

MAHARASHTRA STATE ELECTRICITY TRANSMISSION
COMPANY LIMITED

MAHARASHTRA STATE LOAD DISPATCH CENTRE

SCHEDULING AND DISPATCH CODE

(Pursuant to section 33 of the State Grid Code)

Operating Procedure No. MSLDC-OP 105

Overall Responsibility	SE (Operation) MSLDC Kalwa
Scheduling Responsibility	Executive Engineer (Operation) MSLDC Kalwa
Real Time Operation	Shift In-charge MSLDC, Kalwa
Date of Implementation	1 st June 2007
Due date of next review	One year from date of implementation

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1. Background

1.1 The Maharashtra State Electrical Power grid shall be operated as an integrated power pool for which the Maharashtra State Load Dispatch Centre (SLDC) shall have the total responsibility for the following functions:

- i) Scheduling / dispatching the generation within the state (including the generation of the embedded licensees in the state)
- ii) Monitoring and appropriately regulating the demands of the Distribution companies in the State
- iii) Monitoring and Scheduling the draws from the ISGS
- iv) Revision of all Scheduling and dispatching instructions and all interstate draws to meet emergency conditions

1.2 The State Grid Code (Part E) provides for a Scheduling and Dispatch Code to be prepared by MSLDC. As per the Clause 33 of the State Grid Code,

The Scheduling and Dispatch Code shall contain provisions with respect to the following:

- (i) Actions and responsibilities of the Maharashtra State Load Dispatch Centre (MSLDC) and Users in preparing and issuing generation/supply schedule on daily basis;
- (ii) Modality of the flow of information between the Maharashtra State Load Dispatch Centre and Users for the purpose of scheduling and dispatch;
- (iii) Modality of the flow of information between the Maharashtra State Load Dispatch Centre and the Transmission Licensees for the purpose of scheduling and dispatch;
- (iv) Modality of the flow of information between the Maharashtra State Load Dispatch Centre and the Western Regional Load Dispatch Centre for the purpose of scheduling and dispatch:

The State Grid Code further specifies that the provisions of the Scheduling & Dispatch Code shall be consistent with the Scheduling and Dispatch Code under IEGC specified by CERC under clause (h) of Section 79 of the Act

Further, it will be in conformity with the detailed order of the Honourable Commission dated 17th May 2007 for Case No. 42 of 2006 in the matter of “Introduction of Availability Based Tariff Regime at State level within Maharashtra and other related issues” wherein the scheduling process and the timeline have been illustrated in detail.

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Section 3.2 (c) of the said order authorises the MSLDC (OD) to take all decisions with regard to the dispatching of stations after evaluating all possible network parameters/ constraints/ congestions in the transmission network and in the eventuality of any aberration in the network,

This Scheduling and Dispatch Code has been prepared to comply with provisions of the State Grid Code and Intra- State ABT Regulations.

2. Definitions

In Scheduling & Dispatch Code, unless the context otherwise requires, the words/expressions mentioned below shall have meaning as assigned hereunder:

- (a) “Act” means the Electricity Act, 2003 (36 of 2003), including amendments thereto;
- (b) “Captive Power Plant (CPP)” means a power plant set up by any person to generate electricity primarily for his own use and includes a power plant set up by any co-operative society or association of persons for generating electricity primarily for use of members of such cooperative society or association;
- (c) “Commission” means the Maharashtra Electricity Regulatory Commission;
- (d) “Demand” mean Active Power in MW and Reactive Power in MVAR of electricity unless otherwise stated;
- (e) “Dispatch Schedule” means ex-power plant net MW and MU output of a generating station, scheduled to be exported to the Grid from time to time;
- (f) “Distribution Licence” means a Licence granted under Section 14 of the Act to distribute electricity
- (g) “Drawal Schedule” means the ex-power plant MW and MU scheduled to be drawn by Distribution Licensees/ Discom from Intra-State transmission system from time to time;
- (h) “Ex-Power Plant” means the net MW/MU output of a generating station at power plant-bus, after deducting auxiliary consumption and transformation losses;
- (i) “Forced Outage” means an outage of a Generating Unit or a transmission facility due to a fault or other reasons, which has not been planned;
- (j) “Independent Power Producer (IPP)” means a generating company not owned/ controlled by the Central/State Government or not a captive power plant;

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- (k) “Indian Electricity Grid Code (IEGC)” means the grid code specified by the CERC under sub section 1(h) of Section 79 of the Act; as amended from 1st April 2009.
- (l) “Inter-State Generating Station (ISGS)” means a Central/other generating station in which two or more than two states have a share and whose scheduling is to be coordinated by RLDC;
- (m) “Intra State Generating Station (InSGS)” means a generating station connected to intra-State Transmission System whose scheduling is done by MSLDC;
- (n) “Inter State Transmission System (ISTS)” includes any system for the conveyance of electricity by means of a main:
 - (i) Transmission line from the territory of one State to another State
 - (ii) Conveyance of energy across the territory of an intervening State as well as conveyance within the State which is incidental to such inter-state transmission of energy
 - (iii) Transmission of electricity within the territory of State on a system built, owned, operated, maintained or controlled by CTU.
- (o) “Intra-State ABT Regulations” refers to the order issued by the MERC in the matter of ‘Introduction of Availability Based Tariff Regime at state level within Maharashtra and other related issues’ on 17th May 2007. (Case no. 42 of 2006)
- (p) “Intra-State Transmission System” (InSTS) means any system for conveyance of electricity by transmission lines within the area of the State and includes all transmission lines, sub-stations and associated equipment of transmission licensees in the State excluding inter-state transmission system;
- (q) “Licensee” means a person who has been granted a licence under Section 14 of the Act;
- (r) “Load” means the MW/MU consumed by a utility/ installation;
- (s) “Operation” means a scheduled or planned action relating to the operation of a System;
- (t) “Net Drawal Schedule” means the drawal schedule of a User after grossing up by the approved transmission losses;
- (u) “Open Access” means the non-discriminatory provision for the use of transmission lines or distribution system or associated facilities with such lines

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or system by any licensees or consumer or a person engaged in generation in accordance with regulations of the appropriate Commission;

- (v) “Regional Power Committee (RPC)” means a Committee established by resolution of Central Government for a specified region for facilitating the integrated operation of the power system in that region;
- (w) “Regional Grid” means the entire synchronously connected electric power network of the concerned Region, comprising of ISTS, ISGS and intra-state systems;
- (x) “Regional Load Dispatch Centre (RLDC)” means the Centre established under sub-section (1) of Section 27 of the Act;
- (y) “Share Percentage” means share of a beneficiary in a ISGS notified by Government of India or as agreed to in the agreement between ISGS and its beneficiaries;
- (z) “Special Energy Meter” or SEM means such meters, of not less than 0.2 class accuracy, as are capable of:-
 - (i) Recording time-differentiated measurements of active energy and voltage differentiated measurement of reactive energy, at intervals of fifteen (15) minutes;
 - (ii) Storing such measurements for not less than forty-five (45) days; and
 - (iii) Communication of such measurements at such intervals as maybe required by the State Load Dispatch Centre for balancing and settlement of energy transactions;
- (aa) “State Grid Code (SGC)” means the grid code specified by the MERC under sub section 1(h) of Section 86 of the Act;
- (bb) “Maharashtra State Load Dispatch Centre (MSLDC)” means the Centre established under sub-section (1) of Section 31 of the Act.
- (cc) “Time Block” means block of 15 minutes each for which Special Energy Meters record specified electrical parameters and quantities with first time block starting from 00.00 Hrs (IST) to 00:15 Hrs (IST).
- (dd) “Transmission License” means a Licence granted under Section 14 of the Act to transmit electricity.
- (ee) “Transmission Open Access User” means a person who has been allotted transmission capacity rights to access an intra-state transmission system pursuant to a Bulk Power Transmission Agreement.

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- (ff) “Trader” means a person who is granted a license to undertake trading of electricity.
- (gg) “User” means a person including in-State Generating Stations, Distribution Licensees Consumers of the Distribution Licensees directly connected to intra-State transmission system and persons availing of Open Access, who are connected to and/or use the intra-State transmission system. The term User for the purpose of this Code shall also include in-State Generating Stations, which are connected to the Distribution System of a Distribution Licensee.
- (hh) “Collective Transaction” means a set of transactions discovered in power exchange through anonymous, simultaneous competitive bidding by buyers and sellers.
- (ii) “Power Exchange” means the power exchange established with the prior approval of CERC
- (jj) “**Installed Capacity**” means the summation of the name plate capacities of all the units of the generating station or the capacity of the generating station (reckoned at the generator terminals) as approved by the Commission from time to time;
- (kk) “**Availability**” in relation to a thermal generating station for any period means the average of the daily average declared capacities for all the days during that period expressed as a percentage of the installed capacity of the generating station minus normative auxiliary consumption in MW, as specified in these Regulations, and shall be computed in accordance with the following formula:

$$\text{Availability} = 10000 \times \sum_{i=1}^N \text{DC}_i / \{ N \times \text{IC} \times (100 - \text{AUX}_n) \} \%$$

- Where - N = number of time blocks in the given period
DC = Average Declared Capacity for the ith time block in such period
IC = Installed Capacity of the generating station in MW
AUX = Normative Auxiliary Consumption in MW, expressed as a percentage of gross generation

3. Objectives

The Scheduling and Dispatch Code has been prepared to facilitate MSLDC in discharging its responsibilities as per the provisions of State Grid Code, the Scheduling and Dispatch Code under IEGC and Intra-state ABT Regulations. The Code identifies roles and responsibilities of Users for preparation and finalisation of the following by MSLDC:

- A day-ahead generation availability schedule
- A day ahead drawal schedule
- A load shedding schedule, if required

4. Scope

This code deals with the procedures to be adopted for scheduling of the generating stations connected to InSTS and assistance in scheduling of inter-State generating stations (ISGS) through WRLDC as per IEGC and net drawal of distribution licensees, open access customers on a daily basis. This code sets down the procedure for the flow of information between MSLDC and WRLDC, between MSLDC and InSGSs and between MSLDC and distribution licensees and OA customers (Full TOAU/State pool participants) of the InSTS system.

The Scheduling and Dispatch Code shall apply to all users connected to or using InSTS both in private or State Sector.

The procedure for submission of day-ahead generation schedules by each InSGSs and drawal schedule by each Distribution Licensees and submission of day-ahead schedule of ISGS to WRLDC is also covered in this Code.

It also provides methodology of issuing real time dispatch/ drawal instructions and rescheduling, if required, to InSGSs and Distribution Licensees.

This code sets down the procedure for the flow of information between MSLDC and WRLDC, between MSLDC and InSGS and between MSLDC and distribution licensees and Open Access Customers (Full TOAU / State Pool Participants) of the InSTS system

5. Applicability

The Scheduling and Dispatch Code shall apply to the MSLDC and each InSGSs, each Distribution Licensees/Discom, Long Term and Short Term Open Access Customer and Transmission Licensees connected to intra-State transmission system in Maharashtra.

6. Responsibility

- (i) The General Manager (Operation)/ SE (Operation) of MSLDC shall have the overall responsibility for implementation and ensuring compliance of this Code.

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- (ii) The Dy. General Manager (Operation)/ Executive Engineer (Operation), MSLDC shall be responsible for preparation of the day-ahead generation schedules of InSGSs and drawal schedules of Distribution Licensees.
- (iii) Shift-in-Charge, MSLDC Control room, Kalwa shall be responsible for communication of day ahead schedules to WRLDC and generation schedules of Intra State Generating Stations and drawal schedules of Distribution Licensees and revisions of drawal schedule.
- (iv) Shift-in-Charge, MSLDC Control room, Kalwa shall be responsible for real time monitoring.

7. General

- (i) Each InSGS and each Distribution Licensees/ Discom in the State shall nominate a dedicated person/ cell to coordinate and communicate with MSLDC for the purpose of Scheduling and Dispatch. The name, designation, contact address and contact telephone numbers of such nominated person shall be informed to MSLDC and all concerned.
- (ii) The following matters shall be governed by the IEGC and procedure laid down there-under
 - a) Declared Capacity of ISGS
 - b) Entitlement of beneficiaries in ISGS
 - c) Drawal Schedule of ISGS by beneficiary
 - d) Inter-State and inter-regional bilateral exchange
 - e) Regional Transmission Losses
 - f) ISGS Surplus
 - g) Inter-State Open Access injection/ drawal schedule
 - h) Any other matter affecting regional power system or matter between two or more States

The MSLDC shall comply with procedures and instructions of WRLDC with respect to above.

- (iii) MSLDC will develop and maintain an internet web-site facility for the purpose of day ahead scheduling and display of schedules in real-time..
- (iv) The InSGS shall submit their respective generation availability to MSLDC in the specified formats and within the specified time. The distribution licensees and Open

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Access Customers shall submit their drawal schedule within the specified time. The mode of submission of required information shall be intimated by MSLDC and could be through direct uploading to website or through E-mail/ Fax.

- (v) The InSGS shall be required to demonstrate the declared capability of its generating station as and when asked by the State Load Despatch Centre of the region in which the InSGS is situated. In the event of the InSGS failing to demonstrate the declared capability, the capacity charges due to the generator shall be reduced as a measure of penalty.
- (vi) The quantum of penalty for the first mis-declaration for any duration/block in a day shall be the charges corresponding to two days fixed charges. For the second mis-declaration the penalty shall be equivalent to fixed charges for four days and for subsequent mis-declarations, the penalty shall be multiplied in the geometrical progression.
- (vii) The MSLDC shall make available the final generation and drawal schedules on its web site at the specified time.
- (viii) WRLDC shall list all inter-State generating stations (ISGS), in whose output more than one State has an allocated/contracted share. The station capacities and allocated/contracted shares of different beneficiaries/state shall also be listed out by WRLDC. MSLDC shall co-ordinate with WRLDC to identify the ISGS and Open Access customers/ Traders which are supplying power to Users within Maharashtra and furnish overall drawal schedule for the State as a whole in respect of each ISGS in accordance with the Scheduling and Dispatch Code under IEGC 2005.
- (ix) All Generating Stations (with unit size > 50 MW) excluding Renewable Energy (RE) generating stations shall furnish their forecasted unit-wise availability schedule in respect of generating stations to MSLDC-OD on day-ahead basis. As regards Renewable Energy generators, MSLDC shall co-ordinate with such RE generators for possibility of ascertaining their day-ahead generation. MSLDC will ensure adequate communication arrangement with such RE generators for the purposes. In case it is infeasible to monitor or schedule the RE generators on “individual” basis, SLDC shall arrange to monitor generation of RE generators on “cluster” basis. Cluster is to be formed say, on the basis of geographical locations, type of generators etc. RE generators having total capacity above 50 MW connected to EHV S/s will be treated as a cluster. In the absence of any available information, actual generation by RE generators on the previous day shall be taken into consideration for load-generation balancing purposes.
- (x) While furnishing the availability forecasts, the generating companies shall take into consideration the load requirement of their ‘captive consumers’ and ‘open access consumers’ and present these requirements separately so as to be dispatched fully up to the contracted OA load i.e., the OA generators shall not be subjected to backing down instructions (subject to system emergency and transmission constraint) up to the requirement of their OA transactions. However, generation beyond the load requirement of OA transactions shall be subjected to centralized MOD principles.

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- (xi) All the InSGSs shall furnish their capability curve & droop-characteristics for each unit to MSLDC. InSGS shall operate within their capability curve. MSLDC may, based on system requirement, ask the concerned InSGS to regulate MVAR.
- (xii) In declaring the MW availability, InSGS Hydro Power Stations shall indicate their respective reservoir levels and any other restrictions and shall report the same to the MSLDC with their schedule.
- (xiii) The Generation Schedules of InSGS and drawal schedules of Distribution Licensees/Discoms/Full TOAUs if any shall be prepared by MSLDC on 15-minute block basis.
- (xiv) The generation schedules of ISGS generating stations are on ex-power plant basis whereas the net drawal schedule of distribution licensees/Discom on periphery of the State. The transmission loss of regional system shall be taken into account as per WRLDC procedure for working out ex-power plant generation schedule of ISGS.
- (xv) The Distribution Licensees/Discom shall furnish details of bilateral power they have contracted on short term and long-term basis from time to time in the Form No. MSLDC/OP-105/F- 3 (A)
- (xvi) Distribution licensees with essential loads will separately identify non-essential components of such loads, which may be kept OFF during system contingencies. Distribution Companies shall draw up an appropriate schedule with corresponding load blocks in each case. Licensees shall make separation and listing of “essential” and, “non-essential” loads , make their plan for relieving such loads and should keep SLDC informed. The non-essential loads can be put ON only when system normalcy is restored, as advised by MSLDC.
- (xvii) While preparing the load forecast schedule, the Distribution Licensees shall take into consideration the load requirements of the ‘DOAU and Partial Open Access Users’ located within their licensed area as well. While furnishing the overall load forecast schedule to the MSLDC the Distribution licensees shall include forecasted load requirement of only those ‘Partial Open Access Users’, which are not State Pool Participants.
- (xviii) Whenever the frequency is below 49.5 Hz the drawals shall be restricted to drawal schedules. When the frequency falls below 49.50 Hz over drawl of the utilities during a time block should not exceed 12% of its schdule drawl or 150 MW (which ever is lower) and 3% on daily aggregate basis. Requisite load shedding to the extent of overdrawal shall be implemented by Distribution licensees as per the programmes drawn by the concerned Distribution Licensees.
- (xix) The InSGS hydro generating stations scheduling shall be done separately for Koyna HGS, the Hydro stations of TPC and the third consolidated group consisting of all Small Hydro Stations below 25MW capacity.

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(xx) While scheduling generation of InSGS hydro generating stations, the MSLDC shall give consideration to the following factors:

- i. Irrigation/drinking water requirements shall be met and spillage of water shall be minimised
- ii. Full time generation shall be scheduled for hydro stations where the reservoirs are overflowing
- iii. Priority shall be given to reservoir-based hydro stations during peak hours. Koyna HGS is primarily intended to meet peaking requirement and shall be scheduled accordingly.
- iv. MSLDC, taking into consideration grid security, may regulate dispatch from Koyna and other hydro stations, which shall be complied with by such hydro stations.
- v. Optimum utilisation of water shall be achieved between pumped storage hydro power plants and tail race hydro power plants with due consideration to irrigation requirements.
- vi. TPC-Hydro Generation is primarily intended to meet peak demand of Mumbai discoms in accordance with the PPA/Contracts/Allocation and will be operated as per commission directives given in its order.

The entitlements, requisitions, and schedules shall be rounded off to the nearest decimal, to have a resolution of 0.01MW for ISGS, InSGSs. The drawal schedules of Distribution Licensees/ Discoms and Open Access Customers shall be rounded off to the nearest two decimals.

(xv) Based on the availability schedule forecast of generating stations and load requirement forecast of State Pool Participants, the MSLDC-OD shall draw up the least cost dispatch schedule on the contractual commitments for the State as a whole in accordance with the merit order dispatch principles approved by MERC from time to time.

(xvi) Before finalizing the least cost dispatch schedule for the State as a whole, the MSLDC shall inform the State Pool Participants about availability of surplus power, if any, so as to enable them to decide to undertake any inter-state/ inter utility trade transactions.

(xvii) Based on least cost dispatch schedule, with in contracts the MSLDC-OD shall notify the Target Dispatch schedule to generating stations and Target Drawal Schedule to the State Pool Participants. The target dispatch schedules and target drawal schedules shall be determined by undertaking load-generation balancing and adopting MOD principles at reference frequency of 50 Hz.

(xviii) Treatment to TPC Hydro generation shall be given at par with Koyna hydro generation as per MERC directives given in its orders.

(xix) Allocation of stand-by power: In case of break down/ forced outage of any generator in Mumbai utilities, the stand-by power as allocated by MSEDCL against that generator will be allocated to the utilities in the proportion of their share in that generator.

(xx) Allocation of URS power: In the event of MSEDCL not requisite its share in ISGS, SLDC at 15.00 Hrs. will intimate to the utilities having shortfall regarding the

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availability of URS power in ISGS. Utilities shall forward requisition as per their requirement to SLDC for allocation of URS power through MSEDCL. URS power then allocated to the utilities on first come first serve basis. In case MSEDCL desires to take its share, in that case the allocation of URS power given to the utilities will be curtailed in six time block and allocated to MSEDCL.

- (xxi) The utilities shall furnish the details of their bi-lateral purchases individual utility and source wise to the MSLDC.
- (xxii) Disputes: The final schedule will be available on MSLDC web on the same day. The utilities should watch the same and point out any discrepancies there in to MSLDC in writing within 3 days. MSLDC verifies the same and implemented schedule will be made available within 3 days thereafter.
- (xxiii) In real time utilities have to match their generation and demand and revise the schedule if required.
- (xxiv) Discom's drawl shall be grossed up with the average transmission loss of last 52 weeks. At present the loss is calculated on monthly basis hence for grossing up average transmission loss of last 12 months will be considered.
- (xxv) While doing target dispatch scheduling MSLDC will consider the auxiliary consumption as allowed by the Hon. Commission. In absence of the same the aux. consumption as mentioned by the company in name plate details of the generator will be considered.

8. Scheduling in respect of generator having CGS Status located in State

In case the State in which an ISGS is located has a predominant share in that ISGS, the concerned parties may mutually agree (for operational convenience) to assign the responsibility of scheduling of the ISGS to the State's LDC. As MSEDCL is having 95% share in RGPPL generation hence the scheduling & energy accounting will be carried out by MSLDC.

1. The generator will coordinate with the beneficiaries for their requirement within its allocation and intimate MSLDC along with its Ex-bus generation during every 15 minutes time block for further communication to WRLDC at Maharashtra periphery after deducting transmission loss.
2. Accordingly WRLDC will intimate the entitlement to the other beneficiaries (5%)
3. After receipt of requisition based on the requirement indicated against entitlement, from RGPPL, MSLDC will issue despatch schedule to RGPPL under intimation to WRLDC for incorporate the same in its schedule for other beneficiaries (5%).
4. The final despatch schedule for Maharashtra taking into consideration the export schedule of RGPPL to other beneficiaries and other beneficiaries will be issued by WRLDC at 23.00 Hrs. in respect of central sector allocation.
5. In case of revision of declared capacity/requisition change against their entitlement accordingly WRLDC issue revised despatch schedule in respect of Maharashtra and other beneficiaries.
6. Revision in declared capacity due to frequency (for gas operating generators) is to be considered only for determining the UI of that generator.

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7. The URS power of MSEDCL will be first offered to state utilities and later on allocated to other beneficiaries if required. Similarly any URS of other beneficiaries will be first offered amongst themselves and later on to Maharashtra.

9. Scheduling and Despatch procedure

- 1 By 10 AM each day, each InSGS shall furnish to MSLDC, their station-wise ex-power plant generation schedule in MW and MU taking into consideration any outage of its generating unit for the next day, i.e., from 0000 hrs to 2400 hrs of the following day in 15 minute blocks in Form No. **MSLDC/OP-105/F-1**.
- 2 By 10 AM each day MahaGenco shall furnish a consolidated schedule for small hydro stations for next day in Form No. **MSLDC/OP-105/F-2** for the next day
- 3 By 10 AM each day each Distribution Licensees/Discom/Individual Mumbai Utilities shall furnish their drawal schedule for next day, on 15 minute block basis against bilateral power tentatively and same to be confirmed by 14:00 hrs and IPP requisitions they have contracted on short term and long term basis and collective transactions in Form Nos. **MSLDC/OP-105/F-3 and MSLDC/OP-105/F-3 (A)** respectively for the next day.
- 4 By 10 AM each day all Transmission Open Access Users shall furnish to MSLDC their drawal and/or injection schedules for next day in Form No. **MSLDC/OP-105/F- 4** for the next day.
- 5 By 10 AM each day on a basis, the concerned Distribution Licensee/Discom shall furnish the expected generation, including all embedded generators, of next day, to MSLDC in respect of IPP, CPP, and NCES which are embedded into distribution system and injecting power directly into distribution system as a consolidated format for all such generating stations in Form No. **MSLDC/OP-105/F-5** for the next day.
- 6 By 10 AM every day each Distribution Licensee/Discom/Individual Mumbai Utilities connected to InSTS shall furnish to the MSLDC their MW and MU drawal schedule for each 15-minute time blocks for the next day, i.e., from 0000 hrs to 2400 hrs of the following day in Form No. **MSLDC/OP-105/F-6** for the next day.
- 7 At 11 AM, after receipt of information on entitlements of Maharashtra Users in different ISGS from WRLDC through website, E-mail/fax etc, the generation schedules of InSGS, bilateral exchange and other contracted power for day ahead, the MSLDC shall review the availability vis-à-vis drawal schedule received from Distribution Licensees/ Discom for each block of 15 minute for the following day and shall assess the shortage/excess for each time block

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- 8 At 12 Noon, MSLDC shall prepare the Load Generation Balancing as per the Merit Order Dispatch (MOD) principle.
- 9 At 12:30 PM, MSLDC shall send Target Dispatch Schedule to generators and Target Drawal Schedule to Licensees in Form No. MSLDC/OP-105/F-7, Form No. MSLDC/OP-105/F-8, Form No. MSLDC/OP-105/F-9, Form No. MSLDC/OP-105/F-10, Form No. MSLDC/OP-105/F-11, Form No. MSLDC/OP-105/F-12, Form No. MSLDC/OP-105/F-13 and Form No. MSLDC/OP-105/F-14.
- 10 By 2 PM, the MSLDC shall receive the revised Demand Forecast from licensees and Revised Availability Forecast from Generators.
- 11 At 2:30 PM, the MSLDC shall prepare the Load Generation Balancing as per the MOD principle accommodating the revised schedules. Backdown shall be done on the basis of State MOD principle (excluding bilateral contract*).
- 12 MSLDC shall finalize drawal schedule on the basis of following criterion:
 - a) In case the demand estimate for any 15-minute time block exceeds or equals to the generation availability in that 15-minute time block, the drawal schedule shall be equal to generation availability of that time block.
 - b) If the generation availability for any 15 minute time block exceeds the demand estimate, the drawal schedule shall be prepared in the following order:
 - i. Generation from run-of-river hydro stations;
 - ii. Generation from 'must run' Gas Stations, CPPs and Nuclear Stations.
 - iii. CGS, ISGS, InSGS, firm commitments against bi-lateral contracts based on merit order
 - iv. Generation from other hydel-stations for peaking requirement;
 - v. Generation against Firm off-take commitment
 - vi. Generation from InSTS Thermal /Gas generating stations according to variable cost and above the minimum technical limit of the respective unit.
 - vii. Generation from CPPs according to variable cost
- 13 Before 3 PM, MSLDC shall finalize the drawal schedule of ISGSs and InSGSs based on review of the availability vis-à-vis drawal schedule received from Distribution Licensees/ Discom. .
- 14 At 3 PM each day, MSLDC shall furnish to WRLDC drawal schedule for ISGS, bilateral interchanges and inter-state open access. MSLDC shall ensure that the step increase regarding the ISGS station-wise requisition is not more than 1% of the previous requisition.

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- 15 MSLDC may also give standing instructions to the WRLDC for ISGS stations if entitlements from such stations to be booked as first charge on merit order. The WRLDC itself may decide the drawal schedules in such event from ISGS.
- 16 By 3 PM each day MSLDC shall intimate the generation schedule of InSGS.
- 17 By 6 PM each day, the WRLDC shall convey to MSLDC the “net drawal schedule” of the State in MW for different time block, for the next day. The summation of the station-wise ex-power plant drawal schedules for all ISGS and drawal from regional grid consequent to bilateral interchanges, after deducting the transmission losses (estimated), shall constitute the State drawal schedule.
- 18 By 6.30 PM, the MSLDC shall finalize target dispatch schedules for generators and target drawal schedules, including collective transactions for licensees in Form No. MSLDC/OP-105/F-7, Form No. MSLDC/OP-105/F-8, Form No. MSLDC/OP-105/F-9, Form No. MSLDC/OP-105/F-10, Form No. MSLDC/OP-105/F-11, Form No. MSLDC/OP-105/F-12, Form No. MSLDC/OP-105/F-13 and Form No. MSLDC/OP-105/F-14.. This information shall also be sent to the RSM.
- 19 By 7 PM, MSLDC shall publish the target dispatch and drawal schedule and imbalance volume on the web
- 20 By 9:30 PM, revised drawal schedules shall be received from licensees, if any.
- 21 By 10:00 PM, The revised requirement from the ISGS shall be sent to the WRLDC.
- 22 By 11 PM the WRLDC, after consulting the concerned constituents, shall issue the final ‘drawal schedule’ to MSLDC and the final ‘dispatch schedule’ to each ISGS.
- 23 Immediately, MSLDC shall release final generation schedules to InSGSs and drawal schedule to each Distribution Licensees/ Discom in Form No. MSLDC/OP-105/F-7, Form No. MSLDC/OP-105/F-8, Form No. MSLDC/OP-105/F-9, Form No. MSLDC/OP-105/F-10, Form No. MSLDC/OP-105/F-11, Form No. MSLDC/OP-105/F-12, Form No. MSLDC/OP-105/F-13 and Form No. MSLDC/OP-105/F-14.
- 24 By 11:30 PM, MSLDC shall publish the final dispatch and drawal schedule and imbalance volume on the web
- 25 In case the day ahead schedule is not received by 10:00 AM the schedule assigned for the previous day (d-1) shall be the schedule for the next day (d+1).

10.Revision of Schedules

Revision of final generation and dispatch schedule issued by MSLDC may be necessitated on account of

- a) Depletion of Generating capacity in ISGS or InSGS due to tripping of units or de-rating caused by loss of auxiliaries or due to re-start restrictions of a Thermal unit following a grid disturbance
 - b) Constraints in ISTS or InSTS
 - c) Hydro station constraints
 - d) Transgression of system frequency outside the band of 49.50 Hz to 50.20Hz
- 1 In case of forced outage of a unit of ISGS, WRLDC will revise the schedules on the basis of revised declared capability by ISGS. The revised schedule will become effective from the 4th time block, starting the counting from the time block in which the revision is advised by the generator to be the first one. Also, during the first, second and third time blocks of such an event, the scheduled generation of the ISGS shall be deemed to have been revised to be equal to actual generation, and the scheduled drawals of the beneficiaries from such generator shall be deemed to have been revised to be equal to their actual drawals.
 - 2 In the event of a situation arising due to bottleneck in evacuation of power due to transmission constraint in the regional network of ISTS, WRLDC shall revise the schedule which shall become effective from the 4th time block. During the first three time blocks also the schedule shall be deemed to have been revised to be equal to the actual generation by the ISGS and drawal by the states.
 - 3 In case of forced outage of an InSTS generating unit, MSLDC will revise the schedules on the basis of revised generation schedule of the InSGS. The revised schedule will become effective from the 4th time block, counting the time block in which the revision is advised by the InSTS generator to be the first one. Also, during the first, second and third time blocks of such an event, the scheduled generation of the InSGS shall be deemed to have been revised to be equal to actual generation, and the scheduled drawals of the beneficiaries from such InSGS shall be deemed to have been revised accordingly.
 - 4 In case of any grid disturbance, the scheduled generation of all the generating stations and scheduled drawal of all the beneficiaries shall be deemed to have been revised to be equal to their actual generation/drawal for all the time blocks affected by the grid disturbance. The exact duration and certification of such grid disturbance would be declared by WRLDC/MSLDC as the case may be.
 - 5 If, at any point of time, MSLDC observes that there is need for revision of the schedules in the interest of better system operation, it may do so on its own, and in

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such cases, the revised schedules shall become effective from the 4th time block, counting the time block in which the revised schedule is issued by the MSLDC to be the first one.

- 6 WRLDC shall permit the revision of declared capability by ISGS and drawal schedule of the State for the remaining period of the day/block with advance notice of 6 time blocks. Revised schedules / declared capability in such cases shall become effective from the 6th time block, counting the time block in which the request for revision has been received by WRLDC to be the first one.
- 7 WRLDC shall put all such revised schedule on its website and the Shift In charge, MSLDC shall consider every revision by WRLDC and if need be, modify /revise the dispatch schedule of InSGS or revise the drawal schedule of Distribution Licensees in the State and load shedding plan, based on the circumstances at that moment.
- 8 The Generation schedules and drawal schedules issued/revise by WRLDC shall become effective from designated time block irrespective of communication successes to inform all such revisions. The Shift In charge in MSLDC will be vigilant regarding all revisions and developments in power supply position from time to time
- 9 MSLDC shall permit the revision of generation schedule by InSGS and drawal schedule of the Distribution Licensees for the remaining period of the day/block with advance notice of 6 time blocks. Revised generation schedules / drawal schedule in such cases shall become effective from the 6th time block, counting the time block in which the request for revision has been received by MSLDC to be the first one.
- 10 For any revision of scheduled generation, including post facto deemed revision, there shall be a corresponding revision of scheduled drawals of the beneficiaries.
- 11 In case any Distribution Licensee/IPP/NCE/ CPP seeks a revision in the bilateral schedules, the same would have to be confirmed by the other partner within a period of one hour. The revised schedules in such event would come in to effect from 6th time block. In case revision by Discom/Distribution Licensee involve revision of Inter-State bilateral inter-change additional 2 time blocks would be required by MSLDC to effect revision i.e. revision shall be effective from 8th time block in such case.
- 12 Collective Transaction through Power Exchange(s) would normally be curtailed subsequent to the Short Term Bilateral Transaction(s).
- 13 Frequency management:

MSLDC shall,
 - i) Monitor the system frequency and ensure proper balance between the supply and demand by due revisions in generation schedules in the frequency band between 49.50 to 50.20 Hz.

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- ii) Monitor bilateral interchanges and net drawal from the Central pools and from the regional grid and ensure their conformity to the finalised schedule especially when the frequency is below 49.50 Hz
- iii) In the event of frequency dropping below 49.50 Hz, proceed to carry out requisite Load shedding as per the schedule drawn.
- iv) Back down the generating units / stations as per the Merit Order Dispatch principle in case the frequency goes higher than 50.20 Hz
- v) Revision in firm bilateral transaction Day ahead/same day will be considered only if the request will be received with the consent of both seller & buyer by applicant

11. Time frame for scheduling and Dispatch Procedure

Time	Particulars of information	From	To	Form No.
By 10 AM each day	MW and MU generation schedules for the following day	Each InSGS	MSLDC	Form No. MSLDC/OP-105/F-1
By 10 AM each day	Consolidated generation schedule for small hydro stations	MahaGenco	MSLDC	Form No. MSLDC/OP-105/F-2
By 10 AM each day	Bilateral/IPP requisition both short and long term in 15-minute block basis.	Distribution Licensee/ Individual Mumbai Utilities	MSLDC	Form No. MSLDC/OP-105/F-3
By 10 AM each day	Drawal and/or injection schedules of Transmission Open Access Users	All open access TSU	MSLDC	Form No. MSLDC/OP-105/F-4

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Time	Particulars of information	From	To	Form No.
By 10 AM each day	Generation schedules of CPP,IPP, NCES (more than 5 MW) embedded into distribution system and injecting power directly into distribution system	Distribution Licensee	MSLDC	Form No. MSLDC/OP-105/F- 5
By 10 AM each day	MW and MU drawal schedule for the next day	Distribution Licensee/Individual Mumbai Utilities	MSLDC	Form No. MSLDC/OP-105/F-6
By 11 AM each day	Receive ISGS entitlement for the state from WRLDC	WRLDC	MSLDC	WRLDC Format through Web site/ Fax /E-mail/
By 12 noon each day	MSLDC to prepare Load-Generation Balancing as per MOD principle			
By 12:30 PM each day	Send Target Dispatch schedule to Generators and Target Drawal schedules to licensees.	MSLDC	Licensees/Individual Mumbai Utilities InSGS	Form No. MSLDC/OP-105/F- 7 Form No. MSLDC/OP-

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Time	Particulars of information	From	To	Form No.
				105/F- 8 Form No. MSLDC/OP-105/F- 9 Form No. MSLDC/OP-105/F- 10 Form No. MSLDC/OP-105/F- 11 Form No. MSLDC/OP-105/F- 12 Form No. MSLDC/OP-105/F- 13 Form No. MSLDC/OP-105/F- 14
By 2 PM each day	Receive revised demand forecast from licensees and revised availability forecasts from generators	Licensees InSGS	MSLDC	In the formats specified in Form No. MSLDC/OP-105/F-1 to F-6
By 2:30 PM each day	MSLDC to prepare Load-Generation Balancing as per MOD principle accommodating revised schedules			

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Time	Particulars of information	From	To	Form No.
By 3 PM each day	Intimate drawal schedule in ISGS, bilateral inter-state exchange and open access	MSLDC	WRLDC	WRLDC Format through Fax /E-mail/ Web site
By 6 PM each day	Convey net drawal schedule of the State in MW for different time block, for the next day.	WRLDC	MSLDC	Web-site/E-mail
By 7 PM each day	Finalize Target Dispatch Schedules for generators and Target Drawal Schedules for Licensees	MSLDC	InSGS Licensee/Individual Mumbai Utilities RSM	Form No. MSLDC/OP-105/F- 7 Form No. MSLDC/OP-105/F- 8 Form No. MSLDC/OP-105/F- 9 Form No. MSLDC/OP-105/F- 10 Form No. MSLDC/OP-105/F- 11 Form No. MSLDC/OP-105/F- 12 Form No. MSLDC/OP-105/F- 13

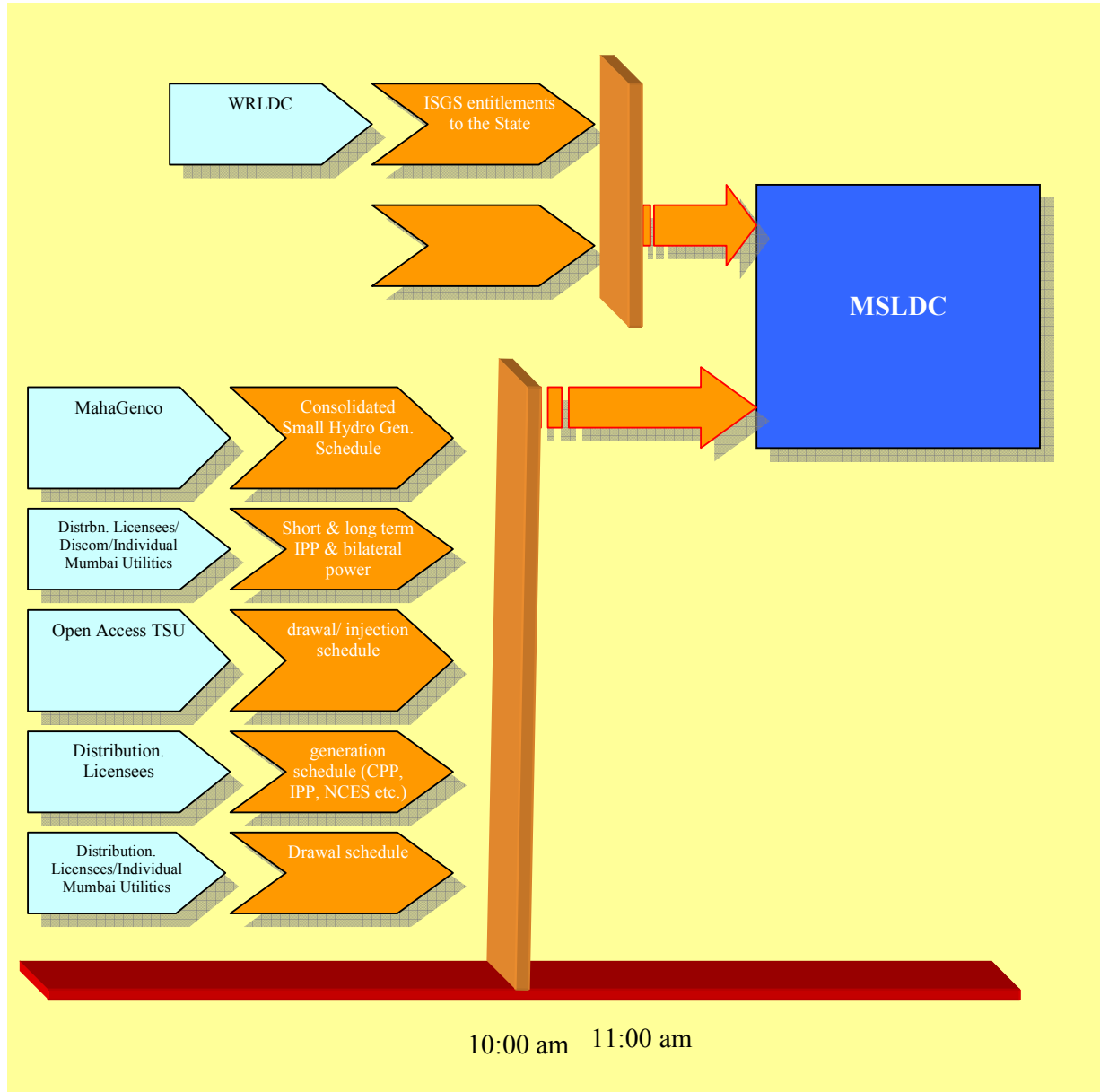
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Time	Particulars of information	From	To	Form No.
				Form No. MSLDC/OP- 105/F- 14
By 7 PM	Publish the target schedule on website	MSLDC		
By 9:30 PM each day	Receipt of revised drawal schedules from licensees if any	Licensees/Individual Mumbai Utilities/InSGS/ Bilateral	MSLDC	Web-site/E-mail
By 10:00 PM each day	Send revised requirement from ISGS to WRLDC	MSLDC	WRLDC	Web-site/E-mail
By 11 PM each day	Issue the final 'drawal schedule' to MSLDC and the final 'dispatch schedule' to each ISGS.	WRLDC	MSLDC/ISGS	Web-site/E-mail
Immediately after 11 PM	Release final generation schedules to InSGS and drawal schedule to each Distribution Licensees/ Discom	MSLDC	InSGS & Distribution Licensees /Individual Mumbai Utilities /TSU	Form No. MSLDC/OP- 105/F- 7 Form No. MSLDC/OP- 105/F- 8 Form No. MSLDC/OP-

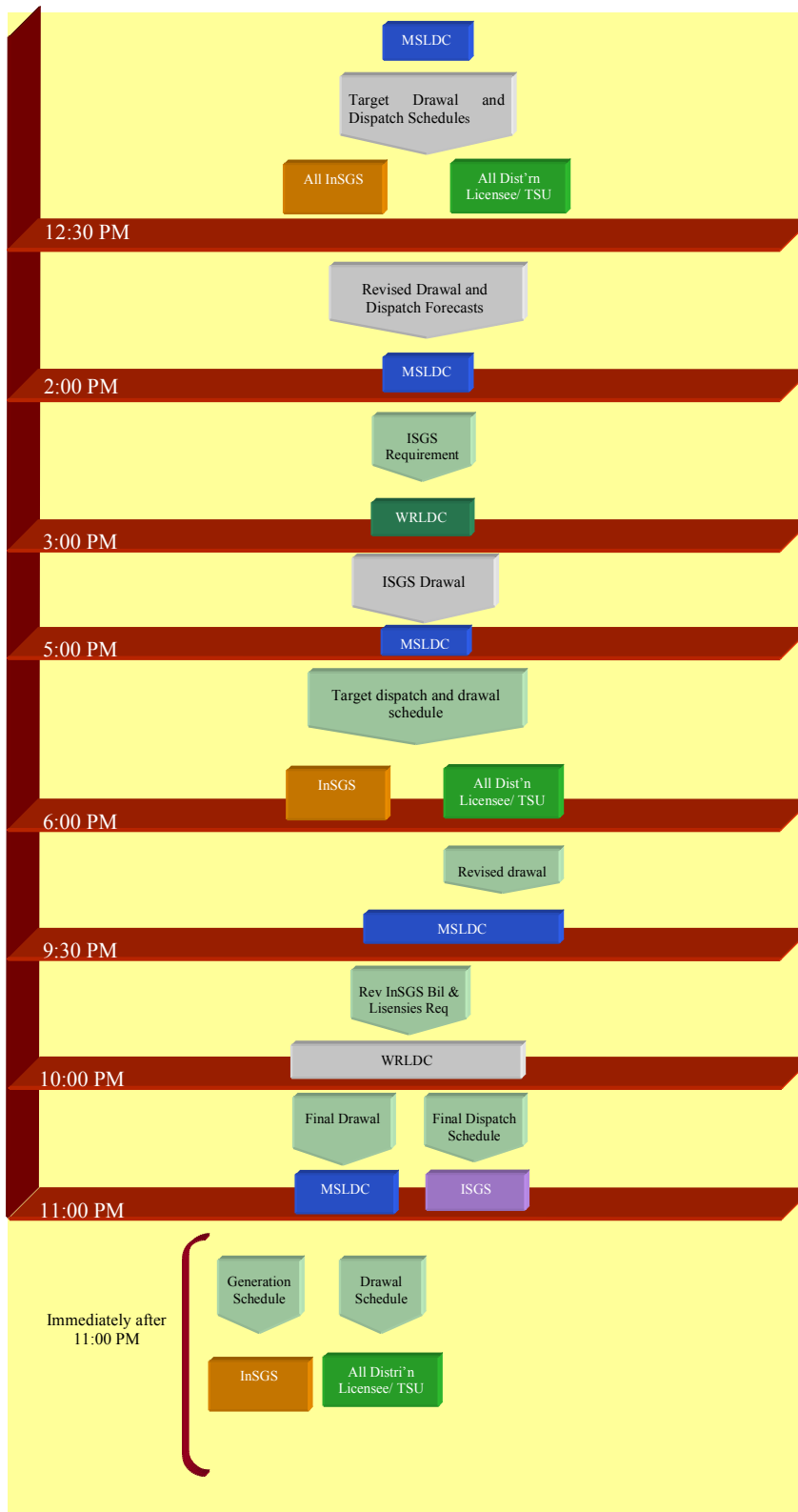
SCHEDULING AND DISPATCH CODE

Time	Particulars of information	From	To	Form No.
				105/F- 9 Form No. MSLDC/OP- 105/F- 10 Form No. MSLDC/OP- 105/F- 11 Form No. MSLDC/OP- 105/F- 12 Form No. MSLDC/OP- 105/F- 13 Form No. MSLDC/OP- 105/F- 14
By 11:30 PM	Publish the Final Schedule on website	MSLDC		

12. Pictorial Summary of Timeframe



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13. Abbreviations

ABT	Availability Based Tariff
BEST	Brihanmumbai Electric Supply and Transport Undertaking
CERC	Central Electricity Regulatory Commission
CPP	Captive Power Producer
DC	Declared Capacity
Discom	Distribution Company
IC	Installed Capacity
IEGC	Indian Electricity Grid Code
IPP	Independent Power Producer
ISGS	Inter-State Generating Station
InSTS	Intra-State Transmission System
InSGS	Intra-State Generating Station
kV	Kilo Volt
MERC	Maharashtra Electricity Regulatory Commission
MOD	Merit Order Dispatch
MSEB	Maharashtra State Electricity Board
MSEDCL/ MahaDiscom	Maharashtra State Electricity Distribution Company Limited
MSETCL/MahaTransco	Maharashtra State Electricity Transmission Company Limited
MSPGCL/MahaGenco	Maharashtra State Power Generation Company Limited
MVA	Mega Volt Ampere
MW	Mega Watt
OD	Operational Division
NCE	Non-Conventional energy
RE	Renewable Energy
REL (D)	Reliance Energy Limited –Distribution

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REL (T)	Reliance Energy Limited –Transmission
RSM	Reconciliation and Settlement Manager
SGC	State Grid Code
SGS	State Generating Station
MSLDC	Maharashtra State Load Dispatch Centre
TPC (T)	Tata Power Company Ltd. (Transmission)
TPC (G)	Tata Power Company Ltd. (Generation)
WRPC	Western Regional Power Committee
WRLDC	Western Regional Load Dispatch Centre