
 RIGHT TO INFORMATION	 MAHATRANSCO Maharashtra State Electricity Transmission Co. Ltd. MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD. CIN NO. U40109MH2005SGC153646 Maharashtra State Load Dispatch Center Office of The Chief Engineer Tele :91-022-27601762 (P) 91-022-27601931 (O) Extn.1003 Email : cesldc@mahasldc.in website : www.mahasldc.in	 300
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Ref. No. CE/MSLDC/ Op./

NO 02473

Date: **13 NOV 2025**

To,

As per mailing list

Sub: Agenda for the 11th Operation Co-ordination Committee (OCC) meeting scheduled on 17.11.2025 at 11:00 hrs.

Ref.: 1) 10th OCC MoM Circulated vide CE/MSLDC/TECH/Op/OCC/2031 Dated. 26.09.2025
2) 11th OCC Agenda request through E-mail dtd. 23.09.2025. Reminder sent on 30.09.2025

Dear Sir,

In reference to the above subject, the 10th Operation Co-ordination Committee (OCC) meeting was convened on 3rd September 2025, Minutes of the same are circulated vide letter under reference 1.

Vide letter under reference no. 2, the undersigned, Member Convener of OCC had requested all the members of the OCC to submit agenda items for 11th OCC meeting.

Please find enclosed the agenda for the 11th OCC meeting scheduled on **17.11.2025 at 11:00 hrs.** at SLDC, Kalwa through hybrid mode i.e., physical and video conferencing.

It is requested to kindly make it convenient to attend the meeting with relevant information.

Encl: As above.

Yours sincerely,



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

Copy s.w.rs. to:

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

The Executive Director & Chairman of OCC, MSLDC, Airoli, Navi Mumbai.

All OCC members as per list

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	edsldc@mahaslde.in
2	MSETCL	Shri Mahendra Walke	CE, Tr O&M MSETCL	Member	9769213955	ceom@mahatransco.in
3	SLDC	Shri Girish Pantoji	CE (I/c), MSLDC	Member	9822414154	ceslde@mahaslde.in
4	STU/ MSETCL	Shri. Peeyush Sharma	CE, STU	Member	9769213865	cestu@mahatransco.in
5	MSEDCL	Shri. Sandeep Patil	CE, PP	Member		cepp@mahadiscom.in
6	MSEDCL	Shri Pravin Annachatre	S.E (LM), MSEDCL	Member	9833980238	selmkalwa@gmail.com
7	MSPGCL	Shri. Anil Kathoye	CE, Generation (Works) MSPGCL	Member	022-6952200 69853535 Ext. 3519	cegw@mahagenco.in
8	TPCL	Shri Kiran Desale	Chief – Transmission TPCL	Member	9223553342	desalekv@tatapower.com
		Shri Milind Gole	Head (PSCC), TPCL	Member	9820868264	goleml@tatapower.com ddveer@tatapower.com
9	TPCL- Generation	Mr Hemant Karadkar	Head Operations – Trombay	Member	9223553195	karadkarhr@tatapower.com
10	AEML	Shri Mahesh Andhari	Head Operations (Distribution & Transmission)	Member	9323549996	mahesh.andhari@adani.com
11	AEML	Shri Ranjeet Sawardekar	Head ABT	Member	9324818009	ranjeet.sawardekar@adani.com
12	ATIL	Shri Saurabh Sharma	Manager-O&M	Member	8233552863	saurabh.sharma@adani.com
13	MEGPTCL	Shri Rakesh Bhalerao	Associate Manager-Business Development	Member	7045953823	rakesh.bhalerao@adani.com
14	JPTL	Shri Vaibhav D Sansare	Associate Manager-Transmission	Member	9552577122	Vaibhav.sansare@jsw.in
15	APTCL	Shri Rajiv Nimje	AGM, APTCL	Member	9422308883	Rajiv.nimje@rattanindia.com
16	KVTL	Shri Rakesh Bhalerao	Associate Manager-Business Development	Member	7045953823	rakesh.bhalerao@adani.com
17	VIPL	Shri Ashish Kumar Shukla	HOD-Electrical Maintenance	Member	6358853165	ashishkumar.shukla@adani.com

**Agenda for 11th Operation Co-ordination Committee meeting scheduled on 17.11.2025
at 11:00 Hrs. at MSLDC**

18	JSWEL	Mr. Prasanna Ghatge	AGM (Head-OSTS)	Member	9552577141	prasanna.ghatge@jsw.in
19	ADTPS	Shri Pinal Desai	Associate VP ADTPS	Member	9325119747	pinal.desai@adani.com
20	RIPL	Shri Amit Panchalwar	DGM, RIPL	Member	9503229333	amit.panchalwar@rattanindia.com
21	APML, Tiroda	Shri Manoj Taunk	Associate VP-Protection & Metering	Member	9099005517	Manoj.Taunk@adani.com
		Shri Akshay Mathur	VP-Business Development group, Adani	Member	9870663062	Akkshayv.Mathur@adani.com
22	SWPGPL Warora.	P Kalyan	AGM - Electrical	Member	8600400107	Kalyan.p@saiwardha.com
		Barath Muthusamy	Deputy Manager-BDG	Member	9154674864	bdg.operations@saiwardha.com
23	M/S. Bothe wind Park Development Pvt. Ltd.	Mr. Dhananjay Joshi	Manager	Member (Wind)	9971274700	dhanajay.joshi@continuumenergy.in vijay.karale@continuumenergy.in
24	TP Saurya Ltd.	Mr. Gunesh Kusrkar	Manager	Member (Solar)	9930867996	gunesh.kusrkar@tatapower.com
25	Jarandeshwar Sugar Mills pvt. Ltd.	Mr J T Gore Mr A V Patil	Co-gen in-charge Elect. Engineer	Member (Co-gen)	9922254115 9673889938	jsmcogen@gmail.com
26	BEST	Shri S. S. Bansode	Chief Engineer (Regulatory)	Member	9869407196	cerc@bestundertaking.com
27	Dhariwal	Pundlik Mahadeorao Wanwe	General Manager	Member	9561112008	pundlik.wanwe@rpsg.in
28	IEPL	Mr. Sandip V. Kawale	Manager (Regulatory, Sales & Purchase-Dept)	Member	8799967053	sandip.iepl@gmail.com
29	JPL	Mr. Gaurav Grover	Manager	Member	9718306200	gaurav.grover@jindalpower.com
30	Vidharbh Mineral and Energy Pvt. Ltd.	Mr. V.N. Kulkarni	HOD Electrical	Member	9158555616	electrical@vidarbhmineral.com maintenance.gepl@gmail.com
31	SLDC	Shri Girish Pantoji	SE(OP), MSLDC	Member-Convener	9822414154	seop@mahaslcd.in

**Agenda for 11th Operation Co-ordination Committee meeting scheduled on 17.11.2025
at 11:00 Hrs. at MSLDC through hybrid mode i.e. physical and video conferencing.**

Agenda Points: -

1. Confirmation of the minutes of the 10th OCC held on 03.09.2025 through hybrid mode and circulated vide CE/MSLDC/TECH/Op/OCC/2031 Dated. 26.09.2025.

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**

Members may like to discuss.

2. Presentation on Maharashtra system Grid performance for January to September 2025
3. **MSLDC Agenda:**

3.1 Review of Transition from RGMO to Free Governor Mode of Operation (FGMO)

Regulation 30(10)(d) of IEGC 2023 and corresponding provisions clause no. 30.3 (a) of MEGC 2020 mandate that all generating stations and their units equipped with governors shall operate under Free Governor Mode of Operation (FGMO). This requirement is critical for maintaining grid frequency stability.

As per the latest information collected, the list of generators yet to transition from RGMO to FGMO is enclosed at **Annexure 3.2**

In this regard, MSLDC has been taking continuous follow-up with the concerned generators during previous OCC meetings and also through correspondence vide letter No. CE/MSLDC/Airoli/00407 dated 07.03.2024 & through email (especially to MSPGCL) on dated 24.06.2024 respectively.

The generating stations with units still operating in RGMO are requested to:

1. Expedite the transition to FGMO.
2. Communicate the firm timelines for compliance to MSLDC.

Further, MSPGCL, VIPL and IEPL is specifically requested to submit a comprehensive transition plan for shifting its units from RGMO to FGMO.

Members may like to discuss.

3.2 Planned Generation Outage Procedure by WRLDC

As deliberated in the 590th OCC Meeting held on 17th April 2025, WRLDC prepared a Draft Procedure for availing OCC-approved planned outages of generating units. The draft procedure was circulated to WR utilities on 18th June 2025 inviting comments.

The comments received from stakeholders were discussed in the 593rd OCC Meeting, following which a joint meeting was convened on 07th August 2025 with WR utilities, generators, and SLDCs for further deliberation.

Subsequently, the final procedure, incorporating the accepted comments, was presented by WRLDC in the 594th OCC Meeting held on 22nd August 2025, where it was approved by the WRPC OCC forum.

The approved procedure is enclosed at **Annexure 3.3**, and the same has already forwarded to all stakeholders vide office letter no. 02039 dated 26.09.2025.

It is to be noted that:

1. All intra-state generators are required to forward their planned generating unit outages along with the contracted Discom's NOC to WRPC and obtain approval in the OCC–WRPC forum.
2. All the intra state generators has to get code from SLDC/WRLDC before availing planned outages and before synchronization.
3. Any delay in availing outages, rescheduling, delay in synchronization should be communicated to SLDC and WRLDC time to time and as per the procedure approved.

The procedure is applicable to all intra-state generators. All generators shall ensure all the conditions mentioned above are to be strictly adhere to.

For Appraisal Please.

3.3 Submission of Periodic Testing Plan of Power System Elements for FY 2026-2027 by 31st Oct.2027

As per IEGC 2023, Clause 40.2, the provision of periodic testing of power system elements has been laid down. Key requirements include:

- Owners of power system elements shall be responsible for carrying out tests and submitting reports to NLDC, RLDCs, CEA, CTU for all elements, and to STUs and SLDCs for intra-State elements.
- All equipment owners shall submit a testing plan for the next year to the concerned RPC by 31st October, to enable proper coordination. Any changes in the schedule shall also be intimated in advance.
- Tests are to be performed once every five (5) years, or earlier in case of major retrofitting, or if advised by SLDC/RLDC/NLDC/RPC due to adverse performance.
- Owners of elements shall implement recommendations suggested in the test reports in consultation with NLDC, RLDC, CEA, RPC, and CTU.

Further, NLDC, in consultation with stakeholders, has prepared Guidelines for Periodic Testing covering detailed testing procedures, data requirements, and report formats. These guidelines are available at NLDC website.

The matter of periodic testing has already been deliberated in the 579th, 584th, and 593rd OCC Meetings. Despite repeated follow-ups, submission of periodic testing plans for FY 2024-25 and FY 2025-26 was poor, with only a few generators completing the testing.

In view of the above, it is requested that all element owners submit their Periodic Testing Plan for FY 2026-27 to WRPC, WRLDC, and SLDC by 31st October 2025, to ensure compliance with IEGC.

In this regard, MSLDC has already sent a letter to all stakeholders vide office letter no. 02038 dated 26.09.2025.

Proposal:

- i. Generators/HVDC/FACTS owners availing planned outages shall mandatorily complete periodic testing before/during availing the shutdown.

ii. Utilities shall attend to deficiencies found during testing during AOH and submit a rectification report.

Members may like to discuss.

3.4 Proposal for Conducting DC Demonstration for One Unit at a Time

As per MEGC-2020 (Annexure-3), the procedure for DC Demonstration of InSGS specifies that the request for demonstration shall be submitted to the SLDC Nodal Officer at least six-time blocks in advance, including the block in which ramp-up is to begin.

It has been observed that generator parameters may vary during a period exceeding two hours, necessitating DC revisions. Hence, it is proposed that DC demonstration requests be informed not earlier than six-time blocks before implementation.

During the DC demonstration conducted on 10.09.2025 for all MSPGCL generators (based on MSEDCL's request), the DC of all generators was required to remain fixed, disallowing any revisions as per the MEGC procedure. Consequently, the grid operator was unable to manage significant generation changes to control state periphery deviations, potentially impacting grid security.

Hence, it is proposed to conduct DC demonstration for one generating unit at a time to ensure grid security and operational flexibility.

3.5 Analysis of Recent Grid Disturbances and Compliance on Corrective Actions

MSLDC has analyzed recent occurrences such as 400/220 kV Busbar and LBB protection operations at major grid substations, and multiple 400/220 kV line trippings during the period from June 2025 to September 2025. The events pertain to 400 kV Nagothane, GCR Chandrapur, Karad, Warora, and other 220 kV substations.

The list of such events is attached as **Annexure – 3.6**

In the occurrence reports, MSLDC has pointed out certain shortcomings in protection systems, equipment commissioning, and maintenance practices associated with these disturbances. The reports also include observations and remedial measures for protection and system improvement.

Utilities are requested to take necessary action on the above observations and submit compliance on the corrective measures implemented as suggested by MSLDC.

Members may like to discuss.

3.6 Delay in response of Transmission licensees from remote operating substation.

On 22.10.2025, the 765/400 kV ICT at Akola s/s tripped at 16:52 hrs; however, the exact cause of tripping was not reported to MSLDC until 18:45 hrs. The WRLDC and NLDC control rooms were continuously following up regarding the cause of tripping. The email correspondence is attached herewith for reference.

It has been observed that during emergency events such as trippings and forced outages, restoration at remotely operated substations takes considerable time due to the need for coordination among multiple agencies, including utilities, SLDC, and WRLDC.

Members may like to discuss.

3.7 Operation of Generation Trimming Scheme (GTS) at 132kV Tighra (Juniper) end on 132kV Khadka-Tigra (juniper) line on dtd. 31.10.2025 & 04.11.2025

A) GTS Operation dated 31.10.2025

1. On dated Dt.31.10.2025, 132kV Malkapur - Bodwad circuit was tripped on distance protection from 12:40 hrs to 13:22 Hrs.
2. During this period on Dt.31.10.2025 at 12:53 Hrs. GTS operated at 132kV Tighra (Juniper) end of 132kV Khadka-Tigra (juniper) line. On operation of GTS, the generation loss of approx. 18 MW (33kV cyclic solar) at 132kV Motala and 9 MW (33kV Kalpa power) at 132kV Malkapur substation occurred from 12:53 Hrs to 13:01 Hrs.
3. Kalpa power solar generation at 132kV Malkapur normalized at 13:40 Hrs and Cyclic solar at 132kV Motala generation normalized at 13:45 Hrs.

B) GTS Operation dated 04.11.2025

1. On dated 04.11.2025 the 132kV Bodwad- Malkapur line was under outage.
2. On Dtd. 04.11.2025, two occurrences happened wherein solar generation of approx. 18.75(cyclic solar) and 9 MW (Kalpa power) affected due to operation of GTS from 10:15 Hrs to 10:29 Hrs and 11:20 Hrs to 11:32 Hrs.
3. Even after operation of GTS the load was increasing continuously due to which 132kV Khadka-Tigra (juniper) circuit tripped on overcurrent operation twice from 10:26 hrs to 11:20 Hrs and 11:25 hrs to 13:30 Hrs.
4. After charging of 132kV Khadka-Tigra (juniper) circuit, again solar generation of approx. 18.75 MW of Cyclic solar affected from 13:30 hrs to 13:45 hrs due to operation of SPS.

From above two occurrences, it is observed that the generation loss occurred due to operation of GTS at 132kV Tighra (Juniper) end.

Hence, to avoid loss of Solar generation, it is necessary prioritize the work of strengthening of the transmission network proposed in this area. Also, any applications for Grid connectivity in process of already granted however, not yet obtained Final Grid Connectivity needs to be reviewed by STU.

3.8 Installation of GTS at various transmission elements wherein RE generation is curtailed.

The real time visibility of the 400 kV & above transmission network is completely available at MSLDC. Also, the 220 kV transmission network visibility is substantial. However, the real time visibility of transmission network below 220 kV level is very less. Under such conditions, MSLDC is monitoring the transmission network at 220 kV level & above. It is standard practice that the transmission network below 220 kV level is managed by respective Transmission Licensees. All the loadings, remedial measures, contingency plans, planned & forced outages, etc are managed by respective transmission licensees.

As most of the Wind & Solar Generation is connected below 220 kV level, it is not possible for MSLDC to monitor this network for any overloading or constraints resulting in to curtailment of the Wind & Solar generation. To protect the network, MSETCL field offices have installed Generating Trimming Schemes (GTS) at various transmission elements which act as a defense mechanism under contingencies or network congestions and avoid cascade tripping of the network resulting in to complete loss of RE Generation.

Such incidences of operation of GTS resulted in to curtailment of RE generation are reported by respective MSETCL field offices to MSLDC as and when occurred and MSLDC is maintaining record of such incidences. Such incidences wherein RE generation is curtailed through GTS, are reported to OCC & GCC for ratification. MSLDC is submitting monthly curtailment report to Hon'ble MERC.

In view of above, various GTS installed by MSETCL field offices which result in to curtailment of RE Generation are attached as Annexure 3.9.

These schemes are put forth before the OCC for discussion & ratification.

3.9 Agenda from SCADA department:

- 1) The average availability of RE plant real-time data is around 75%, whereas it should be 99.9% as per regulations. Improvement is required.
- 2) SCADA data availability of MSETCL substations is approximately 84%. Needs to be improved.
- 3) SCADA data of IPP/PPP/RE generations needs to be visible to both at generation plant as well as pooling end.
- 4) Request is being received from the field during FTC to charge the Substation/Elements without visibility of SCADA data.

4. AEML Agenda:

On 2nd August 2025, in view of multiple 400kV line tripping in MMR, MSLDC requested AEML to provide consent for availing outage on 220kV Borivali-Ghodbunder line to disconnect 220kV Ghodbunder Substation by removing jumpers at TL No. 241 & connecting through jumpers at same location to form a temporary 220kV Borivali-Kudus line-2 and to take ICTs at the Kudus end in service.

Considering the load flow study and criticality of the Grid, AEML gave consent for the disconnection of AEML Ghodbunder – Borivali (MSETCL) line and AEML Ghodbunder – Kudus (MSETCL) line under fault and taking the load on both ICTs at the Kudus under the proposed configuration (i.e., 220 kV MSETCL Kudus – MSETCL Borivali line)

However, AEML highlighted the following constraints if the load is taken on both ICTs at the Kudus end under the proposed configuration (i.e., 220 kV MSETCL Kudus – MSETCL Borivali line):

1. Unavailability of both lines at Ghodbunder Substation:

- The Ghodbunder – MSETCL Kudus line is already under tripping.
- The Ghodbunder – MSETCL Borivali line will be under proposed outage.

2. High Loading on Aarey – MSETCL Borivali Lines:

- As per our load flow study, if ICTs at Kudus is taken in service, line loading on 220 kV MSETCL Borivali – Aarey feeders will be @ 255 MW each circuit. Presently, both 220 kV Aarey – MSETCL Borivali Feeders are having load @ 150 MW each.
- Aarey – MSETCL Borivali circuit 1&2 are vulnerable due to weak cable joints.

Recently Load flow study of AEML Network carried out for Mumbai demand 4500MW (Projected Oct loading) considering base condition 220kV Ghodbunder Kudus line (Cable charged only) + 220kV Ghodbunder MSETCL Borivali line (Cable charged only)+ 220kV Gorai Bus-coupler open + 400/220kV Kudus ICT in service.

Following findings are observed in LFS:

1. High Loading on Aarey – MSETCL Borivali Lines:

- As per our load flow study, if ICTs at Kudus are in service, line loading on 220 kV MSETCL Borivali – Aarey feeders will be @ 287 MW each circuit.
- As Mumbai demand grows, loading on 220 kV MSETCL Borivali – Aarey feeders will grow further.
- 220kV MSETCL Borivali circuit – Aarey line 1&2 are vulnerable due to weak cable joints.

In view of the above and as 400KV lines in MMR are normalized, AEML requests to kindly normalize the system as per old scenario [Kudus both ICT out and both AEML lines in service (AEML Ghodbunder – Borivali (MSETCL) line and AEML Ghodbunder – Kudus (MSETCL) line)].

5. MSEDCL Agenda:

1. It has been observed that the SLDC website is reflecting post-facto changes in the published Net Schedule data. A specific instance was noted on 27-08-2025, where substantial changes were observed after the fact in the following components:

- CENTRE
- INTRASTATE MTOA
- INTRASTATE LTA
- RTM_IEX
- INTRASTATE GENERATION
- REMC
- Target Injection Schedule (Ex-Bus)
- Demand Schedule (T), etc.

These post-facto changes were in the range of thousands of MW, which is not acceptable, especially considering that this data is used for operational planning, DSM accounting, and various commercial and regulatory purposes.

After the issue was brought to the attention of SLDC, the data was corrected. However, the occurrence of such significant discrepancies raises serious concerns regarding the data integrity and reliability of information available on the SLDC website.

Points for Discussion:

1. What were the reasons for the post-facto changes observed on 27-08-2025?
2. What measures have been taken by SLDC to avoid recurrence of such issues?
3. Has any automated check, validation mechanism, or approval process been implemented to prevent erroneous or unauthorized post-facto changes in schedule data?
4. Is there a version control or audit trail maintained for schedule data changes?
5. Can stakeholders be notified immediately in case of any corrections or updates in published schedules?

Requested Action:

We request SLDC to provide a detailed explanation regarding the cause of these post-facto changes and the corrective and preventive measures implemented to ensure the accuracy, transparency, and reliability of schedule data on the SLDC website.

2. It has been observed that on 08/09/2025 and 09/09/2025, load shedding was implemented exclusively in MSEDCL's area, despite the fact that MSEDCL was not the sole beneficiary facing a shortfall during those periods.

SLDC did not appear to consider or address shortfalls from other beneficiaries such as:

- Railways
- AEML
- TATA Power
- Sellers under-injecting into the system

As a result, load curtailment was imposed disproportionately on MSEDCL, while other defaulters were not subjected to similar restrictions. This raises concerns regarding the fairness and transparency of the current methodology being followed by SLDC for monitoring real-time shortfalls and enforcing load shedding.

Suggestion for Discussion:

There is a need to formulate a fair and transparent methodology for monitoring real-time shortfalls and implementing load shedding measures. The proposed approach should identify shortfalls beneficiary-wise

- Account for under-injection by sellers
- Distribute load curtailment proportionally among defaulting entities
- Avoid placing an undue burden on MSEDCL alone

Requested Action:

We request SLDC to review its current process and implement a rational and equitable load shedding mechanism, ensuring that all defaulting beneficiaries are treated uniformly and MSEDCL is not unfairly penalized for the shortfall caused by others.

3. Economical Operation of Ghatghar Pumped Storage Plant

MSEDCL expects the Ghatghar Pumped Storage Plant to be operated in pumping mode during economically favourable conditions, such as:

- a) Periods of heavy under-drawal
- b) High system frequency
- c) Low market clearing prices (particularly in the RTM and DAM)

These conditions are ideal for utilizing surplus power economically and improving system efficiency. However, due to transmission constraints, MSEDCL is unable to capitalize on such opportunities for pumping operation of Ghatghar.

This results in a financial loss to MSEDCL, as the surplus power cannot be utilized for pumping and stored for later use during peak demand hours.

Requested Action:

We request the Transmission Utility / SLDC to urgently address and resolve the transmission constraints preventing the optimized operation of Ghatghar. Ensuring the availability of corridor capacity for pumping during off-peak, high-frequency, and low-market-price periods will enhance system economics and avoid financial losses to the DISCOM.

4. Implementation of LPS Rules, 2022 and Manual Correspondence for Requisitioning

As per recent instructions, strict implementation of the Late Payment Surcharge (LPS) Rules, 2022 is to be enforced from 01-10-2025. These rules directly impact the financial settlement of market transactions, especially with respect to timely and accurate requisitioning of power.

Currently, power requisitions are being sent manually via email, which lacks standardization, traceability, and automation. Given the financial implications under the LPS framework, continuing with manual and informal correspondence could lead to misinterpretations, disputes, or financial penalties.

Points for Discussion:

What steps will be taken to minimize human error and avoid any disputes in energy accounting and LPS liability?

Requested Action:

We request that a standardized and automated mechanism for power requisitioning be implemented urgently. This will ensure compliance with LPS Rules, 2022, reduce the risk of disputes, and facilitate accurate financial settlement of market transactions. A discussion on this matter is essential to avoid escalation of issues and to ensure a smooth transition into the new compliance regime.

5. Request for implementation of corrective measures, including RE curtailment, by MSLDC to control heavy under-drawl during solar hours.

Owing to the delayed monsoon, intermittent rainfall caused by low-pressure areas in the Bay of Bengal, and uncertain climatic variations, MSEDCL's power demand remained lower than the anticipated levels during October-2025 and is expected to continue similarly in November-2025.

In this context, it has been observed that heavy under-drawal is consistently occurring during solar hours over the past few months. To mitigate this, MSEDCL has taken several measures such as:

- Reducing the requisition from ISGS stations below the technical minimum of 55%,
- Issuing zero schedules/RSD to high –cost thermal power stations as per the MOD, and
- Curtailing short-term power procurement.

On several occasions, MSEDCL also attempted to sell surplus power during solar hours; however, market prices during these periods were extremely low making such sales economically unviable. Since last few months during solar hours, MSEDCL frequently requisitioned ISGS power below the technical minimum level, with total quantum ranging between 1700-1800 MW below 55% technical minimum, solely to control under-drawl.

Further, it is pertinent to note that the CERC order dated 05.10.2025 in Suo-Motu Petition No. 9/SM/2024 stipulates that beneficiaries must provide at least Minimum Technical Limit (MTL) schedules to ISGS units during non-peak hours if power is availed during peak hours. Further, if such MTL Schedules are not ensured and SCUC/SCED MTL support is not extended by NLDC, generating stations may withdraw units under RSD. In such a scenario, managing evening peak demand becomes extremely difficult as market availability during peak hours is limited and often chances of bid clearances are also very low even at ceiling at ceiling price. Therefore, keeping ISGS units on bar is essential to ensure system reliability during evening peaks.

However, adhering to CERC's directive of maintaining MTL requisition in ISGS stations may result in surplus generation during solar hours, thereby increasing under-drawl and posing a risk to grid security.

The heavy under-drawl during solar hours has also led to financial loss to MSEDCL & ultimately to its end consumers, due to unutilized generation injected into the grid at zero cost beyond 209 MW and DSM penalties arising from under-drawl at high frequency.

During the month of October 2025 (up to 19th October 2025), the state recorded under-drawl in 357 time blocks (58.71%) during solar hours, resulting in a total under-drawl of 33.60 Mus with a realization rate of Rs. 1.01 per unit. Similarly, MSEDCL experienced under-drawl in 288-time blocks (47.37%) during solar hours, amounting to 19.67 Mus with a realization of Rs. 1.73 per units. Furthermore, during this under-drawl period, it was observed that the system frequency remained beyond the IEGC band (i.e., above 50.05Hz) for 82-time blocks.

To manage such heavy under-drawl, it was expected that appropriate measures such as VSE down and RE curtailment needs to be implemented by SLDC. In this regard, the Shift In-charge, LM

Cell, MSEDCL had repeatedly requested MSLDC via e-mails (copies enclosed) to initiate corrective actions, However, no instructions for RE curtailment were issued from MSLDC.

In this regard, as per the State RE curtailment procedure clause 4.2.8

4.2.8 However, in spite of above corrective measures, if the system parameters viz. High Voltages, high frequency, heavy under-drawl from ISTS, etc. are not within the Permissible limits as specified under ISGC & MEGC-2020 May lead to grid security Problems and as a last option, the RE Power shall be curtailed. Such curtailment shall be Governed by the Registration No. 14 of the MERC (F, S & DSM for Solar & Wind Generation) Regulations, 2018.

Furthermore, in accordance with Section 33 of the Electricity Act, 2003, **MSLDC is empowered to issue directions and exercises supervision to ensure integrated grid operations, maintaining maximum economy and efficiency in State power system operations.**

In view of the above, it is earnestly requested that MSLDC shall take prompt and appropriate corrective measures including RE curtailment to control heavy under-drawl during solar hours, safeguard grid stability, and avoid additional financial burden on end consumers of Maharashtra.

Prompt and effective action in this regard is highly expected.

6. Implementation of Directives under Vide suo moto Order 9-SM-2025 by Hon'ble CERC: Compliance with Grid Safety Measures

- **Discussion focus:**
- **Paragraph No. 63(j) (iv)** – "The generating stations shall not be permitted to declare Peak hours DC less than off-peak hours DC, other than in cases of forced outage or partial outage. Grid India shall strictly monitor the same. In case a generating station provides less DC during peak hours of the day than off-peak hours, the DC for such generating station for the purpose of fixed charges shall be taken as the lower of the two."
- **Objective:**
To discuss the implementation of this directive in terms of grid safety and operational efficiency. The directive aims to ensure that generating stations maintain a consistent and reliable declared capacity (DC) during peak hours, thus contributing to grid stability without requiring additional investment.
- **Key Points for Discussion:**
 1. **Current Status of Compliance:** Review of current practices among generating stations and whether any action is already being taken in line with the directive.
 2. **Monitoring Mechanism:** Proposed methods for Grid India to effectively monitor and enforce compliance, and the role of system operators in ensuring adherence.
 3. **Impact on Fixed Charges:** Discussion on how fixed charges will be impacted for generating stations that fail to meet the required DC during peak hours, and any necessary adjustments or clarifications needed on this front.
 4. **Operational Challenges & Solutions:** Identify any challenges that may arise in ensuring the directive's implementation, particularly for generating stations with existing limitations or infrastructure constraints.
- **Expected Outcome:**
Agreement on the practical steps for implementing the directive, timelines for monitoring, and any necessary modifications to existing practices or agreements to ensure grid stability and regulatory compliance.

6.TPCL Agenda:

6.1 SCADA Visibility of KVTL Vikhroli, MSETCL Borivli and MSETCL Waghivli :

SLDC has provided MMR lines and 400KV input line real time data through ICCP. Additionally, similar real time data is required for all connected elements of KVTL Vikhroli (MW, MVAR, Breaker & Isolator status), MSETCL Borivli (MW) and MSETCL Waghivli (MW) for real time monitoring of Mumbai Power System.

6.2 KVTL support is required for attending communication issues on priority, which affected differential protection of 220 KV KVTL Vikhroli – Salsette 1, 2 & 3 and ICCP data.

6.3 Present Status of 220 KV MSETCL Ulwe – Waghivli cable repairs / replacement and action plan for taking 220KV MSETCL Waghivli – Tata Waghivli 1 & 2 tie lines in service.

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

Annexures

Annexure 1

Compliance of previous OCC meeting

Sr no.	Agenda point	Details	Compliance from	Compliance required	8th OCC Status (held on 21.10.2024)	9th OCC Status (held on 16.05.2025)
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.	Recently a review meeting on the power supply position held on 28.04.2025 & 05.05.2025 respectively under the chairmanship of the Chairperson, CEA and again the concerns were raised regarding the high quantum of partial outages in MSPGCL thermal units. Hence, MSPGCL is requested to submit a long-term action plan aimed at addressing and reducing the high quantum of partial outages, particularly those arising from coal quality and coal mill problems.	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.	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.
Sr no.	Agenda point	Details	Compliance from	Compliance required	8th OCC Status (held on 21.10.2024)	9th OCC Status (held on 16.05.2025)

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 was received except SWPGPL, JSW and AEML.	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, VIPL & IEPL are operating under FGMO.	Till date all the intra state generator except MSPGCL, VIPL & IEPL 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.	These outages are discussed in state preOCC meeting & MOCM meeting held on monthly basis. OCC instructed to coordinate well before planning outage.

Sr no.	Agenda point	Details	Compliance from	Compliance required	8 th OCC Status (held on 21.10.2024)	9 th OCC Status (held on 16.05.2025)
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.	Latest SLDs of the substations may be shared with SCADA department for updation of network elements. OCC instructed SCADA dept, MSLDC to schedule a meeting in this regard and resolve the issue to the maximum extent

Sr no.	Agenda point	Details	Compliance from	Compliance required	8 th OCC Status (held on 21.10.2024)	9 th OCC Status (held on 16.05.2025)
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.		OCC noted the same.
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.	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. OCC instructed to submit UFR telemetry status along-with above.

Sr no.	Agenda point	Details	Compliance from	Compliance required	8 th OCC Status (held on 21.10.2024)	9 th OCC Status (held on 16.05.2025)
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.		OCC instructed to take up this issue in MCCC subcommittee meeting
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.	Both Stations are visible. OCC noted the same.

Annexure 3.2

Generating Station	Unit Capacity (MW)	Governor Status (FGMO/RGMO)	Whether Primar Frequency Response (PFR) Test Done/Not Done
IPP AND PRIVATE GENERATORS			
APML, Tirora	5x660	FGMO	Test done as per MEGC 2020/IEGC 2017 (5th amendment)
Tata Power Trombay	U5 (1x500)	FGMO	
	U7 (1x120)		
	U8 (1x250)		
Tata Power Bhira	U1 to U6 (6x25)	FGMO	
	BPSU (1x150)		
JSW, Ratnagiri	4x300	FGMO	Test done as per MEGC 2020/IEGC 2023
JPL, Dhule	2x150	FGMO	
Dahanu, AEML	2x250	FGMO	
RattanIndia, Amravati	5x270	FGMO	
SWPGPL	4x135		
VIPL	2x300	RGMO	
IEPL	1x270	RGMO	PFR test not done
MSPGCL GENERATORS			
BHUSAWAL U3	1x210	RGMO	PFR test not done in any of the units of MSPGCL till date.
BHUSAWAL U4, U5	2x500	RGMO	
CHANDRAPUR U3, U4	2x210	RGMO	
CHANDRAPUR U5 TO U9	5x500	RGMO	
KORADI U6	1x228	RGMO	
KORADI U8 TO U10	3x660	RGMO	
KHAPERKHEDA U1 TO U4	4x210	RGMO	
KHAPERKHEDA U5	1x500	RGMO	
NASIK U3 to 5	1x210	RGMO	
PARALI U6 TO U7	2x250	RGMO	
PARALI U8	1x250	RGMO	
PARAS U3, U4	2x250	RGMO	
URAN	4x108	FGMO	
URAN	2x120	FGMO	
KOYNA STAGE-1 U1 TO 4	4x70	FGMO	Recently PFR test done but the report not received to SLDC till date.
KOYNA STAGE-2 U5 TO 8	4x80	FGMO	
KOYNA STAGE-3 U1 TO 4	4x80	FGMO	
KOYNA STAGE-4 U1 TO 4	4x250	RGMO	
GHATGHAR U1, U2	2x125	Not Available	PO for implementation of RGMO/FGMO is already placed.
VAITARNA	1x60	Not Available	Upgradation is proposed under DPR in FY 2024-25
TILLARI	1x60	Not Available	Procurement for replacement of Governor is in process through DPR. After replacement of new governing scheme, unit operation may be in FGMO/RGMO mode.
BHIRA (TR)	2x40	Not Available	Procurement for replacement of Governor is in process through DPR

Annexure 3.3

Procedure for availing planned generation outages

1. Outage approval

1.1 Generating unit outages will be discussed and finalized in the OCCM.

1.2 Planned outages of generating units at ISGS and Regional IPPs which have been approved in the OCCM would be considered for the outage code by RLDC. The approved planned outages of intra-state generating units and InSTS IPPs would be considered for the outage code by respective SLDC(s).

1.3 As any deviation in the outage from the planned schedule can affect other planned outages as well as affect reliability and electricity markets, indenting entities must strictly adhere to the shutdown duration.

1.4 Generating stations may avail the planned outage as per the approved outage duration in accordance with this SOP.

1.5 Generating units which are already under forced outage or reserve shutdown (RSD) and want to avail approved planned outage shall also follow this procedure.

2. Availing Outages in real time

2.1 Generators may avail outage code in between 'D-1' to 'D+3' day ('D' being the start date of outage approved in OCC). Separate approval of WRPC is not required for outages for the window of 'D-1' to 'D+3' day. Generator shall request WRLDC/SLDC for outage of the unit after coordination with beneficiaries as per the existing practice of advance communication so that beneficiaries are aware about the generator withdrawal. The code will be issued for the approved outages if the request is received for unit outage in the period 'D-1' to 'D+3'. The duration 'D-1' to 'D+3' may be reviewed in the future after gaining experience.

2.2 For outage code requests outside this window, indenting entity shall take approval of WRPC on mail for the revised outage duration. The WRPC approval received on mail will required to be submitted to WRLDC/SLDC control room for availing of outage.

2.3 On the day of outage, the outage availing entity shall seek the code for availing outage from WRLDC/SLDC. The code shall be requested before de-synchronization. In case, due to any contingency, the outage could not be availed within 1 hour, a fresh code needs to be obtained by the generating station.

3. Normalization of Outages

3.1 All effort shall be made by the generators to normalise the outage within the approved duration so that the generation availability is ensured as per the planning.

3.2 On completion of the outage work, the outage availing entity shall seek the code for normalisation from WRLDC/SLDC(s). The code shall be requested before synchronization.

3.3 The generator shall also submit the FGMO status (In service/Out of service) along with the request for synchronization code. If the unit is being synchronized with FGMO in 'OFF' condition, a separate code shall be requested from WRLDC/SLDC control room to keep the unit in 'OFF' condition. After unit stabilization, generator shall again request code for putting FGMO in 'ON' condition. It may be noted, that FGMO shall not be switched ON/OFF without WRLDC/SLDC code. If code is not availed for putting FGMO in 'ON' or 'OFF' condition, it will be considered in 'OFF' or 'ON' respectively.

3.4 The generators shall strive to complete the transition from RGMO to FGMO during the AOH/COH activities.

3.5 The entities shall endeavour to normalise the outage within 1 hour of receipt of the code but not later than 2 hours. In case, due to any contingency, the normalisation could not be done within 2 hours, a fresh code needs to be obtained by the entity stating the reason thereof.

3.6 In case the outage is required to be extended beyond one day, then entity shall intimate the reasons of extension, and expected normalisation date & time to the WRPC, RLDC and SLDC at least one day before the scheduled normalisation date.

3.7 RLDC/SLDC would issue synchronization code after receipt of intimation of reasons for delay up to D+4 day.

3.8 In case of an outage extension beyond 4 days ('D+5' onwards), entity shall approach WRPC for consent/approval with proper reason and justification of delay with a copy to RLDC/SLDC. Under such circumstances, WRPC shall review the impact of such delay on the outage already approved and would review other outages. Synchronization code would be issued by RLDC/SLDC control room after receipt of approval from WRPC.

3.9 The status of generating units planned vs. availed by the indenting entities would be prepared by RLDC (for ISGS) and SLDCs (for intra-SGS) and same would be discussed in ensuing OCC for better planning and coordination.

Annexure 3.4

Power System Elements	Tests	Applicability
Synchronous Generator	<ul style="list-style-type: none"> (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)	<ul style="list-style-type: none"> (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	<ul style="list-style-type: none"> (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.

Annexure 3.6

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
1	Jun-25	400 kV Warora ss	Nagpur	MSETCL, IEML, APML	10.06.2025, 00:25 Hrs	multiple line trippings	Gen @ 600 MW	1) For 400kV Warora-IEPL ckr Rph LA got dislocated causing Rph-Yph fault. 2) For 400kV Warora-Adani ckt -2 line CVT jumper got dislocated causing Yph-Bph fault.

MSLDC Suggestions:

1) Protection related: -

- i) Relays unblocking logic & settings in Case VT fuse fail needs to be verified.
- ii) Non operation of carrier aided trip at IEPL to be reviewed.
- iii) The zone 2-time delays at 400 kV Warora end and remote ends needs to be reviewed in accordance with the protection guidelines.
- iv) The Time coordination of ICT 1 & 2's HV, IV OC/EF relays need to be reviewed in accordance with the bus fault levels and protection guidelines.
- v) Reverse zone time delays of all 400 kV feeders at 400 kV Warora end needs to be complying to protection manual. deviations if any needs to be justified.
- vi) Protection Audit of 400 kV Warora substation to be carried out at earliest

2) Planning related: -

- vii) During Such events when Transmission constraints arise for generation evacuation at 400 kV APML end, Hence an Additional 765/400 kV ICT needs to be provided.

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
2	Jun-25	400 kV Karad	Karad	MSETCL	29.06.2025, 05:26 Hrs	Tripping of 400 kV ICTs And 220 kV Lines.	Nil	220 kV Oglewadi line bay conductor snapped in SS

MSLDC Suggestions:

Protection related: -

- i. The Time co-ordination between ICT-1, ICT-2 and ICT-3 HV high-set and bus-coupler protections need to be verified for such cases and modifications in protection settings needs to be carried out accordingly.
- ii. The Time coordination settings of ICT-1 ,2 and 3` s HV, IV OC/EF relays for High set & Normal inverse functions need to be reviewed in accordance with the bus fault levels and protection guidelines.
- iii. At 400 kV Karad ss, settings for reverse zone function of all distance relays needs to be verified in context of non-operation/ non-pickup. The reverse zone function to be tested for same fault.
- iv. For 220kV Karad- Kadegaon line non operation of distance relay at 220 kV Kadegaon end need to be analyzed.
- v. Old RADSS busbar needs to be replaced with new numerical busbar.
- vi. During Busbar testing the Aux CTs knee point testing & primary resistance measurement needs to be carried out.

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
3	Jun-25	400 kV Nagothane	Vashi	MSETCL	16.07.2025 15:32 Hrs	Multiple line trippings (04 nos. 220 kV Wadkhal-1,	Load loss of 546 MW for @10 min	During the 220 kV Bay shifting from Bus A to Bus B through TBC, while switching of bus

						Wadkhal-2, POSCO, ACCIL		coupler CB, 220 kV Wadkhal-1, 220 kV Wadkhal-2, POSCO, ACCIL lines are tripping on distance protection. PT selection scheme issue.
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MSLDC Suggestions:

Protection related: -

- i. Considering that the existing PT selection scheme is of an old age & design, and the PT selection relays are having repeated operational issues. It is recommended to replace the existing PT selection scheme relays with new, reliable relays, and to install isolator selector switches for all bays. This upgrade is essential to ensure the proper functioning of the PT selection scheme and to enhance the overall reliability of the protection system at the substation. Also, Immediate attention is required to resolve the PT secondary mixing issue.
- ii. The PT selection scheme the trip-blocking logic and related settings of distance relays needs to be thoroughly reviewed. Any necessary modifications should be implemented to prevent such unwanted tripping in the future.
- iii. The Auto Reclose operation & Backup O/C and E/F operation indications of the 220 kV Nagothane–ACCIL line needs to be investigated, and any necessary modifications should be implemented.
- iv. All Disturbance Records (DRs) are required to be properly GPS time-synchronized to ensure accurate event analysis and correlation as per MEGC 2020, Clause No. 25.1.
- v. A third-party protection audit needs to be carried out for 400/220 kV Nagothane ss, at the earliest.

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
4	July & Aug-25	100kV Padgha ss	Vashi	MSETCL	29.07.2025 03:45 hrs, & 13.08.2025 03:09 hrs	LBB operation of 100kV Bus section 1	1) Load loss of 168.5 MW on 29.07.2025 2) Load loss of 57.78 MW on 13.08.2025	CB of 100kV Padgha-Bhiwandi line 1 and Line 2 failed to interrupt the fault.

MSLDC Suggestions:

O&M related:-

1. Since both the source lines for above mentioned substations/ring mains are on same bus, in the event of LBB/Busbar operation complete blackout of respective substation/ring main will occur. Hence the source lines need to be distributed / reoriented across Bus section 1 & Bus section 2 at the earliest to avoid complete blackout of respective substation.
2. The 100 kV transmission lines originating from the 100 kV Padgha bus are critical feeders supplying essential MMR electrical loads. To ensure continued reliability and avoid unexpected outages, comprehensive diagnostic testing of line insulators such as PID, TFR measurement is required. The line insulators at various crossing such as highways, railways, rivers, Dense Urban Zones / Industrial belts need utmost attention. The abnormality if any should be attended on priority.
3. The SF6 gas analysis of all EHV circuit breakers such as SF6 purity testing, Gas pressure & leakage checks need to be carried out at Padgha s/s.
4. Diagnostic testing for all CBs needs to be carried out and reports shall be verified by PAC circle.

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
5	Aug-25	220kV Bhosari-1 ss	Pune	MSETCL	18.06.2025 , 20:04 Hrs	220kV Busbar operation	Load loss of 55MW	Busbar operation occurred during first time charging of 220kV GIS Microsoft bay.

MSLDC Suggestions:

Protection related:-

1. The Protection information was not provided to SLDC in FTC proposal under format-3 (Protection Healthiness).
2. The existing bus bar scheme of 10 nos, bays is to be up graded to new busbar scheme at the earliest.
3. The occurrence needs to be discussed in SPC meeting, for eliminating such incidences in future.
3. The SF6 gas analysis of all EHV circuit breakers such as SF6 purity testing, Gas pressure & leakage checks need to be carried out at Padgha s/s.
4. Diagnostic testing for all CBs needs to be carried out and reports shall be verified by PAC circle.

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
6	Sep-25	220kV VIPL ss	Nagpur	MSETCL, VIPL	15.08.2025, 19:00 Hrs	220 kV LBB operation for Bus-1	Generation loss of 239MW at VIPL	For Yph-Bph fault on 220kV VIPL- Butibori - 1 ckt 4 CB fail to operate at VIPL end.

MSLDC Suggestions:

Protection related:-

1. The line differential protection for VIPL–Butibori-1 Ckts 3 & 4 needs to be reliable and always available. M/s VIPL is requested to attend the issues related to Fibre optic links on top priority. On failure of Fibre optic links immediate reporting to ALDC & PAC Circle needs to be done and restoration process should be initiated. Redundant communication channel like PLCC links needs to be made available for these lines.
2. The Line protection relays should be such that both differential and distance protection features are available in it. In case the line differential protection is out of service, then distance protection feature along with carrier aided scheme will be enabled to ensure dependable primary protection.
3. The tripping of 220 kV Butibori-1 – VIPL Ckt-3 (connected to 220 kV Main Bus-2) from the Butibori-1 end during the fault on the 220 kV VIPL – Butibori-1 Ckt-4 (connected to 220 kV Main Bus-1) is undesirable. A review of the overcurrent protection coordination is required to ensure selective and reliable fault clearance.
4. The OC/EF relay settings at 220 kV Purti substation end for the 220 kV Butibori-3 line needs to be revised as per protection guidelines. A review of the distance and overcurrent protection coordination is required to ensure selective and reliable fault clearance. The Bus Coupler OC/EF relay settings at 220 kV VIPL, 220 kV Butibori-1, and 220 kV Butibori-3 substations need to be reviewed in line with protection guidelines and prevailing fault levels.
5. On analyzing the submitted DRs regarding incident, it is observed that, Separate digital channels for Busbar trip, LBB trip, and LBB initiation, Communication link failure need to be assigned in the DR of the protection relay. The Protection relays need to be GPS time synchronized. The PCC and ACIP guideline Regarding DR triggering are to be followed. The DR assignments are to be verified in annual protection audit.
6. A Third-party protection audit and Protection co-ordination as per PCM, PCC WRPC guidelines of all substations involved in the occurrence needs to be carried out within 06 months, so as to avoid any repeat of such occurrence in future
7. The SPS scheme provided for overloading of ICTs at 220 kV Butibori-1, 220 kV Abhijit Line, and 220 kV Wardha Line is presently operating in manual mode. The scheme is designed to back down 60 MW of generation at VIPL in two stages manually. However, for timely and reliable operation, this SPS scheme needs to be automated.

O&M related: -

8. As the 220 kV VIPL ss was not in service long time in past & in view of stuck CBs, it is suggested to carry out CB overhauling and regular maintenance activities of all CBs as per OEM recommendations. The CB diagnostic test reports after overhauling are to be verified by ACIP and PAC circle.
9. Voice communication system between all 03 Substations involved in the occurrence i.e. (220kV Butibori-1, 220kV Butibori-3, and 220kV VIPL) with MSLDC and ALDC (VOIP, hotline PLCC, dialup PLCC) are required to be established.
10. The 220 kV Koradi-II (400 kV) – Butibori-3 Circuit-I & II and 220 kV Butibori-1 – Butibori-3 lines have been kept hand-tripped to control the overloading of 220/132 kV, 2 × 100 MVA ICT-I & II at 220 kV Butibori-1 Substation. In this regard, the capacity enhancement or addition of ICTs needs to be expediated to ensure reliable system operations. (Included in STU plan 2025-26).
11. Backup UPS supply to all SCADA equipment (HMI, Network switches, routers etc) at all 03 Substations involved i.e. (220kV Butibori-1, 220kV Butibori-3, and 220kV VIPL) is required for continuous SCADA visibility as the same was affected during the incident.

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
7	Sep-25	400kV GCR Chandrapur	Nagpur	MSETCL	06.09.2025, 05:14 Hrs	Operation of Busbar protection of 400kV main Bus-2	Generation loss of 762 MW	failure of Yph CT of 400kV HVDC ckt-2bay

O&M related: -

- 1) It is observed that the failed CT was commissioned in 1998 and has completed 27 years of service. Ageing CTs, CVTs, PTs, and breakers may suffer from insulation degradation, leading to catastrophic failures without prior warning. Even if periodic diagnostic tests (Tan Delta, Capacitance, IR, etc.) appear normal, hidden deterioration can cause insulation breakdowns. Ageing oil-filled equipment poses higher risks of fire, oil leakage, or explosion in case of failure. Such aged EHV equipment are to be identified and replaced on top priority. It is learnt that LE scheme proposal of aged EHV equipment is in process which has to be expedited
- 2) Regular thermography of EHV switchyard equipment such as CTs, CVTs, LAs, bushings, transformers, and bus conductors is essential for detecting hotspots caused by loose joints, contact resistance, or insulation deterioration. It is useful for ageing equipment where hidden defects may not appear in routine tests. Thermography enables early failure prediction.

- 3) Regular checks for oil leakages and oil levels in oil-filled EHV equipment are essential, and any leakages must be attended promptly to ensure reliability and prevent equipment failure.

Protection related: -

- 4) In current busbar configuration, Bus 1 is connected with 11 bays and Bus 2 with 10 bays, any bus fault protection operation such as a Local Breaker Backup (LBB) or a busbar protection trip can result in the simultaneous outage of a large number of critical bays. This poses a significant risk to system reliability and operational continuity. To mitigate the impact of such contingencies and enhance overall system resilience, it is suggested to explore the feasibility of subdividing the existing busbars into multiple sections. By introducing bus-sectionalizers and bus-couplers, faults or planned outages can be confined to smaller segments, thereby limiting the number of affected bays, reducing the disturbance area, and improving fault isolation and system flexibility.
- 5) The tripping of GTR-5 (296 MW) and GTR -7 (213 MW) which were connected to Bus-1 needs detailed investigation and steps needs to be taken to avoid such tripping in future. The auxiliary supply changeover scheme is to be reviewed. The non availability of 400 kV STN TF -3 from 01.03.2025 is to be revived at the earliest, for reliability of auxiliary supply to generating units.

Sr No.	Month	Substation Name	Control area	Utility involved	Occurance Date & time	Occurance	Load/Generation loss	Reason
8	Sep-25	400 kV Nagothane	Vashi	MSETCL	10.09.2025, 22:31 Hrs	400kV Main Bus-1 Busbar operation	Nil	During charging of 400kV extended bus, a failure & decapping of the extended B-ph bus insulator string occurred.

O&M related:-

1. It is observed that the failed insulator string is a part of extended 400 kV Bus and put in service first time. Random testing, healthiness Check of such insulators needs to be confirmed prior to charging. Thorough inspection and testing of all insulator strings and associated bus hardware before energizing any new or extended bus section.
2. Individual disc and whole String IR values are to be taken before first time use. It can be used as further reference for diagnostic checks of disc insulators
3. PID testing, Thermo-vision tests of these insulator strings needs to be carried out for existing and newly extended bus to avoid such occurrences in future.

4. Due to the failure of the extended bus disc insulators, the ongoing O&M activity for charging the extended bus for the new 400 kV bus coupler has been suspended. The subsequent course of action in this regard needs to be communicated to MSLDC.

Design related:-

5. The Quality Control Department i.e. Design Section, C.O. Mumbai, need to analyze the quality of the disc insulators of M/s IEC make and investigate any similar failures under MSETCL and to take suitable measures so as to prevent such occurrences in the future.

Protection related:-

6. Vide its letter regarding occurrence report no. 1775 dtd.14.08.2025, MSLDC has suggested for Protection audit and GPS time synchronization of Disturbance Recorders at substation. The compliance regarding the same needs to be submitted, at the earliest.

Transmission constraints in generation evacuation (connected GTS details)

Sr No	Name of Zone	Name of substation	Name of element	Generator trimming scheme for	purpose	
1	Nashik	132KV Erondol S/s (SPS)	132KV Erondol - BAmbhori Ckt	33KV 20MW Sunsire Solar Park Generation Feeder	To avoid line overloading	
			132/33 KV 25 MVA PTF-1		To avoid PTF-1 overloading	
			132/33 KV 25 MVA PTF-2		To avoid PTF-2 overloading	
2		220KV Shivajinagar S/s	220KV Shivajinagar Malegaon Ckt	220KV Shivajinagar- Gangapur Ckt	SPS FOR AMPYR SOLAR GENERATION	To avoid line overloading
				220/132KV 100MVA ICT-1		To avoid ICT-1 overloading
				220/132KV 100MVA ICT-2		To avoid ICT-2 overloading
				220/132KV 100MVA ICT-1		To avoid ICT-1 overloading
3		220KV Shivajinagar S/s	220KV Shivajinagar S/s	220/132KV 100MVA ICT-1	SPS FOR HUOBON SOLAR GENERATION	To avoid ICT-1 overloading
				220/132KV 100MVA ICT-2		To avoid ICT-2 overloading
4		220kV Shuvajinagar s/s	220KV Shivajinagar Malegaon Ckt	220KV Shivajinagar- Gangapur Ckt	SPS FOR Godrej 33kV Feeder no 331 & 332 generation	To avoid line overloading
				220/33/33KV PTF-1		To avoid PTF overloading
				220KV Shivajinagar Malegaon Ckt		To avoid line overloading

Sr No	Name of substation	Name of element	Generator trimming scheme for	purpose
5	132KV Huoban S/s	132KV Huoban-SAKRI Ckt	SPS FOR HUOBON SOLAR GENERATION	To avoid line overloading
6	220KV Gangapur S/s	220KV Gangapur- Valve Ckt	SPS FOR 220 KV SHIVAJINAGAR SS AMPYR SOLAR GENERATION	To avoid line overloading
		220KV Gangapur- Satana Ckt		To avoid line overloading
7	132KV Sakri S/s	132KV Sakri-Dhule Ckt	SPS FOR 220 KV SHIVAJINAGAR SS AMPYR SOLAR GENERATION	To avoid line overloading
8	220KV SHIVAJINAGAR S/s	220 KV SHIVAJINAGAR-MALEGAON CKT	SPS FOR 220 KV GANGAPUR SS NEW 33 KV SUZLON 20 MW GENERATION	To avoid line overloading
9	220KV Gangapur S/s	220KV Gangapur- Valve Ckt	NEW 33 KV SUZLON 20 MW GENERATION	To avoid line overloading
		220KV Gangapur- Satana Ckt		To avoid line overloading
		220KV Gangapur- Shivajinagar Ckt		To avoid line overloading
10	220KV Jamde S/s	220KV Jamde-Dondaicha Ckt-1	SPS for NEW 33 KV SUZLON 20 MW GENERATION AT 220 KV GANGAPUR S/S	To avoid line overloading
		220KV Jamde-Dondaicha Ckt-2		To avoid line overloading
11	132KV Deepnagar GCR s/s	132KV Deepnagar-Muktainagar Ckt	27 MW Kalpak solar 33KV x2 feeder at 132KV Malkapur s/s	To avoid line overloading

Sr No		Name of substation	Name of element	Generator trimming scheme for	purpose
12	Amravati	132kV Motala s/s	132 kV Juniper Solar- Varangian Tap- Khadka line	132 kV Cyclic Solar Park 100MW	To avoid line overloading
13	CSN	132kV Naldurga s/s	132kV Naldurga- Bale	1) 132kV Waghdari incomer 2) 33kV FDIPL 1 3) 33kV FDIPL 2 4) 33kV ESSL 1 5) 33kV ESSL 2 6) 33kV Parampujya Solar Total- 45 MW	To avoid line overloading
			132kV Naldurga- Tuljapur		
14		220kV Narangwadi	132kV killari	Stage1-To Trim 20MW Generation. of M/s Maruti Wind SS at Remote Stage2-To Trim 30MW additional Generation. of M/s Maruti Wind SS at Remote Stage3-To Trim total generation (100MW) by tripping 132KV Maruti Wind Power Project Generation bay at 220KV	To avoid line overloading
			132kV Nilanga		

15			220/132KV 100MVA ICT-1 LV	Narangwadi SS.	To avoid ICT overloading
			220/132KV 100MVA ICT-2 LV		
		132kV JSW	132KV Tuljapur	Stage 1-To Trim 20MW Generation of M/s JSW Stage 2-To Trim additional 30MW Generation of M/s JSW Stage 3-To Trim total generation (100MW) by tripping 132KV Generation (Metering) bay.	To Avoid line overloading
			132KV Ujani		
	132kV Umari SS-40MW Enrich Solar power park	33kV feeder I &II	Stage 1- 25MW to trim generation of Enrich Solar power park	To avoid TF overloading	
16	Pune	220kV South solapur s/s	132kV south solapur- Bale	132kV Bale line	To avoid line overloading (out of service)
17		132kV Waghdari s/s	132kv Waghdari- Naldurga	1) stage 1- 33kV solar feeder at chetak s/s(26.5 MW) 2) stage 2 - 132kV Tata power 2(58MW) 3) 33kV swami samarth 2 (15MW) 4) stage 2 33kV solar feeder at chetak s/s(23.5MW) 5) stage 2 - 33kV LREHL-2(25MW)	To avoid line overloading
18		132kV Waghdari s/s	132kV Akkalkot ckt 1	1) 132kV Tata power 1(62MW) 2) 33kV LREHL-1(25MW)	To avoid line overloading
19		132kV Waghdari s/s	132kV Akkalkot ckt 2	1) 132kV Tata power 1(62MW) 2) 33kV LREHL-1(25MW)	To avoid line overloading
20		132kV Waghdari s/s	132kv Akkalkot ckt 1& 2	1) 132kV Tata power 1(62MW) 2) 33kV LREHL-1 (25MW)	To avoid line overloading
21		132kV Waghdari s/s	132/33kV 25MVA TF1	33kv swami samarth 1&2 30MW	To avoid line overloading

Sr No		Name of substation	Name of element	Generator trimming scheme for	purpose
22		132kv Karajgi s/s	132kv Mandrup line	1) stage 1- 33kV Enrich feeder1 (25MW) 2) stage 2 - 33KV Enrich feeder 2(25MW) 3) stage 2 132kV Gokul mauli (15MW) 4) 132kv Jayhind (30MW)	To avoid line overloading
23		132kV Mandrup s/s	132kV Soregaon line	1) stage1 132kV at mandrup 2) 33kV Enrich solar 1 3) 33kV Enrich solar 2 Total- 50MW	To avoid line overloading
24		132kV Chetak s/s	132kV Gokul sugar	1) solar feeder 1& 2 at 132kV chetak s/s(50MW) 2) at 132kV Waghdari s/s (62MW) 3) LREHL 1(25MW)	To avoid line overloading
25		132kV Gokul sugar	132kV south solapur- Bale	1) solar feeder 1& 2 at 132kV chetak s/s(50MW) 2) at 132kV Waghdari s/s (62MW) 3) LREHL 1(25MW)	To avoid line overloading
26		132kV Akkalkot	132kV Karajgi line	1) 132kV Tata power 1(62MW) 2) 33kV LREHL 1(25 MW)	To avoid line overloading
27		132kV Sangola	132kV Pandharpur line	Maruti wind (30MW)	To avoid line overloading
28		132kV Sangola	132kV Digachi line	Maruti wind (30MW)	To avoid line overloading
29	Nagpur	220KV Butibori-1	220/132 kV 100 MVA ICT-1	Generation backdown at stage-1 : 60MW Stage-2 :60MW at M/S VIPL	To avoid ICT overloading

Sr No	Name of substation	Name of element	Generator trimming scheme for	purpose
30		220 kV Butibori 1 – Abhijeet circuit	Generation backdown 30MW at M/S VIPL	To avoid line overloading
31	220KV Butibori-3	220 kV Buttibori 3 – Wardha circuit	Generation backdown 30MW at M/S VIPL	To avoid line overloading
32	220KV Karanja SS	220/33 kV 25 MVA TF1	33KV Swami Samarth Solar Feeder 01 backdown of 6.98MW	To avoid TF overloading
33		220/33 kV 25 MVA TF2	33KV Swami Samarth Solar Feeder 02 backdown of 6.98MW	To avoid TF overloading
34		132kV Ambazari – Karanja CKT I & II	33kV Avaada Solar Feeder at 132kV Talegaon Substation backdown of 25 MW	To avoid line overloading
35	400/220KV Koradi II	400 kV Koradi-wardha PGCIL	presently on alrming , mode only	To avoid line overloading
36	220kV Wardha (MS)	220kV Wardha Yeotmal Ckt	SPS Implemented for overloading of 400kV outgoing lines from 400kV Koradi-II s/stn: - 1) stage-I:- loading of any one outgoing line more than or equal to 926MW for more than 3 Se	To avoid line overloading