

**KERALA STATE ELECTRICITY REGULATORY COMMISSION**  
**THIRUVANANTHAPURAM**

Present: **Shri. Preman Dinaraj, Chairman**  
**Shri. S. Venugopal, Member**

**Petition No. OP 03/2020**

In the matter of : Petition filed by KSEB Ltd for inviting bids for the procurement of power from 50MWp of Solar Rooftop PV systems under subsidy programme in residential sector as per MNRE's phase II of the RTS programme

Petitioner : Kerala State Electricity Board Limited

Petitioner represented by : Sri. Nazarudeen, State Nodal Officer, SOURA  
Smt. Latha S.V, AEE  
Smt. Deepa, R, AEE, SOURA  
Sri. Nandakumar, AE, SOURA

**Order dated 11.03.2020**

1. KSEB Ltd on 03.01.2020, filed a petition before the Commission 'for the matter of seeking approval under section 86(1)( e), 86(1)(b), 61(h) and 63 of the EA,2003 and Regulation 3, 4 and 8 of KSERC(Renewable Energy)Regulations, 2015 for inviting bids for the procurement of power from 50MWp of Solar Rooftop PV systems under subsidy programme in residential sector in MNRE's phase II of the RTS programme.
2. The summary of the petition filed by KSEB Ltd is given below.
  - (i) Ministry of New and Renewable Energy (MNRE) vide the office memorandum dated 20.08.2019 has issued 'operational Guidelines on implementation of Phase – II of Grid Connected Rooftop Solar Programme for achieving 40 GW capacity from Rooftop Solar by the year 2022'.

The Phase-II Grid connected solar program, is to be implemented by making the DISCOMs and its local offices as nodal points for implementation.

- (ii) The major components of this phase II of the programme are: -
- Component A: Setting up of 4000 MW of grid connected rooftop solar projects in residential sector with Central Financial Assistance (CFA).
  - Component B: Incentives to Electricity Distribution Companies (DISCOMs) based on achievement towards initial 18000 MW of grid connected rooftop solar plants.
- (iii) Component A: Setting up of 4000 MW of grid connected rooftop solar projects in residential sector with Central Financial Assistance (CFA).

The CFA pattern to residential sector under this scheme is as follows:

Type of residential sector	CFA (as percentage of benchmark cost or cost discovered through competitive process whichever is lower )
Residential sector (maximum up to 3 kW capacity )	40 % of benchmark cost
Residential sector (above 3 kW capacity and up to 10 kW capacity)	40 % up to 3 kW Plus 20% for RTS system above 3 kW and up to 10 kW
Group Housing Societies/Residential Welfare Associations (GHS/RWA) etc. for common facilities up to 500 kWp (@10 kWp per house), with the upper limit being inclusive of individual rooftop plants already installed by individual residents in that GHS/RWA at the time of installation of RTS for common activity.	20 %

- The implementing agency will get service charges @ 3% of eligible CFA for implementing the programme.
  - The participating Government owned DISCOMs will be eligible to avail advance CFA up to 30% of the total CFA amount for the project.
  - The DISCOM is authorised to disburse the CFA amount to bidders upon satisfactory completion of the project.
- (iv) Component B: Incentives to Electricity Distribution Companies (DISCOMs) based on achievement towards initial 18000 MW of grid-connected rooftop solar plants.

The incentives will be given on incremental RTS capacity installed by the DISCOMs in their distribution area from the installed base capacity (at the end of previous financial year) within the time line of 12 months (financial year-wise, i.e. 01.04.2019 to 31.03.2020 and so on till the duration of the programme). The incentive pattern would be a progressive one with higher incentive rates for higher levels of achievement. The details are given below.

Sl.No.	Parameter	Incentive to be Provided
1	For installed capacity achieved above 10 %and up to 15 % over and above of the installed base capacity within a financial year	5% of the applicable cost for capacity achieved above 10 % of the installed base capacity
2	For installed capacity achieved beyond 15% over and above of the installed base capacity within one financial year	5% of the applicable cost for capacity achieved above 10 % and up to 15 %of the installed base capacity PLUS 10% of the applicable cost for capacity achieved beyond 15 % of the installed base capacity

- (v) The key features of the MNRE Phase-II programme are:
- (a) The phase-II program of MNRE is targeted towards installing solar rooftops by subsidised residential sector presently paying lower tariff in almost all the States, by providing adequate incentives.
  - (b) MNRE will allocate capacity for installation of RTS System in residential sector by DISCOMS in the ensuing year. One of the parameters for allocating the capacity will be the demand raised by the DISCOM and capacity required for fulfilment of solar RPO of the State as notified by Ministry of Power.
  - (c) The implementing agency i.e. Discoms or its authorized agency shall invite Expression of Interest for empanelment of agencies for supply, installation, testing & Commissioning of RTS system in residential premises. The vendor will claim the CFA from the implementing agency.
  - (d) The CFA specified above for residential sector is permissible only if the 'domestic manufactured solar panels (using domestic manufactured Solar cells)' are used by the beneficiary.
  - (e) The participating Government owned DISCOMs will be eligible to avail advance CFA upto 30% of the total CFA amount.
  - (f) The Implementing agency DISCOMs will get service charges @ 3% of the eligible CFA. The service charge will be given only after completion of the project.
  - (g) **Other than residential sector:** CFA will not be available for other categories i.e. institutional, educational, social, government, commercial and industrial sectors as the beneficiaries in these sectors are high tariff paying consumers and adoption of solar would be economically beneficial for them even without CFA. The power generated through RTS plant would result in significant reduction of the electricity bill paid by them to the DISCOMs, hence making it an economically viable solution. Although CFA is not admissible for non-residential sectors, the DISCOMs will be incentivized for addition of RTS capacity in these sectors too as described under para 4.0 below.

- (h) Business models. The paragraph 9 of the guidelines deals with various business models in accordance with the prevailing legal frame work, which is extracted below.

“9. Business models Various business models in accordance with the prevailing legal framework are covered under the programme such as CAPEX, RESCO, rent a roof/lease model, community model, utility model, through a SPV having share of Utility, plug-in RTS model and any other model as specified by respective State Govt. Policy/Regulations. RTS systems with or without battery storage are covered under the programme.

In addition, hybrid systems, e.g., solar rooftop PV- wind hybrid, solar rooftop PV- solar thermal hybrid, solar rooftop PV- biomass hybrid etc. are also covered for which the capacity of the PV modules installed on rooftop of buildings within the campus will be considered for CFA/incentive calculations. However, this won't be applicable for cases wherein the developer/implementing agency has availed the CFA for solar module from the other components viz. wind, biomass etc.”

- (i) KSEB Ltd further informed that, MNRE vide the order dated 20<sup>th</sup> August 2019 allotted 50 MW to KSEB Ltd under Phase-II program as against 100MW sought by KSEB Ltd.

### 3. **Business Models proposed by KSEB Ltd**

- (i) KSEB Ltd submitted that, under normal CAPEX mode, the balance cost of installation of Solar PV system after meeting the capital subsidy offered by MNRE has to be borne by the consumer. It means that, the residential consumers has to meet 60% of the cost for those who install solar PV system with capacity upto 3 kW and 60% to74% of the cost for those who install solar PV system with capacity above 3 kW and upto 10 kW. In view of the substantial upfront investment required, the scheme may be opted by affluent sections of the consumers only.
- (ii) In order to target subsidised domestic consumers, KSEB Ltd proposed four different business models, with sharing the cost of upfront investment after meeting CFA, by the consumer, KSEB Ltd and the developer, as detailed below.
  - (1) Model-IA: For domestic consumers having monthly average consumption upto 120 units only.
  - (2) Model-1B: For domestic consumers having monthly average consumption upto 150 units only.
  - (3) Model-1C: For domestic consumers having monthly average consumption upto 200 units only.
  - (4) Model-II: For all domestic consumers, irrespective of consumption level.

- (iii) The details of the sharing of capital cost by the consumer, KSEB Ltd, and the developer under the above models as proposed by KSEB Ltd is given below.

Particulars	Target group	Capital cost contribution by consumer, KSEB Ltd and Developer			Energy share of the consumer (as % of total energy generated)
		Consumer	KSEB Ltd	Developer	
Model-1A	Domestic consumers having monthly avg. consumption upto 120 units	12%	14.67%	33.33%	25%
Model-1B	Domestic consumers having monthly avg. consumption upto 150 units	20%	6.67%	33.33%	40%
Model-1C	Domestic consumers having monthly avg. consumption upto 200 units	25%	1.67%	33.33%	50%
Model-II	Can be opted by all domestic consumers irrespective of consumption limit	Entire cost after meeting the CFA			100%

- (iv) The share of the consumers under the above models are worked out as follows.

(1) Model-1 A.

- (a) Consumers contribution towards the project cost is 12% of the MNRE benchmark cost or bid discovered price whichever is lower.
- (b) After 40% CFA, the effective project cost is 60% of the total cost. Therefore the share of the consumer in the effective cost is  $(12\%/60\%)= 20\%$ .
- (c) T&D loss saving is around 10%. This is proposed to shared between the consumer and KSEB Ltd.
- (d) After taking all these into accounts, the energy share of the consumer is fixed as 25%.

Further, with an installation of 3 kW, the average solar generation is about 12 units per day. About 25% of the energy from the solar plant is sufficient to meet the consumption of the consumers under this group.

(2) Model-1 B

- (a) Consumers contribution towards the project cost is 20% of the MNRE benchmark cost or bid discovered price whichever is lower.

- (b) After 40% CFA, the effective project cost is 60% of the total cost. Therefore the share of the consumer in the effective cost is  $(20\%/60\%) = 33.33\%$ .
- (c) T&D loss saving is around 10%. This is proposed to share between the consumer and KSEB Ltd.
- (d) After taking all these into accounts, the energy share of the consumer is fixed as 40%.

Further, with an installation of 3 kW, the daily average solar generation is about 12 units per day. About 40% of the energy from the solar plant is sufficient to meet the consumption of the consumers under this group.

(3) Model-1 C

- (a) Consumers contribution towards the project cost is 25% of the MNRE benchmark cost or bid discovered price whichever is lower.
- (b) After 40% CFA, the effective project cost is 60% of the total cost. Therefore the share of the consumer in the effective cost is  $(25\%/60\%)=41.67\%$ .
- (c) T&D loss saving is around 10%. This is proposed to share between the consumer and KSEB Ltd.
- (d) After taking all these into accounts, the energy share of the consumer is fixed as 50%.

Further, with an installation of 3 kW, the daily average solar generation is about 12 units per day. About 50% of the energy from the solar plant is sufficient to meet the consumption of the consumers under this group.

- (v) The role and responsibilities of the developer and KSEB Ltd in the above models are submitted as below.

(1) In Model-1A, Model-1B and Model- 1C

- (a) The solar power developer shall be responsible for design, procurement, erection, commissioning of the plant. 66.66% of the project cost, discovered through e-reverse tender will be paid upon CoD of the project.33.33% of the cost shall be invested by the bidder.
- (b) In consideration of the investment made by the bidder in the project, the payment for the entire energy generated will be made by KSEB Ltd throughout the entire contract period.

- (2) In Model-II
  - (a) The net project cost after meeting CFA shall be invested by the consumer. The bidder and KSEB Ltd has no contribution on the capital cost of the solar PV system.
  - (b) KSEB Ltd shall invite tender for empanelling EPC contractor.
  - (c) CFA shall be disbursed to the consumer through KSEB Ltd.
  
- (vi) The major benefits of the above model highlighted by KSEB Ltd is given below.
  - (1) Subsidy saving: 93 % of total domestic consumers comes under range of monthly consumption less than 200 units and 61 % of the total consumers come under the range of monthly consumption of 100 units. There will be substantial subsidy saving for GoK.
  - (2) Substantial cost saving to KSEBL by way of reducing supply of power at subsidized rates to subsidized consumers.
  - (3) Savings in Power Purchase including reduction of T & D loss
  - (4) RPO benefits to KSEBL.
  - (5) In addition to the above, KSEBL will get service charges @ 3% of eligible CFA for implementing the programme (capacity building / awareness) for the various tasks. This would be around 3 crores for the 50 MW project allocated.
  - (6) KSEBL will receive Incentive from MNRE in the year 2020-21, Rs.25 Crores for the 50 MW project, if commissioned within MNRE time frame.
  - (7) Banking provision is allowed to consumers as per the prevailing net metering Regulations of Hon'ble Commission.
  
- (vii) The upfront investment of KSEB Ltd will be around Rs 20.00 crore if the 50 MW project is executed under Model-1A, Model-1B and Model-1C in equal proportion.
  
- 4. KSEB Ltd further submitted that, the bidders are selected through e-reverse bidding followed by e-reverse auction, L-1 matching and bucket filling within the price bracket specified in the guidelines. After bucket filling, only those bidders willing to match with L-1 price will be eligible for empanelment, as already ordered by Hon'ble Commission vide order dated 30-8-2019 in OP 50/2019. Since, selection is only based on EPC price, bid provisions related to RESCO mode in the approved bid documents of Soura Phase-1 original tender are not required.
  
- 5. Payment to bidders under Model-1A, Model-1B and Model-1C
 

Out of the total discovered EPC, 2/3<sup>rd</sup> will be paid to the bidder upon installation and demonstration of performance ratio. Balance 1/3<sup>rd</sup> EPC and O&M cost is considered for payment at a pre-determined tariff for 25 years for

the entire energy generated from the roof top plant. The levelized tariff arrived based on CERC norms for the FY 2019-20. Degradation of panels over the life of the project as notified by MNRE also considered. There will be PPA with the developer for Model-1A, Model-1B and Model-1C. The PPA format approved by the Commission in the order dated 30.08.2019 in OP No. 50/2019, SOURA project will be followed with modifications for payment conditions. The payment to the bidders estimated by KSEB Ltd is given below.

<b>EPC Cost (Rs/kWp)</b>	<b>Payout Rs/unit</b>
54000-53510	2.25
53500-53010	2.23
53000-52510	2.22
52500-52010	2.20
52000-51510	2.18
51500-51010	2.17
51000-50510	2.15
50500-50010	2.14
50000-49510	2.12
49500-49010	2.11
49000-48510	2.09
48500-48010	2.07
48000-47510	2.06
47500-47010	2.04
47000-46510	2.02
46500-46010	2.01
46000-45510	1.99
45500-45010	1.98
45000-44510	1.96
44500-44010	1.95
44000-43510	1.93
43500-43010	1.91
43000-42510	1.9
42500-42010	1.88
42000-41510	1.87
41500-41010	1.85
41000-40510	1.83
40500-40010	1.82
40000-39510	1.8
39500-39010	1.79
39000-38510	1.77

#### 6. Payment to the bidders under Model-2

Under model-2, the entire amount to the contractor excluding O&M will be released after completion of installation and demonstration of the solar plant. The contractor is bound to carry out the O&M for 5 years from CoD.



7. **Financial and Technical eligibility criteria of the bidders:**

The minimum bid quantity in the bid is 1MWp and maximum bid capacity is 50MWp. The bidder shall quote his maximum capacity for which he shall meet the following technical and financial eligibility criteria:

(1) **Financial eligibility criteria:**

- Solvency :**Rs.1.5 Cr/MWp** of quoted capacity (applicable for all bidders)
- Annual Turn over:**Rs.1 Cr/MWp** of quoted capacity (For three financial years in the last 5 financial years immediately preceding the bid opening date )
- Net worth in the 3 financial years preceding the bid opening date shall be positive.

**OR**

- For companies incorporated within the last 3 financial years, the net worth shall be  $\geq$ Rs. 0.75 Cr per MWp of quoted capacity.
- **For ANERT empanelled Solar PV developers** with grading SP1A, SP1B, SP1C, SP2A, SP2B, SP2C, SP3A, SP3B, SP3C, SP4A, SP4B, SP4C, SP5A and SP5B **and start ups the above financial eligibility criteria with respect to Annual Turnover and Net worth is waived.**

(2) **Technical eligibility criteria:**

For quoting for minimum capacity, the Bidder should have installed & commissioned at least **3 MWp** capacity of rooftop/ground mounted solar plants in India.

Start ups and **ANERT empanelled Developers** with grading SP1A, SP1B, SP1C, SP2A, SP2B, SP2C, SP3A, SP3B, SP3C, SP4A, SP4B, SP4C, SP5A and SP5B shall be eligible for participating in the tender. Eligibility criteria for Start ups and ANERT empanelled solar PV developers with the above grading quoting for minimum capacity alone is relaxed as **0.5MWp**.

For quoting more than minimum capacity, all the bidders should demonstrate installing and commissioning of at least 50% of quoted capacity.

The above capacities can be either from ground mounted/roof top or both. Further, for becoming eligible for participating in the bid, the bidder shall have installed minimum rooftop capacity as specified below:

**Rooftop capacity**

<b>Eligibility criteria</b>
Shall have commissioned grid connected roof top solar plant with aggregate capacity of 0.5 MWp
<b>For startups &amp; ANERT: aggregate capacity of 0.25MWp</b>

8. **No. of requisitions:** No. of requisitions in the bid is restricted to 4, as given below:
- (i) 2kWp capacity plants (EPC basis)
  - (ii) 3kWp capacity plants (EPC basis)
  - (iii) 4-10kWp capacity plants(EPC basis)
  - (iv) >10 kWp capacity plants (EPC basis)
9. KSEBL further submitted that, the Commission vide the order dated 30.08.2019 in OP No. 50/2019 granted approval for inviting bid for implementation of 200MW SOURA Phase-1 project. The bid documents under Soura Phase-2 need only minor modifications from that of Phase-1 as submitted above. The e-bidding portal developed for Soura Phase-1 can be used for Soura Phase-2 also.
- KSEB Ltd also submitted that, as per MNRE guidelines (Annexure-II of D.O. No. 318/68/2019-Grid Connected Rooftop Dated: 5.11.2019 of the MNRE), the project commissioning timeline is 20.11.2020.
10. KSEB Ltd vide the additional submission dated 20.01.2020 submitted that, the State Government vide the GO (Rt) No. 5/2020/Power dated 13.01.2020 has accorded sanction to the hybrid models for domestic categories with monthly consumption upto 200 units under the MNRE Phase-II subsidy program.
11. The Commission admitted the petition as OP No. 03/2020. The hearing on the petition was held on 28.02.2020 at the Court hall of the Commission at Thiruvananthapuram.
12. During hearing, Sri. Nazarudeen, State Nodal Officer, SOURA presented the petition on behalf of KSEB Ltd. The summary of the deliberations during the hearing is given below.
- (a) KSEB Ltd proposed the hybrid model for getting the subsidy, targeting the low end domestic consumers.
  - (b) All the stakeholders including the consumer, KSEB Ltd and developer should contribute and have stake in the developing the roof top solar PV system. Interest of all the stake holders including the consumer, utility and developer should be protected with proper sharing of risks and rewards.
  - (c) The State Government vide the GO (Rt) No. 5/2020/Power dated 13.01.2020 granted sanction for implementing the project.
  - (d) Based on the review meeting with MNRE held on 23.01.2020, the following additional information submitted by KSEB Ltd.
    - (i) The payment of the investment by the consumer to the developer is also through the DISCOMs.
    - (ii) Under Model-II, the payment to the contractor is including the is including O&M charges upon commissioning of the plants.

- (iii) MNRE may tentatively proposed an additional capacity of 100 MWp for the FY 2020-21.
- (iv) Time of completion-15 months from the date of allocation.
- (v) Tender quantity is proposed to be revised including the additional quantum of 100 MW propose to allocate by MNRE for the year 2020-21.

(e) KSEB Ltd proposed to revise the number of requisitions as follows.

Original petition dated 03.01.2020	Change proposed during the hearing held on 28.02.2020	Remarks
1. 2 kWp capacity plants (EPC basis)	1. 2 to 3 kWp (EPC and EPC-RESCO Hybrid basis)	Since not much change in cost, the requisitions for 2 and 3 kWp system are combined
2. 3 kWp capacity plants (EPC basis)		
3. 4-10 kWp capacity plants(EPC basis)	2. 4-10 kWp (EPC basis)	
4. > 10 kWp capacity plants (EPC basis)	3. 11-100 kWp (EPC basis)	
	4. 101-500 kWp (EPC basis)	> 100 kWp systems are added to provide for Group Housing societies/ Residential Welfare Associations

- (f) The following are the tendering stages proposed for selecting the empanelment list of contractors with rates and maximum executable capacity.
- e-reverse bidding
  - e-reverse auction
  - Manual L1 matching (only bidders offering rates in the range of L1+10% of L1 shall be eligible for L1 matching).

### **Analysis and Decisions**

13. The Commission has examined in detail the petition filed by KSEB Ltd for inviting bids for the procurement of power from 50MWp of Solar Rooftop PV systems under subsidy programme in residential sector as per MNRE's phase II of the RTS programme, as per the provisions of the Electricity Act, 2003 and KSERC (Renewable Energy and Net Metering) Regulations, 2020 and other relevant documents.
14. The Ministry of New and Renewable Energy (MNRE), Government of India vide the office Memorandum No. 318/313/2017 dated 20.08.2019– Grid Connected Rooftop has notified the 'operational Guidelines on implementation of Phase – II of Grid Connected Rooftop Solar Programme for achieving 40 GW capacity from Rooftop Solar by the year 2022'. The scheme covering the following components.

- (i) Component A: Setting up of 4000 MW of grid connected rooftop solar projects in residential sector with Central Financial Assistance (CFA).
- (ii) Component B: Incentives to Discoms based on achievement for installing additional grid connected rooftop capacity in all sectors over and above the base level, with the incentive being limited to the first additional 18000MW of rooftop capacity added in the country. Achievement above this level will not be eligible for any incentive.

As per the MNRE guidelines dated 20.08.2019, the Phase-II Grid connected solar program, decided to implement by making the DISCOMs and its local offices as nodal points for implementation of the RTS program. DISCOMs will play a key role in expansion of RTS as they having a direct contact with end user and they provide approval for installation, manage the distribution network and also have billing interface with rooftop owner.

15. As per the MNRE guidelines, the Central Financial Assistance under the component A, for setting up of 4000 MW of grid connected rooftop solar projects in residential sector is as follows.

Type of residential sector	CFA (as percentage of benchmark cost or cost discovered through competitive process whichever is lower )
Residential sector (maximum up to 3 kW capacity )	40 % of benchmark cost
Residential sector (above 3 kW capacity and up to 10 kW capacity)	40 % up to 3 kW Plus 20% for RTS system above 3 kW and up to 10 kW
Group Housing Societies/Residential Welfare Associations (GHS/RWA) etc. for common facilities up to 500 kWp (@10 kWp per house), with the upper limit being inclusive of individual rooftop plants already installed by individual residents in that GHS/RWA at the time of installation of RTS for common activity.	20 %

- The implementing agency will get service charges @ 3% of eligible CFA for implementing the programme.
- The participating Government owned DISCOMs will be eligible to avail advance CFA up to 30% of the total CFA amount for the project.
- The DISCOM is authorised to disburse the CFA amount to bidders upon satisfactory completion of the project.

Further as per the MNRE guidelines, the implementing agency DISCOMS shall invite Expression of Interest for empanelment of agencies for supply,

installation, testing & commissioning of the RTS system in residential premises. The beneficiary will have the option of installing the RTS system through any of the empanelled vendors. The vendor has to claim the CFA from the implementing agency DISCOM. The Government owned DISCOM will be eligible to avail advance CFA upto 30% of the total CFA amount for the project. The implementing agency will get 3% of the CFA as service charge. CFA is available only to the residential sector.

16. The paragraph 9 of the MNRE guidelines provides for various business models including CAPEX, RESCO, rent a roof/ lease model, utility model, or any other model as specified by respective State Government Policy/ Regulations. The paragraph-9 of the guideline is extracted below.

“9. Business models Various business models in accordance with the prevailing legal framework are covered under the programme such as CAPEX, RESCO, rent a roof/lease model, community model, utility model, through a SPV having share of Utility, plug-in RTS model and any other model as specified by respective State Govt. Policy/Regulations. RTS systems with or without battery storage are covered under the programme.

In addition, hybrid systems, e.g., solar rooftop PV- wind hybrid, solar rooftop PV- solar thermal hybrid, solar rooftop PV- biomass hybrid etc. are also covered for which the capacity of the PV modules installed on rooftop of buildings within the campus will be considered for CFA/incentive calculations. However, this won't be applicable for cases wherein the developer/implementing agency has availed the CFA for solar module from the other components viz. wind, biomass etc.”

17. MNRE vide the letter dated allotted 50 MWp capacity to KSEB Ltd under the Phase-II of Grid Connected Roof Top Solar Programme. In line with the paragraph 9 of the MNRE guidelines dated 20.08.2019, KSEB Ltd has evolved the following hybrid model for implementing the 50 MWp in the residential sector.

- (1) Model-1.
- (i) Model-1A: For domestic consumers having monthly average consumption upto 120 units only.
  - (ii) Model-1B: For domestic consumers having monthly average consumption upto 150 units only.
  - (iii) Model-1C: For domestic consumers having monthly average consumption upto 200 units only.
- (2) Model-II: For all domestic consumers, irrespective of consumption level.

The details of the sharing of capital cost by the consumer, KSEB Ltd, and the developer under the above models are as given below.

Particulars	Target group	Capital cost contribution by consumer, KSEB Ltd and Developer			Energy share of the consumer (as % of total energy generated)
		Consumer	KSEB Ltd	Developer	
Model-1A	Domestic consumers having monthly avg. consumption upto 120 units	12%	14.67%	33.33%	25%
Model-1B	Domestic consumers having monthly avg. consumption upto 150 units	20%	6.67%	33.33%	40%
Model-1C	Domestic consumers having monthly avg. consumption upto 200 units	25%	1.67%	33.33%	50%
Model-II	Can be opted by all domestic consumers irrespective of consumption limit	Balance cost after deducting the CFA			100%

As per the Model-1A, Model-1B and Model-1C, the vendor will get 2/3<sup>rd</sup> of the quoted EPC on the successful installation and demonstration of the plant. The balance 1/3<sup>rd</sup> of the EPC and O&M cost is to be paid by the KSEB Ltd to the vendor at a pre-determined tariff for 25 years for the entire energy generated from the plant. In turn, KSEB Ltd is eligible to use the balance quantum of energy from the plant after accounting the energy share of the consumer as given in the Table above.

KSEB Ltd has estimated the indicative tariff payable to the vendor, based on the ceiling on the benchmark cost on Solar PV system notified by the MNRE vide its office memorandum dated 16.07.2019. KSEB Ltd has also carried out a sensitivity study on the tariff payable, with every 1% reduction in the benchmark cost notified by MNRE.

The State Government vide the order G.O (Rt) No. 5/2020/Power dated 13.01.2020, accorded sanction for the hybrid models for domestic sector with monthly consumption upto 200 units, proposed by KSEB Ltd as above for the MNRE Phase-II subsidy programme.

***After examining the entire proposal of KSEB Ltd in detail along with the MNRE guidelines dated 20.08.2019 and the order of the State Government dated 13.01.2020, the Commission hereby grants approval to proceed with the hybrid model proposed by KSEB Ltd for implementing the 50 MWp Grid Connected Solar Roof Top Plants in residential sector for the year 2019-20 with the Central Financial Assistance (CFA) under MNRE Phase-II subsidy programme.***

## 18. Financial eligibility criteria.

The minimum bid capacity is 1 MWp and the maximum bid capacity is 50 MWp. For quoting for the maximum capacity, KSEB Ltd proposed the following financial eligibility criteria to be satisfied by the bidders;

- (1) Solvency – Rs 1.5 crore/MW of the quoted capacity.
- (2) Annual turnover –Rs 1.0 crore/MW of the quoted capacity for three years in the last five years immediately proceeding the bid opening date).
- (3) Net Worth in the last three years immediately preceding the bid opening date shall be positive.

For the companies incorporated within the last three financial years, the net worth shall be Rs 0.75 crore per MW or more.

However, KSEB Ltd proposed the following relaxations on financial eligibility criteria for ANERT empanelled Solar PV developers and start ups;

*“For ANERT empanelled Solar PV developers with grading SP1A, SP1B, SP1C, SP2A, SP2B, SP2C, SP3A, SP3B, SP3C, SP4A, SP4B, SP4C, SP5A and SP5B and start ups, the above financial eligibility criteria with respect to Annual Turnover and Net worth is waived”.*

As extracted above, KSEB Ltd proposed to waive the financial eligibility criteria with respect to Annual Turnover and Net Worth for the ANERT empanelled Solar PV developers and start-ups. The Commission is of the view that, the complete waiver on ‘Annual Turnover and Net Worth’ may permit the entry of financially incapable bidders to participate in the bid and consequent delays on non completion of allocated capacities..

***Hence the Commission is of the considered view that, for the ANERT empanelled Solar PV developers and for start ups also, the bidder(s) shall meet the following financial eligibility criteria.***

- (1) Solvency – Rs 1.5 crore/MW (as proposed by KSEB LTd)***
- (2) Net worth- shall be positive,***
- (3) Annual turnover- Rs 0.50 crore/MWp (Relaxation is limited to 50% of the Annual Turn Over fixed for general categories).***

***KSEB Ltd shall modify the financial eligibility criteria in the bid documents incorporating the above criteria.***

## **19. Technical eligibility criteria.**

KSEB Ltd proposed the following technical eligibility criteria on the bidding documents.

- (1) For quoting for the minimum bid capacity of ‘1MW’, the bidder should have installed and commissioned at least 3 MWp capacity of **roof top/ground mounted solar PV in India**. However for the ANERT empanelled developers with *grading SP1A, SP1B, SP1C, SP2A, SP2B, SP2C, SP3A, SP3B, SP3C, SP4A, SP4B, SP4C, SP5A and SP5B and start ups*, the bidders need to install and commissioned at least 0.50 MWp

instead of 3 MWp. For quoting for more than the minimum capacity, all the bidders including the ANERT empanelled bidders and start-up also should demonstrate installing and commissioning of at least 50% of the quoted capacity.

- (2) Since the above capacity is either from ground mounted/ roof top or its combination, KSEB Ltd proposed the following additional technical criterion that;

‘all the bidders participating in the bid should have commissioned grid connected roof top solar PV with capacity of 0.50 MWp. For ANERT empanelled bidders and start-ups, this is relaxed to 0.25MWp’.

***The Commission is of the considered view that, for the ANERT empanelled Solar PV developers and for start ups should install and commissioned at least 1MWp roof top/ground mounted solar PV in India as against the 0.5 MWp proposed by KSEB Ltd. Further, the Commission noted that, there is not much significant changes or technology on the installation of the ‘Ground Mounted’ and “Roof Top’ solar PV systems. Hence the minimum eligibility criterion on installation on the roof top capacity need not be separately insisted on the bidders. KSEB Ltd shall modify the ‘Technical eligibility criterion’ accordingly.***

## **20. Price discovery and selection of bidders.**

KSEB Ltd proposes the following tendering stages for selecting the empanelment list of contractors with rates and maximum executable capacity.

- (1) e-reverse bidding
- (2) e-reverse auction
- (3) Manual L1 matching (only bidders offering rates in the range of L1+10% of L1 shall be eligible for L1 matching).

KSEB Ltd during the hearing submitted that, the bidders are selected through e-reverse bidding followed by e-reverse auction, L-1 matching and bucket filling. After bucket filling, only those bidders willing to match with L1-price shall be eligible for empanelment, as already ordered by the Commission vide the order dated 30.08.2019 in OP No. 50/2019. KSEB Ltd further submitted that, those bidders, whose quotes are within (+)10% of the L1 rate only be allowed to participate in the matching process.

***The Commission reiterate its decision that, as directed in the Commission’s order dated 30.08.2019 in OP No. 50/2019, ‘KSEB Ltd shall ensure that in case bucket filling is resorted to, all contracts awarded are exactly at the same price and on the same terms and conditions as that awarded to L1 bidder. No additional price or any other benefit/ exclusions or exemptions on any account shall be considered or awarded by KSEB Ltd in such contracts’.***



21. Enhancing the bid quantum from 50 MWp to 150 MWp for inviting bids under MNRE Phase-II subsidy program.

As already discussed under preceding paragraphs of this order, as per the petition dated 03.01.2020, KSEB Ltd sought approval for inviting bids for the procurement of power from 50 MWp Solar Rooftop systems under subsidy programme in residential sector as per the MNRE phase-II of Grid Connected Rooftop Solar Programme. This is based on the allocation of 50 MWp Solar PV to KSEB Ltd by MNRE vide the letter dated 20.08.2019 under the phase-II of Grid Connected Rooftop Solar Programme. The State Government also vide the order GO (Rt) No.5/2020/Power dated 13.01.2020 accord sanction for the setting up of 50MW of Grid Connected Solar Roof Top Plants in residential sector for the year 2019-20 with Central Financial Assistance- MNRE phase-II subsidy program.

However, during the hearing held on 27.02.2019, the representative of KSEB Ltd submitted that, MNRE in its review meeting held on 23.01.2020 has agreed to allocate an additional capacity of 100 MW for the next financial year 2020-21 for implementing under MNRE Phase-II Subsidy Programme for residential sector Roof Top Solar Programme. Hence KSEB Ltd requested to enhance the tender quantum from 50MW to 150 MW, including the additional quantum of 100 MW likely to be allotted by the MNRE for the next financial year 2020-21. However, KSEB Ltd could not produce the letter of allocation of 100 MW from MNRE for implementing in the next financial year 2020-21.

The Commission noted the submission of KSEB Ltd. At present MNRE vide the allocation letter dated 20.08.2019 has allotted 50 MWp capacity only to KSEB Ltd to implement under MNRE Phase-II subsidy program. Further, at present the State Government vide the order dated 13.01.2020, accorded sanction to set up 50 MWp of Grid Connected Roof Top plants under MNRE phase-II subsidy programme. **Hence as per the allocation of MNRE dated 20.08.2019 and State Government order dated 13.01.2020, this Commission cannot grant approval for enhancing the bid quantum from 50 MWp to 150 MWp.** However, once the MNRE formally allocate additional quantum under MNRE Phase-II Subsidy Programme for the next financial year 2020-21, KSEB Ltd can file a separate petition before the Commission with details, along with the sanction order from the State Government, for considering and approval for implementing the additional quantum. The Commission may, after appraising the matter in detail and after completing the due procedures, grant approval for such proposals.

### **Order of the Commission**

22. The Commission, after examining the petition filed by KSEB Ltd for inviting bids for the procurement of power from 50MWp of Solar Rooftop PV systems under subsidy programme in residential sector as per MNRE's phase II of the RTS programme, as per the provisions of the Electricity Act, 2003 and KSERC (Renewable Energy and Net Metering) Regulations, 2020 and other relevant documents, here by orders the following.

- (1) KSEB Ltd may proceed with the tender process for setting up of 50 MWp Grid Connected Solar Roof Top Plants in residential sector under MNRE phase-II Subsidy Program, subject to the following.
- (i) KSEB Ltd shall modify the 'Financial Eligibility Criteria' in the bidding documents as per the paragraph 18 of this order.
  - (ii) KSEB Ltd shall also modify the 'Technical Eligibility Criteria' in the bidding documents as per the paragraph 19 of this order.
  - (iii) The Commission reiterate that, as directed in the Commission's order dated 30.08.2019 in OP No. 50/2019, *'KSEB Ltd shall ensure that in case bucket filling is resorted to, all contracts awarded are exactly at the same price and on the same terms and conditions as that awarded to L1 bidder. No additional price or any other benefit/ exclusions or exemptions on any account shall be considered or awarded by KSEB Ltd in such contracts'*.
- (2) Immediately after finalizing the bids, KSEB Ltd shall file separate petitions for the approval of the empanelment of bidders under EPC mode and adoption of Tariff for the hybrid model proposed by KSEB Ltd.

Petition disposed off.

**Sd/-**  
**S.Venugopal**  
**Member**

**Sd/-**  
**Preman Dinaraj**  
**Chairman**

Approved for issue

C R Satheesh Chandran,  
*Administrative Officer,*  
*(in charge of the Secretary)*