

 RIGHT TO INFORMATION	 MAHATRANSCO Maharashtra State Electricity Transmission Co. Ltd. MAHARASHTRA STATE ELECTRICITY TRANSMISSION CO.LTD. CIN NO. U40109MH2005SGC153646 Maharashtra State Load Dispatch Center Tele :91-022-27601762 (P) Office of The Chief Engineer 91-022-27601931 (O) Extn.1003 Maharashtra State Load Dispatch Center Email : cesldc@mahasldc.in Thane-Belapur Road, P.O. Airoli website : www.mahasldc.in Navi Mumbai Pin – 400 708.	
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Ref. CE/MSLDC/Airoli/ REMC-OP/ 002075

Date: 02 SEP 2026

To,

As per mailing list.

Sub: - Procedure for Renewable Energy (Wind & Solar) curtailment in accordance with the provisions of the MEGC, 2020.

...Submission of Amended RE Curtailment Procedure thereof.

- Ref:** 1. The MERC (State Grid Code) Regulations, 2020.
 2. T.O.L No. MSLDC/TECH/OP/REMC/MEGC-2020/2647 Dt:31-12-2021.
 3. T.O.L. No. MSLDC/TECH/Procedure/RE_Curtail/No. 539 Dt:11-03-2026
 3. T.O.L. No. MSLDC/TECH/Procedure/RE_Curtail/No. 608 Dt:20-03-2026

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 Renewable Energy (Wind & Solar) Generation Curtailment in the State". 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 and same is implemented with effect from 31-12-2021.

Now, based on the experience gained during implementation of the existing procedure and regulatory changes, the said RE Curtailment procedure was reviewed. Accordingly, the draft amended procedure was prepared and was published on MSLDC website vide letter cited under ref (3), for seeking comments/suggestions from stakeholders. Based on the request from Stakeholders, the last date for submission of comments/suggestions was extended to 27-03-2026.

Total 11 Nos. of stakeholders submitted 106 Nos. of comments/suggestions. All the comments/suggestions were reviewed and put-forth in the 14th Operational Coordination Committee (OCC) on dt:26-05-2026. After due deliberations, OCC recommended the draft amended procedure with some modifications before GCC. Accordingly, the draft procedure was deliberated in the 20th Grid Coordination Committee (GCC) on dt:10-07-2026. After detailed discussions & deliberations, Grid Coordination Core committee has consented to implement the amended RE Curtailment procedure in the State.

In view of above, please find attached herewith the "Procedure for Renewable Energy (Wind & Solar) Generation Curtailment(Amendment-1) in the State". The copy of the same is available on MSLDC Website at

www.mahasldc.in → Procedures → REMC → RE Curtailment Procedure(Amendment-1)

Sub: - Procedure for Renewable Energy (Wind & Solar) curtailment in accordance with the provisions of the MEGC, 2020.

...Submission of Amended RE Curtailment Procedure thereof.

The Procedure is effective from 20-08-2026. All the Stakeholders are requested to adhere to the provisions of the said procedure.

Submitted for needful please.

Thanking You.

Encl: As Above

Yours faithfully,

(Girish Pantoji)

Chief Engineer (I/c)

MSLDC, Airoli

Copy s.w.r.s. to:

- 1) The Chairman and Managing Director, MSETCL, Prakashganga, Mumbai.
- 2) The Director (Operations), MSETCL, Prakashganga, Mumbai.
- 3) The Executive Director, MSLDC, Airoli, Navi Mumbai.
- 4) The Executive Director (Operations), MSETCL, Prakashganga, Mumbai.

Copy f.w.c. to:

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

Mailing list:

All the QCAs in the State of Maharashtra

All the Wind Generators in the State of Maharashtra(Through QCAs)

All the Solar Generators in the State of Maharashtra(Through QCAs)

All the Wind & Solar Park Developers in the State of Maharashtra(Through QCAs)

All the Wind & Solar OEMs in the State of Maharashtra(Through QCAs)

All the Distribution Licensees in the State of Maharashtra

All the Transmission Licensees in the State of Maharashtra



Procedure for Curtailment of RE (Wind & Solar) Generation in the State

(1st Amendment)

In accordance with
The Maharashtra Electricity Regulatory
Commission
(State Grid Code) Regulations, 2020 and
subsequent amendments.

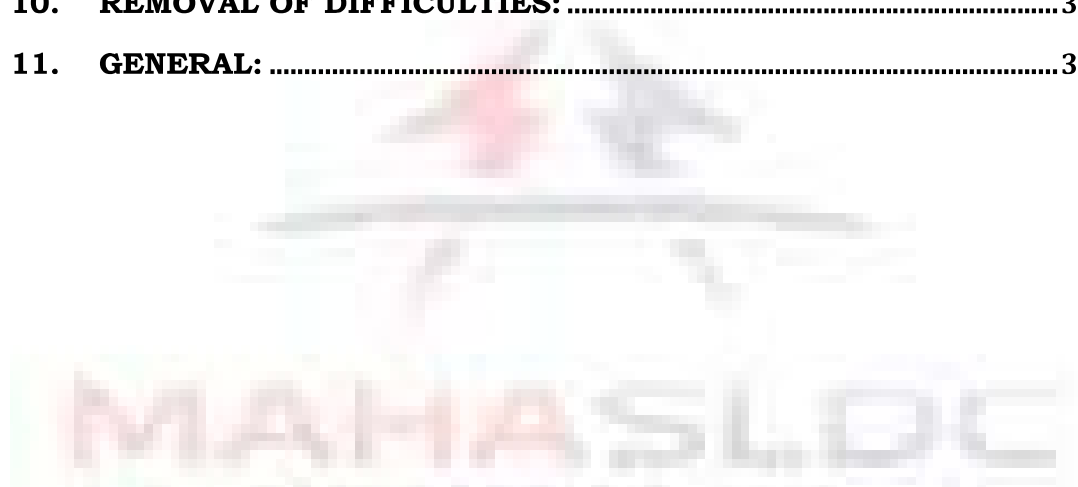
Prepared by

Maharashtra State Load Despatch Centre

(20-08-2026)

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PROCEDURE FOR RE (WIND & SOLAR) GENERATION IN THE STATE

1. **OUTLINE:**

- 1.1. This Procedure is in accordance with the various provisions of the Regulation No. 28.2, 30.12 & 30.13 of the MERC (State Grid Code) Regulations, 2020, Regulation No. 14 of the MERC (Forecasting, Scheduling and Deviation Settlement of Solar and Wind Generation) Regulations, 2018 & amendment thereto.
- 1.2. All Stakeholders shall abide by the provisions of the Regulations. All applicants shall abide by the CEA (Technical Standards for Connectivity to the Grid) Regulations, 2019, CEA grid standard regulation 2010 and relevant CEA standards for protection and SPS requirements.
- 1.3. With increasing variable RE capacity into grid which is intermittent in nature, complexities of power system operations and grid management challenges are increasing day by day. The SLDC needs to maintain the load-generation balance by maintaining the system parameters within the limits specified by the Grid code.

Despite improving accuracy of forecasts (demand and supply), forecast errors and the load variation in the real time would continue and the SLDC needs to maintain the generation to maintain the system frequency & Voltages within the permissible band as per Grid Code.

The SLDC while balancing the generation as per the load, the variation in the wind and solar generation adds to the complexity in balancing the generation through other resources like thermal or gas or hydro generation. Even with exercising various measures for managing grid frequency and voltage/congestion management, SLDC may need to manage grid by way of RE generation curtailment in the interest of Grid security.

- 1.4. The existing installed capacity of Wind & Solar Generation in the State is large and exponential growth is observed day by day. This capacity is spread across the geography of the State having multiple individual Generating Units viz. WTGs & Solar Invertors, connected to multiple PSS. This capacity is operated & maintained by different

Generating Companies, RE Developers & OEMs. Thus, there is an involvement of large number of Stake holders.

Proper co-ordination among various Stake-holders is required for effective & successful implementation of the curtailments. Any mis-communication/delay in implementation of MSLDC directions may lead to grid disturbances.

- 1.5. As mandated in accordance with the Regulation No. (d) (28.2) of the MERC (State Grid Code) Regulations, 2020, to implement the curtailments smoothly without any mis-communications and to avoid any disputes, this procedure has been prepared.
- 1.6. The objective of the RE curtailment Procedure, is to lay down a comprehensive framework for managing the curtailment of variable RE generation for grid security while keeping the impact of curtailment on RE to the minimum.

The procedure also lay down the roles and responsibilities of the various stakeholders like SLDC, STU, Transmission Licensees, Distribution Licensees, RE Generating companies, RE Developers, OEMs and Qualified Coordinating Agencies (QCAs). It also aims to classify the various types of situations which call for curtailment of generation based on which, methodologies for curtailment and restoration have been designed. The procedure also aims to maintain transparency in the instructions issued by SLDC and process followed for curtailment and restoration as per the grid requirement.

2. DEFINITIONS:

- A. “**Associated Evacuation network**” means the EHV, HV network which is the existing network of any transmission or distribution licensee through which generation is evacuated. This network is beyond the Point of Interconnection (PoI).
- B. “**Dedicated Evacuation network**” means the dedicated EHV, HV, LV network designed and developed for evacuation of generation through specific Generating Station or a group of Generating Stations. This network is behind the Point of Interconnection (PoI).
- C. “**F&S Regulations**” means the MERC (Forecasting, Scheduling & Deviation Settlement for Solar & Wind Generation) Regulations, 2018 and subsequent amendments.
- D. “**MEGC**” means the MERC (State Grid Code) Regulations, 2020.
- E. “**Plant Operators**” means the agency or a company which is appointed by the Wind & Solar Generators for operating the

Generating Plant on behalf of them, such as RE Developers, OEMs, etc.

- F. **“Nodal Substation”** means a Sub-station of a Transmission or Distribution Licensee which is designated for passing the telephonic instructions issued by MSLDC to individual Pooling Sub-stations where actual generation is connected.
- G. **“Code”** means a unique Numerical number generated by MSLDC Control Room against telephonic instructions issued to various Stake holders such as Nodal Sub-Stations, Generating Companies, Transmission & Distribution Licensees, QCAs, etc.
- H. **“Field Office of Transmission Licensee”** means the Officer(s) of the Transmission Licensee which are deputed for carrying out operation & maintenance of the local Transmission Network.
- I. Save as aforesaid and unless repugnant words and expressions used in these Regulations and not defined, but defined in the Act, or the CERC (Indian Electricity Grid Code) Regulations 2023 or Regulations of the Central Electricity Authority or any other Regulations of MERC shall have the meaning assigned to them respectively in the Act or IEGC or any other Regulations as the case may be.

3. APPLICABILITY OF THE PROCEDURE:

- 3.1. The procedure shall be applicable to various Stake-holders in the State such as Wind & Solar Generating Companies, Hybrid RE Plants covered under the ambit of said regulations, registered QCAs, STU, Distribution & Transmission Licensees, RE Developers, Plant operators appointed by the Generating Companies for operation & Maintenance of the Plant on behalf of the Generating companies, etc.

4. METHODOLOGY:

- 4.1. There shall be different scenarios, viz. heavy demand crash, heavy under-drawl by the State at high frequency, sudden increase in RE Generation resulting in to heavy under-drawl beyond permissible limits, Overloading and/or tripping and/or outage of Evacuation network, etc. based on which curtailment methodology shall differ. The scenario-wise methodology shall be as below.
 - **Scenario – 1:** Demand crash or High RE penetration in the State with heavy under-drawl from ISTS
 - **Scenario – 2:** Planned or Forced outages or Over-loading of the evacuation infrastructure

- 4.2. **Scenario – 1:** Demand crash or High RE penetration in the State with heavy under-drawl from ISTS
- 4.2.1. There are chances of sudden demand crash in the State due to sudden changes in weather or tripping of any bulk load. Also, demand may crash due to some partial/major grid disturbances, viz. tripping of 765 kV or 400 kV or major 220 kV Sub-Station or ring main, feeding load to the metro cities, etc.
- 4.2.2. It is not possible to anticipate such incidences & volume of demand crash.
- 4.2.3. There are chances that on some specific occasions (Special events like Earth Day, etc), the end consumers may not use electricity for specific time. For such scenarios, forecasting of demand crash is possible, however, not with high degree of accuracy as it is not possible to anticipate the response of end consumers.
- 4.2.4. RE Generation is seasonal & time dependent. Wind Generation is generally high during monsoon months and demand is at lower side. Solar generation is high during afternoon hours. Hence, based on the injection of RE generation, despatch from conventional generating units needs to be managed.
- 4.2.5. Further, due to sudden weather changes, the injection of RE may increase.
- 4.2.6. RE injection being infirm in nature, committed operation of Conventional Generating Units is required to meet Demand during non-availability of RE Generation. For example, to meet demand during non-solar hours, Thermal generation will be required.
- 4.2.7. There will be cases wherein in-spite of backing down of thermal generation to its technical minimum level subject to unit constraints, RE injection will be high resulting in to under-drawl from the ISTS. Such scenario requires RE Curtailment for secure operation of the Grid.
- 4.2.8. Under such conditions, MSLDC shall initiate following actions in real time:
- Backing down of all the Intra-State Thermal generation to operate at technical minimum level based on technical parameters of the generating unit subject to any unit constraints, with due consideration of Network Constraints,

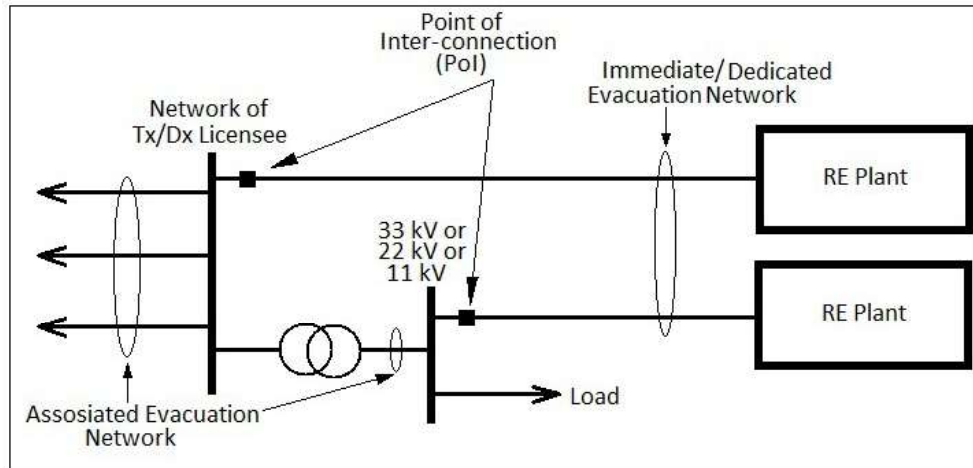
Congestion, Voltage Management and any System security measures.

- Backing down of Intra-State Hydro Generation subject to transmission constraints, congestion, Voltage Management, System Security measures and requirements from Irrigation department.
- Pumped Storage Units will be instructed to operate in the Pumping Mode depending up on the availability of margin for pumping.
- BESS units, if available, will be instructed to operate in charging mode depending up on the availability of margin.
- Distribution Licensees shall be directed to reduce the requisition from contracted Inter-State Generating Stations (ISGS) through revision of Schedules and explore possibility of selling surplus Intra-State Power in the market.
- Distribution Licensees shall be instructed to withdraw any demand curtailments, if any.
- In case of demand crash is due to tripping or break-down or manual opening of the electrical network, concerned transmission & distribution licensee shall be directed to restore the network elements on priority so as to restore demand.

4.2.9. Once above measures are assessed, RE Curtailment will be carried out to maintain system parameters viz. Voltages, frequency, heavy under-drawl from ISTS, etc. within the permissible limits, for safe & secure grid operations.

4.2.10. The detailed procedure in such scenario is specified at clause no. 6.4.1.

4.3. **Scenario – 2:** Planned or Forced outages or Over-loading of the evacuation infrastructure



4.3.1. The dedicated evacuation network is planned and developed to evacuate RE power without any constraints. Such network may be developed for evacuation of power from individual RE Project or for a group of RE Projects. Also, in some cases, RE Generation is evacuated through the network of the Transmission/Distribution Licensee, i.e. through Associated Evacuation network.

4.3.2. In case of Overloading or tripping or outage on **Dedicated evacuation network**, resulting in to reduction in evacuation capacity:

- (a) Partially, then RE injection from the concerned PSS shall be curtailed partially and injection shall be restricted to limit the loading on dedicated evacuation network which is in service, within thermal limits.

The Thermal limit shall be in accordance with the limits provided in the appropriate CEA (CEA Transmission Planning Criteria, 2013)/CERC/MERC Regulations related to Connectivity standards/Grid Code, etc.

- (b) Fully, then RE injection from the concerned PSS shall be curtailed Fully.
- (c) Such instances shall not be treated as curtailment imposed by MSLDC, as it is the responsibility of the concerned RE Developer and Generating Companies to construct, operate & maintain dedicated evacuation infrastructure.

- (d) It shall be the responsibility of the concerned RE Developer and Generating Companies to install required Special Protection Scheme (SPS) at the PoI to curtail generation automatically, in consultation with the respective Transmission/Distribution Licensee. Such SPS shall be governed by the provisions of the Grid Code.

4.3.3. In case of overloading or tripping or outage on **Associated Evacuation network** through which power from a single or group of PSS is evacuated, resulting in to reduction in evacuation capacity:

- (a) Partially, then RE injection from the concerned PSS shall be curtailed partially and injection shall be restricted to limit the loading on evacuation network which is in service within thermal limits. The PSS-wise curtailment shall be on pro-rata basis based on installed capacity.

The Thermal limit shall be in accordance with the limits provided in the appropriate CEA (CEA Transmission Planning Criteria, 2013)/CERC/MERC Regulations related to Connectivity standards/Grid Code, etc.

- (b) Fully, then RE injection from the concerned single or group of PSS shall be curtailed Fully.
- (c) The real time visibility of 400 kV transmission network is completely available at MSLDC. However, the real time visibility of transmission network below 400 kV is very less. The real time visibility of 220 kV network is substantial whereas the real time visibility of 132 kV & below network is very less.

Most of the EHV connected Wind & Solar Generating plants are connected at 220 kV level & below network. Thus, in the absence of real time visibility of this network, it is not possible for MSLDC to monitor the line loadings and assess the need of curtailment. Under such conditions, MSLDC relies up on the respective Transmission Licensee's field offices who are observing the system in real time. As such, MSLDC is monitoring 220 kV & above network. Also, the outages of transmission elements at 220 kV & above are managed by MSLDC. The transmission network & elements below 220 kV level are monitored by field officers of the respective Transmission Licensees.

In case of any transmission constraints or overloading of transmission elements connected below 220 kV level, to protect the constrained element(s) and to avoid cascade tripping of the local transmission network resulting in to complete loss of RE Generation, concerned Transmission Licensees are installing LTS/GTS/SPS schemes to protect the transmission network below 220 kV level. Thus, with the operation of such LTS/SPS/GTS, RE generation will be curtailed automatically. The list of existing LTS/SPS/GTS installed in the State wherein curtailment of RE Generation is considered is attached as **ANNEXURE - A**.

Further, in the absence of such LTS/SPS/GTS, respective field offices of Transmission Licensees carry out RE curtailment manually by intimating the respective RE Developers, Generating Companies, Plant Operators, etc. Further, such actions are intimated to MSLDC at later stage.

- 4.3.4. Under such scenario of non-visibility of transmission network to MSLDC, Field Offices of the STU/concerned Transmission Licensees shall use the powers of Curtailment & restoration of RE Generation till the concerned Transmission Network is visible to MSLDC in real time. However, actions taken by the Field Offices of the STU/concerned Transmission Licensees shall be reported without fail to MSLDC in accordance with the provisions specified in this procedure. The detailed procedure in such scenario is specified at Clause No. 6.4.2.

4.4. Process for pre-deciding Wind & Solar Curtailment Phases

- 4.4.1. The Solar & Wind Curtailment Phases are required to be predefined for ease of implementation and to avoid repetition of the curtailment for the same Pooling Sub-Station (PSS) for consecutive events. Thus, curtailment can be issued on rotational basis.
- 4.4.2. The phases of Wind & Solar PSS shall be prepared considering that every phase shall have an approximately equal quantum and mix of PSS across the State's geography.
- 4.4.3. Each phase shall have PSS having total installed capacity of around 1000 MW approximately. However, depending up on requirements, the quantum per phase will be modified by MSLDC.
- 4.4.4. There shall be separate phases for Wind & Solar capacity.

- 4.4.5. Each phase shall have details such as Name of PSS, Installed Capacity, Details of Nodal Officer of QCA, Generating Company, Plant Operator, RE Developer, PSS In-charge, Nodal Sub-station, etc.
- 4.4.6. The phases shall be reviewed & updated on half-yearly basis and as & when any changes in the information is intimated to MSLDC.
- 4.4.7. The phases shall be uploaded on MSLDC website.

5. RESPONSIBILITY OF VARIOUS STAKE-HOLDERS:

- 5.1. For effective implementation of curtailments, proper co-ordination among various Stake-holders is required. The roles & responsibilities of various Stake-holders are as below.

5.2. Responsibility of MSLDC:

- 5.2.1. MSLDC shall be the nodal agency for issuing curtailment instructions.
- 5.2.2. MSLDC shall prepare, review & update the Phases having various details such as Name of PSS, Installed Capacity, Contact details of PSS In-charge, Nodal Sub-Station, etc. and upload the same on MSLDC website.
- 5.2.3. MSLDC shall maintain the record of Phases & PSS to which curtailments have been issued in past and ensure implementation of the curtailment for the next Phase & PSS.
- 5.2.4. MSLDC shall issue Curtailment instructions telephonically and through e-mail in accordance with the provisions of this procedure.
- 5.2.5. MSLDC shall revise the schedules of the PSS to which curtailment has been issued in accordance with the provisions of this procedure.
- 5.2.6. MSLDC shall maintain the details of Curtailment instructions along with reason, quantum of curtailment (MW/MUs) and upload on MSLDC website on monthly basis.
- 5.2.7. As and when curtailment is carried out by MSLDC, a Curtailment Report will be prepared and uploaded on MSLDC website. This report will have details of PSS at which curtailment was carried out, curtailment period along with curtailed quantum, actions taken by MSLDC before initiating curtailment, etc will be specified. This report shall be based on the available operational data and should not be used for any commercial purpose.

- 5.2.8. MSLDC shall report the instances of Curtailment to OCC.
- 5.2.9. MSLDC shall conduct a Quarterly or Bi-annual Curtailment review meetings with QCAs. QCAs being single point contact can discuss the issues with individual Generating Companies prior to such meetings. QCAs shall submit the any issues raised by the Generating companies to MSLDC. The agenda shall be circulated at least 15 days prior to the date of meeting. Only operational issues will be discussed during this meeting. MSLDC may invite any Generating Company for the said meeting.

5.3. Responsibility of QCAs:

- 5.3.1. QCA is a single point contact between MSLDC & Generating Companies. Hence, QCA shall be responsible for communicating the instructions to RE Developers and Generating Companies connected to the PSS for which it is acting as a QCA.
- 5.3.2. QCA shall be responsible for implementation of the curtailment issued along with revision in schedules in real time.
- 5.3.3. QCA shall inform the contact details of 3 Nos. of representatives to whom instructions shall be issued by the Nodal Sub-Stations/MSLDC. As the need for curtailment may arise at any time, one of the contact details shall be mandatorily, of the Control room operated 24x7 by the QCA. In case of changes in the details of representatives, the same shall be communicated within 24 hours to MSLDC.
- 5.3.4. QCA shall ensure implementation of the curtailment through respective Generating Companies or the Plant operators, viz. OEMs, RE Developers, etc.
- 5.3.5. QCA shall immediately inform the details of PSS and Generating Companies which have not followed curtailment instructions issued by MSLDC and not implemented the curtailment. The details shall include date & time at which instructions were received by QCA from MSLDC, date & time at which instructions were issued to Generating Companies & Plant Operators including RE Developers, reasons for non-implementation of the curtailment instructions.
- 5.3.6. QCA shall keep all the records of curtailment instructions passed on to the Generating Companies, Plant Operators viz. OEMs, RE Developers, etc. having various details such as date & time of

instructions received from MSLDC, date & time of instructions issued to Generating Companies & Plant Operators including RE Developers, actual time of curtailment & generation at the time of the curtailment & restoration timings etc. The information should be communicated to the MSLDC in the prescribed format within two time blocks from which instructions were issued by MSLDC.

- 5.3.7. QCA shall revise the Schedules in accordance with the quantum of curtailment as instructed by MSLDC and/or intimated by the respective Generating Companies, RE Developers and Plant Operators in case of auto curtailment due to operation of LTS/SPS/GTS and manual curtailment imposed by Field Office of transmission licensee.
- 5.3.8. QCA in co-ordination with Generating Companies shall develop protocol for communication of Curtailment instructions from MSLDC for actual implementation. Such PSS-wise protocol shall be submitted to MSLDC within 30 days from the date of notification of the said procedure. Non-submission of such protocol shall be treated as non-compliance of the said procedure.
- 5.3.9. The protocol shall consist of mode of communication, details of instructions issued, details of authorized persons of Generating Companies/Plant Operating agencies on behalf of generators, feedback from Generating Companies/Plant Operating agencies on behalf of Generating Companies towards implementation or withdrawal of the curtailment
- 5.3.10. Any technical data towards compliance of any provisions of the Regulations, shall be communicated to the QCA for onwards submission to individual generators. The data collected from the generators shall be submitted by the QCAs to MSLDC.

5.4. **Responsibility of Generating Companies, RE Developers and Plant Operators:**

- 5.4.1. At most of the PSS, large no. of Generating Companies are connected to a single PSS. Such wind/solar farms are normally operated by Plant Operators appointed by the generators. In some of the PSS, there are multiple Plant Operators who are operating plants on behalf of their Generating Companies.

Due to involvement of such large no. of stake-holders, it becomes crucial to implement curtailment which is issued under

extreme emergency conditions, in short time frame for getting required relief for maintaining system security.

It is the combined responsibility of all the stake-holders, viz. QCAs, Generating Companies, RE Developers, Plant Operators, OEMs, etc. for providing support to MSLDC for operating the grid at normal level and maintaining the grid safe, reliable and stable.

- 5.4.2. For proper co-ordination of implementation of the curtailments, the Generating Companies shall declare the details of nodal officers who are responsible for operating plant in real time. Such nodal officers may be on their own (if plant is operated by themselves) or nodal officers of the plant operators appointed by the generating companies.

The details of PSS-wise nodal officers shall be submitted to respective QCAs with intimation to MSLDC within 30 days from the date of notification of this procedure. Further, in case of changes in the details of nodal officers, the same shall be communicated to QCA within 7 days.

- 5.4.3. Since the QCAs are primarily responsible for Forecasting, Scheduling & settlement of Deviation accounts, the onus of implementation of curtailment shall be with the generating companies, hence, the Generating companies shall coordinate with their plant operators and with respective QCAs to jointly develop PSS-wise protocol for communication of Curtailment instructions for actual implementation. Such PSS-wise protocol shall be submitted to MSLDC within 30 days from the date of notification of the said procedure through QCA. Non-submission of such protocol shall be treated as non-compliance of the said procedure.
- 5.4.4. Once the QCA is registered for any PSS, it shall be binding on all the generating companies connected to the said PSS to act upon the instructions passed on by the MSLDC through QCA even if any generating company has not issued consent to the respective QCA.
- 5.4.5. It shall be binding on all the Generating Companies, RE Developers and Plant Operators to curtail RE Generation & restoration thereof, as per the instructions issued by MSLDC through Nodal Sub-stations and/or QCA.

Also, the instructions of RE curtailment and/or restoration issued by Field Offices of respective Transmission Licensees shall be

binding on all the Generating Companies, RE Developers and Plant Operators.

Provided that the protocol for communication of instructions of RE Curtailment & restoration thereof shall be as specified in this procedure.

- 5.4.6. If the generating company, RE Developer, Plant Operator doesn't follow the MSLDC's instructions for curtailment and/or Field Offices of Transmission Licensees, the action will be initiated against generating companies and/or plant operators as per Section 32(1), 32(2)(d), 32(2)(e) & Section 33(1), 33(2), 33(5), 142 & 146 of the Act' 2003.
- 5.4.7. Upon request by the QCA towards submission of any technical data required by MSLDC in regards to the compliance of any Regulations shall be provided by the generating companies or their Plant operators directly to MSLDC or through QCA.
- 5.4.8. It shall be the responsibility of the Generating Companies, RE Developers and Plant Operators to install LTS/SPS/GTS in co-ordination with the Field Offices of respective Transmission Licensees/STU/SLDC.
- 5.4.9. It shall be the responsibility of the Generating Companies, RE Developers and Plant Operators to intimate the details of curtailment & restoration to respective Nodal Sub-stations and respective Field Offices of Transmission Licensee in accordance with the communication protocol defined in this procedure.
- 5.4.10. In case of operation of LTS/SPS/GTS resulting in to curtailment of RE Generation automatically and/or manual instructions of curtailment issued by Field Offices of transmission licensee, it shall be the responsibility of the Generating Companies, RE Developers and Plant Operators to intimate the details to respective QCA for punching of revised schedules in RE Scheduling Software.
- 5.5. **Responsibility of Transmission & Distribution Licensees:**
 - 5.5.1. Most of the PSS and Associated evacuation network are owned and operated by the Transmission or Distribution Licensees.
 - 5.5.2. All the concerned Transmission & Distribution Licensees shall declare the PSS-wise detailed list of Nodal officers or Sub-stations and PSS In-charge to MSLDC for co-ordination for curtailment implementation within 30 days from the date of notification of this

procedure. The details shall be in accordance with the **ANNEXURE - 1**. Any changes in the details of the Nodal officer or Sub-station and PSS In-charge shall be communicated to MSLDC within 07 days from the date of change. Non-submission of such details shall be treated as non-compliance of the said procedure.

- 5.5.3. After issuance of curtailment instructions from MSLDC, the Nodal Officer or Sub-station shall pass on the instructions to respective PSS for implementation of the Curtailment.

The PSS In-charge shall pass on the instructions to respective Generating Companies or Plant Operators for implementation. The Nodal Officer or Sub-station and PSS In-charge shall maintain the record having various details such as date & time of instructions received from MSLDC, date & time of instructions issued to Generating Companies & Plant Operators including RE Developers, actual time of curtailment & generation at the time of the curtailment & restoration timings etc.

- 5.5.4. The PSS In-charge shall be responsible for opening of the Line Isolator & Breaker at the Point of Inter-connection in a PSS if the generation is not reduced within 2 time blocks.

Such instances shall be reported to MSLDC within 1 time block from the action of opening of breaker & isolator is taken along with details of communication held between the Generating companies and/or Plant Operators.

- 5.5.5. Once the action as per Clause No. 5.5.4 is initiated, the restoration shall be done only after the instructions from the MSLDC Control Room.
- 5.5.6. For opening and restoration of the interface arrangements, Code system shall be followed.
- 5.5.7. In relation to the clause no. 4.3.3 (c) specified above, the respective Field Offices of the transmission licensees or STU shall identify the transmission constraints likely to occur under contingencies and install LTS/SPS/GTS on the respective transmission elements to auto back down RE generation under contingent conditions. Such identification of requirement should be carried out periodically.

While designing such LTS/SPS/GTS, discussions shall be held with respective RE Generating Companies, Plant Operators and RE Developers and the minutes of such meetings shall be prepared & maintained by the respective Transmission Licensee/STU. STU

shall finalize the LTS/SPS/GTS along with scope of works & responsibilities in co-ordination with concerned transmission licensee and RE Generating Companies/RE Developers. Once such LTS/SPS/GTS are installed, the details shall be informed to STU & MSLDC by the respective Transmission Licensee.

All such LTS/SPS/GTS resulting into RE curtailment shall be reviewed on 6 monthly basis or as & when changes in network topology and/or loading conditions, Generation capacity addition, etc, by Transmission Licensee/STU/SLDC and modifications in existing LTS/SPS/GTS, if required, shall be carried out with the approval of STU. Once the LTS/SPS/GTS is updated, the same should be communicated to STU & MSLDC by the respective Transmission Licensee.

In the absence of LTS/SPS/GTS, respective field offices of Transmission Licensees shall carry out RE curtailment manually by intimating the respective RE Developers, Generating Companies, Plant Operators, etc. Under such conditions, it shall be the responsibility of the respective field offices of Transmission Licensees to inform the requirement of the LTS/SPS/GTS to and STU shall finalize the LTS/SPS/GTS along with scope of works & responsibilities in co-ordination with concerned transmission licensee and RE Generating Companies/RE Developers.

The details of Curtailment of RE Generation either through LTS/SPS/GTS or manually shall be reported to MSLDC in accordance with the communication protocol defined in this document.

- 5.5.8. The Distribution Licensees shall carry out Week Ahead and Day Ahead Resource Planning and identify the availability of Surplus Capacity in advance and optimize the available resources on Week ahead & Day ahead basis to avoid RE Curtailment.

While conducting such assessment, impact of Distribution Embedded Generating Sources viz. Roof-Top Solar, Solar Projects under MSKVY Scheme, etc, shall be considered.

- 5.5.9. The main objective of Mukhyamantri Saur Krishi Vahini Yojana (MSKVY) scheme is to provide Day time Supply to farmers & Agriculture through Solarization of AG feeders. Hence, it shall be the responsibility of the concerned Distribution Licensee to maintain AG Load & Solar Generation balance.

A Scheme for monitoring local AG Load-Solar Generation balance in automated manner shall be installed by the concerned Distribution Licensee. Till the installation of such automated scheme, balancing & curtailment shall be carried out manually with centralized monitoring.

The details of Solar Generation curtailed by concerned Distribution Licensee shall be reported to MSLDC as & when such generation is curtailed either manually or automatically.

6. PROTOCOL FOR COMMUNICATION & IMPLEMENTATION:

- 6.1. The first aim of System Operator is to maintain and restore the System conditions to normal level, hence, preliminary instructions shall be passed on through voice/telephonic communication only with a 'CODE' through nodal officer/substation & QCAs.
- 6.2. It shall be binding on all the QCAs, Generating Companies, Plant Operators, RE Developers etc. to adhere to the instructions given (including Curtailment instructions) by MSLDC through any mode of communication (voice/telephonic/WhatsApp communication) and implement it immediately without waiting for written communication from MSLDC or Nodal officer/substation.
- 6.3. The voice/telephonic communication shall be confirmed by MSLDC through e-mail to the respective QCA within next 1 hours from the voice communication and the same shall be forwarded by the QCA to individual Generating Companies/Plant Operators/RE Developers as per the mutually agreed communication protocol.
 - 6.3.1. MSLDC has already developed Web-based scheduling portal through which curtailment in the schedules shall be made. Such curtailments in the schedules shall be intimated to the QCA through e-mails.
 - 6.3.2. The curtailment instructions shall have following information:
 - Name of PSS.
 - Quantum of Generation to be curtailed or Quantum to which generation is to be restricted.
 - Date & Time Block from which curtailment to be implemented.

- Tentative Date & Time Block at which curtailment shall be withdrawn. (*Restoration should be carried out only after receipt of instructions from MSLDC*)
- Reason for Curtailment.

6.3.3. Based on the System conditions, the System Operators in MSLDC Control Room shall review the decision of revision in the quantum of curtailment or withdrawal of curtailment. Such revision in quantum or withdrawal of curtailment shall be informed to QCA & Nodal Officer/Substations through voice communication for implementation which shall be confirmed through e-mail within next one hour.

6.4. The Communication Protocol under various scenarios for implementation of the Curtailment is as below:

6.4.1. **Demand crash in the State with heavy under-drawl from ISTS:**

- Curtailment will be triggered based on Frequency & Deviations at State Periphery.
- MSLDC Control Room System Operator will assess the need of curtailment based on following guiding principles:
 - a) MSLDC System Operator will monitor the Grid Frequency, State Periphery deviations & trend of anticipated Under-Drawl.
 - b) If State U/D is persistently above 1000 MW for consecutive 2-time blocks and the intra-day forecast and trend indicates continuation, the System Operator will make a curtailment decision immediately

Grid Frequency (Hz)	RE to be Curtailed or not
	State U/D >1000 MW
F < 49.90	YES (%)
49.90 < F < 50.05	YES *
F > 50.05	YES #

- c) If State U/D is persistently above 500 MW for consecutive 4-time blocks and it is expected to increase further based on the intra-day forecast, the System Operator will make a curtailment decision

Grid Frequency (Hz)	RE to be Curtailed or not
	State U/D >500 MW
F < 49.90	YES (%)
49.90 < F < 50.05	YES *
F > 50.05	YES #

(%) in such case, the curtailment decision will be made taking review of the system conditions in co-ordination with RLDC.

(*) Frequency should be within band for consecutive 4 time blocks

(#) Frequency should be above 50.05 Hz for consecutive 4 time blocks

d) Flexibility shall be with the MSLDC Control System Operator to decide action of curtailment considering System conditions rather than sticking to quantum of Under-drawl and time period specified above.

- MSLDC Control Room System Operator shall identify the PSS & Phase/s and the quantum of curtailment based on real time system conditions and as per the national advisory in case of the natural calamities viz. cyclone, flood and earthquake etc.
- MSLDC Control Room System Operator shall issue telephonic instructions for active power curtailment with reactive power support, wherever available, along with list of PSS, quantum & reason supported with 'Code' to Nodal Substations of Transmission/Distribution Licensees.
- MSLDC Control Room System Operator shall communicate list of PSS & Phase/s for Active Power curtailment with Reactive Power support, wherever available, along with quantum & reason supported with 'Code' to the QCA through email not later than one hour from passing telephonic instructions.
- Nodal Substations shall issue telephonic instructions to respective PSS with 'Code' issued by MSLDC.
- QCAs shall inform the details of curtailments to the respective Generating Companies, Plant Operators & RE Developers connected to respective PSS for implementation of the

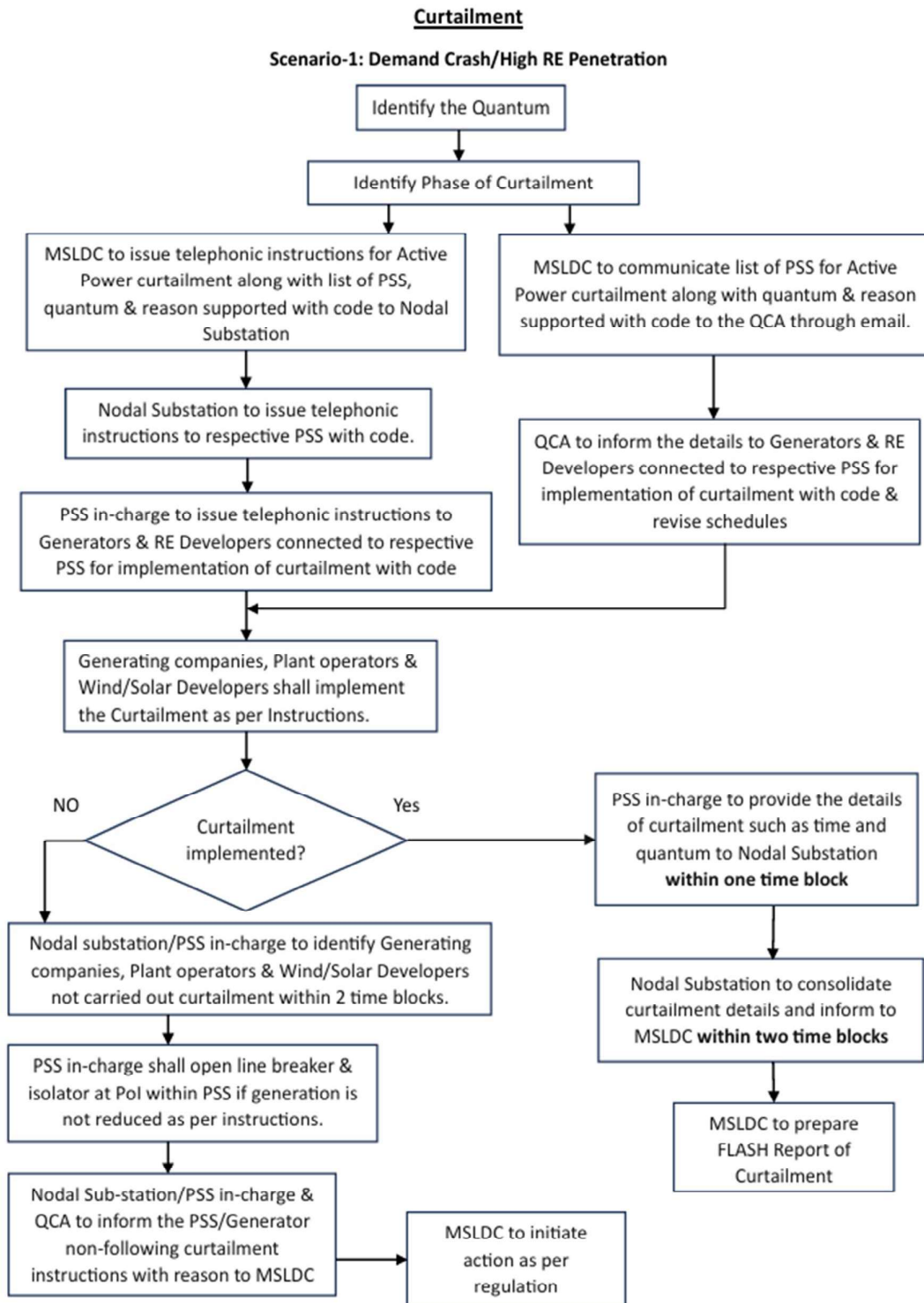
curtailment with 'Code' as per the inter se developed communication protocol.

- QCAs shall revise schedules based on the curtailment instructions.
- Generating Companies, Plant Operators & RE Developers shall implement the curtailment as per the instructions issued.
- PSS In-charge shall open the line breaker & isolator at the PoI within a PSS if the generation is not reduced within 2 time blocks.

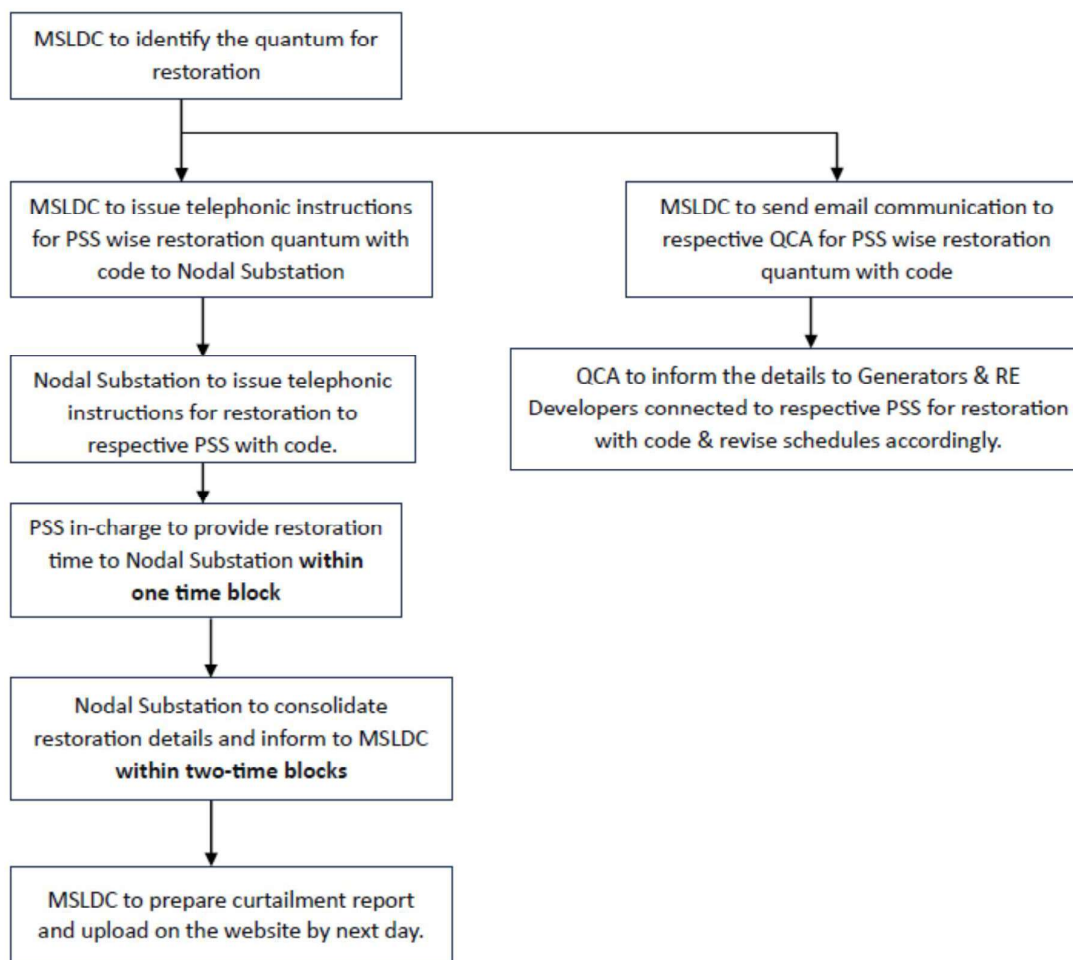
Provided that the PSS In-charge shall intimate telephonically to the respective Generating Company/Plant Operator/RE Developer before opening of the line breaker & isolator.

- PSS in-charge shall provide the details such as actual time and actual generation quantum (MW) at the time of implementation of curtailment to the respective Nodal Substation within Two Time block from the time block in which instructions were issued to respective PSS. Details shall be in the format as per **ANNEUXRE - 2**.
- Nodal substations shall consolidate the details of curtailment viz. actual time of curtailment, curtailed quantum (MW) for all PSS and provide the same to MSLDC within Two Time Block from the time block in which instructions were issued to respective PSS. Details shall be in the format as per **ANNEUXRE - 2**.
- Based on the details received from Nodal substations, MSLDC shall a prepare Flash Report for the curtailment. Details shall be in the format as per **ANNEUXRE - 3**.
- Nodal substations & QCAs shall identify the PSS, Generating Companies, Plant Operators, RE Developers which have not followed instructions of MSLDC and not implemented curtailment. Such details shall be reported immediately to MSLDC with reason for non-implementation of curtailment instructions. Details shall be in the format as per **ANNEUXRE - 4**.
- On the basis of the information received from Nodal Substations & QCAs, MSLDC should initiate action against such PSS, Generating Companies, Plant Operators, RE Developers who

have not implemented the curtailment instructions of MSLDC in time.



Restoration



6.4.2. **Planned or Forced outages or Over-loading of the evacuation infrastructure:**

- MSDC Control Room System Operator shall identify the constraint and exact evacuation infrastructure (Line/Equipment) having constraint in the evacuation of Generation.

In case of constraint in the Dedicated Evacuation Network, it shall be the responsibility of the respective RE Developer(s), Generating Company(ies), Plant Operator(s) to reduce generation at their own and in this case, no instructions shall be issued by MSLDC Control Room.

In case of constraint in the Associated Evacuation Network, MSLDC shall issue necessary instructions as below.

- Based on identified constraint, MSLDC Control Room System Operator shall identify the PSS(s) & quantum of curtailment to be implemented.
- MSLDC Control Room shall issue telephonic instructions for active power curtailment with reactive power support, wherever available, along with list of PSS, quantum & reason supported with 'Code' to Nodal Substations of Transmission/Distribution Licensees and PSS In-charges.
- MSLDC Control Room shall communicate list of PSS for Active Power curtailment with Reactive Power support, wherever available, along with quantum & reason supported with 'Code' to the QCA through email not later than one hour from passing telephonic instructions.
- Nodal Substations shall ensure implementation of the telephonic instructions by respective PSS.
- QCAs shall inform the details of curtailments to the respective Generating Companies, Plant Operators & RE Developers connected to respective PSS for implementation of the curtailment with 'Code' as per the inter se developed communication protocol.
- QCAs shall revise schedules based on the curtailment instructions.
- Generating Companies, Plant Operators & RE Developers shall implement the curtailment as per the instructions issued.
- PSS In-charge shall open the line breaker & isolator at the PoI within a PSS if the generation is not reduced within 2 time blocks.

Provided that the PSS In-charge shall intimate telephonically to the respective Generating Company/Plant Operator/RE Developer before opening of the line breaker & isolator.

- PSS in-charge shall provide the details such as actual time and actual generation quantum (MW) at the time of implementation of curtailment to the respective Nodal Substation within One Time block from the time block in which instructions were issued

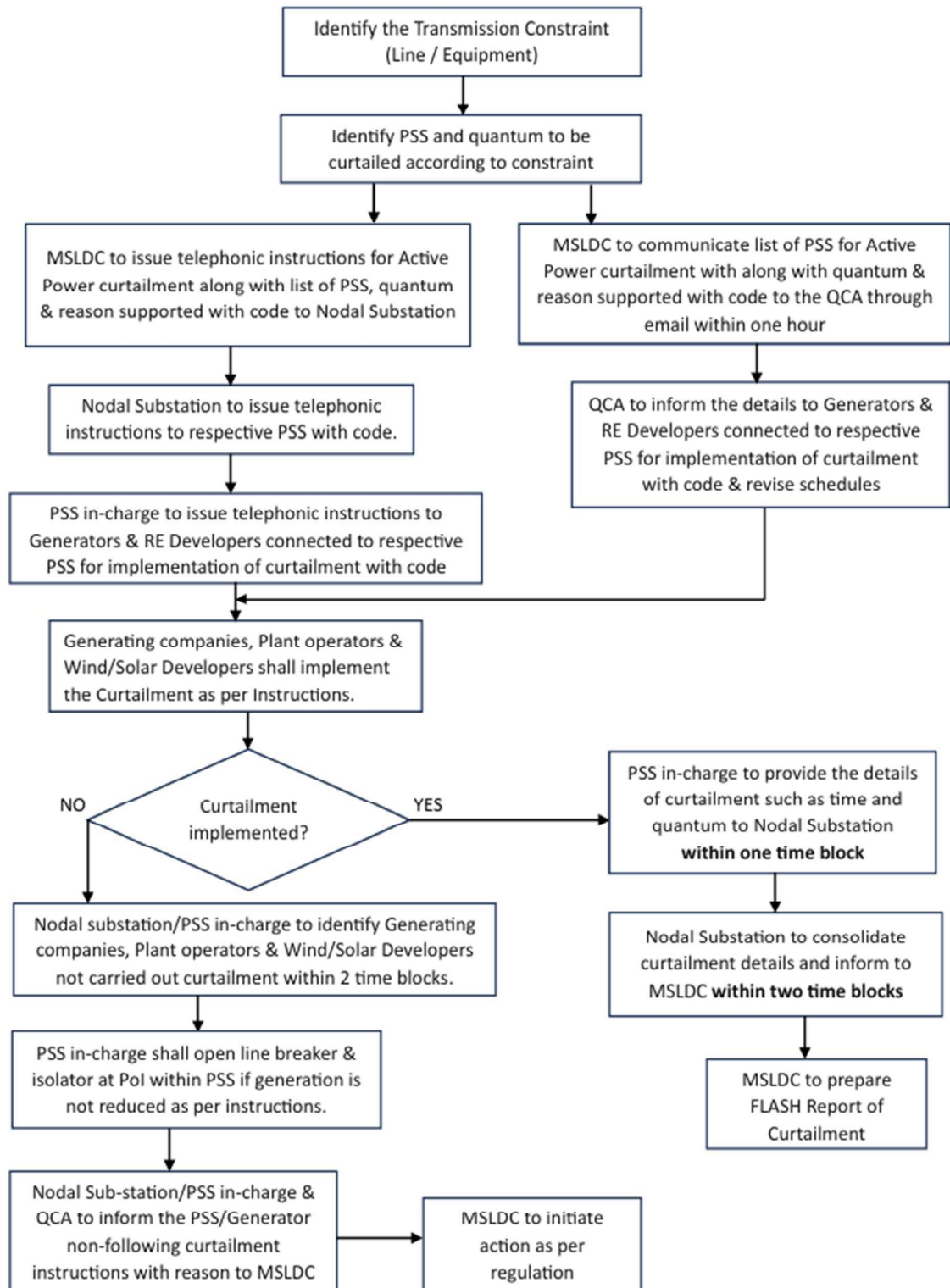
to respective PSS. Details shall be in the format as per **ANNEUXRE - 2**.

- Nodal substations shall consolidate the details of curtailment viz. actual time of curtailment, curtailed quantum (MW) for all PSS and provide the same to MSLDC within Two Time Block from the time block in which instructions were issued to respective PSS. Details shall be in the format as per **ANNEUXRE - 2**.
- Based on the details received from Nodal substations, MSLDC shall a prepare Flash Report for the curtailment. Details shall be in the format as per **ANNEUXRE - 3**.

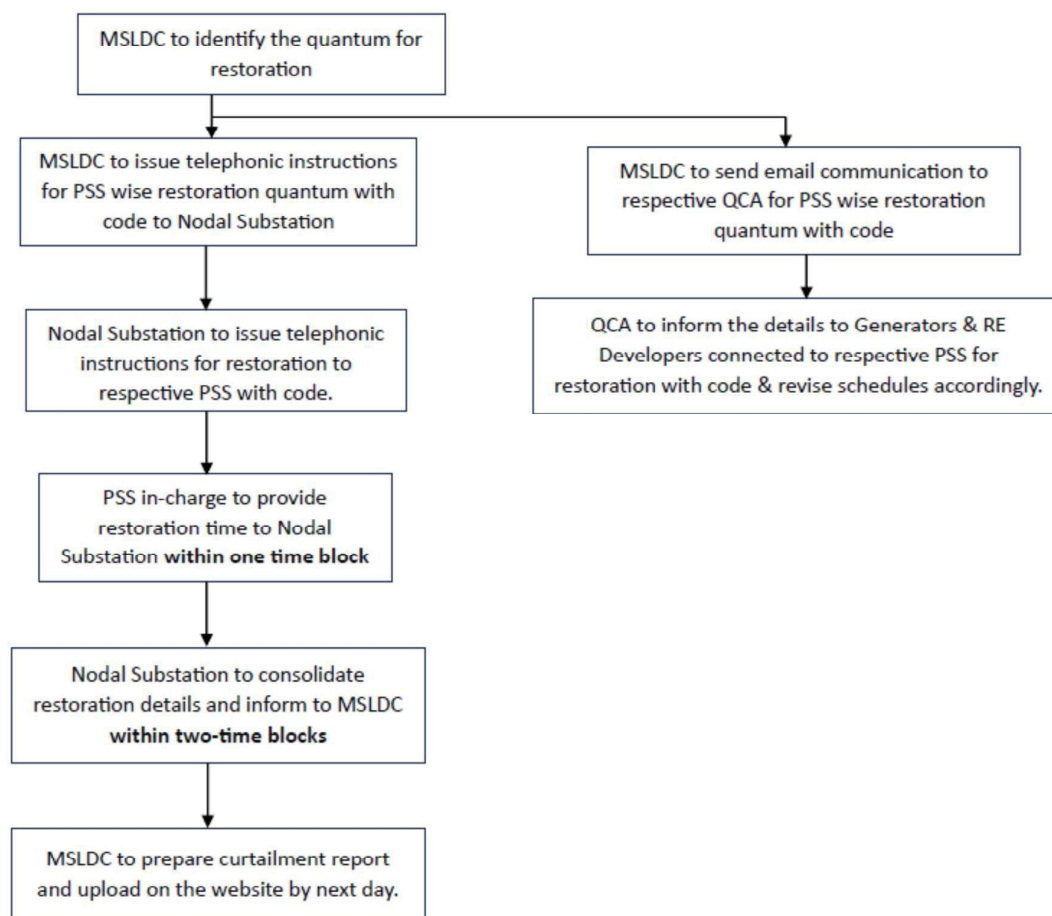


Curtailment

Scenario-2: Transmission Constraint



Restoration



- In relation to the clause no. 4.3.3 (c) specified above, in case of curtailment of RE Generation either through LTS/SPS/GTS or manual instructions of the Field Offices of the Transmission Licensees, the details of curtailment shall be intimated to MSLDC by the respective Field office within 1 time block as & when curtailment is occurred. The details shall be as follows:

Name of PSS where Generation is curtailed

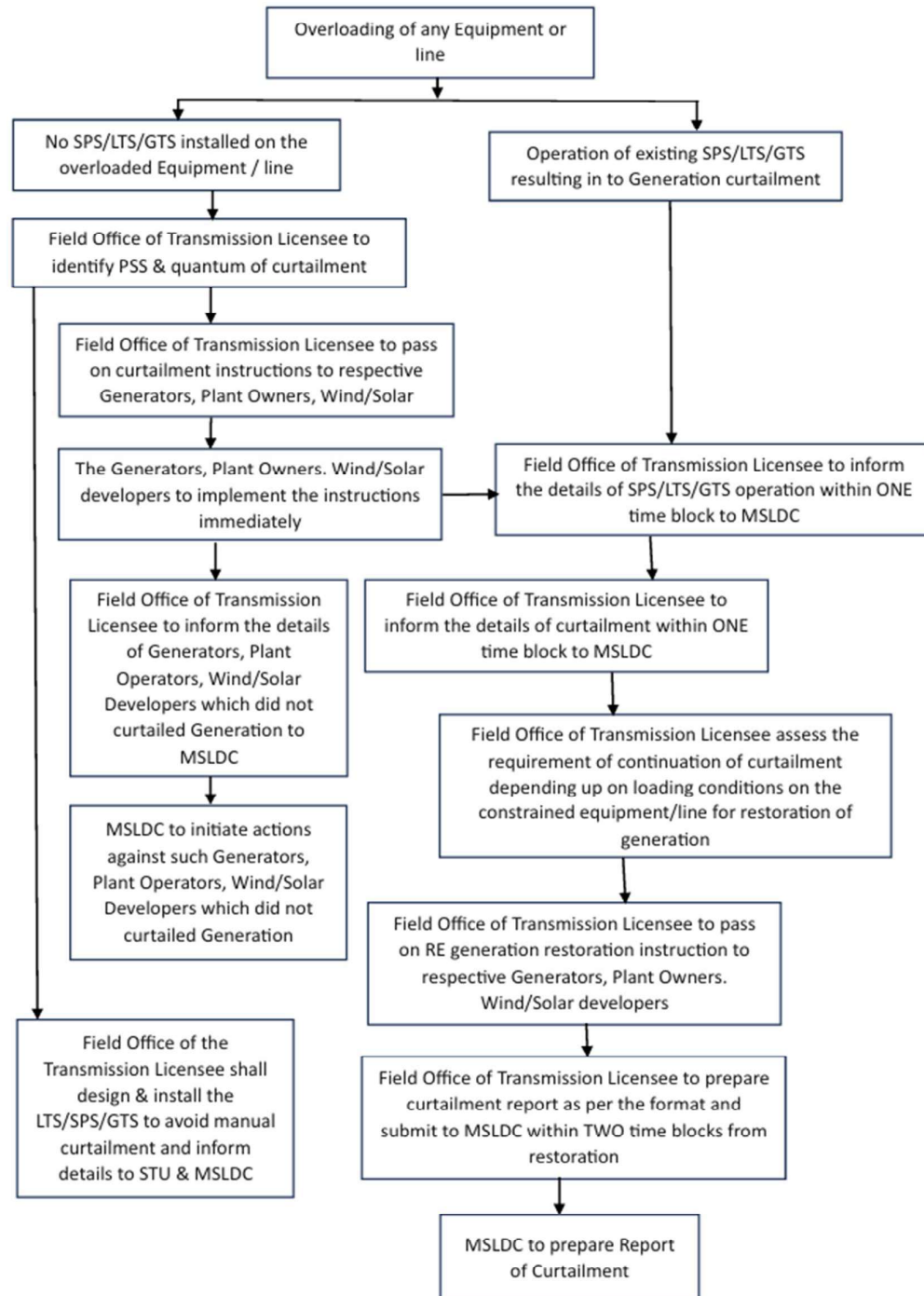
Date & Time of Curtailment

Generation in MW at the time of curtailment (feeder-wise/Developer-wise break-up to be provided within PSS)

Reason of Curtailment

Further, once the curtailment is restored, the details shall be intimated to MSLDC within 2 time blocks of restoration in the format as per **ANNEXURE – 2**.

Flow chart for Generation Curtailment in respect to Clause No. 4.3.3 (c)



- Nodal substations & QCAs shall identify the PSS, Generating Companies, Plant Operators, RE Developers which have not followed instructions of MSLDC and not implemented curtailment. Such details shall be reported immediately to MSLDC with reason for non-implementation of curtailment instructions. Details shall be in the format as per **ANNEUXRE - 4**.
 - On the basis of the information received from Nodal Substations & QCAs, MSLDC should initiate action against such PSS, Generating Companies, Plant Operators, RE Developers who have not implemented the curtailment instructions of MSLDC in time.
- 6.5. The Communication Protocol under various scenarios for Withdrawl/Restoration of the Curtailment is as below:
- 6.5.1. MSLDC Control Room System Operator shall assess the requirement of the curtailment based on the real time System conditions and take decision of withdrawl/restoration of the curtailment instructions.
- 6.5.2. In case of transmission constraints, it shall be the responsibility of the owner of the evacuation network element under constraint to intimate about relieving the constraint to MSLDC Control Room System Operator telephonically and through e-mail.
- 6.5.3. MSLDC Control Room System Operator shall issue Withdrawl/Restoration instructions telephonically to Nodal Substations along with list of PSS & quantum to be restored supported with code.
- 6.5.4. In case of constraints in the evacuation network, instructions shall be issued to respective PSS In-charges.
- 6.5.5. MSLDC Control Room System Operator shall issue instructions to QCAs along with list of PSS and generation quantum to be restored along with code through e-mail not later than one hour from the issuance of the telephonic instructions.
- 6.5.6. QCAs shall revise schedules based on the restoration instructions received.
- 6.5.7. Nodal Sub-stations shall communicate the instructions to respective PSS In-charges telephonically supported with code.

- 6.5.8. The Generating Companies, Plant Operators, RE Developers shall implement the instructions received from MSLDC and restore the generation accordingly.
- 6.5.9. PSS in-charge shall provide the details such as actual time of restoration, total period of curtailment, total curtailed quantum (MW) to the respective Nodal Substation within One Time block from the time block in which instructions were issued to respective PSS. Details shall be in the format as per **ANNEUXRE - 2**.
- 6.5.10. Nodal substations shall consolidate the details of restoration viz. actual time of restoration, total curtailment period, total curtailed quantum (MW) for all PSS and provide the same to MSLDC within Two Time Block from the time block in which instructions were issued to respective PSS. Details shall be in the format as per **ANNEUXRE - 2**.
- 6.5.11. In relation to the clause no. 4.3.3 (c) specified above, in case of curtailment of RE Generation either through LTS/SPS/GTS or manual instructions of the Field Offices of the Transmission Licensees, respective Field office shall assess the requirement of the details of curtailment shall be intimated to MSLDC by the respective Field office within 1 time block as & when curtailment is occurred. The details shall be as follows:
- Name of PSS where Generation is curtailed
 - Date & Time of Curtailment
 - Generation in MW at the time of curtailment (feeder-wise/Developer-wise break-up to be provided within PSS)
 - Reason of Curtailment
- Further, once the curtailment is restored, the details shall be intimated to MSLDC within 2 time blocks of restoration in the format as per **ANNEXURE – 2**.
- 6.5.12. Based on the details received from Nodal substations, MSLDC shall a prepare Curtailment Report and upload the same on MSLDC website on the next working day. Details shall be in the format as per **ANNEUXRE - 3**.

7. SCHEDULE REVISION & DSM METHODOLOGY:

- 7.1. The curtailment shall be implemented from 4th time block including time block in which instructions have been issued.

However, the necessary steps for implementation of the curtailment shall be started by the Generating Companies, Plant Operators & RE Developers from the time block in which instructions have been issued so that actual results shall be obtained in short time frame not later than 4th time block.

- 7.2. QCA shall revise the schedule as per the instructions of MSLDC and punch in the MSLDC REMC Scheduling Software. As the Plant is available for generation, the AvC shall not be changed.
- 7.3. As per the F&S Regulations, one revision in each 1^{1/2} hrs slot is permitted, and there are chances that the QCA have revised schedule in a slot and there is a need of curtailment.

Under such conditions, QCA shall prepare the revised schedules and punch in the MSLDC REMC Scheduling software immediately when the next slot of 1^{1/2} hrs is started. Thus, the schedule submitted by the QCA shall be implemented from the 4th time block of next slot of 1^{1/2} hrs.

MSLDC shall revise the schedules for such time blocks for which it is not possible for QCA to update schedules i.e. the block from which curtailment was issued and the 4th time block of the next 1^{1/2} hrs. The methodology for such schedule revisions shall be as follows:

- 7.3.1. If reducing trend in actual generation within 3 time blocks is observed, the schedules for these 4 time blocks shall be replaced by the actual generation. If no reducing trend is observed, the schedules for these time blocks shall be made 'Zero'.
- 7.3.2. 100 % curtailment is issued, i.e. total generation is to be reduced to 'ZERO':

From 5th time block & up to the 4th time block of next 1^{1/2} hrs slot, existing schedules shall be made 'ZERO'. So that after 4th time block of the next 1^{1/2} hrs slot, the revised schedules submitted by the QCA shall be implemented.

From 5th time block, even if the actual generation is not reduced to 'ZERO' and/or the QCA fails to submit revised forecasts in MSLDC Scheduling software, existing schedules shall be changed

to 'ZERO' unless curtailment quantum is not revised or withdrawn. The violation of MSLDC instructions shall be dealt with appropriately as per relevant provisions of the MEGC, 2020 & EA, 2003, as amended from time to time.

7.3.3. Partial curtailment is issued i.e. out of total generation, actual generation is restricted to specific quantum:

(a) If generation is reduced as per required limits:

From 5th time block & up to the 4th time block of next 1^{1/2} hrs slot, schedules shall be replaced by actual generation. So that after 4th time block of the next 1^{1/2} hrs slot, the revised schedules submitted by the QCA shall be implemented.

(b) If generation is not reduced as per required limit:

Existing schedules shall be reduced by the instructed quantum of generation reduction from 5th time block & up to the 4th time block of next 1^{1/2} hrs slot. After 4th time block of the next 1^{1/2} hrs slot, the revised schedules submitted by the QCA shall be implemented.

(c) In above cases, if QCA fails to submit the revised schedules, from the 4th time block of the next 1^{1/2} hrs slot existing Schedules shall be reduced by the quantum of generation reduction instructed.

7.4. Illustrations for above scenarios for Schedule revision are as follows:

7.4.1. Slot-wise timings & time blocks are tabulated below:

Slot No.	Timing	Time Block	Effective from Time Block
R-7	09:00 to 10:30	37 to 42	40
R-8	10:30 to 12:00	43 to 48	46

7.4.2. In Slot 'R-7' QCA has submitted revised forecast in 37th time block. The revised schedule shall be implemented from 40th time block. The next revision is permitted in slot of 'R-8' from 43rd time block.

7.4.3. Now there is a need of curtailment from 38th time block. Thus, MSLDC shall communicate the instructions of curtailment to the QCA in the 38th time block and the said instruction shall be implemented w.e.f. 41st time block. In such case, the action for implementation of curtailment shall be initiated from the 38th time block itself.

- 7.4.4. In above case, based on the instructions issued by MSLDC, the QCA shall revise the forecast and submit the same in 43rd time block, which shall be considered for final implemented schedule, if curtailment quantum is not revised or withdrawn.
- 7.4.5. If reducing trend in generation is observed for the time blocks 38 to 41, MSLDC shall replace the existing Schedules by actual generation for the said blocks. If reducing trend is not observed, the existing schedules shall be made 'ZERO'.
- 7.4.6. In regards to Clause No. 7.3.2, MSLDC shall change the existing schedules to 'ZERO' for time blocks 38 to 45.

If QCA fails to submit revised forecasts, existing schedules up to the time block of curtailment revision/withdrawal shall be changed to 'ZERO'.

- 7.4.7. In regards to Clause No. 7.4.3, if generation is reduced to the quantum as per requirement, the existing schedules for the time blocks 42 to 45 shall be replaced by actual generation. The schedule revision request submitted by the QCA in R-8 slot shall be implemented from 46th time block.

If generation is not reduced to the quantum as per requirements, the existing schedules for time blocks 38 to 45 shall be reduced by the quantum of curtailment instructed.

- If it is instructed to reduce the generation by 30 MW, revised schedules shall be as tabulated below.

Schedule/Time Block	42	43	44	45
Existing Schedule	80	85	80	87
Revised Schedule	50	55	50	57

- If it is instructed to reduce the generation and restrict to 50 MW, revised schedules shall be as tabulated below.

Schedule/Time Block	42	43	44	45
Existing Schedule	80	85	80	87
Revised Schedule	50	50	50	50

- If it is instructed to reduce the generation in percentage of installed capacity of 100 MW, say reduce by 40 % of Available Capacity (AvC), revised schedules shall be as tabulated below.

Schedule/Time Block	42	43	44	45
AvC	100	100	100	100
Existing Schedule	80	85	80	87
Revised Schedule	40	45	40	47

7.4.8. In regards to Clause No. 7.4.7, if QCA fails to submit revised forecasts, the existing schedules shall be reduced by the quantum of curtailment instructed from 42nd time block onwards till the revision or withdrawal of curtailment.

7.5. In above cases, if the QCA has not submitted revised schedules and there is a need of curtailment, then the QCA shall submit the revised forecasts immediately which shall be implemented from 4th time block. Thus, MSLDC shall modify the existing schedules as per above methodology only for the 4 time blocks starting from the time block in which instructions have been issued.

7.6. In the absence of protocol for communication between QCA, Generators/Plant operators or non-following the instructions of MSLDC even after 4th time block, MSLDC shall direct concerned transmission/distribution licensee of the respective PSS to open the interconnection by opening EHV or 33 kV lines. Such conditions shall be considered as non-compliance to the instructions of the MSLDC and action as per the Section No. 33 of the Act shall be initiated against the generators connected to the PSS.

8. MECHANISM FOR MONITORING COMPLIANCE:

8.1. The event of breach or default of the procedure i.e. in complying with the following provisions:

8.1.1. Non-submission of PSS-wise details of nodal officers to MSLDC by the QCAs.

8.1.2. Non-submission of PSS-wise details of nodal officers of Generating Companies or their Plant Operators to QCA.

8.1.3. Non-submission of protocol for submission of communication of curtailments and implementation to MSLDC by QCAs & Generating Companies.

8.1.4. Non implementation of curtailment instructions of MSLDC either fully or partially by the QCAs or Generating Companies and/or Plant Operators and/or RE Developers.

8.1.5. Non-compliance of any of the terms/conditions/rules outlined under this procedure.

8.1.6. Non-compliance of any of the directives as per the provisions of this regulation issued by MSLDC.

8.2. Consequences for event of default:

8.2.1. In case of defaults for 8.1.1 to 8.1.3, in case of curtailments, MSLDC shall direct concerned Transmission/Distribution Licensees to open the line breaker and isolator at the PoI within a PSS of the respective Generation Plant and curtail 100 % generation. Under such conditions, the schedules shall be made zero from the time block in which curtailment instructions were issued. Any technical and/or commercial impact shall be the sole responsibility of the concerned Generating Companies.

8.2.2. In case of defaults for the act covered under as per 8.1.4 to 8.1.6, appropriate action as per Section – 33 (Compliance of Directions) of the Electricity Act, shall be initiated by MSLDC by giving prior notice for a period not less than 15 days and adequate opportunity shall be given to the Generating Companies & QCA to represent the case before MSLDC.

8.2.3. In case Generating Companies & QCA fails to address/rectify the breach expressed by MSLDC in the Notice within stipulated time, the MSLDC shall proceed in accordance with the appropriate provisions of the Act, Regulations and would initiate steps for disconnection from the grid.

9. GRIEVANCE REDRESSAL:

9.1. MSLDC shall refer the Complaints regarding unfair practices, delays, discrimination, lack of information, supply of wrong information or any other matters to the hon'ble Commission for redressal.

9.2. Any disputes between QCA, concern Generating Companies, Plant Operators, RE Developers shall be governed as per the dispute resolution mechanism under their Agreement, failing which it shall be subject to jurisdiction of the MERC. Pending the decision of the State Commission, the directions of the MSLDC shall be complied by the QCA and concerned Generating Company(ies).

10. REMOVAL OF DIFFICULTIES:

- 10.1. In case of any difficulty in implementation of this procedure, MSLDC may approach the Commission for review or revision of the procedure with requisite details.

11. GENERAL:

- 11.1. All costs/expenses/charges associated with the application, including bank charges, Affidavits etc. shall be borne by the applicant.
- 11.2. The Generating Companies and QCA 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.
- 11.3. This procedure aims at prompt and pragmatic curtailment of Wind and Solar Generations as a last option 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 Commission.

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Annexure-A

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 Sunsure 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	SPS FOR AMPYR SOLAR GENERATION	To avoid line overloading
			200KV Shivajinagar-Gangapur Ckt		To avoid line overloading
			220/132KV 100MVA ICT-1		To avoid ICT-1 overloading
			220/132KV 100MVA ICT-2		To avoid ICT-2 overloading
3		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	SPS FOR Godrej 33kV Feeder no 331& 332 generation	To avoid line overloading
			200KV Shivajinagar-Gangapur Ckt		To avoid line overloading
			220/33/33KV PTF-1		To avod PTF overloading
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
12	Amravati	132kV Motala s/s	132 kV Juniper Solar-Varangian Tap- Khadka line	132 kV Cyclic Solar Park 100MW	To avoid line overloading

Sr No	Name of Zone	Name of substation	Name of element	Generator trimming scheme for	Purpose
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 Narangwadi SS.	To avoid line overloading
			132kV Nilanga		To avoid ICT overloading
			220/132KV 100MVA ICT-1 LV		
			220/132KV 100MVA ICT-2 LV		
15		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		
16		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
17	Pune	220kV South solapur s/s	132kV south solapur- Bale	132kV Bale line	To avoid line overloading (out of service)
18		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
19		132kV Waghdari s/s	132kV Akkalkot ckt 1	1) 132kV Tata power 1(62MW) 2) 33kV LREHL-1(25MW)	To avoid line overloading
20		132kV Waghdari s/s	132kV Akkalkot ckt 2	1) 132kV Tata power 1(62MW) 2) 33kV LREHL-1(25MW)	To avoid line overloading
21		132kV Waghdari s/s	132kv Akkalkot ckt 1& 2	1) 132kV Tata power 1(62MW) 2) 33kV LREHL-1 (25MW)	To avoid line overloading
22		132kV Waghdari s/s	132/33kV 25MVA TF1	33kv swami samarth 1&2 30MW	To avoid line overloading
23		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

Sr No	Name of Zone	Name of substation	Name of element	Generator trimming scheme for	Purpose
24	Pune	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
25		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
26		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
27		132kV Akkalkot	132kV Karajgi line	1) 132kV Tata power 1(62MW) 2) 33kV LREHL 1(25 MW)	To avoid line overloading
28		132kV Sangola	132kV Pandharpur line	Maruti wind (30MW)	To avoid line overloading
29		132kV Sangola	132kV Digachi line	Maruti wind (30MW)	To avoid line overloading
30	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
			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
			220/33 kV 25 MVA TF2	33KV Swami Samarth Solar Feeder 02 backdown of 6.98MW	To avoid TF overloading
			132kV Ambazari – Karanja CKT I & II	33kV Avaada Solar Feeder at 132kV Talegaon Substation backdown of 25 MW	To avoid line overloading
33		400/220KV Koradi II	400 kV Koradi-wardha PGCIL	presently on alrming , mode only	To avoid line overloading
34	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	

Annexure - 1**List of Nodal officers or Sub-stations and PSS Inc-charge**

Sr. No.	voltage Level (kV)	Name of PSS	Taluka	District	Zone	Area	Solar/ Wind /Hybrid	SOLAR (MW)	Wind (MW)	Name of S/stn or Plant Incharge	In-charge Mob.	Email address	S/stn or Plant Control Room Mob No.
1													
2													
3													
4													
5													
6													
7													

Note:

In case of multiple Plant Operators or Developers within a PSS, details shall be provided for each separately.

Annexure - 2

Details of Generation Curtailment / GTS Operation

SN	Name of PSS	Date	Trip Time	Restore Time	Duration	Generation at the time of CB opening (MW)	Generation at the time of CB closing (MW) i.e. at the time of restoration	Reason for Curtailment
1	Wagdari 132kV	15/08/2025	11:33	15:05	3:32	48.5	0	Overloading of Naldurg-Wagdari Line. GTS Stage1 Operated
2								
3								
4								

Example

Note:

Trip time will be time when actual generation was tripped and it will be different from the time at which instructions were issued.

Restore time will be the actual time at which generation was restored i.e. connected to the Grid. It will be different from the time at which restoration instructions were issued.

In case of multiple feeders/developers within PSS, feeder-wise/developer-wise details should be provided.

Generation at the time of CB closing ie at the time of restoration shall be ideally Zero in case of full curtailment. In case of partial curtailment or curtailment instructions not followed, then there will be some value.

RE Curtailement Details						Date: 15-08-2025
Region	State	Wind Curtailement		Solar Curtailement		Reason for Curtailement
		Max MW	Energy(MU)	Max MW	Energy(MU)	
NR	Rajasthan					
	Punjab					
WR	Chhattisgarh					
	Gujarat					
	Madhya Pradesh					
	Maharashtra	171.73	0.31	243.47	0.33	To control heavy underdrawal (1652MW) at high frequency.
SR	Andhra Pradesh					
	Telangana					
	Karnataka					
	Kerala					
	Tamilnadu					

Details of the Generator / Developer non-following curtailment instruction of the MSLDC Control Room

SN	Name of PSS	Name of Generator/ Developer	Date of instructions Passed to Gen/ Developer	Time of instruction passed to Gen/ Dev	Name of Representative of Gen/ Developer who has taken instructions	Reason for non- implementation of MSLDC instructions (given by Gen / Dev)	Remakrs form Nodal Substation / QCA
1							
2							
3							
4							