

KERALA STATE ELECTRICITY REGULATORY COMMISSION
THIRUVANANTHAPURAM

Present : Shri. Preman Dinaraj, Chairman
Adv. A.J Wilson, Member (Law)

OP No 43/2021

In the matter of : Petition seeking approval for tariff for procurement of power from decentralized solar power plans having capacity of 500KW to 2MW to be set up under Component-A of PM-KUSUM scheme of MNRE and approval of lease rent in accordance with Section 86(1) (b) of Electricity Act, 2003 to meet the Renewable Purchase Obligation of KSEB Ltd. as specified in KSERC (Renewable Energy & Net Metering) Regulations,2020 as amended from time to time.

Petitioner : Kerala State Electricity Board Limited.

KSEB Ltd represented by : Smt. Latha SV, AEE, KSEB Ltd

Date of the hearing : 29.09.2021

Order dated 04.10.2021

1. KSEB Ltd on 14.09.2021, filed a petition before the Commission seeking approval of tariff for procurement of power from decentralized solar power plants having capacity of 500kW to 2MW to be set up under Component-A of PM-KUSUM scheme of MNRE at Rs.3.50/unit and approval of lease rent at Rs.0.10/unit.
2. The summary of the petition filed by KSEB Ltd is given below.
 - (1) As part of the development of electricity generation from Renewable Energy Sources, Ministry of New and Renewable Energy (MNRE), Government of India (GoI), planned simultaneously to develop decentralized Solar energy and other RE generation plants of capacity up to 2 MW, directly connected to existing 33/11 kV or 66/11 kV or 110/11 kV sub-stations of Distribution Company, thus saving transmission system development and T&D losses.

With this objective, MNRE, Government of India has launched a New Scheme for Farmers named '**Pradhan Mantri -Kisan Urja Suraksha evam Utthan Mahabhiyan (PM KUSUM)**' on 22-7-2019 to develop decentralized Solar /other

renewable energy plants of capacity up to 2 MW, giving the farmers an opportunity to increase their income by utilizing their barren and uncultivable land for developing Solar and other RE based power plants, and by selling the power generated from such plants to DISCOMS at pre-determined tariff. Cultivable land may also be used if the Solar plants are set up on silts where crops can be grown below the stilts and sell RE power to DISCOMS.

The PM KUSUM scheme has the following components:

- (i) Component-A: Setting up of 10,000 MW of Decentralized Ground/ Stilt Mounted Grid Connected Solar or other Renewable Energy based Power Plants;
- (ii) Component-B: Installation of 17.50 Lakh Stand-alone Solar Agriculture Pumps; and,
- (iii) Component-C: Solarisation of 10 Lakh Grid Connected Agriculture Pumps.

Component-A and Component-C will be implemented initially on pilot mode for 1000 MW capacity and one lakh grid-connected agriculture pumps respectively and Component-B will be implemented in a full-fledged manner with total Central Government support of Rs. 19,036.50 Crore. All three components of the Scheme aim to add solar capacity of 25,750 MW by 2022 with the total Central Financial Support of ₹ 34,422 crores.

- (2) KSEB Ltd submitted that, under component-A of the Scheme, solar or other RE Power Plants (REPP) having capacity between 500kW to 2MW will be setup by individual farmers/ groups of farmers. DISCOMS may also allow setting up of solar or other RE plants of capacity less than 500kW in specific cases. The REPP will preferably be installed within a 5km radius to avoid the high cost of transmission and transmission losses.

DISCOM will notify the substation wise surplus capacity which can be fed from such RE plants to the grid. DISCOM shall invite applications from interested beneficiaries from setting up RE plants. The RE power generated will be purchased by DISCOM at a pre-fixed levelized tariff.

In case the aggregated capacity offered by the applicants are more than the notified capacity of a particular substation, bidding route will be followed by DISCOM to select the Renewable Energy Generators (REG) with the pre-fixed levelized tariff as the ceiling tariff for bidding. The selection of bidders will be based on the lowest tariff offered by the REG in the ascending order.

MNRE published a model PPA along with the scheme, to be signed by the DISCOM and REG. The PPA period is 25 years. The total RE generated will be accounted towards the RPO of the DISCOM.

The farmers also have the option to allow the development of the REPP through developers or DISCOMS. In such case, the land owner will get lease rent as

mutually agreed between the parties. The lease rent may be in terms of Rupees per year per acre of land or Rs/unit per acre of land area. The lease rent is to be directly remitted by the DISCOM to the bank account of the farmer from the amount due to the developer. A Model Lease Agreement was also published by MNRE along with the Scheme.

MNRE will provide Procurement Based Incentive (PBI) to the DISCOMS @40 paise/kWh or Rs 6.60 lakh/MW/year, whichever is lower for buying the Solar/other RE power under the scheme, for a period of 5 years from the CoD.

- (3) MNRE vide Orders dated 09.12.2019 and 13.01.2021 has sanctioned 40 MW Grid Connected Solar plants to KSEB Ltd which is the implementing agency in the State of Kerala under Component-A of the PM-KUSUM Scheme. KSEB Ltd will get Procurement Based Incentive (PBI) @Rs.0.40/unit purchased or Rs.6.6 Lakh per MW of capacity installed, whichever is less for a period of 5 years from the CoD under the scheme.
- (4) As part of the implementation of the scheme, KSEB Ltd has notified the substation wise surplus capacity which can be fed from RE power plants and also invited applications from interested beneficiaries for setting up of RE power plants. The details are available in the website of the KSEB Ltd.
- (5) KSEB Ltd has approved two business models for implementing the PM KUSUM scheme in line with the guidelines notified by MNRE, GoI, as detailed below.

(i) Model-1: Farmers Investment model

Farmer can directly invest the full amount and KSEB Ltd purchases the entire solar energy from the farmer at a predetermined levelized tariff for 25 years. The tariff for purchase of solar power from the farmer is proposed to be fixed at Rs.3.50/unit considering low-capacity plants (0.5MWp – 2MWp) under this Scheme. KSEB Ltd in their petition submitted that the Commission has fixed Rs 3.50/unit as the ceiling tariff for the procurement of 200MW solar power from solar PV plants within the State vide Order dated 19-11-2018 in OP 56/18. If tariff based bidding is resorted to for selecting the farmers, this rate will be the upper ceiling rate in the bid.

(ii) Model-2: Lease model

If farmers are not able to invest in the Scheme on their own, they can lease out their land or the right to use agreement to KSEB Ltd for a period of 25 years at a lease rent rate of Rs.0.10/unit without escalation. KSEB Ltd investment will be through EPC or RESCO mode.

3. The Commission admitted the petition as OP 43/2021. Hearing of the petition was held on 29.09.2021 through video conference. Smt. Latha S V, Assistant Executive Engineer, presented the petition on behalf of the petitioner M/s KSEB Ltd. The summary of the deliberations during the hearing is given below:

- (1) KSEB Ltd submitted that, the MNRE notified the PM-KUSUM Scheme on 22.07.2019, for setting up Solar/ RE plants having capacity upto 2MW by

farmers to earn additional income by utilizing the barren and uncultivable land. There are three components under PM-KUSUM scheme.

- I. Component-A. Setting up of 10,000MW of de-centralised Ground/ silt mounted grid connected solar or other RE based power plants.
 - II. Component-B. Installation of 17.50 lakh stand alone solar agriculture pumps, and,
 - III. Component-C. Solarisation of 10 lakh grid connected agriculture pumps.
- (2) KSEB Ltd submitted that, they are the State Implementing Agency of the Scheme. MNRE, GoI, vide the Orders dated 09.12.2019 and 13.01.2021 has sanctioned 40MW capacity to KSEB Ltd under Component-A of the scheme. KSEB Ltd will be eligible to get performance based incentive (PBI) @Rs 0.40/unit purchased OR Rs 6.60 lakh per MW of capacity installed whichever is less for a period of 5 years from the CoD.
- (3) KSEB Ltd proposed the following mechanism for implementation of the scheme.
- (i) It shall notify sub-station wise surplus capacity on its website.
 - (ii) KSEB Ltd shall invite applications from interested beneficiary farmers.
 - (iii) KSEB Ltd shall purchase the electricity generated at pre-fixed levelized tariff.
 - (iv) Bidding shall be adopted in case the aggregate capacity offered by applicants is more than the notified capacity for a particular sub-station. Prefixed levelised tariff will be the ceiling tariff for bidding.
 - (v) Duration of PPA : 25 years from CoD of the project.
 - (vi) Energy purchased from the RE plants will be accounted for the fulfillment of RPO of the DISCOM.
 - (vii) If the farmer is not able to arrange the investment required for setting up the plant, the plant can be set up through developer(s) or through DISCOM, and the land owner will get lease rent.
- (4) KSEB Ltd has already notified the substation wise surplus capacity in KSEB Ltd website. KSEB Ltd has also invited applications from interested beneficiaries. KSEB Ltd has approved two business models for implementing Component-A of PM-KUSUM Scheme.
- (i) **Model-1: Farmers Investment Model**
 - (ii) **Model-2: Lease Model**

KSEB Ltd further submitted that, under Model-1, the farmer will invest the full amount for setting up the solar RE plant KSEB Ltd will purchase the entire solar energy generated at a predetermined levelized tariff @ 3.50/unit for 25 years. Hon'ble Commission has fixed Rs.3.50/unit as the ceiling for 200MW solar bid (Order dated 19-11-2018 in OP 56/180). In the case of bidding, this rate will be the upper ceiling rate in the bid.

KSEB Ltd further submitted that, in the Model-2, the farmer has the option to lease out the land or sign the right to use agreement with KSEB Ltd for a period of 25 years. KSEB Ltd has also revised lease rent to the farmers to

Rs 0.20/unit for the period of 25 years. KSEB Ltd investment will be through EPC or RESCO mode.

- (5) KSEB Ltd requested before the Commission to kindly grant approval for procurement of power from the decentralized solar power plants under Component-A of PM-KUSUM scheme of MNRE @ Rs 3.50/unit and approval of lease rent payable @Rs 0.20/unit.

Analysis and Decision of the Commission

4. The Commission has examined in detail, the petition filed by KSEB Ltd, as per the provisions of the Electricity Act, 2003, KSERC (Renewable Energy & Net Metering) Regulations, 2020, and other details presented before the Commission during the hearing held on 29.09.2021.
5. The Commission noted that KSEB Ltd has filed the instant petition for seeking approval of tariff for procurement of power from decentralized solar power plants having capacity of 500kW to 2MW to be set up under Component-A of PM-KUSUM Scheme of MNRE at Rs.3.50/unit. KSEB Ltd, also requested to approve the lease rent at Rs.0.20/unit, payable to the farmers, who lease out the land to KSEB Ltd for installing Solar PV plants. The summary of the PM-KUSUM and its implementation proposed by KSEB Ltd is given below.
 - (1) Ministry of New and Renewable Energy (MNRE), Government of India vide the office memorandum dated 29.07.2019 notified the Guidelines for implementation of '**Pradhan Mantri -Kisan Urja Suraksha evam Utthan Mahabhiyan Scheme (PM KUSUM)**'. The Component-A of the Scheme envisages the implementation of 10000MW of Decentralized Ground Mounted Grid Connected Renewable Power Plants of individual size up to 2MW. The scheme envisaged to utilize the barren and uncultivable lands owned by farmers, giving them an opportunity to increase their income from such lands. The entire energy generated from the Solar/ RE plants shall be purchased by DISCOM at a pre-fixed levelized tariff.
 - (2) The farmers, who cannot arrange funds and invest directly to set up solar/ RE plant, have the option to lease out their uncultivable/ barren land to other developers or to the DISCOM for setting up the Solar plant or other RE plants in such lands. In such case the DISCOM shall pay lease rent at the rate mutually agreed between the parties to the farmer.
 - (3) MNRE has allotted a solar capacity of 40MW (10MW vide Order dated 09.12.2019 and 30MW vide Order dated 13.01.2021) to KSEB Ltd as the DISCOM for facilitating the Scheme. KSEB Ltd will get procurement-based incentive (PBI) @ Rs 0.40 per unit or Rs 6.6 Lakh/MW whichever is lower, for five years from CoD.
 - (4) KSEB Ltd has proposed two business models for implementing the scheme.

Model-1. Farmers investment Model.

Under Model-1, the farmer will invest the full amount. KSEB Ltd shall purchase the entire solar energy at a predetermined levelized tariff @ 3.50/unit for 25 years. Hon'ble Commission has fixed Rs.3.50/unit as the ceiling for 200MW solar bid (Order dated 19-11-2018 in OP 56/180). In the case of bidding, this rate will be the upper ceiling rate in the bid.

Model-2. Lease Model

Under the Model-2, if the farmer cannot make the investment for developing Solar/ RE plants, the farmer has the option to lease out his land or sign the right to use agreement to KSEB Ltd for a period of 25 years. KSEB Ltd has proposed to provide lease rent to the farmers @Rs 0.20/unit for the period of 25 years. KSEB Ltd investment will be through EPC or RESCO mode.

- (5) KSEB Ltd during the hearing submitted that, they had already notified the substation wise surplus capacity on its website and the licensee has invited applications from the interested parties to implement the Scheme.
6. The Commission has carefully examined the proposal of KSEB Ltd in detail and appreciated the efforts taken by the licensee to implement the Component-A of PM-KUSUM Scheme of the MNRE, GoI. The Scheme is proposed to utilize the barren land/ uncultivable land of farmers for Solar/RE plants so as to earn additional income by the framers by selling energy generated from such Solar/RE plants to DISCOM. MNRE has allotted 40MW Solar plants under the scheme to KSEB Ltd. Once the scheme is implemented fully, KSEB Ltd may get a Performance Based Incentive (PBI) @Rs 2.64 crore per year for 5 years. Further, KSEB Ltd can account the purchased energy towards its RPO.
7. The Commission examined KSEB Ltd's proposal to purchase the energy generated at the pre-fixed levelized tariff @Rs 3.50/unit from the Solar/RE plants under Component-A of the PM-KUSUM scheme. KSEB Ltd submitted that, the Commission has fixed Rs 3.50/unit as the ceiling tariff for the procurement of 200MW Solar plant within the State vide Order dated 19.11.2018 in petition No. OP 56/18. The Commission noted the justification of KSEB Ltd and observed the following.
 - (1) The petition filed by KSEB Ltd in OP No.56/2018 is for procuring 200MW Solar Power within the State, wherein the minimum bid capacity was 5MW and the maximum capacity was upto 200MW Solar Plant. However, there was no participants in the bid invited by KSEB Ltd for procuring 200MW Solar Power from the plants established within the State of Kerala.
 - (2) But, in the instant case, under Component-A of the PM-KUSUM Scheme, the minimum capacity is 500kW only and the maximum capacity is 2MW. The Commission noted that economies of scale do operate in such investments and the present proposal capacity wise cannot be compared to the previous KSEB Ltd tender in OP56/2018 and the rate so fixed as ceiling tariff therein.

- (3) The Commission also noted that, vide the notification dated 7th February 2020, the Commission has notified the KSERC (Renewable Energy & Net Metering) Regulations, 2020, (hereinafter referred as RE Regulations, 2020) and the same was published in Government Gazette on 5th June 2020. The Commission has notified the RE Regulations after adhering to the due process i.e. detailed deliberations, pre-publication, stake holder consultation and public hearings. The Commission, as per the Regulation 35 of the RE Regulations, 2020, had determined the generic tariff of electricity generated from the Solar PV plants of capacity of and below 5 MW @ Rs 3.66/unit for the FY 2019-20 and published the same in the official Gazette. The Commission also clarified that, till such time the Commission re-determine the generic tariff for Solar PV capacity, of and below 5 MW and notify the same, the generic tariff approved by the Commission for Solar PV plants of capacity of and below 5MW for the year 2019-20 @Rs 3.66/unit shall continue.

Considering the fact that the proposed plant capacity ranges between 500 kw to 2 MW, is intended to utilize the wasteful /uncultivable land of the farmers and is meant to supplement the farmer's income the Commission whole heartedly supports this initiative. However, the rate proposed by KSEB Ltd for procuring the electricity generated from the Solar plants under Component-A of the PM-KUSUM scheme as above is proposed at Rs.3.50/unit. As mentioned above, the Commission has already notified the RE Regulations, 2020 wherein the generic tariff is determined @ Rs.3.66/unit. Since this rate has been determined through a due process and is still valid, the Commission hereby direct KSEB Ltd to fix the rate @Rs 3.66/unit instead of Rs 3.50/unit proposed by it, for procuring the solar power under Component-A of the PM-KUSUM scheme.

8. The Commission has also examined the lease rent @Rs 0.20/unit proposed by KSEB Ltd as payment to these farmers who lease out the land to KSEB Ltd for developing the Solar PV plants. As per the details submitted by KSEB Ltd, about 3 acres of barren land is required for establishing 1 MW Solar plants. At an average CUF of 15% proposed in the guidelines, the annual electricity generation from the 1MW Solar PV plants is about 1,314,000 units (1.31MU/year). At the proposed lease rent @Rs 0.20/unit, the farmer may earn an income of Rs 87600/ Acre/ year from the barren land/ un-cultivable land leased to KSEB Ltd. It seems that, the income of Rs 87,600/- per Acre/year of the barren land leased to the KSEB Ltd is somewhat reasonable. **Considering the above, the Commission hereby approves the lease rent @Rs 0.20/unit as proposed by KSEB Ltd during the hearing held on 29.09.2021.**

Orders of the Commission

9. The Commission, after examining the petition filed by KSEB Ltd as per the provisions of the Electricity Act, 2003, KSERC (Renewable Energy & Net Metering) Regulations, and other details presented before the Commission during the hearing held on 29.09.2021, hereby orders the following.

- (1) Approve the tariff for procurement of power from decentralized solar power plants having capacity between 500kW to 2MW to be set up under Component-A of PM-KUSUM scheme of MNRE, Government of India @Rs 3.66/unit, i.e the generic tariff is determined by the Commission in the RE Regulations, 2020 instead of Rs 3.50/unit as proposed by KSEB Ltd.
- (2) Approve the lease rent @Rs 0.20/unit as proposed by KSEB Ltd during the hearing, for payment to farmers, who lease out/ enter into right to use agreement with KSEB Ltd for a period of 25 years under the PM-KUSUM Scheme.

The petition disposed off. Ordered accordingly.

Sd/-
Adv A J Wilson
Member (Law)

Sd/-
Preman Dinaraj
Chairman

Approved for issue

C R Satheeshchandran
Secretary (i/c)