

No.: N/44/15

**BEFORE THE KARNATAKA ELECTRICITY REGULATORY COMMISSION,
BENGALURU**

Dated : 27th October 2016

Present:

Shri M.K. Shankaralinge Gowda	Chairman
Shri H.D. Arun Kumar	Member
Shri D.B. Manival Raju	Member

RP No. 3 / 2015

BETWEEN:

Ranka-N-Ranka Infrastructure Pvt. Ltd.,
3rd Floor, Ranka Chambers,
Cunningham Road,
Bengaluru-560052

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PETITIONER

[Represented by Shri S.V. Bhat, Advocate]

AND:

1) Bangalore Electricity Supply Company Limited,
Corporate Office,
K.R. Circle,
Bengaluru-560001

2) The General Manager – Electrical
Power Purchase,
Bangalore Electricity Supply Company Limited,
Corporate Office,
K.R. Circle,
Bengaluru-560001

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RESPONDENTS

[Represented by Just Law, Advocates]

- 1) This is a Review Petition filed under Regulation 8 of the KERC (General and Conduct of Proceedings) Regulations, 2000, read with Section 94 of the Electricity Act, 2003, requesting to review the decision taken in the 285th meeting of this Commission held on 31.7.2014, whereunder the Supplemental PPA dated 6.3.2014 submitted for approval by the Petitioner and the 1st Respondent-BESCOM to the Commission was rejected.

- 2) The material facts required for the disposal of the present Review Petition may be stated as follows :
 - (a) The Petitioner has acquired ownership over the four Wind Energy Induction Generators, each having a capacity of 1250 KW with generation at 690V, situated at Ganjikatte Village of Chitradurga District (hereinafter referred to as the 'Wind Project'). The 690V generation voltage at each wind Generator is stepped up to 11 kV and connected to 11 kV BUS. The main and check meters of Class 0.2 accuracy have been provided near the 11 kV BUS at the Wind Project Site (hereinafter referred to as 'Main Meter at Wind Project Site'). A 11 kV Double Circuit line with Coyote ACSR Conductor has been constructed by the Petitioner for a distance of 4.35 KMs from the 11 kV BUS at the Wind Project Site to the 11 kV BUS of the 66/11 kV Pandarahalli Sub-Station of the Karnataka Power Transmission Corporation Limited (KPTCL). Another Main Meter of the same accuracy Class of 0.2 has been provided near the 11 kV Panel of Pandarahalli Sub-Station (hereinafter referred to as the 'Main Meter at Pandarahalli Sub-Station').

- (b) The meter readings of the Main Meter at Pandarahalli Sub-Station is being used for the billing purposes of the Delivered Energy from the Commercial Operation Date (COD) of the Wind Project. Both the Main Meters at Pandarahalli Sub-Station as well as at Wind Project Site are having the provisions for recording import and export energy.
- (c) The Petitioner has entered into a Power Purchase Agreement (PPA) dated 24.12.2007 with the 1st Respondent-Bangalore Electricity Supply Company Limited (BESCOM) for sale of energy as per the terms and conditions stated in the said PPA. The approval of the PPA was conveyed by this Commission, vide letter dated 6.3.2008. The Project was commissioned on 9.1.2008.
- (d) The contention of the Petitioner is that, as per the evacuation approvals, the Delivered Energy from its Wind Project should be measured at the Main Meter at Wind Project Site, but not at the Main Meter at Pandarahalli Sub-Station, for the billing purpose. In other words, the Petitioner contends that the 11 kV transmission loss for a length of 4.35 KMs shall be to the account of the 1st Respondent (BESCOM), instead of loading the said transmission line loss to its account.
- (e) The Petitioner made a written request dated 14.2.2014 to consider the delivered Energy from the Wind Project, as recorded at the Main Meter at Wind Project site, instead of at the Main Meter at Pandarahalli Sub-Station.

- (f) The 1st Respondent (BESCOM) through its officials, along with the concerned officials of the KPTCL, inspected and verified the 11 kV Switchgear comprising PCVCBs, CTs, PTs, etc., and found them to be in compliance with the evacuation approval granted earlier to the execution of the PPA dated 24.12.2007. Therefore, it is contended that, the terms of the PPA are permitted to be amended in line with the evacuation approvals. It is further contended that, the evacuation approvals provide that, the Metering Point for the purpose of recording the Delivered Energy is at the Wind Project Site, but not at Pandarahalli Sub-Station. Therefore, it is contended that the Metering Point for the purpose of recording of the Delivered Energy cannot be considered at the Main Meter at Pandarahalli Sub-Station.
- (g) The 1st Respondent (BESCOM) also found that, earlier there were eleven other Wind Mill Projects having 11 kV evacuation and injection approvals, within its jurisdiction.
- (h) Therefore, the Petitioner and the 1st Respondent requested this Commission to permit them to amend the relevant Clauses in the PPA dated 24.12.2007 in accordance with the said evacuation approvals, as proposed in the Supplemental PPA dated 6.3.2014 for approval.

- (j) The Commission sought certain clarifications from the 1st Respondent (BESCOM) and after considering the relevant facts available, rejected to approve the Supplemental PPA in its meeting held on 31.7.2014.
- 3) The Petitioner filed the present Review Petition on 20.8.2015, with an Application to condone the delay, if any, in filing the Review Petition. The Petitioner was not given an opportunity of hearing, before taking the decision in the meeting of the Commission held on 31.7.2014. Therefore, we are of the view that the Petitioner could have filed an Original Petition before this Commission seeking redressal of its grievance. Therefore, we condone the delay, if any, and entertain the present Petition, as if it is an Original Petition.
- 4) We have heard the learned counsel for the parties and perused the material placed on record.
- 5) The following issues would arise for our consideration :
- (1) Whether the 'Metering Point' for the purpose of recording the 'Delivered Energy' from the Wind Project shall be the 'Main Meter at Wind Project' or the 'Main Meter at Pandarahalli Sub-Station'?
 - (2) Whether some other clauses in the PPA dated 24.12.2007 specifying the technical parameters are in consonance with the evacuation approvals granted earlier to the execution of the PPA or not?
 - (3) What Order?

- 6) After considering the submissions of the parties and the material placed on record, our findings on the above issues are as follows :
- 7) **Issue No.(1) :** *Whether the 'Metering Point' for the purpose of recording the 'Delivered Energy' from the Wind Project shall be the 'Main Meter at Wind Project' or the 'Main Meter at Pandarahalli Sub-Station'?*
- (a) Ordinarily, Wind Turbine Generators (WTGs) are installed in identified Wind Zones, which are classified based on the wind power density. These Wind Zones are usually away from the Sub-Stations of the Transmission / Distribution Licensees. Therefore, there used to be transmission loss while transmitting the energy from the WTGs to the Sub-Stations of the Licensees. The permissible voltage regulation, reliable evacuation and power losses in the evacuation lines are the criteria for determining the power evacuation system voltage. The transmission loss would be reduced by increasing the transmission voltage and the voltage regulation would also be within the permissible limits at higher voltages for the same quantum of power transmission and distance to be transmitted. The energy generated from the WTGs will be generally at 400 V or 690 V and the same will be stepped up to 11 kV or to 33 kV from each WTG and thereafter, will be pooled at a place near the WTGs. Depending upon the total quantum of the power generated at the WTGs and the distance from the WTG to the Sub-Station of the licensee for power evacuation, the evacuation system voltage at 11 kV, 33 kV, 66 kV, 110 kV or 220 kV will be decided and accordingly, the voltage will be stepped up at the Receiving

Station established by the owners or someone on their behalf. A set of Main and Check Meters are installed at the 11 kV or 33 kV Generation Point of the WTG and another set of Main and Check Meters are installed at the high voltage side of the step-up Transformer installed at the Receiving Station. The Receiving Station is required to be constructed at or near the Sub-Station of the Licensee. The Gross Delivered Energy from all the WTGs is metered at the high voltage side of the step-up Transformer installed at the Receiving Station and the electricity generated by each WTG is metered at the high voltage side of the step-up Transformer installed at the Project Site, where there are a number of WTGs established by different persons and a common evacuation system, including step-up Receiving Station, will be established jointly by all WTGs. The difference between the gross generated energy from all WTGs (at generation point) and gross Delivered Energy to the Grid at the Receiving Station will facilitate in calculating the transmission loss in evacuation system of each WTG up to Receiving Station. This is the usually accepted mode of establishing a Wind Project and transmission of energy from the Project Site to the Sub-Station of the Licensee, for calculating the generated energy from each WTG and the transmission loss upto the Sub-Station of the Licensee. As the Receiving Station is expected to be constructed at or near the Sub-Station, the transmission loss between the Receiving Station and the Sub-Station of the Licensee is considered as nil or negligible.

- (b) Considering the normal procedure of establishing Wind Project and power evacuation upto the Sub-Station of the licensee, this Commission, by Order

- dated 18.8.2005, has approved the Standard Format of the Power Purchase Agreement (PPA) to be entered into between the Wind Generator and the Distribution Licensee, for the sale of energy to the Distribution Licensee.
- (c) While determining the generic tariff in respect Renewable Sources of Energy, this Commission, by Order dated 18.1.2005, noted that, the developers have raised several issues regarding the terms and conditions of the PPAs in the course of the public hearing and have suggested some modifications and IWPA has also filed a draft PPA in respect of Wind Projects. Thereafter, this Commission directed the KPTCL to respond to the modifications suggested and to file the draft Standard PPAs in respect of the Renewable Sources of energy, duly incorporating the necessary changes therein. As per the said directions, the KPTCL filed the draft Standard PPAs in respect of the Renewable Sources of Energy and after following the due procedure, this Commission approved the standard terms and conditions of the PPAs in respect of different Renewable Sources of Energy. In respect of the Wind Projects also, such a Standard PPA has been approved by this Commission. So far as the Wind Projects are concerned, this Commission, by Order dated 18.1.2005, has determined the tariff at ₹3.40 per unit, without any escalation, for the first 10-year period from the year of Commercial Operation of the Plant. As already noted, the other terms and conditions of purchase of energy from the Renewable Sources have been determined by this Commission's Order dated 18.8.2005 while finalizing the terms and conditions of the PPA in respect of different Renewable Sources of Energy.

(d) The Commission has to regulate the electricity purchase and procurement process of the Distribution Licensees, including the price at which the electricity shall be procured from the Generating Companies and other sources through Agreements for purchase of electricity for distribution and supply within the State. The Standard PPA approved by this Commission specifies the Delivery Point for measuring the energy delivered into the Grid, for the purpose of billing, etc. This 'Delivery Point' as defined by the Commission determines the point at which the energy is to be accounted for the purpose of billing. A reading of the Standard PPA of a Wind Power Project would show that, for billing purpose, the Delivered Energy should be measured, and accounted for, at the high voltage side of the step-up Transformer installed at the Receiving Station . In other words, for all practical purposes, the Delivered Energy should be measured and accounted at the Sub-Station of the Licensee. This conclusion is arrived at by this Commission based on the terms contained in different clauses and different definitions of the Standard PPA for Wind Projects. In this regard, the relevant clauses and definitions in the Standard PPA for Wind Projects read thus:

“7.1 Metering: *The Delivered Energy shall be metered by the Parties at the high voltage side of the step up transformer installed at the Receiving Station. The electricity generated by the Project shall be metered by the Parties at the high voltage side of the step up transformer at the Project Site.”*

“6.1 Tariff Invoices: The Company shall submit to the Designated Officer of the ..ESCOM, a monthly Invoice for each Billing Period in the format prescribed by the ..ESCOM from time to time setting forth those amounts payable by the ..ESCOM for the Delivered Energy in accordance with Clause 5.1. The Monthly Invoice shall be:

$$DE = X_1 - (X_1 \times Z\%)$$

Where

DE is the Delivered Energy pertaining to the Project.

X1 is the reading of the energy meter installed at the Project Site.

Z is the percentage transmission line loss incurred in the transmission line between the Project and the Receiving Station.

$$Z = \left[\frac{(X_1 + X_2 + X_3 + X_4 + \dots) - Y}{(X_1 + X_2 + X_3 + X_4 + \dots)} \times 100 \right]$$

Where

Y is the reading of the bulk energy meter installed on the ...kV side of the Receiving Station.

X₁ X₂ X₃ etc., are the readings of the energy meters installed at the various individual windmill power projects being developed / proposed to be set up in the area and connected to the Receiving Station.”

“5.1 Monthly Energy Charges: The ..ESCOM shall for the Delivered energy pay, for the first 10 years from the Commercial Operation Date to the Company every month during the period commencing from the Commercial Operation Date at the rate of Rs.3.40 (Rupees Three and

Forty paise only) per kilowatt-hour without any escalation for energy delivered to the ESCOM at the Metering Point."

Definitions :

"Delivery Point" shall be the point or points at which Electricity is delivered into the Grid System of the Corporation / ..ESCOM and is at the high voltage side of the step-up transformer installed at the Receiving Station."

"Delivered Energy" means the kilowatt hours of electricity actually fed and measured by the energy meters at the Delivery Point in a Billing Period after deducting therefrom, the energy supplied by the ..ESCOM to the Project, as similarly measured during such Billing Period and shall be computed in accordance with Clause 6.1."

"Grid System" means Corporation's / ..ESCOM's power transmission / distribution system through which Delivered energy is evacuated and distributed.

"Receiving Station" shall mean thekV electric switching station constructed and maintained by the Company near the ... kV / ... kV sub-station of the Corporation / ..ESCOM located at for the sole purpose of evacuating the Electricity generated by the Project to the Grid System and for facilitating interconnection between the transmission lines emanating from the Project and the Grid System."

- (e) The above terms in the Standard PPA for Wind Projects make it clear that the transmission loss from the Generation Point till the Sub-Station of the Licensee will have to be borne by the Wind Power Generator.
- (f) In the present case, the generation voltage of 690V at each WTG is stepped up to 11 kV and pooled at the Wind Project Site, and thereafter transmitted to

a distance of 4.35 KMs from the 11 kV BUS at the Wind Project Site to the 11 kV BUS of the 66/11 kV Pandarahalli Sub-Station of the KPTCL. A set of Main and Check Meter of Class 0.2 accuracy has been provided near the 11 kV BUS at the Wind Project Site and also another set of Main and Check Meters of Class 0.2 accuracy has been provided near the 11 kV BUS of the 66/11 kV Pandarahalli Sub-Station. Admittedly, from the COD, the Delivered Energy is measured at the meter provided at Pandarahalli Sub-Station for the billing purpose. The Delivered Energy measured at the Main Meter provided at Pandarahalli Sub-Station would be the net Delivered Energy, excluding the transmission loss from the WTG till the Sub-Station. Therefore, we are of the considered opinion that the present practice of measuring the Delivered Energy for the purpose of billing at Pandarahalli Sub-Station is in accordance with the principle laid down by this Commission while approving the Standard PPA.

- (g) In the present case, the total capacity of WTGs is 5 MW. Therefore, it appears, the evacuation approval was granted to evacuate the power generated after stepping it up to 11 kV upto the Sub-Station, without insisting to further step-up from 11 kV to 66 kV. Therefore, there was no occasion for the Wind Project generator to construct a Receiving Station to step-up the power from the 11 kV to 66 kV, before injecting the energy to Pandarahalli Sub-Station. In the present case, all the four WTGs belong to one person, therefore there was no necessity to provide a Main Meter at the Wind Project Site at 11 kV BUS, as there was no question of ascertaining the line loss from the Generation Point

till Pandarahalli Sub-Station. The provision of a Main Meter at the Generation Point would arise, if the WTGs belong to different persons, in order to find out the transmission loss from different Generation Points to Pandarahalli Sub-Station.

- (h) The Petitioner has pointed out that, the evacuation approval had not provided the Main Meter and the Check Meter at Pandarahalli Sub-Station. Therefore, it is contended that, for measuring the Delivered Energy, the Main Meter at the Wind Project Site alone should be considered. This contention has no legal basis. The evacuation approval authority has no power to determine the Delivery Point, but it is the exclusive jurisdiction of this Commission. As already noted, the Commission has determined the location of the Delivery Point while finalising the Standard Format of the Power Purchase Agreement, Therefore, it may be said that, the Main Meter is provided at Pandarahalli Sub-Station for ascertaining the energy delivered into the Grid for billing purpose. As per the provisions in Regulation 7 of the Central Electricity Authority (Installation and Operation of Meters) Regulations, 2006, the evacuation approval authority may be required to locate a Main Meter and a Check Meter at the point of generation. The proviso to Regulation 7 of the said Regulations stipulates that, the Generating Company or the Licensee has to instal Meters at additional locations in their systems, depending upon the requirement. The Meter location for the billing purpose would be the Delivery Point or the Metering Point for measuring the energy delivered into the Grid, as determined by this Commission. Therefore, the said

- Regulations of the Central Electricity Authority do not prohibit to locate the Meter at Pandarahalli Sub-Station for measuring the energy delivered into the Grid.
- (j) The Petitioner has also contended that, there were some other Wind Power Projects having 11 kV evacuation and injection approvals, and that, in the case of M/s.Jindal Aluminium Limited, the Delivered energy is being measured at the 11 kV BUS of the Wind Power Project and not at the KPTCL's Sub-Station. The Petitioner has produced copy each of the PPAs dated 15.7.2003 and 24.9.2003 executed between the KPTCL and M/s.Jindal Aluminium Limited. It is observed that, the provision of metering for measuring the Delivered Energy, as indicated in Article 6.1 of these PPAs is exactly similar to the provision for the said purpose as indicated in Article 7.1 of the Standard PPA for Wind Projects, as noted above. Therefore, it would show that, the measurement of the Delivered Energy for the billing purpose at the Project Site, as contended by the Petitioner, is against the terms of these PPAs. The 1st Respondent (BESCOM) has also admitted during the arguments that, in the case of M/s.Jindal Aluminium Limited, the Delivered Energy is being measured at the Project Site itself and not at the Sub-Station for billing purpose. These PPAs were entered into before considering the changes effected in the Electricity Act, 2003. It is not known, under what circumstances the 1st Respondent (BESCOM) is measuring the Delivered energy at the Wind Project Site. On this count, the Petitioner cannot insist that, in its case also, the Delivered Energy should be measured at the Wind Project Site.

- (k) It can also be seen that, the terms of the PPA for Wind Projects are standardized, considering the normal Wind Projects established at the high Wind Zone areas, which are generally far away from the Load Centres. As noted above, depending on the evacuation approval, the construction of a Receiving Station may not arise in certain cases, and for one or the other reason, it may not be possible to construct the Receiving Station at or near the Sub-Station of a Licensee. In such circumstances, it is necessary to alter the terms in the Standard PPA to suit the Project requirements, on a case-to-case basis, without affecting the commercial terms approved by the Commission. In a particular case, if the Receiving station cannot be constructed at or near the Sub-Station of the Licensee, and it is allowed to be constructed at a considerable distance away from the Sub-Station, the Main Meter (Bulk Meter) for measuring the energy delivered into the Grid should be located only at or near the Sub-Station of the Licensee and not at the high voltage side of the step-up Transformer installed at the Receiving Station.
- (l) For the above reasons, we hold that the Metering Point for the purpose of recording the Delivered Energy from the Wind Project of the Petitioner should be the 'Main Meter at Pandarahalli Sub-Station'. We answer Issue No.(1) accordingly.

- 8) **Issue No.(2)** : *Whether some other clauses in the PPA dated 24.12.2007 specifying the technical parameters are in consonance with the evacuation approvals granted earlier to the execution of the PPA or not?*
- (a) The technical standards for construction of electrical plants, electrical lines and connectivity to the grid and its safety requirements, etc., shall be as specified by the Central Electricity Authority. The Grid Standards for operation and maintenance of Transmission Lines and installation of Meters, etc., shall also be as specified by the Central Electricity Authority. The State Commission has to specify the State Grid Code consistent with the Grid Code specified by the Central Electricity Regulatory Commission. The evacuation approvals for evacuating the power from the Generation Point of a Wind Project to the State Grid are being granted, keeping in mind the different technical standards specified by different competent authorities. The principles followed while approving the most economical evacuation proposals are that, the transmission losses are reduced, reliability in evacuation and the voltage regulations are to be within the permissible limits. Therefore, upto what voltage the power generation is to be stepped up depends upon the generation capacity, the distance to be covered from the Wind Project Site to the Sub-Station of the Licensee and the financial implications for stepping up of the voltage and construction of the Receiving Station for that purpose, etc. Therefore, the evacuation approval shall be Project-specific, depending upon the Project size and other relevant technical and financial parameters.

- (b) Schedule-2 of the Standard Format of the PPA for Wind Projects stipulates the limitations of frequency and voltage variations, and the power factor range. The Schedule-6 of the Standard Format of the PPA does not specify the voltage at which the power generation is to be stepped up and evacuated to the Substation of the Licensee.
- (c) In the present case, the evacuation approvals were given earlier to the execution of the PPA dated 24.12.2007. Therefore, at relevant places of the said PPA, the approved parameters of evacuation should have been mentioned. We note that, the PPA dated 24.12.2007 does not contain the parameters of approved evacuation already granted in the relevant clauses therein. Therefore, the parties are at liberty to seek changes in the said PPA, if so required, in this regard.
- (d) For the above reasons, we hold that the parties are at liberty to get the terms of the PPA dated 24.12.2007 amended, for bringing them in consonance with the evacuation approvals already granted. We answer Issue No.(2) accordingly.

9) **Issue No.(3) :** *What Order?*

For the foregoing reasons, we pass the following Order:

ORDER

- (a) The request of the Petitioner to measure the Delivered Energy at the Metering Point at the Wind Project Site is rejected; and
- (b) The Petitioner is at liberty to seek for amendment of the relevant clauses of the Power Purchase Agreement dated 24.12.2007, to bring them in consonance with the evacuation approvals already granted.

Sd/-

(M.K. SHANKARALINGE GOWDA)
CHAIRMAN

Sd/-

(H.D. ARUN KUMAR)
MEMBER

Sd/-

(D.B. MANIVAL RAJU)
MEMBER