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Maharashtra State Load Dispatch Center

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Navi Mumbai Pin – 400 708.

Ref. No. CE/MSLDC/OP/OCC/

No 01411

Date: **24 JUL 2025**

To,

Members of the OCC as per mailing list.

Sub: Minutes of the 9th Operation Co-ordination Committee (OCC) meeting held on 16.05.2025 at 11:00 hrs. through physical & video conferencing mode at MSLDC Kalwa.

Ref.: 1. 8th OCC MOM Circulated vide CE/MSLDC/Op/OCC/2405 dtd 21.11.2024
2. 9th OCC Agenda Circulated vide CE/MSLDC/Op/OCC/957 dtd 14.05.2025

Dear Sir/Madam,

In reference to the above subject, the 9th Operation Co-ordination Committee (OCC) meeting was held on 16.05.2025 at 11:00 hrs. through physical & video conferencing mode at MSLDC Kalwa. The Minutes of the said meeting are attached herewith.

Encl: As above.

Yours sincerely,

(Girish Pantoji)

**Superintending Engineer (Ops),
MSLDC (Member Convener of OCC)**

Copy s.w.rs. to:

The Director (Operations), MSETCL, Prakashganga, Mumbai.

The Executive Director, MSLDC, Airoli.

Sub: Minutes of the 9th Operation Co-ordination Committee (OCC) meeting held on 16.05.2025 at 11:00 hrs. at MSLDC Kalwa.

OCC members as per list shown below:

Sr. No	Name of Organization	Name of Nominee	Designation	Committee constituent	Contact No.	E-mail ID
1	SLDC	Shri Shashank Jewalikar	ED, MSLDC	Chairperson	022-27301931	edmsebholding@gmail.com
2 a	MSETCL	Shri Mahendra Walke	CE, Tr O&M MSETCL	Invitee	9769213955	ceoandm@mahatransco.in
2 b	MSETCL	Shri Jayant Kulkarni	CE, ACI &P MSETCL	Invitee	7030964900	ceaci@mahatransco.in
3	SLDC	Shri Girish Pantoji	CE (I/c), MSLDC	Member	9822414154	cesldc@mahasldc.in
4	STU/ MSETCL	Shri. Peeyush Sharma	CE, STU	Member	9769213865	cestu@mahatransco.in
5	MSEDCL	Shri Pravin Annachatre	S.E (LM), MSEDCL	Member	9833980238	selmkalwa@gmail.com
6	MSPGCL	Shri. Anil Kathoye	CE, (Works) MSPGCL	Member	022-6952200 69853535 Ext. 3519	cegw@mahagenco.in
7	TPCL	Shri Kiran Desale	Head Trans. TPCL	Member	9223553342	desalekv@tatapower.com
		Shri Milind Gole	Head (PSCC), TPCL	Member	9820868264	goleml@tatapower.com ddveer@tatapower.com
8	AEML	Shri Mahesh Andhari	Head O&M AEML Transmission	Member	9323549996	mahesh.andhari@adani.com
9	AEML	Shri Ranjeet Sawardekar	Assistant VP, AEML Distribution	Member	9324818009	ranjeet.sawardekar@adani.com
10	ATIL	Shri Abhishek Kukreja	Associate Manager-O&M	Member	6359956492	Abhishek.Kukreja@adani.com
11	MEGPTCL	Shri Rakesh Bhalerao	Associate Manager-Business Development	Member	7045953823	rakesh.bhalerao@adani.com
12	JPTL	Shri Vaibhav D Sansare	Associate Manager-Transmission	Member	9552577122	Vaibhav.sansare@jsw.in
13	APTCL	Shri Rajiv Nimje	AGM, APTCL	Member	9422308883	Rajiv.nimje@rattanindia.com
14	VIPL	Shri Pankaj Ranteke	Dy.GM	Member	8975122333	pnkjramteke@gmail.com
15	JSWEL	Shri Harshal Joshi	Manager (OSTS Dept, JSW)	Member	9552577131	harshal.joshi@jsw.in

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16	ADTPS	Shri Vijay Dalli	VP-Operations ADTPS	Member	9325119741	Vijay.Dali@adani.com
17	RIPL	Shri Amit Panchalwar	DGM, RIPL	Member	9503229333	amit.panchalwar@rattanindia.com
18	APML, Tiroda	Shri Manoj Taunk	Associate VP- Protection & Metering	Member	9099005517	Manoj.Taunk@adani.com
		Shri Akshay Mathur		Member	9870663062	Akkshayv.Mathur@adani.com
19	SWPGL Wardha.	Shri Dinesh B Mewade	DGM, SWPGL	Member	7387007010	Dinesh.m@saiwardha.com
		Shri Prabhjit Singh Samra	GM (BDG – Operations), SWPGL	Member	9177025554	bdg.operations@saiwardha.com
20	M/S. Lalpur wind Energy	Mr. Mahesh Sakure		Member (Wind)	9730300469	mahesh.sakure@ilfsindia.com srimay.pattnaik@windworld.com
21	JBM Solar Energy Maharash tra Pvt. Ltd.	Mr Sandeep Mittal		Member (Solar)	8826664545	sandeep.mittal@jbmgroupp.com
22	SLDC	Shri Girish Pantoji	SE(OP), MSLDC	Member- Convener	9822414154	seop@mahasldc.in

Minutes of the 9th Operation Co-ordination Committee (OCC) meeting held on 16th May 2025 at 11:00 Hrs. through physical & video conferencing mode.

The 9th meeting of the OCC, was convened on 16.05.2025 at 11:00 hrs. through physical and video conferencing mode. The meeting was chaired by Executive Director, MSLDC.

The Executive Director (MSLDC) & the Chairman of the OCC, welcomed all the members.

The list of participants in the meeting is attached herewith as ANNEXURE – A.

The detailed Point-wise discussions held during the meeting are as follows:

Item No. 1:

Confirmation of Minutes of Meeting of the 7th OCC Meeting held on 14.02.2024:

- Confirmation of the minutes of the 8th OCC held on 21.10.2024 through hybrid mode and circulated vide CE/MSLDC/TECH/Op/OCC/2405 Dated. 21.11.2024 to all the members and requested to offer any comments.

The OCC affirms the minutes of the 8th OCC meeting, since no comments were received.

- **Action to be taken based on decisions of previous OCCM. SLDC circulated actions to be taken based on discussion of previous OCCM. The same has been attached as *Annexure-1*.**

Item No. 2: Presentation on Maharashtra system Annual Grid performance for CY 2024.

The Executive Engineer (REMC Operation - MSLDC) presented the Maharashtra System Grid performance based on the Annual report of MSLDC for CY 2024. (The presentation is attached as **Annexure-2**.)

With due deliberations, all OCC members took note of the same.

Item No. 3 MSLDC Agenda:

3.1 Procedure to consider ‘Deemed availability of grid element under the act of God or under the force majeure during the calculation of Transmission Availability’

As per the clause 6 (i) of Annexure II of MERC MYT Regulations, 2019, which is reproduced below:

6. Outage time of transmission elements for the following contingencies shall be excluded from the total time of the element under period of consideration:

- i. Outage of elements due to force majeure events beyond the control of the Transmission Licensee. However, onus of satisfying the MSLDC that element outage was due to aforesaid events and not due to design failure shall rest with the Transmission Licensee. A reasonable restoration time for the element shall be considered

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and any additional time taken by the Transmission Licensee for restoration of the element beyond the reasonable time shall be treated as outage time attributable to the Transmission Licensee. Circuits restored through ERS (Emergency Restoration System) shall be considered as available.

The objective of this procedure is to clarify the events to consider any tripping/outage of the grid element as deemed available under the act of God or under the force majeure while calculating Transmission system availability by Transmission Licensee / issuing the Transmission system availability certificate at MSLDC.

The procedure for the same is being formulated in accordance with the Regulation No. 28.2 (f) of the MEGC, 2020.

The draft procedure formulated by SLDC is shared for comments from all the stakeholders. Comments are received from stakeholders.

- **The Chairman of OCC & ED, SLDC informed to add clarification about the intimation period as below:**
Intimation/Notice to be issued by transmission licensee after the Force Majeure Event to MSLDC within 3 days of the event date, along with event details and preliminary documents. The Details of submission to be given by transmission licensee within 7 days of the event date, to MSLDC along with supporting documents.
- **Thus, the procedure is recommended by OCC and to be put-up to GCC for ratification.**

With due deliberations, all OCC members took note of the same.

3.2 Procedure to recover ‘Increment in Generation (VSE)’ charges while availing outages proposed for Third party ORC work in Maharashtra Grid:

During major outages for ORC (Outright Contract) works in Mumbai/MMR & Pune area, due to any system constraints, the costlier Mumbai embedded generation, Nasik generation & Koyna hydro is required to be picked up as per requirement to maintain system ‘N-1’ compliant and to resolve the system constraints. This causes additional burden on the DSM pool. In this respect, MSLDC enquired with such stake holders whether such additional burden needs to be shared by the agency carrying out such ORC works. This scenario is similar to the charges levied by Indian Railways to transmission/distribution licensees for granting power/traffic blocks.

The procedure for the same is formulated in accordance with the Regulation No. 28.2 (f) of the MEGC, 2020 and directives of GCC.

This procedure is finalized after taking comments from the stakeholders and is circulated vide T.O.L. no. MSLDC/Tech/Op/MEGC-2020/859 dtd. 02.05.2025 and is also published on MSLDC website.

<https://mahaslde.in/wp-content/uploads/2025/05/Final-VSE-Procedure-published-on-website.pdf>

- **The CE(SLDC) explained the procedure in brief and said the above procedure is available on MSLDC website. He urged all transmission licensees to go through the procedure and follow it scrupulously. Also to make provision for such deposits from 3rd party involved in ORC works.**
- **Since the procedure is already approved, this agenda item was only for appraisal of OCC.**

With due deliberations, all OCC members took note of the same.

3.3 Discussion on Generator Planned outages in 590th WRPC OCC Meeting:

In the 590th WRPC OCC meeting_17.04.2025, discussion on Generator Planned Outages was done as below;

1. Generating unit shutdowns are finalized by WRPC and the annual outage plan is prepared. The outages are further reviewed and finalized during pre-OCCM by WRPC. However, it has been observed that generators frequently deviate from the approved outage schedule. Generators are not availing outages on the OCC approved outages schedule further; they also extend the timelines of the outages without taking consent from WRPC.
2. As informed by WRLDC that in the present practice, generators are not taking operational code from the WRLDC for the unit outage. Therefore, it is proposed that regional entity generating units shall take operational codes from WRLDC Control room for planned shutdown of units which are discussed and approved by OCC. The list of Generator approved outages is already being circulated as Annexure 3.1.
3. Similarly, SLDC shall also follow similar practice for the intrastate generating units. This will improve the monitoring of deviations from the planned schedule.

In line with the above deliberations, SLDC has to inform all intra-state generators of Maharashtra to obtain prior SLDC codes while availing Generator Planned Outage & also code for re-synchronization at the time of charging henceforth.

- **Hence, SLDC informed all intra-state generators of Maharashtra to obtain prior SLDC codes while availing Generator Planned Outage & also code during re-synchronization too, henceforth.**

With due deliberations, all OCC members took note and accepted the SLDC proposal.

3.4 Resource Adequacy Regulations, 2024 and its timelines for submission of demand forecasts for FY 25-26 to SLDC.

3.4. (a) Submission of Category-wise Consumption Data and demand projections for FY 2026-27 as per Hon. MERC RA Regulations 2024 – Clause 6.3

As per Clause 6.3 of the Hon'ble MERC Resource Adequacy Regulations, 2024, distribution licensees are required to submit category-wise consumption data, including assessed consumption data for various consumer categories (such as agricultural, domestic, etc.), to MSLDC and/or STU for the purpose of state-level demand forecasting.

The due date for submission of data for the previous financial year (FY 2026–27) was 21st April 2025. However, data is received from MSEDCL, AEML, TATA-D & NULLP only till date. Hence, all other distribution licensees are requested to submit the data at the earliest. In this regard MSLDC has sent a reminder email on dated 02.05.2025 to the distribution licensees.

3.4. (b) Compliance with Hon. MERC RA regulation 2024, Clause 7.4 – Submission of Hourly ST & MT Demand Forecasts on Rolling Basis.

As per Clause 7.4 of the Hon'ble MERC Resource Adequacy Regulations, 2024, all the distribution licensees are requested to submit the following demand forecasts on a rolling basis:

- **Short-Term (ST) Demand Forecasts** – Hourly forecasts for a **1-year horizon**
- **Medium-Term (MT) Demand Forecasts** – Hourly forecasts for a **5-year horizon**

The due date for submission of the required data was 30th April 2025. However, as of now, partial data is received from: MSEDCL, TPC, BEST, GEPL, MBPPL, MADC and NULLP.

Among these, only AEML and ASL have submitted both the hourly demand projections for FY 2026-27 and category-wise consumption data for the previous year.

All other distribution licensees are requested to submit the pending data at the earliest.

In this regard, MSLDC has already sent a reminder email on 2nd May 2025 to all concerned distribution licensees.

- MSLDC emphasized that as per the regulatory framework, it is the responsibility of all Distribution Licensees to submit Resource Adequacy data in the prescribed formats as notified by the Hon'ble Commission.

MSLDC As per the regulatory provisions, MSLDC is mandated to submit the aggregated state-level demand forecast to CEA, RLDC, and NLDC. However, the timely submission of this data is being impacted due to the non-receipt of complete and accurate demand forecast inputs from distribution licensees within the stipulated timelines. This delay is hindering the state-level aggregation process and may subsequently affect the timely submission of data to the Hon'ble Commission and other statutory authorities

With due deliberations, all OCC members took note of the same.

3.5 Grid Disturbance in Maharashtra Grid on 12.03.2025 at 14:55 hrs.

There was a grid disturbance on 12.03.2025 at 14:55, where multiple transmission lines and generators tripping in **South Gujarat** led to excessive power flow from Maharashtra to Gujarat leading to voltage collapse in Maharashtra and resulting into loss of load to the tune of around 3900 MW in MMR, Pune and Nashik area.

- **The Chief Engineer, SLDC explained the occurrence in brief along with the recommendations and mitigating measures already suggested in the report so as to tackle/avoid such an incidence**

in future. MSLDC informed that the report is already been submitted to MERC and is also available on website.

Recommendations & Mitigating measures:

A. Short Term

3.5.1 System Strengthening:

1) Following Transmission Schemes proposed in MMR & Pune Area should be completed on top priority:

Sr. No.	Name of Scheme	Proposed Year
1	220 kV DC line from 765 kV Shikrapur PG to 220 kV Khed City - 18 kms	(2024-25)
2	220 kV DC line from 765 kV Shikrapur PG to 220 kV Ranjangaon S/s using existing corridor - 10 kms	(2024-25)
3	Reorientation of 220 kV Babhleshwar - Ranjangaon ckt & Lonikand - Ranjangaon Ckt at Khed City - 5 kms	(2024-25)
4	HTLS conductor of 400 kV Lonikand - Chakan (NEW)	(2025-26)
5	220kV TalegaonPG-Chakan DC with HTLS conductor - 6km	(2025-26)
6	HTLS conductor of 400 kV Talegaon (PG) - Chakan (NEW)	(2025-26)
7		
8	400kV LILO - Lonikand-I Jejuri at 765kV Shikrapur PG -30km approx.	(2026-27)
9	220kV Pune-III (ISTS-New) (PG) – Nandedcity 220kV D/C line.-60km (Western Region Network expansion scheme)	(2026-27)
10	LILO of both ckt of 220 kV Jejuri (M) – Phursungi (M) D/C line- 5km along with HTLS conductor at 765/400/220 kV Pune-III (ISTS-New) (PG) S/s with HTLS conductor (twin zebra equivalent) (Western Region Network expansion scheme)	(2026-27)
11	HTLS conductor of 400 kV Lonikand - Talegaon (PG) (NEW)	(2026-27)

2) To address low voltage issues in MMR, Pune & Nashik area:

- Commissioning of 1425 MVAR, 170 MVAR & 160 MVAR compensation planned at Pune, Vashi and Nasik respectively.

➤ **The Chairman of OCC- ED, SLDC stressed upon expediting the above schemes as per STU plan.**

3.6.2 Protection

- 1) Review of provisioning of UVLS schemes at identified 400 kV Sub-stations where UVLS is presently not provided is essential.
- 2) Review of 400 kV Babhaleshwar UVLS scheme so as to have necessary load curtailment instead of network opening.
- 3) Provisioning of LTS scheme on 220/132 kV ICTs at Nashik.
- 4) Verification of protection settings of Bus coupler at 220 kV Nashik OCR.
- 5) Review of LTS Scheme of all 400 kV ICTs ensuring availability of such scheme on each individual ICT.

- **The Chairman of OCC- ED, SLDC said that the protection related issues as mentioned in the report recommendation may invariably be taken up in PCC meetings and have a resolution.**

3.6.3 Automation & Communication

- 1) MSLDC has participated in the ULDC scheme of Grid-India for SCADA system in Western Region. WRLDC need to expediate the activities under ULDC project so that actual work can be initiated & SCADA system can be commissioned at MSLDC on priority.
- 2) All LTS schemes installed at important Transmission elements viz. ICTs & 400 kV lines, should be integrated in MSLDC & ALDC SCADA System.
- 3) Separate Screen with alert facility for all LTS Schemes to be maintained in MSLDC & ALDC Control Room.
- 4) List of Sub-stations in MMR & Mumbai area for installation of PMUs has been issued by STU to TPCL & AEML. Hence, TPCL & AEML along with MSETCL need to expedite the work of installation of PMUs and its integration with MSLDC URTDSM System.

- **The Chairman of OCC- ED, SLDC said that due to installation of PMU in TPCL area thus for the first time an observability into Mumbai system.**
- **The representative of AEML informed that the PMUs would be installed by August and November 2025.**
- **CE, ACI informed that a scheme is prepared and submitted to CPA for processing the tender for installation of PMUs in MSETCL.**

3.6.4 Procedural Review

- 1) List of critical and non-critical loads/feeders for all the Sub-stations in the State should be prepared. Load Trimming Protocol for entire State like the protocol prepared for MMR & Mumbai region should be prepared for faster response & avoiding mis-communication during implementation. The list should be updated on six-monthly basis.
- 2) The PCC should review all the LTS, SPS, UVLS settings routinely. Healthiness of all the LTS, SPS, UVLS schemes should be ensured by all the transmission licensees and report should be sent to MSLDC.
- 3) Trials of LTS, SPS, UVLS schemes should be taken by all the transmission licensees and report should be sent to MSLDC.
 - **The Chairman of OCC- ED, SLDC said that similar to MMR a sub group may be formed for Load Trimming Protocol for entire State involving MSETCL and MSEDCL.**
 - **He also said that PCC should invariably review LTS, SPS, UVLS settings and that non-compliance of submission of healthiness/trials of LTS, SPS, UVLS schemes should be monitored.**

B. Long Term

3.6.5 Grid Strengthening:

- 1) Integrated Resource Planning for Mumbai, MMR & Pune cluster:
 - Around 15000 MW load is concentrated in Mumbai, MMR & Pune area.

- This area has limited embedded generation, inadequate transmission network and Reactive Power compensation.
- Hence, it is suggested that an integrated resource planning study for this area with increasing demand needs to be carried out by STU.
- While carrying out such integrated resource planning study, ensuring availability of enough synchronous generating sources for maintaining grid inertia, reactive support and fulfilling necessary active power support in case of islanding operation, these aspects shall be taken care of.
 - **The Chairman of OCC- ED, SLDC said that STU should carry out integrated resource planning study for Mumbai, MMR & Pune area separately.**

2) Planning of Adequate Reactive power compensation and timely implementation:

- Reactive Power Requirement Studies need to be carried out on yearly basis by STU.
- Dynamic compensation through STATCOM, SVC, etc in MMR & Pune region with high density of loads and changing nature of loads in future (with increasing no. of Data Centers, Metro in this area) need to be considered.
- With installation of around 25 GW Solar Generation under various schemes in the State, daily variations in the Thermal generation to the tune of around 4000 MW is expected. There might be need of two shift operation of thermal units. Thus, the reactive support from Thermal Generation will not be adequate. Hence, reactive power support from VRE sources needs to be ensured.
- STU & transmission licensees should ensure timely commissioning of the reactive compensation.

3) Upgradation of existing HVDC Capacity:

During the incidence, \pm 500 kV, 1500 MW Chandrapur – Padghe HVDC played important role in providing additional power at 400 kV Padghe bus when high export started from Padghe to Tarapur & Boisar (PG) and limiting the loading on 400 kV Babhaleshwar – Padghe D/C lines.

Considering severely low voltages at multiple locations in MMR & Pune area, VSC based HVDC can provide reactive power support.

Hence, the option of upgrading the existing Chandrapur – Padghe HVDC to 3000 MW VSC based HVDC needs to be explored on top priority. It is learnt that the existing line capacity is adequate for 3000 MW capacity. Hence, upgradation of terminal stations only will be required. This aspect should be verified by STU on priority.

3.6.6 Protection, Communication & Automation:

1) Enhancing full visibility of Maharashtra Power system at MSLDC:

At present complete visibility of all the 765 kV & 400 kV Sub-stations is available at MSLDC & ALDC.

The visibility of transmission elements at 220 kV level & below 50 %.

Hence, execution of planned schemes for ensuring full visibility of Maharashtra Power System to MSLDC needs to be expediated.

- **CE, ACI informed that an exhaustive scheme for 250 nos. of 132kV substations is prepared which includes 33/22kv Feeders too. MERC approval is received and the tender will be floated soon.**

2) Expansion of Optical Fibre Communication backbone:

The utility of PMU data was seen during handling of this incidence as well as for post-incidence analysis as detailed in this report. Hence, an expansion of Optical Fibre communication backbone ensuring availability of necessary communication infrastructure for placing of PMUs at all critical locations in the Maharashtra Transmission System is required.

- **The Chairman of OCC- ED, SLDC suggested STU to prepare a separate 5-year plan for strengthening/ expansion of communication in the network.**
- **Board approval received for expansion of OPGW by 6150km for 220kV and 132kV substations having 50 MW and above generation connectivity.**

3) Use of State Estimator & ADMS for reliable Grid Operations:

- MSLDC has already participated in the ULDC Scheme of Grid India. In the proposed SCADA System, features of State Estimator, ADMS, etc. are covered.
- Hence, Grid India should expedite the issuance of LoI for the shortlisted vendor so that SCADA System can be commissioned on priority.

4) Installation of PMUs under Wide-Area Measurement System (WAMS) for situational awareness:

- For situational awareness, MSLDC is using PMU data installed at 5 Nos. of 400 kV Sub-stations.
- In first phase, MSLDC has already requested STU for installation of PMUs at critical locations in MMR region and all 400 KV s/stns of MSETCL. STU has further directed TPCL, AEML & MSETCL to install the PMUs at the earliest. This work needs to be completed on priority.
- In the second phase, STU should direct all transmission utilities to install PMUs at strategic locations & RE Plants. MSLDC should simultaneously arrange to install PDCs for integration of PMUs having latest configurations and softwares required for data analytics and decision support.

5) Requirement of Integrated Data handling Platform:

- While carrying out post-incidence analysis, SLDC faced some challenges for handling large data sets generated at different monitoring systems. The real time analysis or any post incidence analysis in the modern power system will require handling of very large data sets. The complexity increases with multiple types of data emerging out of different systems like SCADA, PMU, Metering, Protection systems, Scheduling systems, etc.
 - In this respect, MSLDC has already explored option for the use of Integrated Data handling platform having capability of integration with various softwares over different communication protocols. A Proof of Value (PoV) is successfully completed in the month of Feb-2025. Hence, there is a need to use such data handling platform at MSLDC as large sized data is daily generated. This will enhance the performance of MSLDC & the State Grid.
 - SLDC needs to expedite the creation of integrated data handling platform.
- **The Chairman of OCC- ED, SLDC emphasized the need of data handling platform, since large amount of data is generated daily and said that SLDC is working upon expediting the creation of one.**

3.6.7 Needed Regulatory Framework in the State for handling Grid disturbances:

- SLDC has identified following areas in which the supportive regulatory framework would be needed for handling of Grid disturbances.
 - Establishing mechanism for availability of Spinning Reserve in the Intra-State System.
 - Need of SCED & SCUC in the State.

The High-Level Committee constituted by Hon'ble MERC for enquiry of the partial Grid disturbance in MMR & Mumbai area occurred on 12.10.2020 has recommended to carry out study for implementation of SCED & SCUC for scheduling embedded generation.

Accordingly, MSLDC in collaboration with IIT, Bombay has undertaken studies using GAMS software to optimize internal resources & to consider security constraints prior to despatch of power in the State. MSLDC is the first SLDC carrying out such studies apart from NLDC.

The preliminary study report has been submitted to Hon'ble MERC on 11.11.2024. further, a petition has been filed with Hon'ble MERC on 20.03.2025 for seeking approval for carrying out pilot operation of the same in the state. The petition has been admitted vide Case No. 51 of 2025.

3.6.8 Training & Awareness, Need for SLDC & Transmission Utilities:

- The Govt. of Maharashtra Committee constituted for enquiry of the partial Grid disturbance in MMR & Mumbai area occurred on 12.10.2020 has issued following recommendations:
 - *A task force should be set up to study emerging technologies and trends, and their impact on planning of the Mumbai network. The technologies/systems may include:*
 - *Electrical Vehicles/ Battery charging infrastructure and management*
 - *Grid Scale battery storage*
 - *Roof-top solar PV systems*
 - *Fault Current Limiters.*
 - *The staff of all utilities should keep abreast of the evolving trends, practices, and technologies. This requires the following. (GoM Committee)*
 - *Participation in national and international seminars, workshops and tutorials.*
 - *Presenting case studies and experiences.*
 - *Access to journals and periodicals of CIGRE, IEEE, standards etc.*
 - *Peer-to-peer interactions. Sharing of experiences, best practices with other utilities.*
 - *Visit to installations of new technologies in India and abroad.*
 - *Undergoing training in continuing education programs.*

Hence, it is needed to review the existing training & awareness processes in line with above recommendations.
- MSLDC should consider creation of dedicated training cell.
- **The Chairman of OCC- ED, SLDC said that SLDC management has approved formation of a training cell and it is established and training programs are being conducted.**

4. ADTPS Agenda:

1. ADTPS U-1 planned outage proposal for AOH in Aug-25

Annual Overhauling of ADTPS U-1 was planned in Dec-24 (12.12.2024 to 20.01.2024). However, the outage has got differed/postponed. We are planning to propose the AOH in the month of Aug-2025.

- ADTPS representative said that the AOH is rescheduled to 13.07.2025 to 21.08.2025 and informed SLDC through E-mail, also the Discom NOC is submitted.
- **MSLDC informed that the plan of Annual Overhauling of ADTPS U-1 in July-2025 is already taken up in WRPC OCC meeting. SLDC has given consent to this proposal.**

2. Ramp Rate certification methodology as per MYT regulation 2024

As per the MERC MYT Regulation 2024, with effect from 01-Apr-2025, in case of thermal generating units, the Return on Equity (RoE) is linked with ramp performance. MSLDC shall formulate the procedure for certification of Ramp Rate of thermal plants and submit for the approval of the Commission upon undertaking the due consultation of the stakeholders.

In view of this it is requested that the methodology / procedure for certification of Ramp Rate of thermal plants should be provided.

- **MSLDC has prepared a draft procedure for Ramp Rate certification methodology and shall be circulated to all stakeholders for comments/feedback**

3. DSM Scheduling: Delayed Schedule Revision creation in DSM Scheduling portal

It has been observed that there are frequent instances of delays in revisions generation on the MSLDC DSM Portal. Revisions are getting generated just before the start of a block. On several occasions it is also observed that revisions are updated after the start of the Block and SG of Block in progress gets changed. These instances are more prominent during CMOD operation. Such delayed revisions are leading to deviations in DSM. Recent instances are enlisted below:

1. 17.02.2025, CMOD Rev. no.09 was generated at 00:01:37 Hrs. for block no.01.
2. 20.02.2025, CMOD Rev. no.107 was generated at 11:44:40 Hrs for block no.48.
3. 23.02.2025, CMOD Rev. no.142 was generated at 20:43:58 Hrs for block no.84.
4. 25.02.2025, CMOD Rev. no.11 was generated at 00:15:52 Hrs for block no.02.
5. 09.03.2025, CMOD Rev. no.13 was generated at 00:29:14 Hrs for block no.04.
6. 10.03.2025, CMOD Rev. no.62 was generated at 11:58:09 Hrs for block no.49.
7. 10.03.2025, CMOD Rev. no.67 was generated at 12:28:52 Hrs for block no.51
8. 11.03.2025, CMOD Rev. no.72 was generated at 12:30:30 Hrs for block no.51
9. 13.03.2025, CMOD Rev. no.55 was generated at 11:26:56 Hrs for block no. 47.
10. 13.03.2025, CMOD Rev. no.68 was generated at 12:57:57 Hrs for block no. 53.
11. 13.03.2025, CMOD Rev. no.71 was generated at 13:13:08 Hrs for block no. 54.
12. 02.04.2025, CMOD Rev. no.71 was generated at 11:45:27 Hrs for block no. 48
13. 03.04.2025, CMOD Rev. no.118 was generated at 20:14:35 Hrs for block no. 82

- **The Chairman of OCC- ED, SLDC instructed SLDC to have a meeting with PWC engineers to discuss the issue and necessary development, if any.**

4. Zig-Zag SG to ADTPS Units

Frequent Events of Ramp up SG followed by ramp down SG and Vice-versa (Zig-Zag SG) are being experienced to both ADTPS units. In such cases it is difficult to manage deviations as it is calculated in energy terms. Also, this may impact machine performance as well. Kind submission to look into this to avoid / minimize Zig-Zag scheduling to ADTPS units.

- **The Chairman of OCC- ED, SLDC said that this issue is arising due to same MoD rates machines are picked up in de- centralized MoD sequentially. SLDC has planned to study the issue in coming SCED pilot study.**

5. Cross SG to ADTPS Units

On certain occasions, it is also observed that, one Unit gets Ramp up SG and at the same time the other ADTPS unit is scheduled Ramp down SG of almost same quantum and vice-versa (Cross SG).

There is no/less ramp requirement at station level However, both units are getting cross directional ramp. This is creating unstable operation without any actual grid requirement which will hamper reliability of plant operation and overall plant availability. If not addressed, such ramp blocks are affecting the ramp performance evaluation (E/D ration & %AARR).

- **The Chairman of OCC- ED, SLDC instructed SLDC to have a meeting with PWC engineers to discuss the issue and necessary development, if any.**

5. MSEDCL Agenda:

1. Active Energy Consumption for Reactive Power Support by Koyna Hydro Stage-IV being incorrectly settled against MSEDCL's total drawal:

MSEDCL had raised this issue in MSPC Sub-Committee Meeting under DSM regime scheduled on 27.03.2025. However, it was informed to raise this issue in OCC meeting.

Koyna Hydro Stage-IV are frequently operated in synchronous mode solely for reactive power support which requires drawal of active energy drawal from the grid. Mahagenco is paid for reactive power exchange for providing grid support. However, this active drawal during "condenser Mode" which is being done by MSLDC for reactive power Management of Grid is incorrectly accounted for as part of MSEDCL's total drawal, increasing its demand unnecessarily. It is to inform that Mahagenco does not net off this active energy drawal by Koyna HEP during its condenser mode operation in its monthly energy bill.

Further, in case ISGS stations such as SSP & Pench, active energy drawn by them is not considered in their beneficiaries drawal but accounted as transmission loss. Hence same principle should be applied to energy drawal by InSGS during their condenser mode operations. Therefore, MSLDC should revise the MSEDCL drawal without considering Energy drawal of Koyna Stage-IV Hydro during Condenser mode and accordingly issue the revised DSM bills.

- ***This issue is already discussed in MSPC Sub-committee meeting.***

2. The Operation of Koyna Stage I & II from current continuous operation mode to condenser mode during periods of low demand:

SLDC instruct Koyna Stage I to keep all 4 Units continuously synchronized to Grid, on context of immediate picking up Koyna Hydro Generation. Koyna HEP is compelled to generate a baseline of 5 MW per unit daily (totaling 40 MW on a 24x7 basis) from both Stage I & Stage II, even when such

generation is not required by MSEDCL. Approximately 5 TMC of water (approx. 180MUs i.e financial burden of Rs.86.4 Crs. annually is consumed annually due to SLDC's directives, adversely affecting MSEDCL's planned hydro usage strategy and operational efficiency. Koyna Stage I & II machines can also be run in condenser mode like Koyna stage IV.

Instead of continuously running (24x7) Koyna Hydro Stage I&II machines to technical minimum (8 Nos x 5MW =40MW), the three machines (80 MW each) of Koyna Stage I & Stage II, can be operated in condenser mode during periods when generation is not required as per Reactive power requirement of Grid by MSLDC. This will allow MSLDC to take these Stage I & II generation machines to be switched back to generation mode whenever necessary to address real-time system requirements.

- **The Chairman of OCC- ED, SLDC instructed SLDC to conduct a meeting with MSPGCL about feasibility of operations as mentioned above.**

- 3. The real-time data of MSEDCL's drawal point from SLDC and sharing thereof for real-time demand forecasting and further time bound installation by MSETCL of the required SCADA systems at their EHV substations:**

It is duty of STU to install SCADA at all Substations and it is real time visibility at SLDC through proper communication. SCADA/RTUs are not yet installed by STU on all MSEDCL's T-D interface drawal points inspite of Directives from Hon'ble Commission from time to time. In absence of same, MSEDCL real time demand is derived as under in SCADA. Non-availability of real time data (either SCADA or Interface meter) results in MSEDCL's under drawal above the limits specified under the DSM Regulations, resulting in wastage of its contracted resources. STU need to complete installation of SCADA at all T&D interface points and make real time visibility of the same to MSEDCL within fix timeline. STU is requested to permit MSEDCL to install additional IEM meter in series with MSETCL's IEM meter, for extracting real time data of the IEM. However, this project completion will require 2-3 years due to requirement of outages from MSETCL & EHV consumers. Therefore, MSETCL/STU is requested to allow MSEDCL to install its Modem/DCU to MSETCL IEM check meter whereby MSEDCL would access real time data through RS485/Ethernet/RS232 port.

- **CE, ACI said that a tender is being processed for installation of SCADA/RTU at MSEDCL T-D interface drawl points.**

Additional Agenda from MSEDCL:

1. High difference between SCADA UI and WRPC DSM UI: -

Due to continuous difference between STU-CTU drawal difference we are paying huge WRPC DSM bills. The interchange locations are equipped with AMR meters by the Automation department. At least these locations need to be fetched with high frequency and mapped along with SCADA drawal data. This can minimise our errors. Moreover, SCADA section engineers shall be assigned special work to minimize the difference between STU and CTU points.

- **The Chairman of OCC- ED, SLDC instructed SLDC to compare WRLDC meter data , WRLDC SCADA data and SLDC SCADA data.**

2. Non availability of intra state DSM bill revision time stamping and reasons ;-

DSM bills and corresponding data available on our DSM website. The time and date of revision are not available with corresponding revisions. Moreover, the reason for revision is also not available there.

- ***To be proposed for next MSPC Sub- committee meeting.***

6. Any other points raised by committee members with permission of Chair.

Additional agenda point from SLDC:

Draft procedure on Ramp Rate certification methodology as per MYT regulation 2024:

MSLDC informed that Draft Ramp Rate Certification procedure is prepared.

- **ED, SLDC has instructed to circulate the Draft procedure to all stakeholders for comments/feedback to be submitted within a week or so.**

Annexure-1

Compliance of 8th OCC meeting held on 21st October 2024

Sr no.	Agenda point	Details	Compliance from	Compliance required	Status as informed on 9th OCC meeting.
1	Item No. 3.2	High quantum of Partial Outages in MSPGCL units:	MSPGCL	MSPGCL should submit short term and long-term plan to avoid partial outages.	MSPGCL representative said that meetings were conducted in this respect and the plan will be submitted soon.
2	Item No. 3.3	Submission of Frequency response data for the FRC event status	Generators	All the generating licensees to nominate a nodal officer for submission of required data to SLDC within stipulated time period.	Presently all the generators are following the timeline given by NLDC for FRC data submission also generating licensees nominated a nodal officer for the correspondence regarding the FRC data as and when required. OCC noted the same.
3	Item No. 3.4	Periodic Testing of Power System Elements in compliance to Regulations 40 of IEGC 2023:	Generators	All generators to submit the periodic testing details, if completed and the plan if the periodic testing is yet to be carried out.	In this regard SLDC has already sent a letter to all intra state generating licensees on 08.01.2025. Till date no testing plan is received except SWPGPL, JSW and ADTPS & APML. OCC instructed to submit the same.
4	Item No. 3.5	Regarding implementation of FGMO in intra state generating units in compliance to MEGC 2020 and IEGC 2023:	Generators	All generators to submit a detailed plan for operation under FGMO.	Till date all the intra state generator except MSPGCL are operating under FGMO. OCC instructed MSPGCL to submit the progress.
5	Item No. 3.9	Regarding proposals of Project related outages	Operation, SLDC	A separate meeting to be scheduled with all transmission licensees for planning and segregation of important outages.	These outages are discussed in state pre-OCC meeting & MOCM meeting held on monthly basis. OCC instructed to co-ordinate well before planning outage.

Sub: Minutes of the 9th Operation Co-ordination Committee (OCC) meeting held on 16.05.2025 at 11:00 hrs. at MSLDC Kalwa.

6	Item No. 3.10	Updation of SCADA SLDs / Elements of Mumbai network for safe operation at SLDC	SCADA, SLDC/Mumbai Utilities	SCADA department of SLDC to share printouts of the existing configuration in SCADA with concerned utilities in Mumbai Network. Also, SCADA dept. to ensure the identified elements are added in SCADA system & unnecessary data points to be deleted and to share connectivity issues with AC&I dept. He asked concerned utilities to depute authorized personnel for updation of data points at SCADA dept. SLDC by 30.11.24. In addition, he asked to conduct a separate meeting with CR.	Latest SLDs of the substations may be shared with SCADA department for updation of network elements. <i>OCC instructed SCADA dept, MSLDC to schedule a meeting in this regard and resolve the issue to the maximum extent.</i>
7	Item No. 3.11	EHV Cables and its accessories in MMR and Mumbai region installed in Important Grid Lines:	TPCL/ MSETCL	EHV Cables in Mumbai / MMR important grid lines are to be maintained with sufficient spares. Respective transmission licensees should take care of their design so that the ATC should not be hampered and in case of any failure, there must be possibility of bypass arrangement whereby it can isolate and continue with the critical corridors.	<i>OCC noted the same.</i>
8	Item No. 3.12	New Targets of the relief quantum at each stage of AUFLS for Maharashtra State.	MSEDCL	The chairman instructed MSEDCL to confirm the feeder segregation. The Chairman has asked to follow-up for above with MSEDCL. Also, SCADA sect. to ensure and follow up for telemetry plan/status of these feeders' visibility at SLDC.	Meeting was conducted on 8th April 2025 with ACI and MSEDCL. Updated list of EHV feeders to be included in stage 3 & 4 sent by ACI on 22.04.2025 to MSEDCL for confirmation purpose. Details awaited from MSEDCL. CE, ACI informed that meeting conducted and instructions issued to all PACs to submit within a week. <i>OCC instructed to submit UFR telemetry status along-with above.</i>

Sub: Minutes of the 9th Operation Co-ordination Committee (OCC) meeting held on 16.05.2025 at 11:00 hrs. at MSLDC Kalwa.

9	Item No. 3.13	Co-ordination between Projects/Construction division and O&M division for rigorous compliance of SoP dated 17.01.2022	MSETCL (Projects)	The Chairman has requested the O&M and Projects Dept. to co-ordinate particularly for MSETCL projects so that addition of new interface location (as per SoP) for DSM software is sent to SLDC timely.	<i>OCC instructed to take up this issue in MCCC sub committee meeting.</i>
10	Item No. 4.1	SCADA Visibility of KVTL Vikhroli and MSETCL Waghivli	SCADA, SLDC	TPCL to co-ordinate with the SCADA section of SLDC for compliance of above.	Both Stations are visible. <i>OCC noted the same.</i>

ANNEXURE – A.**List of Participants:**

Sr. No.	Name of Organization	Name of Nominee	Designation	Committee constituent
1	SLDC	Shri Shashank Jewalikar	ED, MSLDC	Chairperson
2	MSPGCL	Shri Rajesh Patil	ED (O&M-I) MSPGCL	Member
3	SLDC	Shri. Girish Pantoji	CE, MSLDC (I/C)	Member
4	STU/MSETCL	Shri. Peeyush Sharma	CE, STU	Member
5	MSETCL	Shri Jayant Kulkarni	CE(Incharge), ACI	Member
6	MSEDCL	Shri Pravin Annachatre	S.E (LM), MSEDCL	Member
7	MSEDCL	Shri Gopichand Ghodke	E.E (LM), MSEDCL	Member
8	TPCL	Shri Dipak Veer	(PSCC), TPCL	Representative
9	TPCL	Shri Suresh Sanwatsarkar	TPCL Transmission	Representative
10	AEML	Shri Mahesh Andhari	Head O&M AEML Transmission	Member
11	AEML	Shri Ranjeet Sawardekar	Asst. VP, AEML, Distribution	Member
12	ATIL	Shri Abhishek Kukreja	Associate Manager-O&M	Member
13	JPTL	Shri Vaibhav D Sansare	Associate Manager- Transmission	Member
14	ADTPS	Shri Vijay Dali	VP-Operations ADTPS	Member
15	RIPL	Shri Gopal Kaushik Shri Jai Shankar	RIPL	Representative
16	APML, Tiroda	Shri Manoj Taunk	Associate VP-Protection & Metering	Member
17	VIPL	Shri Pankaj Ramteke	VIPL	Representative
18	APTCL	Shri Ankit Awghad	APTCL	Representative
19	MSETCL	Mrs Mohana Wadatkar	EE(O&M), MSETCL	Representative
20	SLDC	Shri. Girish Pantoji	SE(OP)	Member-Convener

The image shows a large, modern building with a distinctive architectural style. The building features several tall, cylindrical towers with a blue and white facade, topped with red accents. The building is surrounded by lush greenery, including palm trees and other tropical plants. The sky is clear and blue. The text is overlaid on a semi-transparent grey box in the center of the image.

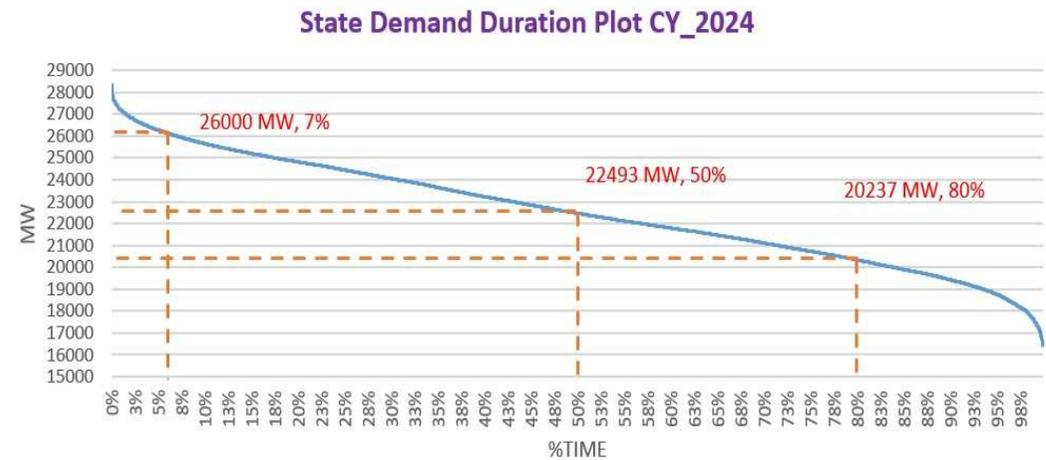
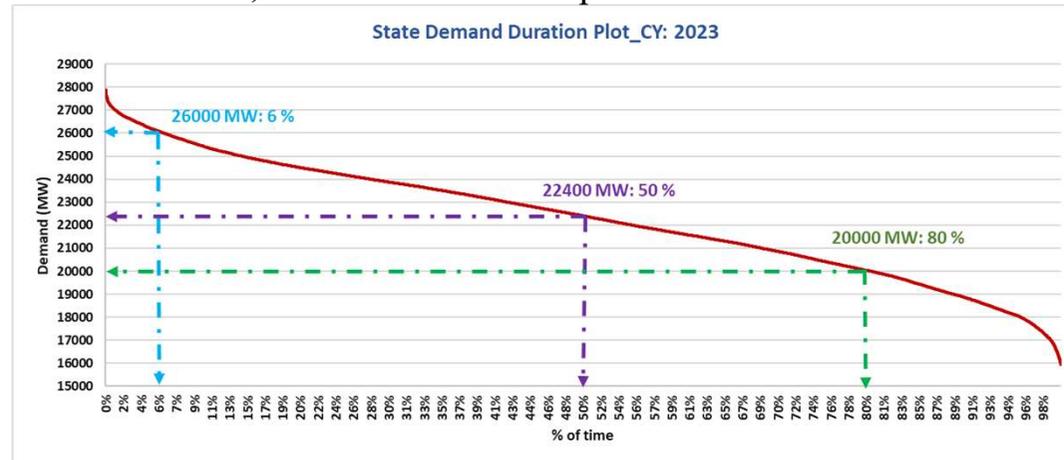
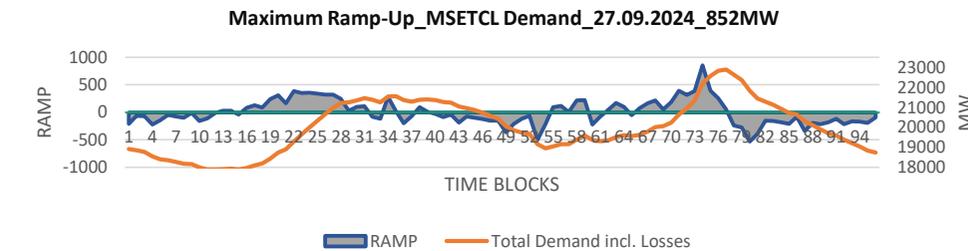
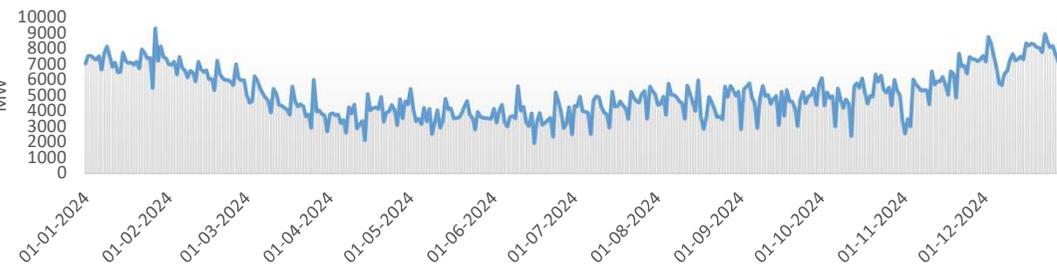
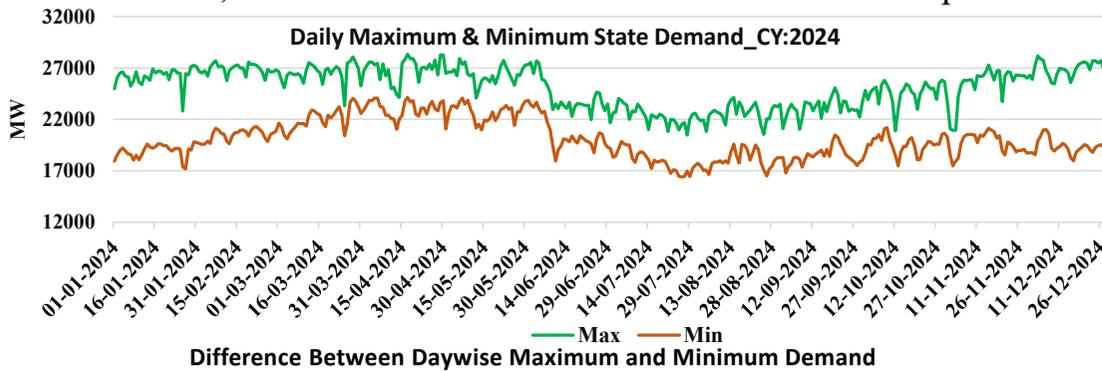
Maharashtra State Load Despatch Centre
“Maharashtra System Grid Performance
CY: 2024”

State OCC Meeting

16-05-2025

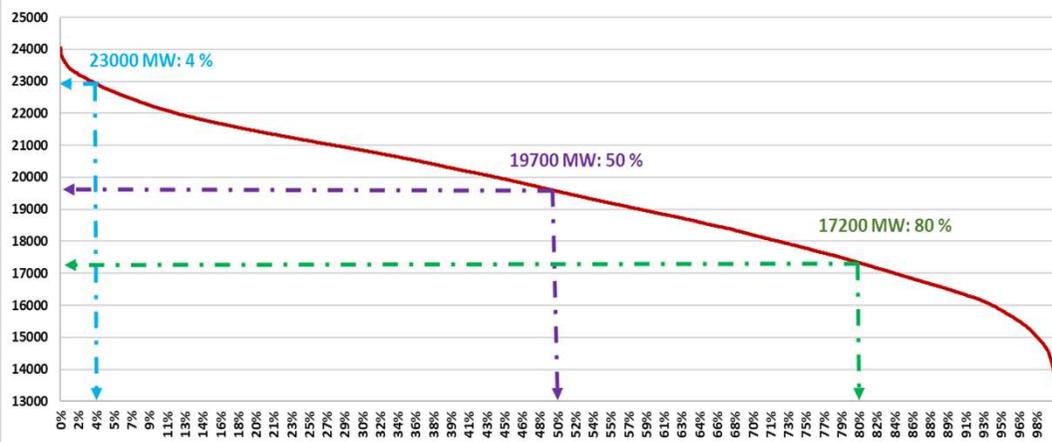
State Demand Profile

- Maximum seasonal variation: 11919 MW
- Maximum daily variation: 9255 MW
- In CY: 2023 for 80 % of the period, demand was 20000 MW increased to 20237 MW in CY: 2024
- In CY: 2023, demand was above 26000 MW for 6 % of the period whereas in CY: 2024, it was for 7% of the period

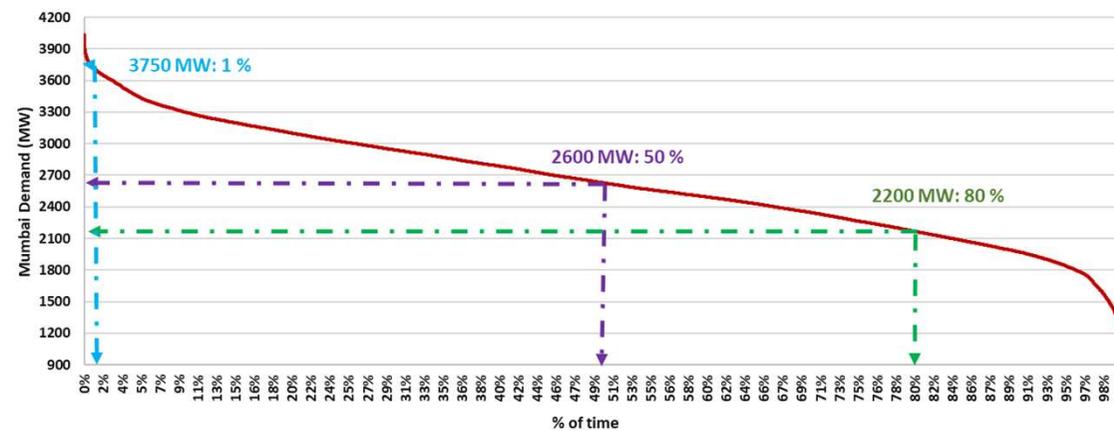


Demand Profile_MSEDCL & Mumbai

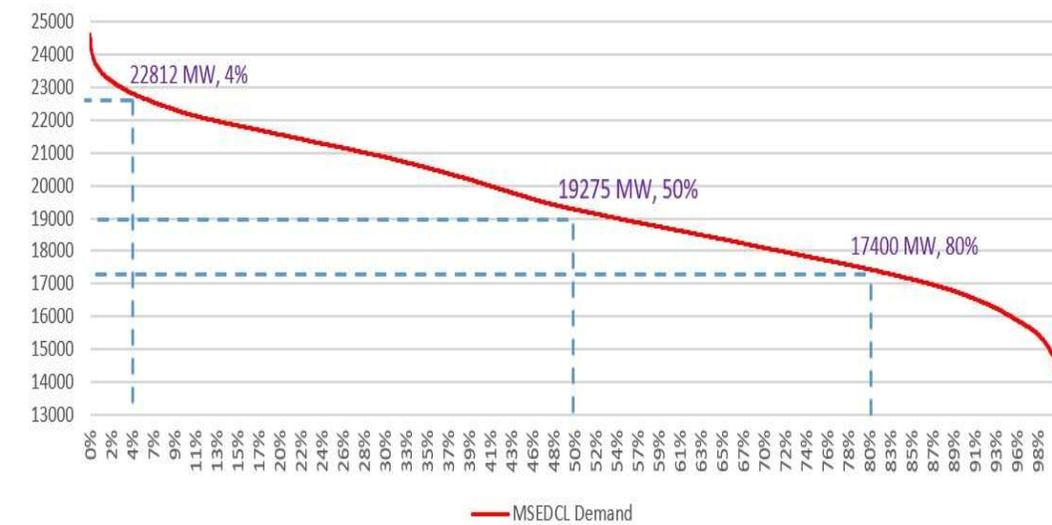
MSEDCL Demand Duration Plot_CY: 2023



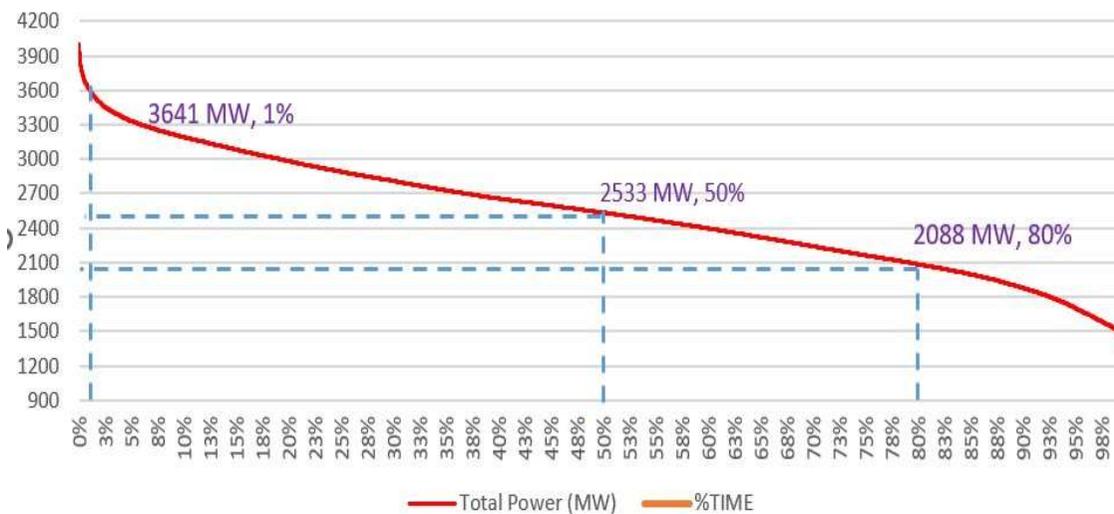
Mumbai Demand Duration Plot_CY: 2023



MSEDCL Demand Duration Plot CY:2024



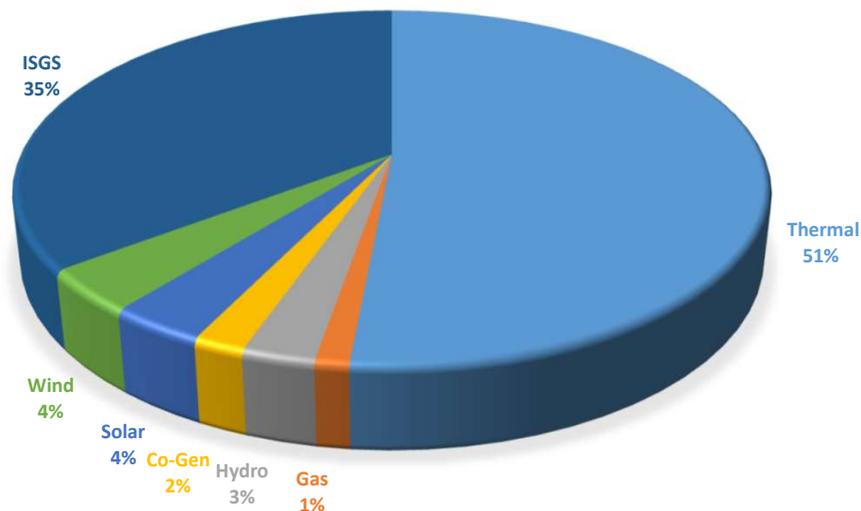
Mumbai Demand Duration Plot CY: 2024



Energy Profile of the State

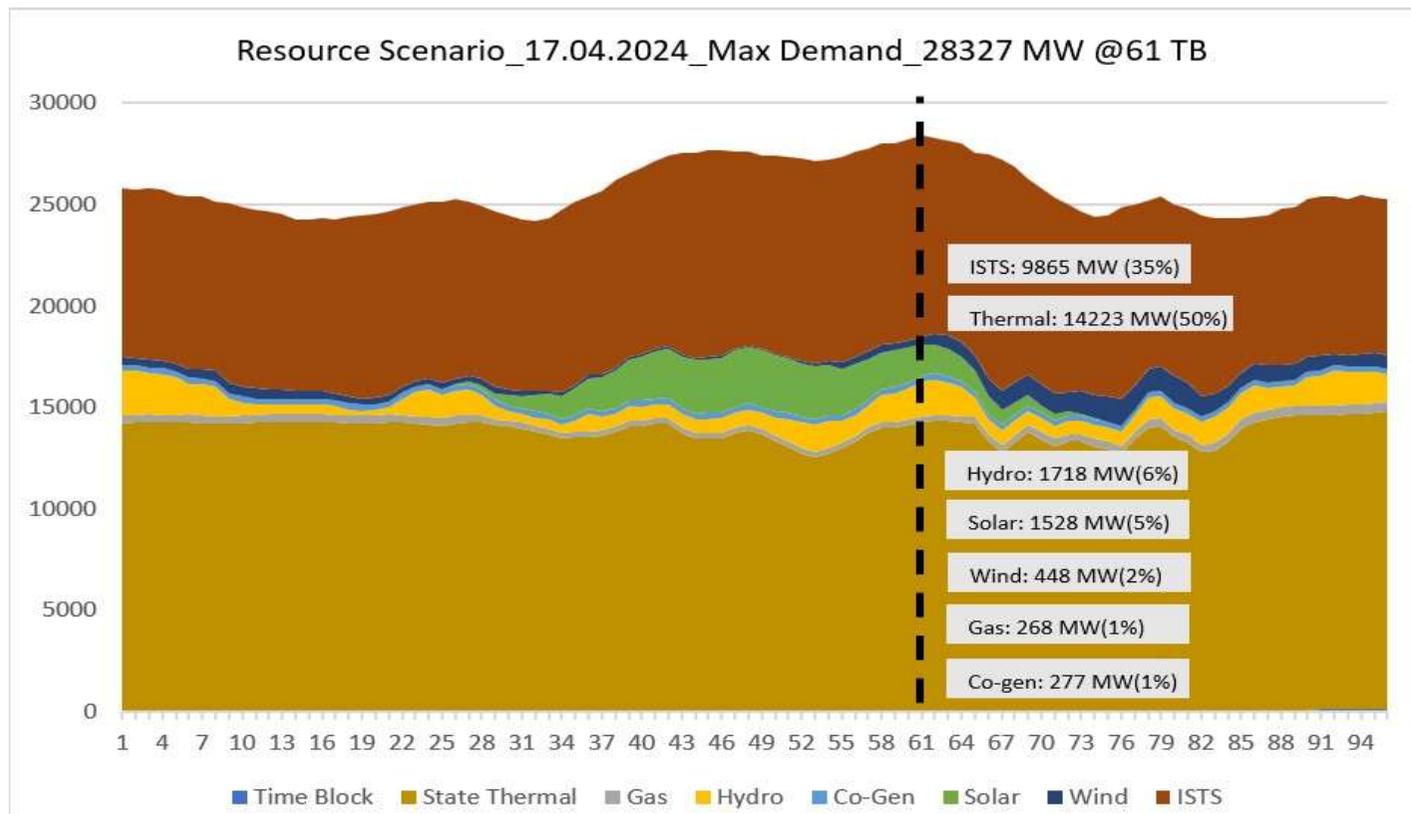
CY 2024	Source	Hydro	Thermal	Gas	Wind	Co gen	Solar	ISGS
	MUs	5,291	1,01,931	2,455	7,729	3,751	6,971	69,831
	%	3	51	1	4	2	4	35

ANNUAL STATE RESOURCES CY:2024



- Total annual contribution of Thermal generation is 51 % which excludes the thermal energy used from ISGS resources
- The contribution of VRE i.e. Wind & Solar generation is only 8 %
- Maximum energy of around 52,254 MUs was catered in the 2nd quarter of the CY: 2024 followed by First quarter with 50,666 MUs

Resource Mix of the State_ Peak Demand

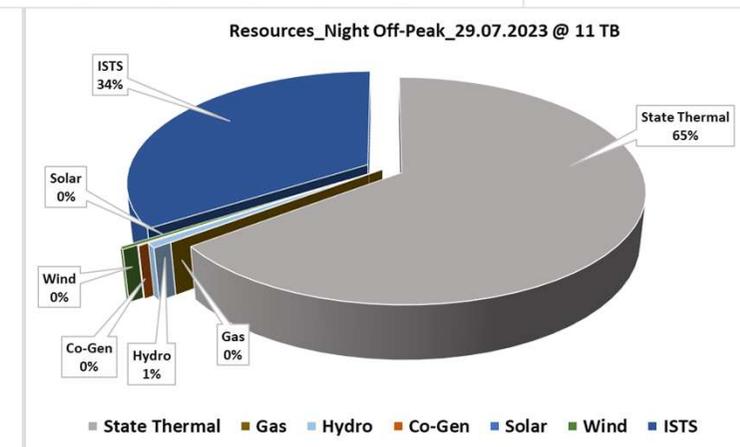
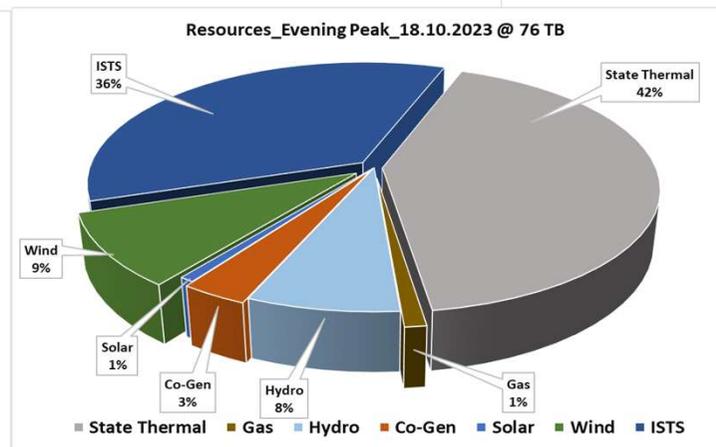
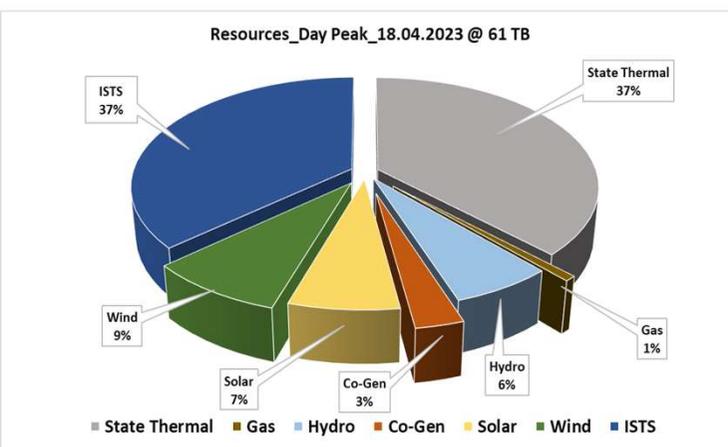
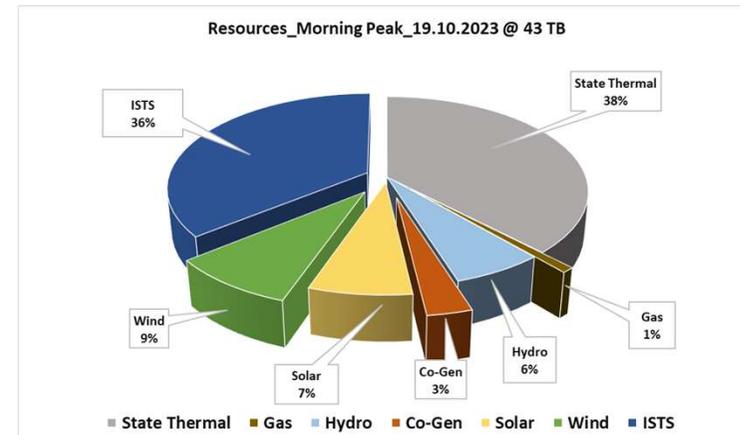


Source	Injection (MW)	Contribution (%)
State Thermal	14223	50%
Gas	268	1%
Hydro	1718	6%
Co-Gen	277	1%
Solar	1528	5%
Wind	448	2%
ISTS	9865	35%

- The contribution of V_{RE} in mitigating State Peak Demand is only 7 %
- State is mainly relying on the thermal generation for meeting peak demand

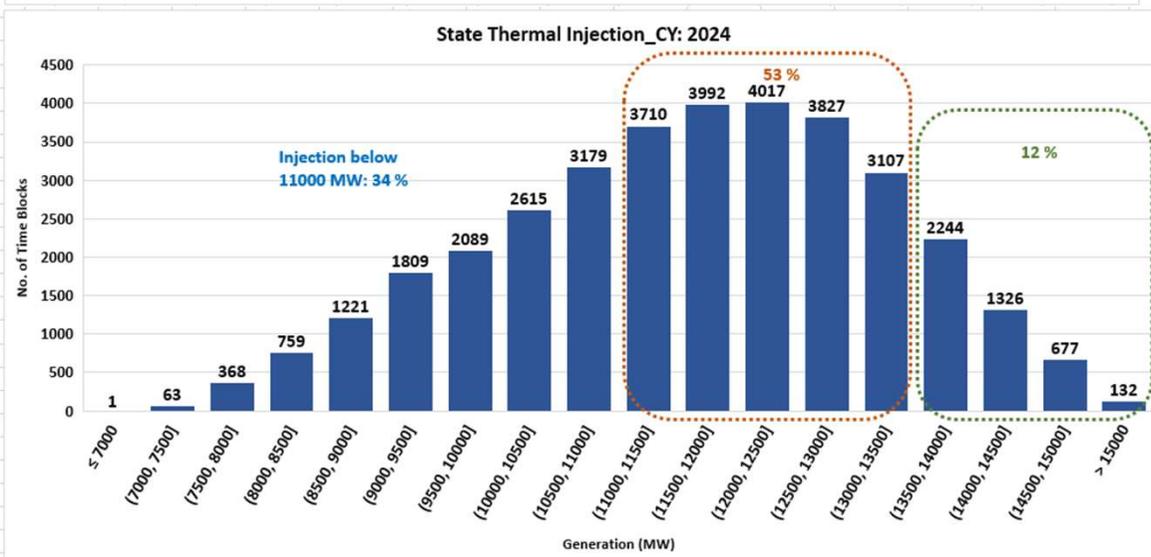
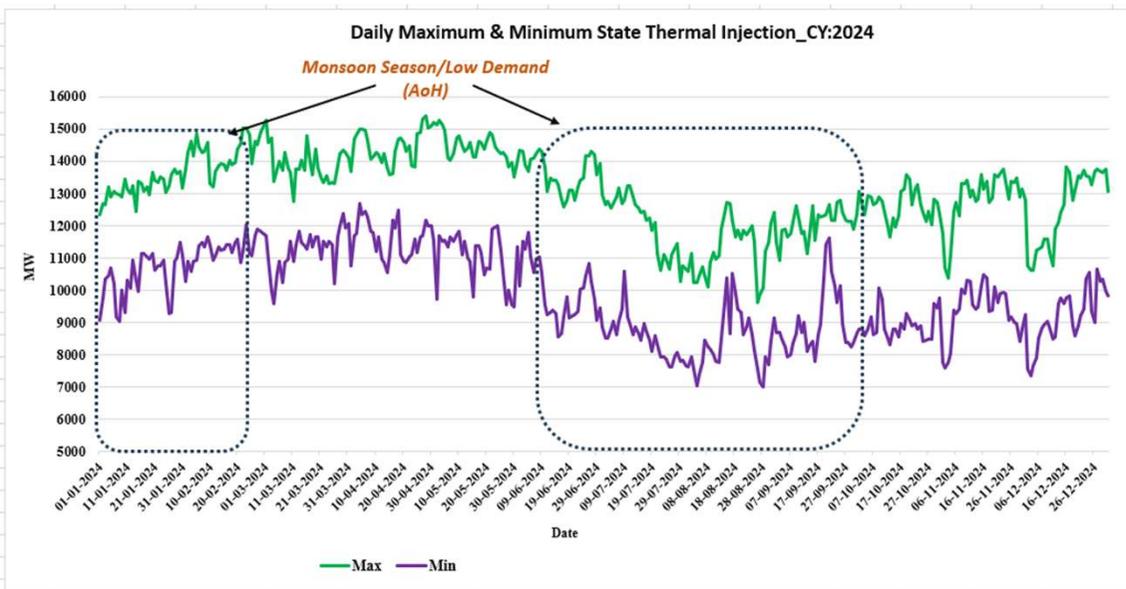
Resource Mix of the State_ 4 Cardinal Points

Scenario/Time	From Hrs	To Hrs	From TB	To TB
Morning Peak	7:00	13:00	29	52
Day Peak (Solar)	13:00	18:00	53	72
Evening Peak (Non-Solar)	18:00	22:00	73	88
Night Off-Peak	22:00	07:00	89	28



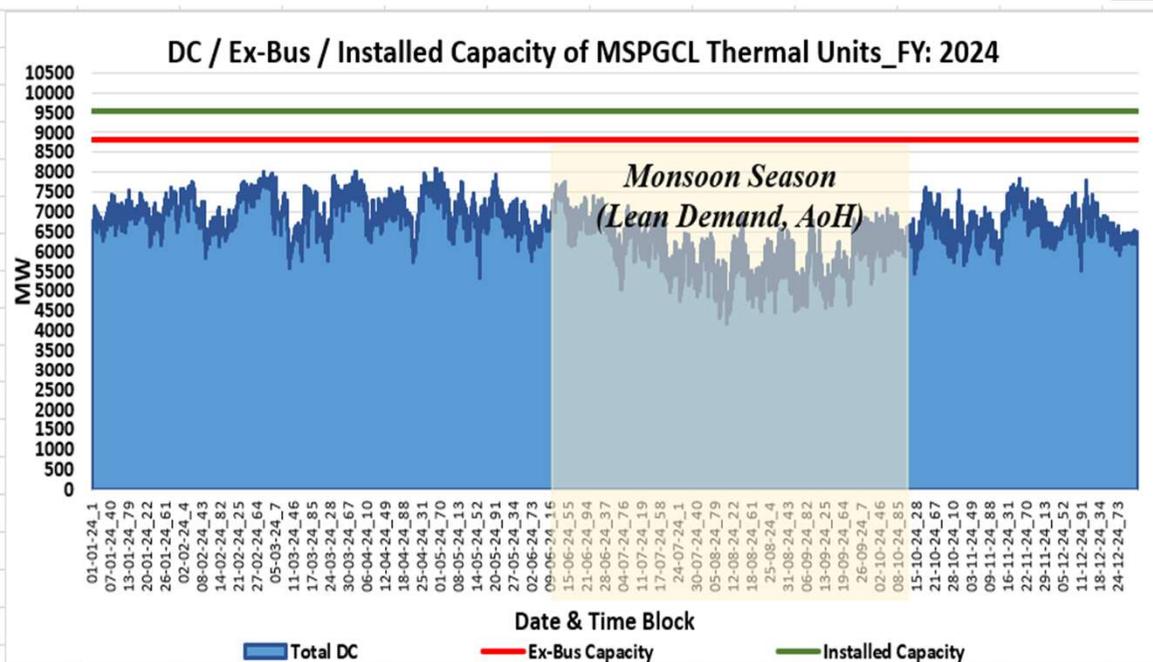
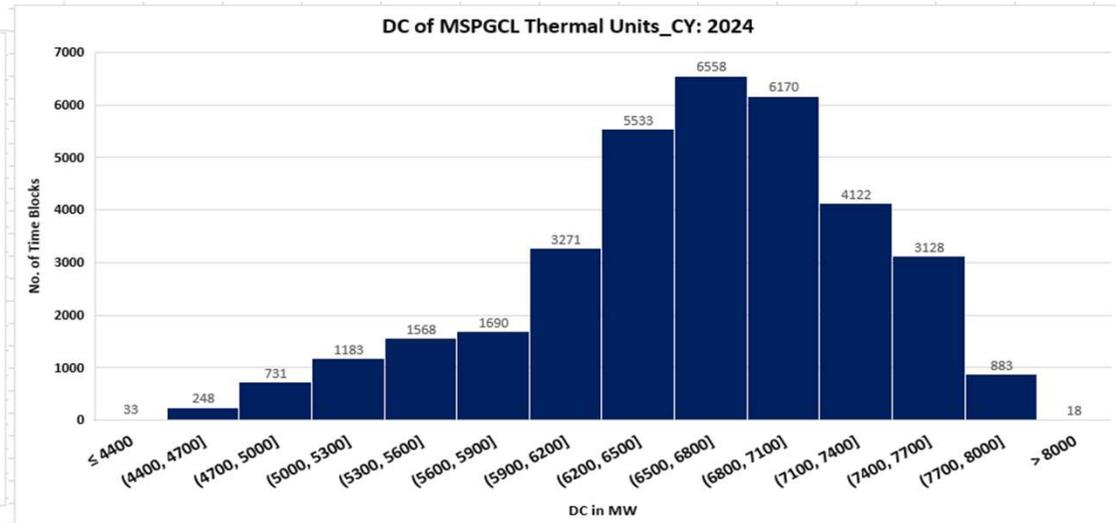
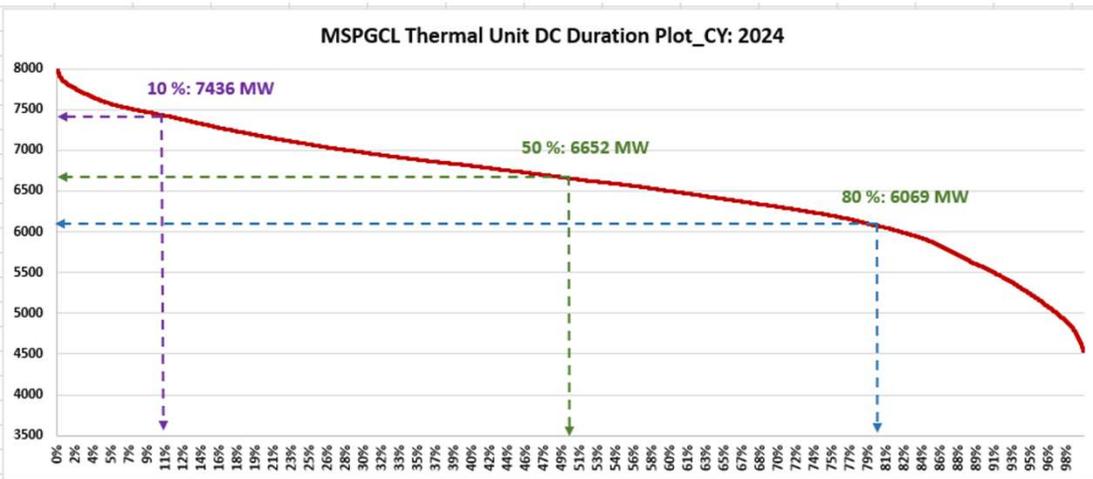
- With the increased penetration of Solar Generation, Day-time contribution reduces reliance on thermal generation
- To meet evening Peak & Night Off-peak demand, thermal contribution is high

Thermal Generation_ Injection Patterns



- Installed Capacity:
 - MSPGCL: 9540 MW
 - IPP: 10090 MW
- Total injection from Thermal units is ranging from 15391 MW to 6997 MW
- Maximum daily variation is 5406 MW.
- For 34 % of the period, injection from Thermal generation is below 11000 MW
- Injection is above 13500 MW only for 12 % of the period
- For remaining 53 % of the period, thermal injection is between 11000 MW to 13500 MW

DC Analysis of Thermal Generation_ MSPGCL



DC against Ex-Bus Capacity	No. of Time Blocks	No. of Days	% in Year
No. of Time Blocks DC below 50 % (4400 MW)	34	0.4	0.1%
No. of Time Blocks DC below 70 % (6200 MW)	8723	91	25%
No. of Time Blocks DC below 75 % (6600 MW)	16349	170	47%
No. of Time Blocks DC below 80 % (7000 MW)	25204	263	72%
No. of Time Blocks DC above 70 % (6200 MW)	26414	275	75%
No. of Time Blocks DC above 80 % (7000 MW)	9932	103	28%
No. of Time Blocks DC above 90 % (8000 MW)	19	0.2	0.1%

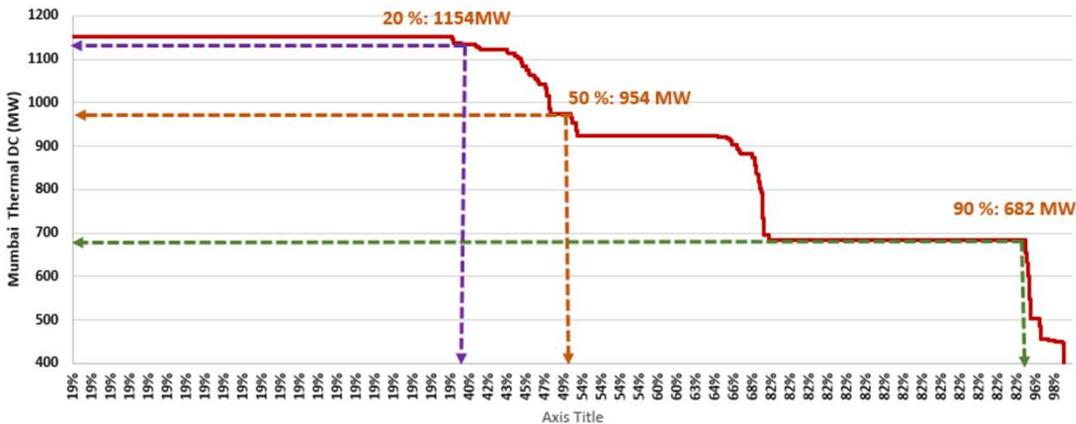
For 50% of the period, DC is above 6600 MW

For 10 % of the period, DC is above 7000 MW

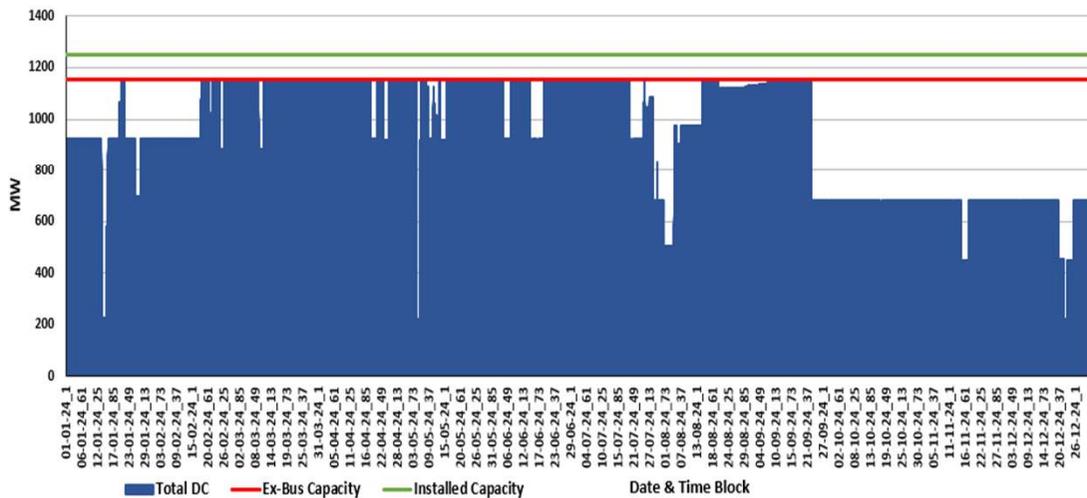
DC is at much side compared to the Ex-Bus (Installed) Capacity

DC Analysis of Thermal Generation_ Mumbai Units

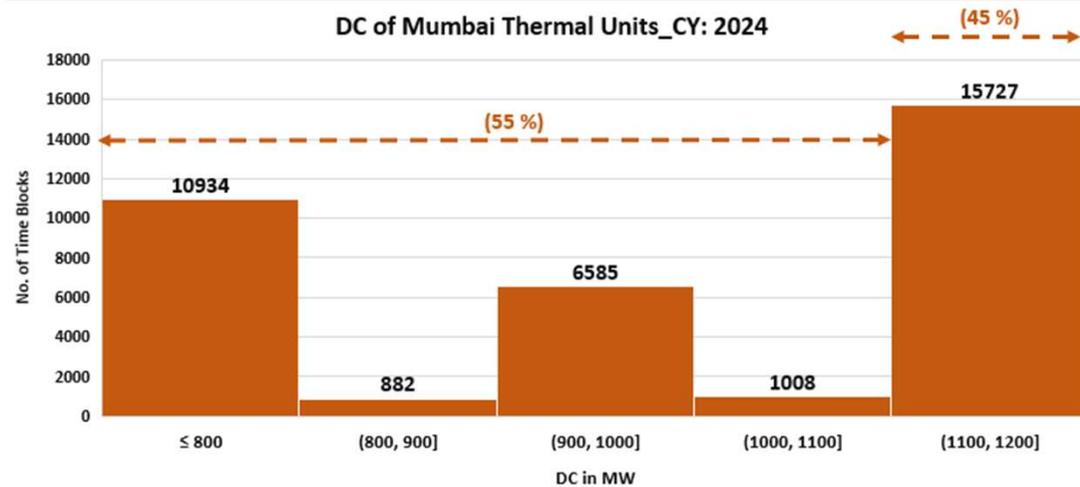
Mumbai Thermal Unit DC Duration Plot_CY: 2024



DC / Ex-Bus / Installed Capacity of Mumbai Thermal Units_CY: 2024



DC of Mumbai Thermal Units_CY: 2024

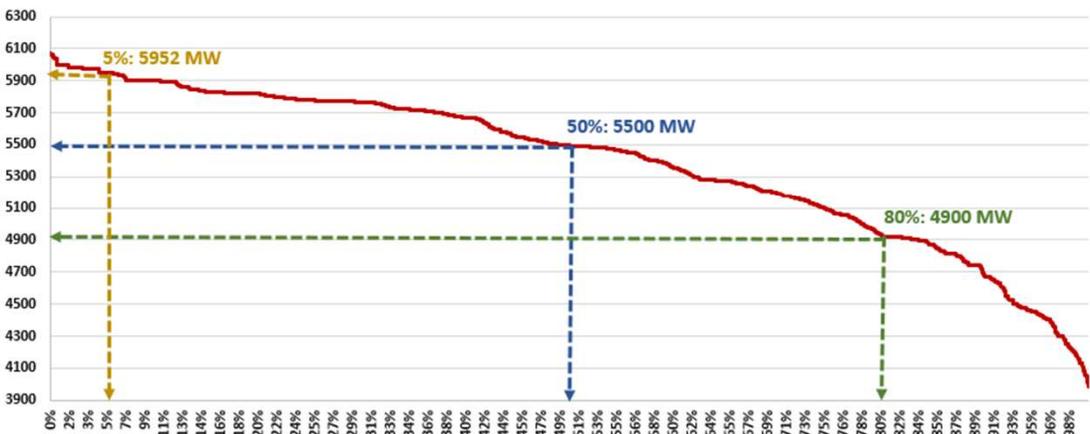


DC against Ex-Bus Capacity	No. of Time Blocks	No. of Days	% in Year
No. of Time Blocks DC below 50 % (576 MW)	1523	16	4%
No. of Time Blocks DC below 70 % (800 MW)	10934	114	31%
No. of Time Blocks DC below 75 % (865 MW)	11174	116	32%
No. of Time Blocks DC below 80 % (923 MW)	12680	132	36%
No. of Time Blocks DC above 90 % (1038 MW)	18542	193	53%
No. of Time Blocks DC above 80 % (923MW)	22456	16	4%
No. of Time Blocks DC above 90 % (1038 MW)	16594	114	31%

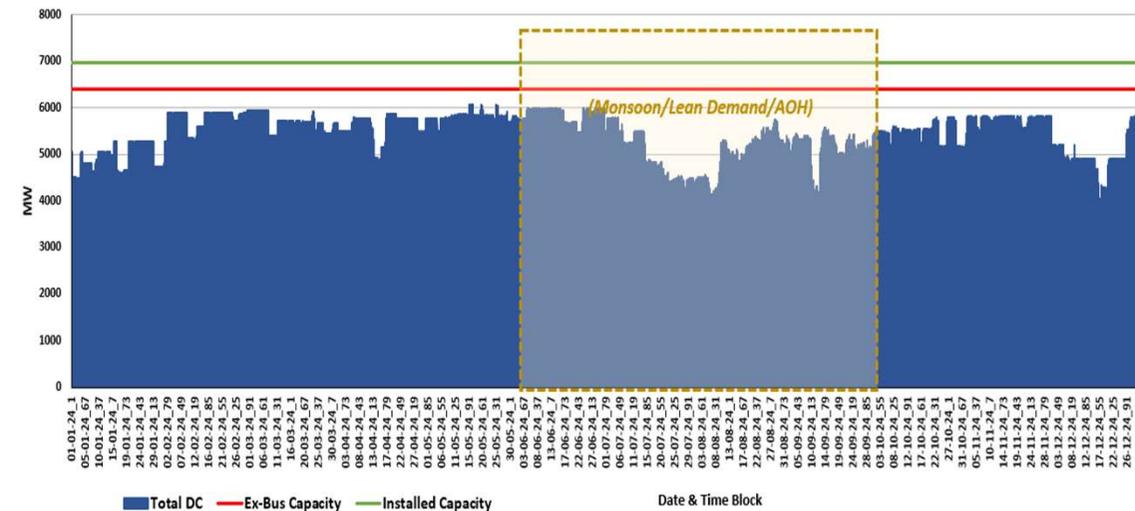
- For 45% of the period, DC is above 1100 MW

DC Analysis of Thermal Generation_ IPPs

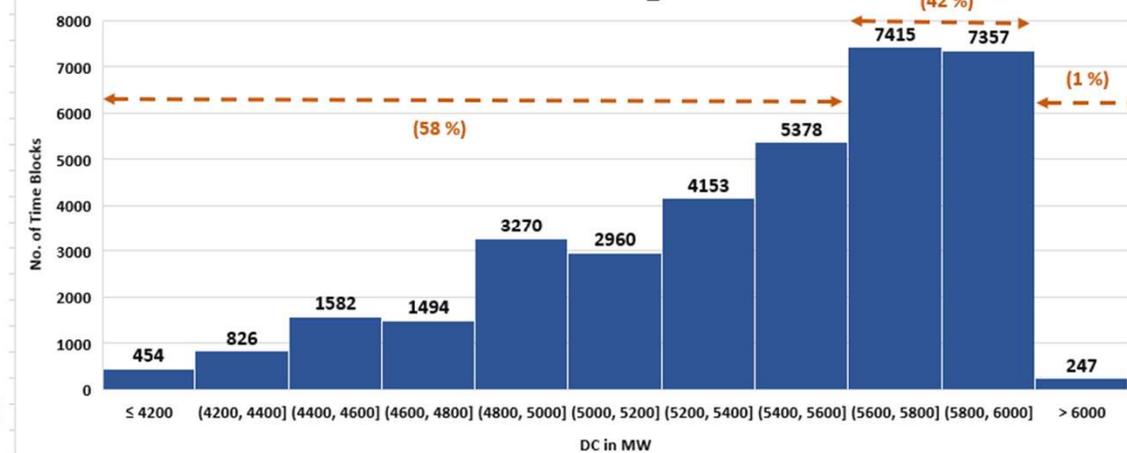
IPP Thermal Unit DC Duration Plot_CY: 2024



DC/Ex-bus/ Installed Capacity of IPP Thermal Units_CY: 2024



DC of IPP Thermal Units_CY: 2024

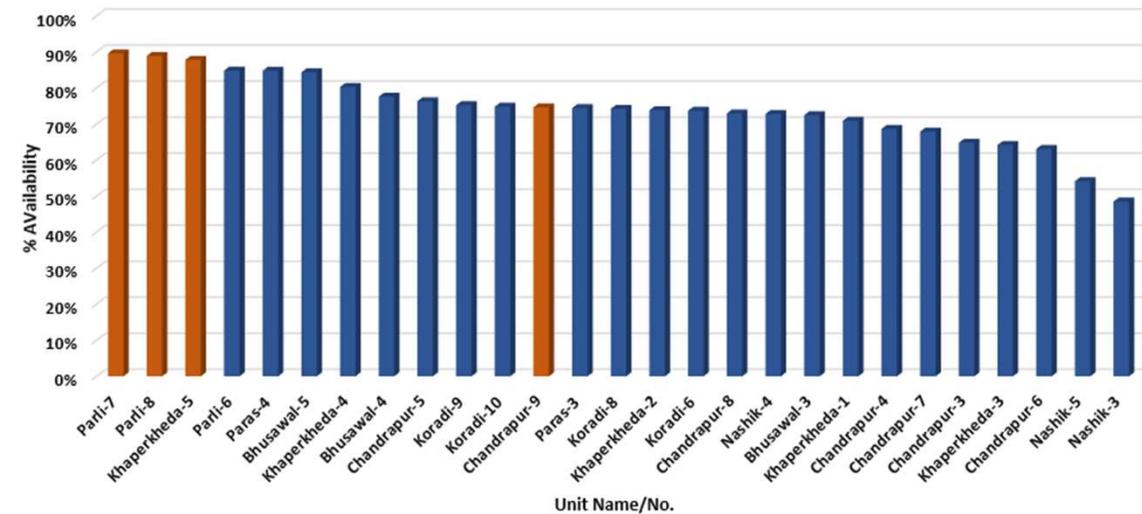


DC against Ex-Bus Capacity	No. of Time Blocks	No. of Days	% in Year
No. of Time Blocks DC below 50 % (3200 MW)	0	0	0%
No. of Time Blocks DC below 70 % (4500 MW)	2433	25	7%
No. of Time Blocks DC below 75 % (4800 MW)	4356	45	12%
No. of Time Blocks DC below 80 % (5100 MW)	8918	93	25%
No. of Time Blocks DC above 70 % (4500 MW)	32703	341	93%
No. of Time Blocks DC above 80 % (5100MW)	26218	273	75%
No. of Time Blocks DC above 90 % (5800 MW)	7604	79	22%

- For 42% of the period, DC is above 5600 MW
- For 1 % of the period, DC is above 6000 MW

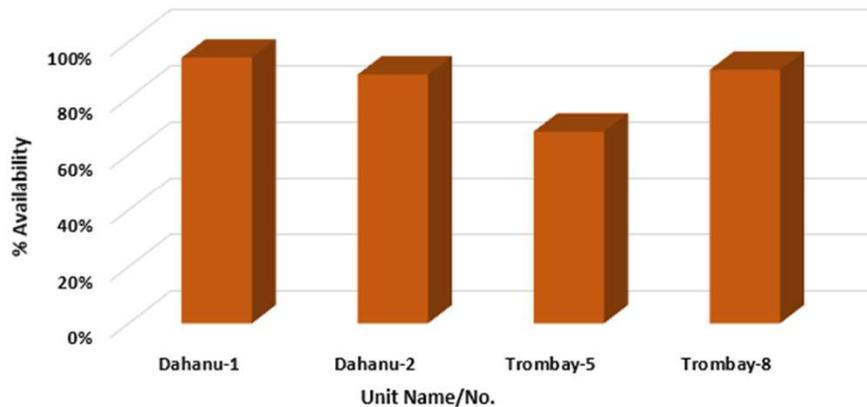
Yearly availability of Thermal Generation

% Availability of MSPGCL Thermal Units_CY: 2024

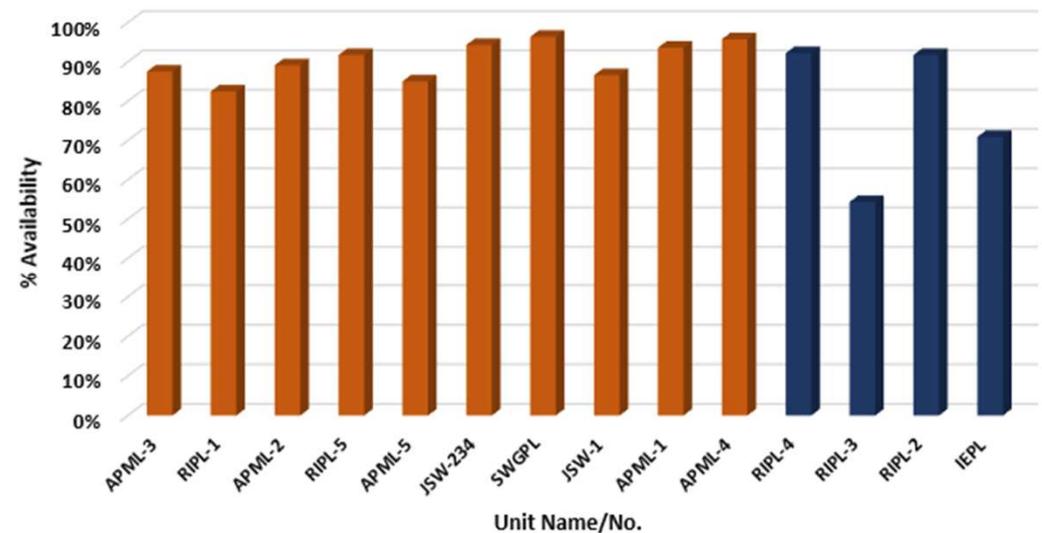


- Only 8 units of MSPGCL are meeting the norms as per MYT regulations, 2019.
- All Mumbai thermal units are meeting norms, Except for Trombay - which was emergency withdrawn from 22.09.2024 to 05.02.2025 due to fire in cable vault.
- RIPL-3 unit and IEPL unit is not meeting norms under IPPs.

% Availability of Mumbai Thermal Units_CY: 2024



% Availability of IPP Thermal Units_CY: 2024



Non-Availability of Thermal Generation

MSPGCL Thermal Units

Owner	Station	Name of Unit	No. of Times under shut down	No. of Days not available	No. of Days under zero schedule	
MSPGCL	Bhusawal TPS	Bhusawal Unit 3	24	40	10	
		Bhusawal Unit 4	20	62	0	
		Bhusawal Unit 5	22	33	0	
	Chandrapur TPS	Chandrapur Unit 3	14	50	0	
		Chandrapur Unit 4	12	27	0	
		Chandrapur Unit 5	12	17	0	
		Chandrapur Unit 6	12	93	0	
		Chandrapur Unit 7	20	50	0	
		Chandrapur Unit 8	16	38	0	
	Khaparkheda TPS	Chandrapur Unit 9	18	68	0	
		Khaparkheda Unit 1	6	17	0	
		Khaparkheda Unit 2	4	38	0	
		Khaparkheda Unit 3	17	59	0	
		Khaparkheda Unit 4	14	21	0	
	Koradi TPS	Khaparkheda Unit 5	12	15	0	
		Koradi Unit 6	12	23	0	
		Koradi Unit 8	14	46	0	
		Koradi Unit 9	9	26	0	
	Nashik TPS	Koradi Unit 10	9	23	0	
		Nashik Unit 3	14	90	0	
		Nashik Unit 4	7	22	0	
	Paras TPS	Nashik Unit 5	20	84	2	
		Paras Unit 3	10	59	0	
	Parli TPS	Paras Unit 4	9	27	0	
		Parli Unit 6	6	34	21	
		Parli Unit 7	6	10	20	
			Parli Unit 8	9	21	15

Mumbai Generating Units:

Owner	Station	Name of Unit	No. of Times under shut down	No. of Days not available	No. of Days under zero schedule
Adani, Dahanu	ADTPS	AEML Unit 1	7	15	0
		AEML Unit 2	8	49	0
TPC-G	TPC	Trombay 5	3	109	0
		Trombay 7A	3	4	0
		Trombay 7B	6	7	0
		Trombay 8	4	31	0

IPP Thermal Units

Owner	Station	Name of Unit	No. of Times under shut down	No. of Days not available	No. of Days under zero schedule
Adani, Tirora	APML	Adani U-1	4	6	5
		Adani U-2	6	9	0
		Adani U-3	5	41	0
		Adani U-4	3	1	7
		Adani U-5	8	39	5
Jaigad TPS	JSWEL	JSW (J) U1	5	40	0
		JSW (J) U2	3	3	39
		JSW (J) U3	2	18	0
		JSW (J) U4	3	6	0
Rattan India, Amravati	RPL AMT	RPL(AMT) U-1	5	56	0
		RPL(AMT) U-2	4	20	0
		RPL(AMT) U-3	4	167	0
		RPL(AMT) U-4	5	20	0
		RPL(AMT) U-5	9	58	0
Sai wardha	SWPGPL	SWPGPL U-1	6	27	31
		SWPGPL U-2	1	36	0
		SWPGPL U-3	5	35	0
		SWPGPL U-4	2	9	0

Coal position at Thermal Generating Stations

Coal Stock less than 3 days	
Power Station	CY 2024
	No. of Days
ADTPS	67
Khaparkheda Unit 1 to 4	26
APML, TIRORA	16
SWPGPL	6

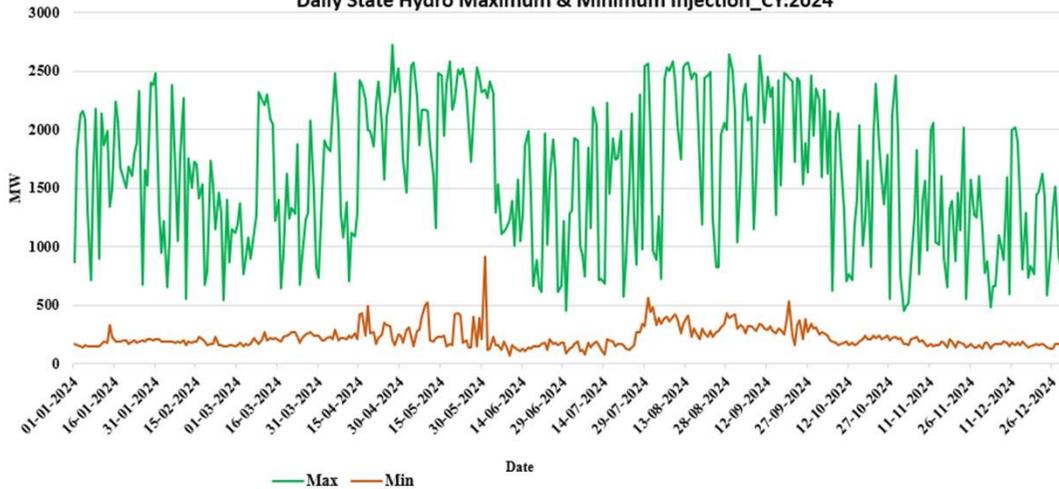
Coal Stock less than 7 days	
Power Station	CY 2024
	No. of Days
APML, TIRORA	289
Chandrapur Unit 3 to 7	245
Chandrapur Unit 8 and 9	245
Khaparkheda Unit 1 to 4	87
Parli Unit 6 and 7	65
Khaparkheda Unit 5	63
SWPGPL	47
ADTPS	46
RPL (AMT)	37
Bhusawal Unit 4	31
Bhusawal Unit 5	31
Koradi Unit 8 to 10	25
Parli Unit 8	25
Paras	24
Koradi Unit 6	10
Bhusawal Unit 3	4

Coal Stock less than 15 days	
Power Station	CY 2024
	No. of Days
Koradi Unit 8 to 10	292
Bhusawal Unit 4	270
Bhusawal Unit 5	270
RPL (AMT)	233
Parli Unit 6 and 7	219
APML, TIRORA	192
Khaparkheda Unit 5	175
Paras	148
Koradi Unit 6	144
Khaparkheda Unit 1 to 4	141
Nashik	131
SWPGPL	113
Parli Unit 8	101
Bhusawal Unit 3	63
Chandrapur Unit 3 to 7	55
Chandrapur Unit 8 and 9	55
JSWEL	26
ADTPS	21
TPCL	3

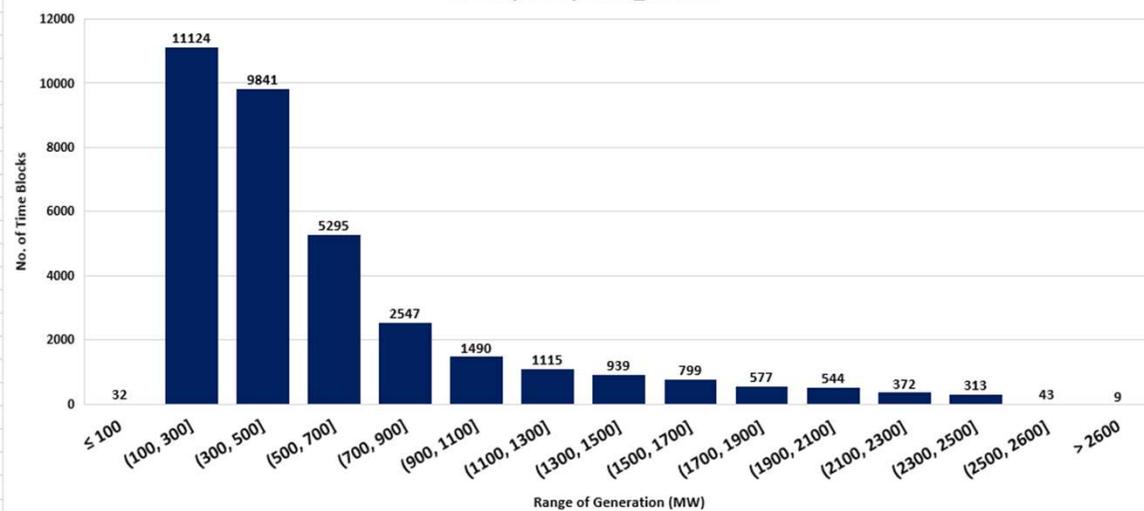
- The CEA Coal Stock norms for Coal-based plants dated 06.12.2021, mandates every thermal Generating Company to maintain coal stock.
- Notices for default in maintaining coal position issued by MSLDC are as below:
 - MSPGCL: 26 Nos.
 - AEML (Dahanu): 67 Nos.
 - APML (Tiroda): 16 Nos.
 - SWPGPL: 6 Nos.

Hydro Generation

Daily State Hydro Maximum & Minimum Injection_CY:2024



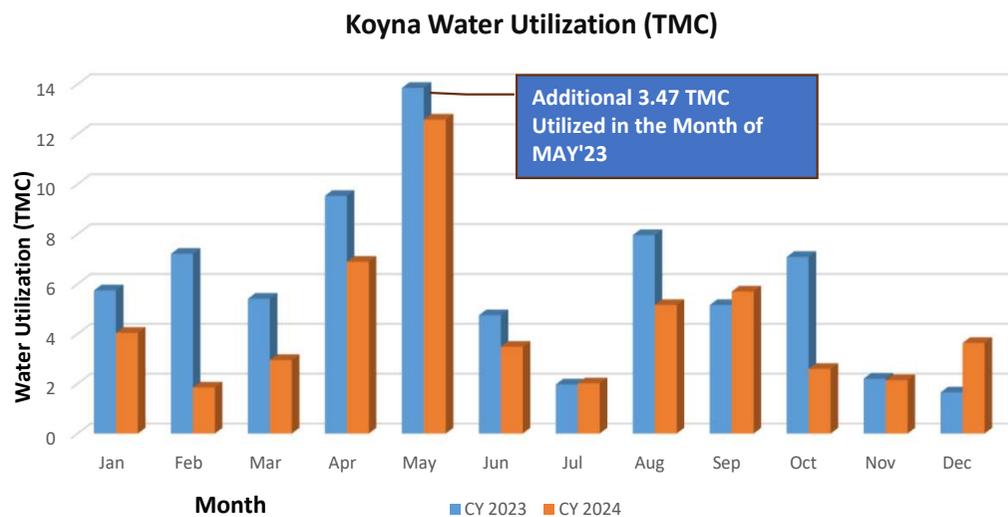
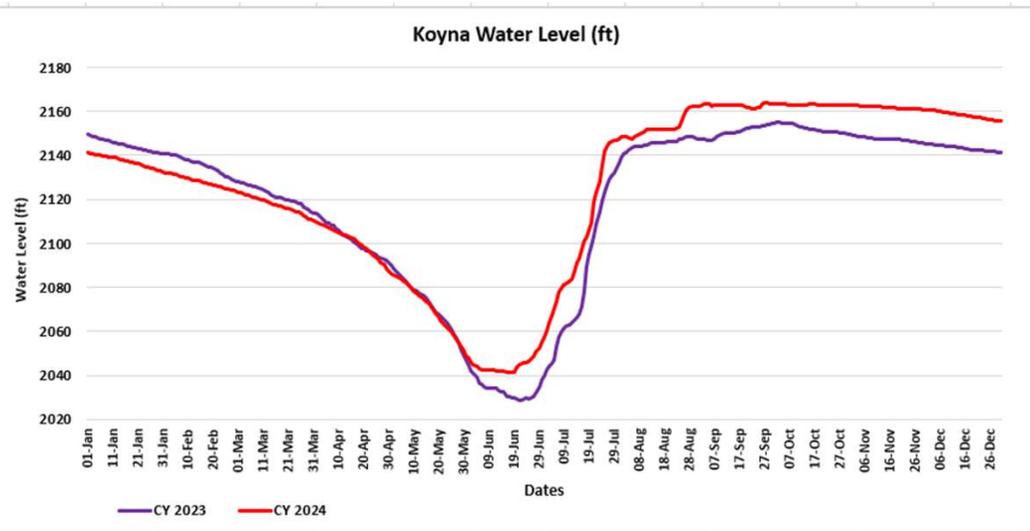
State Hydro Injection_CY: 2024



Owner	Station	Name of Unit	No. of Times under shut down	No. of Days not available
MSPGCL	Ghatghar HPS	Ghatghar Unit-1	17	51
		Ghatghar Unit-2	10	228
	Koyna HPS	Koyna STG-IV Unit-1	4	2
		Koyna STG-IV Unit-2	4	3
		Koyna STG-IV Unit-3	7	65
		Koyna STG-IV Unit-4	11	5
		Koyna Unit 1	4	15
		Koyna Unit 2	4	29
		Koyna Unit 3	4	12
		Koyna Unit 4	1	1
		Koyna Unit 5	2	101
		Koyna Unit 6	1	34
		Koyna Unit 7	0	0
		Koyna Unit 8	1	1
	Koyna Unit 9	1	10	
	Koyna Unit 10	2	39	
Koyna Unit 11	1	288		
Koyna Unit 12	0	0		

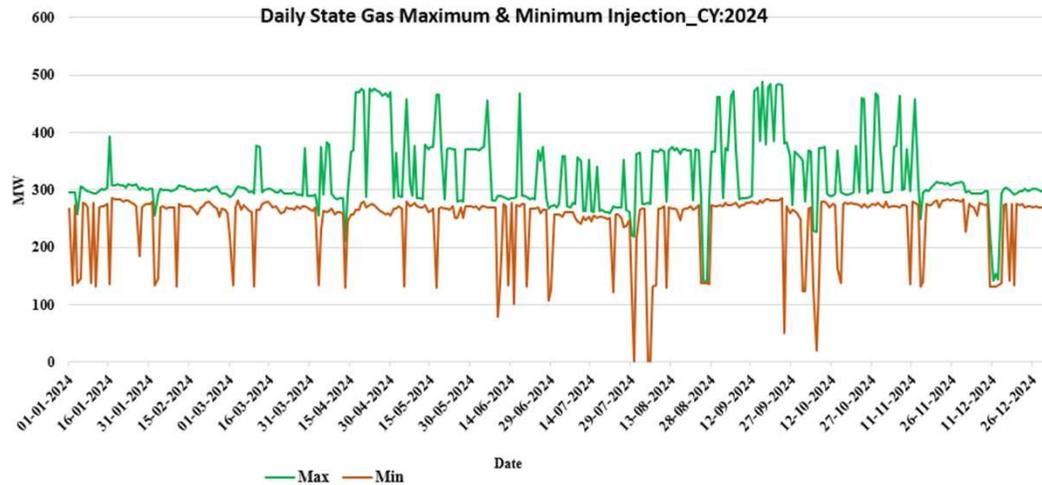
- For 60 % of the period, hydro generation was used for capacity between 0 to 500 MW.
- For 32% of the period, hydro capacity was used between 500 to 1500 MW
- For 8 % of the period, hydro generation is used above 1500 MW capacity

Koyna Lake Level

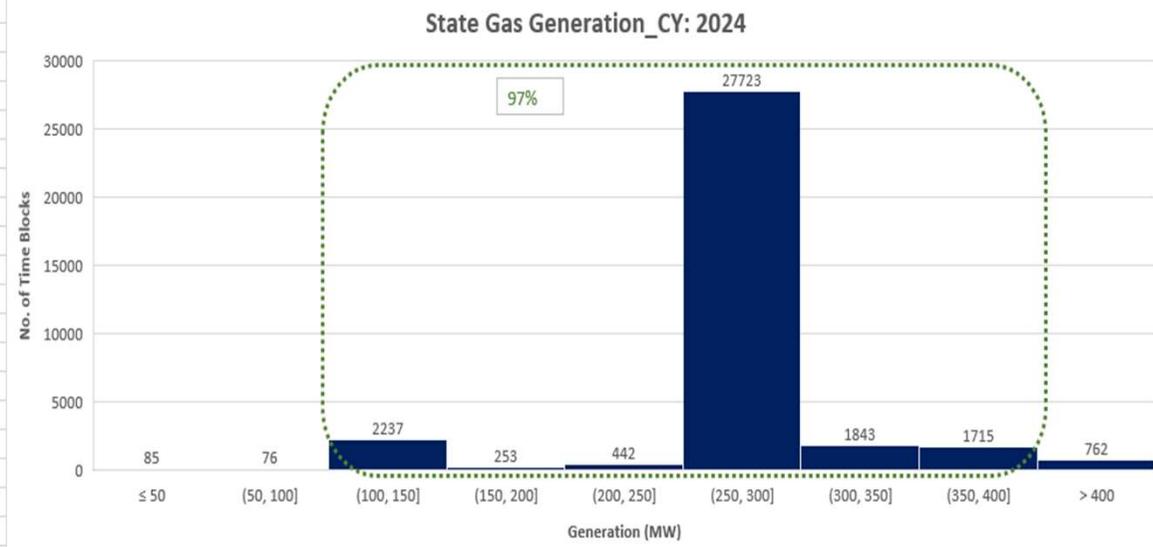


- The Water allocation for Maharashtra Koyna Generating Plant is 67.5 TMC for a Water year starting from June to May
- The water utilized by Koyna St-I & II and Stage-IV is utilized for generation at Koyna Stage-III. Hence, the water utilized at Koyna Stage-III is not considered in the TMC utilization quota
- 12.583 TMC of Koyna water is utilized in the month of May – 2024. As per the MSPGCL Letter vide CE/KGSC/TECH/MSLDC/No.0015 Dated 03.02.2024 the westward water quota was reduced by 8.644 TMC for water year 2023-24 due to less rain fall and low dam storage. Hence total TMC allocated for water year 2023-24 was 58.856 out of which 0.69 TMC remains unutilized.

Gas-based Generation

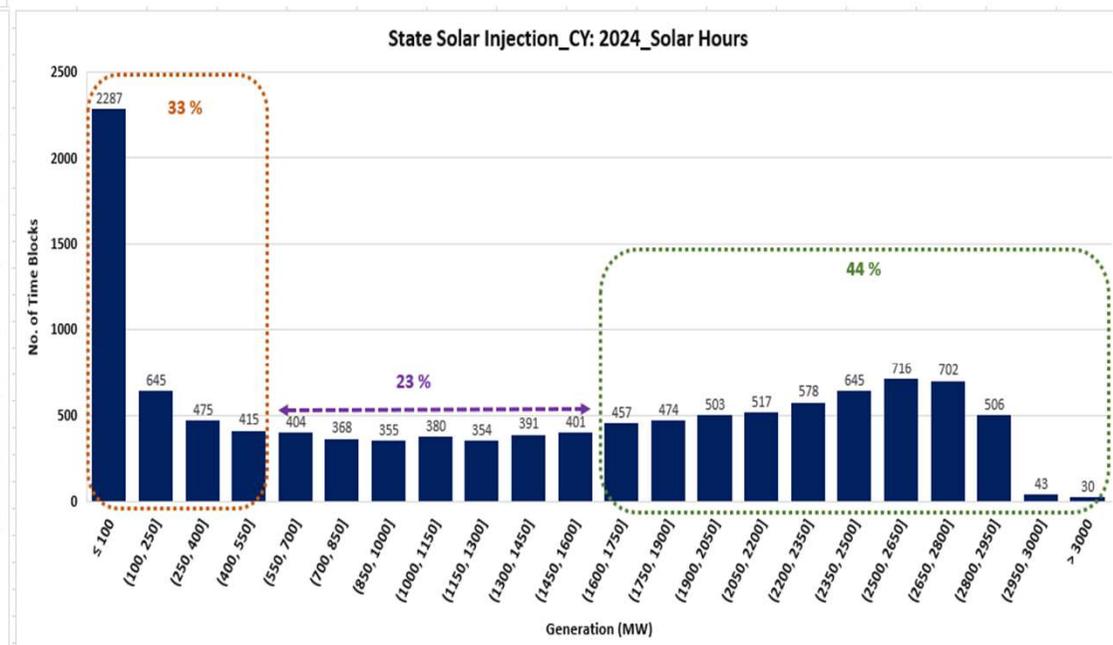
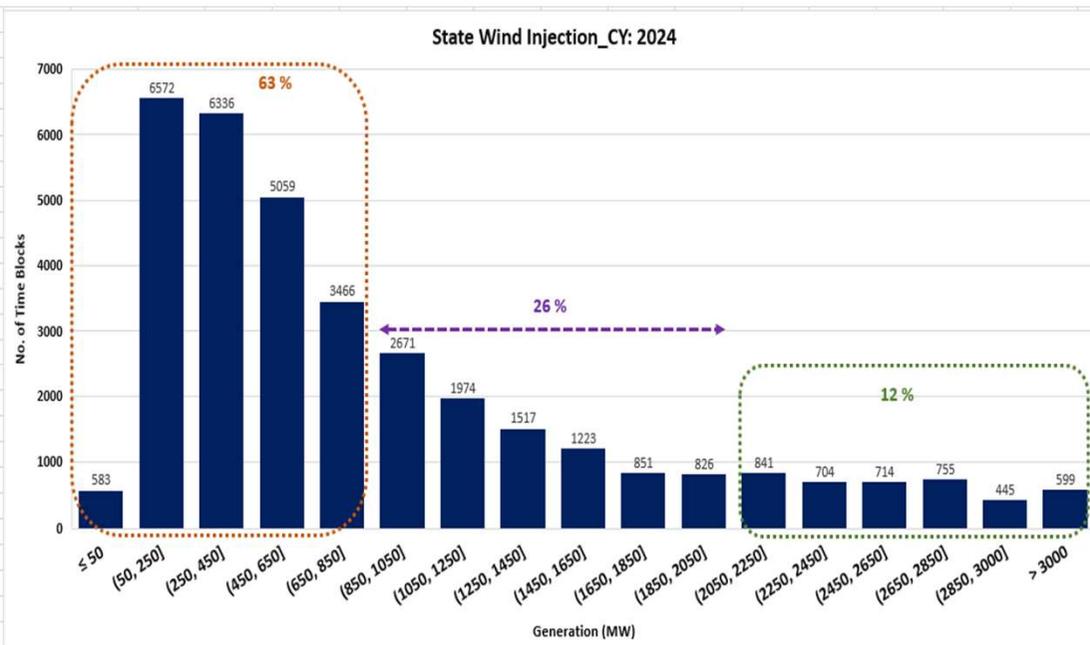
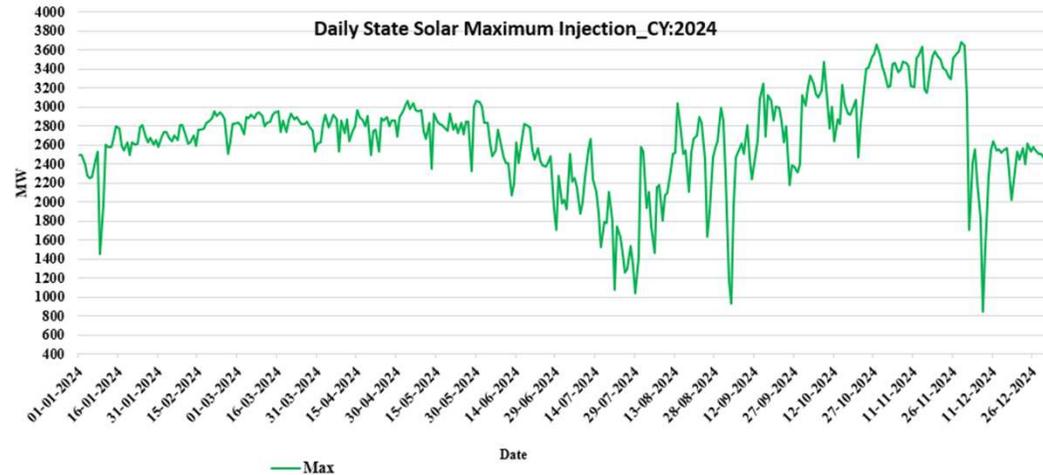
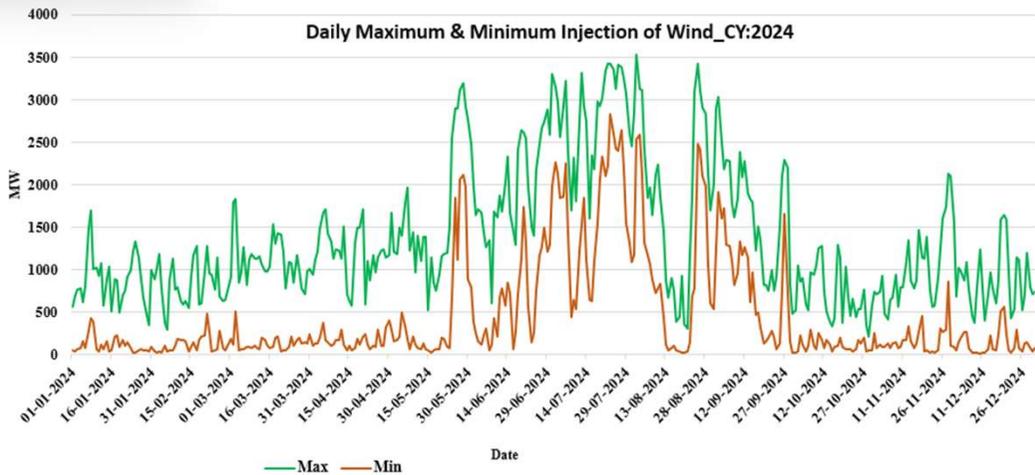


Owner	Station	Name of Unit	No. of Times under shut down	No. of Days not available	No. of Days under zero schedule
MSPGCL	Uran GTPS	Uran Unit 5	-	-	-
		Uran Unit 6	23	148	144
		Uran Unit 7	17	46	30
		Uran Unit 8	22	97	4
		Uran Unit A0	-	-	-
		Uran Unit B0	24	90	0

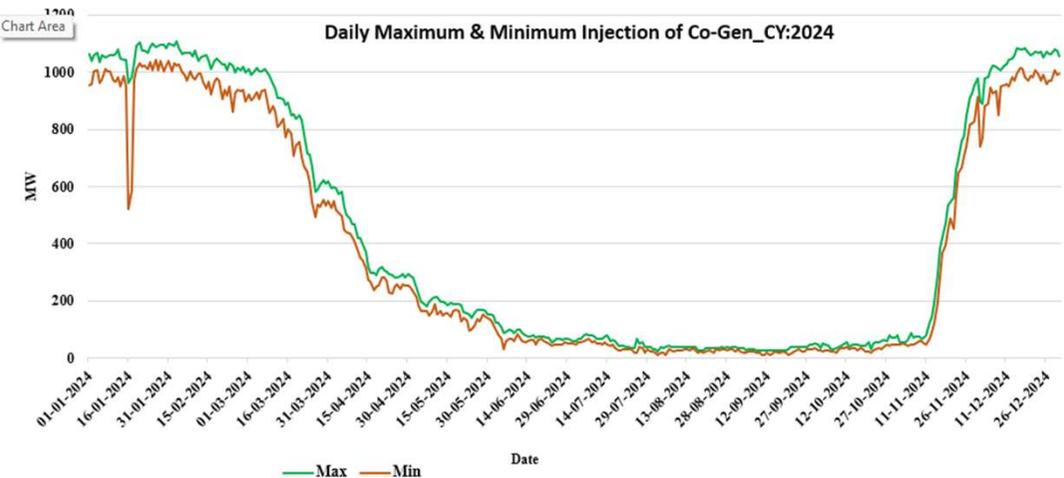


- The total installed capacity of 852 MW (Uran + TPC)
- The generation depends up on availability of APM gas. Hence, based on the gas availability, these units are despatched
- Some times TPCL Unit-7 is operated through RLNG gas to meet out contingencies under emergency situations
- For 97 % of the period, injection is only between 100 MW to 400 MW
- For less than 2 % of the period, generation is above 300 MW
- This indicates that around 50 % of the capacity has become stranded due to non-availability of APM gas

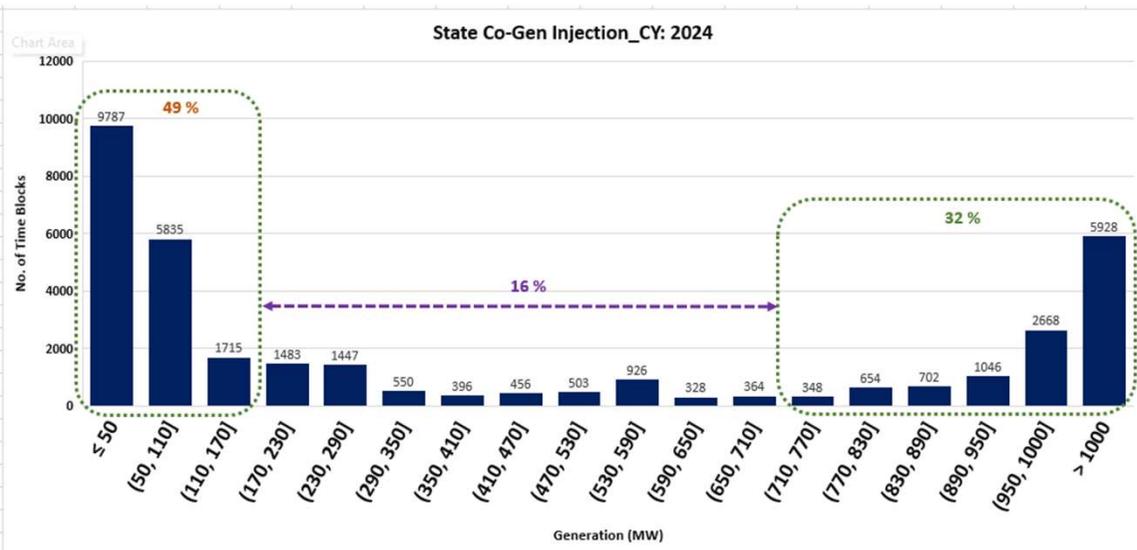
Wind & Solar Generation



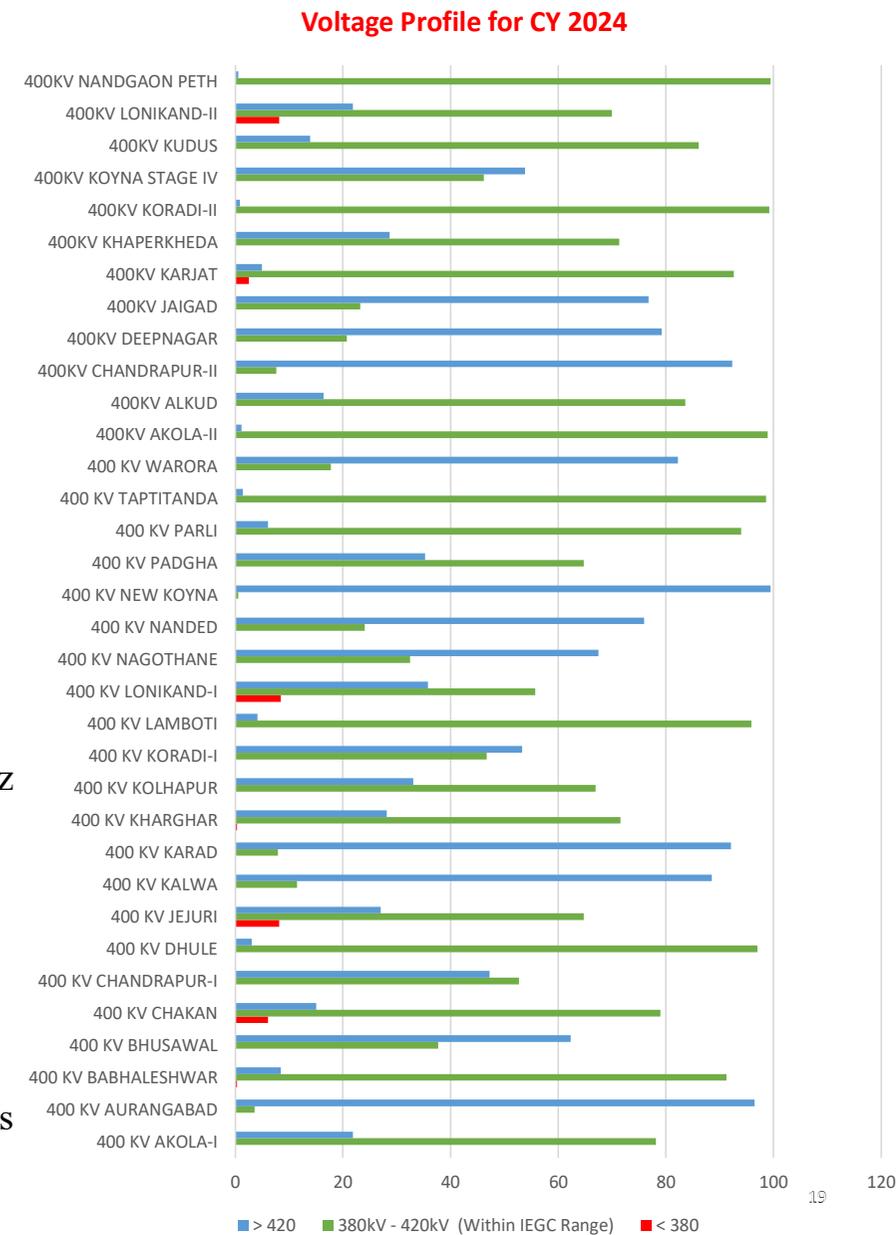
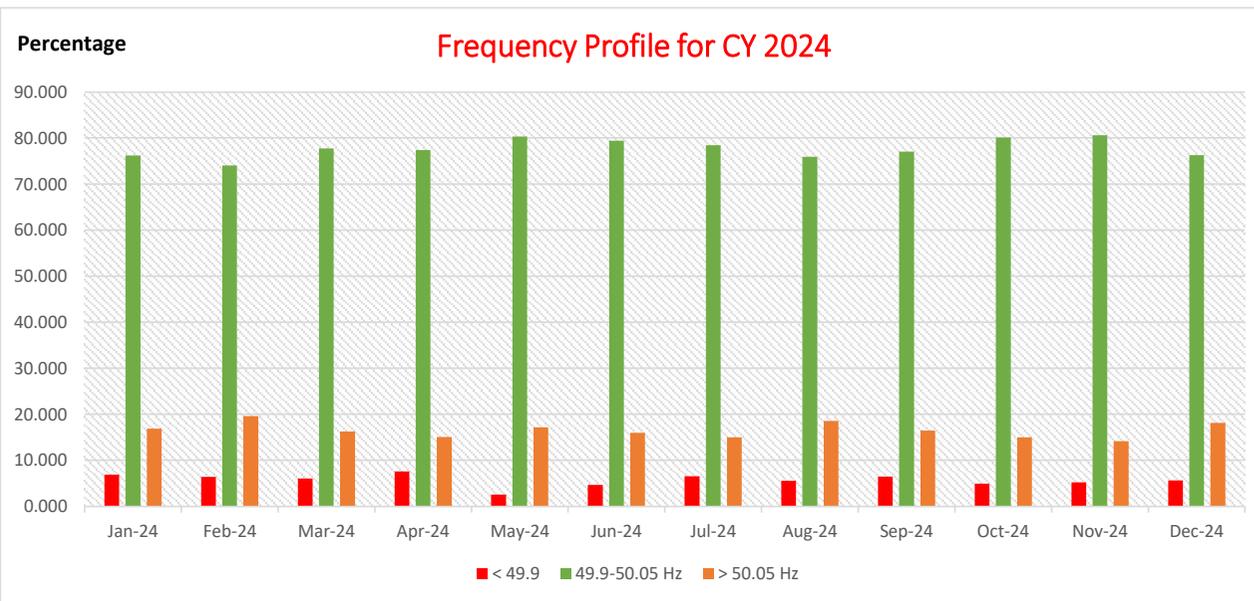
Bagasse based Generation



- Generation from Bagasse-based generation is seasonal & depends up on Sugarcane crushing which starts normally in September or October & is available till April/May.
- Against the total installed capacity of around 2700 MW, for 32 % of the period, injection is above 700 MW.
- For 49 % of the time, injection is below 200 MW.

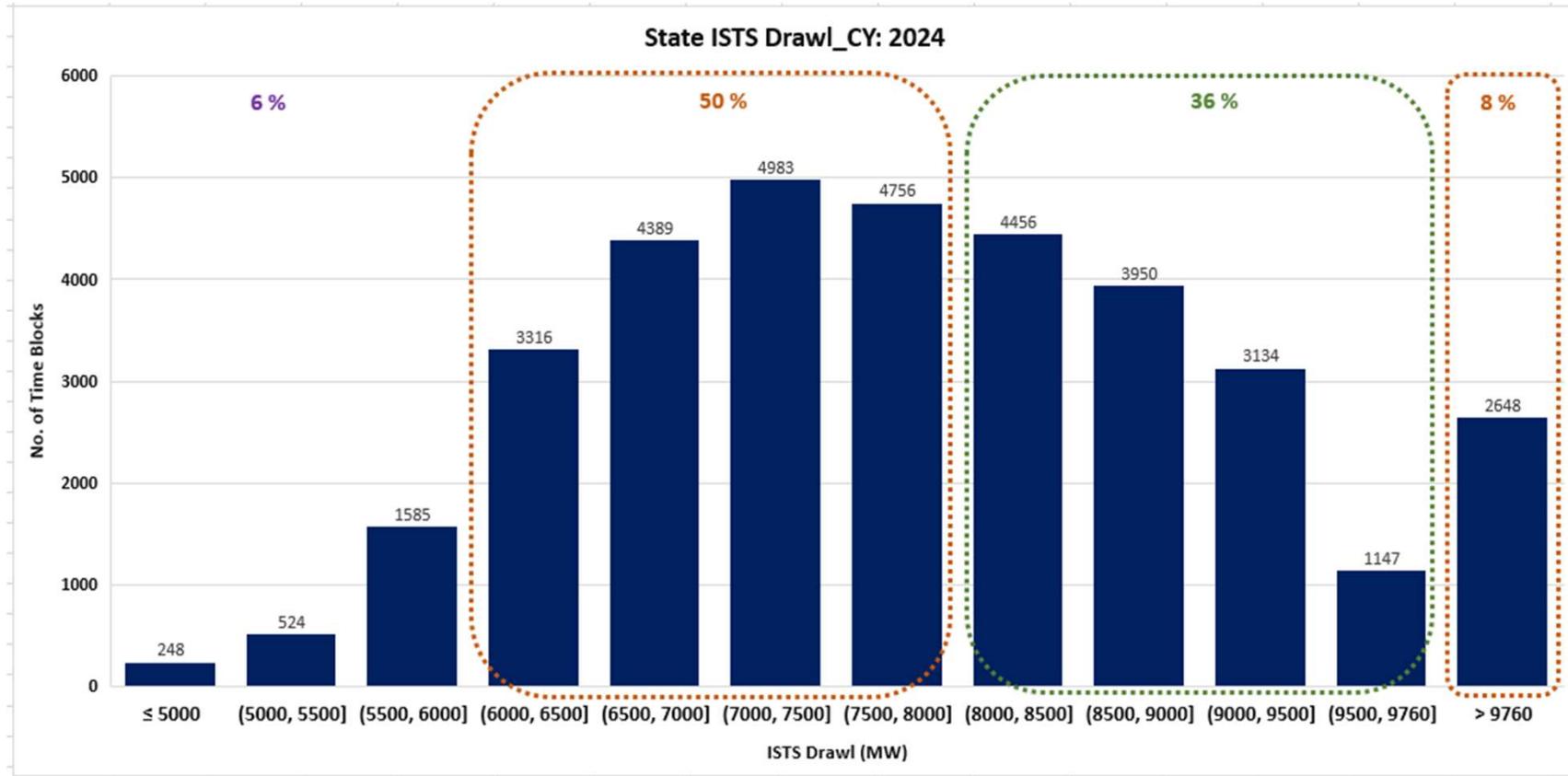


Frequency & Voltage Profile



- In accordance with the IEGC' 2023, the permissible band of Frequency is 49.90 Hz to 50.05 Hz.
- For 77.79 % of the period, the System Frequency was within permissible band.
- The Maximum frequency of 50.63 Hz was recorded in June' 2024.
- Minimum Frequency was recorded was 49.46 Hz in September' 2024.
- The average frequency for the complete year was 49.99 Hz.
- The frequency was above 50.05 Hz for average 16.52 % of times whereas frequency was below 49.90 Hz for 5.69 % of times.

ISTS Draw Violation



- The Available Transfer Capability (ATC) of the State is 9760 MW.
- The State is permitted to schedule & draw power from ISTS inter-connection points up to ATC limit.
- For 2648 No. of time blocks, i.e. for 8% of the time, State has violated the ATC limit.
- For 36 % of the period, ISTS Drawl is between 8000 MW to 9760 MW.
- For 50 % of the period, ISTS drawl is between 6000 MW to 8000 MW.

Points covered_Constraints

Generation Constraints

- Demand Profile for the State
- Low DC & Availability of Thermal Generators
- Non-contracted Generation Capacity
- Low availability of APM Gas
- Generation capacity under long outage
- Generator responsible for transmission constraints

Transmission Constraints

- LTS Operation & ELR
- Line Hand tripped due to overloading
- 'N-1' Non-Compliant Elements
- Constraint in evacuation of Solar Generation
- MMR Transmission Constraints
- Inter State ATC/TTC Constraint
- Line Hand tripped due to overvoltage

Transmission constraints affecting Generation

- Nashik TPS Generation constraints
- Backing Down of APML (Tiroda) & Koradi-II Generation
- Koyna water utilization
- MMR Constraints impacting Mumbai Generation
- Reactive Power Requirement in Boisar area

System Constraints_Generation Constraints

▪ **Low DC & Availability of Thermal Generators:**

- DC declared by the Thermal Generators is always on lower side.
- The % Availability of the MSPGCL thermal units is not up to the target set in the MERC MYT Regulations, 2019.
- Due to low DC & availability, it is becoming difficult for MSLDC to manage Load-Generation on day ahead as well as in real time.
- As complete InSGS is scheduled, no reserve capacity is available to mitigate any contingencies.
- Many times, Koyna Generation is required to be picked-up to meet demand which is resulting in to additional usage of water.

▪ **Low availability of APM Gas:**

- MSPGCL's Uran (672 MW) & TPCL's Trombay U-7 (180 MW) are gas-based generating plants.
- APM gas provided is on lower side compared to it sanctioned allocated quota.
- Considering location of these plants, any increase in the generation capacity of these plants will reduce the congestion in the 400 kV lines in MMR & Mumbai. Use of RLNG gas is very costly and hence, the power is to be scheduled under 'VSE' which is additional burden on the State DSM Pool.
- Hence, efforts need to be made in increasing the supply of APM gas as per sanctioned allocations.

▪ **Generator responsible for transmission constraints:**

- The installed capacity of Nashik Thermal units is 630 MW.
- These units are not operated to its Ex-Bus capacity being old units & coal issues.
- Due to low generation, the transmission network in Nashik Ring Main is severely stressed.
- The loading on 220 kV Babhaleshwar-Nashik D/C lines is always on higher side and in case of overload, LTS is operated resulting in to load shedding in Nashik Ring Main.
- Hence, it is necessary to operate Nashik units to its full capacity.

System Constraints_Generation Constraints

■ Generation capacity under long outage:

- Some of the units are under long outage.
- All these outages are either due to major overhaul or due to technical faults.

■ Non-contracted Generation Capacity:

- 988 MW capacity is not contracted.
- All these plants are presently out from the grid. The generation from this capacity will be beneficial for managing Grid.

UNIT UNDER NO PPA								
Utility	Name of Unit	Capacity	Date Trip	Time Trip	Date Sync	Time Sync	Reason	Expected Date
PGPL	PGPL U 1	262	07-02-17	17:30		Continued.	No PPA	
PGPL	PGPL U 2	126	07-02-17	17:30		Continued.	No PPA	
IPP	VIPL U-1	300	29-12-18	0:30		Continued.	No PPA from 20.05.2019	
IPP	VIPL U-2	300	17-01-19	0:15		Continued.	No PPA from 20.05.2019	
Total		988						
UNIT UNDER FORCED OUTAGE								
Utility	Name of Unit	Capacity	Date Trip	Time Trip	Date Sync	Time Sync	Reason	Expected Date
MSPGCL	Uran Unit 7	1058	04-03-25	14:15		Continued.	Turbine bearing vibration high	05-06-25
MSPGCL	Chandrapur Unit 9	500	11-01-25	18:55		Continued.	Generator Protection operated	15-06-25
Total		1558						

System Constraints_Transmission Constraints

- **LTS Operation & ELR:**
- **Following Elements are overloaded which causes ELR and LTS operation frequently :**
- 132kV Rahuri Babhaleshwar Ckt.
- 220kV Nashik Babhaleshwar D/C
- 132kV Nagar MIDC Sonewadi
- 132/33kV 25 MVA T.F I& II at Wadzire
- **Line Hand tripped due to overloading:**

To control Overloading of	Name of Line required to hand tripped
220kV Nashik – Babhaleshwar D/C	220kV <u>Eklahare (GCR) – Airoli Knowledge Park</u>
	220kV <u>Eklahare (OCR) – Navsari ckt – 2</u>
	220kV <u>Eklahare (OCR) – Padghe</u>
	220kV <u>Ghatghar - Jindal</u>
220kV <u>Alephata - Babhaleshwar</u>	220kV <u>Alephata - Kathapur</u>
220kV Urse - Chinchwad	220kV Chinchwad - Hinjewadi
400 kV Chakan – Talegaon (PG)	Any one or Both circuits of 400 kV Aurangabad (PG) – Pune GIS (PG) D/C are <u>handtripped.</u>

System Constraints_Transmission Constraints

■ Constraint in evacuation of Solar Generation:

- A total 208 MW Solar Generation is connected to 132 kV Wagdari & Naldurg S/s, 149 MW & 59 MW Solar Generation respectively.
- The said generation is evacuated through 132 kV Ujani-Naldurg S/C, 132 kV Bale – Naldurg S/C & 132 kV Wagdari – Akkalkot S/C line. 132 kV Naldurg & 132 kV Wagdari S/s are interconnected through S/C line. Out of these three evacuating lines, 132 kV Ujani-Naldurg S/C & 132 kV Bale – Naldurg S/C lines are old more than 30 years.
- In case of tripping of any line, the solar generation required to be backed down so as to avoid tripping of remaining lines on overload.

Details of Grid Event (RE) during the Month of Dec-2024:

Month	Category of Grid Event	Affected Area	Time and Date of occurrence of Grid Event	Time and Date of Restoration	Generation Loss	Brief details of the event
Dec-2024	Transmission Constraints on dt:26-12-2024	Generation connected to 132kV Naldurg PSS & Wagdari PSS	12:30	14:28	44 MW 0.022MUs	Breakdown of 132KV Naldurg - Tuljapur on 26.12.2024 @ 09:20Hrs. due to R-Ph conductor snapped between Loc No. 75 & 76. To control loading on 132kV Naldurg-Bale line curtailment was issued.

System Constraints_Transmission Constraints

▪ Inter State ATC/TTC Constraint:

- Presently, ATC / TTC for the Maharashtra State is as below:
- Total Transfer Capability (TTC): - 11400 MW
- Transmission reliability Margin (TRM): - 600 MW
- Available Transfer Capability (ATC): - 10800 MW
- During the violation of ATC, to control the Over drawl, Load shedding is required to carried out.

▪ Line Hand tripped due to overvoltage:

Name of Line	No. of Times Hand tripped
400kV Jaigad – Karad ckt - 1	41
400kV Jaigad – Karad ckt - 2	34
400kV Khadka – Aurangabad (Waluj)	84

System Constraints_Transmission Constraints affecting Generation

■ Nashik TPS Generation constraints:

- The grid voltages in Nashik area drops below 205 KV mainly due to high reactive power requirement.
- To meet out the high MVAR requirement in Nashik area & maintain voltages within limits, Nashik Units are continuously sharing high MVAR.
- MSPGCL has informed that such high injection of reactive power is resulting in to increase of generator winding temperature. The rotor temperature increases up to 115⁰C. Also, an Excitation current has reached its maximum limit of 2600 Amperes resulting in huge stress on the insulation of Generator.
- To maintain the winding temperature at safe limits, generation is restricted which is causing loss in generation.
- Sudden drop in Grid Voltage results in generation reduction of around 40-50 MW for the running unit causing commercial loss MSPGCL.
- Reduction in generation (active power sacrificed due to MVAR requirement) results in reduction of availability of the units to be maintained as per Hon'ble MERC Regulations. Further, as per the present regulations, there is no provision of compensation for such reduction in availability due to MVAR requirements.
- The issue was discussed in OCC & GCC meetings. STU, MSLDC & Nashik field office has carried out detailed studies for providing adequate reactive power compensation in Nashik area. **Thus, 160 MVAR reactive power compensation has been planned and the same is being implemented.**

System Constraints_Transmission Constraints affecting Generation

▪ **Backing Down of APML (Tiroda) & Koradi-II Generation:**

- The generation of APML (Tiroda) & MSPGCL's Koradi-II is evacuated through 765 kV network through 765/400 kV Ektuni S/s.
- The transformation capacity at 765/400 kV Ektoni S/s is 2 x 1500 MVA.
- Both the ICTs are loaded to more than 60 % of tis installed capacity.
- There is no redundancy available in the transformation capacity.
- In case of tripping or outage on any one ICT, the remaining ICT is either loaded to full rated capacity or above permissible capacity.
- Hence to maintain the loading within permissible limits, the generation at Tiroda & Koradi-II is required to be backed down.
- It is difficult for MSLDC to approve outage on these ICTs.
- To avoid tripping on overload due to tripping or outage on any ICT, SPS is installed which is providing alarm at both the generating stations & generation is backed down manually as per MSLDC's instructions.
- Hence, it is necessary to provide additional 1 x 1500 MVA 765/400 kV ICT at Ektuni S/s.

System Constraints_Transmission Constraints affecting Generation

▪ **Koyna water utilization:**

- Koyna Generation is utilized by MSLDC as per the schedule issued by MSEDCL. Further, the dispatch is dependent up on the availability of other resources arranged by MSEDCL for meeting its demand. Hence, majority of water is utilized for meeting MSEDCL Demand.
- However, Koyna generation is utilized by the MSLDC under some contingent conditions described below:
- To control over-drawl by the State above 200 MW when all the State thermal generation is exhausted. This action is carried out to avoid hefty penalties at State Periphery.
- To support the Grid frequency when frequency-profile is at lower side, mainly below 49.85 Hz.
- To control overloading of 400 KV lines viz., Talegaon (PG) –Chakan ckt which normally loaded above 750 MW.
- To support the grid during system emergencies such as tripping of any generating unit and evacuating grid lines, HVDC pole, multiple tripping of important grid elements, to operate grid securely & reliably.
- During the power shortfall conditions, till actual effect of load shedding is visible.
- As there are restrictions in water utilization, it is important to utilize Koyna Generation judiciously.

System Constraints_Transmission Constraints affecting Generation

▪ **Reactive Power Requirement in Boisar area:**

- It has been informed by ADTPS in the OCC & GCC meeting that the reactive power sharing through the 220 kV Dahanu – Viraj line is on higher side.
- In peak hours the sharing of reactive power by Dahanu generators increases.
- Due to this high MVAR injection, the active power needs to be reduced.
- ADTPS units have been commissioned in 1995 and are old.
- Due to mechanical vibration issue in the Turbines, it is not possible to provide Reactive power support without reducing active power even within Capability curve.
- Hence, adequate reactive power compensation needs to be planned & implemented in Boisar area.

System Constraints_Transmission Constraints affecting Generation

▪ Issues to be resolved on priority basis :

In view of upcoming summer season, when state demand may cross 30 GW and Mumbai demand will be around 4.5 GW, following actions are needed on priority to ensure transmission adequacy in the state for upcoming summer season,

- Restoration of 220kV Ulwe – Waghivali ckt – 2 (tripped on 25/06/2024)
- Completion of HTLS conductor of lines emanating from Navi Mumbai (PG) s/s towards Kalwa s/s
- Carrying out fault level studies of Mumbai & MMR substations in view of MUMML & KVTL lines
- Planning to reduce Vikhroli 400/220kV ICT loadings (N-1 Non-compliant)
- Expedition of projects to reduce high loading on 220kV Nashik – Babhaleshwar D/C lines.

Outage Planning

Outage Type	Total proposed Outages (Nos)	Total Deferred Outages			Total Approved Outages (Nos)	Total Aailed Outages (Nos)	Total Not Aailed Outages (Nos)	%
		Deferred from site (Nos)	Deferred by SLDC (Nos)	Deferred by WRLDC (Nos)				
OCCM	9025	5546	1041	293	2145	1604	541	74.78
State Element	16891	1290	1754	41	13806	10254	3552	74.27
Emergency	1834	46	80	19	1689	1420	269	84.06
Total	27750	6882	2875	353	17640	13278	4362	75.27

Details of Outages processed at ALDC, Ambazari						
Year	PLANNED			FORCED		
	220 kV	132 kV	Total	220 kV	132 kV	Total
CY 2024	858	82	940	153	203	356

Outages of 220 kV & below network in VKM area are processed at ALDC, Ambazari.

- MSLDC Airoli carries out important function of managing outages of 220 kV level & above.
- All such outages are processed through web-based software.
- Total 27750 No. of outages were processed during CY: 2024 out of which around 25% of the outages were deferred by site itself.
- Around 10 % & 1 % outages were deferred by MSLDC & WRLDC respectively.
- 64 % outages i.e. 17640 No. of outages were approved by MSLDC.
- The net percentage of proposed v/s aailed outages is 75.27 % for CY: 2024

Thank You!