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Request for Revision of Monitoring Plan

"25.70 MW Bundled Wind Power Project in Udumalpet, Tamilnadu" (1015)

Dear Sir/Madam,

Please find below the validation opinion of TÜV NORD JI/CDM Certification Program to the revision of the monitoring plan for the above mentioned project no. 1015.

If you have any questions do not hesitate to contact us.

Yours sincerely,

TÜV NORD JI/CDM Certification Program



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Validation opinion as per requirement of EB26, Annex 34, Para 5

Level of accuracy or completeness

☒ TÜV NORD herewith confirms that the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced.

Additional comment:

“25.70 MW Bundled Wind Power Project in Udumalpet, Tamilnadu ”(hereafter referred to as project activity) was registered on 07 July 2007 using “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002/Version 06.

The project is a wind based 25.70 MW with wind turbines of 750 kW, 950 kW and 1650 kW capacity erected in and around Udumalpet in Tamil Nadu. The project activity includes commissioning of 28 wind turbines (22 numbers of 0.750 MW, 1 number of 0.950 MW, 5 numbers of 1.650 MW) by 13 promoters. Vestas Wind Technology India Pvt. Ltd. (formerly known as NEG Micon (I) Private Limited) is the primary coordinator of the project and the other promoters are individual entities whose WEGs are part of the project activity.

The monitoring of all Wind Turbine Generators (WTGs) is done by individual metering system attached to each WTG. Moreover there is local control system (LCS) which is being used to verify all data that has been collected by Vestas Wind Technology India Pvt. Ltd

In line with the paragraph 57 of the modalities and procedures for the CDM, the DOE instructed the project participant to revise the monitoring plan to improve the clarity and completeness of information and also the requirements mentioned under paragraph 17 and 18 of Clean Development Mechanism Validation and Verification Manual (VVM) (EB-44, Annex-3).

The key changes in the revised monitoring plan in comparison with the registered PDD is presented in the tabulated form as below:

Elements of Comparison	Reference	Registered PDD	Proposed Revised Monitoring Plan	Explanation
Description of data (EGy)	Section B.7.1 of registered PDD.	Electricity supplied to the grid by the project	Net Electricity supplied to the grid by the project	Net electricity supplied is the difference between electricity exported to the grid and imported from the grid. This data is used for emission reduction calculation. In the revised monitoring plan it is made specific in order to avoid any confusion.
Source of data (EGy) to	Section B.7.1 of	www.power2customer.com - Generation Reports	Monthly Electricity	www.power2customer.com is a website facility

be used	registered PDD.		Generation statement issued by the Tamil Nadu Electricity Board to each WEG (Wind Electricity Generator)	provided to customer to know the overall performance of their WEGs including generation of electricity. However in actual monitoring process as verified by the verification team the net electricity generation is taken from monthly electricity generation statement issued by TNEB, which is authentic source based on the energy meter reading attached to each WEG.
Value of data (EGy)	Section B.7.1 of registered PDD.	47.3 Units	47,300 MWh	This was an editorial mistake and corrected in revised monitoring plan.
Description of measurement methods and procedures to be applied for data EGy	Section B.7.1	Electricity measured is used in calculation of emission reductions. - The electricity generated by the WTG is measured at the local control system (LCS reading) which can be cross verified from the Energy meter installed at the transformer yard.	Net Electricity measured is used in calculation of emission reductions. - The electricity exported to the grid and the electricity imported from the grid by each WTG is measured at the energy meter installed at the transformer yard which can be cross verified from the local control system (LCS reading).	The measurement methods and procedure currently adhered as verified during site visit by verification team is described precisely in the revised monitoring plan. The net electricity exported data is being measured by energy meter associated with each WEG, which can be crosschecked by the LCS reading.
QA/QC procedures to be applied for the data EGy.	Section B.7.1	-	The energy meter will be tested and calibrated periodically by TNEB as per the guidelines of TNERC.	This has been added to the revised monitoring plan to describe QA/QC procedures which were only described in the annex 4 of registered PDD.
Any comment	Section	Electricity is supplied by the	Net Electricity	The word 'Net' has

	B.7.1	project to the grid. It is verified by the receipt of sales.	supplied by the project to the grid is verified by the receipt of sales.	been added in order to have consistency with the data description in the same table and to have clarity as well.
Description of the monitoring plan	Section B.7.2	zero emissions.....	These words have been deleted from the first line of section B.7.2	This was an editorial mistake and removed in revised monitoring plan.
Monitoring Plan	Annex 4	In addition to the Monitoring Plan listed below, NEG Micon also has an Integrated Quality Management System which will be used to verify all data that has been collected. NEG Micon (I) Private Limited is the first wind manufacturing company to have this system. Data is continuously updated on a daily basis and an internal survey conducted in the last few months has indicated that there has been minimum or no error in the readings. The use of IQMS would greatly benefit the Monitoring Plan for this Project especially with regard to reliability and consistency.	In addition to the Monitoring Plan listed below, there is local control system (LCS) which will be used to verify all data that has been collected. NEG Micon (I) Private Limited (now renamed as Vestas Wind Technology India Private Limited) is the first wind manufacturing company to have this system. Data is continuously updated on a daily basis and an internal survey conducted in the last few months has indicated that there has been minimum or no error in the readings. The use of LCS would greatly benefit the Monitoring Plan for this Project especially with regard to reliability and consistency.	IQMS is a broad mechanism for quality control and assurance of electricity generation data. However with respect to the registered project activity LCS is being used for data capturing and archiving which is verified and accuracy level of the same is found to be satisfactory by the verification team. /LCS/ In order to have more specific description the required revision in the monitoring plan is done. NEG Micon (I) Private Limited is now renamed as Vestas Wind Technology India Private Limited w.e.f. 9 th November 2006 and the same has been reflected in the revised monitoring plan. /CNC/

Metering	Annex 4	The Project has a two metering system, in which the main meter is owned by the project developer and the secondary meter is owned by the Tamil Nadu Electricity Board.	Removed in revised monitoring plan.	As per Tamil Nadu Electricity Regulatory Commission Intra State Open Access Regulations 2005 Notification No. TNERC/ISOA/11/1 Dated 24.06.2005, /TNERC/ check meter along with main meter is not mandatory. As verified by the verification team this is common practice in Tamil Nadu region to have only one meter (main meter) for measurement of power generation. However local control system (LCS) which also measures and records the electricity generation suffice the requirement of check meter. Furthermore in case of any problem found in the energy meter the same shall be immediately repaired and calibrated by TNEB officials ^{/LCS/} .
Metering	Annex 4 Point (a)	Both MW hour and MVARh flow are measured at interconnection points, and power transformer locations	Both kWh and kVARh flow are measured at interconnection points, and power transformer locations	As verified during site visit actual unit of measurement is kWh and kVARh.
Metering	Annex 4 Point (b)	Each metering point associated with determination of energy exported or imported is provided with both main and check meter or as per the agreement between the State Utility and the company	Each metering point associated with determination of energy exported or imported is provided with energy meter or as per the agreement between the State Utility and the company	As there is no check meter, the word group "both main and check meter" has been replaced by "energy meter" in the revised monitoring plan.

Minimum Accuracy class of meters	Annex 4 Point (c) and (d)	Minimum accuracy of meters shall be of 0.2 or as stipulated by the utility	Minimum accuracy of meters shall be of 0.5 as stipulated by the utility	It is prevailing common practice in that region. PP has also provided a letter from Chief Engineer, Distribution TNEB, Madurai Region dated 09.01.2008 confirming the accepted minimum accuracy class of meters as 0.5s. /CAL/ Moreover the data is crosschecked with LCS reading, which is taken from a digital meter with high accuracy level ($\pm 0.1\%$) and no deviation is observed. /LCS/
Metering	Annex 4, Last sentence	NEG Micon with the help of the IQMS will also ensure the same. All documents will be officially verified and certified on an annual basis for the purpose of monitoring.	NEG Micon (now known as Vestas Wind Technology India Private Limited) with the help of the IQMS will also ensure the same. All documents will be officially verified and certified on an annual basis for the purpose of monitoring.	NEG Micon (I) Private Limited is now renamed as Vestas Wind Technology India Private Limited w.e.f. 9 th November 2006 and the same has been reflected in the revised monitoring plan. /CNC/

The basis of emission reduction calculation is the amount of net electricity supplied to state grid, i.e. EG_y. The EG_y is measured at individual meter attached with each wind turbines with accuracy class of 0.5 (which is also allowed by the # (d) of Annex 4 of monitoring plan provided in the registered PDD) and reported the same reading in MEGS (monthly electricity generation statement). Moreover, the MEGS reading is used for commercial invoicing purposes. The MEGS is taken on energy meter (installed with each wind turbine) which is under the custody of TNEB and also calibrated by TNEB.

The generated data from the energy meters are crosschecked with the Local Control System (LCS) reading associated with each WEG, which is taken from a digital meter with high accuracy level ($\pm 0.1\%$). /LCS/

The proposed revised monitoring plan (in track change mode and clean versions submitted along with) ensures that the level of accuracy and completeness in the monitoring and verification process is not reduced as a result of the revisions.

Accordance with approved monitoring methodology

☒ TÜV NORD herewith confirms that the proposed revision of the monitoring plan is in accordance

with the approved monitoring methodology applicable to the project activity.

Additional comment:

The proposed revised monitoring plan correctly follows the applied methodology i.e. ACM0002.ver. 06.

Previous verification findings

- ☐ *TÜV NORD herewith confirms that the findings of previous verification reports, if any, have been taken into account.*
- ☒ *No findings from previous verifications had to be considered.*

Additional comment:

The DOE has identified the need of revising the monitoring plan to improve clarity and completeness of the monitoring information (Cp para 57 of CDM M&P) during the first periodic verification and validated the revision of the monitoring plan.