

# BEFORE THE MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

## In the matter of Draft State Grid Code Regulations, 2020

### Submission by Prayas (Energy Group), Pune

24<sup>th</sup> March 2020

MERC vide its public notice dated 1<sup>st</sup> March 2020, invited comments and suggestions on the Draft State Grid Code Regulations, 2020. The present submission is in response to the said notice, the draft regulation as well as the explanatory memorandum published by the Commission. We request the Commission to accept this submission on record.

### **1 Background and Context**

The Maharashtra Electricity Grid Code (MEGC) was effective from April 2006, when the first national grid code was notified. Since then, the Indian Electricity Grid Code has undergone many amendments to reflect changes in the sector.

Given the trends in the past decade, especially with the proliferation of renewable energy technologies and increase in open access and captive consumption, MERC's proposal to amend the regulations is highly appropriate. We also appreciate the many transparency provisions (like submitting regular reports and making data public), monitoring suggestions like developing an online tracking system for solar roof top of capacity greater than 100 kW (Regulation 28.3), setting up of sub-committees of the Grid Coordination Committee, (Regulation 5), and preparing of periodic reports which are to be available on the website (for example, Regulation 40 about SLDC) development and including estimated fuel surcharge and change in law dispensation for the monthly MoD stack to be published by SLDC.

While the amendments are comprehensive, we have given some specific suggestions in the following sections, to further improve the regulations and aid its implementation.

### **2 Need to clearly define Resource adequacy**

Draft regulation 11 (i) states that:

*Each distribution licensee shall ensure demonstrable resource adequacy as specified by the Commission for the next five (5) years starting 1st April of the next year. Adequacy statement containing a list of such resources along with associated capacities shall be submitted to the STU.*

Further, Draft Regulation 38.4 states that:

*Each Buyer shall develop methodology for daily/weekly/monthly/yearly demand estimation in MW and MWh for operational analysis purposes as well resource adequacy.*

While resource adequacy is important for safe and reliable operation of the grid, it is important that the adequacy is ensured via efficient power procurement strategies such that consumers are not saddled with persistent long-term off-peak surplus capacity in the future. Strategies to ensure short-term, medium-term and long-term resource adequacy should also include efforts to shift load to off-peak hours, contribution of solar+storage projects, power procurement from power exchanges and the DEEP portal and inter-DISCOM banking practices. The resource adequacy should be determined keeping in mind to account for generation sources of long-term open access users as well as captive consumers as well. With the stricter DSM framework and availability of ancillary services, DISCOMs will be encouraged to ensure resource adequacy as well.

While the Commission can specify what resource adequacy translates to in terms of peak demand, the final regulations should:

- Define resource adequacy by amending Regulation 2 such that it refers to the availability of sufficient dispatchable capacity with the distribution licensee/ buyer to meet demand.
- Lay out a framework to provide more clarity on how resource adequacy must be ensured by amending draft regulation 11 (i) in the following manner (suggested amendments in **bold**):

*Each distribution licensee shall ensure demonstrable resource adequacy as specified by the Commission for the next five (5) years starting 1st April of the next year. **Resource adequacy can be met using short-term, medium and long term capacities available for RTC, peak and off-peak durations.** Adequacy statement containing a list of such resources along with associated capacities shall be submitted to the STU and made publicly available on its website. Efforts to shift load, inter-DISCOM banking and storage should also be considered while preparing the adequacy statement. The adequacy statement should be revised every year in the five year period and monthly reports should be submitted to the STU regarding compliance with the adequacy statement.*

### **3 Procedure for zero schedule and re-schedule**

Draft Regulation 35 provides DISCOMs the option of zero scheduling generators in surplus scenario. While it is fair that DISCOM can opt for zero scheduling generators, the details of the process including the reasons should be part of the request given by the DISCOM to SLDC, which has to give concurrence, as per draft Regulation 35.4. SLDC should include such requests in their reports, which should be available on its website and should be part of its reports to the GCC.

Re-scheduling the generators, which have been 'zero scheduled' should happen only by consensus between the DISCOM and the generator. This will provide the generators the flexibility to sell un-

requisitioned power in the power exchanges or in the DEEP portal with the guarantee that the DISCOM will not exercise its right to recall once it has opted for zero-schedule.

The following sentences should be added at the end of Regulation 35.4:

***DISCOM should report the details of zero scheduling to the SLDC, which shall put it up on its website and report it to GCC. DISCOM should indicate the period for which it proposes to zero schedule the generator.***

Following sentence should be added to the end of Regulation 35.7:

***Re-scheduling of a generator shall be operationalised only after generator also agrees to the proposal.***

#### **4 Changes in the Constitution of the Grid Coordination Committee (GCC)**

Draft Regulation 5 describes the GCC, with representation of a wide range of sector actors. We suggest the following additions to its constitution.

- A technical staff from MERC should also be a member of the GCC, since MERC is the custodian of the MEGC. This will help to ensure proper implementation of MEGC and provide feedback towards future improvements of the Grid code.
- Section 5.4 (m) mentions representative of privately owned generating companies, including IPPs and CPPs. Given the proliferation of captive power plants in the state it is suggested that the CPPs be represented separately with one representative on the GCC.

#### **5 Functions of the Maharashtra Transmission Committee (MTC) to include tracking congestion**

Draft Regulation 7.3.2 specifies the various functions of the MTC. Given that congestion management is a major priority for the state, it is suggested that one of the functions of the MTC include studying areas of persistent congestion or bottlenecks in the state and developing a plan to invest in demand side measures and capital works/ technologies to ease congestion.

#### **6 Functions of Operation Coordination Committee (OCC)**

As renewable energy generation is expected to increase sharply in the coming years, one can expect periods of high RE generation and possible curtailment at times. Hence, it would be appropriate to have the Operation Coordination Committee (OCC) have another function as listed in regulation 7.4.2

7.4.2 (g) could be: ***Review renewable energy curtailment and formulate means of avoiding/reducing it.***

#### **7 Objectives of the planning code**

Draft Regulation 10.1 (d) specifies that the planning code should also ensure assessment of future demand. This should be reworded to clearly specify the future demand implies short, medium and long term durations as follows:

*Probabilistic assessment by the designated agency of a State of its future **demand (short, medium and long-term)** pattern under different scenarios;*

Further, the designated agency mentioned in 10.1 (d) has not been defined in the Grid Code, neither has it been clarified as to who will appoint the designated agency. Clarity on the same should also be provided in the final regulations.

## **8 Need to use power system modelling tools while developing the IRP**

Given the integrated resource plan needs to consider generation flexibility, demand response, need for energy storage systems, generation reserve requirement and system inertia, it is suggested that the integrated resource plan (IRP) is finalised based on insights from power system modelling tools. Draft Regulation 11(ii) could be reworded to stress the need for power system modelling while finalizing the IRP as follows:

*Based on the generation resource plans of distribution licensees, STU in consultation with SLDC shall develop Integrated Resource Plan for next five years for the state. While developing such Integrated Resource Plan, STU shall use appropriate power system modelling tools and may consider the following from grid operation perspective:*

## **9 Need for guidelines for 10/15 year renewable energy targets**

The transmission perspective plan updated and revised annually, is imperative to guide investments and planning. While the MEGC emphasizes the need for medium and long term planning, the future generation capacity and its location, especially for renewables (with short gestation periods) is not clearly known before-hand. Currently, the renewable purchase obligation (RPO) is notified only until 2025. While there is a guiding national target of 450 GW of RE by 2030, there are no clear guidelines for state targets for the next 10/15 years. To provide more clarity for future planning, the Commission should advise the Government of Maharashtra (GoM) to set up guiding medium and long term RE targets in consonance with their evolving policy. MERC should also advise the GoM to set up a process for long term development of solar parks, which would aid in transmission planning.

In addition, the Commission should also outline indicative/guiding renewable energy targets with some scenarios for the next 10/15 years which the STU shall consider while formulating and updating the perspective plan.

## **10 Need to set up a renewable energy sub-committee under the MTC**

With the pace of investments and changes in the RE sector and changes in trends across time and locations, it is crucial that transmission planning take cognizance of such developments. In this context, the grid code could specify that the MTC should set up a representative stakeholder forum which could meet at least twice a year to deliberate medium (10 years) to long-term (15 years) RE capacity addition and associated infrastructure planning. The committee could include representatives from the distribution licensees, transmission licensees, solar and wind park developers, renewable energy generators as well as captive and open access consumers. The deliberations of the Committee can be shared with the MTC for its consideration.

## **11 Need to consider RPO requirement while preparing InSTS Plan**

While Central and State government policy targets can guide renewable energy capacity addition and transmission planning, it is also important to consider the RPO targets notified by the Commission. This is particularly relevant as the statutory requirement could be higher than the policy targets (as is currently the case). Therefore, draft regulation 12.1 (k) should be re-worded as :

*Renewable capacity addition plan/policy issued by Ministry of New and Renewable Energy Sources (MNRE), Government of India and State target as per Government of Maharashtra and the RPO targets as notified by the Commission.*

## **12 Other planning related suggestions**

Draft regulation 12.8(c) specifies that the transmission system plan should also consider increasing demand of the distribution licensee. With sales migration, industrial slowdown, it is not clear if demand for the distribution licensee would necessarily increase in a developed, electrified state. Thus, it is suggested the clause is reworded as follows:

*Load Projection Planning: This section shall deliberate transmission planning to meet the **increasing** demands from distribution licensee(s) and other Users including deemed distribution licensees.*

Draft regulation 38 specifies the information regarding demand estimation that needs to be submitted to the SLDC. The term 'buyer' is repeatedly used but not defined in the draft MEGC. This term should be disambiguated to ensure clarity especially as there several open access and captive consumers embedded in the distribution licensees network with no visibility at the SLDC level that are also 'buy' power from various generators. Just like in draft regulation 12.3, it should be clarified that the distribution licensee as a buyer will also be submitting demand estimates for all embedded open access and captive consumers.

Draft regulation 13.4.1 states that actual data of wind and solar capacity factor will be used for planning and where data is not available, the capacity factor will be calculated using specifications by CEA. To ensure there is no ambiguity, the regulation should state that only in the absence of actual data shall calculated values be used. To this effect, the regulation could be modified as:

*~~Wherever available~~, actual data of capacity factor for wind and solar generators shall be used for planning. In the cases where data is not available the Capacity factor may be calculated using following factors specified by Authority:*

## **13 Online portal managed by the STU for tracking on-going projects**

In order to make tracking of ongoing transmission projects easier for the MTC, SLDC and MERC, it is suggested that STU develop a portal where regular updates on ongoing projects are provided in a systematic manner. In this context, it is suggested that draft regulation 12.9 be amended such that:

- STU is to develop a portal to track progress of all ongoing projects. The portal is to be publicly accessible and should be online within 6 months of the notification of the MEGC.

- The portal should report project-wise details on key milestones including delays from schedule and reasons for such delays. The portal should report estimated costs as well as revisions in costs and the reasons for the same. Interest during construction and changes in the same should be reported separately.
- The portal should be updated at least on a monthly basis with disaggregated information on all ongoing and planned projects.

#### 14 Need to ensure crucial data available in public domain

The draft grid code has several provisions to ensure that crucial information relating to grid operations that should be known to all grid users and consumers is available on the appropriate website. To ensure that information is publicly accessible it is important that the information is available not just to grid users with login credentials but to all visitors on the website. This is of particular importance as small renewable energy generators, captive consumers, embedded open access consumers as well as consumers in general would benefit with access to this information. Therefore, it is suggested that the draft regulations detailed in Table 1 be amended such that the information is **publicly accessible** on the SLDC and STU website.

**Table 1: Details to be publicly available on SLDC and CTU website**

Relevant Regulation	Appropriate website	Details of the data/reports to be publicly available on the website
Regulation 5.5 (b)	SLDC	Minutes of the GCC meetings
Regulation 22.4	SLDC	Report on significant variations in voltage from the normal range as highlighted by the GCC based on data from transmission licensees along with the detailed procedure for measurement, monitoring and reporting of the Voltage Variation Index at Connection Points covering InSTS
Regulation 28.2	SLDC	Detailed operating procedures for managing the InSTS developed by the SLDC in coordination with the OCC
Regulation 32.5	SLDC	Report by SLDC instances of failure to demonstrate declared capacity by generators/ misdeclaration.
Regulation 33.8	SLDC	Monthly MoD Stack as specified in Format- 5B, 6B in Annexure -8.1, 8.2 of the draft regulations
Regulation 35.5	SLDC	Details of grid constraints along with the period for which it is likely to persist
Regulation 36.4	SLDC	RSD of the previous month in format in Annexure-5 of draft regulations
Regulation 40	SLDC	Daily weekly and monthly reports in compliance with draft regulations 40.1, 40.2, 40.3 and 40.4.
Regulation 44.1	SLDC	Procedure for relieving congestion in the InSTS
Regulation 12.13	STU	System transmission plan
Regulation 13.2.2	STU	Zone -wise transmission capacity utilisation index
Regulation 45.2	STU	Detailed procedure for work to be carried out across an inter-User boundary
Regulation 54.3	STU	STU report on measurement, monitoring and reporting of the Communication System Index (for SCADA/RTU) and Average duration of Downtime (for AMR System) at Connection Point covering intra-state transmission network.

In addition, the regulations should explicitly state that the following are to be **publicly available** on the STU website:

- Recommendations submitted by the the GCC and its functional committees or sub-committees. It is suggested that Regulation 6.3 is amended to ensure this.
- Perspective plan which is updated every year by the STU. It is suggested that Regulation 12.10 is amended to ensure this.
- Quarterly Reports submitted by the MTC on the status on on-going transmission projects in the state with reference to the STU transmission plan to the Commission through GCC. It is suggested that Regulation 13.12.4 be amended to ensure this.
- Adequacy statements prepared by distribution licensees and submitted to the STU. It is suggested that draft Regulation 11 (i) be amended accordingly.
- Progress reports of actual capitalisation, reasons for deviation prepared by STU and submitted to the Commission. It is suggested that draft Regulation 12.9 be amended accordingly.
- Division-wise, ten year peak demand and energy forecasts for their licence areas submitted every year to the STU. It is suggested that draft Regulation 12.3 be amended accordingly.

In addition, as suggested in Section 3 of this submission, details of zero scheduling as submitted by the DISCOM should be publicly available on the SLDC website.

## **15 Need for consultative processes while finalizing various crucial parameters/processes**

Wide consultation from various stakeholders and the public would provide significant insights which could be valuable while finalizing crucial parameters and processes as mentioned in the draft MEGC. It is suggested that the following be finalised after a public consultation process:

- ***Integrated Resource Plan (IRP) and the perspective transmission plan:*** Both of these plans are crucial to investment planning and capacity addition in the state. Given the wide range of stakeholders in the state power sector, it is vital that these plans are finalised only considering suggestions received via public consultation process.

It is suggested that draft Regulation 12.6 be amended to account for a public consultation process before the perspective transmission plan is finalised.

Further, draft Regulation 11 (ii) should be amended to ensure that the STU finalises the IRP only after public consultation.

- ***Standard Planning Data Formats:*** Before the STU develops standard formats in compliance with the second proviso of draft Regulation 14.2.2, it is suggested that the draft formats be published for public consultation.

- **Zone-wise transmission capacity utilisation index and voltage variation index:** In compliance with proposed Regulation 13.2.2, the STU has to develop and publish information on the zone-wise transmission capacity utilisation index and voltage variation index. The methodology to calculate the indices are to be formulated by the GCC. Given the crucial nature of these indices especially for optimal planning, it is suggested that the STU place the proposed methodology of the GCC for public consultation before it is finalised.
- **Load estimations of distribution licensees:** Draft Regulation 12.3 states that distribution licensees need to submit division-wise, ten year peak demand and energy forecasts for their licence areas every year to the STU. While stakeholder consultations every year would be onerous, it is important that forecasts also consider comments and suggestions from a wide set of stakeholders as such forecasts will have significant impact on future investments and consumer tariffs. It is suggested that the load estimations submitted under regulation 12.3 be also reported in the STU and DISCOM MYT and MTR petitions to ensure an opportunity for public consultation.

## **16 Need for timelines and dates for crucial processes**

The MEGC details many crucial processes that need to be adhered to by various agencies. However, in many instances, it does not specify timelines by which compliance is expected. Given the delay in initiating many processes in the past, it is imperative that specific timelines/ deadlines/ frequencies for reporting are stipulated for the following:

- Submission of perspective plan to the Commission (draft regulation 12.10)
- Development of zone-wise transmission capacity utilisation index and voltage variation index (draft regulation 13.2.2)
- Formulation of guidebook for operationalisation of the planning code (draft regulation 13.2.6)
- Development of operating procedures for managing InSTS (draft regulation 28.2)
- Development of online tracking and monitoring system for distributed generation including rooftop solar PV systems above 100Kw by distribution licensee (first proviso of draft regulation 28.3)
- Monitoring and Reporting of variation in Grid Parameters (draft regulation 22.4). Grid code should specify frequency for such reports.
- Frequency or periodicity for load flow studies mandated in draft regulation 37.14 to be specified.

## **17 DC and SLDC's discretionary power**

Draft Regulation 32.1.5 places a restriction on SLDC's discretion to ask generating units to demonstrate the maximum DC such the SLDC cannot exercise this discretion more than once every quarter. The circumstances identified in draft regulation 32.1 are indicative and not exhaustive which increases the need for the use of SLDC's discretionary power to call for demonstration of maximum DC. Given that



seasonal variations also need to be factored, it is suggested that SLDC's discretionary power is limited to once in a month instead of once every quarter.

## **18 Need to ensure competitive bidding for future transmission projects**

Draft Regulation 13.2.1(b) emphasises the need for development of economical and efficient transmission system element(s). To operationalise the principle, regulation 13 should also promote/ encourage competitive bidding for future transmission works as there will be more efficient price discovery and adequate checks with respect to delays and cost overruns.

## **19 Compensation for part loading**

Draft Regulation 34.3 specifies that plants which operate below normative plant availability factor but above technical minimum will be provided with compensation for part loading. Regulation 34.3 (f) states that the compensation computed should be borne by the entity that caused the plant to operate at normative availability. Such attribution could be challenging for plants which have multiple buyers. This would especially be the case for IPPs contracted by MSEDCL and Mumbai utilities. As multiple factors are at play including variation in demand, MEGC should also specify the formulation of a mechanism for attribution of the compensation payment.

Give the multiple issues and extent of part load operation, MERC should clarify that the details of the compensation for part loading should be reported separately in filings for fuel surcharge approval and in tariff filings of the generators and the contracting distribution utility to ensure clarity in the contribution of such compensation.

## **20 Simulation and Analysis studies**

Regulation 67 covers Load flow studies. From the wording it appears that the Regulation is intending to cover different types of simulation and analysis studies like steady state load flow, transient stability studies, outage simulation studies, protection studies, operation planning studies, using online data collection from SCADA etc. For grid operation and planning such studies as well as modelling and simulation studies are essential. But load flow study is not the appropriate term to describe all such studies.

We suggest that this regulation be reworded to "***Simulation and Analysis studies***" and should include brief description of a wide variety of modelling, simulation and analysis studies required for planning and operation of the grid.

## **21 Need to specify voltage limits for HVDC systems**

Regulation 37.13 provides the permissible voltage variation limits from 765 kV to 11 kV AC systems. Since there are also HVDC systems in the grid, this regulation should specify voltage limits for HVDC systems as well.

## **22 Need to clarify basis for assumption of 40% average utilisation criteria**

In Para 4.5 of the Explanatory Memorandum (EM), in the context of the technical planning criteria (draft regulation 13.1), it is mentioned that:

*“To that effect based on the technical studies conducted by STU should assure that the additional proposed transmission element should not result in overall average utilization of the grid by less than 40% for off peak load”.*

As the EM specifies this is explicit criteria, it is also important that the statement of reasons also clarified the basis for the 40% criteria as it is currently not mentioned in the EM.

## **23 Role of the SLDC**

### *23.1 Separation form CTU*

Draft Regulation 8.1.2 mentions about possible separation of SLDC from STU. This is also mentioned in Section 31 (2) of the Electricity Act (2003). SLDC today has the crucial role of ensuring coordinated operation of a variety of actors in generation, transmission, distribution and market operation. Hence it is important to implement this separation at the earliest, similar to POSOCO’s formation and operation. We suggest that Regulation 8.1.2 indicate a deadline of two years for the Government of Maharashtra to carry this out.

### *23.2 SLDC and REMC*

Draft Regulation 2 (Definitions) should include SLDC, ALDC and REMC. Further, the functions of Sub-LDC and ALDC should be elaborated in the Operating code, metering code etc.

As Renewable Energy Management Centres (REMCs) have been set up as part of SLDCs and they should also find a mention in the definitions and functional descriptions of the MEGC.

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