# AES SAURASHTRA WINDFARMS

SGS United Kingdom Limited

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| **Project Title** | AES Saurashtra Windfarms |
| **Version** | Version 2.1 |
| **Report ID** | CCP.VOL0913 VCS VER (UN No. 5777) |

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| **Report Title** | Verification Report for "AES Saurashtra Windfarms" |
| **Client** | M/s AES Saurashtra Windfarms Private Limited |
| **Pages** | 36 |
| **Date of Issue** | 22-March-2013 |
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**Summary:**

SGS United Kingdom Ltd has performed the verification of the project "AES Saurashtra Windfarms" with UN No. 5777 against VCS Version 3.3. The verification includes confirming the implementation of the monitoring plan of the registered PDD Version 4.0 dated 06/01/2012 and the application of the monitoring methodology as per ACM0002 Version 12.3 dated 02/03/2012. A site visit was conducted to verify the data submitted in the Monitoring Report.

The project activity involves the installation of 49 WTGs, of capacity 0.8 MW each, with an installed capacity of 39.2 MW. The WTGs are of Enercon (E-53) make. The generated electricity is being supplied to the NEWNE Grid. Thus, the project contributes towards reducing GHG emissions by replacing the same amount of electricity from the NEWNE Grid which would otherwise be generated by a fossil fuel based power plant.

The report describes a total of 07 findings which include:

- 05 Corrective Action Requests (CARs)
- 02 Clarification Requests (CLs)
- 00 Forward Action Requests (FARs)

All findings have been closed satisfactorily and same has been discussed in Annex 2 of this report.

SGS confirms that the project is implemented in accordance with the validated CDM PDD. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and validated project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 32,030 t $CO_2e$ emission reductions during period 07/06/2011 to 29/02/2012.

## Abbreviations

| | |
|---|---|
| ACM | Approved Consolidated Methodology |
| AES | M/s AES Saurashtra Windfarms Private Limited |
| BM | Build Margin |
| CAR | Corrective Action Request |
| CDM | Clean Development Mechanism |
| CEA | Central Electricity Authority |
| CL | Clarification Request |
| EIL | Enercon India Limited |
| ER | Emission Reductions |
| FAR | Forward Action Request |
| GEDA | Gujarat Energy Development Agency |
| GETCO | Gujarat Energy Transmission Corporation Limited |
| GHG | Greenhouse Gases |
| GUVNL | Gujarat Urja Vikas Nigam Limited |
| ISO | International Organization for Standardization |
| JMR | Joint Meter Reading |
| MR | Monitoring Report |
| NEWNE | North, Eastern, Western and Northeastern |
| OM | Operating Margin |
| PDD | Project Design Document |
| PP | Project Participant |
| PPA | Power Purchase Agreement |
| QA/QC | Quality Assurance/Quality Control |
| UNFCCC | United Nations Framework Convention on Climate Change |
| VCB | Vacuum Circuit Breaker |
| VCS | Verified Carbon Standard |
| VCS PD | VCS Project Description |
| VCU | Verified Carbon Unit |
| VVS | Validation and Verification Standard |
| WTG/WEG | Wind Turbine Generator/Wind Energy Generator |

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# 1 INTRODUCTION

## 1.1 Objective

SGS United Kingdom Ltd has been contracted by M/s AES Saurashtra Windfarms Private Limited to perform an independent verification of its project "AES Saurashtra Windfarms" (UN No. 5777) against VCS Version 3.3. The verifiers have reviewed the GHG data collected to date for the period from 07/06/2011 to 29/02/2012.

The purposes of this verification exercise are, by review of objective evidence, to independently review:

- Whether the project has resulted in emission reductions as declared by the organisation or GHG project's GHG assertion;
- The data reported are accurate, complete, consistent, transparent and free of material error or omission

## 1.2 Scope and Criteria

This engagement covers verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of "AES Saurashtra Windfarms" as per the registered CDM PDD Version 4.0 dated 06/01/2012.

Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes assessment, on a test basis, of evidence relevant to the amounts and disclosures in relation to the project's GHG emission reductions for the defined reporting period.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

## 1.3 Level of assurance

The level of assurance of the verification report falls under reasonable assurance engagements as selected by the Client. Materiality for the project is 5%.

## 1.4 Summary Description of the Project

This engagement covers emissions and emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the following project and period.

| | |
|---|---|
| Title of Project Activity: | AES Saurashtra Windfarms |
| UN No. | 5777 |
| Monitoring Period Covered in this Report | 07/06/2011 to 29/02/2012 (both days included) |
| Project Participant | M/s AES Saurashtra Windfarms Private Limited |

| | |
|---|---|
| Location of the Project Activity: | District: Jamnagar<br>State: Gujarat<br>Country: India |

The project activity involves electricity generation by WTGs and supplying the same to the NEWNE Grid. This is the renewable energy generation, which can replace the fossil fuel dominated grid connected electricity generation.

The project activity consists of 49 WTGs, of capacity 0.8 MW each, with an installed capacity of 39.2 MW in the district of Jamnagar in Gujarat, India. The WTGs are of Enercon (E-53) make. The WTGs have been commissioned between June 2011 and January 2012. The same has been verified through the commissioning certificates[/18/].

All 49 WTGs are fully functioning and the assessment team verified this during the site visit.

# 2 VALIDATION PROCESS, FINDINGS AND CONCLUSION

## 2.1 Validation Process

This project activity is registered under the CDM (UN No. 5777) on 28th February 2012. Hence, as per section 3.11.8 (paragraph 1) of the VCS Version 3.3/1/ a gap validation has been carried out, which has been described in detail in section 2.2.1 below.

## 2.2 Validation Findings

### 2.2.1 Gap Validation

As per the requirement of section 3.11.8 (paragraph 1) the PP has submitted a VCS PD/4/ in which the cover page and sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 have been completed.

In section 1.2 of the PD/4/, it is mentioned that the project activity is a wind power project i.e. it falls under sectoral scope 1 and has confirmed that the project is not a grouped project. This was confirmed from the registered CDM PDD/10/, validation report/11/ and physical inspection during the site visit.

The contact details and roles/responsibilities of the PP have been mentioned in section 1.3 of the VCS PD/4/. The roles and responsibilities of the PP mentioned in the VCS PD/4/ are consistent with that mentioned in section B.7 of the registered CDM PDD/10/ and with the observations on the site.

In section 1.5 of the VCS PD/4/, the start date of the project has been mentioned as 07/06/2011 which is the date of commissioning of the first WTG. This was confirmed by checking the commissioning certificates/18/ of all WTGs in the project. The assessment team confirms that the PP has correctly identified the start date of the project as per the definition of start date in VCS program definitions/2/.

In section 1.6 of the VCS PD/4/, the start and end dates of the crediting period is mentioned as 07/06/2011 and 29/02/2012 respectively. The start date (07/06/2011) of crediting period is the date of commissioning of first WTG i.e. the date on which the project began generating GHG emission reductions. The end date (29/02/2012) of crediting period is the date one day prior to the start date of CDM crediting period. Hence the PP has appropriately selected the VCS crediting period of the project. The project is claiming VCS benefits for the period prior to the start date of the CDM crediting period. Hence, no double counting of VCUs is possible.

In section 1.7 of the VCS PD/4/, the scale of the project has been indicated as 'project' and the estimated amount of GHG reductions for the selected crediting period has been mentioned. The estimated average annual GHG emission reductions for the project activity is 80,385 t $CO_2e$, as per the registered CDM PDD/10/. Hence, as per section 3.9.1 of the VCS Version 3.3, the PP has correctly identified the scale of the project as 'project'. The PP has correctly calculated the estimated amount of GHG reductions for the VCS crediting period (59,022 t $CO_2e$) from the estimated annual GHG reductions mentioned in the registered CDM PDD/10/ (80,385 t $CO_2e$).

The details of the project location have been mentioned in section 1.9 of the VCS PD[/4/]. The PP has indicated the project location through a map and has also mentioned the geographical co-ordinates of each WTG which allows for unique and clear identification of the project activity. The range of coordinates were verified using Google earth to confirm the project location. The coordinates have also been checked against the registered CDM PDD[/10/] and are found to be consistent.

Section 1.10 of the VCS PD[/4/] states that the project is installed as new wind power project at site where there was no renewable energy power plant operating prior to the implementation of the project activity. Also, as the project is a renewable energy project, electricity generated through this project does not emit any GHGs. It has already been validated and reported in the validation report[/11/] issued by DNV, during the CDM validation, that this project is a new installation. Also, since it is a wind power project there are no GHG emissions associated with this project and hence it is confirmed that the project has not been implemented to generate GHG emissions for the purpose of their subsequent reduction.

The PP has submitted the commissioning certificates[/18/] for all WTGs involved in the project and the PPA[/19/] signed specifically for this project, as evidence of right of use, as mentioned in section 1.12.1 of the VCS PD[/4/]. These documents have been checked to confirm the ownership of the project. Hence it is confirmed that the PP has the right to all GHG emission reductions generated by the project during the project crediting period.

The PP has stated in section 1.12.2 of the VCS PD[/4/] that the project activity will not be involved in any other emission trading programs or to meet binding limits on GHG emissions. This was confirmed through an undertaking[/13/] submitted by the PP and hence accepted by the assessment team.

The PP has mentioned in section 1.12.3 of the VSC PD[/4/] that the project has been registered under the CDM (UN No. 5777) on 28/02/2012. This was confirmed by checking the UNFCCC project webpage[/9/] for this project activity.

This project is registered with the CDM and is claiming VCS benefits for the period prior to CDM crediting period start date. The project neither has nor intends to generate any other form of GHG related environmental credit for GHG emission reductions claimed under the VCS Program as reflected in section 1.12.4 of the VCS PD[/4/]. The PP has provided an undertaking[/13/] confirming the same.

In section 1.13 of the VCS PD[/4/] the PP has provided additional information relevant to the project. The project is not a grouped project and hence the identification of eligibility criteria for the inclusion of new instances of each project activity is not applicable. In compliance with the applied methodology[/8/], leakage has not been considered for the project activity. This has already been validated and reported in the CDM validation report[/11/] issued by DNV. Hence the description of the leakage management plan and implementation of leakage and risk mitigation measures is not applicable. The PP has also confirmed that no commercially sensitive information has been excluded from the public version of the project description.

**Discussion of CARs/CLs**

**CAR #2** (point 1) – The PP was requested to clarify the appropriateness of the start date of the project mentioned in sections 1.5 and 2.1 of the MR[/3/] with reference to the definition of start date provided in the VCS Program definitions Version 3.4[/2/]. In response, the PP has correctly revised start date of the project to the date of commissioning of the 1st WTG. This is in line with the definition of start date in the Program definitions[/2/]. Hence this was accepted and CAR #2 (point 1) was closed out. For detailed discussion please refer CAR #2 in annex 2 of this report.

**CAR #6** – The PP was requested to clarify why VCS PD[/4/] was not submitted for gap validation of clauses 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS PD template as required by clause 3.11.8 of the VCS Version 3.3[/1/]. In response, the PP has submitted a VCS PD[/4/] with the relevant sections filled as per clause 3.11.8 of the VCS Version 3.3. The assessment team has validated the VCS PD[/4/] and the same has been discussed in section 2.2.1 of this report. Hence this was accepted and CAR #6 was closed out. For detailed discussion please refer CAR #6 in annex 2 of this report.

**CAR #7** (Point 7) – the PP is requested to clarify why end date of VCS crediting period is mentioned as 27/02/2012. In case of end date as 27/02/2012, how it is ensured that share certificate data is upto 27/02/2012. In response, the PP has revised end date of crediting period to 29/02/2012, which is a date one day prior to start date of crediting period of CDM project activity. Hence this was accepted and CAR #7 (point 7) was closed out. For detailed discussion please refer CAR #7 in annex 2 of this report.

### 2.2.2 Methodology Deviations

Not applicable as no methodological deviations are found.

The assessment team confirms that the monitoring plan is in accordance with the approved consolidated methodology ACM0002[/8/] Version 12.3 which was applied to the project activity and that the monitoring has been carried out in accordance with the monitoring plan. ACM0002 version 12.2.0 was the latest methodology available at the time of registration. However, editorial changes are made in the methodology and ACM0002 version 12.3.0 is available as a latest methodology on the UNFCCC website at the time of verification. The same is confirmed from the UNFCCC website. As per paragraph 13 of EB 61 Annex 25 'Changes of an editorial nature will be published on the public website and will become applicable upon date of publication. Hence, use of ACM0002 version 12.3 for this monitoring period is in line with the above guideline and hence accepted. All the parameters used in calculation of net quantity of electricity exported to the grid by project have been verified against monitoring plan and found to be complete and correct.

### 2.2.3 Project Description Deviations

The accuracy class of the GETCO meter (Serial Number GJB00486) mentioned in the registered PDD is 0.2s while the accuracy class observed on site was 0.5s. It was verified during the site visit that the meters are sealed, maintained and in the custody of the state utility. The PP has no control over the same. This was further confirmed from the PPAs signed specifically for this project activity through article 7.2 which states that any meter seal shall be broken only by the representative of the state utility.

Thus, it was observed that the monitoring equipment actually installed has a lower accuracy level than the one stipulated in the registered monitoring plan and the monitoring equipment is under the control of the state utility. Hence, the PP has adjusted the net quantity of electricity exported to the grid as per the approach mentioned in paragraph 4(a) of Appendix 1 of the Project Standard Version 2.1 (EB 70 Annex 2).

It was observed during the site visit that there are a number of WTGs, belonging to the project activity as well as other investors, connected to the sub-station meters. Hence the meters at the sub-station do not directly measure the net electricity exported to the grid by the project activity. To calculate the net electricity exported by the WTGs of the project activity alone, the state utility uses an apportioning procedure which has been correctly described in section 3.3 of the MR and the registered PDD (section B.7.2 and annex 4). The net quantity of electricity exported to the grid by the project activity is conveyed to the PP through the share certificate issued by the state utility. Hence the PP has adjusted the value in the share certificate (i.e. $EG_{PJ,y}$) using the approach in paragraph 4(a). To be conservative, the PP has adjusted the value using a correction factor of 0.006 i.e. 0.003 each for import and export. The assessment team has verified this approach followed by the PP. The ER spreadsheet has also been checked to confirm that the PP has correctly applied the correction factor.

Other than the above issue, no other project description deviations are observed. The assessment team confirms that the project has been implemented and equipment installed as described in the registered CDM PDD[/10/].

### 2.2.4 New Project Activity Instances

Not applicable as no new project activity instances are included in the project activity during the current monitoring period. The assessment team confirms that the project has been implemented and equipment installed as described in the registered CDM PDD[/10/].

## 2.3 Validation Conclusion

Based on the above discussion the verification team confirms that the project conforms to the validation criteria for projects set out in the VCS Version 3.3[/1/].

# 3 VERIFICATION PROCESS

## 3.1 Method and Criteria

SGS' approach to the verification is a two-stage process.

In the first stage, SGS completed a strategic review and risk assessment of the projects activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the Monitoring Report.

At the end of this stage, SGS produced a Verification Checklist which, based on the risk assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

Using the Verification checklist, SGS verified the implementation of the monitoring plan and the data presented in the Monitoring Report[/3/] for the period in question. This involved a site visit and a desk review of the Monitoring Report. This verification report describes the findings of this assessment.

## 3.2 Document Review

The registered CDM PDD[/10/]; validation report[/11/]; VCS MR[/3/] and additional supporting documents related to the project performance submitted by the client were reviewed. A complete list of all documents reviewed is mentioned in Annex 1 of this report.

## 3.3 Interviews

The verification team has carried out interviews in order to verify the information included in the project documentation and to gain additional information regarding the compliance of the project with the VCS requirements. Before and during the on-site visit, the verification team has interviewed the representatives of the PP to confirm selected information and to clarify issues identified during the document review. Representatives of EIL (O&M contractor) and MITCON (project consultant) were also interviewed. The names and designations of the personnel interviewed are mentioned in section 3.4 below.

The main topics covered during the interview are as follows:

- General Aspects of the project
- Project Implementation
- Equipment and operation
- Staff Training procedures
- Calibration procedures
- Monitoring & Measuring System
- Data collection, recording and archiving procedure
- QA/QC procedures
- VCS documentation
- Emission reduction calculations

## 3.4 Site Inspections

As part of the verification, an on-site inspection has been performed by the assessment team. The site visit was carried out on 19th December 2012. During the site visit representatives of the PP, EIL (O&M contractor) and MITCON (project consultant) were interviewed i.e. personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed and the topics discussed are mentioned in the table below:

| **Location:** Jamnagar district | **Date:** 19/12/2012 |
|---|---|
| **Coverage** | **Source of Information / Persons Interviewed** |
| Electricity Generation Records (GEDA share certificates, Invoices)<br>Reliability & accuracy of readings considered for emission reduction calculations, Calibration procedure | Mr. Abhijeet S Jog (Consultant, MITCON) |
| Monitoring and measuring system<br>• Collection of measurements<br>• Observations of established practices<br>• Data Verification of monitoring parameters | Mr. Amit Dobariya (Assistant Manager, EIL)<br>Mr. Keshav Singh (Assistant Manager, EIL)<br>Mr. B K K (Sr. Engineer, EIL)<br>Mr. Kishor Vasara (EIL)<br>Mr. Sajil P (EIL) |
| QA/QC procedures, data management, internal audits to maintain data quality & reliability, maintenance Practices<br>Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations | Mr. Nixon Paul Abraham (General Manager, AES)<br>Mr. Prakash P Dhamal (Site Manager, AES)<br>Mr. Abhijeet S Jog (Consultant, MITCON) |

## 3.5 Resolution of Any Material Discrepancy

As an outcome of the verification process, the team can raise different types of findings.

In general, where insufficient or inaccurate information is available and clarification or new information is required the team shall raise a Clarification Request (CL) specifying what additional information is required.

Where a non-conformance arises the team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

I. The verification is not able to obtain sufficient evidence for the reported emission reductions or part of the reported emission reductions. In this case these emission reductions shall not be verified and certified;

II. The verification has identified misstatements in the reported emission reductions. Emission reductions with misstatements shall be discounted based on the verifiers ex-post determination of the achieved emission reductions

The verification process may be halted until this information has been made available to the assessors' satisfaction. Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

FARs may be raised which are for the benefit of future projects and future verification actors. These have no impact upon the completion of the verification activity.

Corrective Action Requests and Clarification Requests are detailed in Verification Checklist. The Project Developer is given the opportunity to "close" outstanding CARs and respond to CLs and FARs

# 4 VERIFICATION FINDINGS

## 4.1 Project Implementation Status

### 4.1.1 Implementation status of the project activity

The project has been implemented; all WTGs were commissioned[/18/] and are in operation as described in the registered CDM PDD[/10/]. The same has been verified during the site visit. As described in the registered PDD[/10/], 44 WTGs have been commissioned prior to 31/12/2011 and the remaining 5 WTGs have been commissioned in January 2012. The first WTG has been commissioned on 07/06/2011 and the last WTG on 23/01/2012. The commissioning of all the WTGs has been checked against their commissioning certificates[/18/].

**Discussion of CARs/CLs**

**CL #1** (point 1) – The PP was requested to clarify the appropriateness of sectoral scope mentioned in section 1.2 of the MR[/3/]. In response, the PP has revised the name of the sectoral scope to make it consistent with that on the UNFCCC website. Hence this was accepted and CL #1 (point 1) was **closed** out. For detailed discussion please refer CL #1 in annex 2 of this report.

**CAR #2** (point 2) – It was observed that the shutdown/runtime details of the project observed in daily generation report during site visit were not mentioned in the MR[/3/]. The PP was requested to clarify the same. In response, the PP has provided the shutdown/runtime details under Annexure 3 of the revised MR[/3/]. The shut down times and the equipment number observed during site visit in daily generation report is consistent with the identification of equipments provided under section 2.1 and Annexure 3 of the revised MR[/3/]. Hence this was accepted and CAR #2 (point 2) was **closed** out. For detailed discussion please refer CAR #2 in annex 2 of this report.

**CAR #3** (point 1) – The PP was requested to clarify the appropriateness of the Version (12.2) of the methodology ACM0002[/8/] applied for the verification of the project activity. In response the PP has now corrected the name and revised the Version (12.3) of applicable methodology[/8/] under section 3.3 of the revised MR[/3/]. This revision is consistent with the paragraph 13 of EB 61 Annex 25. Hence this was accepted and CAR #3 (point 1) was **closed** out. For detailed discussion please refer CAR #3 in annex 2 of this report.

### 4.1.2 Remaining Issues from Previous Validation or Verification

This is the first verification for the project activity for the crediting period from the date of commissioning of the 1st WTGs to the date prior to the start date of the CDM crediting period of the project. The validation report[/11/] has been checked to confirm that there are no pending issues.

### 4.1.3 Compliance of the monitoring plan with the monitoring methodology

The project has been registered with the "Consolidated methodology for grid-connected electricity generation from renewable resources" ACM0002[/8/] Version 12.2. In compliance with the paragraph 13 of EB 61 Annex 25, the project is being verified against Version 12.3 of the same methodology. The assessment team verified the monitoring plan in the registered CDM PDD[/10/] against the applied methodology and confirms that the registered monitoring plan is in accordance with the approved methodology applied by the project activity.

**CAR #7** (Point 4) – the PP is requested to clarify why MR does not mention the use of version 12.3.0 of the methodology instead of 12.2.0 as mentioned in registered PDD. In response, the PP has included footnote with details of use of version 12.3.0 in the revised MR. Hence this was accepted and CAR #7 (point 4) was closed out. For detailed discussion please refer CAR #7 in annex 2 of this report.

Based on the requirements of paragraphs 229 to 232 of the VVS[/6/] Version 03.0 the assessment team confirms that the monitoring plan in the registered PDD is in compliance with the monitoring methodology[/8/].

### 4.1.4 Implementation Status of the Monitoring Plan and Completeness of Monitoring

The monitoring of the project activity is found to be in conformance with the monitoring methodology described in ACM0002[/8/] Version 12.3; monitoring plan indicated in the registered CDM PDD[/10/] & the MR[/3/] for the current monitoring period. The monitoring mechanism is effective and reliable. During the site visit, personnel involved at various levels of operation of the project activity have been interviewed to confirm that the plant personnel are conscious of the importance of the monitoring activities. The on-site verification of the plant records also substantiate consistency in recording and reporting of monitored data.

The required monitoring systems have been installed and are operational. The meters comply with appropriate quality standards applicable for the used technology. The accuracy class of the meters installed for the project activity is found to be in accordance with the PPA[/19/] signed specifically for the project activity.

The supporting records of monthly Share certificate[15]; monthly JMR[14]; GEDA approved monthly generation record derived from daily generation record[17] and invoices[16] raised to state utility were found to be sufficient to enable verification of emission reductions.

The following parameters as described in section B.7.1 of the registered CDM PDD[10] have been verified for the calculation of emission reductions:

1. $EG_{PJ,y}$ (MWh)
2. $EG_{cluster\ meter,\ Export}$ (kWh)
3. $EG_{cluster\ meter,\ Import}$ (kWh)
4. $EG_{GETCO,\ Export}$ (kWh)
5. $EG_{GETCO,\ Import}$ (kWh)

**$EG_{PJ,y}$** has been considered as mentioned in the share certificate[15] issued by GETCO and the same calculated by GEDA using an apportioning procedure described in section B.7.2 and Annex 4 of the registered CDM PDD[10]. The apportioning of electricity generated by project activity is entirely under jurisdiction of the state utility and the PP has no role in computing and furnishing the apportioned electricity for themselves. This parameter is directly used in the emission reduction calculations. This parameter has been cross verified against the invoices[16] raised by the PP and found correct. The value of this parameter for the current monitoring period is 34,721.073 MWh (this value is arrived after applying correction factor).

**$EG_{cluster\ meter,\ Export}$** and **$EG_{cluster\ meter,\ Import}$** are recorded at the cluster meter at the VCB yard and have been considered from the GEDA approved monthly generation records which are derived from the daily generation data[17] recorded by EIL. These parameters are used by GEDA in the apportioning procedure to calculate $EG_{PJ,y}$. The values of these parameters $EG_{cluster\ meter,\ Export}$ and $EG_{cluster\ meter,\ Import}$ for the current monitoring period are 35,650,942 kWh and 16,643 kWh respectively.

**$EG_{GETCO,\ Export}$** and **$EG_{GETCO,\ Import}$** are recorded at the GETCO meters at the substation are have been considered from the JMR[14] report issued by GEDA. These parameters are used by GEDA in the apportioning procedure to calculate $EG_{PJ,y}$. The values of these parameters $EG_{GETCO,\ Export}$ and $EG_{GETCO,\ Import}$ for the current monitoring period are 231,790,480 kWh and 104,968 kWh respectively.

**Discussion of CARs/CLs**

**CL #1** (point 2) – The PP was requested to clarify why roles and responsibilities of project participant was not included in section 1.3 of the MR[3] as required by the MR completion guidelines. In response, the PP has revised section 1.3 to mention a reference to section 3.3 of the MR[3] where the roles and responsibilities of the PP are mentioned. This is found in line with the actual roles and responsibility observed during site visit which is consistent with the registered PDD[10]. Hence this was accepted and CL #1 (point 2) was closed out. For detailed discussion please refer CL #1 in annex 2 of this report.

**CAR #4** (point 2) – The PP was requested to check the appropriateness of the flow of information indicated in organizational structure diagram included in section 3.3 of the MR Version 01[3] against the actual practice being followed at site. In response, the PP has reversed the information flow in the diagram in section 3.3 of the revised MR[3]. This is consistent with the actual practice on the site. Hence this was accepted and CAR #4 (point 2) was closed out. For detailed discussion please refer CAR #4 in annex 2 of this report.

**CAR #7** (Point 2) – the PP is requested to clarify the data of JMR reading and share certificate is from 07/06/2011 only. Since JMR reading is common meter reading at the substation, it is not clear if

(=12148000+15471000+15883416+15875064) are from 07/06/2011. In response, the PP has included justification in the ER sheet regarding the values used. These descriptions are self explanatory and hence accepted. Hence this was accepted and CAR #7 (point 2) was closed out.

**CAR #7** (Point 3) – the PP is requested to clarify the difference between the columns capacity per WTG and installed capacity in section 2.1 of MR. In response, the PP has corrected the table appropriately. Hence this was accepted and CAR #7 (point 3) was closed out.

For detailed discussion please refer CAR #7 in annex 2 of this report.

### 4.1.5 Accuracy of Equipment

During the verification assessment of the project activity, accuracy and calibration[/20/] of all the metering have been checked and found appropriate. The details of monitoring equipments involved in the project activity and their calibration details[/20/] are mentioned in Annexure 2 of the MR[/3/].

The installation and working conditions of the meters were checked during the on-site inspection and it was found to be satisfactory. It is also evident from the table in annexure 2 of the MR[/3/] that calibrations for all monitoring equipment involved in the project activity are valid for current monitoring period and there is no delay in calibration. The Gazette of India (Registered NO. DL (N) – 04/0007/2003 – 15) dated 26/07/2010 which is a gazette for metering regulations in India clearly mentions that for voltage of 650 V up to 33 kV, 0.5s and better is recommended. Hence, the accuracy classes of 0.5s and 0.2s of energy meters installed at sites are found to be appropriate and it is accepted.

CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006 which is considered as national standard mentions that “All interface meters shall be tested at least once in five years.” Hence, the calibration frequency of once in 3 years for the meters is appropriate. The calibration frequency has been checked from the PPA[/19/] signed specifically for this project.

**Discussion of CARs/CLs**

**CAR #4** (point 1) – The PP was requested to clarify why details of monitoring equipments involved in the project activity has not been included in section 3.2 of the MR[/3/]. In response the PP has mentioned the details of the metering equipment including accuracy class, calibration date and calibration validity in Annexure 2 of the revised MR[/3/] and a reference to the same has been mentioned in section 3.2. The details in annexure 2 are consistent with the meter details observed on the site and the calibration certificates[/20/]. Hence this was accepted and CAR #4 (point 1) was closed out. For detailed discussion please refer CAR #4 in annex 2 of this report.

**CAR #7** (Point 6) – the PP is requested to clarify why earlier calibration details are not mentioned to cover complete monitoring period. In response, the PP has clarified that, for all the meters that are having meter calibration date after the start date of crediting period i.e. 07/06/2011; all these meters are manufactured in year 2011 so the previous calibration is not possible. Hence this was accepted and CAR #7 (point 6) was closed out. For detailed discussion please refer CAR #7 in annex 2 of this report.

As per Para 234 c), VVS[/6/], Version 3.0, the verification team is able to confirm that the accuracy of equipment used for monitoring is in accordance with the relevant guidance provided by the CDM Executive Board and it is controlled and calibrated in accordance with the monitoring plan;

(i) Monitoring results are consistently recorded as per approved frequency;

(ii) Quality assurance and quality control procedures have been applied in accordance with the monitoring plan.

### 4.1.6 Data from External Sources

The PP has calculated the grid emission factor as per the combined margin approach described in the 'Tool to calculate the emission factor for an electricity system'. The grid emission factor has been calculated as the weighted average of OM & BM; and has been fixed ex-ante for the entire crediting period.

The OM and BM have been obtained from a publicly available source i.e. "$CO_2$ Baseline Database for Indian Power sector" Version 5 published by Central Electricity Authority, Ministry of Power, Government of India. The OM has been determined as the average of the previous 3 years values mentioned in the CEA database/12/. The value of BM has been identified directly from the CEA database/12/. The combined margin emission factor has been arrived at by applying weights of 75% for OM and 25% for BM, as specified in the tool.

The OM and BM have been calculated to be 1.0049 t $CO_2$/MWh and 0.6752 t $CO_2$/MWh respectively. Applying the weights, the grid emission factor has been calculated to be 0.9225 t $CO_2$/MWh.

The PP has referred to the correct version of the CEA database/12/ to obtain the value of grid emission factor. The values have been checked against the database and found to be correct. Also, the calculation of the emission factor is in line with that mentioned in the registered CDM PDD/10/ and the applied methodology/8/.

**Discussion of CARs/CLs**

**CAR #7** (Point 5) – the PP is requested to mention specific web link of CEA database in section 3.1 of the MR. In response, the PP has included web link of CEA database under section 3.1 of the revised MR. Hence this was accepted and CAR #7 (point 5) was closed out. For detailed discussion please refer CAR #7 in annex 2 of this report.

## 4.2 Accuracy of GHG Emission Reduction or Removal Calculations

### 4.2.1 Accuracy of GHG Emission Reductions

The calculation of the emission reductions is found to be correct. The details of the reported and the verified values for all parameters are listed in section 4.2.2 of this report, 'Calculation of Emission Reductions'.

The net quantity of electricity exported to the grid by the project activity is used for the emission reduction calculations. The project participant has provided a complete set of data for the current monitoring period. The values of the monitored parameters reported are in the ER spreadsheet/5/ by the PP. The verification of the monitored values has been described in section 4.1.4 above.

The formula and method used to calculate the baseline emissions are appropriate. Since the project is a wind power generation project, project emissions and leakage emissions are not involved in the project activity. This is found to be in line with the approved methodology ACM0002/8/ Version 12.3 and as defined in the registered CDM PDD/10/.

**Discussion of CARs/CLs**

**CAR #3** (point 2) – During the site visit, it was observed that the accuracy class of the GETCO meter (Serial Number GJB00486) was 0.5s. The PP was requested to clarify the inconsistency observed against accuracy class of the same mentioned in the registered PDD/10/ (0.2s). In response the PP has revised the MR/3/, correcting the accuracy class and has provided the details under Annexure 2. The PP has also applied 0.006 (0.003 for import and 0.003 for export) correction factor conservatively on the net value taken from the share certificate/15/. Since the measured values of import and export from the WTGs belonging to the project activity are not available to the PP hence the conservative approach of applying the correction factor of 0.006 to the net value issued by the state utility is considered appropriate by the assessment team. The emission reduction excel spreadsheet/5/ has been checked to confirm that the PP has correctly applied the correction factor. This is in line with the requirements of paragraph 4(a) in Appendix 1 of the CDM Project Standard/7/. Hence this was accepted and CAR #3 (point 2) was closed out. For detailed discussion please refer CAR #3 in annex 2 of this report.

**CL #5** – It was observed that the values reported per share certificate/15/, cluster meter readings/17/ and JMR/14/ readings were sum of multiple values. The PP was requested to clarify the same in the ER spreadsheet/5/. In response, the PP has correctly provided a descriptive note in the ER calculation sheet/5/ for share certificate (cell C22 and C23), cluster meter (cell C24) and JMR readings (cell D24). Hence this was accepted and CL #5 was closed out. For detailed discussion please refer CL #5 in annex 2 of this report.

**CAR #7** (Point 1) – the PP is requested to clarify why the excel sheet/5/ and MR/3/ does not mention the use of 0.006 correction factor for the calculation of $EG_{PJ,y}$. In response, the PP has clearly mentioned the same in emission reduction excel sheet and monitoring report. Hence this was accepted and CAR #7 (point 1) was closed out. For detailed discussion please refer CAR #7 in annex 2 of this report.

### 4.2.2 Calculations of Emission Reductions

| Parameter | Reported Value MR Version 01 | Verified Value MR Version 4.1 |
|---|---|---|
| **Monitored Parameters** | | |
| $EG_{PJ,y}$ (MWh) | 34,930.657 | 34,721.073 |
| $EG_{cluster\ meter,\ Export}$ (kWh) | 35,650,942.000 | 35,650,942.000 |
| $EG_{cluster\ meter,\ Import}$ (kWh) | 16,643.000 | 16,643.000 |
| $EG_{GETCO,\ Export}$ (kWh) | 231,790,480.000 | 231,790,480.000 |
| $EG_{GETCO,\ Import}$ (kWh) | 104,968.000 | 104,968.000 |
| **Parameters fixed at validation** | | |
| $EF_{grid,OM,y}$ (t $CO_2$e/MWh) | 1.0049 | 1.0049 |
| $EF_{grid,BM,y}$ (t $CO_2$e/MWh) | 0.6752 | 0.6752 |
| $EF_{grid,CM,y}$ (t $CO_2$e/MWh) | 0.9225 | 0.9225 |

Grid emission factor is determined ex-ante and fixed throughout the crediting period. The emission reduction is calculated as follows:

Baseline emission = $EG_{PJ,y}$ (MWh) x $EF_{grid,CM,y}$ (t $CO_2e$ /MWh)

= 34,721.073 X 0.9225

= 32,030 t $CO_2e$

The above value of baseline emission has been rounded down for conservativeness. As per methodology, leakage emissions and project emissions are zero. Thus emission reductions are calculated as follow:

Emission reductions = Baseline emissions – Project emissions – Leakage emissions

= 32,030 – 0 – 0

= 32,030 t $CO_2e$

**Vintage-wise VCUs**

| Vintage | VCUs (t $CO_2e$) |
|---|---|
| 2011 (07/06/2011 to 31/12/2011) | 21,947 |
| 2012 (01/01/2012 to 29/02/2012) | 10,083 |
| **Total** | **32,030** |

## 4.3 Quality of Evidence to Determine GHG Emission Reductions or Removals

Critical parameters used for the determination of the Emission Reductions are discussed in section 4.1.4 above. All the data recorded is in compliance with the Monitoring Report[3].

## 4.4 Management and Operational System

The operations, maintenance and monitoring of the project activity is being carried out by the WTG supplier, Enercon whose operation and maintenance activities are ISO certified. Hence it can be confirmed that the management system of the VCS project is in place; with the responsibilities properly identified.

# 5 VERIFICATION CONCLUSION

**The scope of the verification**

SGS have been engaged by M/s AES Saurashtra Windfarms Private Limited to certify that the greenhouse gas (GHG) emission reductions reported for the "AES Saurashtra Windfarms" (UN No. 5777) for the period from 07/06/2011 up to 29/02/2012 in the Monitoring Report Version 4.1 dated 21/03/2013 are eligible for issuance as Verified Carbon Units.

This engagement covers the verification of emission reductions from anthropogenic sources of greenhouse gases included within the project boundary of the "AES Saurashtra Windfarm" (UN No. 5777), as well as an additional confirmation of the compliance of the VCS PD with the requirements of VCS Version 3.3.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the project design.

**Conclusions of the verification**

(a) SGS is an entity accredited by the United Nations Framework Convention on Climate Change (UNFCCC) to undertake, validation, certification and verification services in the sector in which the Project is undertaken. The accreditation is accepted by VCSA as indicated in Clause 5 of VCS Program Guide Version 3.4.

(b) The Monitoring Report, together with other information examined, was prepared as per the VCS Monitoring Report Template, Version 3.2.

(c) The information in the Monitoring Report together with other information examined by the assessment team, including all the information necessary to determine that the emission reductions achieved have been determined correctly.

(d) Based on the examination of the Monitoring Report and other relevant information, the project meets all the requirements of the VCS Version 3.3.

(e) Based on our examination of the Monitoring Report and other relevant information, the claiming emission reductions during the monitoring period from 07/06/2011 up to 29/02/2012 are verified as 32,030 t $CO_2$ equivalent.

**Liability statement with regards to the accuracy of the verification statement**

The management of Enercon (India) Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions. SGS is responsible for verification and confirming emission estimates for the project, as described in the Monitoring Report.

Our certification approach draws on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. Our examination includes an assessment of evidence, through desk review, and where necessary, interviews, stakeholder discussions and site visits, relevant to certifying the rightfulness of the amounts and disclosures in relation to the Project's GHG emission reductions.

We planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that the amount of GHG emission reductions for the given period, prepared on the basis of the Monitoring Report, are fairly stated.

This assessment included:

- Collection of evidence supporting the reported data;
- Checking whether the provisions of the Monitoring Plan in the registered CDM PDD, were consistently and appropriately applied;
- Site visit and interview of relevant staff.

We have verified whether the information included in the Monitoring Report representing the emission reductions achieved has been determined correctly for the given period from the baseline figure.

**Certification statements**

Based on process and procedures conducted, in our opinion, the Monitoring Report Version 4.1 dated 21/03/2013 on emission reductions for "AES Saurashtra Windfarms" during the reporting period from 07/06/2011 up to 29/02/2012 is materially correct and is a fair representation of the GHG data and information and the emission reductions are fairly stated. All relevant facts have been found correct by our examination. The GHG emission reductions calculation is correct.

Therefore, SGS is able to certify that the project is in full compliance with the VCS Version 3.3, and the quantity of the reported emission reductions during below reporting period are completely, comparably, accurately and correctly reported.

(1) Reporting period: From 07/06/2011 up to 29/02/2012

Verified GHG emission reductions or removals in the above reporting period:

| GHG Emission Reductions or Removals | t $CO_2e$ |
|---|---|
| Baseline Emissions | 32,030 |
| Project Emissions | 0 |
| Leakage | 0 |
| **Net GHG emission reductions or removals** | 32,030 |

**Statement of Confidentiality**

SGS will hold all information confidential until the client instructs otherwise or until it has been released in accordance with the VCS Version 3.3 requirements.

**Signed on behalf of the Verification Body by Authorized Signatory**

**SGS United Kingdom Limited**

| | |
|---|---|
| Dated: 22/03/2013 | 22/03/2013 |
| Signature: | Signature: |
|  |  |
| **Lead Assessor** | **Technical Reviewer** |
| Sudeep Kodialbail | Ramkrishna Patil |

## ANNEX 1: DOCUMENT REFERENCES

| |
|---|
| 1. VCS Version 3.3 |
| 2. VCS Program definitions Version 3.4 |
| 3. Monitoring Report<br>a. MR Version 01 dated 09/11/2012<br>b. MR Version 02 dated 18/01/2013<br>c. MR Version 03 dated 06/02/2013<br>d. MR Version 04 dated 18/03/2013<br>e. MR Version 04.1 dated 21/03/2013 |
| 4. VCS Project Description<br>a. Version 01 dated 18/012013<br>b. Version 02 dated 06/02/2013<br>c. Version 03 dated 18/03/2013<br>d. Version 03.1 dated 21/03/2013 |
| 5. Emission Reduction Spreadsheet<br>a. Version 01 dated 09/11/2012<br>b. Version 02 dated 18/01/2013<br>c. Version 03 dated 18/03/2013<br>d. Version 03.1 dated 21/03/2013 |
| 6. CDM Validation and Verification Standard Version 03.0 |
| 7. CDM Project Standard Version 02.1 |
| 8. Approved Consolidated Methodology ACM0002, Version 12.3 dated 02/03/2012 |
| 9. CDM Project Webpage (UN No. 5777) |
| 10. CDM Registered PDD Version 4.0 dated 06/01/2012 |
| 11. CDM Validation Report No. 2011–9137 Revision 1 dated 12/01/2012 issued by DNV |
| 12. CEA database (Version 5) |
| 13. AES undertaking dated 17/01/2013 was checked for any emission reduction binding limit and involvement of this project activity for emission reduction in other GHG mechanism for same crediting period i.e. Project activity is not double counting VCUs/CERs. |
| 14. Monthly JMR for electricity produced by wind farm (All the WTGs including project activity) issued by GEDA for the entire monitoring period) |
| 15. Monthly Share certificate for electricity produced by project activity issued by GETCO for the entire monitoring period) |
| 16. Monthly Invoices for the project activity for the entire monitoring period |
| 17. GEDA approved monthly generation record from daily generation record by EIL |
| 18. Commissioning Certificates issued by GEDA (for all 49 WTGs)<br>a. GEDA/AES/PWF/BHATIYA/2011-12/1008 dated 28/06/2011 (19 WTGs commissioned from 07/06/2011 to 15/06/2011)<br>b. GEDA/AES/PWF/BHATIYA/2011-12/1330 dated 28/07/2011 (6 WTGs commissioned from 30/06/2011 to 19/07/2011)<br>c. GEDA/AES/PWF/BHATIYA/2011-12/1752 dated 25/08/2011 (4 WTGs commissioned from 01/07/2011 to 10/08/2011)<br>d. GEDA/AES/PWF/BHATIYA/2011-12/2809 dated 17/11/2011 (2 WTGs |

| |
|---|
| commissioned on 18/10/2011)<br>e. GEDA/AES/PWF/BHATIYA/2011-12/3167 dated 09/12/2011 (3 WTGs commissioned on 22/11/2011)<br>f. GEDA/AES/PWF/BHATIYA/2011-12/3168 dated 09/12/2011 (2 WTGs commissioned on 22/11/2011)<br>g. GEDA/AES/PWF/BHATIYA/2011-12/3297 dated 20/12/2011 (4 WTGs commissioned from 22/11/2011 to 30/11/2011)<br>h. GEDA/AES/PWF/BHATIYA/2011-12/3589 dated 10/01/2012 (4 WTGs commissioned from 28/12/2011 to 30/12/2011)<br>i. GEDA/AES/PWF/BHATIYA/2011-12/3871 dated 25/01/2012 (4 WTGs commissioned from 12/01/2012 to 16/01/2012)<br>j. GEDA/AES/PWF/BHATIYA/2011-12/3918 dated 31/01/2012 (1 WTG commissioned on 23/01/2012) |
| 19. Power Purchase Agreement between GUVNL and AES<br>a. Dated 25/04/2011 for 21.6 MW<br>b. Dated 21/06/2011 for 11.2 MW<br>c. Dated 14/07/2011 for 5.6 MW<br>d. Dated 28/12/2011 for 0.8 MW |
| 20. Test / Calibration Certificates of all meters covering the current monitoring period |

## ANNEX 2: OVERVIEW OF FINDINGS

| | CARs | CLs | FARs |
|---|---|---|---|
| **Total Number raised** | 5 | 2 | - |

| Date: | 20/12/2012 | | Raised by: | Assessment Team | |
|---|---|---|---|---|---|
| Type: | CL | Number: | #1 | Reference: | Section 1.2, 1.3 and 1.4 of MR |

| **Lead Assessor Comment:** | **Date:** 20/12/2012 |
|---|---|
| 1. Please clarify the appropriateness of sectoral scope mentioned in section 1.2 of the MR Version 01.<br>2. PP is requested to clarify why roles and responsibilities of project participant is not included in section 1.3 of the MR Version 01 in line with MR completion guidelines. | |
| **Project Participant Response:** | **Date:** 18/01/2013 |
| 1. Sectoral scope is now corrected in section 1.2 of the revised MR<br>2. In section 1.3 of the MR roles and responsibilities are now included. | |
| **Documentation Provided as Evidence by Project Participant:** | |
| Revised monitoring report | |
| **Information Verified by Lead Assessor:** | |
| 1. Revised MR Version 02 dated 18/01/2013 is checked for appropriateness of sectoral scope under section 1.2.<br>2. Section 1.3 of the revised MR Version 02 dated 18/01/2013 is checked for roles and responsibilities of project participant. | |
| **Reasoning for not Acceptance or Acceptance and Close Out:** | |
| 1. PP has revised sectoral scope name appropriately, this is found in line with the name mentioned on the UNFCCC project homepage (http://cdm.unfccc.int/Projects/DB/DNV-CUK1328700673.83/view ). Hence this is accepted.<br>2. PP has included Role as Project Owner and responsibility of Project Owner in the revised MR. However, complete roles and responsibilities of operation, maintenance etc are not clearly identified in the revised MR. Information provided under roles and responsibility is found insufficient as compared to activities involved in the project activity. PP is requested to clarify why all the activities and responsible parties e.g. O & M activities are not included in the revised MR.<br>Hence CL #1 is open. | |
| **Acceptance and Close out by Lead Assessor: Open** | **Date:** 30/01/2013 |
| **Project Participant Response:** | **Date:** 06/02/2013 |
| Role and responsibility details are mentioned in section 3.3 of the VCS MR and same has been mentioned in section 1.3 of the revised MR. | |
| **Documentation Provided as Evidence by Project Participant:** | |
| Revised monitoring report | |
| **Information Verified by Lead Assessor:** | |
| Section 1.3 and 3.3 of the revised MR Version 03 dated 06/02/2013 is checked for roles and responsibilities for the project activity. | |
| **Reasoning for not Acceptance or Acceptance and Close Out:** | |

| |
|---|
| PP has now appropriately mentioned roles and responsibilities in the section 3.3 and same is referred under section 1.3. This is found in line with the actual roles and responsibility observed during site visit which is consistent with the registered PDD. Hence this is accepted.<br>Thus CL #1 is closed out. |
| **Acceptance and Close out by Lead Assessor: Closed** **Date:** 11/02/2013 |

| Date: | 20/12/2012 | | Raised by: | Assessment Team | |
|---|---|---|---|---|---|
| Type: | CAR | Number: | #2 | Reference: | Section 1.5 and 2.1 of MR |

| |
|---|
| **Lead Assessor Comment:** **Date:** 20/12/2012 |
| 1. Please clarify the appropriateness of the start date of the project activity mentioned in sections 1.5 and 2.1 of the MR Version 01 with reference to the definition of start date provided in Program definitions Version 3.4.<br>2. It is found that shutdown/runtime details of the project activity observed in daily generation report during site visit are not found to be included. Please clarify. |
| **Project Participant Response:** **Date:** 18/01/2013 |
| 1. Project activity start date is now revised as per the definition of start date provided in program definitions Version 3.4<br>2. Shut down details are now included in Annexure – 3 of the revised monitoring report |
| **Documentation Provided as Evidence by Project Participant:** |
| Revised monitoring report |
| **Information Verified by Lead Assessor:** |
| 1. Section 1.5 and 2.1 of the revised MR Version 02 dated 18/01/2013 are checked for appropriateness of start date in line with the VCS requirements.<br>2. Section 2.1 and Annexure 3 of the revised MR Version 02 dated 18/01/2013 is checked for completeness of shutdown/runtime details for project activity. |
| **Reasoning for not Acceptance or Acceptance and Close Out:** |
| 1. PP has revised start date of the project activity in line with the VCS requirements which states “the date on which the project starts generating emission reductions and removals”. PP has now revised start date as commissioning date of first WTG. This is found satisfactory and hence this is accepted.<br>2. PP has provided shutdown/runtime details under Annexure 3 of the revised MR. However, Equipment number observed during site visit in daily generation report is inconsistent with the identification of equipments provided under section 2.1 and Annexure 3 of the revised MR. PP is requested to clarify this inconsistency.<br>Hence CAR #2 is open. |
| **Acceptance and Close out by Lead Assessor: Open** **Date:** 30/01/2013 |
| **Project Participant Response:** **Date:** 06/02/2013 |
| 2. Equipment identification numbers mentioned in the Annexure 3 are now made consistent with the identification of equipment’s provided under section 2.1 of the MR. |
| **Documentation Provided as Evidence by Project Participant:** |
| Revised MR |
| **Information Verified by Lead Assessor:** |
| Section 2.1 and Annex 3 of the revised MR Version 03 dated 06/02/2013 is checked for appropriateness of identification number of equipments |
| **Reasoning for not Acceptance or Acceptance and Close Out:** |

| |
|---|
| PP has now updated equipment identification number under Annex 3 of the revised MR. This is found to be in line with the details mentioned under section 2.1 of the revised MR and hence this is accepted.<br>Thus CAR #2 is closed out |
| **Acceptance and Close out by Lead Assessor: Closed** **Date:** 11/02/2013 |

| | | | | | |
|---|---|---|---|---|---|
| Date: | 20/12/2012 | | Raised by: | Assessment Team | |
| Type: | CAR | Number: | #3 | Reference: | Section 1.8 of MR |
| **Lead Assessor Comment:** | | | | **Date:** 20/12/2012 | |
| 1. PP is requested to clarify the appropriateness of the version of the methodology ACM0002 applied for project activity.<br>2. During the site visit, it is found that accuracy class of the GETCO meter (Serial Number GJB00486) is 0.5s. Please clarify the inconsistency observed against accuracy class of the same mentioned in the registered PDD. Please clarify why this information is not included in section 2.2 of the MR. | | | | | |
| **Project Participant Response:** | | | | **Date:** 18/01/2013 | |
| 1. Version of the methodology is now corrected<br>2. Accuracy class of the meter (Serial Number GJB00486) is 0.5s observed during the site visit; the inconsistency in the MR has been corrected. | | | | | |
| **Documentation Provided as Evidence by Project Participant:** | | | | | |
| Revised monitoring report | | | | | |
| **Information Verified by Lead Assessor:** | | | | | |
| 1. Applicable methodology version and title under section 3.3 of the revised MR Version 02 dated 18/01/2013 is checked with reference to methodologies available on UNFCCC website http://cdm.unfccc.int/methodologies/DB/UB3431UT9I5KN2MUL2FGZXZ6CV71LT/view.html<br>2. Revised MR Version 02 dated 18/01/2013, revised ER calculation sheet Version 02 dated 18/01/2013 are checked for consistency of accuracy class of the meter and calculation of emission reduction. | | | | | |
| **Reasoning for not Acceptance or Acceptance and Close Out:** | | | | | |
| 1. PP has now corrected name and Version (12.3) of applicable methodology under section 3.3 of the revised MR Version 02 dated 18/01/2013. This is found consistent with methodology available on UNFCCC webpage and in line with the paragraph 13 of EB 61 Annex 25. Hence this is accepted.<br>2. PP has revised the MR, correcting the accuracy class and provided the details under Annexure 2. However, the correction factor has not been applied in the revised ER calculation sheet as per the requirements of the CDM Project Standard. PP is requested to clarify the same.<br>Hence CAR #3 is Open. | | | | | |
| **Acceptance and Close out by Lead Assessor: Open** | | | | **Date:** 30/01/2013 | |
| **Project Participant Response:** | | | | **Date:** 06/02/2013 | |
| 2. ER calculation sheet is corrected by applying correction factor as per the requirement of CDM Project standard, monitoring report is also revised accordingly. | | | | | |
| **Documentation Provided as Evidence by Project Participant:** | | | | | |
| ER calculation sheet | | | | | |
| **Information Verified by Lead Assessor:** | | | | | |
| Revised MR Version 03 dated 06/02/2013 and ER calculation sheet are checked for appropriateness of the ER calculation and application of correction factor. | | | | | |
| **Reasoning for not Acceptance or Acceptance and Close Out:** | | | | | |

| |
|---|
| PP has applied correction factor on values of share certificate. PP has applied 0.006 (0.003 for import and 0.003 for export) correction factor conservatively on the net value taken from the share certificate. Since the measured values of import and export from the WTGs belonging to the project activity are not available to the PP hence the conservative approach of applying the correction factor of 0.006 to the net value issued by the state utility is considered appropriate by the assessment team. The emission reductions excel spreadsheet has been checked to confirm that the PP has correctly applied the correction factor. This is in line with the requirements of paragraph 4(a) in Appendix 1 of the CDM Project Standard. Hence accepted.<br>Thus CAR #3 is closed out |
| **Acceptance and Close out by Lead Assessor: Closed** **Date:** 11/02/2013 |

| Date: | 20/12/2012 | | Raised by: | Assessment Team | |
|---|---|---|---|---|---|
| Type: | CAR | Number: | #4 | Reference: | Section 3.2 and 3.3 of MR |
| **Lead Assessor Comment:** | | | | **Date:** 20/12/2012 | |
| 1. PP is requested to clarify why PP has not included details of monitoring equipments involved in the project activity. Also calibration details are not provided. Please clarify.<br>2. PP is requested to check appropriateness of the flow of information indicated in organizational structure diagram included in section 3.3 of the MR Version 01 in line with actual practice being followed at site. | | | | | |
| **Project Participant Response:** | | | | **Date:** 18/01/2013 | |
| 1. Details of the monitoring equipment's are now included in Annexure – 2 of the revised MR<br>2. Flow of information is now corrected in section 3.3 of the revised MR | | | | | |
| **Documentation Provided as Evidence by Project Participant:** | | | | | |
| Revised monitoring report | | | | | |
| **Information Verified by Lead Assessor:** | | | | | |
| 1. Annexure 2 of the revised MR Version 02 dated 18/01/2013 is checked for completeness of meter details.<br>2. Section 3.3 of the revised MR Version 02 dated 18/01/2013 is checked for appropriateness of information flow diagram. | | | | | |
| **Reasoning for not Acceptance or Acceptance and Close Out:** | | | | | |
| 1. Complete details of the metering equipment including accuracy class, calibration date and calibration validity are provided under Annexure 2 of the revised MR. This is found satisfactory and hence accepted.<br>2. Information flow diagram under Section 3.3 of the revised MR has been reversed. This is consistent with the actual practice on the site. This is found satisfactory and hence accepted.<br>Thus CAR #4 is Closed out. | | | | | |
| **Acceptance and Close out by Lead Assessor: Closed** | | | | **Date:** 30/01/2013 | |

| Date: | 20/12/2012 | | Raised by: | Assessment Team | |
|---|---|---|---|---|---|
| Type: | CL | Number: | #5 | Reference: | ER Sheet |
| **Lead Assessor Comment:** | | | | **Date:** 20/12/2012 | |
| It is found that the values reported per share certificate, cluster meter readings and JMR readings are found as sum of multiple values which is not clarified in the ER calculation sheet. Please clarify the same. | | | | | |
| **Project Participant Response:** | | | | **Date:** 18/01/2013 | |
| ER calculation sheet is now revised with sum of multiple values and clarification is also included in the excel sheet. | | | | | |
| **Documentation Provided as Evidence by Project Participant:** | | | | | |
| Revised emission reduction calculation sheet | | | | | |
| **Information Verified by Lead Assessor:** | | | | | |
| Revised ER calculation sheet Version 02 dated 18/01/2013 is checked for appropriateness of the response. | | | | | |

| **Reasoning for not Acceptance or Acceptance and Close Out:** | |
|---|---|
| The PP has not included any clarification on the sum of multiple values in the ER spreadsheet.<br>Hence CL #5 is open. | |
| **Acceptance and Close out by Lead Assessor: Open** | **Date:** 30/01/2013 |
| **Project Participant Response:** | **Date:** 06/02/2013 |
| Explanation about the sum of multiple values in the ER spread sheet is now clearly mentioned. | |
| **Documentation Provided as Evidence by Project Participant:** | |
| Revised ER sheet | |
| **Information Verified by Lead Assessor:** | |
| Revised ER sheet is checked for appropriateness of the response. | |
| **Reasoning for not Acceptance or Acceptance and Close Out:** | |
| PP has provided descriptive note in the ER calculation sheet for share certificate (cell C22 and C23), cluster meter (cell C24) and JMR readings (cell D24). This is found satisfactory and hence this is accepted.<br>Thus CL #5 is closed out. | |
| **Acceptance and Close out by Lead Assessor: Closed** | **Date:** 11/02/2013 |

| Date: | 20/12/2012 | | Raised by: | Assessment Team | | |
|---|---|---|---|---|---|---|
| Type: | CAR | Number: | #6 | | Reference: | ER Sheet |
| **Lead Assessor Comment:** | | | | **Date:** 20/12/2012 | | |
| PP is requested to clarify why VCS PD is not submitted for gap validation of clauses 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of VCS PD template in line with clause 3.11.8 of VCS Version 3.3. | | | | | | |
| **Project Participant Response:** | | | | **Date:** 18/01/2013 | | |
| VCS PD is now submitted for gap validation along with the revised MR. | | | | | | |
| **Documentation Provided as Evidence by Project Participant:** | | | | | | |
| VCS PD<br>Power Purchase Agreements<br>Commissioning certificates of the WTG's<br>Undertaking from AES | | | | | | |
| **Information Verified by Lead Assessor:** | | | | | | |
| A. VCS PDD Version 01 dated 18/012013 is checked for the gap validation of clauses 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of VCS PD against VCS Version 3.3 requirement.<br>B. Following power purchase agreements are checked for ownership of the project activity<br>1. PPA between GUVNL and AES dated 25/04/2011 for 21.6 MW<br>2. PPA between GUVNL and AES dated 21/06/2011 for 11.2 MW<br>3. PPA between GUVNL and AES dated 14/07/2011 for 5.6 MW<br>4. PPA between GUVNL and AES dated 28/12/2011 for 0.8 MW<br>C. Following commissioning certificates are checked for ownership of the project activity<br>1. GEDA/AES/PWF/BHATIYA/2011-12/1008 dated 28/06/2011 for 15.2 MW (0.8 MW * 19 WTGs)<br>2. GEDA/AES/PWF/BHATIYA/2011-12/1330 dated 28/07/2011 for 4.8 MW (0.8 MW * 6 WTGs)<br>3. GEDA/AES/PWF/BHATIYA/2011-12/1752 dated 25/08/2011 for 3.2 MW (0.8 MW * 4 WTGs)<br>4. GEDA/AES/PWF/BHATIYA/2011-12/2809 dated 17/11/2011 for 1.6 MW (0.8 MW * 2 WTGs)<br>5. GEDA/AES/PWF/BHATIYA/2011-12/3167 dated 09/12/2011 for 2.4 MW (0.8 MW * 3 WTGs)<br>6. GEDA/AES/PWF/BHATIYA/2011-12/3168 dated 09/12/2011 for 1.6 MW (0.8 MW * 2 WTGs)<br>7. GEDA/AES/PWF/BHATIYA/2011-12/3297 dated 20/12/2011 for 3.2 MW (0.8 MW * 4 WTGs)<br>8. GEDA/AES/PWF/BHATIYA/2011-12/3589 dated 10/01/2012 for 3.2 MW (0.8 MW * 4 WTGs)<br>9. GEDA/AES/PWF/BHATIYA/2011-12/3871 dated 25/01/2012 for 3.2 MW (0.8 MW * 4 WTGs) | | | | | | |

| |
|---|
| 10. GEDA/AES/PWF/BHATIYA/2011-12/3918 dated 31/01/2012 for 0.8 MW (0.8 MW * 1 WTG)<br>D. AES undertaking dated 17/01/2013 was checked for any emission reduction binding limit and involvement of this project activity for emission reduction in other GHG mechanism for same crediting period. |
| **Reasoning for not Acceptance or Acceptance and Close Out:** |
| The assessment team has validated sections 1.2, 1.3, 1.5, 1.6, 1.7, 1.9, 1.10, 1.12.1, 1.12.2, 1.12.3, 1.12.4 and 1.13 of the VCS PD in line with paragraph 3.11.8 of VCS Version 3.3. The assessment team confirms that except section 1.7 and 1.12.3 all other sections meet the requirement of the VCS Version 3.3.<br>Under section 1.7 of the VCS PD, the PP has mentioned a crediting period of 10 years commencing from 01/03/2012. This is inconsistent with the crediting period mentioned in section 1.6 of the same document. PP is requested to clarify this inconsistency.<br>The guideline for completing section 1.12.3 of the VCS PD states that "Indicate whether the project has been registered, or is seeking registration under any other GHG programs. Where the project has been registered under any other GHG program, provide the registration number and details." This project has been registered under the CDM, but details regarding the same are not mentioned in section 1.12.3. Please clarify.<br>Hence CAR #6 is open |
| **Acceptance and Close out by Lead Assessor: Open** — **Date:** 30/01/2013 |
| **Project Participant Response:** — **Date:** 06/02/2013 |
| Crediting period details are now revised in section 1.7 of the VCS PD, which is now consistent with the details mentioned in section 1.6 of the VCS PD.<br>Details of the project registered under CDM are now included in section 1.12.3 of the VCS PD. Web link of project registered under CDM is provided in footnote. |
| **Documentation Provided as Evidence by Project Participant:** |
| Revised MR |
| **Information Verified by Lead Assessor:** |
| Section 1.7 of the revised VCS PD Version 02 dated 06/02/2013 is checked for appropriateness of the crediting period in line with the section 1.6 of the revised MR Version 02 dated 06/02/2013.<br>Section 1.12.3 of the revised VCS PD Version 02 dated 06/02/2013 is checked for information on other GHG programs. |
| **Reasoning for not Acceptance or Acceptance and Close Out:** |
| PP has mentioned crediting period from 07/06/2011 to 27/02/2012 in the revised VCS PD, this is found in line with the crediting period provided in the revised MR. Further, start date of crediting period under CDM was checked for present project activity on CDM website (http://cdm.unfccc.int/Projects/DB/DNV-CUK1328700673.83/view ) which starts on 01/03/2012 (i.e. after end of crediting period in VCS PD). This is found satisfactory and hence accepted.<br>CDM registration information is now included in the revised VCS PD. This is found to be consistent with the information available on CDM website for the project activity. Hence accepted.<br>Thus CAR #6 is closed out |
| **Acceptance and Close out by Lead Assessor: Closed** — **Date:** 11/02/2013 |

| Date: | 05/03/2013 | | Raised by: | Assessment Team | |
|---|---|---|---|---|---|
| Type: | CAR | Number: | #7 | Reference: | TR Comments |
| **Lead Assessor Comment:** | | | **Date:** 05/03/2013 | | |
| 1. The excel sheet and MR does not mention the use of 0.006 correction factor for the calculation of $EG_{PJ,y}$. Please clarify. PP is also requested to clarify why GETCO meter readings does not show with application of correction factor.<br>2. PP is requested to clarify if the data of JMR reading and share certificate is from 07/06/2011 only. Since JMR reading is common meter reading at the substation, it is not clear if | | | | | |

(=12148000+15471000+15883416+15875064) are from 07/06/2011, please clarify.

3. PP is requested to clarify the difference between the columns capacity per WTG and installed capacity in section 2.1 of MR.
4. The MR does not clarify the use of version 12.3.0 of the methodology instead of 12.2.0 as mentioned in registered PDD.
5. PP is requested mention specific web link of CEA database in section 3.1 of the MR.
6. The current monitoring period starts from 07/06/2011. PP is requested to clarify why earlier calibration details are not mentioned to cover complete monitoring period. Please clarify this for meters GJU-62458, GJU-62462, GJU-62466, GJU-64393.
7. The start date of CDM crediting period is 01/03/2012. PP is requested to clarify why end date of VCS crediting period is mentioned as 27/02/2012. In case of end date as 27/02/2012, how it is ensured that share certificate data is upto 27/02/2012.

| **Project Participant Response:** | **Date:** 18/03/2013<br>Reopen 21/03/2013 |
|---|---|

1. Application of correction factor to $EG_{PJ,y}$ is clearly mentioned in emission reduction excel sheet and monitoring report.

2. Details of the JMR reading and share certificate is now clearly mentioned in emission reduction excel sheet.

3. Table is now corrected in section 2.1 of the MR.

4. Foot note with details of use of version 12.3.0 is now provided in the MR

5. Web link of CEA database is now provided in section 3.1 of the MR

6. For all the meters that are having meter calibration date after the start date of crediting period i.e. 07/06/2011; all these meters are manufactured in year 2011 so the previous calibration is not possible. Email received from Wind World India (i.e. Previously Enercon) is submitted herewith revised MR for verification.

7. VCS crediting period end date is revised to 28/02/2012 as date of registration of CDM project. Also crediting period for CDM will start from 01/03/2012 so there will not be any double counting.

**Documentation Provided as Evidence by Project Participant:**

Revised ER sheet, Revised MR Version 04 dated 18/03/2013, Revised PD version 03 dated 18/03/2013

**Information Verified by Lead Assessor:**

1. Revised ER sheet and Revised MR Version 04 dated 18/03/2013 is checked for the appropriateness of the correction factor application.
2. Revised ER sheet is checked for the explanation of JMR values.
3. Section 2.1 of the revised MR Version 04 dated 18/03/2013 is checked for the appropriateness of table.
4. Section 1.8 of the revised MR Version 04 dated 18/03/2013 is checked for the clarification of the latest version of the applicable methodology version 12.3.0.
5. Section 3.1 of the revised MR Version 04 dated 18/03/2013 is checked for the reference of CEA database.
6. Email received from Wind World India (i.e. Previously Enercon) dated 06/03/2013 is checked for clarification on calibration.
7. Revised MR Version 04 dated 18/03/2013 is checked for the applied crediting period.

**Reasoning for not Acceptance or Acceptance and Close Out:**

1. PP has now provided description of 0.006 correction factor and justification of applying correction factor. Under Section 2.2 of the MR PP has clearly mentioned description and justification of using correction factor for the share certificate. All the calculation are done by state utility and hence not under control of PP. PP receives final value of electricity exported to the grid through share certificate. PP has applied correction factor to share certificate on conservative side. Accepted.
2. PP has now included justification in the ER sheet regarding the values used. These descriptions are self explanatory and hence accepted.

| |
|---|
| 3. PP has now removed duplicate column from the table under section 2.1. Hence accepted.<br>4. PP has now provided footnote under section 1.8 of the revised MR. PP has clarified that ACM0002 version 12.2.0 was the latest methodology available at the time of registration. However, editorial changes are made in the methodology and ACM0002 version 12.3.0 is available as a latest methodology on the UNFCCC website at the time of verification. The same is confirmed from paragraph 13 of EB 61 Annex 25 and hence accepted.<br>5. PP has now provided complete link of the CEA database under Section 3.1 of the revised MR. Hence accepted.<br>6. Email received from Wind World India (i.e. Previously Enercon) states that meters GJU-62458, GJU-62462, GJU-62466 and GJU-64393 are manufactured in 2011, further their calibration frequency is once in three years. Hence earlier calibration for this equipment is not possible. It is confirmed from the Wind World India email that these meters are manufactured in 2011 and are calibrated in 2011 itself. Hence accepted.<br>7. PP has now revised crediting period from 27/02/2012 to 28/02/2012. PP is requested to clarify why end date of VCS crediting period is mentioned as 28/02/2012. In case of end date as 28/02/2012, how it is ensured that share certificate data is upto 28/02/2012.<br>Thus CAR #7 is Open. |
| **Project Participant Response:** **Date:** 21/03/2013 |
| 7. End date of crediting period is now revised to 29/02/2012, which is a date one day prior to start date of crediting period of CDM project activity. |
| **Documentation Provided as Evidence by Project Participant:** |
| Revised MR, Revised PD and Revised ER sheet. |
| **Information Verified by Lead Assessor:** |
| Crediting period in Revised MR Version 4.1 dated 21/03/2013<br>Crediting period in Revised PD Version 3.1 dated 21/03/2013<br>Crediting period in Revised ER sheet Version 3.1 dated 21/03/2013 |
| **Reasoning for not Acceptance or Acceptance and Close Out:** |
| PP has now revised crediting period in the revised MR and PD up to 29/02/2012 considering leap year. This is found satisfactory and hence accepted.<br><br>Thus CAR #7 is closed out |
| **Acceptance and Close out by Lead Assessor: Closed** **Date:** 22/03/2013 |

## ANNEX 3: TEAM MEMBERS STATEMENTS OF COMPETENCY

Name: Sudeep Kodialbail

**Status**

| | | | | | |
|---|---|---|---|---|---|
| - | Lead Assessor | x | - | Expert | x |
| - | Assessor | x | - | Financial Expert | |
| - | Local Assessor | India | - | Technical Reviewer | |

**Scopes of Expertise**

**1. Energy Industries (renewable / non-renewable)** **x**

Technical Area(s): TA 1.2 Energy generation from renewable energy sources

**2. Energy Distribution**

Technical Area(s*):*

**3. Energy Demand**

Technical Area(s*):*

**4. Manufacturing**

Technical Area(s*):*

**5. Chemical Industry**

Technical Area(s*):*

**6. Construction**

Technical Area(s*):*

**7. Transport**

Technical Area(s*):*

**8. Mining/Mineral Production**

Technical Area(s*):*

**9. Metal Production**

Technical Area(s*):*

**10. Fugitive Emissions from Fuels (solid, oil and gas)**

Technical Area(s*):*

**11. Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride**

Technical Area(s*):*

**12. Solvent Use**

Technical Area(s*):*

**13. Waste Handling and Disposal**

Technical Area(s*):*

**14. Afforestation and Reforestation**

Technical Area(s*):*

**15. Agriculture**

Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 06/02/2012

Name: Vikas Bankar

**Status**

| | | | | | |
|---|---|---|---|---|---|
| - | Lead Assessor | x | - | Expert | x |
| - | Assessor | x | - | Financial Expert | |
| - | Local Assessor | India | - | Technical Reviewer | x |

**Scopes of Expertise**

1. **Energy Industries (renewable / non-renewable)** **x**

Technical Area(s*): TA 1.2 Energy generation from renewable energy sources*

2. **Energy Distribution** **x**

Technical Area(s*): TA 2.1 Electricity distribution*
*TA 2.2 Heat distribution*

3. **Energy Demand** **x**

Technical Area(s*): TA 3.1 Energy Demand*

4. **Manufacturing**

Technical Area(s*):*

5. **Chemical Industry**

Technical Area(s*):*

6. **Construction**

Technical Area(s*):*

7. **Transport**

Technical Area(s*):*

8. **Mining/Mineral Production**

Technical Area(s*):*

9. **Metal Production**

Technical Area(s*):*

10. **Fugitive Emissions from Fuels (solid, oil and gas)**

Technical Area(s*):*

11. **Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride**

Technical Area(s*):*

12. **Solvent Use**

Technical Area(s*):*

13. **Waste Handling and Disposal**

Technical Area(s*):*

14. **Afforestation and Reforestation**

Technical Area(s*):*

15. **Agriculture**

Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 17/07/2012

Name: Vijaybhai Shankarbhai Patel

**Status**

| | | | | | |
|---|---|---|---|---|---|
| - | Lead Assessor | | - | Expert | |
| - | Assessor | x | - | Financial Expert | |
| - | Local Assessor | India | - | Technical Reviewer | |

**Scopes of Expertise**

1. **Energy Industries (renewable / non-renewable)**

Technical Area(s*):*

2. **Energy Distribution**

Technical Area(s*):*

3. **Energy Demand**

Technical Area(s*):*

4. **Manufacturing**

Technical Area(s*):*

5. **Chemical Industry**

Technical Area(s*):*

6. **Construction**

Technical Area(s*):*

7. **Transport**

Technical Area(s*):*

8. **Mining/Mineral Production**

Technical Area(s*):*

9. **Metal Production**

Technical Area(s*):*

10. **Fugitive Emissions from Fuels (solid, oil and gas)**

Technical Area(s*):*

11. **Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride**

Technical Area(s*):*

12. **Solvent Use**

Technical Area(s*):*

13. **Waste Handling and Disposal**

Technical Area(s*):*

14. **Afforestation and Reforestation**

Technical Area(s*):*

15. **Agriculture**

Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 08/11/2012

Name: Ramkrishna Patil

**Status**

| | | | | | |
|---|---|---|---|---|---|
| - | Lead Assessor | x | - | Expert | x |
| - | Assessor | x | - | Financial Expert | |
| - | Local Assessor | India | - | Technical Reviewer | x |

**Scopes of Expertise**

1. **Energy Industries (renewable / non-renewable)** **x**

Technical Area(s*): TA 1.2 Energy generation from renewable energy sources*

2. **Energy Distribution** **x**

Technical Area(s*): TA 2.1 Electricity distribution*
*TA 2.2 Heat distribution*

3. **Energy Demand** **x**

Technical Area(s*): TA 3.1 Energy Demand*

4. **Manufacturing**

Technical Area(s*):*

5. **Chemical Industry**

Technical Area(s*):*

6. **Construction**

Technical Area(s*):*

7. **Transport**

Technical Area(s*):*

8. **Mining/Mineral Production**

Technical Area(s*):*

9. **Metal Production**

Technical Area(s*):*

10. **Fugitive Emissions from Fuels (solid, oil and gas)**

Technical Area(s*):*

11. **Fugitive Emissions from Production and Consumption of Halocarbons and Sulphur Hexafluoride**

Technical Area(s*):*

12. **Solvent Use**

Technical Area(s*):*

13. **Waste Handling and Disposal**

Technical Area(s*):*

14. **Afforestation and Reforestation**

Technical Area(s*):*

15. **Agriculture**

Technical Area(s*):*

Approved Member of Staff by: Siddharth Yadav Date: 02/07/2012