

JOINT ELECTRICITY REGULATORY COMMISSION FOR THE STATE OF GOA
AND UNION TERRITORIES

Discussion Paper

For

Determination of Green Energy Tariff for Electricity Department, Government of Goa
(ED-Goa)



_____ 2024

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LIST OF ABBREVIATIONS

| | |
|----------------|---|
| ACoS | Average Cost of Supply |
| DISCOM | Distribution Company/Licensee |
| EA 2003 or Act | Electricity Act, 2003 |
| ED-Goa | Electricity Department, Government of Goa |
| ERC's | Electricity Regulatory Commissions |
| GoI | Government of India |
| kWh | kilo Watt hour |
| LT | Low Tension |
| MoP | Ministry of Power |
| RE | Renewable Energy |
| RPO | Renewable Purchase Obligation |
| SERCs | State Electricity Regulatory Commissions |

1 Background and Context

1.1 Background and Regulatory Framework

1.1.1 The Promotion of efficient and environmentally benign policies is one of the key principles enshrined in the preamble of the Electricity Act, 2003 (“Act”) and as per Section 86 (1) (e) of 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. Following is the preamble and relevant provisions of the Act has been reproduced below:-

*“An Act to consolidate the laws relating to generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition therein, protecting interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, ensuring transparent policies regarding subsidies, **promotion of efficient and environmentally benign policies**, constitution of Central Electricity Authority, Regulatory Commissions and establishment of Appellate Tribunal and for matters connected therewith or incidental thereto.”*

.....

“Section 86. (Functions of State Commission): --- (1) The State Commission shall discharge the following functions, namely: -

.....

*(e) **promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person**, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee”*

1.1.2 Further, the Commission has been conferred power for determination of tariff under following Sections of the Act:-

“ Section 61. (Tariff regulations):

The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by

the following, namely:-.....”

“Section 62. (Determination of tariff): --- (1) The Appropriate Commission shall determine the tariff in accordance with the provisions of this Act for:-

.....

(d) retail sale of electricity ...”

“Section 86. (Functions of State Commission): --- (1) The State Commission shall discharge the following functions, namely: -

(a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State:.....”

“Section 181. (Powers of State Commissions to make regulations): --- (1) The State Commissions may, by notification, make regulations consistent with this Act and the rules generally to carry out the provisions of this Act.....

(2) (zd) the terms and conditions for the determination of tariff under section 61....”

1.1.3 The Government of India (GoI) has set a vision to achieve net zero emission by 2070, and to achieve this vision the GoI has set short-term targets which includes:-

- (a) Increasing the Renewables Energy (RE) capacity to 500 GW by 2030,
- (b) Meeting 50% of energy requirements from renewables,
- (c) Reducing cumulative emissions by one billion tonnes by 2030, and
- (d) Reducing emissions intensity of India’s gross domestic product (GDP) by 45% by 2030.

1.1.4 In order to promote and facilitate installation of RE, Ministry of Power (MoP), GoI has recently issued few Rules and Orders towards achieving the targets. MoP, Government of India vide its Notification dated 6th June, 2022 (G.S.R. 418(E)) notified the “**Electricity (Promoting Renewable Energy Through Green Energy Open Access) Rules, 2022 (Rules, 2022)** ” followed by Amendments dated 27th January, 2023 (G.S.R. 59(E)) and 23rd May, 2023 (G.S.R. 381(E)).

1.1.5 Rule 4(2)(C)(c) of Rules, 2022 mandates that the Commission has to determine separate Tariff for Green Energy and the components for determining Tariff for Green Energy for consumer shall include :

- (a) Average Pooled Power Purchase Cost of RE

- (b) Cross Subsidy Charges, if any and
- (c) Service Charge covering the prudent cost of distribution licensee for providing Green Energy.

1.1.6 The relevant extract of Rule 4(2)(C)(c) of Rules, 2022 has been reproduced below:-

“(c) The tariff for the green energy shall be determined separately by the Appropriate Commission, which shall comprise of the average pooled power purchase cost of the renewable energy, cross-subsidy charges if any, and service charges covering the prudent cost of the distribution licensee for providing the green energy;”

1.1.7 Thereafter, MoP vide letter no:- 23/09/2021-R&R dated 10th October, 2022 has communicated to all Electricity Regulatory Commissions (ERCs) to determine the tariff of green energy. Below is the reproduced relevant letter extract:-

“2. Rule 4 (2) (C) (c) of Rules, 2022 provides that the tariff for the supply of green energy by DISCOMS shall be determined separately by the Appropriate Commission, which shall comprise of the average pooled power purchase cost of the renewable energy, cross-subsidy charges if any, and service charges covering the prudent cost of the distribution licensee for providing the green energy.

.....

4. All the State and Joint Commissions are, therefore, requested to take appropriate action for determination of green tariff under Rule 4 (2) (C) (c) at the earliest.”

1.1.8 The Commission has taken note of Rules, 2022 and communication of MoP to align the Rules, 2022 with the Regulations. In view of this, the Commission has issued Draft Joint Electricity Regulatory Commission for State of Goa & Union Territories (Procurement of Renewable Energy), (Fifth Amendment) Regulations, 2023 for public consultation.

2 Approach for Determination of Green Energy Tariff

- 2.1.1 The Commission after going through the approach adopted by the various SERC's and the stipulations outlined in the Rules, 2022, observed that most of the SERCs have determined Green Energy Tariff based on incremental/marginal cost basis.
- 2.1.2 However, the Commission has considered it prudent to determine the Green Energy Tariff in accordance with the provisions of Rules, 2022 which provides that the tariff for the supply of green energy shall comprise of the average pooled power purchase cost of the renewable energy, cross-subsidy charges if any, and service charges covering the prudent cost of the distribution licensee for providing the green energy.
- 2.1.3 In view of the above, the approach adopted by the Commission for determining Green Energy Tariff for consumers opting to purchase Green Energy from Electricity Department, Government of Goa (ED-Goa) is as follows:

A. Average Pooled Power Purchase Cost of Renewable Energy

The Average Pooled Power Purchase cost of Renewable Energy Sources for ED-Goa has been worked out based on power purchase cost of RE sources as approved in Tariff Order for FY 2023-24 as shown in the table below:-

Table 1:- Average Pooled Power Purchase of RE Sources

| Particulars | Unit | Value |
|--|----------------|-------------|
| Power Purchase Cost of RE Sources | Rs. Crore | 355.32 |
| Quantum of RE Source | MUs | 984.15 |
| Weighted Average Pooled Power Purchase Cost of RE Sources | Rs./kWh | 3.61 |

B. Landed Cost of Renewable Energy

The landed cost of Renewable Energy has been worked out considering the weighted average pooled power purchase Cost of Renewable Energy Sources grossed up by the Distribution Losses and Intra-State Transmission losses and by adding the Intra-State Transmission Charges. The computation of landed cost of Renewable Energy for ED-Goa is shown in the table below:-

Table 2:- Landed Cost of Renewable Energy for Utility

| Particulars | Unit | Value |
|--|----------------|-------------|
| Weighted Average Pooled Power Purchase Cost of RE Sources | Rs./kWh | 3.61 |
| T&D Losses for FY 2023-24 (%) | % | 8.20% |
| RE Source Rate after Considering T&D losses | Rs./kWh | 3.93 |
| Intra-State Transmission Charges | Rs./kWh | 0.00 |
| Landed Cost of Renewable Energy | Rs./kWh | 3.93 |

C. Cross Subsidy Surcharge (CSS)

The Cross Subsidy Surcharge (CSS) for utility has been factored in, taking into account the Maximum CSS applicable to utility, as stipulated in the approved Retail Supply Tariff Order for the FY 2023-24 which is Nil.

D. Services Charges

The Services Charges pertains to the cost of distribution licensee other than the cost associated for purchase of power including Transmission Charges (i.e., Other ARR components) and the fixed cost of power purchase pertaining to Stranded Capacity/ Backing Down.

a) Distribution Service Charges (i.e., Other ARR components)

The contribution of other components of ARR excluding power purchase cost and Transmission Charges in ACoS (approved by the Commission in Retail Supply Tariff Order for FY 2023-24) has been worked out as Distribution Service Charges covering prudent cost of distribution licensee for supplying power to the consumers which works out to be Rs. 1.43/kWh (i.e., Rs. 654.93 Crore of Other ARR components /Sales of 4,570.01 MUs*10).

b) Fixed Cost of Thermal Generating Stations

If Distribution Licensees procure additional power from Renewable Energy sources to fulfill the requisitions of consumers opting for Green Energy power, the power procurement from thermal generating stations by the Distribution Licensee will get reduced to that extent. However, the Utility will have to bear the fixed cost of those thermal generating stations.

Therefore, the Commission deems it appropriate to consider fixed cost of power purchase of utility as part of Service Charges of Distribution Licensee for providing Green Energy which works out to be Rs. 0.89/kWh (i.e., Rs.425.19 Crore as Fixed Cost of Power Purchase /Energy Requirement of 4,797.85 MU*10).

E. Total Green Energy Tariff

2.1.4 Accordingly, Green Energy Tariff computation for ED-Goa is given below:

Table 3:- Computation of Green Energy Tariff (in Rs./kWh)

| Particulars | Reference | Value |
|---|-------------|-------|
| Landed Cost of Renewable Energy for Utility | A | 3.93 |
| Cross Subsidy Surcharge | B | 0.00 |
| Distribution Service Charges | C | 1.43 |
| Backing Down Cost | D | 0.89 |
| Green Energy Tariff Applicable | E = A+B+C+D | 6.25 |

F. Incremental Green Energy Charges

For arriving the incremental Green Energy Charges, the Commission has considered the difference between Green Energy Tariff and Average Billing Rate. The Average Billing Rate (ABR) approved in the Retail Supply Tariff Order for the FY 2023-24 has been taken into account in the computation of the Green Energy Tariff which is Rs.5.04/kWh.

2.1.5 Accordingly, incremental Green Energy Charges computation for ED-Goa is given below:

Table 4:- Computation of Incremental Green Energy Charges (in Rs./kWh)

| Particulars | Reference | ED-Goa |
|---|---------------|-------------|
| Green Energy Tariff Applicable | A | 6.25 |
| ABR | B | 5.04 |
| Incremental Green Energy Charges | C= A-B | 1.21 |

- 2.1.6 The Incremental Green Energy Charges shall be applicable to consumers over and above the normal tariff of the respective category.
- 2.1.7 The revenue earned by the Distribution Licensee from sale of power to consumers under Tariff for Green Energy shall be considered as revenue from sale of power. The Distribution Licensee is required to separately maintain tariff category and sub-category wise accounting of no. of consumers, connected load, sale and revenue from sale under Tariff for Green Energy for consumers and same shall be shown separately by the Distribution Licensee at the time of truing-up.
- 2.1.8 It should be noted that above arrangements is optional / voluntary and shall only be provided on the request of the Consumer. The Incremental Green Energy Charges for Green Energy shall only be applicable if Consumer wishes to avail power under the respective above arrangement.
- 2.1.9 In the backdrop of the above discussion, the Commission is issuing this discussion paper for seeking comments and suggestions from various stakeholders for the determination of Green Energy Tariff.

