

MAHARASHTRA ELECTRICITY REGULATORY COMMISSION

World Trade Centre, Centre No.1, 13th Floor,

Cuffe Parade, Mumbai – 400 005

Tel. 022 22163964/65/69

Email: mercindia@mercindia.org.in

Website: www.merc.gov.in

Case No. 3/SM/ 2024

In the matter of

Generic Renewable Energy Tariff for FY 2024-25 under MERC (Renewable Energy Tariff) Regulations, 2019

ORDER (SUO-MOTU)

Dated: 06 March 2024

Background:

1. The Commission notified the MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2019, ('RE Tariff Regulations, 2019') on 30 December 2019 after following due process. These Regulations have become applicable from 1 April 2020 for determination of tariff for RE Technologies. The first Review Period under these Regulations is of five (5) financial years (FY), from FY 2020-21 up to the end of FY 2024-25.
2. As per Regulation 7.1 of RE Tariff Regulations, 2019, Tariff for following types of RE Projects 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:
 - (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.

Thus, for all the above RE Technologies, the Commission will not be determining the Generic Tariff and will only adopt the tariff discovered through transparent competitive bidding process as has been specified in the RE Tariff Regulations, 2019.

3. Scope of determination of Generic Tariff under RE Tariff Regulations, 2019 is limited to notification of the generic tariff for Solar Roof-top PV and determination of variable charge for Biomass and non-fossil fuel-based Co-generation Projects. Relevant Regulations is reproduced below:

“

8. Generic Tariff

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.”

4. As regards generic tariff for Solar Roof-top PV power project, Regulation 64 of the RE Tariff Regulations, 2019 states that it shall be notified in accordance with the approach specified in Regulation 7.3 which is reproduced below:

“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.”*

Thus, process of tariff determination for Roof-top PV is not envisaged in the RE Tariff Regulations, 2019. It only envisages notification of tariff as per the Regulations 7.1 of the RE Tariff Regulations, 2019.

5. As regards determination of variable charges for Biomass and Non-fossil fuel-based Co-

generation Projects, the Regulations envisage such determination only for existing projects whose Energy Procurement Agreements (EPAs) are signed based on Generic Tariff determined by this Commission in the past. For the existing Projects which are covered under competitive bidding and all future projects, which shall be through competitive bidding only or EPAs whose tariff are pegged to competitively discovered tariff, such Commission determined variable charges would not be applicable.

6. The Commission vide its Order dated 24 May 2023 (Case No. 1/SM/2023) has notified the Generic tariff for Rooftop PV and determined variable charges for Biomass and Non-fossil fuel-based Co-generation projects for FY 2023-24.
7. Through this Suo-motu Order, the Commission is notifying Generic Tariff rates for Rooftop PV projects for FY 2024-25 and undertaking process of determining variable charges for Biomass and Non-fossil fuel-based Co- generation Projects for FY 2024-25.
8. Through a Public Notice published in the daily newspapers The Times of India and Economic Times (English) and Maharashtra Times and Lokmat (Marathi) on 3 February 2024 the Commission invited comments by 24 February 2024 on its Draft RE Tariff Order. For public consultation, the said Draft Order was made available on MERC websites.
9. The E-Public Hearing was held on 27 February 2024. The list of persons who submitted their comments, suggestions and objections in writing and/or made oral submissions during the Public Hearing is at **Appendix-1**.
10. After considering the responses received on the Draft Order and in discharge of its mandate under Regulation 10.1 of the RE Tariff Regulations, 2019, the Commission is hereby notifying Generic Tariff rates for Rooftop PV projects for FY 2024-25 and undertaking process of determining variable charges for Biomass and Non-fossil fuel-based Co-generation Projects for FY 2024-25 based on the financial principles and technology specific parameters as explained in the subsequent sections of the Order.

11. Comments/Objections received and the Commission's Ruling

The Commission is in receipt of (9) suggestions/objections. After perusal of the suggestions and objections recorded it is observed that only (2) objectors i.e MSEDCL and Mr. Blace D'souza have made submission in connection with present matter. Others have made submissions on retail tariff hikes, which is not the subject matter of the present Petition and hence not deliberated.

For simplicity, the Commission has categorized the comments received in two major parts i.e.

(A) Comments on Generic Tariff of Solar PV projects (B) Comments on variable charges for biomass and Non-fossil based co-generation.

(A) **Comments on Generic Tariff of Solar PV projects**

Stakeholders comments/suggestions:

The Rooftop-PV projects are installed by the consumers for their self-use and therefore export of surplus units may not be encouraged. The purchase of power at higher tariff may encourage the consumer to oversize the Rooftop-PV projects. Also, MSEDCL has contracted sufficient solar power quantum for fulfillment of its solar RPO target and to meet its demand. Hence, the lowest discovered tariff may be considered as Generic Tariff rate for procurement of surplus power from Rooftop-PV projects. As on December-2023, the Rooftop PV solar projects installed in MSEDCL Licensee area is 1788 MW. The surplus units from Rooftop-PV projects for period Apr-2023 to Dec-2023 is 1415.48 MU and for FY 2022-23 is 1441.85 MU. MSEDCL pointed out that M/s MSPGCL vide Petition in Case No. 120 of 2023 has approached the Commission for adoption of tariff of Rs. 2.97 per unit discovered for procurement of 100 MW solar power under 'Mukhyamantri Krishi Vahini Yojana' (MSKVY) from Solar projects. The same tariff may be considered. The proposed tariff of Rs. 3.30/kWh is relatively high. Latest tariff discovered through competitive bidding process for solar project in India is 2.53/kWh.

Mr. Blace D'souza argued that under rooftop based RE systems transmission and distribution losses get eliminated. Hence, the proposed Generic tariff of Rs.3.30/kWh needs to be grossed up appropriately for Transmission and Distribution Loss. He further insisted upon enabling virtual net metering in Maharashtra.

Commission's Ruling:

The Commission notes that MSEDCL suggestion to consider latest tariff adopted for notifying generic tariff for procurement of surplus energy from rooftop installation. Although, MSEDCL has referred to tariffs discovered by MSPGCL under MSKVY, but subsequently MSEDCL discovered tariff under MSKVY 2.0 which has been adopted by the Commission in its Order dated 5 March 2024. Same has been considered in latter part of this Order for notifying generic tariff for procurement of surplus energy from rooftop installations.

As far as suggestion for grossing up of generic tariff with transmission and distribution loss is considered, it is pertinent to note that Rooftop PV systems under Net Metering/Net Billing arrangements are mainly for captive purpose and not for commercial sale of power. Further,

Distribution Licensee are purchasing such power at consumer's metering point and subsequent distribution and transmission losses are bear by Distribution Licensee. Hence, grossing of the tariff with Transmission and distribution loss is not tenable. As far as enablement of virtual net metering is concerned, the Commission will initiate separate process for the same.

(B) Comments on variable charges for biomass and Non fossil based co-generation:

Stakeholders comments/suggestions:

MSEDCL submitted that as depicted in the table below, the tariff proposed in Draft Order appears to be higher compared to those of other state. Since the tariff is on the higher side compared to other states, it consequently places an increasing financial burden common consumer. MSEDCL suggests that the Commission may kindly consider tariffs established in other states or markets when determining such tariff for Maharashtra state.

State	Biomass projects – energy charges Rs. /kWh	Bagasse projects energy charges Rs. /kWh	Year	Source
Maharashtra	6.23	4.80	2024-25	Proposed by the Commission for FY 2024-24
Maharashtra	5.93	4.57	2023-24	The Commission determined for FY 2023-24
Andhra Pradesh	5.8	3.82	2023-24	Andhra Pradesh Electricity Regulatory Commission (O.P.No.75 of 2019) Determination of Variable Cost for the period from 01-04-2019 to 31-03-2024 in respect of the existing Biomass, Industrial Waste and Bagasse based plants.
Gujarat	4.65	4.63	2023-24	Gujarat Electricity Regulatory Commission Gandhinagar (Order No. 03 of 2022) Determination of Tariff for Procurement of Power by the Distribution Licensees and Others from Biomass based Power Projects and Bagasse based Co-generation Projects for Control Period from FY

State	Biomass projects – energy charges Rs. /kWh	Bagasse projects energy charges Rs. /kWh	Year	Source
				2020-21 to FY 2022-23

Commission’s Ruling:

The Commission notes that Hon’ble APTEL in its judgment in Appeal No. 229 of 2018 dated 2 August 2021 (South Indian Sugar Mills Association Vs Karnataka Electricity Regulatory Commission) has referred to its earlier Judgement in Appeal No.199 of 2012 dated 4 September 2013 (The South Indian Sugar Mills Association & Ors Vs Tamil Nadu Electricity Regulatory Commission) which has clearly stipulated modalities to be followed by SERCs while giving considerations to fuel prices of bagasse/biomass-based projects. Relevant para of the Judgement reads as below:

“53. The State Commission is bound to be guided by the Central Commissions principles and methodology having regard to the local conditions in the State. Accordingly, the State Commission ought to have considered the equivalent heat value method and the market price of bagasse before deciding the price of bagasse.” (Emphasis added)”

The Commission has followed up the mandate provided by APTEL while deriving fuel prices for tariff computation in respect of bagasse and biomass-based projects. Based on fuel prices and norms specified in Regulations, the variable charges for biomass and Non fossil-based co-generation have been determined.

The Commission cannot deviate from such stipulations in the Regulations. Also, MSEDCL has not submitted any scientific /engineering rationale for reducing the tariffs.

12. Notification of Generic Tariff for Rooftop PV:

12.1 The Regulation 64 of RE Tariff Regulations, 2019 specify the provision for Technology-specific parameters for Utility-Scale Solar PV Power Projects and Solar Roof-top Project as under

“64. Technological 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.

- 12.2 Regulation 7.3 is reproduced under para 4 above which specified three options for considering the latest tariff in order of priority. The Commission notes that none of the Distribution Licensee in the State has discovered tariff for procurement of energy from Rooftop PV projects through competitive bidding. Further, rates discovered in other States may have subsidy component or any other tariff benefits.
- 12.3 The Commission notes that presently Distribution Licensees are procuring surplus power under Net-Metering and Net-Billing arrangement, or all power generated by Rooftop PV under Gross Metering arrangement as prescribed under MERC (Grid Interactive Rooftop Renewable Energy Generating Systems) (First Amendment) Regulations, 2023. In the said Regulations, it is stipulated that Distribution Licensee shall procure surplus power at Generic Tariff approved by the Commission for that year, whereas under Gross Metering arrangement, Distribution Licensee has to enter into EPA at Average Power Purchase Cost (APPC) of the concerned Distribution Licensee which would be constant for entire Etios of EPA. Thus, the Commission has to notify Generic Tariff for Rooftop PV which would be used for procurement of surplus energy.
- 12.4 As stated earlier, none of the Distribution Licensees in the State has discovered tariff for procurement of energy from Rooftop PV through competitive bidding. The Commission notes that under Net-metering and Net-Biling arrangement it is expected that consumer will install Rooftop PV for self-consumption only and would not have a planned surplus except for only a negligible unintended quantum, more due to climatic/weather factors. Such surplus power procured by Distribution Licensee is used for meeting its RPO. Hence, the Commission deems it fit to use the latest tariff rate discovered for Grid Scale Solar project as a Generic Tariff for procurement of surplus energy from Rooftop PV projects. The Commission notes that in its Order dated 5 March 2024 in Case No. 32 of 2024 has adopted tariffs quoted in the range of Rs. 2.90/kWh to Rs.3.10/kWh under ‘Mukhyamantri Saur Krishi Vahini Yojana 2.0’. Accordingly, the Commission hereby notifies Rs. 2.90/kWh as a Generic Tariff rate for procurement of surplus power from Rooftop-PV projects under net-metering and net-billing arrangement for FY 2024-25. It is mandatory for Distribution Licensees to procure such surplus power which would in any case be counted towards meeting their Solar RPO.

13. Notification of APPC rate:

- 13.1 Although, it is not required to notify APPC rate under RE Tariff Regulations and it can be

computed based on Tariff Order of respective Distribution Licensee, for ease of understanding of various stakeholders, the Commission is representing the same in this Order. The Commission notes that RE Tariff Regulations, 2019 provide the definition of Average Power Purchase Cost (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;

13.2 Thus, while determining APPC, procurement from renewable energy sources and liquid fuel sources needs to be excluded. Accordingly, Distribution Licensee wise APPC for FY 2024-25 is given below:

Distribution Licensee	Tariff Order		APPC excluding RE & Liquid Fuel Source for FY 2024-25 (Rs/kWh)
	Case No	Date	
MSEDCL	226 of 2022	31 March 2023	4.88
BEST Undertaking	212 of 2022		6.60
AEML-D	231 of 2022		4.69
MBPPL	216 of 2022		5.40
KRCIPL	214 of 2022		5.41
GEPL	215 of 2022		5.40
LBSCML	220 of 2022		5.19
JNPT	219 of 2022		5.40
EON-I	235 of 2022		5.40
EON-II	236 of 2022		5.40
MADC	235 of 2020	21 July 2022	5.48
TPC-D	237 of 2023	_06 March 2024	5.74

APPC rate mentioned in last column of the above table shall be used by Distribution Licensee for entering into an EPA with Rooftop PV under Gross Metering arrangement for project commissioned in FY 2024-25. Further such rate will be constant for entire period of EPA.

14. Provisional Variable charges of Biomass and Non-fossil fuel-based Co-generation Projects:

14.1 For determination of variable charge/fuel cost, RE Tariff Regulations 2019, stipulates following:

For Biomass-based Power Project:

“

46 The biomass fuel price for the first year of the Project shall be determined based on the prevailing prices of the fuel mix for each Project and based on an independent study by the Commission, and shall thereafter be linked to the indexation mechanism specified in Regulation 47:

For Non-fossil Fuel-based Co-Generation Project:

“

56 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 57:

14.2 In compliance to regulatory mandate, the Commission conducted the study through ‘The Energy and Resource Institute (TERI)’ to determine the Biomass and Bagasse fuel availability and their Prices in the State of Maharashtra. The Commission deliberated on the study finding in its Suo Motu Order in Case No.1/SM/2022 dated 29 July 2022 and determined the variable charges for Biomass and Non-fossil fuel-based Co-generation Projects.

14.3 MERC RE Tariff Regulations 2019 stipulated following formula for determination of variable charge for biomass-based power project:

“47.1 In the case of both existing and new Biomass-based Power Projects, the following indexing mechanism for adjustment of fuel prices for each year of operation will be applicable for determination of the variable charge component of tariff:

The Variable Charge for the nth year shall be computed as under:

$$VC_n = VC_1 \times (P_n / P_1)$$

where,

VC₁ represents the Variable Charge based on Biomass Price P₁ for first year as specified under Regulation 46, and which shall be determined as under:

$$VC_1 = \frac{\text{Station Heat Rate (SHR)}}{\text{Gross Calorific Value (GCV)}} \times \frac{1}{(1 - \text{Auxiliary Consumption Factor})} \times P_1 / 1000$$

P_n = Price per tonne of biomass for the nth year to be considered for tariff determination;

P_{n-1} = Price per tonne of biomass for the (n-1)th year to be considered for tariff determination;

P_1 shall be the Biomass price for FY 2020-21 as specified under Regulation 46;

47.2 The Biomass fuel price shall be revised by the Commission taking into consideration the Biomass fuel price determined by the Central Commission, or a normative escalation factor based on an independent study by the Commission, or **5% per annum**, as the Commission may consider appropriate.”

14.4 A similar formula has been stipulated in Regulation 57 of RE Tariff Regulations 2019 for computing variable charge for non-fossil fuel-based co-generation project.

14.5 The Commission in its Order dated 29 July 2022 in Case No.1/SM/2022 considered 5% escalation factor for deriving fuel price for FY 2021-22 and FY 2022-23 over base year of FY 2020-21. A similar approach has been adopted by the Commission in its Order dated 24 May 2023 in Case No.1/SM/2023. The Commission in this Order continued the same approach of 5% escalation per annum.

14.6 The Commission notes that it has adopted following fuel prices for base year of FY 2020-21 (as approved in RE Tariff Order dated 29 July 2022 and subsequent review Order dated 13 February 2023):

Sr. No.	RE Technology	Fuel Price (Rs/MT)
1	Biomass based RE Project	Rs.3965/MT
2	Non-fossil fuel-based Co-generation Projects	Rs. 2258/MT

14.7 Following parameters have been used in above stipulated formula (Para 16) for computation of variable charge:

Parameter	Source	Biomass Project	Non-fossil fuel based co-generation project
Station Heat Rate (SHR)	Regulation	4200 kcal/kWh	3600 kcal/kWh
Gross Calorific Value (GCV)	Regulation	3611 kcal/kg	2250 kcal/kg
Auxiliary Consumption Factor	Regulation	10%	8.50%
Fuel Price	As above	Rs. 4589.98 /MT	Rs. 2613.98 / MT
Escalation on fuel Cost	Regulation	5%	5%

14.8 By using above parameters in the formula stipulated in the Regulations, Variable Charges are determined as below:

Year	Biomass Project	Non-fossil fuel-based co-generation project
FY 2024-25	Rs. 6.23/kWh	Rs. 4.80/kWh

15. Date of Applicability of RE Tariff Order:


Above determined Tariffs for FY 2024-25 shall be applicable with effect from 1 April 2024.

With the above dispensation, the Commission disposes of Suo-Motu case registered as Case No. 3/SM/2024.

Sd/-
(Surendra J. Biyani)
Member

Sd/-
(Anand M. Limaye)
Member

Sd/-
(Sanjay Kumar)
Chairperson


(Dr. Rajendra G. Ambekar)
Secretary



List of Organisations /persons who submitted Suggestions and Objections

Sr. No.	Name
1.	Chief Engineer (RE), Maharashtra State Electricity Distribution Co. Ltd.
2.	Mr. Rajgonda Nagonda Chougule
3.	M/s. Krishna Enclave Condonium, Ahmednagar
4.	Mr. Pramod Chaundkar, Joint Secretary, Shivsena Consumer Protection Cell
5.	Director, M/s. Sarvoday textile Industries Pvt Ltd, Ichalkaranji
6.	Proprietor, M/s. Girish Banwarilal Jhawar, Inchalkaranji
7.	Proprietor, M/s. Krishnadevi krishanlal Jhanwar, Ichalkatanji
8.	Mr. Blace D'souza, Borivali (West), Mumbai
9.	Charmi