



**Validation Opinion on a Revision in Monitoring Plan**  
**Report number BVC/INDIA/VER 1/532.49/2012, Version 01**

The validation of revision to the monitoring plan is for the project activity with the following details.

Project reference	UNFCCC Registration Number 5186
Title of the project activity	Vaayu India Wind Power Project in Jaisalmer, Rajasthan
Date of registration	20/09/2011
Verification period during which change is requested	01/10/2011 to 30/06/2012
Number of issuances for the project activity before this verification	Nil

Party	Project participants
India (Host)	M/s Vaayu (India) Power Corporation Private Limited

Validation team	
Team leader	R S Premkumar
Team member/s	
Internal reviewer	Sanjay S Patankar

Period of validation	November 2012
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**Reason for request for revision in monitoring plan**

During the initial verification site visit, conducted on 28/08/2012 for the monitoring period stated above, the verification team made some observations, which were reported as corrective / clarification action requests. Considering the nature of the discrepancies, the verification team recommended a revision to the monitoring plan.

The project participant accordingly modified the monitoring plan and submitted the same to the verification team for validation before submission to the UNFCCC for approval.

The verification team confirms that the changes made in the revised monitoring plan are intended to provide better transparency and clarity to some of the information and procedures described in the registered PDD and the procedure followed at site.

The detailed explanation for the same have been provided in the later section of this report

The following are some of the observations made during the site visit viz;

Requirement of the registered monitoring plan	Observed deviation
1. The source of data based on which the values of EGy is considered is stated as tariff invoices.	1. It is observed that the source data for EGy [net electricity supplied to the grid by the project activity] is the Break-Up Sheet which is based on the Monthly Joint Meter Reading report.
2. The method of cross checking the primary data of net electricity supplied to the grid by the project activity was not described.	2. The cross-checking of the net electricity supplied value shall be done with the tariff invoices raised by the Project Participant on the State Electricity Utility.
3. The metering system as observed from the metering diagram in Annex 4 of the registered PDD indicates a main meter at the DISCOM sub-station and a back-up meter at the Enercon Pooling Station.	3. The metering system as actually observed at site is that there are 2 meters at the DISCOM sub-station viz; Main and Back-up meter whereas there is a secondary back-up meter at the Enercon Pooling station.
4. The monitoring plan requires the monitoring of 4 parameters viz; $E_{JMR\text{export}}$ , $E_{JMR\text{import}}$ , $E_{WEC\text{export}}$ & $E_{WEC\text{import}}$	4. Even though these parameters are being measured and calculated by the DISCOM, the same is not being made available to the Project Participant since this data includes monitored electricity values of non-project activity Wind Turbine Generator's and the same is not shared by the EPC contractor with the Project Participant due to reasons of data confidentiality.
5. The description of parameter, $E_{\text{controller,export}}$ is 'Electricity exported by a WEC as measured at the controller [LCS] ' which included both, project as well as non project activity Wind Turbine Generator's.	5. LCS controller data of non project activity Wind Turbine Generator's, even though measured and recorded by the O&M contractor, is not made available to the Project Participant due to reasons of confidentiality.

**In line with para 279 of the CDM Validation and Verification Standard, Version 2 [EB 65, Annex 4], the following is the opinion of the verification team on the changes;**

*a. A description of the proposed or actual changes as compared to the description in the registered PDD;*

1. Name of the source document for EGy i.e. Net electricity supplied to the grid by the project activity is corrected from tariff invoices to Break-Up Sheet which is based on the Monthly Joint Meter Reading Report.
2. The method of cross-checking the primary data of electricity supplied value from the registered project activity was not included in the registered PDD. The same has now been included to state that the cross-checking would be done with the tariff invoices raised by the Project Participant on the State Electricity Utility viz; DISCOM.

3. The description of the metering system at site was not transparently described in Annex 4 of the registered monitoring plan. The metering system as observed from the metering diagram in Annex 4 of the registered PDD indicates a main meter at the DISCOM sub-station and a back-up meter at the Enercon Pooling Station.

The metering system as actually observed at site is that there are 2 meters at the DISCOM sub-station viz; Main and Back-up meter whereas the meter at the Enercon Pooling station is called as secondary back-up meter. The same has now been transparently explained in Annex 4 of the revised PDD.

4. The registered monitoring had included the monitoring of 4 parameters viz;
  - a.  $E_{WEC_{export}}$  – Electricity exported by a Wind Turbine Generator to the grid [of project as well as non-project activity WEG's as recorded at the LCS controller of the Wind Turbine Generator]
  - b.  $E_{WEC_{import}}$  - Electricity imported by a Wind Turbine Generator to the grid [of project as well as non-project activity WEG's as recorded at the LCS controller of the Wind Turbine Generator]
  - c.  $E_{JMR_{export}}$  – Electricity exported, as recorded by the main meter at the utility substation
  - d.  $E_{JMR_{import}}$  - Electricity imported, as recorded by the main meter at the utility substation

However during the verification activity, the verification team noted that even though the first 2 parameters as described above are monitored and recorded by the representatives of the DISCOM & EPC contractor for the purpose of apportioning the electricity supplied to the grid by the individual Wind Turbine Generator's, the same is not made available to the Project Participant as the data includes electricity generation values of non-project activity wind turbines too and is therefore confidential in nature. In light of this, the remaining 2 parameters [at Sr No c & d above] also cannot be used to validate the apportioning procedure.

5. The Project Participant has revised the description of the parameter,  $E_{controller,export}$  in the revised monitoring plan from "Electricity exported by a WEC, as measured at the controller (LCS)" which included both, project as well as non project activity WEG's to "Summation of electricity generated by the project activity WECs recorded at respective LCS meters". The cross-check would be done by comparing the value of  $E_{controller,export}$  with  $EG_y$  to ensure that a conservative value [deduced through a conservative approach] is used for the calculation of emission reductions.

- b. An assessment on when the changes occurred, reasons for these changes taking place, whether the changes would have been known prior to registration of the project activity, and how the changes would impact the overall operation/ability of the project activity to deliver emission reductions as stated in the PDD;*

There is no change which has occurred however the source of data for  $EG_y$  was incorrectly stated in the registered PDD. Also the Project Participant has included 2 parameters, the data for which is not made available to them.

The reason for the change taking place is due to the fact that the registered PDD did not specify the method to cross-check the primary data which has been specified in the applied methodology. Also the Project Participant has deleted 2 parameters for which data was not

being available to the Project Participant, even though the same was monitored and recorded.

Yes, the changes would have been known prior to registration of the project activity.

The proposed changes would not impact the overall operability of the registered project activity to deliver emission reductions, but in fact would make the monitoring plan more complete and accurate as explained in the sections below.

*c. An assessment regarding whether the changes would adversely affect the conclusions of the validation report of the registered PDD with regard to:*

*(i) Additionality of the project activity;* - No impact on additionality of the project activity.

*(ii) Scale of the project activity;* - No impact on the scale of the project activity

*(iii) Applicability and application of approved baseline methodology under which the project activity has been registered or the later version of the applied methodology;* - No impact on the applicability of the approved baseline methodology under which the project activity has been registered.

*(iv) The compliance of the monitoring plan with applied monitoring methodology;* - The revision would enhance the compliance of the monitoring plan with the applied monitoring methodology because the cross-checking mechanism as required by the applied methodology has now been included. or

*(v) The level of accuracy of the monitoring compared with the requirements contained in the registered monitoring plan.-* The level of accuracy and completeness is improved as a result of the revisions in the monitoring plan, as explained in the section below.

**In line with Para 280 of the CDM Validation and Verification Standard, Version 2 [EB 65, Annex 4],**

**a) Information on how the proposed revision of the monitoring plan ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revisions**

### **Completeness**

In the opinion of verification team, the completeness of the monitoring and verification process of the project activity is not reduced but effectively improved or more transparent due to the following inclusions in the revised monitoring plan:

1. The description of the exact name of the data source for EGy [net electricity supplied to the grid by the project activity] have been revised from tariff invoices to 'Break-Up sheet' which is based on the Monthly Joint Meter Reading Report issued by the State Electricity Utility.
2. The metering system has been revised to correctly represent the number of meters at the Enercon pooling station as well as at the DISCOM sub-station. This improves the completeness of the monitoring plan.
3. The Project Participant has revised the description of the parameter,  $E_{\text{controller, export}}$  in the monitoring plan from "Electricity exported by a WEC, as measured at the controller (LCS)" which included both, project as well as non project activity WEG's to "Summation of electricity generated by the project activity WECs recorded at respective LCS meters". This data would be used to compare the electricity supplied values as indicated in the Monthly Operating Log-books maintained by the Project Participant representatives with the values indicated in the Break-up sheet and it would be ensured that the claim for emission reductions is based on a conservative approach.

The verification team noted that the DISCOM applies an apportioning procedure to deduce the net electricity supplied by the individual WEG's since the project as well as non project activity WEG's are connected to the same metering system. The apportioning is done by the DISCOM based on the monthly joint meter readings taken at the main meter at the DISCOM sub-station and the LCS controller readings of the project and non project WEG's. Since the LCS controller readings of non project activity WEG's is not available to the Project Participant due to reasons of confidentiality of data, the verification team is unable to cross-check the procedure for apportioning used by the DISCOM authorities. Therefore the Project Participant has revised the description of the parameter,  $E_{\text{controller, export}}$  in the revised monitoring plan to ensure that a conservative value [deduced through a conservative approach] is used for the calculation of emission reductions.

4. Procedure for cross checking the net electricity supplied to the grid by the project activity, which was not initially included in the registered monitoring plan, has now been included. The cross-check would be done with the tariff invoices raised by the Project Participant on the DISCOM.

### **Accuracy:**

The accuracy of the monitoring and verification process is not reduced rather it is enhanced as a result of the revision to the monitoring plan because of following reasons;

1. The description of the exact name of the data source for EGy [net electricity supplied to the grid by the project activity] have been revised from tariff invoices to 'Break-Up sheet'

which is based on the Monthly Joint Meter Reading Report issued by the State Electricity Utility.

2. The metering system has been revised to correctly represent the number of meters at the Enercon pooling station as well as at the DISCOM sub-station. This improves the completeness of the monitoring plan.
3. The Project Participant has deleted 2 parameters from the registered monitoring plan, as explained above. However the verification team confirms that this does not affect the level of accuracy in the monitoring and verification process as this data was used by the Project Participant / DISCOM representatives to apportion the net electricity supplied values of the individual WEG's and subsequently reported in the 'Break-up sheet'. The Project Participant has now revised the source of data for EGy [based on which calculations for the emission reductions are done] from tariff invoices to 'Break-up sheet'. Further as a secondary cross-check explained above, the Project Participant has revised the description of the parameter,  $E_{\text{controller, export}}$  in the monitoring plan from "Electricity exported by a WEC, as measured at the controller (LCS)" which included both, project as well as non project activity WEG's to "Summation of electricity generated by the project activity WECs recorded at respective LCS meters". This data would be used to compare the electricity supplied values as indicated in the Monthly Operating Log-books maintained by the Project Participant representatives with the values indicated in the Break-up sheet and it would be ensured that the claim for emission reductions is based on a conservative approach.

Based on the above, the verification team confirms that the metering system is adequately described in the revised monitoring plan.

**b) Information on how the proposed revision of the monitoring plan is in accordance with the approved monitoring methodology applicable to the project activity**

The proposed revision does not alter any of the monitoring parameters that are necessary for the calculation of the emission reductions. During the validation of the project activity, the DOE has confirmed that the project activity meets the applicability conditions of the baseline and monitoring methodology (ACM 0002 – Consolidated baseline methodology for grid-connected electricity generation from renewable sources", Version 12.1.0, EB 58)

The revision to the monitoring plan was proposed since some of the requirements described in the registered monitoring plan were not in compliance with the actual practice at site. Further the revision to the monitoring plan brings in more clarity and transparency to the overall monitoring, as explained in the above sections.

The registered monitoring plan and hence the proposed revision to it are also consistent with the approved monitoring methodology applicable to the project activity.

**c) Information on how the findings of previous verification reports, for which CERs have been issued, if any, have been taken into account.**

The registered project activity has not completed any verification and issuances. Hence not applicable.

**Conclusion:**

Bureau Veritas Certification has performed a validation of the revised monitoring plan for the CDM project activity "Vaayu India Wind Power Project in Jaisalmer, Rajasthan".

The team hereby 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 as a result of the revision.

Bureau Veritas Certification has performed this validation on the basis of the following documents –

- “CDM Validation and Verification Standard”, Version 2 [EB 65, Annex 4],
- “CDM Project Cycle Procedure”, Version 01.0 [EB 65, Annex 32]
- “CDM Project Standard”, Version 01.0, [EB 65, Annex 5]

The validation consisted of the following three phases –

- i) a desk review of the revised monitoring plan
- ii) follow-up interviews with project stakeholders
- iii) the resolution of issues and the issuance of the final validation report.

The review of the revised monitoring plan and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the revised monitoring plan is now consistent with the approved monitoring methodology applied to the registered project activity and ensures that the level of accuracy or completeness in the monitoring and verification process is not reduced as a result of the revision.

Bureau Veritas Certification therefore requests the acceptance, from the Chair of the Methodology Panel, in consultation with the Chair of the Board, of this request for revision in monitoring plan.

## References

1. Revised PDD Version 4.0, dated 06/11/2012 including the revised monitoring plan, in clean and track change mode, which is attached along with this report.
2. Sample copies of ‘Break-Up sheet’ which is based on the Monthly Joint Meter Reading Reports.
3. Sample copies of invoices raised by the Project Participant for billing.
4. PPA signed between the Project Participant and the Jaipur Vidyut Vitran Nigam Limited [JVVNL] dated 17/06/2011.

## Persons interviewed

S No.	Name of the person	Role	Affiliation
1	Mr Puneet Katyal	General Manager, CDM Corporate	Enercon (India) Ltd
2	Ms Poorvi Joshi	Consultant, CDM Corporate	Enercon (India) Ltd

## Abbreviations :

DISCOM – Distribution Company  
JMR – Joint Meter Reading



LCS – Local Controller System  
PPA – Power Purchase Agreement  
WEC – Wind Electricity Converter  
WEG – Wind Electricity Generator

## **CVs of the Verification Team**

### **Mr. R S Premkumar**

#### **Bureau Veritas Certification, Team Leader, Climate Change Verifier**

Graduate in Environmental Engineering with more than 13 years of Industrial work experience in the field of environmental and occupational safety management systems. He is Lead Auditor in Bureau Veritas Certification for Environment Management System, Quality Management System and Occupational Health and Safety Management System. He is also a Lead Tutor for the CDM Lead Verifier courses and also for the Lead Auditor courses in Quality, Environment and Safety Management Systems. He has undergone intensive training on Clean Development Mechanism. He is involved in the Validation/Verification for more than 35 CDM/VCS/POA projects.

### **Mr. Sanjay Patankar**

#### **Bureau Veritas Certification, Internal Technical Reviewer**

Educational qualifications: B.E. (Mech.) M.E. (Mech.)

He has over 20 years of experience in engineering manufacturing industry covering various functions like enterprise management, product design, engineering, tool & die design, improvements in the production shop, quality assurance & control and systems planning and implementation, including ISO 9001 based quality management systems. Working for the last 2 years in Bureau Veritas Certification (India) Private Ltd. as Lead Auditor for ISO 9001, 14001 and OHSAS 18001 standards/specifications. Has undergone training related to Clean Development Mechanism and is currently involved in validation and verification of CDM project activities

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**R. S. Premkumar , Team Leader**  
06/11/2012, Mumbai

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**Sanjay S Patankar, Internal Reviewer**  
08/11/2012, Mumbai