



# Bangalore Electricity Supply Company Limited

(wholly owned Government of Karnataka undertaking)

Telephone : 080-2234 1199  
Email ID : gm DSM@bescom.co.in  
Ref No. : BESCOM/BC-51/2019-20/CYS-32  
Encl : KERC order

Office of the  
General Manager (Ele).,  
DSM, Corporate Office,  
BESCOM, K.R. Circle,  
Bangalore-560 001.  
Date: 20-02-2020

## OFFICIAL MEMORANDUM

**Sub:** Various Business models and determination of tariff and other norms in respect of Grid connected Solar Rooftop Photo Voltaic plants (SRTPV).

- Ref:**
1. Hon'ble Commission order on "Decision on Various Models and Guidelines for Solar Rooftop Photovoltaic Plants allowed to be installed on rooftops of the consumers' buildings" dated: 09.12.2019.
  2. BESCOM OM to the KERC tariff order for FY-20 vide no. BESCOM/BC-51/2019-20/CYS-24 dated:08.09.2019.
  3. KERC Order for "Determination of tariff in respect of Solar Power Projects (Including Solar Rooftop Photo Voltaic plants (SRTPV) for FY-20" dated:01.08.19
  4. MD, BESCOM approval dated: 12.02.2020

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### PREAMBLE:

The Government of India has set a target of 40,000 MW of grid connected rooftop Solar Power Generation Capacity by 2022 under the Revised National Solar Missions in the country.

The Government of Karnataka, under its Solar Policy 2014-21, has set a target of 2400 MW for grid connected roof top generation projects to be achieved by March 2021 and BESCOM has assumed 50% as its target of 1200 MWs.

The Commission has noted that only 205 MW capacity of SRTPV has been installed in Karnataka , out of which BESCOM has achieved 140 MWs till July 2019 and the target reached SRTPV is far behind. This is largely due to inability of the consumers to make large upfront investments in the SRTPV plants.

In order to accelerate the capacity addition in the solar roof top generation, the Commission decided to encourage third party investments in SRTPV projects on consumers' rooftops, under business models.

The Commission also felt that there is a need for more proactive and constructive role by the Distribution Licensee to facilitate smaller consumers to install efficient SRTPV plants at an optimal cost, either with investment from the consumers or through third party investments under Third Party Investment Model or investments by the Distribution Licensees themselves.

The Commission after considering the suggestions/ comments made by various stakeholders to the draft discussion paper and written submission made during public hearing, has issued Order for "Various business models and determination of tariff and other norms in respect of Grid connected Solar Rooftop Photo Voltaic plants (SRTPV) dated: 09.12.2019".

Hence, this OM.

No: BESCO/BC-51/2019-20/CYS-32

Dated: 20-02-2020

1. As per KERC Order dated: 01.08.19, "Determination of tariff in respect of Solar Power Projects (Including Solar Rooftop Photo Voltaic plants (SRTPV) for FY-20", the existing model is briefed as below:

**Consumer owned Model(CAPEX):**

1. This model exists from the date of inception of the Solar Rooftop PV scheme in BESCO i.e 07.11.2014.
  2. This model is applicable to all the consumers of BESCO.
  3. The Consumer will make investment in the project either from Consumer owned fund/borrowed fund in the ratio of 70:30 (debt to equity ratio).
  4. The metering arrangement is net / gross as per the KERC (Implementation of Solar Rooftop Photovoltaic Power plants) Regulations, 2016 and Generic tariff orders issued by the Commission from time to time.
  5. The Consumer will select the Engineering, procurement, Construction (EPC) contractor who shall carry out the work of installation of SRTPV plants on the rooftops of the consumers.
  6. The Consumer and the BESCO shall enter into a Power Purchase Agreement(PPA) in the Commission approved standard format in respect of net / gross energy injected into the distribution network.
  7. This existing model is continued.
2. In addition to above, Commission vide Order dated: 09.12.2019 has allowed various other business models, which are broadly classified into two groups as below:

**A. Utility Centric Business Model**

- i. Consumer owned Model (Utility as Aggregator)
- ii. Consumer owned Model (Utility as Aggregator & EPC)
- iii. Utility Owned Model (Utility as Aggregator & Investor)
- iv. Third Party Owned Model (Utility as Aggregator & Trader)

**B. Third Party investment model**

The above models are detailed below:

**A. Utility Centric Business Model**

**i. Consumer owned Model (Utility as Aggregator)**

- a. This model is applicable to all consumers of BESCO
- b. The metering arrangement is net / gross as per the KERC (Implementation of Solar Rooftop Photovoltaic Power plants) Regulations, 2016 and Generic tariff orders issued by the Commission from time to time.
- c. The investment in the project is made by Consumer owned fund/borrowed fund.

- d. The interested consumer shall make a request to the General Manager, DSM, BESCO for facilitating the installation of SRTPV plant through bidding process.
- e. BESCO shall collect the facilitation fee from the consumer approximately 10% of the project cost or at the discretion of BESCO.
- f. BESCO shall select Engineering, Procurement & Construction (EPC) contractor, called as a Service Provider through reverse bidding process.
- g. The successful bidder shall carry out the work of installation of SRTPV plants on the rooftops of the consumers who have opted for the scheme, for the aggregated capacity in the area identified by the BESCO.
- h. The EPC contractor/Service provider shall enter into necessary agreement with the consumers for EPC purposes.
- i. BESCO will host the details of the successful bidder, details of facilitation fee collected, in the BESCO website in order to maintain transparency.
- j. BESCO shall monitor the project implementation, duly collecting a reasonable facilitation fee from the successful bidder/ service provider.
- k. The Consumer and BESCO shall enter into a Power Purchase Agreement(PPA) in the Commission approved standard format in respect of net / gross energy injected into the distribution network.

ii. Consumer owned Model (Utility as Aggregator& EPC)

- a. This model is applicable to all consumers of BESCO
- b. The metering arrangement is net / gross as per the KERC ( Implementation of Solar Rooftop Photovoltaic Power plants) Regulations, 2016 and Generic tariff orders issued by the Commission from time to time.
- c. The investment in the project is made by Consumer owned fund/borrowed fund.
- d. The interested consumer shall make a request to the General Manager, DSM, BESCO for facilitating the installation of SRTPV plant through bidding process.
- e. BESCO shall select Engineering, Procurement & Construction (EPC) contractor, called as a Service Provider through reverse bidding process.
- f. The successful bidder shall carry out the work of installation of SRTPV plants on the rooftops of the consumers who have opted for the scheme, for the aggregated capacity in the area identified by the BESCO.
- g. The EPC contract shall be entered between consumer and BESCO for EPC purposes.
- h. The BESCO shall enter into a back to back agreement with a EPC service provider, selected through competitive bidding.
- i. Any contract/ bill settlement between the EPC service provider and the BESCO shall be as per terms of the agreement.
- j. BESCO will host the details of the successful bidder, details of facilitation fee collected, in the BESCO website in order to maintain transparency.
- k. BESCO shall monitor the project implementation, duly collecting a reasonable facilitation fee from the successful bidder/ service provider approximately 10% of the project cost or at the discretion of BESCO.
- l. The Consumer and BESCO shall enter into a Power Purchase Agreement(PPA) in the Commission approved standard format in respect of net / gross energy injected into the distribution network.

iii. Utility Owned Model (Utility as Aggregator & Investor)

- a. The BESCO shall set up, own and operate SRTPV plants on the rooftop of the interested consumers.
- b. BESCO shall investment in the project out of own funds/borrowed fund after signing PPA with the consumers on Gross metering basis.
- c. BESCO shall execute separate agreement with sub-contractors for EPC and O&M works.
- d. BESCO shall pay the consumer a rent for the roof space utilized as per the agreement executed with consumer (Rooftop owner).
- e. The energy consumed by the consumer, shall be billed as per retail supply tariff as approved by the Commission.

iv. Third Party Owned Model (Utility as Aggregator & Trader)

- a. BESCO shall select Third party investor/Developer for aggregated capacity based on lowest quoted per unit rate through reverse bidding process.
- b. The Third party investor/ Developer shall set up, own and operate SRTPV plants on the rooftop of the interested consumers.
- c. The BESCO shall enter into a PPA with the Third Party Investor/Developer for the gross metered energy at the tariff discovered through reverse bidding or the generic tariff determined by the Commission from time to time, whichever is lower.
- d. The Distribution Licensee shall collect a facilitation fee from the third party investor/Developer at the agreed rates, for facilitating the investment on the consumer premises which shall be 10% of the project cost or at the discretion of the BESCO.
- e. BESCO will host details of the successful bidder, details of facilitation fee collected, in the BESCO website in order to maintain transparency.
- f. To reduce load on the system the energy generated will be routed through the load of the consumer through net metering.
- g. The BESCO shall bill the consumer as per the retail supply tariff for the entire energy consumed.
- h. The Third party investor/Developer shall pay the consumer necessary rent for utilizing the rooftop space, by executing suitable agreement.

B. Third party investment model:

- a. This model is applicable to all the consumers of BESCO
- b. A Third party investor/ Developer will invest in the project and shall set up, own and operate SRTPV plants for a mutually agreed period.
- c. Type of Metering:
  - ❖ Net metering or Gross metering shall be allowed for all the Low Tension (LT) Domestic (residential) consumers.
  - ❖ For all other Low Tension (LT) & High Tension (HT) categories of consumers, only gross metering shall be allowed.
- i. In case of Net-metering arrangement applicable to LT Domestic consumers,
  1. The consumer shall enter into agreement with the Third party investor/Developer for payment of entire energy generated from the rooftop solar installation at an agreed rate per unit.

2. The consumer shall enter into the PPA with BESCO in the standard format approved by the Commission
  - a. For surplus energy injected into the Distribution network at the generic tariff, prevailing at the time of commissioning of the project, shall be billed by BESCO and payment shall be made by BESCO.
  - b. For any import or energy drawn from distribution network, the consumer shall be billed as per the prevailing retail supply tariff by BESCO and payment shall be made by Consumer.
- ii. In case of **Gross-metering** arrangement applicable to all installations other than LT domestic installations,
  - a. The Third party investor/Developer shall enter into Power Purchase Agreement(PPA) with BESCO for injecting the entire energy into the distribution network. For the energy injected, BESCO shall pay to the third party investor, at the generic tariff prevailing at the time of commissioning of the project.
  - b. The Third party investor/Developer shall pay the consumer necessary rent for utilizing the rooftop space, by executing suitable agreement.

The capacity of SRTPV plants to be installed under net/ gross metering schemes, shall be restricted to sanctioned load of the installation, as per the prevailing Orders of the Commission.

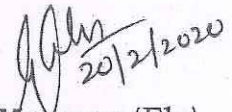
The Consumer may provide suitable Bank Guarantee or investments (Fixed Deposit Receipts etc.) or any other suitable document as a security towards Third party developer investments/ safety of equipment in the consumers' premises. BESCO shall not stand guarantee for non-payment of dues by consumers and disconnect the installations for non-payment of dues by the consumer.

### 3. **Tariff applicable:**

The tariff under different models shall be adopted as per the normative parameters and other issues for kW projects, as per the Generic Tariff Order dated 01.08,2019 issued for the year FY-20. The Commission in its order dated:01.08.2019 has determined the Generic Tariff for Solar power plants projects for FY-20 as detailed below:

- i. for grid connected megawatt scale solar power projects of less than 5MW capacity at Rs.3.08 per unit;
- ii. subject to para(c) below, for grid connected Solar Rooftop Photovoltaic projects of 1kW to 2000kW at Rs. 3.07 per unit (without capital subsidy) and at Rs.2.32 only per unit (with capital subsidy); and

- iii. for grid connected Solar Rooftop Photovoltaic projects of 1kW to 10 kW for domestic consumers at Rs.3.99 per unit (without capital subsidy) and at Rs.2.97 per unit (with capital subsidy);
- iv. The Generic Tariff from 01.04.2020 onwards shall be as determined by the Commission from time to time.
- v. The tenure of the PPA to be executed between the BESCO and the Consumer/ third party investor/Developer for purchasing the surplus energy under net metering/ gross metering schemes, shall be for a period of 25 years. However, the tenure of agreement between the consumer and the third party investor/Developer, under Third Party Investor Model, shall be as per the terms agreed to between them.
- vi. The payment of Cross Subsidy Surcharge and Additional Surcharge, if any, in respect of all the SRTPV projects of LT Domestic consumers, under third party investment schemes is exempted, for a period of three years from the Commercial operation Date (CoD) for such projects which are commissioned within 31.03.2021 as a promotional measure.
- vii. All other issues not covered under this Order, shall be governed as per the relevant Regulations/ Orders of the Commission issued from time to time.
- viii. This Order shall become effective from the 09.12.2019.

  
20/2/2020  
General Manager (Ele)  
DSM, BESCO

**Copy for information to:**

1. The CEE of BMANZ/BMASZ/BRAZ/CTAZ of C, O&M Zone, BESCO
2. The General Manager, Revenue Section, Corporate Office, BESCO.
3. The All SEEs/EEEs/AEEs of C, O&M Circles/Divisions/Sub-Divisions, BESCO.
4. PS to MD/D (T)/D(F) with a request to place before the chair.
5. MF / OC.