



JHARKHAND BIJLI VITRAN NIGAM LIMITED

(CIN: U40108JH2013SGC001702)

Regd. Office:- Engineering Building, HEC, Dhurwa, Ranchi-834004.

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Letter No.1081...../ C.E. (C&R)/ Ranchi
C.E. (C&R)/ Rev/ 2074/18

Dated30-09-2020

From,

K. K. Verma

Executive Director (C&R)
JBVNL

To,

The Secretary
Jharkhand State Electricity Regulatory Commission
New Police Line Road,
Kanke Road
Ranchi-830048

Sub:

Submission of petition for tariff determination of feed-in tariff under PM-KUSUM component A and submission of fees for filling of petition

Sir,

JBVNL is filing a petition under PM-KUSUM component A. JBVNL has been sanctioned a capacity of 10 MW by MNRE, GoI. A petition for this has been prepared and enclosed with this letter along with tariff filing fee in form of Demand Draft bearing no. 006393.

Yours faithfully,

Enclosed as above

(K.K. Verma)

Executive Director(C&R)

JBVNL

Before
The Hon'ble Jharkhand State Electricity
Regulatory Commission, Ranchi



Petition
for

Determination of Feed In-Tariff for sale of Solar Power to JBVNL by Farmers/cooperatives/Panchayats/other Developers who would set up Decentralised Ground Mounted Grid-connected Solar Power Plants of capacities ranging between 0.5 – 2.0 MW in their barren lands under the 'Kisan Urja Suraksha Evam Utthan Mahabhiyan' (KUSUM) Scheme launched by the Ministry of New and Renewable Energy (MNRE), Govt. of India.



Submitted By
Jharkhand Bijli Vitran Nigam Limited
(JBVNL)

Dhurwa, HEC, Ranchi

**Before the Hon'ble Jharkhand State Electricity Regulatory
Commission, Ranchi**

Filing Number: _____

Case Number: _____

IN THE MATTER OF:

• Application under S. 86(1)(a) for determination of Feed In-Tariff for sale of Solar Power to JBVNL by Farmers/cooperatives/Panchayats/other Developers who would set up Decentralised Ground Mounted Grid-connected Solar Power Plants of capacities ranging between 0.5 – 2.0 MW in their lands under the 'Kisan Urja Suraksha Evam Utthan Mahabhiyan' (KUSUM) Scheme launched by the Ministry of New and Renewable Energy (MNRE), Govt. of India.

AND IN THE MATTER OF:

Jharkhand Bijli Vitran Nigam Limited (hereinafter referred to as "JBVNL", or "erstwhile JSEB -Distribution function" which shall mean for the purpose of this Petition the "Licensee" or "Petitioner") having its registered office at HEC, Dhurwa, Ranchi

The Petitioner respectfully submits hereunder:

1. The erstwhile Jharkhand State Electricity Board ("Board" or "JSEB") was a statutory body constituted under Section 5 of the Electricity (Supply) Act, 1948 and was engaged in electricity generation, transmission, distribution and related activities in the State of Jharkhand.
2. Jharkhand Urja Vikas Nigam Ltd. (herein after to be referred to as "JUVNL" or "the Holding company") has been incorporated under Indian Companies Act, 1956 pursuant to decision of Government of Jharkhand to reorganize erstwhile Jharkhand State Electricity Board (herein after referred to as "JSEB"). The Petitioner submits that the said reorganization of the JSEB has been done by Government of Jharkhand pursuant to "Part XIII – Reorganization of Board" read with section 131 of the Electricity Act 2003. The Holding company has been incorporated on 16th September 2013 with the Registrar of Companies, Jharkhand, Ranchi and has obtained Certificate of Commencement of Business on 12th November 2013.
3. Jharkhand Bijli Vitran Nigam Ltd. (herein after to be referred to as "JBVNL" or "the Petitioner" or erstwhile "JSEB-Distribution function" has been incorporated on 23rd October 2013 with the Registrar of Companies, Jharkhand, Ranchi and has obtained Certificate of Commencement of Business on 28th November 2013. The Petitioner is a Company constituted under the provisions of Government of Jharkhand, General

Determination of pre-fixed levellised tariff for sale of power from power projects set up under Component-A and rate for purchase of excess power from solarised agriculture pumps under Component-C of the PM KUSUM Scheme of GoI to the State Discoms.

Background:

- 1 As per 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. Large Scale Solar power generation projects are also being installed to achieve the ambitious target of 100 GW of Solar Power generation by 2022.
- 2 Ministry of New and Renewable Energy has recently launched the guidelines for implementation of *Pradhan Mantri KishanUrja Suraksha evam Uthan Mahabhiyan* Scheme (PM KUSUM) on 22nd July, 2019 covers the following components:
 - 2.1 Component A: Setting up of 10,000 MW of Decentralized Ground Mounted Grid Connected Solar Power plants of individual plant size upto 2 MW;
 - 2.2 Component-B: Installation of 17.50 Lakh Standalone Solar Powered Agriculture Pumps of individual capacity upto 7.5 HP; and
 - 2.3 Component-C: Solarisation of 10 Lakh Grid-Connected Agriculture Pumps of individual pump capacity upto 7.5 HP.
- 3 The 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 full-fledged manner with total Central Government support of ₹ 19,036.5 Crore. After successful implementation of pilot project under Components-A and Component-C, the same shall be scaled up with necessary modifications based on the learning from the pilot phase with total Central Government support of ₹ 15,385.5 Crores. 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 crore.
- 4 The implementation mechanism under the said guidelines is as under:

- iv. 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.
- v. DISCOM shall assess and notify RE generation capacity that can be injected in to all 33/11 kV or 66/11 kV or 110/11 kV sub-station of rural areas and place such notification on its website for information of all stakeholders. To facilitate farmers willing to lease out their land for development of RE plants near above notified substation(s), as per provisions of this scheme, DISCOM may also place list of such farmers on their website. However, the leasing of land of any farmers will be a bi-partite agreement between the farmer and the developer and DISCOM will not be held responsible for failure in getting the land leased out to a developer. To meet additional demand DISCOM will augment the capacity of sub-station under IPDS or any other scheme.
- vi. DISCOM or any agency authorized by the DISCOM shall invite 33/11 kV or 66/11 kV or 110/11 kV sub-station wise EoI from RPG to participate in selection process for development of decentralised renewable power plants. The RPG shall submit their interest against the EoI as per the schedule notified by DISCOM. An RPG will not be allowed to apply for more than one renewable power plant for a particular 33/11 kV sub-station.
- vii. REPP of capacity up to 2 MW may be connected at 11 kV side of substation and the selected RPG will be responsible for laying of dedicated 11 kV line from REPP to sub-station, construction of bay and related switchgear at sub-station where the plant is connected to the grid and metering is done.
- viii. For selection of REPP, the total aggregate capacity of the eligible applications received is to be evaluated. In case, the total aggregate capacity of eligible applications received for a particular sub-station is less than or equal to the capacity notified for connectivity at the sub-station, LoA will be awarded to all eligible applicants for procurement of renewable power at a pre-fixed levelised tariff. In case the total aggregate capacity of eligible application received for a particular sub-station is more

5 The Allocation of capacity under different components are as follows:

Component	Scope	Executing Agency/Nodal agency	Allocation
A	Installation of Small RE Plants of capacity from 0.5 MW to 2 MW	Jharkhand Bijili Vitran Nigam Ltd	10 MW Ministry of New and Renewable Energy order dated 14.01.2020 (annexure –I) on request of JBVNL vide letter no: 1378 dated: 20.11.2019
B	Installation of Standalone Solar Pumps	JREDA	10000
C	Solarisation of grid connected pumps	JREDA	2000

Pre-determined Levellized tariff for Component-A:

- 6 In order to carry out execution of the PM-KUSUM scheme it is imperative to obtain approval of Pre-Determined Levellized tariff for the energy from grid mounted solar power from Hon'ble JSERC.
- 7 JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015 provides norms including Capital Cost, CUF, Auxiliary Energy consumption, O&M expenses shall be determined on the basis of prevalent market trend. The broad guidelines of the relevant regulations have been perused and are given below:

Capacity Utilization Factor:

- 8 *The Capacity utilisation factor for Solar PV project shall be 19%. Provided that the Commission may deviate from above norm in case of project specific tariff determination.*

Return on equity:-

24. *The value base for the equity shall be 30% of the capital cost or actual equity (in case of project specific tariff determination as determined under Regulation 4.23)*
25. *The return on equity considered by the Commission in these regulations shall be: (i) 20% per annum for the first 10 years. (ii) 24% per annum 11th years onwards.*

Capital Cost:-

- a. *The capital cost of a solar PV power project primarily consists of the cost of Photo Voltaic modules, balance of plant equipment, power conditioning equipment, taxes and duties, cost of inter-connection, civil works, land including leasehold lands and erection & commissioning.*
- b. *The normative capital cost for Solar PV projects shall be Rs 605.85 lacs/MW for FY 2015-16. Provided that the Commission may deviate from the above norm in case of project specific tariff determination in pursuance of Regulation 4.4.*
- c. *It is important to note that with the advancement in the technology of the solar PV based installations and associated economies of scale, the capital cost for Solar PV installations would also decrease in the near future. Therefore the benchmark capital cost of Solar PV projects may be reviewed annually by the Commission.*

Discount Factor:-

- a. Regulations 10 (2) of Hon'ble CERC specify methodology to calculate discount factor for the purpose of levelised tariff computation as under:
 - b. Accordingly, the discount factor considered for this exercise is equal to the post tax weighted average cost of capital on the basis of normative debt: equity ratio (70:30) proposed in the Regulations.
 - c. Accordingly, the discount factor considered for this exercise is equal to the post tax weighted average cost of capital on the basis of normative debt: equity ratio (70:30) proposed in the Regulations. Considering the normative debt equity ratio and weighted average of the post-tax rates for debt and equity component, the discount factor is calculated. Interest Rate considered for the loan component (i.e. 70 %) of capital cost is 10.41 %. For equity component (i.e. 30 %), rate of Return on Equity (ROE) is considered at post tax rate of 14 %. The discount factor derived by this method for all technologies is 9.65 % $((10.41\% \times 0.70 \times (1 - 25.16\%)) + (14.0\% \times 0.30))$ (Income tax rate @ 25.16% (22% IT rate+ 10% surcharge +4% Health and Education cess).
- 14 The aforesaid regulations from the learned commission was adapted and it is observed that with advancement in technology and continuous improvement in the efficiency of the solar

Sl.No.	Tariff Design Components	As per the regulation	Proposed as per regulations and market scenario
1	Capital cost	605.85 Lakhs/MW	340 Lakhs/MW
2	O&M cost	11.88 Lakhs/MW	4.50 Lakhs/MW
3	Return on Equity	20% for first 10 years and subsequently by 24%	14% post tax and 17.60% pre-tax (grossed up with MAT)
4	CUF	19%	20%
5	Calculated Tariff	Rs. 4.25/ Kwh	Rs. 3.09/ Kwh

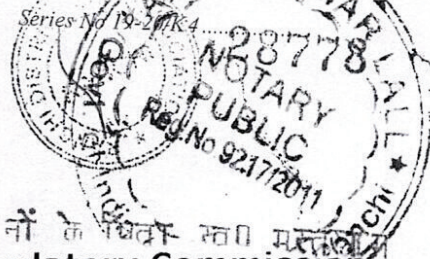
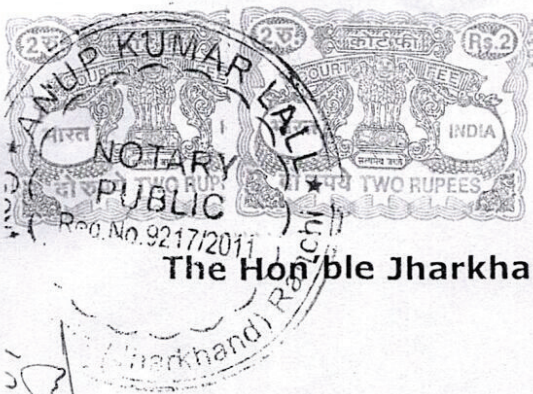
- 21 The solar tariff as per the tariff design laid out in Hon'ble JSERC (Determination of Tariff for Procurement of Power from Solar PV Power Project and Solar Thermal Power Project) Regulations, 2015 comes out to be Rs. 4.25/ Kwh and calculations of which is attached as annexure II for the kind consideration of the commission. The solar tariff computed with reference to the determinants listed above works as per the changes in the tariff design out to 3.09 per unit without accelerated depreciation benefit and calculations of which is attached as annexure III for kind consideration of the commission. In case accelerated depreciation the tariff comes around 2.86 per unit.
- 22 Benchmarking of the calculated tariff was carried out with the tariff approved for PM-KUSUM scheme in the state of Haryana, Orissa and Rajasthan.

	Haryana	Orissa	Rajasthan	JSERC,2015	Proposed
Tariff(Rs/Unit)	3.11	3.40 for first 5 years and 3.08 subsequently	3.14	4.24	3.09

Prayer

- 23 It is humble prayer of the JBVNL that:

23.1 Hon'ble commission may please admit the petition



Before

The Hon'ble Jharkhand State Electricity Regulatory Commission,
Ranchi

Filing Number: _____

Case Number: _____

IN THE MATTER OF:

Filing of Petition under Section 86 (1) (a) for determination of Feed-in Tariff for sale of Solar Power to JBVNL by Farmers/Cooperative/Panchayats/ Other developers who would set up Decentralized Ground Mounted Grid Connected Solar Power Plants of capacities ranging between 0.5 – 2.0 MW in their lands under the 'Kisan Urja Suraksha Evam Utthan Mahabhiyan (KUSUM) Scheme launched by the Ministry of New and Renewable Energy (MNRE), Govt. of India.

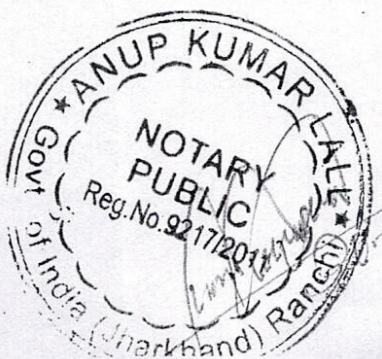
AND IN THE MATTER OF: Jharkhand Bijli Vitran Nigam Limited (hereinafter referred to as "JBVNL", or "Licensee" or "Petitioner").

Affidavit verifying the statements made in the Petition.

K.K.Verma Son of Late Brij Mohan Prasad, residing at Chutia, Police Station – Ranchi, District- Ranchi, State- Jharkhand, do hereby solemnly affirms and state as follows:

1. That I am working as Executive Director (C&R), JBVNL in the office of the Petitioner, and duly authorised by the petitioner to make this affidavit on its behalf.
2. That the statement made above in this petition as well as the evidences and other document submitted along with this petition are true of my knowledge and based on record and information made available to me and I believe them to be true and nothing has been concealed and suppressed.
3. I solemnly affirm this on September, 2020 that the contents of the above affidavit are true to my knowledge and no part of it is false and no material has been concealed there from.

Verified, signed and sworn this affidavit at Ranchi on day of September, 2020



NOTARY PUBLIC RANCHI

(K.K.Verma)
Executive Director
(C&R), JBVNL
Ranchi
Jharkhand
India