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**MAHARASHTRA ELECTRICITY REGULATORY COMMISSION (TERMS AND  
CONDITIONS FOR DETERMINATION OF RENEWABLE ENERGY TARIFF)  
REGULATIONS, 2019**

**STATEMENT OF REASONS**

**Dated:30 December, 2019**

**Introduction**

The Maharashtra Electricity Regulatory Commission (MERC or Commission) notified the MERC (Terms and Conditions for determination of Renewable Energy Tariff) Regulations, 2015 [MERC RE Tariff Regulations, 2015] in November 2015. The Commission notified the first amendment to MERC RE Tariff Regulations, 2015 on January 4, 2017, and amended Regulation 46.2 related to selling of power from Biomass based projects during the period of default.

As the Review Period under the MERC RE Tariff Regulations, 2015 is up to the end of FY 2019-20, i.e., March 31, 2020, the Commission formulated the draft MERC (Terms and Conditions for Determination of RE Tariff) Regulations, 2019 (hereinafter referred as “draft MERC RE Tariff Regulations, 2019) covering various types of Renewable Energy (RE) technologies such as wind energy, solar energy, non-fossil fuel-based cogeneration, small hydel power, biomass power, etc.

While formulating draft MERC RE Tariff Regulations, 2019, the Commission has been guided by the CERC RE Tariff Regulations, 2017, Tariff Policy, relevant Regulations of this Commission and other State Electricity Regulatory Commissions (SERCs), etc.

The Commission proposed modifications to certain clauses vis-à-vis the clauses specified in the MERC RE Tariff Regulations, 2015 (as amended in January 2017) based on the experience in implementation of the RE Tariff Regulations in the previous Review Period, and in order to

simplify/clarify/amend certain provisions as considered necessary and reasonable. The rationale for the changes proposed in the MERC RE Tariff Regulations, 2019 were elaborated in the Explanatory Memorandum. Generally, only the clauses where any addition/modification is proposed in the draft MERC RE Tariff Regulations, 2019 were discussed in the Explanatory Memorandum. In the draft MERC RE Tariff Regulations, 2019, the Commission has endeavoured to balance the interest of consumers, RE Generating Companies, and Distribution Licensees. Based on the analysis, possible regulatory options have been discussed in Explanatory Memorandum.

Accordingly, the draft MERC RE Tariff Regulations, 2019 along with Explanatory Memorandum was published on the Commission's websites [www.merc.gov.in](http://www.merc.gov.in) in downloadable format on 26 October, 2019. A Public Notice was also published in daily newspapers Marathi (Maharashtra Times and Loksatta) and English (Indian Express and Times of India), inviting comments, objections and suggestions from all stakeholders by 18 November 2019. A total of 13 stakeholders responded to the Notice on Draft MERC RE Tariff Regulations, 2019. The list of stakeholders who offered their comments/suggestions on the draft Regulations and Explanatory Memorandum, which have been considered by the Commission while finalising the Regulations, is placed at **Annexure-I**.

The main comments and views expressed by the stakeholders through their written submissions and the Commission's views thereon have been summarized in the following paragraphs. It may be noted that all the suggestions given by the stakeholders have been considered, and the Commission has attempted to elaborate all the suggestions as well as the Commission's decisions on each suggestion in the Statement of Reasons, however, in case any suggestion is not specifically elaborated, it does not mean that the same has not been considered.

Wherever possible, the comments and suggestions have been summarised clause-wise, along with the Commission's analysis and ruling on the same. However, in some cases, due to overlapping of the issues/comments, two clauses have been combined in order to minimise repetition.

The Commission has also made certain suo-motu consequential changes in order to ensure consistency among clauses. Also, it may be noted that the Regulation numbers given in this Statement of Reasons (SOR) are those mentioned in the draft MERC RE Tariff Regulations, 2019.

The SOR is organised in the following Chapters, along the same lines as the MERC RE Tariff Regulations, 2019, summarising the main issues raised during the public consultation process, and the Commission's analysis and decisions on them which underlie the Regulations as finally notified:

- Chapter 1:** Definitions and Interpretation
- Chapter 2:** Scope of Regulations and extent of application
- Chapter 3:** General Principles
- Chapter 4:** Financial Principles
- Chapter 5:** Technology-specific Parameters for Wind Energy Projects
- Chapter 6:** Technology-specific Parameters for Small/Mini/Micro Hydro Power Projects
- Chapter 7:** Technology-specific parameters for Biomass-based Power Projects
- Chapter 8:** Technology-specific parameters for Non-fossil fuel-based Co-Generation Projects
- Chapter 9:** Technology-specific parameters for Utility-Scale Solar PV Power Projects and Solar Rooftop PV Power Projects
- Chapter 10:** Technology-specific parameters for Solar Thermal Power Projects

# 1 Definitions

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## 1.1 Regulation 2.1(b): Definition of ‘Auxiliary Energy Consumption’

### 1.1.1 Proposed in Draft MERC RE Tariff Regulations, 2019

“2.1(b)...

*“‘Auxiliary Energy Consumption’, means the quantum of energy consumed by auxiliary equipment of the Generating Station and transformer losses within the Generating Station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the Units of the Generating Station; ...”*

### 1.1.2 Comments Received

MSEDCL suggested to add the following proviso

*“Provided that auxiliary energy consumption shall not include energy consumed for supply of power to any other facilities at the generating station and power consumed for construction works at the generating station.”*

### 1.1.3 Analysis and Commission’s Decision

A similar proviso as suggested by MSEDCL is present in the definition of Auxiliary Energy Consumption under the MERC (Multi-Year Tariff) Regulations, 2019. The Commission has hence, included a proviso to exclude energy consumed for supply of power by the generating Station to its housing colony and other facilities, and for construction works at the generating Station, from auxiliary energy consumption.

Hence, the Commission has modified the definition of Auxiliary Energy Consumption as under:

*“2.1 (b) ‘Auxiliary Energy Consumption’, means the quantum of energy consumed by auxiliary equipment of the Generating Station and transformer losses within the Generating Station, expressed as a percentage of the sum of gross energy generated at the generator terminals of all the Units of the Generating Station:*

*Provided that it shall not include energy consumed for supply of power by the generating Station to its housing colony and other facilities, and for construction works at the generating Station;”*

## **1.2 Regulation 2.1(c): Definition of ‘Average Power Purchase Cost’ or ‘APPC’**

### ***1.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“‘Average Power Purchase Cost’ or ‘APPC’ means the weighted average price at which the Distribution Licensee has purchased or is expected to purchase electricity (excluding procurement from RE sources), including the cost of self-generation, if any, as approved by the Commission in the relevant Tariff Order or any other general or specific Order;”*

### ***1.2.2 Comments Received***

MSEDCL has requested to revise the definition of APPC to exclude procurement from RE sources and liquid fuel sources.

### ***1.2.3 Analysis and Commission’s Decision***

The definition of APPC proposed in the draft MERC RE Tariff Regulations, 2019 already excludes the cost of purchase from RE sources. As regards exclusion of the cost of purchase from liquid fuel sources, the Commission finds merit in the suggestion, as the cost of purchase from liquid fuel sources is generally very high, and can lead to upwardly skewing the APPC. Hence, the Commission has excluded the liquid fuel sources from the definition of APPC.

The Commission has modified the definition of APPC as under:

*“2.1 (c) ‘Average Power Purchase Cost’ or ‘APPC’ means the weighted average price at which the Distribution Licensee has purchased or is expected to purchase electricity (excluding procurement from RE sources and liquid fuel sources), including the cost of self-generation, if any, as approved by the Commission in the relevant Tariff Order or any other general or specific Order;”*

## **1.3 Regulation 2.1(l): Definition of ‘Date of Commissioning’**

### ***1.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“‘Date of Commissioning’ means the date of commissioning declared by a Generating Company in relation to a Unit of its Generating Station;”*

### ***1.3.2 Comments Received***

MSEDCL suggested to add a proviso to the effect that the date of Commissioning with respect to the Project Unit shall also be certified by SLDC/DISCOM and shall mean when all equipment as per rated capacity has been installed and energy has flown into the grid.

### ***1.3.3 Analysis and Commission's Decision***

The Commission is of the view that there is a need to give greater clarity and reduce ambiguity in the interpretation of the date of commissioning. The Commission has included joint inspection by RE Generator and concerned Distribution Licensee or SLDC for certifying commissioning of the project.

Hence, the Commission has modified the definition of Date of Commissioning as under:

*“2. (m) ‘Date of Commissioning’ means the date of commissioning declared by a Generating Company in relation to a Unit of its Generating Station:*

*Provided that date of commissioning shall be certified based on joint inspection by RE Generator and concerned Distribution Licensee or SLDC as may be applicable;”*

## **1.4 Regulation 2.1 (m): Definition of ‘Eligible Project’**

### ***1.4.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“‘Eligible Project’ means any of the following Renewable Energy Projects with or without Storage:*

*i. ....”*

### ***1.4.2 Comments Received***

Radiance Renewable submitted that though Regulation 2.1(m) allows any RE project to be developed with or without storage, the Regulations have not provided for treatment of storage. It requested the Commission to clarify the treatment of the same.

### ***1.4.3 Analysis and Commission's Decision***

The Commission clarifies that Storage by itself is not a RE source, and is intended to complement the RE source, hence, the definition of Eligible Project allows any RE project to be developed with or without storage. Obviously, if the RE project is developed with storage, then the Capital Cost would include the cost of the storage, and be recovered accordingly. The Commission does not feel it necessary to clarify the treatment any further.

## **1.5 Regulation 2.1(p): Definition of ‘Hybrid Renewable Energy Project’**

### ***1.5.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*‘Hybrid Renewable Energy Project’ means a Renewable Energy Project that uses a combination of Renewable Energy technologies approved by MNRE for electricity generation within the same premises;*

## **1.5.2 Comments Received**

MSEDCL suggested that the term ‘Same Premises’ in the definition of Hybrid Renewable Energy Projects should be elaborated as under:

*"Premise shall mean the continuous parcel of land at a single location owned by a single person /company/entity."*

## **1.5.3 Analysis and Commission’s Decision**

In this context, the Commission has also taken note of the National Wind-Solar Hybrid Policy published by the Ministry of New & Renewable Energy (MNRE) on 14 May, 2018, which provides for Hybrid RE Projects wherein different RE sources are setup at nearby locations but configured to operate at the same point of grid connection. Hence, it is not necessary that the hybrid sources of energy be located within the same premises, and the Commission has modified the definition accordingly.

Further, the National Wind-Solar Hybrid Policy also stipulates that the rated capacity of one resource has to be at least 25% of the rated capacity of the other resource, in order to qualify as a Hybrid RE Project. The Commission has accordingly included a proviso to this effect.

Hence, the Commission has modified the definition of Hybrid RE Project, as under:

*“2.1(r) ‘Hybrid Renewable Energy Project’ means a Renewable Energy Project that uses a combination of Renewable Energy technologies approved by MNRE for electricity generation, configured to operate at the same point of grid connection:*

*Provided that the rated capacity of one resource is at least 25% of the rated capacity of other resource;”*

Along the same lines, a consequential modification has also been made in the description of Hybrid RE Projects under the list of Eligible Projects, by removing the term “which are co-located” as under:

*“2.1 (n) x. Hybrid RE Project based on RE technologies approved by MNRE, such as Wind-Solar Hybrid, Solar-Biomass Hybrid, Solar-Co-Generation Hybrid, Solar Thermal Hybrid, and any other combination of RE technologies, and commissioned after notification of these Regulations.”*

## **1.6 Regulation 2.1(r): Definition of Interconnection Point**

### **1.6.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“‘Inter-connection Point’ means the interface point of a Renewable Energy generating facility with the transmission system or distribution system, as the case may be, and*

*1. in relation to Wind Energy and Solar Photo Voltaic Projects, the Inter-connection Point shall be the line isolator on the outgoing feeder on the HV side of the Pooling sub-Station;*

*Explanation - ...;*

*2. in relation to Mini/Micro Hydro, Small Hydro, Biomass and Biomass gasification, Non-Fossil Fuel-based Co-Generation, Biogas-based, Hybrid Renewable Energy, Municipal Solid Waste, and Solar Thermal Power Projects, the Inter-connection Point shall be the line isolator on the outgoing feeder on the HV side of the generator transformer;”*

### **1.6.2 Comments Received**

MSEDCL requested for modification of the definition of inter-connection point, to factor in the evacuation requirement from the presently defined inter-connection point to the grid. MSEDCL submitted that the Hydro, biomass and co-generation project sites are remotely located, and no grid network is available in the nearby vicinity. The Regulations specify that the Licensees shall be responsible for development of evacuation infrastructure beyond the inter-connection point. The evacuation infrastructure involves the cost of express feeder from the inter-connection point to grid. Owing to the remote locations, expenditure required to be incurred on evacuation infrastructure is huge. Further, in case of hydro projects, due to smaller installed capacity [Mini Hydro (> 500 kW and < 1 MW) and micro hydro projects <500 kW)], the power generated from these projects will be low. It is observed that in some cases, cost of evacuation infrastructure is considerably high as compared to total project cost and power generated from such projects is not economically viable. Hence, there should be some ceiling or mechanism to determine the economic feasibility of such projects from evacuation infrastructure point of view so as to avoid burdening the common consumers of MSEDCL with RE infrastructure expenditure.

### **1.6.3 Analysis and Commission's Decision**

The Commission has considered MSEDCL's submissions in the context of definition of inter-connection point, and finds merit in the same. Further, it is envisaged that the tariff shall invariably be determined through competitive bidding. In the Standard Bidding Documents, the cost of evacuation infrastructure up to the nearest grid sub-station is included. In such a situation, the concerns of MSEDCL will be addressed. The MERC RE Tariff Regulations, 2019 also provide an enabling framework for Project-specific tariff determination. Hence, if the cost of evacuation infrastructure up to the nearest grid sub-station is included in the Capital Cost, the Developer of the RE Project will be able to recover the cost and also ensure that the evacuation infrastructure comes up in time.

Hence, the Commission has modified the definition of 'Inter-connection Point', in line with the definition under the Standard Bidding Documents, as under:



“(t) ‘Inter-connection Point’ shall be the point where the power from the Project is injected into the nearest grid sub-station, including the dedicated transmission/distribution line connecting the Projects with such sub-station;”

## **1.7 Regulation 2.1(w): Definition of Non-fossil fuel-based Co-Generation**

### **1.7.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

“Non-fossil fuel-based Co-Generation’ means the process in which more than one form of energy (such as steam and electricity) are produced in a sequential manner by use of biomass;”

### **1.7.2 Comments Received**

MSEDCL suggested to add the following proviso:

"Provided the project may qualify to be a co-generation project if it fulfills the eligibility criteria as specified in clause (VI) of definition (m)."

### **1.7.3 Analysis and Commission’s Decision**

The Commission is of the view that the proviso suggested by MSEDCL is redundant, as the clause only defines Non-fossil fuel-based Co-Generation, and the eligibility has been specified elsewhere in the Regulations. Hence, no change has been made in the Regulations.

## **1.8 Regulation 2.1(cc): Definition of Re-powering**

### **1.8.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

“‘Re-powering’ means the process of replacing older wind turbines with newer ones that have either a higher name-plate capacity or higher CUF, which results in a net increase in power generated from the same site;”

### **1.8.2 Comments Received**

MSEDCL suggested to add a proviso that tariff for re-powered turbine projects shall be invariably discovered through competitive bidding process only.

### **1.8.3 Analysis and Commission’s Decision**

The Commission is of the view that the proviso suggested by MSEDCL is not required, as the clause only defines Re-powering. The process and approach for tariff determination for such Projects has been specified elsewhere in the Regulations. Hence, no change has been made in the Regulations.

## **1.9 Regulation 2.1(gg): Definition of Solar Roof-top PV Power Project**

### ***1.9.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“Solar Roof-top PV Power Project’ means a Solar Photo Voltaic Power Project installed on the roof-top of a building or any other mounting structure in the consumer premises that uses sunlight for direct conversion into electricity through Photo Voltaic technology and satisfies any other eligibility criteria as may be stipulated by MNRE;”*

### ***1.9.2 Comments Received***

MSEDCL suggested to add “*from time to time*” at the end of the definition.

### ***1.9.3 Analysis and Commission’s Decision***

The Commission has added the phrase “*from time to time*” at the end of the definition.

## **1.10 Regulation 2.1(jj): Definition of Station Heat Rate or SHR**

### ***1.10.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“‘Station Heat Rate’ or ‘SHR’ means the heat energy input in kilocalories required to generate one kWh of electrical energy at generator terminals of a Renewable Energy Project that uses fuel for generation;”*

### ***1.10.2 Comments Received***

MSEDCL requested to give more clarity to the term ‘*Station Heat Rate*’ by clarifying whether the SHR was Gross SHR or Net SHR.

### ***1.10.3 Analysis and Commission’s Decision***

The Commission has considered MSEDCL’s suggestion in this regard, and clarifies that the SHR is Gross SHR. Accordingly, the definition has been modified as under:

*“(q) ‘Gross Station Heat Rate’ or ‘GSHR’ means the heat energy input in kilocalories required to generate one kWh of electrical energy at generator terminals of a Renewable Energy Project that uses fuel for generation;”*

## **1.11 Regulation 2.1(kk): Definition of Storage**

### ***1.11.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“(kk) ‘Storage’ means energy storage system utilising methods and technologies like Solid State Batteries, Flow Batteries, Pumped Storage hydro-power, Compressed Air, or any other technology, to store various forms of energy and deliver the stored energy in the form of electricity;”*

### ***1.11.2 Comments Received***

Prayas Energy group recommended modification to the definition of Storage, in order to make it more generic, as under:

*“‘Storage’ means energy storage system utilizing methods and technologies like Batteries, Pumped Storage hydro-power, Compressed Air, thermal storage or any other technology, to store various forms of energy and deliver the stored energy in the form of electricity.”*

### ***1.11.3 Analysis and Commission’s Decision***

The Commission has considered Prayas’ suggestion in this regard, and agrees that the definition of Storage can be made more generic, rather than stating specific types of batteries. Accordingly, the definition has been modified as under:

*“(ll) ‘Storage’ means energy storage system utilising methods and technologies like Batteries, Pumped Storage hydro-power, Compressed Air, thermal storage, or any other technology, to store various forms of energy and deliver the stored energy in the form of electricity;”*

## **1.12 Regulation 2.1(ll): Definition of Tariff Period**

### ***1.12.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“‘Tariff Period’ means the period for which the tariff is to be determined by the Commission on the basis of norms specified under these Regulations;”*

### ***1.12.2 Comments Received***

MSEDCL submitted that the Tariff Period should be equal to Useful Life of the respective RE technology.

***1.12.3 Analysis and Commission’s Decision***

The Commission is of the view that the definition of Tariff Period is appropriate and needs no modification. The duration of the Tariff Period has been specified elsewhere in the Regulations. Hence, no change has been made in the Regulations.

**1.13 Regulation 2(mm): Definition of Useful life**

***1.13.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“‘Useful Life’, in relation to a Unit of a Generating Station, including the evacuation system, means the following duration from the date of commercial operation (‘COD’) of such generation facility, namely:*

- a) ...
- b) *Biomass-based Power Project, Non-Fossil Fuel-based Co-Generation* 20  
*years*
- c) ...

*Provided that the Useful Life of Hybrid RE Projects shall be minimum of Useful Life of different RE technologies combined for the Hybrid RE Project:*

...;”

***1.13.2 Comments Received***

MSEDCL suggested that the Useful Life of Biomass Power Project and Non-fossil Fuel based Co-generation Projects should be considered as 25 years, as the Biomass Power projects and Non-fossil Fuel Co-generation projects use similar technology as that of coal fired thermal generating stations, which has Useful Life of 25 years.

Mahati Hydro Power Projects Pvt. Ltd. (Mahati) requested the Commission to clarify that Energy Purchase Agreement (EPA) shall also be valid up to the Tariff Period, i.e., up to Useful Life period, and to make this provision applicable for existing EPAs also, which have Tariff Period of 13 years duration.

The Cogeneration Association of India submitted that the Useful Life of the Hybrid RE Projects has been defined as the minimum of Useful Life of different RE technologies combined for the Hybrid RE Project, but the same ought to be prescribed as the maximum of Useful Life of the different RE technologies combined for the RE Project. This would be more logical and legal in view of the applicability of these Regulations to the second technology as well.

### ***1.13.3 Analysis and Commission's Decision***

The Commission has accepted the suggestion to increase the Useful Life of Biomass-based Power projects and Non-Fossil Fuel-based Co-generation Projects to 25 years, as these projects use similar technology as that of coal fired thermal generating stations, which has Useful Life of 25 years.

As regards the suggestion that the EPA should also be valid up to the Tariff Period, it is clarified that the EPA term shall be same as the Tariff Period, however, such clarification is not required to be incorporated in the Regulations. As regards the suggestion to make this provision applicable for existing EPAs having Tariff Period of 13 years, the Commission is of the view that such dispensation cannot be put into effect on retrospective basis, and existing EPAs shall be valid only up to the tenure stated in the EPAs.

As regards the suggestion that the Useful Life of the Hybrid RE Projects ought to be prescribed as the maximum of Useful Life of the different RE technologies combined for the RE Project, the Commission is of the view that the same is not practical, as the hybrid nature of the Project will cease to exist, once the useful Life of either of the RE technologies is over. It would be appropriate for Hybrid RE Projects to be conceived considering RE technologies having the same Useful Life.

Hence, the Commission has modified the definition of 'Useful Life' as under:

*"2.1(nn) 'Useful Life', in relation to a Unit of a Generating Station, including the evacuation system, means the following duration from the date of commercial operation ('COD') of such generation facility, namely:*

- |  |                 |
|--|-----------------|
| <i>a) Wind Energy Power Projects</i>                                       | <i>25 years</i> |
| <i>b) Biomass-based Power Project, Non-Fossil Fuel-based Co-Generation</i> | <i>25 years</i> |
| <i>c) Mini/Micro and Small Hydro Power Projects</i>                        | <i>35 years</i> |
| <i>d) Solar PV/Solar Thermal Power Projects</i>                            | <i>25 years</i> |
| <i>e) Solar Roof-top PV systems Power Projects</i>                         | <i>25 years</i> |

*Provided that the Useful Life of Hybrid RE Projects shall be minimum of Useful Life of different RE technologies combined for the Hybrid RE Project:*

*...;*"

## 2 Scope of Regulations and extent of application

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### 2.1 Regulation 3: Scope of Regulations and extent of application

#### 2.1.1 *Proposed in Draft MERC RE Tariff Regulations, 2019*

*“3.1 These Regulations shall apply to those new RE Projects, which fulfil the following criteria:*

*....*

*3.2 The tariff and other terms and conditions applicable to existing RE Projects shall be governed by the provisions of the applicable Regulations or RE Tariff Orders issued by the Commission from time to time.”*

#### 2.1.2 *Comments Received*

Radiance Renewable submitted that Regulation 3.1 specifies the applicability of the Regulations to ‘New’ Projects and Regulation 3.2 confirms the applicability of relevant Regulations to the existing projects. However, clarity is required on the definition of ‘New’ RE project, as it is possible that EPA has been signed under existing Regulations but the project completion/commissioning is in process. The definition of ‘New Project’ proposed under these Regulations would create uncertainty for such Projects. Hence, for the purpose of abundant clarity, the Commission is requested to modify the definition 2.1 (v) of New RE Project, to mean RE Project for which the EPA is signed after notification of these Regulations. Similarly, in case of solar rooftop project, the Project should be treated as existing project, if the Distribution Licensee has already given Net Metering permission to the consumer for implementation of the Project or where Net Metering application has already been submitted to the Distribution Licensee and the same has been accepted and acknowledged by the Distribution Licensee.

#### 2.1.3 *Analysis and Commission’s Decision*

‘New RE Project’ has been defined as a RE Project commissioned after notification of these Regulations, in the Draft MERC RE Tariff Regulations, 2019.

As regards the request to modify the definition of ‘New RE Project’, to mean RE Project for which the EPA is signed after notification of these Regulations, the Commission is of the view that the suggestion cannot be accepted. The Review Period was specified in the MERC RE Tariff Regulations, 2015 as 5 years, hence, it was known that the applicability of these Regulations would end on March 31, 2020. Developers have to set up their RE Projects accordingly.

However, the Commission is of the view that the definition needs to be modified to reflect the fact that the present Regulations are valid till March 31, 2020, and the intention is to make the MERC RE Tariff Regulations, 2019 applicable for all RE Projects commissioned after March 31, 2020. Hence, the Commission has made the necessary modifications to the definition of 'New RE Project'.

As regards the definition of 'New RE Project' for Solar Rooftop Projects, for the purpose of tariff determination under the MERC RE Tariff Regulations, 2019, the same rationale applies, and Projects commissioned after April 1, 2020 would be eligible for tariff determination under these Regulations. The applicability of Net Metering rules for Solar Rooftop Projects are governed by a separate Regulation, i.e., the Maharashtra Electricity Regulatory Commission (Grid Connected Rooftop RE Projects) Regulations, 2019, which has been notified recently.

Hence, the Commission has modified the definition of 'New RE Project' as under:

*“(x) ‘New RE Project’ means a Renewable Energy Project commissioned on or after date of applicability of these Regulations;”*

## 3 General Principles

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### 3.1 Regulation 6: Tariff Period

#### 3.1.1 *Proposed in Draft MERC RE Tariff Regulations, 2019*

*“6.1 The Tariff Period for RE Projects shall be equal to their Useful Life, as under:*

*...*

*6.2 The Tariff Period shall commence from the date of commercial operation of the Generating Station or Unit, as the case may be.”*

#### 3.1.2 *Comments received*

MSEDCL submitted that it welcomes the provision of equating the Tariff Period to the Useful Life for New RE projects. Further, post expiry of long-term EPAs with the Distribution Licensee, if such RE projects remain in operation, then the Commission should determine the Generic Tariff for such projects and the Distribution Licensee should have the first right of refusal for projects that entered in to long-term EPA with the concerned Distribution Licensee.

MSEDCL submitted that Regulation 6.2 shall be applicable for newly commissioned projects only, and for the existing projects, the Tariff Period shall commence from the mutually agreed date.

The Indian Wind Power Association (IWPA) submitted that the Tariff Period should be equal to the Useful Life.

The Cogeneration Association of India submitted that in respect of the projects which had entered into EPAs of 13 years, and tenure of which has expired, or is soon going to expire, the Regulations ought to make special provisions as to the modus to be followed for purchasing of the power, which they are producing and the injection thereof into the system. The Distribution Licensee should not stop and not be allowed to stop payment for injection of the energy since the grid connectivity to the generators are normally for 25 years and the Commission ought to provide for the mechanism including the rates at which the energy has to be drawn by the Distribution Licensee, which had executed the expired PPA.

The Cogeneration Association of India submitted that the Commission should give clear directions to the Distribution Licensee to desist from refusing to draw energy from such projects, which are also part of 2000 MW mandatory purchase under the relevant Government of Maharashtra Policy, from bagasse-based co-generation plants. If the Distribution Licensee refuses to draw energy upon expiry of the PPA, the cogeneration plant loses its bargaining power and is then rendered desperate to accept unjust demands and diktats and such acceptance



of unjust terms impacts the other cogeneration units adversely. Furthermore, if the Distribution Licensee refuses to draw power from the cogeneration unit, the steam generated would be wasted and it would be an avoidable waste of national resources.

The Cogeneration Association of India submitted that the proposed Regulations should also provide for the renewal of EPAs that have expired upon equitable terms and conditions to remain operative till a fresh EPA is executed. This would also ensure that the Distribution Licensees, especially MSEDCL, conforms to the targets set by the Government of Maharashtra for use of renewable energy produced through co-generation plants.

The bagasse-based plants are established as an integral part of the sugar factory and the operations of the factory along with payment to farmers are dependent on the co-generation project and vice versa. Considering the fact that huge investment is involved while setting up of bagasse-based cogeneration plant, if the tariff is determined through competitive bidding process without any preferential tariff, huge investment will be at stake and at risk and the same may also affect the operations, viability of the project and consequently payment to farmers. It is therefore, submitted that the tariff should be determined through technology specific tariff.

### ***3.1.3 Analysis and Commission's Decision***

The Tariff Period has been equated to the Useful Life in the Draft MERC RE Tariff Regulations, 2019, and has been retained in the MERC RE Tariff Regulations, 2019.

As regards the treatment of RE Projects after expiry of their EPA with the Distribution Licensee, the Commission is of the view that such RE Projects are free to explore different avenues for sale of electricity generated from the Project. Allowing the Distribution Licensee to have the first right of refusal for energy generated from such RE projects may lead to restriction of options for the RE Project. At the same time, the Distribution Licensee cannot be compelled to procure energy from such Projects with whom the EPA has expired as energy from other renewable sources could be available at cheaper rate, which would help the Distribution Licensees to comply with RPO and also reduce their average power purchase cost. The Commission through its various Orders has allowed Distribution Licensees to purchase energy from such projects whose EPA has been expired through competitive bidding process and project developers are participating in the competitive bidding process. Hence, the Commission is not including any provision relating to projects whose EPA has expired in these Regulations.

As the MERC RE Tariff Regulations, 2019 are applicable only for New Projects, Regulation 6.2 is also applicable only for New RE Projects commissioned on or after April 1, 2020.

## **3.2 Regulation 7.1: Procurement of RE through competitive bidding**

### **3.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“7.1 The tariff shall invariably be determined through a transparent process of competitive bidding in accordance with the Guidelines issued by the Central Government under Section 63 of the Act, inter-alia for the following types of RE Projects:*

- (a) Wind Energy Power Projects;*
- (b) Solar PV Power Projects;*
- (c) Non-Fossil Fuel-based Co-Generation;*
- (d) Biomass based Projects;*
- (e) Hybrid RE Power Projects.”*

### **3.2.2 Comments received**

MSEDCL submitted that it strongly recommends that competitive bidding should be mandatory for all RE projects mentioned herein including Re-powered wind projects. MSEDCL added that as observed in the Explanatory Memorandum, the preferential tariff regime would promote inefficiencies. Also, the Tariff Policy, 2016, talks about promoting the competitive bidding regime instead of cost-plus regime. This is a step in the right direction for promoting discipline and prudence among Utilities for achievement of low-cost power for all.

Vikram Dodia submitted that ‘Competitive Bidding’ is applicable for a very large-scale single location installation generally above 50 MW. The financials for a 50 MW Project compared with a general average size of solar commercial Roof Top installation of 50 kW will never match and is practically not comparable. He suggests that the Commission should determine the tariff for rooftop solar project in the following capacity slabs:

- a. Slab 1 - 1 to 10 kWp
- b. Slab 2 - 11 to 50 kWp
- c. Slab 3 - 51 to 200 kWp
- d. Slab 4 - 201 to 1,000 kWp
- e. Slab 5 - 1 MW and Above.

The Cogeneration Association of India submitted that in FY 2018-19, MSEDCL had undertaken competitive bidding for 17 projects, i.e., for approximately 300 MW installed capacity. The competitive bidding was held in an unsatisfactory and unfair manner. The Commission had earlier approved tariff of Rs.4.90/kWh, which was the rate arrived at and discovered from the forced competitive bidding, and this was the Generic Tariff for projects to be commissioned during August 2018 till March 2019. An Appeal has been filed before the Appellate Tribunal for Electricity (APTEL) against Part-II of the Tariff Order dated 18 August, 2018, which is pending consideration before the APTEL. The Commission’s Order dated 16

October, 2018 approving the MSEDCL bidding @ Rs. 4/kWh is also challenged before the APTEL and this Appeal is also pending consideration. In this backdrop, the Association objects to Clause 7 of the draft Regulations. There is scope to the Distribution Licensees to conduct competitive bidding on its own terms and conditions and without any Regulation by Regulatory Body or the Government.

The Cogeneration Association of India submitted that it is not averse to competitive bidding, provided it is fair and transparent and provided it is regulated and controlled by Guidelines as prescribed by law and provided that the Regulations provide for safeguards and procedural guidelines to be followed in respect of the same in order to lend sanctity in law to such a process.

### ***3.2.3 Analysis and Commission's Decision***

The Commission is of the view that competitive bidding, wherever feasible, leads to efficient price discovery, and has hence, specified in the Draft MERC RE Tariff Regulations, 2019, that tariff shall invariably be determined through a transparent process of competitive bidding for Wind, Solar, Non-Fossil fuel-based Co-generation, Biomass, and Hybrid RE Power Projects. The Commission has retained this clause in the MERC RE Tariff Regulations, 2019.

For Roof-top Solar PV Power Projects, the Commission will be notifying Generic Tariff, in line with the option of Net Metering and Net Billing allowed in the Maharashtra Electricity Regulatory Commission (Grid Connected Rooftop RE Projects) Regulations, 2019, which has been notified recently.

As regards the issues raised by the Cogeneration Association of India, that there are no standard competitive bidding documents / guidelines for co-generation based power projects, the Commission notes that before initiating such competitive bidding process, concerned Distribution Licensee takes approval of this Commission for bidding documents and hence, it cannot put any unfair conditions in the documents.

## **3.3 Regulation 7.2: Adoption of tariff of RE projects by the Commission**

### ***3.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“The Commission shall adopt the tariff for a RE Power Project where such tariff has been determined through a transparent process of competitive bidding in accordance with the Guidelines issued by the Central Government under Section 63 of the Act.”*

### ***3.3.2 Comments received***

The Cogeneration Association of India submitted that the Competitive Bidding Guidelines are only for solar and wind, and no Guideline has been notified till date by the Central Government

for any other RE project including Non-Fossil Fuel based Co-Generation Power Projects integrated with sugar factories.

### **3.3.3 Analysis and Commission's Decision**

The Commission is of the view that the absence of Competitive Bidding Guidelines or Standard Bidding Documents for certain RE technologies should not be a dampener for undertaking the competitive bidding process for discovering the most efficient price of power. MSEDCL has undertaken competitive bidding for biomass projects also. Hence, no modification has been made to this Clause.

## **3.4 Regulation 7.3: Adoption of Tariff of RE Project by Commission**

### **3.4.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*"7.3 The tariff for RE Power Projects below threshold limit of eligibility for participating in Competitive Bidding shall be considered equal to the following cases, in order of priority:*

*(a) Latest Tariff discovered through Competitive Bidding by concerned Distribution Licensee for similar RE project;*

*(b) The Tariff discovered through Competitive Bidding for similar RE project by Other Distribution Licensee(s) in the State;*

*(c) The Tariff discovered through Competitive Bidding for similar RE project in the Country."*

### **3.4.2 Comments received**

MSEDCL submitted that the phrase "*and adopted by appropriate Commission*" needs to be added at the end of sub-clauses (a), (b), and (c) of Regulation 7.3.

The Tata Power Company Limited (TPC) submitted that the Tariff discovered for a 100 MW Solar project would be different from that for a 4 MW Solar project, as the capital expenditure related to common infrastructure for evacuation, land development, etc., may not be denominated in per MW terms. Hence, the tariff for RE Power Projects below threshold limit of eligibility for participating in Competitive Bidding may be either adopted at approved Generic Tariff rate or determined as per Section 62 of the EA 2003.

TPC also requested the Commission to specify the mandatory condition of determination of project-specific tariff for RE Power Projects below the threshold limit of eligibility for participating in Competitive Bidding.

Radiance Renewable requested the Commission to give more clarification on RE Projects below threshold limit.

The Maharashtra Energy Development Agency (MEDA) and IWPA submitted that intra-State Projects of less than 25 MW capacity should be allowed to operate under Feed-in-Tariff regime, as the Guidelines for tariff-based competitive bidding for procurement of power from Grid connected RE projects specifies that all projects above 25 MW shall be through competitive bidding. They requested the Commission not to consider the lowest discovered tariff in the country as benchmark tariff as cost of land, development and transportation differ from State to State.

### ***3.4.3 Analysis and Commission's Decision***

The Commission has accepted MSEDCL's suggestion and included the phrase "and adopted by the appropriate Commission" at the end of sub-clauses (a), (b), and (c) of Regulation 7.3.

As regards the suggestions to determine the Generic Tariff for RE Power Projects below threshold limit of eligibility for participating in Competitive Bidding, the Commission notes that it has already allowed deviation to include minimum capacity of 2 MW for the purpose of competitive bidding and almost all new utility scale RE projects being commissioned are more than 2 MW of capacity. Hence, the Commission is of the view that it will not serve any useful purpose by determining generic tariff for RE projects below 25 MW. Further, in the Draft MERC RE Tariff Regulations, 2019, the Commission has proposed the priority in which proxies of competitive bidding shall be considered, for such projects, which is sufficient. As regards the submission that the cost of land, development and transportation differ from State to State, the Commission is of the view that notwithstanding the above differences, the tariff discovered through competitive bidding in different parts of the country has not been significantly different.

Hence, the Commission has modified Clause 7.3 of the Regulations, as under:

*"7.3 The tariff for RE Power Projects below threshold limit of eligibility for participating in Competitive Bidding shall be considered equal to the following cases, in order of priority:*

- (a) Latest Tariff discovered through Competitive Bidding by concerned Distribution Licensee for similar RE project and adopted by the appropriate Commission;*
- (b) The Tariff discovered through Competitive Bidding for similar RE project by Other Distribution Licensee(s) in the State and adopted by the appropriate Commission;*
- (c) The Tariff discovered through Competitive Bidding for similar RE project in the Country and adopted by the appropriate Commission."*

### **3.5 Regulation 8: Generic Tariff**

#### **3.5.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The Commission shall determine the generic tariff for Solar Roof-top PV Power Projects and Variable Charges for Biomass and Non-fossil fuel-based Co-generation Projects, in accordance with the norms specified in these Regulations.”*

#### **3.5.2 Comments received**

MSEDCL submitted that as per Clause 7.1 (c) and (d) of the Draft MERC RE Tariff Regulations, 2019, the tariff for Biomass and Non-fossil fuel-based Cogeneration Projects has to be invariably determined through the competitive bidding process. Hence, the variable charges for Biomass and Non fossil fuel-based co-generation projects need to be determined by the Commission only for Feed-in-Tariff category.

TPC requested the Commission to modify Clause 8 and Clause 65 of the Regulations, as the Capital Cost specified under Regulation 65 is high. TPC submitted that under the Draft MERC (Grid Interactive Rooftop RE Generating System) Regulations 2019, the industrial and commercial consumers are allowed to install roof-top solar of higher than 1 MW capacity, up to Contract Demand/Sanctioned Load. Hence, the consumers having Contract Demand of 10 MW may install Solar Roof-top plant of 10 MW and the DISCOM is required to purchase the power from such plant under the Net Billing Arrangement. Therefore, it is suggested that the Generic Tariff for such plants should be same as that approved under Clause 7.1 or 7.3 (as applicable based on capacity) for Roof-top plant capacity above 1 MW, and for plant capacity below 1 MW, Generic Tariff should be Rs.0.50/kWh higher than that determined under Clause 7.3.

#### **3.5.3 Analysis and Commission’s Decision**

The Commission finds merit in MSEDCL’s suggestion in this regard, as the Variable Charges have to be determined by the Commission only for cases, where the Generic Tariff is applicable. For projects whose tariff is determined through competitive bidding, even the Variable Charges shall be discovered, and are not required to be determined on an annual basis by the Commission. The Commission has hence, added a proviso to the effect that the Generic Tariff determination of Variable Charges shall not apply for Biomass and Non-fossil fuel-based Co-generation Projects, whose tariff has been determined through the competitive bidding process and adopted by the Commission.

As regards the suggestion regarding Generic Tariff of Solar Rooftop PV Plants, In the draft MERC Grid Interactive Rooftop RE Regulations, 2019, the Commission had proposed to allow Net Billing for all categories and Net Metering only for residential category up to 300 units consumption per month. Hence, in the Explanatory Memorandum, the Commission had

proposed to determine higher Generic Tariff to account for the benefits of distributed generation.

The Commission has now allowed Net Metering to all consumer categories without any consumption limit, and has allowed the energy generated from Net Billing installations at the Average Power Purchase Cost (APPC), which is generally higher than the Generic Tariff. Now, with the removal of consumption limit of 300 units for Residential category and allowing Net Metering for other categories, the consumers will be able to set off their entire consumption against their self-generation, and they will be benefiting significantly from this modification. Hence, there is no justification to give additional benefit through determining a higher Generic Tariff, or even determining the Generic Tariff separately. It is sufficient to notify the Generic Tariff for Solar Roof-top PV Power Projects, based on the competitively discovered tariffs.

Hence, the Commission has modified Clause 8 of the Regulations, as under:

*“The Commission shall notify the generic tariff for Solar Roof-top PV Power Projects and determine the Variable Charges for Biomass and Non-fossil fuel-based Co-generation Projects, in accordance with the norms specified in these Regulations:*

*Provided that the above Generic Tariff determination of Variable Charges shall not apply for Biomass and Non-fossil fuel-based Co-generation Projects, whose tariff has been determined through the competitive bidding process and adopted by the Commission.”*

### **3.6 Regulation 9.1: Project-Specific Tariff**

#### **3.6.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“A Project-specific tariff shall be determined by the Commission on a case-to case basis for the following types of RE Projects:*

- (a) Waste to Energy Projects based on the technologies approved by MNRE;*
- (b) Solar Thermal Power Projects;*
- (c) Small Hydro Projects, Mini Hydro Projects and Micro Hydro Projects;*
- (d) Re-powering of Wind Energy Power Projects;*
- (e) Projects based on any other RE technologies approved by MNRE after notification of these Regulations;*
- (f) Any other RE technology, for which either Generic Tariff is being determined or for which the tariff is to be invariably determined through competitive bidding, in respect of which the Project Entities opt for a project-specific tariff.”*

### **3.6.2 Comments received**

MSEDCL submitted that the project-specific tariff should be determined only in case of Waste to energy projects, particularly Municipal Solid Waste (MSW) projects, and any other RE technologies approved by the MNRE after notification of these Regulations.

MSEDCL added that the tariff for Re-powering of Wind Energy Power Projects, shall also be determined invariably through competitive bidding process only. The States like Gujarat and Andhra Pradesh, in their Re-powering Policy have envisaged tariff discovery of such projects through competitive bidding process only. The draft Re-powering Policy of the State of Maharashtra has a similar provision.

MSEDCL further added that in respect of Clause 9.1(f), the same shall be allowed only in case of any new RE technology approved by MNRE after notification of these Regulations.

MEDA suggested that Project-specific tariff determination should also be done for new technology-based projects, which do not use fossil fuel for generation.

The Indian Wind Energy Association (InWEA) requested for reconsideration of the proposed shift in approach from Generic Tariff determination to project-specific tariff determination for wind projects. InWEA submitted that the Commission should continue to specify norms for determination of Generic Tariff for wind projects and should determine such Generic Tariffs for wind projects on annual basis. InWEA added that the Generic Tariff mechanism would provide an incentive to the investors for use of most efficient equipment to maximize returns and for selecting the most efficient site. Also, the process of project-specific tariff determination will be cumbersome and time-consuming, especially when the number of wind projects coming under the purview of the Commission are envisaged to increase depending on the wind capacity addition targets set in the Country. Besides, the need for determination of project specific tariff arises in such technologies which are new, or which are still at the nascent stage of development. However, in case of wind, the technology adopted is well established, and Generic Tariff can be determined.

InWEA submitted that Clause 6.4(2) of the Tariff Policy notified by the Government of India stipulates that the Commission shall determine the tariff for every RE source, which shall act as the ceiling tariff. Hence, the Commission should continue with Generic Tariff determination for all wind projects, using common benchmark techniques for the Review Period from FY 2020-21 to FY 2024-25.

InWEA added that in the previous Review Periods, the Commission had always given preference in terms of allowing higher tariff than that for conventional power, in accordance with the provisions of EA 2003. InWEA requested the Commission to continue the Preferential Tariff approach for Wind. Based on the cost-plus regime, the tariff should be determined by



ascertaining normative costs and performance parameters and for recovering all reasonable costs and returns through such preferential tariff.

### **3.6.3 Analysis and Commission's Decision**

In the Explanatory Memorandum, the Commission has clarified as under:

*“As stated earlier, there has been significant capacity addition from RE projects that have tied up their generation capacity with Distribution Licensees at tariff discovered through competitive bidding, and the tariffs have also reduced significantly. Hence, the Commission wishes to encourage such RE power procurement through competitive bidding by the Distribution Licensees, and has specified that certain RE technologies shall ‘invariably’ be procured through competitive bidding.”*

Accordingly, in Clause 7.1 of the Draft MERC RE Tariff Regulations, 2019, the Commission has proposed that the tariff shall invariably be determined through a transparent process of competitive bidding for Wind, Solar, Biomass, Non-Fossil Fuel-based Co-generation, and Hybrid RE Projects. The Commission is of the view that the interpretation of Clause 6.4(2) of the Tariff Policy as submitted by InWEA is incorrect, as Clause 6.4(2) stipulates that tariff determination under Section 62 of the EA 2003 may be done till the Competitive Bidding Guidelines are notified by the Central Government. Clause 6.4(2) does not stipulate that the ceiling tariff has to be determined by the Commission.

Further, in Clause 9, the Commission has listed the technologies for which Project-specific tariff determination shall be undertaken, viz., Waste to Energy, Solar Thermal, Small/Mini/Micro Hydro, and new RE Technologies. The rationale for proposing project-specific tariff determination for the above cases is that Projects based on these technologies are highly site-specific and customised, thereby making it difficult to specify norms.

Re-powering of Wind Projects is another example where competitive bidding would not be practical, as only the concerned Developer would be able to bid, and both Parties to the Energy Purchase Agreement (EPA) have to agree to the Re-powering. Hence, Project-specific tariff determination has been proposed for Re-powering of Wind Energy Projects.

For RE technologies listed under Clause 7.1, there could be cases where the Project Entities opt for a project-specific tariff under Section 62 of the EA 2003. Hence, the Commission has included an enabling clause permitting such Project Entities to seek project-specific tariff determination.

Hence, no modification has been made to this Regulation.

### **3.7 Regulation 10.3: In case RE project fails to generate energy up to the guaranteed CUF**

#### **3.7.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“In case the RE Project fails to generate energy up to the guaranteed CUF, then the RE Project proponent shall compensate the concerned Distribution Licensee to the extent of under-generation at the tariff rate approved by the Commission:*

*Provided that in case the above under-generation is on account of transmission constraints, then such under-generation shall be considered as deemed generation by the RE Project and be compensated accordingly.”*

#### **3.7.2 Comments received**

MSEDCL suggested that the proviso related to under-generation on account of transmission constraints should be applicable only if the availability of transmission line after interconnection point for evacuation of power, in any given year during the contract, falls below the normative Availability of 98%.

MSEDCL also requested the Commission to include the definition of ‘concerned Distribution Licensee’ as *“The concerned Distribution Licensee shall mean the Licensee with whom the RE generator has signed long term PPA.”*

MSEDCL added that in case of Municipal Solid Waste projects, the concerned Distribution Licensee shall mean the Distribution Licensee in whose licence area such solid waste is generated.

IWPA submitted that variation in CUF should be allowed for wind power projects and a window for revision of declared CUF should also be there. Hence, the Wind Power Generator will declare the annual CUF of its project at the time of signing of PPA and should be allowed to revise the same once within first 3 years of COD. Calculation of CUF will be on yearly basis from 1 April to 31 March of next year. The declared annual CUF shall in no case be less than 22%. The variation permitted in wind power generation from the declared CUF value will be indicated in RFS. Certain variation in proposed CUF should be allowed and certain penalty should be levied, which could be 25% of approved tariff rate in case of under-generation.

MEDA recommended that it is preferable to incentivise over-generation rather than penalising for under-generation, as it is very difficult to achieve prescribed CUF when generation is dependent on variability of nature.

Shri Uday Kamat submitted that fuel-based RE generation is dependent on many factors which are beyond the control of the Generator, i.e., availability of fuel (Biomass / Bagasse). Further,

the loss suffered by RE Generator (owing to under-performance) will be further aggravated with such provision of penalty for under-generation and shall render RE generation unviable.

Shri Vikram Dodia submitted that there is no need to compensate the Distribution Licensee for under-generation, as there are many climatic factors, which affect the generation of a solar power plant. Also, for smaller size of the plant say (1kW to 1MW), the mechanism of CUF is totally impractical and requires sophisticated sensors for accurate measurements. Shri Dodia added that on one hand, if CUF is less, the RE generator will be penalised and if CUF is greater, then also RE Power Generator is penalised by giving compensation of only 75% of the Tariff. Since, the Solar generation is 100% dependent on the climate, accurate energy prediction is not possible and there should be tolerance of about  $\pm 10\%$  given to the RE Generator.

### ***3.7.3 Analysis and Commission's Decision***

The Commission is of the view that the submission that the deemed generation provisions related to Transmission Availability should be applicable only when the Transmission Availability falls below the normative Availability of 98%, is untenable. The RE generator cannot be held responsible for under-generation on account of constraints in evacuation of the power, and the deemed generation provision in such instances is appropriate. However, the Commission has added instances of distribution constraints to transmission constraints, in the proviso for deemed generation.

At the same time, the RE generator has to take responsibility for generation up to the assured minimum level, as the Distribution Licensee has to make its power purchase plans accordingly, else, there will be no sanctity to the contract. The Commission does not agree with the submission that the mechanism of CUF is impractical for smaller size plants, as the RE generation meter will always record the generation, and the CUF is just a computation of the actual generation divided by the maximum possible generation.

As regards the request for providing window for revision of CUF, it is clarified that the same are specified as minimum CUF in these Regulations only for Project-specific tariff determination. The same has been addressed in line with the Standard Bidding Documents in the Technology-specific aspects later on in this SOR.

Further, the Draft MERC RE Tariff Regulations, 2019, provides for both, compensation to RE generator for over-generation as well as compensation to Distribution Licensee for under-generation, hence, both penalty and incentive mechanism is already proposed. However, as the incentive for over-generation is 75% of the approved tariff, the penalty for under-generation has also been reduced to 75% of the approved tariff.

Also, in case of fuel-based RE projects, although the tariff has two components, viz., fixed cost component and fuel cost component, the recovery is single-part, i.e., the tariff recovery is

entirely dependent on generation, and if there is no generation, then there is no recovery of even the fixed cost component. This is unlike the case of a conventional generator, who is entitled to fixed cost recovery in relation to his Availability. At the same time, it is incorrect to say that the RE generator has no control over the availability of fuel. It is entirely the responsibility of the RE generator to arrange for the necessary fuel. However, the Commission recognises that there could be genuine difficulties in arranging for the fuel, and has hence, exempted RE technologies having single-part tariff with two components, viz., fixed cost component and fuel cost component, from the provision of penalty for under-generation.

Hence, the Commission has modified Clause 10.3 of the Regulations, as under:

*“10.3 In case the RE Project fails to generate energy up to the guaranteed CUF, then the RE Project proponent shall compensate the concerned Distribution Licensee to the extent of under-generation at 75 percent of the tariff approved by the Commission:*

*Provided that the above compensation shall not be applicable for RE technologies having single-part tariff with two components, viz., fixed cost component and fuel cost component:*

*Provided further that in case the above under-generation is on account of transmission/distribution constraints, then such under-generation shall be considered as deemed generation by the RE Project and be compensated accordingly.”*

As regards the request to include the definition of ‘concerned Distribution Licensee’, the Commission finds merit in the same, and has included the definition as under, in order to avoid ambiguity in the interpretation of the relevant clauses:

*“(k) ‘concerned Distribution Licensee’ means the Distribution Licensee in the State of Maharashtra with whom the RE generator has signed Energy Purchase Agreement.”*

### **3.8 Regulation 11: Tariff Structure**

#### **3.8.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The tariff for Projects based on RE technologies shall be a single-part tariff consisting of the following fixed cost components:*

...

*Provided that, for RE Projects based on technologies having a fuel cost component, like Biomass-based Power Projects and non-fossil fuel-based Co-Generation Projects, a single-part tariff with two components, viz., fixed cost component and fuel cost component, shall be determined.”*

### **3.8.2 Comments received**

InWEA suggested that normally, two-part tariff is adopted to recover fixed and variable costs through the fixed and variable components of tariff separately. Despite RE Generators being given ‘Must-Run’ status and not being subjected to ‘merit order despatch’ principles, many State Electricity Regulatory Commissions (SERCs) have mandated the wind generators to ‘Schedule’ their generated power. The MERC (Deviation Settlement Mechanism and Related Matters) Regulations, 2014 too mandates the wind generators to schedule their generated power. For inter-State transactions, the Commission has notified the Regulations for scheduling of wind and solar generators, which mandates the inter-State wind generators to schedule their power generated.

In this context, it is worthwhile to note that wind generators are now being treated almost at par with conventional generators in terms of scheduling their power and are also subjected to penalties for deviation from their respective schedules. Thus, the single-part tariff structure for wind generators is no more valid as it is now treated as schedulable power like any other conventional source, which has a two-part tariff structure, wherein fixed cost recovery is assured through fixed charges and fuel cost is recovered through variable charges. The entire cost of Wind projects is fixed cost. Thus, the tariff structure of wind projects could be designed similar to that of Hydro projects, which have their entire cost as fixed cost, despite which, they are allowed separate fixed charge and variable charge recovery.

Further, under the current regime of single-part tariff, wind generators are not able to recover the capital cost through the 100% Variable Charges. Hence, it is important to recover a part of the investment as fixed cost keeping the interests of the investors/developers as well as in view of the variable nature of generation from such sources. Hence, INWEA requested the Commission to introduce Two-Part Tariff for Wind Energy Generators and in view of large-scale integration of such sources into the grid envisaged in view of the Government of India’s thrust on RE sources.

### **3.8.3 Analysis and Commission’s Decision**

The Commission is of the view that the recovery of fixed charges has been incorrectly linked to the aspect of scheduling. It should be noted that even for conventional generators, the recovery of fixed costs is linked to the availability, while the variable cost recovery is linked to the power scheduled. Hence, the recovery of fixed costs should not be linked to the requirement of scheduling of power. Further, scheduling is a grid discipline issue. However, RE generators are not subjected to Merit Order principles and have must-run status, i.e., if they are able to generate and schedule their power, then they shall not be backed down because of the tariff. Thus, their recovery of cost is entirely dependent on the schedule given by the RE generators.

Further, the comparison drawn with hydro generating stations is not appropriate, as small/mini/micro hydro stations have single-part tariff, determined in accordance with the MERC RE Tariff Regulations. Large hydro stations, typically with storage facility, are typically used as peaking stations and can be asked to backdown or schedule power according to system requirements, and hence, the tariff structure for such hydro stations is two-part with 50% of the cost being recovered through fixed charges linked to capacity index and the balance 50% being recovered through energy charges linked to the scheduled energy. Hence, the tariff structure, i.e., single-part or two-part is not related to the requirement of scheduling of power.

Accordingly, no modification has been made to this Regulation.

### **3.9 Regulation 13.1: Scheduling and despatch of Biomass-based Projects and Co-generation Projects**

#### ***3.9.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“The Biomass-based Power Projects and Co-Generation Projects shall be subject to the respective scheduling and despatch code as specified under the State Grid Code, as amended from time to time....”*

#### ***3.9.2 Comments received***

MSEDCL submitted that the provisions of Clauses 13.1 and 13.3 (Scheduling and Despatch) are contradictory and need more clarity. Once the State Grid Code becomes applicable, the biomass-based power generating station and co-generation projects will come under the principle of Merit Order Despatch. However, Clause 13.3 specifies that all RE projects shall be treated as Must Run plants, though Biomass-based Power Projects and Co-Generation Projects will be subjected to backing down in real time, due to their higher variable charges, which will defeat the objective of absorbing RE power.

#### ***3.9.3 Analysis and Commission’s Decision***

As clarified earlier, RE generators are not subjected to Merit Order Despatch principles and have must-run status, i.e., if they are able to generate and schedule their power, then they shall not be backed down because of the tariff. The same is as specified in Clause 13.3. On the other hand, Clause 13.1 of the Regulations specifies the requirement of scheduling the power, which is a grid discipline requirement, and separate from the issue of Merit Order Despatch.

Clauses 13.1 and 13.3 of the MERC RE Tariff Regulations, 2019 are appropriate and reflect this dispensation, and there is no requirement to modify the same.

### **3.10 Regulation 13.2: Forecasting and Scheduling for Wind Energy power project and Solar PV power project**

#### ***3.10.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“13.2 The Wind Energy Power Projects and Solar PV Power Projects shall be subject to the MERC (Forecasting, Scheduling and Despatch of Solar and Wind Generation) Regulations, 2018, as amended from time to time..”*

#### ***3.10.2 Comments received***

MSEDCL suggested that the implementation of the MERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2018, is very necessary for bringing discipline and grid security. No further relaxation in implementation of all provisions of the said Regulations should be provided.

#### ***3.10.3 Analysis and Commission’s Decision***

The implementation related issues of the MERC (Forecasting, Scheduling and Deviation Settlement for Solar and Wind Generation) Regulations, 2018, are being separately attended, and are outside the purview of the MERC RE Tariff Regulations, 2019. Accordingly, no modification has been made to this Regulation.

## 4 Financial Principles

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### 4.1 Regulation 15: Debt-equity Ratio

#### 4.1.1 *Proposed in Draft MERC RE Tariff Regulations, 2019*

*“15.1 For determination of generic tariff by the Commission, the debt-equity ratio shall be considered to be 70:30..”*

#### 4.1.2 *Comments Received*

MSEDCL submitted that normative debt-equity ratio should be revised to 80:20 in case of New RE plants, as it would bring in the necessary discipline and prudence on behalf of equity investors.

#### 4.1.3 *Analysis and Commission’s Decision*

The Commission is of the view that the normative debt-equity ratio of 70:30 is an industry standard, followed by all ERCs for conventional and RE projects. The MERC (Multi-Year Tariff) Regulations, 2019 also specify the normative debt-equity ratio of 70:30. Hence, the Commission has not modified this Regulation.

### 4.2 Regulation 16.1: Loan Tenure

#### 4.2.1 *Proposed in Draft MERC RE Tariff Regulations, 2019*

*“16.1 Loan Tenure:*

*For the purpose of determination of tariff, the loan tenure shall be considered as 12 years.”*

#### 4.2.2 *Comments Received*

MSEDCL suggested that the loan tenure should be extended equivalent to the Useful Life/EPA period, as it would translate into depreciation and loan repayment effectively being spread out for larger period. This would reduce the upfront loading and make RE power attractive.

InWEA submitted that the depreciation rate should be retained as 5.83% and the loan tenure period should be retained as 12 years, as specified in the MERC RE Tariff Regulations, 2015, rather than revising the loan tenure period to 13 years as proposed in the Draft MERC RE Tariff Regulations, 2019.



### **4.2.3 Analysis and Commission's Decision**

In the Draft MERC RE Tariff Regulations, 2019, the Commission has proposed Depreciation rate of 5.83% and loan tenure of 12 years, by retaining the provisions of the MERC RE Tariff Regulations, 2015.

The depreciation allowed for each year is considered as normative repayment of loan, for the purpose of interest computations, as per standard practice followed by all ERCs for conventional and RE projects. Hence, the normative loan tenure reflects the depreciation rate allowed for tariff computations. Depreciation of 5.83% allowed translates to a loan repayment period of 12 years, for repayment of the normative loan component of 70% of capital cost.

Hence, the Commission has not modified this Regulation.

### **4.3 Regulation 16.2: Interest Rate**

#### **4.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*"16.2 Interest Rate:*

...

*(c) For the purpose of computation of tariff, the average of the one-year Marginal Cost of Funds-based Lending Rate ('MCLR') as declared by the State Bank of India for the previous year plus 200 basis points, shall be considered as the normative interest rate;*

...."

#### **4.3.2 Comments Received**

MSEDCL submitted that as per the RBI Guidelines dated 23 April, 2015 vide Circular No. RBV2014-15/573, RE power project is included in the list of priority sector and usually such priority sector projects have a lower interest rate. Therefore, the normative interest rate should be considered as MCLR plus 150 basis points rather than MCLR plus 200 basis points.

### **4.3.3 Analysis and Commission's Decision**

The MERC RE Tariff Regulations, 2015 specified normative interest rate as MCLR plus 300 basis points. In the Draft MERC RE Tariff Regulations, 2019, the Commission revised the normative interest rate to MCLR plus 200 basis points, as CERC and most SERCs have specified the normative interest rate as MCLR plus 200/250/300 basis points. The Commission is of the view that it would not be appropriate to further reduce the normative interest rate for long-term loan as MCLR plus 150 basis points. Hence, the Commission has not modified the Regulation on this aspect.

However, the Commission feels it necessary to address the possibility of funding of RE projects through foreign currency loan, and has added Clause 16.3, linking the treatment of foreign currency loans to that specified in the MERC (Multi-Year Tariff) Regulations in force from time to time, where elaborate treatment has been specified. The newly added Clause 16.3 is as under:

*“16.3 The treatment of foreign currency loans shall be in accordance with the Maharashtra Electricity Regulatory Commission (Multi-Year Tariff) Regulations in force from time to time.”*

#### **4.4 Regulation 17: Depreciation**

##### **4.4.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“17.2 The salvage value of the asset shall be considered as 10%, and depreciation shall be allowed up to a maximum of 90% of the capital cost of the asset....*

*17.4 Depreciation shall be chargeable from the first year of commercial operation”*

##### **4.4.2 Comments Received**

MSEDCL submitted that since land is a non-depreciable asset, so, Depreciation is to be allowed up to maximum of 90% of the Capital cost of the asset excluding land cost.

MSEDCL added that considering the fact that Depreciation must be charged only after commercial operation, following proviso should be added:

*“Provided that in case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.”*

##### **4.4.3 Analysis and Commission’s Decision**

The Commission has added the phrase *“excluding the cost of freehold land, if any”*, at the end of Clause 17.2, to reflect the fact that depreciation is not allowed on freehold land.

As regards the submission that Depreciation should be chargeable on pro-rata basis from date of commissioning, the Commission is of the view that in case of Project-specific tariff determination, the issue will be addressed based on the projected date of commissioning, and all tariff components would be allowed proportionately in the first year, from the date of commissioning. In case of Generic Tariff determination, the Levelised Tariff is determined for the 25 years of life of the Project, and hence, the issue of depreciation for part of the year is not relevant. Hence, no change has been made to the Regulation on this account.

## **4.5 Regulation 18: Return on Equity**

### **4.5.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“18.2 The Return on Equity shall be computed at the base rate of 14%, to be grossed up as per the Minimum Alternate Tax (‘MAT’) rate applicable as on 1st April of the previous Financial Year.”*

### **4.5.2 Comments Received**

MSEDCL submitted that lower rate of RoE should be allowed by considering the fact that the market and regulatory space has matured over the years and the risk has mitigated to a large extent.

TPC submitted that the tax applicable can be Corporate Tax Rate post the expiry of Section 80 IA benefit. Hence, the Tariff so computed for the RE project should include the incidence of the grossing up of ROE due to Corporate Tax Rate also.

Shri Uday Kamat suggested that the base rate of RoE should be maintained at 16% as per the MERC RE Tariff Regulations, 2015, as reduction in rate of RoE will disincentivize RE capacity growth.

The Cogeneration Association of India submitted that base rate of RoE should be 16% instead of 14%, as Cogeneration Projects have lower generation capacity despite all risks continuing to remain similar to larger capacity Thermal Plants operating on Fossil fuels.

InWEA submitted that the base rate of RoE proposed in the Draft MERC RE Tariff Regulations, 2019 is 14%, to be grossed up by prevailing MAT rate as on 1st April of the previous year, for the entire useful life of the project. However, MAT benefit is only extended up to a period of 10 years and the Developers have to bear the Corporate Tax rate of 34.608% (Corporate Tax - 30% plus surcharge -12%, plus educational cess -3%) for the remaining period of the Useful Life. Further, the pre-tax RoE proposed in the draft MERC RE Tariff Regulations, 2019 works out to 17.80% for the first 10-year period of Useful Life, which is significantly lower than the normative pre-tax RoE of 20.34% for RE Projects in the cost-plus regime allowed during the previous Review Period.

Hence, InWEA suggested that the Commission should consider inclusion of enabling clause to review the pre-tax rate of ROE while finalizing the Regulations on account of change in tax/change in law in future and also revise the Clause in lines with previous MERC RE Tariff Regulations as follows:

***“The normative Return on Equity for the useful life of the project shall be as follows:  
20% per annum for the first 10 years***

*24% per annum from the 11th year onwards”*

### **4.5.3 Analysis and Commission’s Decision**

The Commission has already clarified this aspect in the Explanatory Memorandum published along with the Draft MERC RE Tariff Regulations, 2019, as under:

*“The Commission in its MYT Regulations, 2019 has specified base rate of return on equity for Generating Company as 14%....*

*Based on the CAPM model, the Commission has computed the cost of equity for regulated entities in the power sector to be in the range of 12%-15%....*

*As compared to conventional Generation projects, the gestation period of RE project is significantly lower. Hence, RE projects are exposed to lower risk during the construction phase compared to conventional generation projects.*

*It is observed that CERC in its RE Tariff Regulations, 2017 has specified rate of return on equity as 14% for RE projects. Also, in major States like Gujarat, Rajasthan, and Kerala, the rate of RoE is allowed at 14%*

*Considering the cost of equity, which works out to 12-15%, the lower rate of RoE prevalent in quite a few States, and the need to strike a balance between the viability of the Utility and interest of the consumers, it is proposed to reduce the Base Rate of RoE to 14%.*

*This rate of return needs to be grossed up with applicable tax rate. Regarding the applicable tax rate, the existing approach provides for consideration of MAT rate for first 10 years and applicable tax rate for remaining period. However, the effective tax rate for remaining period is also coming out close to MAT rate. It is proposed not to consider differential treatment over useful life. Hence, it is proposed to consider MAT rate prevailing as on 1st April of the previous financial year for the entire useful life of the project for grossing up Rate of Return.”*

Hence, no change has been made to the Regulation on this account.

## **4.6 Regulation 19.3: Interest on Working Capital**

### **4.6.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“19.3 Interest on Working Capital shall be the average of the one-year Marginal Cost of Funds-based Lending Rate (‘MCLR’) as declared by the State Bank of India for the previous year plus 300 basis points.”*

#### **4.6.2 Comments Received**

MSEDCL suggested that interest on working capital should be allowed at MCLR plus 150 basis points.

#### **4.6.3 Analysis and Commission's Decision**

The MERC RE Tariff Regulations, 2015 specified normative interest on working capital as SBI Base Rate plus 350 basis points. In the Draft MERC RE Tariff Regulations, 2019, the Commission revised the normative interest rate to MCLR plus 300 basis points, as CERC and most SERCs have specified the normative interest rate as MCLR plus 300 to 350 basis points. However, in the MERC (Multi-Year Tariff) Regulations, the Commission has specified the normative rate of interest on working capital as MCLR plus 150 basis points. Hence, the Commission has accordingly modified the Regulation on this aspect, as under:

*“19.3 Interest on Working Capital shall be the average of the one-year Marginal Cost of Funds-based Lending Rate ('MCLR') as declared by the State Bank of India for the previous year plus 150 basis points.”*

#### **4.7 Regulation 20: Operation and Maintenance Expenses**

##### **4.7.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“20.1 O&M expenses shall comprise repair and maintenance ('R&M') expenses, establishment (including employee) expenses, and administrative and general expenses including insurance.*

*20.2 O&M expenses shall be determined for the Tariff Period based on normative O&M expenses specified by the Commission in these Regulations for the first year of the Review Period.*

*20.3 Normative O&M expenses allowed under these Regulations shall be escalated at the rate specified for Generating Companies in the MERC (Multi Year Tariff) Regulations, 2019, as amended from time to time, for computation of the levelized tariff.”*

##### **4.7.2 Comments Received**

MSEDCL suggested that for determining the normative O&M expenses, necessary data from all the Generators should be collected and analyzed by the State Nodal Agency/Distribution Licensee. Also, it needs to be made mandatory for all RE Generators to provide yearly data to the State Nodal Agency/Distribution Licensee regarding their generation and financial performance.

### **4.7.3 Analysis and Commission's Decision**

The Commission finds merit in the suggestion that the necessary data on actual O&M expenses incurred by the RE Generators be submitted on an annual basis to the State Nodal Agency, who shall compile the same and submit it to the Commission every year. Such data shall facilitate future analysis and re-calibration of O&M expenses. The reporting of other financial data, etc., is already included under Clause 4 - General Reporting Requirements. The necessary Clause related to O&M expenses, has been added to the General Reporting Requirements, as under:

*“4.4 All RE Generating Companies shall submit data on actual O&M expenses incurred on annual basis, duly certified by the Statutory Auditor, to the State Nodal Agency:*

*4.3 Provided that the State Nodal Agency shall compile such data on a yearly basis for different RE technologies and submit the same to the Commission by October 31st of every year, for the actual O&M expenses incurred by RE Generating Companies in the State of Maharashtra during the previous year.”*

## **4.8 Regulation 21: Rebate**

### **4.8.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“21.1 For payment of bills of the Project Entity through revolving and valid Letter of Credit, a rebate of 2% shall be allowed.*

*21.2 Where payments are made other than through Letter of Credit within seven days of presentation of bills by the Project Entity, a rebate of 1% shall be allowed.”*

### **4.8.2 Comments Received**

MSEDCL submitted that payments made within 30 days should be allowed a rebate of 2%.

### **4.8.3 Analysis and Commission's Decision**

The Clause related to Rebate has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the Rebate provisions specified by CERC and other SERCs for RE Generators. Hence, no change has been made to this Regulation.

## **4.9 Clause 22: Late Payment Surcharge**

### **4.9.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“In case the payment of any bill for charges payable under these Regulations is delayed beyond a period of 30 days from the date of billing, Late Payment Surcharge on simple interest basis at the one-year MCLR as declared by the State Bank of India as on 1st of the respective month plus 350 basis points per annum on the billed amount, shall be levied for the period of delay by the Project Entity.”*

#### **4.9.2 Comments Received**

MSEDCL requested the Commission that a period of 60 days should be provided from the date of billing before attracting the Late Payment Surcharge provisions. MSEDCL suggested that the Late Payment Surcharge could be levied on simple interest basis at the one-year MCLR as declared by the State Bank of India as on 1<sup>st</sup> of the respective month plus 150 basis points per annum on the billed amount.

#### **4.9.3 Analysis and Commission's Decision**

The Clause related to Late Payment Surcharge, which has been adopted from the MERC Multi-Year Tariff Regulations, 2019 is justified. Hence, no change has been made to this Regulation.

### **4.10 Regulation 23: Sharing of Clean Development Mechanism (CDM) Benefits**

#### **4.10.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“All risks, costs and efforts associated with the availing of carbon credits shall be borne by the Project Entity, and the entire proceeds of carbon credit from approved CDM Project, if any, shall be retained by it.”*

#### **4.10.2 Comments Received**

MSEDCL submitted that for projects, which enter into long-term EPAs with Distribution Licensees, the capital cost, O&M expenses, and Interest on Working Capital are borne by the Distribution Licensee. Hence, Clean Development Mechanism (CDM) benefits should be passed on to the Distribution Licensee.

#### **4.10.3 Analysis and Commission's Decision**

The Clause related to Sharing of CDM benefits has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the CDM Sharing provisions specified by CERC and other SERCs for RE Generators. Further, the Regulations already specify that the cost and efforts of availing CDM benefits have to be borne by the Project Entity, hence, benefits of CDM need to be retained by the project developer. Hence, no change has been made to this Regulation.

### **4.11 Regulation 25: Deduction of Grant, Subsidy and Incentive by licensee**

#### **4.11.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

“.....

*25.2 The State Nodal Agency shall inform the Distribution Licensee regarding any such grant, subsidy or incentives received by a Project Entity on a quarterly basis.*

25.3 Any such grant, subsidy or incentives availed by a Project Entity shall be deducted by the Distribution Licensee in subsequent bills raised by the particular Project Entity towards sale of electricity in suitable instalments or within such period as may be stipulated by the Commission.

25.4 In case the Central or State Government or their agencies provide any generation-based incentive, which is specifically over and above the tariff, such incentive shall neither be taken into account while determining the tariff nor be deducted by the Distribution Licensee in subsequent bills raised by the particular Project Entity.....”

#### **4.11.2 Comments Received**

MSEDCL submitted that the generation-based incentive should also be considered while determining the tariff.

Shri Uday Kamat submitted that any grant, subsidy or incentive is provided by the Central / State Government to meet “viability gap” and/or to encourage new investment in thrust areas, and such Regulations will defeat the very purpose, and should hence, be deleted.

#### **4.11.3 Analysis and Commission’s Decision**

The Clause related to treatment of grant, subsidy or incentive provided by the Central or State Government has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the treatment of grant, subsidy or incentive specified by CERC and other SERCs for RE Generators. Hence, no change has been made to this Clause.

Further, Clause 25.4 clearly specifies the treatment of generation-based incentive specifically provided over and above the tariff, hence, the same can neither be considered in the tariff determination nor be deducted by the Distribution Licensee in subsequent bills. Hence, no change has been made to this Clause.

### **4.12 Regulation 26: Taxes and Duties**

#### **4.12.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The tariff determined under these Regulations shall be exclusive of taxes and duties on the generation and sale of electricity from a RE Project as may be levied by the appropriate Government:*

*Provided that the taxes and duties levied by the appropriate Government on generation, and sale of electricity from such RE Project, such as Electricity Duty and Water Royalty, shall be allowed as a pass-through to the extent actually incurred.”*



#### ***4.12.2 Comments Received***

MSEDCL suggested to add a proviso that subsidy along with the concession or waiver on taxes and duties needs to be passed on to the Distribution Licensee.

#### ***4.12.3 Analysis and Commission's Decision***

The Clause related to treatment of Taxes and Duties has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the Taxes and Duties specified by CERC and other SERCs for RE Generators. Further, as the pass through is limited to the extent actually incurred, any concession or subsidies or waiver on Taxes and Duties would automatically get adjusted, while being passed through to the Distribution Licensee. Hence, no change has been made to this Clause.

# 5 Technology-specific Parameters for Wind Energy Project

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## 5.1 Regulation 28: Capacity Utilisation Factor

### 5.1.1 Proposed in Draft MERC RE Tariff Regulations, 2019

*“The minimum normative CUF for Wind Energy Projects for the Review Period shall be 22% for the purpose of tariff determination:*

*Provided that the above normative CUF may be revised by the Commission through general or specific Order considering data that may become available subsequently.at prior period have been allowed on actual basis, subject to prudence check:”*

### 5.1.2 Comments Received

MSEDCL submitted that it supports the proposal to do away with the Wind Zoning concept. However, with the adoption of better technology, the CUF quoted by wind developers in the competitive bidding process conducted by MSEDCL ranges between 35% to 40% for projects located in Maharashtra. Hence, 22% CUF appears to be on much lower side and the minimum CUF should be considered as 30% for the purpose of tariff determination.

InWEA submitted that the proposed increase in CUF for Wind Power projects will have a significant impact on the returns of the investors. In order to highlight the impact of CUF (in the common range of Annual Wind Power Density), InWEA submitted analysis showing the sensitivity of tariff w.r.t CUF as per MERC RE Tariff Regulations, 2015 and the Draft MERC RE Tariff Regulations, 2019, and submitted that the increase in CUF will reduce the tariff by up to 54 paise per unit, which would significantly impact the returns of the investors. InWEA proposed that the CUF should be left unchanged with the hub height at prevailing hub height of 80m.

### 5.1.3 Analysis and Commission's Decision

As regards the suggestion to consider minimum CUF as 30% for the purpose of Project-specific tariff determination, it is observed that MSEDCL's contentions regarding the CUF quoted by successful bidders for Wind Projects located in Maharashtra is ranging between 35% to 37%. This is also in line with the technological developments related to higher MW capacity sizes and hub height of around 100 m. As the CUF specified in the MERC RE Tariff Regulations, 2019 is the minimum CUF, and there is a scope for revision by the Commission through general or specific Order at a later stage, the Commission has specified the minimum CUF for the purpose of Project-specific tariff determination as 30%.

Further, in line with the provisions of the Standard Bidding Document, the Commission has included a proviso allowing the Wind Energy Projects to revise the CUF once within first year after COD. Hence, the Commission has modified the Clause as under:

**“28. Capacity Utilisation Factor**

*The minimum normative CUF for Wind Energy Projects for the Review Period shall be 30% for the purpose of tariff determination:*

*Provided that the Wind Energy Projects will be allowed to revise the same once within first year after COD; thereafter, the CUF for the Project shall remain unchanged for the entire term of the PPA:*

*Provided further that the above normative CUF may be revised by the Commission through general or specific Order considering data that may become available subsequently.”*

**5.2 Regulation 29: Operation and Maintenance Expenses**

**5.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The ceiling normative O&M expenses for the base year of the Review Period shall be Rs. 7.72 lakh per MW, for the purpose of tariff determination.”*

**5.2.2 Comments Received**

InWEA submitted that in the last RE Tariff Order, the Commission had considered the O&M norms for Generic Tariff determination for Wind Projects as Rs. 8.83 Lakh/MW. Considering the annual escalation factor of 5.72%, the O&M norm for FY 2020-21 works out to Rs. 10.30 Lakh per MW. InWEA hence, requested the Commission to consider O&M norms for FY 2020-21 as Rs. 10.30 Lakh per MW.

**5.2.3 Analysis and Commission’s Decision**

The MERC RE Tariff Regulations, 2015 specifies the O&M Expenses for Wind Energy Projects as 1.47% of capital cost of the project.

The Commission has explained the rationale for specifying the O&M norms for Wind Projects as Rs. 7.72 lakh/MW in the Explanatory Memorandum published along with the Draft MERC RE Tariff Regulations, 2019, as under:

*“The Commission, based on capital cost norms specified in existing Regulations, has determined the O&M Expenses in terms of Rs. Lakh per MW in respective RE Generic Tariff Order for each year. For FY 2018-19, the Commission has determined O&M Expenses of Rs.*

7.72 Lakh/MW based on the revised Capital cost of the project. The Commission decides to retain the same norm for first year of Review period.

Accordingly, the Commission proposes O&M Expenses for Wind Energy Projects for FY 2020-21 as Rs. 7.72 Lakh/MW...”

Hence, no modification has been made to this Regulation.

### **5.3 Regulation 30: Tariff Determination in case of Re-powering of Wind Energy Power Project**

#### **5.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

“30.1 A Project-specific tariff shall be determined by the Commission in case of Re-powering of Wind Energy Power Project, subject to the following conditions, in addition to the conditions specified in Regulation 10.2 for determination of Project-specific tariff:

...”

#### **5.3.2 Comments Received**

MSEDCL submitted that in case of power being procured by Distribution Licensee from a wind mill through long-term EPA, and if such wind mills opts for Re-powering, then the power generated corresponding to average of last three years' generation prior to Re-powering would continue to be procured on the terms of PPA in-force. For the additional generation, the RE Generator shall participate in competitive bidding and the procurer Distribution Licensee shall have the first right of refusal.

#### **5.3.3 Analysis and Commission's Decision**

As elaborated earlier in this SOR, undertaking competitive bidding for Re-powering Projects appears to have implementation issues, hence, the Commission has retained the proposal to determine project-specific tariff for such cases. However, the Commission has included certain safeguards to ensure that the tariff of such Re-powered Wind Projects is reasonable. Further, during the period when the Re-powering is being undertaken, the Wind Project will have to be exempted from honouring the terms of the EPA. Hence, the Commission has modified the Clause as under:

#### **“30. Tariff Determination in case of Re-powering of Wind Energy Power Project**

30.1 A Project-specific tariff shall be determined by the Commission in case of Re-powering of Wind Energy Power Project, subject to the following conditions, in addition to the conditions specified in Regulation 10.2 for determination of Project-specific tariff:

- (a) *The older wind turbines shall have been operational for at least 15 years of Useful Life since their commissioning:*

*Provided that based on cost economics, contracting Parties may agree for Re-powering of wind turbine, which has been operational for lower than 15 years;*

- (b) *The Wind Energy Turbine/Project undergoing Re-powering would be exempted from honouring the terms of the Energy Purchase Agreement for the non-availability of generation from Wind Turbine/Project during the period of execution of Re-powering;*
- (c) *The older wind turbines shall be replaced by newer wind turbines having either a higher name-plate capacity or higher CUF, and should result in a net increase in power generated from the same site;*
- (d) *Detailed Project Report shall also clearly explain the rationale and benefits of Re-powering vis-à-vis setting up of a new project;*
- (e) *Competitiveness of proposed tariff vis-à-vis tariff discovered through Competitive bidding/tariff prevalent in the market for similar RE project and adopted by the appropriate Commission.”*

## **6 Technology-specific Parameters for Small/Mini/Micro Hydro Power Projects**

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### **6.1 Regulation 31: Capital Cost**

#### **6.1.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The Capital Cost for Small/Mini/Micro Hydro Power Projects shall include the Turbine Generator including its auxiliaries, land cost, site development charges and other civil works, resettlement and rehabilitation costs, if any, transportation charges, evacuation cost up to inter-connection point, financing charges and Interest during Construction:*

*Provided that the Commission shall approve the Capital Cost in case of project-specific tariff considering the prevalent market conditions.”*

#### **6.1.2 Comments received**

MHPP PVT LTD suggested that the Capital Cost approved by the Government of Maharashtra Water Resources Department (GoMWRD) in the Detailed Project Report (DPR) should be considered by the Commission for project-specific tariff determination instead of considering the prevalent market conditions. As an alternative, the Commission may consider the benchmark Capital Cost published by Institutes like Alternative Hydro Energy Centre, and Indian Institute of Technology, Roorkee.

#### **6.1.3 Analysis and Commission’s Decision**

The Commission is of the view that since only Project-specific tariff is being determined, the approach proposed in the Draft MERC RE Tariff Regulations, 2019 is appropriate, and specifying any value of Capital Cost for Project-specific tariff determination may act as a limiting factor. Hence, the Commission has not modified this Regulation.

### **6.2 Regulation 32: Capacity Utilisation Factor**

#### **6.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The minimum CUF for Small/Mini/Micro Hydro Power Projects shall be 30% for the purpose of tariff determination.”*

#### **6.2.2 Comments received**

MSEDCL submitted that in case of Small Hydro Projects, the generation depends on water release by the GoMWRD, hence, the CUF should be specified after analysing the actual generation in the initial period of three years. Hence, yearly review should be undertaken with comparison between CUF considered and actual CUF and tariff should be revised accordingly.

Shri T.V. Vartak submitted that in case of Small Hydro Projects, CUF is influenced by parameters like water availability, design head, head variation, irrigation pattern, tail-race level, etc., which is highly project specific. Hence, the minimum CUF of 30% should be waived off.

### ***6.2.3 Analysis and Commission's Decision***

The minimum CUF of 30% for Small Hydro Projects has been retained from the MERC RE Tariff Regulations, 2015. The Commission is of the view that RE Projects need to meet certain basic minimum eligibility criteria. The Commission to the extent possible would not like to encourage Small Hydro Projects with CUF lower than 30%, in the State of Maharashtra. Hence, no change has been made to this Clause.

## **6.3 Regulation 34: Operation and Maintenance Expenses**

### ***6.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*"The ceiling normative O&M expenses for the base year of the Review Period for the purpose of tariff determination shall be as follows....."*

### ***6.3.2 Comments received***

MSEDCL suggested that the O&M expenses should be as per actuals subjected to prudence check and the ceiling specified hereunder, whichever is lower.

### ***6.3.3 Analysis and Commission's Decision***

The Commission is of the view that the normative O&M expenses specified for different sizes of Small/Mini/Micro hydro power projects is appropriate. Further, as these normative O&M expenses shall be applied for determining the Project-specific tariff, which would be recovered in a levelized manner over the life of the Project, there would be no scope for comparison and prudence check of the actual O&M expenses on a post-facto basis. Hence, no change has been made to this Clause.

## **7 Technology-specific parameters for Biomass-based Power Projects**

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### **7.1 Regulation 38: Auxiliary Consumption**

#### **7.1.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The ceiling Auxiliary Power Consumption for Biomass-based Power Projects shall be 10% for the purpose of tariff determination.”*

#### **7.1.2 Comments received**

MSEDCL submitted that the Auxiliary Consumption for Biomass-based Power Plants should be specified lower than that for coal-fired stations, as Biomass-based Power Plants have lesser number of auxiliaries compared to coal-fired stations and also, there is no milling plant. Further, the amount of ash to be handled in the Biomass plants is comparatively lesser than that in coal fired stations. Further, in view of improved technologies, the Auxiliary Consumption has been reducing. Accordingly, MSEDCL proposed Auxiliary Consumption of 8%.

#### **7.1.3 Analysis and Commission’s Decision**

The Auxiliary Consumption for Biomass-based Power Plants has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the Auxiliary Consumption for Biomass-based Power Plants specified by CERC and other SERCs. Further, the Commission is of the view that considering the issues related to availability of fuel, and more frequent stop-starts likely on this account, the Auxiliary Consumption cannot be directly compared with that of a coal thermal generating station having Auxiliary Consumption of 8.5%. Hence, no change has been made to this Clause.

### **7.2 Regulation 39: Station Heat Rate**

#### **7.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The ceiling SHR for new Biomass-based Power Projects shall be 4200 kcal/kWh for the purpose of tariff determination.:”*

#### **7.2.2 Comments received**

MSEDCL suggested that as the technology has improved, SHR should be reduced. The SHR for new Biomass-based Projects should be considered as 3600 kcal/kWh for the purpose of tariff determination. Some developers have attained SHR of 3600 kcal/kWh way back in the year 2010-11, as stated in the Explanatory Memorandum to draft MERC RE Tariff Regulations, 2015.



### **7.2.3 Analysis and Commission's Decision**

The SHR for Biomass-based Power Plants has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the SHR for Biomass-based Power Plants specified by CERC and other SERCs. Hence, no change has been made to this Clause.

## **7.3 Regulation 40: Operation and Maintenance Expenses**

### **7.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The ceiling normative O&M expenses for the base year of the Review Period shall be 5.32% of the Capital Cost for the purpose of tariff determination.”*

### **7.3.2 Comments received**

MSEDCL suggested that the O&M expenses should be as per actuals subjected to prudence check and the ceiling specified hereunder, whichever is lower.

### **7.3.3 Analysis and Commission's Decision**

The Commission is of the view that the normative O&M expenses specified for Biomass-based Power projects are appropriate. Further, as these normative O&M expenses shall be applied for determining the Project-specific tariff, which would be recovered in a levelized manner over the life of the Project, there would be no scope for comparison and prudence check of the actual O&M expenses on a post-facto basis. Hence, no change has been made to this Clause.

## **7.4 Regulation 42: Use of Fossil Fuel**

### **7.4.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“Use of fossil fuels for generation shall not be allowed, and the entire power has to be generated using biomass.”*

### **7.4.2 Comments received**

MSEDCL submitted that it welcomed the decision to not allow use of any fossil fuel by both existing and new Biomass-based Power Projects, and the decision shall promote only green energy generation.

Shri Uday Kamat submitted that fossil fuel usage up to 15% may be allowed for existing Biomass Power Plants, while the restriction on fossil fuel usage may be made applicable for New Plants only. The usage of up to 15% fossil fuel was allowed hitherto, since 2005, and all Existing Plants have installed Plant and Machinery, which is suitable for such fuel mix and helps in running the plant during the monsoon months. Further, availability and price of agri-

waste and forest residues has always been a challenge. Despite allowance of up to 15% fossil fuel, many Biomass IPPs have closed down or are running intermittently.

### **7.4.3 Analysis and Commission's Decision**

The Commission is of the view that since existing Biomass Power projects have already installed plant and machinery designed to burn up to 15% fossil fuel, and the sizing of the plant and associated equipment has been done accordingly, it may not be appropriate to disallow usage of fossil fuel up to 15% for Existing Biomass Power projects. Hence, the Commission has modified the Regulation to allow Existing RE projects to use fossil fuel up to 15% for generation, while New RE projects are restricted from using fossil fuel. Hence, the Commission has modified this Regulation as under:

*“42.1 The use of fossil fuels for Existing RE Projects shall be limited to the extent of 15% of the total fuel consumption on an annual basis.*

*42.2 Use of fossil fuels for generation shall not be allowed for New RE Projects, and the entire power has to be generated using biomass.”*

## **7.5 Regulation 44: Compliance Monitoring for Biomass-based Power Projects**

### **7.5.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“44.1 The Distribution Licensee shall be responsible for monitoring compliance with these Regulations by Biomass-based Power Projects from whom it is procuring power.*

*44.2 The concerned Distribution Licensee shall maintain all data relevant to these Regulations, including technical and commercial details, in respect of Biomass-based Projects from whom it is procuring power, and shall make the data available in the public domain by publishing it on its website and updating it on a quarterly basis.*

*44.3 Project Entities shall submit the information to Distribution Licensee procuring power in the templates specified in Annexure-B of these Regulations.*

*44.4 The State Nodal Agency shall be responsible for ensuring compliance with these Regulations by Biomass-based Power Projects from whom the Distribution Licensees in the State are procuring power.”*

### **7.5.2 Comments received**

MSEDCL submitted that the responsibility of monitoring compliance should be with the State Nodal Agency (SNA) only, as the Distribution Licensees may not have the expertise for such activities.

However, the commercial details and power procurement data can be provided and uploaded on the website by the Distribution Licensee.

BEST suggested that the SNA should be responsible for monitoring the compliance. Project entities should submit the information to MEDA, who is the SNA, and to the Distribution Licensee procuring power in the templates specified in Annexure-B appended to the Regulations on a monthly basis.

### ***7.5.3 Analysis and Commission's Decision***

The mechanism of Compliance Monitoring for Biomass-based Power Plants has been retained from the MERC RE Tariff Regulations, 2015, and additional responsibility has also been case on the SNA for ensuring compliance with the Regulations. The Commission is of the view that the Distribution Licensees have to take the responsibility of ensuring that the RE Power projects from whom they are procuring power, comply with the relevant Regulations, and they cannot be absolved of this responsibility, which has been cast upon them for some time now. Hence, no change has been made to this Clause.

## **7.6 Regulation 45: Calorific Value**

### ***7.6.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“The minimum average Calorific Value of the biomass fuel(s) used for the purpose of determination of tariff for new Biomass-based Power Projects shall be 3100 kcal/kg.”*

### ***7.6.2 Comments received***

MSEDCL submitted that as Clause 41 of the Regulations allows different types of non-fossil fuels, the calorific value of the actual fuel used should be considered for tariff determination purposes.

### ***7.6.3 Analysis and Commission's Decision***

The MERC RE Tariff Regulations, 2019 specify the minimum Calorific Value of the biomass fuels to be considered for the purpose of Project-specific tariff determination. The objective is to ensure that projects are conceived only when biomass fuels of certain minimum Calorific Value are available.

It is clarified that at the time of Project-specific tariff determination, the Commission shall consider the calorific value of the actual fuel mix proposed to be used by the Project Entity, based on fuel arrangements made by the Project Entity.

## 8 Technology-specific parameters for Non-fossil fuel-based Co-Generation Projects

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### 8.1 Regulation 49.2: Use of Fossil fuel in Non-fossil fuel-based Cogeneration Plants (Read with Clause 59)

#### 8.1.1 Proposed in Draft MERC RE Tariff Regulations, 2019

*“49.2 The fuel-related aspects specified under Regulations 55 to 62 shall be applicable to both existing and new Non-Fossil Fuel-based Co-Generation Projects:...”*

*“59 Use of fossil fuels for generation shall not be allowed, and the entire power has to be generated using non-fossil fuels.”*

#### 8.1.2 Comments received

MSEDCL submitted that it welcomed the decision to not allow use of any fossil fuel in Non-Fossil Fuel-based Co-Generation Project, which shall promote green energy generation.

Shri Uday Kamat requested the Commission to allow up to 15% fossil fuel usage for Existing Non-fossil fuel Cogeneration Plants, while the restriction of non-usage of fossil fuel may be made applicable for New Non-fossil fuel Cogeneration Plants. The usage of 15% fossil fuel has been allowed hitherto, since 2002, and all Existing Plants have installed Plant and Machinery suitable for such fuel mix, which helps in running the plant during off-season/monsoon months. Availability and price of supplementary fuel (other agri-waste /forest residues) has always been a challenge. Despite allowance of 15% fossil fuel, many Non-fossil fuel-based Cogeneration Plants are unable to operate for 240 days (180+60 days) as envisaged in the RE Tariff Regulations/Orders.

Shri Kamat submitted that the Useful Life / Tariff Period of Non-fossil fuel-based Cogeneration Plants is 13/ 20 years. Default risk for 90 days (3 months) every year will force the plants to remain closed during the off-season, which will lead to low CUF and under-servicing of fixed costs, making such projects unviable.

The Cogeneration Association of India submitted that Clause 63 of the MERC RE Tariff Regulations, 2015, allowing up to 15% usage of fossil fuel needs to be continued in the MERC RE Tariff Regulations, 2019, because the normative PLF is possible only with the help of fossil fuel, and existing plants use up to 15 % coal in the process. Use of fossil fuel is based upon the nature of bagasse available, design aspect of the boilers, which are not at all suitable for this change, and factors such as the ambient moisture in bagasse, hence, the use of fossil fuel has to necessarily be allowed.

### **8.1.3 Analysis and Commission's Decision**

The Commission is of the view that since existing Non-fossil fuel-based Cogeneration projects have already installed plant and machinery designed to burn up to 15% fossil fuel, and the sizing of the plant and associated equipment has been done accordingly, it may not be appropriate to disallow usage of fossil fuel up to 15% for Existing Non-fossil fuel-based Cogeneration projects. Hence, the Commission has modified the Regulation to allow Existing RE projects to use fossil fuel up to 15% for generation, while New RE projects are restricted from using fossil fuel. Hence, the Commission has modified the relevant Regulations as under:

*“ 49.2 The fuel-related aspects specified under Regulations 55 to 58 and Regulations 60 to 62 shall be applicable to both existing and new Non-Fossil Fuel-based Co-Generation Projects:...”*

#### **“59. Use of Fossil Fuel**

*59.1 The use of fossil fuels for Existing RE Projects shall be limited to the extent of 15% of the total fuel consumption on an annual basis.*

*59.2 Use of fossil fuels for generation shall not be allowed for New RE Projects, and the entire power has to be generated using non-fossil fuels.”*

## **8.2 Regulation 50: Capital Cost**

### **8.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The Capital Cost for Non-fossil fuel-based Co-Generation Projects shall include the Turbine Generator including its auxiliaries, land cost, site development charges and other civil works, transportation charges, evacuation cost up to inter-connection point, financing charges and Interest during Construction:*

*Provided that the Commission shall approve the Capital Cost in case of project-specific tariff considering the prevalent market conditions:”*

### **8.2.2 Comments received**

The Cogeneration Association of India submitted that there is a need to factor-in Capital Cost in respect of Sugar Mill modernization as a result of Co-generation Project. Therefore, the normative capital cost of Rs. 4.92 crore per MW needs to be increased to Rs.6.75 crore per MW.

### **8.2.3 Analysis and Commission's Decision**

The Commission has not specified any value for Capital Cost in the Draft MERC RE Tariff Regulations, 2019, as the same has to be approved on project-specific basis. However, the

Commission is of the view that the cost of Sugar Mill modernisation, if necessitated on account of the Co-generation project, cannot be factored in to the Capital Cost of the Co-generation project. For tariff determination of the Co-generation project, only the directly related Capital Costs can be considered. Hence, no change has been made to this Regulation.

**8.3 Regulation 51: Plant Load Factor**

**8.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“51.1 For the purpose of determining the fixed charge, the PLF for non-fossil fuel-based Co-Generation Projects shall be computed on the basis of plant availability for the number of operating days, considering operations during the crushing season and the off-season, as specified below, and a Load Factor of 92%.*

*51.2 The number of operating days considered shall be as follows:*

<i>Operating Days</i>	<i>Plant Load Factor (%)</i>
<i>180 days (crushing) + 60 days (off-season) = 240 days operating days</i>	<i>60%</i>

**8.3.2 Comments received**

The Cogeneration Association of India submitted that the Plant Load Factor of 60% considering 180 days crushing and 60 days off-season, i.e., 240 days, has to be reconsidered inasmuch as the average crushing days in Maharashtra have reduced to 122 days and offseason period has reduced to 40 days, i.e., a total of 162 days. During the current year, the crushing season is likely to be reduced even further. Therefore, PLF of 40% needs to be allowed.

**8.3.3 Analysis and Commission’s Decision**

The PLF for Non-Fossil Fuel-based Co-Generation Projects has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the PLF for Non-Fossil Fuel-based Co-Generation Projects specified by CERC and other SERCs. The Commission is initiating an independent study on the prevailing price of bagasse, which will also address the issues raised by the stakeholder. Hence, no change has been made to this Clause.

**8.4 Regulation 52: Auxiliary Consumption**

**8.4.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The ceiling Auxiliary Power Consumption shall be 8.5%, for the purpose of tariff determination.”*

#### **8.4.2 Comments received**

MSEDCL submitted that Co-generation plants have lesser number of auxiliaries compared to coal-fired stations and most of the auxiliaries are common between the main product, i.e., sugar in case of bagasse based project, and power generation, hence, the Auxiliary Consumption needs to be shared equally between the two products, i.e., sugar and electricity. Accordingly, the Auxiliary Consumption should be reduced to 5%.

#### **8.4.3 Analysis and Commission's Decision**

The Auxiliary Consumption norms of 8.5% for Non-Fossil Fuel-based Co-Generation Projects has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the Auxiliary Consumption for Non-Fossil Fuel-based Co-Generation Projects specified by CERC and other SERCs. Hence, no change has been made to this Clause.

### **8.5 Regulation 53: Station Heat Rate**

#### **8.5.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The ceiling SHR for new non-fossil fuel-based Co-Generation Projects shall be 3600 kcal/kWh, for the purpose of tariff determination.”*

#### **8.5.2 Comments received**

The Cogeneration Association of India submitted that the SHR should be 4100 kcal/kWh, instead of 3600 kcal/kWh, for determination of tariff.

#### **8.5.3 Analysis and Commission's Decision**

The SHR norm for Non-Fossil Fuel-based Co-Generation Projects has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the SHR norm for Non-Fossil Fuel-based Co-Generation Projects specified by CERC and other SERCs. Hence, no change has been made to this Clause.

### **8.6 Regulation 54: Operation and Maintenance Expenses**

#### **8.6.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The ceiling normative O&M expenses during the base year of the Review Period shall be 3.54 % of the Capital Cost for the purpose of tariff determination.”*

#### **8.6.2 Comments received**

MSEDCL suggested that the O&M expenses should be as per actuals subjected to prudence check and the ceiling specified hereunder, whichever is lower.

The Cogeneration Association of India suggested that the normative O&M expenses may be specified in line with the norm specified by CERC at Rs.23.62 lakh/MW, with an escalation of 5.72% p.a., and the new RE plants may be entitled accordingly.

### **8.6.3 Analysis and Commission's Decision**

The O&M norm for Non-Fossil Fuel-based Co-Generation Projects has been retained from the MERC RE Tariff Regulations, 2015, and is also consistent with the O&M norm for Non-Fossil Fuel-based Co-Generation Projects specified by CERC and other SERCs.

Hence, the Commission is of the view that the normative O&M expenses specified for Non-Fossil Fuel-based Co-Generation Projects are appropriate. Further, as these normative O&M expenses shall be applied for determining the Project-specific tariff, which would be recovered in a levelized manner over the life of the Project, there would be no scope for comparison and prudence check of the actual O&M expenses on a post-facto basis. Hence, no change has been made to this Clause.

## **8.7 Regulation 56: Fuel Price**

### **8.7.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“56.1 The price of bagasse for the first year of the Project shall be determined based on the prevailing price of bagasse as assessed through an independent study by the Commission, and shall thereafter be linked to the indexation mechanism specified in Regulation 55:*

*Provided that the aspects such as disposal cost, opportunity cost in terms of alternative uses of the fuel, and Gross Calorific Value shall be considered, while determining the fuel price:*

*56.2 Provided further that for use of biomass other than bagasse, the biomass prices as specified under Regulation 46 shall be applicable.”*

### **8.7.2 Comments received**

The Cogeneration Association of India submitted that the price of fuel may be considered in line with CERC Order dated 19 March, 2019, i.e., Rs.2507 / MT, with annual escalation of 5% over the Review Period. For FY 2020-21, the price may be Rs.2632 / MT. In respect of Clause 56.2, the Commission may also include industry representative in the Committee for determining the bagasse price, and representation of appropriate Association such as Cogeneration Association of India may be considered.

### **8.7.3 Analysis and Commission's Decision**

As regards price of bagasse fuel, the Commission has elaborated its rationale in the Explanatory Memorandum published along with the Draft MERC RE Tariff Regulations, 2019, as under:



*“Regarding the fuel price, the Commission is of the view that the fuel price for bagasse is based on availability and prevailing market conditions in the State. The Commission is of the view that a detailed study needs to be undertaken for determining the bagasse cost, keeping in view the disposal cost, opportunity cost in terms of alternative uses of the fuel, and Gross Calorific Value.”*

Accordingly, the fuel price has not been specified in the Regulations, and no change has been made on this aspect. As regards the suggestion to include an industry representative in the independent study to be undertaken by the Commission, the extent, nature, and timing of involvement of industry representative/s, if considered necessary, shall be decided at the appropriate stage.

The Regulation has been modified only to the extent of removing the Clause numbers, as under:

***“56. Fuel Price***

*The price of bagasse for the first year of the Project shall be determined based on the prevailing price of bagasse as assessed through an independent study by the Commission, and shall thereafter be linked to the indexation mechanism specified in Regulation 55:*

*Provided that the aspects such as disposal cost, opportunity cost in terms of alternative uses of the fuel, and Gross Calorific Value shall be considered, while determining the fuel price:*

*Provided further that for use of biomass other than bagasse, the biomass prices as specified under Regulation 46 shall be applicable.”*

**8.8 Regulation 58.2: Fuel Mix and Co-Generation Project Capacity, read with Regulation 55: Calorific Value**

***8.8.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“58.2 The Co-Generation Projects shall be sized in co-relation to the locally available non-fossil fuels...”*

***“55. Calorific Value***

*The minimum Gross Calorific Value for bagasse shall be considered as 2250 kcal/kg:*

*Provided that for the use of biomass fuels other than bagasse, the Calorific Value as specified in Regulation 45 shall be considered.”*

***8.8.2 Comments received***

MSEDCL submitted that the Gross Calorific Value of the actual fuels used should be made applicable.

### **8.8.3 Analysis and Commission's Decision**

The MERC RE Tariff Regulations, 2019 specify the minimum Calorific Value of the bagasse fuel as well as the biomass fuels to be considered for the purpose of Project-specific tariff determination. The objective is to ensure that projects are conceived only when fuels of certain minimum Calorific Value are available.

It is clarified that at the time of Project-specific tariff determination, the Commission shall consider the calorific value of the actual fuel mix proposed to be used by the Project Entity, based on fuel arrangements made by the Project Entity.

## **8.9 Regulation 60: Monitoring Mechanism for the use of fossil fuel and Co-Generation Efficiency**

### **8.9.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The provisions of Regulations 42 and 43 relating to Biomass-based Projects shall apply mutatis mutandis to Non-Fossil Fuel-based Co-Generation Projects.*

### **8.9.2 Comments received**

Shri Uday Kamat submitted that the Useful Life/Tariff Period of Non-fossil fuel-based Cogeneration Plants is 13/20 years, and default risk for 90 days (3 months) will force the plants to remain closed during off-season. This will lead to low CUF and under-servicing of fixed costs, making such projects unviable. Hence, the provision should be withdrawn.

### **8.9.3 Analysis and Commission's Decision**

The Commission has retained Clause 60 of the MERC RE Tariff Regulations, 2019, as the necessary relief in terms of fossil fuel usage up to 15% has been allowed for existing Non-fossil fuel-based Cogeneration Plants.

## **8.10 Regulation 61: Measurement and Verification Protocol for Compliance Monitoring**

### **8.10.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“61.3 The Distribution Licensee shall scrutinise such Audit Reports so as to verify compliance by the Project...*

*61.5 In addition to any others, the following readings/stipulations shall be mandatory for such Audit: ...”*

### ***8.10.2 Comments received***

MSEDCL submitted that the SNA should scrutinize such Audit Report, as the Distribution Licensee may not have the expertise for auditing the computations related to boiler efficiency (based on direct or indirect method), the turbine isentropic efficiency and the auxiliary electricity consumption of the Co-Generation facility, and for taking the necessary readings.

### ***8.10.3 Analysis and Commission's Decision***

The mechanism of Compliance Monitoring for Non-fossil fuel-based Power Plants has been retained from the MERC RE Tariff Regulations, 2015, and additional responsibility has also been case on the SNA for ensuring compliance with the Regulations. The Commission is of the view that the Distribution Licensees have to take the responsibility of ensuring that the RE Power projects from whom they are procuring power, comply with the relevant Regulations, and they cannot be absolved of this responsibility, which has been cast upon them for some time now. Hence, no change has been made to this Clause.

## **8.11 Regulation 62: Compliance Monitoring of Non-fossil Fuel-based Co-Generation Projects**

### ***8.11.1 Proposed in Draft MERC RE Tariff Regulations, 2019***

*“62.1 The Distribution Licensee shall be responsible for monitoring compliance with these Regulations by Non-fossil Fuel-based Co-Generation Projects from whom it is procuring power.*

*....”*

### ***8.11.2 Comments received***

MSEDCL, TPC and BEST submitted that the responsibility of compliance monitoring should be with SNA, as the Distribution Licensees may not have the expertise for such activities.

### ***8.11.3 Analysis and Commission's Decision***

As stated earlier, the Commission is of the view that the Distribution Licensees have to take the responsibility of ensuring that the RE Power projects from whom they are procuring power, comply with the relevant Regulations, and they cannot be absolved of this responsibility, which has been cast upon them for some time now. Hence, no change has been made to this Clause.

## 9 Technology-specific parameters for Utility-Scale Solar PV Power Projects and Solar Rooftop PV Power Projects

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### 9.1 Regulation 64: Technology Aspects

#### 9.1.1 Proposed in Draft MERC RE Tariff Regulations, 2019

*“The norms specified for Solar Rooftop PV Power Projects under these Regulations shall be applicable for determination of generic tariff for grid-connected Solar Rooftop PV systems, and shall act as ceiling norms for determination of project-specific tariff for Solar PV Power Projects, both using sunlight for direct conversion into electricity through Photo Voltaic technology as approved by MNRE.”*

#### 9.1.2 Comments received

Prayas Energy Group submitted that the Commission has proposed a Capital Cost of Rs 400 lakh/MW along with a CUF of 19% for Rooftop solar systems of any size. Prayas submitted that the Capital Cost should be as per MNRE benchmark cost. Similarly, CUF for small Rooftop systems is generally lower than that for MW scale plant. Prayas suggested that the Commission may specify Generic Rooftop Solar tariff, which varies with system size, based on the following Capital Cost and CUF:

Sl. No	System Size (KW)	Benchmark Cost (Rs/kW)	CUF (%)
1	1-10	55,000	17%
2	10-100	50,000	17.50%
3	>100	45,000	18%

#### 9.1.3 Analysis and Commission's Decision

In addition to Prayas, some other stakeholders have also submitted that the Capital Cost and CUF should be different for different capacity of the Solar PV projects. These submissions and the Commission's analysis and ruling on these submissions have been discussed below, while discussing the respective Clause of Capital Cost and CUF.

The Commission has decided not to specify any Capital Cost in the Regulations for determination of Project-specific tariff, in view of the steadily lowering Capital Costs of Solar projects. Only the approach for project-specific tariff determination for Utility-scale Solar PV Projects has been specified in this Clause.

This is in accordance with the approach specified in Regulation 7.3, which reads as under:

*“7.3 The tariff for RE Power Projects below threshold limit of eligibility for participating in Competitive Bidding shall be considered equal to the following cases, in order of priority:*

- (a) Latest Tariff discovered through Competitive Bidding by concerned Distribution Licensee for similar RE project and adopted by the appropriate Commission;*
- (b) The Tariff discovered through Competitive Bidding for similar RE project by Other Distribution Licensee(s) in the State and adopted by the appropriate Commission;*
- (c) The Tariff discovered through Competitive Bidding for similar RE project in the Country and adopted by the appropriate Commission.”*

Hence, the Commission has modified Clause 64 of the Regulations as under:

#### **“64. Technology Aspects**

*The norms specified under these Regulations shall be applicable for determination of project-specific tariff for Utility-Scale Solar PV Power Projects, using sunlight for direct conversion into electricity through Photo Voltaic technology as approved by MNRE:*

*Provided that for Solar Rooftop PV Power projects, the Generic Tariff shall be notified in accordance with the approach specified in Regulation 7.3..”*

## **9.2 Regulation 65: Capital Cost**

### **9.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The normative Capital Cost of a Solar Rooftop PV Power Project shall be considered as Rs. 400 lakh/MW for base year for the purpose of tariff determination:*

*Provided that the Capital Cost may be revised in the Generic Tariff Order, based on market conditions and prevailing prices.”*

### **9.2.2 Comments received**

MSEDCL submitted that considering the lowest Solar PV tariff rate discovered under competitive bidding, in which the rate of Rs. 2.74/kWh was discovered, it is required to revisit the normative Capital Cost of the Solar PV plant, so as to provide advantage to the consumers of the Distribution Licensee.

Radiance Renewable and Shri Vikram Dodia suggested that the benchmark Capital Costs recommended by MNRE may be adopted.

### **9.2.3 Analysis and Commission's Decision**

As stated above, the Commission has decided not to specify any Capital Cost in the Regulations for determination of Project-specific tariff, in view of the steadily lowering Capital Costs of Solar projects.

Hence, the Commission has modified the Clauses as under:

*“The Capital Cost of Utility-Scale Solar PV Power Projects shall include the cost of the solar PV modules, inverter, land cost, site development charges and other civil works, transportation charges, evacuation cost up to inter-connection point, financing charges and Interest during Construction:*

*Provided that the Commission shall approve the Capital Cost in case of project-specific tariff considering the prevalent market conditions.”*

### **9.3 Regulation 66: Capacity Utilisation Factor**

#### **9.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The CUF of a Solar Rooftop PV Project shall be considered as 19% for the purpose of tariff determination for the first year after COD:*

*Provided that annual degradation of 0.5% in net generation shall be considered for the purpose of tariff determination from the second year onwards.”*

#### **9.3.2 Comments received**

Radiance Renewable submitted that the minimum CUF for Rooftop solar should be revised to 17%. Shri Vikram Dodia submitted that the Solar power plant operates at CUF of 15% in the first year, which keeps on decreasing year on year. Even SECI uses CUF of 15% as a benchmark for all its Projects. Shri Dodia requested to specify the CUF as 15% and not 19%. He submitted that the practical figures for degradation are 2.5% in the first year and 0.8% for every later year.

### **9.3.3 Analysis and Commission's Decision**

As regards the minimum CUF of Utility-scale Solar PV projects for the purpose of Project-specific tariff determination, it is observed that the average CUF quoted by successful bidders for Solar PV Projects in competitive bids sought by MSEDCL and SECI in the recent past, is ranging between 28% to 32%, which is achieved by oversizing DC capacity with reference to AC output of inverters. Hence, the Commission has specified the minimum CUF for the purpose of Project-specific tariff determination as 28%. DC oversizing also takes care of the annual degradation in CUF.

Further, in line with the Standard Bidding Documents, a proviso has been added, allowing the Utility-Scale Solar PV Projects to revise the CUF once within first year after COD.

Hence, the Commission has modified the Clauses as under:

*“The minimum normative CUF for Utility-Scale Solar PV Projects for the first year shall be 28% for the purpose of tariff determination during this Review Period:*

*Provided that the Utility-Scale Solar PV Projects will be allowed to revise the same once within first year after COD; thereafter, the CUF for the Project shall remain unchanged for the entire term of the PPA.”*

#### **9.4 Regulation 67: Operation and Maintenance Expenses**

##### **9.4.1 Proposed in Draft MERC RE Tariff Regulations, 2019**

*“The O&M Expenses for the first year of the Review Period shall be Rs. 6 lakh/MW.”*

##### **9.4.2 Comments received**

MSEDCL suggested that the O&M expenses should be as per actuals subject to prudence check and the ceiling mentioned herewith, whichever is lower.

Shri Vikram Dodia submitted that the O&M expenses are project-size specific, hence, slab-wise rate should be considered.

##### **9.4.3 Analysis and Commission’s Decision**

The Commission has specified the ceiling O&M expenses for Utility-Scale Solar PV Projects as Rs. 6 lakh per MW, as such Projects would benefit from the economies of scale, and in line with the norm proposed in the draft Regulations.

Further, as these normative O&M expenses shall be applied for determining the Project-specific tariff, which would be recovered in a levelized manner over the life of the Project, there would be no scope for comparison and prudence check of the actual O&M expenses on a post-facto basis. Hence, no change has been made to this Clause.

Hence, the Commission has modified the Clauses as under:

##### **“67. Operation and Maintenance Expenses**

*The ceiling O&M Expenses for Utility Scale Solar PV Power Projects for the first year of the Review Period shall be Rs. 6 lakh/MW.”*

## 10 Technology-specific parameters for Solar Thermal Power Projects

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### 10.1 Regulation 70: Capacity Utilisation Factor

#### 10.1.1 Proposed in Draft MERC RE Tariff Regulations, 2019

*“The minimum CUF of a Solar Thermal Power Project shall be considered as 23% for the purpose of tariff determination...”*

#### 10.1.2 Comments received

MSEDCL submitted that the CUF of 23% or actual, whichever is higher, should be considered for tariff determination.

#### 10.1.3 Analysis and Commission’s Decision

The Commission is of the view that the Regulations specify the minimum CUF to be considered for project-specific tariff determination for Solar Thermal Power Projects. Hence, if the CUF of the Project is higher than the above-specified minimum CUF, then the same shall be considered for tariff determination purposes. Hence, no change has been made to this Clause.

### 10.2 Regulation 71: Operation and Maintenance Expenses

#### 10.2.1 Proposed in Draft MERC RE Tariff Regulations, 2019

*“The ceiling O&M expenses for the base year of the Review Period shall be Rs. 15 lakh per MW for the purpose of tariff determination.:”*

#### 10.2.2 Comments received

MSEDCL submitted that the O&M expenses shall be as per actuals subject to prudence check and the ceiling mentioned herewith, whichever is lower.

#### 10.2.3 Analysis and Commission’s Decision

The Commission is of the view that as these normative O&M expenses shall be applied for determining the Project-specific tariff, which would be recovered in a levelized manner over the life of the Project, there would be no scope for comparison and prudence check of the actual O&M expenses on a post-facto basis. Hence, no change has been made to this Clause.

### 10.3 Regulation 72: Auxiliary Consumption

#### 10.3.1 Proposed in Draft MERC RE Tariff Regulations, 2019



*“The ceiling Auxiliary Consumption factor shall be 10% for the purpose of tariff determination...”*

### **10.3.2 Comments received**

MSEDCL submitted that the Auxiliary Consumption norm should be specified lower than that for coal-fired station, as Solar Thermal Power Projects have lesser number of auxiliaries compared to coal-fired stations and also, there is no milling plant. Further, there is no ash handling plant. MSEDCL suggested that the Auxiliary Consumption should be specified as 5%.

### **10.3.3 Analysis and Commission’s Decision**

The Commission is of the view that the Auxiliary Consumption norm specified is appropriate, as the same is in line with the norm specified in the MERC RE Tariff Regulations, 2015, and is also in line with that specified by CERC and other SERCs. Further, the Regulations specify the ceiling Auxiliary Consumption to be considered for project-specific tariff determination for Solar Thermal Power Projects. Hence, if the Auxiliary Consumption of the Project is proposed lower than the above-specified ceiling at the time of project-specific tariff determination, then the same shall be considered for tariff determination purposes. Hence, no change has been made to this Clause.

**Sd/-**  
**(Mukesh Khullar)**  
**Member**

**Sd/-**  
**(I.M. Bohari)**  
**Member**

**Sd/-**  
**(Anand Kulkarni)**  
**Chairperson**

**Annexure I**

<b>Sl. No.</b>	<b>Name of Stakeholders</b>
1	Maharashtra State Electricity Distribution Company Ltd. (MSEDCL)
2	Tata Power Company Ltd. (TPC)
3	Co-generation Association of India
4	The Brihan-Mumbai Electric Supply & Transport Undertaking (BEST)
5	Prayas Energy Group
6	Maharashtra Energy Development Agency (MEDA)
7	Radiance Renewables
8	Shri T.P Vartak
9	Indian Wind Power Association (IWPA)
10	India Wind Energy Association (InWEA)
11	Shri Uday Kamat
12	Shri Vikram Dodia
13	Mahati Hydro Power Projects Pvt Ltd (Mahati)