCL	GGSSTP ROPAR Unit 4	210	No schedule given
PSPCL	GGSSTP ROPAR Unit 5	210	No schedule given
PSPCL	GGSSTP ROPAR Unit 6	210	No schedule given
RRVUNL	CTPP CHHABRA Unit 1	250	No schedule given
RRVUNL	CTPP CHHABRA Unit 2	250	No schedule given
RRVUNL	CTPP CHHABRA Unit 3	250	No schedule given
RRVUNL	CTPP CHHABRA Unit 4	250	No schedule given
RRVUNL	CSCTPP CHHABRA Unit 5	660	No schedule given
RRVUNL	CSCTPP CHHABRA Unit 6	660	No schedule given
RRVUNL	DHOLPUR CCPP (DCCPP) Unit GT-1	110	No schedule given
RRVUNL	DHOLPUR CCPP (DCCPP) Unit GT-2	110	No schedule given
RRVUNL	DHOLPUR CCPP (DCCPP) Unit ST	110	No schedule given
RRVUNL	JAWAHAR SAGAR HPS Unit 1	33	No schedule given
RRVUNL	JAWAHAR SAGAR HPS Unit 2	33	No schedule given
RRVUNL	JAWAHAR SAGAR HPS Unit 3	33	No schedule given
RRVUNL	KALISINDH TPS (KATPP) Unit 1	600	No schedule given

RRVUNL	KALISINDH TPS (KATPP) Unit 2	600	No schedule given
RRVUNL	KOTA TPS (KSTPS) Unit 1	110	No schedule given
RRVUNL	KOTA TPS (KSTPS) Unit 2	110	No schedule given
RRVUNL	KOTA TPS (KSTPS) Unit 3	210	No schedule given
RRVUNL	KOTA TPS (KSTPS) Unit 4	210	No schedule given
RRVUNL	KOTA TPS (KSTPS) Unit 5	210	No schedule given
RRVUNL	KOTA TPS (KSTPS) Unit 6	195	No schedule given
RRVUNL	KOTA TPS (KSTPS) Unit 7	195	No schedule given
RRVUNL	MAHI-I HPS BANSWARA Unit 1	25	No schedule given
RRVUNL	MAHI-I HPS BANSWARA Unit 2	25	No schedule given
RRVUNL	MAHI-II HPS BANSWARA Unit 1	45	No schedule given
RRVUNL	MAHI-II HPS BANSWARA Unit 2	45	No schedule given
RRVUNL	R P SAGAR HPS Unit 1	43	No schedule given
RRVUNL	R P SAGAR HPS Unit 2	43	No schedule given
RRVUNL	R P SAGAR HPS Unit 3	43	No schedule given
RRVUNL	R P SAGAR HPS Unit 4	43	No schedule given
RRVUNL	RAMGARH CCPP Unit GT-1	35.5	No schedule given
RRVUNL	RAMGARH CCPP Unit GT-2	37.5	No schedule given
RRVUNL	RAMGARH CCPP Unit ST-1	37.5	No schedule given
RRVUNL	RAMGARH CCPP Unit GT-3	110	No schedule given
RRVUNL	RAMGARH CCPP Unit ST-2	50	No schedule given
RRVUNL	SSTPS SURATGARH Unit 1	250	No schedule given
RRVUNL	SSTPS SURATGARH Unit 2	250	No schedule given
RRVUNL	SSTPS SURATGARH Unit 3	250	No schedule given
RRVUNL	SSTPS SURATGARH Unit 4	250	No schedule given
RRVUNL	SSTPS SURATGARH Unit 5	250	No schedule given
RRVUNL	SSTPS SURATGARH Unit 6	250	No schedule given
RRVUNL	SSCTPP SURATGARH Unit 7	660	No schedule given
RRVUNL	SSCTPP SURATGARH Unit 8	660	No schedule given
SRAVANTHI ENERGY	KASHIPUR CCPP (SRAVANTHI ENERGY) Unit GT-1	75	No schedule given
SRAVANTHI ENERGY	KASHIPUR CCPP (SRAVANTHI ENERGY) Unit GT-2	75	No schedule given
SRAVANTHI ENERGY	KASHIPUR CCPP (SRAVANTHI ENERGY) Unit ST	75	No schedule given
THDC	KOTESHWAR HPS Unit 1	100	No schedule given
THDC	KOTESHWAR HPS Unit 2	100	No schedule given
THDC	KOTESHWAR HPS Unit 3	100	No schedule given
THDC	KOTESHWAR HPS Unit 4	100	No schedule given
THDC	KHURJA TPP Unit 1	660	No schedule given
THDC	KHURJA TPP Unit 2	660	No schedule given
UJVNL	CHIBRO (YAMUNA) HPS Unit 1	60	No schedule given
UJVNL	CHIBRO (YAMUNA) HPS Unit 2	60	No schedule given
UJVNL	CHIBRO (YAMUNA) HPS Unit 3	60	No schedule given
UJVNL	CHIBRO (YAMUNA) HPS Unit 4	60	No schedule given
UJVNL	CHILLA POWER HOUSE Unit 1	36	No schedule given
UJVNL	CHILLA POWER HOUSE Unit 2	36	No schedule given
UJVNL	CHILLA POWER HOUSE Unit 3	36	No schedule given
UJVNL	CHILLA POWER HOUSE Unit 4	36	No schedule given
UJVNL	KHODRI HPS Unit 1	30	No schedule given
UJVNL	KHODRI HPS Unit 2	30	No schedule given
UJVNL	KHODRI HPS Unit 3	30	No schedule given
UJVNL	KHODRI HPS Unit 4	30	No schedule given
UJVNL	MANERI BHALI-I HPS TILOTH Unit 1	30	No schedule given
UJVNL	MANERI BHALI-I HPS TILOTH Unit 2	30	No schedule given
UJVNL	MANERI BHALI-I HPS TILOTH Unit 3	30	No schedule given
UJVNL	MANERI BHALI-II HPS DHARASU Unit 1	76	No schedule given
UJVNL	MANERI BHALI-II HPS DHARASU Unit 2	76	No schedule given
UJVNL	MANERI BHALI-II HPS DHARASU Unit 3	76	No schedule given
UJVNL	MANERI BHALI-II HPS DHARASU Unit 4	76	No schedule given
UJVNL	RAMGANGA POWER HOUSE Unit 1	66	No schedule given
UJVNL	RAMGANGA POWER HOUSE Unit 2	66	No schedule given
UJVNL	RAMGANGA POWER HOUSE Unit 3	66	No schedule given
UJVNL	VYASI HEP Unit 1	60	No schedule given
UJVNL	VYASI HEP Unit 2	60	No schedule given
UPJVNL	OBRA HPS Unit 1	33	No schedule given
UPJVNL	OBRA HPS Unit 2	33	No schedule given
UPJVNL	OBRA HPS Unit 3	33	No schedule given
UPJVNL	RIHAND HPS Unit 1	50	No schedule given

UPJVNL	RIHAND HPS Unit 2	50	No schedule given
UPJVNL	RIHAND HPS Unit 3	50	No schedule given
UPJVNL	RIHAND HPS Unit 4	50	No schedule given
UPJVNL	RIHAND HPS Unit 5	50	No schedule given
UPJVNL	RIHAND HPS Unit 6	50	No schedule given
UPRVUNL	ANPARA TPS Unit 6	500	No schedule given
UPRVUNL	ANPARA TPS Unit 7	500	No schedule given
UPRVUNL	HARDUAGANJ TPS Unit 7	110	No schedule given
UPRVUNL	HARDUAGANJ TPS Unit 8	250	No schedule given
UPRVUNL	HARDUAGANJ TPS Unit 9	250	No schedule given
UPRVUNL	OBRA TPS Unit 9	200	No schedule given
UPRVUNL	OBRA TPS Unit 10	200	No schedule given
UPRVUNL	OBRA TPS Unit 11	200	No schedule given
UPRVUNL	OBRA TPS Unit 12	200	No schedule given
UPRVUNL	OBRA TPS Unit 13	200	No schedule given
UPRVUNL	OBRA-C STPP Unit 1	660	No schedule given
UPRVUNL	OBRA-C STPP Unit 2	660	No schedule given
UPRVUNL	PARICHHA TPS Unit 3	210	No schedule given
UPRVUNL	PARICHHA TPS Unit 4	210	No schedule given
UPRVUNL	PARICHHA TPS Unit 5	250	No schedule given
UPRVUNL	PARICHHA TPS Unit 6	250	No schedule given
UPRVUNL	HARDUAGANJ EXT-II TPS Unit 10	660	No schedule given
UPRVUNL	PANKI TPS EXTENSION Unit 1	660	No schedule given

ANNEXURE-A.V(A)

Captive Power Plant Generation (to be furnished by State Entity)

S.No.	Name of State/Uts	Installed Capactiy of Captive Power Plants	Gross Generation	Net Generation	Electricity Utilization		
					Power Drawl from Grid	Injection of power to Grid	Captive Consumption
			(kwh)	(kwh)	(kwh)	(kwh)	(kwh)
1							
2							

ANNEXURE-A.V(B)

Open Access Details			
S.No.	Name of State/UTs	Open Access Consumption	
		Included in Energy Requirement of State	Not included in Energy Requirement of State
		(kWh)	(kWh)
1			
2			

Plant in partial outage due to technical reasons					
S.No	**Station Name**	**Avg outage in MW**	**Rated capacity**	**% of outage wrt rated capacity**	**Outage reason as stated by the station to NRLDC**
1	OBRA TPS (5 * 200)	184.1	1000	18.4%	Ageing of Units, low PA header, unit 12 feeding restrictions due to low mill performance, unit 13 ID fan margin low and low PA header,
2	ANPARA-A TPS (3*210)	54.1	630	8.6%	Due to ID Fan problem
3	SURATGARH TPS (6 * 250 + 2 * 660(SSCTPS))	146.7	2820	5.2%	DC restricted to 220 MW in Unit-3 due to technical problem. Unit-7 DC restricted to 630 MW due to extraction pressure problem.

Plant in partial outage due to scheduling reasons					
S.No	Station Name	Avg outage in MW	Rated capacity	% of outage wrt rated capacity	Outage reason as stated by the station to NRLDC
1	PANIPAT TPS(1 * 210 + 2 * 250)	9.5	710	1.3%	Backing down due to low demand.
2	GURU HARGOBIND SINGH TPS (LEHRA MOHABBAT)(2* 210 + 2 * 250)	32.1	920	3.5%	Backing down due to low demand.
3	ANPARA-B TPS (2 * 500)	57.6	1000	5.8%	Backing down due to low demand.
4	ANPARA-D TPS (2 * 500)	23.6	1000	2.4%	Backing down due to low demand.
5	OBRA C TPS (2 * 660)	22.9	1320	1.7%	Backing down due to low demand.
6	GHATAMPUR TPS (2 * 660)	98.9	1320	7.5%	Backing down due to low demand.
7	LALITPUR TPS(3 * 660)	21.6	1980	1.1%	Backing down due to low demand.
8	ROSA TPS (4 * 300)	6.3	1200	0.5%	Backing down due to low demand.
9	PARICHA-B TPS (2 * 210)	8.5	420	2.0%	Backing down due to low demand.
10	PARICHA-C TPS (2 * 250)	40.6	500	8.1%	Backing down due to low demand.
11	CHHABRA TPS(2 * 660 + 4 * 250)	77.4	2320	3.3%	As per demand and schedule.
12	KOTA TPS(2 * 110 + 2 * 195 + 3 * 210)	83.7	1240	6.7%	As per demand and schedule.
13	RAJWEST (IPP) LTPS(8 * 135)	66.9	1080	6.2%	As per demand and schedule.
14	TALWANDI SABO TPS(3 * 660)	145.8	1980	7.4%	As per demand and schedule.
15	BARA PPGCL TPS(3 * 660)	57.1	1980	2.9%	As per demand and schedule.
16	DADRI-II TPS(2 * 490)	119.8	980	12.2%	As per demand and schedule.
17	DADRI-I TPS(4 * 210)	177.9	840	21.2%	As per demand and schedule.
18	UNCHAHAR II TPS(2 * 210)	20.9	420	5.0%	As per demand and schedule.
19	UNCHAHAR I(2 * 210)	24.9	420	5.9%	As per demand and schedule.
20	UNCHAHAR IV TPS(1 * 500)	8.6	500	1.7%	As per demand and schedule.
21	SHREE CEMENT (IPP) TPS(2 * 150)	26.3	344	7.7%	As per demand and schedule.
22	TANDA TPS (4 * 110)	0.0	440	0.0%	PPA Contract Expired on 14-01-2025. Under process of decommissioning

Plant in partial outage due to Fuel quality issues					
S.No	Station Name	Avg outage in MW	Rated capacity	% of outage wrt rated capacity	Outage reason as stated by the station to NRLDC
1	RGTPP(KHEDAR)(2 * 600)	187.7	1200	15.6%	Poor coal quality
2	GURU GOBIND SINGH TPS (ROPAR)(4 * 210)	100.8	840	12.0%	Poor coal quality
3	KALISINDH TPS(2 * 600)	118.8	1200	9.9%	Poor coal quality

ग्रिड-इंडिया
GRID-INDIA

ग्रिड कंट्रोलर ऑफ इंडिया लिमिटेड
(भारत सरकार का उद्यम)
GRID CONTROLLER OF INDIA LIMITED
(A Government of India Enterprise)
CIN : U40105DL2009GOI188682 राष्ट्रीय भार प्रेषण केन्द्र / National Load Despatch Centre
कार्यालय : बी-9, प्रथम एवं द्वितीय तल, कुतुब इंस्टीट्यूशनल एरिया, कटवारिया सराय, नई दिल्ली - 110016
Office : 1st and 2nd Floor, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi -110016
CIN : U40105DL2009GOI188682, Website : www.grid-india.in, E-mail : gridindiacc@grid-india.in, Tel.: 011- 42785855

Ref: NLDC/SO/RE/Jan2026/ 354 **दिनांक:** 23rd January 2026

सेवा मे,
All the Stakeholders

विषय: Estimated secondary and tertiary reserve requirement for FY 2026-27

संदर्भ: Detailed Procedure for Assessment of Quantum of Secondary & Tertiary Reserve Capacity, along with Information Exchange and Timelines under Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023

महोदय,

Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2023 require National Load Despatch Centre (NLDC) to assess secondary and tertiary reserve requirements for the regional entities on a year ahead basis. The detailed procedure approved by CERC (mentioned in the reference) provides modalities for the estimation.

CERC Study Report dated 29.04.2025 on Planning for Safe, Secure, and Reliable Integrated Operation of the Power System during Critical Periods, has documented feedback received from stakeholders regarding the quantum of reserves. These suggestions were subsequently highlighted in the CERC Order in Suo-Motu Petition No. 9/SM/2024 dated 05.10.2025. In line with the suggestions received from the States, and as an interim measure, the tertiary reserve requirement has been assessed without including 50% of the largest unit size in the estimation of intra-state up tertiary reserves for the States having largest unit size of less than 500 MW. Further, in the estimation of intra-state down tertiary reserves, 50% of the largest unit size has not been considered for all the states.

The quantum of secondary and tertiary reserves at all India level is given as below.

Type of Reserve	All India Up Reserve Requirement (MW)	All India Down Reserve Requirement (MW)
Secondary Reserve	10883	13213
Tertiary Reserve	16243	13213
Total	27127	26427

Without the above interventions of harnessing diversity and moderated consideration of unit sizes, all India secondary reserve requirement would have been 13327 MW for up reserve and 18225 MW for down reserve. Similarly, the tertiary reserve requirement would have been 19081 MW for up reserve and 24146 MW for down reserve.

In addition to the regional entity/states, AMNSIL, BALCO, and RIL have been apportioned reserve requirement based on their respective historical Area Control Error (ACE). Benefits of regional diversity has been duly factored while estimating the reserve requirement.

The reserve requirement apportioned to regional entities is enclosed in **Format-RAS4**.

It is observed that States like Odisha, Delhi, Tripura, Sikkim, West Bengal, Jharkhand and Chandigarh have demonstrated effective ACE management during the previous year, helping them reduce their up reserve requirement.

In contrast, for some States, namely Manipur, Gujarat, Tamil Nadu, Nagaland, Mizoram, Arunachal Pradesh, and Maharashtra, higher ACE during the previous year resulted in an increased up reserve requirement for these States.

Apart from the above, Reference Contingency applicable for FY 2026-27 as per **Format RAS-3** has been made available in the GRID-INDIA website at https://grid-india.in/en/operations/reference-contingency. The quantum considered for the Reference Contingency are 7000 MW for the solar hours and 4500 MW for the non-solar hours.

सधन्यवाद,

भवदीय

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कार्यपालक निदेशक, (रा॰भा॰प्रे॰के॰)

संलग्न:

1) Reserve requirement for financial year 2026-27 **(Format – RAS4)**
2) Reference Contingency applicable for FY 2026-27 **(Format RAS-3)**

प्रतिलिपि **:**

1) Member (GO&D), CEA
(2) Member (P), CEA
(3) Member (PS), CEA
(4) JS (OM), MoP
(5) Secretary, CERC
(6) Member Secretary NPC/NRPC/WRPC/SRPC/ERPC/NERPC
(7) ED NRLDC/WRLDC/SRLDC/ERLDC/NERLDC, GRID-INDIA
(8) Director (MO) / Director (SO) / CMD, GRID-INDIA

Format RAS4

Requirement of Up Reserve Quantum for Secondary Reserve Ancillary Service (SRAS) and Tertiary Reserve Ancillary Service (TRAS) for the Year 2026-27														
Regional Entity	Actual 99 Percentile Negative ACE (MW)	Scaled 99 Percentile Negative ACE (MW) (a)	Max. Demand met (b)	Internal Gen. at the time of max demand (c)	Drawl from ISTS (d= b-c)	Internal Generation/ Maximum Demand (e= c/b)	Drawl from ISTS/Maximum Demand (f=d/b)	Secondary Reserves Requirement at Inter State (g= a*f)	Secondary Reserves Requirement at Interstate Level (sum of "g")	Secondary Reserves Requirement at Intra state (h= a*e)	Tertiary Reserves Requirement at Inter State (i= g)	Tertiary Reserves Requirement at intra state (j= h)	Largest Unit Size of internal generation considered(k)	Total Tertiary Reserves Requirement at intra state (l=j+ 0.5*k)#
UT of Chandigarh	44	33	460	0	460	0.00	1.00	33		0	33	0	0	0
Delhi	326	242	8442	956	7486	0.11	0.89	215		27	215	27	0	27
Haryana	467	347	14084	3337	10747	0.24	0.76	265		82	265	82	660	412
Himachal Pradesh	292	217	2273	589	1684	0.26	0.74	161		56	161	56	0	56
UT of Jammu and Kashmir and UT of Ladakh	461	343	3271	370	2901	0.11	0.89	304	2062	39	304	39	0	39
Punjab	805	599	16670	6742	9928	0.40	0.60	357		242	357	242	700	592
Rajasthan	1010	751	19165	12225	6940	0.64	0.36	272		479	272	479	660	809
Uttar Pradesh	912	678	31486	15915	15571	0.51	0.49	335		343	335	343	660	673
Uttarakhand	290	216	2910	1272	1638	0.44	0.56	121		94	121	94	0	94
NR state Sum	4605	3425												2703
Northern Region (NR)	3425													
Chhattisgarh	397	389	6819	2475	4344	0.36	0.64	248		141	248	141	500	391
UT Daman and Diu & UT Dadra and Nagar Haveli	68	67	1411	0	1411	0.00	1.00	67		0	67	0	0	0
Gujarat	1169	1147	26692	17339	9353	0.65	0.35	402		745	402	745	800	1145
Goa	77	76	884	0	884	0.00	1.00	76	1531	0	76	0	0	0
Madhya Pradesh	685	673	19849	7151	12698	0.36	0.64	430		242	430	242	660	572
Maharashtra	801	786	30659	18649	12010	0.61	0.39	308		478	308	478	660	808
AMNSIL$	235	231	774	774	-	-	-	-		231	0	231	0	231
Balco$	36	35	576	576	-	-	-	-		35	0	35	0	35
RIL$	17	17	269	269	-	-	-	-		17	0	17	0	17
WR States Sum	3485	3421												3200
Western Region (WR)	3421													
Andhra Pradesh	466	466	13117	8085	5032	0.62	0.38	179		287	179	287	800	687
Karnataka	443	443	18395	11255	7140	0.61	0.39	172		271	172	271	800	671
Kerala	238	238	5347	1327	4020	0.25	0.75	179	1202	59	179	59	0	59
UT of Puducherry	43	43	548	0	548	0.00	1.00	43		0	43	0	0	0
Tamil Nadu	946	946	20152	12817	7335	0.64	0.36	344		602	344	602	600	902
Telangana	453	453	17162	6326	10836	0.37	0.63	286		167	286	167	800	567
SR State Sum	2588	2588												2886
Southern Region (SR)	2847													
Bihar	449	228	8752	451	8301	0.05	0.95	216		12	216	12	660	342
Damodar Valley Corporation	318	161	3338	5381	-2043	1.61	-0.61	0		161	0	161	600	461
Jharkhand	292	148	2406	198	2208	0.08	0.92	136	601	12	136	12	0	12
Odisha	470	238	7070	4479	2591	0.63	0.37	87		151	87	151	660	481
Sikkim	50	25	134	0	134	0.00	1.00	25		0	25	0	0	0
West Bengal	558	283	13012	6714	6298	0.52	0.48	137		146	137	146	500	396
ER state Sum	2137	1083												1692
Eastern Region (ER)	1083													
Arunanchal Pradesh	44	38	223	12	211	0.05	0.95	36		2	36	2	0	2
Assam	145	126	2812	294	2518	0.10	0.90	112		13	112	13	0	13
Manipur	50	43	267	0	267	0.00	1.00	43		0	43	0	0	0
Meghalaya	62	54	393	206	187	0.52	0.48	25	304	28	25	28	0	28
Mizoram	47	40	168	44	124	0.26	0.74	30		11	30	11	0	11
Nagaland	22	19	193	22	171	0.11	0.89	17		2	17	2	0	2
Tripura	53	46	377	49	328	0.13	0.87	40		6	40	6	0	6
NER State Sum	422	366												62
North-Eastern Region (NER)	366													
All India (sum of regions)	11142	10883						5701	5701	5182	5701	5182	10720	10542
Total Secondary Reserves Requirement in India (g + h)									10883					
Total Tertiary Reserves Requirement in India(i + l)									16243					
Total Reserves Requirement in India (Secondary + Tertiary = g+h+i+j)									27127					

#As an interim measure, the tertiary reserve requirement has been assessed without including 50% of the largest unit size in the estimation of intra-state up tertiary reserves for the States having unit sizes of less than 500 MW.

$ Drawl of the bulk loads from the grid has been considered for the assessment of secondary and tertiary reserves.

Note: Benefit of regional diversity has been duly factored while estimating the reserve requirement.

Note: The reserve requirement assessed above for the inter-state and intra-state levels may be maintained by the regional entities at any power plant.

Format RAS4

Requirement of Down Reserve Quantum for Secondary Reserve Ancillary Service (SRAS) and Tertiary Reserve Ancillary Service (TRAS) for the Year 2026-27

Regional Entity	Actual 99 Percentile Positive ACE (MW)	Scaled 99 Percentile Positive ACE (MW) (a)	Max. Demand met (b)	Internal Gen. at the time of max demand (c)	Drawl from ISTS (d=b-c)	Internal Generation/ Maximum Demand (e=c/b)	Drawl from ISTS/ Maximum Demand (f=d/b)	Secondary Reserves Requirement at Inter State (g=a*f)	Secondary Reserves Requirement at Interstate Level (sum of "g")	Secondary Reserves Requirement at intra state (h=a*e)	Tertiary Reserves Requirement at Inter State (i=g)	Total Tertiary Reserves Requirement at intra state (j=h)#
UT of Chandigarh	67	40	460	0	460	0.00	1.00	40		0	40	0
Delhi	433	257	8442	956	7486	0.11	0.89	228		29	228	29
Haryana	826	492	14084	3337	10747	0.24	0.76	375		117	375	117
Himachal Pradesh	190	113	2273	589	1684	0.26	0.74	84		29	84	29
UT of Jammu and Kashmir and UT of Ladakh	590	351	3271	370	2901	0.11	0.89	311	2322	40	311	40
Punjab	1069	636	16670	6742	9928	0.40	0.60	379		257	379	257
Rajasthan	1519	904	19165	12225	6940	0.64	0.36	327		577	327	577
Uttar Pradesh	1556	926	31486	15915	15571	0.51	0.49	458		468	458	468
Uttarakhand	355	212	2910	1272	1638	0.44	0.56	119		92	119	92
NR state Sum	6605	3931										1609
Northern Region (NR)	3931											
Chhattisgarh	495	350	6819	2475	4344	0.36	0.64	223		127	223	127
UT Daman and Diu & UT Dadra and Nagar Haveli	183	130	1411	0	1411	0.00	1.00	130		0	130	0
Gujarat	1649	1167	26692	17339	9353	0.65	0.35	409		758	409	758
Goa	94	66	884	0	884	0.00	1.00	66	1546	0	66	0
Madhya Pradesh	902	638	19849	7151	12698	0.36	0.64	408		230	408	230
Maharashtra	1119	792	30659	18649	12010	0.61	0.39	310		481	310	481
AMNSIL$	379	268	774	774	-	-	-	-		268	0	268
Balco$	38	27	576	576	-	-	-	-		27	0	27
RIL$	24	17	269	269	-	-	-	-		17	0	17
WR States Sum	4883	3454										1908
Western Region (WR)	3454											
Andhra Pradesh	725	725	13117	8085	5032	0.62	0.38	278		447	278	447
Karnataka	675	675	18395	11255	7140	0.61	0.39	262		413	262	413
Kerala	314	314	5347	1327	4020	0.25	0.75	236	1782	78	236	78
UT of Puducherry	72	72	548	0	548	0.00	1.00	72		0	72	0
Tamil Nadu	1442	1442	20152	12817	7335	0.64	0.36	525		917	525	917
Telangana	648	648	17162	6326	10836	0.37	0.63	409		239	409	239
SR State Sum	3876	3876										2094
Southern Region (SR)	4330											
Bihar	580	390	8752	451	8301	0.05	0.95	370		20	370	20
Damodar Valley Corporation	302	203	3338	5381	-2043	1.61	-0.61	0		203	0	203
Jharkhand	450	303	2406	198	2208	0.08	0.92	278	941	25	278	25
Odisha	510	343	7070	4479	2591	0.63	0.37	126		217	126	217
Sikkim	39	26	134	0	134	0.00	1.00	26		0	26	0
West Bengal	434	292	13012	6714	6298	0.52	0.48	141		151	141	151
ER state Sum	2316	1557										616
Eastern Region (ER)	1557											
Arunanchal Pradesh	68	49	223	12	211	0.05	0.95	46		3	46	3
Assam	193	140	2812	294	2518	0.10	0.90	125		15	125	15
Manipur	50	36	267	0	267	0.00	1.00	36		0	36	0
Meghalaya	66	48	393	206	187	0.52	0.48	23	333	25	23	25
Mizoram	48	35	168	44	124	0.26	0.74	26		9	26	9
Nagaland	48	35	193	22	171	0.11	0.89	31		4	31	4
Tripura	72	53	377	49	328	0.13	0.87	46		7	46	7
NER State Sum	545	395										62
North-Eastern Region (NER)	395											
All India (sum of regions)	13667	13213						6924	6924	6290	6924	6290
Total Secondary Reserves Requirement in India (g +h)									13213			
Total Tertiary Reserves Requirement in India (i +j)									13213			
Total Reserves Requirement in India (Secondary + Tertiary = g+h+i+j)									26427			

While calculating tertiary down reserve requirement within the States, 50% of the largest unit size has not been considered.

$ Drawl of the bulk loads from the grid has been considered for the assessment of secondary and tertiary reserves.

Note: Benefit of regional diversity has been duly factored while estimating the reserve requirement.

Note: The reserve requirement assessed above for the inter-state and intra-state levels may be maintained by the regional entities at any power plant.

Summary of Down Reserve Requirement as in Format RAS4

	Year-Ahead Down Reserve Requirement (2026 - 2027)								
	Secondary Reserves			Tertiary Reserves			Total Reserves (Secondary + Tertiary)		
State/ Union Territory UT	Within Inter State	Within Intra State	Total	Within Inter State	Within Intra State	Total	Within Inter State	Within Intra State	Total
UT of Chandigarh	40	0	40	40	0	40	79	0	79
Delhi	228	29	257	228	29	257	457	58	515
Haryana	375	117	492	375	117	492	750	233	983
Himachal Pradesh	84	29	113	84	29	113	168	59	226
UT of Jammu and Kashmir and UT of Ladakh	311	40	351	311	40	351	623	79	702
Punjab	379	257	636	379	257	636	758	515	1273
Rajasthan	327	577	904	327	577	904	655	1153	1808
Uttar Pradesh	458	468	926	458	468	926	916	936	1853
Uttarakhand	119	92	212	119	92	212	238	185	423
Chhattisgarh	223	127	350	223	127	350	446	254	700
UT Daman and Diu & UT Dadra and Nagar Haveli	130	0	130	130	0	130	260	0	260
Gujarat	409	758	1167	409	758	1167	818	1516	2334
Goa	66	0	66	66	0	66	132	0	132
Madhya Pradesh	408	230	638	408	230	638	817	460	1276
Maharashtra	310	481	792	310	481	792	620	963	1583
AMNSIL	0	268	268	0	268	268	0	536	536
Balco	0	27	27	0	27	27	0	54	54
RIL	0	17	17	0	17	17	0	34	34
Andhra Pradesh	278	447	725	278	447	725	557	894	1451
Karnataka	262	413	675	262	413	675	524	826	1349
Kerala	236	78	314	236	78	314	472	156	628
UT of Puducherry	72	0	72	72	0	72	144	0	144
Tamil Nadu	525	917	1442	525	917	1442	1050	1834	2884
Telangana	409	239	648	409	239	648	818	478	1296
Bihar	370	20	390	370	20	390	740	40	780
Damodar Valley Corporation	0	203	203	0	203	203	0	406	406
Jharkhand	278	25	303	278	25	303	556	50	606
Odisha	126	217	343	126	217	343	252	435	686
Sikkim	26	0	26	26	0	26	52	0	52
West Bengal	141	151	292	141	151	292	282	301	584
Arunanchal Pradesh	46	3	49	46	3	49	93	5	98
Assam	125	15	140	125	15	140	251	29	280
Manipur	36	0	36	36	0	36	73	0	73
Meghalaya	23	25	48	23	25	48	45	50	95
Mizoram	26	9	35	26	9	35	51	18	69
Nagaland	31	4	35	31	4	35	62	8	70
Tripura	46	7	53	46	7	53	91	14	105
Region-wise and All-India									
Northern Region	2322	1609	3931	2322	1609	3931	4643	3219	7862
Western Region	1546	1908	3454	1546	1908	3454	3092	3817	6909
Southern Region	1782	2094	3876	1782	2094	3876	3564	4187	7752
Eastern Region	941	616	1557	941	616	1557	1882	1232	3114
North-Eastern Region	333	62	395	333	62	395	666	124	790
All India	6924	6290	13213	6924	6290	13213	13847	12579	26427

Summary of Up Reserve Requirement as in Format RAS4

	Year-Ahead Up Reserve Requirement (2026 - 2027)								
	Secondary Reserves			Tertiary Reserves			Total Reserves (Secondary + Tertiary)		
State/ Union Territory UT	Within Inter State	Within Intra State	Total	Within Inter State	Within Intra State	Total	Within Inter State	Within Intra State	Total
UT of Chandigarh	33	0	33	33	0	33	65	0	65
Delhi	215	27	242	215	27	242	430	55	485
Haryana	265	82	347	265	412	677	530	494	1024
Himachal Pradesh	161	56	217	161	56	217	322	113	434
UT of Jammu and Kashmir and UT of Ladakh	304	39	343	304	39	343	608	78	685
Punjab	357	242	599	357	592	949	713	834	1547
Rajasthan	272	479	751	272	809	1081	544	1288	1832
Uttar Pradesh	335	343	678	335	673	1008	671	1015	1686
Uttarakhand	121	94	216	121	94	216	243	189	431
Chhattisgarh	248	141	389	248	391	639	496	533	1029
UT Daman and Diu & UT Dadra and Nagar Haveli	67	0	67	67	0	67	134	0	134
Gujarat	402	745	1147	402	1145	1547	804	1891	2695
Goa	76	0	76	76	0	76	152	0	152
Madhya Pradesh	430	242	673	430	572	1003	861	815	1675
Maharashtra	308	478	786	308	808	1116	616	1286	1902
AMNSIL	0	231	231	0	231	231	0	461	461
Balco	0	35	35	0	35	35	0	71	71
RIL	0	17	17	0	17	17	0	33	33
Andhra Pradesh	179	287	466	179	687	866	357	974	1331
Karnataka	172	271	443	172	671	843	344	942	1287
Kerala	179	59	238	179	59	238	358	118	477
UT of Puducherry	43	0	43	43	0	43	85	0	85
Tamil Nadu	344	602	946	344	902	1246	689	1503	2192
Telangana	286	167	453	286	567	853	572	734	1305
Bihar	216	12	228	216	342	558	432	353	785
Damodar Valley Corporation	0	161	161	0	461	461	0	622	622
Jharkhand	136	12	148	136	12	148	272	24	296
Odisha	87	151	238	87	481	568	174	632	806
Sikkim	25	0	25	25	0	25	50	0	50
West Bengal	137	146	283	137	396	533	274	542	816
Arunanchal Pradesh	36	2	38	36	2	38	72	4	76
Assam	112	13	126	112	13	126	225	26	251
Manipur	43	0	43	43	0	43	86	0	86
Meghalaya	25	28	54	25	28	54	51	56	107
Mizoram	30	11	40	30	11	40	60	21	81
Nagaland	17	2	19	17	2	19	34	4	39
Tripura	40	6	46	40	6	46	80	12	92
Region-wise and All-India									
Northern Region	2062	1363	3425	2062	2703	4765	4125	4065	8190
Western Region	1531	1890	3421	1531	3200	4731	3063	5090	8152
Southern Region	1202	1386	2588	1202	2886	4088	2405	4272	6677
Eastern Region	601	482	1083	601	1692	2293	1202	2174	3376
North-Eastern Region	304	62	366	304	62	366	608	124	732
All India	5701	5182	10883	5701	10542	16243	11402	15725	27127

Annexure-A.VIII.a 2/10

. प्रदीप कुमार सिन्हा
सचिव
भारत सरकार
PRADEEP K. SINHA
Secretary
Government of India

सत्यमेव जयते
Ministry of Power
Shram Shakti Bhawan
New Delhi - 110001

विद्युत मंत्रालय
श्रम शक्ति भवन
नई दिल्ली-110001
Tele : 23710271/23711316
Fax : 23721487
E-mail : secy-power@nic.in

D.O. No.20/6/2014-OM 05.12.2014

Dear Shri Negi,

As you are aware, India has one of the largest A.C. Synchronous Transmission Grids in the world with more than 3 lakhs circuit kms of 220kV and above lines which form the backbone of the Indian Power System.

2. However, this huge network needs to be operated in a sustained and secure manner, particularly, during the time of natural disasters. Failure to do so leads to severe constraints not only in meeting the power demand but also poses serious problems in maintaining safety and security of the Grid. Difficult situations came to light in the wake of recent natural disasters, such as, floods in J&K and Phailin as well as Hud-Hud cyclone in Odisha and Andhra Pradesh. These disasters caused extensive damage to transmission networks resulting in wide spread disruption of many important transmission links and substations affecting power supply for long periods due to the time taken in restoration.

3. You would appreciate that under such adverse situations, the availability of an effective mechanism for emergent restoration of transmission lines in the shortest possible time is of utmost importance. Immediate and temporary restoration of transmission networks is possible by deploying the "Emergency Restoration Systems (ERS)." Grid Standards notified by the Central Electricity Authority(CEA) stipulate that every Transmission Licensee shall have an arrangement for restoration of transmission lines of at least 220kV and above through the use of ERS. However, presently the States do not possess such ERS infrastructure. Consequently, POWERGRID becomes the last resort whose ERS infrastructure is also limited.

4. Therefore, deployment of adequate ERS infrastructure with the States is necessary. In this connection, CEA had recently convened a meeting of the representatives from State Utilities, CTUs and RPCs to deliberate and review their preparedness to effectively restore transmission networks in times of emergency. Based on the inputs received, an indicative requirement of ERS for States has been assessed which is at Annex-I. Further, CEA has also formulated guidelines for planning, deployment and procurement of such ERS infrastructure (Annex-II).

5. I would, therefore, request you to please issue necessary directives to Transmission Utilities/ Transmission licensees operating in your State to take stock, procure appropriate number of ERS infrastructure and place them at strategic locations. Action taken by the Utilities in this regard may be informed to the CEA and the Ministry of Power, at the earliest.

With regards,

Yours sincerely,

(Pradeep K. Sinha)

Encl : as above

Shri Ramesh Negi
Chief Secretary
Govt of Arunachal Pradesh
Itanagar

Distt:- As per list attached.

RIGHT TO INFORMATION

स्वच्छ भारत
एक कदम स्वच्छता की ओर

ANNEX-I

Availability and Proposed Plan for deployment of ERS

Sl. No.	Region	State Utilities / PGCIL	Availability of ERS sets	Additional ERS set to be procured	Remark
I	Northern Region				
	PGCIL	NR1	3	1	
		NR2	1		
	1	Haryana	-	1	
	2	HP	-	1	Hilly terrain
	3	J&K	-	1	-do-
	4	Punjab	-	2	
	5	Rajsthan	-	3	
	6	Uttar Pradesh	-	3	
	7	Uttarakhand	-	1	
	8	Chandigarh	-	-	
	9	Delhi	-	1	DTL is procuring 2 ERS sets
	10	POWERLINKS	2		1 set each is located in NR and ER; each ~~setting~~ is having 14 towers of 400 kV
	Total		6	14	
II	Western Region				
	PGCIL	WR1	2	1	
		WR2	2		
	10	Gujarat	-	3	

4/10

	11	MP	1	2	
	12	Chhattisgarh	-		
	13	Maharashtra	2	2	
	14	Goa	-	1	
	15	D&NH	-	-	
	16	Daman& Diu	-	-	
	Total		7	9	
III	Southern Region				
	PGCIL	SR1	1	2	
		SR2	1		
	17	AP	-	3	(To be located at Vishakahapatnam, Vijawada, Nellore)
	18	Telengana	-	1	
	19	Karnataka	-	2	
	20	Kerala	-	1	
	21	Tamil Nadu	-	2	
	22	Lakshadweep	-	-	
	23	Puducherry	-	-	
	Total		2	11	
IV	Eastern Region	PGCIL			
	PGCIL	ER1	1	-	
		ER2	2		
	24.	Bihar	2	2	
	25	Jharkhand	-	1	
	26	Orissa	3	2(comprising of 12 nos. of 400kV towers which is in the process of procurement).	Existing ERS located at Bhubaneswar, Chatrapur and Budhipada (each with 14 ERS towers)
	27	West Bengal	-	2	
	28	DVC	-	1	

	29	A&N Island	-	-	
	30	Sikkim	-	-	
	Total		8	8	
V	North Eastern Region		-		
	PGCIL	NER	1		
	31	Assam	4	2	
	32	Manipur	-		
	33	Meghalaya	-		
	34	Nagaland	-		
	35	Tripura	-		
	36	Ar. Pradesh	-		
	37	Mizoram	-		
	Total		5	2	
	Total All India		28	44	

Note: POWERGRID has informed that they are procuring 6 additional sets of ERS for different regions.

Strategy adopted

1. The primary criterion for deciding number of ERS to be arranged by a transmission utility has to be the length of transmission line (ckt-kms) at different voltage levels (e.g 220 kV, 400 kV, 765 kV and +/- 500kV HVDC). Other factors to be taken into account while deciding the number of ERS are

   - Importance of the line considering security of Grid
   - Areas prone to tower failure and failure pattern in different areas
   - Command area of the transmission utility and transportability across the command area

2. For any transmission utility, one set of ERS has been planned to cater to failure of towers for transmission line lengths of up to 5000 Ckt. Kms.. Accordingly, two (2) sets of ERS have been planned for transmission line lengths of about 5000 to 10,000 Ckt. Kms. and three (3) sets for more than 10,000 Ckt. Kms and so on.

3. The transmission Utility with line length less than 500 ckt kms (of 400kV 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.

ANNEX-II

GUIDELINES FOR PLANNING, PROCUREMENT AND DEPLOYMENT OF EMERGENCY RESTORATION SYSTEM (ERS)

1. One set of ERS should include all accessories [structures (Aluminum Alloy), polymer insulators & hardware, anchor assembly, guy wires, foundation plates, guy plate, other equipment & fittings, special Tools & Plants required for erection & stringing of ERS and trailer mounted detachable containers (without engine) for storage & transportation of ERS hardware / material etc.] and associated software.

2. One set of ERS shall be capable of restoring few numbers of suspension towers and tension towers of the transmission line corresponding to the highest transmission voltage in operation in the utility with required type of conductors. The same ERS can be used for lower voltage lines as well. The number of suspension, tension towers, insulators and associated hardware etc., to be included under one set of ERS, may be decided by the utilities at the time of procurement depending on their requirement.

3. Proper management of ERS and training of personnel for erection of towers on ERS and use of associated software is essential. A dedicated and specialized erection & commissioning gang, which is properly trained to execute such work, would be required.

4. ERS should be utilized only for emergency purposes and the line should be restored on normal towers as early as possible. It should not be a practice to run transmission line on ERS for a long time instead of shifting to normal towers. Moreover, ERS should not be used in new lines under construction. Otherwise, the very purpose of ERS will be defeated.

5. The deployment of ERS by any transmission utility / licensee should be reported to concerned RLDC and RPC.

6. The transmission utilities may approach Appropriate Commission for approval and initiate procurement process on urgent basis to comply with Grid Standards. Utilities may also approach State Disaster Management Authorities for funding.

7. The funding for procurement of ERS could be considered from PSDF for North Eastern States and a proposal be submitted by Member Secretary, NERPC.

				ckm data					
	State utilities/PGCIL/ TBCBs			**132 kV**	**220 kV**	**400 kV**	**765 kV**	**500 kV HVDC**	**800 kV HVDC**
States/UT	Delhi (DTL)								
	Himachal Pradesh (HPPTCL)								
	Haryana (HVPNL)								
	Punjab (PSTCL)								
	Rajasthan (RVPN)								
	Uttar Pradesh (UPPTCL)								
	Uttarakand (PTCUL)								
	J&K (JKPTCL)								
POWERGRID	NR 1								
	NR 2								
	NR 3								
TBCBs	Gurgaon Palwal Transmission Ltd (Indigrid)	GPTL	Northern Region						
	NRSS-XXIX Transmission Ltd (Indigrid)		Northern Region						
	Parbati Koldam Transmission Company Limited (Indigrid)	PrKTCL	Northern Region						
	Patran Transmission Company Ltd (Indigrid)	PTCL	Northern Region						
	NRSS-XXXI(B) Transmission Ltd (Sekura)		Northern Region						
	NRSS XXXVI Transmission Ltd (Tata Power)		Northern Region						
	AD Hydro Power Limited (Renew)		Northern Region						
	Aravali Power Company Private Limited (APCPL)		Northern Region						
	POWERLINKS TRANSMISSION LIMITED (PTL)		Northern Region						
	Adani Transmission India Limited (Adani)	ATIL	Northern Region						
	Bikaner Khetri Transmission Limited (Adani)	BKTL	Northern Region						
	Fatehgarh Bhadla Trasmission Limited (Adani)	FBTL	Northern Region						
	POWERGRID HIMACHAL TRANSMISSION LTD	PHTL/Jaypee	Northern Region						
	Powergrid Ajmer Phagi Transmission Limited	PAPTL	Northern Region						
	Powergrid Fatehgarh Transmission Limited	PFTL	Northern Region						
	POWERGRID KALA AMB TRANSMISSION LTD	PKATL	Northern Region						
	Powergrid Unchahar Transmission Ltd	PUTL	Northern Region						
	Powergrid Khetri Transmission Limited	PKTSL	Northern Region						
	POWERGRID VARANASI TRANSMISSION SYSTEM LTD	PVTSL	Northern Region						
	POWERGRID ALIGARH SIKAR TRANSMISSION LIMITED	PASTL	Northern Region						
	POWEGRID BHADLA TRANSMISSION LIMITED	PBTL	Northern Region						
	POWERGRID BIKANER TRANSMISSION SYSTEM LIMITED	PBTSL	Northern Region						
	POWERGRID RAMGARH TRANSMISSION LIMITED	PRTL	Northern Region						
	POWERGRID SIKAR TRANSMISSION LIMITED	PSTL	Northern Region						

Agenda

Sub: **<u>Agenda for NRPC meeting</u>- Augmentation of 400KV sub-station BBMB, Siwah (Panipat) from (1x450 + 1x500)MVA, 400/220KV + 2x100MVA, 220/132KV +1x60MVA, 220/33kV transformers to 3x500MVA, 400/220KV + 2x160MVA 220/132KV +1x60MVA, 220/33kV transformers along with augmentation of 220KV Sewah (Panipat BBMB) – Chhajpur D/C line from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having ampacity of 1200Amp to meet N-1 contingency.**

1. State-wise operational issues observed in NR-region were deliberated in 1st meeting of Standing Committee on Short Term & Perspective Power System Planning (SCSTPPSP-NR) held on dated 14.03.2024 **(Annexure-I)** wherein the issue regarding 'N-1' contingency criteria of (1x500+1x450)MVA, 400/220KV ICTs at 400kV sub-station BBMB Siwah (Panipat) was also included.

2. CE/SO & Commercial, HVPNL, Panchkula vide letter memo no Ch-43/SO-PNP-PCP-218 DT 22.11.2024 **(Annexure-II)** addressed to CE/PD&C, HVPNL, Panchkula also identified 1x450MVA+1x500MVA, 400/220kV ICTs at Panipat BBMB as 'N-1' non-compliant in real time System Operation during the year 2024-25. The maximum loading recorded on 400/220kV ICTs at Panipat BBMB in summer' 24 is 399 MW and 448 MW and in FY 2025-26 is 405 MW and 449 MW.

3. The above agenda was deliberated in 152nd meeting of Power Sub-Committee of BBMB on dated 07.02.2025 **(Annexure-III)** wherein it was desired the proposal be first taken up with NRPC/CMETS, CTU as the BBMB system is an ISTS system.

4. Accordingly, the agenda was placed before the CEA which was discussed in the meeting held on dated 17.04.2025. As per minutes of meeting dated 25.04.2025, CEA agreed and gave the necessary approvals. **(Annexure-IV)**

5. The above agenda was again deliberated in 153rd meeting of Power Sub-Committee of BBMB on dated 11.07.2025 **(Annexure-V).** After deliberations, PSC members approved the following: -

   - For further deliberation, NRPC approval to be first obtained by the HVPNL.
   - The O&M arrangement and commercial & regulatory modalities are to be first discussed and decided in the committee constituted vide office order no 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025.

6. Accordingly, CE/SO Commercial HVPNL Panchkula **(Annexure-VI)** requested to CE/PD&C, HVPNL, Panchkula to take up the matter with NRPC in consultation with SLDC wing to put up the agenda in NRPC meeting.

7. In view of the above, following is put-up for kind consideration and approval of Worthy Managing Director of HVPNL (In-circulation) before deliberation of the same in forthcoming NRPC meeting.

Sr. No.	Description of work
1.	(i) To expedite the augmentation work of 400kV sub-station BBMB, Siwah (Panipat) at 400/220kV level from **1x500MVA + 1x450MVA, 400/220kV T/Fs** to **2x500MVA, 400/220kV TFs** by BBMB and the cost of augmentation will be borne by BBMB. (ii) To concur for the augmentation of 400kV sub-station BBMB, Siwah (Panipat) at 400/220kV level from **2x500MVA, 400/220kV T/Fs to 3x500MVA, 400/220kV TFs** by BBMB during FY 2026-27 and the cost of augmentation will be borne by HVPN.

2.	To concur for the augmentation of 400kV sub-station BBMB, Siwah (Panipat) at 220/132kV level from **2x100MVA 220/132KV** transformers to **2x160MVA, 220/132kV** transformers by BBMB during FY 2026-27 and the cost of augmentation will be borne by HVPNL. Note: HVPNL will retain spared 2 nos **100MVA 220/132KV** transformers after aforesaid augmentation of 400kV sub-station BBMB Panipat.
3.	To concur for the **augmentation of 220KV Sewah (Panipat BBMB) – Chhajpur D/C line** from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having current carrying capacity of 1200Amp during FY 2026-27 by HVPNL.

Accordingly, the above agenda duly approved by Worthy Managing Director, HVPNL is submitted for deliberation in NRPC and for further approval please.

Chief Engineer/PD&C
HVPNL, Panchkula

Annexure - I

Annexure-A.IX.A

CEA-PS-11-21(19)/1/2024-PSPA-I Division

I/39902/2024

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन-I प्रभाग
Power System Planning & Appraisal -I Division

सेवा में / **To,**

-As per list enclosed-

विषय/**Sub:** Minutes of the first meeting of Standing Committee on Short Term & Perspective Power System Planning- Northern Region (SCSTPPSP-NR) - reg.

Madam/ Sir,

Please find enclosed the minutes of the first meeting of Standing Committee on Short Term & Perspective Power System Planning- Northern Region (SCSTPPSP-NR) held on 14.03.2024 at NRPC, New Delhi.

भवदीय / Yours faithfully,

(नितिन देसवाल / Nitin Deswal)
(उप निदेशक / Deputy Director)

List of Addresses

1.	Member (Power System), CEA, Sewa Bhawan, New Delhi-110066
2.	Member Secretary, NRPC, 18-A Shaheed Jeet Singh Sansanwal Marg, Katwaria Sarai, New Delhi - 110016
3.	COO (CTUIL), POWERGRID, Saudamini, Plot No. 2, Sector -29, Gurgaon-122001
4.	Director (System operation), Grid-India, B-9, Qutub Institutional Area, Katwaria Sarai, New Delhi- 110010
5.	Development Commissioner (Power), JKPDD, Jehangir Complex, Exhibition Grounds, Srinagar
6.	Director (PP&D) RVPNL, 3rd Floor, Room no 330, Vidhyut Bhawan, Janpath, Jaipur-302005.
7.	Director (Technical) HVPNL Shakti Bhawan, Sector-6, Panchkula-134109
8.	Director (Technical), Punjab State Transmission Corporation Ltd. (PSTCL) Head Office The Mall, Patiala -147001
9.	Managing Director, HPPTCL, Barowalias, Khalini Shimla-171002
10.	Chief Engineer (Operation) Ministry of Power, UT Secretariat, Sector-9 D Chandigarh- 161009
11.	Director (W &P) UPPTCL, Shakti Bhawan Extn, 3rd floor, 14, Ashok Marg, Lucknow -226001
12.	Director (Projects), PTCUL, Vidhyut Bhawan, Near ISBT Crossing, Saharanpur Road, Majra, Dehradaun- 248002
13.	Managing Director, DTL, Shakti Sadan, Kotla Marg, New Delhi-110002
14.	Chairman & Managing Director (NTPC), NTPC Bhawan, SCOPE Complex, Institutional Area, Lodhi Road, New Delhi- 110003
15.	Chairman & Managing Director (NHPC), N.H.P.C. Office Complex, Sector-33, Faridabad-121003 (Haryana)
16.	Managing Director (SECI), 1st Floor, D-3, A Wing, Prius Platinum Building District Centre, Saket, New Delhi-110017
17.	CMD, SJVN Limited, Shakti Sadan, Corporate office Complex Shanan, Shimla - 171006
18.	Director (Operations), NPCIL, Mumbai
19.	Chairman cum Managing Director, NLC India Ltd., Block – 1, Cuddalore District, Neyveli -607 801, Tamil Nadu.
20.	Chairman, BBMB, Chandigarh

4.4 UPPTCL clarified that some of the load of Sarnath substation is planned to be shifted to 400 kV Sahupuri substation which will relieve the loadings on ICTs at Sarnath substation. Sahupuri substation is expected to be commissioned by March 2024.

4.5 CTUIL suggested UPPTCL to check for any congestion in the downstream network at Sarnath substation which may come with the proposed ICT augmentation and also plan necessary system strengthening, if required.

4.6 After deliberations, UPPTCL's proposal for replacement of one of the existing 400/220 kV, 315 MVA ICT with 500 MVA ICT was agreed.

5. UPPTCL's proposal for replacement of. 2 Nos reactors at 400 kV Panki S/s

5.1 UPPTCL vide letter dated 29.11.2023 had submitted the following:

(i) Presently 2 nos of 50 MVAR line reactors are in operation since last 43 years at 400 kV Panki S/s end for Panki - Rewa Road 400 kV S/c line (209.93 km – created after LILO of Obra - Panki 400 kV S/c line at Rewa Road) & Panki – Aligarh 400 kv S/c line (284.7 km- created after LILO of Panki - Muradnagar 400 kV S/c line at Aligarh and 63 MVAR line reactor is implemented at Aligarh end.)

(ii) During routine test of those two 50 MVAR line reactors at Panki end, CPRI had recommended for further test on insulation of reactors. Based on the test report CPRI had suggested UPPTCL for the replacement of reactors.

5.2 In view of above, UPPTCL has proposed to replace 2 Nos. of 50 MVAR line reactors with 2 nos. of 63 MVAR line reactor at 400 kV Panki S/s.

5.3 On the above proposal, CTUIL and Grid- India had highlighted that with 63 MVAR line reactor in Panki – Aligarh line, the line may become overcompensated and there are chances of L-C resonance. CTUIL had suggested that 63 MVAR line reactor may be implemented in Panki – Rewa Road line and 50 MVAR line reactor would be adequate enough for Panki- Aligarh line.

5.4 Subsequently, UPPTCL vide email dated 19.02.2024 had submitted that they have revised the proposal and would implement 63 MVAR line reactor in Panki – Rewa Road line and 50 MVAR line reactor in Panki- Aligarh line.

5.5 On query from CEA regarding the switchability and convertability of the proposed line reactors, UPPTCL stated that it has not yet been finalized whether new line reactors would be procured or spare line reactor from some other location would be shifted to Panki. Therefore, details of switchability and convertibility of the line reactors would be intimated after the finalization of line reactors.

5.6 After deliberations, following was agreed:

(a) Replacement of old 50 MVAR line reactor at Panki end in Panki - Rewa Road 400 kV S/c line with 63 MVAR line reactor.

(b) Replacement of old 50 MVAR line reactor at Panki end in Panki - Aligarh 400 kV S/c line with 50 MVAR line reactor.

(c) UPPTCL to submit the details regarding the switch ability and convertibility of the proposed line reactors.

6. Additional Agenda by NRLDC regarding Operational Feedback:

Apart from the above agenda items, NRLDC has also shared the operational issues being observed in Northern region.

6.1 State-Wise Import Limiting Constraints:

<table>
<tr><th>State</th><th>Constraints</th><th>Remedial Action to mitigate the Constraints and updated status as shared by concerned STUs</th></tr>
<tr><td rowspan="4">Haryana</td><td>N-1 Contingency of 2x315 MVA ICT at Deepalpur</td><td>New 500 MVA ICT approved in 4th NRPCTP held on 05.10.2021. SPS commissioned as immediate measure. In 204th OCC meeting, it was informed by Indigrid representative that talks are underway between Indigrid and HVPN to resolve issues for the commissioning of new ICT at Deepalpur.
ICT commissioning delayed to PPP substation model issues as informed by HVPN. Discussed in number of OCC/NRPC meetings.

<u>Updated status as per HVPNL</u>:
• The agreement between Indigrid and HVPNL could not be finalized due to certain clauses mentioned in the PPP Model. The same is under discussion.

CEA and Grid India requested HVPNL to expedite the issue at the earliest.</td></tr>
<tr><td>N-1 Contingency of 3x150 MVA + 500 MVA ICT at Panipat BBMB</td><td>Proposal for new ICT to be given by HVPN/DTL. Drawl to be planned from other nearby stations. Lack of space at Panipat as informed by BBMB in OCC meeting. Other options to be explored by HVPN.

Issue was discussed in meeting held on 15.09.2023 with participation from CEA, HVPN, CTUIL and Grid-India to discuss HVPNL's proposal for creation of 2x100 MVA, 220/33 kV Ganaur substation wherein it was agreed that separate meeting would be called by CEA with participants from DTL also.

<u>Deliberations:</u>
Joint meeting to be scheduled with the concerned stakeholders.</td></tr>
<tr><td>High loading of 220kV Hissar (PG)-Hissar (IA)</td><td>Proposal agreed in 20th CMETS of NR held on 30.06.2023.

Reconductoring of 220 kV Hisar (PG) - Hisar (IA) D/c line (Single Zebra) with HTLS conductor (with minimum 1050 Ampere/ckt requirement) along with bay equipment upgradation at 220 kV Hisar (PG) end.

Works to be expedited by POWERGRID.</td></tr>
<tr><td colspan="2">Upcoming following intrastate transmission elements would help increase import capability of Haryana:

• 220 kV Sec 32 Panchkula and 220kV lines to Panchkula (PG)
• 220 kV lines to Pinjore from Panchkula (PG)

<u>Updated status as per HVPNL:</u></td></tr>
</table>

State	Constraints	Remedial Action to mitigate the Constraints and updated status as shared by concerned STUs
	Both the above mentioned transmission lines would be charged by March, 2024.	
Punjab	'N-1' Contingency of 2x500 MVA ICT at Patran (Indigrid S/s)	New 500 MVA ICT approved in 11th CMETS held on 30.09.2022. (Expected May'2024) **NRLDC informed that as per latest status received from Indigrid, the ICT is expected to be charged in Aug 2024.**
	400/220kV Dhanansu substation	Only one 400/220 kV ICT charged. **<u>Updated status as per PSTCL:</u>** The second ICT would be commissioned by April, 2024.
	N-1 Contingency of 1x315 MVA + 1x500 MVA ICT at Nakodar	One 315 MVA ICT replaced by 500 MVA ICT in June 23. However, 'N-1' non-compliance still persisting, although SPS implemented. Replacement works for 2nd 315 MVA ICT to 500 MVA ICT to be expedited by PSTCL. **<u>Updated status as per PSTCL:</u>** Replacement works for 2nd ICT to be completed by May, 2024.
	N-1 Contingency of 1x315 + 3x500 MVA ICT at Ludhiana	Remaining 315 MVA ICT may be upgraded to 500 MVA ICT. PSTCL was asked to explore requirement of capacity augmentation at Ludhiana.
Rajasthan	N-1 Contingency of 3x315 MVA ICT at Chittorgarh	315 MVA ICT (3rd) at Chittorgarh charged on 06.01.2024. Even after capacity augmentation at Chittorgarh, 3x315 MVA ICTs are near to 'N-1' non-compliance. Rajasthan STU has planned and implemented SPS at some of these locations which are severely 'N-1' non-compliant. • Chittorgarh • Jodhpur • Merta • Bikaner • Ajmer • Ratangarh • Hindaun & Suratgarh (approved, but yet to be
	N-1 Contingency of 2x315 MVA ICT at Jodhpur	
	N-1 Contingency of 2x315 MVA ICT at Bhinmal	
	N-1 Contingency of 2x315 MVA ICT at Ajmer	
	N-1 Contingency of	

State	Constraints	Remedial Action to mitigate the Constraints and updated status as shared by concerned STUs
	2x315 MVA ICT at Bikaner	
	N-1 Contingency of 2x315 MVA ICT at Merta	
	N-1 Contingency of 2x315 MVA ICT at Hindaun	
	N-1 Contingency of 1x315 + 1x500 MVA ICT at Bhilwara	implemented) New 1x500 MVA ICT under bidding at some of these S/s by RVPNL. As per latest information available with Grid-India, • Technical bids for new 500 MVA transformers at Ajmer, Bikaner, Jodhpur, Bhadla, Ramgarh and Merta substations have been opened on 30.01.2024 and shortcomings intimated to bidders with due compliance date as 19.02.2024. • Technical bids were opened on 09.02.2024
	Low voltage issues at Hindaun, Alwar. Voltages reaching 310kV at Alwar (400kV) and 325kV at Hindaun (400kV). Similar poor profile at 220kV side also.	New 400/220 kV Dholpur S/s (approved by CEA on 27th Jan 2023) likely to provide some relief. However, issue likely to persist for next 1-2 winter seasons. **Updated status as per RVPNL:** The substation would be implemented under TBCB. Bid Process Coordinator has been assigned.
		Other immediate measures required by RVPN. 400 kV Bharatpur S/s is under internal approval with LILO of 400kV Agra-Sikar.
		NRLDC highlighted the critical low voltages in Hindaun/Alwar pocket. Severe issues are being observed during day time. It was highlighted that there is gross violation of CEA planning criteria. As discussed in 70th NRPC meeting, RVPN is being asked to run Dholpur generation, however, same is not being done by RVPN. Communications sent from NRLDC side in this regard.

State	Constraints	Remedial Action to mitigate the Constraints and updated status as shared by concerned STUs
	Low voltage issues in RE generation pockets	Additional reactive power support devices for maintaining grid voltages within IEGC prescribed limits to be expedited (STATCOMs approved in intra-state network). Intra-state RE generators to support the grid by operating in voltage control mode.
	N-1 contingency of 400 kV Barmer - Bhinmal D/C (under high wind generation scenario)	Commissioning of 765 kV Jodhpur (Kankani) to be expedited. Additional transmission system requirement to be assessed by RVPNL. RVPNL informed that works for 765 kV Jodhpur (Kankani) substation has not yet been awarded.
	Huge MVAR drawl at RVPN during winter months (even below 0.8 at number of 400/220kV ICTs)	As intimated by RVPN, Capacitor banks to be installed after PSDF funding. Capacitor planning & implementation to be done in expeditious manner at transmission & distribution level. As discussed in meeting held in NRPC on 20.02.2024, RVPN may proceed with their own funds as funds from PSDF would take time. **Updated status as per RVPNL:** Timeframe for the Implementation of capacitor banks: March, 2025.
Uttar Pradesh	N-1 Contingency of 3x315 MVA + 1x500 MVA ICT at Sarnath	New ICT/ Capacity augmentation to be planned by UPPTCL. SPS implemented. Commissioning of 400/220kV Sahupuri S/S likely to provide relief (April, 2024) **Updated status:** ICT augmentation approved in this meeting.
	'N-1' Contingency of 2x315 + 1x240 MVA ICT at Obra	New ICT/ Capacity augmentation to be planned by UPPTCL. SPS has been implemented by UPPTCL. **Updated status as per UPPTCL:** No proposal as of now for ICT augmentation at 400/220 kV Obra. UPPTCL was requested to look into the matter.
	N-1 Contingency of 3x315 MVA ICT at Allahabad	New 500 MVA ICT approved in 20th CMETS of NR held on 30.06.2023.
	N-1 Contingency of 1x240 + 1x315 + 1x500 MVA ICT at Gorakhpur (UP)	Capacity augmentation at Gorakhpur (UP) from 1055 MVA to 1315 MVA to be expedited. SPS implemented. **Updated status as per UPPTCL:** Augmentation works to be completed by 30th April,

State	Constraints	Remedial Action to mitigate the Constraints and updated status as shared by concerned STUs
		2024
Delhi	N-1 contingency of 2x315 MVA ICT at Bawana	After bus-split due to high fault level at Bawana, ICTs are N-1 non-compliant. Additional ICT/ load shifting to other stations to be planned. Delhi SLDC to make sure that essential loads such as hospitals, DMRC, other important loads have alternate supply available so as to avoid load loss in case of 'N-1' contingency. In 207th OCC meeting held on 19.05.2023, SPS logic for implementation at Bawana (2 ICTs section) was discussed and approved. DTL has been accorded approval from CEA for enhancing the capacity of these two ICTs to 500 MVA. DTL to expedite the commissioning works. **<u>Updated status as per DTL:</u>** Both the 500 MVA ICTs at Bawana are under bidding.
	N-1 Contingency of 3x315 MVA ICT at Mundka	New ICT/Capacity augmentation to be planned by DTL. Expediting commissioning of nearby 400kV substation such as Tikri Khurd. **<u>Updated status as per DTL:</u>** • One 315 MVA ICT at Mundka to be replaced with 500 MVA ICT and the same is under bidding. • Regarding Tikri Khurd S/s, the scheme has to be revised along with capacity enhancement at Gopalpur S/s. The same would be intimated to CEA.
Himachal Pradesh	N-1 Contingency of 3x315 MVA ICT at Nallagarh	New ICT/ Capacity augmentation approved at 400/220 kV Nallagarh. In 67th NRPC meeting held on 30.06.2023, CTUIL representative stated that new ICT is approved and likely implementation schedule is next 21-24 months. ICT loading is generally manageable in winter, but issues in monsoon due to high drawl by Punjab as well.
Uttarakhand	N-1 Contingency of 2x315 MVA ICT at Kashipur	New ICT/ Capacity augmentation to be planned by PTCUL. SPS implemented at Kashipur. As intimated by SLDC Uttarakhand, no Bids received for new 315 MVA ICT at Kashipur. In OCC meetings, NRLDC advised PTCUL to consult POWERGRID regarding finalising tender documents for ICT to resolve bidding issues at

State	Constraints	Remedial Action to mitigate the Constraints and updated status as shared by concerned STUs
		earliest. **<u>Updated status as per PTCUL:</u>** New SoR has been finalized for bidding process. If needed, PTCUL would consult POWERGRID to resolve bidding issues.
	High loading of 220kV CB Ganj-Pantnagar	400 kV Pantnagar is under study by PTCUL to relieve loading of 220 kV CB Ganj – Pantnagar **<u>Updated status as per PTCUL:</u>** New substation is being planned nearby, for which land is yet to be finalized.
	High loading of 220 kV lines from Roorkee (PG)	Additional connectivity/ conductor upgradation to be planned by PTCUL (400 kV Landhora S/S by LILO of 400 kV Kashipur- Roorkee line under discussion with CTUIL and CEA) **<u>Updated status as per PTCUL:</u>** New 220 kV S/s at Raipur has been planned utilizing the 2 spare bays of Roorkee (PG). Board approval has been accorded.
J&K	N-1 Contingency of 2x315 MVA ICT at Amargarh	New ICT/ Capacity augmentation may be expedited by NRSSXXIX (planned for March, 2026). As per latest discussion held in 16th CMETS held on 28.02.2023, new ICT to be implemented in next 21 months. Additional planned 220 kV and low voltage lines to be expedited to manage drawl from Amargarh. **<u>Updated status as per JKPTCL:</u>** New 160 MVA, 220/33 kV Lohipora S/s has been planned with expected timeframe of March, 2027.
	High loading of 220 kV lines from Wagoora (PG)	Additional connectivity to be planned and already approved schemes to be expedited by JKPTCL. 220 kV Wagoora – Budgam - Ziankote S/C reconductored in last quarter (Q3 2023-24) NRLDC and CEA requested JKTPCL to expedite the works as temporary T-point connection in 220 kV Wagoora-Budgam-Ziankote section needs to be removed at the earliest as discussed in earlier online meeting. **<u>Updated status as per JKPTCL:</u>** Work under progress
	Low voltage issues during winter season	Large dependency on SVC at New Wanpoh for MVAR support. Capacitor installation at low voltage level to be expedited. Issues also highlighted by NRLDC in recent NRPC meetings, very slow progress of capacitor installation

State	Constraints	Remedial Action to mitigate the Constraints and updated status as shared by concerned STUs
		& revival. **Updated status as per JKPTCL:** Studies are being carried out for capacitor installation.

6.2 Transmission Line constraints:

Sl. No	Corridor	Season/ Antecedent Conditions	Description of the constraints
1	400kV Barmer(RS)-Bhinmal(PG) ckt-1 & ckt-2	With connection of 400kV Fatehgarh II-Fatehgarh III-Jaisalmer path Observed also during high wind	● With connection of 400 kV Fatehgarh II-Fatehgarh III-Jaisalmer path, power flow on this line had increased, however, with bypass of 400 kV Kankroli-Zerda line, the loading has now increased on 400 kV Jaisalmer-Akal and 400 kV Jaisalmer-Kankani lines. ● In near future/during high wind generation/emergency line shutdowns in complex, there may be requirement for backing down of intra-state/inter-state RE generation in the complex. **Remarks:** • Works for already planned upgrading of 400 kV Jodhpur (Kankani) to 765 kV needs to be expedited by RVPN. • Sikar-II S/s along with associated transmission network needs to be expedited. Discussions during the meeting: • Commissioning of Sikar-II S/s and associated network elements needs to be expedited by the transmission licensee. • RVPN was also asked to expedite works for already planned upgrading of 400 kV Jodhpur (Kankani) to 765kV
2	400kV Bhadla(RS) - Bikaner(RS) D/C line	During peak solar generation period	• After charging of 400 kV Bikaner(PG)-Bikaner-II(PBTSL) D/C line, 400 kV Bikaner(RS) got disconnected from 400 kV Bikaner(PG) and got directly connected to 400 kV Bhadla(RS). • This resulted in high power flow from 400 kV Bhadla(RS) to Bikaner(RS) through D/C line and 400 kV Bhadla(PG) to Bhadla(RS) through D/C line during peak solar generation period. • It is observed that line loading of 400 kV Bhadla (RS)-

Sl. No	Corridor	Season/ Antecedent Conditions	Description of the constraints
			Bikaner (RS) D/C lines is going to ~600-900 MW after this re-configuration and several tripping instances of 400 kV Bhadla (RS)- Bikaner (RS) D/C lines have been observed in recent months. • Part of ISTS connected RE generation is being evacuated through Bhadla-II(PG) to Bhadla(PG) to Bhadla(RS) to Bikaner(RS) path resulting in this high loading. Further, 'N-1' loading limit is 950 MW on each Ckt as switchgear rating is restricted to 2 kA at Bhadla(RS) and Bikaner(RS) end. **Remarks:** • Commissioning of Sikar-II system may be expedited as further RE generation would add-up and loading may further increase. • PGCIL/RVPNL need to ensure that Bhadla(PG)-Bhadla(RS) D/C line and 400 kV Bhadla(RS)-Bikaner(RS) D/C line can steadily carry 1200-1300 MW in each ckt as lines is of Quad moose conductor having thermal loading limit ~1700 MW. • Terminal equipment at RVPNL need to be kept as per the rating of line to avoid underutilization of line due to limit at Terminal equipment (CTs). Separate meeting convened at NRPC regarding frequent outage/tripping of 400 kV Bhadla(RJ)-Bikaner(RJ) D/C line. • Committee with members from NRPC, NRLDC, POWERGRID, SLDC and STU to carry out site visit and submit report within 01 month. • Rajasthan STU to continue actions for improving maintenance of this line and avoid its frequent tripping/ emergency shutdowns. Discussion during the meeting: • Sikar-II S/s and associated network elements commissioning needs to be expedited by the transmission licensee. • RVPN was asked to take actions for improving maintenance of this line and avoid its frequent tripping/ emergency shutdowns. • RVPNL was requested to check other transmission lines also and to replace the terminal equipment

Sl. No	Corridor	Season/ Antecedent Conditions	Description of the constraints
			wherever the capacity of terminal equipment is not
3	765kV Bhadla-II(PG)-Ajmer(PG) D/C line	During solar generation hours 10:00-16:00 hrs	• 765kV Bhadla II(PG)-Ajmer(PG) D/C line is observed to be highly loaded during high solar generation hours. It is to be noted that solar generation (including part of Rajasthan Phase-II transmission system) is rapidly being commissioned in Western Rajasthan whereas the Phase-II transmission system is delayed. • Huge variations in voltage may be observed at the time of tripping of this line in real-time since the line is carrying large amount of power and there is no significant response from RE generators during and immediately after any fault. • Loading on each ckt have been observed from 1700-1800 MW most of the time during peak-solar generation period in Q-3 23-24. • During high flow in line, angular separation also increases to 17-18 deg under 'N-0' scenario. **Remarks:** Planned RE evacuation Phase-II transmission system needs to be expedited including commissioning of 765 kV Bhadla-II(PG)-Sikar-II D/C line and associated elements. **Discussion during the meeting:** In the meeting, it was discussed that commissioning of Sikar-II S/s and associated network elements needs to be expedited by the transmission licensee.
4	765kV Bhadla (PG)-Bikaner(PG) D/C line and 765kV Bikaner (PG)-Khetri D/C line	During solar generation hours 10:00-16:00 hrs	• 765kV Bhadla-II(PG) - Bikaner(PG) D/C line and 765kV Bikaner(PG) - Khetri D/C lines are observed to be highly loaded during high solar generation hours. It is to be noted that solar generation (including part of Phase-II transmission system) is rapidly being commissioned in Western Rajasthan whereas the Phase-II transmission system is delayed. • Huge variations in voltage may be observed at the time of tripping of these line in real-time since the line is carrying large amount of power and there is no significant response from RE generators during and immediately after any fault. • Loading on each ckt of 765 kV Bhadla(PG)-Bikaner(PG) D/C line have been observed 1400-1600 MW each ckt during peak-solar generation period in Q-3 23-24

Sl. No	Corridor	Season/ Antecedent Conditions	Description of the constraints
			• Loading on each ckt of 765 kV Bikaner(PG)-Khetri D/C line have been observed 1500-1750 MW during peak-solar generation period in Q-3 23-24 **Remarks:** • Planned RE evacuation Phase-II transmission system needs to be expedited including commissioning of 765kV Bhadla-II (PG)-Sikar-II D/C. • Tuning of Plant parameters (Inverters/WTG) based on SCR at POI, for N-0 and for N-1 contingency of the RE complex to be done. Discussions during the meeting: In the meeting, it was discussed that commissioning of Sikar-II S/s and associated network elements needs to be expedited by the transmission licensee.
5	Underlying network of following substation is not available	-	Underlying 220 kV network not available: 1. Kala Amb (PGCIL) 2. Kadarpur Further underlying network may be expedited by HVPN at other S/s such as Prithala, Sohna Road etc. HPPTCL raised concern regarding signing of tripartite agreement for charging of 220 kV line bays at 400/220 kV Kala Amb. It was deliberated that the matter may be mutually discussed between HPPTCL, POWERGRID and CTUIL and if the same is not resolved, CEA may be consulted. HVPNL stated that they are planning 220 kV lines from 400/220 kV Kadarpur S/s, but are facing severe ROW issues in the area.

6.3 ICT Constraints:

Sl. No	Corridor	Season/ Antecedent Conditio	Description of the constraints

		ns	
1	765/400kV Bhiwani	Sometimes	● 765/400kV has 3x1000 MVA ICTs of which two 1000 MVA ICTs are connected to one side of 400 kV bus and the other 1000 MVA ICT is connected to other side of 400 kV bus. The 400 kV buses are connected to each other through a series bus reactor. ● It has been observed that during high solar generation hours, the loading of 765/400kV 2x1000MVA ICT section at Bhiwani is above 'N-1' loading limit, ● Maximum ICT loading was sometimes observed as 1700 MW-1900 MW (violated its N-1 loading limit of 1550 MW). **Remarks:** Implementation of additional 1500 MVA ICT at 765/400 kV Bhiwani S/s to be expedited in line with other RE evacuation transmission network in the corridor. Discussion during the meeting, Already approved ICT augmentation to be carried out in expeditious manner.

6.4 Low voltage nodes:

S. No	400kV nodes	Season/ Antecedent Conditions	Description of the constraints
1	400/220 kV Hindaun	During day time	● Similar to last several quarters, it was observed that voltages at 400/220 kV **Hindaun substation** vary by 50-70 kV ~ (400 kV +20/-60 kV) **and Alwar substation** vary by 50-70 kV~ (400 kV +20/-60 kV) in a single day. ● Significant Low voltages were observed in last quarter. 400 kV voltages at Hindaun and Alwar fall by nearly 50-60 kV even reaching 330 kV and 310 kV respectively as demand of Rajasthan rises. **Remarks**: ● When considerable generation at Dholpur GTPS is running, the voltages at Hindaun and Alwar are not that low. Thus, generation may be kept on bar to minimize the low voltages at these nodes. ● Establishing additional 400 kV connectivity with
2	400/220 kV Alwar		

S. No	400kV nodes	Season/ Antecedent Conditions	Description of the constraints
			Alwar from Bhiwadi / Bassi / Phagi to be expedited. ● Implementation of proposed 400/220 kV Dholpur GSS to be expedited by RVPNL. ● NRLDC highlighted the critical low voltages in Hindaun/Alwar pocket. Severe issues are being

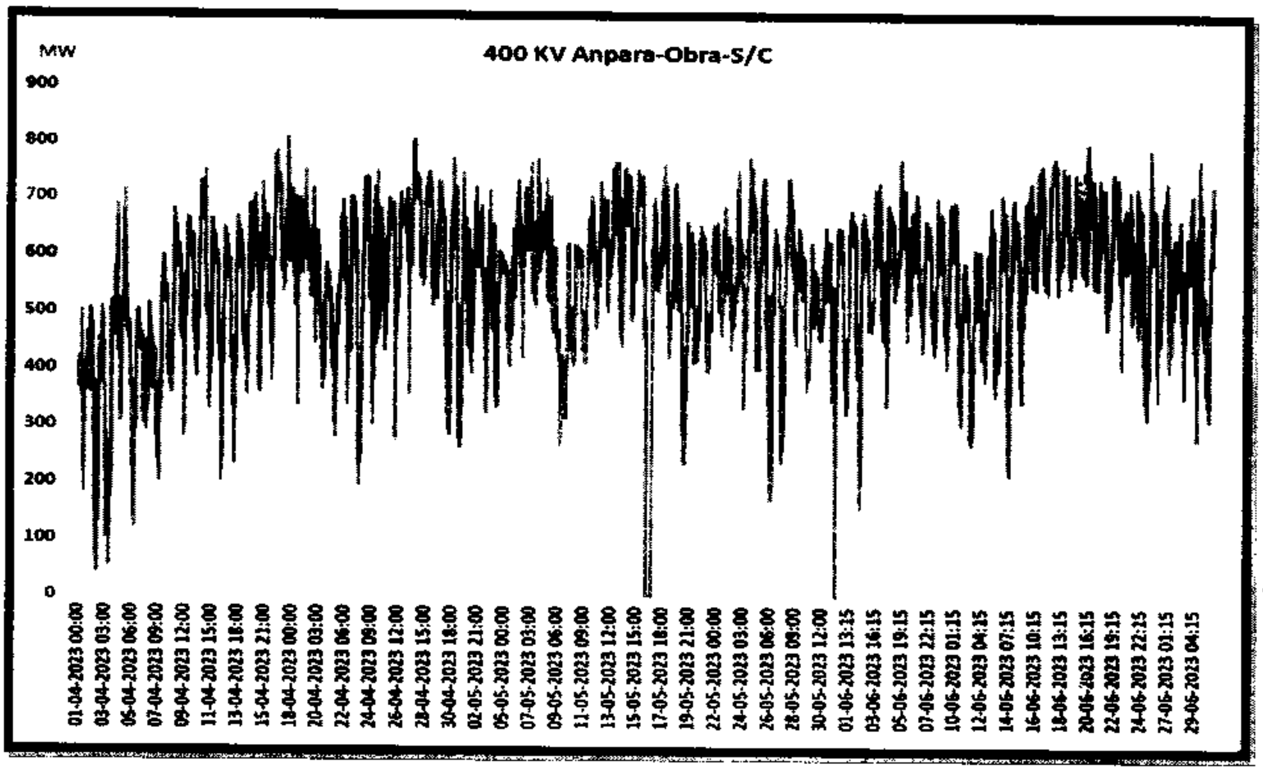
6.5 High voltage nodes Q3 2023-24:

Sl. No	Nodes	% of time voltage above 420kV in monthly duration curve
1	Suratgarh TPS	Oct-36%, Nov-62%, Dec-28%
2	Rajpura	Oct-17%, Nov-32%, Dec-20%
3	Nakodar	Oct-29%, Nov-38%, Dec-21%
4	Makhu	Oct-37%, Nov-41%, Dec-26%
5	Dhuri	Oct-13%, Nov-28%, Dec-9%
6	Shree Cement	Oct-43%, Nov-43%, Dec-42%
7	Rampur	Oct-17%, Nov-22%, Dec-19%
8	Mahendragarh	Oct-66%, Nov-68%, Dec-57%
9	Maharanibagh	Oct-11%, Nov-22%, Dec-6%
10	Karcham	Oct-20%, Nov-29%, Dec-29%
11	Jind	Oct-17%, Nov-31%, Dec-17%
12	Jaipur	Oct-10%, Nov-23%, Dec-27%
13	Abdullapur	Oct-15%, Nov-25%, Dec-8%
14	Khedar	Oct-9%, Nov-26%, Dec-11%
15	MGTPS	Oct-26%, Nov-44%, Dec-26%
16	Kabulpur	Oct-20%, Nov-38%, Dec-18%
17	Deepalpur	Oct-10%, Nov-24%, Dec-7%
18	Mundka	Oct-10%, Nov-20%, Dec-10%
19	CCGTB Bawana	Oct-22%, Nov-42%, Dec-22%

6.6 Constraints in Inter-regional HVDC Flexibility:

a) <u>Constraint in HVDC Vindhyachal B2B & 765 kV Vindhyachal (WR) - Varanasi (NR) D/C line:</u>

During the periods of high demand in UP and high import of NR, 765kV Vindhyachal (WR) -Varanasi (NR) D/C line gets heavily loaded. It could be controlled by operating HVDC Vindhyachal BTB towards NR. However, operating Vindhyachal BTB towards NR would increase the loading of 400 kV Anpara - Obra line. As per simulation study, HVDC Vindhyachal has 10 % sensitivity (if operated towards NR) on loading of 400 kV Anpara - Obra line and it means increasing HVDC Vindhyachal power order to relieve parallel AC corridor loading towards NR would increase the loading of 400 kV Anpara - Obra. As 400 kV Anpara - Obra line is highly loaded line during high demand period of UP (20:00hrs-03:00 hrs), hence it is not feasible to operate HVDC Vindhyachal BTB towards NR. Any local measures like backing down in Anpara generation complex could result in further low frequency operations.



Loading of 400kV Anpara - Obra during Q1 2023-24

High WR-NR/NR Import flow has been observed in 2023-24. It has been observed that the WR-NR ATC/TTC also violated in few days during night hours (2100 to 01:00 hrs), NR Import started increasing from 18:00 hrs onwards and remains high till 02:00 hrs during the above period.

TTC/ATC of WR-NR for Q-2 of 2023-24 was declared as 17800/16800 MW from 00-24 hrs. The limiting contingency in NR Import is 'N-1' contingency of 765 kV Varanasi –

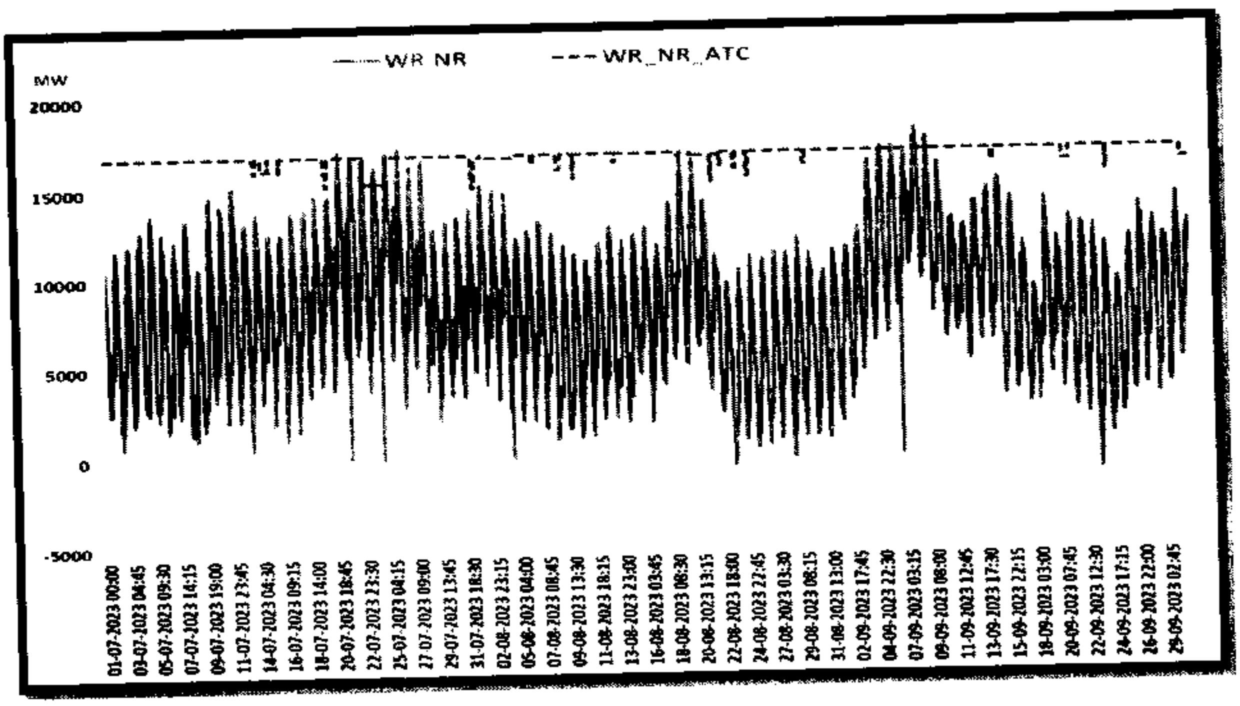
Vindhyachal D/C line. The loading on 765 kV Varanasi-Vindhyachal line also remained high during high NR Import period.

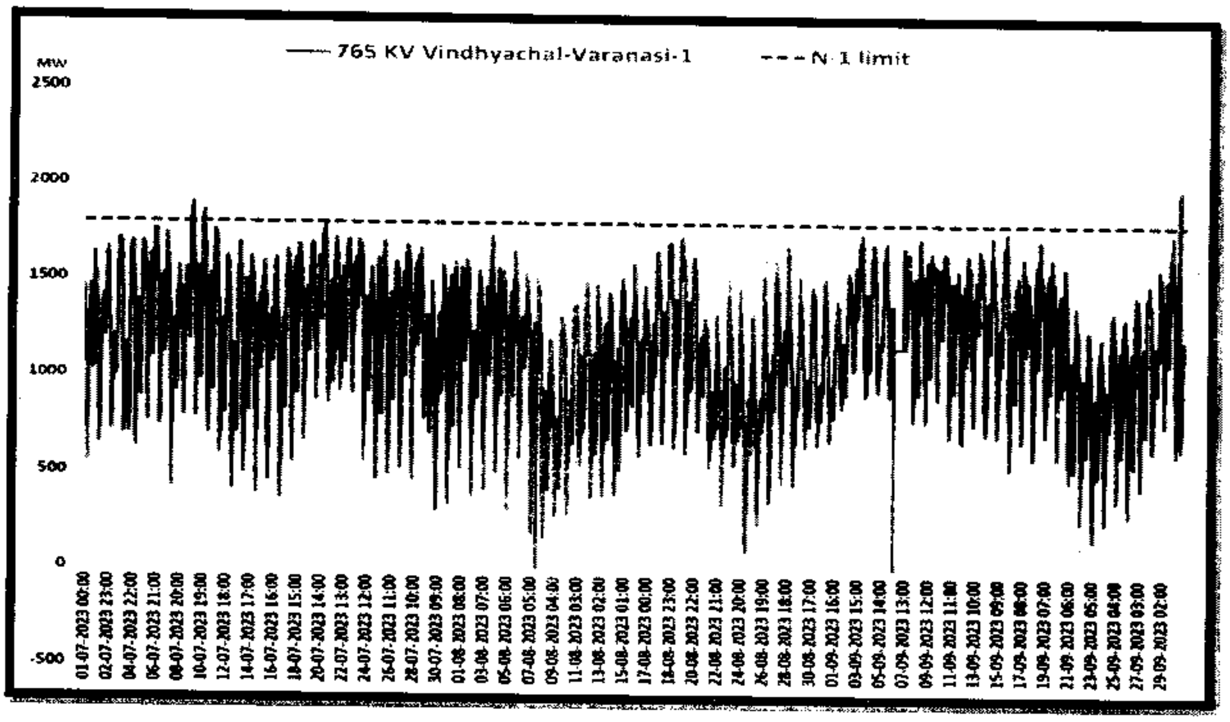
Accordingly, it was suggested that constraints observed in NR import may be relieved.

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

NRLDC representative stated that the two parallel paths i.e. 400 kV Anpara - Obra and 765 kV Vindhyachal-Varanasi D/C line remain highly loaded during night time in summer months when demand of UP State is high. Further, as discussed in NR-OCC meeting, UP SLDC has agreed to opening of 400 kV Singrauli-Anpara line (already agreed in Standing committee for fault level control) after full commissioning of 765/400 kV Obra C and associated lines.

It was agreed that the network may be observed with full commissioning of 765/400 kV Obra C and opening of 400 kV Singrauli-Anpara line, thereafter, if the issues still remain, same may be again deliberated.





b) Constraint in HVDC Mundra - Mahendragarh:

HVDC Mundra-Mahendergarh Bipole was kept in forward direction i.e from WR to NR with maximized power order during high NR import period to relieve loading on AC lines. However, due to change in demand pattern due to seasonal variations, HVDC Mundra-Mahendergarh is to be operated in NR to WR direction during high NR Export period. However, HVDC power order reversal requires 6-8 hours of cooling time and therefore poses constraint in flexibility of HVDC operation during high NR Export period lead to high flow in AC lines from NR to WR.

Pre-Operation Status	Operation	NLDC Code issued Date & Time	Actual Date & Time of operation	Time taken for the implementation of NLDC Code
Blocked (WR-NR)	Deblocking (NR-WR)	12:51 hrs of 30/01/2023	22:41 hrs of 30/01/2023	9 hr 50 min
Blocked (NR-WR)	Deblocking (WR-NR)	08:33 hrs of 20/02/2023	16:45 hrs of 20/02/2023	8 hrs 18 min
Blocked (WR-NR)	Deblocking (NR-WR)	11:47 hrs of 11/03/2023	20:02 hrs of 11/03/2023	8 hr 15 min

Also, in view of envisaged flow from NR towards WR during high solar period, it is suggested that constraints in reverse operation of Mundra-Mahendrgarh HVDC i.e. from NR towards WR may be attended at the earliest.

NLDC highlighted that concerns were raised by Adani Transmission in case power reversal was to be done in Mundra-Mahendragarh HVDC. It was being observed that HVDC power order reversal requires 6-8 hours of cooling time and therefore poses constraint in flexibility of HVDC operation during high NR Export period. Further, due to high generation at APL Mundra (>3500 MW), it is difficult to operate the HVDC Mundra in reverse direction (high loading of 400 kV APL - Varsana-D/C line).

It was discussed that the matter may be taken up by NLDC with Adani Transmission and the status and issues may be regularly communicated in quarterly operational feedback.

6.7 Constraint in NR export:

During high solar period, heavy power export from NR to WR is observed under following system conditions:

- Low demand in NR
- High RE generation in Rajasthan
- Low generation in Gujarat

The NR-WR & NR Export TTC/ATC has been increased by 1500 MW w.e.f. 12th March 2024 following the temporary bypassing of 400 kV Bhinmal - Zerda & 400 kV Bhinmal - Kankroli Line through jumper at LILO point (LILO Tower Loc no: 02) at Bhinmal (temporary arrangement).

However, for the present ATC, the limiting constraint observed in simulation studies are:

- N-1 contingency of 400 kV Kankroli - Zerda S/C will overload the other ckt
- N-1 contingency of 765/400 kV Banaskantha ICTs

Even with the increased ATC/TTC limit of NR export i.e. 5500/6000 MW, it is expected that the margin created would be exhausted soon, given the rapid integration of RE in NR having transactions/contracts in other regions.

Further, extract of 5th CMETS held on 30.03.2022 is quoted below:

"Scheme to relieve high loading of 400 kV Bhinmal-Zerda line

CTU informed that the Joint Study Meetings on Transmission Planning for Northern Region & Western Region were held on 21.03.2022, 28.03.2022 & 29.03.2022 over VC amongst CEA, CTU, POSOCO, NRPC, WR and NR constituents to deliberate on requirement of NR-WR Inter-regional corridor to relieve overloading of Bhinmal-Zerda line under various operating conditions.

In the joint study meeting, following scheme was proposed as per the immediate requirement (short term) as well as requirement in 2024-25 (medium term) time frame to relieve high loadings on NR-WR inter regional lines:

Phase-I(For Short term)

- *Bypassing of 400 kV Kankroli - Bhinmal-Zerda lines at Bhinmal to form 400 kV Kankroli – Zerda (direct) line #*
- *Reconductoring of 400 kV Jodhpur(Surpura)(RVPN) – Kankroli S/c line with twin HTLS conductor*-188 km*

Phase-II(For medium term)

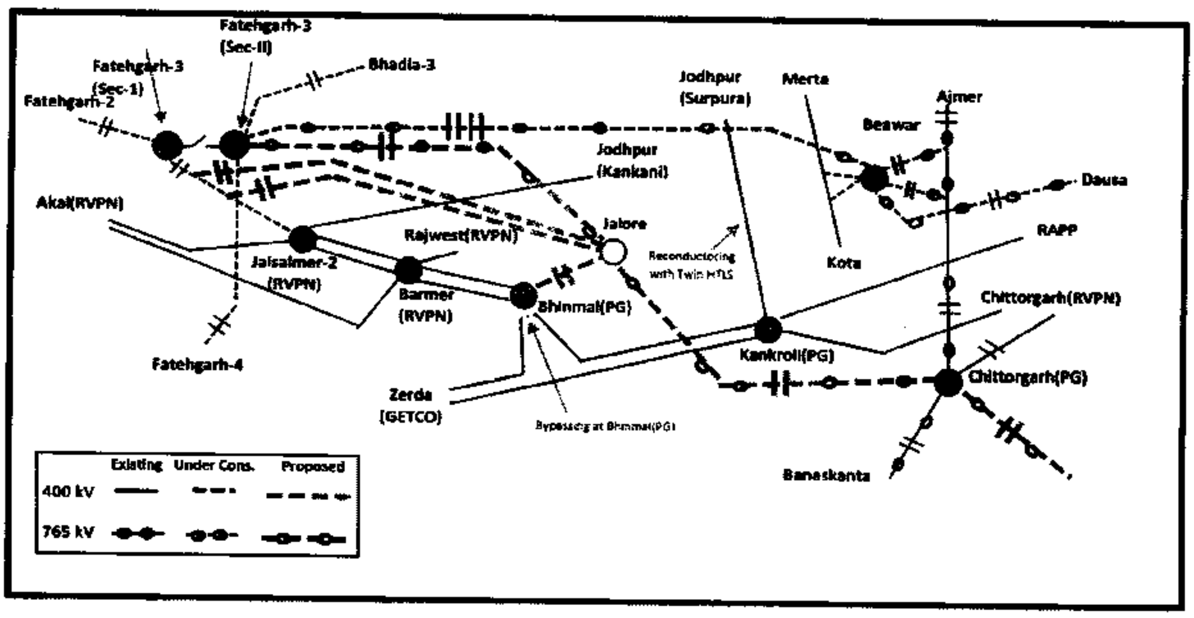
- *Establishment of 765/400 kV, 2x1500 MVA Jalore/Bhinmal S/s at a suitable location near Jalore/Bhinmal*

- *400 kV Jalore/Bhinmal – Bhinmal(PG) D/c line(Twin HTLS)-40 km*
- *LILO of both circuits of 400kV Fatehgarh-3 PS – Jaisalmer-2 (RVPN) line at Jalore/Bhinmal(LILO length 200 km)*
- *765kV Fatehgarh-3 PS– Jalore/Bhinmal(D/c line -210 km*
- *765kV Jalore/Bhinmal – Chittorgarh (PG) D/c line -210 km*
- *765kV Chittorgarh(PG) – Indore(PG) D/c line- 290 km*
- *Associated reactive compensation*

 # with necessary arrangement for bypassing Kankroli- Zerda line at Bhinmal with suitable switching equipment inside the Bhinmal substation.

** with minimum capacity of 2100 MVA/ckt at nominal voltage*

Proposed NR-WR IR strengthening scheme



After detailed deliberations in the joint study meetings, it was decided that Ph-1 (short term) scheme may be implemented as inter regional system strengthening scheme (ISTS). Same was also agreed in this meeting.

It was further mentioned that 400kV line bay equipment each at Kankroli and Jodhpur (Surpura)(RVPN) S/s for 400 kV Jodhpur (Surpura)(RVPN) – Kankroli S/c (twin moose) line are having 2000 A current rating which needs to be upgraded with 3150 A rating in above scheme.

The scope of work of above North-West Inter-regional system strengthening scheme shall include following elements:

- *Bypassing of 400 kV Kankroli - Bhinmal-Zerda lines at Bhinmal to form 400 kV Kankroli – Zerda (direct) line #*

- *Reconductoring of 400 kV Jodhpur(Surpura)(RVPN) – Kankroli S/c line with twin HTLS conductor*-188 km*

 # with necessary arrangement for bypassing Kankroli- Zerda line at Bhinmal with suitable switching equipment inside the Bhinmal substation.

** with minimum capacity of 2100 MVA/ckt at nominal voltage*

Phase-II medium term scheme was also agreed in principally. However, same shall be reviewed during comprehensive analysis for 75 GW RE Potential in Rajasthan as part of 500 GW RE plan. In case, with additional LTA (about 3 GW) beyond 23 GW in Rajasthan, if requirement of additional corridor from NR to WR arises, Ph-2 medium term scheme can be reviewed earlier also."

Accordingly, it is suggested that further studies and planning may be carried out for exporting power from NR during high solar generation period.

CTUIL stated that additional corridors such as 765kV Beawar - Mandsaur D/C and 765kV RishabhDeo - Mandsaur D/C have also been proposed apart from shortly expected 400kV Chittorgarh - Neemuch D/C.

NRLDC stated that during low demand in NR and high RE generation in Rajasthan, high flow on NR-WR corridor is being observed during the day time. Further, the relief obtained with bypassing of 400kV Kankroli-Zerda ckt 2 at Bhinmal has also increased some margin in NR-WR corridor. However, with rapid solar integration in solar in Western Rajasthan, the margin in NR-WR corridor may get exhausted soon and therefore planned transmission system needs to implemented timely.

It was discussed that already transmission lines have been planned in NR-WR corridor which need to be implemented in time bound manner. Further, planning another ISTS substation in Kota area to relieve the loading of 400kV RAPS - Shujalpur D/C in future scenarios may be explored.

6.8 Details of current rating of terminal equipment for EHVAC lines

For conducting studies for assessment of inter control-area transfer capability or any other related simulation studies, thermal ratings of lines as specified in CEA's Manual on Transmission Planning Criteria 2023 are being considered as safe capacity limit of lines based on anticipated ambient temperature.

However, it is being observed in number of cases, especially in RVPN control area that the rating of terminal equipment is lower than thermal capacity of transmission line. This is leading to under-utilisation of line capacity due to limited switchgear rating and even leading to constraints in RE evacuation from Western Rajasthan RE complex.

Some of the lines in RVPN control area wherein this issue was observed are listed below:

- 400kV Bikaner(PG) - Bikaner(RJ) D/C at RVPN end: Issue in ISTS-RE evacuation in Dec 2022 and SPS logic had to be implemented to avoid RE curtailment.

- 400kV Bhadla(PG) - Bhadla(RJ) D/C at RVPN end: N-1 non-compliance observed. SPS proposal discussed in OCC, difficult to provide shutdown in the RE complex. Now loading diverted via Fatehgarh-III (temporary relief)
- 400kV Bikaner(RJ) - Bhadla(RJ) D/C at both end: N-1 non-compliance observed. Apart from frequent tripping / emergency shutdown of line, switchgear rating also limited.

For these lines, thermal capacity is 1700MVA for design @ 75deg & 2180MVA for design @85deg. However, equipment rating is only 2kA which translates to 1.732x400x2= 1385 MVA only, thus limiting line power transfer capacity to 1385MVA only.

Similar issues were earlier observed at 400 kV Mahendragarh, Dhanonda and Nawada substation in HVPN control area where switchgear upgradation are being carried out by HVPN/ATIL.

Recently such issue was also observed for 400 kV Vishnuprayag - Muzaffarnagar line which is having twin moose conductor (880 MVA) but terminal equipments at Vishnuprayag end are rated for only 1 kA i.e. 1.732x400x1000 = 692 MVA. With the interim arrangement for evacuation of power from Singoli Bhatwari generating station, there have been several events involving complete generation loss at Vishnuprayag (400 MW) and Alakhnanda (330 MW). Proposal for SPS to overcome this limitation of switchgear discussed at NRPC/OCC level, however same is yet to be finalised.

The issue of lower line equipment rating has also been discussed in the past in 2018 in NRPC-OCC level wherein NPC had asked RPCs to furnish such details. It was requested that the terminal equipment ratings of STUs' and other transmission licensees' transmission lines in region, may be compiled and furnished to Grid-India with a copy to NPC Division, CEA on priority basis. Subsequently, the issue was discussed in number of NRPC and NR-OCC meetings and transmission utilities were asked to submit the data. Above issue was also discussed recently in 69th NRPC Meeting held on 27th September 2023.

Given the issues arising due to limited switchgear rating in lines which have higher thermal capacity, following was agreed in the meeting:

- Uprating switchgear ratings in lines with lower switchgear ratings to avoid issues in RE evacuation/facilitating shutdowns during high solar generation period.
- Special attention by transmission utilities & CTUIL in this regard so as to avoid such issues in future, including for the cases of conductor upgradation.

* * *

Annexure-I

List of Participants:

S.No.	Name (Sh/Smt/Ms)	Designation	Organization
1	Ishan Sharan	Chief Engineer	CEA
2	V.K. Singh	Member Secretary	NRPC
3	D. K. Meena	SE(Operation)	NRPC
4	Nitin Deswal	Deputy Director	CEA
5	Omkishor	Executive Engineer	NRPC
6	Kanhaiya Singh Kushwaha	Assistant Director	CEA
7	Komal Dupare	Assistant Director	CEA
8	Sandeep Kumawat	DGM	CTUIL
9	Madhusudan Meena	Engineer	CTUIL
10	Somara Lakra	CGM	NRLDC
11	Alok Kumar	Sr. GM	NRLDC
12	Sunil Aharwal	GM	NRLDC
13	Gaurav Malviya	Manager	NRLDC
14	Priyam Jain	Manager	NLDC
15	Prashant Kumar Upadhyay	Sr. Manager	SECI
16	R.K. Agarwal	Consultant	SECI
17	Rajan Gupta,	CE	JKPTCL (Jammu)
18	K.K. Thappa	SE (Circle-E)	JKPTCL (Jammu)
19	Manoj Kumar	GM (CLD)	HPPTCL
20	Ravi Luthra	Dy. CE (Planning)	PSTCL
21	Deepak Sarit	XEN/SS	HVPN
22	Palak Sinha	AE/SS	HVPN
23	Ashok Kumar	SE/Projects	HPGCL
24	Sunil Siwach	Xen/Projects (M-III)	HPGCL
25	H.S. Hyanki	CE (T&C)	PTCUL
26	Amit Kumar Singh	SE (SLDC)	PTCUL
27	Sanjay Mathur	XEN (P&P)	RVPN
28	Gajendra Singh	AM (T)	DTL
29	Dinesh Singh	Manager (T)	DTL
30	S.K. Das	Director (P&C)	UPPTCL
31	Satyendra Kumar	SE (TP&PSS)	UPPTCL
32	M.P. Dinkar	GM (T&RE)	NHPC Ltd

S.No.	Name (Sh/Smt/Ms)	Designation	Organization
33	Dipak Kumar	SM (T&RE)	NHPC Ltd
34	S.G. Reddy	Manager	NHPC Ltd
35	Rakesh Kumar Tewatia	Sr. XEN	BBMB
36	Rajeev Agarwal	DGM	SJVN

Annexure-A.IX.B Annexure-II (8)

HARYANA VIDYUT PRASARAN NIGAM LTD.

HVPN
Regd. Office: Shakti Bhawan, Plot No. C-4, Sector-6, Panchkula, 134109.
Corporate Identity Number: U4010HR1997SGC033683
Website: - www.hvpn.org.in, Phone No. 0172- 2561931
Correspondence Email ID: - cesocommi@hvpn.org.in, Phone No. 0172- 2560547

To

1. The CE/PD&C, HVPNL, Panchkula.
2. The CE/TS, HVPNL, Panchkula & Hisar.

Memo No. 43/SO-PNP-PCP-218 **Dated:** 22-11-2024

Sub: - Intra-state transmission constraints observed in real-time System Operation during the year 2024-25 (till October-24).

Ref: This office memo no. Ch-49/SO/PNP/PCP-130/Vol-II dated 10.04.2024.
This office memo no. Ch-162/PC-73/SLDC/OP dated 07.04.2023.
This office memo no. Ch-161/PC-73/SLDC/OP dated 07.04.2023.
This office memo no. Ch-158/PC-73/SLDC/OP dated 07.02.2023.
This office memo no. Ch-428/SO/PNP/PCP-130/Vol-I dated 19.07.2022.

In this connection it is intimated that the SLDC identifies bottlenecks, constraints & overloaded elements in the state transmission network and advise TS & Planning Wings of STU accordingly to enable proper transmission planning. This exercise would be repeated regularly at half year intervals. The intimation of the transmission constraints identified by SLDC & action taken by TS & Planning Wings needs to be shared with the OCC/NRPC for deliberation in OCC meeting of NRPC.

The SLDC has identified following system transmission constraints in real-time system operation of intra-state transmission system during the year 2024-25 (till October-24):-

A. Under CE/TS Panchkula:-

Sr. No.	Name of Line	Remarks by SLDC	Maximum Summer'24 loading (time, date). SCADA data	Last status available with SLDC / Remarks	Action to be taken by
1.	400/220kV, 315MVA, ICT-1&2 at 400kV Dipalpur. 220/132kV 100MVA T/F T-3 & T-4	Do not meet (N-1) contingency. Crossed rated capacity.	ICT-1: 260 MW (12:41, 06/07/24) ICT-2: 262 MW (13:40, 06/07/24) T-3 T/F: 112 MW (17:15, 19/06/24) T-4 T/F: 95 MW (12:05, 01/06/24)	The installation of additional 1x500MVA 400/220kV ICT was also approved by NRPCTP. But, matter languished due to non viability of mutual consent between HVPNL & JKTPL. Earlier, it was informed that installation of additional ICTs at the premises of Dipalpur would be installed by HVPNL and the feasibility regarding installation of additional ICTs was submitted by TS wing, but M/s JKTPL (400kV Dipalpur) raised some commercial issues regarding installation of additional ICTs at 400kV Dipalpur.	CE/TS Panchkula & SE/Commercial, Panchkula
2.	400/220kV, ICT-1&2 (1x450MVA + 1x500MVA) at 400kV BBMB, Panipat.	Overloading / N-1 contingency observed during peak summer season.	ICT-1: 399 MW (14:13, 28/06/24) ICT-2: 448 MW (14:13, 28/06/24)	Additional ICT not envisaged due to space constraints. LILO of 220kV Mohana – Samalkha at Sonipat PG is delayed due to forest clearance, which can potentially solve the overloading problem at BBMB Panipat.	CE/TS Panchkula & CE/PD&C, Panchkula

3.	220kV Dipalpur-Barhi D/ckts & 220kV PTPS-Barhi line	Overloading problem / Do not meet (N-1) contingency during peak summer/ paddy season or during less hydel generation from BBMB during winter season. 220kV PTPS – Barhi line kept opened from one end during peak summer / Paddy season to manage overloading of 220kV Dipalpur – Barhi D/C & 400/220kV ICT-1&2 at Dipalpur (due to heavy load flow from Barhi to PTPS side).	CKT-1: 187 MW (15:23, 22/07/24) CKT-2: 187 MW (15:40, 22/08/24) PTPS-Barhi: 168 MW (12:35, 19/10/24)	At present the load of 220kV Barhi & 220kV Sonepat is being fed via 220kV Dipalpur-Barhi D/C line leading to N-1 non compliance Planning Wing is examining the proposal of construction of 220kV SEC-6 Sonepat to Sonepat D/C line after commissioning of which the load of 220kV Sonepat will be fed via 220kv Deepalpur to Sec-6 Sonepat D/C line which may mitigate the said constraint. TS / PD&C Wing to update latest status / remedy being taken.	CE/TS Panchkula & CE/PD&C, Panchkula
4.	400/220kV, 315MVA, ICT-1&2 at 400kV Kabulpur 220/132kV 100MVA T/F T-3 & T-4	Do not meet (N-1) contingency. Presently, ICT-1 is lying damaged. This ICT-1 needs to be replaced before the Summer / Paddy season 2025 otherwise the situation will become worst & difficult to maintain reliable power supply in the area.	ICT-1: 280 MW (22:07, 26/07/24) ICT-2: 290 MW (20:35, 24/08/24) T-3 T/F: 97 MW (22:07, 26.07.24) T-4: 120 MW (21:15, 13/08/24)	Additional 1x315MVA 400/220kV ICT was approved by Planning Wing vide R-1016/Ch-116/HSS-348/Vol-I dated 15.01.2013. However, additional ICT is yet to be commissioned. In this regard, Commercial Wing & TS Wing may expedite the matter.	CE/TS Panchkula & SE/Commercial, Panchkula
5.	220kV Sonipat_PG-Mohana D/Ckt	Overloading problem / Do not meet (N-1) contingency.	CKT-1: 240 MW (14:59, 24/09/24) CKT-2: 242 MW (14:59, 24/09/24)	LILO of 220kV Mohana-Samalkha D/Ckt at 400kV Jajji (Sonipat PG) – already approved & under process / delayed due to forest clearance. After commissioning of this LILO the overloading will be mitigated.	CE/TS Panchkula
6.	220kV Samalkha-Mohana Ckt-1&2	Do not meet (N-1) contingency in peak summer/ paddy season.	CKT-1: 210 MW (03:10, 05/07/24) CKT-2: 189 MW (11:06, 04/07/24)	LILO of 220kV Mohana-Samalkha D/Ckt at 400kV Jajji (Sonipat PG) – already approved & under process / delayed due to forest clearance. After commissioning of this LILO the overloading will be mitigated.	CE/TS Panchkula
7.	220kV Jorian – Abdullapur_PG Ckt-1&2	Do not meet (N-1) Contingency in peak summer/ paddy season.	CKT-1: 234MW (07:56, 10/07/24) CKT-2: 229MW (07:56, 10/07/24)	The commissioning of 220kV Rajokheri to Shahabad D/C line will provide relief and the said circuit can become N-1 compliant. The said line was commissioned, but still line do not meet N-1 Contingency in peak summer / paddy season.	CE/TS Panchkula & CE/PD&C Panchkula
8.	220kV DCRTP – Jorian Ckt-1&2	Do not meet (N-1) Contingency when both units of DCRTP running.	CKT-1: 205MW (14:23, 07/08/24) CKT-2: 219MW (11:40, 08/08/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE PD&C, Panchkula & CE/TS Panchkula
9.	220kV Kurukshetra_PG – Kaul ckt-1&2	Over loading problem Do not meet (N-1) contingency during	CKT-1: 207MW (13:16, 08/08/24) CKT-2: 182MW	Proposal in respect of mitigation plan yet to be received from TS wing HVPNL.	CE/TS Panchkula & CE/PD&C, Panchkula

		peak summer/ paddy season.	(13:15, 08/08/24)	TS / PD&C Wing to update latest status / remedy being taken.	
10.	220kV Tepla – Abdullapur_PG Ckt-1&2	Over loading problem Do not meet (N-1) contingency during peak summer/ paddy season.	CKT-1: 181 MW (10:55, 12/06/24) CKT-2: 206 MW (15:55, 15/06/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE PD&C, Panchkula & CE/TS Panchkula
11.	220kV Bahadurgarh_ PG – Nuna Majra D/Ckt	Do not meet (N-1) contingency during peak summer/ paddy season. These ckts kept in desynchronized mode in peak summer season to avoid overloading as heavy load started flowing from Bahadurgarh PG side.	CKT-1: 144 MW (15:40, 29/07/24) CKT-2: 143 MW (15:14, 29/07/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE PD&C, Panchkula & CE/TS Panchkula
12.	220kV Kurukshetra PG – Salempur D/Ckts	Do not meet (N-1) contingency during peak summer/ paddy season.	CKT-1: 269 MW (06:00, 14/06/24) CKT-2: 269 MW (06:00, 14/06/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE PD&C, Panchkula & CE/TS Panchkula

B. Under CE/TS Hisar:-

1.	220KV IA Hisar-Hisar_PG D/Ckt	Do not meet (N-1) contingency / Overloading	CKT-1: 305 MW (12:35, 14/06/24) [illegible] (12:36, 14/06/24)	Additional 400/220kV ICT at 400kV Bhiwani BBMB has been [illegible] at 25.08.2021. This will reduce the dependence of Hisar BBMB on Hisar PG via Hisar IA and provide relief to the said constraint. Earlier, it was informed that construction of 220kV Bhiwani (HR)-Bhiwani (PG) D/Ckt is under progress which will mitigate the above constraint to some extent as BBMB Bhiwani is drawing power from BBMB Hisar also. Now, 220kV Bhiwani PG – Bhiwani D/C line has been commissioned, but still 220kV IA Hisar – Hisar PG D/C line do not meet N-1 contingency. Also, the issue of high loading of this D/ckt line was deliberated in 1st SCSTPPSP-NR meeting held with CEA on dated 14.03.24. The MoM of meeting are as under: *"Proposal agreed in 20th CMETS of NR held on 30.06.23. Reconductoring of 220kV Hisar (PG) – Hisar (IA) D/C line (single zebra) with HTLS conductor (with minimum 1050 ampere/ckt requirement) along with bay equipment upgradation at 220kV Hisar (PG) end. Work is to be expedited by POWERGRID".*	CE/TS Hisar & [illegible] Panchkula

2.	220KV IA Hisar – Hisar BBMB D/Ckts	Do not meet (N-1) contingency / Overloading problem.	CKT-1: 310 MW (12:40, 14/06/24) CKT-2: 297 MW (12:40, 14/06/24)	Additional 400/220kV ICT at 400kV Bhiwani BBMB has been proposed and sent to CEA for approval of NRPCTP dt 25.08.2021. This will reduce the dependence of Hisar BBMB on Hisar PG via Hisar IA and provide relief to the said constraint. Earlier, it was informed that construction of 220kV Bhiwani (HR)-Bhiwani (PG) D/Ckt is under progress which will mitigate the above constraint to some extent as BBMB Bhiwani is drawing power from BBMB Hisar also. Now, 220kV Bhiwani PG – Bhiwani D/C line has been commissioned, but still 220kV IA Hisar – Hisar BBMB D/C line do not meet N-1 contingency	CE/TS Hisar & SE/STU Panchkula
3.	400KV Nawada & 400KV Dhanonda	Isolator rating issues regarding upgradation being raised by NLDC/NRLDC/NRPC	-	Isolator issue. Supply of material started, but work yet to be started by awarded firm.	CE/TS Hisar
4.	220KV Sameypur – Palli D/ckts	Do not meet (N-1) contingency.	CKT-1: 207MW (10:57, 07/07/24) CKT-2: 198MW (14:05, 28/07/24)	LILO of both ckts 220kv Palli-Sec-56 GGN D/c line at 400kv Kadarpur & LILO of 220KV Palli-Sec-65 GGN D/c line at 400kv Kadarpur already approved vide memo no. R-1612/Ch-126/NCR/GRG-630 dated 05.11.2018. The commissioning of these lines will mitigate the said constraint.	CE/TS Hisar
5.	400KV Dhanonda – Mahendergarh D/Ckts	Do not meet (N-1) contingency. Isolator rating issues regarding up-gradation being raised by NLDC/NRLDC/NRPC	-	Isolator issue. Supply of material started, but work yet to be started by awarded firm.	CE/TS Hisar & CE/PD&C, Panchkula
6.	220KV Dhanonda – Lula Ahir D/ckts	Heavy Overloading observed in synchronization mode.	Ckt-1: 191 MW (13:46, 19/06/24) Ckt-2: 188 MW (13:46, 19/06/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar
7.	220KV Dadri BBMB – Lula Ahir line	Overloading / N-1 contingency observed during peak summer season.	322 MW (22:00, 06/06/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar
8.	220KV Bhiwani_PG – Bhiwani D/Ckt	Overloading / N-1 contingency observed during peak summer season.	Ckt-1: 310 MW (21:50, 05/06/24) Ckt-2: 307 MW (21:50, 05/06/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar
9.	220KV Gurugram_PG – Gurugram Sec-72 Ckt-1, 2, 3, 4	Do not met N-1 contingency during peak summer season.	Ckt-1: 239 MW (13:36, 17/07/24) Ckt-2: 226 MW (14:30, 16/07/24) Ckt-3: 228 MW (12:04, 12/09/24) Ckt-4: 209 MW (10:00, 10/07/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar

10.	220kV Manesar_PG – Mau D/Ckt	Do not met N-1 contingency.	Ckt-1: 229 MW (17:58, 20/06/24) Ckt-2: 207 MW (09:29, 26/06/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar
11.	220kV FGPP – Sector-58 line, 220kV Samaypur – Sector-58 line & Samaypur – FGPP line	Do not met N-1 contingency during peak summer season as well as during outage / non-availability of FGPP units.	FGPP-Sec-58: 253 MW (11:39, 03.07.24) S/Pur-Sec-58: 206 MW (13:55, 30.07.24) S/Pur-FGPP: 146 MW (09:46, 16.08.24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar
12.	220kV Fatehabad PG – Fatehabad D/Ckts	Do not met N-1 contingency during peak summer season at some instances.	Ckt-1: 218 MW (10:39, 05/06/24) Ckt-2: 228 MW (10:39, 05/06/24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar
13.	220kV Fatehabad PG – Sirsa line	Overloading of line in peak summer season. Alternate source of supply to Sirsa Substation not available.	F/Bad – Sirsa: 162 MW (15:09, 10.08.24)	TS / PD&C Wing to update latest status / remedy being taken.	CE/PD&C Panchkula & CE/TS Hisar

Some of the above transmission constraints have been persisting in the network since last 2-3 years and already communicated to your office. It is also essential to attend the above mentioned constraints for safe & secure operation of the State Grid & to improvise of ATC/TTC limits of Haryana State in the consequence. The action taken report in lieu of these specific intra-state transmission constraints will be submitted to NRPC/OCC forum.

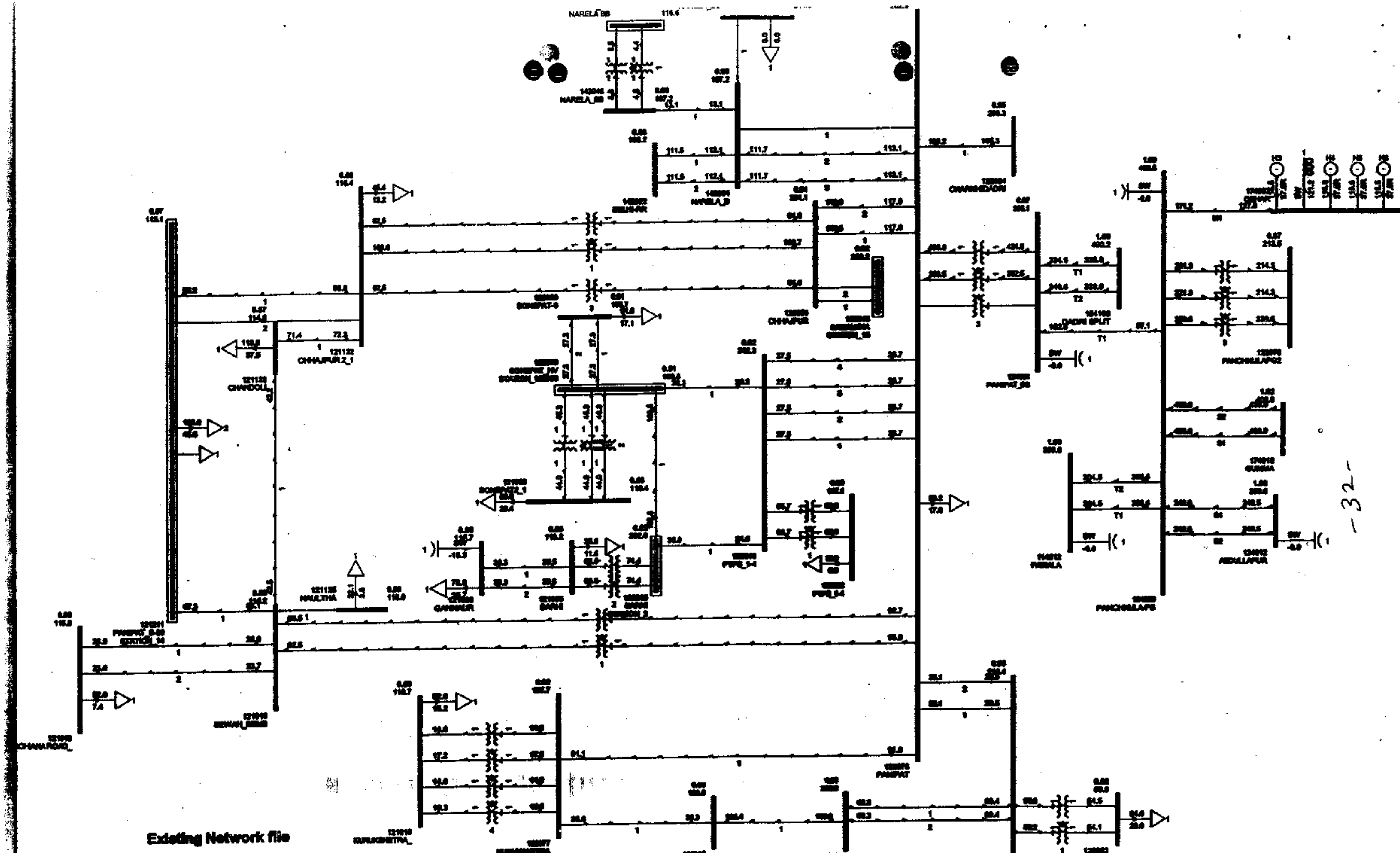
Keeping in view of the above, it is therefore again requested to take necessary action to resolve the above mentioned constraints in intra-state transmission network on top priority basis for safety and security of grid and action taken in this regard be intimated to this office, so that NRPC could be apprised accordingly.

This is for your information and necessary action please.

Chief Engineer/SO & Comml,
HVPNL, Panchkula.

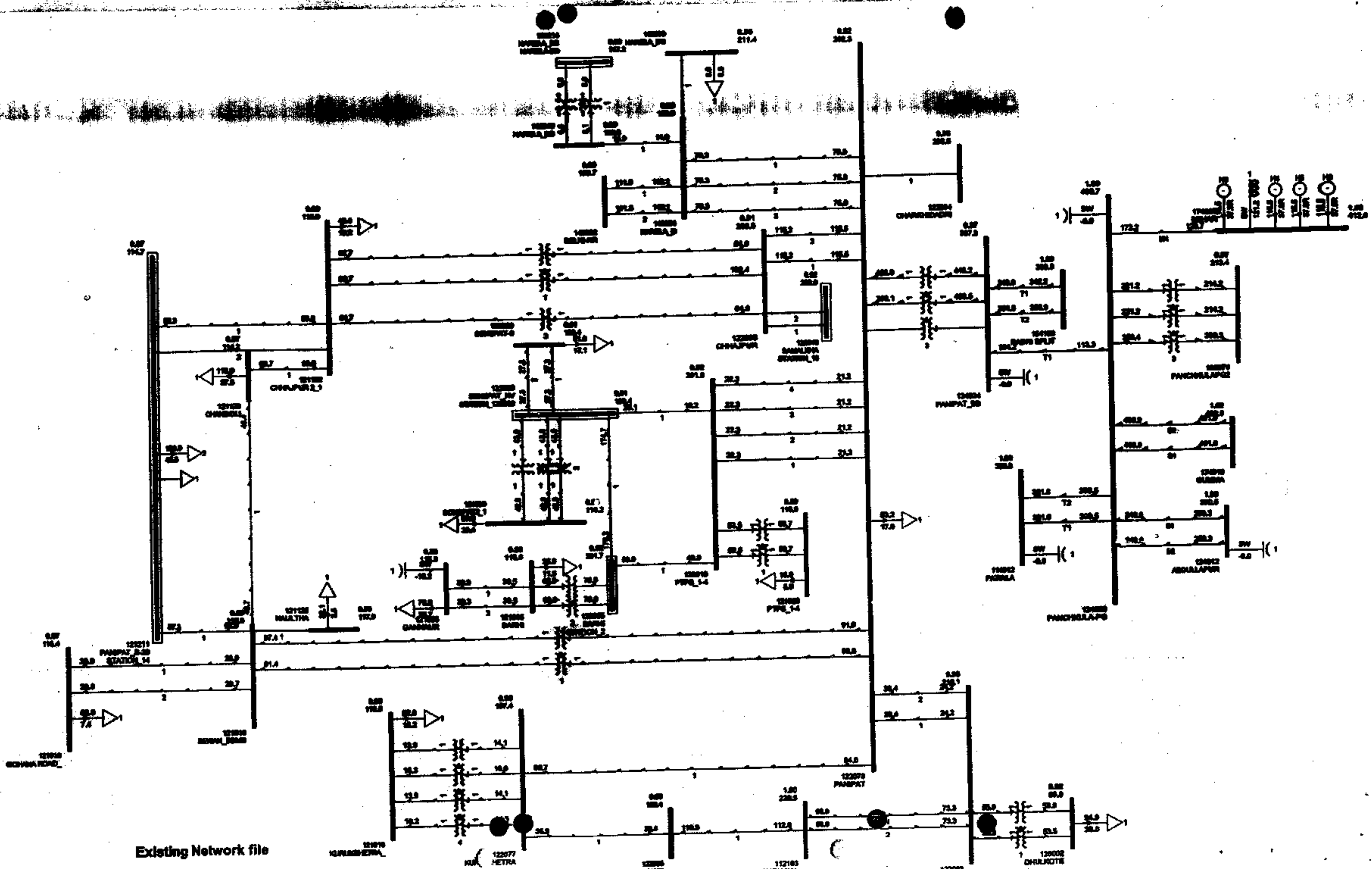
CC to:-

1. Director/Technical, HVPNL, Panchkula.
2. Director/Project, HVPNL, Panchkula
3. The CE/P&M, HVPNL, Panchkula.
4. SE/STU, HVPNL, Panchkula for information and necessary action please.
5. SE/Commercial, HVPNL, Panchkula for information and necessary action please.
6. SPS to Managing Director / HVPNL, Panchkula for information of Worthy Managing Director / HVPNL, Panchkula please.



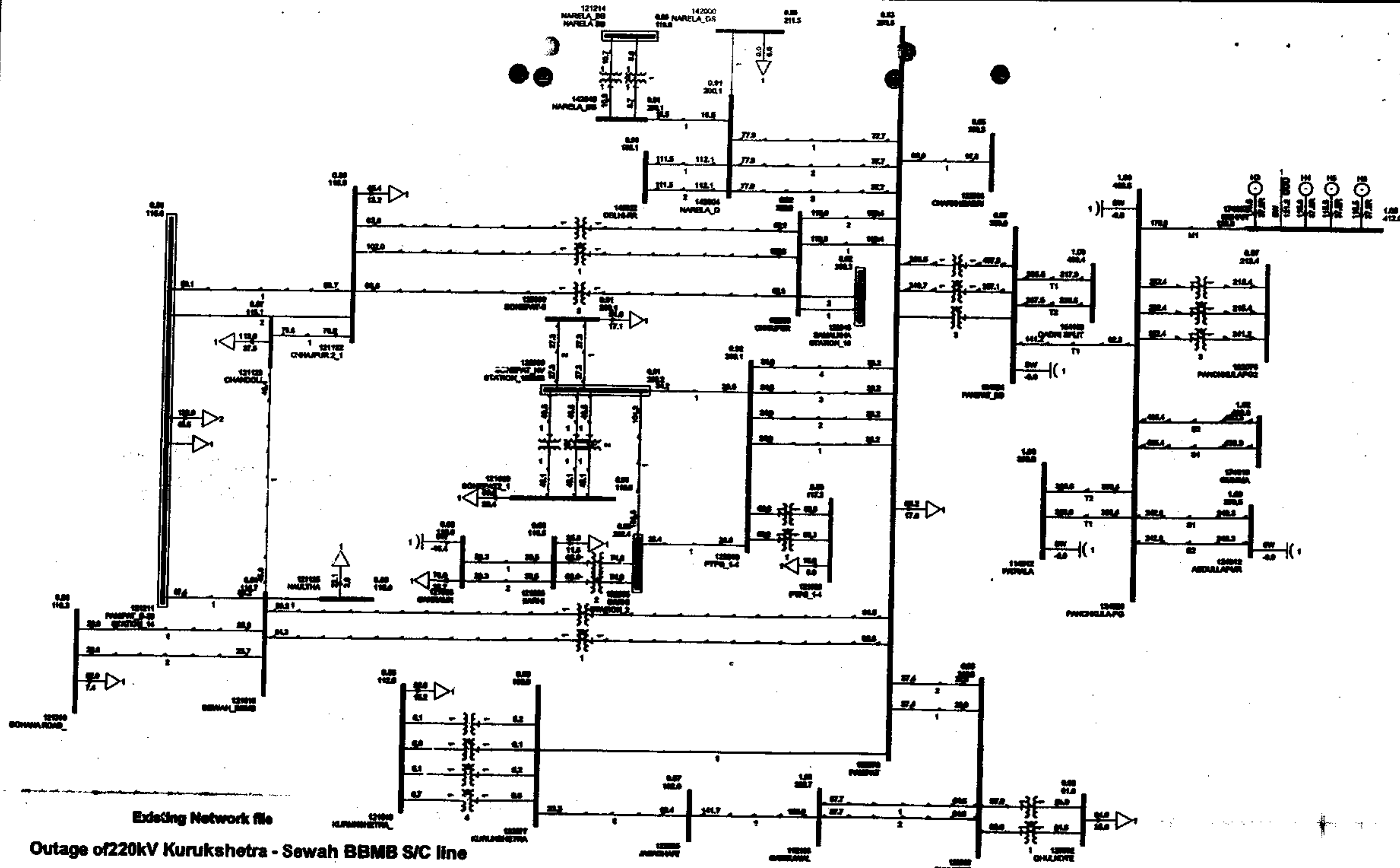
Existing Network file

utage of one ckt of Narela - Sewah BBMB three ckts. line



Existing Network file

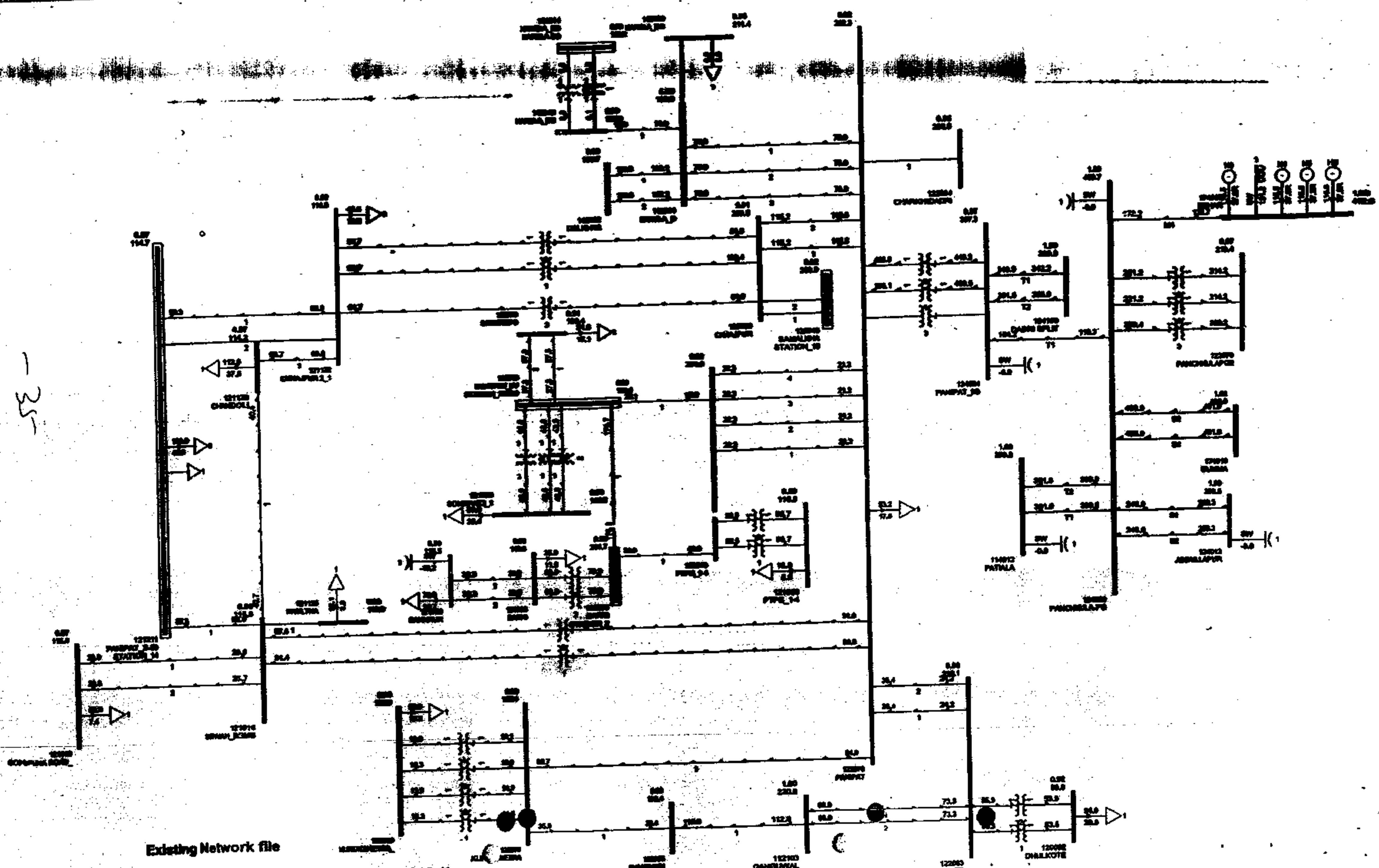
Outage of220kV Charkhi Dadri - Sewah BBMB S/C line



Existing Network file

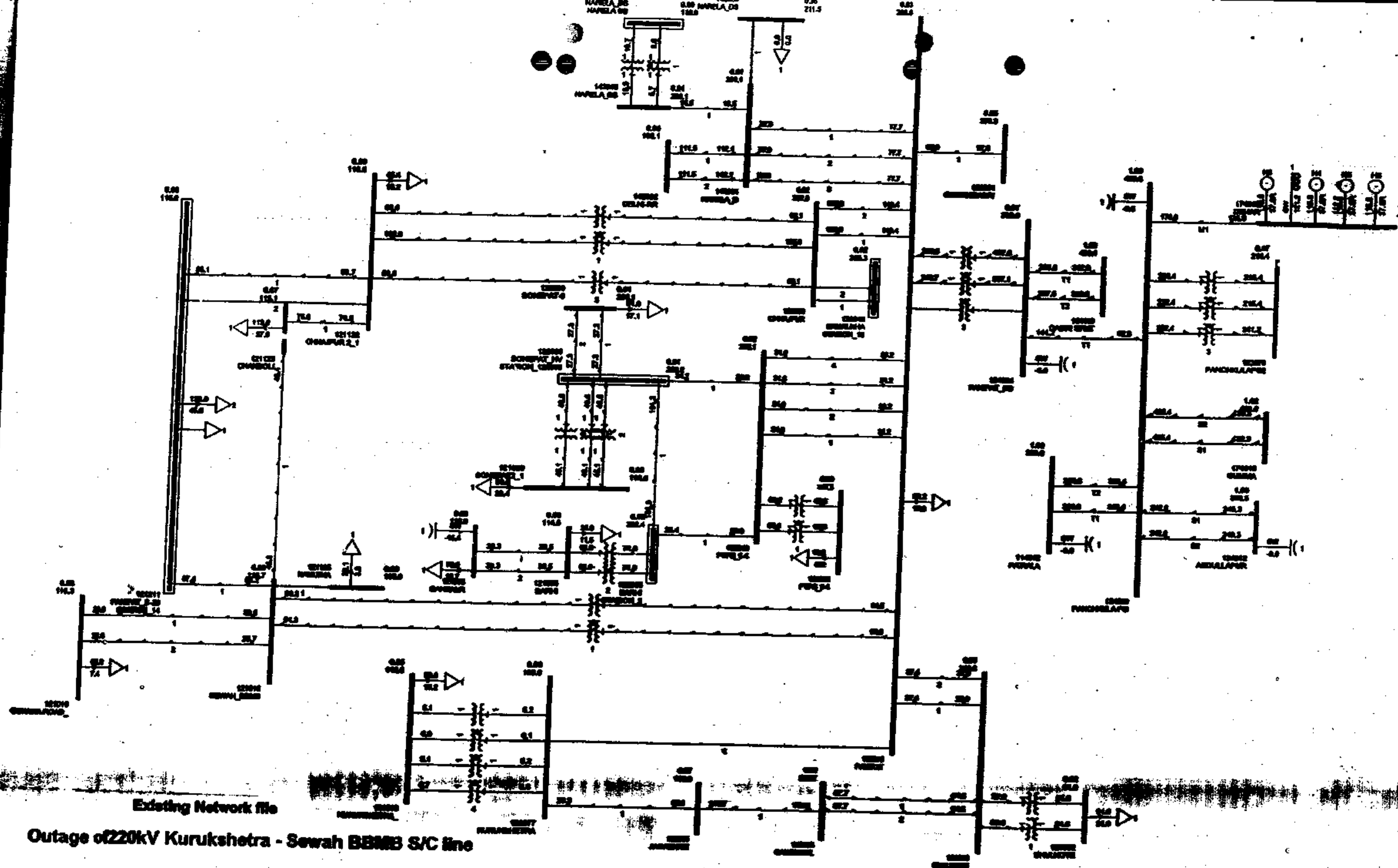
Outage of220kV Kurukshetra - Sewah BBMB S/C line

-35-



Existing Network file

[illegible] of220kV Charkhi Dadri - Sewah BBMB S/C line



Existing Network file

Outage of220kV Kurukshetra - Sewah BBMB S/C line

Annexure-A.IX,C Annexure- III

Email **Executive Engineer AREA Planning I**

23

From : Superintending Engineer Planning <seplg@hvpn.org.in> Thu, Feb 27, 2025 09:23 AM

Subject : Fwd: MoM of BBMB 152 Power Sub Committee meeting & Comments of HVPNL on Agenda item II & III & Load Flow study files — 10 attachments

To : Executive Engineer AREA Planning I <xenareaplg1@hvpn.org.in>, XEN PLG <xenplg@hvpn.org.in>, Executive Engineer PLG SS <xenplgss@hvpn.org.in>, Executive Engineer Area Planning II <xenareaplg2@hvpn.org.in>

----- Forwarded Message -----
From: "Chief Engineer Planning Design and Contracts" <cepdc@hvpn.org.in>
To: "Superintending Engineer Planning" <seplg@hvpn.org.in>
Sent: Tuesday, February 25, 2025 7:06:02 PM
Subject: Fwd: MoM of BBMB 152 Power Sub Committee meeting & Comments of HVPNL on Agenda item II & III & Load Flow study files

----- Forwarded Message -----
From: "Director Technical" <directortechnical@hvpn.org.in>
To: "Chief Engineer Planning Design and Contracts" <cepdc@hvpn.org.in>
Sent: Tuesday, February 25, 2025 4:59:09 PM
Subject: Fwd: MoM of BBMB 152 Power Sub Committee meeting & Comments of HVPNL on Agenda item II & III & Load Flow study files

From: "Vinod Kumar Mahajan" <power@bbmb.nic.in>
To: director-generation@pspcl.in, dir-tech@pstcl.org, "Director Technical" <directortechnical@hvpn.org.in>, directorthpsebl@gmail.com, "dir tech" <dir.tech@rvpn.co.in>, ce-hydel@pspcl.in, se-hq-hydel@pspcl.in, ce-tl@pstcl.org, se-planning@pstcl.org, srxen-plann1@pstcl.org, "se isp rvpn" <se.isp.rvpn@gmail.com>, "se isp" <se.isp@rvpn.co.in>, "ce nppr" <ce.nppr@rvpn.co.in>, "Superintending Engineer STU" <sestu@hvpn.org.in>, chiefengineeres@gmail.com, "cesp hpseb" <cesp.hpseb@gmail.com>, "Chief Engineer SO Commercial" <cesocomml@hvpn.org.in>, "Superintending Engineer TS Hisar" <setshsr@hvpn.org.in>, "Executive Engineer TS Sirsa" <xentssrs@hvpn.org.in>
Cc: "Jagjeet Singh" <mp@bbmb.nic.in>, "Harpreet SIngh Manocha" <ceso@bbmb.nic.in>, "Ravi Sher Singh" <cets@bbmb.nic.in>, "Jagjeet Singh" <cegen@bbmb.nic.in>, "Surinder Singh Mittal" <dstech@bbmb.nic.in>, "Baljit Singh" <spscman@bbmb.nic.in>, "RAVI SHANKER" <pachairman@bbmb.nic.in>, "Jagtar Singh" <psmp@bbmb.nic.in>, "Ajay Kumar Sharma" <spsecy@bbmb.nic.in>, "Tilak Raj Dhingra" <dspow@bbmb.nic.in>, "SWATI SHARMA" <adpower@bbmb.nic.in>
Sent: Tuesday, February 25, 2025 4:55:27 PM
Subject: MoM of BBMB 152 Power Sub Committee meeting & Comments of HVPNL on Agenda item II & III & Load Flow study files

R/Sir,

I am directed to forward MoM of 152nd BBMB Power Sub Committee Meeting held on 07.02.2025 and comments of HVPNL on the agenda Item-II (PSTCL) & Item-III (PSTCL). Further load flow study files on agenda item V and a new agenda as received from HVPNL are also enclosed for information and necessary action please.

Thanks & Regards,
Power Section
BBMB Board Sectt.
Madhya Marg, Sector 19-B
Chandigarh - 160019
Phone: 0172-5046416

624 KB

MoM_152_PSC_07.02.2025.pdf
171 KB

Agenda V HVPNL_compressed.pdf
4 MB

Agenda VI HVPNL.pdf
3 MB

annexure A (1).pdf
3 MB

bhiwani.zip
6 MB

Load Flow observations.pdf
1 MB

MoM_Haryana Meeting 20.03.2023 (1).pdf
3 MB

panipat psse.zip
4 MB

punjab (1).zip
3 MB

भाखड़ा ब्यास प्रबन्ध बोर्ड
मध्य मार्ग, सैक्टर 19-बी, चंडीगढ़-160019
दूरभाष 0172-3011761
E-Mail: ssecy@bbmb.nic.in

प्रेषक

विशेष सचिव

सेवा में,

1. निदेशक/उत्पादन,
पंजाब स्टेट पावर कारपोरेशन लिमिटेड,
पटियाला - 147001

2. निदेशक/तकनीकी,
पंजाब स्टेट ट्रांसमिशन कारपोरेशन लिमिटेड,
पटियाला - 147001

3. निदेशक/तकनीकी,
हिमाचल प्रदेश राज्य विद्युत बोर्ड, विद्युत भवन,
शिमला-171004

4. निदेशक/तकनीकी,
हरियाणा विद्युत प्रसारण निगम लिमिटेड,
शक्ति भवन, सैक्टर-6, पंचकुला - 134109

5. निदेशक/तकनीकी,
राजस्थान राज्य विद्युत प्रसारण निगम लिमिटेड,
विद्युत भवन, ज्योति नगर, जनपथ, जयपुर - 302005

क्रमांक 4013-4102 /बी-1684/पावर सब कमेटी/बी/152वीं   दिनांक 25-02-2025

विषय: भाखड़ा ब्यास प्रबन्ध बोर्ड (विद्युत भाग) की विद्युत उप-समिति (पावर सब कमेटी) की 152वीं बैठक के कार्यवृत्त।

उपर्युक्त विषय पर, दिनांक 07.02.2025 को हुई पावर सब कमेटी की 152वीं बैठक के कार्यवृत्त की प्रति सूचना एवं आवश्यक कार्रवाई हेतु प्रेषित की जाती है जी।

उप सचिव/विद्युत कृते विशेष सचिव

संलग्न/कार्यवृत्त

प्रतिलिपि:

1. मुख्य अभियन्ता/उत्पादन, भा.ब्या.प्र.बोर्ड, नंगल।
2. मुख्य अभियन्ता/प्रणाली परिचालन, भा.ब्या.प्र.बोर्ड, चण्डीगढ़।
3. मुख्य अभियन्ता/पारेषण प्रणाली, भा.ब्या.प्र.बोर्ड, चण्डीगढ़।
4. अध्यक्ष महोदय के निजी सचिव, भा.ब्या.प्र.बोर्ड, चण्डीगढ़।
5. सदस्य/विद्युत के निजी सचिव, भा.ब्या.प्र.बोर्ड, चण्डीगढ़।

PSC Meeting No. III/2024-25

भाखड़ा ब्यास प्रबन्ध बोर्ड (विद्युत खण्ड) की दिनांक **07.02.2025** को चंडीगढ़ में हुई 152वीं विद्युत उप-समिति (पावर सब कमेटी) की बैठक के कार्यवृत।

समिति के सदस्य जिन्होंने बैठक में भाग लिया:-

1. ई. जगजीत सिंह,सदस्य/विद्युत, बीबीएमबी।(Chairman of Committee)
2. श्री राकेश प्रजापती (आईएइस), Director/DoE,हिमाचल प्रदेश, सरकार।
3. श्री अरिंदम चौधरी (आईएइस),विशेष सचिव (विद्युत),एमपीपी, हिमाचल प्रदेश, सरकार।
4. ई. एम जी शर्मा, निदेशक(टी), एचपीएसईबीएल।
5. ई. मंदीप सिंह, मुख्य अभियंता, प्रणाली प्रचालन, एचपीएसईबीएल।
6. ई. कुलदीप कुमार, वरिष्ठ कार्यकारी अभियंता/DoE, एचपीएसईबीएल।
7. ई. संजीव सूद, ईआईसी/पारेषण प्रणाली, पीएसटीसीएल।
8. ई. नितिन कुमार, वरिष्ठ कार्यकारी अभियंता/योजना, पीएसटीसीएल।
9. ई. अरनदीप सिंह, मुख्य अभियंता/हाईडल, पीएसपीसीएल।
10. ई. ए के शर्मा, मुख्य अभियंता/(एनपीपीएंडआरए), आरआरवीपीएनएल।
11. ई. राजीव जैन,अधीक्षण अभियंता/आईएसपी, आरआरवीपीएनएल।
12. ई. राजीव कुमार तयाल, मुख्य अभियंता/कमर्शियल, एचवीपीएनएल।
13. ई. गुलशन टुटेजा, मुख्य अभियंता/पीडी&सी, एचवीपीएनएल।
14. ई. रोहतास, अधीक्षण अभियंता/एसटीयू, एचवीपीएनएल।
15. ई. विकास मलिक, कार्यकारी अभियंता, आईएसएमसी, एचवीपीएनएल।
16. ई. सुभाष धीमान, कार्यकारी अभियंता/क्षेत्र योजना-II, एचवीपीएनएल।
17. ई. अंकुश गर्ग, सहायकनिदेशक,आईएसएमसी, एचवीपीएनएल।
18. ई. पिंकल गोस्सेन, सहायकनिदेशक/क्षेत्र योजना-I, एचवीपीएनएल।
19. ई. विशाल शर्मा, कार्यकारी अभियंता, एचवीपीएनएल।

अन्य बोर्ड कार्यालय के अधिकारी जिन्होंने बैठक में भाग लिया:-

1. ई. एच एस मनोचा, मुख्य अभियंता/प्रणाली परिचालन, बीबीएमबी, चंडीगढ़।
2. ई. रवि शेर सिंह, मुख्य अभियंता/पारेषण प्रणाली, बीबीएमबी, चंडीगढ़।
3. ई. अजय कुमार शर्मा, विशेषसचिव, बीबीएमबी, चंडीगढ़।
4. ई.रुचि शर्मा,निदेशक/विद्युत विनियम, बीबीएमबी, चंडीगढ़।
5. ई. तजिंदर कौर, उप मुख्य अभियंता, मुख्यालय/पारेषण प्रणाली,बीबीएमबी, चंडीगढ़, अतिरिक्त कार्यभार अधीक्षण अभियंता/पानीपत, बीबीएमबी।
6. ई. आर के गोयल, उप मुख्य अभियंता, बीबीएमबी, जमालपुर ।
7. ई. सतवंत कौर काहलों, निदेशक, पी&डी (टीएस),बीबीएमबी, चंडीगढ़।
8. ई. तिलक राज ढींगरा, उपसचिव/विद्युत एवं सामान्य, बीबीएमबी, चंडीगढ़।
9. ई. राजेश कुमार थमन,संयुक्त सचिव/सदस्य विद्युत, बीबीएमबी, चंडीगढ़।
10. ई. संजय सिडाना, उप निदेशक,कमर्शियल, बीबीएमबी, चंडीगढ़।
11. ई. एस के गोयल,वरिष्ठ कार्यकारी अभियंता, ओ&एम मण्डल, बीबीएमबी, पानीपत।
12. ई.स्वाति शर्मा, सहायकनिदेशक/विद्युत, बीबीएमबी, चंडीगढ़।

Member (Power) welcomed all the members and participants of the meeting.

Item No. I

Memorandum regarding alternate connectivity for 132kV substation Polysteel Hisar by construction of 132kV S/C line from 220kV substation BBMB, Hisar to 132kV substation Polysteel Hisar through underground power cable.

HVPNL explained the memorandum in detail. It was apprised that HVPNL's 132kV Polysteel Sub-Station at Hisar is currently being fed through 132kV S/C BBMB-Ding (Sirsa) line through solid T-off arrangement having 0.2 sq" ACSR conductor (0.28 km). It is having single feeding source i.e. solid T-Off of 220KV BBMB Hisar Sub-station - Polysteel-IA Hisar-Ding (Sisra) line which causes interruption of supply during failure/ breakdown of 132kV S/C BBMB-Ding (Sirsa) line. Alternate connectivity is required for reliable flow of energy. It was deliberated that since, BBMB system at 220/132 kV Hisar sub-station is Inter-State Transmission system, therefore, any addition/ alteration to the ISTS system (incident on it) will require approval of the Northern Regional Power Committee/ CMETS.

After detailed deliberation, Power Sub-Committee approved the proposal of HVPNL for "*Alternate connectivity for 132kV substation Polysteel Hisar by construction of 132kV S/C line from 220kV substation BBMB, Hisar to 132kV substation Polysteel Hisar through underground power cable*", subject to the fulfilment of requisite regulatory requirements.

Item No. II

Augmentation of 2 No. 100MVA, 220/66kV transformers at 220kV Substation, BBMB, Jalandhar to 160 MVA.

EIC/PSTCL, explained the memorandum in detail. It was apprised that loading on 2X100 MVA, 200/66kV, transformers at BBMB Jalandhar Sub-station is anticipated to reach 98.17% of their total capacity and highlighted the need for augmentation of the 2 No. 80/100MVA, 220/66kV transformer at 220kV Substation, BBMB, Jalandhar to 160/200 MVA each before start of summer season.

Further, it was apprised that the proposal stand deliberated as the table agenda in the 34^{th} CMETS meeting held on 20.09.2024 and sought clarification regarding who will be responsible for bearing the cost of this augmentation work and who will own the 100 MVA transformers spared after augmentation. PSTCL on 14.11.2024 has conveyed to CTU that PSTCL will provide 2 no. 160 MVA, 220/66 kV transformers for 220 kV BBMB Jalandhar sub-station and will retain the dismantled 2 no. 100 MVA Transformers, as it is PSEB asset. Additionally, PSTCL will provide the allied equipment and augmentation in the system for executing the proposal in the 220/66kV Jalandhar BBMB Substation as deposit work. Subsequently, CTU requested PSTCL to take up the matter with CEA for approval stating that the nature of work is Intra State. CEA vide letter dated has intimated that the proposal of PSTCL has been found generally in order.

HVPNL stated that they need the load flow study data for deciding the matter. In response, PSTCL stated that the proposal has already been technically approved by the CEA. However, on the request of HVPNL, PSTCL agreed to share the files with HVPNL and HVPNL assured to furnish its comments within 1 week. Further, RRVPNL raised the issue regarding the ownership of the assets after augmentation vis-a-vis commercial/financial obligations thereof by the beneficiary. BBMB also raised the issue for the concurrence by CEA as InSTS, whereas BBMB transmission system has been categorized as deemed ISTS System. RRVPNL requested to form the committee for the finalization of the modalities & commercial obligations of the beneficiary.

After detailed deliberations, Power Sub-Committee decided as under:-

1. Separate committee be constituted to the issue regarding the **ownership of the assets after augmentation vis-a-vis commercial obligations thereof by the beneficiary and modalities finalized will** be applicable to all the proposals including already approved in the Power Sub Committee.
2. **The agenda was in-principle approved subject to adverse comments from HVPNL on the transmission system studies within one week.**

<u>Item No. III</u>

LILO of 220kV Jalandhar-Jamalpur line (D/C) at 220kV Goraya:-

EIC/PSTCL explained the memorandum in detail. It was apprised

that the proposal was included by the CTU in 34th CMETS meeting held on 20.09.2024, wherein the intra-state scheme of LILO of both circuit of 220 kV Jalandhar (BBMB)- Jamalpur (BBMB) D/C line at Goraya was approved and agreed to be implemented by PSTCL.
HVPNL and RRVPNL enquired about the commercial terms and conditions/ modalities for the instant proposal. Further, HVPNL also requested PSTCL to provide the Load flow study data/ files for further decision in the matter.
In response, PSTCL stated that as the instant proposal has already been approved in CMETS meeting the same may be approved by the Partner States, as CMETS is the highest authority for the planning of ISTS system and all NR States including Partner State Utilities are stakeholders. However, on the request of HVPNL, PSTCL agreed to share the load flow study data and HVPNL assured to provide its comments within one week.

After detailed deliberations, Power Sub-Committee decided as under:-

1. Separate committee be constituted to the issue regarding the ownership of the assets and other operational modalities after LILOing of the circuits vis-a-vis commercial obligations thereof of the beneficiary and it will be applicable to all the proposals (including already approved).
2. The agenda was approved subject to adverse comments from HVPNL on the transmission system studies within one week.

Item No. IV

Discontinuation of energy given to Himachal Pradesh from BBMB Bhakra-Nangal Project @10MW at 50% Load Factor (1.2LUs per day) as common pool consumer.

CE/PSPCL explained the memorandum and stated that since, State of H.P. has been given partner State status after the judgement of Hon'ble Supreme Court in 2011 and is accordingly, being given the share of 7.19%, as such, H.P. can not be treated as common pool consumer.

In response, Director (T), HPSEBL explained that the old H.P. was not the part of erstwhile Punjab and is being given 10MW at 50% Load factor (1.2 LU/day) in line with relevant provisions thereof in Bhakra Nangal agreement, 1959 and letter dated 25/27 July, 1961 of Planning Commission, GoI, regarding allotment of Bhakra Power House. Further, it was apprised that since the 7.19% power share given to H.P. in the judgement made by Hon'ble Supreme court in 2011 is related to the transferred territory of erstwhile Punjab not related to Old HP and also, explicitly mention to exclude the common pool consumer power share for the calculation of aforesaid 7.19% share of H.P., as such, contention of the Punjab to co-relate the Hon'ble Supreme court judgment as Himachal Pradesh granted partner state status and getting @7.19% right thereof, is contentious statement since State of the Himachal Pradesh was granted status as partner/Successor State by the PRA 1966. The Hon'ble Supreme court judgment has only provided the legal rights as per Statute under PRA 1966 .

Further, the Director, DoE, GoHP and Special Secretary (Power) to the GoHP stated that Himachal Pradesh got the 1.2 LU/ day common pool supply entitlement in accordance with the agreements between the then governments of Punjab and Rajasthan prior to the Punjab Reorganization Act (PRA), 1966, and moreover it was the pre-requisite condition for allotment of Bhakhra Power House as mentioned in the Planning Commission, GoI, letter dated 25/27th July, 1961, as such, as per section 79(3) (b) (iii) of PRA, 1966, power generation through the Bhakra Projects have to be regulated by giving due cognizance of the agreement made by the existing State of Punjab/PSEB/Rajasthan/RSEB with any other Electricity Board or authority in charge of distribution of power before the appointed date i.e. 01.11.1966. So, in view of above it is beyond the purview of Punjab or BBMB to withdraw the common pool supply given to Old Himachal Pradesh without mutual agreement, as it being statutory provision under the PRA 1966. Accordingly, representative from State of H.P. demanded to withdraw or drop the instant agenda item from the Power Sub-Committee Meeting.

RVPNL also supported the above stand of H.P. State and demanded to drop or withdraw agenda item.

HVPNL stated that the concept of common pool consumers as a whole needs to be reviewed and withdrawn keeping in view the present scenario.

On the remarks of H.P. state regarding applicability of PRA in the instant matter, PSPCL and HVPNL stated that before arriving at any decision, BBMB may take legal opinion on 'Whether PRA, 1966 limits/ restricts the power of BBMB board to unilaterally withdraw the common pool supply of 1.2 LUs/Day to State of H.P. or not'

After detailed deliberation,in. view of divergent opinion Member/Power, Chairman of the Power Sub-committee decided as under:-

1. In view of submission made by Himachal pradesh, BBMB to take legal opinion on 'Whether PRA, 1966 limits/ restricts the power of BBMB board to unilaterally withdraw the common pool supply of 1.2 LUs/Day to State of H.P.'
2. The agenda item will be dropped or deferred in accordance with the legal opinion to be taken as per Sr. No. 1.

Item No. V

Augmentation of 400KV sub-station BBMB, Siwah (Panipat) from (1x450 +1x500)MVA, 400/220KV + 2x100MVA, 220/132KV +1x60MVA, 220/33kV transformers to 3x500MVA, 400/220KV + 2x160MVA 220/132KV +1x60MVA, 220/33kV transformers along with augmentation of 220KV Sewah (Panipat BBMB) - ChhajpurD/C line from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having ampacity of 1200Amp to meet N-1 contingency.

HVPNL explained the memorandum in detail. It was deliberated that since, the BBMB system at 400 kV Panipat sub-station is Inter-State Transmission system, therefore, any addition/ alteration to the ISTS system will require approval of the Northern Regional Power Committee/ CMETS.

After detailed deliberations, Power Sub-Committee decided as under:-

1. To place separate agenda regarding replacement of 3x150 MVA, 400/220 kV transformers with 1x500 MVA transformer at BBMB Panipat sub-station in the next power sub-committee meeting.
2. Further, instant proposal regarding augmentation of different transformers at BBMB Panipat Sub-station and 220KV Sewah (Panipat BBMB) - Chhajpur D/C line be first taken up with NRPC/CMETS, CTU as the BBMB system is an ISTS system.

Member (Power), BBMB advised all the members of PSC to be come prepared with relevant studies/facts before actually discussing the agendas in the PSC Meeting.

Meeting ended with the note of thanks to Chair.

Signed by Ajay Kumar Sharma
Date: 25-02-2025 15:51:37
SPECIAL SECRETARY

Annexure-IV Annexure-A.IX.D

CEA-PS-11-22(13)/1/2019-PSPA-I Division

I/48847/2025

भारत सरकार

Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

विद्युत प्रणाली योजना एवं मूल्यांकन-I प्रभाग

Power System Planning & Appraisal-I Division

सेवा में / To,

1. COO (CTUIL), Plot No. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana - 122001
2. Director (System Operation), Grid- India, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi- 110010
3. Managing Director, Haryana Vidyut Prasaran Nigam Limited, Shakti Bhawan, Sector-6, Panchkula- 134109
4. Chairman, Bhakra Beas Management Board, Sector 19-B, Madhya Marg, Chandigarh.- 160019

Subject: Minutes of the meeting held on 17.04.2025 through video conferencing to discuss Intra-State transmission schemes proposed by HVPNL_

विषय: एचवीपीएनएल द्वारा प्रस्तावित इंट्रा-स्टेट ट्रांसमिशन योजनाओं पर चर्चा के लिए वीडियो कॉन्फ्रेंसिंग के माध्यम से 17.04.2025 को आयोजित बैठक का विवरण

महोदय/ Sir,

Please find enclosed the minutes of the meeting held on 17.04.2025 through video conferencing to discuss following Intra-State transmission schemes proposed by HVPNL:

1. ICT augmentation at 400 kV Panipat BBMB S/s from (1x450 + 1x500) MVA, 400/220 kV + 2x100 MVA, 220/132 kV +1x60 MVA, 220/33 kV to 3x500 MVA, 400/220 kV + 2x160 MVA, 220/132 kV +1x60 MVA, 220/33 kV along with reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.
2. 400/220 kV ICT augmentation at 400 kV Bhiwani BBMB S/s from 1x500 MVA to 2x500 MVA.
3. Replacement of 45 MVA, 220/132 kV ICT (Asset of HVPNL) with 100 MVA, 220/132 kV ICT at 220 kV Kurukshetra BBMB S/s.

4. Alternate connectivity for 132 kV Polysteel Hisar S/s by construction of 132 kV S/c line from 220 kV Hisar BBMB S/s to 132 kV Polysteel Hisar S/s through 132 kV underground power cable.
5. Creation of 220 kV Katwal S/s in place of earlier approved 220 kV Thua S/s.

भवदीय / Yours faithfully,
Signed by Kanhaiya Singh Kushwaha
Date: 25-04-2025 09:59:36

(कन्हैया सिंह कुशवाहा/ Kanhaiya Singh Kushwaha)

उप निदेशक / Deputy Director

Minutes of the meeting held on 17.04.2025 through video conferencing to discuss Intra-State transmission schemes proposed by HVPNL

List of participants is enclosed as **Annex-I.**

Agenda 1: ICT augmentation at 400 kV Panipat BBMB S/s from

(1x450 + 1x500) MVA, 400/220 kV + 2x100 MVA, 220/132 kV + 1x60 MVA, 220/33 kV

to

3x500 MVA, 400/220 kV + 2x160 MVA, 220/132 kV +1x60 MVA, 220/33 kV along with reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.

(i) 400 kV Panipat BBMB S/s has ICTs comprising of (1x500+1x450) MVA, 400/220 kV + 2x100 MVA, 220/132 kV + 1x60 MVA 220/33 kV ICTs.

(ii) High loading has been observed on 400/220 kV and 220/132 kV ICTs at Panipat BBMB as well as in Panipat BBMB—Chhajpur 220 kV D/c line.

(iii) As the existing 450 MVA ICT, comprising of single phase units are quite old, BBMB has already planned replacement of existing 450 MVA, 400/220 kV ICT (4x150 MVA single phase units including one spare unit) at Panipat BBMB S/s with 1x500 MVA, 3 phase, 400/220 kV ICT.

(iv) In addition to above replacement of 450 MVA ICT by BBMB, HVPNL has proposed following augmentations for 'N-1' compliance:
  (a) 500 MVA, 400/220 kV ICT augmentation (3rd) at Panipat BBMB S/s.
  (b) Replacement of 2x100 MVA, 220/132 kV ICTs with 2x160 MVA ICTs at Panipat BBMB S/s.
  (c) Reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.

Deliberations in the meeting:

(i) BBMB stated that they have planned replacement of 450 MVA, 400/220 kV ICT at Panipat BBMB with 500 MVA ICT which would be implemented by BBMB. The same would be an ISTS asset and is already under tendering.

(ii) CTUIL enquired about usage of the existing 450 MVA ICT after replacement with 500 MVA ICT. BBMB stated that they are quite old and are not fit for further operation.

(iii) Grid-India stated that peak loading on existing 450+500 MVA, 400/220 kV ICTs at Panipat BBMB S/s has already reached around 90%. Therefore, there is requirement of 3rd 500 MVA ICT at Panipat BBMB for 'N-1' compliance.

(iv) CEA enquired BBMB regarding the availability of space at Panipat BBMB S/s for implementation of 3rd 500 MVA ICT. BBMB confirmed that space is available with slight modifications at the substation.

(v) CTUIL enquired whether the 3rd 500 MVA ICT would be implemented by BBMB or HVPNL.

(vi) BBMB clarified that 3rd 500 MVA ICT would be implemented by BBMB and the cost for the same would be borne by HVPNL. Therefore, the 3rd 500 MVA ICT would be asset of HVPNL. HVPNL also confirmed the same.

(vii) As the existing 400/220 kV ICTs at Panipat BBMB are already 'N-1' non-compliant, Grid-India requested HVPNL to identify feeders foi SPS implementation to take care of contingencies till the commissioning of proposed 400/220 kV ICTs. HVPNL agreed for the same.

(viii) HVPNL stated that in addition to above, replacement of 2x100 MVA, 220/132 kV ICT with 2x160 MVA ICT at Panipat BBMB S/s is also proposed along with reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.

(ix) CEA enquired about the peak loading experienced till date on the 2x100 MVA, 220/132 kV ICTs and Panipat BBMB - Chhajpur 220 kV D/c line.

(x) HVPNL stated that peak loading on 2x100 MVA, 220/132 kV ICTs at Panipat BBMB is around 95 MVA on each ICT whereas peak loading on Panipat BBMB - Chhajpur 220 kV D/c line is around 170 MVA on each circuit.

(xi) CEA stated that as total load of 190 MVA has already been experienced on 2x100 MVA, 220/132 kV ICTs, they may be still be 'N-1' non-compliant even after replacement with 2x160 MVA ICTs. Therefore, HVPNL may plan new substation or additional ICT augmentation in addition to the proposed augmentation. HVPNL agreed to the same.

(xii) After deliberations, following was agreed:
   (a) Replacement of existing 450 MVA, 400/220 kV ICT with 500 MVA ICT at Panipat BBMB S/s by BBMB under ISTS.
   (b) 1x500 MVA, 400/220 kV ICT augmentation (3rd) at Panipat BBMB S/s to be implemented as an asset of HVPNL.
   (c) Replacement of 2x100 MVA, 220/132 kV ICTs with 2x160 MVA ICTs at Panipat BBMB S/s to be implemented by HVPNL.
   (d) Reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp by HVPNL.

Agenda 2: 400/220 kV ICT augmentation at 400 kV Bhiwani BBMB S/s from 1x500 MVA to 2x500 MVA.

(i) At present, only 1 No. 500 MVA, 400/220 kV ICT exists at Bhiwani BBMB S/s (4x166.7 MVA single phase units including one spare unit), which has already been planned by BBMB to be replaced by 1 No. 3 phase 500 MVA, 400/220 kV ICT due to old age of existing ICTs.

(ii) For 'N-1'compliance, HVPNL has proposed 2nd 500 MVA, 400/220 kV ICT at Bhiwani BBMB.

Deliberations in the meeting:

(i) BBMB stated that the existing 400/220 kV ICT is quite old and is not fit for further operation, therefore the same needs to be replaced.

(ii) Grid-India stated that peak loading of around 350 MVA has been observed on the existing 400/220 kV ICT. However, as only single 400/220 kV ICT exists at Bhiwani BBMB, there is requirement of additional 400/220 kV ICT for 'N-1' compliance. CTUIL also agreed with the same.

(iii) BBMB stated that space for 2nd 500 MVA, 400/220 kV ICT is available at Bhiwani BBMB S/s.

(iv) HVPNL stated that as the power from Bhiwani BBMB substation is also fed to states other than Haryana. Therefore, it is proposed that cost of implementation of 2nd 400/220 kV, 500 MVA ICT should be shared by all the beneficiary states.

(v) CEA opined that in this meeting, only technical requirement of 2nd 400/220 kV ICT may be discussed. HVPNL may deliberate the implementation and commercial modalities for the same in the Power Sub-Committee meeting of BBMB. HVPNL and BBMB agreed to the same.

(vi) CTUIL stated that with the 2nd 500 MVA ICT augmentation at Bhiwani BBMB, power flow on 765/400 kV ICTs at Bhiwani PG would increase. Therefore, loading on the same needs to be monitored and ICT augmentation is to be taken up based on real time loading patterns.

(vii) CEA opined that 220 kV substations of HVPNL at Isherwal and Dadhibana are also under implementation which would be connected with Bhiwani (PG) with 220 kV lines, with which, loading on 400/220 kV ICTs at Bhiwani (PG) would also increase. Therefore, loading on 400/220 kV ICTs at Bhiwani (PG) also needs to be monitored and ICT augmentation to be taken up accordingly. HVPNL intimated that the Isherwal and Dadhibana substations are under construction and are likely to be commissioned by 2025-26.

(viii) After deliberations, following was agreed:
 (a) Replacement of existing 500 MVA, 400/220 kV ICTs at Bhiwani BBMB (4x166.7 MVA single phase units including one spare unit) by 1x500 MVA, 3 phase, 400/220 kV ICT by BBMB.
 (b) 500 MVA, 400/220 kV ICT augmentation (2nd) at Bhiwani BBMB (HVPNL to deliberate the modalities regarding implementation of the ICT in the Power Sub-Committee meeting of BBMB.)

Agenda 3: Replacement of 45 MVA, 220/132 kV ICT (Asset of HVPNL) at 220 kV BBMB Kurukshetra S/s with 100 MVA, 220/132 kV ICT

(i) Details of ICTs at 220 kV BBMB Kurukshetra S/s is as follows:

Sl. No.	Description of Transformation Capacity	Year of manufacturing	Assets of	Maximum load till date (MVA)
1	220/132 kV, 45 MVA T-1	1961	BBMB	34.73
2	220/132 kV, 45 MVA T-2 (proposed to be replaced)	1961	HVPNL	31.35
3	220/132 kV, 50 MVA T-3	1986	BBMB	41.60
4	132/33 kV, 40/50 MVA T-1	2023	HVPNL	26.77
5	132/33 kV, 16/20 MVA T-2	1990	HVPNL	18.30
6	132/11 kV, 16/20 MVA T-1	2019	BBMB	13.04
7	132/11 kV, 16/20 MVA T-2	2019	BBMB	10.98

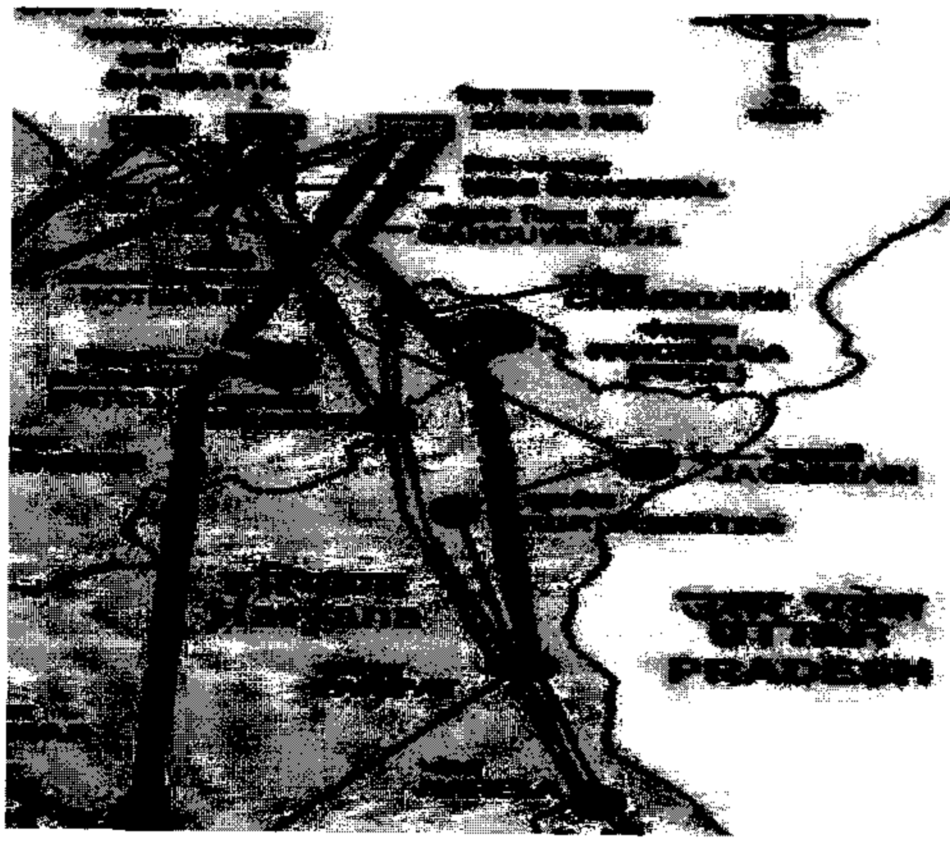
(ii) HVPNL has recently replaced 10/16 MVA, 132/33 kV ICT with 40/50 MVA ICT (mentioned at Sl. No. 4 in above table) at Kurukshetra BBMB substation.

(iii) In view of the old age of the 220/132 kV, 45 MVA ICT (T-2 of HVPNL mentioned at Sl. No. 2 above), HVPNL has proposed for replacement of the same.

Deliberations in the meeting:

(i) BBMB stated that 220/132 kV ICT (T-2) at Kurukshetra BBMB S/s proposed to be replaced by HVPNL is quite old and needs to be replaced.

(ii) BBMB further stated that load of Kurukshetra S/s and Jagadhari S/s is met from 400 kV Panipat BBMB S/s and MISS Ganguwal S/s through 220 kV S/c lines as shown in the figure below:



In case of outage of either Panipat- Kurukshetra BBMB 220 kV S/c line or MISS Ganguwal- Jagadhari 220 kV S/c line, entire load of Kurukshetra BBMB and Jagadhari has to be met through the other remaining 220 S/c line. Therefore, even after ICT augmentation proposed by HVPNL, power drawl by HVPNL from Kuruksehtra BBMB S/s would be restricted as per the loading in the 220 kV lines. In view of this, it is suggested that HVPNL may either plan reconductoring of the existing 220 kV S/c lines or may plan new transmission lines to relieve the loading on existing lines in cases of contingency.

(iii) After deliberations, following was agreed:

(a) Replacement of 45 MVA, 220/132 kV ICT (asset of HVPNL) by 100 MVA at 220 kV BBMB Kurukshetra S/s by HVPNL.

(b) HVPNL to plan either reconductoring of the existing 220 kV S/c lines connected with Kurukshetra BBMB or may plan new transmission lines to relieve the loading on existing lines in cases of contingency. Till the implementation of the same, load drawl by HVPNL from Kurukshetra BBMB S/s is to be restricted as per the loading in the 220 kV lines.

Agenda 4: Alternate connectivity for 132 kV Polysteel Hisar S/s by construction of 132 kV S/c line from 220 kV Hisar BBMB S/s to 132 kV Polysteel Hisar S/s through 132 kV underground power cable.

(i) 132 kV Polysteel Hisar S/s has installed capacity of (1x16/20+12.5) MVA, 132/11 kV ICTs which would be augmented by HVPNL to capacity of (2x16/20) MVA, 132/11 kV ICTs by 2025-26.

(ii) Currently, 132 kV Polysteel Hisar S/s is being fed from Hisar BBMB -Ding (Sirsa) 132 kV S/c line through solid T-off arrangement having 0.2 sq" ACSR conductor (0.28 km) which causes interruption of supply during failure/breakdown of Hisar BBMB -Ding (Sirsa) 132 kV S/c line.

(iii) In order to provide reliable supply to Polysteel Hisar S/s, 132 kV S/c line from Hisar BBMB S/s is proposed. Due to space constraint, overhead connectivity is not possible, therefore, Hisar BBMB –Polysteel Hisar 132 kV S/c line is proposed to be implemented through underground cable.

Deliberations in the meeting:

(i) Grid-India stated that as per the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023, tapping of transmission lines of 66 kV voltage level is not allowed, except for emergency situations. Therefore, HVPNL should implement the proposed 132 kV S/c line from BBMB Hisar to Polysteel at the earliest and the existing arrangement of HVPNL to meet the load of Polysteel through T-off should be removed as soon as possible.

(ii) CEA requested HVPNL to take up the implementation of the proposed 132 kV line from Hisar BBMB to Polysteel Hisar on priority basis. The T-off arrangement to meet the load of Polysteel be removed at the earliest. HVPNL may also plan some other line at Polysteel Hisar for 'N-1' compliance.

(iii) In addition to above, CEA requested HVPNL to immediately plan the additional transmission schemes to meet the load of all other substations which are currently being fed through T-off arrangement and submit the details of the same at the earliest along with time schedule of the implementation to CEA and Grid-India. HVPNL agreed for the same.

(iv) After deliberations, following was agreed:

(a) HVPNL to implement the proposed Hisar BBMB – Polysteel Hisar 132 kV S/c line through underground cable (0.7 km) on priority basis and remove the existing T-off arrangement.

(b) HVPNL to plan additional transmission lines at Polysteel Hisar for 'N-1' compliance.

(c) HVPNL to plan and implement transmission schemes to meet the load of all other substations which are currently being fed through T-off arrangement and to remove the T-off at the earliest. HVPNL to submit the details of the same at the earliest along with time schedule of the implementation to CEA.

Agenda 5: Creation of 220 kV Katwal S/s in place of earlier approved 220 kV Thua S/s

(i) Earlier, HVPNL had approved creation of 220 kV Thua S/s with capacity 2x160 MVA 220/132 kV+(1x20/25 MVA+1x40/50 MVA) 132/33 kV ICTs along with following associated transmission system:

(a) LILO of both circuits of Jind (PG)- Narwana 220 kV D/c line at Thua S/s
(b) Creation of 132 kV D/c line from 132 kV Ghogharian S/s to 220 kV Thua S/s
(c) Creation of 132 kV D/c line from 132 kV Naguran S/s to 220 kV Thua S/s

(ii) Now, in place of 220 kV Thua S/s, HVPNL has proposed 220 kV Katwal S/s with transformation capacity 2x160 MVA, 220/132 kV + (1x20/25 MVA + 1x40/50 MVA) 132/33 kV ICTs with following proposed transmission connectivity:

(a) LILO of existing Jind (HVPNL) - Safidon 220 kV D/c line at 220 kV Katwal S/s with augmentation of existing Jind (PG) - Jind (HVPNL) 220 kV D/c line having 0.5 sq" ACSR conductor (length-5.5 km) with 1200 A HTLS conductor.
(b) Creation of 132 kV D/c line from 132 kV Naguran S/s to Katwal S/s (length-6 km).
(c) Creation of 132 kV D/c line from 132 kV Ghogharian S/s to Katwal S/s (length-25 km).
(d) Creation of LILO of one ckt. of 132 kV D/c line from 220 kV Jind (HVPNL) to 132 kV Sec-9 Jind S/s at 220 kV Katwal S/s (LILO length approx. 20 km).

Deliberations in the meeting:

(i) HVPNL stated that the land for Thua substation was not available, therefore, HVPNL has proposed Katwal substation.
(ii) CTUIL stated that with the system proposed by HVPNL, loading on 3x500 MVA, 400/220 kV ICTs at Jind PG would increase. However, margin is available on the ICTs, therefore, loading on ICTs may be monitored in real time and ICT augmentation may be taken on the basis of real time loadings.
(iii) CEA enquired about the peak loading on Jind (PG) - Jind (HVPNL) 220 kV D/c line whose reconductoring has been proposed.
(iv) HVPNL intimated that the Jind (PG) - Jind (HVPNL) 220 kV D/c line has been created by LILO of Jind (HVPNL) - PTPS line at Jind (PG) and Jind (PG) - Jind (HVPNL) 220 kV D/c line has been test charged and would be commissioned shortly.
(v) CTUIL suggested that real time loading on Jind (PG) - Jind (HVPNL) 220 kV D/c line may be monitored after commissioning and accordingly, reconductoring of the said line may be planned. HVPNL agreed for the same.
(vi) After deliberation, following was agreed:
    (a) HVPNL's proposal for creation of 220 kV Katwal substation with transformation capacity 2x160 MVA 220/132 kV (1x20/25 MVA + 1x40/50 MVA) 132/33 kV ICTs with following proposed transmission connectivity:
        - LILO of existing Jind (HVPNL) – Safidon 220 kV D/c line at 220 kV

Katwal S/s

- Creation of 132 kV D/c line from 132 kV Naguran S/s to Katwal S/s (length-6 km).
- Creation of 132 kV D/c line from 132 kV Ghogharian S/s to Katwal S/s (length-25 km).
- Creation of LILO of one ckt. of 132 kV D/c line from 220 kV Jind (HVPNL) to 132 kV Sec-9 Jind S/s at 220 kV Katwal S/s (LILO length approx. 20 km).

(b) Loading on 400/220 kV, 3x500 MVA ICTs at Jind (PG) and Jind (PG) - Jind (HVPNL) 220 D/c line to be monitored and necessary strengthening to be taken up on the basis of real time loading.

Meeting ended with thanks to the participants.

Annex I

List of participants:

S.No.	Name (Smt/Shri/Ms)	Designation
CEA		
1	Ishan Sharan	Chief Engineer
2	Kavita Jha	Director
3	Kanhaiya Singh Kushwaha	Deputy Director
4	Komal Dupare	Deputy Director
CTUIL		
5	Sandeep Kumawat	DGM
6	Madhusudan Meena	Engineer
Grid - India		
7	Gaurav Malviya	Manager
BBMB		
8	Surjeet Singh	CE (TS)
9	Vijay Singh	SE (Bhiwani)
HVPNL		
10	Sandeep Yadav	SE
11	Pushpendra Singh	SE
12	Surendra Singh	SE
13	Birender Singh	XEN
14	Deepak Singh	XEN
15	Satya Prakash	XEN
16	Anurodh Giri	XEN
17	Ramesh Chand	XEN
18	Anita Chowdhary	XEN
19	Vikas Malik	XEN
20	Palak Sinha	AE

Annexure-V

भाखड़ा ब्यास प्रबन्ध बोर्ड
मध्य मार्ग, सैक्टर 19-बी, चंडीगढ़-160019
दूरभाष: 0172-5011761
E-Mail: spsecy@bbmb.nic.in

प्रेषक

विशेष सचिव

सेवा में,

1. निदेशक/उत्पादन,
पंजाब स्टेट पावर कारपोरेशन लिमिटेड,
पटियाला - 147001

2. निदेशक /तकनीकी,
पंजाब स्टेट ट्रांसमिशन कारपोरेशन लिमिटेड,
द मॉल, पटियाला - 147001

3. निदेशक/तकनीकी,
हिमाचल प्रदेश राज्य विद्युत बोर्ड, विद्युत भवन,
शिमला-171004

4. निदेशक/तकनीकी,
हरियाणा विद्युत प्रसारण निगम लिमिटेड,
शक्ति भवन, सैक्टर-6, पंचकुला - 134109

5. निदेशक/तकनीकी,
राजस्थान राज्य विद्युत प्रसारण निगम लिमिटेड,
विद्युत भवन, ज्योति नगर, जनपथ, जयपुर - 302005

क्रमांक: I/7080/2025 **/बी-1684/पावर सब कमेटी/4पी/153वीं** **दिनांक:** 23.07.2025

विषय: **भाखड़ा ब्यास प्रबन्ध बोर्ड (विद्युत खण्ड) की विद्युत उप समिति (पावर सब कमेटी) की 153वीं बैठक के कार्यवृत ।**

उपर्युक्त विषय पर, दिनांक 11.07.2025 को हुई पावर सब कमेटी की 153वीं बैठक के कार्यवृत की प्रति सूचना एवं आवश्यक कार्रवाई हेतु प्रेषित की जाती है जी।

23/7/25

उप सचिव/विद्युत एवं सामान्य

संलग्न/कार्यवृत

प्रतिलिपि:

1. मुख्य अभियन्ता/उत्पादन, भा.ब्या.प्र.बोर्ड, नंगल ।
2. मुख्य अभियन्ता/प्रणाली परिचालन, भा.ब्या.प्र.बोर्ड, चण्डीगढ़ ।
3. मुख्य अभियन्ता/पारेषण प्रणाली, भा.ब्या.प्र.बोर्ड, चण्डीगढ़ ।
4. अध्यक्ष महोदय के निजी सचिव, भा.ब्या.प्र.बोर्ड, चंण्डीगढ।
5. सदस्य/विद्युत के निजी सचिव, भा.ब्या.प्र.बोर्ड, चण्डीगढ़।

Minutes of BBMB's Power Sub-Committee (PW) meeting held on 11.07.2025 at Chandigarh/VC.

<u>Following Committee Members and their representatives attended the meeting:-</u>

1. Er. Jagjeet Singh/Member Power, BBMB, Chandigarh
2. Er. Mandeep Singh, CE/System Operation, HPSEBL (through VC)
3. Er. Hari Mohan Gupta, SE(NPP&RA), RRVPNL (through VC)
4. Er. A.P. Singh, CE/Production & Maintenance, PSTCL
5. Er. Nitin Kumar, Sr.Xen/Planning, PSTCL
6. Er. Rashpal, SE/Hydel Projects, PSPCL (through VC)
7. Er. Gulshan Tuteja, CE/PD&C, HVPNL
8. Er. Rajiv Tayal, CE/SO & Commercial, HVPNL
9. Er. Rohtas, SE/STU, HVPNL
10. Er. Sanjay Verma, SE/Planning, HVPNL
11. Er. Sinha, AE/System Study, HVPNL
12. Er. Deepak, CE/SO, UHBVN
13. Er. Bhupinder Singh, Sr. Xen/Audit, UHBVN
14. Er. Deepak Singh, Sr.Xen/NCR Planning-II, UHBVN
15. Er. Sukhjinder Singh, AE/Energy Audit, UHBVN

<u>Other Participants attended the meeting:-</u>

1. Er. Harpreet Singh Manocha, CE/SO, BBMB, Chandigarh
2. Er. Surjeet Singh, CE/TS, BBMB, Chandigarh
3. Er. Ajay Kumar Sharma, Special Secretary, BBMB, Chandigarh
4. Er. Ruchi Sharma, Director/PR, BBMB, Chandigarh
5. Er. Satwant Kaur, Dir/P&D(TS), BBMB, Chandigarh
6. Er. R.K. Thaman, Joint Secretary/Tech. to Member(P), BBMB, Chandigarh
7. Er. Tilak Raj Dhingra, DS/Power & General, BBMB, Chandigarh
8. Er. Sanjay Sidana, Deputy/Dir. Commercial, BBMB, Chandigarh
9. Er. Swati Sharma, AD/ Power, BBMB, Chandigarh
10. Er. Anamika, AD/Commercial, BBMB, Chandigarh
11. Er. Charanjit Singh, AD/Commerial, BBMB, Chandigarh

At the outset, Member/Power, BBMB addressed and welcomed all the participants of the meeting.

Thereafter, Special Secretary, BBMB explained the agendas and following was discussed, deliberated and decided in the meeting:-

Item No. I

Energy accounting of Auxiliary consumption at Grid Substations of BBMB.

CE/SO presented and explained the agenda in detail.

UHBVN agreed for in kind settlement of energy arrear quantum from the period 01.06.2016 to 30.04.2025 as per UHBVN letter no. CH-109/Xen/EA-80/Vol-I dated 13.01.2025 vide which minutes of meeting held on 18.12.2024 between ACS/Haryana, Govt. of Haryana with Chairman, BBMB. UHBVN also stated that for the period proceeding 30.04.2025, they will take up the matter with their management for further decision and the same will be conveyed to BBMB accordingly.

SE(NPP&RA), RRVPNL stated that they have already given consent to the BBMB. Further, he highlighted that BBMB follows "No profit no loss" model and not a commercial organization and so, many commercial procedures as per CERC/ CEA regulations are not being enforced on the BBMB. The instant issue has been started after the change in procedure by NRPC in 2016 and now, since as per request of BBMB, NRPC has agreed for restoration of the earlier accounting procedure at BBMB grid substation prevailing before 01.06.2016 for in-kind adjustment of Auxiliary consumption of energy arrears as well as current energy consumption. Therefore, other States should also not have issue with this procedure being followed before 01.06.2016.

CE/SO, HPSEBL endorsed the comments of RRVPNL and stated that they have also given the consent to BBMB for the instant proposal. He also raised the issue of their arrears which are long pending as per the judgment of Hon'ble Supreme Court in 2011 and further, solicited the support of Partner States since, HPSEBL is also agreeing to the similar demands of other Partner States.

PSPCL and PSTCL agreed to the agenda and stated that they have already given their consent for the restoration of earlier procedure.

After detailed deliberations, following was decided:-

- All partner States have agreed to restore the earlier accounting procedure at BBMB grid substations prevailing before 01.06.2016, as brought out in agenda, for in-kind adjustment of Auxiliary consumption of energy arrears for the period 01.06.2016 to 30.04.2025. However, for the in-kind adjustment of units for the period proceeding 30.04.2025, UHBVN will take up the matter with their management for further decision and the same will be conveyed to BBMB accordingly, within fifteen (15) days.

Item no. II

Regarding alternate connectivity for 132kV substation Polysteel Hisar by construction of 132kV S/C line from 220kV substation BBMB, Hisar to 132kV substation Polysteel Hisar through underground power cable.

HVPNL explained the agenda in detail.

RRVPNL opined that they have a substation at Hanumangarh and that should not get affected with the ibid proposal to which Haryana replied that since there is no load enhancement, no impact would be observed to load of Rajasthan and they will abide to all statutory/ regulatory requirement for the connectivity.

HPSEBL & PSTCL also agreed to the agenda and stated that the cost of construction of 132 kV bay & transmission line is to be borne by HVPNL and the O&M/ Commercial arrangement for the 132 kV bay is to be first deliberated in the committee constituted vide BBMB's letter dated 27.03.2025 & 24.04.2025 in line with decision in 152nd meeting of PSC.

After deliberations, PSC members approved the following:-

1. HVPNL to execute the work of laying of 132 kV underground cable and the creation of corresponding 132kV bay at 220 kV Sub-station of BBMB, Hisar. The cost for these works will be borne by HVPNL.
2. The O&M arrangement of the proposed 132kV bay and commercial & regulatory modalities are to be discussed and decided in the committee constituted vide office order No. 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025.

Item no. III

Augmentation of 400KV sub-station BBMB, Siwah (Panipat) from (1x450 + 1x500)MVA, 400/220KV + 2x100MVA, 220/132KV +1x60MVA, 220/33kV transformers to 3x500MVA, 400/220KV + 2x160MVA 220/132KV +1x60MVA, 220/33kV transformers along with augmentation of 220KV Sewah (Panipat) – Chhajpur D/C line from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having ampacity of 1200Amp to meet N-1 contingency.

HVPNL explained the agenda in detail.

PSTCL opined that they need more time to study the load flow files circulated by

HVPNL and highlighted that only the approval endorsed by CEA has been circulated with the agenda and as such, before further deliberation the necessary approval of NRPC should also be obtained.

RRVPNL stated that since, BBMB has formed a committee vide office order No. 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025, for deciding the modalities of O&M, Commercial arrangement etc., therefore, the instant agenda should first be placed before that committee before further deliberation by the PSC. CE/SO, HPSEBL endorsed the comments of RRVPNL.

Further, it was apprised that as discussed in previous PSC meetings, BBMB is in process of replacement of its existing old 3x150 MVA, 400/220 kV transformers with 1x500 MVA transformer at BBMB Panipat sub-station and the same is under tendering process.

After deliberations, PSC members approved the following:-

1. For further deliberation on the proposals of HVPNL, NRPC approval to be first obtained by the HVPNL.
2. BBMB to expedite replacement of its existing old 3x150 MVA, 400/220 kV transformers with 1x500 MVA transformer at BBMB Panipat sub-station.
3. The O&M arrangement and commercial & regulatory modalities are to be first discussed and decided in the committee constituted vide office order No. 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025.

<u>Item no. IV</u>

Augmentation of 400kV Sub Station BBMB Prem Nagar (Bhiwani) from 1x500MVA, 400/220kV Power T/F to 2x500 MVA, 400/200kV Power TFs.

HVPNL explained the agenda in detail.

PSTCL opined that since, there is no benefit of the proposed augmentation to the State of Punjab, as such, it will not share the cost for the ibid proposal. Further, it was observed that only the approval endorsed by CEA has been circulated with the agenda and as such, before further deliberation the necessary approval of NRPC should also be obtained.

RRVPNL stated that since, BBMB has formed a committee vide office order No. 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025, for deciding the modalities of O&M/ commercial arrangement etc., therefore, the instant agenda should first be placed before that committee before further deliberation by the PSC. CE/SO, HPSEBL endorsed the comments of RRVPNL.

After deliberations, PSC members approved the following:-

1. For further deliberation, NRPC approval to be first obtained by the HVPNL.
2. The O&M arrangement and commercial & regulatory modalities are to be first discussed and decided in the committee constituted vide office order No. 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025.

Item no. V

Augmentation of 10/16 MVA, 132/33kV Power Transformer T-1 with 40/50 MVA, 132/33kV Power Transformer (Assets of HVPNL) and augmentation of 45MVA, 220/132kV Power Transformer with 100MVA, 220/132kV Power Transformer (Assets of HVPNL) at 220kV S/Stn., BBMB Kurukshetra.

HVPNL explained the agenda in detail.

PSTCL observed that only the approval endorsed by CEA has been circulated with the agenda and as such, before further deliberation the necessary approval of NRPC should also be obtained.

RRVPNL observed that HVPNL has already augmented 10/16 MVA, 132/33 kV ICT (HVPNL asset) with 40/50 MVA ICT in 2023, the proposal is being placed before PSC for Ex-post facto approval after about two years. Further, it was stated that since, BBMB has formed a committee vide office order No. 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025, for deciding the modalities of O&M/ commercial arrangement etc., therefore, the instant agenda should first be placed before that committee before further deliberation by the PSC. CE/SO, HPSEBL endorsed the comments of RRVPNL.

After deliberations, PSC members approved the following:-

1. For further deliberation, NRPC approval to be first obtained by the HVPNL.
2. The O&M arrangement and commercial & regulatory modalities are to be first discussed and decided in the committee constituted vide office order No. 332/B-1684/PSC/4P dated 27.03.2025 & 24.04.2025.

Meeting ended with vote of thanks to the chair.

Digitally signed by
Ajay Kumar Sharma
Date: 23-07-2025
15:17:32
SPECIAL SECRETARY

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भाखड़ा ब्यास प्रबन्ध बोर्ड
मध्य मार्ग, सैक्टर 19-बी, चंडीगढ़-160019
दूरभाष: 0172-5011761
E-Mail: spsecy@bbmb.nic.in

Bhakra Beas Nation's Pride

OFFICE ORDER

No. 332 /B-1684/PSC/4P Date: 27-03-2025

In supersession to this office order no.28/B-1684/PSC/1P dated 21.04.2016 & letter no. 18159-66/ B-1684/PSC/1P dated 03.06.2016, approval of Chairman, BBMB is hereby conveyed to constitute a Committee to deliberate upon the commercial & technical modalities and recommend a uniform policy with respect to the following: -

1. Augmentation of BBMB assets viz. augmentation of transformers & Lines as per the requirement of beneficiary & their commercial and technical modalities.
2. Creation of new assets by the Partner States/other utilities either with in premises of substations or LILOing of line of BBMB as per the requirement of beneficiary & their commercial & technical modalities.
3. Ownership of the assets and other operational modalities after augmentation/LILOing of the circuits viz-a-viz commercial obligations thereof by the beneficiary.

The Committee shall comprise the following officers: -

i. Chief Engineer/Planning, HVPNL.
ii. Chief Engineer/Transmission System, PSTCL.
iii. Chief Engineer/System Planning, HPSEBL.
iv. Chief Engineer/PPM, RRVPNL
v. Chief Engineer/System Operation, BBMB
vi. Chief Engineer/ Transmission System, BBMB Member Secretary

The above Committee shall finalize its report within two months. After finalization of the report of the Committee, CE/TS, BBMB would accordingly putup an agenda for consideration of BBMB Power Sub Committee.

Partner States have the right to change the nominated members within 15 days as per their convenience.

This issues with the approval of Chairman BBMB.

Signed by Ajay Kumar Sharma
Date: 26-03-2025 18:24:39
SPECIAL SECRETARY

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A copy of the above is also forwarded to the following for information: -

1. Director/Generation, PSPCL.
2. Director/Technical, HPSEBL
3. Director/Technical, PSTCL
4. Director/Technical, HVPNL.
5. Director/Technical, RRVPNL.
6. All Committee Members
7. PS to Chairman, BBMB.
8. PS to Member (Power), BBMB.
9. Master File.

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cf-37

Bhakra Beas Management Board
Madhya Marg, Sector 19-B, Chandigarh – 160019
Tel: 0172-5011761, Fax-0172-2549857
E-Mail: spsecy@bbmb.nic.in

Bhakra Beas Nation's Pride

OFFICE ORDER

No. 28 /B-1684/PSC/1P Dated: 21-4-2016

With reference to minutes of 126th meeting of the Power Sub Committee (Item No.-I) held on 2.2.2016 at Chandigarh issued vide this office letter No.3311-14/B-1684/PSC/126th/1P dated 29.1.2016, it has been decided to constitute a Committee to deliberate upon and to recommend a uniform policy with respect to:-

1. Re-conductoring of BBMB transmission lines on the request of any prospective beneficiaries;
2. Allowing construction of bays at BBMB Substations for prospective beneficiaries;
3. Levying O&M charges in respect of such bays;
4. Charging such prospective beneficiaries against usage of BBMB land for their bays.

The Committee shall comprise the following:-

i) Chief Engineer/Planning, HVPNL, Panchkula
ii) Chief Engineer/Transmission System, PSTCL, Patiala
iii) Chief Engineer/System Planning, HPSEBL, Shimla
iv) Chief Engineer/PPM, RRVPNL, Jaipur
v) Chief Engineer/TS, BBMB, Chandigarh — Member Secretary

The above Committee shall finalize its report within two months. After finalization of the report of the Committee, Chief Engineer/Transmission System would accordingly put up an agenda for consideration of the Power Sub Committee of BBMB.

This issues with the approval of Chairman, BBMB.

21/4/16
Special Secretary

No. 3680-45 /B-1684/PSC/1P Dated: 21-4-16 21/4/16

A copy of the above is forwarded to the following for information and further necessary action:-

i) Chief Engineer/Planning, HVPNL, Panchkula
ii) Chief Engineer/Transmission System, PSTCL, Patiala
iii) Chief Engineer/System Planning, HPSEBL, Shimla
iv) Chief Engineer/PPM, RRVPNL, Jaipur
v) Chief Engineer/Transmission System, BBMB, Chandigarh
vi) PS to Member(Power), BBMB, Chandigarh.
vii) Master File

21/4/16
Special Secretary
21/4/16

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भाखड़ा ब्यास प्रबन्ध बोर्ड
मध्य मार्ग, सैक्टर 19-बी, चंडीगढ़-160019
दूरभाष: 0172-5011761, फैक्स-0172-2549857
E-Mail: spsecy@bbmb.nic.in

प्रेषक

विशेष सचिव

सेवा में,

मुख्य अभियन्ता/पारेषण प्रणाली,
भाखड़ा ब्यास प्रबन्ध बोर्ड,
चण्डीगढ़ ।

क्रमांक 18159-66 /बी-1684/पावर सब कमेटी/1पी दिनांक: 3-6-16

विषय: **Re-conductoring of 220kV Narela-Rohtak Road D/C line and establishment if 220kV GIS Bays at Rohtak Road S/Stn. of BBMB.** 842

संदर्भ: आपके कार्यालय का पत्र क्रमांक 1586-87/पीएनटी-443 (ए) दिनांक 18.5.2016.

Approval of Chairman, BBMB is hereby conveyed to nominate Chief Engineer/System Operation, BBMB as a member of committee constituted vide this office order No. 28/B-1684/Power Sub Committee/1P dated 21.4.2016. 837

विशेष सचिव
3/6/16

प्रतिलिपि:
i) Chief Engineer/Planning, HVPNL, Panchkula
ii) Chief Engineer/Transmission System, PSTCL, Patiala
iii) Chief Engineer/System Planning, HPSEBL, Shimla
iv) Chief Engineer/PPM, RRVPNL, Jaipur
v) Chief Engineer/System Operation, BBMB, Chandigarh
vi) PS to Member(Power), BBMB, Chandigarh.
vii) Master File

HARYANA VIDYUT PRASARAN NIGAM LIMITED
Regd. Office-Shakti Bhawan, Sector-6, Panchkula.

HVPN

Sub: Supplementary note of Agenda for BBMB sub- committee meeting –

1. **Augmentation of 400KV sub-station BBMB, Siwah (Panipat) from (1x450 + 1x500)MVA, 400/220KV + 2x100MVA, 220/132KV +1x60MVA, 220/33kV transformers to 3x500MVA, 400/220KV + 2x160MVA 220/132KV +1x60MVA, 220/33kV transformers along with augmentation of 220KV Sewah (Panipat BBMB) – Chhajpur D/C line from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having ampacity of 1200Amp to meet N-1 contingency.**
2. **Agenda regarding augmentation of 400 kV S/Stn BBMB Prem Nagar (Bhiwani) from 1x500 MVA, 400/220KV Power T/F to 2x500 MVA, 400/220KV Power T/Fs.**
3. **Proposal for providing the alternate connectivity for 132kV Sub-Station Polysteel Hisar by construction of 132kV S/C line from 220kV Sub-Station BBMB, Hisar to 132kV Sub-Station Polysteel Hisar through 132kV underground power cable in FY 2025-26.**
4. **Replacement of 45MVA, 220/132kV ICT (Asset of HVPNL) with 100MVA, 220/132kV ICT at 220kV BBMB Kurukshetra.**

The above agenda's were deliberated in 152nd meeting of Power Sub-Committee of BBMB held on dated 07.02.2025 wherein it was desired the proposal be first taken up with NRPC/CMETS, CTU as the BBMB system is an ISTS system.

Accordingly, the agenda's were placed before the CEA which was discussed in the meeting held on dated 17.04.2025. As per minutes of meeting dated 25.04.2025, CEA agreed and gave the necessary approvals. **(Annexure- I)**

The above is submitted for deliberation in the forthcoming Power Sub-Committee meeting of BBMB.

This is issued with the approval of Director/Technical, HVPNL please.

DA: **(Annexure- I)**

CE/PD&C,
HVPNL, Panchkula

भारत सरकार
Government of India
विद्युत मंत्रालय
Ministry of Power
केन्द्रीय विद्युत प्राधिकरण
Central Electricity Authority
विद्युत प्रणाली योजना एवं मूल्यांकन-I प्रभाग
Power System Planning & Appraisal-I Division

सेवा में / To,

1. COO (CTUIL), Plot No. 16, IRCON International Tower, Institutional Area, Sector 32, Gurugram, Haryana - 122001
2. Director (System Operation), Grid- India, B-9, Qutab Institutional Area, Katwaria Sarai, New Delhi- 110010
3. Managing Director, Haryana Vidyut Prasaran Nigam Limited, Shakti Bhawan, Sector-6, Panchkula- 134109
4. Chairman, Bhakra Beas Management Board, Sector 19-B, Madhya Marg, Chandigarh.- 160019

Subject: Minutes of the meeting held on 17.04.2025 through video conferencing to discuss Intra-State transmission schemes proposed by HVPNL_

विषय: एचवीपीएनएल द्वारा प्रस्तावित इंट्रा-स्टेट ट्रांसमिशन योजनाओं पर चर्चा के लिए वीडियो कॉन्फ्रेंसिंग के माध्यम से 17.04.2025 को आयोजित बैठक का विवरण

महोदय/ Sir,

Please find enclosed the minutes of the meeting held on 17.04.2025 through video conferencing to discuss following Intra-State transmission schemes proposed by HVPNL:

1. ICT augmentation at 400 kV Panipat BBMB S/s from (1x450 + 1x500) MVA, 400/220 kV + 2x100 MVA, 220/132 kV +1x60 MVA, 220/33 kV to 3x500 MVA, 400/220 kV + 2x160 MVA, 220/132 kV +1x60 MVA, 220/33 kV along with reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.
2. 400/220 kV ICT augmentation at 400 kV Bhiwani BBMB S/s from 1x500 MVA to 2x500 MVA.
3. Replacement of 45 MVA, 220/132 kV ICT (Asset of HVPNL) with 100 MVA, 220/132 kV ICT at 220 kV Kurukshetra BBMB S/s.

4. Alternate connectivity for 132 kV Polysteel Hisar S/s by construction of 132 kV S/c line from 220 kV Hisar BBMB S/s to 132 kV Polysteel Hisar S/s through 132 kV underground power cable.
5. Creation of 220 kV Katwal S/s in place of earlier approved 220 kV Thua S/s.

भवदीय / Yours faithfully,
Signed by Kanhaiya Singh Kushwaha
Date: 25-04-2025 09:59:36

(कन्हैया सिंह कुशवाहा/ Kanhaiya Singh Kushwaha)

उप निदेशक / Deputy Director

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Minutes of the meeting held on 17.04.2025 through video conferencing to discuss Intra-State transmission schemes proposed by HVPNL

List of participants is enclosed as Annex-I.

Agenda 1: ICT augmentation at 400 kV Panipat BBMB S/s from

(1x450 + 1x500) MVA, 400/220 kV + 2x100 MVA, 220/132 kV + 1x60 MVA, 220/33 kV

to

3x500 MVA, 400/220 kV + 2x160 MVA, 220/132 kV +1x60 MVA, 220/33 kV along with reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.

(i) 400 kV Panipat BBMB S/s has ICTs comprising of (1x500+1x450) MVA, 400/220 kV + 2x100 MVA, 220/132 kV + 1x60 MVA 220/33 kV ICTs.

(ii) High loading has been observed on 400/220 kV and 220/132 kV ICTs at Panipat BBMB as well as in Panipat BBMB—Chhajpur 220 kV D/c line.

(iii) As the existing 450 MVA ICT, comprising of single phase units are quite old, BBMB has already planned replacement of existing 450 MVA, 400/220 kV ICT (4x150 MVA single phase units including one spare unit) at Panipat BBMB S/s with 1x500 MVA, 3 phase, 400/220 kV ICT.

(iv) In addition to above replacement of 450 MVA ICT by BBMB, HVPNL has proposed following augmentations for 'N-1' compliance:
   (a) 500 MVA, 400/220 kV ICT augmentation (3rd) at Panipat BBMB S/s.
   (b) Replacement of 2x100 MVA, 220/132 kV ICTs with 2x160 MVA ICTs at Panipat BBMB S/s.
   (c) Reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.

Deliberations in the meeting:

(i) BBMB stated that they have planned replacement of 450 MVA, 400/220 kV ICT at Panipat BBMB with 500 MVA ICT which would be implemented by BBMB. The same would be an ISTS asset and is already under tendering.

(ii) CTUIL enquired about usage of the existing 450 MVA ICT after replacement with 500 MVA ICT. BBMB stated that they are quite old and are not fit for further operation.

(iii) Grid-India stated that peak loading on existing 450+500 MVA, 400/220 kV ICTs at Panipat BBMB S/s has already reached around 90%. Therefore, there is requirement of 3rd 500 MVA ICT at Panipat BBMB for 'N-1' compliance.

(iv) CEA enquired BBMB regarding the availability of space at Panipat BBMB S/s for implementation of 3rd 500 MVA ICT. BBMB confirmed that space is available with slight modifications at the substation.

(v) CTUIL enquired whether the 3rd 500 MVA ICT would be implemented by BBMB or HVPNL.

(vi) BBMB clarified that 3rd 500 MVA ICT would be implemented by BBMB and the cost for the same would be borne by HVPNL. Therefore, the 3rd 500 MVA ICT would be asset of HVPNL. HVPNL also confirmed the same.

(vii) As the existing 400/220 kV ICTs at Panipat BBMB are already 'N-1' non-compliant, Grid-India requested HVPNL to identify feeders for SPS implementation to take care of contingencies till the commissioning of proposed 400/220 kV ICTs. HVPNL agreed for the same.

(viii) HVPNL stated that in addition to above, replacement of 2x100 MVA, 220/132 kV ICT with 2x160 MVA ICT at Panipat BBMB S/s is also proposed along with reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp.

(ix) CEA enquired about the peak loading experienced till date on the 2x100 MVA, 220/132 kV ICTs and Panipat BBMB - Chhajpur 220 kV D/c line.

(x) HVPNL stated that peak loading on 2x100 MVA, 220/132 kV ICTs at Panipat BBMB is around 95 MVA on each ICT whereas peak loading on Panipat BBMB - Chhajpur 220 kV D/c line is around 170 MVA on each circuit.

(xi) CEA stated that as total load of 190 MVA has already been experienced on 2x100 MVA, 220/132 kV ICTs, they may be still be 'N-1' non-compliant even after replacement with 2x160 MVA ICTs. Therefore, HVPNL may plan new substation or additional ICT augmentation in addition to the proposed augmentation. HVPNL agreed to the same.

(xii) After deliberations, following was agreed:

(a) Replacement of existing 450 MVA, 400/220 kV ICT with 500 MVA ICT at Panipat BBMB S/s by BBMB under ISTS.

(b) 1x500 MVA, 400/220 kV ICT augmentation (3rd) at Panipat BBMB S/s to be implemented as an asset of HVPNL.

(c) Replacement of 2x100 MVA, 220/132 kV ICTs with 2x160 MVA ICTs at Panipat BBMB S/s to be implemented by HVPNL.

(d) Reconductoring of Panipat BBMB - Chhajpur 220 kV D/c line with HTLS conductor having capacity of 1200 Amp by HVPNL.

Agenda 2: 400/220 kV ICT augmentation at 400 kV Bhiwani BBMB S/s from 1x500 MVA to 2x500 MVA.

(i) At present, only 1 No. 500 MVA, 400/220 kV ICT exists at Bhiwani BBMB S/s (4x166.7 MVA single phase units including one spare unit), which has already been planned by BBMB to be replaced by 1 No. 3 phase 500 MVA, 400/220 kV ICT due to old age of existing ICTs.

(ii) For 'N-1'compliance, HVPNL has proposed 2nd 500 MVA, 400/220 kV ICT at Bhiwani BBMB.

Deliberations in the meeting:

(i) BBMB stated that the existing 400/220 kV ICT is quite old and is not fit for further operation, therefore the same needs to be replaced.

(ii) Grid-India stated that peak loading of around 350 MVA has been observed on the existing 400/220 kV ICT. However, as only single 400/220 kV ICT exists at Bhiwani BBMB, there is requirement of additional 400/220 kV ICT for 'N-1' compliance. CTUIL also agreed with the same.

(iii) BBMB stated that space for 2nd 500 MVA, 400/220 kV ICT is available at Bhiwani BBMB S/s.

(iv) HVPNL stated that as the power from Bhiwani BBMB substation is also fed to states other than Haryana. Therefore, it is proposed that cost of implementation of 2nd 400/220 kV, 500 MVA ICT should be shared by all the beneficiary states.

(v) CEA opined that in this meeting, only technical requirement of 2nd 400/220 kV ICT may be discussed. HVPNL may deliberate the implementation and commercial modalities for the same in the Power Sub-Committee meeting of BBMB. HVPNL and BBMB agreed to the same.

(vi) CTUIL stated that with the 2nd 500 MVA ICT augmentation at Bhiwani BBMB, power flow on 765/400 kV ICTs at Bhiwani PG would increase. Therefore, loading on the same needs to be monitored and ICT augmentation is to be taken up based on real time loading patterns.

(vii) CEA opined that 220 kV substations of HVPNL at Isherwal and Dadhibana are also under implementation which would be connected with Bhiwani (PG) with 220 kV lines, with which, loading on 400/220 kV ICTs at Bhiwani (PG) would also increase. Therefore, loading on 400/220 kV ICTs at Bhiwani (PG) also needs to be monitored and ICT augmentation to be taken up accordingly. HVPNL intimated that the Isherwal and Dadhibana substations are under construction and are likely to be commissioned by 2025-26.

(viii) After deliberations, following was agreed:

(a) Replacement of existing 500 MVA, 400/220 kV ICTs at Bhiwani BBMB (4x166.7 MVA single phase units including one spare unit) by 1x500 MVA, 3 phase, 400/220 kV ICT by BBMB.

(b) 500 MVA, 400/220 kV ICT augmentation (2nd) at Bhiwani BBMB (HVPNL to deliberate the modalities regarding implementation of the ICT in the Power Sub-Committee meeting of BBMB.)

Agenda 3: Replacement of 45 MVA, 220/132 kV ICT (Asset of HVPNL) at 220 kV BBMB Kurukshetra S/s with 100 MVA, 220/132 kV ICT

(i) **Details of ICTs at 220 kV BBMB Kurukshetra S/s is as follows:**

Sl. No.	Description of Transformation Capacity	Year of manufacturing	Assets of	Maximum load till date (MVA)
1	220/132 kV, 45 MVA T-1	1961	BBMB	34.73
2	220/132 kV, 45 MVA T-2 (proposed to be replaced)	1961	HVPNL	31.35
3	220/132 kV, 50 MVA T-3	1986	BBMB	41.60
4	132/33 kV, 40/50 MVA T-1	2023	HVPNL	26.77
5	132/33 kV, 16/20 MVA T-2	1990	HVPNL	18.30
6	132/11 kV, 16/20 MVA T-1	2019	BBMB	13.04
7	132/11 kV, 16/20 MVA T-2	2019	BBMB	10.98

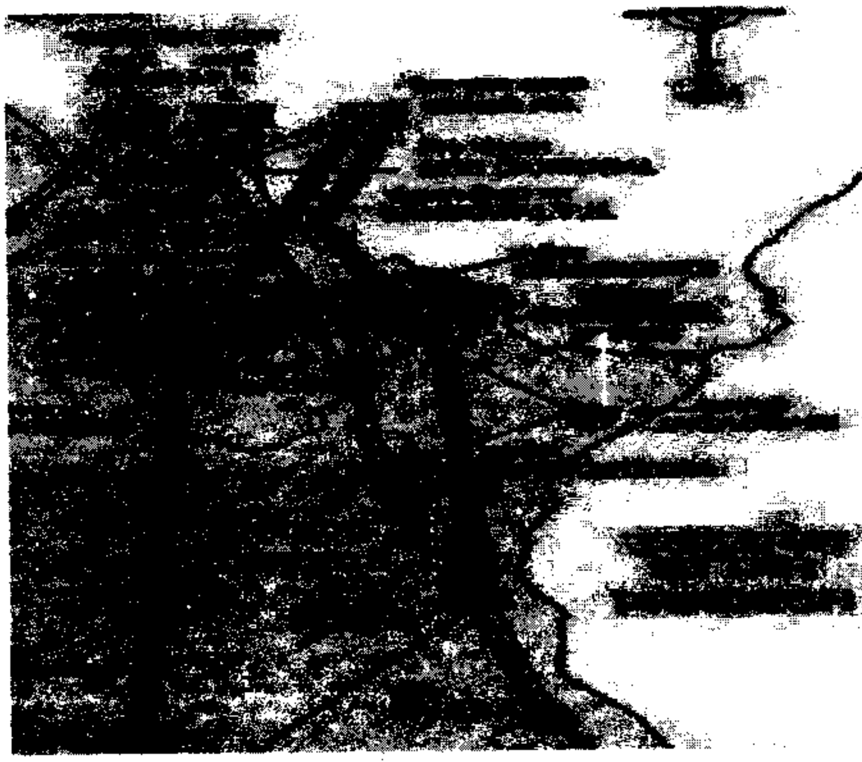
(ii) HVPNL has recently replaced 10/16 MVA, 132/33 kV ICT with 40/50 MVA ICT (mentioned at Sl. No. 4 in above table) at Kurukshetra BBMB substation.

(iii) In view of the old age of the 220/132 kV, 45 MVA ICT (T-2 of HVPNL mentioned at Sl. No. 2 above), HVPNL has proposed for replacement of the same.

Deliberations in the meeting:

(i) BBMB stated that 220/132 kV ICT (T-2) at Kurukshetra BBMB S/s proposed to be replaced by HVPNL is quite old and needs to be replaced.

(ii) BBMB further stated that load of Kurukshetra S/s and Jagadhari S/s is met from 400 kV Panipat BBMB S/s and MISS Ganguwal S/s through 220 kV S/c lines as shown in the figure below:



In case of outage of either Panipat- Kurukshetra BBMB 220 kV S/c line or MISS Ganguwal- Jagadhari 220 kV S/c line, entire load of Kurukshetra BBMB and Jagadhari has to be met through the other remaining 220 S/c line. Therefore, even after ICT augmentation proposed by HVPNL, power drawl by HVPNL from Kuruksehtra BBMB S/s would be restricted as per the loading in the 220 kV lines. In view of this, it is suggested that HVPNL may either plan reconductoring of the existing 220 kV S/c lines or may plan new transmission lines to relieve the loading on existing lines in cases of contingency.

(iii) After deliberations, following was agreed:

(a) Replacement of 45 MVA, 220/132 kV ICT (asset of HVPNL) by 100 MVA at 220 kV BBMB Kurukshetra S/s by HVPNL.

(b) HVPNL to plan either reconductoring of the existing 220 kV S/c lines connected with Kurukshetra BBMB or may plan new transmission lines to relieve the loading on existing lines in cases of contingency. Till the implementation of the same, load drawl by HVPNL from Kurukshetra BBMB S/s is to be restricted as per the loading in the 220 kV lines.

Agenda 4: Alternate connectivity for 132 kV Polysteel Hisar S/s by construction of 132 kV S/c line from 220 kV Hisar BBMB S/s to 132 kV Polysteel Hisar S/s through 132 kV underground power cable.

(i) 132 kV Polysteel Hisar S/s has installed capacity of (1x16/20+12.5) MVA, 132/11 kV ICTs which would be augmented by HVPNL to capacity of (2x16/20) MVA, 132/11 kV ICTs by 2025-26.

(ii) Currently, 132 kV Polysteel Hisar S/s is being fed from Hisar BBMB -Ding (Sirsa) 132 kV S/c line through solid T-off arrangement having 0.2 sq" ACSR conductor (0.28 km) which causes interruption of supply during failure/breakdown of Hisar BBMB -Ding (Sirsa) 132 kV S/c line.

(iii) In order to provide reliable supply to Polysteel Hisar S/s, 132 kV S/c line from Hisar BBMB S/s is proposed. Due to space constraint, overhead connectivity is not possible, therefore, Hisar BBMB –Polysteel Hisar 132 kV S/c line is proposed to be implemented through underground cable.

Deliberations in the meeting:

(i) Grid-India stated that as per the Central Electricity Authority (Measures relating to Safety and Electric Supply) Regulations, 2023, tapping of transmission lines of 66 kV voltage level is not allowed, except for emergency situations. Therefore, HVPNL should implement the proposed 132 kV S/c line from BBMB Hisar to Polysteel at the earliest and the existing arrangement of HVPNL to meet the load of Polysteel through T-off should be removed as soon as possible.

(ii) CEA requested HVPNL to take up the implementation of the proposed 132 kV line from Hisar BBMB to Polysteel Hisar on priority basis. The T-off arrangement to meet the load of Polysteel be removed at the earliest. HVPNL may also plan some other line at Polysteel Hisar for 'N-1' compliance.

(iii) In addition to above, CEA requested HVPNL to immediately plan the additional transmission schemes to meet the load of all other substations which are currently being fed through T-off arrangement and submit the details of the same at the earliest along with time schedule of the implementation to CEA and Grid-India. HVPNL agreed for the same.

(iv) After deliberations, following was agreed:

(a) HVPNL to implement the proposed Hisar BBMB – Polysteel Hisar 132 kV S/c line through underground cable (0.7 km) on priority basis and remove the existing T-off arrangement.

(b) HVPNL to plan additional transmission lines at Polysteel Hisar for 'N-1' compliance.

(c) HVPNL to plan and implement transmission schemes to meet the load of all other substations which are currently being fed through T-off arrangement and to remove the T-off at the earliest. HVPNL to submit the details of the same at the earliest along with time schedule of the implementation to CEA.

Agenda 5: Creation of 220 kV Katwal S/s in place of earlier approved 220 kV Thua S/s

(i) Earlier, HVPNL had approved creation of 220 kV Thua S/s with capacity 2x160 MVA 220/132 kV+(1x20/25 MVA+1x40/50 MVA) 132/33 kV ICTs along with following associated transmission system:

(a) LILO of both circuits of Jind (PG)- Narwana 220 kV D/c line at Thua S/s
(b) Creation of 132 kV D/c line from 132 kV Ghogharian S/s to 220 kV Thua S/s
(c) Creation of 132 kV D/c line from 132 kV Naguran S/s to 220 kV Thua S/s

(ii) Now, in place of 220 kV Thua S/s, HVPNL has proposed 220 kV Katwal S/s with transformation capacity 2x160 MVA, 220/132 kV + (1x20/25 MVA + 1x40/50 MVA) 132/33 kV ICTs with following proposed transmission connectivity:

(a) LILO of existing Jind (HVPNL) - Safidon 220 kV D/c line at 220 kV Katwal S/s with augmentation of existing Jind (PG) - Jind (HVPNL) 220 kV D/c line having 0.5 sq" ACSR conductor (length-5.5 km) with 1200 A HTLS conductor.
(b) Creation of 132 kV D/c line from 132 kV Naguran S/s to Katwal S/s (length-6 km).
(c) Creation of 132 kV D/c line from 132 kV Ghogharian S/s to Katwal S/s (length-25 km).
(d) Creation of LILO of one ckt. of 132 kV D/c line from 220 kV Jind (HVPNL) to 132 kV Sec-9 Jind S/s at 220 kV Katwal S/s (LILO length approx. 20 km).

Deliberations in the meeting:

(i) HVPNL stated that the land for Thua substation was not available, therefore, HVPNL has proposed Katwal substation.
(ii) CTUIL stated that with the system proposed by HVPNL, loading on 3x500 MVA, 400/220 kV ICTs at Jind PG would increase. However, margin is available on the ICTs, therefore, loading on ICTs may be monitored in real time and ICT augmentation may be taken on the basis of real time loadings.
(iii) CEA enquired about the peak loading on Jind (PG) - Jind (HVPNL) 220 kV D/c line whose reconductoring has been proposed.
(iv) HVPNL intimated that the Jind (PG) - Jind (HVPNL) 220 kV D/c line has been created by LILO of Jind (HVPNL) - PTPS line at Jind (PG) and Jind (PG) - Jind (HVPNL) 220 kV D/c line has been test charged and would be commissioned shortly.
(v) CTUIL suggested that real time loading on Jind (PG) - Jind (HVPNL) 220 kV D/c line may be monitored after commissioning and accordingly, reconductoring of the said line may be planned. HVPNL agreed for the same.
(vi) After deliberation, following was agreed:
(a) HVPNL's proposal for creation of 220 kV Katwal substation with transformation capacity 2x160 MVA 220/132 kV (1x20/25 MVA + 1x40/50 MVA) 132/33 kV ICTs with following proposed transmission connectivity:
- LILO of existing Jind (HVPNL) – Safidon 220 kV D/c line at 220 kV

Katwal S/s

- Creation of 132 kV D/c line from 132 kV Naguran S/s to Katwal S/s (length-6 km).
- Creation of 132 kV D/c line from 132 kV Ghogharian S/s to Katwal S/s (length-25 km).
- Creation of LILO of one ckt. of 132 kV D/c line from 220 kV Jind (HVPNL) to 132 kV Sec-9 Jind S/s at 220 kV Katwal S/s (LILO length approx. 20 km).

(b) Loading on 400/220 kV, 3x500 MVA ICTs at Jind (PG) and Jind (PG) - Jind (HVPNL) 220 D/c line to be monitored and necessary strengthening to be taken up on the basis of real time loading.

Meeting ended with thanks to the participants.

Annex I

List of participants:

S.No.	Name (Smt/Shri/Ms)	Designation
CEA		
1	Ishan Sharan	Chief Engineer
2	Kavita Jha	Director
3	Kanhaiya Singh Kushwaha	Deputy Director
4	Komal Dupare	Deputy Director
CTUIL		
5	Sandeep Kumawat	DGM
6	Madhusudan Meena	Engineer
Grid - India		
7	Gaurav Malviya	Manager
BBMB		
8	Surjeet Singh	CE (TS)
9	Vijay Singh	SE (Bhiwani)
HVPNL		
10	Sandeep Yadav	SE
11	Pushpendra Singh	SE
12	Surendra Singh	SE
13	Birender Singh	XEN
14	Deepak Singh	XEN
15	Satya Prakash	XEN
16	Anurodh Giri	XEN
17	Ramesh Chand	XEN
18	Anita Chowdhary	XEN
19	Vikas Malik	XEN
20	Palak Sinha	AE

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Annexure-VI

Subject: 153rd Power Sub Committee meeting of Bhakra Beas Management Board (Electrical Wing): Agenda for NRPC approval.

Agenda item no. III:
Augmentation of 400KV sub-station BBMB, Siwah (Panipat) from (1x450 + 1x500)MVA, 400/220KV + 2x100MVA, 220/132KV +1x60MVA, 220/33kV transformers to 3x500MVA, 400/220KV + 2x160MVA 220/132KV +1x60MVA, 220/33kV transformers along with augmentation of 220KV Sewah (Panipat BBMB) – Chhajpur D/C line from 0.4 sq Inch ACSR conductor to 0.4 sq inch HTLS conductor having ampacity of 1200Amp to meet N-1 contingency.

Agenda item no. IV:
Augmentation of 400 kV S/Stn BBMB Prem Nagar (Bhiwani) from 1x500 MVA, 400/220KV Power T/F to 2x500 MVA, 400/220KV Power T/Fs.

Agenda item V:
Augmentation of 10/16 MVA, 132/33 KV Power Transformer T-1 with 40/50 MVA, 132/33 kV Power Transformer (Assets of HVPNL) and Augmentation of 45 MVA, 220/132 KV Power Transformer with 100 MVA, 220/132 KV Power Transformer (Assets of HVPNL) at 220 KV S/Stn. BBMB, Kurukshetra.

DIARY NO. 462
DATED 17.10.2025
CE/SO & COMML, HVPNL

Please refer to the subject cited above.

In this regard, it is submitted that the aforesaid agenda items were deliberated in the 153rd Power Sub-Committee meeting of Bhakra Beas Management Board (Electrical Wing), wherein it was intimated that NRPC approval is required for these proposals. Further, SE/Planning, HVPNL, Panchkula vide letter no. Ch-31/NCR/KNL/483/1 dated 03.09.2025 (CP-1), has forwarded subject cited agenda item no. III, item no. IV and item no. V for NRPC approval.

It is pertinent to mention that BBMB, vide office order no. 332/B-1684/PSC/4P dated 27.03.2025, has constituted a committee for finalization of commercial and technical modalities for new/augmentation of BBMB assets. CE/PD&C, HVPNL, Panchkula, is a member of the said committee on behalf of HVPNL.

As per the minutes of the meeting held on 04.09.2025 (CP-2) among officers of PSTCL, HVPNL, HPSEBL, BBMB, and RRVPNL regarding commercial and technical modalities, it was agreed that all technical concurrences required for the above proposals shall be obtained by the respective beneficiary from the concerned authorities viz. CMETS before placing the agenda in the Power Sub-Committee.

In this connection, it is submitted that earlier CE/PD&C, HVPNL, Panchkula, vide letter dated 30.04.2025, forwarded minutes of the meeting held on 17.04.2025 in CEA. In the said meeting, the aforesaid agenda items were deliberated and agreed upon by CEA. The same has already been forwarded to BBMB. The commercial modalities would be finalized by committee constituted for finalization of commercial and technical modalities for new/augmentation of BBMB assets and subsequently in the BBMB Power Sub-Committee meeting.

In view of the above, CE/PD&C, HVPNL, Panchkula may be requested to take up the matter with NRPC in consulation with SLDC wing please.

Ab 9/10/25
AE/ISMC
HVPNL, Panchkula

Submitted please
XEN/ISMC
SE/STU
CE/SO & Comml

File may be forwarded to PD&C wing with request to take up the matter regarding NRPC approval with NRPC in consultation with SLDC/SO wing please.

Vikas Malik
XEN/ISMC

CE/SO & Comml

17/10
Rajeev Kumar Tayal
CE/SO & Comml.

No. 574/F /PA/CE/PD&C
HVPNL, Panchkula
Dated 17.10.2025

CE/PD&C/HVPNL

17/10/25
Gulshan Tuteja
CE/PD&C, HVPNL

SE/Planning

Xen/SS

17/10/25

Email **Executive Engineer PLG SS**

Fwd: 153rd Power Sub Committee meeting of Bhakra Beas Management Board (Electrical Wing): Agenda no. IV for NRPC approval for Augmentation of 400 kV S/Stn BBMB Prem Nagar (Bhiwani) from 1x500 MVA, 400/220KV Power T/F to 2x500 MVA, 400/220KV Power T/Fs

From : Executive Engineer PLG SS <xenplgss@hvpn.org.in> Thu, Oct 23, 2025 04:16 PM

Subject : Fwd: 153rd Power Sub Committee meeting of Bhakra Beas Management Board (Electrical Wing): Agenda no. IV for NRPC approval for Augmentation of 400 kV S/Stn BBMB Prem Nagar (Bhiwani) from 1x500 MVA, 400/220KV Power T/F to 2x500 MVA, 400/220KV Power T/Fs — 1 attachment

To : Executive Engineer AREA Planning I <xenareaplg1@hvpn.org.in>, Executive Engineer Area Planning II <xenareaplg2@hvpn.org.in>

Cc : Superintending Engineer Planning <seplg@hvpn.org.in>, Chief Engineer Planning Design and Contracts <cepdc@hvpn.org.in>

R/Sir

Please find enclosed note received from O/o SE/STU, HVPNL,Panchkula wherein it has been requested to take up the matter regarding agenda no. III & V i.e. **Augmentation of 400KV sub-station BBMB, Siwah (Panipat) from (1x450 + 1x500)MVA, 400/220KV + 2x100MVA, 220/132KV +1x60MVA, 220/33kV transformers to 3X500MVA, 400/220KV + 2x160MVA 220/132KV +1x60MVA, 220/33kV transformers along with augmentation of 220KV Sewah (Panipat BBMB) -Chhajpur D/C line from 0.4 sq inch ACSR conductor to 0.4 sq inch HTLS conductor having ampacity of 1200Amp to meet N-1 contingency** AND **Augmentation of 10/16 MVA, 132/33 KV Power Transformer T-1 with 40/50 MVA, 5 SS132/33 kV Power Transformer (Assets of HVPNL) and Augmentation of 45 MVA, 220/132 KV Power Transformer with 100 MVA, 220/132 KV Power Transformer (Assets of HVPNL) at 220 KV S/Stn. BBMB, Kurukshetra** with NRPC in consultation with SLDC wing.

Therefore, it is requested to forward the said agenda to O/o SE/SLDC (Op), HVPNL, Panchkula so that they may appraise the same in upcoming 56th TCC & 81th NRPC meeting scheduled to be held on 30th & 31st Oct 2025.

Regards
XEN/System Study
HVPNL, Panchkula.

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12 MB

Study on Ayodhya and Gorakhpur Islanding Scheme

Brief Description – Ayodhya and Gorakhpur Islanding Scheme is proposed using generation from Tanda TPS (2x660MW) and essential load of Ayodhya and Gorakhpur Region.

- For Ayodhya region load of 220/132kV Ayodhya, 132kV Darshan Nagar , 132kV Darshan Nagar TSS and 132kV Akbarapur substations have been taken in the Islanding scheme.
- For Gorakhpur region load of 132kV FCI I & II and 132kV Mohiddinpur I & II have been taken in the Islanding scheme.
- Load details as submitted by UPPTCL is given below:

Islanding scheme Load details

S. No.	Name of Substation / Feeder	220/132kV Power Transformer	Summer Peak (MW) (April 25 - 18.08.25)	Summer Off Peak (MW) (April 25 - 18.08.25)	Summer Average (MW) (April 25 - 18.08.25)	Winter Peak (October 24 -March 25) (MW)	Winter Off Peak (October 24 -March 25) (MW)	Winter Average (October 24 - March 25) (MW)	Category/Detail of Load
		Installed Capacity (MVA)							
1	220KV GIS Ayodhya	63MVA T/F-I	47.77	1.14	24.45	22.85	3.65	13.25	132 KV TSS DarshanNagar (Traction) Line. 02 Nos Town feeders(33KV).
		63MVA T/F-II	36.8	1.37	19.08	17.82	3.2	10.41	
2	132KV S/S Darshan Nagar	63MVA	48.98	4.082	26.531	36.73	0.82	18.775	132 KV NTPC(Solar) Line .132 KV KM Sugar Mill Line (Cogen). Important town area,Cantt Area and Shri RamJanm Bhumi Supply
		40MVA-I	31.84	0.41	16.125	21.63	0.41	11.02	
		40MVA-III	31.84	0.41	16.125	21.63	0.41	11.02	

3	132KV S/S Akbarpur	63MVA T/F-1	42.84	14.62	28.73	30.89	9.06	19.975	Town Area feeded. 132 KV AkbarPur Sugar Mill(Cogen)
		63MVA T/F-2	46	25.95	35.975	50.66	25	37.83	
4	132 KV S/S FCI Old	(2x63+1x40)	109	102	102	86	60	74	42 MW(33 KV Airforce+Medical+VIP area feeder) SSB Camp-03 MW and rest all load is Commercial & Rural area.
5	132 KV S/S FCI New	2x40	49.68	40	29.9	25.76	20	21.62	10 MW (33 kv Gorakhnath Mandir) and 28 MW M/s HURL Load. Rest rural and commercial
6	132 KV S/S Mohaddipur-Old	40 MVA T/F	21.6	14.47	12.96	14.8	8.14	8.88	Air Force- 2.5 MW Railway-06 MW AIIMS-2.5 MW. Rest are domestic and commercial area.
		63 MVA T/F	28.6	19.16	17.16	26.8	14.7	16.08	GRD-1 MW
7	132 KV S/S Mohaddipur-New	40 MVA T/F-I	29.4	19.6	17.6	20	11	15	Hospital-AIIMS-2.5 MW
		40 MVA T/F-II	29.4	19.6	17.6	20	11	15	Railway-RLY-Lokoshed-0.5 MW
		40 MVA T/F-III	29.4	19.6	17.6	20	11	15	GDA-10 MW VIP-Big Bazar-0.7 MW Rest are domestic and commercial area.

- Following cases of Load- Generation scenario has been considered for steady state study:-

Sl. No.	Case	Number of Machine	Generation (MW)	Load (MW)
1	Case-1	1	637	598 (Summer Peak)
2	Case-2	1	413	387 (Summer Average)
3	Case-3	1	448	421 (Winter Peak)
4	Case-4	1	316	293 (Winter Average)

- List of the substations under Ayodhya and Gorakhpur Islanding Scheme are as follows:

S.no	Name of Substation	S.no	Name of Substation
1	400kV Tanda	10	220/132kV Gorakhpur New
2	400kV Azamgarh	11	220/132kV Hata
3	400kV Gorakhpur (UP)	12	132kV Akbarpur
4	400/220kV Sultanpur	13	132kV Darshan Nagar
5	220/132kV Ayodhya	14	132kV Darshan Nagar TSS
6	220/132kV New Tanda	15	132kV FCI I
7	220KV Tanda	16	132kV FCI II
8	220kV Sohawal	17	132kV Mohiddinpur I
9	220/132kV Gorakhpur (Barahua)	18	132kV Mohiddinpur II

1. Case 1

- Actual Ex- bus Generation = 637 MW
- Actual load met = 598 MW
- **In this scenario of Load-Generation, Under Voltage is observed at few buses.**
- **Voltage profile of various buses of island is as follows-**

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151048	AKBARPUR	132.0	0.9406		151814	DARSHAN_TSS	132.0	0.8771
151058	GORAKPR1_BI	132.0	0.9079		152020	SOHAWAL	220.0	0.9354
151105	SOHAWAL	132.0	0.9212		152058	GORKP220_IBI	220.0	0.9222
151118	DARSHANN	132.0	0.8692		152071	SULTANP2	220.0	0.9642
151139	FCI_GORA	132.0	0.8966		152073	TANDA_220	220.0	0.9762
151203	TANDA	132.0	0.9686		152075	GORAKPR2	220.0	1.0215
151285	MOHIDDINPUR	132.0	0.8986		152123	NEW TANDA	220.0	0.9713
151421	NEW TANDA	132.0	0.9712		152163	GORAKP220_II	220.0	1.0189
151561	GORAK 132_II	132.0	1.0056		152164	HATA	220.0	1.0182
151579	HATA	132.0	1.0098		152202	GORKP220_IB2	220.0	1.0301
151620	FCI_II_GORA	132.0	0.9883		152214	AYODHYA	220.0	0.9068
151672	MOHADDIPR_II	132.0	0.9672		154007	GORAK_UP	400.0	1.0238
151763	GORAKPR1_B2	132.0	1.0447		154021	AZAMGAR4	400.0	1.0261
151777	AYODHYA	132.0	0.8783		154090	TANDA_EXT	400.0	1.0100

- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	132kV Gorakhpur New – Mohiuddinpur II line	123.4
2	132kV Akbarpur – Tanda line	124.7
3	132kV Sohawal – Darshan Nagar	108.2

2. Case 2

- Actual Ex- bus Generation =413 MW
- Actual load met =387 MW
- **No over loading and Under Voltage is observed.**
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151048	AKBARPUR	132.0	0.9951		151814	DARSHAN_TSS	132.0	0.9814
151058	GORAKPR1_BI	132.0	0.9868		152020	SOHAWAL	220.0	1.0072
151105	SOHAWAL	132.0	1.0026		152058	GORKP220_IBI	220.0	0.9885
151118	DARSHANN	132.0	0.9810		152071	SULTANP2	220.0	1.0128
151139	FCI_GORA	132.0	0.9780		152073	TANDA_220	220.0	1.0114
151203	TANDA	132.0	1.0142		152075	GORAKPR2	220.0	1.0513
151285	MOHIDDINPUR	132.0	0.9824		152123	NEW TANDA	220.0	1.0111
151421	NEW TANDA	132.0	1.0159		152163	GORAKP220_II	220.0	1.0499
151561	GORAK 132_II	132.0	1.0430		152164	HATA	220.0	1.0497
151579	HATA	132.0	1.0458		152202	GORKP220_IB2	220.0	1.0601

151620	FCI_II_GORA	132.0	1.0344		152214	AYODHYA	220.0	0.9915
151672	MOHADDIPR_II	132.0	1.0220		154007	GORAK_UP	400.0	1.0495
151763	GORAKPR1_B2	132.0	1.0751		154021	AZAMGAR4	400.0	1.0429
151777	AYODHYA	132.0	0.9825		154090	TANDA_EXT	400.0	1.0100

3. Case 3

- Actual Ex- bus Generation =448 MW
- Actual load met =421 MW
- **No over loading and Under Voltage is observed.**
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151048	AKBARPUR	132.0	0.9802		151814	DARSHAN_TSS	132.0	0.9656
151058	GORAKPR1_BI	132.0	0.9853		152020	SOHAWAL	220.0	0.9952
151105	SOHAWAL	132.0	0.9888		152058	GORKP220_IBI	220.0	0.9860
151118	DARSHANN	132.0	0.9613		152071	SULTANP2	220.0	1.0052
151139	FCI_GORA	132.0	0.9782		152073	TANDA_220	220.0	1.0064
151203	TANDA	132.0	1.0048		152075	GORAKPR2	220.0	1.0498
151285	MOHIDDINPUR	132.0	0.9787		152123	NEW TANDA	220.0	1.0049
151421	NEW TANDA	132.0	1.0070		152163	GORAKP220_II	220.0	1.0482
151561	GORAK 132_II	132.0	1.0402		152164	HATA	220.0	1.0485
151579	HATA	132.0	1.0454		152202	GORKP220_IB2	220.0	1.0586
151620	FCI_II_GORA	132.0	1.0357		152214	AYODHYA	220.0	0.9787

151672	MOHADDIPR_II	132.0	1.0162		154007	GORAK_UP	400.0	1.0483
151763	GORAKPR1_B2	132.0	1.0735		154021	AZAMGAR4	400.0	1.0421
151777	AYODHYA	132.0	0.9667		154090	TANDA_EXT	400.0	1.0100

- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1	132kV Akbarpur – Tanda line	109.9

4. Case 4

- Actual Ex- bus Generation =316 MW
- Actual load met =293 MW
- **No under voltage and over loading is observed.**
- Voltage profile of various buses of Islanding is as follows:

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151048	AKBARPUR	132.0	1.0144		151814	DARSHAN_TSS	132.0	1.0167
151058	GORAKPR1_BI	132.0	1.0336		152020	SOHAWAL	220.0	1.0317
151105	SOHAWAL	132.0	1.0299		152058	GORKP220_IBI	220.0	1.0258
151118	DARSHANN	132.0	1.0180		152071	SULTANP2	220.0	1.0307
151139	FCI_GORA	132.0	1.0284		152073	TANDA_220	220.0	1.0254
151203	TANDA	132.0	1.0311		152075	GORAKPR2	220.0	1.0583
151285	MOHIDDINPUR	132.0	1.0304		152123	NEW TANDA	220.0	1.0264

151421	NEW TANDA	132.0	1.0325		152163	GORAKP220_II	220.0	1.0572
151561	GORAK 132_II	132.0	1.0514		152164	HATA	220.0	1.0574
151579	HATA	132.0	1.0551		152202	GORKP220_IB2	220.0	1.0672
151620	FCI_II_GORA	132.0	1.0473		152214	AYODHYA	220.0	1.0206
151672	MOHADDIPR_II	132.0	1.0338		154007	GORAK_UP	400.0	1.0557
151763	GORAKPR1_B2	132.0	1.0823		154021	AZAMGAR4	400.0	1.0469
151777	AYODHYA	132.0	1.0177		154090	TANDA_EXT	400.0	1.0100

Final Observations:

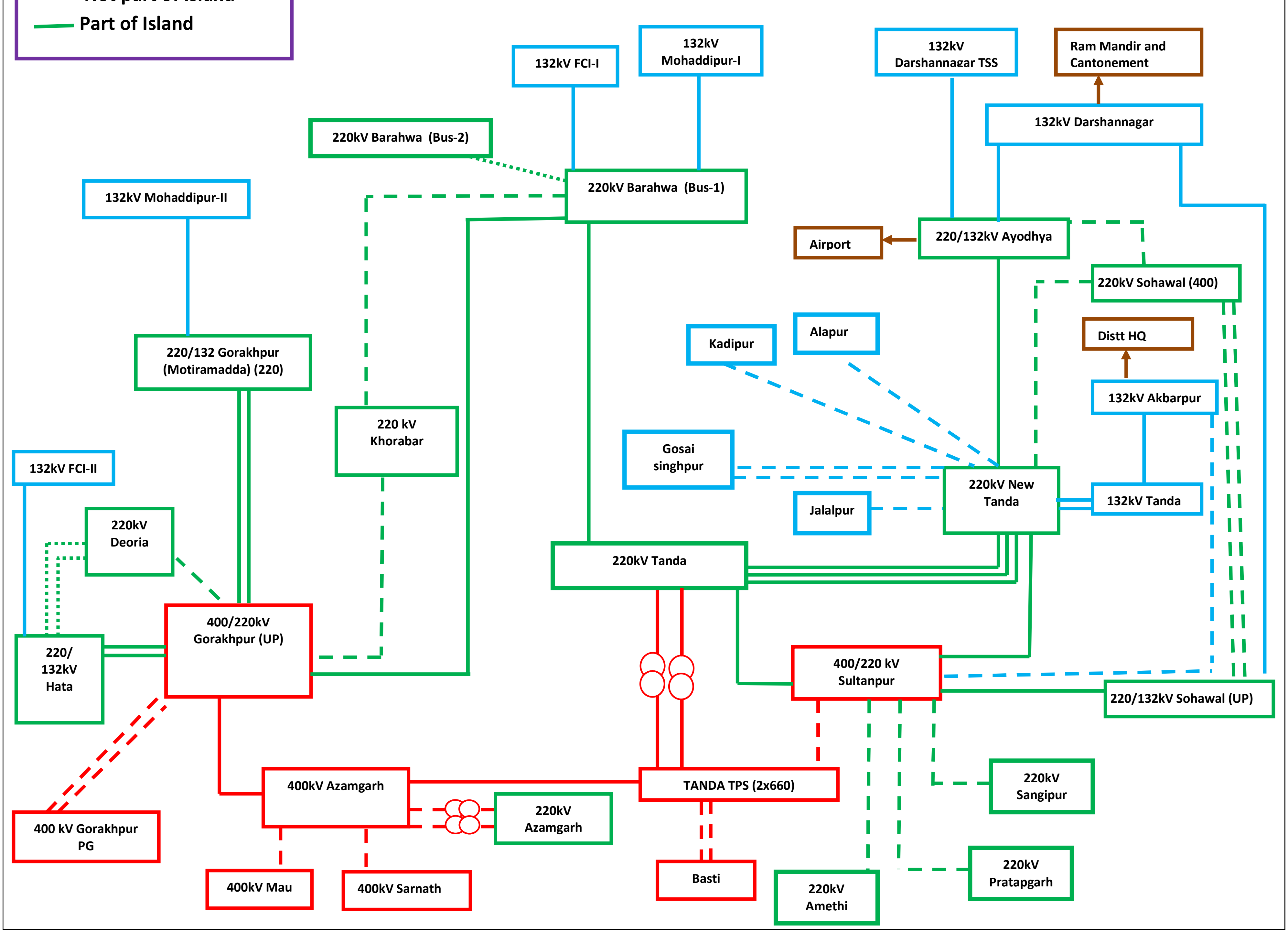
1. As per study, Islanding scheme seems feasible in all the cases.

Study with Outage of 220kV Tanda Substation:

- As per NTPC Tanda, they are planning to dismantle 220kV Tanda substation. A separate steady state study with outage of 220kV Tanda has been done. In this study, low voltages have been observed at several nodes of Island during summer peak conditions and Islanding scheme does not seem feasible.
- Voltage profile of various buses of Islanding is as follows:

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151048	AKBARPUR	132.0	0.8758		152058	GORKP220_IBI	220.0	0.8890
151058	GORAKPR1_BI	132.0	0.8719		152071	SULTANP2	220.0	0.9562
151105	SOHAWAL	132.0	0.8918		152073	TANDA_220	220.0	0.9793
151118	DARSHANN	132.0	0.8370		152075	GORAKPR2	220.0	0.9308
151139	FCI_GORA	132.0	0.8599		152100	GORAK-PG	220.0	0.9175
151203	TANDA	132.0	0.9059		152123	NEW TANDA	220.0	0.9108
151285	MOHIDDINPUR	132.0	0.8620		152163	GORAKP220_II	220.0	0.9278
151421	NEW TANDA	132.0	0.9088		152164	HATA	220.0	0.9273
151561	GORAK 132_II	132.0	0.9127		152202	GORKP220_IB2	220.0	0.9386
151579	HATA	132.0	0.9181		152214	AYODHYA	220.0	0.8781
151620	FCI_II_GORA	132.0	0.8942		154007	GORAK_UP	400.0	0.9344
151672	MOHADDIPR_II	132.0	0.8698		154021	AZAMGAR4	400.0	0.9672
151763	GORAKPR1_B2	132.0	0.9519		154022	SULTANP4	400.0	0.9686
151777	AYODHYA	132.0	0.8467		154036	GORAKHPU	400.0	0.9267
151814	DARSHAN_TSS	132.0	0.8454		154090	TANDA_EXT	400.0	1.0100
152020	SOHAWAL	220.0	0.9059					

SLD of Ayodhya - Gorakhpur Islanding Scheme



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SE (R&A) <sera@upsldc.org>

Steady State Feasibility Study of Gorakhpur-Ayodhya Islanding Scheme using generation from Tanda TPS

Gaurav Singh (गौरव सिंह) <gauravsingh@grid-india.in> Fri, Jan 9, 2026 at 4:38 PM
To: "SE (R&A)" <sera@upsldc.org>
Cc: "Gaurav Malviya (गौरव मालवीय)" <gauravmalviya@grid-india.in>, Omkishor <omkishor.sahu@gov.in>, "Mr. SAUMITRA MAZUMDAR" <seo-nrpc@nic.in>, "Somara Lakra (सोमारा लाकरा)" <somara.lakra@grid-india.in>, "Bikas Kumar Jha (बिकास कुमार झा)" <bikaskjha@grid-india.in>, "Sunil Kumar Aharwal (सुनील कुमार अहरवाल)" <skaharwal@grid-india.in>, "Ashok Kumar (अशोक कुमार)" <ashokkr@grid-india.in>

Sir,

Based on the submission of UP SLDC and the steady-state analysis provided, the proposed islanding scheme with 220 kV Tanda appears to be technically feasible under steady-state conditions, subject to confirmation of dynamic stability through detailed dynamic studies.

It is further noted that overloading and under-voltage conditions observed during summer peak case at certain 132 kV lines and nodes shall need to be appropriately addressed and validated during the final dynamic study and testing scenarios.

Regards,

Gaurav Singh / गौरव सिंह

Chief Manager/मुख्य प्रबंधक

System Operation/ प्रणाली संचालन

NRLDC,GRID-INDIA / उत्तरी क्षेत्रीय भार प्रेषण केंद्र, ग्रिड-इंडिया

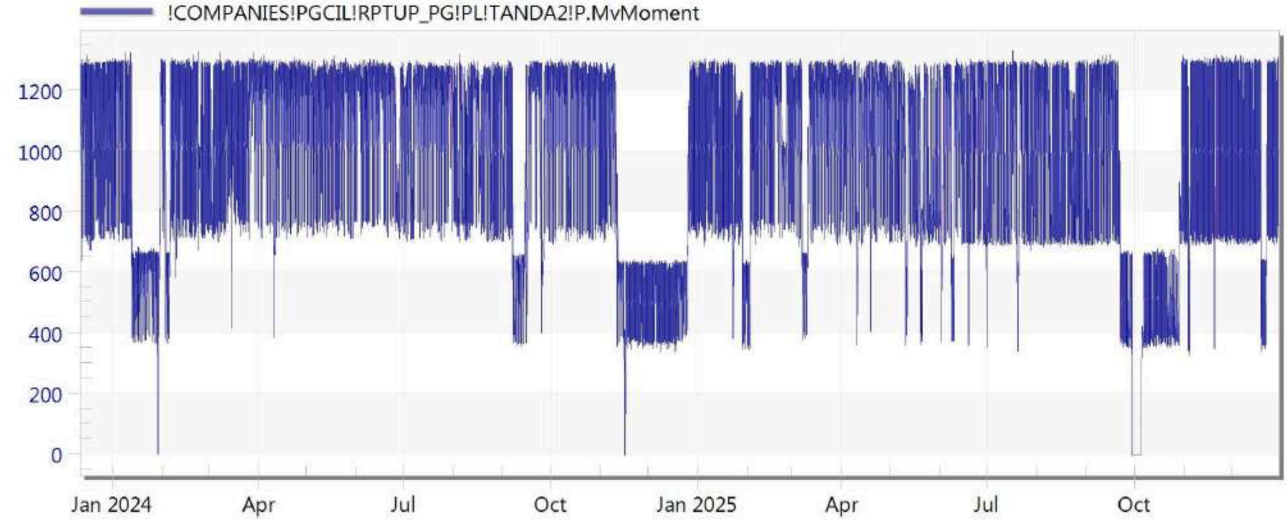
From: SE (R&A) <sera@upsldc.org>
Sent: Friday, January 9, 2026 4:06:22 PM
To: Gaurav Singh (गौरव सिंह)
Cc: Gaurav Malviya (गौरव मालवीय); Omkishor; Mr. SAUMITRA MAZUMDAR; Somara Lakra (सोमारा लाकरा); Bikas Kumar Jha (बिकास कुमार झा); Sunil Kumar Aharwal (सुनील कुमार अहरवाल)
Subject: Re: Steady State Feasibility Study of Gorakhpur-Ayodhya Islanding Scheme using generation from Tanda TPS

The reply of issues raised vide trailing email is given below:
1.The study has been done considering the generation of one unit of Tanda Stage -II (2x660 MW). If both the unit are considered, total load required to match the Load Generation balance would be 1300 MW. In such case, overloading and under voltage would be observed due to evacuation constrains at Tanda TPS (2X315 MVA ICTs are available). Therefore it is submitted that maximum 622 MW as taken in the study should be used for proposed Island .This load could be met either two machine (When operating at technical minimum during formation of Island) or One machine (operating at Full generation). In can both the machine are operating on full generation and Island load is 622 MW, excess generation can be tripped through df/dt relay. However setting of df/dt and associated time delay may be provided only after the dynamic study

2.It is also needed to inform that in the event of excess load/deficit load in the island df/dt based addition and removal of load may also be provided . However , setting of df/dt and associated time delay may be provided only after the dynamic study as was done in case of Agra Islanding Scheme whose dynamic study was done by CPRI **(Copy attached)**. Therefore after consent of NRPC forum for carrying out dynamic study, provision related to addition or removal of loads based on df/dt with certain time delay shall be taken care of.

On Tue, Dec 30, 2025 at 11:34 AM Gaurav Singh (गौरव सिंह) <gauravsingh@grid-india.in> wrote:

> Sir,
>
> Following may be noted in regard to the submitted Gorakpur-Ayodhya Islanding Scheme
>
> Based on the four scenarios considered, it is observed that the islanding scheme has been designed considering a maximum load of 622 MW corresponding to the summer peak season. However, it is pertinent to note that during the summer months, both 660 MW units of Tanda–II generally operate with full schedule ~ 1300 MW.
>
> Further, as evident from the attached generation plot for the past two years, the Tanda–II generating units have been in operation for the majority of the time (even during winter seasons) with near full schedule.



In light of above, it is requested to review the considered LGB for the said scheme. Provision to add or remove loads may be kept (Based on df/dt with certain time delay) after island creation to maximize the chances of island survival by load generation balancing. For reference, please see the approved Delhi islanding scheme (68th NRPC meeting MoM). Relevant section from the same is shown below :

LIST OF DESIGNATED FEEDERS AND df/dt SETTINGS FOR POST ISLANDING LOAD-GENERATION BALANCING

S. No.	Name of the Substation	Designated load/feeders in Revised Delhi Island	Max demand (7695 MW) Date-29.06.2022 Time-15:10:41	df/dt Setting	Time Delay
1	220kV I.P	33kV Bay 19, G.B Pant	19	0.2hz/sec	1000ms
		33kV Bay 34, Minto Road	16	0.1hz/sec	4000ms
		33kV Bay-29 & 33kV IG Stadium	19	0.3hz/sec	400ms
		33kV Supreme Court	2	0.2hz/sec	3000ms
		33kV Bay-2, Nirman Bhawan	8		
		33kV Bay-16, Nirman Bhawan	11		
2	220kV Park Street	66kV BD Marg- I & II	26	0.2hz/sec	2000ms
		66kV State Guest House	26	0.3hz/sec	-
		33kV Hanuman Road	7	0.2hz/sec	3000ms
		33kV Nirman Bhawan	0	No tripping envisaged. Feeder will always be kept ON	
3	220kV GTPS	66kV School Lane-I	17	0.3hz/sec	300ms
		66kV School Lane-II	8	0.3hz/sec	300ms
		66kV Vidyut Bhawan-I	10	0.1hz/sec	5000ms
		66kV Vidyut Bhawan-II	34	0.1hz/sec	5000ms
		33kV AIIMS- I,II&III	18		
		33kV Trauma Centre-I & II	8.1		
		33kV Safdarjung Hospital	1.6		
		33kV Raisina I & II	18		
		33kV Raja Bazar	10		
6	400kV Bawana	100MVA Transformer	63	1hz/sec	0ms
		66kV RG-28 Ckt-1	45	1hz/sec	100ms
		66kV RG-28 Ckt-2	45	1hz/sec	100ms
		66kV RG-30 Ckt-1	35	1hz/sec	200ms
		66kV RG-30 Ckt-2	35	1hz/sec	200ms

Regards,

Gaurav Singh / गौरव सिंह

Chief Manager/मुख्य प्रबंधक

System Operation/ प्रणाली संचालन

NRLDC,GRID-INDIA / उत्तरी क्षेत्रीय भार प्रेषण केंद्र, ग्रिड-इंडिया

From: SE (R&A) <sera@upsldc.org>
Sent: Wednesday, December 24, 2025 5:15 PM
To: Gaurav Malviya (गौरव मालवीय); Gaurav Singh (गौरव सिंह)
Cc: Omkishor; Mr. SAUMITRA MAZUMDAR; Somara Lakra (सोमारा लाकरा)
Subject: Steady State Feasibility Study of Gorakhpur-Ayodhya Islanding Scheme using generation from Tanda TPS

Sir
Kindly refer to discussions held in 234th OCC meeting regarding requirement of Islanding Schemes in UP Control Area and instruction of MS NRPC as quoted below
" MS, NRPC asked UPSLDC to review the overall requirement of Islanding Schemes in UP Control area according to their critical load installations and may refer CEA guidelines "

Further in the 238th OCC meeting MS NRPC instructed to submit Steady State Feasibility of Islanding Schemes proposed in UP Control Area as and when the study is completed instead of submitting all the schemes simultaneously. In compliance of the same kindly find the Steady State Feasibility Study of **Gorakhpur-Ayodhya Islanding Scheme using generation from Tanda TPS for your examination.**

--
Superintending Engineer ,
Reliability & Ancillary, UPSLDC
Gomti Nagar , Lucknow.

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Superintending Engineer ,
Reliability & Ancillary, UPSLDC
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Study on Kanpur Islanding Scheme

Brief Description – Kanpur Islanding Scheme is proposed using generation from Panki TPS (1x660MW) and essential load of Kanpur Region.

- Load of 220kV RPH, 220kV Bithoor, 220kV Kidwai Nagar, 220kV Kanpur South, 220 & 132kV Panki, 132kV Armapur substations and load of KMRC from 220kV Bithoor has been taken in Islanding Scheme.
- Load details as submitted by UPPTCL is given below:

Panki-Kanpur Islanding scheme Load details

S. No	Name of Substation / Feeder	220/66 & 220/33kV or 132/33 kV Power Transformer	Summer Peak MW (April 25 -July 25)	Summer Off Peak (April 25 -July 25) MW	Summer Average (April 25 -July 25) (MW)	Winter Peak (October 24-March 25) MW	Winter Off Peak (October 24 - March 25) MW	Winter Average (October 24-March 25) (MW)	Category/ Detail of Load
		Installed Capacity (MVA)							
1	220/33 KV SUBSTATION RPH	60MVA T/F-1	159	73	110	128.8	48	83	Kesco/Distt HQ
		60MVA T/F-2							Kesco/Distt HQ
		60MVA T/F-3							Kesco/Distt HQ
2	220 KV S/S BITHOOR	40 MVA T/F -1	26.8	13.5	21.95	26.8	11.2	14.8	KESCO/ DVVNL/ INDUSTRIAL/RL /KMRC

		40 MVA T/F -2	27.4	19.5	22.87	27.4	13.8	15.56	KESCO/ DVVNL/ INDUSTRIAL/RL /KMRC
3	**220 KV S/S PANKI KANPUR**	**220/33 KV POWER T/F (60 MVA)**	54	13	45	52	21	23	
		132/33 KV POWER T/F-1 (40 MVA)	32.67	6	30	27	7	22	
		132/33 KV POWER T/F-2 (40 MVA)	34	6	30	30	6	23	
		132/33 KV POWER T/F-3 (40 MVA)	35	6	30	28	6	22	
4	**132/33 KV S/S ARMAPUR KANPUR**	**20 MVA T/F -I**	8.9	2.23	7.1	7.1	1.8	5.1	INDUSTRY (ORDANANCE FACTORY KANPUR)
		20 MVA T/F -II	8.9	2.23	7.1	7.1	1.8	5.1	
5	**220/33KV GIS S/S KIDWAI NAGAR**	**220/33KV, 60MVA T/F -I**	34.2	15.4	24	25.8	11	13	Kesco
		220/33KV, 60MVA T/F -II	32.2	16.5	24	23.2	12	13	
		220/33KV, 60MVA T/F -III	36.6	16.6	24	27.7	14.5	12	
6	**220KV Kanpur South**	**60MVA TF-1**	38	17	28	45	13	29	Airforce station , Ganga Pollution feeder, Industries
		60MVA TF-2	49	20	35	49	16	33	
		60MVA TF-3	48	21	35	37	22	30	

- Following cases of Load- Generation scenario has been considered for steady state study:-

Sl. No.	Case	Number of Machine	Generation (MW)	Load (MW)
1	Case-1	1	628	624 (Summer Peak)
2	Case-2	1	476	474 (Summer Average)
3	Case-3	1	545	542 (Winter Peak)
4	Case-4	1	345	343 (Winter Average)

- List of the substations under Kanpur Islanding Scheme are as follows:

S.no	Name of Substation	S.no	Name of Substation
1	400kV Panki	6	132kV Bithoor
2	220kV Panki	7	132 KV Bithoor
3	220kV Kidwai Nagar	8	220/132kV Panki
4	220kV RPH	9	132kV Armapur
5	220kV Kanpur South		

1. **Case 1**

- Actual Ex- bus Generation =628 MW
- Actual load met =624MW
- **No over loading and Under Voltage is observed.**
- **Voltage profile of various buses of island is as follows-**

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151044	PANKI1	132.0	0.9416		152024	BITHOOR	220.0	0.9415
151076	AMRAPUR	132.0	0.9408		152055	PANKI2	220.0	0.9493
151230	BITHOOR	132.0	0.9273		152224	KIDWAI NAGAR	220.0	0.9425
152009	RPHKANPR	220.0	0.9372		154013	PANKI4	400.0	0.9997
152018	KANPU_SO	220.0	0.9276		154113	PANKI_TPS	400.0	1.0000

2. **Case 2**

- Actual Ex- bus Generation = 476MW
- Actual load met = 474MW
- **No over loading and Under Voltage is observed.**
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)

151044	PANKI1	132.0	0.9609		152024	BITHOOR	220.0	0.9596
151076	AMRAPUR	132.0	0.9603		152055	PANKI2	220.0	0.9658
151230	BITHOOR	132.0	0.9481		152224	KIDWAI NAGAR	220.0	0.9611
152009	RPHKANPR	220.0	0.9577		154013	PANKI4	400.0	0.9998
152018	KANPU_SO	220.0	0.9506		154113	PANKI_TPS	400.0	1.0000

3. **Case 3**
   - Actual Ex- bus Generation = 545MW
   - Actual load met = 542MW
   - **No over loading and Under Voltage is observed.**
   - Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151044	PANKI1	132.0	0.9542		152024	BITHOOR	220.0	0.9508
151076	AMRAPUR	132.0	0.9536		152055	PANKI2	220.0	0.9585
151230	BITHOOR	132.0	0.9367		152224	KIDWAI NAGAR	220.0	0.9535
152009	RPHKANPR	220.0	0.9489		154013	PANKI4	400.0	0.9997
152018	KANPU_SO	220.0	0.9377		154113	PANKI_TPS	400.0	1.0000

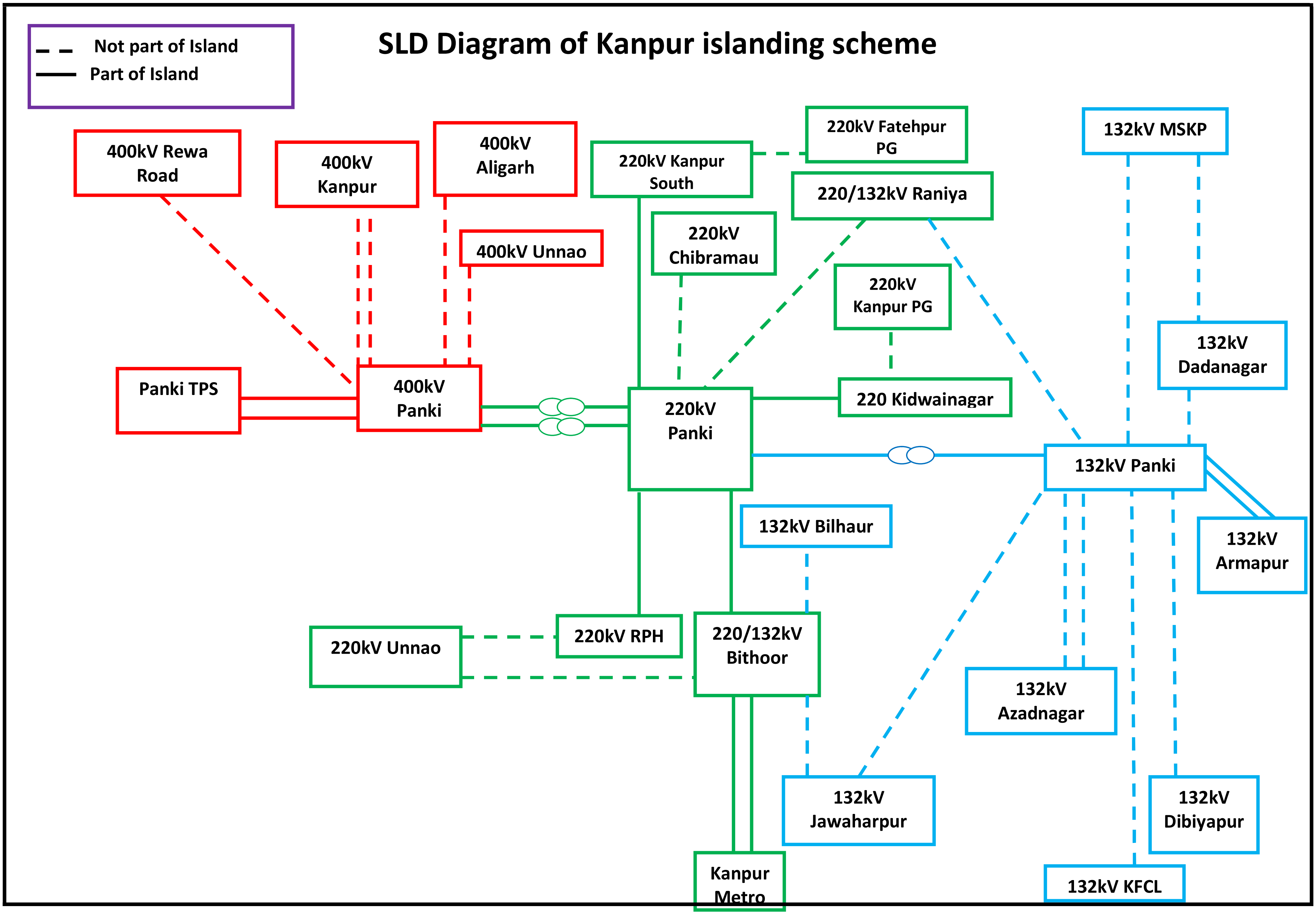
4. **Case 4**
   - Actual Ex- bus Generation = 345MW

- Actual load met = 343MW
- **No under voltage and over loading is observed.**
- Voltage profile of various buses of Islanding is as follows:

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151044	PANKI1	132.0	0.9781		152024	BITHOOR	220.0	0.9747
151076	AMRAPUR	132.0	0.9777		152055	PANKI2	220.0	0.9786
151230	BITHOOR	132.0	0.9671		152224	KIDWAI NAGAR	220.0	0.9763
152009	RPHKANPR	220.0	0.9726		154013	PANKI4	400.0	0.9999
152018	KANPU_SO	220.0	0.9647		154113	PANKI_TPS	400.0	1.0000

Final Observations:

1. As per study, Islanding scheme seems feasible in all the cases.



Not part of Island
Part of Island
SLD Diagram of Kanpur islanding scheme
400kV Rewa Road
400kV Kanpur
400kV Aligarh
400kV Unnao
Panki TPS
400kV Panki
220kV Kanpur South
220kV Fatehpur PG
220/132kV Raniya
220kV Chibramau
220kV Kanpur PG
220 Kidwainagar
220kV Panki
132kV MSKP
132kV Dadanagar
132kV Panki
132kV Armapur
132kV Bilhaur
220kV Unnao
220kV RPH
220/132kV Bithoor
132kV Azadnagar
132kV Jawaharpur
132kV Dibiyapur
Kanpur Metro
132kV KFCL

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SE (R&A) <sera@upsldc.org>

Steady State Feasibility Study of Kanpur Islanding Scheme using generation from Panki TPS

Gaurav Singh (गौरव सिंह) <gauravsingh@grid-india.in> Fri, Jan 9, 2026 at 2:46 PM
To: "SE (R&A)" <sera@upsldc.org>
Cc: "Mr. SAUMITRA MAZUMDAR" <seo-nrpc@nic.in>, "Somara Lakra (सोमारा लाकरा)" <somara.lakra@grid-india.in>, Omkishor <omkishor.sahu@gov.in>, "Bikas Kumar Jha (बिकास कुमार झा)" <bikaskjha@grid-india.in>, "Ashok Kumar (अशोक कुमार)" <ashokkr@grid-india.in>, "Gaurav Malviya (गौरव मालवीय)" <gauravmalviya@grid-india.in>

Sir,

Based on the submitted steady-state analysis, no overloading of the islanded network elements has been observed. The voltage profiles of the islanded system are also found to be satisfactory in all four studied scenarios : Summer Peak, Summer Average, Winter Peak, and Winter Average.

Accordingly, the proposed islanding scheme appears technically feasible from a steady-state perspective, subject to confirmation of its dynamic stability through appropriate studies.

Regards,

Gaurav Singh / गौरव सिंह

Chief Manager/मुख्य प्रबंधक

System Operation/ प्रणाली संचालन

NRLDC,GRID-INDIA / उत्तरी क्षेत्रीय भार प्रेषण केंद्र, ग्रिड-इंडिया

From: SE (R&A) <sera@upsldc.org>
Sent: Tuesday, December 30, 2025 5:06:52 PM
To: Gaurav Malviya (गौरव मालवीय); Gaurav Singh (गौरव सिंह)
Cc: Mr. SAUMITRA MAZUMDAR; Somara Lakra (सोमारा लाकरा); Omkishor
Subject: Steady State Feasibility Study of Kanpur Islanding Scheme using generation from Panki TPS

This message has been automatically flagged by the email security system.

Sir

Kindly refer to discussions held in 234th OCC meeting regarding requirement of Islanding Schemes in UP Control Area and instruction of MS NRPC as quoted below

" MS, NRPC asked UPSLDC to review the overall requirement of Islanding Schemes in UP Control area according to their critical load installations and may refer CEA guidelines "

Further in the 238th OCC meeting MS NRPC instructed to submit Steady State Feasibility of Islanding Schemes proposed in UP Control Area as and when the study is completed instead of submitting all the schemes simultaneously. In compliance with the same ,kindly find the Steady State Feasibility Study of **Kanpur Islanding Scheme using generation from Panki TPS for your examination.**

It is also needed to inform that provision to add or remove loads based on df/dt with certain time delay may be provided only after the dynamic study as was done in case of Agra Islanding Scheme whose dynamic study was done by CPRI **(Copy attached)**. Therefore after consent of NRPC forum for carrying out dynamic study,provision related to addition or removal of loads based on df/dt with certain time delay shall be taken care of.

--

Superintending Engineer ,
Reliability & Ancillary, UPSLDC
Gomti Nagar , Lucknow.

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Study on Bareilly Islanding Scheme

Brief Description – Bareilly Islanding Scheme is proposed using generation from Rosa TPS (2x300MW) and essential load of Bareilly and Shahjahanpur Region.

- Load of 220kV Dohna, 132kV Dohna, 220kV CBGanj, 132kV Bareilly-I, 220kV Shahjahapur, 132kV Shahjahpur and 132kV Bhoglipur TSS has been taken in Islanding Scheme.
- **The study has been done considering 220kV Rosa-CBGanj line which is expected to be commissioned by July 2026**
- Load details as provided by UPPTCL is given below:

ETC Bareilly Islanding scheme Load details

S. No.	Name of the Substation/ Feeder	220/66 & 220/33kV or 132/33 KV Power Transformer	Summer Peak MW (April 25 - July 25)	Summer Off Peak (April 25 - July 25) MW	Summer Average (April 25 - July 25) (MW)	Winter Peak (October 24-March 25) MW	Winter Off Peak (October 24-March 25) MW	Winter Average (October 24-March 25) (MW)	Category/Detail of Load
		Installed Capacity (MVA)							
1	**132 KV S/S DOHNA**	**40 MVA-I**	25.59	22.63	24.11	21.55	20.16	20.85	33KV KOHARAPEER,33KV BHOJIPURA,33KV AIRPORT,33KV BHOJIPURA INDUSTRIAL

		40 MVA-II	28.18	24.18	26.18	23.86	21.6	22.73	33 KV DEWARANIA,SUNCITY VISTAR,IVRI,AWASVIKASH,DHAURATANDA,PGCIL,
		63 MVA	31.27	30.86	31.06	27.77	27.57	27.67	
2	**220 KV S/S DOHNA**	**40 MVA-I**	21.44	14.61	12.5	11.11	9.93	9	33 KV DD PURAM,33 KV AIRFORCE-I,33 KV RAILWAY
		40 MVA-II	15.57	14.61	12.5	11.96	11.11	9	33 KV PHEONIX MALL,33 KV PGCIL,33 KV IZZATNAGAR,33 KV SRMS,33 KV Baikunthapur,33 KV Airforce-II
		40 MVA-III	21.44	14.61	12.5	11.96	11.11	9	
3	**132KV S/S Bareilly I**	63MVA T/F-I	39.6	36.5	28.2	32.6	29.4	30.5	33KV CIVIL LINE-I,33KV MES,33KV RAILWAY,33KV DOORDARSHAN AND 33KV DISTRICT COURT
		63MVA T/F-II	36.4	33.2	34.5	30.2	28.8	29	
		40MVA T/F	35.6	31.4	33	19.4	16.2	17.5	
4	**220KV SUB STATION, SHAHJAHANPUR**	**63 MVA**	42.09	42.09	29.99	35.80	35.58	28.90	Dist. Hospital. Cantonment Area. OCF. District HQ is feeded
		40 MVA-I	27.55	11.50	19.63	25.60	25.60	20.67	
		40 MVA-II	31.02	31.02	22.10	17.36	11.50	14.01	
5	**132 KV SUB STATION SHAHJAHANPUR**	**100 MVA**	78.4	47.34	35.1864	52.77	36.92	21.72	

- Following cases of Load- Generation scenario has been considered for steady state study:-

Sl. No.	Case	Number of Machine	Generation (MW)	Load (MW)
1	Case-1	2	526	508 (Summer Peak)
2	Case-2	2	442	429 (Summer Off Peak)
3	Case-3	2	406	397 (Winter Peak)
4	Case-4	2	368	360 (Winter Off Peak)

- List of the substations under Bareilly Islanding Scheme are as follows:

S.no	Name of Substation	S.no	Name of Substation
1	220kV Rosa	6	132 KV Bhoglipur TSS
2	220kV CBGanj	7	220/132kV Shahjahanpur
3	220kV Dohna	8	132kV Shahjahanpur
4	220kV Shahjahanpur	9	132kV Dohna
5	132kV Bareilly-I	10	132KV CBGanj

1. **Case 1**
   - Actual Ex- bus Generation =526 MW
   - Actual load met =508MW
   - **In this scenario of Load-Generation, low voltages are observed at few substations.**
   - **Voltage profile of various buses of island is as follows-**

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151022	DOHANA1	132.0	0.8812		151625	BHOGIPUR_TSS	132.0	0.8806
151024	SHAJANP1	132.0	0.9656		152021	ROSA-TP1	220.0	1.0000
151025	CBGANJ	132.0	0.8899		152023	SHJNP2	220.0	0.9896
151092	BARELY-1	132.0	0.8376		152060	DOHNA2	220.0	0.9064
151300	SHAHJAHA	132.0	0.9621		152067	CBGANJ2	220.0	0.9094

   - **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	220kV Rosa - CBGanj line	102.8

2. **Case 2**
   - Actual Ex- bus Generation =442 MW
   - Actual load met =429 MW
   - **In this scenario of Load-Generation, low voltages are observed at few substations.**
   - No over loading is observed.

- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151022	DOHANA1	132.0	0.9027		151625	BHOGIPUR_TSS	132.0	0.9021
151024	SHAJANP1	132.0	0.9753		152021	ROSA-TP1	220.0	1.0000
151025	CBGANJ	132.0	0.9093		152023	SHJNP2	220.0	0.9926
151092	BARELY-1	132.0	0.8658		152060	DOHNA2	220.0	0.9236
151300	SHAHJAHA	132.0	0.9732		152067	CBGANJ2	220.0	0.9259

3. Case 3

- Actual Ex- bus Generation =406 MW
- Actual load met =397 MW
- No over loading and Under Voltage is observed.
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151022	DOHANA1	132.0	0.9241		151625	BHOGIPUR_TSS	132.0	0.9235
151024	SHAJANP1	132.0	0.9753		152021	ROSA-TP1	220.0	1.0000
151025	CBGANJ	132.0	0.9283		152023	SHJNP2	220.0	0.9926
151092	BARELY-1	132.0	0.8971		152060	DOHNA2	220.0	0.9400
151300	SHAHJAHA	132.0	0.9730		152067	CBGANJ2	220.0	0.9417

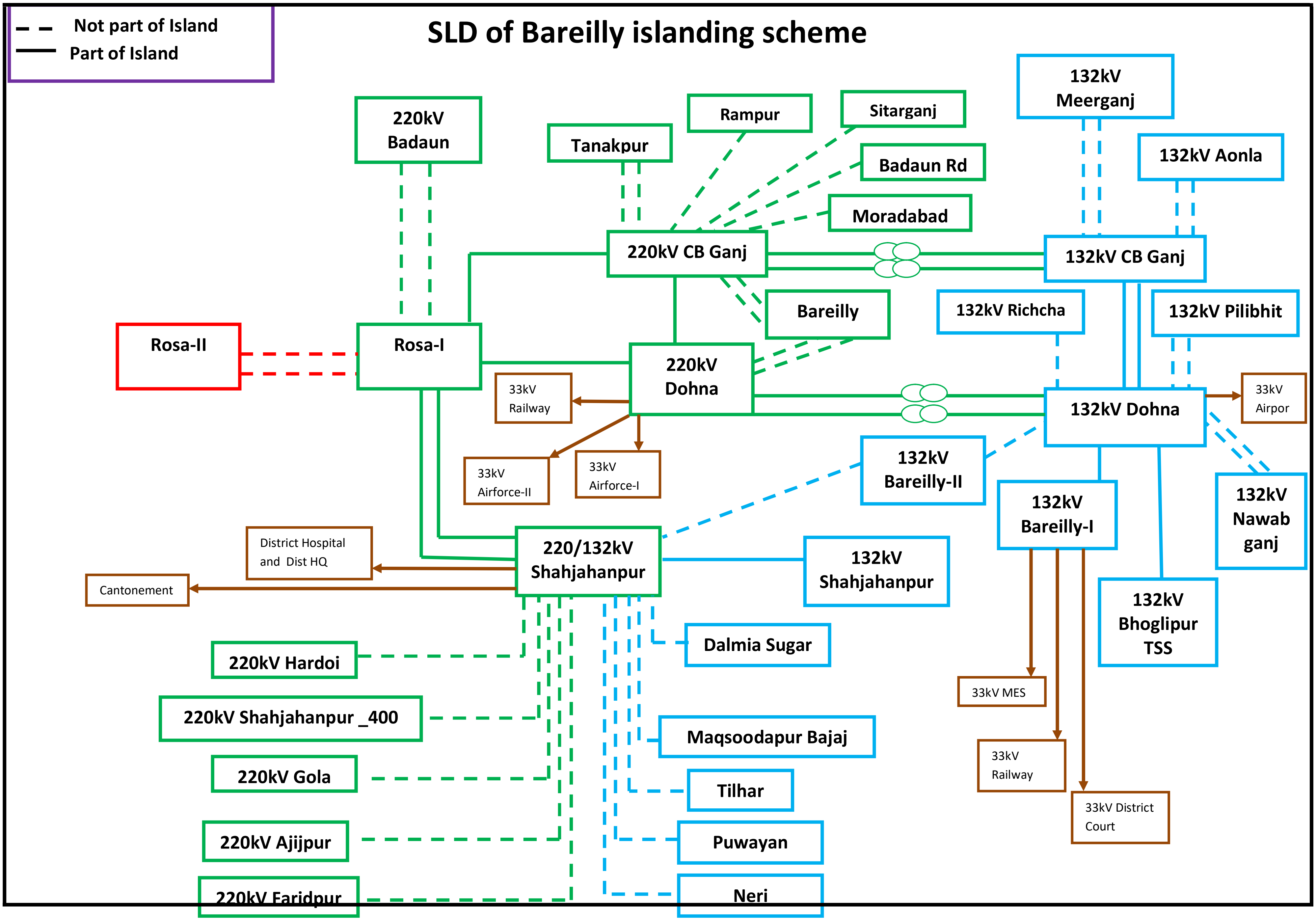
4. **Case 4**

- Actual Ex- bus Generation =368 MW
- Actual load met =360 MW
- No under voltage and over loading is observed.
- Voltage profile of various buses of Islanding is as follows:

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151022	DOHANA1	132.0	0.9332		151625	BHOGIPUR_TSS	132.0	0.9326
151024	SHAJANP1	132.0	0.9797		152021	ROSA-TP1	220.0	1.0000
151025	CBGANJ	132.0	0.9364		152023	SHJNP2	220.0	0.9940
151092	BARELY-1	132.0	0.9100		152060	DOHNA2	220.0	0.9469
151300	SHAHJAHA	132.0	0.9782		152067	CBGANJ2	220.0	0.9483

Final Observations:

1. As per study, Islanding scheme seems feasible in all the cases.
2. **The study has been done considering 220kV Rosa-CBGanj line which is expected to be commissioned by July 2026.**


Not part of Island
Part of Island
SLD of Bareilly islanding scheme
220kV Badaun
Tanakpur
Rampur
Sitarganj
Badaun Rd
Moradabad
132kV Meerganj
132kV Aonla
220kV CB Ganj
132kV CB Ganj
Rosa-II
Rosa-I
Bareilly
132kV Richcha
132kV Pilibhit
220kV Dohna
132kV Dohna
33kV Railway
33kV Airpor
33kV Airforce-II
33kV Airforce-I
132kV Bareilly-II
132kV Nawab ganj
132kV Bareilly-I
District Hospital and Dist HQ
Cantonement
220/132kV Shahjahanpur
132kV Shahjahanpur
132kV Bhoglipur TSS
Dalmia Sugar
220kV Hardoi
33kV MES
220kV Shahjahanpur _400
Maqsoodapur Bajaj
33kV Railway
220kV Gola
Tilhar
33kV District Court
220kV Ajijpur
Puwayan
220kV Faridpur
Neri

Study on Bareilly Islanding Scheme

Brief Description – Bareilly Islanding Scheme is proposed using generation from Rosa TPS (2x300MW) and essential load of Bareilly and Shahjahanpur Region.

- Load of 220kV Dohna, 132kV Dohna, 220kV CBGanj, 132kV Bareilly-I, 220kV Shahjahapur, 132kV Shahjahpur and 132kV Bhoglipur TSS has been taken in Islanding Scheme.
- **The study has been done considering 220kV Rosa-CBGanj line which is expected to be commissioned by July 2026**
- Load details as provided by UPPTCL is given below:

ETC Bareilly Islanding scheme Load details									
S. No.	Name of the Substation/ Feeder	220/66 & 220/33kV or 132/33 KV Power Transformer	Summer Peak MW (April 25 - July 25)	Summer Off Peak (April 25 - July 25) MW	Summer Average (April 25 - July 25) (MW)	Winter Peak (October 24-March 25) MW	Winter Off Peak (October 24-March 25) MW	Winter Average (October 24-March 25) (MW)	Category/Detail of Load
		Installed Capacity (MVA)							
1	132 KV S/S DOHNA	40 MVA-I	25.59	22.63	24.11	21.55	20.16	20.85	33KV KOHARAPEER,33KV BHOJIPURA,33KV AIRPORT,33KV BHOJIPURA INDUSTRIAL

		40 MVA-II	28.18	24.18	26.18	23.86	21.6	22.73	33 KV DEWARANIA,SUNCITY VISTAR,IVRI,AWASVIKASH,DHAURATANDA,PGCIL,
		63 MVA	31.27	30.86	31.06	27.77	27.57	27.67	
2	**220 KV S/S DOHNA**	**40 MVA-I**	21.44	14.61	12.5	11.11	9.93	9	33 KV DD PURAM,33 KV AIRFORCE-I,33 KV RAILWAY
		40 MVA-II	15.57	14.61	12.5	11.96	11.11	9	33 KV PHEONIX MALL,33 KV PGCIL,33 KV IZZATNAGAR,33 KV SRMS,33 KV Baikunthapur,33 KV Airforce-II
		40 MVA-III	21.44	14.61	12.5	11.96	11.11	9	
3	**132KV S/S Bareilly I**	63MVA T/F-I	39.6	36.5	28.2	32.6	29.4	30.5	33KV CIVIL LINE-I,33KV MES,33KV RAILWAY,33KV DOORDARSHAN AND 33KV DISTRICT COURT
		63MVA T/F-II	36.4	33.2	34.5	30.2	28.8	29	
		40MVA T/F	35.6	31.4	33	19.4	16.2	17.5	
4	**220KV SUB STATION, SHAHJAHANPUR**	**63 MVA**	42.09	42.09	29.99	35.80	35.58	28.90	Dist. Hospital. Cantonment Area. OCF. District HQ is feeded
		40 MVA-I	27.55	11.50	19.63	25.60	25.60	20.67	
		40 MVA-II	31.02	31.02	22.10	17.36	11.50	14.01	
5	**132 KV SUB STATION SHAHJAHANPUR**	**100 MVA**	78.4	47.34	35.1864	52.77	36.92	21.72	

- Following cases of Load- Generation scenario has been considered for steady state study:-

Sl. No.	Case	Number of Machine	Generation (MW)	Load (MW)
1	Case-1	2	526	508 (Summer Peak)
2	Case-2	2	442	429 (Summer Off Peak)
3	Case-3	2	406	397 (Winter Peak)
4	Case-4	2	368	360 (Winter Off Peak)

- List of the substations under Bareilly Islanding Scheme are as follows:

S.no	Name of Substation	S.no	Name of Substation
1	220kV Rosa	6	132 KV Bhoglipur TSS
2	220kV CBGanj	7	220/132kV Shahjahanpur
3	220kV Dohna	8	132kV Shahjahanpur
4	220kV Shahjahanpur	9	132kV Dohna
5	132kV Bareilly-I	10	132KV CBGanj

1. **Case 1**
    - Actual Ex- bus Generation =526 MW
    - Actual load met =508MW
    - **In this scenario of Load-Generation, low voltages are observed at few substations.**
    - **Voltage profile of various buses of island is as follows-**

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151022	DOHANA1	132.0	0.8812		151625	BHOGIPUR_TSS	132.0	0.8806
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151300	SHAHJAHA	132.0	0.9621		152067	CBGANJ2	220.0	0.9094

- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	220kV Rosa - CBGanj line	102.8

2. **Case 2**
    - Actual Ex- bus Generation =442 MW
    - Actual load met =429 MW
    - **In this scenario of Load-Generation, low voltages are observed at few substations.**
    - No over loading is observed.

- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
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3. Case 3

- Actual Ex- bus Generation =406 MW
- Actual load met =397 MW
- No over loading and Under Voltage is observed.
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
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151300	SHAHJAHA	132.0	0.9730		152067	CBGANJ2	220.0	0.9417

4. Case 4

- Actual Ex- bus Generation =368 MW
- Actual load met =360 MW
- No under voltage and over loading is observed.
- Voltage profile of various buses of Islanding is as follows:

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
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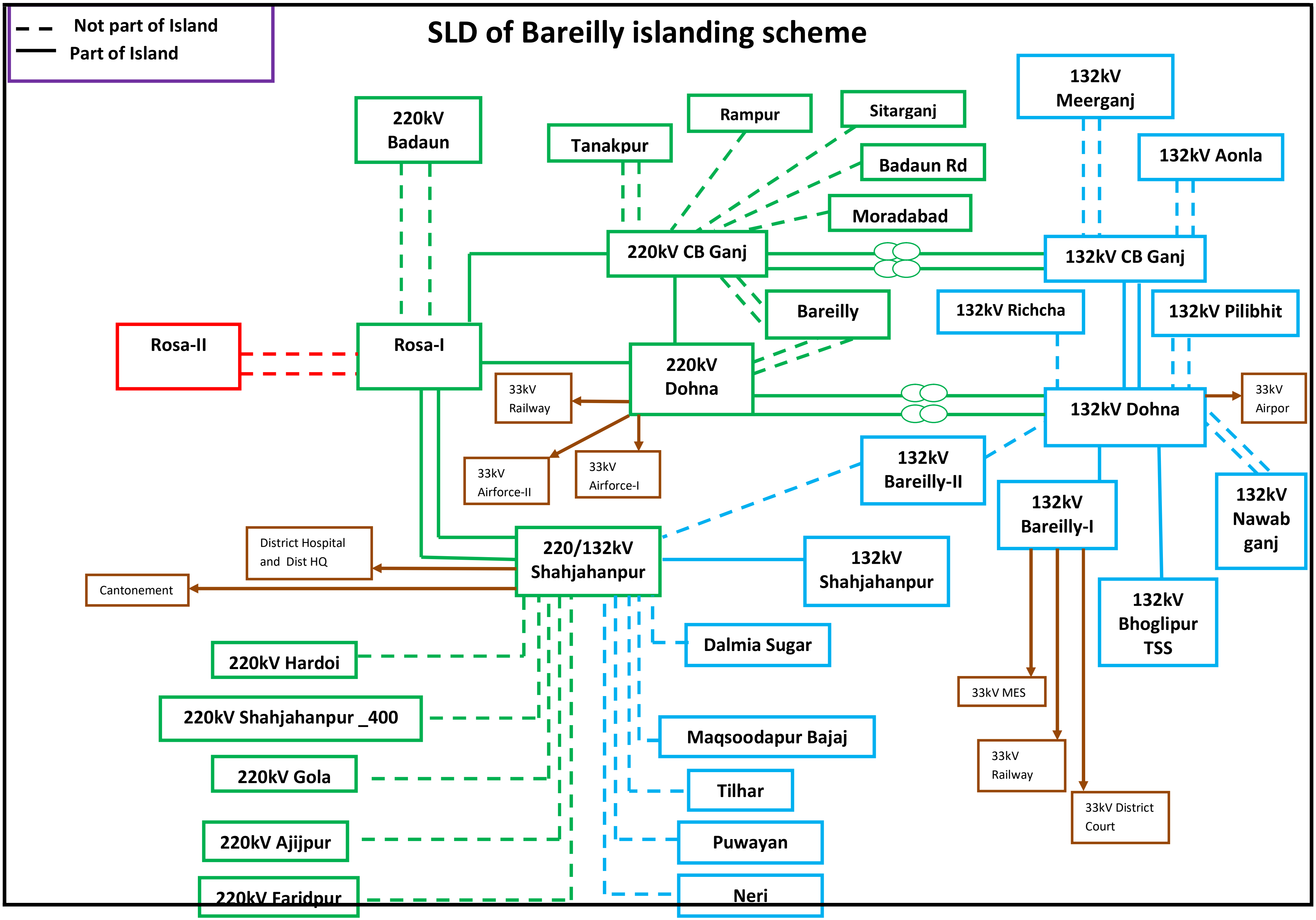
151025	CBGANJ	132.0	0.9364		152023	SHJNP2	220.0	0.9940
151092	BARELY-1	132.0	0.9100		152060	DOHNA2	220.0	0.9469
151300	SHAHJAHA	132.0	0.9782		152067	CBGANJ2	220.0	0.9483

Final Observations:

1. As per study, Islanding scheme seems feasible in all the cases.
2. **The study has been done considering 220kV Rosa-CBGanj line which is expected to be commissioned by July 2026.**



Not part of Island
Part of Island
SLD of Bareilly islanding scheme
220kV Badaun
Tanakpur
Rampur
Sitarganj
Badaun Rd
Moradabad
132kV Meerganj
132kV Aonla
220kV CB Ganj
132kV CB Ganj
Rosa-II
Rosa-I
Bareilly
132kV Richcha
132kV Pilibhit
220kV Dohna
33kV Railway
132kV Dohna
33kV Airpor
33kV Airforce-II
33kV Airforce-I
132kV Bareilly-II
132kV Bareilly-I
132kV Nawab ganj
District Hospital and Dist HQ
Cantonement
220/132kV Shahjahanpur
132kV Shahjahanpur
132kV Bhoglipur TSS
Dalmia Sugar
220kV Hardoi
33kV MES
220kV Shahjahanpur _400
Maqsoodapur Bajaj
33kV Railway
220kV Gola
Tilhar
33kV District Court
220kV Ajijpur
Puwayan
220kV Faridpur
Neri

Study on Aligarh Islanding Scheme

Brief Description – Aligarh Islanding Scheme is proposed using generation from Harduaganj TPS (2x250MW) and essential load of Aligarh Region.

- Load of 132kV Boner, 132kV Aligarh V, 132kV Aligarh III, 132kV Sarsol, 132kV Atrauli and 132kV DFCC substations has been taken in Islanding Scheme.
- Load details as submitted by UPPTCL is given below:

S No	Name of substation	Name of ICT/Feeder	Rating of ICT		Summer Peak (2024-25) MW 13.06.2024 22:00Hrs	Summer Off Peak (2024-25) MW 13.09.2024 04:00Hrs	Summer Average (2024-25)	Winter Peak (2024-25) MW 10.03.2025 21:00Hrs	Winter Off Peak (2024-25) MW 30.09.2024 03:00Hrs	Winter Average (2024-25)	Load category
			Installed capacity (MVA)	Installed capacity (MW)							
1	132 KV Aligarh V (Lal Diggi, Ramghat Road, UPSIDC feeder)	40 MVA T/F-I 132/33 KV	40 MVA	38	21	11.4	16.2	10	14.4	12.2	URBAN, RURAL & INDUSTRIAL
		40 MVA T/F-II, 132/33 KV	40 MVA	38	21.2	11.8	16.5	10	14.4	12.2	URBAN, RURAL & INDUSTRIAL
		40 MVA T/F-III, 132/33 KV	40 MVA	38	19.2	10.8	15	9.6	13.2	11.4	URBAN, RURAL & INDUSTRIAL
2	132 KV Boner (132 KV DFCC Feeder, 33 KV AMU, Dhanipur, Deendyal Hospital,	40 MVA T/F I-, 132/33 KV	40 MVA	38	21.8	5.75	13.77	11.2	9.08	10.14	URBAN, RURAL & INDUSTRIAL
		40 MVA T/F II-, 132/33 KV	40 MVA	38	22.89	6.9	14.89	11.2	19.29	15.24	URBAN, RURAL & INDUSTRIAL

	Medical, Talanagari feeder)	63 MVA T/F II-, 132/33 KV	63 MVA	60	32.7	10.35	21.52	20.16	15.89	18.02	URBAN, RURAL & INDUSTRIAL
3	132 KV Sarsol (33 kV Clock Tower, Malkhan Singh, Bhole Baba, Industries, Railway, Al Ahmad feeder)	63 MVA T/F I-, 132/33 KV	63 MVA	60	38.65	13.9	26.28	21.3	21.1	21.25	URBAN, RURAL & INDUSTRIAL
		63 MVA T/F II-, 132/33 KV	63 MVA	60	47	21	34	20.28	22.71	21.45	URBAN, RURAL & INDUSTRIAL
		40 MVA T/F, 132/33 KV	40 MVA	38	30.4	13.03	21.85	14.3	16.06	15.18	URBAN, RURAL & INDUSTRIAL
4	132 KV ALIGARH 3 (33 KV feeder Trimbkeshwer, HMA Agro, Alhasan, Al Anam, Defence Corridor)	40 MVA T/F-I 132/33 KV	40 MVA	38	31.245	7.92	19.58	26.66	8.38	17.52	URBAN, RURAL & INDUSTRIAL
		40 MVA T/F-II, 132/33 KV	40 MVA	38	31.245	7.92	19.58	26.66	8.38	17.52	URBAN, RURAL & INDUSTRIAL
		40 MVA T/F-III, 132/33 KV	40 MVA	38	31.245	7.92	19.58	26.66	8.38	17.52	URBAN, RURAL & INDUSTRIAL
In addition to load details as given above, load of 132kV Atrauli, 132kV DFCC and 132kV Ultratech cement has been considered in the Islanding scheme. Maximum loading of these substations is 100MW during Summer Season and 80MW during Winter Season.											

- Following cases of Load- Generation scenario has been considered for steady state study:-

Sl. No.	Case	Number of Machine	Generation (MW)	Load (MW)
1	Case-1	1	475	467 (Summer Peak)
2	Case-2	1	341	337 (Summer Average)
3	Case-3	1	310	306 (Winter Peak)
4	Case-4	1	270	268 (Winter Average)

- List of the substations under Aligarh Islanding Scheme are as follows:

S.no	Name of Substation	S.no	Name of Substation
1	220/132kV Harduaganj	6	132kV Sarsol
2	220/132kV Khair	7	132 KV Boner
3	220/132kV Ataruli	8	132kV Aligarh III
4	220/132kV Boner	9	132kV DFCC
5	132kV Aligarh V		

1. Case 1

- Actual Ex- bus Generation =475 MW
- Actual load met =467MW
- **No Under Voltage is observed.**
- **Voltage profile of various buses of island is as follows-**

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151003	ATRAULI1	132.0	0.9675		151615	GRASIM CEMNT	132.0	0.9659
151039	HARDUGN1	132.0	0.9639		151685	ALIGARH V	132.0	0.9330
151064	ALIGR_BNR132	132.0	1.0010		151943	DFCC	132.0	1.0010
151068	SARSAUL	132.0	0.9449		152003	ATRAULI2	220.0	0.9854
151071	ALIGARH3	132.0	0.9459		152047	HARDUGN2	220.0	1.0000
151244	KHAIR	132.0	0.9836		152091	KHAIR	220.0	0.9923
151499	ALIGR_BONR2	132.0	1.0012		152112	ALIGAR_BONER	220.0	0.9983

- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	132kV Aligarh III - Khair line	114.6

2. **Case 2**

- Actual Ex- bus Generation = 341MW
- Actual load met = 337 MW
- **No over loading and Under Voltage is observed.**
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151003	ATRAULI1	132.0	0.9825		151615	GRASIM CEMNT	132.0	0.9809
151039	HARDUGN1	132.0	0.9744		151685	ALIGARH V	132.0	0.9565
151064	ALIGR_BNR132	132.0	1.0115		151943	DFCC	132.0	1.0115
151068	SARSAUL	132.0	0.9614		152003	ATRAULI2	220.0	0.9914
151071	ALIGARH3	132.0	0.9764		152047	HARDUGN2	220.0	1.0000
151244	KHAIR	132.0	0.9945		152091	KHAIR	220.0	0.9973
151499	ALIGR_BONR2	132.0	1.0116		152112	ALIGAR_BONER	220.0	1.0014

3. **Case 3**

- Actual Ex- bus Generation = 310MW
- Actual load met = 306MW
- **No over loading and Under Voltage is observed.**

- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151003	ATRAULI1	132.0	0.9904		151615	GRASIM CEMNT	132.0	0.9889
151039	HARDUGN1	132.0	0.9819		151685	ALIGARH V	132.0	0.9748
151064	ALIGR_BNR132	132.0	1.0143		151943	DFCC	132.0	1.0143
151068	SARSAUL	132.0	0.9732		152003	ATRAULI2	220.0	0.9946
151071	ALIGARH3	132.0	0.9583		152047	HARDUGN2	220.0	1.0000
151244	KHAIR	132.0	0.9881		152091	KHAIR	220.0	0.9944
151499	ALIGR_BONR2	132.0	1.0144		152112	ALIGAR_BONER	220.0	1.0022

4. Case 4

- Actual Ex- bus Generation = 270MW
- Actual load met = 268MW
- **No under voltage and over loading is observed.**
- Voltage profile of various buses of Islanding is as follows:

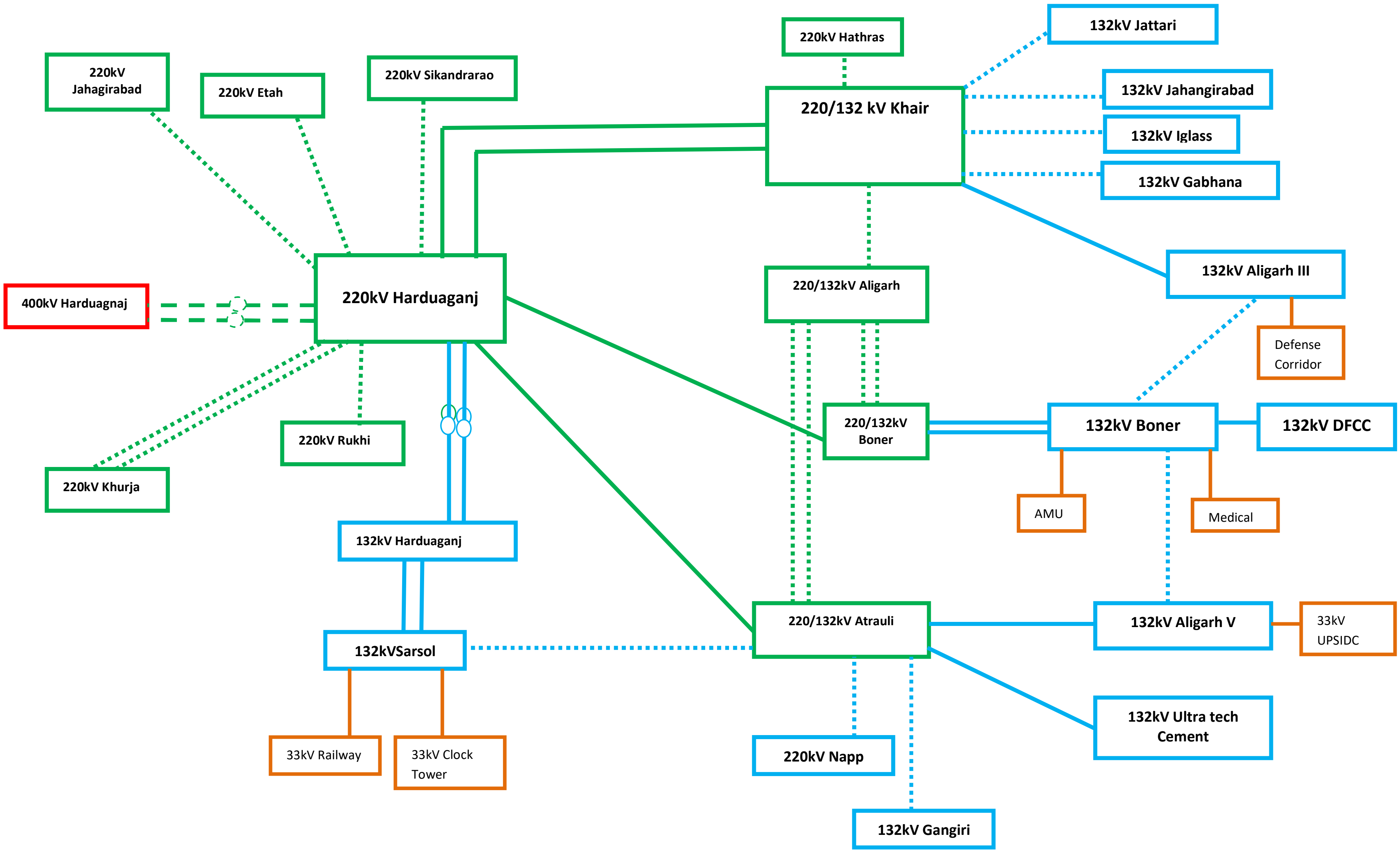
Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151003	ATRAULI1	132.0	0.9956		151615	GRASIM CEMNT	132.0	0.9940

151039	HARDUGN1	132.0	0.9814		151685	ALIGARH V	132.0	0.9766
151064	ALIGR_BNR132	132.0	1.0140		151943	DFCC	132.0	1.0140
151068	SARSAUL	132.0	0.9723		152003	ATRAULI2	220.0	0.9967
151071	ALIGARH3	132.0	0.9814		152047	HARDUGN2	220.0	1.0000
151244	KHAIR	132.0	0.9963		152091	KHAIR	220.0	0.9981
151499	ALIGR_BONR2	132.0	1.0141		152112	ALIGAR_BONER	220.0	1.0021

Final Observations:

1. As per study, Islanding scheme seems feasible in all the cases.

SLD of Aligarh Islanding Scheme



Study on Prayagraj Islanding Scheme

Brief Description - Prayagraj Islanding Scheme is proposed using generation from Meja TPS (2x660MW) and essential load of Prayagraj and Banda Region.

- Following cases of Load- Generation scenario has been considered for steady state study:-

Sl. No.	Case	Number of Machine	Generation (MW)	Load (MW)
1	Case-1	1	614	603 (Summer Peak)
2	Case-2	1	613	600 (Summer Average)
3	Case-3	1	615	604 (Winter Peak)
4	Case-4	1	605	594 (Winter Average)

- List of the substations under Prayagraj Islanding Scheme are as follows:

S.no	Name of Substation	S.no	Name of Substation
1	400kV Meja	12	132kV Kareli
2	400kV Rewa Road	13	132kV Minto Park
3	400kV Masauli	14	132kV Teliyarganj
4	400kV Banda	15	132kV Banda
5	220kV Rewa Road	16	132kV Naini
6	220kV Allahabad Cantt	17	132kV Shankar Garh
7	220kV Banda	18	132kv Sarai Aqil

8	220kV Pahadi	19	132kV Karchana
9	132 KV Allahabad Cantt	20	132kV Koraw
10	132kV GIS Old	21	132kV Manauri
11	132KV Rewa Road	22	132kV Atarra

- **Load details as submitted by UPTCL is given below:**

Load of Prayagraj Islanding Scheme

S.No.	Name of the Substation/ Feeder	220/66 & 220/33kV Power Transformer	Summer Peak MW (April 25 - July 25)	Summer Off Peak (April 25 -July 25) MW	Summer Average (April 25 -July 25) (MW)	Winter Peak (October 24-March 25) MW	Winter Off Peak(October 24-March 25) MW	Winter Average (October 24-March 25) (MW)	Critical load/Institutions
		Installed Capacity (MVA) (132/33 kV Voltage level)							
1	220 kV S/S Rewa road	40 MVA T/F-I	21.6	6.00	20.00	14.00	5.00	18.93	Karelabagh water works, Mela Area -Arail
		40 MVA T/F-II	21.2	7.00	19.00	15.00	6.00	16.06	
		40 MVA T/F-III	22	7.00	19.00	15.00	6.00	16.73	
2	220 kV S/S Cantt.	40 MVA T/F-I	26	12.00	15.00	21.00	7.00	9.00	Karelabagh water works, High court, Bamrauli Air Force, Bamrauli Air port , ITBP , DFCCIL-I&II,Khusrobagh water works,Railway DSA ground., RADAR.
		40 MVA T/F-II	26	16.00	15.00	21.00	8.00	9.00	
		40 MVA T/F-III	28	16.00	15.00	21.00	11.00	12.00	
		40 MVA T/F-IV	25	15.00	12.00	18.00	9.00	10.00	
3	132 kV S/S Mintopark	63MVA T/F -I	51	18.65	41.15	39.50	13.32	30.86	SRN Hospital ,High court ,Mela area ,Parade maidan.
		40MVA T/F-II	26	14.55	20.57	16.17	5.74	12.34	

		40MVA T/F-III	20.66	10.25	14.40	5.12	5.94	4.06	Sangam Nose,
		40MVA T/F-IV	28.58	14.35	22.63	20.18	8.40	14.40	
4	**132 kV S/S Telierganj**	**63 MVA - I**	52.4	10.75	47.66	34.20	7.33	27.40	Beli Hospital, Police line, Mela area Telierganj ,Govindpur,
		63 MVA - II	47.7	19.92	46.38	35.77	10.66	29.81	
5	**132 kV S/S GIS OPH**	**63 MVA - I**	30.28	34.31	32.31	35.39	22.31	28.85	SRN Hospital ,High court ,
		63 MVA - II	30.94	35.15	33.05	21.05	20.42	20.74	
6	**132 kV S/S GIS Kareli**	**2x63 MVA - I**	30.45	14.50	22.00	17.07	7.80	11.05	Khooshru bagh water work kalvine hospital
		2x63 MVA - II	30.09	12.41	18.46	28.22	11.19	15.50	
7	**132KV NAINI COMPLEX**	40MVA-I	26	20.40	23.20	25.10	18.10	21.60	
		40MVA-II	26.5	22.00	24.25	28.00	13.00	20.50	
		40MVA-III	31	18.00	24.50	18.50	24.00	21.25	
		40MVA-IV	28.6	28.60	28.60	20.00	14.00	17.00	
		20MVA	0.15	0.11	0.13	0.11	0.11	0.11	
8	**132 KV Shankargarh**	**40 MVA I**	21	10.20	15.50	22.20	10.40	15.40	RURAL
		40MVA II	20.8	10.30	15.25	22.00	10.00	15.30	INDUSTRIAL/URBAN

Note:

1. **Load of 132kV Naini Complex and 132kV Shankargarh has also been taken in Island in Summer Average scenario.**
2. **Load of 132kV Naini Complex, 132kV Shankargarh and 132kV Sarai Aqil has also been taken in Island in Winter Peak scenario.**
3. **Load of 132kV Naini Complex, 132kV Shankargarh, 132kV Sarai Aqil, 132kV Karchana, 132kV Koraw, 132kV Manuari and 132kV Atarra has also been taken in Island in Winter Average scenario.**

1. **Case 1**
    - Actual Ex- bus Generation =614 MW
    - Actual load met =603MW
    - **In this scenario of Load-Generation, low voltages are observed at few substations.**
    - **Voltage profile of various buses of island is as follows-**

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151009	BANDA1	132.0	1.0011		152062	ALAHBAD2	220.0	0.9404
151052	ALAHBAD1	132.0	0.8957		152076	CANT_AL	220.0	0.9297
151062	CANT_AL	132.0	0.8873		152099	ALLAHABA_PG	220.0	0.9406
151087	BANDA132	132.0	1.0004		152111	REWAROAD	220.0	0.9408
151282	MINTOPARK	132.0	0.8809		152143	BANDA42	220.0	1.0118
151409	TELIARGANJ	132.0	0.8676		152171	PAHADI	220.0	1.0115
151545	PAHADI	132.0	1.0072		154063	REWAROAD	400.0	1.0121
151639	GIS_OLD_PH	132.0	0.8808		154075	MEJA	400.0	1.0200
151640	MEJA_TPS_132	132.0	1.0136		154076	BANDA	400.0	1.0132
151812	KARELI	132.0	0.8852		154089	MASAULI	400.0	1.0201
152007	BANDA2	220.0	1.0080					

- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	132kV Minto Park - Teliyarganj line	144.6
2.	220kV Rewa Road - Allahabad Cantt line	107.6
3.	2x315MVA ICTs at 400kV Rewa Road	102.7

2. Case 2

- Actual Ex- bus Generation =613 MW
- Actual load met =600 MW
- **In this scenario of Load-Generation, low voltages are observed at few substations.**
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151009	BANDA1	132.0	1.0113		152007	BANDA2	220.0	1.0158
151052	ALAHBAD1	132.0	0.8907		152062	ALAHBAD2	220.0	0.9388
151062	CANT_AL	132.0	0.8910		152076	CANT_AL	220.0	0.9289
151087	BANDA132	132.0	1.0108		152099	ALLAHABA_PG	220.0	0.9406
151188	SHANKARG	132.0	0.8676		152111	REWAROAD	220.0	0.9391
151282	MINTOPARK	132.0	0.8799		152143	BANDA42	220.0	1.0182
151296	NAINI	132.0	0.8722		152171	PAHADI	220.0	1.0212

151409	TELIARGANJ	132.0	0.8675		154063	REWAROAD	400.0	1.0123
151545	PAHADI	132.0	1.0187		154075	MEJA	400.0	1.0200
151639	GIS_OLD_PH	132.0	0.8817		154076	BANDA	400.0	1.0161
151640	MEJA_TPS_132	132.0	1.0136		154089	MASAULI	400.0	1.0201
151812	KARELI	132.0	0.8869					

- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	132kV Rewa Road - Naini line	144.7
2.	132kV Minto Park - Teliyarganj line	135.5
3.	220kV Rewa Road - Allahabad Cantt line	103.4
4.	2x315MVA ICTs at 400kV Rewa Road	107.4

3. **Case 3**

- Actual Ex- bus Generation =615 MW
- Actual load met =604 MW
- **In this scenario of Load-Generation, low voltages are observed at few substations**.
- Voltage profile of various buses of island is as follows-

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)

151009	BANDA1	132.0	1.0104		151812	KARELI	132.0	0.8882
151052	ALAHBAD1	132.0	0.8932		152007	BANDA2	220.0	1.0149
151062	CANT_AL	132.0	0.8921		152062	ALAHBAD2	220.0	0.9400
151087	BANDA132	132.0	1.0099		152076	CANT_AL	220.0	0.9301
151188	SHANKARG	132.0	0.8595		152099	ALLAHABA_PG	220.0	0.9406
151282	MINTOPARK	132.0	0.8846		152111	REWAROAD	220.0	0.9404
151296	NAINI	132.0	0.8768		152143	BANDA42	220.0	1.0173
151409	TELIARGANJ	132.0	0.8763		152171	PAHADI	220.0	1.0187
151545	PAHADI	132.0	1.0153		154063	REWAROAD	400.0	1.0124
151639	GIS_OLD_PH	132.0	0.8852		154075	MEJA	400.0	1.0200
151640	MEJA_TPS_132	132.0	1.0136		154076	BANDA	400.0	1.0157
151641	SARAI AQIL	132.0	0.8794		154089	MASAULI	400.0	1.0202

- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	132kV Rewa Road - Naini line	130.4
2.	220kV Rewa Road - Allahabad Cantt line	103.9
3.	2x315MVA ICTs at 400kV Rewa Road	106.6

4. Case 4

- Actual Ex- bus Generation =605 MW
- Actual load met =594 MW
- **In this scenario of Load-Generation, low voltages are observed at some substations**.
- Voltage profile of various buses of Islanding is as follows:

Bus Number	Bus Name	Base kV	Voltage (pu)		Bus Number	Bus Name	Base kV	Voltage (pu)
151009	BANDA1	132.0	1.0039		151640	MEJA_TPS_132	132.0	1.0136
151052	ALAHBAD1	132.0	0.9076		151641	SARAI AQIL	132.0	0.8963
151062	CANT_AL	132.0	0.9088		151812	KARELI	132.0	0.9057
151087	BANDA132	132.0	1.0033		152007	BANDA2	220.0	1.0107
151188	SHANKARG	132.0	0.8851		152062	ALAHBAD2	220.0	0.9499
151234	KARCHANA	132.0	0.8917		152076	CANT_AL	220.0	0.9414
151270	MANAURI	132.0	0.9024		152099	ALLAHABA_PG	220.0	0.9406
151282	MINTOPARK	132.0	0.9017		152111	REWAROAD	220.0	0.9502
151296	NAINI	132.0	0.8941		152143	BANDA42	220.0	1.0145
151409	TELIARGANJ	132.0	0.8957		152171	PAHADI	220.0	1.0159
151438	KORAW	132.0	0.9076		154063	REWAROAD	400.0	1.0138

151535	ATARRA	132.0	0.9837		154075	MEJA	400.0	1.0200
151545	PAHADI	132.0	1.0125		154076	BANDA	400.0	1.0154
151639	GIS_OLD_PH	132.0	0.9026		154089	MASAULI	400.0	1.0207

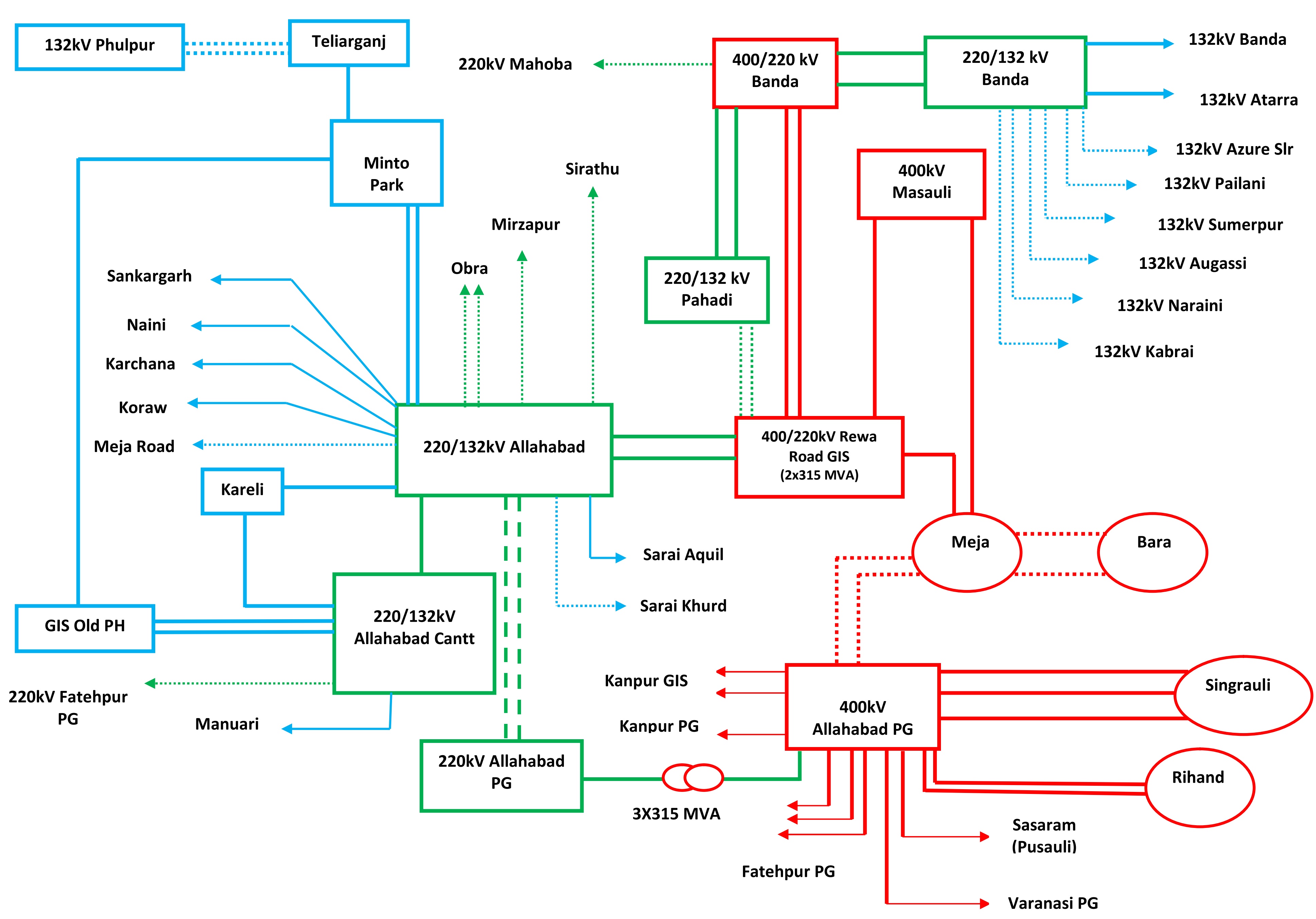
- **List of lines under overloading**

Sl. No.	Name of Transmission line	% Overloading
1.	132kV Rewa Road - Naini line	111.3

Final Observations:

1. As per steady state study, Islanding scheme seems feasible in all scenarios with **one Unit of Meja TPS.**
2. The success of Island depends on Load –Generation balance during transient condition. During such condition Load and Generation can be perfectly matched by addition/ removal of generation/ load through df/dt relay with certain time delay. However such df/dt settings and associated time delay can be obtained only after the dynamic study. In view of above dynamic study is also required for Prayagraj-Meja Islanding Scheme.

SLD of Prayagraj Islanding Scheme



Annexure-A.XVI

Logic for proposed SPS (System Protection Scheme) for ICTs at 400kV Substation Shamli							
Name of Substation	ICT Rating	Tripping Logic-I			Tripping Logic-II		
		% Setting	Time Delay	Priority of feeder for load cut off	% Setting	Time Delay	Priority of feeder for load cut off
400kV Substation Shamli	500MVA ICT- I	100-110% of rated current	5 sec	1. 132kV Kharad 2. 132kV Jalalpur 3. 132kV Budhana 4. 132kV Thana Bhawan 5. 220kV Badhaikalan I & II 6. 220kV Modipuram I & II 7. 220kV Deoband I & II	Above 110% of rated current	1500 msec	1. 132kV Kharad 2. 132kV Jalalpur 3. 132kV Budhana 4. 132kV Thana Bhawan 5. 220kV Badhaikalan I & II 6. 220kV Modipuram I & II 7. 220kV Deoband I & II

Note: Delay as mentioned in the above Tripping logics I& II is for initiation of tripping command. After initiation of tripping command, feeders will continue to trip as per priority without any time delay untill loading on ICT recahes below 100%.

Overcurrent setting of ICTs at Shamli	
Fault current with respect to full load (FL) current	**OC trip time (in Sec)**
100% of FL	-
105% of FL	-
110% of FL	Pickup
120% of FL	11.498
130% of FL	7.983
140% of FL	6.22

Logic for proposed SPS (System Protection Scheme) for ICTs at 400kV Substation Shamli							
Name of Substation	ICT Rating	Tripping Logic-I			Tripping Logic-II		
		% Setting	Time Delay	Priority of feeder for load cut off	% Setting	Time Delay	Priority of feeder for load cut off
400kV Substation Shamli	500MVA ICT- I	100-110% of rated current	5 sec	1. 132kV Kharad 2. 132kV Jalalpur 3. 132kV Budhana 4. 132kV Thana Bhawan 5. 220kV Badhaikalan I & II 6. 220kV Modipuram I & II 7. 220kV Deoband I & II	Above 110% of rated current	1500 msec	1. 132kV Kharad 2. 132kV Jalalpur 3. 132kV Budhana 4. 132kV Thana Bhawan 5. 220kV Badhaikalan I & II 6. 220kV Modipuram I & II 7. 220kV Deoband I & II

Note: Delay as mentioned in the above Tripping logics I& II is for initiation of tripping command. After initiation of tripping command, feeders will continue to trip as per priority without any time delay untill loading on ICT recahes below 100%.

Overcurrent setting of ICTs at Shamli	
Fault current with respect to full load (FL) current	**OC trip time (in Sec)**
100% of FL	-
105% of FL	-
110% of FL	Pickup
120% of FL	11.498
130% of FL	7.983
140% of FL	6.22

Logic for proposed SPS (System Protection Scheme) for ICTs at 400kV Substation Jehta							
Name of Substation	ICT Rating	Tripping Logic-I			Tripping Logic-II		
		% Setting	Time Delay	Priority of feeder for load cut off	% Setting	Time Delay	Priority of feeder for load cut off
400kV Substation Jehta	500MVA ICT- I	105-110% of rated current	2000 msec	1. 132kV Rahimabad & 132kV Bharawan 2. 132kV Mehtabbagh 3. 220kV Hardoi Road I & II 6. 220kV Mallawan I & II	Above 110% of rated current	1500 msec	1. 132kV Rahimabad & 132kV Bharawan 2. 132kV Mehtabbagh 3. 220kV Hardoi Road I & II 6. 220kV Mallawan I & II
	500MVA ICT- II	105-110% of rated current	2000 msec		Above 110% of rated current	1500 msec	

Note: Delay as mentioned in the above Tripping logics I& II is for initiation of tripping command. After initiation of tripping command, feeders will continue to trip as per priority without any time delay untill loading on ICT recahes below 100%.

Overcurrent setting of ICTs at Jehta	
Fault current with respect to full load (FL) current	OC trip time (in Sec)
100% of FL	-
105% of FL	-
110% of FL	Pickup
120% of FL	11.498
130% of FL	7.983
140% of FL	6.22

<table>
<tr><th colspan="8">Logic for proposed SPS (System Protection Scheme) for ICTs at 400kV Substation Sahupuri</th></tr>
<tr><th rowspan="2">Name of Substation</th><th rowspan="2">ICT Rating</th><th colspan="3">Tripping Logic-I</th><th colspan="3">Tripping Logic-II</th></tr>
<tr><th>% Setting</th><th>Time Delay</th><th>Priority of feeder for load cut off</th><th>% Setting</th><th>Time Delay</th><th>Priority of feeder for load cut off</th></tr>
<tr><td rowspan="2">400kV Substation Sahupuri</td><td>500MVA ICT- I</td><td>100-110% of rated current</td><td>5 sec</td><td rowspan="2">1. 132kV Zamania
2. 132kV Sadat
3. 132kV Chakia
4. 132kV Dhanapur
5. 132kV Chandauli I & II
6. 220kV Bhadohi
7. 220kV Raja ka Talab</td><td>Above 110% of rated current</td><td>1500 msec</td><td rowspan="2">1. 132kV Zamania
2. 132kV Sadat
3. 132kV Chakia
4. 132kV Dhanapur
5. 132kV Chandauli I & II
6. 220kV Bhadohi
7. 220kV Raja ka Talab</td></tr>
<tr><td>500MVA ICT- II</td><td>100-110% of rated current</td><td>5 sec</td><td>Above 110% of rated current</td><td>1500 msec</td></tr>
</table>

Note: Delay as mentioned in the above Tripping logics I& II is for initiation of tripping command. After initiation of tripping command, feeders will continue to trip as per priority without any time delay untill loading on ICT recahes below 100%.

Overcurrent setting of ICTs at Sahupuri	
Fault current with respect to full load (FL) current	**OC trip time (in Sec)**
100% of FL	-
105% of FL	-
110% of FL	Pickup
120% of FL	11.526
130% of FL	7.996
140% of FL	6.235

Minutes of meeting held among M/s JSW Ltd. (Kutehr HEP), M/s Bajoli Holi HEP, NHPC and HPSLDC to develop & establish a joint operational protocol among Kutehr HEP, Bajoli Holi HEP and NHPC Power Stations on 11.12.2025 through Video Conferencing (VC)

Meeting of Committee constituted vide office Order No. HPSLDC/SLDC-21B(Vol-XVI)/2025-26-6709-16 dated 29.11.2025 was convened on 11.12.2025 through Video Conferencing (VC) among M/s JSW Ltd. (Kutehr HEP), M/s Bajoli Holi HEP, NHPC and HPSLDC, under the Chairmanship of the Chief Engineer, HPSLDC, to develop and establish a joint operational protocol among Kutehr HEP, Bajoli Holi HEP and NHPC Power Stations, as decided in the 236th OCC meeting of NRPC held on 16.10.2025.

The list of participants is enclosed as **Annexure–A.**

At the outset, the Chief Engineer, HPSLDC welcomed all the participants and highlighted the objective of the meeting. Thereafter, Sr. Executive Engineer (Power Controller), HPSLDC initiated the proceedings.

Sr. Executive Engineer (PC), HPSLDC requested the representative of Kutehr HEP to apprise the participants of the operational issues being faced due to uncoordinated water releases by upstream projects, along with their suggestions. The point-wise deliberations are summarized as under:

1. SHARING OF GENERATION SCHEDULE

a) Views of Kutehr HEP

i. Planned Generation Schedule:

The planned generation schedule of upstream projects should be shared with downstream projects at least one day in advance.

ii. Unplanned Generation Schedule:

Any unplanned changes in the generation schedule should be communicated to downstream projects at least **2.5 hours in advance**.

b) Views of Bajoli Holi HEP

The representative of Bajoli Holi HEP agreed to share the planned generation schedule with **SLDC**, with a copy to **Kutehr HEP and NHPC**, one day in advance. Further, intra-day generation schedule changes shall be shared at least **2.5 hours in advance.**

However, for generation changes arising out of unforeseen events, it was stated that advance communication may not be feasible.

2. SHARING OF WATER INFLOW AND OUTFLOW DATA

a) Views of Kutehr HEP

i. River Discharge Data:

Real-time river inflow data at upstream of Bajoli Holi Dam should be shared with

downstream projects. This would assist in advance generation planning and also act as an Early Warning System (EWS) during emergencies.

ii. Unit Discharge Data:

Real-time unit-wise discharge data should also be shared with downstream projects.

b) Views of Bajoli Holi HEP

The representative of Bajoli Holi HEP informed that the **EWS installed upstream of the Dam Axis** is already integrated with the **NHPC Central Command Centre, Faridabad,** which is accessible to hydro projects in Himachal Pradesh.

He further informed that, as a routine practice, **hourly data** comprising reservoir level, machine discharge and river inflow is already being shared with **JSW Kutehr HEP and NHPC CPS-III.** Accordingly, no additional action is required from Bajoli Holi HEP in this regard.

3. <u>SHARING OF SILT PPM DATA</u>

a) Views of Kutehr HEP

i. Real-time **silt concentration (PPM) data at Bajoli Holi Dam**, in addition to silt data at the power house, should be shared with downstream projects to enable timely operational decisions.

ii. Bajoli Holi HEP should share their **operational protocol specifying threshold silt PPM values** for unit shutdown and subsequent restart.

b) Views of NHPC

NHPC emphasized that reservoir flushing operations should be intimated well in advance to downstream projects so that tandem flushing may be planned, thereby minimizing generation loss and reservoir siltation.

It was also highlighted that a **structured mechanism for sharing hydrological data** is required.

c) Views of Bajoli Holi HEP

The representative of Bajoli Holi HEP expressed readiness to prepare a **joint SOP** in consultation with downstream projects, covering the following aspects:

i. Sharing of Generation Schedule
ii. Sharing of Water Inflow and Outflow Data
iii. Sharing of Silt PPM Data
iv. Unit Tripping Information
v. Planned and Unplanned Outage Information
vi. Dam / Barrage Flushing
vii. Release of Extra Water
viii. Maintenance Activities Affecting Downstream Projects
ix. Adherence to Peak Generation Windows

x. Loss to Downstream Projects

d) Views of HPSLDC

HPSLDC suggested that a Standard Operating Procedure (SOP) be developed jointly among Kutehr HEP, Bajoli Holi HEP and NHPC to address coordination issues related to generation scheduling, silt data, outages (planned/unplanned), water releases, dam flushing, etc.

CONCLUSION

After detailed deliberations, **Chief Engineer, HPSLDC** emphasized that the effectiveness of the SOP would depend **on mutual coordination, transparency and consensus** among all concerned Project Authorities.

It was decided that the concerned generators shall **jointly prepare a draft SOP** for joint operation protocol incorporating the points as discussed during above meeting and submit the same to **HPSLDC** so that same could be discussed in detail in next meeting.

After finalization of SOP for Joint Operation Protocol by the Committee, the same shall be forwarded to **NRPC** for final vetting and approval.

The meeting concluded with a vote of thanks to and from the Chair.

Member Secretary,
Sr. Executive Engineer (SCADA)
-Cum-Power Controller,
HP State Load Despatch Centre,
Govt. of HP, Totu, Shimla-11.

Chairman,
Chief Engineer,
HP State Load Despatch Centre,
Govt. of HP, Totu, Shimla-11.

Annexure – A

Sr. No.	Name	Designation	Department/Agency/Firm
1.	Er. Pratap Chand Thakur	Chief Engineer	HPSLDC
2.	Er. Ajay Nath	Associate Vice President	Kutehr HEP, JSW Ltd.
3.	Er. Anurag Agarwal	General Manager	Kutehr HEP, JSW Ltd.
4.	Er. Shishu Pal Singh	Head O&M	Bajoli Holi HEP
5.	Er. Vinay Kumar Bhumra	Manager Shift Operations	Bajoli Holi HEP
6.	Er. Dharmendra Kumar	Deputy General Manager (E)	O&M Division, NHPC Ltd.
7.	Er. Shiv Shankar Kumar	Deputy General Manager (C)	Chamera-3 PS, NHPC Ltd.
8.	Er. Sanjay Kumar Ranot	Sr. Executive Engineer (Power Controller)	HPSLDC

Annexure-B.I

Resource Adequacy Study Analysis for NR States

April to June 2026

Resource Adequacy Study using PRAS- Key assumptions

- The Probabilistic Resource Adequacy Study (PRAS) for the summer period from April to June 2026 has been carried out to assess the adequacy of available generation resources to reliably meet the projected state demand under a range of uncertainty scenarios. The assessment has been conducted using a probabilistic framework comprising 1000 Monte Carlo scenarios, with median outcomes presented to represent the expected system behaviour under typical operating conditions.

- To evaluate the net load to be met by dispatchable thermal generation, the forecasted hourly demand for the summer period (April-June 2026) was first estimated based on historical demand pattern and growth. From this projected demand, the expected contribution from non-thermal generation sources, namely solar, wind, hydro, and nuclear, was deducted.

- The contribution from non-thermal resources has been estimated using historical summer generation profiles, with solar and hydro generation scaled for capacity additions while retaining observed variability, intermittency, and seasonal operational characteristics.

- In the RA assessment, GNA contracts of the corresponding months from the previous year have been considered, duly scaled to account for demand growth. Short term Bilateral and market transactions have not been explicitly modelled.

Resource Adequacy Study using PRAS- Key assumptions

- To assess the availability of dispatchable generation resources, detailed modelling of thermal and gas-based generating units has been undertaken with the following assumptions:

  ✓ **Planned Outages:** Planned outages has been considered NIL.

  ✓ **Forced Outages:**
  Forced outages of thermal generating units have been modelled using a Monte Carlo simulation approach. Historical unit-specific outage and restoration rates have been used to probabilistically simulate unplanned outages.

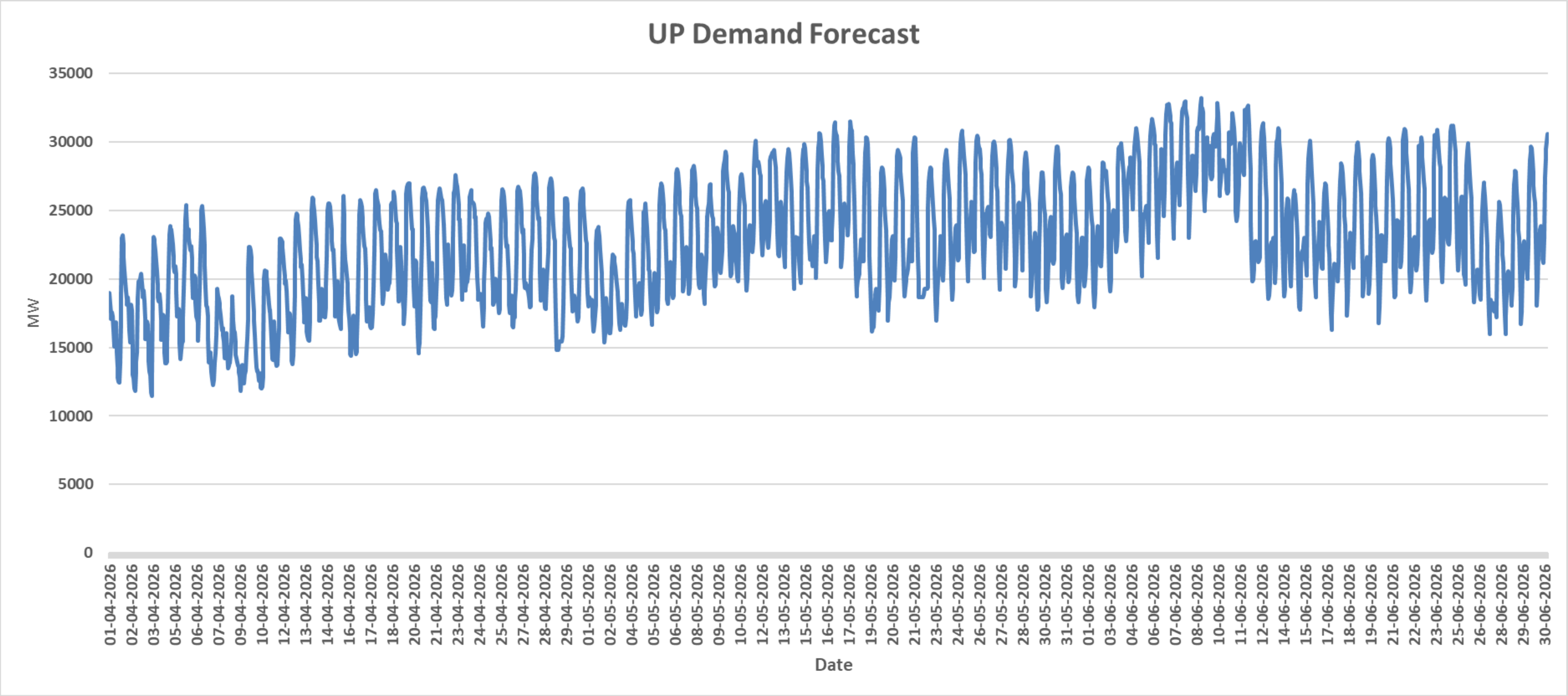
This stochastic modelling enables realistic representation of operational uncertainties and enhances the robustness of the resource adequacy assessment.

The probabilistic framework enables estimation of reliability metrics such as:

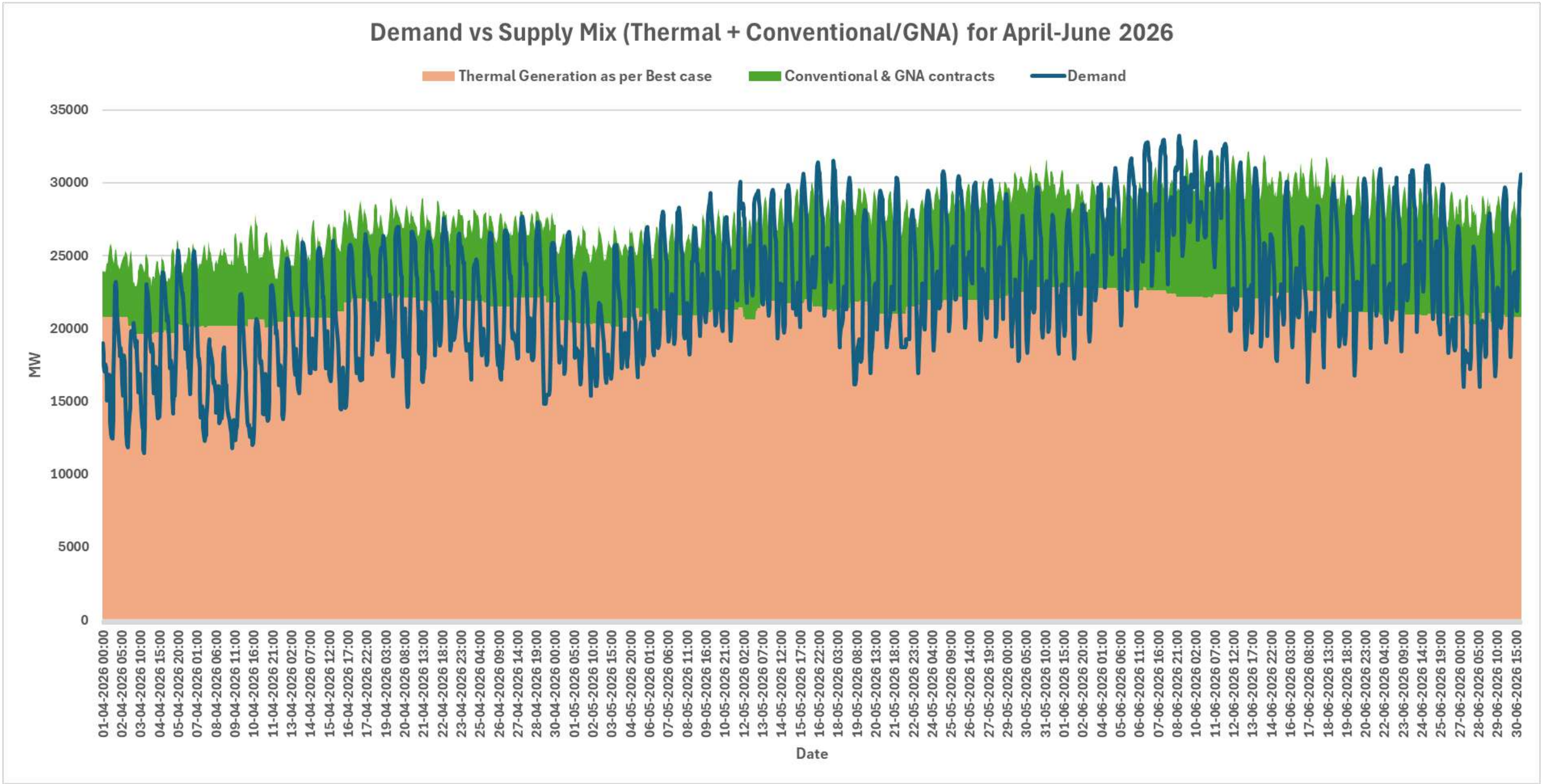
✓ **Loss of Load Expectation (LOLE)**

✓ **Expected Unserved Energy (EUE)**

Uttar Pradesh



UP Demand Forecast
35000
30000
25000
20000
15000
10000
5000
0
MW
Date
01-04-2026
30-06-2026


Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
35000
30000
25000
20000
15000
10000
5000
0
MW
01-04-2026 00:00
02-04-2026 05:00
03-04-2026 10:00
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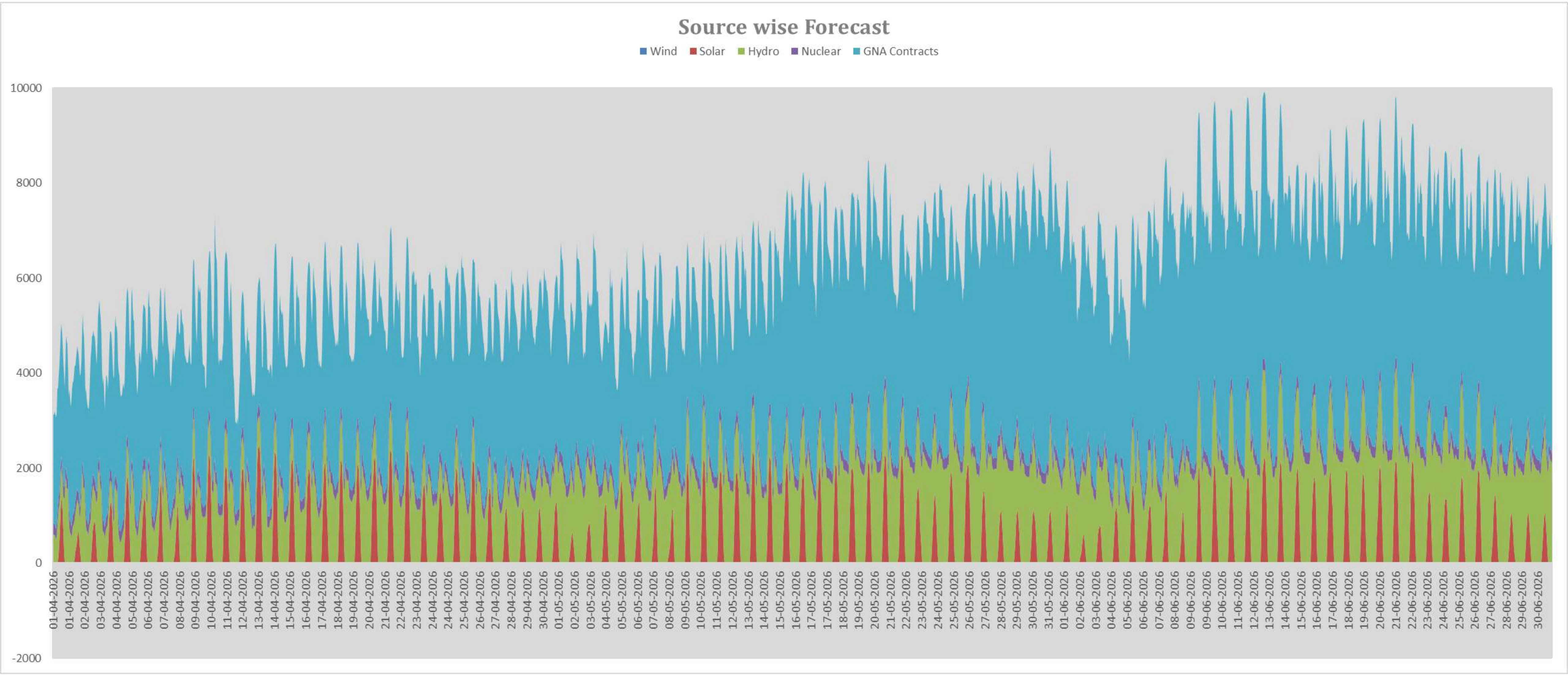
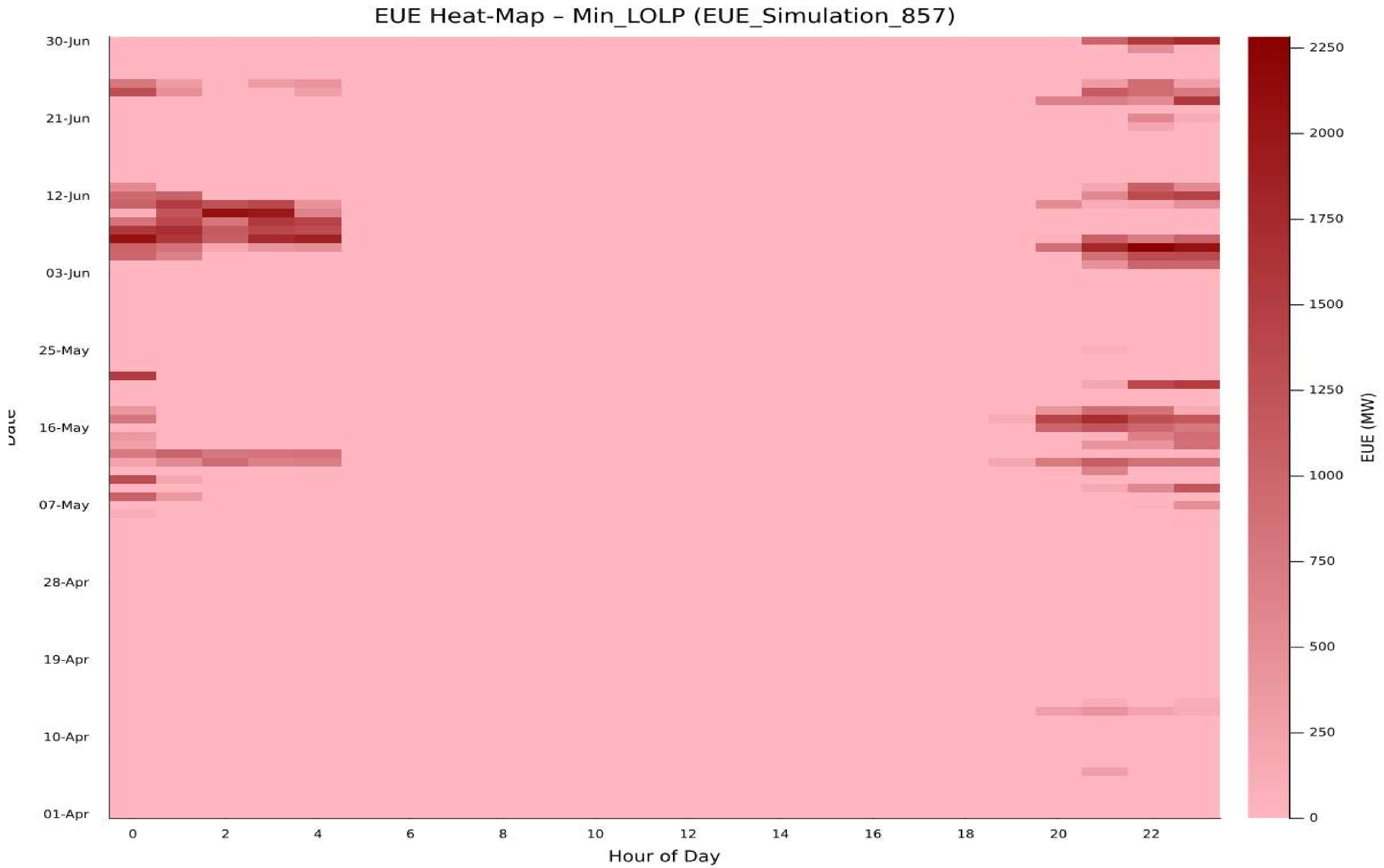
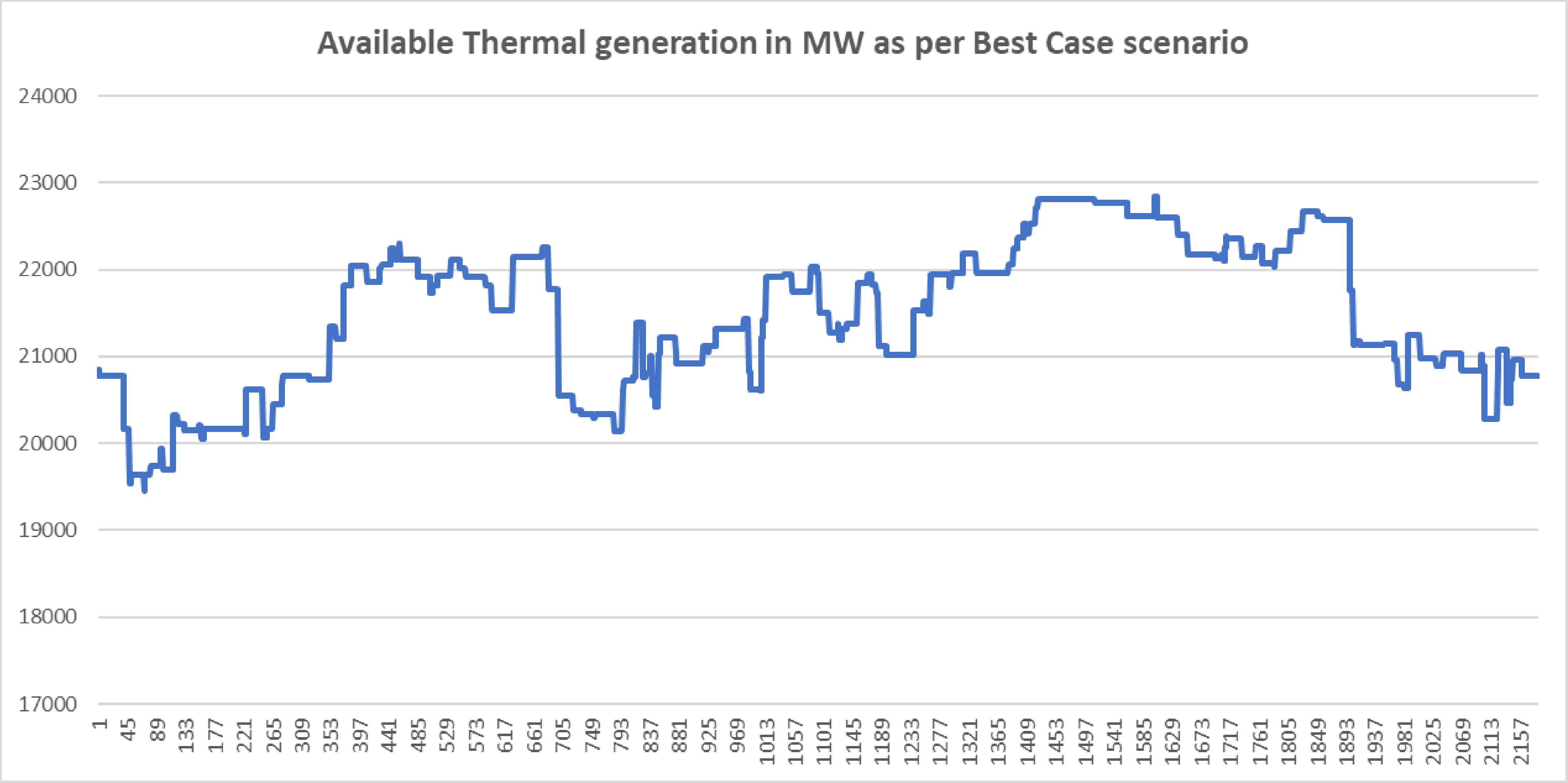
Date


Source wise Forecast
Wind
Solar
Hydro
Nuclear
GNA Contracts
10000
8000
6000
4000
2000
0
-2000

Best case: Load Unserved in MW- Heat Map




Available Thermal generation in MW as per Best Case scenario
24000
23000
22000
21000
20000
19000
18000
17000
1
45
89
133
177
221
265
309
353
397
441
485
529
573
617
661
705
749
793
837
881
925
969
1013
1057
1101
1145
1189
1233
1277
1321
1365
1409
1453
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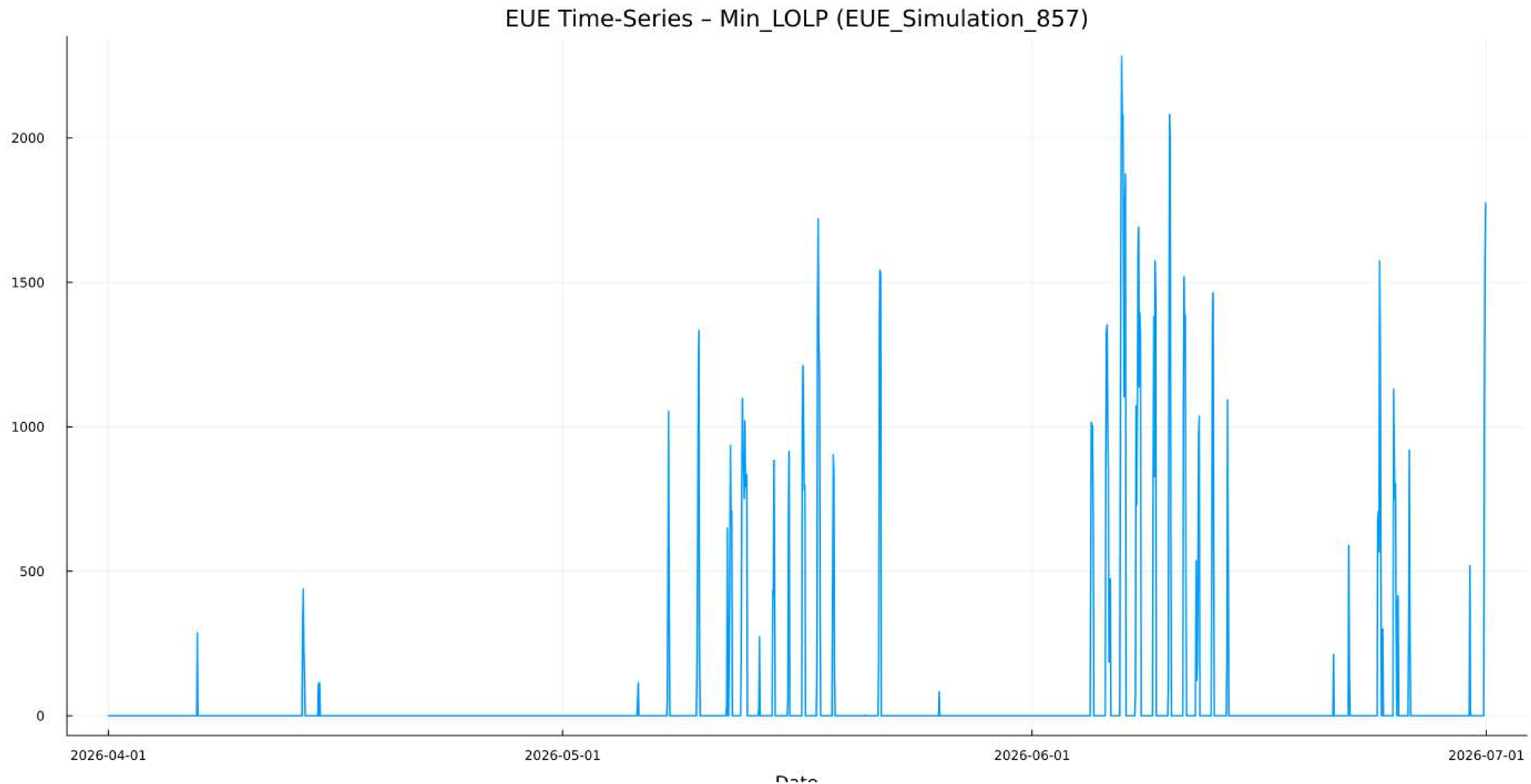
1937
1981
2025
2069
2113
2157


EUE Time-Series – Min_LOLP (EUE_Simulation_857)
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1500
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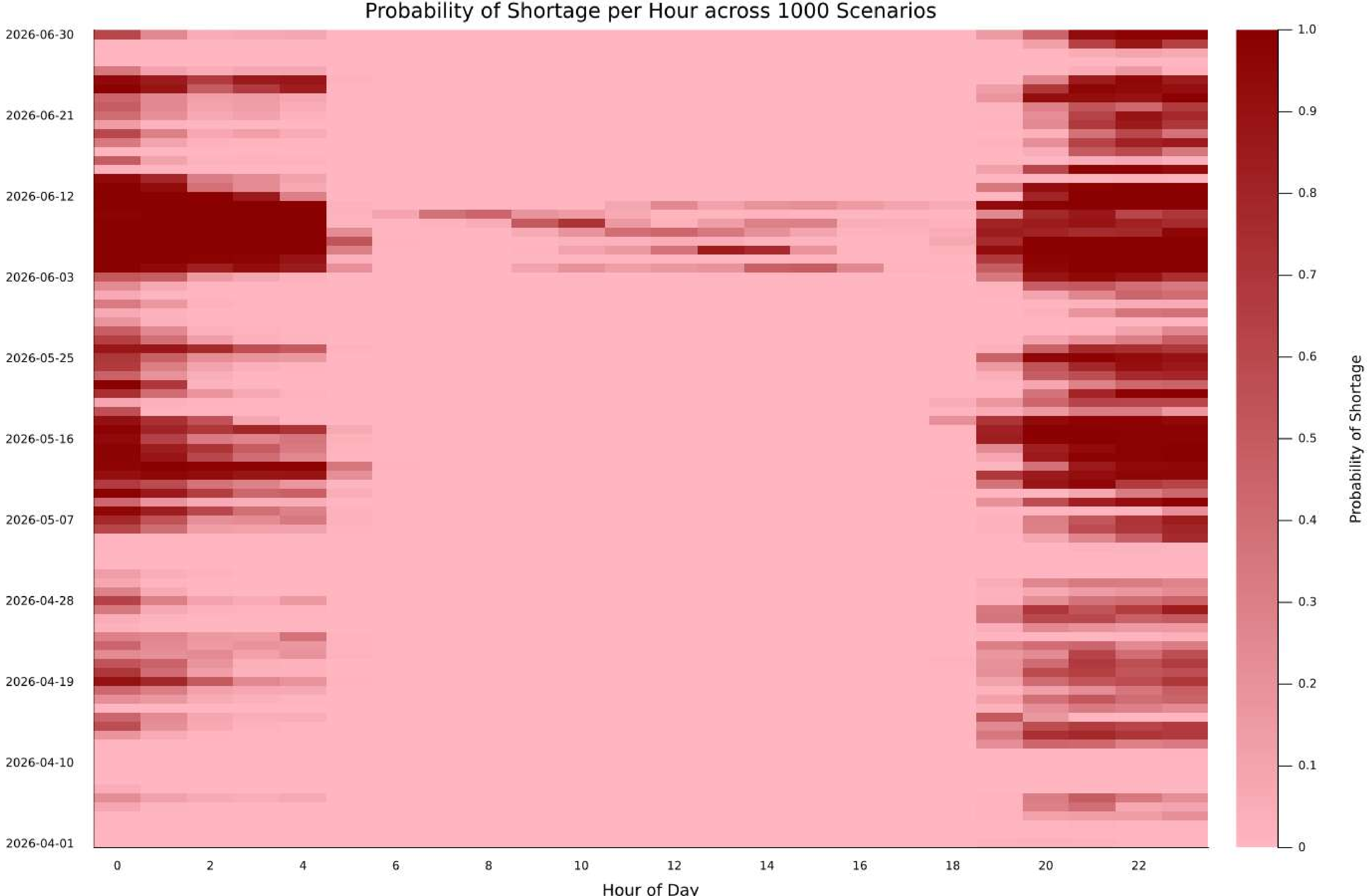
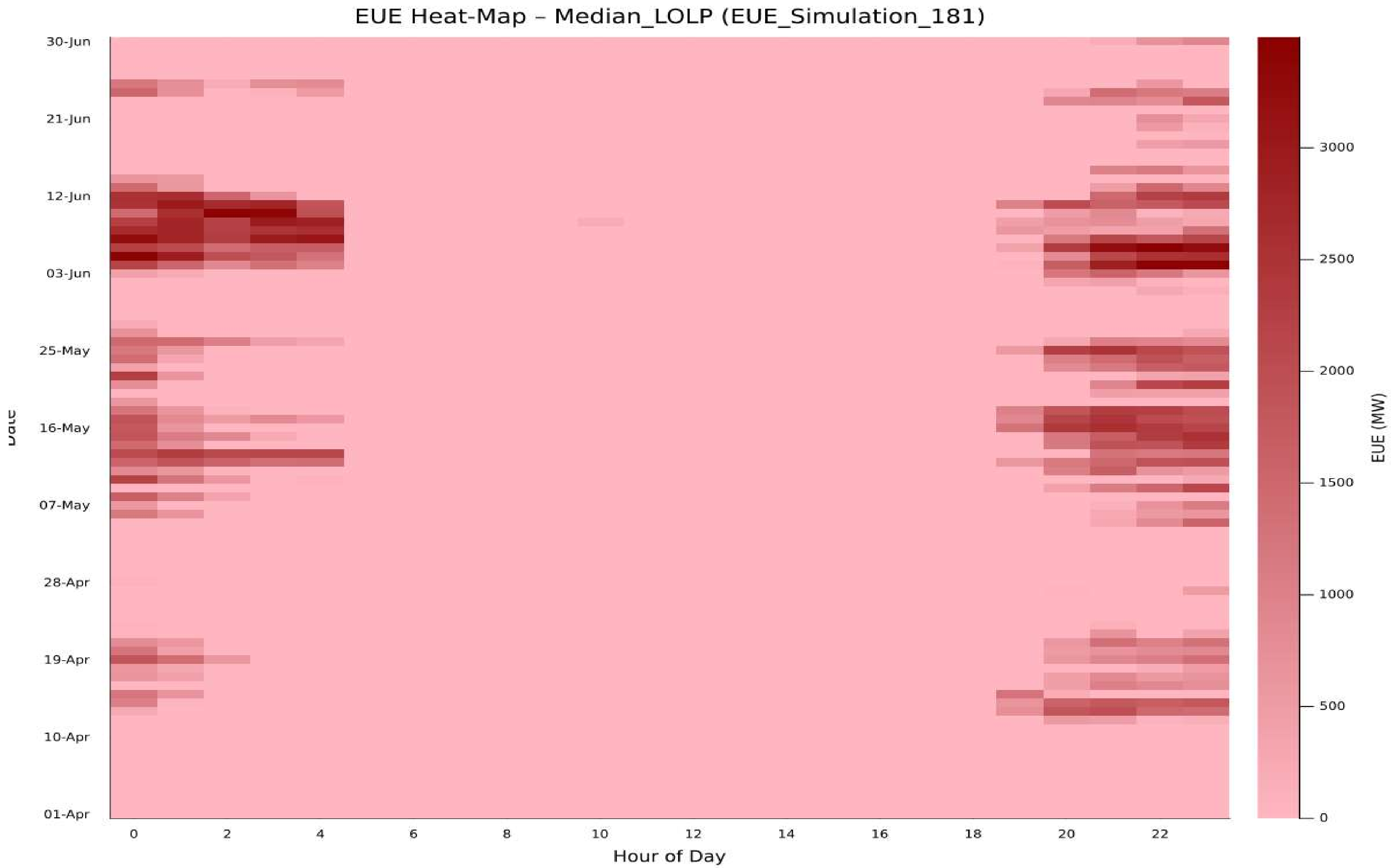
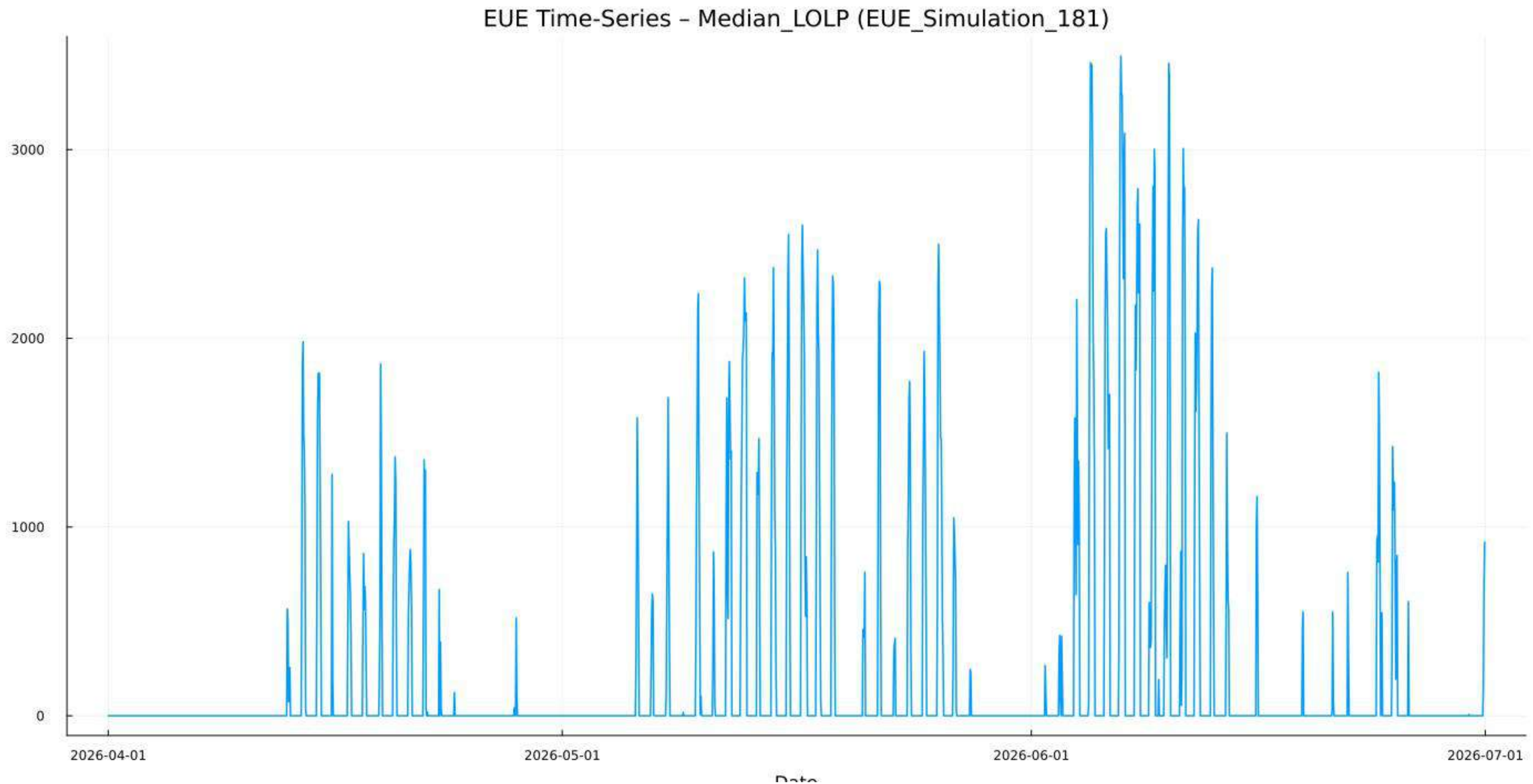
2026-05-01
2026-06-01
2026-07-01
Date



Probability of Shortage per Hour across 1000 Scenarios
2026-06-30
2026-06-21
2026-06-12
2026-06-03
2026-05-25
2026-05-16
2026-05-07
2026-04-28
2026-04-19
2026-04-10
2026-04-01
0
2
4
6
8
10
12
14
16
18
20
22
Hour of Day
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Probability of Shortage

Median case: Load Unserved in MW- Heat Map




EUE Time-Series – Median_LOLP (EUE_Simulation_181)
3000
2000
1000
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

Observations

PRAS results indicate elevated adequacy risk during summer peak conditions, particularly during early morning and evening hours, when demand remains high and solar generation is unavailable.

The analysis highlights intermittent but significant unserved energy events, with higher frequency and magnitude observed during May–June, coinciding with extreme demand days.

While mid-day hours benefit from solar generation, peak-hour adequacy remains sensitive to demand variability and generation availability.

Way Forward

In view of the above, States are advised to strengthen advance resource planning for the summer period, including:

- Early finalization of firm GNA / bilateral contracts to adequately cover peak and shoulder-hour demand.
- Limiting reliance on short-term market mechanisms (DAM/RTM) for meeting peak summer requirements and treating market purchases as supplementary.

States are requested to review the PRAS outcomes at their end and undertake further state-level analysis, considering local demand conditions, resource availability, and contingency scenarios.

To enable revision of the PRAS assessment, States may kindly share updated inputs, including:

- Any new or revised GNA / bilateral contracts not captured in the current study.
- Updates on generation availability, renewable capacity additions, and demand outlook.

Disclaimer: PRAS results are indicative and intended to support advance planning under uncertainty.

Resource Adequacy Study Analysis for NR States

April to June 2026

Resource Adequacy Study using PRAS- Key assumptions

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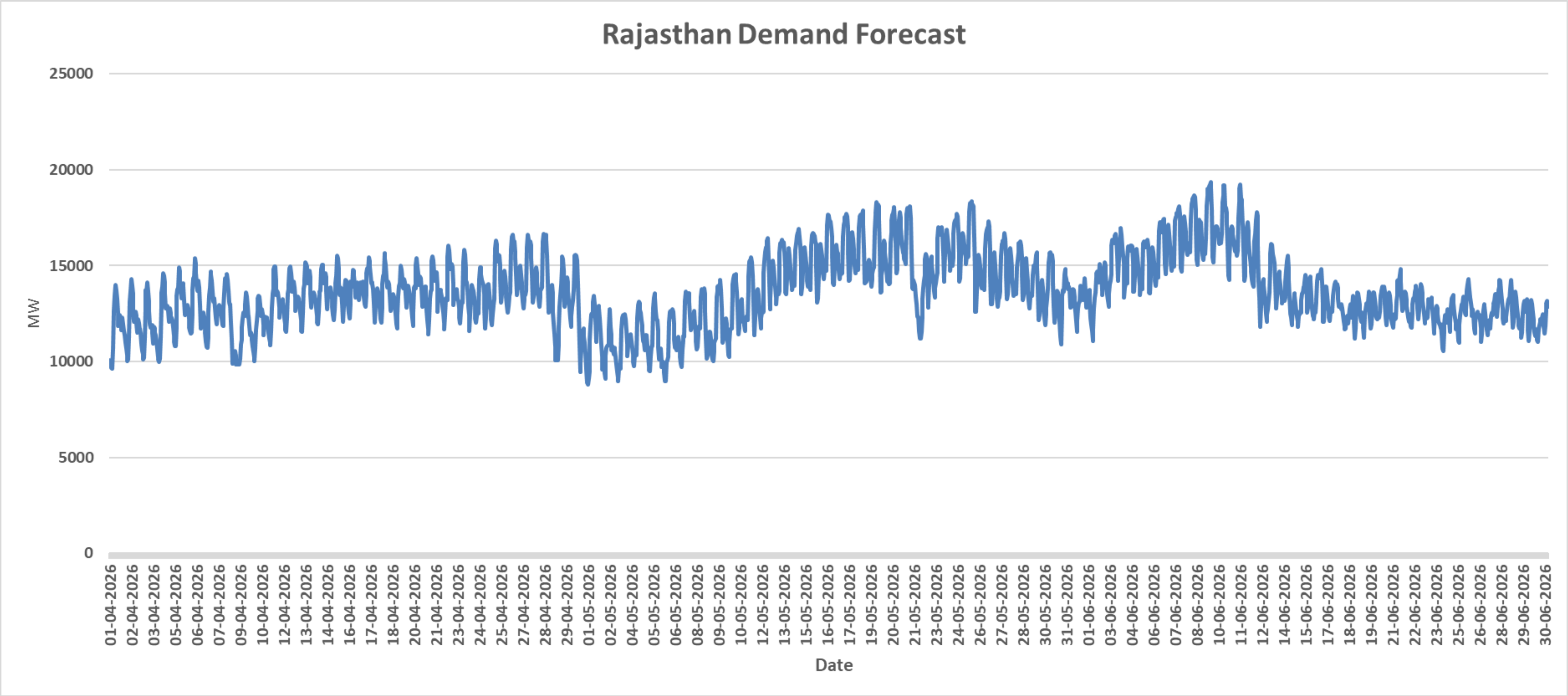
The probabilistic framework enables estimation of reliability metrics such as:

- ✓ **Loss of Load Expectation (LOLE)**
- ✓ **Expected Unserved Energy (EUE)**

Rajasthan



Rajasthan Demand Forecast
25000
20000
15000
10000
5000
0
MW
01-04-2026
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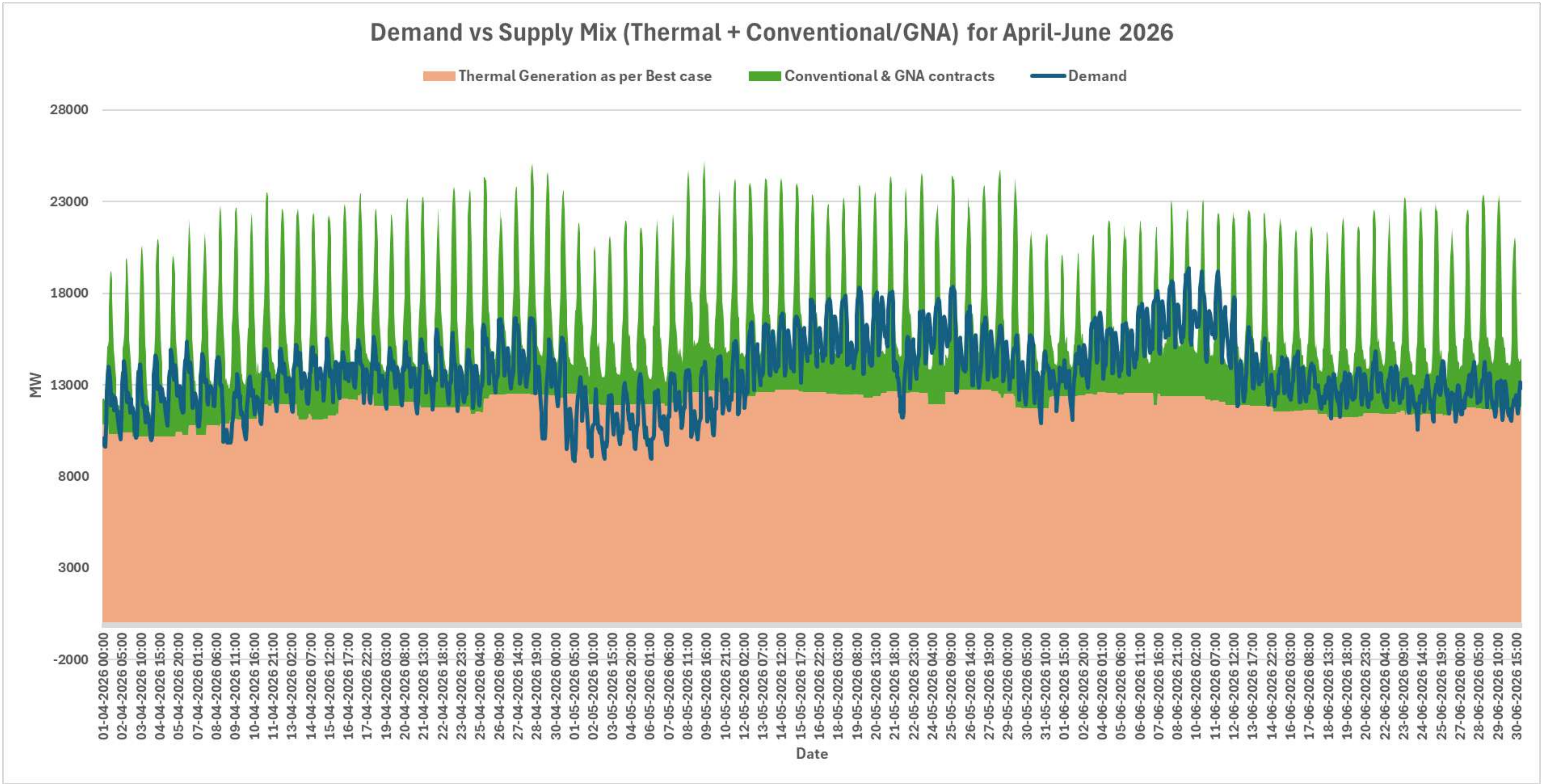
Date



Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
28000
23000
18000
13000
8000
3000
-2000
MW
Date
01-04-2026 00:00
02-04-2026 05:00
03-04-2026 10:00
04-04-2026 15:00
05-04-2026 20:00
07-04-2026 01:00
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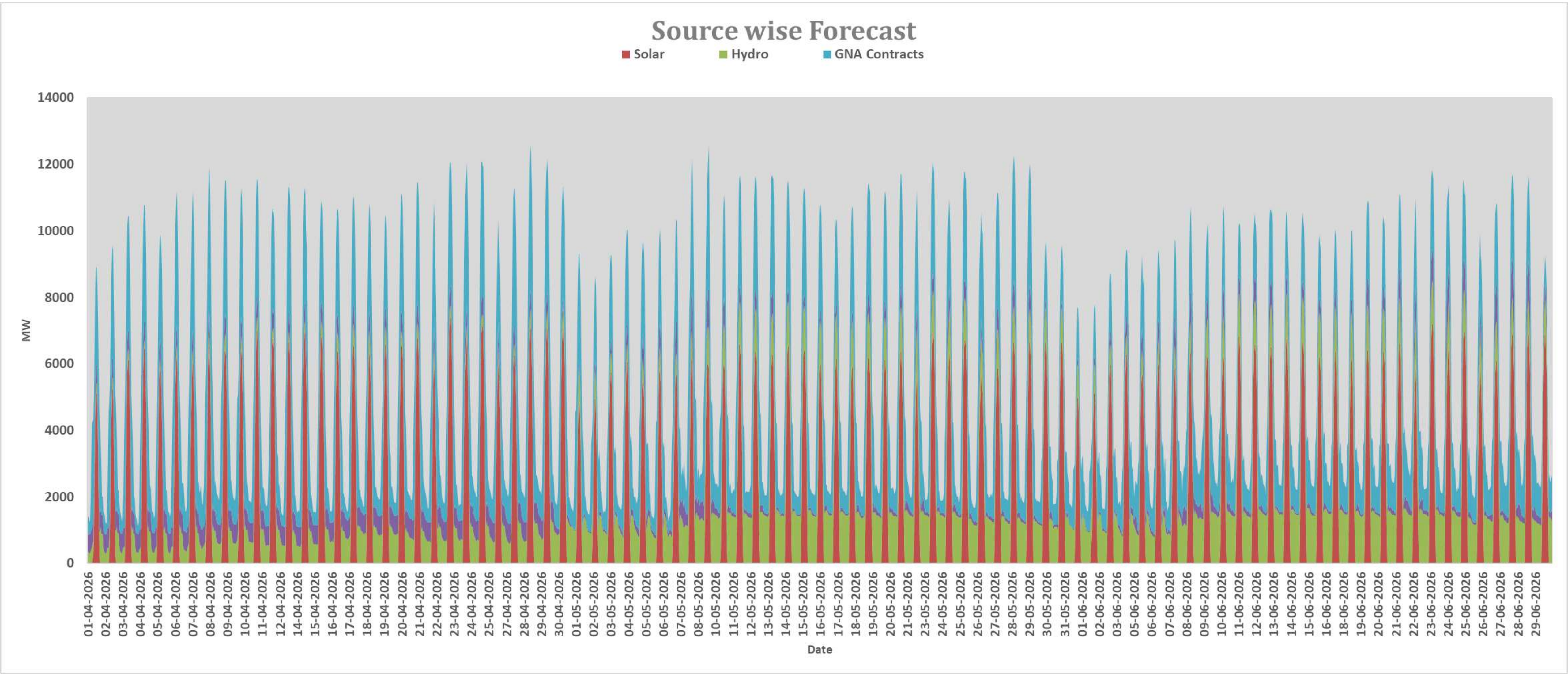
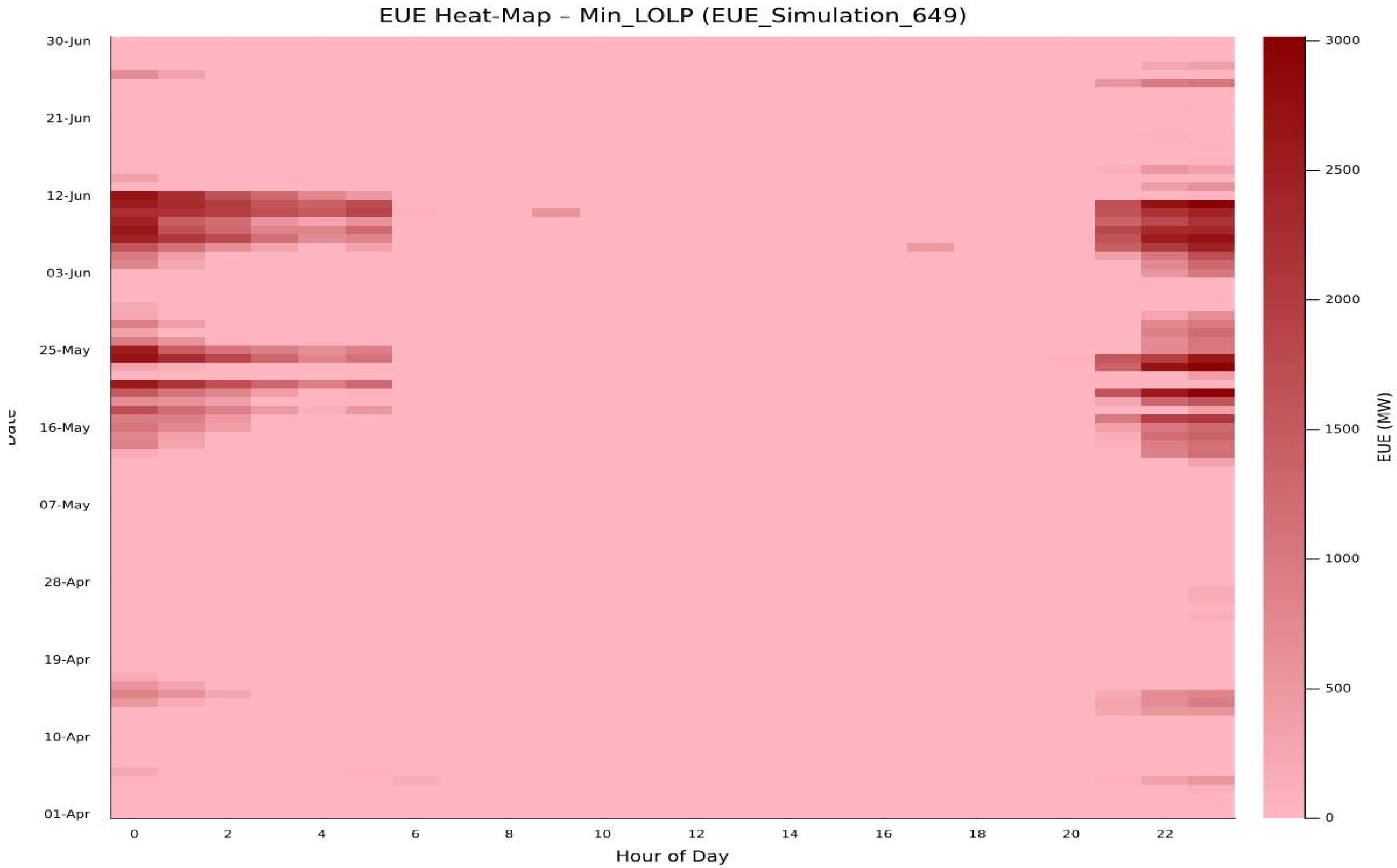
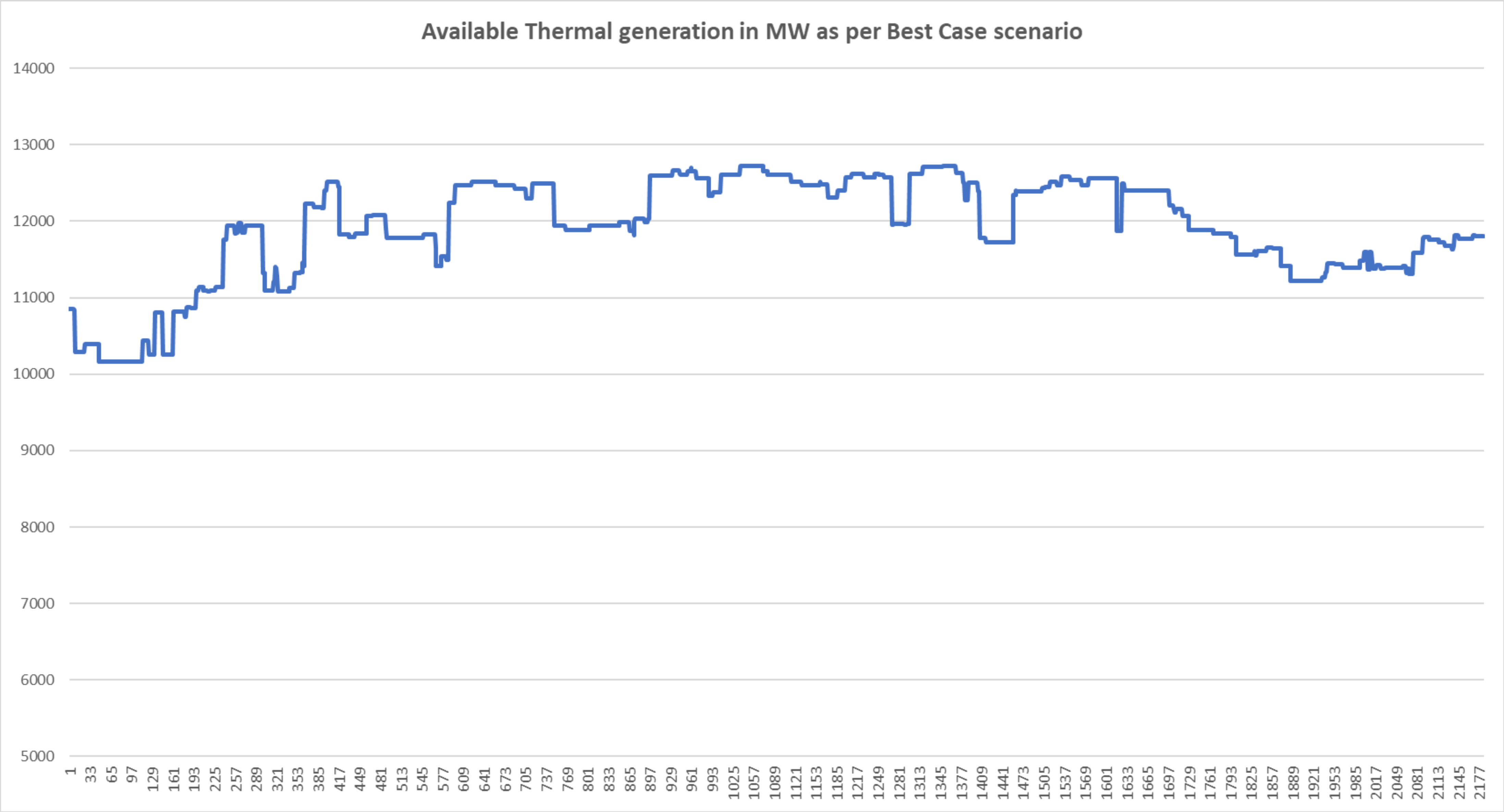


Source wise Forecast
Solar
Hydro
GNA Contracts
MW
Date

Best case: Load Unserved in MW- Heat Map





Available Thermal generation in MW as per Best Case scenario
14000
13000
12000
11000
10000
9000
8000
7000
6000
5000
1
33
65
97
129
161
193
225
257
289
321
353
385
417
449
481
513
545
577
609
641
673
705
737
769
801
833
865
897
929
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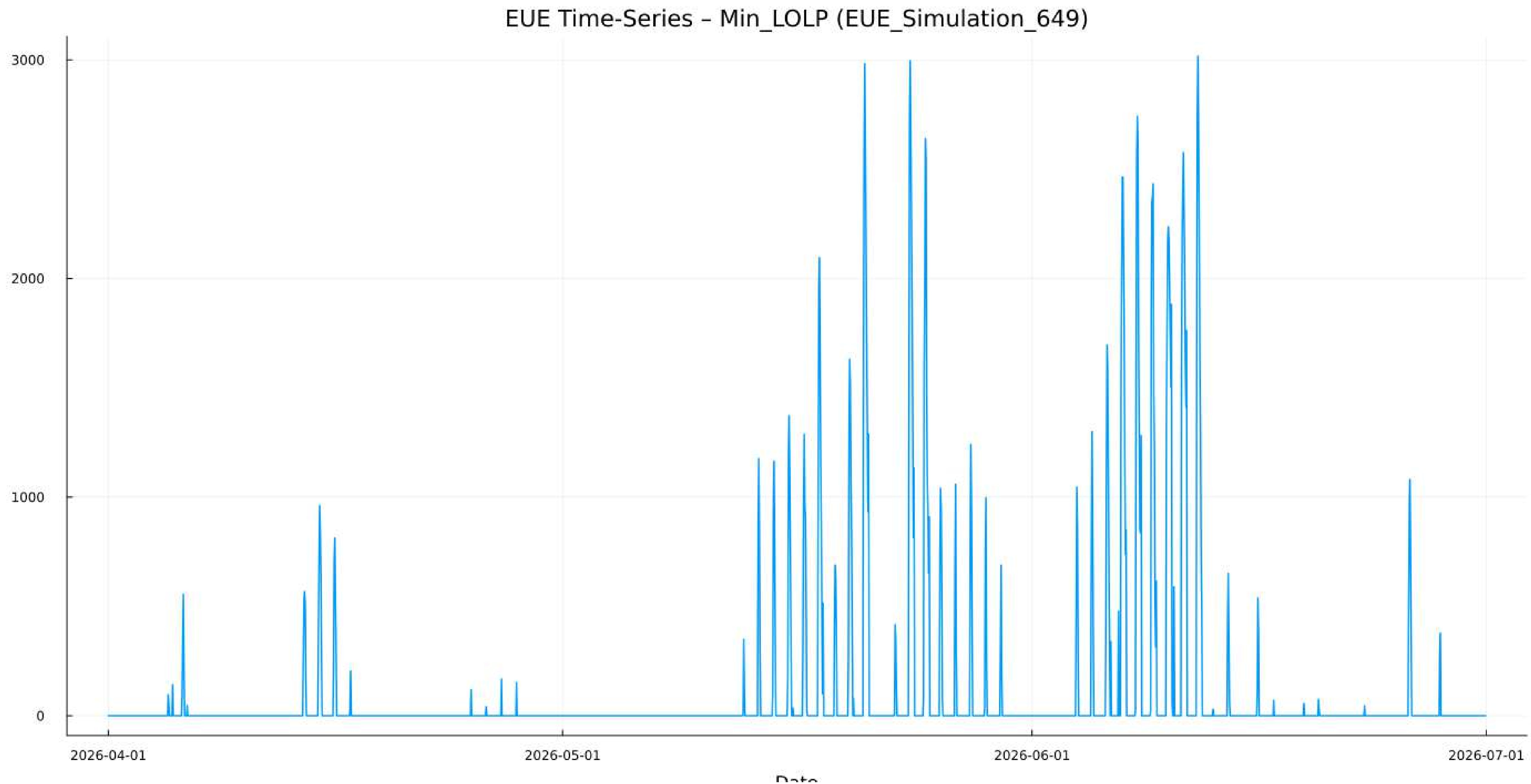
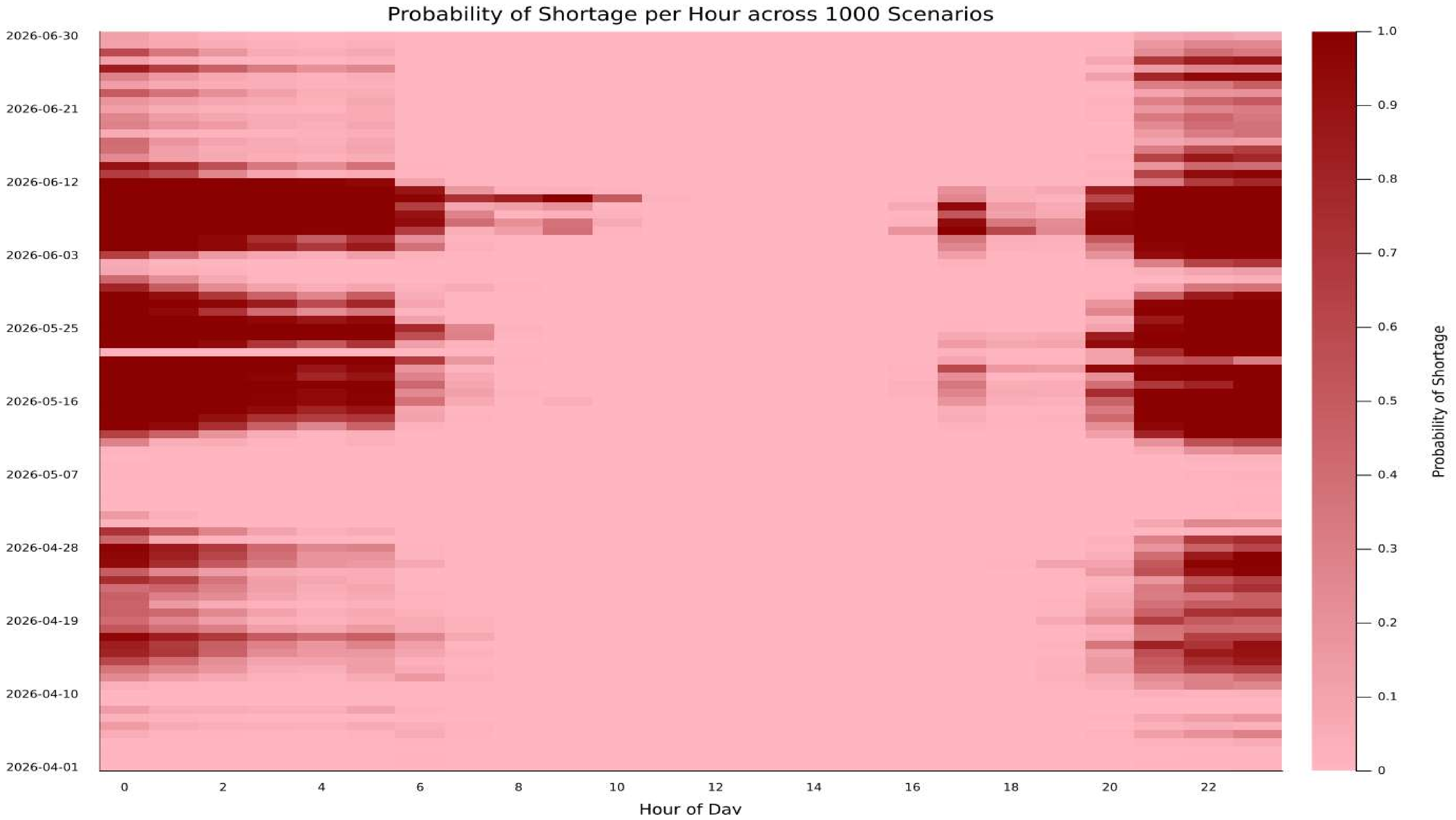
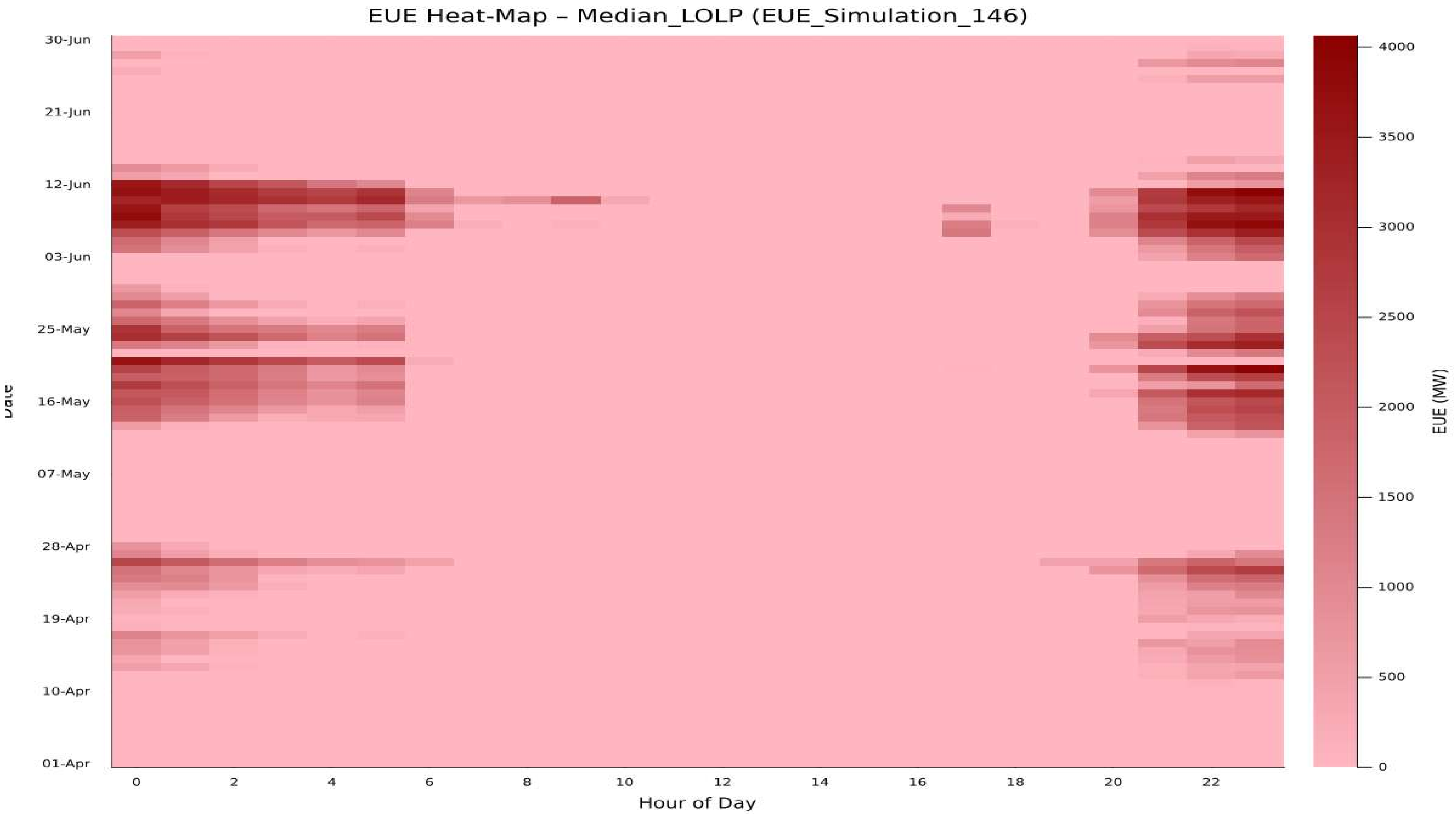
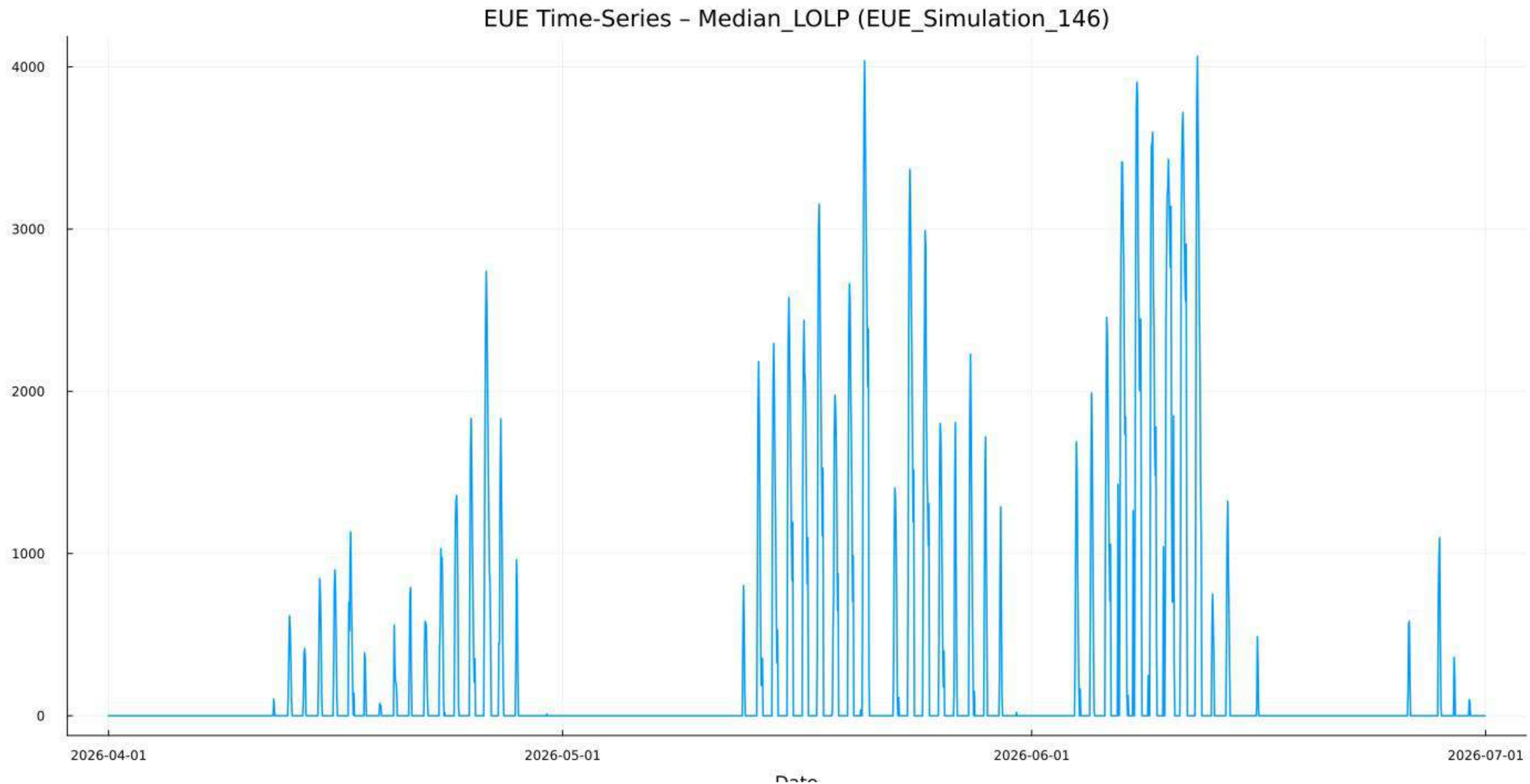
2081
2113
2145
2177


EUE Time-Series – Min_LOLP (EUE_Simulation_649)
3000
2000
1000
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date


Probability of Shortage per Hour across 1000 Scenarios
2026-06-30
2026-06-21
2026-06-12
2026-06-03
2026-05-25
2026-05-16
2026-05-07
2026-04-28
2026-04-19
2026-04-10
2026-04-01
0
2
4
6
8
10
12
14
16
18
20
22
Hour of Day
Probability of Shortage
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0

Median case: Load Unserved in MW- Heat Map





EUE Time-Series – Median_LOLP (EUE_Simulation_146)
4000
3000
2000
1000
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

Observations

PRAS results indicate elevated adequacy risk during summer peak conditions, particularly during early morning and evening hours, when demand remains high and solar generation is unavailable.

The analysis highlights intermittent but significant unserved energy events, with higher frequency and magnitude observed during May–June, coinciding with extreme demand days.

While mid-day hours benefit from solar generation, peak-hour adequacy remains sensitive to demand variability and generation availability.

Way Forward

In view of the above, States are advised to strengthen advance resource planning for the summer period, including:

- Early finalization of firm GNA / bilateral contracts to adequately cover peak and shoulder-hour demand.
- Limiting reliance on short-term market mechanisms (DAM/RTM) for meeting peak summer requirements and treating market purchases as supplementary.

States are requested to review the PRAS outcomes at their end and undertake further state-level analysis, considering local demand conditions, resource availability, and contingency scenarios.

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- Updates on generation availability, renewable capacity additions, and demand outlook.

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Resource Adequacy Study Analysis for NR States

April to June 2026

Resource Adequacy Study using PRAS- Key assumptions

- The Probabilistic Resource Adequacy Study (PRAS) for the summer period from April to June 2026 has been carried out to assess the adequacy of available generation resources to reliably meet the projected state demand under a range of uncertainty scenarios. The assessment has been conducted using a probabilistic framework comprising 1000 Monte Carlo scenarios, with median outcomes presented to represent the expected system behaviour under typical operating conditions.

- To evaluate the net load to be met by dispatchable thermal generation, the forecasted hourly demand for the summer period (April-June 2026) was first estimated based on historical demand pattern and growth. From this projected demand, the expected contribution from non-thermal generation sources, namely solar, wind, hydro, and nuclear, was deducted.

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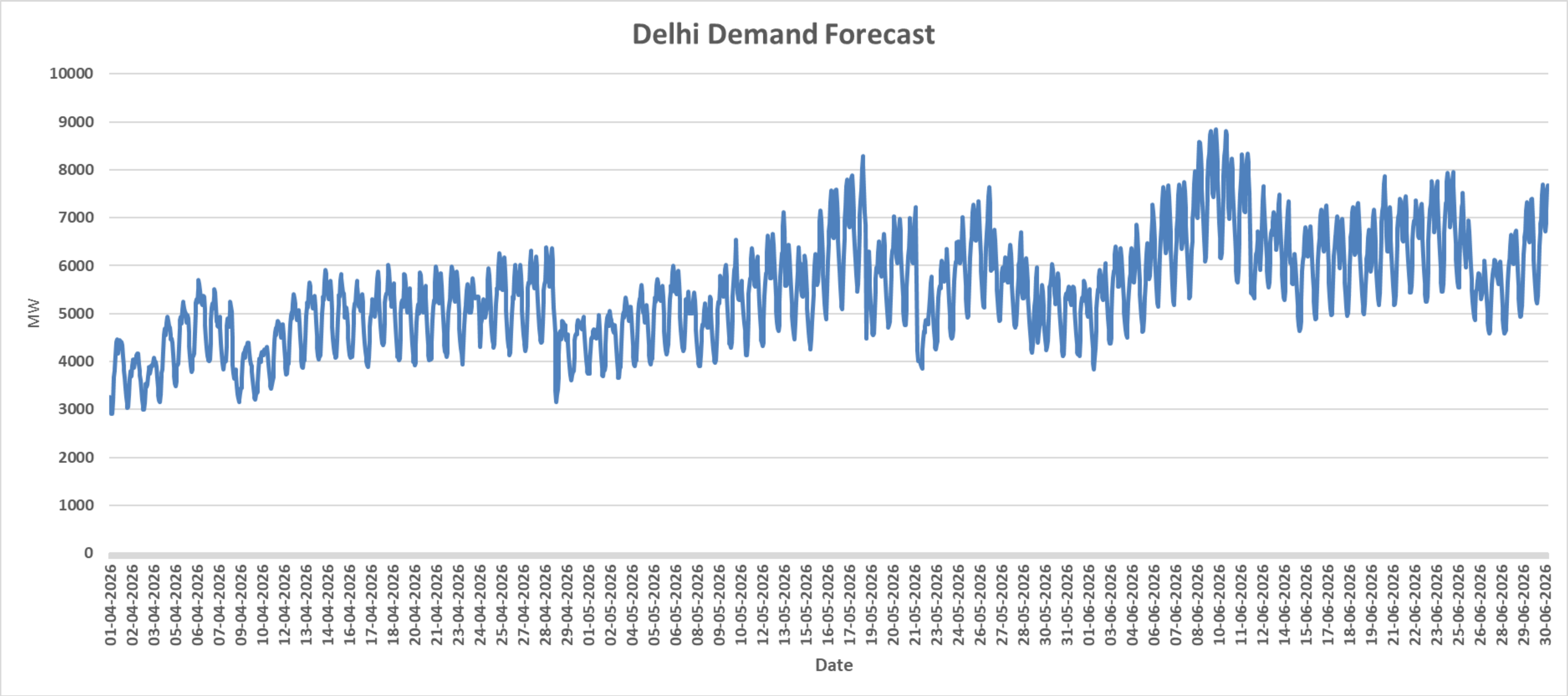
This stochastic modelling enables realistic representation of operational uncertainties and enhances the robustness of the resource adequacy assessment.

The probabilistic framework enables estimation of reliability metrics such as:

- ✓ **Loss of Load Expectation (LOLE)**
- ✓ **Expected Unserved Energy (EUE)**

Delhi


Delhi Demand Forecast
MW
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
01-04-2026
02-04-2026
03-04-2026
05-04-2026
06-04-2026
07-04-2026
09-04-2026
10-04-2026
12-04-2026
13-04-2026
14-04-2026
16-04-2026
17-04-2026
18-04-2026
20-04-2026
21-04-2026
23-04-2026
24-04-2026
25-04-2026
27-04-2026
28-04-2026
29-04-2026
01-05-2026
02-05-2026
04-05-2026
05-05-2026
06-05-2026
08-05-2026
09-05-2026
10-05-2026
12-05-2026
13-05-2026
15-05-2026
16-05-2026
17-05-2026
19-05-2026
20-05-2026
21-05-2026
23-05-2026
24-05-2026
26-05-2026
27-05-2026
28-05-2026
30-05-2026
31-05-2026
01-06-2026
03-06-2026
04-06-2026
06-06-2026
07-06-2026
08-06-2026
10-06-2026
11-06-2026
12-06-2026
14-06-2026
15-06-2026
17-06-2026
18-06-2026
19-06-2026
21-06-2026
22-06-2026
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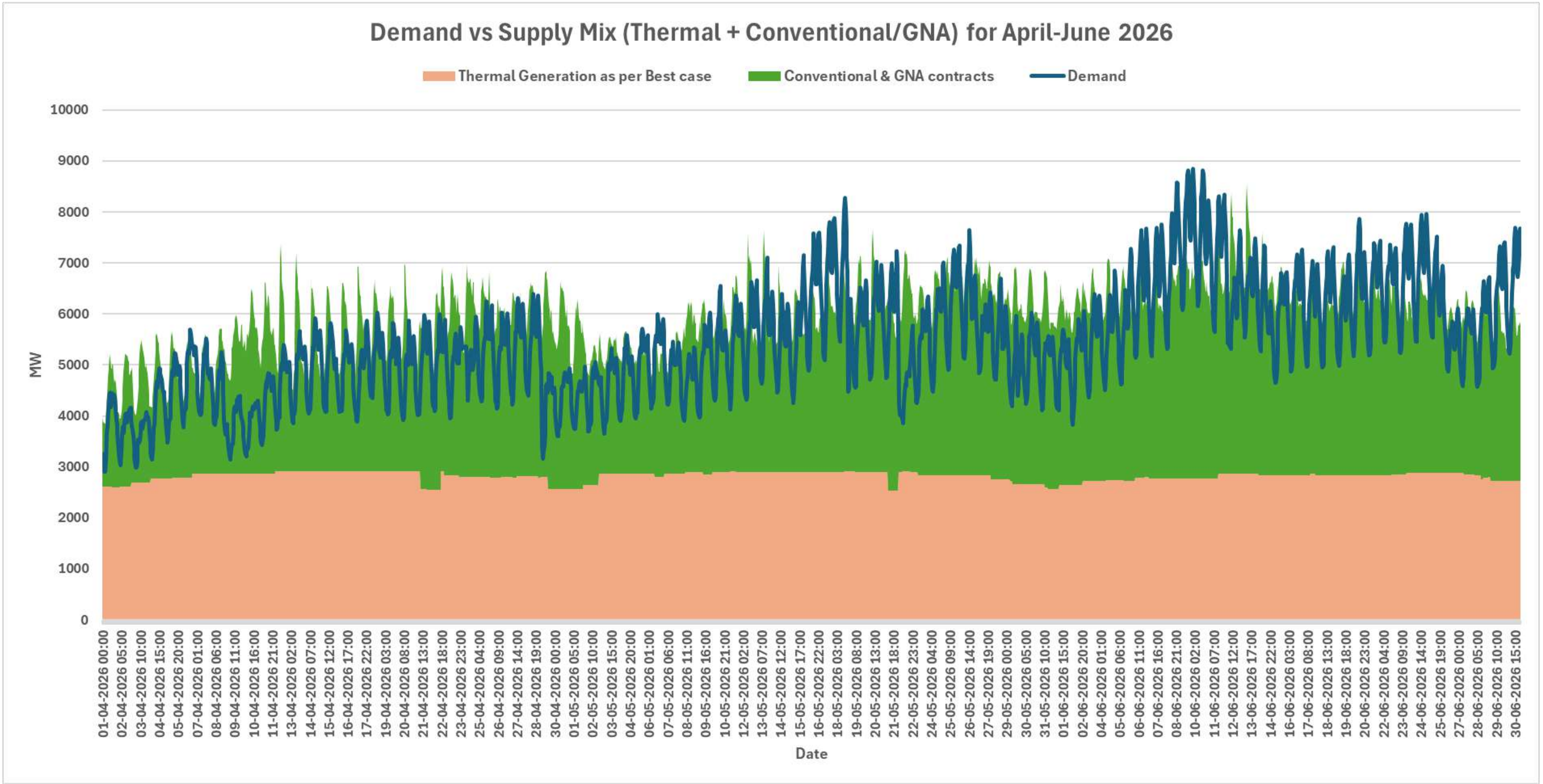
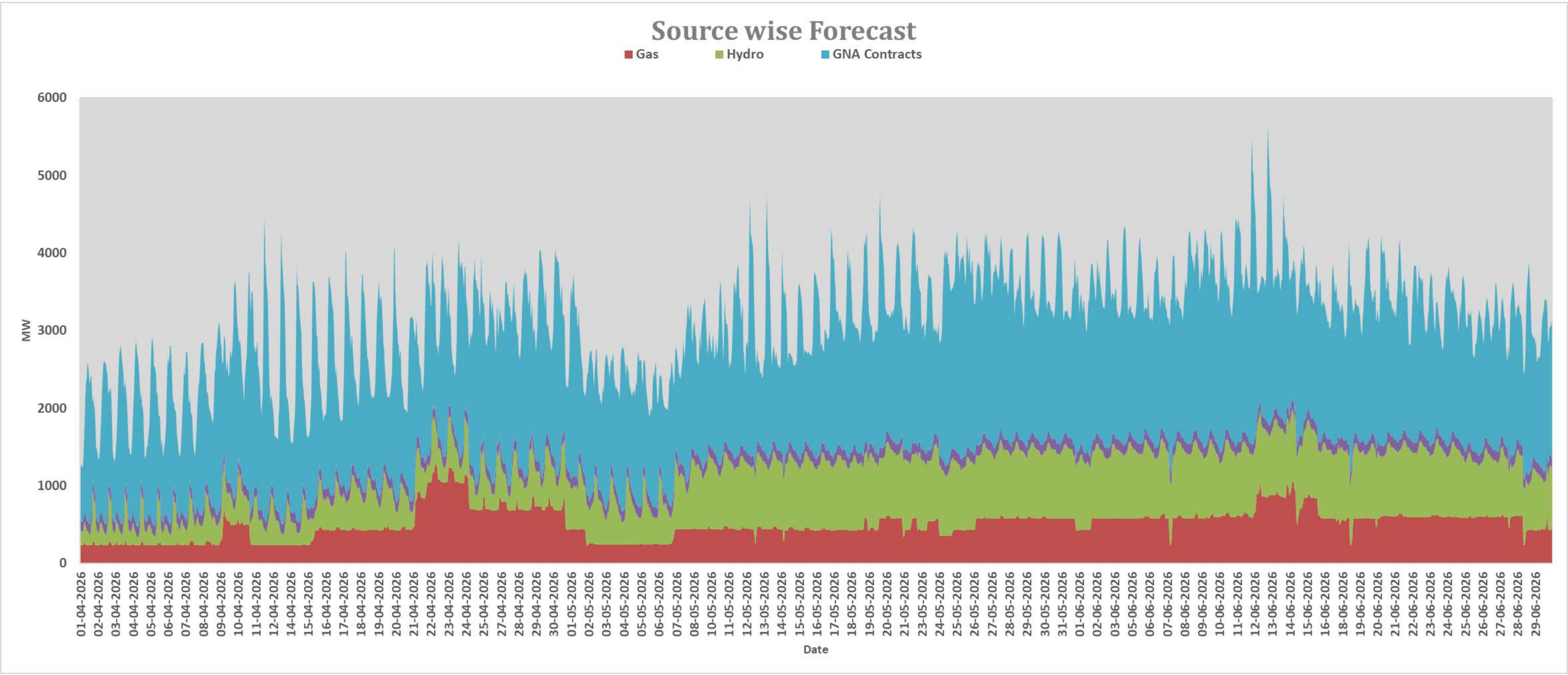
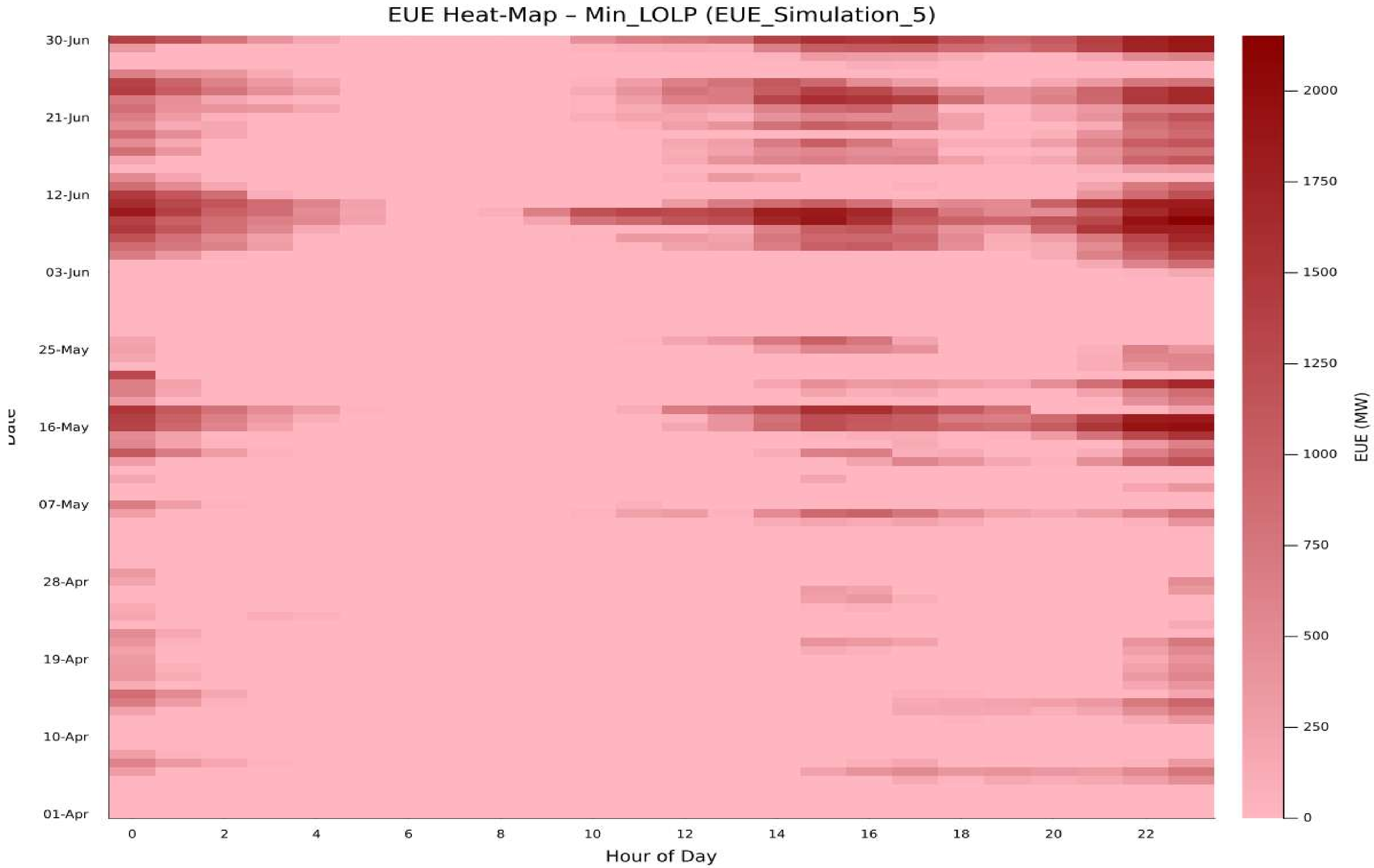
26-06-2026
28-06-2026
29-06-2026
30-06-2026
Date

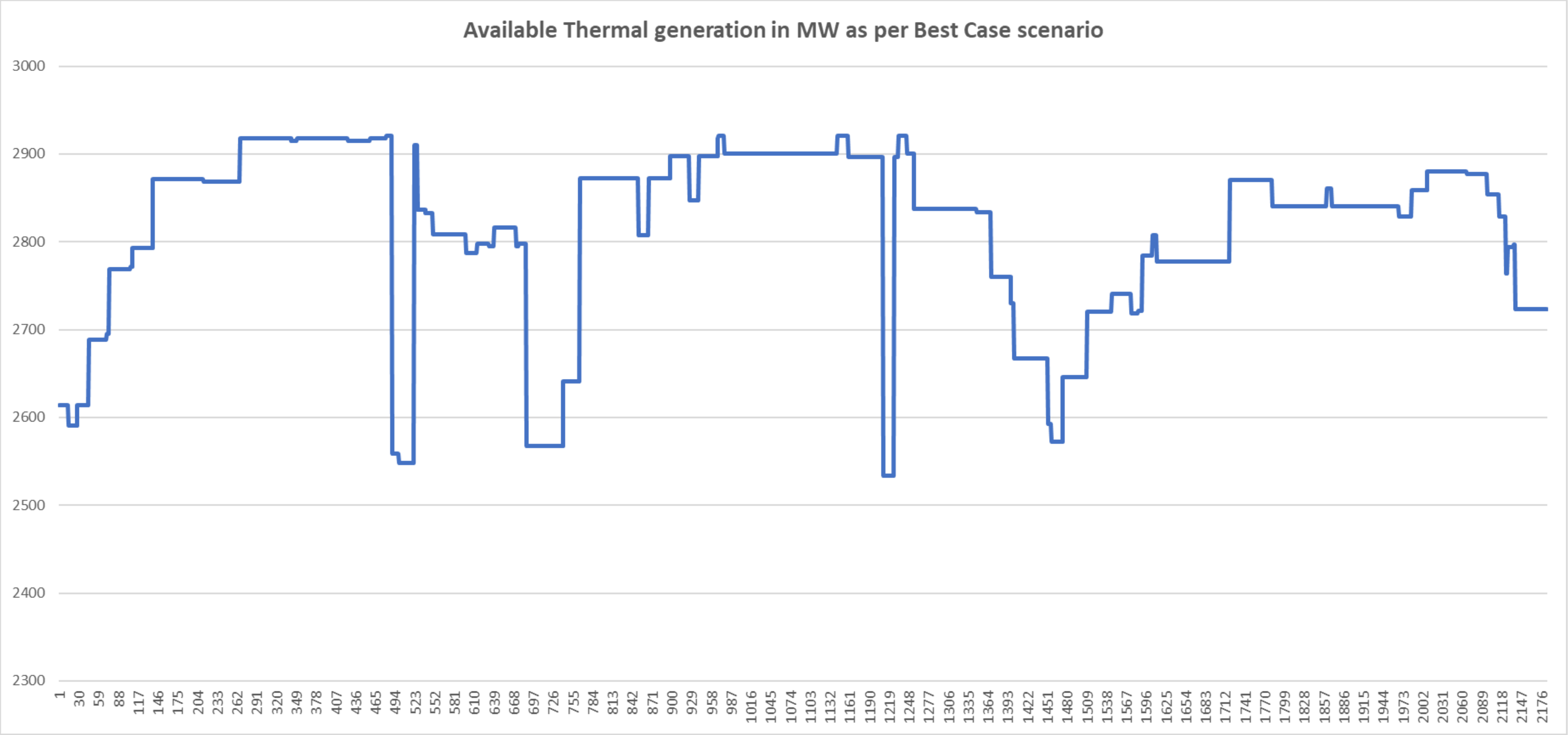


Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
10000
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
MW
01-04-2026 00:00
02-04-2026 05:00
03-04-2026 10:00
04-04-2026 15:00
05-04-2026 20:00
07-04-2026 01:00
08-04-2026 06:00
09-04-2026 11:00
10-04-2026 16:00
11-04-2026 21:00
13-04-2026 02:00
14-04-2026 07:00
15-04-2026 12:00
16-04-2026 17:00
17-04-2026 22:00
19-04-2026 03:00
20-04-2026 08:00
21-04-2026 13:00
22-04-2026 18:00
23-04-2026 23:00
25-04-2026 04:00
26-04-2026 09:00
27-04-2026 14:00
28-04-2026 19:00
30-04-2026 00:00
01-05-2026 05:00
02-05-2026 10:00
03-05-2026 15:00
04-05-2026 20:00
06-05-2026 01:00
07-05-2026 06:00
08-05-2026 11:00
09-05-2026 16:00
10-05-2026 21:00
12-05-2026 02:00
13-05-2026 07:00
14-05-2026 12:00
15-05-2026 17:00
16-05-2026 22:00
18-05-2026 03:00
19-05-2026 08:00
20-05-2026 13:00
21-05-2026 18:00
22-05-2026 23:00
24-05-2026 04:00
25-05-2026 09:00
26-05-2026 14:00
27-05-2026 19:00
29-05-2026 00:00
30-05-2026 05:00
31-05-2026 10:00
01-06-2026 15:00
02-06-2026 20:00
04-06-2026 01:00
05-06-2026 06:00
06-06-2026 11:00
07-06-2026 16:00
08-06-2026 21:00
10-06-2026 02:00
11-06-2026 07:00
12-06-2026 12:00
13-06-2026 17:00
14-06-2026 22:00
16-06-2026 03:00
17-06-2026 08:00
18-06-2026 13:00
19-06-2026 18:00
20-06-2026 23:00
22-06-2026 04:00
23-06-2026 09:00
24-06-2026 14:00
25-06-2026 19:00
27-06-2026 00:00
28-06-2026 05:00
29-06-2026 10:00
30-06-2026 15:00
Date

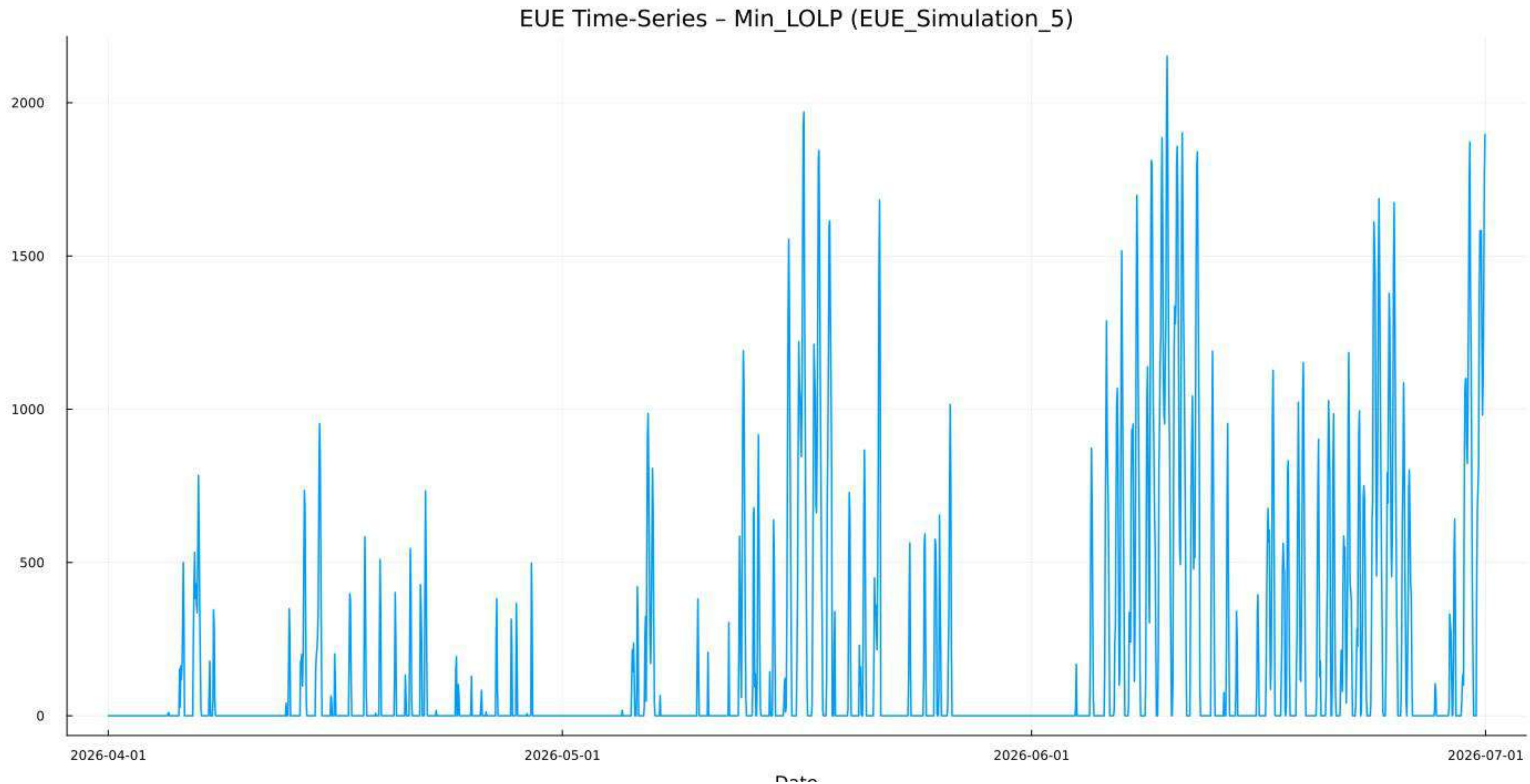

Source wise Forecast
Gas
Hydro
GNA Contracts
MW
Date
6000
5000
4000
3000
2000
1000
0

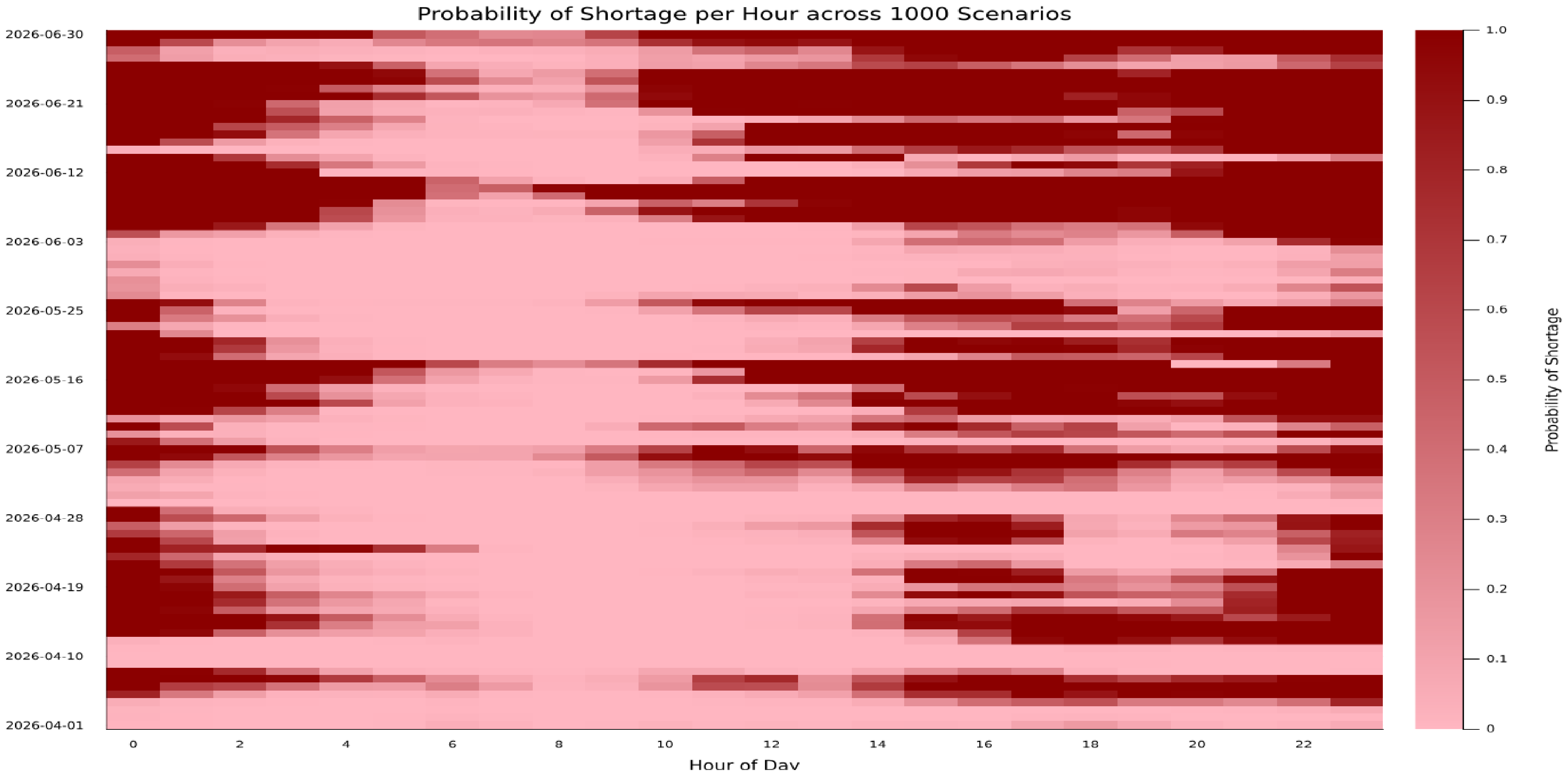
Best case: Load Unserved in MW- Heat Map





Available Thermal generation in MW as per Best Case scenario
3000
2900
2800
2700
2600
2500
2400
2300
1
30
59
88
117
146
175
204
233
262
291
320
349
378
407
436
465
494
523
552
581
610
639
668
697
726
755
784
813
842
871
900
929
958
987
1016
1045
1074
1103
1132
1161
1190
1219
1248
1277
1306
1335
1364
1393
1422
1451
1480
1509
1538
1567
1596
1625
1654
1683
1712
1741
1770
1799
1828
1857
1886
1915
1944
1973
2002
2031
2060
2089
2118
2147
2176


EUE Time-Series – Min_LOLP (EUE_Simulation_5)
2000
1500
1000
500
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date



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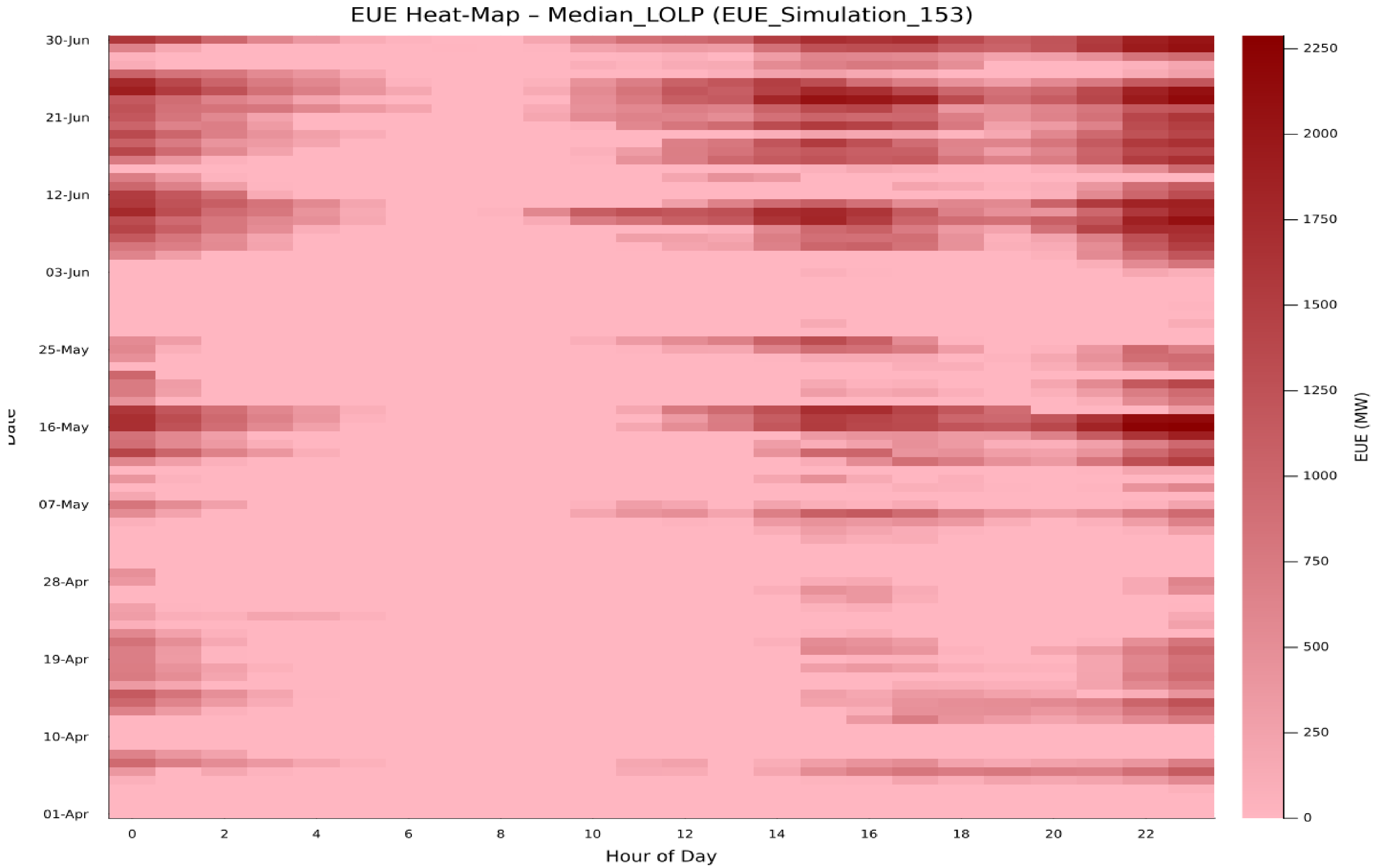
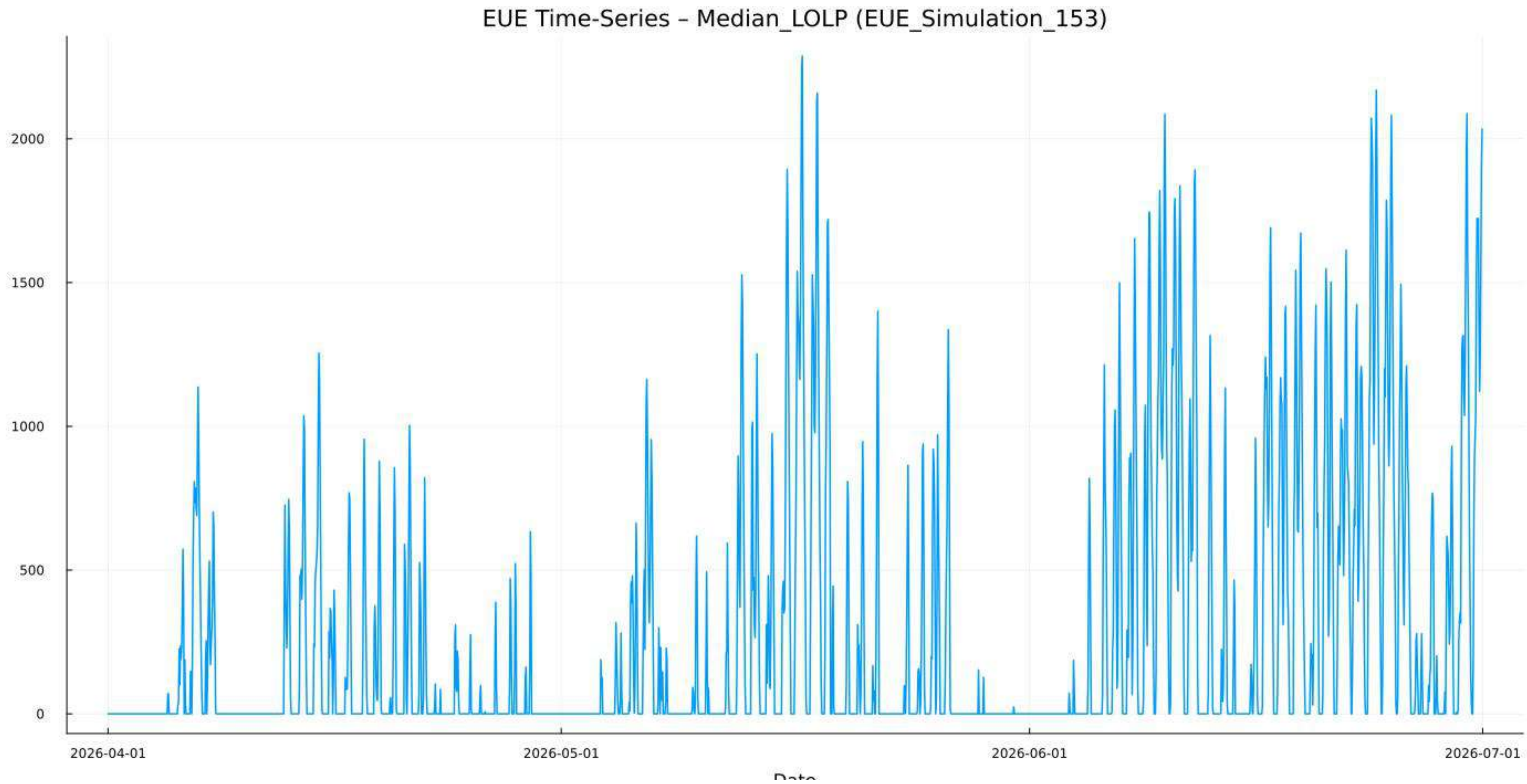
Median case: Load Unserved in MW- Heat Map




EUE Time-Series – Median_LOLP (EUE_Simulation_153)
2000
1500
1000
500
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

Observations

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Resource Adequacy Study Analysis for NR States

April to June 2026

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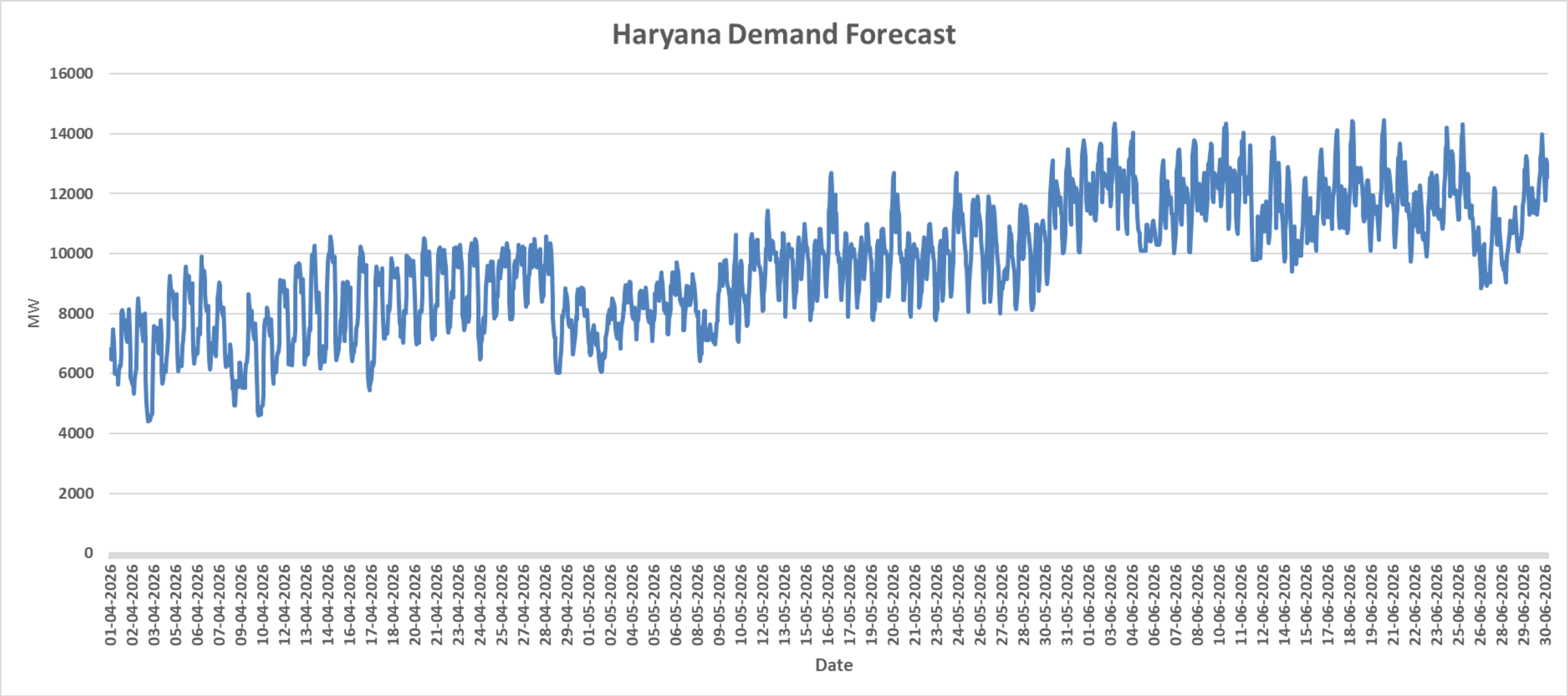
Haryana


Haryana Demand Forecast
MW
16000
14000
12000
10000
8000
6000
4000
2000
0
Date
01-04-2026
02-04-2026
03-04-2026
05-04-2026
06-04-2026
07-04-2026
09-04-2026
10-04-2026
12-04-2026
13-04-2026
14-04-2026
16-04-2026
17-04-2026
18-04-2026
20-04-2026
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23-04-2026
24-04-2026
25-04-2026
27-04-2026
28-04-2026
29-04-2026
01-05-2026
02-05-2026
04-05-2026
05-05-2026
06-05-2026
08-05-2026
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26-05-2026
27-05-2026
28-05-2026
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31-05-2026
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03-06-2026
04-06-2026
06-06-2026
07-06-2026
08-06-2026
10-06-2026
11-06-2026
12-06-2026
14-06-2026
15-06-2026
17-06-2026
18-06-2026
19-06-2026
21-06-2026
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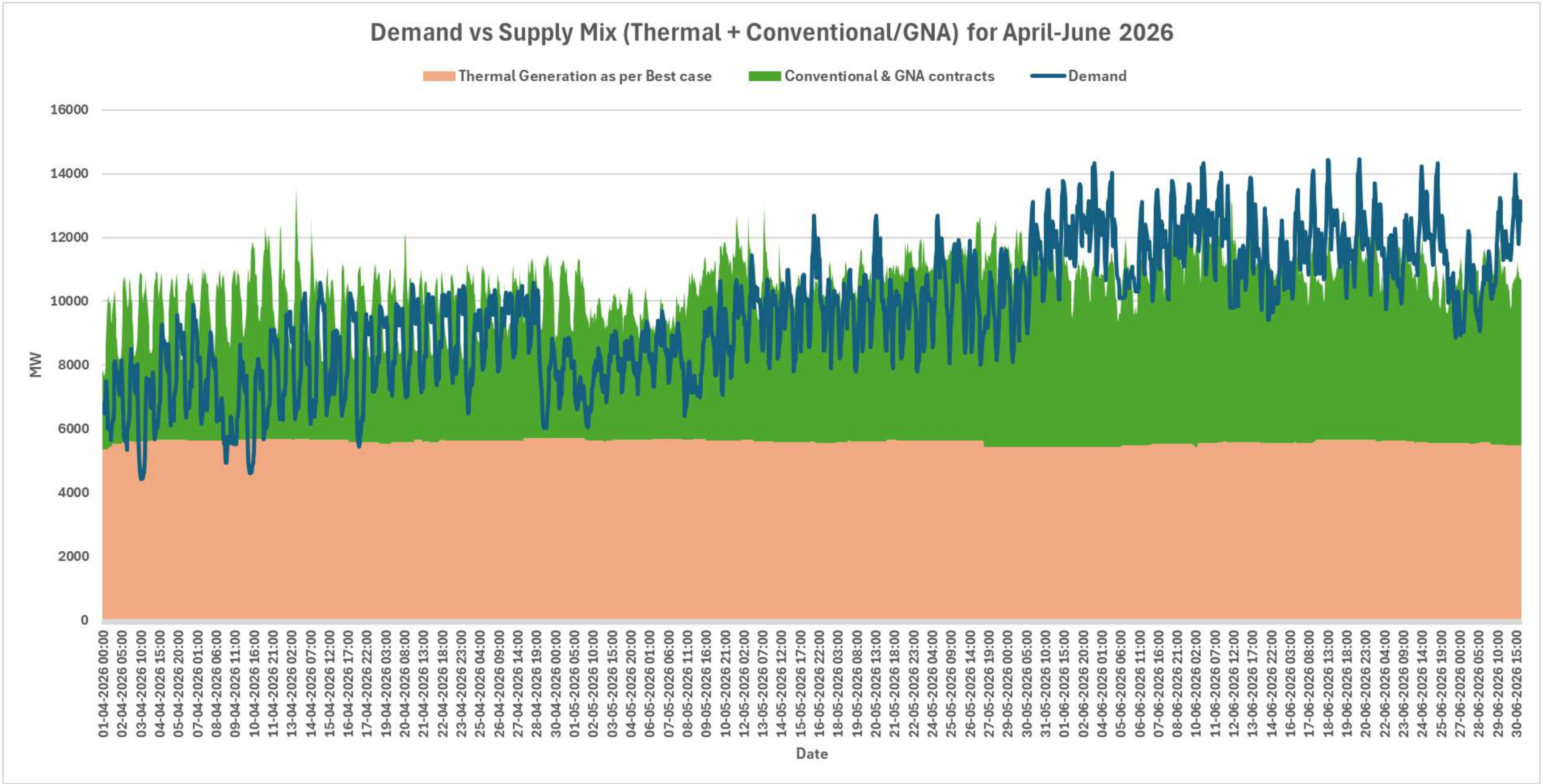
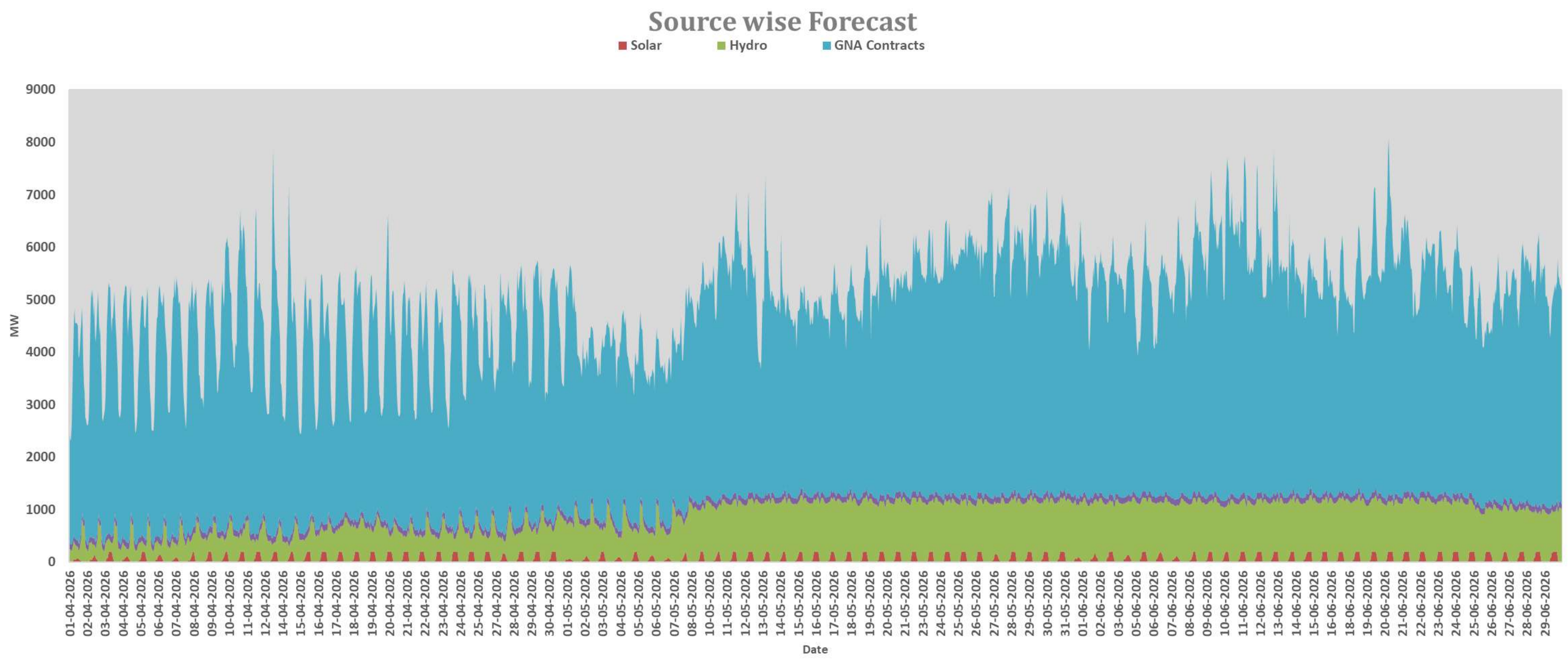
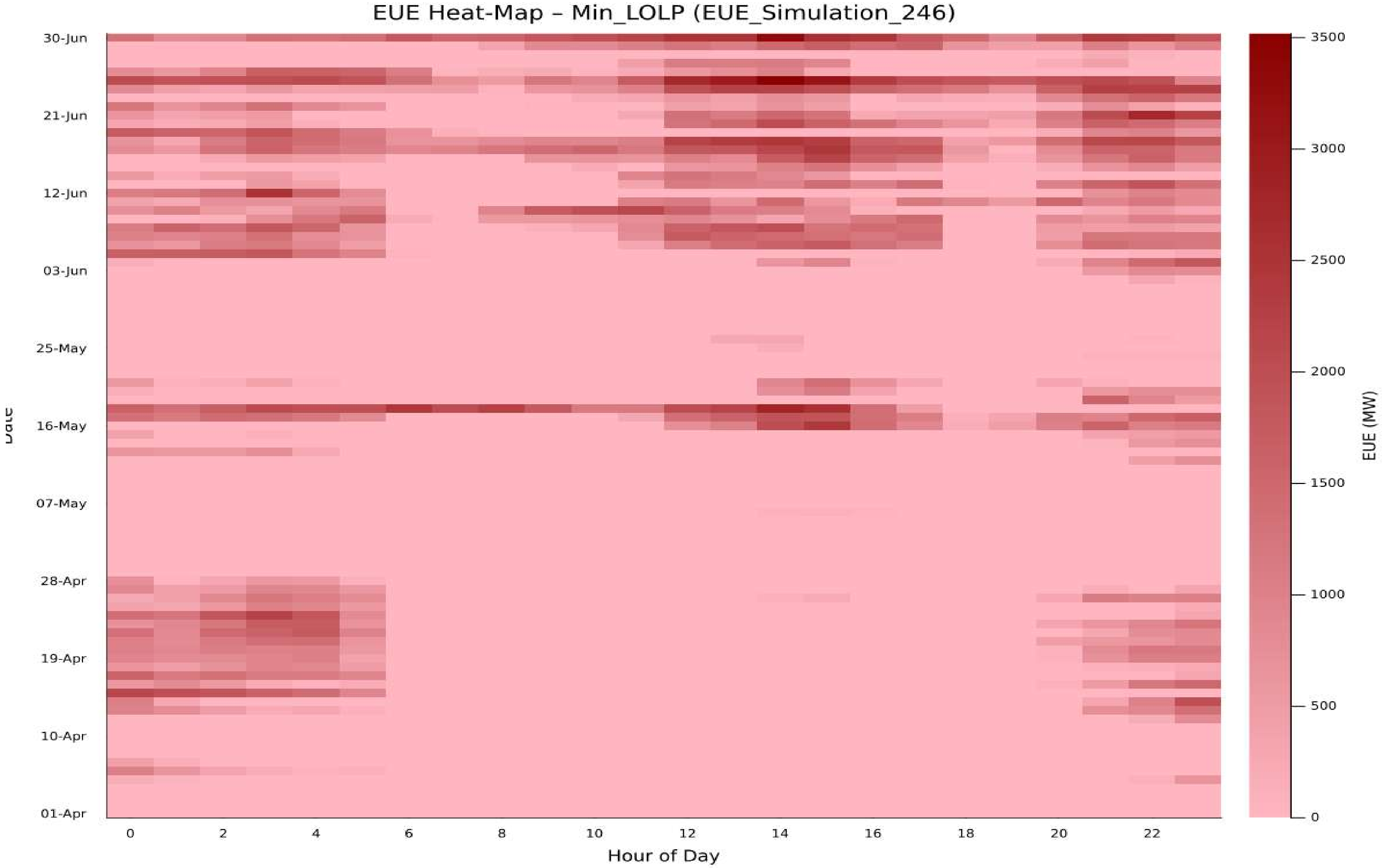
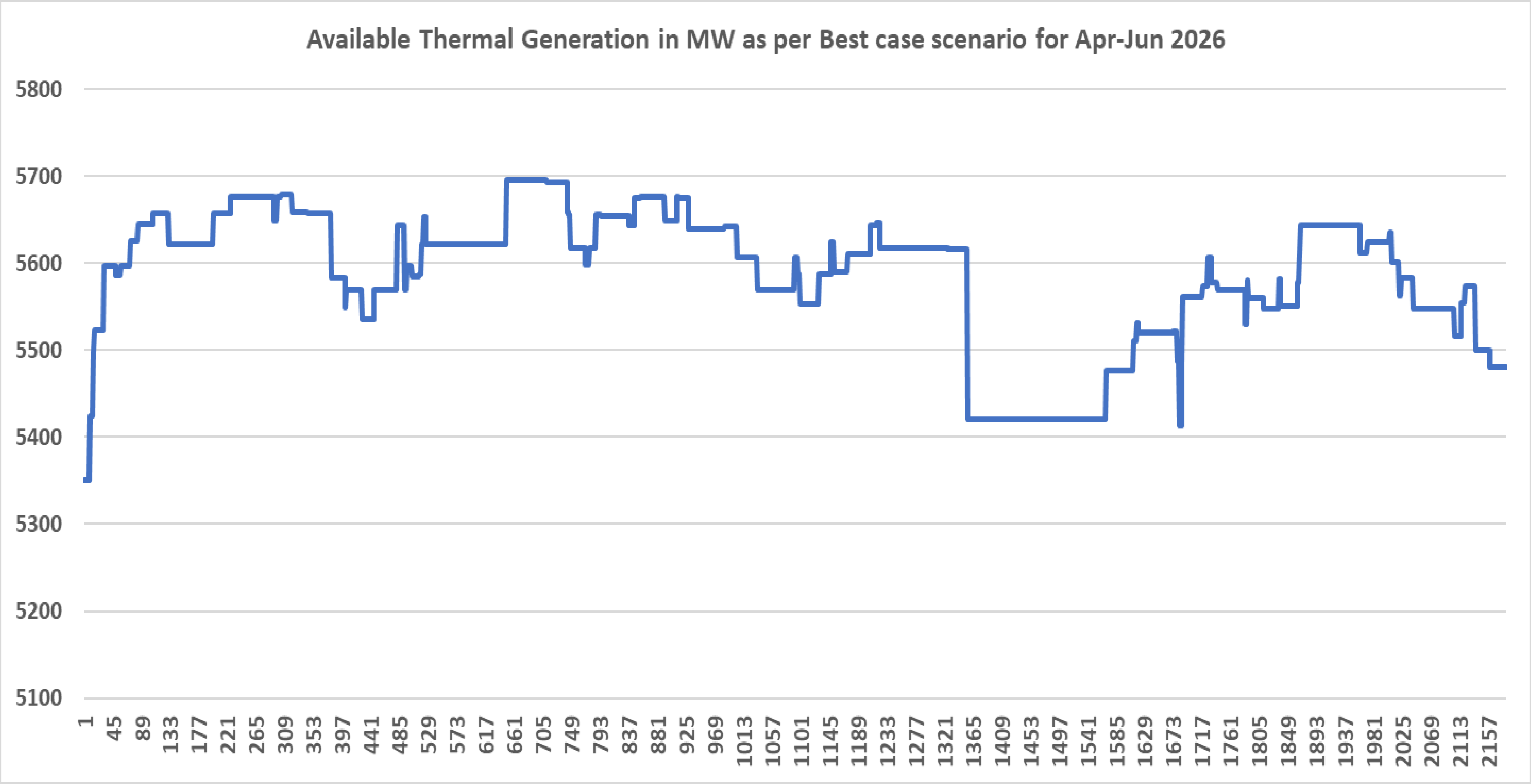
29-06-2026
30-06-2026


Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
MW
16000
14000
12000
10000
8000
6000
4000
2000
0
Date

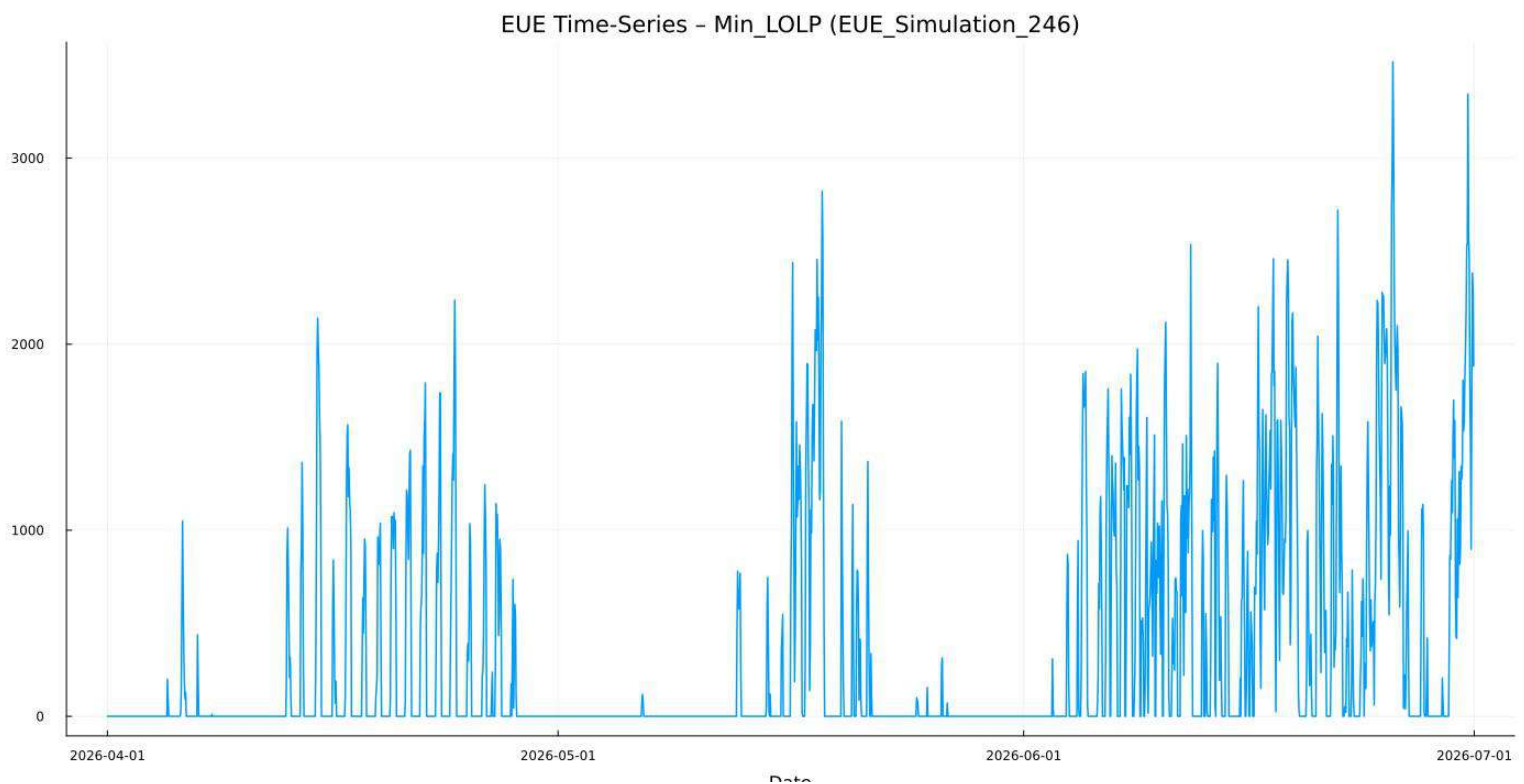

Source wise Forecast
Solar
Hydro
GNA Contracts
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
MW
Date

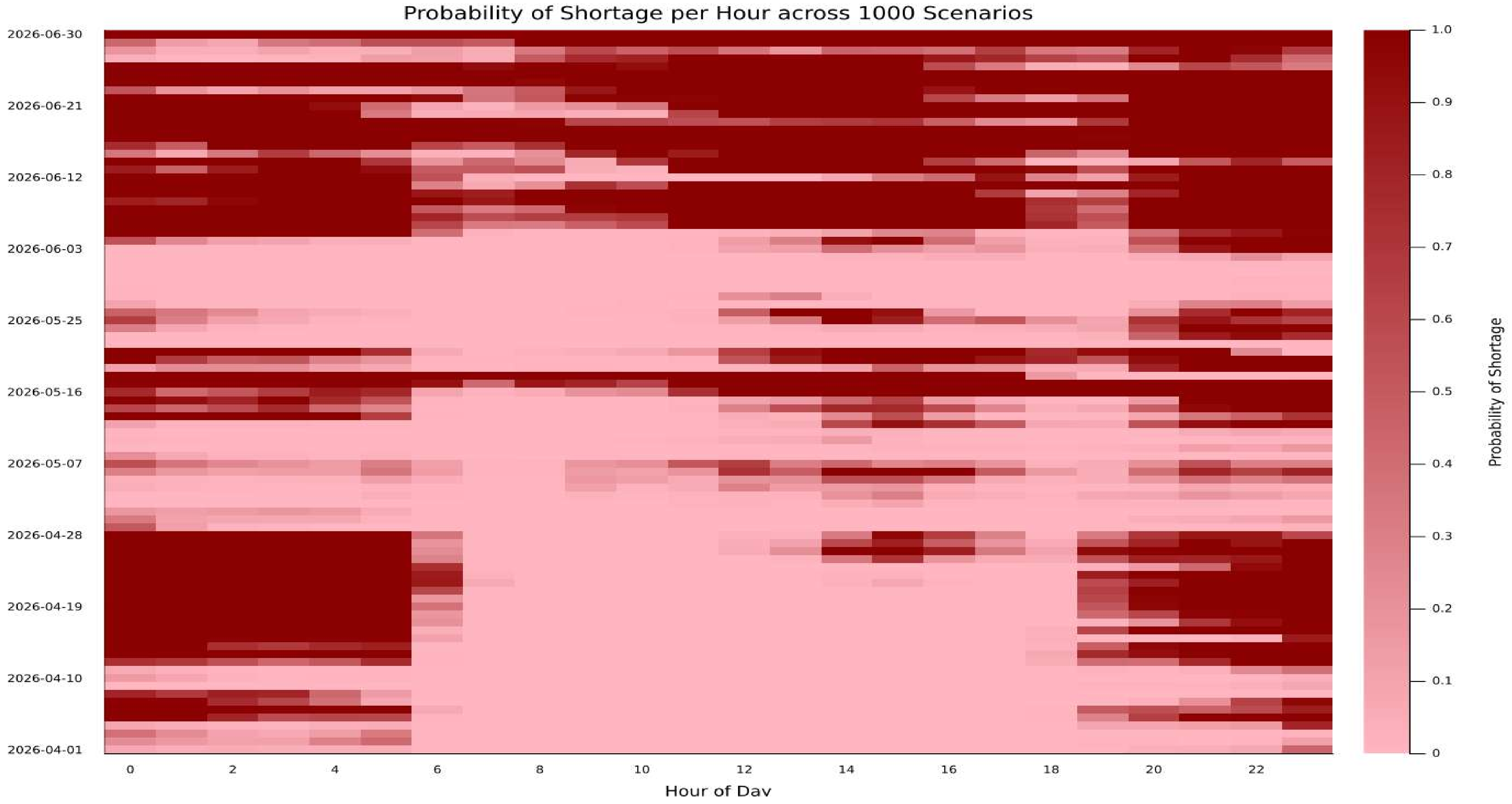
Best case: Load Unserved in MW- Heat Map





Available Thermal Generation in MW as per Best case scenario for Apr-Jun 2026
5800
5700
5600
5500
5400
5300
5200
5100
1
45
89
133
177
221
265
309
353
397
441
485
529
573
617
661
705
749
793
837
881
925
969
1013
1057
1101
1145
1189
1233
1277
1321
1365
1409
1453
1497
1541
1585
1629
1673
1717
1761
1805
1849
1893
1937
1981
2025
2069
2113
2157


EUE Time-Series – Min_LOLP (EUE_Simulation_246)
3000
2000
1000
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date



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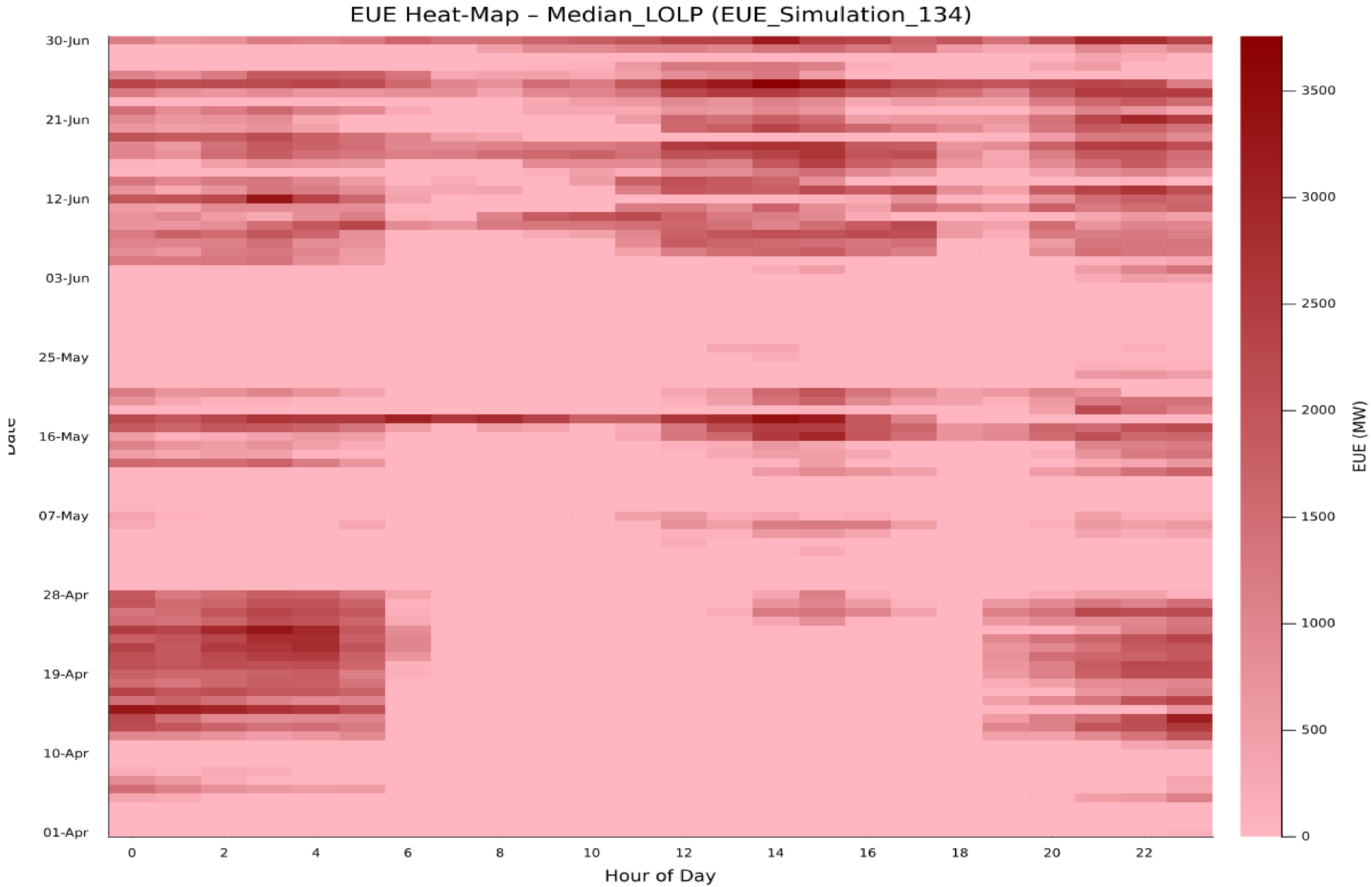

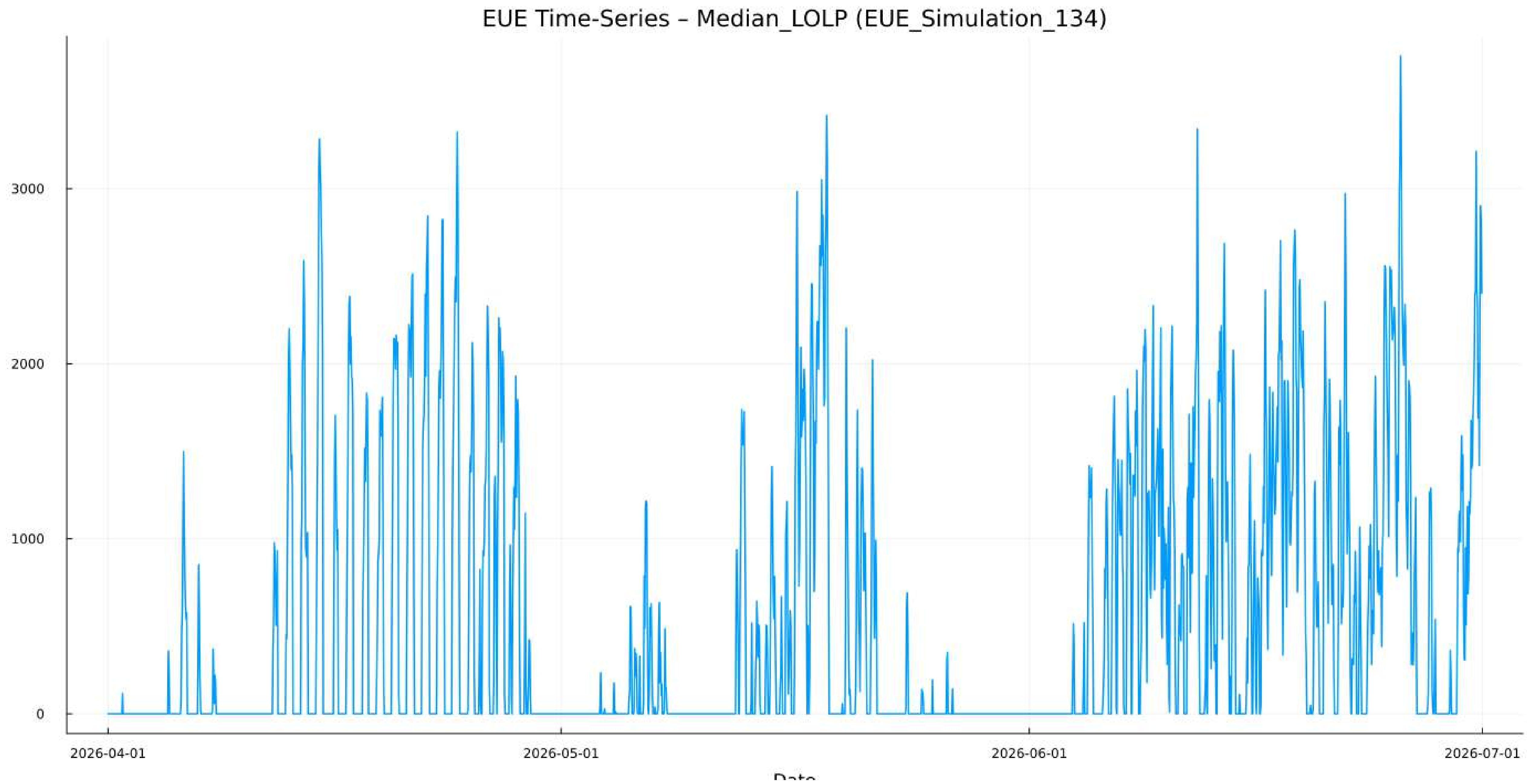

EUE Time-Series – Median_LOLP (EUE_Simulation_134)
3000
2000
1000
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01

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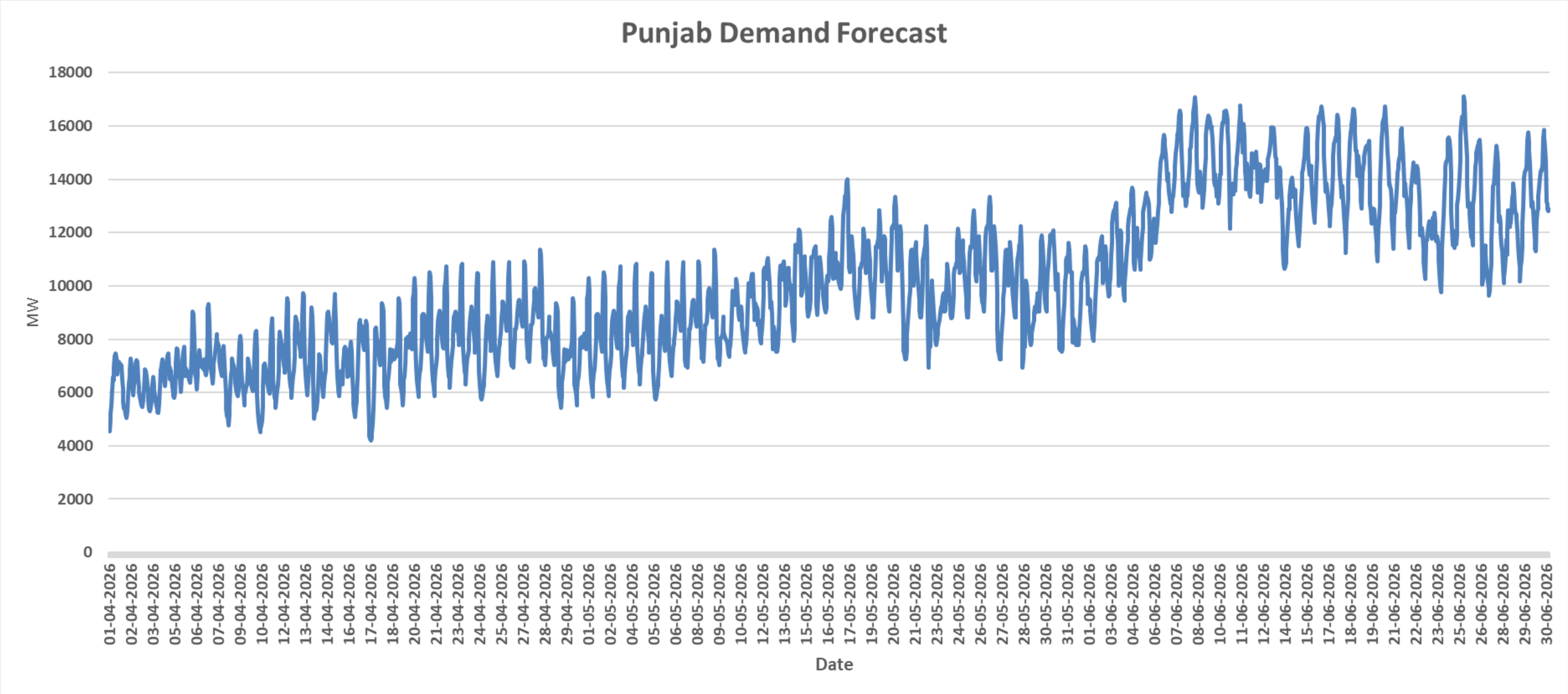
✓ **Expected Unserved Energy (EUE)**

Punjab


Punjab Demand Forecast
MW
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Date
01-04-2026
02-04-2026
03-04-2026
05-04-2026
06-04-2026
07-04-2026
09-04-2026
10-04-2026
12-04-2026
13-04-2026
14-04-2026
16-04-2026
17-04-2026
18-04-2026
20-04-2026
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31-05-2026
01-06-2026
03-06-2026
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06-06-2026
07-06-2026
08-06-2026
10-06-2026
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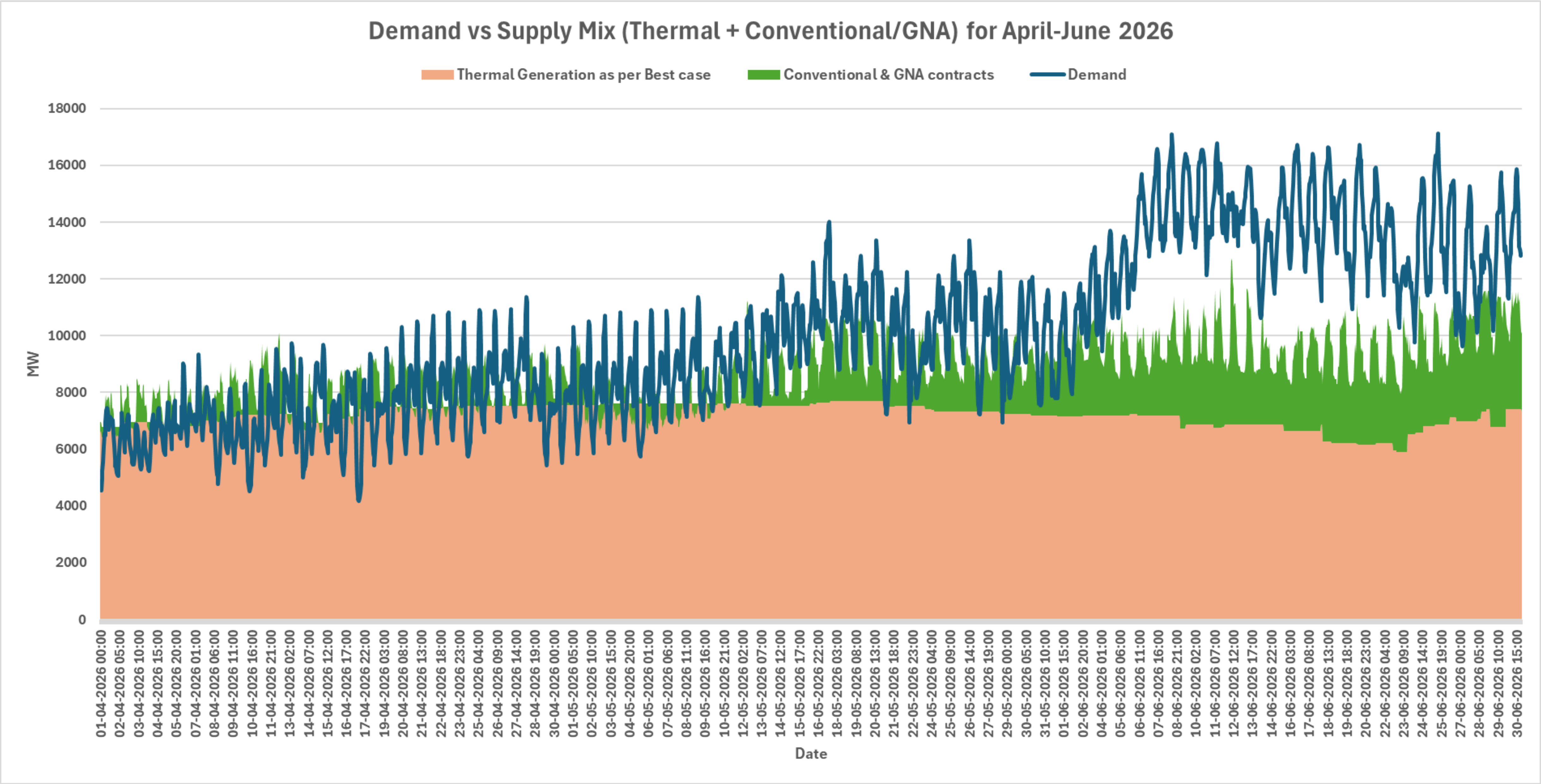
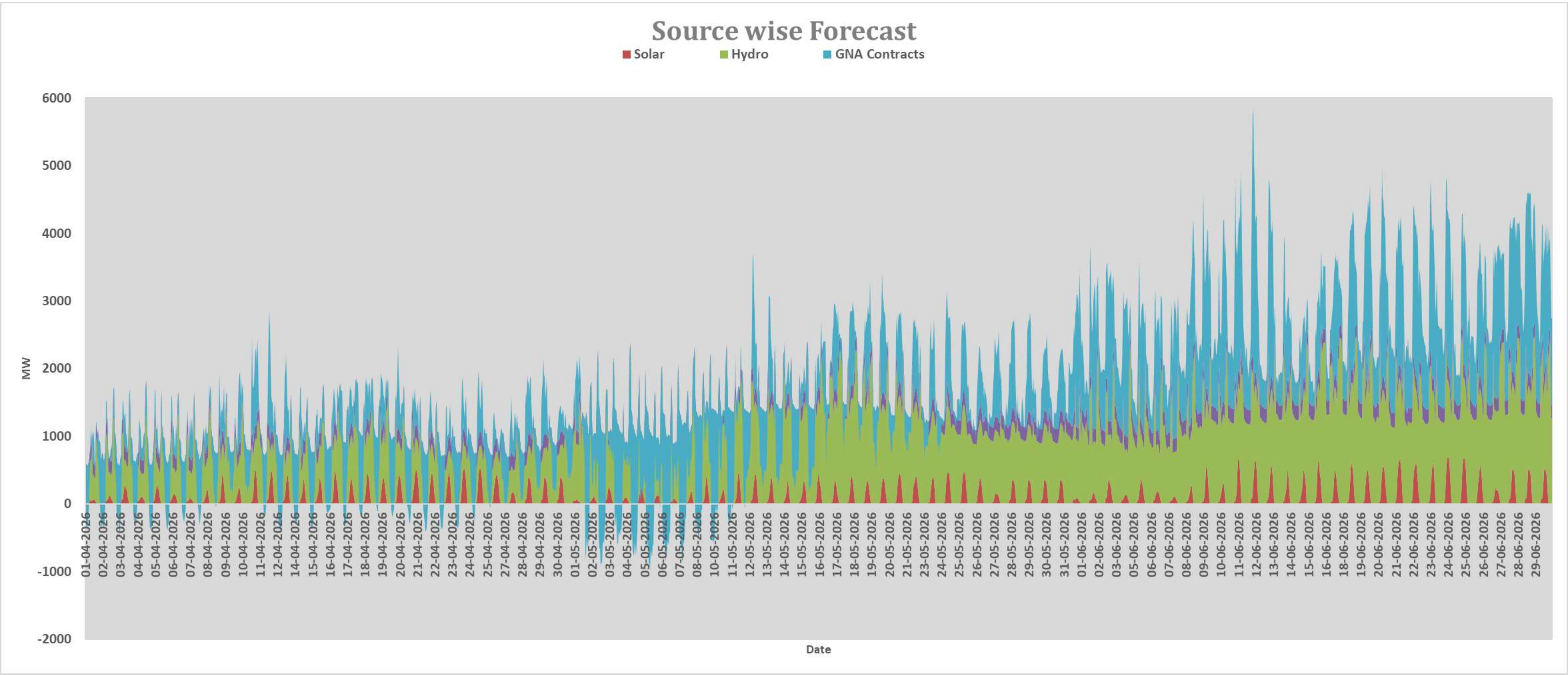
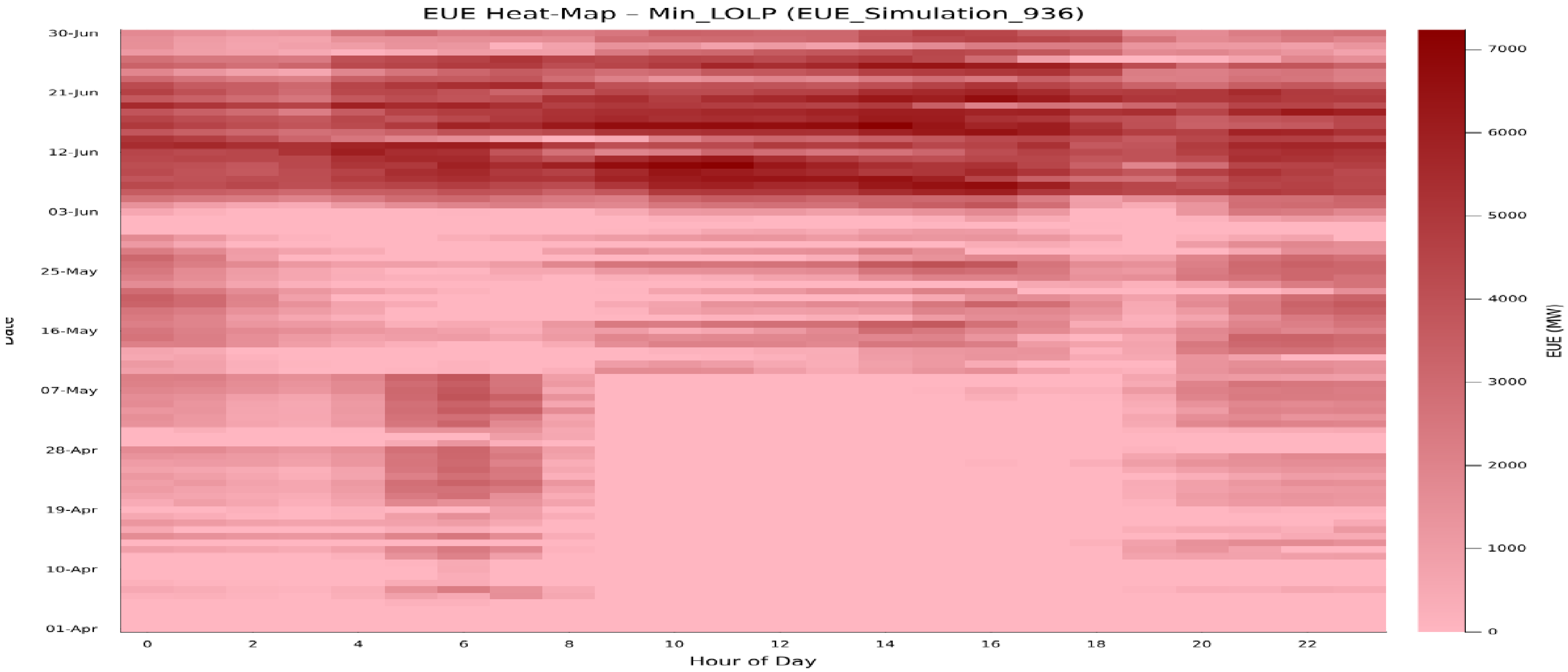


Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
MW
18000
16000
14000
12000
10000
8000
6000
4000
2000
0
Date

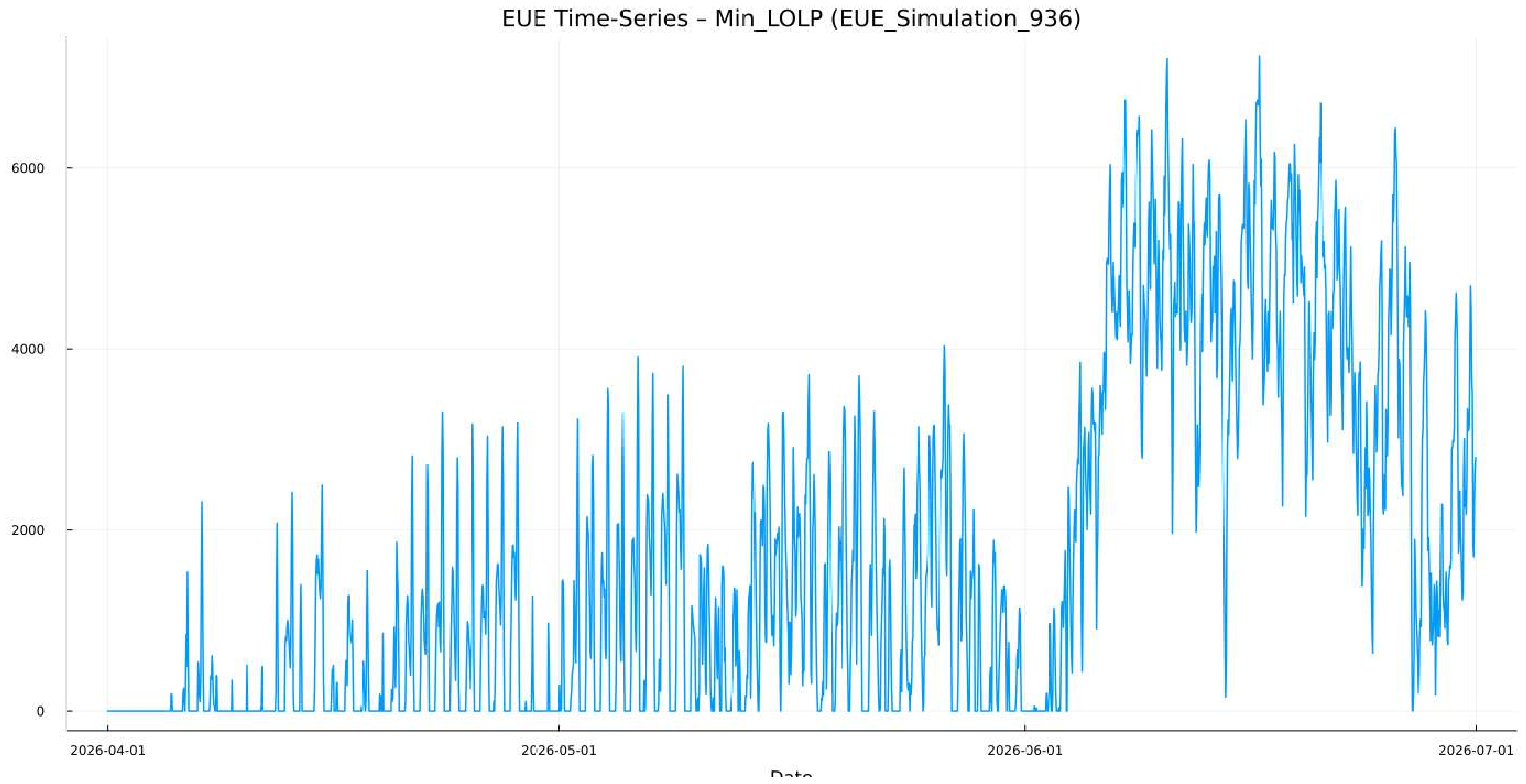


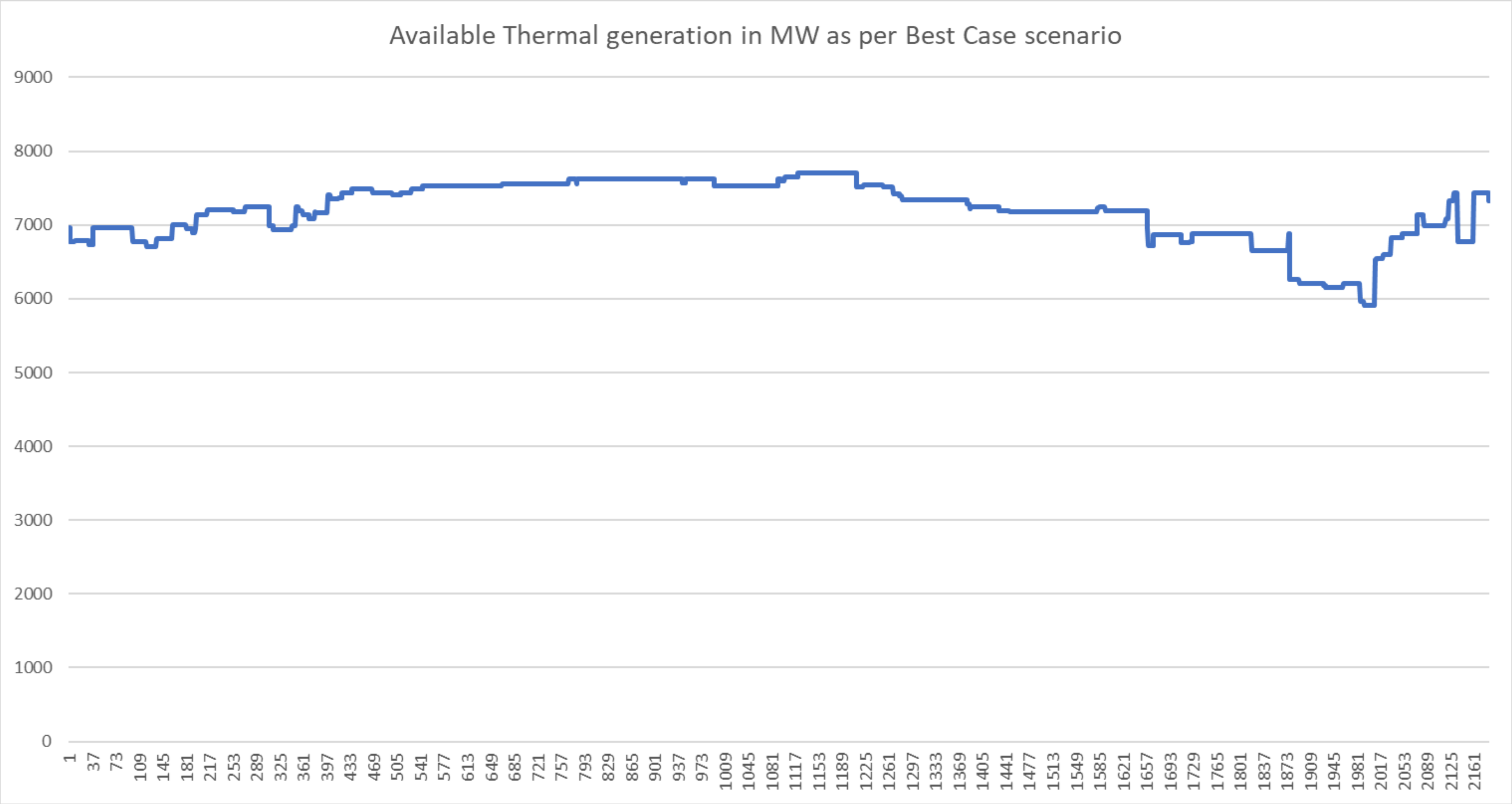
Source wise Forecast
Solar
Hydro
GNA Contracts
MW
Date

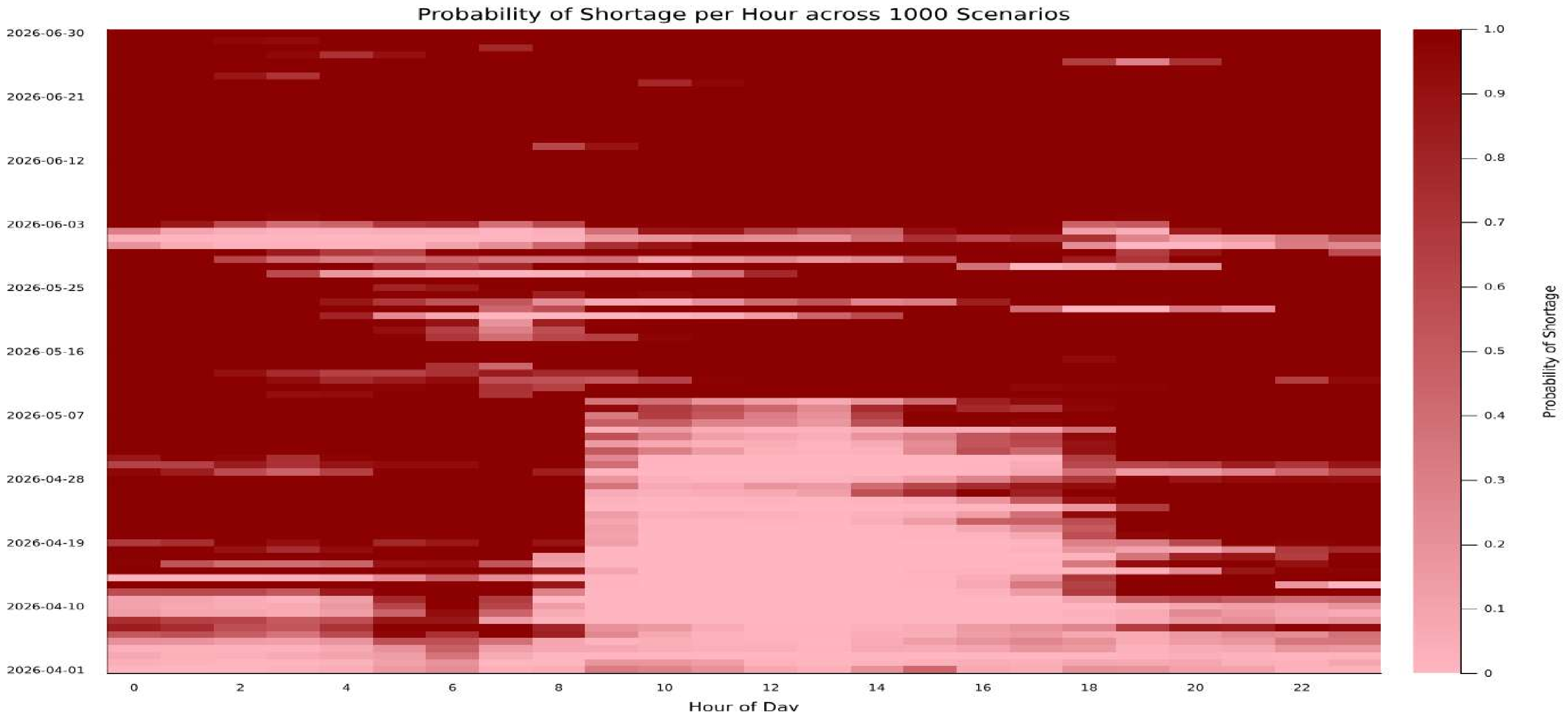
Best case: Load Unserved in MW- Heat Map



In the RA assessment, GNA contracts of the corresponding months from the previous year have been considered, duly scaled to account for demand growth. Short term Bilateral and market transactions have not been explicitly modelled. The results indicate relatively higher shortage probability for Punjab, which reflects its operational dependence on DAM/RTM purchases observed during the previous summer.

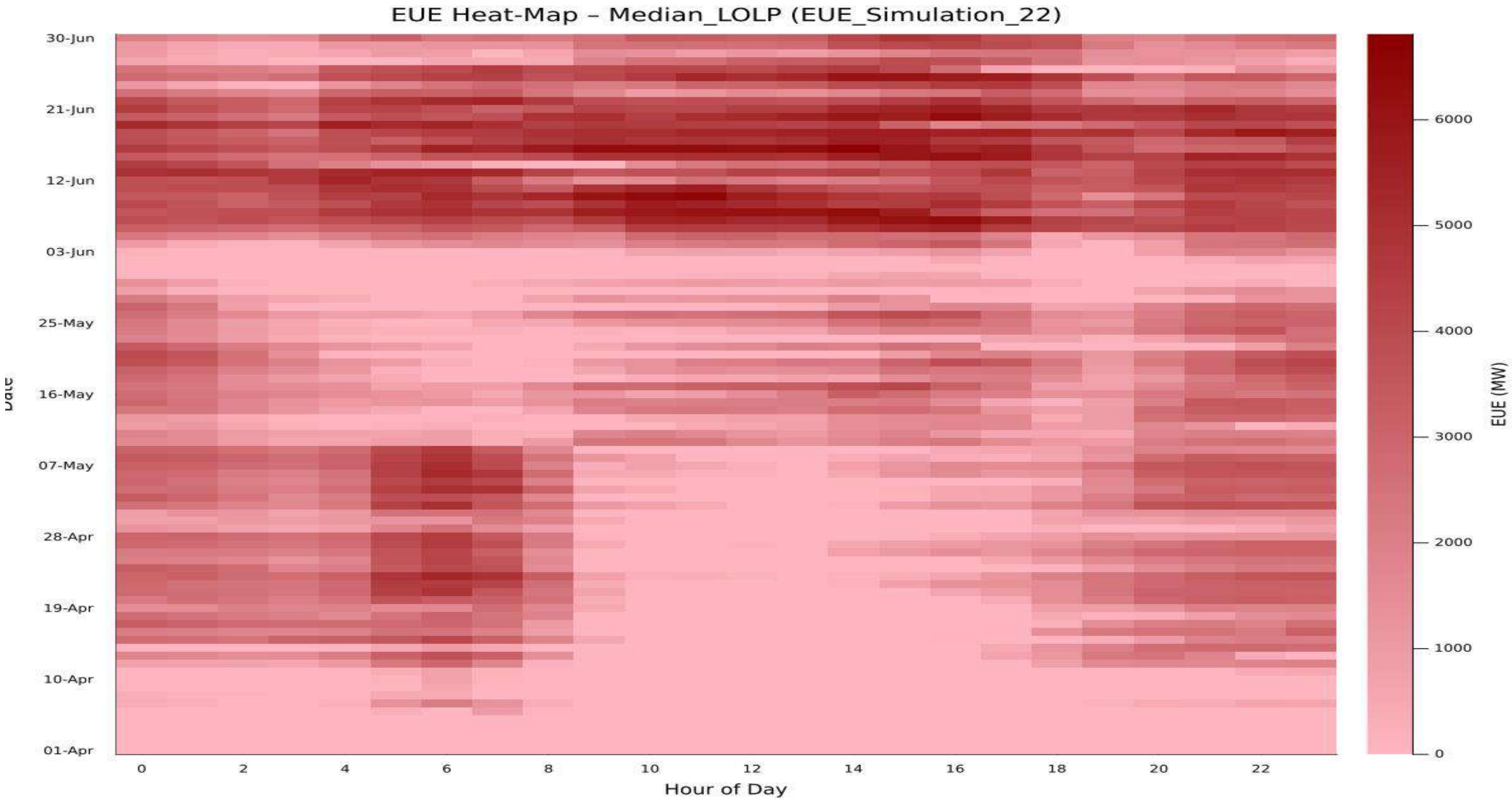

EUE Time-Series – Min_LOLP (EUE_Simulation_936)
6000
4000
2000
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

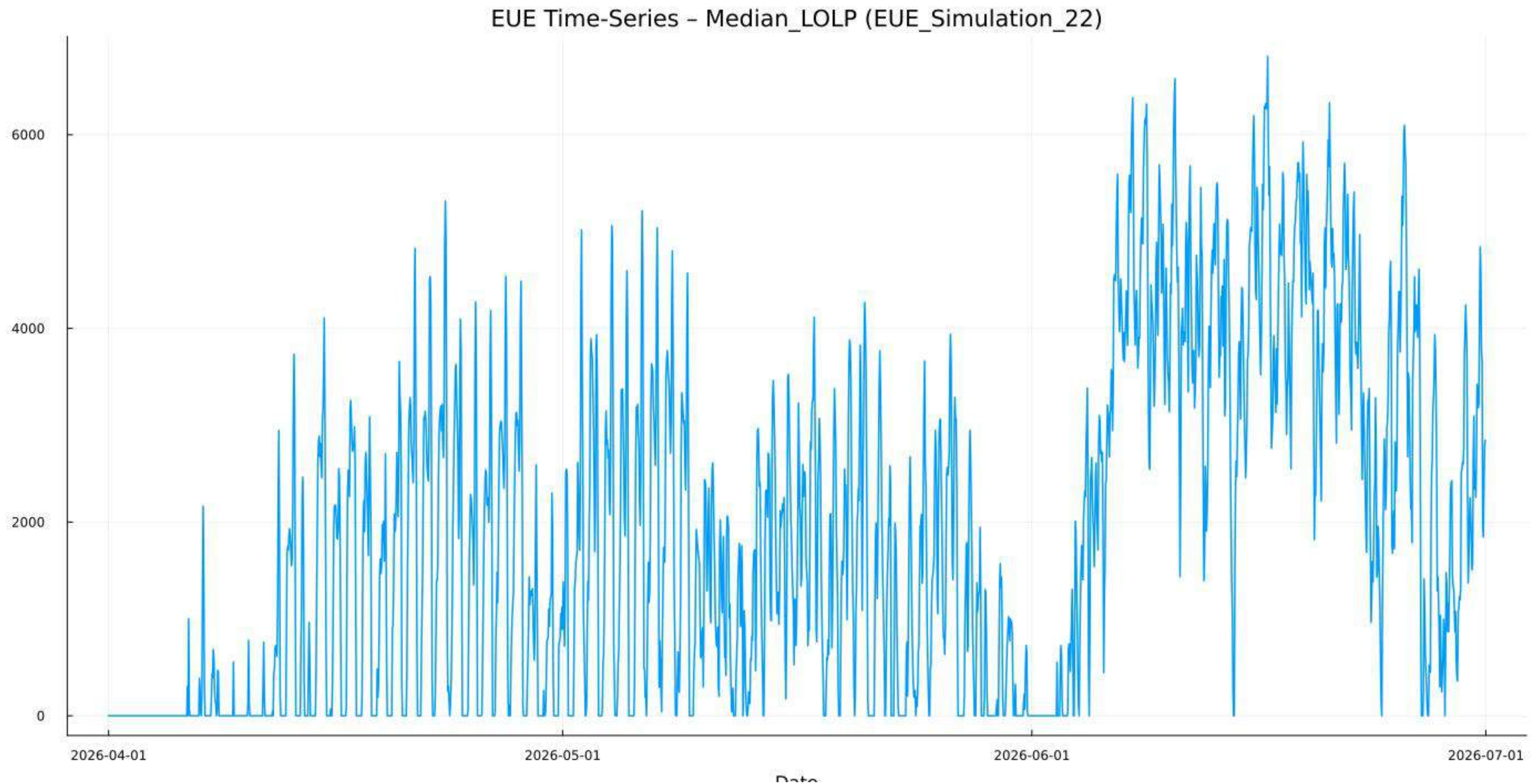

Available Thermal generation in MW as per Best Case scenario
9000
8000
7000
6000
5000
4000
3000
2000
1000
0
1
37
73
109
145
181
217
253
289
325
361
397
433
469
505
541
577
613
649
685
721
757
793
829
865
901
937
973
1009
1045
1081
1117
1153
1189
1225
1261
1297
1333
1369
1405
1441
1477
1513
1549
1585
1621
1657
1693
1729
1765
1801
1837
1873
1909
1945
1981
2017
2053
2089
2125
2161



In the RA assessment, GNA contracts of the corresponding months from the previous year have been considered, duly scaled to account for demand growth. Bilateral and short-term market transactions have not been explicitly modelled. The results indicate relatively higher shortage probability for Punjab, which reflects its operational dependence on DAM/RTM purchases observed during the previous summer.

Median case: Load Unserved in MW- Heat Map





EUE Time-Series – Median_LOLP (EUE_Simulation_22)
6000
4000
2000
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

Observations

PRAS results indicate elevated adequacy risk during summer peak conditions, particularly during early morning and evening hours, when demand remains high and solar generation is unavailable.

The analysis highlights intermittent but significant unserved energy events, with higher frequency and magnitude observed during May–June, coinciding with extreme demand days.

While mid-day hours benefit from solar generation, peak-hour adequacy remains sensitive to demand variability and generation availability.

Way Forward

In view of the above, States are advised to strengthen advance resource planning for the summer period, including:

- Early finalization of firm GNA / bilateral contracts to adequately cover peak and shoulder-hour demand.
- Limiting reliance on short-term market mechanisms (DAM/RTM) for meeting peak summer requirements and treating market purchases as supplementary.

States are requested to review the PRAS outcomes at their end and undertake further state-level analysis, considering local demand conditions, resource availability, and contingency scenarios.

To enable revision of the PRAS assessment, States may kindly share updated inputs, including:

- Any new or revised GNA / bilateral contracts not captured in the current study.
- Updates on generation availability, renewable capacity additions, and demand outlook.

Disclaimer: PRAS results are indicative and intended to support advance planning under uncertainty.

Resource Adequacy Study Analysis for NR States

April to June 2026

Resource Adequacy Study using PRAS- Key assumptions

- The Probabilistic Resource Adequacy Study (PRAS) for the summer period from April to June 2026 has been carried out to assess the adequacy of available generation resources to reliably meet the projected state demand under a range of uncertainty scenarios. The assessment has been conducted using a probabilistic framework comprising 1000 Monte Carlo scenarios, with median outcomes presented to represent the expected system behaviour under typical operating conditions.

- To evaluate the net load to be met by dispatchable thermal generation, the forecasted hourly demand for the summer period (April-June 2026) was first estimated based on historical demand pattern and growth. From this projected demand, the expected contribution from non-thermal generation sources, namely solar, wind, hydro, and nuclear, was deducted.

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Resource Adequacy Study using PRAS- Key assumptions

- To assess the availability of dispatchable generation resources, detailed modelling of thermal and gas-based generating units has been undertaken with the following assumptions:

  - ✓ **Planned Outages:** Planned outages has been considered NIL.

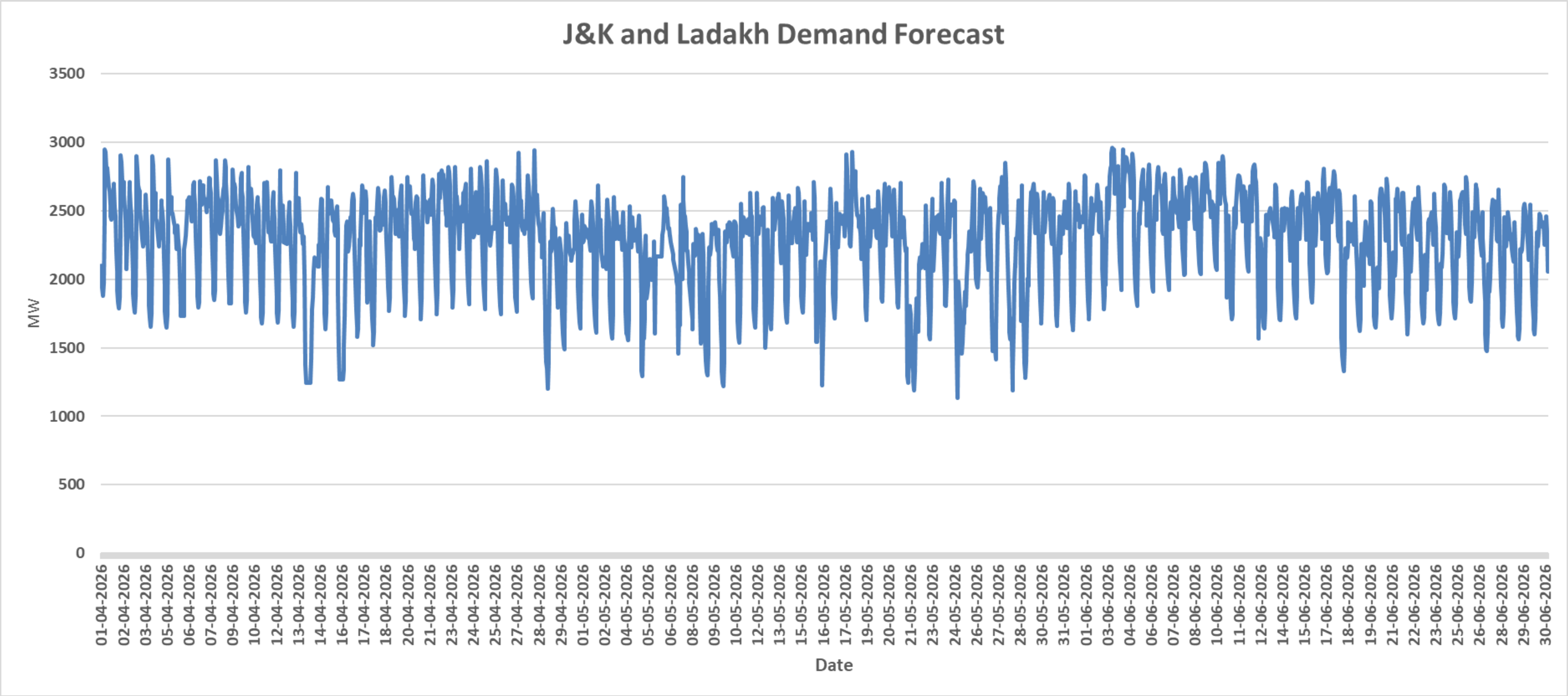
  - ✓ **Forced Outages:**
    Forced outages of thermal generating units have been modelled using a Monte Carlo simulation approach. Historical unit-specific outage and restoration rates have been used to probabilistically simulate unplanned outages.

This stochastic modelling enables realistic representation of operational uncertainties and enhances the robustness of the resource adequacy assessment.

The probabilistic framework enables estimation of reliability metrics such as:

- ✓ **Loss of Load Expectation (LOLE)**
- ✓ **Expected Unserved Energy (EUE)**

Jammu & Kashmir and Ladakh


J&K and Ladakh Demand Forecast
3500
3000
2500
2000
1500
1000
500
0
MW
01-04-2026
02-04-2026
03-04-2026
05-04-2026
06-04-2026
07-04-2026
09-04-2026
10-04-2026
12-04-2026
13-04-2026
14-04-2026
16-04-2026
17-04-2026
18-04-2026
20-04-2026
21-04-2026
23-04-2026
24-04-2026
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27-04-2026
28-04-2026
29-04-2026
01-05-2026
02-05-2026
04-05-2026
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06-05-2026
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04-06-2026
06-06-2026
07-06-2026
08-06-2026
10-06-2026
11-06-2026
12-06-2026
14-06-2026
15-06-2026
17-06-2026
18-06-2026
19-06-2026
21-06-2026
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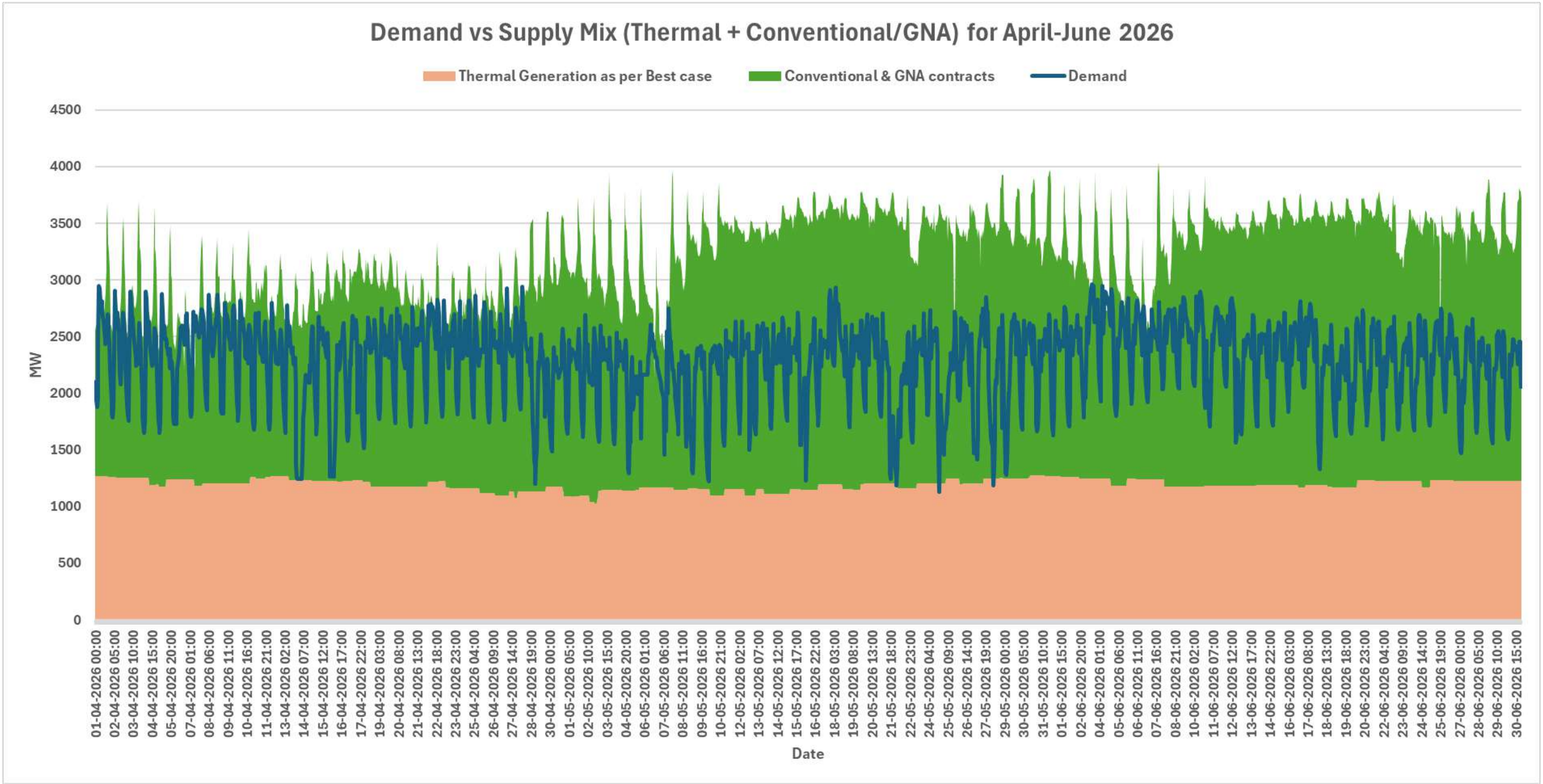
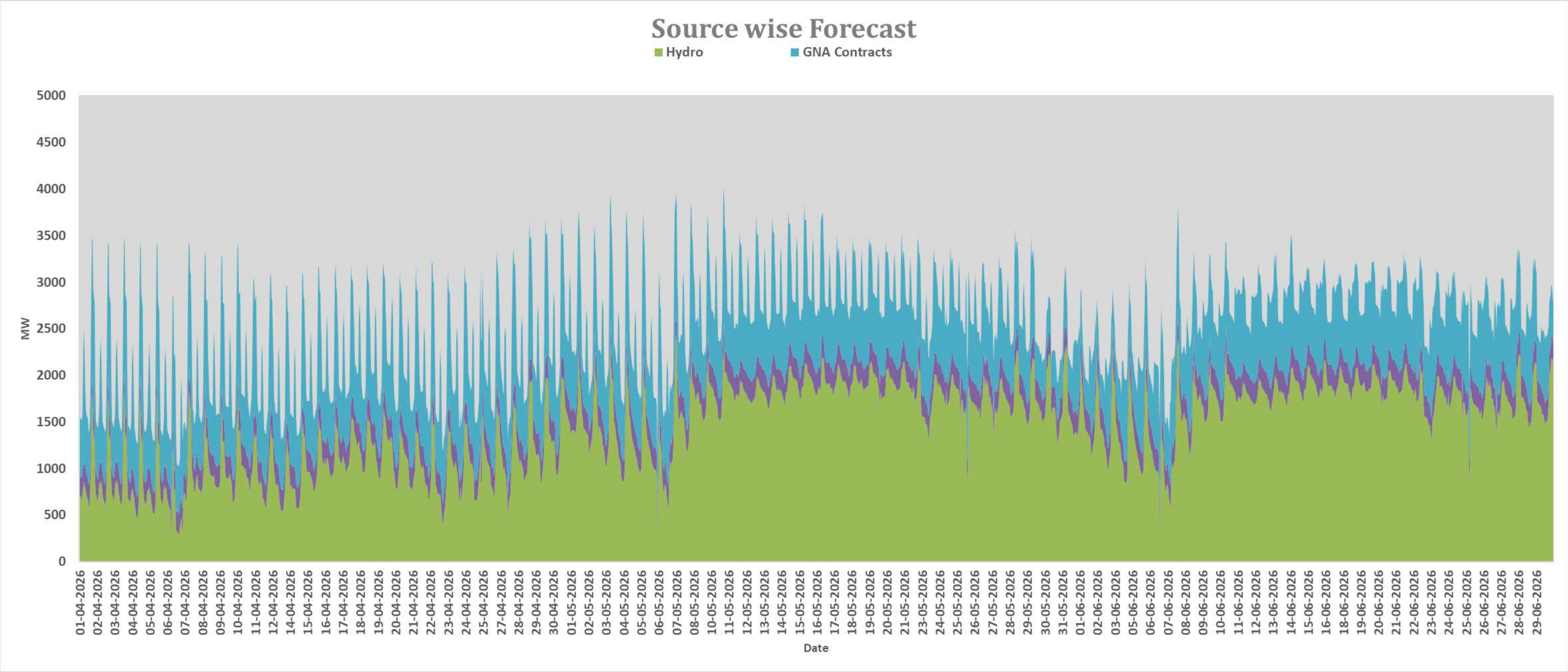
30-06-2026
Date

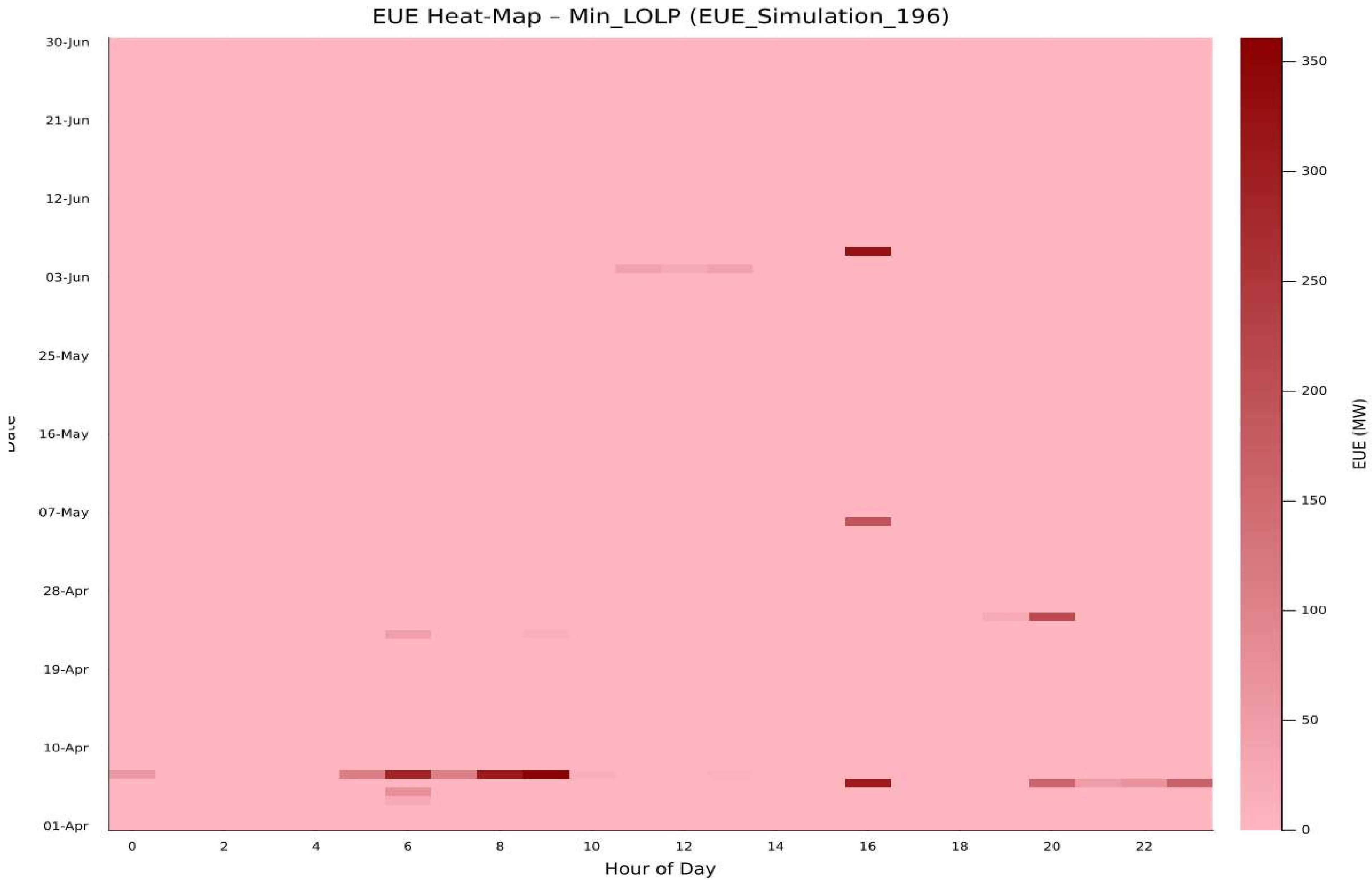


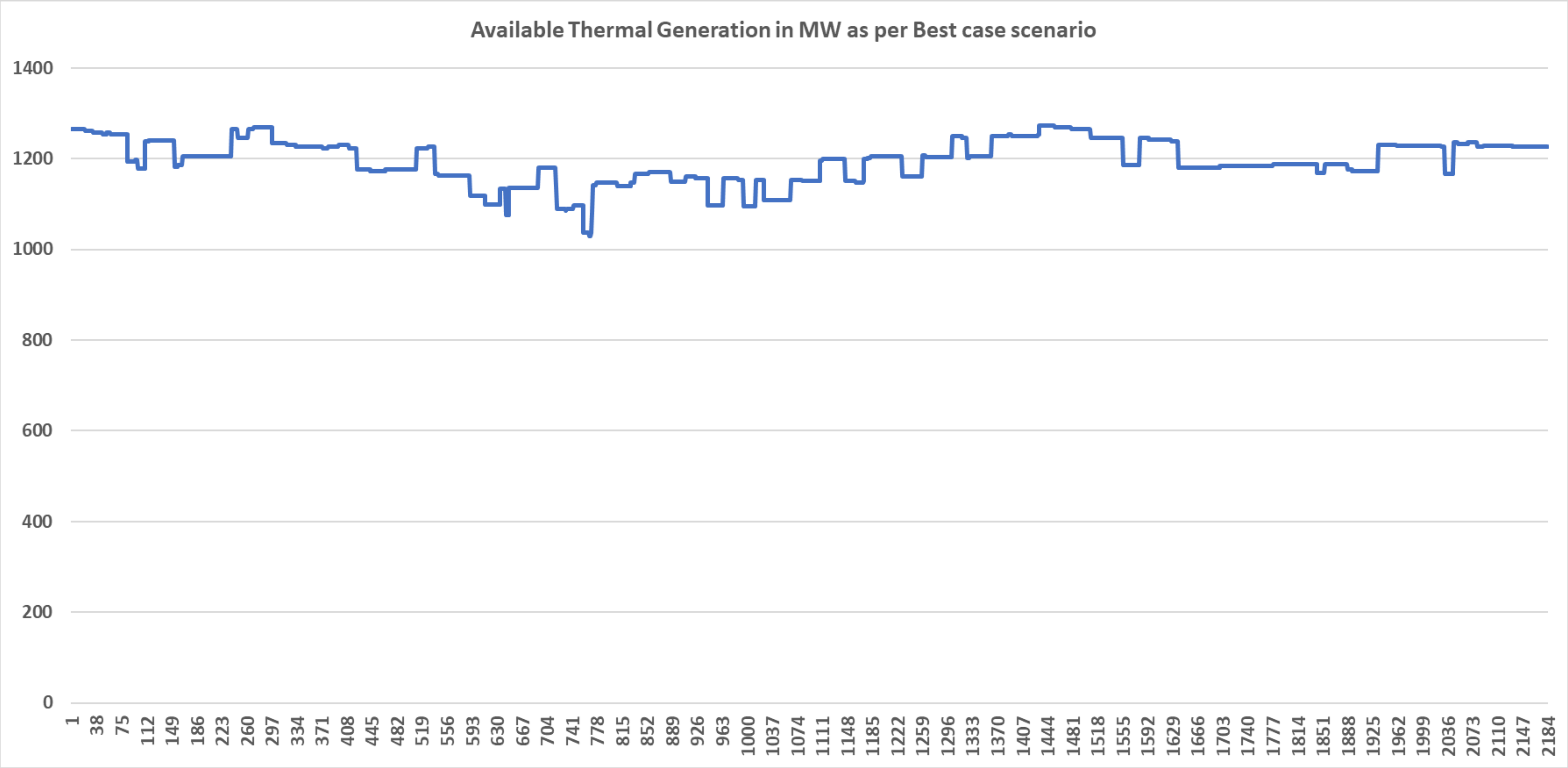
Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
MW
Date



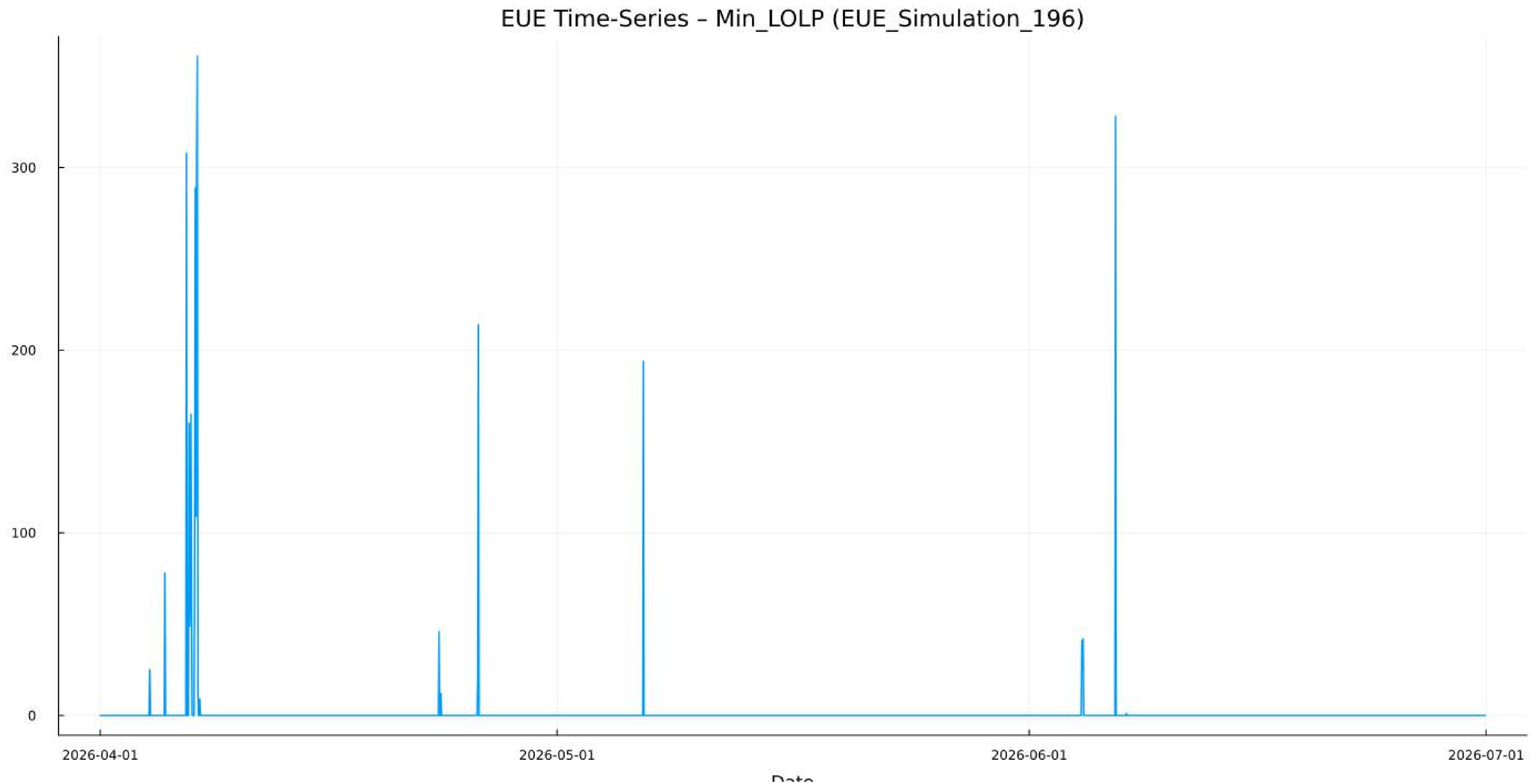
Source wise Forecast
Hydro
GNA Contracts
MW
Date

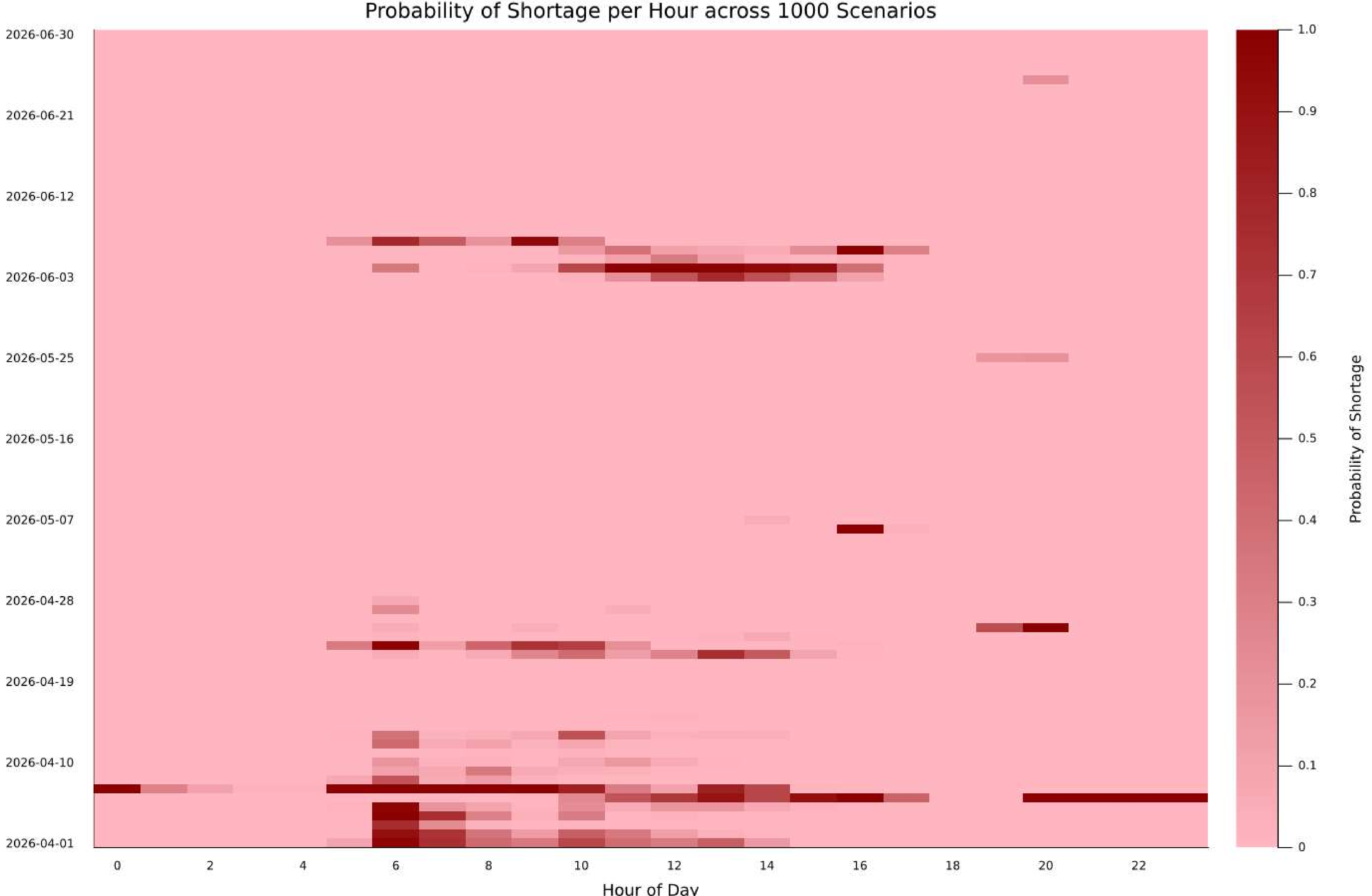
Best case: Load Unserved in MW- Heat Map



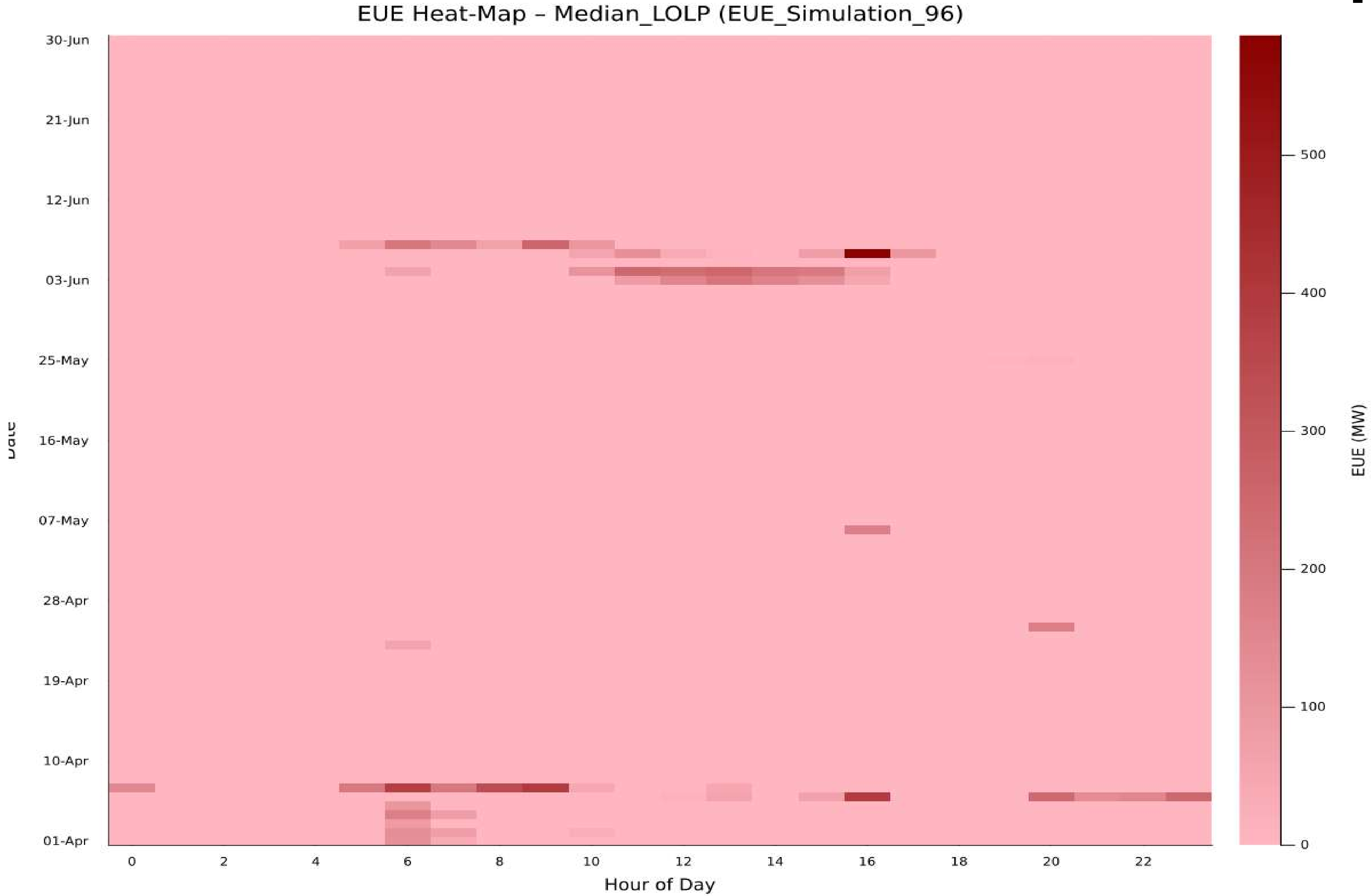


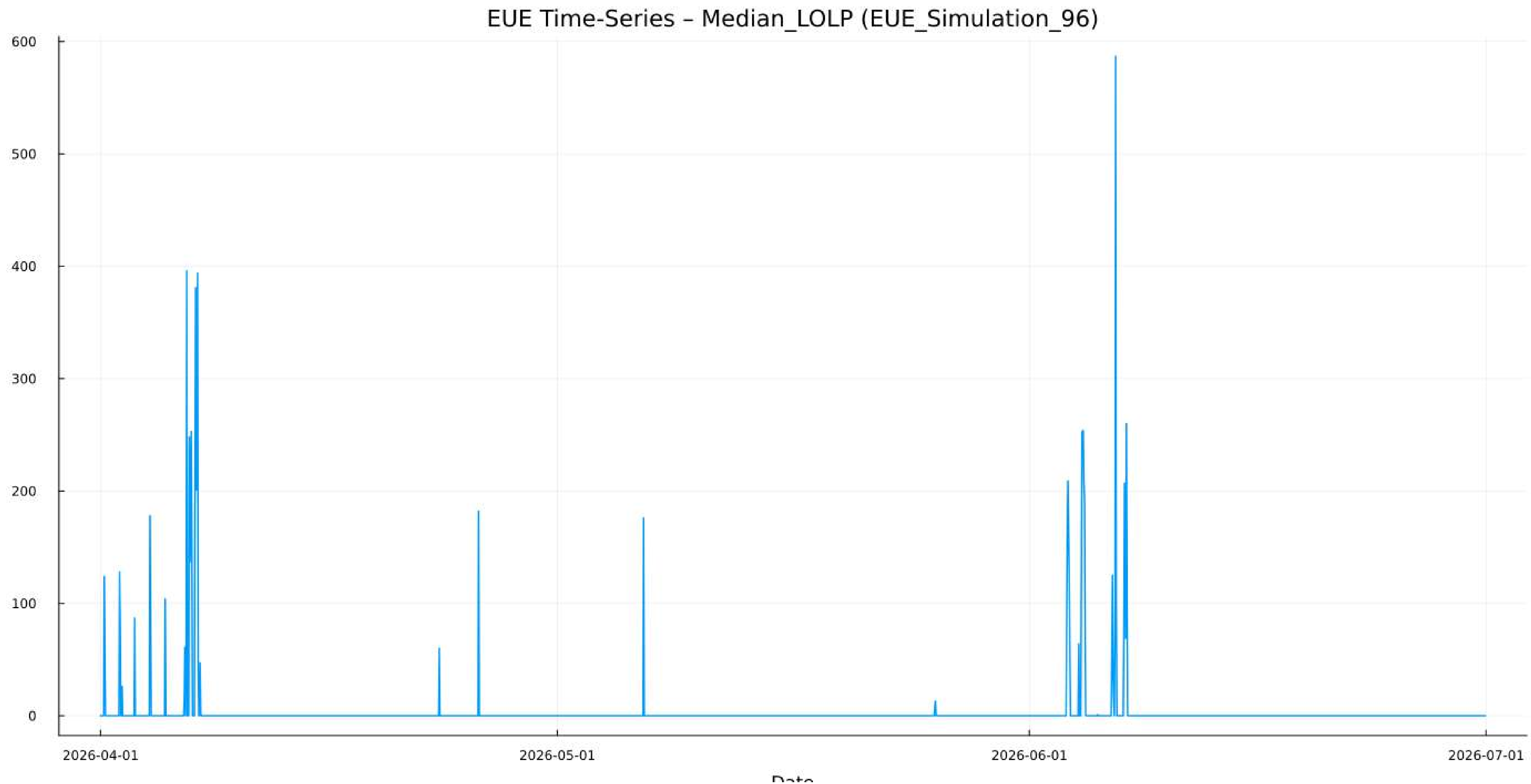
Available Thermal Generation in MW as per Best case scenario
1400
1200
1000
800
600
400
200
0
1
38
75
112
149
186
223
260
297
334
371
408
445
482
519
556
593
630
667
704
741
778
815
852
889
926
963
1000
1037
1074
1111
1148
1185
1222
1259
1296
1333
1370
1407
1444
1481
1518
1555
1592
1629
1666
1703
1740
1777
1814
1851
1888
1925
1962
1999
2036
2073
2110
2147
2184


EUE Time-Series – Min_LOLP (EUE_Simulation_196)
300
200
100
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date


Probability of Shortage per Hour across 1000 Scenarios
2026-06-30
2026-06-21
2026-06-12
2026-06-03
2026-05-25
2026-05-16
2026-05-07
2026-04-28
2026-04-19
2026-04-10
2026-04-01
0
2
4
6
8
10
12
14
16
18
20
22
Hour of Day
Probability of Shortage
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0

Median case: Load Unserved in MW- Heat Map




EUE Time-Series – Median_LOLP (EUE_Simulation_96)
600
500
400
300
200
100
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

Observations

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April to June 2026

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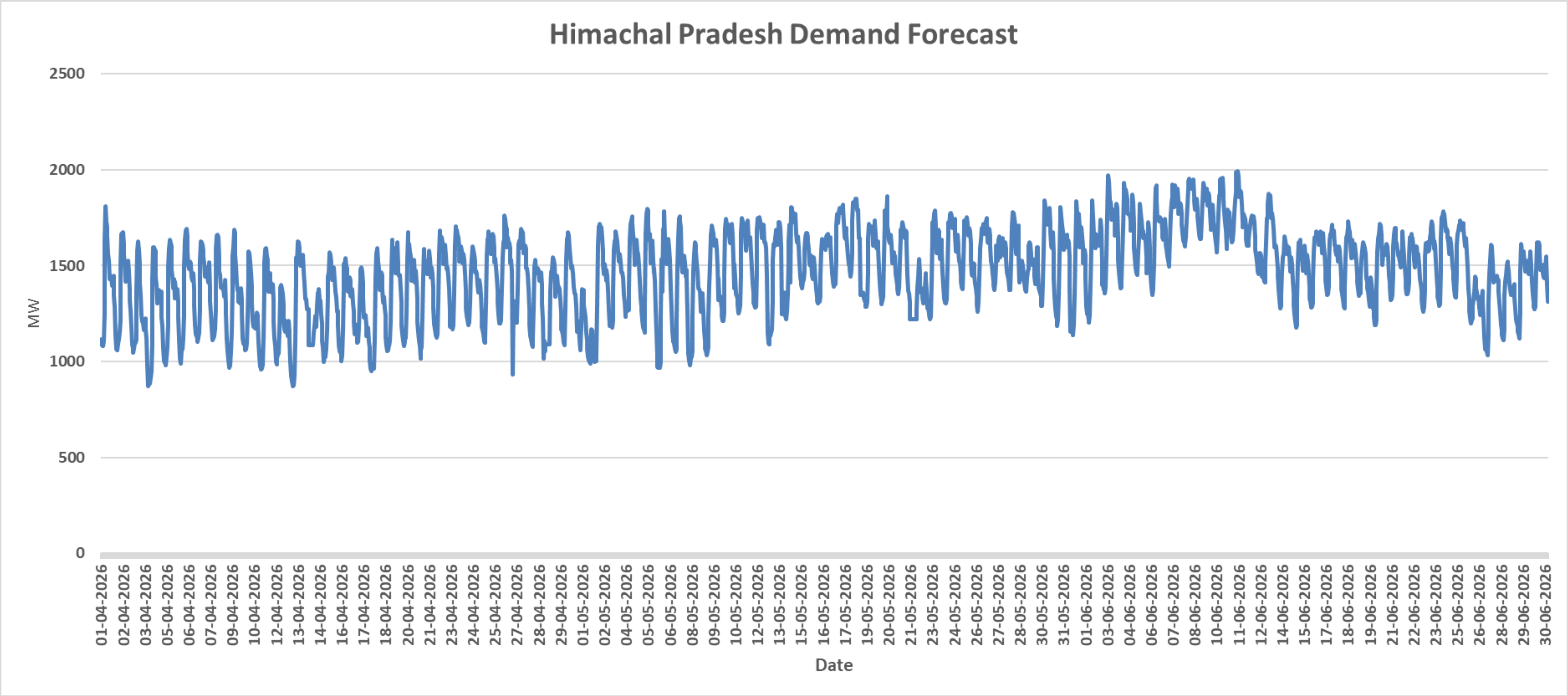
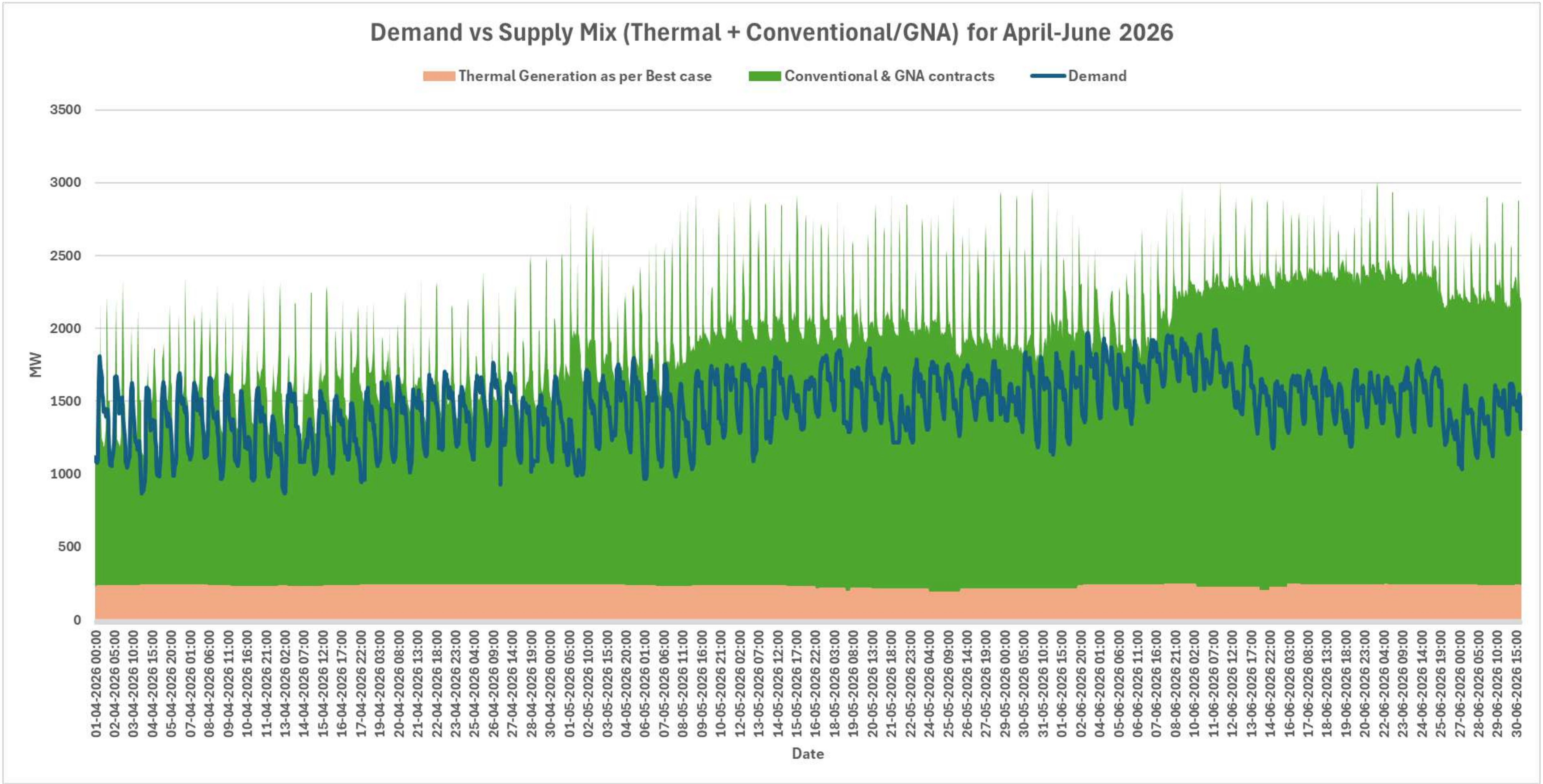
Himachal Pradesh



Himachal Pradesh Demand Forecast
2500
2000
1500
1000
500
0
MW
01-04-2026
30-06-2026
Date


Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
MW
3500
3000
2500
2000
1500
1000
500
0
01-04-2026 00:00
02-04-2026 05:00
03-04-2026 10:00
04-04-2026 15:00
05-04-2026 20:00
07-04-2026 01:00
08-04-2026 06:00
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11-04-2026 21:00
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20-04-2026 08:00
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07-05-2026 06:00
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13-06-2026 17:00
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16-06-2026 03:00
17-06-2026 08:00
18-06-2026 13:00
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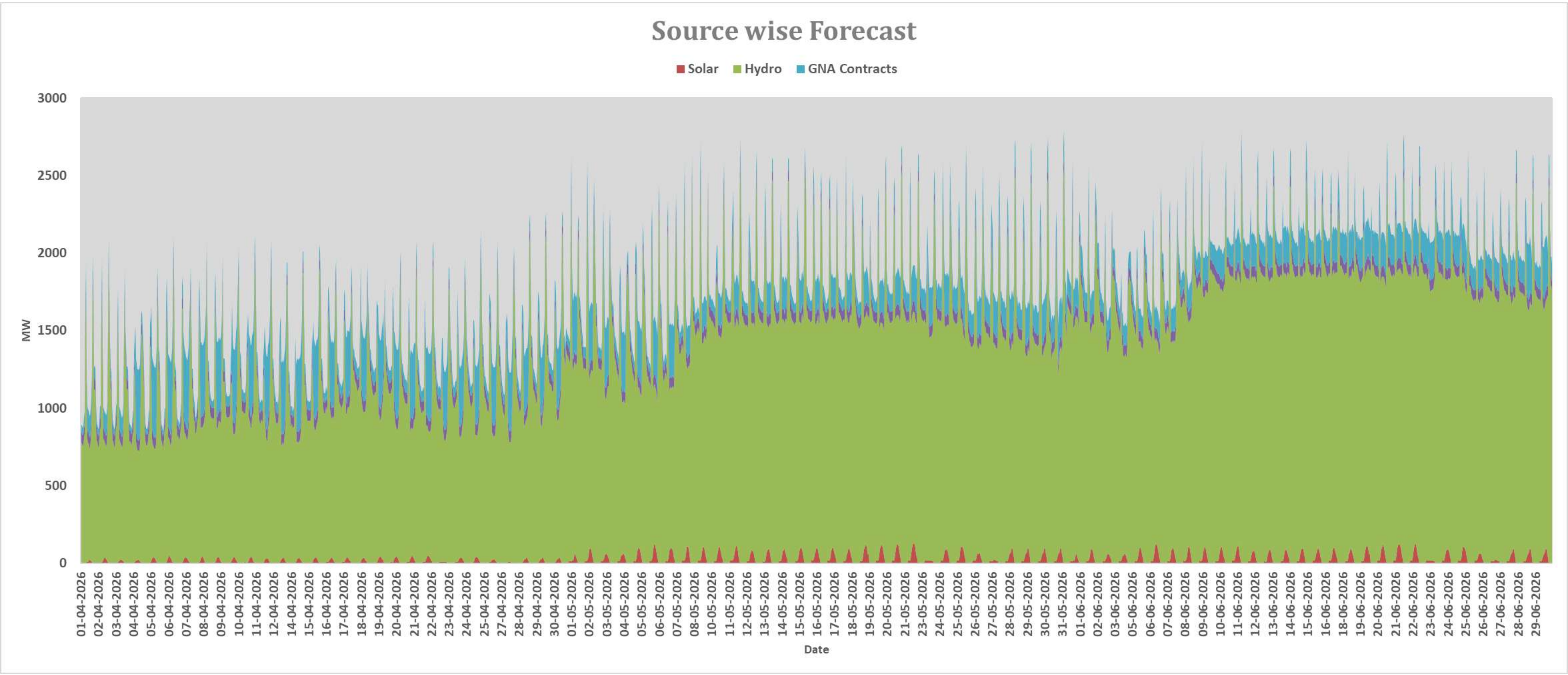
30-06-2026 15:00
Date



Source wise Forecast
Solar
Hydro
GNA Contracts
MW
3000
2500
2000
1500
1000
500
0
Date
01-04-2026
02-04-2026
03-04-2026
04-04-2026
04-04-2026
05-04-2026
06-04-2026
07-04-2026
08-04-2026
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22-06-2026
23-06-2026
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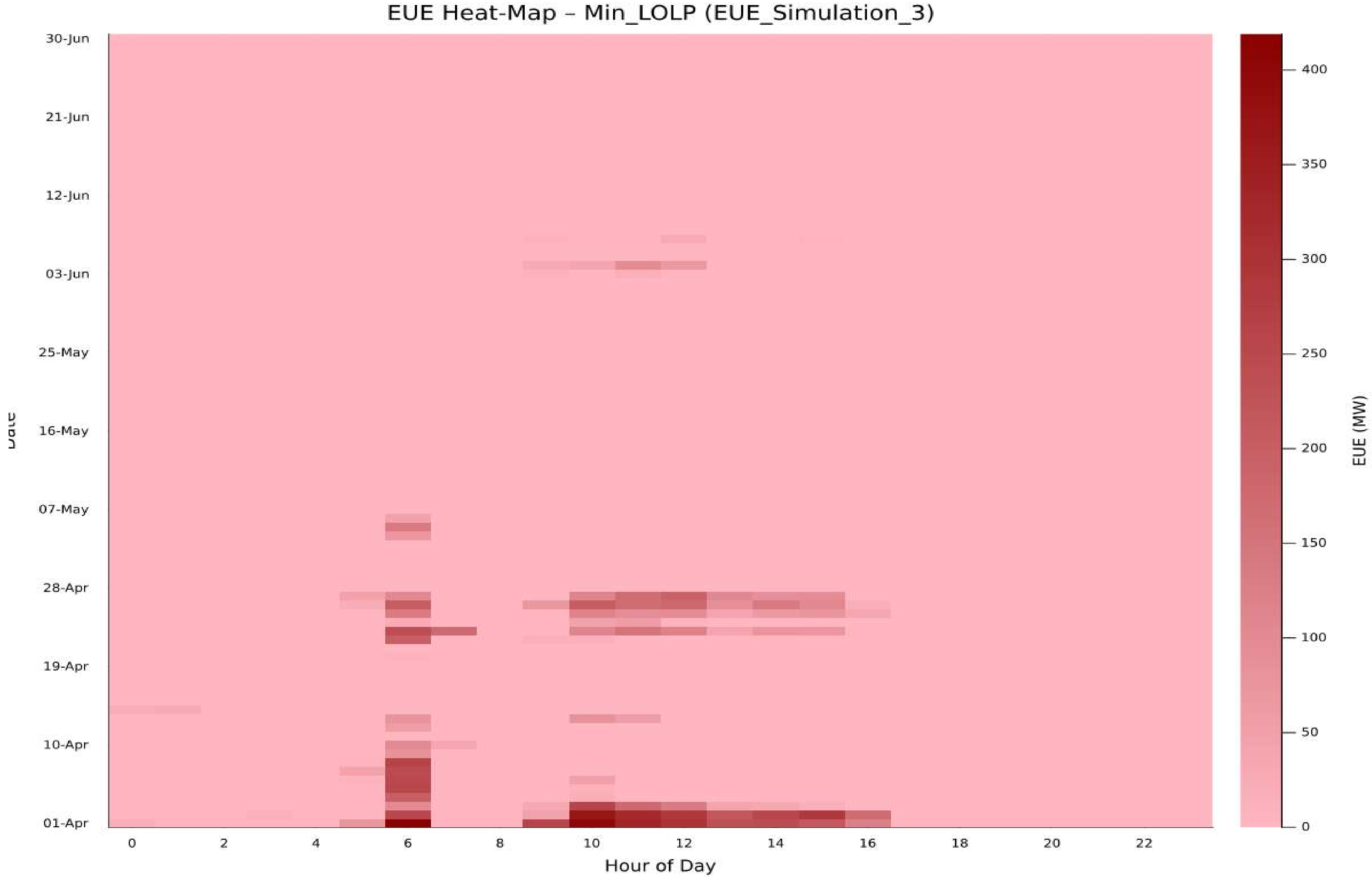
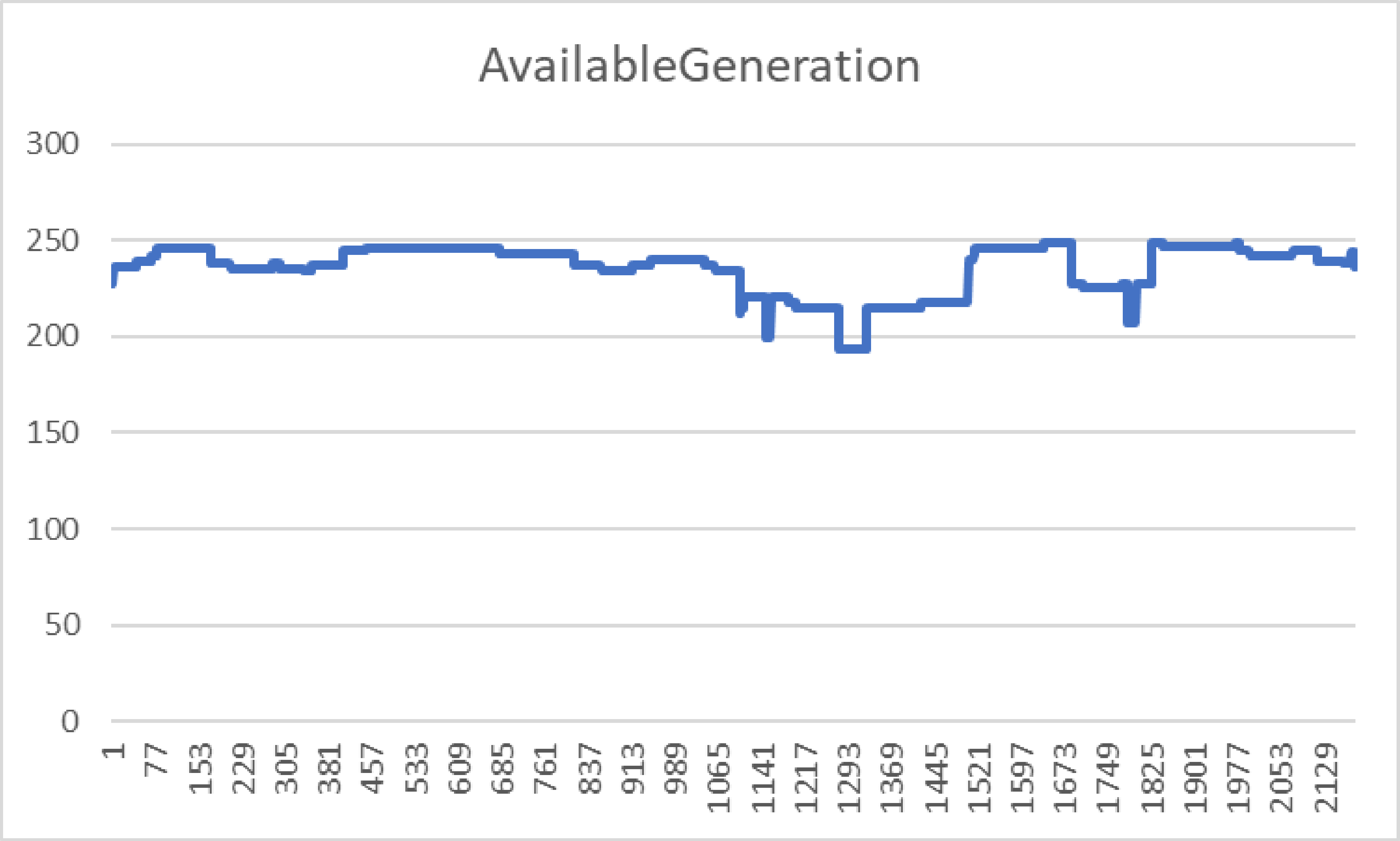
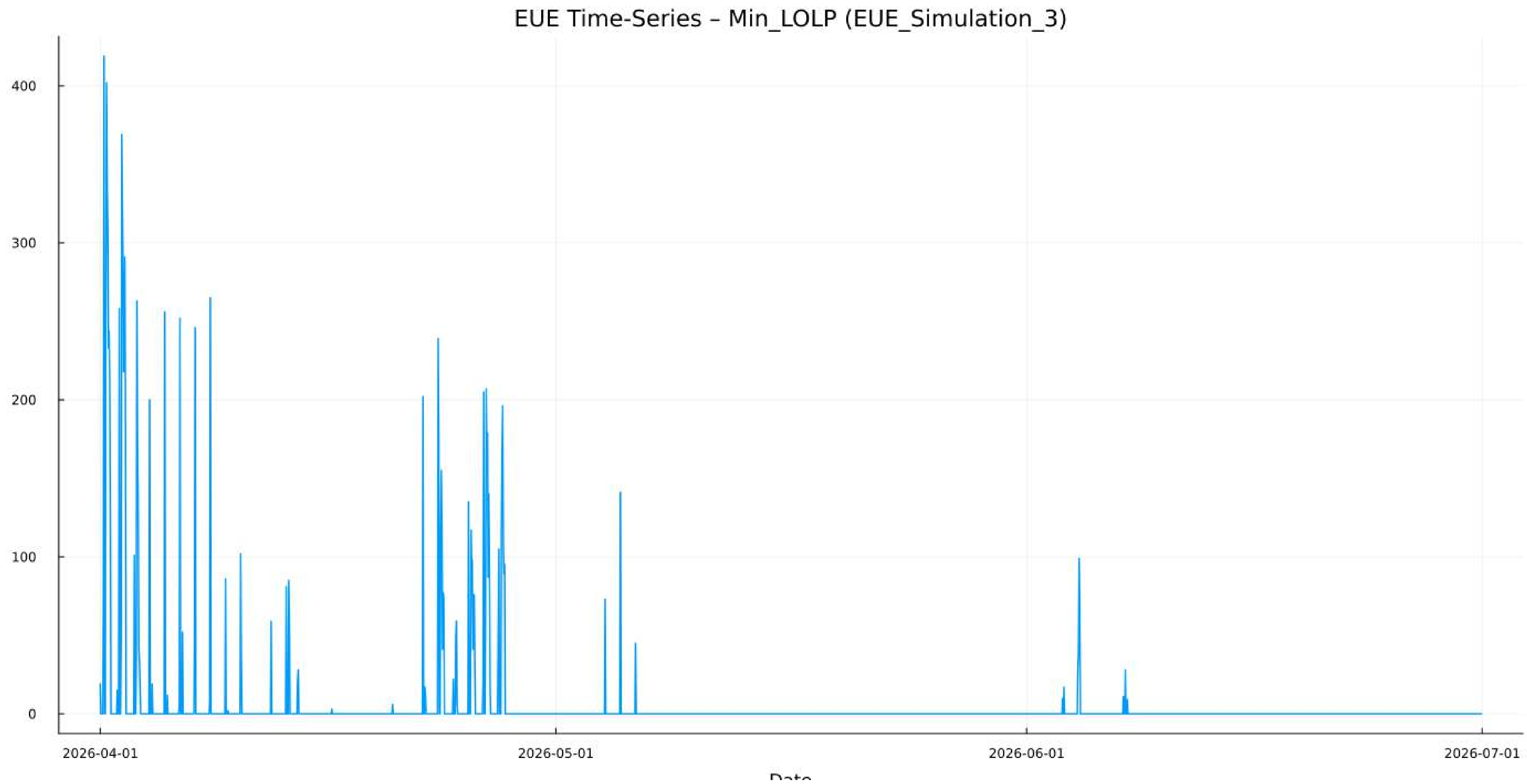
29-06-2026

Best case: Load Unserved in MW- Heat Map

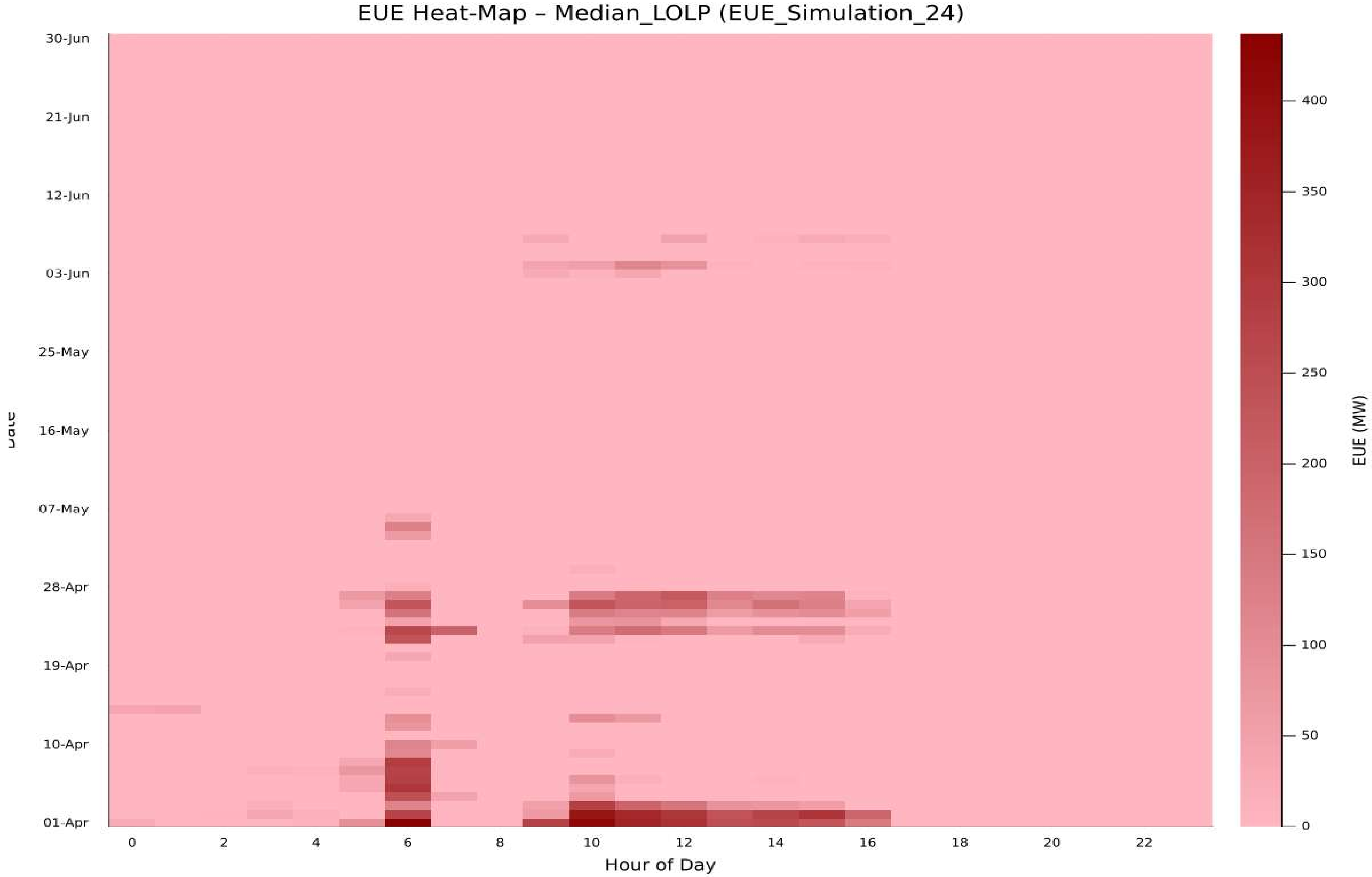


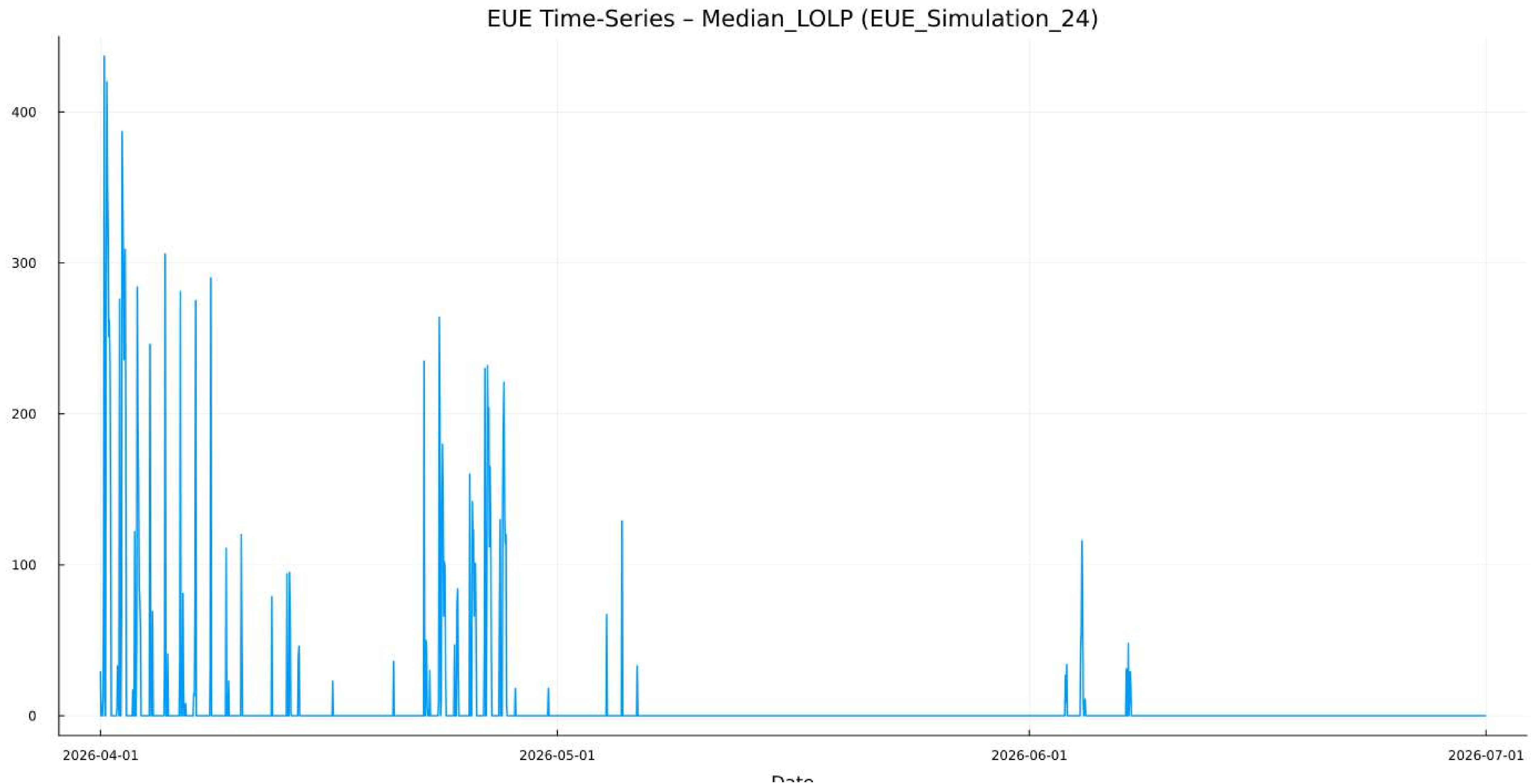

AvailableGeneration
300
250
200
150
100
50
0
1
77
153
229
305
381
457
533
609
685
761
837
913
989
1065
1141
1217
1293
1369
1445
1521
1597
1673
1749
1825
1901
1977
2053
2129


EUE Time-Series – Min_LOLP (EUE_Simulation_3)
400
300
200
100
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date


Probability of Shortage per Hour across 1000 Scenarios
2026-06-30
2026-06-21
2026-06-12
2026-06-03
2026-05-25
2026-05-16
2026-05-07
2026-04-28
2026-04-19
2026-04-10
2026-04-01
0
2
4
6
8
10
12
14
16
18
20
22
Hour of Day
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Probability of Shortage

Median case: Load Unserved in MW- Heat Map





EUE Time-Series – Median_LOLP (EUE_Simulation_24)
400
300
200
100
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

Observations

PRAS results indicate elevated adequacy risk during summer peak conditions, particularly during early morning and evening hours, when demand remains high and solar generation is unavailable.

The analysis highlights intermittent but significant unserved energy events, with higher frequency and magnitude observed during May–June, coinciding with extreme demand days.

While mid-day hours benefit from solar generation, peak-hour adequacy remains sensitive to demand variability and generation availability.

Way Forward

In view of the above, States are advised to strengthen advance resource planning for the summer period, including:

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- Limiting reliance on short-term market mechanisms (DAM/RTM) for meeting peak summer requirements and treating market purchases as supplementary.

States are requested to review the PRAS outcomes at their end and undertake further state-level analysis, considering local demand conditions, resource availability, and contingency scenarios.

To enable revision of the PRAS assessment, States may kindly share updated inputs, including:

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- Updates on generation availability, renewable capacity additions, and demand outlook.

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Resource Adequacy Study Analysis for NR States

April to June 2026

Resource Adequacy Study using PRAS- Key assumptions

- The Probabilistic Resource Adequacy Study (PRAS) for the summer period from April to June 2026 has been carried out to assess the adequacy of available generation resources to reliably meet the projected state demand under a range of uncertainty scenarios. The assessment has been conducted using a probabilistic framework comprising 1000 Monte Carlo scenarios, with median outcomes presented to represent the expected system behaviour under typical operating conditions.

- To evaluate the net load to be met by dispatchable thermal generation, the forecasted hourly demand for the summer period (April-June 2026) was first estimated based on historical demand pattern and growth. From this projected demand, the expected contribution from non-thermal generation sources, namely solar, wind, hydro, and nuclear, was deducted.

- The contribution from non-thermal resources has been estimated using historical summer generation profiles, with solar and hydro generation scaled for capacity additions while retaining observed variability, intermittency, and seasonal operational characteristics.

- In the RA assessment, GNA contracts of the corresponding months from the previous year have been considered, duly scaled to account for demand growth. Short term Bilateral and market transactions have not been explicitly modelled.

Resource Adequacy Study using PRAS- Key assumptions

- To assess the availability of dispatchable generation resources, detailed modelling of thermal and gas-based generating units has been undertaken with the following assumptions:

  - ✓ **Planned Outages:** Planned outages has been considered NIL.

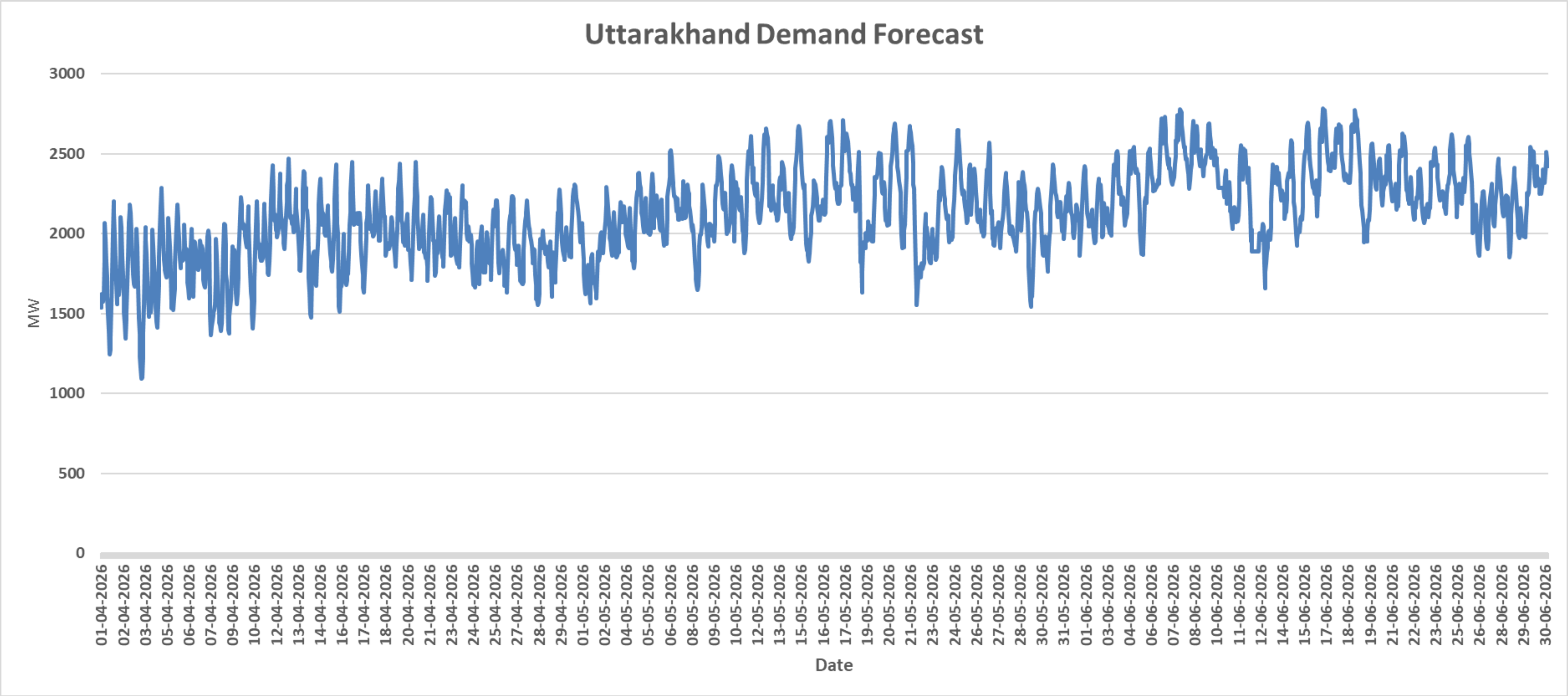
  - ✓ **Forced Outages:**
    Forced outages of thermal generating units have been modelled using a Monte Carlo simulation approach. Historical unit-specific outage and restoration rates have been used to probabilistically simulate unplanned outages.

This stochastic modelling enables realistic representation of operational uncertainties and enhances the robustness of the resource adequacy assessment.

The probabilistic framework enables estimation of reliability metrics such as:

- ✓ **Loss of Load Expectation (LOLE)**
- ✓ **Expected Unserved Energy (EUE)**

Uttarakhand


Uttarakhand Demand Forecast
3000
2500
2000
1500
1000
500
0
MW
01-04-2026
02-04-2026
03-04-2026
05-04-2026
06-04-2026
07-04-2026
09-04-2026
10-04-2026
12-04-2026
13-04-2026
14-04-2026
16-04-2026
17-04-2026
18-04-2026
20-04-2026
21-04-2026
23-04-2026
24-04-2026
25-04-2026
27-04-2026
28-04-2026
29-04-2026
01-05-2026
02-05-2026
04-05-2026
05-05-2026
06-05-2026
08-05-2026
09-05-2026
10-05-2026
12-05-2026
13-05-2026
15-05-2026
16-05-2026
17-05-2026
19-05-2026
20-05-2026
21-05-2026
23-05-2026
24-05-2026
26-05-2026
27-05-2026
28-05-2026
30-05-2026
31-05-2026
01-06-2026
03-06-2026
04-06-2026
06-06-2026
07-06-2026
08-06-2026
10-06-2026
11-06-2026
12-06-2026
14-06-2026
15-06-2026
17-06-2026
18-06-2026
19-06-2026
21-06-2026
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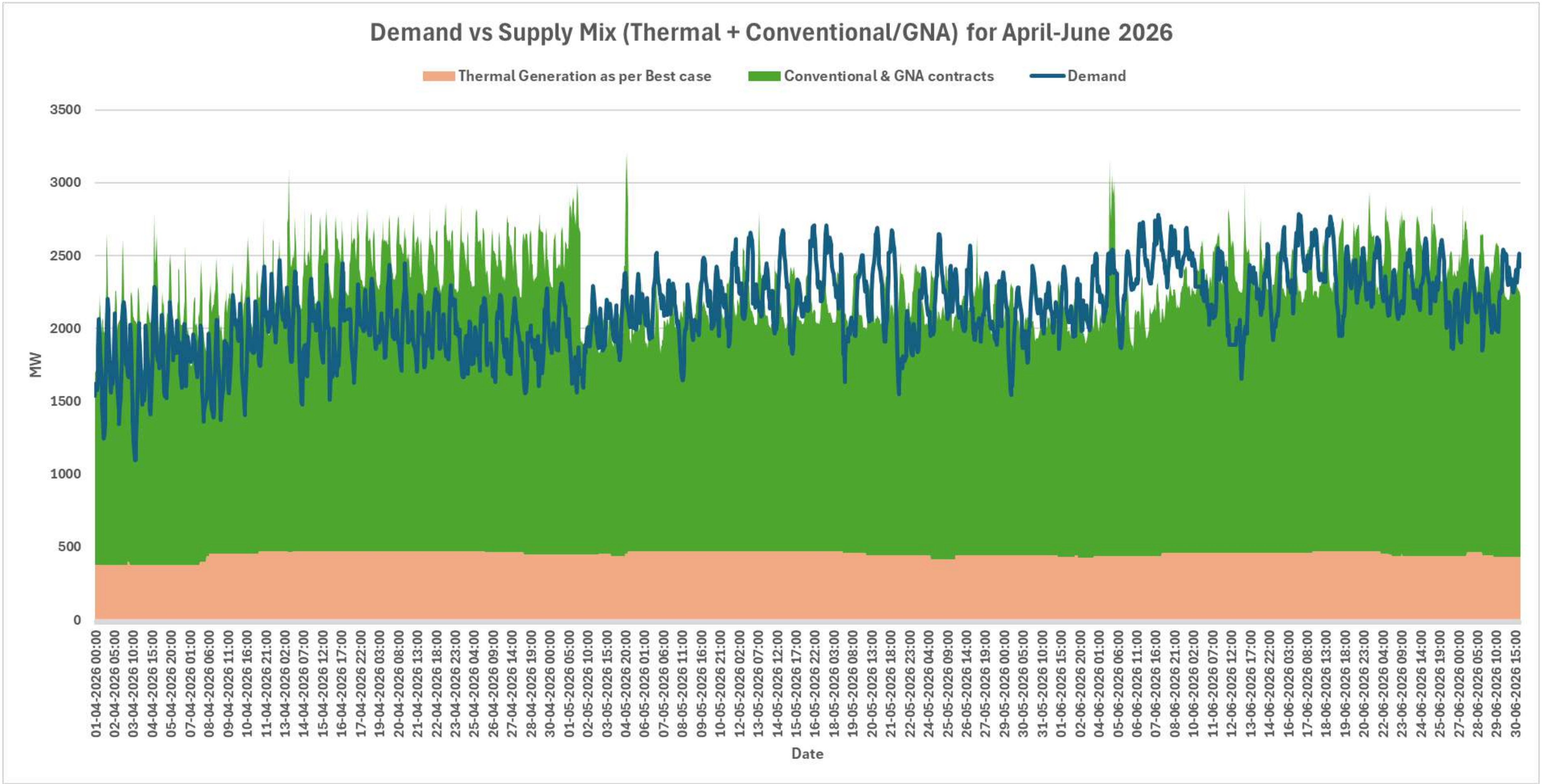
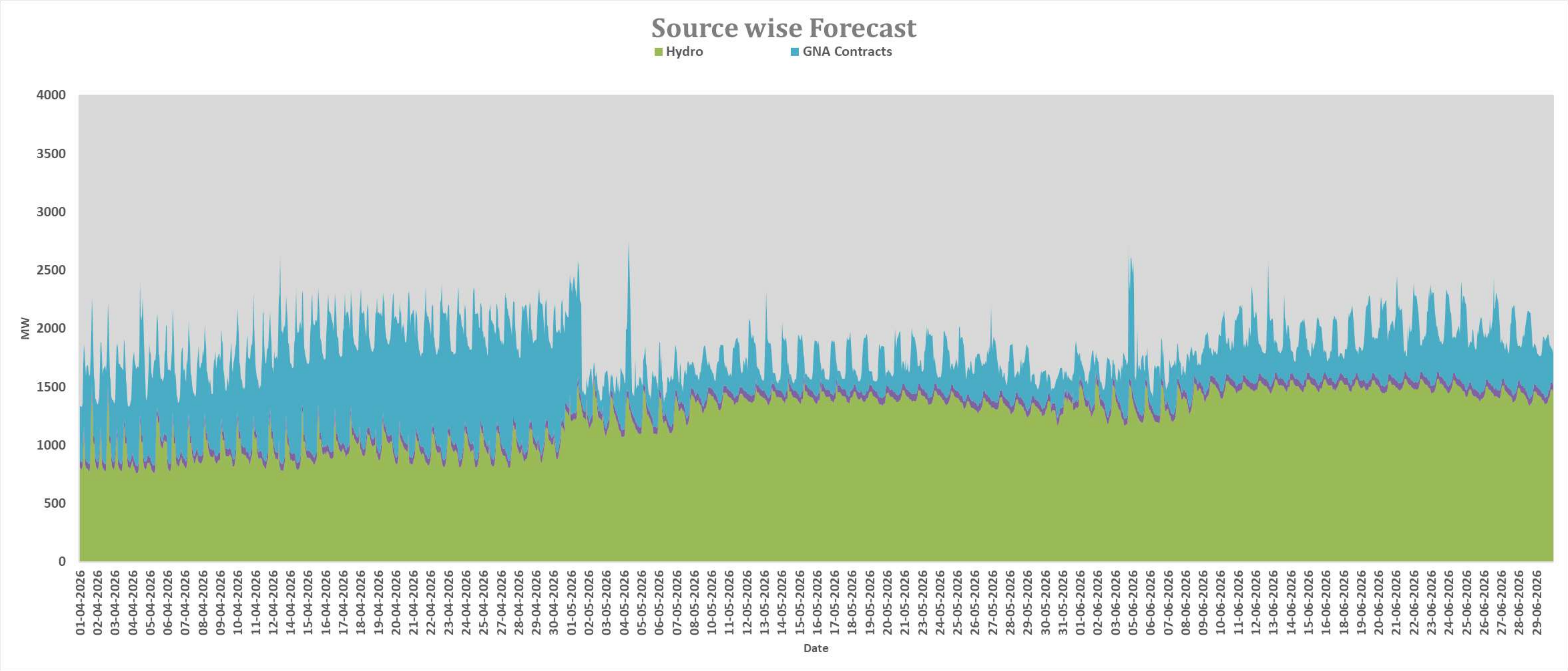
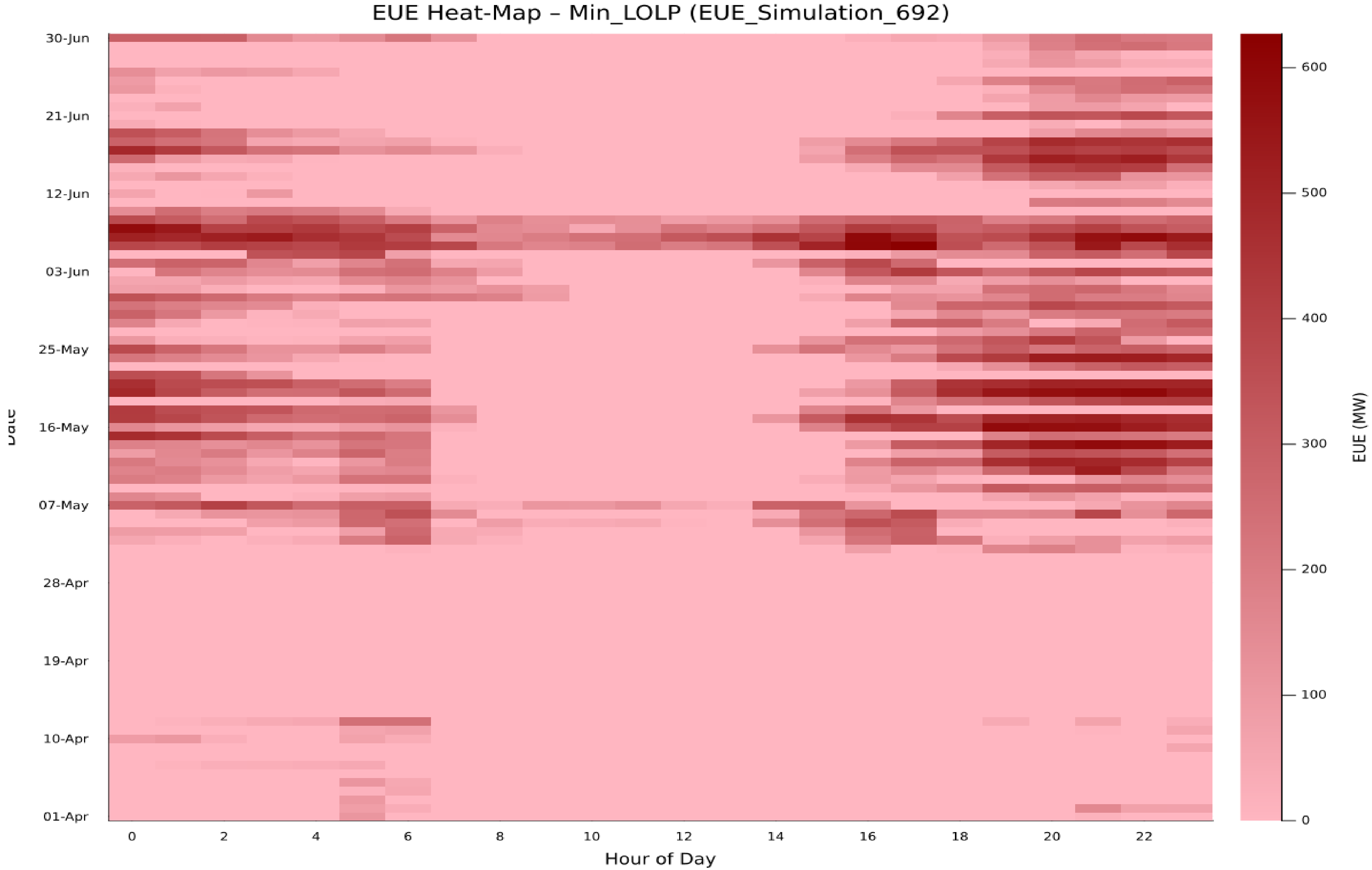
26-06-2026
28-06-2026
29-06-2026
30-06-2026
Date

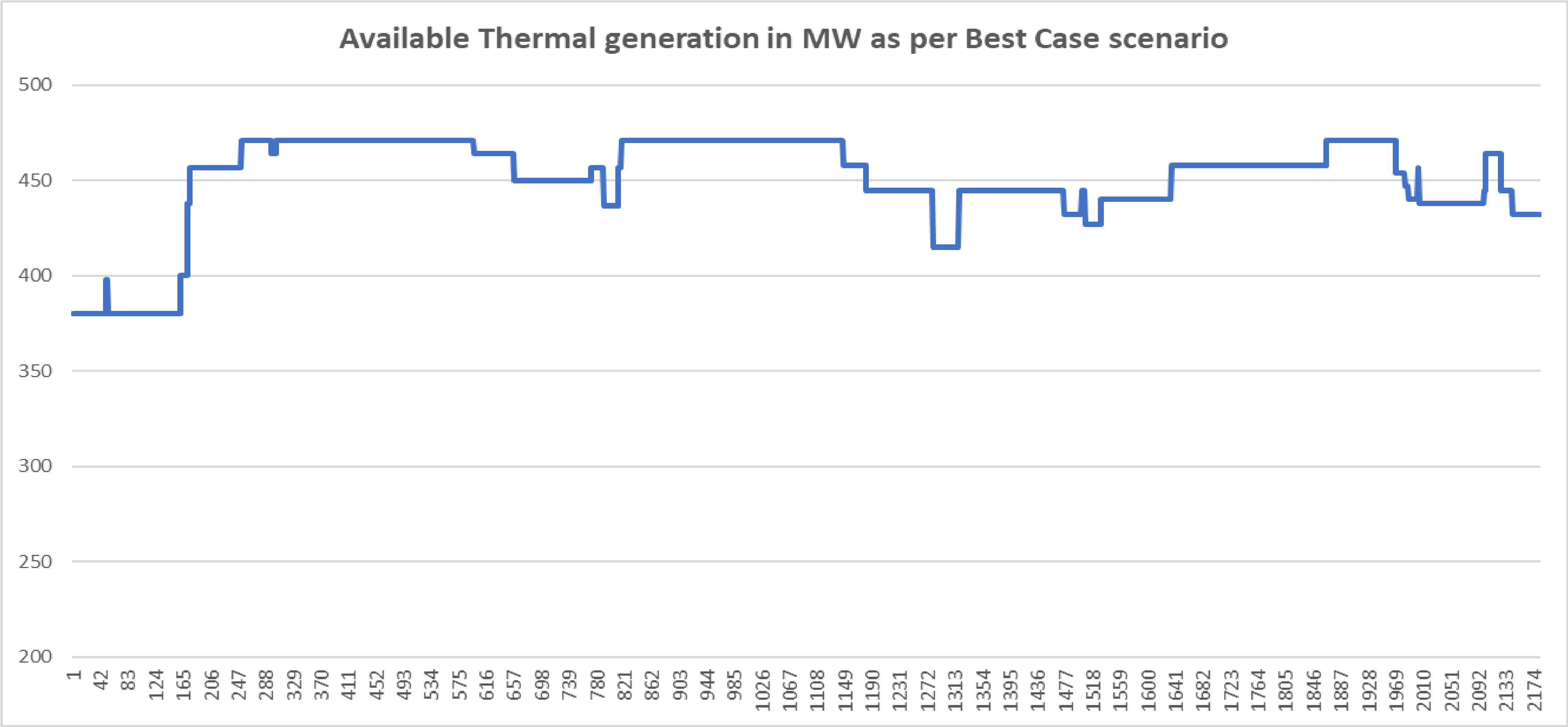

Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
3500
3000
2500
2000
1500
1000
500
0
MW
Date

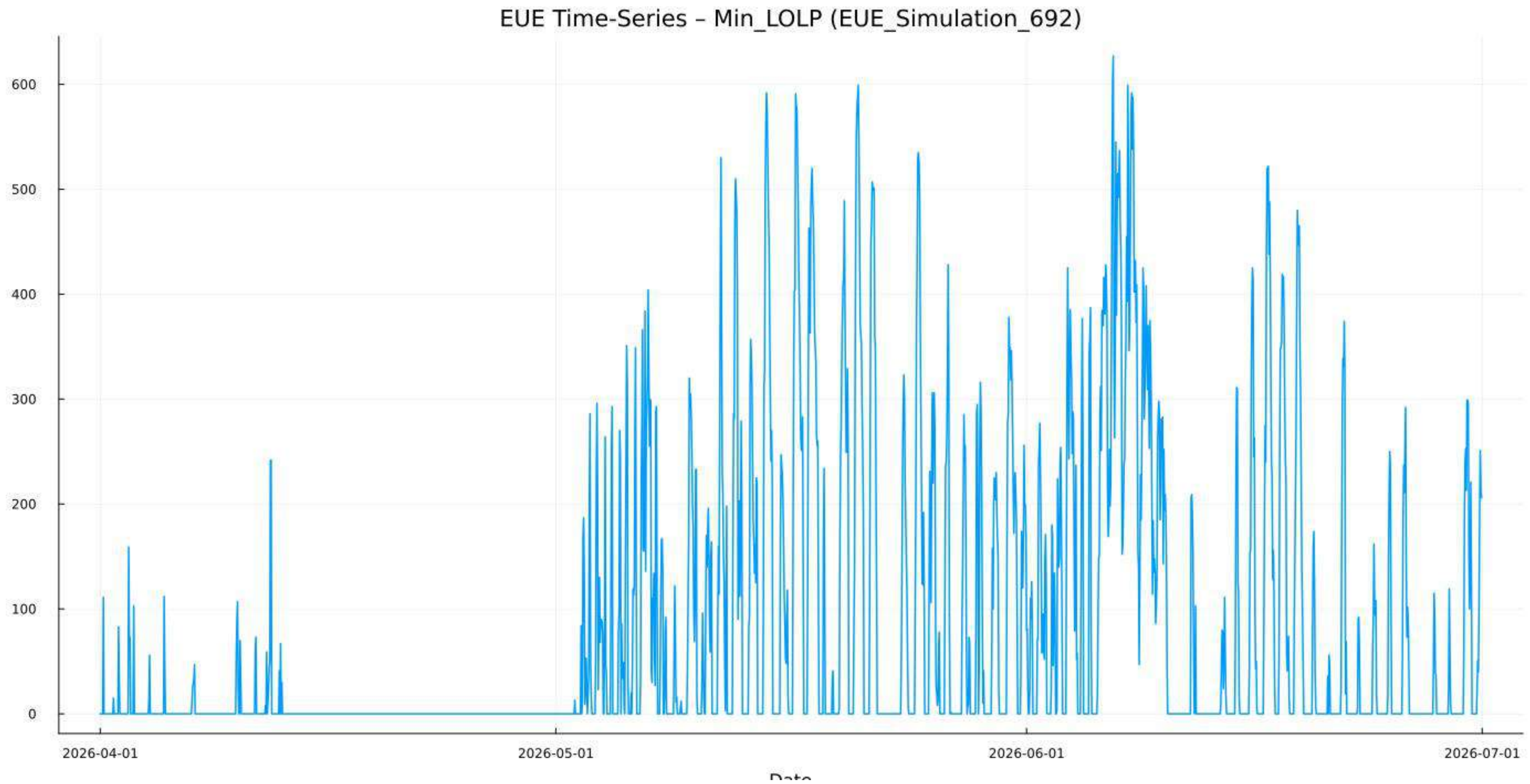


Source wise Forecast
Hydro
GNA Contracts
MW
4000
3500
3000
2500
2000
1500
1000
500
0
Date

Best case: Load Unserved in MW- Heat Map



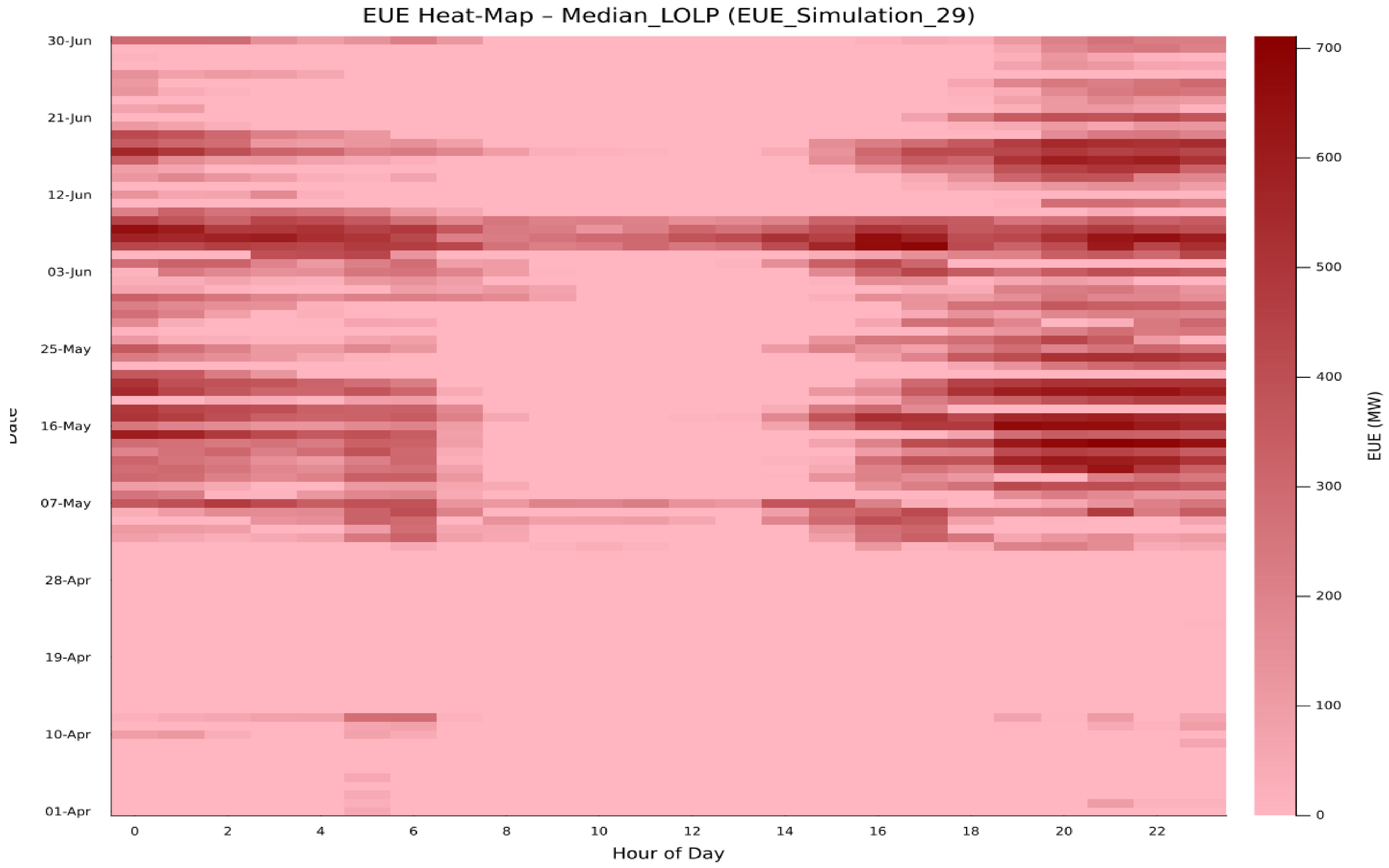

Available Thermal generation in MW as per Best Case scenario
500
450
400
350
300
250
200
1
42
83
124
165
206
247
288
329
370
411
452
493
534
575
616
657
698
739
780
821
862
903
944
985
1026
1067
1108
1149
1190
1231
1272
1313
1354
1395
1436
1477
1518
1559
1600
1641
1682
1723
1764
1805
1846
1887
1928
1969
2010
2051
2092
2133
2174

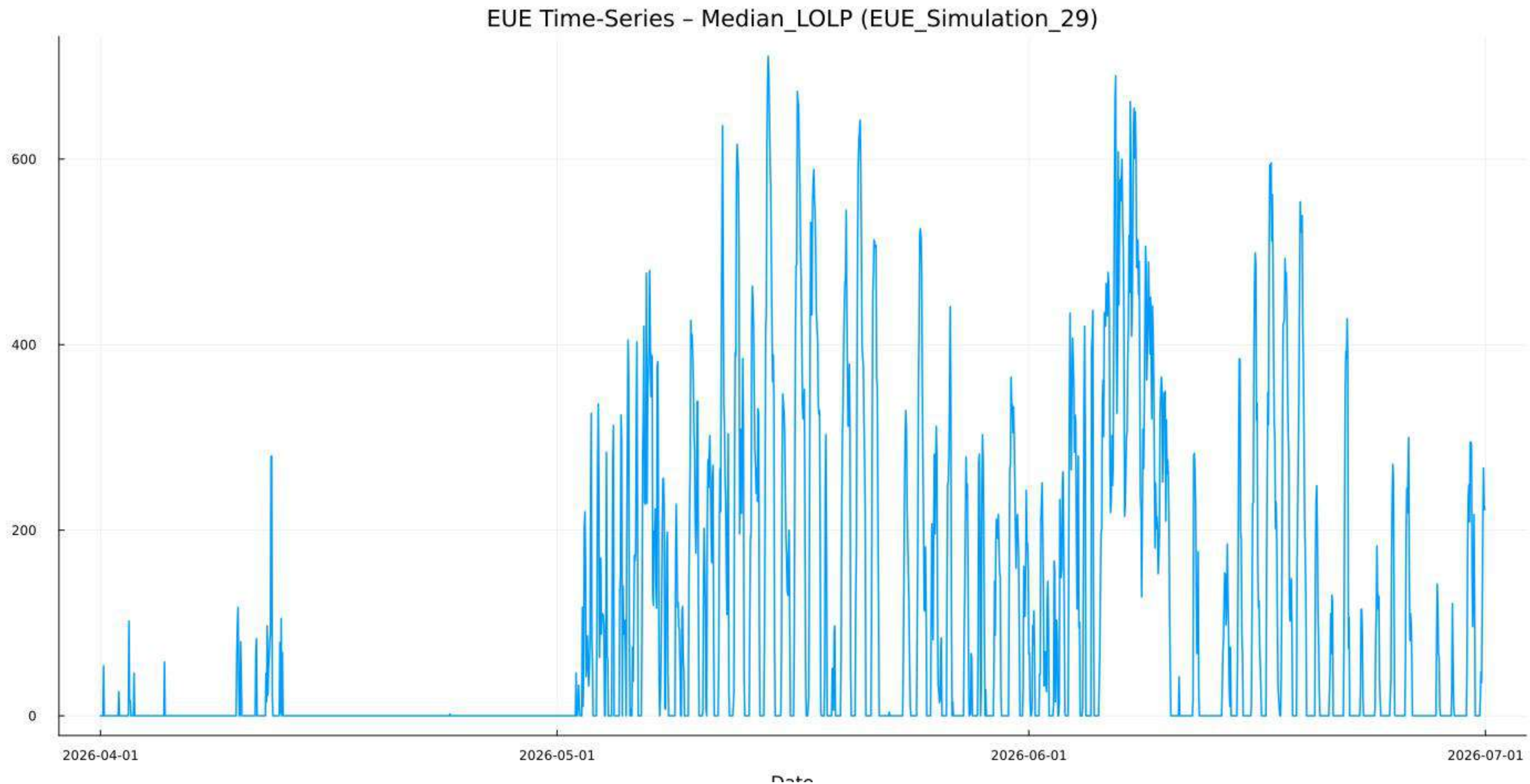


EUE Time-Series – Min_LOLP (EUE_Simulation_692)
600
500
400
300
200
100
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

In the RA assessment, GNA contracts of the corresponding months from the previous year have been considered, duly scaled to account for demand growth. Short term Bilateral and market transactions have not been explicitly modelled. The results indicate relatively higher shortage probability for Uttarakhand, which reflects its operational dependence on Bilateral purchases observed during the previous summer.

Median case: Load Unserved in MW- Heat Map





EUE Time-Series – Median_LOLP (EUE_Simulation_29)
600
400
200
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

Observations

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Resource Adequacy Study Analysis for NR States

April to June 2026

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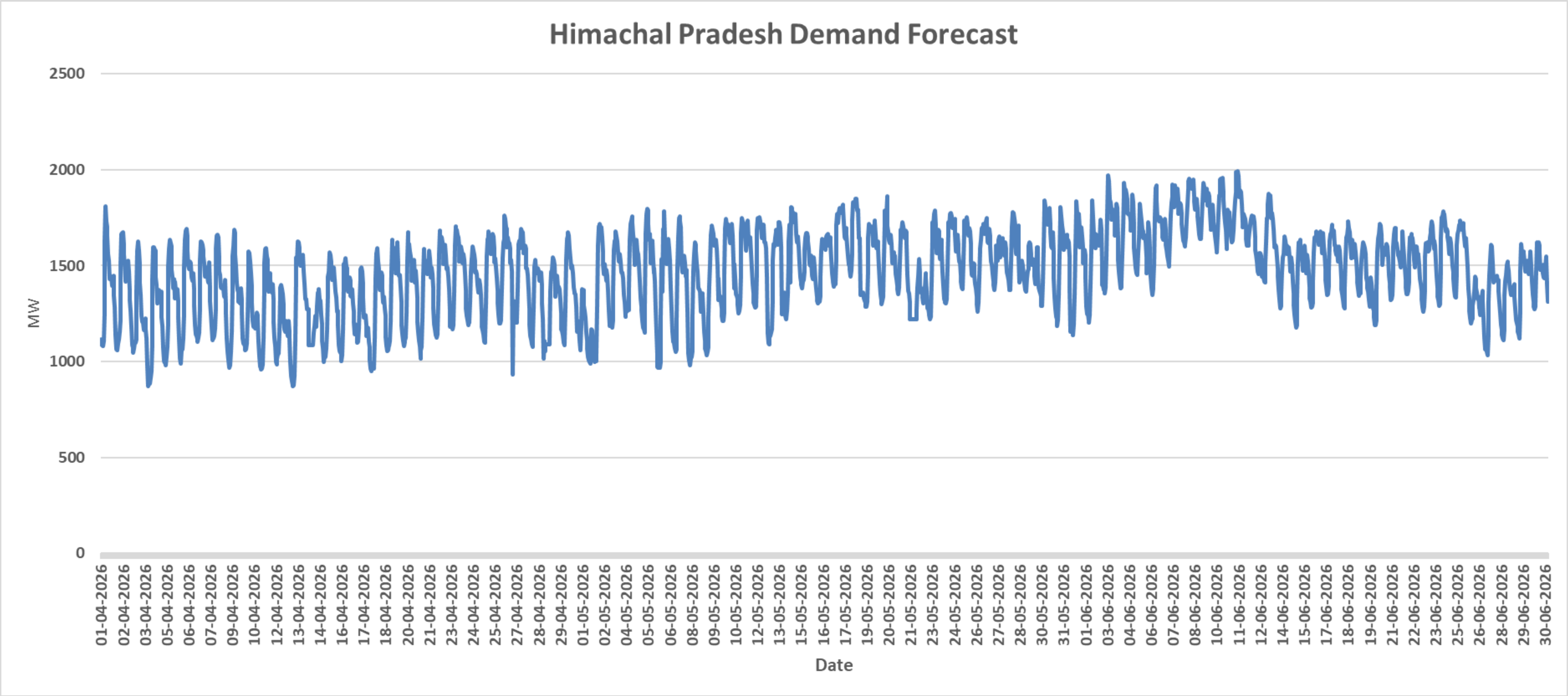
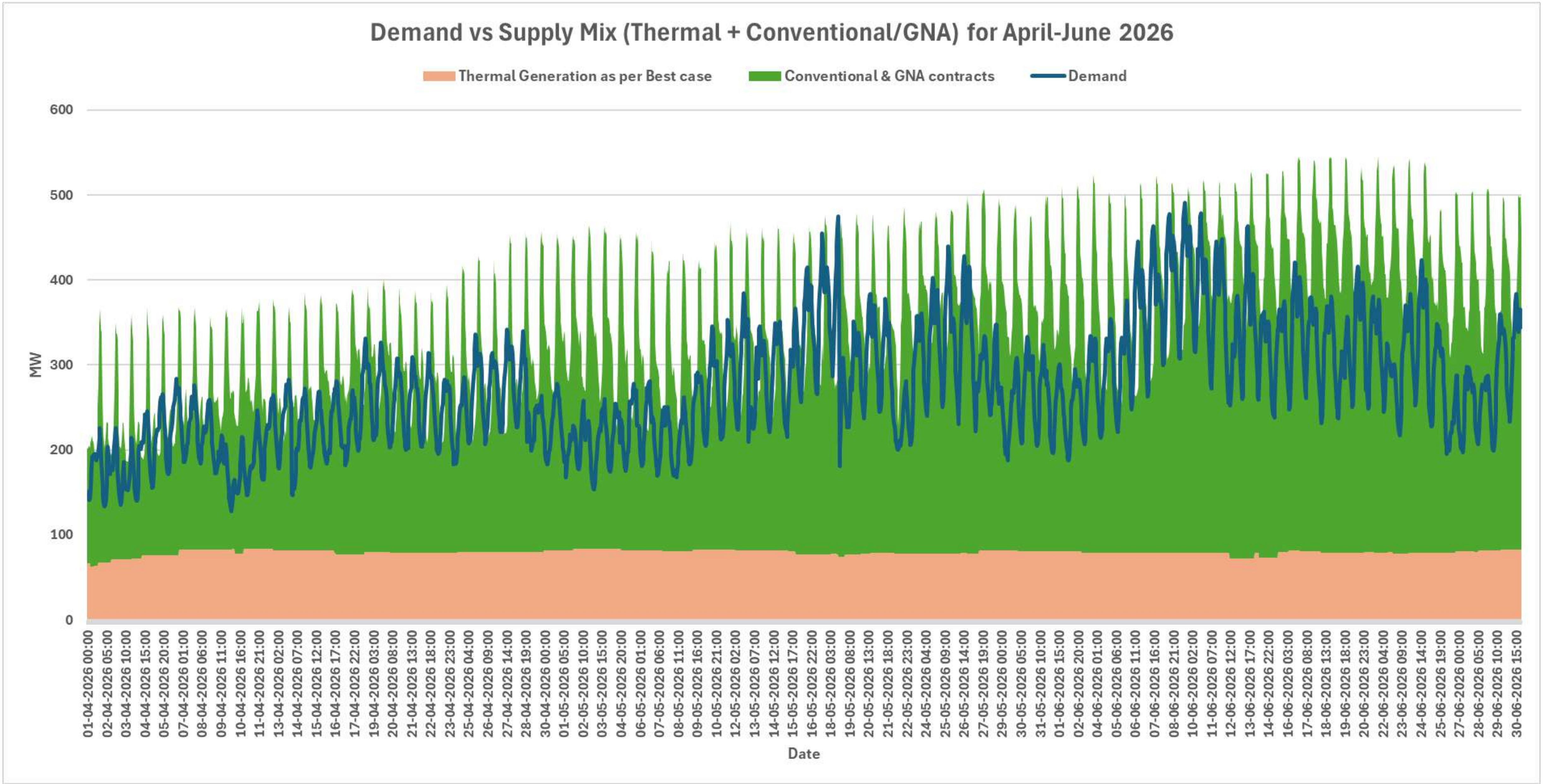
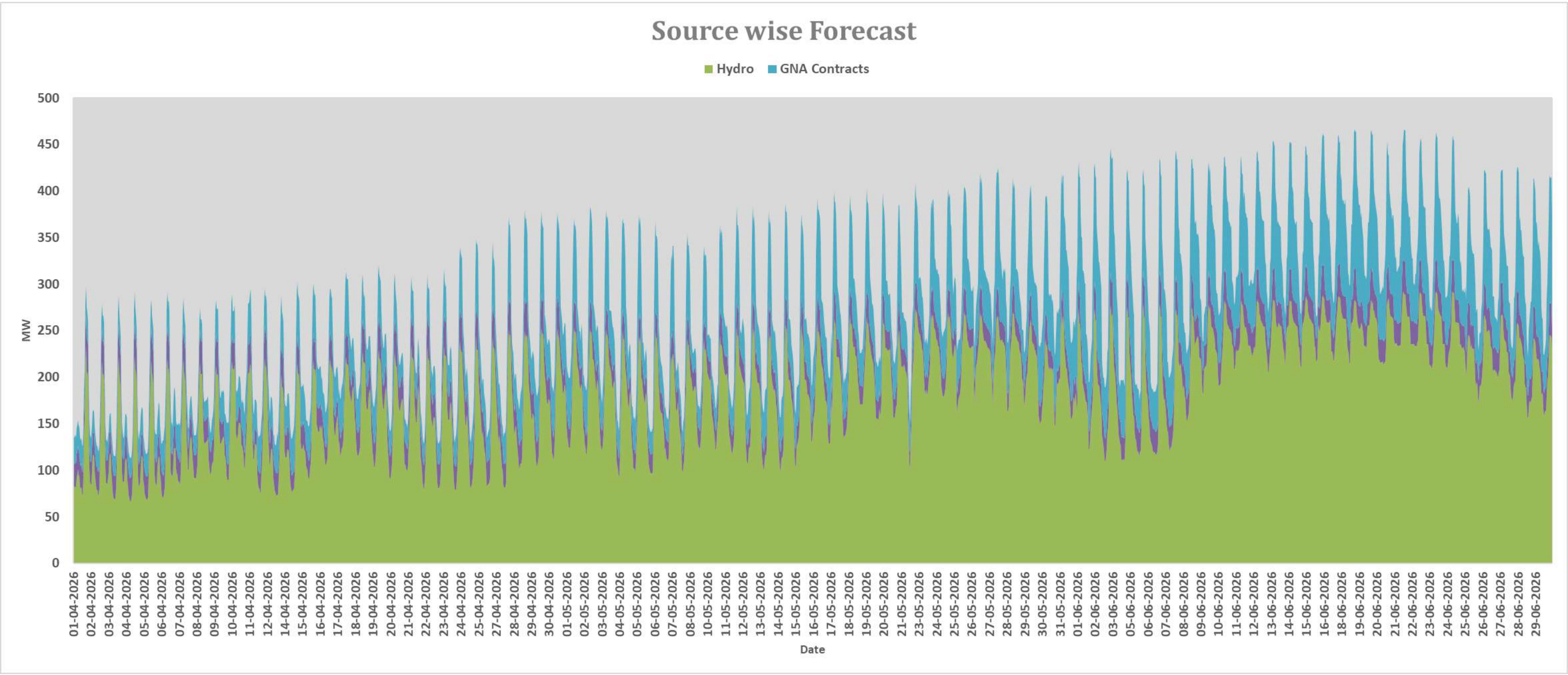
Chandigarh

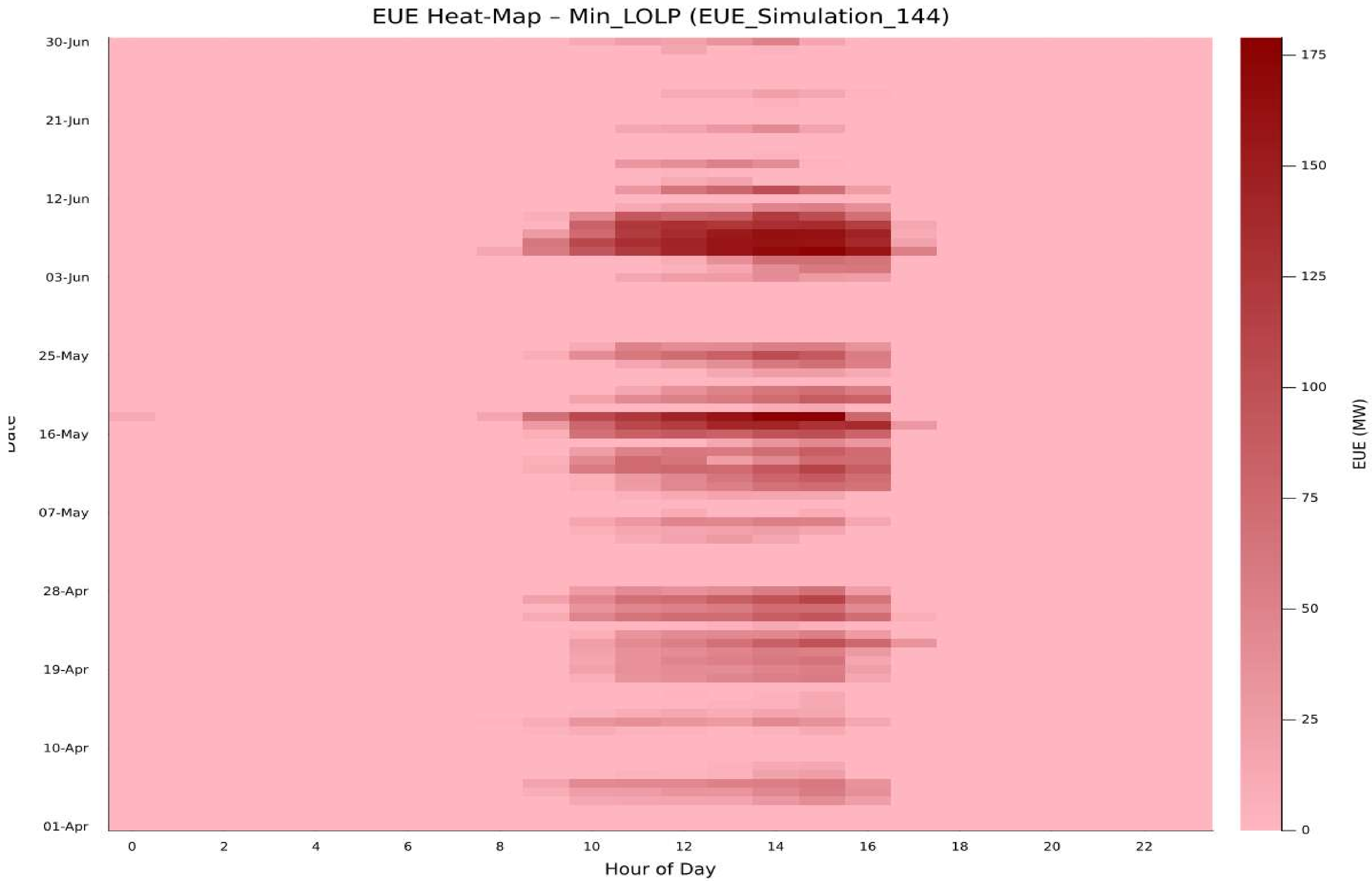

Himachal Pradesh Demand Forecast
MW
Date
2500
2000
1500
1000
500
0
01-04-2026
30-06-2026

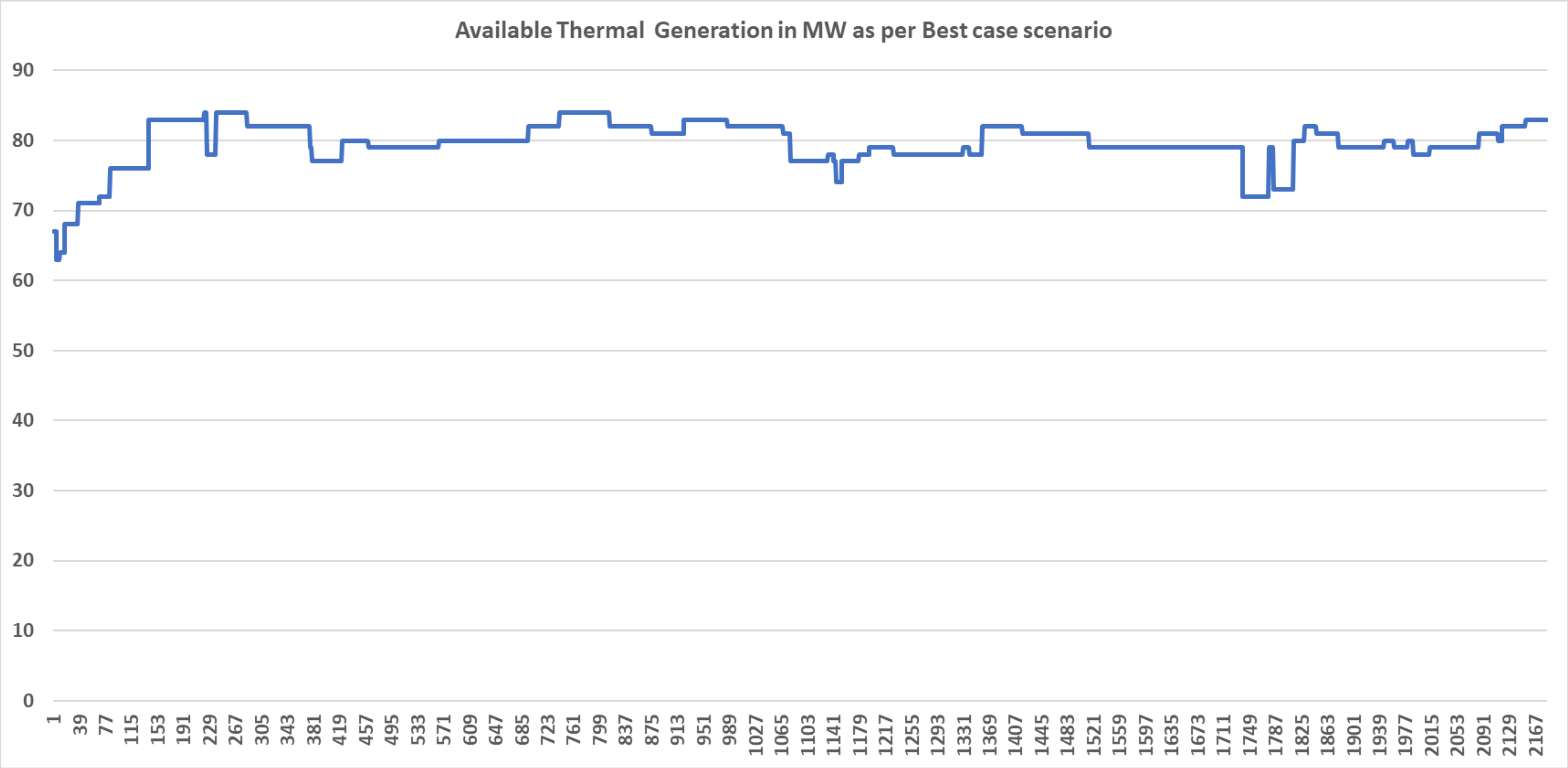

Demand vs Supply Mix (Thermal + Conventional/GNA) for April-June 2026
Thermal Generation as per Best case
Conventional & GNA contracts
Demand
MW
600
500
400
300
200
100
0
Date



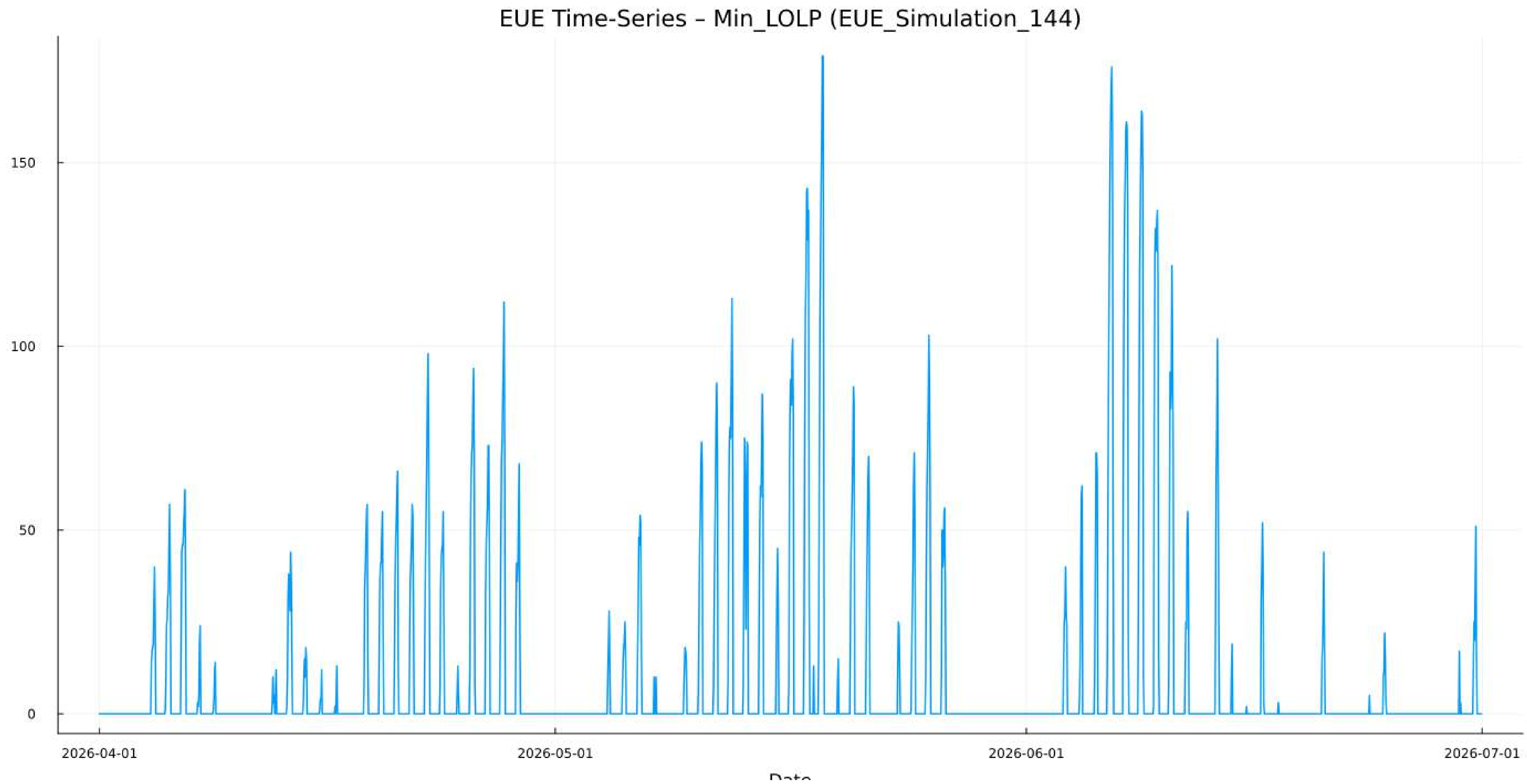
Source wise Forecast
Hydro
GNA Contracts
MW
Date

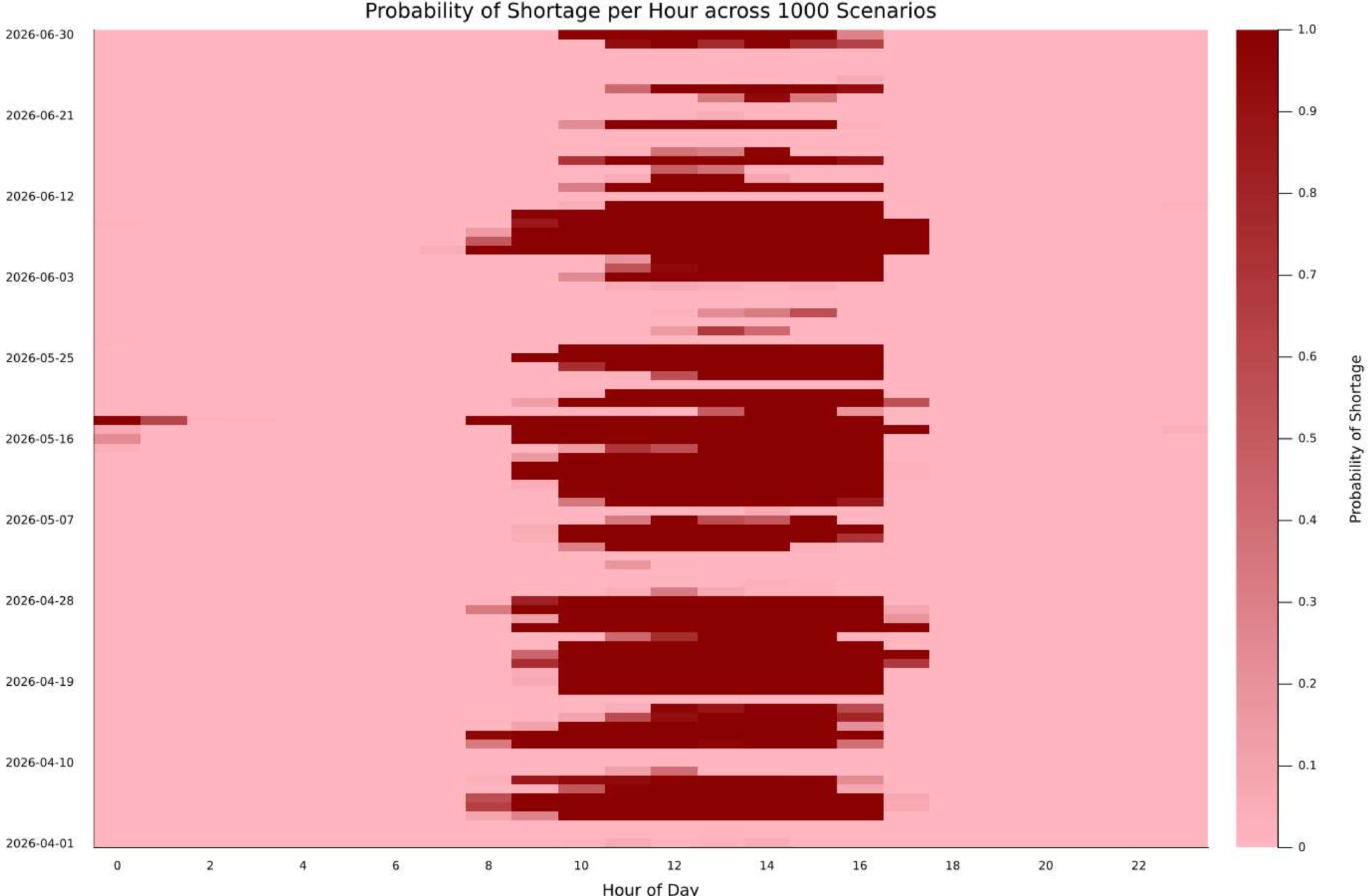
Best case: Load Unserved in MW- Heat Map



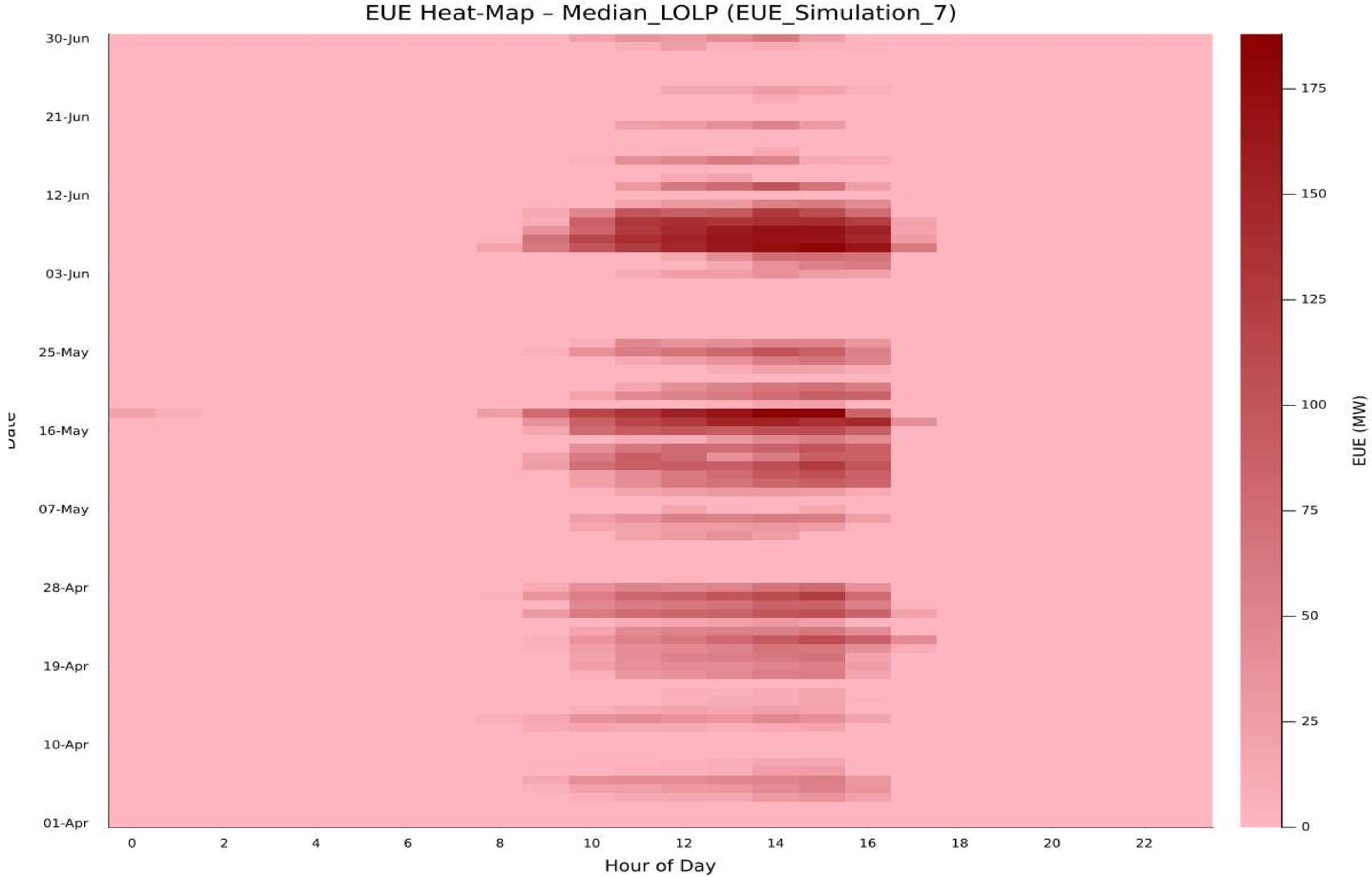


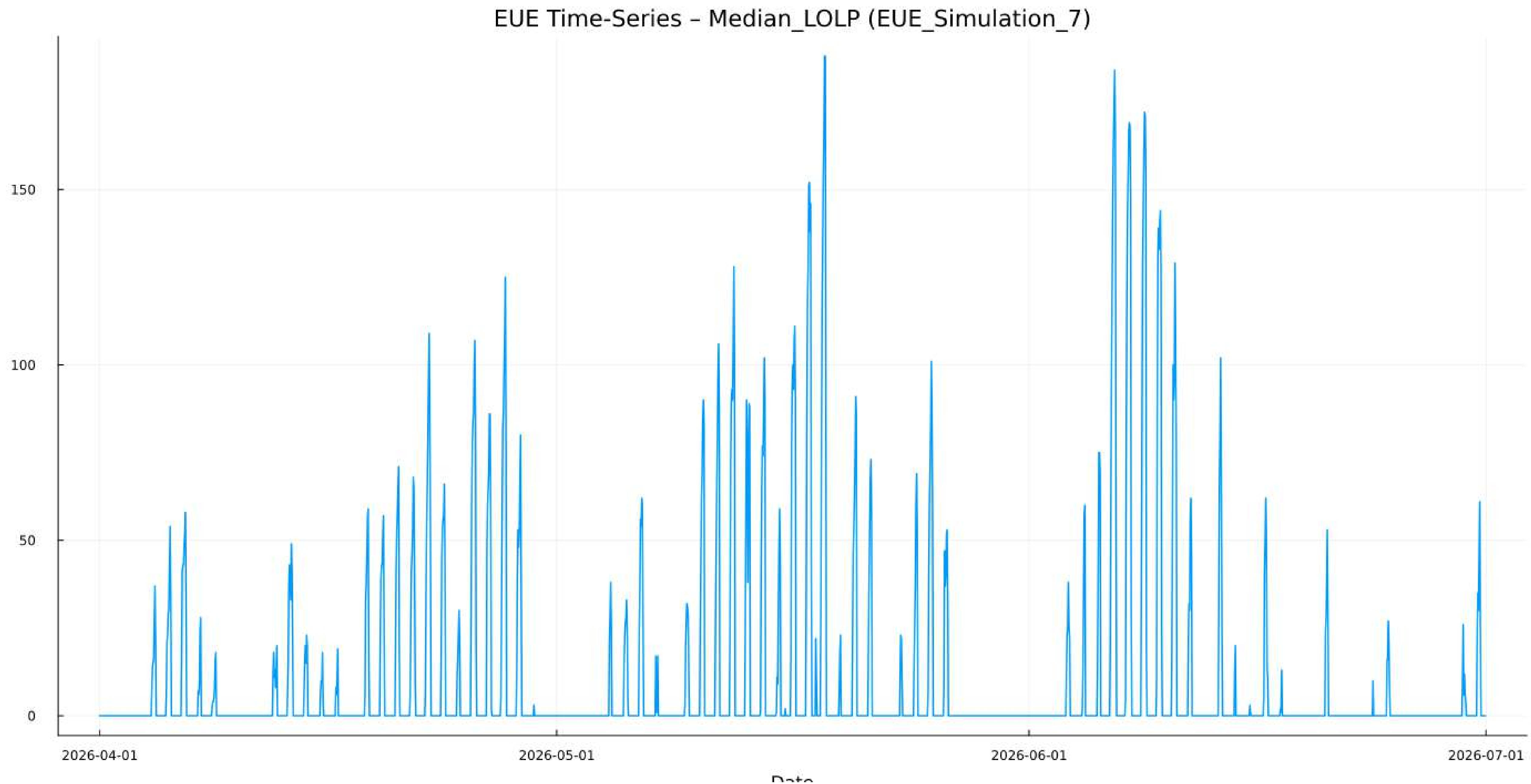
Available Thermal Generation in MW as per Best case scenario
90
80
70
60
50
40
30
20
10
0
1
39
77
115
153
191
229
267
305
343
381
419
457
495
533
571
609
647
685
723
761
799
837
875
913
951
989
1027
1065
1103
1141
1179
1217
1255
1293
1331
1369
1407
1445
1483
1521
1559
1597
1635
1673
1711
1749
1787
1825
1863
1901
1939
1977
2015
2053
2091
2129
2167


EUE Time-Series – Min_LOLP (EUE_Simulation_144)
150
100
50
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date


Probability of Shortage per Hour across 1000 Scenarios
2026-06-30
2026-06-21
2026-06-12
2026-06-03
2026-05-25
2026-05-16
2026-05-07
2026-04-28
2026-04-19
2026-04-10
2026-04-01
0
2
4
6
8
10
12
14
16
18
20
22
Hour of Day
1.0
0.9
0.8
0.7
0.6
0.5
0.4
0.3
0.2
0.1
0
Probability of Shortage

Median case: Load Unserved in MW- Heat Map




EUE Time-Series – Median_LOLP (EUE_Simulation_7)
150
100
50
0
2026-04-01
2026-05-01
2026-06-01
2026-07-01
Date

PRAS Outcomes – Key Observations & Way Forward (Summer: April–June 2026)

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Annex-VII

List of feeders for physical regulation in Supply

Uttar Pradesh

S No	Name of Feeder	Affected area	Approx Load relief (MW)	Remarks
1	220kV Meerut-Gajraula	Gajraula	100	Not Radial
2	220kV Baghpat(PG)-Baghpat D/C	Baghpat	60	Radial
3	220kV Allahabad(PG)-Jhusi	Jhusi	200	Not Radial
4	220kV Sohawal(PG)-Barabanki D/C	Barabanki	120	Not Radial
5	220kV Mainpuri(PG)-Neemkarori D/C	Farukkhabad	120	Not Radial
6	220kV Gorakhpur(PG)-Gola D/C	Gorakhpur	80	Radial
7	132kV Ballia(PG)-Bansdeeh	Ballia	15	Radial
8	132kV Ballia(PG)-Sikandarpur	Ballia	30	Radial

50 no.s 132kV feeders can also be opened from SLDC and testing was also carried out few days back at SLDC level

Punjab

S No	Name of Feeder	Affected area	Approx Load relief (MW)	Remarks
1	132kV Jamalpur-Ghulal D/C	Ghulal	91	High loading during paddy
2	66kV Jamalpur-Chandigarh Road	Chandigarh Road	37	To be preferred
3	66kV Jamalpur-Sherpur	Ludhiana	13	-
4	220/132kV Sangrur ICT 1,2, 3	Shamsabad	166	High loading during paddy
5	220kV Amritsar-Naraingarh D/C	Amritsar adjoining area	100	To be preferred
6	220kV Patiala-Nabha D/C	Nabha	190	To be opened after discussion with SLDC
7	220kV Jalandhar-Kanjli D/C	Kapurthala	64	To be preferred

120 no.s 66kV feeders may be tripped from SLDC control room to control over drawl (usually when freq below 49.8Hz)

Annex-VII

Rajasthan				
S. No.	Transmission line / Transformers to be opened	Power supply interruption	Approx load relief (MW)	Remark
1	220kV Anta-Lalsot	Lalsot	130	The load of 220 kV GSS Lalsot is normally fed from Anta radially. However If ring of 220kV Anta-Lalsot-Dausa is closed then SLDC will open 220 kV Dausa – Lalsot line immediately after physical regulation message received from NRLDC.
2	220 kV Bhinmal (PG) –Sayla Ckt-I & II	Sayla	40	However 220 kV GSS Saylais also fed from 220 kV GSS Jalore. SLDC will open 220 kV Sayla – Jalore line immediately after physical regulation message received from NRLDC.
3	220 kV Bassi(PG) - Bagru line	Bagru	80	However 220 kV GSS Bagruis also fed from 220 kV GSS Phulera. SLDC will open 220kV Bagru – Phulera line immediately after physical regulation message received from NRLDC.
4	220kV Bhiwadi(PG) -Khushkera 220kV Neemrana(PG)-Khushkera	Khushkhera & Kishangarh Bas	170	Limited alternate supply may be available. 220kV Alwar-K.G.Bas - Khushkhera linemay get overloaded.
5	220/132 kV, 160 MVA Transformer at 220kV GSS Behror	Behror	80	SLDC will open 220/132kV transformer of 220kV GSS Behror immediately after physical regulation message received from NRLDC.
J&K				
S No	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	220kV Kishenpur-Baran D/C	Baran	200	Radial feeder
2	220kV New Wampoh-Mirbazar	Mirbazar	200	Radial feeder
3	132kV Gladni-Kalakote S/C	Jammu	80	Priority 1
4	Kashmir Bemina	Kashmir	50	
5	132kV Barn-KalakoteD/C	Jammu	80	Priority 2
6	132kV Zainakote - Pattan D/C	Kashmir	70	
220kV Samba-Hiranagar may not be opened as it also supplies to Railways				

Annex-VII

Uttarakhand

S No	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	132kV Pithoragarh(PG)-Pithoragarh	Pithoragarh	50	Radial feeder
2	220kV Sitarganj-Eldeco	Eldeco	40-60	Industrial load (only in caseof extreme situations)

No control available from SLDC control room for physical regulation.
It was discussed that such feeders may be identified which are fed from two resources and will provide relief. Compiled list of such feeders after discussion at state level needs to be shared with NRLDC at the earliest. In case it is difficult to identify such feeders, contingency plan needsto be developed at SLDC level and shared with NRLDC.

Himachal Pradesh

S No	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	66kV Bhakra-Rakkar	Rakkar/ Una	10-18	Area being fed from 66kV Rakkar (Una)
2	66kV Pong-Sansarpur	Sansarpur	2-5	Radial feeder
3	132kV Dehar-Kangoo	Kunihar/Shimla	80-140	Priority 1. 400/220kV DeharICT may overload
4	220kV Dehar-Kangoo			
5	220kV Nallagarh-Upernangal D/C	Baddi/ Nallagarh	180-315	Industrial load (only in caseof extreme situations)
6	220kV Khodri-Majri D/C	Kala Amb/ Paonta Sahib/ Nahan	80-190	Limited supply may be available from Kunihar.Many essential loads, Oxygen plants, administrative buildings
7	132kV Kulhal-Giri			
8	66kV Parwanoo-Pinjore	Parwanoo	-	Generally kept open
9	33kV Ganguwal-Bilaspur	Bilaspur	6-8	-

Delhi

S No	Name of Feeder	Affected area	Approx Loadrelief (MW)	Remarks
1	220kV Mundka-Peeragarhi D/C	Peeragarhi	100-150	Radial feeder
2	220kV BTPS-Okhla D/C	Okhla	200-350	Radial feeder
3	33kV Delhi ckts 1,2,3,4feeders from Rohtak road (BBMB)	Rohtak Road	20-30	Radial feeder
4	220kV MaharaniBagh-Lodhi Road D/C	Lodi Road	200-300	May not be opened as VIP area
5	220kV Maharanibagh-Masjid Moth D/C	Masjid Moth		Radial feeder

Annex-VII

Haryana				
S.No.	**Transmission element to be opened**	**Power supply Interruption in**	**Approx Relief (MW}**	**Remarks**
1	Feeders in schedule A Panipat: a) 33kV Panipat-Sewah b) 33kV Panipat-Untla c) 33kV Panipat-lsrana d) 33kV Panipat-Narayana e) 33kV Panipat-Sanoli road Kurukshetra: a) 33kV Kurukshetra-Mathana b) 33kV Kurukshetra-Ajrana c) 33kV Kurukshetra-Kirmich d) 33KV KuruKshetra-REC d) 11kV Kurukshetra-Bahadurpura e) 11kV Kurukshetra-Pipli -2 Dhulkote: a) 66kV Dhulkote-Barnala b) 66kV Dhulkote-Babyal c) 66kV Dhulkote-Sadopur d) Narela: a) 132kV Kundli line emanating from Narela BBMB	Panipat , Kurukshetra, Dhulkote, Kundli (Sonipat)	200 MW (Approx.)	Radial Lines or fed radially (These feeders were already Included In schedule A&B)
2	**Feeders in Schedule B** a) 220kV Sector-72 PG - Sector-33 ckt-1&2 b) 220kV Kaithal PG- Neemwala ckt-1&2	Kaithal, Gurugram,	180 MW (approx.)	Radial Lines (Additional one feeder included in Schedule-B now to achieve desired load relief

Annexure-B.III

National Load Despatch Centre
Import Capability of Punjab for March 2026

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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
1 March 2026 to 31 March 2026	00-24	10900	500	10400	5497	4903		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 Malerkotla and Patiala ICTs 220 kV underlying network at Jalandhar, Ludhiana and Amritsar							

National Load Despatch Centre

Import Capability of Uttar Pradesh for March 2026

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
1 March 2026 to 31 March 2026	00-24	17700	600	17100	10165	6935		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 Panki, Allahabad(PG), Agra(PG), Lucknow (PG) ICTs						

National Load Despatch Centre
Import Capability of Haryana for March 2026

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
1 March 2026 to 31 March 2026	00-24	10700	300	10400	5418	4982		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 March 2026

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
1 March 2026 to 31 March 2026	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 March 2026

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
1 March 2026 to 31 March 2026	00-24	7600	300	7300	4810	2490		https://www.delhisldc.org/resources/atcttcreport.pdf
Limiting Constraints		N-1 contingency of 400/220kV HarshVihar and Bawana (bus-split) ICTs.						

National Load Despatch Centre
Import Capability of Uttarakhand for March 2026

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
1 March 2026 to 31 March 2026	00-24	1990	100	1890	1402	488		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 March 2026

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
1 March 2026 to 31 March 2026	00-24	2386	100	2286	1181	1105		https://hpsldc.com/mrm_category/ttc-atc-report/
Limiting Constraints		Overloading of 2*100MVA Giri transformers High loading of 220kV Nallagarh-Upernangal D/C						

National Load Despatch Centre
Import Capability of J&K for March 2026

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
1 March 2026 to 31 March 2026	**00-09 & 14-24**	**3500**	**100**	**3400**	**1977**	**1423**		
	09-14	2800	100	2700	1977	723		
Limiting Constraints		N-1 contigency of 400/220KV ICTs at Amargarh, Kishenpur 220 kV underlying network at Amargarh, Wagoora Low voltages in J&K control area due to high MVAR drawl						

National Load Despatch Centre

Import Capability of Chandigarh for March 2026

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
1 March 2026 to 31 March 2026	00-24	480	20	460	342	118		
Limiting Constraints		N-1 contigency of 220kV Nallagarh-Kishengarh						

Chapter 10: Recommendations

The following remedial measures are recommended to avoid recurrence of such grid events:

10.1 Reactive Power Management (Dynamic/Static):

In order to maintain voltage stability, reactive power support is desired from all grid connected utilities without leaning over each other so as to ensure minimum reactive exchange at different voltage levels.

a. Generators

- The generating units including those near load centre stations shall keep their PSS/AVR in service for dynamic reactive power support and stability during contingencies.
- The generating stations, both conventional as well as renewable, shall provide their P-Q capability curve for 0.95 per unit and 1.05 per unit voltage along with the curve based on 1 (one) p.u. terminal voltage. The voltage-dependent reactive support shall be assessed based on the submitted voltage-dependent capability curves.

b. Transmission

- The transmission system shall be planned and commissioned to ensure reactive power balance at all voltage levels in the grid. For this, different operating scenarios shall be studied to identify the reactive power requirement. Any deficit so identified shall be followed by augmenting the dynamic/static reactive power sources by transmission system planners (CEA/CTU/STUs).
- The placement and sizing of STATCOM/SVC shall be planned in such a way that the dynamic reactive support from STATCOM/SVC are not utilized in steady-state. It will ensure that in case of grid contingencies, full dynamic range is available for the grid support.
- Also, the design philosophy of future STATCOMs may be adopted so as to ensure the availability of dynamic reactive reserve for any contingency.
- State-wise reactive power compensation requirement (Dynamic & Static) may be studied in a holistic manner so that states do not lean over the ISTS system for reactive power support.

c. Load Centres

- Adequate static/dynamic reactive devices may be planned at the distribution level near loads so that there is minimum drawl from reactive sources at the transmission (STU) level. States may explore the deployment of capacitor banks at lower voltage levels for meeting the reactive support required by loads having poor power factor.
- The dynamic reactive power sources shall be commissioned near load centre stations based on the composition and quantum of individual load type.
- System studies for appropriate locations and suitable size of switchable capacitor banks, STATCOM/SVG etc. may be carried out. Early action on deployment and installation is needed.
- As shown in the study results, the behaviour of the system is entirely different with different load models viz. composite and ZIP load model. Hence, accurate load modelling is very important to properly capture the right behaviour of the system in the operational planning phase. Same may be considered in the planning stage studies as well as while assessing the TTC/ATC of control areas.
- It is recommended that a suitable SPS scheme may be planned which shall operate after outage of HVDC Champa – Kurukshetra Bipole to obtain relief in the voltage.

- The load centres (non-pit head locations) usually experience low voltage-related issues during peak demand periods. The presence of thermal generators near the load centres may significantly improve the voltage profile and can provide dynamic reactive power support in case of contingencies improving the stability.

10.2 Reliable operation of HVDC Champa - Kurukshetra:

a. Between January to June 2024, there have been more than 30 instances of tripping of HVDC Champa-Kurukshetra poles (list enclosed as **Annexure – 13**). Detailed fault analysis of the 800 kV HVDC Champa-Kurukshetra link and other affected components is essential to understand the root cause of the event. Implementing remedial measures based on this analysis can prevent recurrence and enhance the reliability of this critical interregional link.

b. All trippings have been analyzed by POWERGRID in consultation with OEM and it has been concluded that trippings have occurred mainly due to mal-operation of DCCT, T-zone protection mal-operation, 5005/5008 card failure, system failure issue and de-paralleling failure issue. Based on the identification of issues, necessary modification of software and hardware is already in process and under trial. POWERGRID to expedite the implementation of measures at the earliest.

c. HVDC Champa-Kurukshetra tripping took place due to a transmission line fault at location 1805 (falling under Village - Chamarra, Block -Panwari, Distt- Mahoba, Uttar Pradesh) caused by flashover between jumper conductor and tower body under localised storm/heavy wind condition. Even though this is the only line fault that took place during the last one year in this line and no record of fault at this location since commissioning, it is very important that further improvements in O&M of the transmission line may be done in view of the criticality of HVDC line. In order to control the jumper swing use of additional pilot insulators, addition of counterweight and insulation sleeve on the jumper conductor and DMR wherever required may also be deployed. Increased line patrolling during summer and at vulnerable locations need to be ensured to check infringements and foreign materials.

d. As per existing configuration, both DMR-1 & DMR-2 is connected together electrically at both terminals of HVDC through disconnectors. Online isolation of DMR during power flow or fault condition is not possible. To improve the reliability of system under DMR fault condition auto-isolation of DMRs and NBGS after discussion with OEM of HVDC may be explored in consultation with HVDC OEMs.

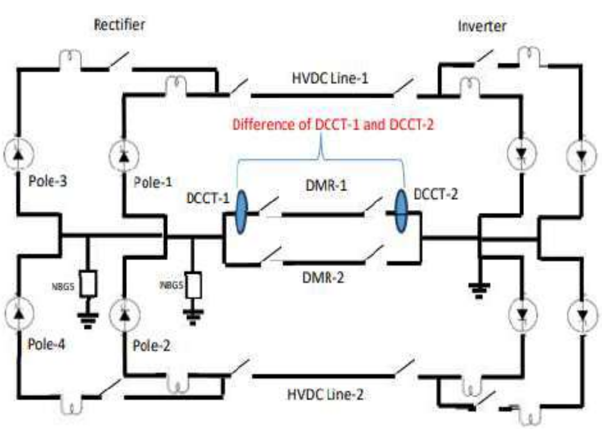

Figure 94:DMR current differential protection

e. As DMR-1 was available, an assessment is needed to determine if Pole-1 & 3 could have remained operational with DMR-1, given the power order was not excessively high (~1100 MW total). The periodic review of healthiness of DMR is important to assess the healthiness of HVDC lines. Protocol for periodic healthiness checking of DMR may be formulated by the utility.

f. Standard DMR line fault protection philosophy may be incorporated in RfP Document for future HVDC projects in consultation with OEM i.e. The closing of NBGS may be reviewed (in consultation with OEMs) for DMR line protection sequence during Bipolar operation for future HVDC projects.
g. HVDC systems have huge number of filter banks which provides MVAR support in addition to serve the basic purpose of harmonics filtration. It may be beneficial to get benefit of filter banks for MVAR support during low voltage condition subject to technical feasibility without compromising the safety of HVDC system as such.
h. A SPS scheme can be explored where filter banks of HVDC are tripped in succession after blocking of HVDC poles, this would help in limiting the dip in voltage after blocking of HVDC poles.
i. However, the immediate protective removal of filters is highly required in existing LCC HVDC during blocking of bipoles to avoid sudden voltage overshoot at connected AC BUS. In order to mitigate abrupt voltage rise/fall during filter switching, the filter switching scheme of HVDC in case of protective pole tripping should be based on antecedent AC bus voltage. If the voltage is lower/higher than a set value, the switching of filter bank/ part of filter bank may be avoided until the voltage recovers to that level.

10.3 Implementation of Overvoltage protection setting:

It was also observed that better over-voltage protection settings are required specially when there is sharp rise in voltage. In such cases voltage based time grading need to be carried out on different lines based on various factors. A review of overvoltage stage-1 protection settings on all 765KV lines emanating from northern region substations was carried out. Based on the deliberations, following is recommended for implementing overvoltage Stage-I protection settings:

a. Pick up voltage & time delay setting of Antitheft lines to be kept low with sufficient time gap from other lines at S/s
b. Parallel lines grading to be done such that one line should trip early by setting at low voltage and other line should trip last by keeping setting at high voltage.
c. Highly loaded lines should be given last priority in tripping.
d. Net MVAr relief (based on line charging MVAr & MVAr compensation in line) based on the simulation to be considered for arriving at the priority of line tripping. Lines providing high net MVAr relief to be tripped early.
e. Grading to be done in such a manner that one major incoming and outgoing line shall remain connected after tripping of lines at any node.
f. Protection setting of remote end station of a line need to be coordinated so as to avoid tripping of line from other end.
g. Drop-off to pick-up ratio of Relays implemented for overvoltage protection shall be more than 99.5%.

10.4 Frequency Response by Generating Units

a. The performance of primary response by generating units in this event underscores significant concerns regarding the inadequate governor response being provided by generators.

b. It is recommended that the performance of generating units where inadequate primary response was observed shall be discussed at RPC level. The remedial measures shall be explored including carrying out of onsite primary response testing.

10.5 Compliance of CEA Standards by Renewable Generating Plants:

a. Protection settings of inverters/WTG shall be coordinated in such a way that it accounts for the voltage rise/drop between inverter/WTG terminal & Point of interconnection (POI). Overvoltage /undervoltage trip settings should be configured accordingly.
b. The reactive power controller settings (droop, deadband, power factor, operating modes) in inverters/WTGs should be configurable and shall be set in consultation with the respective load dispatch centre.
c. The protection settings of elements in collector system viz. transformers, cables etc. shall such that it allows RE plants to ensure the compliance of CEA standards at POI.
d. RE plants shall ensure that the event records shall be shared with SLDC/RLDC within the stipulated time for event analysis. All such data shall be retained in a retrievable format in a suitable archival system.

10.6 Compliance of Standards by Load Serving Machines

a. The motors serving load shall be compliant with IS/IEC, this shall ensure following:
    i. Limiting MVAR drawl during low voltage period.
    ii. Avoiding unwanted tripping due to voltage fluctuations.
    iii. Improved power factor
b. It is suggested that the protection settings of 1-ph AC compressors, 3-ph HVAC compressors in large commercial complexes, mall etc., agricultural motors etc. may be reviewed and suitable standard for the same may be notified.

10.7 Amendments in Existing Regulations

With the envisaged large-scale addition of different emerging types of loads i.e. electrolyzers, data centres and other power electronic interfaced loads, it is important that the suitable provisions for ensuring reliable operation may be added in the existing CEA standards.

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Grid Event summary for January 2026

S.No.	Category of Grid Incident/ Disturbance (GI-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage Date	Outage Time	Event (As reported)	Loss of generation / loss of load during the Grid Disturbance: Generation Loss(MW)	Loss of generation / loss of load during the Grid Disturbance: Load Loss (MW)	Fault Clearance time (in ms)	Compliance of Protection Protocol/Standard: Flash Report Submission (Y/N)	Compliance of Protection Protocol/Standard: DR/EL Submission (Y/N)	Compliance of Protection Protocol/Standard: Detail Tripping Report Submission (Y/N)
1	GD-1	1) 220 KV Ziankote – Alusteng (JKPDD) Ckt-1 2) 220 KV Ziankote – Alusteng (JKPDD) Ckt-2	Jammu and Kashmir	PDD JK	1-Jan-26	17:24	i)220/132kV Ziankote S/s have two bus at 220kV side i.e., main bus & reserve bus. ii)During antecedent condition, 220kV Ziankote was operating in bus split mode viz. 220kV Amargarh(INDIGRID) –Ziankote(JK) D/C (carrying 150 MW each) was feeding Ziankote load. 220kV Wagoora-Ziankote(JK) D/C (one ckt LILO at Budgam) (carrying 253 MW and 206 MW) were connected at other bus and feeding Alusteng, Drass, Kargil, Khalsti and Leh S/s. As reported by SLDC-J&K, 220 KV Ziankote – Alusteng (JKPDD) D/C were carrying 139 MW each. iii)As reported, at 17:24 hrs, 220 KV Ziankote – Alusteng (JKPDD) Ckt-1 tripped on R-N phase to earth fault with fault distance of 34.99 km and fault current of 3.4 kA from Ziankote(JK); zone-1 distance protection operated at Ziankote end. Fault occurred due to a vulture sitting on tower no. 156 of 220 KV Ziankote – Alusteng (JKPDD) Ckt-1. iv)At the same time, 220 KV Ziankote – Alusteng (JKPDD) Ckt-2 also tripped due to over-loading from Ziankote end. v)Due to tripping of 220 KV Ziankote – Alusteng (JKPDD) Ckt-1 & 2, supply to Alusteng, Drass, Kargil, Khalsti and Leh S/s failed and complete blackout occurred at 220/66kV Alusteng(JK), Drass(PG), Kargil(PG), Khalsti(PG) and Leh(PG). vi)As per PMU at Kishenpur(PG), R-N phase to earth fault is observed with delayed fault clearing time of 200ms. vii)As per SCADA, change in demand of approx. 278MW is observed in J&K control area.	0	278	200	N	N	N
2	GD-1	1) 220 KV Bhakra_L-Ganguwal (BB) Ckt-1 2) 220 KV Bhakra_L-Ganguwal (BB) Ckt-2 3) 220 KV Bhakra_L-Ganguwal (BB) Ckt-3 4) 220/66kV 150 MVA ICT-1 Bhakra Left(BB) 5) 126 MW Unit-2 at Bhakra Left(BB) 6) 126 MW Unit-3 at Bhakra Left(BB) 7) 66 KV Bhakra_L(BB)-NFL Ckt-3 8) 66 KV Bhakra_L(BB)-Rakkar Ckt	Himachal Pradesh	BBMB	2-Jan-26	13:38	i)During antecedent condition, 126 MW Unit-2 &3 at Bhakra Left(BB) were running and generating approx. 125 MW each. ii)As reported, at 13:38 hrs, CB A-13 of 126 MW Unit-3 at Bhakra Left(BB) was opened on full load during load throw off test conducted in the presence of maintenance agencies. iii)During this time, LBB operated due to damaged burnt coil of Y phase limb of CB A-13 which further resulted in tripping of all the elements connected to 220kV Bhakra Left(BB). iv)As per PMU at Bhakra Right(BB), Y-N phase to earth fault was observed with delayed fault clearing time of 440 ms. v)As per SCADA, generation loss of approx. 250 MW occurred at Bhakra Left HEP.	250	0	440	Y(d)(Partial)	Y(d)(Partial)	Y(d)(Partial)
3	GD-1	1) 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt 2) 220 KV Debari(RS)-RAPS_B(NP) (PG) Ckt 3) 220/132kV 50 MVA ICT-1 at Debari(RS) 4) 220/132kV 160 MVA ICT-3 at Debari(RS) 5) 220/132kV 160 MVA ICT-4 at Debari(RS) 6) 220/132kV 100 MVA ICT-5 at Debari(RS)	Rajasthan	RVPNL, NPCIL	4-Jan-26	07:02	i)220/132kV Debari(RS) has double main and transfer bus scheme at 220kV level. ii)As reported, at 06:04 hrs, 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt tripped on Y-N phase to earth fault with fault distance of 103.8 km and fault current of 1.02 kA from Debari(RS) end and fault distance of 97.18 km and fault current of 1.835 kA from RAPS_A(NP) end. iii)As further reported, at 07:02 hrs, during charging attempt of 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt, bus bar protection mal-operated at 220kV Debari(RS) which resulted in tripping of all 220/132kV ICTs also. Complete blackout occurred at 220/132kV Debari(RS). iv)Supply to following area were disturbed during this event: a)132 KV GSS Dakankotra w.e.f. 07:02 to 07:45 hrs (43 mins) (Along with railway Feeder at Dakan Kotra) b)132 KV GSS Bhatewar w.e.f. 07:02 to 08:18 hrs (16mins) c)132 KV GSS Mavli w.e.f. 07:02 to 07:27 hrs (25 mins) (Along with railway Feeder at Mavli(29min)) d)132 KV HZL feeder and 132 KV UCW feeder and Local w.e.f. 07:02 to 07:42hrs (40 mins) feeders v)As per PMU at RAPP_C(NP), no fault was observed in the system. vi)As per SCADA change in demand of approx. 124 MW in Rajasthan control area was observed. vii)Supply was taken from 220 kV Debari-Amberi (PG) Ckt at 07:15hrs. 220 KV Debari(RS)-RAPS_A(NP) (RS) Ckt was charged after replacement of disc string fail at TL-306 (Y Phase).	0	124	NA	N	N	Y(d)(Partial)(RS) N(NP)
4	GI-2	1)220 KV Kanpur(PG)-Rania(UP) (PG) Ckt-1 2)400 KV Kanpur_GIS-Kanpur (PG) Ckt-1 3)400 KV Kanpur_GIS-Kanpur (PG) Ckt-2 4)400KV Bus 1 at Kanpur(PG) 5)400 KV Kanpur(PG)-Auraiya(NT) (PG) Ckt-1 6)400 KV Kanpur(PG)-Auraiya(NT) (PG) Ckt-2 7)400/220 kV 315 MVA ICT 1 at Kanpur(PG) 8)400/220 kV 315 MVA ICT 2 at Kanpur(PG) 9)400 KV Kanpur-Agra (PG) Ckt-1 10)400 KV Allahabad-Kanpur (PG) Ckt-1 11)400 KV Kanpur-Ballabhgarh (PG) Ckt-1 12)400 KV Kanpur-Ballabhgarh (PG) Ckt-2 13)400 KV Kanpur-Ballabhgarh (PG) Ckt-3	Uttar Pradesh	UPPTCL, NTPC, PGCIL	7-Jan-26	16:47	i)16:47:53:320 hrs: Jack bus fell on 400kV Bus-1 & 2 creating R-Y-B-N three phase to earth bus faut. ii)400kV Bus-II was under shutdown and bus bar protection of 400kV Bus-I didn't operate on three phase bus fault on 400kV Bus-I. iii)All the lines and ICTs at Kanpur(PG) sensed the fault in Z-4 and remote end sensed the fault in Z-2. iv)All the 400kV elements except i.e., 400kV Agra line, Allahabad line-II, Ballabhgarh line-I, II & III, Auraiya line-I&II, and ICT-I & II tripped in Z-4 distance protection operation. v)400kV Kanpur-Kanpur765 D/C neither sense fault in Z-4 at Kanpur(PG) end nor in Z-2 from Kanpur765 end. vi)By 16:47:54 hrs, all the lines except 400kV Kanpur-Kanpur765 D/C tripped. vii)Further at 16:47:54:880 hrs, 400kV Kanpur-kanpur1 D/C and 400kV Kanpur-Lucknow D/C tripped on Z-3 distance protection operation. 400kV Kanpur-kanpur1 D/C should have tripped in Z-2, distance protection setting of the D/C shall be reviewed (As informed, LSR impedance hasn't been considered in Z-2 line protection).	0	53	1560	Y(d)	Y(d)	Y(d)
5	GI-2	1) 132KV Anpara-Rihand (UP) Ckt-1 2) 132KV Anpara-Rihand (UP) Ckt-2 3) 132KV Anpara(UP)-Bina Ckt 4) 210 MW Anpara TPS - UNIT 1 5) 210 MW Anpara TPS - UNIT 2 6) 210 MW Anpara TPS - UNIT 3 7) 500 MW Anpara TPS - UNIT 4 8) 500 MW Anpara TPS - UNIT 5	Uttar Pradesh	UPPTCL	8-Jan-26	08:01	i)400/132kV Anpara(UP) S/s have double main and transfer bus arrangement at 400kV level and double main bus arrangement at 132kV level. ii)During antecedent condition, 132kV Anpara-Morwa Ckt was under shutdown and 132kV Bus coupler was in ON position. 210 MW UNIT 1, 2 & 3 and 500 MW UNIT 4 & 5 at Anpara TPS were in running condition and were generating approx. 187 MW, 176 MW, 153 MW, 392 MW and 466 MW respectively (as per SCADA). iii)As informed by SLDC UP, 132kV CWTF11 and CWTF22 were supplying power to Cooling water pumps for 210 MW Anpara TPS - UNIT 1, 2 & 3 and 132kV CWTF33 was supplying power to Cooling water pumps for 500 MW Anpara TPS - UNIT 4 & 5. Similarly, 132kV STNX11 and STNX22 were supplying auxiliary power to 210 MW Anpara TPS - UNIT 1, 2 & 3 and 132kV STNX33 and STNX44 were supplying auxiliary power to 500 MW Anpara TPS - UNIT 4 & 5. iv)As reported, at 08:01 hrs, Y-ph LA of 132kV Bus-A at Anpara TPS blasted causing fault in 132kV Bus-A at Anpara TPS. Bus bar protection of 132kV did not operated on this fault due to non-operation of check zone relay. v)Due to this, 132KV Anpara-Rihand (UP) Ckt-1 & 2, 132KV Anpara(UP)-Bina Ckt and all other 132 kV elements (station transformes supplying auxiliaries and CWTF supplying cooling water pumps) connected to Bus-A and B tripped on over-current earth fault protection operation and both the 132kV buses at Anpara TPS became dead. vi)Due to tripping of auxiliary supply to units, 210 MW UNIT 1, 2 & 3 and 500 MW UNIT 4 & 5 at Anpara TPS tripped. vii)At the same time, 220 KV Ziankote – Alusteng (JKPDD) Ckt-2 also tripped due to over-loading from Ziankote end. viii)As per PMU at Varanasi(PG), R-Y phase to phase fault is observed with delayed fault clearing time of 1120ms. ix)As per SCADA, generation loss of approx. 1375 MW occured at Anpara TPS(UP). x)As reported by SLDC UP, no load loss was observed in UP control area. xi)As reported by Anpara TPS, new numerical busbar protection scheme at 132kV level of Anpara TPS will be commissioned within six months.	1375	0	1120	Y(d)	N	Y(d)
6	GD-1	1) 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt	Rajasthan	AHEJ3L, PGCIL	11-Jan-26	10:36	i)Generation of 220kV AHEJ3L(IP) station evacuates through 220KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1. ii)During antecedent condition, 220kV AHEJ3L(IP) station was generating approx. 264 MW (as per SCADA). iii)As reported, at 10:36 hrs, 220 KV Fatehgarh_II(PG)-AHEJ3L PSS HB_FGRAH_PG (AHEJ3L) (AHEJ3L) Ckt-1 tripped on Y-N phase to earth fault with fault current of 1.08kA from AHEJ3L end (exact nature, location and reason of fault yet to be shared) which led to complete blackout out of 220kV AHEJ3L(IP) S/s. iv)As per PMU at Fatehgarh2(PG), Y-N phase to earth fault was observed with fault clearing time of 80ms. Voltage dipped upto 0.943 pu during fault. v)As per PMU, solar generation loss of approx. 264 MW was observed at AHEJ3L(IP).	264	0	120	Y(d)	Y(d)	Y(d)
7	GD-1	1) 220 KV Sohna Road-Sec69 Gurgaon ckt 2) 220kV Sec72 Gurgaon-Sec69 Gurgaon ckt 3) 220 KV Gurgaon(PG)- Sec72 Gurgaon(HV)(HVPNL)-1 4) 220 KV Gurgaon(PG)- Sec72 Gurgaon(HV)(HVPNL)-2 5) 220 KV Gurgaon(PG)- Sec72 Gurgaon(HV)(HVPNL)-3	Haryana	PGCIL, HVPNL	11-Jan-26	14:37	i)400/220KV Gurgaon(PG) and 220/66/33KV Gurgaon sec72 has double main bus system in 220KV side. 220kV Sec72 Gurgaon(HR) has source from 400/220kV Gurgaon(PG) station through three (03) 220kV feeders and 220kV Sec72 Gurgaon-Sec69 Gurgaon ckt. ii)As reported, at 14:37 hrs, 220 KV Sohna Road-Sec69 Gurgaon ckt tripped on B-N fault. Fault was in Z-1 from Sohna Road end and in Z-2 from Sec69 Gurgaon end. On this fault, line instantaneously tripped from Sohna Road however due to issue in PLCC carrier communication, line tripped with the delay of ~400 msec from Sec69 Gurgaon end. During this delayed clearance of fault, 220kV Sec72 Gurgaon-Sec69 Gurgaon ckt tripped from Sec72 Gurgaon end in back up earth fault protection and 220 KV Gurgaon(PG)- Sec72 Gurgaon(HV)(HVPNL)-1,2&3 tripped from Gurgaon(PG) end in high set earth fault protection. iii)As per PMU at Gurgaon(PG), B-N phase to earth fault with delayed clearance of ~400msec is observed. iv)As per SCADA, change in demand of approx. ~325MW in Haryana control area is observed. v)As informed by HVPNL, PLCC is healthy in 220 KV Sohna Road-Sec69 Gurgaon ckt however, PLCC carrier communication in 220 KV Sohna Road-Sec69 Gurgaon ckt is configured in only B-ph. As there was B-N fault, it is suspected that carrier signal got disturbed and communication didn't occur. Necessary review of PLCC scheme is being done to avoid such event in future.	0	325	400	Y(d)	Y(d)(Partial)	Y(d)
8	GD-1	1) 400KV Bus 2 at Muzaffarnagar(UP) 2) 400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt-1 3) 400/220 kV 315 MVA ICT 2 at Muzaffarnagar(UP) 4) 400/220 kV 315 MVA ICT 3 at Muzaffarnagar(UP) 5) 400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) Ckt-1 6) 110 MW Unit-2 at Vishnuprayag HEP	Uttar Pradesh	UPPTCL, PGCIL	13-Jan-26	05:16	i)400/220 kV Muzaffarnagar(UP) S/s have double main and transfer bus arrangement at both 400kV & 220kV level. Generation of Alaknanda HEP and Vishnuprayag HEP also evacuates through Muzaffarnagar(UP) via 400kV Alaknanda-Muzaffarnagar line and 400kV Vishnuprayag-Muzaffarnagar line. ii)During antecedent condition, 400kV Alaknanda-Vishnuprayag line was under shutdown. Line loading of 400kV Alaknanda-Muzaffarnagar line and 400kV Vishnuprayag-Muzaffarnagar line were 120 MW & 50 MW respectively. 110 MW unit-2 at Vishnuprayag HEP was running and generating ~50 MW. iii)As reported, at 05:16 hrs, flashover occurred on 400kV R-ph bus post insulator of 400/220 kV ICT-2 at Muzaffarnagar(UP) (connected at 400kV Bus-II). On this fault, bus bar protection of 400kV Bus-II operated leading to tripping of all the elements connected to 400kV Bus-II i.e., 400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt-1, 400/220 kV 315 MVA ICT 2 & 3 at Muzaffarnagar(UP) and 400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) Ckt-1. iv)Due to tripping of 400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) Ckt-1, 110 MW Unit-2 at Vishnuprayag HEP (generating ~50 MW) tripped due to loss of evacuation path. v)As per PMU at Meerut(PG), R-N phase to earth fault which cleared within 100 msec is observed. vi)As per SCADA, generation loss of approx. 50 MW occurred at Vishnuprayag HEP. vii)As reported by SLDC UP, no load loss was observed in UP control area.	50	0	80	Y(d)	N	Y(d)
9	GD-1	1) 400KV Bus 2 at Muzaffarnagar(UP) 2) 400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt-1 3) 400/220 kV 315 MVA ICT 3 at Muzaffarnagar(UP) 4) 400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) Ckt-1 5) 110 MW Unit-4 at Vishnuprayag HEP	Uttar Pradesh	UPPTCL, PGCIL	13-Jan-26	07:43	i)400/220 kV Muzaffarnagar(UP) S/s have double main and transfer bus arrangement at both 400kV & 220kV level. Generation of Alaknanda HEP and Vishnuprayag HEP also evacuates through Muzaffarnagar(UP) via 400kV Alaknanda-Muzaffarnagar line and 400kV Vishnuprayag-Muzaffarnagar line. ii)During antecedent condition, 400kV Alaknanda-Vishnuprayag line, 400/220 kV 315 MVA ICT 2 at Muzaffarnagar(UP) were under shutdown. Line loading of 400kV Alaknanda-Muzaffarnagar line and 400kV Vishnuprayag-Muzaffarnagar line were 159 MW & 62 MW respectively. 110 MW unit-4 at Vishnuprayag HEP was running and generating ~62 MW. iii)As reported, at 07:43 hrs, flashover occurred on 400kV Y-ph bus post (bus-II) insulator of transfer bus coupler. On this fault, bus bar protection of 400kV Bus-II operated leading to tripping of all the elements connected to 400kV Bus-II i.e., 400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt-1, 400/220 kV 315 MVA ICT 3 at Muzaffarnagar(UP) and 400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) Ckt-1. iv)Due to tripping of 400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) Ckt-1, 110 MW Unit-4 at Vishnuprayag HEP (generating ~62 MW) tripped due to loss of evacuation path. v)As per PMU at Meerut(PG), Y-N phase to earth fault which cleared within 100 msec is observed. vi)As per SCADA, generation loss of approx. 62 MW occurred at Vishnuprayag HEP. vii)As reported by SLDC UP, no load loss was observed in UP control area.	62	0	80	Y(d)	N	Y(d)

S.No.	Category of Grid Incident/ Disturbance (GI-I to GD-V)	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Loss of generation / loss of load during the Grid Disturbance		Fault Clearance time (in ms)	Compliance of Protection Protocol/Standard		
					Date	Time		Generation Loss(MW)	Load Loss (MW)		Flash Report Submission (Y/N)	DR/EL Submission (Y/N)	Detail Tripping Report Submission (Y/N)
10	GD-1	1) 400 KV Bassi(PG)-Phagi(RS) (PG) Ckt-1 2) 765 KV Bhadla_2 (PG)- Fatehgarh_II(PG) (PBTL) Ckt-3 3) 220 KV Fatehgarh_III(PG)- RSAPL_SL_FTHG3_PG (RENEW SURYA AAYAN PRIVATE LIMITED) Ckt-1 4) 700 MW RAPS D unit--1	Rajasthan	RVPNL, PGCIL, RSAPL, NPCIL	14-Jan-26	13:38	i)As reported, at 13:38 hrs, 400kV Bassi-Phagi ckt-2 tripped on R-Y fault. Fault occurred due to kite thread. As per PMU plot of phase current of line at Bassi(PG), R-Y fault which cleared within 100 msec is observed. ii)On this fault during voltage dip, significant dip in RE generation observed which further led to the overvoltage in transmission network. iii)Due to this overvoltage, 765 KV Bhadla2-Fatehgarh2 ckt-3 tripped on overvoltage stage-1. As per PMU plot of phase voltage of line at Fatehgarh2(PG), overvoltage upto Vph:469kV, ~1.06 pu is observed. At the same time, 220 KV Fatehgarh_III(PG)-RSAPL(RENEW SURYA AAYAN PRIVATE LIMITED) Ckt also tripped on overvoltage and RAPS-D unit-1 tripped due to turbine trip during grid disturbance. (Exact reason of RAPS-D unit tripping is yet to be received). Tripping of 220kV RSAPL RE station on overvoltage needs to be reviewed. iv)As per SCADA, total drop of approx. 1680 MW NR RE generation observed during the event. Out of which ~300 MW lost due to tripping of RSAPL RE station and ~100 MW at APTFL, ~90 MW at Devikot, ~50 MW at AHEJ4L, ~85 MW at TPGEL, ~180 MW ASEJ2L, ~82 MW at ARTPL and ~135 MW at MSUPL affected due to suspected LVRT/HVRT non-compliance during the event. Additionally, loss of ~600 MW nuclear generation observed at RAPS-D due to tripping of RAPS-D unit-1.	2281	0	80	Y(d)(PG, RS, RENEW) N(RAPS-D)	Y(d)(PG, RS, RENEW) N(RAPS-D)	Y(d)(PG, RENEW) N(RS, RAPS-D)
11	GD-1	1) 765 KV Sikar_2(PSTL)-Aligarh(PG) (PASTL) Ckt-1 2) 220 KV Renew_Dinkar-Bikaner_2 (PBTSL) (Renew Dinkar_UPL Ckt-1 3) 400 KV ACME_Deoghar_Ftgh1(PG)- Fatehgarh Pooling(FBTL) Ckt-1 4) 765 KV Bikaner-Bhadla_2 (PG) Ckt-1 5) 765 KV Bhadla_2 (PG)- Fatehgarh_II(PG) (PBTL) Ckt-4 6) 400 KV Bikaner(PG)-Bikaner RENEW Solar(RENEW) (Renew Power) Ckt 7) 400 KV Renew SuryaRavi (RSRPL)- Bikaner RENEW Solar(RENEW) Ckt-1 8) 765 KV Bhadla_2 (PG)- Fatehgarh_II(PG) (PFTL) Ckt-1 9) 765 KV Ajmer-Bhadla_2 (PG) Ckt-1 10) 765 KV Bhiwani(PG)-Narela(PNTL) (PNTL) Ckt-1	Rajasthan	PGCIL, RDUPL, ACME, RENEW, RSRPL	14-Jan-26	14:05	i)As reported, at 14:05 hrs, 765kV Sikar2-Aligarh ckt-1 tripped on R-Y-B three phase fault. Fault occurred due to kite thread. As per PMU plot of phase current of line at Sikar2(PG), R-Y-B three phase fault which cleared within 100 msec is observed. ii)On this fault during voltage dip, significant dip in RE generation observed which further led to the overvoltage in transmission network. iii)Due to this overvoltage, 765kV Fatehgarh2-Bhadla2 ckt-1 & 4, 765kV Bikaner-Bhadla2 ckt-1, 765kV Bhadla2-Ajmer ckt-1, 765kV Bhiwani-Narela ckt, 400kV Fatehgarh1-ACME Pool ckt, 400kV Bikaner(PG)-Bikaner Renew Solar ckt, 400kV Bikaner Renew Solar-Renew Surya Ravi ckt and 220kV Bikaner2(PG)-Renew Dinkar ckt tripped tripped on overvoltage stage-1. As per PMU plot of phase voltage of line, Vph: 475kV (1.075 pu) at Bhadla2(PG) and 467kV (1.057 pu) at Bhiwani(PG) is observed. Tripping of 220kV Renew Dinkar RE station on overvoltage needs to be reviewed. iv)As per SCADA, total drop of approx. 3787 MW NR RE generation observed during the event. Out of which ~1650 MW lost due to tripping of ACME pooling station, Bikaner Renew Solar, Renew Surya Ravi and Renew Dinkar RE station and ~50 MW at SB Energy, ~66 MW at AHEJ3L, ~74 MW at AHEJ1L, ~35 MW at EDEN, ~135 MW RSUPL, ~88 MW at Avada SSTN, ~78 MW at TPGEL, ~65 MW at Kolayat, ~225 MW ABCRL, ~293 MW at NTPC Nokhra, ~125 MW at Karniser NHPC, ~82 MW at ARTPL and ~61 MW at RSEKPL affected due to suspected LVRT/HVRT non-compliance during the event.	3787	252	80	Y(d)(PG, RENEW) N(ACME)	Y(d)(PG, RENEW) N(ACME)	Y(d)(PG, RENEW) N(ACME)
12	GI-2	1) 765 KV Sikar_2(PSTL)-Aligarh(PG) (PASTL) Ckt-2	Rajasthan	PGCIL	14-Jan-26	14:09	i)As reported, at 14:09 hrs, 765kV Sikar2-Aligarh ckt-2 tripped on R-Y fault. Fault occurred due to kite thread. ii) As per PMU plot of phase current of line at Sikar2(PG), R-Y fault which cleared within 100 msec is observed. iii)On this fault during voltage dip, as per SCADA, total drop of approx. 925 MW NR RE generation observed.	925	0	80	Y(d)	Y(d)	Y(d)
13	GD-1	1)220KV Bus 1 at Pong(BB) 2)220KV Bus 2 at Pong(BB) 3)220 KV Jalandhar-Pong (BB) Ckt-1 4)220 KV Jalandhar-Pong (BB) Ckt-2 5)220 KV Bairasiul(NH)- Pong(BB) (PG) Ckt-1 6)220 KV Jessore(HP)- Pong(BB) (PG) Ckt-1 7)220 KV Pong(BB)- Dasuya(PS) (BBMB) Ckt-1 8)220 KV Pong(BB)-Dasuya(PS) (BBMB) Ckt-2 9)66 MW Pong HPS - UNIT 1 10)66 MW Pong HPS - UNIT 3 11)66 MW Pong HPS - UNIT 4 12)66 MW Pong HPS - UNIT 5 13)66 MW Pong HPS - UNIT 6	Himachal Pradesh	BBMB, PGCIL, PSTCL	15-Jan-26	17:30	i)220kV Pong (BBMB) has main & transfer bus scheme. Main bus is divided into two parts (Bus-1A & 1B) through bus sectionaliser. ii)During antecedent condition, 66 MW unit-1, 3, 4, 5 & 6 were running and generating total ~294 MW. iii)As reported, at 17:30 hrs, 220kV Bus-1A & 1B at Pong(BBMB) tripped due to bus bar protection of both 220kV Bus-1&2. (Exact reason of bus bar protection operation not received yet). iv)Due to tripping of both the 220kV Bus, all the connected 220kV lines along with 66 MW unit-1, 3, 4, 5 & 6 tripped. v)As per PMU at Jalandhar(PG), no fault in system is observed. vi)As per SCADA, loss of generation of ~294 MW occurred at Pong HEP due to tripping of 66 MW Unit-1, 3, 4, 5 & 6	294	0	NA	Y(d)(Partial) (BB) N(PS)	Y(d)(Partial) (BB) N(PS)	Y(d)(Partial) (BB) N(PS)
14	GD-1	1) 220 KV DandhariKalan(PS)-Ludhiana(PG) (PSTCL) Ckt-1 2) 220 KV DandhariKalan(PS)-Ludhiana(PG) (PSTCL) Ckt-2 3) 220 KV Jamalpur(BB)-DandhariKalanI(PS) (PSTCL) Ckt-2	Punjab	PSTCL, PGCIL	17-Jan-26	05:11	i)220kV DandhariKalanI(PS) Abdullapur(PG) has single bus scheme at 220kV level and double bus scheme at 66kV level. ii)During antecedent condition, 220 KV DandhariKalan(PS)-Ludhiana(PG) (PSTCL) Ckt-1 & 2 were carrying ~21 MW & ~19 MW respectively. iii)As reported, at 05:11 hrs, B-ph CT of HV side of 220/66kV Transformer T-1 at DandhariKalan burst. On this fault, 220 KV DandhariKalan(PS)-Ludhiana(PG) (PSTCL) D/C and 220 KV Jamalpur(BB)-DandhariKalanI(PS) (PSTCL) Ckt-2 tripped on Z-4 distance protection operation. iv)As per PMU at Ludhiana(PG), two successive B-N fault with delayed clearance of ~240msec during 2nd instance is observed. v)As per SCADA, change in demand of approx. 138 MW in Punjab control area was observed.	0	138	240	Y(d)(PG, PS) N(BB)	Y(d)(PG) N(PS, BB)	Y(d)(PG) N(PS, BB)
15	GD-1	1)400KV Bus 1 at Muzaffarnagar(UP) 2)400KV Bus 2 at Muzaffarnagar(UP) 3)400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt-1 4)400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) Ckt-1 5)400 KV Roorkee(PG)-Muzaffarnagar(UP) (PTCUL) Ckt-1 6)400 KV Muzaffarnagar-Ataur (UP) Ckt-1 7)400/220 kV 315 MVA ICT 1 at Muzaffarnagar(UP) 8)400/220 kV 315 MVA ICT 2 at Muzaffarnagar(UP) 9)400/220 kV 315 MVA ICT 3 at Muzaffarnagar(UP) 10)400/220 kV 500 MVA ICT 4 at Muzaffarnagar(UP) 11)82.4 MW Unit-4 at Alaknanda HEP 12)110 MW Unit-2 at Vishnuprayag HEP	Uttar Pradesh	UPPTCL, PGCIL, PTCUL	17-Jan-26	02:08	i)400/220 kV Muzaffarnagar(UP) S/s have double main and transfer bus arrangement at both 400kV & 220kV level. Generation of Alaknanda HEP and Vishnuprayag HEP also evacuates through Muzaffarnagar(UP) via 400kV Alaknanda-Muzaffarnagar line and 400kV Vishnuprayag-Muzaffarnagar line. ii)During antecedent condition, 400 KV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) line was under shutdown. Line loading of 400kV Alaknanda-Muzaffarnagar line was ~18 MW. Generation of Alaknanda HEP and Vishnuprayag HEP was evacuating through 400kV Alaknanda-Shrinagar(UK) D/C and 400kV Alaknanda-Muzaffarnagar line. 82.5 MW Unit-4 at Alaknanda HEP and 110 MW unit-2 at Vishnuprayag HEP was running and generating 74 MW & 50 MW respectively. iii)As reported, at 02:08 hrs, flashover occurred on 400kV B-ph bus post insulator of 400/220kV 315 MVA ICT-III at Muzaffarnagar(UP). On this fault, bus bar protection of both 400kV Bus-I & II operated, leading to tripping of all the 400kV elements at Muzaffarnagar(UP). iv)With the tripping of 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) Ckt-1, 110 MW Unit-2 at Vishnuprayag HEP (generating ~50 MW) and 82.4 MW Unit-4 at Alaknanda HEP (generating ~74 MW) tripped on overfrequency protection due to load generation mismatch. v)As per PMU at Meerut(PG), B-N phase to earth fault which cleared within 100 msec is observed. vi)As per SCADA, generation loss of approx. 50 MW at Vishnuprayag HEP and 74 MW at Alaknanda HEP is observed. vii)As reported by SLDC UP, no load loss was observed in UP control area.	124	0	80	Y(d)	N	Y(d)
16	GI-2	1) 400KV Bus 1 at Muzaffarnagar(UP) 2) 400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt-1 3) 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) Ckt-1 4) 400/220 kV 315 MVA ICT 2 at Muzaffarnagar(UP) 5) 400/220 kV 500 MVA ICT 4 at Muzaffarnagar(UP) 6) 82.4 MW Unit-4 at Alaknanda HEP	Uttar Pradesh	UPPTCL, PGCIL	17-Jan-26	05:23	i)400/220 kV Muzaffarnagar(UP) S/s have double main and transfer bus arrangement at both 400kV & 220kV level. Generation of Alaknanda HEP and Vishnuprayag HEP also evacuates through Muzaffarnagar(UP) via 400kV Alaknanda-Muzaffarnagar line and 400kV Vishnuprayag-Muzaffarnagar line. ii)During antecedent condition, only 400 KV Bus-1 along with 400 KV Meerut(PG)-Muzaffarnagar(UP) (PG) Ckt-1, 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) Ckt-1 and 400/220 kV 315 MVA ICT 2 & 500 MVA ICT-4 at Muzaffarnagar(UP) were in service. Rest of the 400kV elements were under forced outage since 02:08 hrs tripping incident. 400kV Muzaffarnagar(UP)-Vishnuprayag(JP) (UP) line was under shutdown. Line loading of 400kV Alaknanda-Muzaffarnagar line was ~26 MW. Generation of Alaknanda HEP was evacuating through 400kV Alaknanda-Shrinagar(UK) D/C and 400kV Alaknanda-Muzaffarnagar line. 82.5 MW Unit-4 at Alaknanda HEP was running and generating 84 MW. iii)As reported, at 05:23 hrs, flashover occurred on 400kV Y-ph bus post insulator of 400kV Alaknanda-Muzaffarnagar line at Muzaffarnagar(UP). On this fault, bus bar protection of both 400kV Bus-I operated, leading to tripping of all the elements connected at 400kV Bus-I at Muzaffarnagar(UP). iv)With the tripping of 400 KV Alaknanda GVK(UPC)-Muzaffarnagar (UP) Ckt-1, 82.4 MW Unit-4 at Alaknanda HEP (generating ~84 MW) tripped on over frequency due to load generation imbalance. v)As per PMU at Meerut(PG), Y-N phase to earth fault which cleared within 100 msec is observed. vi)As per SCADA, generation loss of approx. 84 MW at Alaknanda HEP is observed. vii)As reported by SLDC UP, no load loss was observed in UP control area. viii)Further, at 06:08 hrs, 400kV Bus-II at Muzaffarnagar(UP) along with 400kV Muzaffarnagar-Ataur line were charged. However, at 06:18 hrs, flashover occurred on 400kV B-ph bus post insulator of 400kV Muzaffarnagar-Ataur line at Muzaffarnagar(UP). On this fault, bus bar protection of both 400kV Bus-II operated and 400kV Bus-II along with 400kV Muzaffarnagar-Ataur line tripped. As per PMU at Meerut(PG), B-N phase to earth fault which cleared within 100 msec is observed. As per SCADA, no load / generation loss is observed. ix)Again at 08:05 hrs, as reported, 400kV Bus-II at Muzaffarnagar(UP) was charged. However, at 09:33 hrs, 400kV Y-ph bus post insulator of 400kV Alaknanda-Muzaffarnagar line at Muzaffarnagar(UP). On this fault, bus bar protection of both 400kV Bus-II operated and bus tripped. Later, 400kV Bus-I was charged at 23:49 hrs and 400kV Bus-II was charged at 09:50 hrs.	84	0	80	Y(d)	N	Y(d)
17	GI-2	1) 400kV New Wanpoh-Wagoora (PG) Ckt-2	Jammu and Kashmir	PGCIL	21-Jan-26	13:17	i)400/220kV New Wanpoh(PG) has one and half breaker scheme at 400kV level and 400/220kV Wagoora(PG) S/s has double main and transfer bus scheme at 400kV level. ii)During antecedent condition, 400kV New Wanpoh-Wagoora (PG) Ckt-2 was carrying approx. 700 MW from New Wanpoh(PG) to Wagoora(PG). 400kV New Wanpoh-Wagoora (PG) Ckt-1 was under shut down since 11:41 hrs. iii)As reported, at 13:17 hrs, 400kV New Wanpoh-Wagoora (PG) Ckt-2 tripped on Y-B phase to phase fault with fault distance of 6.66 km and fault current of Iy=~7.4 kA and Ib=~6.6 kA from New Wanpoh(PG). iv)As per PMU at New Wanpoh(PG), Y-B phase to phase fault is observed with fault clearing time of 80ms. v)As per SCADA, change in demand of approx. 200 MW is observed in J&K control area.	0	200	80	N	N	N
18	GD-1	1) 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-1 2) 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-2	Jammu and Kashmir	PGCIL, PDD JK	22-Jan-26	21:25	i)220/132kV Ziankote S/s have two bus at 220kV side i.e., main bus & reserve bus. ii)During antecedent condition, 220kV Ziankote was operating in bus split mode viz. 220kV Amargarh(INDIGRID) –Ziankote(JK) D/C (carrying ~130 MW each) was feeding Ziankote load. 220kV Wagoora(PG)-Ziankote(JK) D/C (carrying ~155 MW each) were connected at other bus and feeding Alusteng, Drass, Kargil, Khalsti and Leh S/s. iii)As reported, at 21:25 hrs, 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-1 tripped on R-N phase to earth fault with fault distance of 24km and fault current of 5kA from Wagoora(PG) end and fault distance of 14.24km and fault current of 3.289kA from Ziankote(JK) end. iv)During the same time, 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-2 also tripped sensing the same fault from Wagoora(PG) end only (exact reason and nature of protection operation yet to be shared). v)Due to tripping of 220 KV Wagoora(PG)-Ziankote(JK) (PDD JK) Ckt-1 & 2, supply to Alusteng, Drass, Kargil, Khalsti and Leh S/s failed and complete blackout occurred at 220/66kV Alusteng(JK), Drass(PG), Kargil(PG), Khalsti(PG) and Leh(PG). vi)As per PMU at New Wanpoh(PG), R-N phase to earth fault is observed with fault clearing time of 80ms. vii)As per SCADA, change in demand of approx. 245MW is observed in J&K control area.	0	245	80	N	N	N
19	GD-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	INDIGRID, PDD JK	22-Jan-26	21:41	i)220/132kV Ziankote S/s have two bus at 220kV side i.e., main bus & reserve bus. ii)During antecedent condition, 220kV Ziankote was operating in bus split mode viz. 220kV Amargarh(INDIGRID) –Ziankote(JK) D/C (carrying ~75 MW each) was feeding Ziankote load. 220kV Wagoora(PG)-Ziankote(JK) D/C and 220 KV Ziankote – Alusteng (JKPDD) D/C were already in tripped condition since 21:25hrs. iii)As reported, at 21:41 hrs, 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 & 2 tripped due to operation of master-trip relay without any other relay indication. iv)Due to tripping of 220 KV Amargarh(INDIGRID)-Ziankote(JK) (PDD JK) Ckt-1 & 2, supply to 220kV Ziankote(JK) failed and complete blackout occurred at 220/132kV Ziankote(JK). v)As per PMU at Amargarh(PG), no fault is observed in the system. vi)As per SCADA, change in demand of approx. 215MW is observed in J&K control area.	0	215	NA	Y(d)(INDIGRID) N(JK)	N	N

S.No.	Category of Grid Incident/ Disturbance	Name of Elements (Tripped/Manually opened)	Affected Area	Owner/ Agency	Outage		Event (As reported)	Loss of generation / loss of load during the Grid Disturbance		Fault Clearance time (in ms)	Compliance of Protection Protocol/Standard		
	(GI-I to GD-V)				Date	Time		Generation Loss(MW)	Load Loss (MW)		Flash Report Submission (Y/N)	DR/EL Submission (Y/N)	Detail Tripping Report Submission (Y/N)
20	GD-1	1) 400 KV Uri_1(NH)-Amargarh (INDIGRID) (INDIGRID) Ckt-1 2) 120 MW Uri-I HPS - UNIT 3 3) 60 MW Uri-II HPS - UNIT 1 4) 60 MW Uri-II HPS - UNIT 4	Jammu and Kashmir	INDIGRID, NHPC	23-Jan-26	12:43	i)400/220kV Amargarh(INDIGRID S/s has one and half breaker scheme at 400kV level. ii)During antecedent condition, 400 KV Uri_1(NH)-Amargarh (INDIGRID) (INDIGRID) Ckt-2 and 400 KV Uri_2(NH)-Wagoora(PG) (PG) Ckt were already under tripped condition. Total generation of Uri-I&II(NH) was evacuating through 400 KV Uri_1(NH)-Amargarh (INDIGRID) (INDIGRID) Ckt-1 only. 120 MW Uri-I HPS - UNIT 3 and 60 MW Uri-II HPS - UNIT 1 & 4 were only in running condition and were generating approx. 9 MW, 40 MW and 35 MW respectively (as reported by NHPC). iii)As reported, at 12:43 hrs, 400 KV Uri_1(NH)-Amargarh (INDIGRID) (INDIGRID) Ckt-1 tripped on R-N phase to earth fault with fault distance of 12.5km and fault current of ~4.2kA from Amargarh end. iv)As per DR, fault current was ~4.55kA from Amargarh and ~1.42kA from Uri-I end. Fault was sensed in zone-1 from both the ends and fault cleared within ~50ms. v)Due to tripping of 400 KV Uri_1(NH)-Amargarh (INDIGRID) (INDIGRID) Ckt-1, 120 MW Uri-I HPS - UNIT 3 and 60 MW Uri-II HPS - UNIT 1 & 4 tripped due to loss of evacuation path and complete blackout occurred at 400kV Uri-I & II (NHPC). vi)As per PMU at Amargarh(PG), R-N phase to earth fault with successful A/R followed by another R-N phase to earth fault within reclaim time is observed with fault clearing time of 80ms. vii)As reported by NHPC, generation of approx. 84 MW [9 MW at Uri-I(NH) and 75 MW at Uri-II(NH)] is observed.	84	0	80	Y(NHPC) N(INDIGRID)	Y(NHPC) N(INDIGRID)	Y(NHPC) N(INDIGRID)
21	GD-1	1) 400 KV Amargarh (INDIGRID)-Samba(PG) (INDIGRID) Ckt-1 2) 400 KV Amargarh (INDIGRID)-Samba(PG) (INDIGRID) Ckt-2 3) 120 MW Unit-1 at Uri-I HEP(NHPC) 4) 120 MW Unit-3 at Uri-I HEP(NHPC) 5) 60 MW Unit-3 at Uri-II HEP(NHPC)	Jammu and Kashmir	INDIGRID, PGCIL, NHPC	24-Jan-26	15:22	i)During antecedent condition, Kashmir valley and Leh network (220kV Zainkote, Alusteng, Pampore, Delina, Kishenganga, Drass, Kargil, khalasti and 220kV Leh) were being fed from 400kV Uri-I HEP, 400kV Uri-II HEP through 400kV Uri-I-Amargarh ckt-1 and 400kV Sambha-Amargarh D/C. 400 kV Uri-2 (NH) – Wagoora (PG) (PG) Ckt-1, 400kV Uri-I-Amargarh ckt-2, 400 kV Kishenpur – New Wanpoh (PG) Ckt-1, 3 & 4, 400 kV Baglihar (JK) – Kishenpur (PG) Ckt-3 and 400 kV New Wanpoh (PG) – Baglihar (JK) Ckt-1 were already under tripped condition. The aforementioned lines tripped on faults during heavy snowfall. ii)As reported, at 15:22 hrs, charging attempt of 400kV Uri-I-Amargarh ckt-2 was taken from Amargarh end. At the same time, B-N fault occurred on the line. During patrolling, it was found that OPGW fell on B-ph conductor. On this fault, SOTF protection at Amargarh end didn't operate. iii)As fault didn't clear from Amargarh end, 400kV Sambha-Amargarh D/C tripped from Sambha(PG) end. As per DR of Sambha(PG) end, B-N fault in Z-2 with fault current of ~1.37kA is observed in each circuit. iv)As per PMU at Kishenpur(PG) and DR files of Sambha(PG), B-N fault with delayed clearance of ~560 msec is observed. v)As per SCADA, change in demand of ~1180 MW is observed in J&K control area out of which ~1135 MW change in load is observed in Kashmir Valley Region. vi)400 kV Samba–Amargarh D/C were restored by 16:22 hrs and 200 MW load was picked up to manage the load of the Srinagar. Further, 400 kV Amargarh-Wagoora D/C, 400 kV Wagoora–New Wanpoh D/C and ICTs at Wagoora(PG) charged. Subsequently load of Kashmir Valley and Leh was restored by charging 220 kV Ziankote-Alustang-Drass-Kargil-Khalsti- Leh.	297	1180	560	Y(d)(PG,INDIGRID) N(NHPC)	Y(d)(PG) N(INDIGRID, NHPC)	Y(d)(PG) N(INDIGRID, NHPC)
22	GD-1	1)220kV Bawana-Rohini-I line-I 2)220kV Bawana-Rohini-I line-II 3)400/220kV 315 MVA ICT-1 at Bawana(DTL) 4)400/220kV 315 MVA ICT-2 at Bawana(DTL) 5)400/220kV 315 MVA ICT-4 at Bawana(DTL) 6)400/220kV 315 MVA ICT-6 at Bawana(DTL) 7)220kV Bawana-Rohini-II line-II 8)220kV Bawana-Shalimarbagh line-I 9)220kV Bawana-Shalimarbagh line-II 10)220/33kV 100 MVA ICT-1 at Shalimarbagh(DTL) 11)220/66kV 160 MVA ICT-1 at Rohini-II(DTL) 12)220/66kV 160 MVA ICT-2 at Rohini-II(DTL)	Delhi	DTL	27-Jan-26	10:13	i)400kV Bawana(DTL) S/s has one and half breaker bus scheme at 400kV level and double main & transfer bus scheme at 220kV level. ii)During antecedent condition, loading on 400/220kV 315 MVA ICT-1, 2, 3, 4, 5 & 6 at Bawana(DTL) were 154 MW, 155 MW, 147 MW, 150 MW, 130 MW & 130 MW respectively. iii)As reported, at 10:13 hrs, R-N fault occurred on 220kV Bawana-Rohini-I line-I & II due to snapping of OPGW. On this fault distance protection at both the ends operated and line tripped however R-ph pole at Bawana end of Rohini-I line-I (connected at 220kV bus-1) got stuck. This further led to LBB operation however due to error in isolator status of Rohini-I line-I feeder, desired operation of LBB protection didn't occur. iv)As the fault was persisting, oil leakage in R-ph CT of 220kV Bawana-Rohini-I line-I also started and created bus fault. This led to operation of 220kV bus bar protection resulted into tripping of 220kV Bawana-Shalimarbagh line-I & II and 220kV Bawana-Rohini-II line-II. v)At the same time, 400/220kV 315 MVA ICT-1, 2, 4 & 6 at Bawana(DTL) also tripped on overcurrent protection operation. 220/33kV 100 MVA ICT-1 at Shalimarbagh(DTL) and 220/66kV 160 MVA ICT-1 & 2 at Rohini-II(DTL) also tripped due to overcurrent earth fault protection. vi)As per PMU at Bawana(DTL), R-N phase to earth fault with delayed clearance of ~1480 msec is observed. vii)As per SCADA, change in demand of ~560MW is observed in Delhi control area and as reported by SLDC-Delhi, load of ~846 MW affected in Delhi control area during the event.	0	846	1480	Y(d)	N	N

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

Time Period: 1st January 2026 - 31st January 2026

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	ACME SIKAR SOLAR PRIVATE LIMITED(ASSPL)	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	DR, EL & Tripping report not submitted
2	ACME SOLAR HOLDINGS LIMITED	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
3	ACME_HEERGARH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
4	AD HYDRO	2	1	**50**	1	1	**100**	1	1	**100**	1	1	**100**	DR, EL & Tripping report not submitted
5	ADANI GREEN ENERGY TWENTY FOUR LIMITED	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	DR, EL & Tripping report not submitted
6	AHEJ3L	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
7	AMPIN ENERGY GREEN EIGHT PRIVATE LIMITED (AEG8PL)	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	DR, EL & Tripping report not submitted
8	AURAIYA-NT	9	9	**100**	9	0	**100**	9	0	**100**	9	0	**100**	DR, EL & Tripping report not submitted
9	BAIRASUIL-NH	3	0	**0**	0	1	**0**	0	1	**0**	0	0	**0**	Details received
10	BBMB	65	28	**43**	28	19	**61**	28	15	**56**	28	2	**44**	DR, EL & Tripping report not submitted
11	BUDHIL	2	2	**100**	2	0	**100**	2	0	**100**	2	0	**100**	DR, EL & Tripping report not submitted
12	CHAMERA-I-NH	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
13	CHAMERA-III-NH	3	1	**33**	1	2	**100**	1	2	**100**	1	1	**50**	DR, EL & Tripping report not submitted
14	CPCC1	79	0	**0**	1	27	**2**	0	28	**0**	29	0	**37**	DR, EL & Tripping report not submitted
15	CPCC2	70	46	**66**	49	6	**0**	45	7	**0**	45	3	**67**	DR, EL & Tripping report not submitted
16	CPCC3	77	2	**3**	2	17	**3**	3	4	**4**	2	5	**3**	DR, EL & Tripping report not submitted
17	DADRI-NT	3	3	**100**	3	0	**100**	3	0	**100**	3	0	**100**	DR, EL & Tripping report not submitted
18	DULHASTI-NH	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
19	EDEN (ERCPL)	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
20	FBTL	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
21	INDIGRID	6	6	**100**	6	0	**100**	6	0	**100**	6	0	**100**	DR, EL & Tripping report not submitted
22	KARINSAR SOLAR PLANT NHPC LTD(KSP_NHPC)	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
23	KHIDRAT RENEWABLE ENERGY PRIVATE LIMITED(KREPL)	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted

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

Time Period: 1st January 2026 - 31st January 2026

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		%	
24	NJPC	3	0	**0**	0	1	**0**	0	1	**0**	0	1	**0**	Details received
25	PARBATI-II-NH	3	1	**33**	1	1	**50**	1	1	**50**	1	0	**33**	DR, EL & Tripping report not submitted
26	RAILWAYS	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
27	RAMPUR	3	0	**0**	0	1	**0**	0	1	**0**	0	1	**0**	Details received
28	RAPPA	10	0	**0**	10	0	**100**	9	0	**90**	9	0	**90**	DR, EL & Tripping report not submitted
29	RAPPB	10	10	**100**	8	0	**80**	8	0	**80**	10	0	**100**	DR, EL & Tripping report not submitted
30	RAPPD	1	1	**100**	1	0	**100**	1	0	**100**	1	0	**100**	DR, EL & Tripping report not submitted
31	RENEW	3	0	**0**	0	1	**0**	0	1	**0**	0	1	**0**	Details received
32	RENEW DINKAR URJA PRIVATE LIMITED (RDUPL)	2	1	**50**	0	1	**0**	0	1	**0**	1	0	**50**	DR, EL & Tripping report not submitted
33	RENEW SURYA AAYAN PRIVATE LIMITED	3	0	**0**	0	0	**0**	0	0	**0**	0	1	**0**	Details received
34	RENEW SURYA JYOTI PRIVATE LIMITED(RSJPL)	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
35	RENEW SURYA VIHAAN PRIVATE LIMITED	1	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
36	RSDCL	4	4	**100**	4	0	**100**	4	0	**100**	4	0	**100**	DR, EL & Tripping report not submitted
37	SALAL-NH	2	0	**0**	0	2	**NA**	0	0	**0**	0	0	**0**	Details received
38	SEWA-2-NH	8	1	**13**	1	0	**13**	1	0	**13**	1	0	**13**	DR, EL & Tripping report not submitted
39	SHREE CEMENT	3	1	**33**	3	0	**100**	3	0	**100**	3	0	**100**	DR, EL & Tripping report not submitted
40	SINGOLI	5	5	**100**	5	0	**100**	5	0	**100**	5	0	**100**	DR, EL & Tripping report not submitted
41	SINGRAULI-NT	1	0	**0**	0	0	**0**	0	0	**0**	1	0	**100**	DR, EL & Tripping report not submitted
42	SJVN GREEN ENERGY LIMITED	4	4	**100**	4	0	**100**	4	0	**100**	4	0	**100**	DR, EL & Tripping report not submitted
43	SLDC-DV	6	0	**0**	5	0	**83**	5	0	**83**	5	0	**83**	DR, EL & Tripping report not submitted
44	SLDC-HP	21	3	**14**	5	0	**24**	18	0	**86**	5	0	**24**	DR, EL & Tripping report not submitted
45	SLDC-HR	17	10	**59**	10	3	**71**	10	3	**71**	10	0	**59**	DR, EL & Tripping report not submitted
46	SLDC-JK	26	26	**100**	26	0	**100**	26	0	**100**	26	0	**100**	DR, EL & Tripping report not submitted
47	SLDC-PS	36	16	**44**	32	0	**89**	32	0	**89**	33	0	**92**	DR, EL & Tripping report not submitted
48	SLDC-RS	111	2	**2**	21	2	**19**	21	2	**19**	37	1	**34**	DR, EL & Tripping report not submitted
49	SLDC-UK	14	0	**0**	4	0	**29**	4	0	**29**	1	0	**7**	DR, EL & Tripping report not submitted

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

Time Period: 1st January 2026 - 31st January 2026

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		%	
50	SLDC-UP	158	26	**16**	32	22	**24**	30	52	**28**	39	5	**25**	DR, EL & Tripping report not submitted
51	STERLITE	16	7	**44**	7	7	**78**	7	7	**78**	9	5	**82**	DR, EL & Tripping report not submitted
52	TANAKPUR-NH	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
53	TANDA-NT	2	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
54	TEHRI	8	0	**0**	0	7	**0**	0	0	**0**	1	0	**13**	DR, EL & Tripping report not submitted
55	TPGEL_SL	1	0	**0**	0	0	**0**	0	0	**0**	1	0	**100**	DR, EL & Tripping report not submitted
56	URI-I-NH	4	0	**0**	0	0	**0**	0	0	**0**	0	0	**0**	Details received
57	URI-II-NH	4	3	**75**	3	0	**75**	3	0	**75**	3	0	**75**	DR, EL & Tripping report not submitted
Total in NR Region		**829**	**233**	**28**	**298**	**121**	**42**	**304**	**127**	**43**	**350**	**27**	**44**	

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

FRC computation and data submission status					
S. No	Control Area	Event Date			
		14-01-2026_1338	14-01-2026_1405	14-01-2026_1409	30-01-2026
1	Punjab	Received	Received	Received	Received
2	Haryana	Received	Received	Received	Received
3	Rajasthan	Not Received	Not Received	Not Received	Not Received
4	Delhi	Received	Received	Received	Received
5	Uttar Pradesh	Received	Received	Received	Received
6	Uttarakhand	Not Received	Not Received	Not Received	Not Received
7	Chandigarh*	NA	NA	NA	NA
8	Himachal Pradesh	Not Received	Not Received	Not Received	Not Received
9	J&K(UT) and Ladakh(UT)	Not Received	Not Received	Not Received	Not Received
10	Dadri -1 (TH)	Received	Received	Received	Received
11	Dadri -2 (TH)	Received	Received	Received	Received
12	Jhajjar (TH)	Received	Received	Received	Received
13	Rihand-1 (TH)	Received	Received	Received	Received
14	Rihand-2 (TH)	Received	Received	Received	Received
15	Rihand-3 (TH)	Received	Received	Received	Received
16	Shree Cement (TH)	Not Received	Not Received	Not Received	Not Received
17	Singrauli (TH)	Not Received	Not Received	Not Received	Not Received
18	Tanda-2 (TH)	Not Received	Not Received	Not Received	Received
19	Unchahar-I (TH)	Received	Received	Received	Received
20	Unchahar-II (TH)	Received	Received	Received	Received
21	Unchahar-III (TH)	Received	Received	Received	Received
22	Unchahar-IV (TH)	Received	Received	Received	Received
23	Anta (G)	Not Received	Not Received	Not Received	Not Received
24	Auraiya (G)	Not Received	Not Received	Not Received	Not Received
25	Dadri (G)	Not Received	Not Received	Not Received	Not Received
26	AD Hydro (H)	Received	Received	Received	Received
27	Bairasiul (H)	Received	Received	Received	Received
28	Bhakra (H)	Not Received	Not Received	Not Received	Not Received
29	Budhil (H)	Not Received	Not Received	Not Received	Not Received
30	Chamera-1 (H)	Received	Received	Received	Received
31	Chamera-2 (H)	Received	Received	Received	Received
32	Chamera-3 (H)	Received	Received	Received	Received
33	Dehar (H)	Not Received	Not Received	Not Received	Not Received
34	Dhauliganga (H)	Received	Received	Received	Received
35	Dulhasti (H)	Received	Received	Received	Received
36	Karcham (H)	Received	Received	Received	Received
37	Kishenganga	Received	Received	Received	Received
38	Koldam (H)	Received	Received	Received	Not Received
39	Koteshwar (H)	Received	Received	Received	Not Received
40	Malana-2 (H)	NA	NA	NA	NA
41	Nathpa Jhakri (H)	Received	Received	Received	Not Received
42	Parbati-2 (H)	Received	Received	Received	Received
43	Parbati-3 (H)	Received	Received	Received	Received
44	Pong (H)	Not Received	Not Received	Not Received	Not Received
45	Rampur (H)	Received	Received	Received	Received
46	Sainj (H)	Not Received	Not Received	Not Received	Not Received
47	Salal (H)	Received	Received	Received	Received
48	Sewa-II (H)	Received	Received	Received	Received
49	Singoli Bhatwari (H)	Received	Received	Received	Not Received
50	Sorang (H)	Not Received	Not Received	Not Received	Not Received
51	Tanakpur (H)	Received	Received	Received	Received
52	Tehri (H)	Received	Received	Received	Received
53	Uri-1 (H)	Received	Received	Received	Received
54	Uri-2 (H)	Not Received	Not Received	Not Received	Not Received

S. No	Control Area	Frequency response Performance			
		Event Date			
		14-01-2026_1338	14-01-2026_1405	14-01-2026_1409	30-01-2026
1	**Punjab**	0.88	3.43	2.64	0.91
2	**Haryana**	1.31	0.36	0.64	0.13
3	**Rajasthan**	2.76	3.64	2.76	0.87
4	**Delhi**	0.04	-0.29	2.52	2.02
5	**Uttar Pradesh**	0.32	0.53	0.17	0.02
6	**Uttarakhand**	-0.10	-0.28	0.23	-2.05
7	**Chandigarh***	NA	NA	NA	NA
8	**Himachal Pradesh**	-0.21	-0.48	0.84	1.26
9	**J&K(UT) and Ladakh(UT)**	2.39	0.39	1.08	2.03
10	**Dadri -1 (TH)**	2.03	3.76	0.49	0.90
11	**Dadri -2 (TH)**	4.77	7.52	5.75	1.18
12	**Jhajjar (TH)**	6.65	5.87	3.15	0.59
13	**Rihand-1 (TH)**	1.05	6.73	4.80	-0.89
14	**Rihand-2 (TH)**	2.27	6.36	-1.42	2.09
15	**Rihand-3 (TH)**	4.29	5.40	1.99	-0.38
16	**Shree Cement (TH)**	-4.89	-0.81	3.37	-0.25
17	**Singrauli (TH)**	1.13	2.12	2.48	0.20
18	**Tanda-2 (TH)**	1.53	2.32	-4.21	-0.91
19	**Unchahar-I (TH)**	8.51	5.27	1.08	4.08
20	**Unchahar-II (TH)**	5.15	3.74	4.58	4.64
21	**Unchahar-III (TH)**	6.06	7.39	0.24	1.04
22	**Unchahar-IV (TH)**	5.15	5.62	2.92	5.43
23	**Anta (G)**	No Gen	No Gen	No Gen	No Gen
24	**Auraiya (G)**	No Gen	No Gen	No Gen	No Gen
25	**Dadri (G)**	No Gen	No Gen	No Gen	No Gen
26	**AD Hydro (H)**	No Gen	No Gen	No Gen	No Gen
27	**Bairasiul (H)**	No Gen	No Gen	No Gen	No Gen
28	**Bhakra (H)**	-0.12	0.00	-0.22	-0.05
29	**Budhil (H)**	No Gen	No Gen	No Gen	No Gen
30	**Chamera-1 (H)**	No Gen	No Gen	No Gen	No Gen
31	**Chamera-2 (H)**	No Gen	No Gen	No Gen	No Gen
32	**Chamera-3 (H)**	No Gen	No Gen	No Gen	No Gen
33	**Dehar (H)**	No Gen	No Gen	No Gen	0.15
34	**Dhauliganga (H)**	No Gen	No Gen	No Gen	No Gen
35	**Dulhasti (H)**	No Gen	No Gen	No Gen	No Gen
36	**Karcham (H)**	No Gen	No Gen	No Gen	No Gen
37	**Kishenganga**	No Gen	No Gen	No Gen	0.22
38	**Koldam (H)**	No Gen	No Gen	No Gen	No Gen
39	**Koteshwar (H)**	5.08	6.46	5.56	12.50
40	**Malana-2 (H)**	NA	NA	NA	NA
41	**Nathpa Jhakri (H)**	No Gen	No Gen	No Gen	No Gen
42	**Parbati-2 (H)**	No Gen	No Gen	No Gen	No Gen
43	**Parbati-3 (H)**	No Gen	No Gen	No Gen	No Gen
44	**Pong (H)**	0.76	-0.58	0.93	0.57
45	**Rampur (H)**	No Gen	No Gen	No Gen	No Gen
46	**Sainj (H)**	No Gen	No Gen	No Gen	No Gen
47	**Salal (H)**	0.10	-0.08	-0.09	-0.25
48	**Sewa-II (H)**	No Gen	No Gen	No Gen	No Gen
49	**Singoli Bhatwari (H)**	No Gen	No Gen	No Gen	No Gen
50	**Sorang (H)**	0.02	-0.01	0.37	-0.04
51	**Tanakpur (H)**	-0.82	0.17	0.67	1.58
52	**Tehri (H)**	No Gen	No Gen	No Gen	No Gen
53	**Uri-1 (H)**	-0.18	1.08	1.05	0.00
54	**Uri-2 (H)**	0.00	0.00	0.00	0.00

	FRP>=1
	0.85<=FRP<1
	0.75<=FRP<0.85
	0.5<=FRP<0.75
	FRP<0.5

S.No.	Power Station	Sector	Ownership	Fuel Type	Black Start Source	Capacity of Black Start Source	Date of last mock drill before FY 25-26	Date of mock drill during FY 25-26	Remarks
1	Bhakra (L)	Central	BBMB	Hydro	DG Set		08-11-2024		
2	Bhakra (**R**)	Central	BBMB	Hydro	DG Set	500kVA	08-11-2024		
3	Pong	Central	BBMB	Hydro	DG Set	500kVA, 380kVA	09.11.2024		
4	**Bairasuil**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2X1010 KVA**	**14-12-2024**	**30-01-2026**	
5	**Chamera HPS-I**	**Central**	**NHPC**	**Hydro**	**DG Set**	**1X1010 KVA & 2x1000 KVA**	**12-12-2024**	**30-01-2026**	
6	**Chamera HPS-II**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x1250 KVA**	**02-12-2022**	**06-02-2026**	
7	Chamera HPS-III	Central	NHPC	Hydro	DG Set	2x725 KVA	04-12-2017		Evacuating line was not available
8	**Dhauliganga**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x625 KVA**	**13-12-2024**	**05-02-2026**	
9	**Kishanganga**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x1010 KVA**	**09-11-2024**	**31-01-2026**	
10	**Parbati-2**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x1000 KVA**	**22-12-2020**	**26-05-2025**	
11	**Parbati-3**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x1010 KVA**	**-**	**17-05-2025**	
12	Salal Stage-I	Central	NHPC	Hydro	DG Set	2X875 KVA	16-12-2024		
13	Salal Stage-II	Central	NHPC	Hydro	DG Set	3X1020 KVA	16-12-2024		
14	**Sewa-II**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x500 KVA**	**-**	**16-05-2025. 30-01-2026**	
15	**Tanakpur HPS**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2X625 KVA & 1X312.5 KVA**	**19-12-2024**	**28-01-2026**	
16	**URI-I**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x1000 KVA**	**20-12-2016**	**24-01-2026**	
17	**URI-II**	**Central**	**NHPC**	**Hydro**	**DG Set**	**2x1010 KVA**	**20-12-2016**	**26-01-2026**	Readiness from J&K for availbility of load not received
18	Anta GPS	Central	NTPC	Gas	DG Set	2.968 MW	29-02-2024		
19	Auraiya GPS	Central	NTPC	Gas	DG Set	2900 kVA	Not conducted		Because of railway line connection
20	Dadri GPS	Central	NTPC	Gas	DG Set	2.4 MW	15-12-2023		
21	Faridabad GPS	Central	NTPC	Gas	DG Set	3.3 MW / 4.125 MVA	25-11-2024		
22	Koldam HEP	Central	NTPC	Hydro	DG Set	2X1250 KVA	14-03-2024		
23	Nathpa-Jhakri	Central	SJVNL	Hydro	DG Set	2*750kVA	08-12-2024		
24	Rampur	Central	SJVNL	Hydro	DG Set	2*1010kVA	08-12-2024		
25	**Tehri**	**Central**	**THDC**	**Hydro**	**DG Set**	**2*1000kVA**	**13-11-2024**	**11-11-2025**	
26	Koteshwar	Central	THDC	Hydro	DG Set	2*1010kVA	27-11-2024		
27	AD Hydro	IPP	AD Hydro Power Ltd.	Hydro	DG Set	2*750kVA	27-01-2023		
28	Malana-II	IPP	Everest Power Company Ltd.	Hydro	DG Set	725kVA	27-01-2023		
29	Budhil	IPP	Greenco	Hydro	DG Set	2*800kVA	Not conducted		
30	Alaknanda IPP	IPP	GVK (UP)	Hydro			Not conducted		Due to unavailability of load. Unit is at 400kV level.
31	I.P. Gas Turbine (IPGCL G.T.)	State	IPPGCL/Delhi Gencos	Gas	DG Set	500kVA	10-04-2024		
32	Vishnu Prayag IPP	IPP	Jaiprakash power Venture Ltd. (UP)	Hydro			Not conducted		Due to unavailability of load. Unit is at 400kV level.
33	Baghlihar-I	State	Jammu & Kashmir	Hydro			Not conducted		No update received from SLDC-J&K
34	Baghlihar-II	State	Jammu & Kashmir	Hydro			Not conducted		No update received from SLDC-J&K
35	Lower Jhelum	State	Jammu & Kashmir	Hydro			20-12-2016		No update received from SLDC-J&K
36	Upper Sindh	State	Jammu & Kashmir	Hydro			20-12-2016		No update received from SLDC-J&K
37	Karcham Wangtoo	IPP	JSW	Hydro	DG Set	2*1500kVA	29-12-2021		Scheduled in 2024-25, however couldn't performed due to SCADA upgradation work at Station.
38	Baspa	IPP	JSW	Hydro	DG Set	2*625kVA	29-12-2021		Scheduled in 2024-25, however couldn't performed due to SCADA upgradation work at Station.
39	Singoli Bhatwari	IPP	L&T	Hydro	DG set	2*500kVA	Not conducted		Due to non availability of load
40	**Ranjit Sagar (Thein Dam)**	**State**	**Punjab**	**Hydro**	**DG Set**	**2*500kVA**	**07-05-2024**	**01-12-2025**	
41	**Ramgarh GPS**	**State**	**Rajasthan**	**Gas**	**DG Set**	**625kVA**	**-**	**11-05-2025**	
42	Mahi Bajaj Sagar I	State	Rajasthan	Hydro	DG Set	200kVA	20-03-2025		
43	Mahi Bajaj Sagar II	State	Rajasthan	Hydro	DG Set	2*200kVA	21-03-2025		
44	Rana Pratap Sagar(RPS)	State	Rajasthan	Hydro	DG Set	250kVA	16-01-2011		All 4 Units got submerged in 2019. Units were restored in phases. Last unit revived in March 2025. Remainig 3 units revived by 2022 however, AVR systme is not there. Mock testing of 4th unit may be performed during 2025-26.
45	**Rihand (H) or Pipri**	**State**	**Uttar Pradesh**	**Hydro**	**DG Set**	**2*320kVA**	**13-02-2025**	**02-06-2025**	
46	**Obra(H)**	**State**	**Uttar Pradesh**	**Hydro**	**DG Set**	**1*320kVA & 1*250kVA**	**16-02-2024**	**02-06-2025**	
47	Khara HEP	State	Uttar Pradesh	Hydro			Not conducted		Due to unavailability of nearby load
48	Matatila	State	Uttar Pradesh	Hydro	DG Set	2*190kVA	Not conducted		
49	Khodri	State	Uttrakhand	Hydro	DG Set	2*500kVA	Not conducted		Due to issue in governing system(old units, R&M work is proposed).
50	Chibro	State	Uttrakhand	Hydro	DG Set	2*500kVA	Not conducted		