

Jharkhand State Electricity Regulatory Commission

Ranchi

Form of Proceedings

Case no. 03 of 2020

Jharkhand Bijli Vitran Nigam Limited (JBVNL).....Petitioner

**Coram: HON'BLE SHRI R. N. SINGH, MEMBER, (ENGINEERING)
HON'BLE SHRI P. K. SINGH, MEMBER, (LEGAL)**

For the Petitioner: Mrs. Anita Prasad , JBVNL

In the Matter of

Petition for determination of Pre-fixed levelized tariff for purchase of power by Discoms from decentralized Solar Power Plants and other Renewable Energy Generation Plants having capacity of 500 kW to 2 MW to be set up by Individual Farmers/Group of Farmers/Cooperatives/Panchayats/Farmer Producer Organizations (FPO)/Water User Associations (WUA) in the vicinity of rural grid sub-stations under Component-A of the Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM KUSUM) Scheme introduced by Government of India (GoI).

Order

Date: January 08, 2021

1. The present Petition has been filed by the Jharkhand Bijli Vitran Nigam Limited (JBVNL) on September 30, 2020 for determination of Pre-fixed levelized tariff for purchase of power by Discoms from decentralized Solar Power Plants and other Renewable Energy Generation Plants having capacity of 500 kW to 2 MW to be set up by Individual Farmers/Group of Farmers/Cooperatives/Panchayats/Farmer Producer Organizations (FPO)/Water User Associations (WUA) in the vicinity of rural grid sub-stations under Component-A of the

Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM-KUSUM) Scheme introduced by Government of India (GoI) .

Brief facts of the case are presented below:-

Background

2. That as a part of Intended Nationally Determined Contributions (INDCs), India has committed to increase the share of installed capacity of electric power from non-fossil sources to 40% by 2030. The Government of India has accordingly approved to scale up the target of power generation from grid connected solar projects from 20,000 MW to 1,00,000 MW by 2022. While large scale solar power generation projects are being set up to achieve the ambitious target of 100 GW of Solar Power Generation by 2020, it has been planned to simultaneously develop decentralized Solar Energy and other renewable energy generation plants of capacity upto 2 MW which could be directly connected to the existing 33/11kV, 66/11kV or 110/11kV substations of the Distribution Company, thus, saving transmission system requirements apart from reduction in T&D Losses. Such plants are proposed to be set up near the substation (within 5 km) preferably by the farmers giving them an opportunity to increase their income by utilizing their barren land and uncultivable land for solar or other renewable energy-based power plants. Cultivable land may also be used if the solar plants are set up on stilts where crops can be grown below the stilts and sell renewable energy power to Discoms.
3. The Government of India, Ministry of New and Renewable Energy (MNRE) has accordingly formulated and launched a New Scheme for the farmers under the name Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM-KUSUM) Scheme. The scheme will also give an opportunity to the farmers to increase their income. PM KUSUM scheme has the following three components:-
 - Component-A:** Setting up of 10,000 MW of Decentralized Ground/Stilt Mounted Grid Connected Solar or other Renewable Energy based Power Plants;
 - Component-B:** Installation of 17.50 Lakh Stand-alone Solar Agriculture Pumps;
 - Component-C:** Solarisation of 10 Lakh Grid Connected Agriculture Pumps.
4. MNRE has issued the Guidelines for Implementation of Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM-KUSUM) Scheme on July 22, 2020.

5. As per the guidelines, **Component-A** will be implemented initially on pilot mode for 1000 MW capacity and **Component-C** would also be implemented initially in pilot mode for one lakh grid connected agriculture pumps whereas, **Component-B** will be implemented in full-fledged manner. All the three components of the scheme aim to add Solar Capacity of 25,750MW by 2022 with total central support of Rs. 34,422 Crore.
6. The power generated from all the Renewable Energy (RE) based power plants to be set up under Component-A of the scheme, will be purchased by the Discoms at a pre-fixed levelized tariff.
7. The Petitioner has filed this Petition before the Commission for determination of pre-fixed levelized tariff for purchase of RE power from Renewable Power Generator (RPGs) who will set up REPPs under component-A of the scheme.

Implementation Mechanism of Component-A of Pradhan Mantri Kishan Urja Suraksha evam Utthan Mahabhiyan (PM KUSUM) Scheme:-

8. The modalities for implementation of Component-A of the PM KUSUM Scheme, as per the MNRE guidelines are discussed in brief as under:-
 - a. That under Component-A of PM KUSUM, solar or other renewable energy-based power plants (REPP) of capacity 500 kW to 2 MW will be setup by individual farmers/group of farmers/cooperatives/panchayats/Farmer Producer Organizations (FPO)/Water User associations (WUA) hereinafter called Renewable Power Generator (RPG). However, States/DISCOMs may allow setting-up of solar or other renewable energy-based power plants of capacity less than 500 kW in specific cases. The REPP will be preferably installed within five km radius of the sub-stations in order to avoid high cost of sub-transmission lines and to reduce transmission losses.
 - b. The Distribution companies (DISCOMs) will notify sub-station wise surplus capacity which can be fed from such RE power plants to the Grid and shall invite applications from interested beneficiaries for setting up the renewable energy plants. The renewable power generated will be purchased by DISCOMs at a pre-fixed levelized tariff.
 - c. In case, the aggregate capacity offered by Applicants is more than notified capacity for a particular sub-station, bidding route will be followed by DISCOMs to select Renewable Power generator and in such cases the pre-fixed levelized tariff will be the ceiling tariff for bidding. Selection of bidders will be based on the lowest tariff offered in the

ascending order as quoted by the bidders in the closed bid or e-reverse auction as the case may be.

- d. A model PPA (Power Purchase Agreement) to be executed between RPG and DISCOMs has been prepared by MNRE. The duration of PPA will be 25 years from Commercial Operation Date (COD) of the project. The total energy purchased from these RE plants will be accounted for fulfillment of RPO by the DISCOM.
- e. In case the farmers/group of farmers/cooperatives/panchayats/Farmer Producer Organizations (FPO)/Water User associations (WUA) etc. are not able to arrange equity required for setting up the REPP, they can opt for developing the REPP through developer(s) or even through local DISCOM, which will be considered as RPG in this case. In such a case, the land owner will get lease rent as mutually agreed between the parties. The lease rent may be in terms of Rs per year per acre of land or in terms of Rs per unit energy generated per acre of land area. The farmer(s) may opt for payment of lease rent directly in their bank account by the DISCOM, from the payment due to the developer. A model Land Lease Agreement to facilitate the beneficiaries has also been prepared by MNRE. However, the terms of Land Lease Agreement may be finalized on mutual consent of concerned parties.
- f. The REPP under the scheme would be implemented primarily on Barren/uncultivable land. Agricultural land is also permitted under the scheme provided that solar plants are installed in stilt fashion (i.e. raised structure for installation of Solar panels) and with adequate spacing between panel rows for ensuring that farming activity is not affected. The RPG would be free to adopt any renewable energy source or technology while responding to the bid. However, in case of cultivable land with solar plants, the same may be installed on stilts, so that the farmers continue to cultivate the land, apart from getting the benefit of lease rent. In such a case DISCOM may also float bids (in case of specific substations) where setting up of solar projects on stilts may be mandatorily required, and bids for energy tariff invited accordingly.

Determination of Pre-fixed levelized tariff under PM-KUSUM Scheme (Component-A):-

Petitioner's Submission

9. The Petitioner has filed the Petition before the Commission for determination of Pre-fixed levelized tariff under PM-KUSUM Scheme (Component-A). Further, the Petitioner has considered the following parameters to determine the proposed tariff filed before the Commission for approval:-

- a. **Capital Cost:** The Petitioner submitted that one of the most important parameter impacting the levelized tariff is the Capital Cost of the project and should be aligned with the market trend. The Commission in its JSERC (Determination of tariff for procurement of power from solar PV power project and solar thermal power project) Regulations, 2015 had approved the Capital Cost as Rs. 6.06 Crore/MW for FY 2015-16. The Petitioner submitted that the cost of Solar Panel is linked with the international price at the prevalent INR:USD exchange rate and quality solar module manufacturing capacities have come up in India as well and the same is available at a competitive rate.

Further, the Petitioner has quoted the latest Regulations/Orders issued by various Regulatory Commission where the State Commissions have carried out prudence check and revised the Capital Cost of Solar based Projects downwards. i.e. Rajasthan (Rs. 3.40 Crore/MW), Karnataka (Rs. 3.40 Crore/MW) and Tamil Nadu (Rs. 3.35 Crore/MW). Factoring the above trends, the Petitioner has proposed the Capital Cost as Rs. 3.40 Crore/MW.

- b. **Operation & Maintenance (O&M Expenses):** The Petitioner has submitted the O&M Expenses as Rs. 4.50/lakh/MW with escalation of 5.73% per annum based on the prevailing market information and O&M Expenses approved by various Regulatory Commission i.e. Rajasthan (Rs. 4.50 lakh/MW), Karnataka (Rs. 4.50 lakh/MW) and Tamil Nadu (Rs. 4.69 lakh/MW).
- c. **Return on Equity:** In line with Central Electricity Regulatory Commission (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2017,

the Petitioner has projected the Return on Equity as 14% to be grossed up with prevailing MAT of 20.46% as on April 01, 2018.

- d. **Capacity Utilization Factor (CUF):** The Petitioner submitted that with the advancement in technology and continuous improvement in the efficiency of the solar modules including capability to generate power even in diffused sunlight, the CUF has also witnessed improvement and therefore the Petitioner has proposed slight improvement in CUF as 20% against 19% as per JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015.
- e. **Repayment Period of Debt:** The Petitioner has proposed the repayment period as 13 years against 12 years as per JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015.
- f. In addition to above, the Petitioner has considered other parameters in line to JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015 while projecting the Pre- fixed levelized tariff as Rs. 3.09/kWh.

Prayers of the Petitioner:-

10. The Petitioner in this Petition has prayed for the following:-

- a. Admit the Petition;
- b. Take note of PM-KUSUM program formulated by MNRE, GOI vide office memorandum number (F. no: 32/645/2017- SPV Division) dated 22/07/2019;
- c. Allow changes in the tariff design for calculation of tariff for procurement of power from Renewable energy power plants as constructed under PM-KUSUM scheme;
- d. Allow rate of Rs. 3.09/kWh for purchase of power Renewable energy Power Plant (REPP) constructed under PM-KUSUM (Component-A);
- e. Pass such other and other Orders as may be deemed fit and proper in the fact and circumstance of the case;
- f. Crave leave to reserve its right to add, alter, amend/modify the memo of the Petition and make further submission as and when required.

Proceedings in the Case:-

11. The Petitioner has filed the Petitioner on September 30, 2020 before Commission for determination of Pre-fixed levelized tariff for purchase of power by Discoms from decentralized Solar Power Plants and other Renewable Energy Generation Plants having capacity of 500 kW to 2 MW to be set up by Individual Farmers/Group of Farmers/ Cooperatives/Panchayats/Farmer Producer Organizations (FPO)/Water User Associations (WUA) in the vicinity of rural grid sub-stations under Component-A of the Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM-KUSUM) Scheme introduced by Government of India (GoI).
12. The Commission vide its letter dated November 26, 2020 directed the Petitioner to publish the Petition inviting Comments/Suggestions on the above said Petition.
13. The Petitioner has published the Petition in various newspapers within two days of receipt of letter for inviting Comments/Suggestions.
14. The Commission has scheduled the Virtual Public Hearing on January 05, 2021 to ensure maximum public participation and transparency wherein Stakeholders may put forth their comments and suggestions before the Commission.
15. The Commission has taken into account the Petitioner's Petition, Commission's queries, additional submission made by Petitioner, Stakeholders suggestion and the Petitioner's reply while issuing this Order.

Commission's Analysis and Order:-

16. At the onset it is made clear by the Commission, in the present Order, that they are carrying out limited exercise for determination of levelized tariff for purchase of power by Discoms from decentralized Solar Power Plants and other Renewable Energy Generation Plants having capacity of 500 kW to 2 MW to be set up by individual farmers/group of farmers/cooperatives/Panchayats/Farmer Producer Organizations (FPO)/Water User Associations (WUA) in the vicinity of rural grid sub-stations under Component-A of the Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM-KUSUM) Scheme introduced by Government of India (GoI). Hence, the levelized tariff determined herein shall be subject to all the terms and conditions of the bidding scheme.
17. The Commission had notified JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015 on

November 10, 2015 and will remain in force till March 31, 2020 unless reviewed earlier or extended by the Commission.

18. Since, issuance of the RE Regulations, considerable time have lapsed along with remarkable changes are observed in the sector with the technology advancement and introduction of Competitive Bidding process in solar based project. Hence, the tariff components defined in the above said JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015 is not apt in the current market scenario, where the competitive tariff of Rs. 1.99/kWh is discovered in an auction of projects of 500 MW capacity by Gujarat Urja Vikas Nigam Ltd (GUVNL) in the recent past.
19. Further, the Commission has also studied the Renewable energy tariff and Pre-fixed levelled tariff under PM-KUSUM Scheme issued by the various State Electricity Regulatory Commission (SERC). Some of the recent RE/levelled tariffs issued by SERC are tabulated below.

Table 1: RE/KUSUM Tariff as approved by various State Commission's

Particular	Unit	JBVNL (Proposed)	HERC	RERC	KERC [§]	PSERC	TSERC*
Tariff Approved	Rs./kWh	3.09	3.11	3.14	3.08	2.75	3.13

Note: [§] RE Tariff, * Comments are invited from Stakeholders

20. Taking into account the above mentioned facts presented before the Commission and further analysis, the Commission is of the view that the current prevailing tariff norms mentioned in JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015 need to be revisited. Hence, the Commission exercise its power under Clause A7 of the above said Regulations as mentioned below and other powers conferred by Section 86 (1) (a), (b) and (c) read with (e), Section 61(a to h), and Section 62 (1) of the Electricity Act 2003 and all other powers enabling it in this behalf, the Commission revisited the tariff norms/components while approving the Pre-fixed levelled tariff for purchase of power by Discoms from decentralized Solar Power Plants and other Renewable Energy Generation Plants.

“A7: POWER TO AMEND

7.1 The Commission may from time to time add, vary, alter, suspend, modify, amend or repeal any provisions of this Regulation.”

21. Hence, the Commission vide its Suo-Moto Order extended the applicability of the above said regulations till March 31, 2021 and made the provision for prudence check while determining the tariff. The relevant extract is reproduced below:

“4.45

provided Commission may modify the above parameters after a prudence check on case-to-case basis.”

22. The Commission has carried out the prudence check of the detail submitted by the Petitioner along with analyzing the recent tariff issued various SERC related to RE/KUSUM. Further, the Petition was also published in various newspapers for Stakeholders comments/suggestions. However, no comments/suggestions were received by the Petitioner.

23. The Commission observes that the tariff norms and tariff (Rs. 3.09/kWh) proposed by the Petitioner is more realistic and competitive in the current market scenario than the tariff discovered based on norms in JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015.

24. The Commission approves the Pre-fixed levelized tariff for purchase of power by Discoms from decentralized Solar Power Plants and other Renewable Energy Generation Plants under Component-A of the Pradhan Mantri Kisan Urja Suraksha evem Utthan Mahabhiyan (PM-KUSUM) Scheme as Rs. 3.09/kWh for entire life of the project.

25. Further, the above approved tariff is only ceiling tariff for carrying out the bidding under KUSUM Scheme and final tariff will be discovered only through competitive bidding. The above tariff shall be applicable till the time the same is reviewed by this Commission.

26. The Petitioner is at the liberty to approach the Commission in case of any difficulty.

In terms of the above, the present petition is disposed of.

This Order is signed, dated and issued by the Jharkhand State Electricity Regulatory Commission on January 08, 2021.

Sd/-
(P.K.Singh)
Member (Legal)

Sd/-
(R.N.Singh)
Member (Engg.)