



MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

EXPLANATORY MEMORANDUM

ON

**DRAFT MAHARASHTRA ELECTRICITY REGULATORY
COMMISSION (GRID INTERACTIVE ROOFTOP RENEWABLE
ENERGY GENERATING SYSTEMS) (FIRST AMENDMENT)
REGULATIONS, 2023**

August, 2023

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1 Introduction

1.1 Background & Regulatory Framework

As per Section 86 (1) (a) of the Electricity Act, 2003 (“EA 2003” or “the Act”), the State Electricity Regulatory Commissions (SERCs or Commissions) have been assigned the function of promoting generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person. The Maharashtra Electricity Regulatory Commission (“MERC” or “the Commission”) has notified the MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2019 (“MERC RE Tariff Regulations”) in December, 2019, the MERC (Renewable Purchase Obligation, its Compliance and Implementation of Renewable Energy Certificate Framework) Regulations, 2019 (“MERC RPO Regulations”) in December, 2019, and the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 in December 2019, in order to promote generation from Renewable Energy (RE) sources in the State of Maharashtra.

The Government of India (GoI) has set an ambitious target of becoming a carbon neutral nation by the year 2070. In order to become a carbon neutral nation, GoI has set a target to install Renewable energy (RE) capacity of 500 GW by 2030. In order to promote and facilitate installation of RE, Ministry of Power (MoP) has recently issued few Rules and Orders, to act as a catalyst in achieving the envisaged target.

MoP has notified The Electricity (Rights of Consumers) Rules, 2020 on 31st December, 2020 and The Electricity (Rights of Consumers) Amendment Rules, 2021 on 28th June, 2021. MoP has also sent a letter dated 13th September, 2022 to all Electricity Regulatory Commissions (ERCs), advising the ERCs to make the Regulations consistent and in alignment with the above-said Rules. Hence, the Commission proposes to incorporate the relevant amendment clauses at the appropriate places in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019.

The rationale for the changes proposed in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 have been elaborated in this Explanatory Memorandum. In cases where no change is proposed, the same has not been explicitly mentioned. Generally, only the clauses where any addition/modification is proposed in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) (First Amendment) Regulations, 2023 have been discussed in this Explanatory Memorandum.

The Commission while formulating the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) (First Amendment) Regulations, 2023, has endeavoured to balance the interest of consumers and Distribution Licensees.

The Explanatory Memorandum is organised in the following Chapters:

Chapter 1: Introduction

Chapter 2: The Electricity (Rights of Consumers) Rules, 2020 issued by MoP

Chapter 3: The Electricity (Rights of Consumers) (First Amendment) Rules, 2021 issued by MoP

Chapter 4: Petition Seeking Removal of Difficulties in Implementation of MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019.

2 The Electricity (Rights of Consumers) Rules, 2020

This Chapter of the Explanatory Memorandum elaborates the reasoning and justification for incorporating the changes related to provisions of Net Metering, in order to align the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 with the Electricity (Rights of Consumers) Rules, 2020 notified by the MoP on 31st December 2020.

2.1 Background

The MoP notified the Electricity (Rights of Consumers) Rules, 2020 on 31st December 2020, wherein MoP has specified the provisions of Net Metering wherein consumer as prosumer can avail the facility of consuming power from the Distribution Licensee and supplying the surplus power to the Distribution Licensee.

On 13th September 2022, MoP has sent a letter to all the ERCs, wherein it is stated as under:

“ ...

2. ...Any Regulations framed by the Central Electricity Authority or the Appropriate Commission have to be in accordance with the Electricity Act and the Rules made thereunder. In case of any conflict between the Rules and the Regulations, the Rules shall prevail – and to the extent that the Regulations are violative of the Rules they shall be non-est.

...

6. All the concerned may take appropriate action for compliance of the Electricity (Rights of Consumers) Rules, 2020. Wherever required, the Appropriate Commission shall align their regulation with respect to these Rules.”

The Commission notes that the Electricity (Rights of Consumers) Rules, 2020 mainly stipulate the Rights and Obligations, Metering, Billing and Payment and Net Metering, etc. It is noted that most of the clauses of this Rule are covered under the existing MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 except certain clauses related to net metering.

Hence, in order to align the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 with the provisions related to net metering in the Electricity (Rights of Consumers) Rules, 2020, certain changes need to be incorporated in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, by making the necessary amendments.

The Commission notes that in the Rules, the term ‘**Prosumer**’ has been used for a consumer availing the net-metering or net-billing arrangement under which consumer can inject the electricity into the grid for Distribution Licensee and also consume the electricity from the grid. In the existing MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, the same concept is addressed by the term ‘**Eligible Consumer**’. Hence, while adding the definition of ‘Prosumer’, the Commission has retained the original term of ‘Eligible Consumer’ in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019.

Further, the Commission notes that Rules provides for compensation mechanism under which, if there is any delay on the part of Distribution Licensee, the Licensee shall be liable to pay compensation to the consumer at a pre-defined rate. However, such dispensation is not specified in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019

The following amendments are proposed in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, for aligning the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 with the dispensation stipulated in the Electricity (Rights of Consumers) Rules, 2020:

2.2 Introduction of Regulation 2.1(t)(a) after Regulation 2.1(t) of Regulation 2.1 in the Principal Regulations – Definition of Prosumer

*"2.1(t)(a)“**Prosumer**” means a person who consumes electricity from the grid and can also inject electricity into the grid for Distribution Licensee, using same point of supply.”*

2.3 Introduction of Regulation 4.3 of the Principal Regulations:—

“4.3 The Prosumer will maintain consumer status and have the same rights as the general consumer.”

2.4 Substitution of Regulation 9.5 of the Principal Regulations:-

*“ 9.5 The procedure for application for connectivity of a Renewable Energy Generating System with the Network of the Distribution Licensee and timelines for performing various activities are set out at **Annexure-1** of these Regulations:*

Provided that in case of delay in performing any activity by Distribution Licensee, it shall compensate the concerned consumer at the rate of five hundred rupees per day of delay in performing the activity.”

3 The Electricity (Rights of Consumers) (First Amendment) Rules, 2021

This Chapter of the Explanatory Memorandum elaborates the reasoning and justification for incorporating the changes related to provisions of Gross Metering, Net Billing and Net Metering, in order to align the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 with the Electricity (Rights of Consumers) (First Amendment) Rules, 2021 notified by the MoP on 28th June 2021.

3.1 Background

The MoP notified the Electricity (Rights of Consumers) (First Amendment) Rules, 2021 on 28th June 2021, wherein MoP has stipulated three different commercial arrangements, viz., Net Metering, Net Billing, and Gross Metering. However, in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, the Commission has specified only two (2) types of commercial arrangements, viz., Net Metering and Net Billing, wherein Net Billing was considered equivalent to Gross Metering.

The MoP Rules have however, distinguished between Net Billing and Gross Metering. Under Gross Metering arrangement, the prosumer can avail the facility of consuming power from the Distribution Licensee and supplying the entire power generated from its renewable energy generating system to the Distribution Licensee. This arrangement of Gross Metering stipulated in Rules has been defined as Net Billing arrangement in existing MERC Regulations. Now, Rules has defined Net Billing arrangement differently wherein energy generated by renewable energy sources is used for self consumption and only surplus energy injected into the Grid is considered as sell to distribution licensee. Hence, these changes have to be incorporated in the First Amendment to MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019.

Accordingly, there is a need to introduce the various aspects related to Gross Metering as well as modify the commercial arrangement for Net Billing in the First Amendment to MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019. The various modifications proposed as a consequence of The Electricity (Rights of Consumers) (First Amendment) Rules, 2021 are as under:

3.2 Substitution of Regulation 2.1(j) of the Principal Regulations – Definition of Eligible Consumer

The existing MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, specifies that the capacity of Renewable Energy Generating System shall be limited to 1 MW or Contract Demand/Sanction Load of consumer, whichever is lower, for Net Metering systems, and this limit is not applicable for Net Billing systems.

Rules notified by the MoP stipulates that in case Regulations notified by the Commission does not specify limit, then net-metering arrangement be allowed for load upto 500 kW or sanction load whichever is lower. In case of MERC Regulations, capacity limit for net-metering arrangement is stipulated as 1 MW. The Commission does not incline to reduce it and continue 1 MW as limit for net-metering arrangement. Above such load limit and upto its contract demand, consumer has option to opt of net-billing or gross metering arrangement or behind the meter connection without opting for any of three commercial arrangement.

Hence, the definition of ‘Eligible Consumer’ has been modified in the proposed First amendment to MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, as under:

“2.1 (j) “Eligible Consumer” means a consumer of electricity in the area of supply of the Distribution Licensee who uses or intends to use a Renewable Energy Generating System, installed on a roof-top or any other mounting structure in his premises, to meet all or part or no part of his own electricity requirement, and includes a Consumer catering to a common load such as a Housing Society:

Provided that such Generating System may be owned and/or operated by such Consumer, or by a Distribution Licensee or third party leasing such System to the Consumer:

Provided further that in case of Net Metering Arrangement, the capacity of Renewable Energy Generating System shall be limited to 1 MW or Contract Demand/Sanction Load of consumer, whichever is lower:

Provided also that for all other arrangements, the capacity of Renewable Energy Generating System shall be limited to Contract Demand/Sanctioned Load of consumer.”

3.3 Changes related to introduction of Gross Metering arrangement

The following clauses are proposed to be introduced in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) (First Amendment) Regulations, 2019, for incorporating the framework for Gross Metering arrangement.

3.4 Introduction of Regulation 2.1(k)(a) and 2.1(k)(b) after Regulation 2.1(k) of the Principal Regulations – Definition of Gross Metering and Gross Metering Connection Agreement

*“2.1(k)(a) **Gross-Metering**” means a mechanism whereby the total renewable energy generated from Renewable Energy Generating system of an eligible consumer and the total energy consumed by the eligible consumer are accounted separately through appropriate metering arrangements and for the billing purpose, the total energy consumed by the eligible consumer is accounted at the approved grid tariff and total renewable energy generated is accounted at pre-determined tariff by the Commission.*

*2.1 (k)(b) **Gross Metering Connection Agreement**” means an agreement entered into by a Distribution Licensee and an Eligible Consumer for executing a Gross Metering arrangement.”*

3.5 Substitution of Regulation 3.1(c) and introduction of Regulation 3.1(d) after Regulation 3.1(b) of the Principal Regulations:-

“3.1 (c) Gross Metering arrangements.

3.1 (d) Grid Connected Renewable Energy Generating Systems connected behind the Consumer’s meter, who have not opted for Net Metering Arrangement or Net Billing Arrangement or Gross Metering Arrangement.”

3.6 Substitution of Regulation 8.11 of the Principal Regulations:-

*“8.11 In case of Renewable Energy Generating System set up under **Gross Metering Arrangement**, an additional Check Meter for the Renewable Energy Generation Meter of appropriate class shall be installed by the Distribution Licensee.”*

3.7 Introduction of Regulation 10.3 (a) after Regulation 10.3 of the Principal Regulations:-

*“10.3 (a) A model Gross Metering Connection Agreement is provided at **Annexure 7**, which the Distribution Licensee may modify suitably, subject to consistency with these Regulations .”*

3.8 Substitution of Regulation 12 and 12.1 (a) of the Principal Regulations:-

“12. Gross Metering – Energy Accounting and Settlement

12.1 Gross Metering is the arrangement where the Renewable Energy Generating System is setup for selling entire generated power to Distribution Licensee under Power Purchase Agreement:

Provided that if Renewable Energy Generating System is connected on the consumer side of the consumer meter, then the consumer shall have to replace the consumer meter with a Net Meter.”

3.9 Introduction of Regulation 3.3 after Regulation 3.2 of the Principal Regulations:-

The MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, refers to the term ‘Net Metering arrangement and/or Net Billing arrangement’ at several places. As the term ‘Gross Metering’ is proposed to be introduced in the First Amendment to MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, the term ‘Gross Metering’ has to be incorporated at all places in the Regulations in addition to ‘Net Metering arrangement and/or Net Billing arrangement’. Hence, the following clause is proposed to be incorporated in the First Amendment to MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, to address this issue:

3.10 Introduction of Regulation 3.3 after Regulation 3.2 of Principal Regulations:-

*“3.3 ‘Net Metering arrangement and/or Net Billing Arrangement’ referred together in Regulations 4 to 10 of the Principal Regulations shall be referred as ‘Net Metering arrangement and/or Net Billing Arrangement **and/or Gross Metering Arrangement**’ as applicable.”*

3.11 Substitution of Clause 1(h) of Annexure-1 of the Principal Regulations:—

*“(h) The Eligible Consumer and Distribution Licensee shall enter into a Net Metering Connection Agreement or the Net Billing Connection Agreement **or Gross Metering Connection Agreement**, as the case may be, in the prescribed format after the Renewable Energy Generating System is installed but before it is synchronized with the distribution network.”*

3.12 Substitution of heading of Annexure-2 of the Principal Regulations:—

“Model Application Form for installation of Renewable Energy Generating System under Net Metering Arrangement or Net Billing Arrangement or Gross Metering Arrangement”

3.13 Introduction of Annexure-7 after Annexure-6 of the Principal Regulations:—

“Annexure-7

Model Gross Metering Connection Agreement

This Agreement is made and entered into at (location) _____ on this (date) _____ day of (month) _____ (year) _____ between the Eligible Consumer (Name) _____ having _____ premises at (address) _____ and Consumer No. _____ as the first Party,

AND

the Distribution Licensee _____ (hereinafter referred to as ‘the Licensee’) and having its Registered Office at (address) _____ as second Party of this Agreement.

Whereas the Eligible Consumer has applied to the Licensee for approval of a Gross Metering Arrangement under the provisions of the Maharashtra Electricity Regulatory Commission (Grid Interactive Renewable Energy Generating Systems) Regulations, 2019 (‘the Grid Interactive Renewable Regulations’) as amended from time to time and sought its connectivity to the Licensee’s distribution Network;

And whereas the Licensee has agreed to provide Network connectivity to the Eligible Consumer for injection of electricity generated from its Renewable Energy Generating System of _____ kilowatt;

Both Parties hereby agree as follows:

1. Eligibility

The Renewable Energy Generating System meets the applicable norms for being integrated into the distribution network, and that the Eligible Consumer shall maintain the System accordingly for the duration of this Agreement.

2. Technical and Inter-connection Requirements

- 2.1 *The metering arrangement and the inter-connection of the Renewable Energy Generating System with the Network of the Licensee shall be as per the provisions of the Grid Interactive Renewable Regulations, and the technical standards and norms specified by the Central Electricity Authority for connectivity of distributed generation resources and for the installation and operation of meters.*
- 2.2 *The Eligible Consumer agrees, that he shall install, prior to connection of the Renewable Energy Generating System to the Network of the Licensee, an isolation device (both automatic and in-built within inverter and external manual relays); and the Licensee shall have access to it if required for the repair and maintenance of the distribution Network.*
- 2.3 *The Licensee shall specify the interface/inter-connection point and metering point.*
- 2.4 *The Eligible Consumer shall furnish all relevant data, such as voltage, frequency, circuit breaker, isolator position in his System, as and when required by the Licensee.*

3. Safety

- 3.1 *The equipment connected to the Licensee's distribution System shall be compliant with relevant International (IEEE/IEC) or Indian standards (BIS), as the case may be, and the installation of electrical equipment shall comply with the requirements specified by the Central Electricity Authority regarding safety and electricity supply.*
- 3.2 *The design, installation, maintenance and operation of the Renewable Energy Generating System shall be undertaken in a manner conducive to the safety of the Renewable Energy Generating System as well as the Licensee's Network.*
- 3.3 *If, at any time, the Licensee determines that the Eligible Consumer's Renewable*

Energy Generating System is causing or may cause damage to and/or results in the Licensee's other consumers or its assets, the Eligible Consumer shall disconnect the Renewable Energy Generating System from the distribution Network upon direction from the Licensee, and shall undertake corrective measures at his own expense prior to reconnection.

3.4 *The Licensee shall not be responsible for any accident resulting in injury to human beings or animals or damage to property that may occur due to back-feeding from the Renewable Energy Generating System when the grid supply is off. The Licensee may disconnect the installation at any time in the event of such exigencies to prevent such accident.*

4. Other Clearances and Approvals

The Eligible Consumer shall obtain any statutory approvals and clearances that may be required, such as from the Electrical Inspector or the municipal or other authorities, before connecting the Renewable Energy Generating System to the distribution Network.

5. Period of Agreement, and Termination

5.1 *This Agreement shall be for a period for 20 years, but may be terminated prematurely*

a) By mutual consent; or

b) By the Eligible Consumer, by giving 90 days' notice to the Licensee;

c) By the Licensee, by giving 30 days' notice, if the Eligible Consumer breaches any terms of this Agreement or the provisions of the Grid Interactive Renewable Regulations and does not remedy such breach within 30 days, or such other reasonable period as may be provided, of receiving notice of such breach, or for any other valid reason communicated by the Licensee in writing;

d) By the Licensee, by giving 30 days' notice, if the Eligible Consumer fails to pay his dues in a timely manner or indulges in any malpractices.

6. Access and Disconnection

6.1 *The Eligible Consumer shall provide access to the Licensee to the metering equipment and disconnecting devices of Renewable Energy Generating System,*

both automatic and manual, by the Eligible Consumer.

- 6.2 *If, in an emergent or outage situation, the Licensee cannot access the disconnecting devices of the Renewable Energy Generating System, both automatic and manual, it may disconnect power supply to the premises.*
- 6.3 *Upon termination of this Agreement under Clause 5, the Eligible Consumer shall disconnect the Renewable Energy Generating System forthwith from the Network of the Licensee.*

7. Liabilities

- 7.1 *The Parties shall indemnify each other for damages or adverse effects of either Party's negligence or misconduct during the installation of the Renewable Energy Generating System, connectivity with the distribution Network and operation of the System.*
- 7.2 *The Parties shall not be liable to each other for any loss of profits or revenues, business interruption losses, loss of contract or goodwill, or for indirect, consequential, incidental or special damages including, but not limited to, punitive or exemplary damages, whether any of these liabilities, losses or damages arise in contract, or otherwise.*

8. Commercial Settlement

- 8.1 *The commercial settlements under this Agreement shall be in accordance with the Grid Interactive Renewable Regulations.*
- 8.2 *The entire units generated by the Renewable Energy Generating Station in the billing period shall be purchased by the Distribution Licensee at Rs. _____ per kWh for the entire duration of the Agreement.*
- 8.3 *The Licensee shall not be liable to compensate the Eligible Consumer if his Renewable Energy Generating System is unable to inject power generated into the Licensee's Network on account of failure of power supply in the grid/Network.*
- 8.4 *The existing metering System shall be continued, and a separate Renewable Energy Generation Meter may be provided to measure Renewable Energy generation.*

8.5 *The entire energy generated from Renewable Energy Generating System by an eligible consumer shall be purchased by the Distribution Licensee at the pre-determined tariff as approved by the Commission and the energy consumed by the eligible consumer shall be charged at the applicable retail tariff as per concerned consumer category of retail supply Tariff Order of the Commission.*

8.6 *The Licensee shall issue monthly electricity bill for the energy consumed by the Consumer on the scheduled date of meter reading. The Licensee shall bill the Consumer for the consumption after giving due credit for the Renewable Energy generation, as specified in the Grid Interactive Renewable Regulations.*

9. Connection Costs

The Eligible Consumer shall bear all costs related to the setting up of the Renewable Energy Generating System, excluding the cost of the Renewable Energy Generation Meter.

10. Dispute Resolution

10.1 *Any dispute arising under this Agreement shall be resolved promptly, in good faith and in an equitable manner by both the Parties.*

10.2 *The Eligible Consumer shall have recourse to the concerned Consumer Grievance Redressal Forum constituted under the relevant Regulations in respect of any grievance regarding billing, which has not been redressed by the Licensee.*

In the witness, where of (Name) _____ for and on behalf of Eligible Consumer) and (Name) _____ for and on behalf of _____ (Licensee) agree to this agreement.

3.14 Changes related to modification of Net Billing arrangement

As stated earlier, there is a need to modify the commercial arrangement for Net Billing in the First Amendment to MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019. The following clauses are proposed to be modified in the MERC (Grid

Interactive Rooftop Renewable Energy Generating Systems) (First Amendment) Regulations, 2019, for incorporating the revised framework for Net Billing arrangement.

3.15 Substitution of Regulation 2.1 (n) of the Principal Regulations:-

“2.1(n) “Net Billing Arrangement” means an arrangement under which surplus energy injected into the Grid by Renewable Energy Generating System is purchased by the Distribution Licensee and the Distribution Licensee raises the bills on the consumer for his consumption from the Grid at the approved grid tariff, after giving credit for energy injected into the Grid at pre-determined tariff.”

3.16 Substitution of Regulation 8.3 of the Principal Regulations:-

“8.3 The Net Metering Arrangement or Net Billing Arrangement shall include a single-phase or a three-phase Net Meter, as may be required, located at the point of inter-connection as ascertained by the Distribution Licensee.”

3.17 Introduction of Regulation 11 (A) after Regulation 11 of the Principal Regulations:—

“11 (A) Net Billing – Energy Accounting and Settlement

11.1 (A) The accounting of electricity exported and imported by the Eligible Consumer shall become effective from the date of connectivity of the Renewable Energy Generating System with the distribution network.

11.2 (A) The Distribution Licensee shall undertake meter reading of both, the Renewable Energy Generation Meter and the Net Meter, for all Eligible Consumers, according to the regular metering cycle.

11.3 (A) For each Billing Period, the Distribution Licensee shall make the following information available on its bill to the Eligible Consumer:

a) Quantum of Renewable Energy generation recorded in the Renewable Energy Generation Meter in the billing period, including opening and closing balance;

b) Quantum of electricity units consumed by the Consumer in the billing period, including opening and closing balance;

c) *Quantum of energy injected and drawn by Prosumer into/from Grid of the Distribution Licensee;*

d) *Renewable Energy generation units used by the Distribution Licensee for RPO compliance.*

11.4 (A) *The energy generated by the Renewable Energy Generating System shall be first used for self-consumption and surplus energy injected into the Grid or energy drawn from the Grid shall be billed as per following equation:*

$$\text{Energy Bill of consumer} = \text{Fixed Charges} + \text{other applicable charges and levies} + (E_{DL} \times T_{RST}) - (E_{RE} \times T_{GC}) - \text{Billing Credit};$$

Where:

a) *Fixed Charges means the Fixed/Demand Charges as applicable to the consumer category as per the applicable retail supply Tariff Order;*

b) *Other charges and levies mean any other charges such as municipal tax, cess, etc.;*

c) *E_{DL} means the energy drawn from the Grid by the Prosumer;*

d) *T_{RST} means the applicable retail supply tariff of the concerned consumer category as per the applicable retail supply Tariff Order of the Commission;*

e) *E_{RE} means the energy injected into the Grid by the Prosumer;*

f) *T_{GC} means the Generic Tariff approved by the Commission for that year;*

g) *Billing Credit is credit available from previous months.*

11.5 (A) *The Distribution Licensee shall accept the power as per the Useful Life of the Renewable Energy Generating System, unless the Eligible Consumer ceases to be a consumer of the Licensee or the Renewable Energy Generating System is abandoned earlier.”*

3.18 Substitution of Clause 8.2 of Annexure-4 of the Principal Regulations:—

“8.2 *The energy generated by the Renewable Energy Generating System shall be first used for self-consumption and surplus energy injected into the Grid or energy drawn from the Grid shall be billed as per Grid Interactive Renewable Regulations.*

3.19 Substitution of Clause 8.4 of Annexure-4 of the Principal Regulations:—

“8.4 *The existing metering system, if not in accordance with the Grid Interactive Renewable Regulations, shall be replaced by a bi-directional meter (whole current/CT operated) and a separate Renewable Energy Generation Meter shall be provided to measure Renewable Energy generation. The bi-directional meter (whole current/CT operated) shall be installed at the inter-connection point to the Licensee’s Network for recording export and import of energy. The uni-directional and bi-directional meters shall be fixed in separate meter boxes in the same proximity.*”

3.20 Substitution of Clause 8.5 of Annexure-4 of the Principal Regulations:—

“8.5 *The Licensee shall issue monthly electricity bill after considering both the energy drawn from the Grid and injected into the Grid by the Prosumer as specified in the Grid Interactive Renewable Regulations.*”

4 Petition Seeking Removal of Difficulties in Implementation of MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019

This Chapter of the Explanatory Memorandum elaborates the issues raised by the Petitioner related to installation and operations of Solar Rooftop PV systems, the Commission's ruling on the specific issues, and consequential amendments proposed in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, if any.

4.1 Background

Shri R. B. Goenka filed a Petition on 13th June, 2022 in Case No. 140 of 2022 under Regulations 16,17,18 and 19 of the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 and Section 86 (1) (e) of the Electricity Act, 2003 (EA-2003) seeking removal of difficulties in installation and operation of Solar Rooftop PV systems. He has also prayed for liberalizing the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 for promotion of renewable generation considering the 'Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules 2022' notified by Ministry of Power (MoP) on 6th June 2022.

In the Order dated 25th November 2022 in Case No. 140 of 2022, the Commission has addressed the issues raised by the Petitioner in the context of amendments sought in MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019, as summarized below:

Issue 1: Offsetting evening peak with banked energy

The Petitioner requested the Commission to introduce liberal policy and apply 30% banking charges for offsetting solar energy exported during any slot against evening peak hours consumption slot of 18.00 to 22.00 hrs, as adopted by the Chhattisgarh State Electricity Regulatory Commission.

Regulation 11.4 of the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 specifies as under:

“11.4 The energy generated by the Renewable Energy Generating Station shall be offset against the energy consumption of the consumer from the Distribution Licensee in the following manner:

d) In case the Eligible Consumer is within the ambit of Time of Day (ToD) tariff, the electricity consumption in any time block, i.e., peak hours, off-peak hours, etc., shall be first compensated with the quantum of electricity injected in the same time block; any excess injection over and above the consumption in any other time block in a Billing Cycle shall be accounted as if the excess injection had occurred during off-peak hours;”

Thus, Regulation 11.4 of the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 is applicable to consumers under the ambit of ToD tariff structure and encourages settlement of banked energy in the same time blocks. Any surplus banked energy is allowed to be adjusted against off-peak hours.

The MoP’s Electricity (Rights of Consumer) Amendment Rules dated 28th June 2021, which stipulates as follows:

“Provided further that in the case of Prosumers availing net-billing or net feed-in, the Commissions may introduce time-of-the-day tariffs whereby Prosumers are incentivised to install energy storage for utilization of stored solar energy by them or feeding into the grid during peak hours thus helping the grid by participating in demand response of the Discoms:”

Thus, MoP Rules emphasise that ToD tariff should be introduced to consumer with rooftop installation so that such consumers may be encouraged to store excess energy in energy storage system and use it during peak time slots.

The Commission has stated as under in the above-said Order:

“16.6. ...However, it would duly consider the suggestions made with the intention of more actively promoting Roof Top Solar as and when the Model Regulations by FoR get notified and the process of amending the related regulations are taken by the Commission in the spirit of what is provided under the Rules.

*16.7 As explained in subsequent paragraph, the Commission has initiated process of aligning its Regulations with recently notified MoP’s Rules. **During that process, option of encouraging energy storage system at consumer level or local area level by***

distribution licensee or third party would be considered. Such energy storage system could enable consumers to store the energy during solar hours and use it during peak hours (evening hours) thereby utilising solar energy generated by its Rooftop PV plant instead of banking it with Distribution Licensee which in some cases could remain unutilised at the end of the year. Similarly, Distribution Licensee could install small energy storage system at local level for providing storage facility as service to consumers on payment of charges while decentralised generation could also be helpful in meeting local peak demand. While modifying its Regulations as stated above, the Commission will consider feasibility of such options.

16.8 ***The Commission notes the concerns raised by the petitioner with regards to adjustment and payments of the generated units and finds some merits in the concerns. The concerns also indirectly relate to the promotional aspect for RE especially generation capacity in solar energy This aspect needs to be processed through the Public consultation process in a transparent manner. The Commission rules that it will be taken up in the process dealing with the amendments necessitated for implementing the Rules, 2022. During such process, the Commission will also consider various approaches adopted by other State Commissions (including example of Chhattisgarh cited by the Petitioner) for promoting RE and will appropriately factored it in Regulations.”(emphasis added)***

Accordingly, this issue has been examined further in this EM, as under.

The existing MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 provides for settlement of banked energy in the same time blocks, i.e., energy consumed during peak hours is settled with the energy generated during peak hours. However, any surplus banked energy is allowed to be adjusted against off-peak hours. This automatically incentivises the prosumer to install energy storage for utilization of stored solar energy by them or feeding into the grid during peak hours. The Distribution Licensee may also set up Energy Storage systems in order to store the surplus energy generated during off-peak hours and utilise such surplus power during peak hours, in accordance with the framework specified in the MERC (Capital Investment Approval) Regulations, 2022.

Hence, no modification is proposed in the existing dispensation of adjusting surplus banked energy during peak hours against off-peak hour consumption.

Issue 2: Revision in Load Factor Incentive formula

The Petitioner had proposed that formula for Load Factor Incentive (LFI) needs revision for large scale adoption of Rooftop RE systems. He proposed following formula for computation of consumption during the month for calculation of load factor:

Import energy recorded by net meter + solar generation units – export = consumption recorded by net meter.

The Commission noted that Load Factor Incentive is offered to the consumers for maintaining steady load, near to their Contract Demand, on the electricity network, which helps in optimum utilisation of network and enables the Distribution Licensee to efficiently plan its power procurement. After installation of Rooftop, load on distribution system is reduced. Further, fluctuations in solar generation causes commensurate variation in demand-supply balance. Therefore, it is not appropriate to add solar generation in energy drawn from Distribution Licensee for computing Load factor Incentive.

Hence, no amendment is required in the Regulations on this account.

Issue 3: Removal of individual and network hosting capacity limits

The Petitioner prayed to remove the capacity limitation for installation of solar plant, i.e., limited up to connected load / contract demand in the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019. Further, he suggested to enhance network hosting capacity limits up to 150% of transformer capacity.

The Commission observed that the Ministry of Power notified the Electricity (Rights of Consumers) Amendment Rules, 2021 on 28th June 2021. In the said Rules, following stipulations have been provided with regards to individual capacity limit:

“ (4) The arrangements for net-metering, gross-metering, net-billing or net feed-in shall be in accordance with the regulations made by the State Commission, from time to time: Provided that where the regulations does not provide for net-metering, net-billing or net feed-in, the Commission may allow net metering to the Prosumer for loads up to five hundred Kilowatt or upto the sanctioned load, whichever is lower and net-billing or net feed-in for other loads:..”

Thus, the Electricity (Rights of Consumers) Amendment Rules, 2021 also provide for capacity limit up to sanctioned load. **Hence, no amendment is required in the Regulations on this account.**

As regards the network hosting capacity limit, MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 specifies as below:

“ 5.2 The cumulative capacity of all Renewable Energy Generating Systems under Net Metering Arrangements and/or Net Billing Arrangements connected to a particular Distribution Transformer/feeder of the Licensee shall not exceed 70% of its rated capacity:

Provided that the Distribution Licensee may allow Net Metering and/or Net Billing connectivity exceeding 70% of such rated capacity upon consideration of a detailed load study carried out by it.”

Clearly, above provision allows Distribution Licensees to provide connectivity in excess of 70%, subject to detailed study. **Hence, no amendment is required in the Regulations on this account.**

Issue 4: Settlement of banked energy in Cash

The Petitioner prayed for the settlement of banked units in cash instead of settlement through credit adjustment in electricity bill.

Regulation 11.4 of the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 specifies as under:

“11.4 The energy generated by the Renewable Energy Generating Station shall be offset against the energy consumption of the consumer from the Distribution Licensee in the following manner:

a) The unadjusted net credited Units of electricity as at the end of each financial year shall be purchased by the Distribution Licensee at the Generic Tariff approved by the Commission for that year, within the first month of the following year:

Provided that, at the beginning of each Settlement Period, the cumulative quantum of injected electricity carried forward will be re-set to zero;

....

e) The Distribution Licensee shall compute the amount payable to the Eligible Consumer for the excess Renewable Energy purchased by it as specified in Regulation 11.4 (c), and shall provide credit equivalent to the amount payable in the immediately succeeding Billing Cycle.”

Thus, Regulation 11.4 of the MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) Regulations, 2019 provides for purchase of the unadjusted net credited units of electricity at the end of each financial year at the Generic Tariff approved by the Commission for the respective year.

The Commission has stated as under in the above-said Order:

*“14.6 The Petitioner is seeking provision of cash payment instead of credit adjustment for settlement of banked units. **In this regard, it is pertinent to note that under Net Metering arrangement the electricity generated by the system is first used to service consumer’s captive load within his premises. Any surplus is banked with Distribution Licensee and is accommodated in subsequent billing cycles. Clearly, prime intent of net metering arrangement is not a commercial sale of electricity to Distribution Licensees. Therefore, although Regulations provides for installing rooftop system of capacity upto consumers’ contract demand / sanctioned load, it is expected that the beneficiary consumer will appropriately size the Renewable Energy system according to his own use.***

*14.7 At the same time, considering provisions of Regulations, **if consumer installed rooftop capacity within contracted demand / sanctioned load which generates electricity more than its own consumption, such consumer cannot be faulted for the same. In such a circumstance, it is possible that the credit will keep on increasing year by year. However, the same is not inconsistent as per the provisions of the existing Regulations. In case the consumer opts to properly size his roof top solar plant to primarily meet his own requirement such incidence of increasing credit amount will be addressed to a large extent. It is important to note that such credit amount is shown in electricity bill of consumer, and it can be consumed whenever solar generation is lower than actual consumption of consumer. However, as Petitioner has MERC Order in Case No. 140 of 2022 Page 21 of 29 raised such practical issue of ever increasing credit amount with illustrative example of its solar rooftop connection and the possibility of other consumers facing same issue cannot be ruled out. Thus, the Commission needs to address this difficulty after analysing all the related aspects. The Commission has already initiated process of incorporating provisions of newly notified MoP Rules in its Regulations. During such process, the Commission will seek details of such consumers from Distribution Licensee and take appropriate view after due public consultation process.**”(emphasis added)*

Accordingly, this issue has been examined further in this EM, as under.

The Commission has obtained the relevant data from the major Distribution Licensees in the State of Maharashtra, which is summarised as below:

MSEDCL Net Metering data:

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23
No. of Consumers with Net Metering (Nos.)	14355	26207	35556	54665	81516
Rooftop RE Capacity (MW)	282.04	506.97	693.42	987.97	1403.74
Unadjusted Net Credited Units of electricity at the end of FY (MU)	23.81	30.94	84.51	88.98	114.28
No. of consumers who received monetary compensation (through credit adjustment) at the end of FY (Nos.)	9287	16293	24133	36073	56792
Monetary compensation (In Rs. Crore)	8.47	11.07	30.23	30.14	37.74
No. of consumers with cumulative build up monetary compensation at the end of FY over previous year (Nos.)	744	1942	3466	7326	22721

BEST Net Metering data:

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23
No. of Consumers with Net Metering (Nos.)	175	257	293	358	435
Rooftop RE Capacity (MW)	6.12	8.995	9.88	12.45	14.36
Unadjusted Net Credited Units of electricity at the end of FY (MU)	0.46	0.60	2.42	1.56	0.62
No. of consumers who received monetary compensation (through credit adjustment) at the end of FY (Nos.)	67	111	128	140	126
Monetary compensation (In Rs. Crore)	0.197	0.27	0.69	0.45	0.187
No. of consumers with cumulative build up monetary compensation at the end of FY over previous year (Nos.)	1	14	35	44	15

AEML-D Net Metering data:

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23
No. of Consumers with Net Metering (Nos.)	203	265	152	192	142
Rooftop RE Capacity (MW)	7.47	11.61	5.23	6.40	4.87
Unadjusted Net Credited Units of electricity at the end of FY (MU)	0.48	0.99	3.32	2.57	1.33
No. of consumers who received monetary compensation (through credit adjustment) at the end of FY (Nos.)	170	365	394	436	448
Monetary compensation (In Rs. Crore)	0.20	0.40	1.28	0.92	0.46

TPC-D Net Metering data:

Particulars	2018-19	2019-20	2020-21	2021-22	2022-23
No. of Consumers with Net Metering (Nos.)	117	91	64	80	77
Rooftop RE Capacity (MW)	2.74	4.53	1.59	3.20	2.00
Unadjusted Net Credited Units of electricity at the end of FY (MU)	0.08	0.28	0.73	0.70	0.64
No. of consumers who received monetary compensation (through credit adjustment) at the end of FY (Nos.)	68	120	139	161	188
Monetary compensation (In Rs. Crore)	0.03	0.10	0.30	0.27	0.23
No. of consumers with cumulative build up monetary compensation at the end of FY over previous year (Nos.)	0	0	0	0	0

From the Net Metering data submitted by the Distribution Licensees, it is observed that there are significant number of consumers who have cumulative built-up credit amount, especially in the case of MSEDCL, who have been given monetary compensation at the end of the year for the banked units at the end of the year, and this number of consumers is increasing every year.

Further, the particular case identified by the Petitioner may not be a typical case, as the capacity of the Solar generating plant is limited to the sanctioned load/contract demand, and considering the lower Capacity Utilisation Factor (CUF), the solar generation is not expected to always exceed the consumption from the grid. However, there would be some instances where, after getting the monetary credit at the end of the year, the consumer is unable to adjust the same with the electricity bill, in which case, he will always continue to be in ever-increasing credit. Hence, for addressing such cases, it is proposed to provide the compensation for the surplus energy injected at the end of the year in the following manner, in case the surplus is increasing over three years:

- compensation for 50% of the cumulative surplus energy injected at the end of the year shall be given in cash to the consumer along with the bill for the month of April of the succeeding year;
- compensation for balance 50% of the cumulative surplus energy injected at the end of the year shall be given as credit in the bill for the month of April of the succeeding year.

Accordingly, a proviso is proposed to be introduced to 11.4 (e) as under:

“Provided that in case such credit amount is continuously increasing at the end of three consecutive financial years, then at the end of third financial year, 50% of the credit amount shall be paid in cash to the consumer and balance 50% shall be credited in electricity bill”.