

Before the
MAHARASHTRA ELECTRICITY REGULATORY COMMISSION
World Trade Centre, Centre No.1, 13th Floor, Cuffe Parade, Mumbai 400005
Tel. 022 22163964/65/69 Fax 22163976
Email: mercindia@merc.gov.in
Website: www.mercindia.org.in / www. merc.gov.in

CASE No.152 of 2018

In the matter of

Petition of Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) for Review of Order dated 03 April, 2018 in Case No. 41 of 2017 passed by the Commission in the matter of Petition of MSEDCL for revision in Wind Zone classification of Wind Energy Projects with consistently higher generation.

Coram

Shri. Anand B. Kulkarni, Chairperson
Shri. Mukesh Khullar, Member

Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL) Petitioner
V/s
Maharashtra Energy Development Agency Respondent

Appearance:

For MSEDCL : Shri. Ashish Singh (Adv.)
For MEDA : Shri. Manoj Pise

ORDER

Date: 09 July, 2018

1. Maharashtra State Electricity Distribution Co. Ltd. (MSEDCL), 5th Floor, Plot No G-9, Station Road, Prakashgad, Bandra (East), Mumbai-400051 has filed a Petition on 18 May, 2018, citing Section 94 (1) (f) of the Electricity Act (EA), 2003 read with Regulation 85 of the MERC (Conduct of Business) Regulations, 2004 for review of the Order dated 03 April, 2018 in Case No. 41 of 2017.
2. The substantive prayers of MSEDCL are as mentioned below;
 - a) *Review the order dated 03.04.2018 in case no. 41 of 2018 by allowing the present review petition.*
 - b) *Revise Wind Zone classification of 42 generators.*
 - c) *Devise a procedure to adopt 80 m. hub height (or more) data for Wind power density measurement, to link up actual generation data with Wind Zone classification.*
 - d) *To issue directives to MEDA to review the Wind Zone classification of 42 Wind generators & revise them as per the actual generation.*
 - e) *To issue direction to MEDA to adopt the methodology suggested by MSEDCL till the procedure to adopt 80 m hub height creation is finalized by MEDA.*

f) *Pass such further orders as this Hon'ble Commission deems fit and proper in the interest of justice and good conscience.*”

3. MSEDCL has raised following issues in Review of the Commission's Order in Case No. 41 of 2018 delivered on 3 April, 2018 (without prejudice to one another):

(a) Para 7 (c) of the Commission's Order mentions that NIWE, vide its letter dated 10/08/2017, had opined that the factors for deciding the adoption of an appropriate procedure for fixation of Wind Zone are as follows:

(i) based on actual generation /CUF, or

(ii) based on numerical at a static height (50m or 80 m) , or

(iii) based on a combination of the above.

The Commission could have considered above suggestion (i) by NIWE which is in line with the MSEDCL's prayer.

(b) In the aforementioned proceedings held on 12 September, 2017, the Commission directed MEDA to make its submission on the operational difficulties stated by MSEDCL in its proposal for revision in wind zone classification, within two weeks. The same is not submitted by MEDA and MERC has not taken cognizance of the same.

(c) The Commission's observation (point no. 17), *“By the very nature of Wind Zone classification and the differing profiles of Generators, it is not expected nor at all likely that the performance of all Projects at all locations in a particular Wind Class would be uniform..”*.

In this regard, in MSEDCL's main petition, MSEDCL has never requested a zoning methodology. Instead it had requested Commission to adopt a single Zone tariff similar to other States which the Commission did not consider in the order.

4. MSEDCL has relied on the following grounds (without prejudice to one another):

a) That the Commission's Order is vitiated by error apparent as the Commission has failed to appreciate that the major states do not have tariffs based on wind zone wise classifications.

b) Left with no other efficacious remedy, MSEDCL is constrained to approach this Commission vide the present Petition.

c) This Commission has the jurisdiction to adjudicate the present dispute.

d) There is no delay in filing the review petition and the same is filed well within limitation.

MSEDCL craves leave of the Commission to add/amend/substitute the present Petition with the prior permission of the Commission.

5. In its Reply dated 22 June, 2018, MEDA has stated that:

a) MEDA's submission with reference to petition is as below;

Issues raised in review (without prejudice to one another)

Point a) Para 7 (c) of the Commission's Order, NIWE, vide its letter dated 10.08.2017, has opined that the deciding factor for adoption of the appropriate procedure for fixation of wind zone are as follows:

- i) based on actual generation / CUF, or
- ii) based on numerical at a static height (50m or 80m), or
- iii) based on the combination of the above

The Commission could have been considered above suggestion (i) by NIWE which is in line with the MSEDCL's prayer.

MEDA's Comments:

Procedure for classification of wind power projects into wind zone classification had been finalized in consultation with NIWE, MSEDCL, other distribution licensees & wind project developers. The Commission had given its approval to "Procedure for classification of wind power projects into wind zone classification" on 12 September, 2011. Accordingly, MEDA is issuing Wind Zone Classification letters to Developers / Investors as per the procedure.

As per the Commission's directives given in letter no. MERC/RE Cell No. 6 / 2015-16 / 01457 dated 9.2.2016, MEDA is certifying Wind Zone class by considering Annual Mean Wind Power Density (WPD in W/m^2) at 50m hub height for classification of Wind Power Projects into the Wind Zone Class extended period up to 9th November, 2015. Thereafter, i.e. from 10th November, 2015 onwards, MEDA is certifying Wind Zone Classification certification of WPD considering 80m hub height as per Regulation 28.2 of MERC (Terms and Conditions for Determination of Renewable Energy Tariff) Regulations, 2015."

NIWE in its letter dated 10.8.17 also mentions that "If the actual CUF is used as a tool to decide the Wind Zone, then such procedure should be examined thoroughly so that the credit to the better performing turbine is not denied."

CUF is also function of wind pattern which itself is cyclic in nature, hence some variation in both directions in wind pattern is common phenomenon.

In case of wind turbine based procedure, each turbine should have individual meter for determining CUF.

Point b) The proceeding at the hearing held on 12 September 2017, the Commission directed MEDA to make its submission on the operational difficulties stated in MSEDCL's proposal for revision in wind zone classification, within two weeks. The same is not submitted by MEDA & MERC has not taken cognizance of the same.

MEDA's Comments:

The Commission vide its letter no. MERC/Case No. 41 of 2017/04240 dated 25th September 2017 has directed MEDA to make its detailed specific submission on the operational difficulties stated by MSEDCL while seeking revision of Wind Zone classification, within two weeks. In light of this, MEDA vide its letter no. IDD/CR-28/2017-18/4481 dated 13.10.17 has submitted their submission to the Commission & also marked copy to MSEDCL. MEDA has also sent their submission through e-mail to the Commission & MSEDCL.

Point c) The Commission's observation (point no. 17), "By the very nature of Wind Zone classification and the differing profiles of Generators, it is not expected nor at all likely that the performance of all projects at all locations in a particular Wind Class would be uniform".

In this regard, in MSEDCL's main petition, MSEDCL has never requested a zoning methodology. It was further requested to adopt a single Zone tariff similar to other States.

MEDA's Comments:

MEDA agrees with observations of the Commission.

b) MEDA had followed the procedure for classification of wind power projects into wind zone classification approved by the Commission for issuing wind zone letters to Developers / Investors. It is submitted that as per the directives of the Commission, MEDA will review the procedure. It is also submitted that MSEDCL has started competitive bidding for purchase of wind energy; therefore there is no relevance for zone based tariff in future. But for existing PPAs, the Commission may issue appropriate directions for review of zoning policy.

6. The proceedings of the hearing held on 25 June, 2018 are summarized as follows:

Advocate of the MSEDCL has stated as follows:

a) All Wind generators in Maharashtra are identified in different zones as per Wind zone classification. MSEDCL has carried out detailed study of the actual generation data of 340 Wind Power Projects for FY 2013-14 to 2015-16. Out of these 340 Projects, 328 fall under Wind Zone -1 and 12 under Wind Zone -2. Out of the 328 Projects, 42 Projects are getting consistently much higher CUF than 20%. Hence the wind zone classification shall be based on actual generation/ realistic CUF data. The Commission in its Order dated 3rd April, 2018 in Case No.41 of 2017 under para 9 (d) has reproduced MSEDCL's submission regarding single tariff to windy states like Gujarat, Karnataka, Andhra Pradesh and Tamil Nadu having large wind energy potential.

b) MSEDCL is carrying out similar study of about 800 to 900 Wind Generators in Maharashtra and will submit its details to the Commission.

c) The Commission had asked MEDA in 2014 to submit the data for a detailed study to re-assess the realistic CUF of Wind Energy Projects. This data has not been submitted

by MEDA, which informed the Commission that it is working on the study with the National Institute of Wind Energy (NIWE), and is coordinating with the concerned agencies for the data required by NIWE.

d) Considering the technological advancement and the availability of RE power in the State at competitive rate, wind zone classification based on realistic CUF is necessary. It further stated that it has very limited ground for review of the Commission's Order dated 3 April, 2018; however the issue raised by it is maintainable.

e) The Commission may determine a single tariff for all Zones by way of public consultation and imploding the affected/concerned parties.

f) The representative of MEDA stated that it has not received complete generation data from MSEDCL and it requires some more time to file its reply. The Commission directed MEDA to submit its reply on or before 4 July, 2018.

7. With reference to the hearing held on 26 June, 2018 MEDA vide its letter dated 29 June, 2018 has made the additional submissions as follows;

1) The average CUF of 42 projects in Zone-I mentioned in the submission of MSEDCL appears to be higher than CUF norm set in RE tariff Regulation 2010 dated 7 June, 2010 and modified in RE Tariff Order 2014 in Case No. 100 of 2014 dated 07 July, 2014.

2) Prior to 2004, MSEDCL was providing meter for each Wind Turbine Generator (WTG) . 2004 onwards MSEDCL adopted method of providing meter at each feeder level in substation. MEDA has no comments about the method followed by MSEDCL for recording the generation and calculating the CUF of wind power projects.

3) It is also submitted that in future MSEDCL should co-ordinate and involve MEDA for preparing of generation reports & calculation of CUF of wind power projects and NIWE for further advanced analysis.

8. MSEDCL in its additional submission dated 2 July , 2018 has stated as below;

It has filed review petition on 17 May, 2018 to review the Commission's Order dated 3 April, 2018 in Case No. 41 of 2017 for revision in Wind Zone classification of Wind Energy Projects with consistently higher generation. The hearing was conducted on 26 June, 2018. In this matter MSEDCL is hereby submitting the additional submission to the Commission.

1) MEDA has been designated at State Nodal Agency for allotment of wind zone class. The Commission in the impugned Order dated 03 April, 2018 has noted that ;

“.....as regards the actual Capacity Utilisation Factor (CUF) for Wind power generation in the State, the Commission in its Order dated 12 March, 2014 in Case No. 180 of 2013 had asked the Maharashtra Energy Development Agency (MEDA) for a detailed study to re-assess the realistic CUF of Wind Energy Projects. MEDA has informed the Commission that it is working on the study with the National Institute of Wind Energy (NIWE), and is coordinating with the concerned agencies for the data required by NIWE”. It would not be appropriate to revise the Wind zoning in the absence of supporting data. The Commission may review the classification of Wind Zones and

CUF norms considering the outcome of the study being undertaken by MEDA with NIWE.”

Further, the Commission has also noted that MEDA in its general observation has mentioned that

“.....the average PLF has also remained at around 16% over this period. Moreover, there has been no major change in the weather pattern since FY 2012-13 when the Wind Zone classification was done. In MEDA’s opinion, therefore, re-assessment and revision of the Wind Zone classification is not necessary as of now”.

Even after MSEDCL’s submission on analysis of actual CUF, based on actual generation, which is more than 20 % to 22%, the Commission has not considered and has erred in passing the order.

2) Even after giving the detailed analysis by MSEDCL regarding actual generation/CUF of the 42 wind generators which has proved that the actual CUF is much more above the determined CUF

AND

As per RE tariff Regulations, 2015 MEDA is measuring the wind power density at 80 m wind mast to ascertain the wind zone. But in present days, due to advance technology the hub height of wind mills are increased up to 110 m. Greater hub height of wind turbines allowed greater utilization of wind energy due to the greater wind potential available at higher heights. While determining of wind zone to this wind mills, MEDA is still measuring the WPD at 80 m and neither extrapolating nor applying any correction factor to the value measured at 80 m mast height to arrive the actual WPD at hub height of windmill say 110 m. This is been confirmed by MEDA

AND

Further, in recent submission to the Commission on dated 29 June, 2018, MEDA has also accepted that the average CUF of these 42 projects in Zone-1 mentioned are appears to be higher than CUF norms citing in RE Tariff Regulations, 2010.

MEDA, the State Nodal Agency for determination of zone itself has accepted in writing the certain flaws in present methodology. The Commission has failed to consider this fact while passing the Order dated 03 April, 2018 and issued Order hurriedly without any details study by MEDA with NIWE which the Commission himself has mention in its Order dated 12 March, 2014.

3) Commission while passing the Order has not considered that, CERC (Determination of RE Tariff Regulations) in 2010 has directed for wind zone classification considering the varied topography and wind density to determine the tariff .

In spite of this, except 2 state ie. Maharashtra and Uttarakhand , no other state has adopted the suggestion of wind zone classification and determined the single tariff. Due to single part tariff ,in the state like Tamilnadu and Gujarat ,wind generators has installed the WTGS where high wind density is available in their state.

On the contrary, in Maharashtra in spite of the 4 wind zone classified, @ 99% WTGS are located in Zone 1 i.e. low wind density pocket and highest tariff. This has promoted the inefficiency (as in Zone 1 the wind density and thereby the CUF is Low).

Due to the major % of WTGS in wind zone 1(99%), the single tariff of inefficient Zone i.e. Zone 1 is applicable to the Wind generation and as comparison to other state this tariff is @12 % to 23% higher. The tariffs in other neighboring states for FY 17-18 are as below: (In Rs per unit)

Maharashtra Zone 1	Gujarat	Tamilnadu	M.P.	A.P.	Karnataka
5.40	4.19	4.16	4.78	4.76	4.50

4) MSEDCL submits that, NIWE, vide its letter dated 10 August, 2017, has opined that the deciding factors for adoption of the appropriate procedure for fixation of Wind Zone are as follows:

- a) based on actual generation /CUF, or
- b) based on numerical at a static height (50m or 80 m) , or
- c) based on a combination of the above.

The Commission has failed to consider the option (i) i. e. based on actual generation/CUF as appropriate procedure for fixation of Wind Zone in absence of an accurate methodology for wind zone determination.

5) Tariff Philosophy- Levelised tariff for different wind zones:

a) As per the Commission's RE tariff Regulations, for determination of levelized tariff following components are considered:

- Return on equity;
- Interest on loan capital;
- Depreciation;
- Interest on working capital;
- Operation and maintenance expenses;

Considering all the above and providing the reasonable return, tariff is determined by Commission on the basis of classified wind zone depending upon CUF. MEDA has been appointed as a designated Nodal agency for classifying wind zones and accordingly generator gets their returns on investment and Equity for that particular classified wind Zone.

b) The Commission in its RE tariff Regulations, 2010 has firstly introduced levelised tariffs for different wind zones and are in existing from FY 2010-11. The very purpose of wind zone classifications is to determine the wind potential across state and to compensate Wind generators according to classified wind zone. It is well-known that Maharashtra state is having different topography across the state i. e. from coastal area, plateau to hilly area etc. But surprisingly out of total number of generators located across the state (1219 nos.) about 98.76 % wind generators (1204 nos.) which are having EPA with MSEDCL, are allotted wind zone 1 which is having highest tariff by MEDA.

- c) MSEDCL on analyzing data of 340 nos Wind Turbine Generators (WTGs) on sample basis , observed that the actual CUF of 42 nos. of WTGs is higher than determined CUF for the classified wind Zone.
- d) From the above statistics and submissions of MEDA it is amply clear that the sampled 42 generators and such other generators are getting overcompensated/ commercial benefitted due to the present method of Zone classification.
- e) The Commission while passing the Order has not considered the facts that the flaws in present methodology is unduly commercially benefiting/overcompensating to the generators which ultimately burdening the consumers and which needs to be immediately reviewed.
- 6) In view of all the above and considering the huge financial obligations/burden on MSEDCL consumers, MSEDCL requests to consider this additional submission for the review of Order in Case No. 41 of 2017 dated 03 April, 2018.
- 7) In view of the above MSEDCL prays to the Commission as under:
- a) To admit & consider the present additional submissions in addition to the submissions in the review petition i.e. Case No. 152 of 2018.
- b) Revise Wind Zone classification of 42 generators and similar other generators and allow MSEDCL to recover overcompensation paid to them by MSEDCL.
- c) To issue directive to MEDA to devise methodology and correct wind zone classification of all existing WPP.
- d) And henceforth for upcoming projects the single zone tariff methodology may be adopted.
- e) Pass such further orders as this Hon'ble Commission deems fit and proper in the interest of justice and good conscience.

Commission's Analysis and Ruling

9. **Regulation 85(a) of the Commission's Conduct of Business Regulations, 2004 specifies as follows:**

“Review of decisions, directions, and orders:

“85. (a) Any person aggrieved by a direction, decision or order of the Commission, from which (i) no appeal has been preferred or (ii) from which no appeal is allowed, may, upon the discovery of new and important matter or evidence which, after the exercise of due diligence, was not within his knowledge or could not be produced by him at the time when the direction, decision or order was passed or on account of some mistake or error apparent from the face of the record, or for any other sufficient reasons, may apply for a review of such order, within forty-five (45) days of the date of the direction, decision or order, as the case may be, to the Commission.”

Thus, the ambit of review is limited, and MSEDCL's Petition has to be evaluated accordingly. MSEDCL has filed its Petition within 45 days, as required.

10. **The Commission has evaluated MSEDCL's review points as raised under the present Petition as follows;**

a) **MSEDCL's review point no 1:**

Para 7 (c) of the Commission's Order, NIWE, vide its letter dated 10/08/2017, has opined that the deciding factors for adoption of the appropriate procedure for fixation of Wind Zone are as follows:

- (i) based on actual generation /CUF, or
- (ii) based on numerical at a static height (50m or 80 m) , or
- (iii) based on a combination of the above.

The Commission could have been considered above suggestion (i) by NIWE which is in line with the MSEDCL's prayer.

Commission's Analysis:

Though , MSEDCL has stated that the Commission could have considered NIWEs' suggestion which is in line with MSEDCL's prayer, the Commission observes that in fact the Commission has noted the submission of NIWE at para 16 of the impugned Order as follows;

"16. MEDA has also submitted NIWE's opinion dated 10 August, 2017 with regard to Wind Zone classification in the context of MSEDCL's finding that 42 Generators in Wind Zone 1 achieved a higher CUF, and its consequent proposal. NIWE has pointed out that:

(i) The Wind Zone classification procedure is carried out considering only a static hub height, i.e. 50 m or 80 m. height. As the actual hub height of the wind turbines may vary, the actual generation at some sites may show deviation from the Wind Zone fixed.

(ii) Considering the above procedure, comparing the actual CUF results with the fixed Wind Zone is inappropriate because the actual generation / CUF depends on several parameters, namely hub height, rotor diameter, turbine performance, grid availability, etc., but the Wind Zone concept is based only on wind climate at a static height of 50 m or 80 m.

(iii) In the same Wind Zone, different turbines may yield different generation /CUF, mainly because of differences in the technology /performance of the turbines. Using the actual CUF to decide the Wind Zone needs to be examined thoroughly so that credit to the better performing turbines is not denied."

Moreover, the NIWE has suggested three options for fixation of Wind Zone (as cited at above) and has not negated the present framework of wind Zone classification. Accordingly, in line with this at para 17of the impugned Order the Commission has consciously held as follows:

17. MSEDCL proposes that the actual CUF achieved by a Project should be the basis of its Wind Zone classification and corresponding Tariff. That would amount to doing away entirely with such zoning and Tariff determination on that basis, and its encouragement to efficiency improvements; and, in effect,

tantamount to determination of Tariff Project-wise. As the Commission has pointed out during these proceedings, MSEDCL has not shown how the present Wind Zone classification rationale, principles, framework and process, set out at paras. 12 and 13 above, are unscientific or ill-founded. By the very nature of Wind Zone classification and the differing profiles of Generators, it is not expected nor at all likely that the performance of all Projects at all locations in a particular Wind Class would be uniform. The fact that 42 (i.e. 13%) of the Projects at Wind Zone 1 locations have a higher CUF does not militate against or negate this framework or its rationale, as NIWE has also pointed out.

Further at para 10. of the impugned Order the Commission has observed as below;

“10. The proceedings at the hearing held on 7 November, 2017 are summarized as follows:

..
b) The Commission again observed that MSEDCL had not addressed its basic questions regarding the Wind Zone classification process, nor has it indicated how the process is unscientific. The Commission asked MSEDCL for any criteria /principles/ manner which it feels necessary for Wind Zone classification of Generators, apart from stating that the actual CUF achieved by a Generator should be the basis of tariff, which implies that zoning be done away with entirely. The Commission observed that, without understanding the basic norms for Wind Zone classification and its purpose, MSEDCL cannot argue for revision of the present procedure.

c) The Commission also asked MSEDCL what the intervals at which zoning should be re-assessed, and whether any scientific study has been done for better results which may be considered for revision of the Wind Zone classification. MSEDCL did not respond.”

In light of above facts it is evident/clear that the Commission has consciously decided the issue considering the submissions made by the parties involved therein. However, the Commission has left the issue unresolved by not diving deeper into the issue raised by MSEDCL. It merited serious consideration which called for a study by experts to suggest way forward. Why should a wind generator achieving higher generation not avail benefits of higher CUF in the appropriate CUF class as determined by Commission? Question raised by MSEDCL is not about merits of wind density classification alone, but its application and implementation on ground. It will be travesty of justice, if MEDA is not able to complete the study for over five years and feedback of actual generation figures shared by MSEDCL is not seriously considered by the Commission. A doubt certainly creeps in about the intentions of the wind generators who take higher tariff rate while achieving higher generation in a low wind density zone. It is not for the MSEDCL alone to base its argument on the findings of a scientific study, it is the responsibility of the Commission as well to take note of such anomalies as brought out by MSEDCL and set them right. Issue definitely needs to be seriously considered and therefore warrants a review.

b) **MSEDCL's review point no 2:**

The proceedings at the hearing held on 12 September, 2017, the Commission directed MEDA to make its submission stating the site and operational difficulties in MSEDCL's proposal for revision in wind zone classification, within two weeks. The same is not submitted by MEDA and the Commission has not taken cognizance of the same.

Commission's Analysis:

In fact MEDA has submitted its reply dated 13 October, 2017 which has been quoted at para 8 of the impugned Order as follows;

“

8. In its submission dated 13 October, 2017, MEDA stated as follows:

.....

f) As per NIWE's letter 18 August, 2017, if the actual CUF is used as a tool to decide the Wind Zone, then such procedure should be examined thoroughly so that credit to the better-performing turbines is not denied. NIWE's letter also clarifies that CUF is also the function of Wind pattern, and variation in both directions in Wind pattern is a common phenomenon. Also, in case of Wind turbine-based procedure, each turbine should have an individual meter for determining its CUF.

Moreover during the proceedings at the hearing held on 7 November, 2017 MEDA's submission has been recorded in the impugned Order as below;

“10.

e) In response to a query of the Commission, MEDA stated that, as per the statistical data of the past three years, the average generation of Wind Generators is almost constant, i.e. 1.5 MUs to 2 MUs, inspite of changing weather conditions. Also, no major change is observed in the weather pattern since FY 2012-13 in which the Wind Zone classification was carried out. Moreover, the average Plant Load Factor (PLF) remained about 16% over the years. Hence, as of now, re-assessment and revision of Wind Zone classification has not been considered necessary.

It would be seen from the submission of MEDA that it is making contrary statements in the same submission. While it states that average generation of wind generators is constant inspite of changing weather conditions, in the same breath it is stating that no major change is observed in the weather pattern since FY 2012-13. Wind density profile is surely a weather related phenomenon. It required deeper understanding of the position of MEDA when it takes two contrary positions at the same time. MEDA has not backed its statements with any evidence. It only relied on expertise of NIWE and directions of Commission to determine wind density zone. Whether the wind pattern has changed or has remained same needs investigation, because entire tariff determination is based on wind density classification. It calls for review of the earlier Order as there is error apparent in the contradiction seen in the submission of MEDA.

c) **MSEDCL's review point no 3:**

The Commission's observation (point no. 17), "*By the very nature of Wind Zone classification and the differing profiles of Generators, it is not expected nor at all likely that the performance of all Projects at all locations in a particular Wind Class would be uniform..*".

In this regards, in MSEDCL's main petition, MSEDCL has never requested a zoning methodology. It requested to adopt a single Zone tariff similar to other States.

Commission's Analysis:

MSEDCL has requested to adopt a single Zone tariff; however on this issue the Commission has decided the Case in line with the present provisions of RE Tariff Regulations, 2010 as well as 2015 and ruled therein. In fact the Commission has ruled on the issue of determination of Generic Tariffs in Maharashtra for Wind project depending on the Wind Zone class of their location, with which different CUF levels and has amply made it clear about its background , context , principles and rationale at para 12 of the impugned Order as follows;

"12. The Commission notes as follows:

1) The RE Tariff Regulations, 2010 introduced the determination of Generic Tariffs for Wind Projects depending on the Wind Zone class of their location, with which different CUF levels were associated.

2) 4 Wind Zone classes have been identified based on Annual Mean WPD, with Wind Zone 1 having the lowest WPD and correspondingly lower CUF than other Zones.

3) This Wind Zone classification considered the State wind density maps prepared by the Centre for Wind Energy Technology (C-WET) (subsequently renamed NIWE) from time to time.

4) Considering the less advantageous characteristics of Wind Zone 1, the Wind Projects in this class have been provided a higher Tariff, with progressively lower Tariffs for the Projects in Wind Zones 2 to 4 which are better placed in terms of WPD. This distinction would encourage harnessing of the wind energy potential in the State to a greater degree than would otherwise be the case.

5) The CUF norms associated with each Wind Zone have been based on a broad assessment of the status and improvements in available, cost-effective technologies and equipment in the wind energy sector in India from time to time.

6) The CUF in relation to the Wind Zone classification on the basis of the Annual Mean WPD has also been taking into account increases in hub height, from 50 m. in the RE Tariff Regulations, 2010 to 80 m. under the current Regulations of 2015.

7) *Progressive increases have also been stipulated by the Commission from time to time in the normative CUF associated with each Wind Zone class - for instance, from 20% in 2010 to 22% at present for Wind Zone 1 (Annual Mean WPD of 200-250 W/m²) considering technological advances and other factors.*

8) *As the Commission has observed in its RE Tariff Order in Case No. 10 of 2012, the WPD-based approach for determination of Wind Zone-specific Tariffs recognises the combination of wind velocity and power curve of the machines which takes into account harnessing of available wind power potential in the most optimal manner.*

9) *This basic framework for Wind Energy Projects has been followed, since the Regulations of 2010, in the RE Tariff Orders of the Commission, and now in the present RE Tariff Regulations, 2015.*

...”

Moreover at para 17 of the Order the Commission has observed that:

“17. MSEDCL proposes that the actual CUF achieved by a Project should be the basis of its Wind Zone classification and corresponding Tariff. That would amount to doing away entirely with such zoning and Tariff determination on that basis, and its encouragement to efficiency improvements; and, in effect, tantamount to determination of Tariff Project-wise.”

The Commission in its Order having explained the rationale of wind density based tariff regulation has not considered the fact that more than 90 % of the wind generators are in the least wind density zone. Instead of higher windy zones as identified by C-WET (now NIWE) invariably all the sites of wind power plants are in low wind zones which incidentally have the highest tariff. Regulations are meant to promote efficiency. By setting a tariff regime linking it to wind density, adverse incentives appear to be motivating the wind power plants to set up their plants in relatively less efficient zones. Such a blatant use of low wind zone areas in preference of higher zones requires serious consideration by the Commission for review of its related Tariff Regulation. Neither MEDA nor NIWE have been able to justify the need for wind density based classification when almost all the selected sites are showing low wind density zones. The Commission in its Order has omitted to fully consider the merits of the Tariff Regulation that is resulting in relatively inefficient harnessing of wind energy. Therefore, a review of the wind density based Tariff Regulation is warranted.

11. As regards, MSEDCL’s prayer for revision of Wind Zone classification of 42 generators the Commission notes the following additional submissions as made by MEDA and MSEDCL;

a) MEDA in its submission dated 22 June, 2018 and also during the hearing held on 26 June, 2018 has stated that MEDA will review the existing Wind Zone classification procedure. It has also submitted that since MSEDCL has started competitive bidding for purchase of wind energy, there is no relevance for zone based tariff in future. In these circumstances for existing PPAs, the Commission

may issue appropriate directions for review of zoning policy. Moreover, the “clause g” of the current Wind Zone classification procedure also states as below;

g. This procedure may be reviewed by MEDA, keeping in view the difficulties in implementation. MEDA reserves the right to make appropriate changes, if and when required.”

b) MEDA in its submission dated 26 June, 2018 has stated that the average CUF of 42 projects in Zone-I mentioned in the submission of MSEDCL appears to be higher than CUF norm set in RE tariff Regulation 2010 dated 7 June, 2010 and modified in RE Tariff Order 2014 in Case No. 100 of 2014 dated 07 July, 2014. Further, MEDA has not commented on the method followed by MSEDCL for recording the generation and calculating the CUF of wind power projects. Further MEDA has stated that in future MSEDCL should co-ordinate and involve MEDA for preparing of generation reports & calculation of CUF of wind power projects and NIWE for further advanced analysis. The Commission notes that MEDA has neither offered any comments nor raised any concerns on the method followed by MSEDCL for recording the generation and calculation of the CUF of 42 Wind Generators. Therefore the Commission deems it fit to accept the submissions of MSEDCL to that extent.

The Commission notes and accepts the above submissions of MEDA which is State Nodal Agency as designated by the Commission under the Regulatory provisions of the Commission for RE related matters.

c) MSEDCL during the hearing held on 26 June, 2018 has submitted with regards to its prayer for revision of Wind Zone classification of 42 generators that it is carrying out similar study of about 800-900 wind generators in Maharashtra and will submit its details to the Commission.

d) Commission also notes MSEDCL’s additional submission dated 2 July, 2018 under this Case.

(i) While MEDA during the hearing held on 7 November, 2017 had stated that the average PLF has remained at around 16%, MSEDCL’s study has shown the CUF from 20% to 22% for the 42 Wind Generators Projects. In this regard the Commission further notes that MEDA in its additional submission dated 26 June, 2018 has accepted this fact and mentioned that the average CUF of 42 projects in Zone-I mentioned in the submission of MSEDCL appears to be higher than CUF norm set in RE tariff Regulation 2010 dated 7 June, 2010 and modified in RE Tariff Order 2014 in Case No. 100 of 2014 dated 07 July, 2014.

(ii) MSEDCL states that, as per RE tariff Regulations, 2015 MEDA is measuring the wind power density at 80 m wind mast to ascertain the wind zone. But in present days, due to advance technology the hub height of wind mills are increased up to 110 m. Greater hub height of wind turbines allowed greater utilization of wind energy due to the greater wind potential available

at higher heights. While determining of wind zone to this wind mills, MEDA is still measuring the WPD at 80 m and neither extrapolating nor applying any correction factor to the value measured at 80 m mast height to arrive the actual WPD at hub height of windmill say 110 m. This is been confirmed by MEDA.

(iii) MSEDCL has also stated that the Commission in its RE tariff Regulations, 2010 has firstly introduced levelled tariffs for different wind zones and are in existing from FY 2010-11. The very purpose of wind zone classifications is to determine the wind potential across state and to compensate Wind generators according to classified wind zone. It is well-known that Maharashtra state is having different topography across the state i. e. from coastal area, plateau to hilly area etc. But surprisingly out of total number of generators located across the state (1219 nos.) about 98.76 % wind generators (1204 nos.) which are having EPA with MSEDCL, are allotted wind zone 1 which is having highest tariff by MEDA. From the above statistics and submissions of MEDA it is amply clear that the sampled 42 generators and such other generators are getting overcompensated/commercial benefitted due to the present method of Zone classification. Such a flaws in present methodology is unduly commercially benefiting/overcompensating to the generators which ultimately burdening the consumers and which needs to be immediately reviewed.

12. On carefully going through the contentions of MSEDCL for the reason recorded in the analysis of the issues raised, as per the provisions of Regulation 85(a) of the Commission's Conduct of Business Regulations, 2004, the Commission deems it fit that the impugned Order in Case No. 41 of 2017 does merit a review.
13. In view of the foregoing, the Commission allows the present Review Petition and hereby directs MEDA to review the Wind Zone classification of the instant 42 Wind Generators and review the Wind Zone classification for all the remaining such Wind Generators at the end of the current financial year based on the actual generation data submitted by MSEDCL /Generators.

If the generation is more than the allotted Wind Zones and CUF, then MEDA will make a recommendation about change in wind zone classification after taking into consideration, the wind power density and the technology employed by the generator. Surely, the benefits of technology in terms of injecting more wind power into grid would need to be passed on to the wind generator. But, the generator can not simultaneously take advantage of the higher tariff fixed for low wind zone classification claiming just the technological superiority of the machine. The idea of giving higher tariff to low wind density zone was to encourage harnessing of wind power by offsetting the low returns due to less wind density. It would amount to perversion of promotional tariff regime in low wind density zones, if the wind generators start generating power exceeding the assigned capacity for such zone with alternate technology to the one considered while fixing feed-in tariff. It would in fitness of things that the CUF indicated in the respective wind zones is treated as the upper limit for claiming tariff of that wind zone. Any generation more than the

assigned CUF would either change the classification or lapse the additional generation or adjust the additional generation in the subsequent year. MEDA will consider all these aspects before making an appropriate recommendations for such wind generators who are deviating significantly from the wind zone assigned to them.

Further annual verification needs to be carried out for the first three years from the date of commissioning (COD) of such Wind Generators and the correct Wind Zone classification based on average CUF as submitted by MSEDCL/Generators needs to be decided, which will be applicable for the remaining tenure of the EPA, if any, with MSEDCL/Distribution Licensees, so that the benefits of better efficiency can be availed by generators and proportionately shared with consumers of Maharashtra. MSEDCL may prefer separate petition to Commission in this regard with full justification for apportioning the extra benefit noticed in 42 wind generators between consumers and the wind generators.

14. MSEDCL has also requested to adopt a single Zone tariff similar to other States in the present Review Petition. MSEDCL's advocate during the hearing dated 26 June, 2018 in this matter has also suggested a public consultation process impleading/involving the concerned parties. In this regard the Commission has already ruled on this issue as stated above at para 10 above. The Commission further notes that MSEDCL's study of about 800 to 900 Wind Generators and compiled data about actual Generation details of all the Wind Generations by MEDA would be dealt with separately through public consultation process since it may require amending the present provisions of RE Tariff Regulations, 2015. The Commission directs MEDA/MSEDCL to complete this exercise within six months from the date of this Order and submit compliance report to the Office of the Commission accordingly.

The Review Petition of Maharashtra State Electricity Distribution Co. Ltd. in Case No 152 of 2018 stands disposed of accordingly.

Sd/-
(Mukesh Khullar)
Member

Sd/-
(Anand B. Kulkarni)
Chairperson


(Dr. Rajendra Ambekar)
I/c Secretary

