

**Before the  
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION**

**World Trade Centre, Centre No.1, 13<sup>th</sup> Floor, Cuffe Parade, Mumbai 400005.**

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**Case No. 153 of 2011**

**In the matter of**

**Petition filed by M/s. Gamesa Wind Turbines Pvt. Ltd., seeking amendment of Annual Mean Wind Power Density criteria for Wind Power Projects under Wind Zone -1 category in accordance with Regulation 26 read with sub-regulations 26.1, 26.2 & 26.3 of MERC (Terms and Conditions for Determination of RE Tariff) Regulations, 2010.**

**Shri. V.P. Raja, Chairman**

**Shri. Vijay L. Sonavane, Member**

M/s. Gamesa Wind Turbine Pvt. Ltd. .... Petitioner  
The Futura IT Park, Block B, 8<sup>th</sup> Floor,  
No. 334, Rajiv Gandhi Salai, Sholinganallur,  
Chennai – 600 119.

M/s. Maharashtra Energy Development Agency (MEDA), ..... Respondent  
MHADA Commercial Complex, 2<sup>nd</sup> Floor,  
Opp. Tridal nagar, Yerwada, Pune – 411 006.

Present during the hearing:

For the Petitioner: Shri. V.R. Sreekumaran, Shri. T Ponnurangam and  
Shri. Prakash Morarkar

For the Respondent: Shri. H. D. Shinde

## **ORDER**

**Dated: January 11, 2012**

M/s. Gamesa Wind Turbine Pvt. Ltd. (“the Petitioner) filed a Petition on affidavit before the Commission on 24<sup>th</sup> October, 2011, under Regulation 26 read with sub-regulations 26.1, 26.2 & 26.3 and Regulation 75 and 76 of MERC (Terms and Conditions for determination of RE Tariff) Regulations, 2010 (hereinafter referred to as “MERC RE Tariff Regulations”), *inter alia*, seeking amendment of Annual Mean Wind Power Density (WPD) criteria for Wind Power Projects under Wind Zone -1 category.

2. The prayers of the Petitioner are as follows:

“.....

- a) *The Hon. Commission may kindly amend and consider the WPD for Wind Zone – 1 as “up to 250 W/m<sup>2</sup>” instead of “200 -250 W/m<sup>2</sup>.”*
- b) *The Hon. Commission may take cognizance of MNRE letter and kindly omit the 50 M hub height criteria for the measurement of WPD for developing wind power sector in Maharashtra State.*
- c) *The Hon. Commission may pass any other Order as may be appropriate under the circumstances.*
- d) *The Hon. Commission condones any inadvertent Omissions/errors/shortcomings.*
- e) *The Hon. Commission may please permit the Petitioner to add or modify this Petition with additional information, if so required during the course of hearings. ”*

3. The Petitioner in its Petition submitted as follows;

3.1 The Petitioner is a Spanish company and in the business of manufacturing wind turbines and setting up wind farms across the world. In India, the Petitioner has installed 450 MW Wind power projects and is planning to install 1000 MW capacity during 2012. The Petitioner's wind project site is located at villages Mendhigiri, Yeldari, Rampur and adjacent villages of Taluka Jath, Sangli District, Maharashtra State. The capacity of the project is around 40 MW (20MW enhancement is expected during the next year). Out of the 40 MW capacity, 8.5 MW has been commissioned so far and execution of the balance machines is in progress. The project is scheduled to be completed by end of December 2011.

3.2 The functions of State Commissions as per Section 86(1) (e) of the Electricity Act 2003, inter alia, are as below:-

*“(e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licensee;”*

3.3 The Commission has notified the MERC RE Tariff Regulations on 7<sup>th</sup> June, 2010. The eligibility criterion for wind power projects under Regulation 4 (4.1) of these Regulations is that new wind power project(s) to be commissioned subsequent to notification of these Regulations and located at the wind sites having minimum annual mean WPD of 200 W/m<sup>2</sup> measured at hub height of 50 meters and using new wind turbine generators.

3.4 Moreover, Regulation 26 of MERC RE Tariff Regulations, under the head “Capacity Utilization Factors” provides as follows:-

“26.1 Capacity Utilization Factor (CUF) norms for the Control Period shall be as follows;

<i>Annual Mean Wind Power Density (W/m<sup>2</sup>)</i>	<i>CUF</i>
<i>200-250</i>	<i>20%</i>
<i>250-300</i>	<i>23%</i>
<i>300-400</i>	<i>27%</i>
<i>&gt; 400</i>	<i>30%</i>

26.2. The annual mean wind power density specified in Regulation 26.1 above shall be measured at 50 M hub-height.

26.3. For the purpose of classification of wind energy project into particular wind zone class, the State-wise wind power density map prepared by the centre for Wind Energy Technology (C- WET) and enclosed as schedule to these regulations, shall be considered.

***Provided that the Commission may by notification in official gazette, amend the schedule from time to time, based on the input provided by C-WET/MNRE.”***

3.5 The MERC RE Tariff Regulations empower the Commission to determine the Generic tariff for different RE technologies on *suo-motu* basis for which norms have been specified under said Regulations. The Commission vide Order (*suo-motu*) dated 14<sup>th</sup> July, 2010 in Case No. 20 of 2010 in the matter of “Determination of Generic Tariff under regulation 8 of the MERC (Terms and Conditions of determination of RE tariff) Regulations, 2010”, determined the levellised tariff for different renewable energy projects including new wind power projects commissioned in FY 2010-11.

3.6 Similarly, the Commission vide Order (*suo-motu*) dated 29<sup>th</sup> April, 2011 in Case No. 39 of 2011 in the matter of “Determination of Generic Tariff for the second year of the first Control Period under Regulation 8 of MERC (Terms and Conditions for determination of RE tariff) Regulations 2010”, has determined levellised tariff for different renewable energy projects including new wind energy projects to be commissioned in FY 2011-12. In both the aforesaid Orders, the Commission determined

the levelled tariff for all the four zones of wind power projects i.e. Wind Zone-1, Wind Zone-2, Wind Zone-3 and Wind Zone-4.

3.7 As per the aforesaid Orders, the levelled tariff of Rs. 5.07/kWh (during FY 2010-11) and levelled tariff of Rs. 5.37/kWh (during FY 2011-12) is applicable for Wind Zone -1 projects having Annual Mean WPD of 200-250 W/m<sup>2</sup> and CUF 20%. However, the Commission has not yet considered the Wind power projects having WPD less than 200 W/m<sup>2</sup> for which no levelled tariff has been determined by the Commission.

3.8 Furthermore, the Petitioner submitted that with the Technical Feasibility study report and available wind potential at windy site at villages Mendhegiri, Yeldari, Rampur and adjacent villages of Taluka Jath in Sangli District, the Petitioner approached MEDA for getting the Zone certificate of these sites. However, the Respondent vide letter dated 20<sup>th</sup> October, 2011 replied that "C-WET has carried out data verification of Mendhegiri WRA station. As per report of C-WET, the WPD of Mendhegiri WRA station at 50 m AGL is 193.92 W/m<sup>2</sup>". Moreover, the Respondent verbally advised the Petitioner to approach this Commission for seeking any amendment/guidelines/zone for wind sites with WPD less than 200 W/m<sup>2</sup>.

3.9 The Petitioner pointed out that, as per the Respondent's wind potential assessment report, the total wind potential at 39 windy sites in Maharashtra is around 5430 MW having WPD greater than 200 W/m<sup>2</sup> measured at 50 M hub height. Out of this the wind power projects of around 2310 MW have been commissioned by end of 31<sup>st</sup> March, 2011. If total feasible wind potential at the sites where WPD is less than 200 W/m<sup>2</sup> is considered, then the total potential in Maharashtra will be more than 5430 MW. With the inception of new wind turbine technology with improved efficiency and having CUF/PLF of almost 19-20% or even more, the wind generator can exploit the wind potential very efficiently at the sites where WPD is less than 200 W/m<sup>2</sup>.

3.10 The Petitioner has relied upon Ministry of New and Renewable Energy (MNRE), Wind Energy Division, letter dated 1<sup>st</sup> August, 2011. MNRE by this letter has removed

the minimum WPD criteria for development of wind power projects. The extract of Ministry's letter is reproduced below:-

*“This Ministry vide its circular dated 27.06.2002 had issued a guidelines to consider Wind Power Density (WPD) of 200 W/m<sup>2</sup> at 50 m hub height as the minimum requirement for suitability of wind power project development. After detailed discussions with Wind Power experts and Policy makers, it has been observed that this provision did not hold relevance any longer and with change in wind turbine technology and better efficiency, even the lower wind regime have become exploitable.*

*In view of the aforesaid opinion of experts, it has been decided that hereafter, no restriction will exist for Wind Power Density criteria as far as the development of wind power project is concerned.”*

3.11 The Petitioner contended that in view of above MNRE letter, the Commission may also take cognizance of the Ministry's decision to promote and develop the wind energy sector more efficiently in each State. Therefore, the Petitioner requested the Commission to amend and consider the WPD for Wind Zone – 1 as “up to 250 W/m<sup>2</sup>” instead of “200 -250 W/m<sup>2</sup>” and also urged that there should not be any restriction of measurement of WPD to be measured at 50 m hub height, as minimum WPD criteria no longer exists, as far as the development of wind power projects are concerned.

4. During the hearing held on 2<sup>nd</sup> December, 2011, the Petitioner read out its prayers in the Petition and explained the detailed wind technology w.r.t WPD, wind hub height and wind velocity. The Petitioner stated that as per C-WET wind density map, it is observed that there is a lot of un-tapped wind potential in the Maharashtra State where WPD is less than 200 W/m<sup>2</sup>. With the inception of new wind turbine technology with better efficiency, even at lower wind regime having WPD less than 200 W/m<sup>2</sup>, can be exploitable. In view of the above, the Petitioner requested the Commission to consider

and amend the WPD criteria for Wind Zone – 1 as “up to 250 W/m<sup>2</sup>” instead of “200 – 250 W/m<sup>2</sup>”.

5. The Respondent contended that wind potential sites in Maharashtra State have been declared by C-WET based on certain MNRE standards, wherein the minimum WPD criteria considered was 200 W/m<sup>2</sup> at 50 M hub height. During the hearing, the Respondent submitted that in view of the change in wind turbine technology and better efficiency, the lower wind regimes have become exploitable and thereby more area can be put into use for the development for wind power project in the State.

The Respondent submitted that MNRE in its letter dated 1<sup>st</sup> August, 2011, has mentioned that there should be no restriction of wind power density criteria of 200 W/m<sup>2</sup> measured at 50 m hub height for the development of wind power projects. Furthermore, due to advancement of technology and better efficiency, it is possible to explore lower wind regimes. In view of above, the Respondent requested this Commission to introduce new Wind Zone class of “up to 200 W/m<sup>2</sup>” in the State. In order to promote the lower wind regime in the State, the Respondent has also requested the Commission to issue an interim Order with an appropriate tariff for Wind Zone class of “upto 200 W/m<sup>2</sup>”.

6. Having heard the parties and after considering the material placed on record, the Commission is of the view that with the development in the wind turbine technology and better efficiency, the provision for consideration of minimum WPD criteria at 200 W/m<sup>2</sup> and WPD measurement criteria at 50 M hub height for wind power projects having WPD less than 200 W/m<sup>2</sup>, restrains the development of wind sector at lower wind regimes. Perhaps, these lower wind regimes where WPD is less than 200 W/m<sup>2</sup> can become exploitable by increasing the wind hub height with support of advance wind turbine technology.

7. Moreover, to promote the renewable energy sector in the State, the Commission is mandated by Section 86(1) (e) of the Electricity Act 2003, which is mentioned in Para 3(3.2) above. Furthermore, Regulation 26 of MERC RE Tariff Regulations provides norms for Capacity Utilization Factor, which is also mentioned in Para 3(3.4) above.

The proviso to Regulation 26 of MERC RE Tariff Regulations provides that the Commission may amend the schedule from time to time, based on the inputs provided by C-WET/MNRE. Whereas MNRE, Wind Energy Division, office letter dated 1<sup>st</sup> August, 2011, clearly states that after detailed discussions with wind power experts and policy makers, it has been observed that the provision for consideration of WPD of 200 W/m<sup>2</sup> at 50 m hub height as the minimum requirement for suitability of wind power project development, does not hold relevance any longer and with change in wind turbine technology and better efficiency, even the lower wind regimes have become exploitable. The said letter states that here after, no restriction will exist for WPD criteria as far as development of wind power projects are concerned.

8. Furthermore, the Commission observes that the Petitioner's wind power projects do not fulfill the present WPD criteria and measurement criteria of WPD at 50 m hub height as provided under Regulation 26.1 & 26.2 of MERC RE Tariff Regulations. However, with the increase in hub height up to 80 m, the Petitioner's wind power projects may qualify the WPD criteria required for Wind Zone -1 category, for which the Petitioner may get necessary certification from C-WET/MEDA. Moreover, in view of MNRE's above findings and decisions and the Regulations 26 (26.3) & 76 (76.1) of MERC RE Tariff Regulations, the Commission will initiate suitable action to amend the MERC (Terms and Conditions for determination of RE Tariff) Regulations 2010 appropriately pertaining to this matter and any other incidental matters in connection therewith.

With the above observations and findings, Case No. 153 of 2011 stands disposed of.

Sd/-  
(Vijay L. Sonavane)  
Member

Sd/-  
(V. P. Raja)  
Chairman