DISCUSSION PAPER

ON

Determination of tariff and finalization of related issues for solar photovoltaic Plants allowed to be installed on rooftops of consumers by persons other than consumers under different business models

1. In exercise of the powers conferred under Sections 3 (1), 61 (h), 62 (1) (a), and 86 (1) (e) of The Electricity Act, 2003 and provisions of the National Electricity Policy and all other powers enabling it on this account, this discussion paper is being issued by the Karnataka Electricity Regulatory Commission, for the determination of tariff and other norms for Solar energy projects.

2. Section 86 (1)(e) of the Electricity Act, 2003 specifies that the SERCs have to promote generation of electricity from renewable sources of energy. Accordingly, this Commission has been promoting generation of electricity from Renewable sources, by determining the feed-in-tariff periodically, based on the normative financial and operational parameters, for the stipulated control period, from time to time to enable the ESCOMs to procure power from renewable sources. This approach has enabled creation of favourable environment for investment in RE projects and the State has been able to achieve significant capacity addition of Solar and Wind Power generation.

3. As per the revised National Solar Mission targets to be achieved by the year 2021-22, totally 40,000 MW of Rooftop solar plants are to be installed in the country.


5. In its Orders issued from time to time, the Commission has been determining/revising the tariff for the grid connected ground mounted solar photovoltaic and rooftop solar photovoltaic plants based on the market developments and change in capital costs. Accordingly, the Commission in its Order dated 18.05.2018, has
determined a levelised tariff of Rs 3.56 for all the Solar Rooftop Photovoltaic Plants (SRTPV Plants) for the life of the projects, i.e. for 25 years. The tariff for the SRTPV plants upto 10 KW pertaining to domestic consumers has since been re-fixed at Rs.4.15 per unit vide its Order dated 19.12.2018.

6. The Generic Tariff determined by the Commission is applicable for the SRTPV plants of the consumers, which are owned and operated by them after being installed out of their own or borrowed funds and the Commission has so far, not determined the tariff for third party investments on installation of SRTPV plants on consumer premises (RESCO Model), where the plants are owned by such investors. As a result, it is argued that the investment in the SRTPV projects and the capacity addition thereon has not been encouraging.

7. In order to accelerate the capacity addition in the solar rooftop generation, the Commission has now decided to encourage third party investments in SRTPV projects on consumers rooftops. Under this scheme, the third-party/investor/developer will set up, own and operate the SRTPV plants on the consumers premises for mutually agreed period and sell the electricity generated to the owners of the rooftop at a predetermined tariff. The Commission would recognise the same and allow the registered consumers to sell the surplus energy to the ESCOMs at a separate generic tariff to be determined by the Commission for such projects/plants, under net/ gross metering.

8. The Commission also notes the need for more active and constructive role by the distribution licensees to facilitate the smaller consumers to install efficient SRTPV plants at optimal cost either with investment from the consumers or the distribution licensees themselves.

9. The Commission notes that there are various business models that are broadly categorised as consumer centric and utility centric business models, that are followed in such third party investment/facilitation, which can be briefly stated as follows.
a. **Consumer-Centric business model/Third Party Owned (RESCO Model):** A renewable energy service company (RESCO) invests to install a rooftop solar plant on the roof of a consumer and own also and operate it for a mutually agreed period. The consumer in return for deriving the benefits of rooftop solar generation, pays to the RESCO an agreed amount per unit of energy consumed or such other measure as mutually agreed, as a return on investment under an agreement entered into by them. The consumer and the jurisdictional distribution licensee will enter into a PPA in the Commission approved standard format, in respect of net/gross energy injected into the distribution network.

b. **Utility-Centric business model.**

   i. Consumer owned (Utility as aggregator) model: The jurisdictional distribution licensees will facilitate the consumers to install SRTPV plants out of their own funds/borrowed funds, by selecting through reverse bidding (Engineering Procurement & Construction (EPC)) service provider quoting the lowest cost to carry out such work for the aggregated capacity of the interested consumers. While the EPC contracts will be entered into between the EPC service provider and the consumers, the distribution licensee will monitor the project implementation under project management agreements with the consumers, but collect facilitation fee from the successful bidder. The Consumers and the distribution licensee will enter into a PPA in the Commission approved standard format in respect of net/gross energy injected into the distribution network.

   ii. Consumer Owned (Utility as aggregator and EPC) model: This model is similar to the above model explained at(i), except that the EPC contracts will be between the consumers and the distribution licensee. With the distribution licensee signing back to back agreement with a
EPC service provider selected through bids who would be charged a facilitation fee by the distribution licensee over and above its margin.

iii. Utility owned (Utility as aggregator and investor) model: The distribution licensee will set up, own and operate SRTPV plants for interested consumers using its own/borrowed funds after signing PPA with the consumers. The distribution licensee may have separate agreement with sub-contractors for EPC and O&M works.

iv. Third party owned (Utility Acts as a aggregator and trader) model: In this model, third party investor (RESCO) who is selected based on reverse bidding by the distribution licensee sets up, owns and operates SRTPV plants for interested consumers of certain aggregated capacity. The distribution licensee enters into a PPA with the RESCO and also a power supply agreement with the consumers for supply of power generated. The distribution licensee will collect a trading fee or facilitating fee from the RESCO.

10. The Commission notes that it has not determined the tariff for the surplus energy that would be injected into the distribution network in the above models and proposes to determine such tariff. The Commission also notes that, due to economies of scale, the capital cost would be less as compared to the capital cost that would be generally incurred by consumers when they install SRTPV plants individually.

11. It is also noted that the sale of energy by the owners of the SRTPV plant who is other than the consumer or distribution licensee under above models, would amount to supply of energy under open access to the consumers, possibly making such supply liable for cross subsidy surcharge and additional surcharge under the provisions of the Electricity Act, 2003.

12. The Commission considers that a broader consultation with all the stakeholders is necessary before it proceeds to determine the tariff applicable to the surplus energy injected under the above models and specify other applicable procedures, charges etc. The Commission therefore, issues this discussion paper calling upon the
stakeholders to participate in such public consultation. The broad issues on which the stakeholders may give their suggestions, comments and views are as follows.

I. Type of Business Model:

Besides the Business Models indicated above the Stakeholders may suggest modifications to the same and also any other models could be adopted to achieve the objective of faster & cost effective solar rooftop capacity addition in the State.

II. Besides the above, the stakeholders may furnish their comments on the following technical and financial parameters for determination of tariff under the RESCOM Model:

a. The normative parameters that could be adopted for determination of tariff under each of the models.

b. The tenure of the PPA to be executed between the consumer/RESCO and ESCOMs for purchasing the surplus energy under net metering basis and gross metering basis.

c. Payment of cross subsidy surcharge and additional surcharge, if any, under the provisions of the Electricity Act, 2003 by the RESCO/Third party investor for the sale of energy to the consumer, as contemplated under the above scheme.

d. Responsibility for safety of the equipment and other technical requirements.

e. Any other modification/change in the operational procedures.

f. Any other issue considered relevant.

The Commission requests all stakeholders and the general public to furnish their views/suggestions/comments before 15.03.2019 to the Secretary, KERC, No.16, C-1, Miller Tank Bed Area, Vasanth nagar, Bengaluru-560052. The stakeholders are also requested to furnish any documents or material as may be available in support of their proposals / views.

SECRETARY
KERC