MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD.
CIN NO. U40109MH2005SGC153646

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Maharashtra State Load Dispatch Center,
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RIGHT TO INFORMATION

Ref: MSLDC/TECH/OP/MEGC-2020/ No 01700 **Date:** 29 SEP 2022

To,
As per mailing list.

Sub: Procedure for Load Curtailment in the State of Maharashtra in accordance with the provisions of the MEGC, 2020.

Ref: 1. The MERC (State Grid Code) Regulations, 2020.

Dear Sir/Madam,

In reference to above subject, it is to inform you that Hon'ble MERC in the MEGC, 2020 has entrusted responsibilities on various Entities viz. MSLDC, STU, Transmission/Distribution Licensees, Users, etc, for development of various Procedures/Guidelines. Accordingly, as per the Regulation No. 28.2 of the MEGC, 2020, this office has prepared a "Procedure for Load Curtailment in the State of Maharashtra". The said procedure has been prepared in consultation with Operational Coordination Committee (OCC) after seeking comments/suggestions from the various Stake holders in the State. Further, the Core Group of Grid Coordination Committee (GCC) has consented the said procedure for implementation in the State.

In view of above, please find attached herewith the "Procedure for Load Curtailment in the State of Maharashtra". The copy of the same is available on MSLDC Website at

www.mahasldc.in → Regulations, Procedures & Meetings → Procedures → Procedure for Load Curtailment in the State of Maharashtra

The Procedure shall be effective from the date of this letter. All the Stakeholders are requested to adhere to the provisions of the said procedure.

Submitted for needful please.

Yours sincerely

Encl: As above.

(Jueiee Wagh)
Chief Engineer
SLDC, Airoli

Copy s.w.r.s. to:

The Chairman and Managing Director, MSETCL, Prakashganga, Mumbai.

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

The Executive Director, MSLDC, Airoli, Navi Mumbai.

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

Copy f.w.c. to:

The Chief Engineer (STU), MSETCL, Prakashganga, Mumbai.

Mailing list:

All the Distribution Licensees in the State of Maharashtra

All the Transmission Licensees in the State of Maharashtra

MAHATRANSCO
Maharashtra State Electricity Transmission Co. Ltd.

Procedure for
Load Curtailment for the State of Maharashtra

In accordance with

The Maharashtra Electricity Regulatory Commission

(State Grid Code) Regulations, 2020

Prepared by

Maharashtra State Load Despatch Centre

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PROCEDURE FOR LOAD CURTAILMENT IN THE STATE OF MAHARASHTRA

1. INTRODUCTION:

1.1. This Procedure herein after called "Load curtailment Procedure" is prepared in compliance with Regulation No. 28.2 of the MEGC, 2020.

1.2. The Maharashtra Electricity Grid covers the geographical areas under control area of Maharashtra State which is part of the Western Regional Grid.

1.3. This document describes operating procedures in case of Load Curtailment required for promoting reliability, efficiency and economy in conformation to the desired security standards of the Central Electricity Authority (CEA) & the Hon'ble Maharashtra Electricity Regulatory Commission (MERC) & Central Electricity Regulatory Commission (CERC).

2. DEFINITIONS:

2.1. **"Buyer"** means a person, including distribution licensee, deemed distribution licensees, open access consumer, purchasing electricity through a transaction scheduled in accordance with the Regulations applicable for STOA, MTOA and LTOA.

2.2. **"Distribution Licence"** means a Licence granted under Section 14 of the Act to distribute electricity;

2.3. "**Under Frequency Relay (UFR)"** means a relay which operates when the system frequency falls below a specified limit and initiates load curtailment.

2.4. **"df/dt Relay"** means a relay which operates when the rate of change of system frequency (over time) goes higher than a specified limit and initiates load curtailment.

3. SCOPE:

The Maharashtra Grid comprises of various State entities comprising of Thermal, hydro, gas, RE generating stations, Distribution Licensees, Intra-State transmission licensees, Qualified Co-ordinating Agencies (QCAs) etc. This document is applicable to all the Users, Buyers, Distribution Licensees including deemed Distribution Licensees in the State of Maharashtra. The Operating Procedure for Load Curtailment are without prejudice to the MSLDC' s power to give directions and exercise supervision and control as stated under Sections 32 (d)of the Electricity Act, 2003.

4. OBJECTIVE:

The objective of this procedure is to compile various provisions in the statute and regulations for guidance of the staff of the MSLDC and state entities in Maharashtra.

5. CLASSIFICATION OF LOADS:

5.1. The Distribution Licensees in the State shall prepare the Load curtailment procedures in consultation with MSLDC.

5.2. The demand management can be automatically achieved through 'under frequency relays', 'under voltage relays', 'df/dt relays' or manually by operating at Sub-Station level as applicable.

5.3. The Users, Buyers, Distribution Licensees shall categorise the loads in two basic categories viz. un-interruptible and interruptible loads under their control area. The interruptible loads shall be further sub-categorised in four (4) Groups viz. Group-1, Group-2, Group-3 & Group-4. The classification shall be as follows:

5.3.2 **Un-interruptible loads:**

These loads shall be selected based on the norms provided by various authorities viz. MERC/CERC/CEA/Central or State Government, etc.

Every User, Buyer, Distribution Licensee shall declare the details of such un-interruptible loads under their control area. The details shall include information such as active & reactive power (as and when required by SLDC) data, name of feeder, total load connected to

respective feeder (if not dedicated feeder) with possibility of interrupting remaining load, type of load (commercial, industrial, etc.), reason for considering load as uninterruptible, etc.

Such loads shall have least priority of curtailment during any adverse system conditions. These loads shall be considered during design and operation of the islanding schemes.

The following loads can be covered in this category:

"*Hospitals, Airport, Traction, Metro, Refineries, Ports, Important Govt. establishments viz. Mantralaya, Raj Bhavan, etc.*"

5.3.3 The remaining interruptible loads shall be classified in four sub-categories viz. Group – 1, to Group – 4.

5.3.4 **Group-1: Loads covered under Scheduled Load curtailment:**

In this group, the loads which can be curtailed so as to limit the deviations of the user/buyer/Distribution licensee beyond permissible volume limits as per the MERC (DSM) Regulations, 2019 shall be considered. These loads shall be the least priority loads in the control area.

5.3.4 **Group-2: Loads covered under Un-Scheduled / Emergency Load curtailment:**

In this group, the loads which can be curtailed in case of any contingencies or emergencies arrived due to loss of any transmission element or loss of generating unit/s resulting in to congestion in the transmission system.

5.3.5 **Group-3: Loads to be shed under frequency relays or df/dt relays:**

In this group, the loads which can be automatically curtailed based on the operation of 'under frequency', 'under-voltage' or 'df/dt' relays.

5.3.6 **Group-4: Loads to be shed under System Protection Scheme such as Islanding schemes:**

In this group, the loads which can be automatically curtailed based on the operation of System Protection Schemes such as Islanding schemes.

5.4. The details of category-wise loads shall be made available to MSLDC by all the Users/Buyers/Distribution Licensees within 30 days from the date of notification of this procedure.

The details shall include information such as active & reactive power, name of feeder, name of connected EHV Sub-Station, total load connected to respective feeder, type of load (commercial, industrial, etc.), etc.

5.5. Distribution licensees shall prepare plan for giving load relief as considered in group 1 & 2 and submit it to MSLDC.

Provided that Mumbai having Mumbai islanding scheme in operation where all the loads except uninterrupted loads are covered in Islanding scheme i.e. Group – 4. Provided that Mumbai loads are considered in Mumbai Islanding Scheme and classification of loads are distinct from rest of Maharashtra. Hence, in such case, the Load Classification, Load Curtailment/Restoration methodology in Mumbai area will be as per the Load Curtailment/Restoration Order issued by MSLDC vide letter No. 898 dated 21.04.2021 as amended from time to time. In such case, any loads to be shed in Group-1 to Group-2 as envisaged in the procedure shall be considered in the Priority-3 loads in Mumbai area.

5.6. The curtailment of loads considered in Group-1 is based on the availability of generation resources, violation of DSM volume limits, etc. Such loads shall be classified in sub-groups by the stakeholders for operation on rotation basis. Such sub-groups shall be of smaller volume so as to gain effective margin to address volume limit deviations.

5.7. As per Regulation No. 39.3.3 of MEGC, 2020, each buyer including distribution licensee or user, or STU shall formulate contingency procedures and make arrangements that will enable demand disconnection to take place, as instructed by the SLDC, under normal and/or contingent conditions.

Such procedures shall be prepared based on the principles of the Regulations & this procedure. The copy of the same shall be submitted to SLDC within 30 days from the date of notification of the said procedure.

6. DESIGN & OPERATION OF AUTOMATIC CURTAILMENT SCHEMES:

6.1. Users and Transmission Licensees shall provide automatic 'under-frequency' and 'df/dt' relay-based load curtailment or

islanding schemes in their respective systems, to arrest frequency decline that could result in a collapse/disintegration of the InSTS.

6.2. Users and Transmission Licensees shall facilitate identification, installation and commissioning of System Protection Schemes in the power system (including inter-tripping and runback), to operate the InSTS closer to their limits and protect against situations including voltage collapse, cascading and tripping of the important corridor.

6.3. MSLDC shall decide and intimate the action required to the Users and Transmission Licensee to get required load relief from such under-frequency relay, under voltage relay, df/dt relay & System Protection Scheme operation from time to time.

6.4. All such Schemes shall be prepared in co-ordination with OCC and shall be finalized by GCC.

6.5. Users and Transmission Licensees shall ensure that all the under-frequency, undervoltage, df/dt, System Protection Schemes designed for load curtailment/islanding schemes are always functional and may be kept temporarily out of service in case of extreme emergencies along with reasons with prior consent of MSLDC.

6.6. As per Regulation No. 39.3.6 of MEGC, 2020, it shall be the responsibility of Transmission Licensees, Distribution Licensees & Users to display the information of particulars of feeders or group of feeders at Transmission Licensee, distribution licensee & User substation which shall be tripped under under-frequency load curtailment scheme whether manually or automatic on a rotational basis or otherwise on their website for information of the consumer(s).

The said information shall be submitted to SLDC for information. In case of any changes in the feeder details, the same shall be updated on website with intimation to SLDC.

6.7. STU shall carry out periodic inspection of the under-frequency relays and produce the report to SLDC.

6.8. SLDC shall maintain the record of under frequency relay, under voltage relay, df/dt relay & System Protection Schemes operation.

6.9. The existing 'Under voltage, under-frequency, df/dt, System Protection Schemes operational in the State are annexed as ***ANNEXURE – 1***.

7. PROTOCOL FOR OPERATION OF LOAD CURTAILMENTS:

7.1. MSLDC being apex body shall issue instructions to Users, Buyers, Distribution Licensees to curtail load based on various reasons.

7.2. In case of certain contingencies and/or threat to system security, MSLDC shall direct the Users to decrease their drawals and such Users shall act upon such directions immediately.

7.3. Buyers including distribution licensees and Users shall endeavour to restrict their actual drawal of its control area from InSTS within their respective drawal schedules.

7.4. There shall be two types of demand curtailments viz. Planned curtailment & Forced curtailments.

7.5. MSLDC shall prepare Buyer-wise Generation Despatch & Drawal Schedule on Day ahead & Intra-day basis. If it is observed that the drawal forecast provided by the Buyer is more than the Generation availability, the drawal schedule shall be restricted by MSLDC. Such curtailment shall be planned curtailment.

The format for intimation of load curtailment on Day ahead basis is as per ***Format – 1***.

Under such conditions, respective buyer shall either provide additional generation availability or initiate the demand curtailment process by curtailing the loads in Group – 1 on rotation basis. The quantum of load shaded shall be equivalent to the excess demand over available generation resources.

Further, if power is arranged through RTM, then it will not be necessary to implement the curtailment during Intra-Day operations as in case of Intra-Day MOD operation, Load – Generation balance will be created. Further, if no power is arranged, then it will be the responsibility of the Buyer to implement curtailment.

Buyer, Distribution Licensee shall intimate the schedule and details of such planned demand curtailment to MSLDC for record purpose.

In case forecasted demand is not realized i.e. actual demand is lower than the forecasted demand, the demand curtailment for Group – 1 may be revoked with prior permission from MSLDC.

7.6. There are chances that DSM volume limit may be violated to large extent due to unprecedented increase in demand. Under such conditions, MSLDC shall issue curtailment instructions so as to limit the DSM volume limit within permissible limits.

Under such conditions, the loads in Group – 1 shall be curtailed in rotation basis based on the quantum of curtailment. If the quantum of curtailment is not fulfilled due to loads in Group – 1, the loads in Group - 2 shall be curtailed based on the required quantum.

The curtailment shall be partially revoked with prior permission of MSLDC and if the DSM volume limit is still beyond permissible limits, the curtailment revocation shall be discontinued and curtailment shall be continued.

The format for instructions from MSLDC for curtailment and revocation thereof is attached as ***Format – 2 & Format – 3*** respectively.

Users, Discoms shall intimate the details of load curtailed to MSLDC immediately through telephone and details to be intimated as per ***Format – 4*** within one hour for maintaining record in which instructions have been issued by MSLDC.

7.7. In case of emergency conditions such as tripping of any transmission element or generating unit/s, etc. there shall be violation of the system parameters such as loading of transmission elements above thermal limits, under-voltages, etc.

Such incidences are normally local in nature. Under such conditions, MSLDC shall issue curtailment instructions to respective Users, Discoms for load curtailment which shall be achieved by operating the curtailment of loads in Group-2 on rotation basis. The quantum of curtailment shall be managed by curtailing loads manually/automatically based on real time loading conditions.

Once the normalcy in the transmission network or generation availability is restored, the curtailment shall be revoked with prior permission from MSLDC.

Users, Discoms shall intimate the details of load curtailed to MSLDC immediately through telephone and details to be intimated as per ***Format – 4*** within one hour for maintaining record in which instructions have been issued by MSLDC.

7.8. The loads considered in Group-3 shall be curtailed automatically upon operation of the under voltage/frequency relays (UVLS/UFLS) or df/dt relays as per ***ANNEXURE – 1***.

7.9. After operation of the said schemes, if additional demand curtailment is required for maintaining the system in safe condition, MSLDC shall issue instructions to respective Transmission/Distribution Licensee or User to curtail additional

load. Under such conditions, loads in Group-2 shall be curtailed depending upon requirement of quantum to be curtailed.

Once the loads are curtailed automatically, the concerned Transmission/Distribution Licensee or User shall intimate the operation of said curtailment to MSLDC Control room within one time block from which load was curtailed.

Once the system normalcy is restored, the load shall be restored back in consultation with MSLDC. The details of load restoration shall be intimated to MSLDC within one time block in which instructions are issued by MSLDC.

7.10. The existing System Protection Schemes such as Islanding Schemes operational in the State are annexed as ***ANNEXURE – 2***.

The loads considered in these schemes shall be of Group-4. As the name suggests, such loads shall be only critical un-interruptible loads.

8. PROTOCOL FOR RESTORATION:

8.1. Any load restoration shall be carried out only after consultation with SLDC control room as per the instructions issued.

8.2. The loads in Group-1 shall be shed on rotational basis and all the efforts shall be carried out to equate the time of loads shed.

Provided that the set of loads which is shed shall not be restored before shedding the next set of loads so as to avoid sudden increase of loads fed.

8.3. Wherever, additional quantum of load is obtained from Group-2 along with loads in Group-1 or Group-3, the loads in Group-2 shall be restored first.

8.4. The details of load restoration shall be submitted to SLDC as per ***Format – 5***.

8.5. Mumbai loads are considered in Mumbai Islanding Scheme and the classification of loads are distinct from rest of Maharashtra. Hence, in such case, the Load Classification, Load Curtailment/Restoration methodology in Mumbai area will be as per the Load Curtailment/Restoration Order issued by MSLDC vide letter No. 898 dated 21.04.2021 as amended from time to time.

9. DEFAULT CONDITIONS:

9.1. Non-submission of Group wise, category wise load information

9.2. Delay and/or non-implementation of instructions of SLDC for load curtailment.

9.3. Non-submission of load curtailment information to SLDC within prescribed time frame and format.

9.4. Restoration of loads without consultation and instructions of SLDC.

9.5. Any activities carried out without intimation to SLDC such as Bypassing underfrequency, under voltage, df/dt relays & associated communication link, changes of loads in different categories, modifications of relay settings etc.

9.6. Non-submission of Procedures to be followed under contingency conditions to SLDC along with amendments, if any.

10. CONSEQUNCES OF DEFAULT:

10.1. The defaults shall be treated as the non-compliance of SLDC instructions as per the provisions of the Act and various MERC regulations.

10.2. For any default conditions specified above, matter shall be reported to OCC for further deliberations. Based on the decision of the OCC, appropriate action shall be initiated by SLDC.

11. GRIEVANCE REDRESSAL:

11.1. In case of any ambiguity arising in interpretation of these Operating Procedure, the meaning, intent and purpose of clauses as provided in relevant regulation shall prevail.

11.2. Any disputes between concerned Generators, Transmission / Distribution Licensees, Control Centres or Users shall be discussed in OCC / GCC Forum.

11.3. MSLDC shall refer the Complaints regarding unfair practices, delays, discrimination, lack of information, supply of wrong information or any other matters to the Commission for redressal with due deliberations in OCC/GCC.

11.4. Pending the decision of the State Commission, the directions of the MSLDC shall be complied by the concerned Generators, Transmission/Distribution Licensees, Control Centres or Users.

12. REMOVAL OF DIFFICULTIES:

12.1. This procedure aims at prompt and pragmatic implementation of Load Curtailment (Demand Curtailment) Schemes considering the Grid security as a main objective. However, some teething problems may still be experienced. The various implications would be known only after practical experience is gained by way of implementing these procedures. In order to resolve the same, this procedure shall be reviewed or revised by the MSLDC with prior approval of GCC.

12.2. In case of any difficulty in implementation of this procedure, MSLDC may approach the GCC through OCC for review or revision of the procedure with requisite details.

13. GENERAL:

13.1. All costs/expenses/charges associated with the implementation of Load Curtailment scheme shall be borne by the concerned Generators, Transmission/Distribution Licensees, Control Centres or Users.

13.2. The concerned Generators, Transmission/Distribution Licensees, Control Centres or Users shall abide by the provisions of the Electricity Act, 2003, the MERC Regulations, Indian Electricity Grid Code and MERC (State Grid Code) Regulation - 2020, and applicable CERC and MERC regulations as amended from time to time.

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Format – 1

(As per the Regulation No. 39.3 of MEGC Regulations, 2020)

Day ahead Load curtailment instructions for the date _____

Sr. No.	Name of Utility	Block No.	Block-wise Load to be curtailed (MW)

Date:

Shift In charge

MSLDC, Kalwa.

Format – 2

(As per the Regulation No. 39.3 of MEGC Regulations, 2020)

Intra-Day Load curtailment instructions for the date _____

Load Curtailment to be carried out by: _____

Permissible DSM Volume Limit of the Utility: _____ MW

Present Over-drawal of the Utility: _____ MW

Sr.No.	Block No.	Block-wise Demand to be curtailed (MW)

Date:

Shift In charge

MSLDC, Kalwa.

Format – 3

(As per the Regulation No. 39.3 of MEGC Regulations, 2020)

Revocation of Load curtailment instructions for the date _____

Sr. No.	Name of Utility	Block No.	Load to be Restored (MW)	Reason

Date:

Shift In charge

MSLDC, Kalwa.

Format – 4

(As per the Regulation No. 39.3 of MEGC Regulations, 2020)

Details of Load curtailment by Distribution Licensees for the date: _____

Name of Distribution Licensees:

Sr. No.	Block No.	Total Load Curtailed (MW)	Curtailment in Group-1 or Group-2 or both	Reason

Date: **Sign of concerned officer**

Format – 5

(As per the Regulation No. 39.3 of MEGC Regulations, 2020)

Details of Load restoration by Distribution Licensees for the date: _____

Name of Distribution Licensees:

Sr. No.	Block No.	Total Load Restored (MW)	Restoration in Group-1 or Group-2 or both	Reason

Date: **Sign of concerned officer**