



Final Verification Report

- 1ST PERIODIC VERIFICATION-

VAAYU (INDIA) POWER CORPORATION
PRIVATE LIMITED

VAAYU INDIA WIND POWER PROJECT IN GUJARAT

UNFCCC REF. No. : 4700

Monitoring Period: 2011-06-01 to 2012-02-29
(incl. both days)

Report No: 8108923673-12/171

Date: 2012-08-14

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Verification Report:	Report No. 8108923673-12/171	Rev. No. 0	Date of 1st issue: 2012-08-14	Date of this rev. 2012-08-14
Project:	Title: Vaayu India Wind Power Project in Gujarat	Registration date: 2011-05-09		UNFCCC-No.: 4700
	Host Country: India	Verification No.: 1st periodic verification		
	Crediting period:	From:	To.:	
	<input type="checkbox"/> Renewable (7y) <input checked="" type="checkbox"/> Fixed (10y)	2011-06-01	2021-05-31	
	Project Scale:			
	<input checked="" type="checkbox"/> Large Scale <input type="checkbox"/> Small Scale			
	Project Participant(s):	Host Party: India	Other involved Parties: n/a	
Client: Vaayu (India) Power Corporation Private Limited		Project Owner: Vaayu (India) Power Corporation Private Limited		
Applied methodology/ies:	Title: Consolidated baseline methodology for grid-connected electricity generation from renewable sources	No.: ACM0002 version11	Scope(s) / TA(s) 1 / 1.2	
Monitoring:	Monitoring period (MP): 2011-06-01 to 2012-02-29 (both days included)	No. of days: 274	MP No. 1 st Verification	
Monitoring report:	Title: Vaayu India Wind Power Project in Gujarat	Draft version: Version 1 dated 2012 -03-21	Final version: Version 2 dated 2012-04-25	
Verification team / Technical Review and Final Approval	Verification Team: Mr. Prasad Jakkaraju (TL/TE) Mr. Sukanta Das (TM) Mr. Jimmy Sah (TM) Mr. Sandip Saha (OT)	Technical review: Mr. Stefan Winter (TR), Swapnil Thanekar (OR)	Final approval: Mr. Stefan Winter (FA)	
Emission reductions: [t CO_{2e}]	Verified amount 61,182 t	As per draft MR: 60,682 t	As per PDD: 106378 t/a	
Summary of Verification Opinion:	<p>Vaayu (India) Power Corporation Private Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "Vaayu India Wind Power Project in Gujarat", with regard to the relevant requirements for CDM project activities.</p> <p>As a result of this verification, the verifier confirms that:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> all operations of the project are implemented and installed as planned and described in the validated project design document, <input checked="" type="checkbox"/> the monitoring plan is in accordance with the applied approved CDM methodology, <input checked="" type="checkbox"/> the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately, <input checked="" type="checkbox"/> the monitoring system is in place and functional. The project has generated GHG emission reductions, and <input checked="" type="checkbox"/> the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. <p>TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission</p>			



	reductions in the above mentioned reporting period as follows: Emission reductions: 61,182 t CO _{2e}	
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Abbreviations:

CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO₂	Carbon dioxide
CO_{2eq}	Carbon dioxide equivalent
EIL	Enercon India Limited
ER	Emission Reduction
FAR	Forward Action Request
GEDA	Gujarat Electricity Development Authority
GETCO	Gujarat Energy Transmission Corporation Limited
GHG	Greenhouse gas(es)
MP	Monitoring Plan
NEWNE	Northern, Eastern, Western, North-Eastern
MR	Monitoring Report
PA	Project Activity
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
VIPCPL	Vaayu (India) Power Corporation Private Limited
VCB	Vacuum Circuit Breaker
WEC	Wind Energy Converter
XLS	Emission Reduction Calculation Spread Sheet

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1. INTRODUCTION

Vaayu (India) Power Corporation Private Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out the 1st periodic verification of the project

“Vaayu India Wind Power Project in Gujarat”

with regard to the relevant requirements for CDM project activities. The verifiers have reviewed the implementation of the monitoring plan (MP) in the registered CDM project.

GHG data for the monitoring period was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Manual ^{/VVM/} of the UNFCCC.

This report summarizes the findings and conclusions of this 1st periodic verification of the above mentioned UNFCCC registered project activity.

1.1. Objective

The objective of the verification is the review and ex-post determination by an independent entity of the GHG emission reductions. It includes the verification of the:

- implementation and operation of the project activity as given in the PDD,
- compliance with applied approved methodology and the provisions of the monitoring plan,
- data given in the monitoring report by checking the monitoring records, the emissions reduction calculation and supporting evidence,
- accuracy of the monitoring equipment,
- quality of evidence
- significance of reporting risks and risks of material misstatements.

1.2. Scope

The verification of this registered project is based on the validated project design document ^{/PDD/}, the monitoring report ^{/MR/}, emission reduction calculation spread sheet ^{/XLS/}, supporting documents made available to the verifier and information collected through performing interviews and during the on-site assessment. Furthermore publicly available information was considered as far as available and required.

The verification is carried out on the basis of the following requirements, applicable for this project activity:

- Article 12 of the Kyoto Protocol ^{/KP/},
- guidelines for the implementation of Article 12 of the Kyoto Protocol as presented in the Marrakech Accords under decision 3/CMP.1 ^{/MA/}, and subsequent decisions made by the Executive Board and COP/MOP,



- other relevant rules, including the host country legislation,
- CDM Validation and Verification Manual ^{/VVM/},
- monitoring plan as given in the registered PDD ^{/PDD/},
- Approved CDM Methodology, ACM0002 version 11

2. GHG PROJECT DESCRIPTION

2.1. Technical Project Description

The project activity involves installation and operation of a 51.2 MW (64 nos of WEC × 0.80 MW capacity of each WEC) wind power project located at villages Chattar, Narmana, Seth Wadala, Jam Ambardi, Mevasa, Dhun Dhoraji, Sadodar, Bodi, Padavala and Machharda in Jamnagar and Rajkot Districts of Gujarat state in India. The electricity generated is being sold to the NEWNE grid (to which the project is connected to) for which PP has entered into a Power Purchase Agreement (PPA) with Gujarat Urja Vikas Nigam Limited (GUVNL). The project thereby reduces GHG emissions by replacing electricity of the NEWNE Grid of India which predominantly uses fossil fuels.

The project activity includes Enercon windmills (800 kW, E-53) with internal electrical lines connecting the project activity with local evacuation facility. The WECs generates 3-phase electricity at 400 V, which is stepped up to 33 kV. Enercon (India) Limited is responsible for operation and maintenance activities for this project which is also the technology and equipment supplier.

First WEC under the project activity was commissioned^{/CC/} on 25/06/2010 and last WEC under the project activity was commissioned^{/CC/} on 04/07/2011. The commissioning dates^{/CC/} for all the WECs included in the project activity is given in the section B.1 of monitoring report^{/MR/}. Commissioning dates stated under section B.1 of MR were checked by the assessment team with the commissioning certificate^{/CC/} and found appropriate and consistent.

Wind energy being a carbon neutral fuel, the project reduces CO₂ emissions to the extent of equivalent net electricity generated by mostly fossil fuel based power plants connected to the NEWNE grid. In this monitoring period, this project activity exported 66,321.44¹ MWh of net electricity to the grid which leads to emission reductions of 61,182 tCO_{2e}.

The key parameters of the project are given in table below;

Table 2-1: Technical data of the project activity

Parameter	Unit	Value
No of Blades	Nos	3
Rated Power	kW	800
Hub Height	m	75
Rotor diameter	m	53
Cut in wind speed	m/s	2.5
Cut out wind Speed	m/s	28-34
Extreme Wind Speed	m/s	59.5

¹ Considering para 4(a) of Annex 60 of EB 52

Parameter	Unit	Value
Operating range rot. speed	RPM	12-29
Rated rotational speed	RPM	32
Gear Type		Gearless
Output Voltage	V	400

2.2. Project Verification History

Essential events since the registration of the project are presented in the following Table 2-2.

Table 2-2: Project verification history

#	Item	Time	Status
1	Date of Registration	2011-05-09	Registered
2	Start of crediting period	2011-06-01	-
3	1 st Monitoring period	2011-06-01 to 2012-02-29	Ongoing

2.3. Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-3).

Table 2-3: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	India	Vaayu (India) Power Corporation Private Limited
Other involved party/ies	-	-

2.4. Project Location

The details of the project location are given in Table 2-4:

Table 2-4: Project Location

No.	Project Location
Host Country	India
Region:	Gujarat
Project location address:	Chattar, Narmana, Seth Wadala, Jam Ambardi, Mevasa, Dhun Dhoraji, Sadodar, Bodi, Padavala and Machharda in Jamnagar and Rajkot district.
Latitude:	The details of individual WECs are provided below
Longitude:	The details of individual WECs are provided below

The latitude, longitude and the commissioning dates are as follows:

Location No	WEC-ID No.	Village	Latitude	Longitude
3020	EIL/800/10-11/1826	Machharda	N22° 06' 19.0"	E70° 18' 45.7"
3021	EIL/800/10-11/1827	Machharda	N22° 06' 23.5"	E70° 18' 43.7"
3022	EIL/800/10-11/1828	Machharda	N22° 06' 29.7"	E70° 18' 44.6"
3072	EIL/800/09-10/1738	Padavala	N21° 57' 19.6"	E70° 15' 05.0"
3073	EIL/800/09-10/1739	Padavala	N21° 57' 14.9"	E70° 15' 11.7"
3075	EIL/800/09-10/1740	Padavala	N21° 56' 43.1"	E70° 15' 20.6"
3076	EIL/800/09-10/1741	Padavala	N21° 55' 59.2"	E70° 15' 33.7"
3088	EIL/800/09-10/1742	Padavala	N21° 56' 19.3"	E70° 14' 38.0"
62	EIL/800/09-10/1766	Chattar	N22° 07' 40.2"	E70° 15' 10.7"
63	EIL/800/09-10/1767	Chattar	N22° 07' 46.6"	E70° 15' 00.6"
64	EIL/800/09-10/1768	Chattar	N22° 07' 53.3"	E70° 14' 57.1"
539	EIL/800/09-10/1789	Seth Wadala	N22° 04' 46.7"	E70° 05' 34.3"
540	EIL/800/09-10/1790	Seth Wadala	N22° 04' 33.3"	E70° 05' 43.1"
541	EIL/800/09-10/1791	Seth Wadala	N22° 04' 27.4"	E70° 05' 47.6"
543	EIL/800/09-10/1792	Seth Wadala	N22° 04' 17.3"	E70° 05' 53.7"
544	EIL/800/09-10/1793	Seth Wadala	N22° 04' 13.5"	E70° 06' 00.7"
545	EIL/800/09-10/1794	Seth Wadala	N22° 03' 31.5"	E70° 05' 32.6"
546	EIL/800/09-10/1795	Jam Ambardi	N22° 03' 40.2"	E70° 05' 31.0"
547	EIL/800/09-10/1796	Jam Ambardi	N22° 03' 45.3"	E70° 05' 31.9"
548	EIL/800/09-10/1797	Jam Ambardi	N22° 03' 50.7"	E70° 05' 34.2"
903	EIL/800/09-10/1747	Mevasa/ Haripar	N22° 01' 23.0"	E70° 15' 35.2"
904	EIL/800/09-10/1748	Mevasa/ Haripar	N22° 01' 30.2"	E70° 15' 41.0"
905	EIL/800/09-10/1749	Mevasa/ Haripar	N22° 01' 36.6"	E70° 15' 27.2"
906	EIL/800/09-10/1750	Mevasa/ Haripar	N22° 01' 30.7"	E70° 14' 55.0"
907	EIL/800/09-10/1751	Mevasa/ Haripar	N22° 01' 37.9"	E70° 14' 56.8"

Location No	WEC-ID No.	Village	Latitude	Longitude
908	EIL/800/09-10/1752	Mevasa/ Haripar	N22° 01' 44.8"	E70° 14' 54.1"
909	EIL/800/09-10/1753	Mevasa/ Haripar	N22° 01' 51.2"	E70° 14' 51.2"
910	EIL/800/09-10/1754	Mevasa/ Haripar	N22° 01' 57.7"	E70° 14' 55.7"
912	EIL/800/09-10/1746	Dhun Dhoraji	N22° 02' 09.1"	E70° 15' 04.4"
926	EIL/800/09-10/1769	Chattar	N22° 06' 57.6"	E70° 16' 33.0"
927	EIL/800/09-10/1770	Chattar	N22° 06' 59.3"	E70° 16' 23.3"
928	EIL/800/09-10/1771	Chattar	N22° 07' 10.0"	E70° 16' 16.5"
929	EIL/800/09-10/1772	Chattar	N22° 07' 15.9"	E70° 16' 11.3"
931	EIL/800/10-11/1870	Chattar	N22° 07' 12.7"	E70° 15' 23.5"
932	EIL/800/09-10/1773	Chattar	N22° 07' 05.5"	E70° 15' 27.2"
933	EIL/800/09-10/1774	Chattar	N22° 06' 59.3"	E70° 15' 31.5"
934	EIL/800/09-10/1775	Chattar	N22° 06' 53.9"	E70° 15' 27.9"
935	EIL/800/09-10/1776	Chattar	N22° 06' 46.0"	E70° 15' 22.7"
936	EIL/800/09-10/1777	Chattar	N22° 06' 40.3"	E70° 15' 25.7"
937	EIL/800/09-10/1778	Chattar	N22° 07' 27.2"	E70° 15' 26.6"
938	EIL/800/09-10/1779	Chattar	N22° 06' 25.7"	E70° 15' 22.1"
939	EIL/800/09-10/1760	Jamvadi	N22° 08' 07.2"	E70° 18' 57.8"
941	EIL/800/09-10/1761	Jamvadi	N22° 08' 19.5"	E70° 19' 02.3"
942	EIL/800/09-10/1762	Jamvadi	N22° 08' 08.6"	E70° 19' 30.2"
943	EIL/800/09-10/1763	Jamvadi	N22° 08' 00.9"	E70° 19' 25.4"
944	EIL/800/09-10/1764	Jamvadi	N22° 07' 53.9"	E70° 19' 26.0"
945	EIL/800/09-10/1765	Jamvadi	N22° 07' 49.5"	E70° 19' 31.4"
947	EIL/800/09-10/1755	Moti Vavdi	N22° 06' 04.0"	E70° 18' 16.9"
948	EIL/800/09-10/1756	Moti Vavdi	N22° 05' 57.0"	E70° 18' 17.8"
950	EIL/800/09-10/1757	Moti Vavdi	N22° 05' 45.7"	E70° 18' 21.5"
951	EIL/800/09-10/1758	Moti Vavdi	N22° 05' 38.3"	E70° 18' 18.4"
952	EIL/800/09-10/1759	Moti Vavdi	N22° 05' 31.6"	E70° 18' 16.9"
958	EIL/800/09-10/1743	Dhun Dhoraji	N22° 02' 32.4"	E70° 16' 42.8"



Location No	WEC-ID No.	Village	Latitude	Longitude
959	EIL/800/09-10/1744	Dhun Dhoraji	N22 [°] 02' 26.2"	E70 [°] 16' 44.6"
960	EIL/800/09-10/1745	Dhun Dhoraji	N22 [°] 02' 19.0"	E70 [°] 16' 44.4"
992	EIL/800/09-10/1782	Sadodar	N22 [°] 03' 13.6"	E70 [°] 10' 37.3"
993	EIL/800/09-10/1783	Sadodar	N22 [°] 03' 09.5"	E70 [°] 10' 40.0"
994	EIL/800/09-10/1784	Sadodar	N22 [°] 02' 59.6"	E70 [°] 10' 36.4"
995	EIL/800/09-10/1785	Sadodar	N22 [°] 02' 54.2"	E70 [°] 10' 33.5"
996	EIL/800/09-10/1786	Sadodar	N22 [°] 02' 47.4"	E70 [°] 10' 22.2"
997	EIL/800/09-10/1787	Sadodar	N22 [°] 02' 41.3"	E70 [°] 10' 32.4"
1028	EIL/800/09-10/1788	Seth Wadala	N22 [°] 03' 06.0"	E70 [°] 08' 36.9"
1045	EIL/800/09-10/1780	Bodi	N22 [°] 08' 43.4"	E70 [°] 15' 11.4"
1046	EIL/800/09-10/1781	Bodi	N22 [°] 08' 48.8"	E70 [°] 15' 08.5"

3. METHODOLOGY AND VERIFICATION SEQUENCE

3.1. Verification Steps

The verification consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the monitoring report
- A desk review of the Monitoring Report^{/MR/} submitted by the client and additional supporting documents with the use of customised verification protocol^{/CPM/} according to the Validation and Verification Manual^{/VVM/},
- Verification planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft verification reporting
- Resolution of corrective actions (if any)
- Final verification reporting
- Technical review
- Final approval of the verification.

The sequence of the verification is given in the Table 3-1 below:

Table 3-1: Verification sequence Table

Topic	Time
Assignment of verification	2012-03-15
Publication of Monitoring Report	2012-03-30
On-site visit	2012-04-20
Draft reporting finalised	2012-04-24
Final reporting finalised	2012-08-14
Technical review finalised	2012-08-14

3.2. Contract review

To assure that

- the project falls within the scopes for which accreditation is held,

- the necessary competences to carry out the verification can be provided,
- Impartiality issues are clear and in line with the CDM accreditation requirements

a contract review was carried out before the contract was signed.

3.3. Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a verification team, consisting of one team leader and 2 additional team members, was appointed.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the Table 3-2 below.

Table 3-2: Involved Personnel

	Name	Company	Function ¹⁾	Qualification Status ²⁾	Scheme competence ³⁾	Technical competence ⁴⁾	Verification competence ⁵⁾	Host country Competence	On-site visit
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Prasad Jakkaraju	TUV India Pvt. Ltd.	TL/TE	LA	<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Jimmy Sah	TUV India Pvt. Ltd.	TE/TM ^{A)}	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Sukanta Das	TUV India Pvt. Ltd.	TM ^{A)}	LA	<input checked="" type="checkbox"/>	1.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms.	Sandip Saha	TUV India Pvt. Ltd.	OT ^{B)}	T	<input type="checkbox"/>	-	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Swapnil Thanekar	TUV India Pvt. Ltd.	OR ^{B)}	LA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	-
<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms.	Stefan Winter	TN Cert	TR ^{B)/} FA ^{B)}	SA	<input checked="" type="checkbox"/>	1.2	<input checked="" type="checkbox"/>	<input type="checkbox"/>	-

¹⁾ TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval

²⁾ GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert

³⁾ GHG auditor status (at least Assessor)

⁴⁾ As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, ...)

⁵⁾ In case of verification projects

^{A)} Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE

^{B)} No team member

All team members contributed to the review of documents, the assessment of the project activity and to the preparation of this report under the leadership of the team leader.

Technical experts contributed to the assessment of special aspects of the project activity, e.g. technical or host country aspects.

In order to qualify further personnel the project team was accompanied by observers and/or trainees as indicated in the table above. They are usually not considered as team members.

Statements of competence for the above mentioned team members are enclosed in annex 6 of this report.

3.4. Publication of the Monitoring Report

In accordance with the CDM M&P (§ 62) the draft monitoring report, as received from the project participants, has been made publicly available on the dedicated UNFCCC CDM website prior to the verification activity commenced. Comments received are taken into account in the course of the verification, if applicable.

3.5. Verification Planning

In order to ensure a complete, transparent and timely execution of the verification task the team leader has planned the complete sequence of events necessary to arrive at a substantiated final verification opinion.

Various tools have been established in order to ensure an effective verification planning.

Risk analysis and detailed audit testing planning

For the identification of potential reporting risks and the necessary detailed audit testing procedures for residual risk areas table A-1 is used. The structure and content of this table is given in Table 3-3 below.

Table 3-3: Table A-1; Identification of verification risk areas

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing				
Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)

Table A-1: GHG calculation procedures and management control testing / Detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing performed	Conclusions and Areas Requiring Improvement (including Forward Action Requests)
<i>The following potential risks were identified and divided and structured according to the possible areas of occurrence.</i>	<i>The potential risks of raw data generation have been identified in the course of the monitoring system implementation. The following measures were taken in order to minimize the corresponding risks. The following measures are implemented:</i>	<i>Despite the measures implemented in order to reduce the occurrence probability the following residual risks remain and have to be addressed in the course of every verification.</i>	<i>The additional verification testing performed is described. Testing may include:</i> <ul style="list-style-type: none"> - Sample cross checking of manual transfers of data - Recalculation - Spreadsheet 'walk throughs' to check links and equations - Inspection of calibration and maintenance records for key equipment - Check sampling analysis results <i>Discussions with process engineers who have detailed knowledge of process uncertainty/error bands.</i>	<i>Having investigated the residual risks, the conclusions should be noted here. Errors and uncertainties are highlighted.</i>

The completed table A-1 is enclosed in the Annex 1 (table A-1) to this report.

Project specific periodic verification checklist

In order to ensure transparency and consideration of all relevant assessment criteria, a project specific verification protocol has been developed. The protocol shows, in a transparent manner, criteria and requirements, means and results of the verification. The verification protocol serves the following purposes:

- It organises, details and clarifies the requirements a CDM project is expected to meet for verification
- It ensures a transparent verification process where the verifying DOE documents how a particular requirement has been proved and the result of the verification.

The basic structure of this project specific verification protocol for the periodic verification is described in Table 3-4.

Table 3-4: Structure of the project specific periodic verification checklist

Table A-2: Periodic verification checklist				
Checklist Item	Reference	Verification Team Comments	Draft Conclusion	Final Conclusion
<i>The checklist items in Table A-2 are linked to the various requirements the monitoring of the project should meet. The checklist is organised in various sections as per the requirements of the topic and the individual project activity. It further includes guidance for the verification team.</i>	<i>Gives reference to the information source on which the assessment is based on.</i>	<i>The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the verification team and how the assessment was carried out. The reporting requirements of the VVM shall be covered in this section.</i>	<i>Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft verification stage.</i>	<i>In case of a corrective action or a clarification the final assessment at the final verification stage is given.</i>

The periodic verification checklist (verification protocol) is the backbone of the complete verification starting from the desk review until final assessment. Detailed assessments and findings are discussed within this checklist and not necessarily repeated in the main text of this report.

The completed verification protocol is enclosed in the annex (table A-2) to this report.

3.6. Desk review

During the desk review all documents initially provided by the client and publicly available documents relevant for the verification were reviewed. The main documents are listed below:

- the last revision of the PDD including the monitoring plan^{/PDD/},
- the last revision of the validation report^{/VAL/},
- /
- the monitoring report, including the claimed emission reductions for the project^{/MR/},
- the emission reduction calculation spreadsheet^{/XLS/}.

Other supporting documents, such as publicly available information on the UNFCCC website and background information were also reviewed.

3.7. On-site assessment

As most essential part of the verification exercise it is indispensable to carry out an inspection on site in order to verify that the project is implemented in accordance with the applicable criteria. Furthermore the on-site assessment is necessary to check the monitoring data with respect to accuracy to ensure the calculation of emission reductions. The main tasks covered during the site visit include, but are not limited to:

- The on-site assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating and reporting the selected monitored parameters were reviewed.
- The duly calibration of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.
- The data aggregation trails were checked via spot sample down to the level of the meter recordings.

Before and during the on-site visit the verification team performed interviews with the project participants to confirm selected information and to resolve issues identified in the document review.

Representatives of Vaayu (India) Power Corporation Private Limited including the operational staff of the plant were interviewed. The main topics of the interviews are summarised in Table 3-5.

Table 3-5: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
1. Projects & Operations Personnel, Vaayu (India) Power Corporation Private Limited; India; 2. Operations Personnel- Enercon (India) limited Details of the persons interviewed is provided under table 7.4	<ul style="list-style-type: none"> - General aspects of the project - Technical equipment and operation - Changes since validation / previous verification - Monitoring and measurement equipment - Remaining issues from validation/ previous verification - Calibration procedures - Quality management system - Involved personnel and responsibilities - Training and practice of the operational personnel - Implementation of the monitoring plan - Monitoring data management - Data uncertainty and residual risks - GHG emission reduction calculation - Procedural aspects of the verification - Maintenance - Environmental aspects

3.8. Draft verification reporting

On the basis of the desk review, the on-site visit, follow-up interviews and further background investigation the verification protocol is completed. This protocol together with a general project and procedural description of the verification and a detailed list of the verification findings forms the draft verification report. This report is sent to the client for resolution of raised CARs, CLs and FARs.

3.9. Resolution of CARs, CLs and FARs

Nonconformities raised during the verification can either be seen as a non-fulfilment of criteria ensuring the proper implementation of a project or where a risk to deliver high quality emission reductions is identified.

Corrective Action Requests (CARs) are issued, if:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions which will impair the estimate of emission reductions;
- Issues identified in a FAR during validation or previous verifications requiring actions by the project participants to be verified during verification have not been resolved.

The verification team uses the term Clarification Request (CL), which is issued if:

- information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Forward Action Requests (FAR) indicate essential risks for further periodic verifications. Forward Action Requests are issued, if:

- the monitoring and reporting require attention and / or adjustment for the next verification period.

For a detailed list of all CARs, CLs and FARs raised in the course of the verification pl. refer to chapter 4.

3.10. Final reporting

Upon successful closure of all raised CARs and CLs the final verification report including a positive verification opinion can be issued. In case not all essential issues could finally be resolved, a final report including a negative verification opinion is issued.

The final report summarizes the final assessments w.r.t. all applicable criteria.

3.11. Technical review

Before submission of the final verification report a technical review of the whole verification procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the verification team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the verification opinion and the topic specific assessments as prepared by the verification team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.12. Final approval

After successful technical review an overall (esp. procedural) assessment of the complete verification will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

After this step the request for issuance can be started.

4. VERIFICATION FINDINGS

In the following paragraphs the findings from the desk review of the monitoring report^{/MR/}, the calculation spreadsheet^{/XLS/}, PDD^{/PDD/}, the Validation Report^{/VAL/} and other supporting documents, as well as from the on-site assessment and the interviews are summarised.

The summary of CAR, CL and FAR issued are shown in Table 4-1:

Table 4-1: Summary of CAR, CL and FAR

Verification topic	No. of CAR	No. of CL	No. of FAR
A – General description of the project activity	02	0	0
B – Implementation of the project activity	02	0	0
C – Description of the monitoring system	01	0	0
D – Data and parameters monitored	01	01	0
E - Emission Reductions Calculation	02	0	0
SUM	08	01	0

The following tables include all raised CARs, CLs and FARs and the assessments of the same by the verification team. For an in depth evaluation of all verification items it should be referred to the verification protocols (see Annex).

Table 4-2: MR versions used for assessments

Version Nr.	Assessment Round
MR v. 1 (Published) dated 21/03/2012	Findings Raised dated 23/04/2012
MR v. 2 (Final)	DOE Assessment #1

The findings of verification process are summarized in the tables below.

General Description	CAR A1		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During assessment of the monitoring report, verification team found that monitoring report template is not in line with EB 54 annex 34. Further, section A.4 of the MR is not appropriately filled in line with the requirements of EB 54 annex 34. Furthermore, commissioning dates of the WEGs are repeated in section A.3 and section B.1 and representation of dates are not appropriate. Corrections are sought in this regard.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The monitoring template has been revised as per guideline mentioned annex 34, EB 54. Further, section A.4 of the MR revised with the EB 54 annex 34 and commissioning dates of the WEGs are removed from section A.3 for simplicity and representation of dates has been revised in section B.1		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Verification team assessed the revised monitoring report ver 2 and found that same has been revised in line with annex 34, EB 54. Further, a detailed technical process, including schematic diagram is also incorporated in the section A.4 of the revised MR ver 2 and appropriate action has been taken in section A.3. CAR is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

General Description	CAR A2		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Project participant name mentioned in the section A.2 of the MR is not consistent with A.3 and the registered PDD. Correction is sought in this regard.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	PP name has been made consistent through out the MR. In addition the PP has identified that it has mentioned redundant date i.e. 12 th July 2011 under section A.1 of MR which is typo error and thus removed the same from the section A.1 of MR.		

General Description	CAR A2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Verification team assessed the revised monitoring report ver 2 and found that project participants name has been consistently revised. Same has been checked with the registered PDD and found correct.</p> <p>In addition the removal of redundant date (which was not corresponding to commissioning date of any WTG under the project activity) has been appropriately removed. The verification team confirms the removal as appropriate after review of registered PDD and commissioning certificates of the WTGs.</p> <p>CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Implementation of the Project Activity	CAR B1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>Section B.1 of the MR is deficient with respect to description of events or situations which may impact applicability of methodology during applied monitoring period (reference: EB 54 annex 34).</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>In the project site there is a schedule for routine maintenance for all the WECs. There are four types of schedule maintenance at the project site and machine has to stop for defined time period for maintenance activity. Schedule of the maintenance as follows:</p> <ol style="list-style-type: none"> 1) Visual maintenance : average 3 to 4 hr stop of WEC 2) Grease maintenance : average 3 to 4 hr stop of WEC 3) Electrical maintenance: average 16 to 20 hr stop of WEC 4) Mechanical maintenance: average 16 to 20 hr stop of WEC <p>Other than above mentioned maintenance activities, WEC were generated electricity continuously without any technical fault. Hence no break down considered during the monitoring period. The PP also confirms that there are no events or situations which may affect applicability of methodology during applied monitoring period.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE</i>	<p>PP has revised section B.1 of monitoring report and incorporated the detailed maintenance schedule of this project activity. Further, during site visit discussion with the PP and review of maintenance records, same was verified. Hence, assessment team conclude that during the monitoring period no such incident occurred which may impact the applicability of the methodology. The section B.1 of monitoring report is thus appropriately filled inline with requirements</p>

Implementation of the Project Activity	CAR B1
<i>assessments (#2, #3, etc.) shall be added.</i>	of EB 54 annex 34. Hence, CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Implementation of the Project Activity	CAR B2
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During the validation, FAR has been raised regarding the land clearance provided by Ministry of Environment and Forest for the project activity has been provided in the name of Vish Wind Infrastructure Limited.. In response to the clarification, project proponent submitted an undertaking issued by Vish Wind Infrastructure Limited to Ministry of Environment and Forest (DNA of India), that all the formalities to ensure transfer of lease pertaining to "Vaayu India power project in Gujarat" in favor of VIPCPL will be completed as per prevailing norms. Therefore PP is requested to submit the same lease document.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	During the validation of the project activity, the land lease for the project activity was in the name of Vish Wind Infrastructure LLP. The application regarding request for transfer of land lease pertaining to "Vaayu India power project in Gujarat" project in favor of Vaayu (India) Power Corporation Private Limited to Forest & Environment Department, Govt of India has been submitted on 7th July 2011. The same explanation has also been incorporated in the MR under B.1 section. The application copy has been submitted to the DOE for ready reference.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Considering the FAR raised during the validation of this project activity, verification team assessed the land lease application document submitted to Forest and Environment Dept, Govt of Gujarat and found that this letter was submitted seeking the permission for the transfer of lease of forest land for the construction of this wind project. Same was submitted to the Forest and Environment Dept, Govt of Gujarat on 07/07/2011. The delay occurred in the transfer process is only due to the procedural delay from the govt. side. Hence, assessment team concludes that PP has implemented the project activity in line with the implementation plan and took appropriate action in line with the Forward Action Request. Thus CAR is closed.

Implementation of the Project Activity	CAR B2
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Description of the Monitoring System	CAR C1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Emergency procedures of the monitoring system are missing in section C of the MR and thus not in line with the EB 54 annex 34. Appropriate correction is sought.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Emergency procedure has been incorporated under section C of the MR as per EB 54 annex 34.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Verification team assessed the revised monitoring report ver 2 and found that emergency procedure of this project activity has been incorporated and hence complying with annex 34, EB 54. The verification team also noted that there were no instances of application of emergency procedures during the applied monitoring period. CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Description of the Monitoring System	CAR C2
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During assessment, verification team observed that, PP has considered 0.5% error in net quantity of electricity exported to the grid in line with para 4a of Annex 60 of EB 52. But calibration certificate mentioned that accuracy class of the energy meter is 0.2%. Correction is sought.
Corrective Action #1 <i>This section shall be filled</i>	ER calculation has been revised accordingly. As mentioned earlier, PP is only receiving the share certificate of the electricity which only

Description of the Monitoring System	CAR C2
<p><i>by the PP. It shall address the corrective action taken in details.</i></p>	<p>mentioned the net export of electricity by the project activity. Further, as per the Appendix-1 of the Annex-60 of EB 52, error due to delay in energy meter calibration needs to be estimated considering the value monitored by the energy meter. But in this case, net electricity exported by the project activity is a calculated value and directly sourced from Share certificate issued by GETCO. Thus, PP made a conservation estimation to calculate the net export of electricity by the project activity.</p>
<p>DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i></p>	<p>The verification team has undertaken the assessment considering the following practical scenarios which are encountered at the site by the PP:</p> <ol style="list-style-type: none"> 1. The PP is in receipt of only the Share certificate issued by GETCO which provides the value of net electricity exported by the project activity to the grid. 2. The Share certificate issued by GETCO calculates the net electricity exported to the grid by the project activity by considering the energy meter readings located at Sadodar sub-station. 3. The joint meter reading captures the electricity imported and exported by the main meter at Sadodar sub-station <p><u>Assessment method followed by Verification Team:</u></p> <p>Appropriate application of EB 52, Annex 60 para 4a guidance</p> <ol style="list-style-type: none"> 1. Verification team assessed the revised ER sheet "JMR Reading" and found that error factor (1+0.2%) and (1-0.2%) has been appropriately applied on imported and exported electricity respectively monitored by the main energy meter located at Sadodar sub-station. <p>Reflection of EB 52, Annex 60 para 4a guidance on parameter "Net Quantity of Electricity exported to the grid"</p> <ol style="list-style-type: none"> 2. The verification team has noted that the application of the discount factor (in line with EB 52 Annex 60, para 4a) to the main energy meter needs to be eventually reflected in calculation of net electricity exported to grid by the project activity. The verification team noted that the PP has calculated the <ol style="list-style-type: none"> a. Net electricity registered by the main meter at Sadodar sub-station and b. Calculated corresponding value of net electricity exported at sub-station after application of EB 52, Annex 60. c. The arithmetic effect of EB 52, Annex 60 is applied to the parameter "Net Quantity of Electricity exported to the grid" by applying ratio {ratio = (net electricity calculated at Sadodar sub-station after application of EB 52, Annex 60) / (net electricity calculated at Sadodar sub-station as per monthly joint meter reading)}.

Description of the Monitoring System	CAR C2							
	Cross verification of appropriateness of applied approach:							
	Though the applied approach is arithmetically acceptable it is tested with the data available on the UNFCCC website. The verification team has selected the UNFCCC issued project activity with reference number 1009 and replicated the logic of PP only by considering the import and export electricity readings of substation meter (which encountered delayed calibration) and final value of net electricity exported by project activity to grid (based on JMR issued by SEB) and found below results ² :							
	Month	Substation (Readings taken at Common bulk meter)				Readings and calculations related to project activity		
	Source of data	Import, kWh	Export, kWh	Net electricity exported based on sub-station meter reading, kWh	Net electricity exported based on sub-station meter reading, kWh based on EB 52 annex 60 para 4a	Net electricity supplied to the western region electricity grid, kWh	Accounting the EB 52, Annex 60 guidance based on PP's Logic	Results of Application of EB 52 Annex 60
		Joint Meter Reading Report	Joint Meter Reading Report	Calculated	Calculated	Calculated	Calculated	Taken from the worksheet (without function of rounding decimals)
	June	6261280	3120	6258160	6245631	298540	297942	297942
	July	7106080	3040	7103040	7088822	345470	344778	344778
The verification team confirms that this approach leads to fulfilment of the EB 52, Annex 60 4 (a) guidance (further assessment has been incorporated in the section 5.6 of this report). The CAR C2 has been Closed.								
Conclusion Tick the appropriate checkbox	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken							

² <http://cdm.unfccc.int/Projects/DB/RWTUV1174400034.93/iProcess/RWTUV1294657556.27/view>, worksheet "K248"

Description of the Monitoring System	CAR C2
	<input checked="" type="checkbox"/> The project complies with the requirements

Data and Parameters Monitored	CAR D1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During assessment of the emission reduction spread sheet, assessment team found that net generation of electricity from the project activity for the month of Feb-12 is not matching with the invoice value. PP is requested to take necessary action in this regard.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	ER sheet has been corrected accordingly.
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Verification team observed that PP has correctly incorporated the net export of electricity for the month of Feb-12 (i.e. 747,540 kWh, 393,968 kWh and 7,911,983 kWh for 4 MW, 2.4 MW and 44.8 MW respectively) in the ER sheet and MR ver2. Same has been checked from the monthly electricity share certificate and invoice. Hence, CAR is closed.
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Data and Parameters Monitored	CL D2
Classification	<input type="checkbox"/> CAR <input checked="" type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Clarification is requested as two monitoring parameters viz., <i>Net Electricity export recorded at Enercon Substation</i> and <i>Net Electricity import recorded at Enercon Substation</i> are mentioned in monitoring report but no corresponding values are mentioned in the MR.
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	Values of Net Electricity export recorded at Enercon Substation and Net Electricity import recorded at Enercon Substation have been incorporated in the revised MR and the ER sheet.

Data and Parameters Monitored	CL D2
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Verification team assessed the JMRs and found that the values of monitored parameters are correctly reported under section D.2 of monitoring report</p> <p>CL D2 has been CLOSED.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Emission Reductions Calculation	CAR E1
Classification	<input checked="" type="checkbox"/> CAR <input type="checkbox"/> CL <input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>During assessment of the monitoring report, verification team observed that detailed baseline emission, project emission and emission reduction calculation are not mentioned in the section E (E.1, E.2 and E.4) of the MR.</p> <p>Moreover, the Comparison of actual ER achieved and estimated ER achieved is not correct.</p> <p>Correction is sought.</p>
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	<p>Detailed baseline emission, project emission and emission reduction calculation has been incorporated in the MR. The comparison of ER is now modified.</p>
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	<p>Verification team assessed the revised MR ver 2 and found that detailed emission reduction calculations have been appropriately incorporated in section E the MR. Moreover, the comparisons now forms the part of revision considering number of days of verification.</p> <p>CAR is closed.</p>
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements

Emission Reductions Calculation	CAR E2		
Classification	<input checked="" type="checkbox"/> CAR	<input type="checkbox"/> CL	<input type="checkbox"/> FAR
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	During assessment of the emission reduction spread sheet, following inconsistencies are observed in the "CER calculation" worksheet: a) Duration of the monitoring period of the is not correct b) Value of net generation is not correct c) All the unit mentioned in the sheet are not correct Corrections are sought.		
Corrective Action #1 <i>This section shall be filled by the PP. It shall address the corrective action taken in details.</i>	The following correction has been incorporated in the MR. a) Monitoring period has been made consistent in the MR b) Generation data has been corrected c) Unit mentioned in the sheet has been corrected		
DOE Assessment #1 <i>The assessment shall encompass all open issues in annex A-2. In case of non-closure, additional corrective action and DOE assessments (#2, #3, etc.) shall be added.</i>	Verification team assessed the revised emission reduction sheet and found that duration of the monitoring period has been revised as per the monitoring report. Further, net generation and all the units mentioned are revised correctly. Same has been checked from the monitoring report and share certificate respectively. Hence, CAR is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	<input type="checkbox"/> To be checked during the next periodic verification <input checked="" type="checkbox"/> Appropriate action was taken <input checked="" type="checkbox"/> Project documentation was corrected correspondingly <input type="checkbox"/> Additional action should be taken <input checked="" type="checkbox"/> The project complies with the requirements		

5. SUMMARY OF VERIFICATION ASSESSMENTS

5.1. Implementation of the project

During the verification, a site visit was carried out. On the basis of this site visit and the reviewed project documentation it can be confirmed that w.r.t. the realized technology, the project equipments, as well as the monitoring and metering equipment, the project has been implemented and operated as described in the registered PDD. There are no changes in the equipment since the registration of the project. The project uses wind energy for electricity generation. Also no change is envisaged. These facts have been verified during site visit. Further, during assessment, verification team found that the information regarding the actual operation of the project activity during this monitoring period, including information on special events, for example overhaul times, downtimes of equipment, exchange of equipment, etc are not mentioned in the webhosted MR. Hence, CAR B1 has been raised. Replying to this CAR, PP incorporated the description of the schedule maintenance of the project activity which leads to closure of the CAR.

All necessary monitoring instruments are installed in this project activity. The measuring devices are well known and state of the art. All required instruments and operating procedures for the same have been implemented in an appropriate manner. For the metering purpose, there are four sealed energy meters installed at the Enercon substation. The meter reading is recorded once in every month. As per the registered PDD, the apportioning procedure for the project activity is done by GEDA (Gujarat Energy Development Agency) based on the meters that are connected to the cluster meter of all the project owners (including project activity) and energy meter reading located at Enercon substation.

Gujarat Electricity Development Authority apportions the net electricity supplied to the grid at the Sadodar substation to all the project owners. The net electricity generated by the project owners is provided by GETCO in the form of share certificate of electricity generated. The value of the net electricity generated by the project activity is taken directly from the share certificate provided by GETCO for calculation of emission reductions and net electricity exported and imported at Enercon Substation is used for calculation of transmission loss by GEDA and is not directly used for calculation of emission reductions.

Calibration reports^{/CAL/} of the all the energy meters covering the reported monitoring period were verified for their frequency and traceability to industry standards. Calibration records of all installed meter were checked and found correct.

5.2. Project history

The project activity involves installation and operation of a 51.2 (64 × 0.80) MW wind power project located at villages Chattar, Narmana, Seth Wadala, Jam Ambardi, Mevasa, Dhun Dhoraji, Sadodar, Bodi, Padavala and Machharda in Jamnagar and Rajkot Districts of Gujarat state in India. The electricity generated is being sold to the NEWNE grid.

During validation, assessment team observed that the land clearance issued by Ministry of Environment and Forest for the project activity has been provided in the name of Vish Wind Infrastructure Limited. Hence, validation team seek a clarification in this regard. Responding

to this clarification, project proponent submitted an undertaking issued by Vish Wind Infrastructure Limited to Ministry of Environment and Forest (DNA of India) mentioning that all the formalities to ensure transfer of land lease pertaining to “Vaayu India power project in Gujarat” in favour of VIPCPL will be completed as per prevailing norms. Hence, validation team raised one FAR during registration of the project activity. In this regard, during verification, verification team raised CAR B2. Responding to this CAR, PP has submitted copy of land lease application letter^{/LAND/} dated 7th July 2011 submitted to Forest & Environment Department, Govt pertaining to “Vaayu India power project in Gujarat” project in favour of Vaayu (India) Power Corporation Private Limited. The same explanation has also been incorporated in the MR under B.1 section. Thus assessment team concludes that PP has taken necessary action in regard to the raised FAR and also confirmed that the implemented the project activity is in line with the implementation plan which leads to closure of the CAR.

5.3. Special events

No special events with effect on the monitoring of the project have been observed during the monitoring period. However regular maintenance and operational shut downs were observed for the WTGs in the project activity.

5.4. Compliance with the monitoring plan

The monitoring system and all applied procedures are in compliance with the registered monitoring plan. Same has been checked during the verification site, interview with the plant personal and stakeholders and document review.

5.5. Compliance with the monitoring methodology

The monitoring system is in compliance with the applied monitoring methodology ‘Consolidated baseline methodology for grid-connected electricity generation from renewable sources (ACM0002) Version 11.

5.6. Monitoring parameters

The project activity includes Enercon windmills (800 kW, E-53) with internal electrical lines connecting the project activity with local evacuation facility. The WECs generates 3-phase electricity at 400 V, which is stepped up to 33 kV. Enercon (India) Limited is responsible for operation and maintenance activities for this project which is also the technology and equipment supplier. According to the ACM0002, ver 11, quantity of net electricity generation supplied by the project activity to the grid in year y is monitored.

The project activity constitute of various clusters and each cluster has an exclusive metering arrangement and the meter readings taken at these metering points have been provided by the representatives of Enercon to GEDA. Further, the Project is connected to Sadodar substation at Jamnagar District in Gujarat. The main meters (also known as revenue meter) are located at this substation. According to the number of feeder, there are four main parallel meters which are responsible to monitor the electricity exported to the grid which is generated by this project activity as well as WECs installed by other project owners. The

meter reading is being taken jointly by the representatives of Enercon and GEDA/GETCO in the form of Joint Meter Reading (JMR). The electricity from Enercon's substation has been finally stepped up and supplied to the utility's substation at Moti Paneli.

Considering the electricity monitored by these main meters, Gujarat Electricity Development Authority (GEDA) apportions the net electricity supplied to the grid for each of the project activity after adjusting transmission losses to the meter readings taken at dedicated cluster meters of different project owners. Considering the data provided by the Enercon, GETCO made the apportioning activity and provides the net electricity generated by the specific project owners in the share certificate^{/GETCO/} of electricity generated. Same data are directly used to generate the invoice^{/INV/} of net electricity supplied by the PP. The apportioning procedure is in line with the monitoring procedure mentioned in the registered monitoring plan. Therefore, the value of the net electricity generated by the project activity has been taken directly from the share certificate provided by GETCO for emission reductions calculation. All the metering equipments are under custody of GETCO and they duly inspected & calibrated^{/CAL/} by state utility once in a year. Calibration and meter details for the main meters are as listed below:-

Meter Serial No	Make	Accuracy Class	Frequency of Calibration	Calibration Dates		
				Previous Calibration 2010	Present Calibration 2012	Calibration Due on
GJB01470	Secure	0.2	Annual	22/01/2010	17/01/2012	16/01/2013
GJU04175	Secure	0.2	Annual	22/01/2010	17/01/2012	16/01/2013
GJU04176	Secure	0.2	Annual	22/01/2010	17/01/2012	16/01/2013
KAB11082	Secure	0.2	Annual	29/05/2010	17/01/2012	16/01/2013

All necessary monitoring instruments operating procedures for the project have been implemented in an appropriate manner. In this project, energy meters with 0.2% accuracy have been installed for monitoring of the electricity export and import. However during the review of calibration certificates^{/CAL/}, delay in calibration was observed from June-11 to January-12. Thus in line with the guidance para 4(a) of EB 52 annex 60; 0.2% of electricity has been deducted from the net exported electricity to arrive to a conservative value of net electricity exported to the grid during the delayed period.

Further, as mentioned earlier, PP is **only receiving the share certificate of the electricity which only mentioned the net export of electricity by the project activity**. Actual export and import are not mentioned in the share certificate. Further, as per the Appendix-1 of the Annex-60 of EB 52, error due to delay in calibration of energy meter needs to be calculated on the value monitored by the same energy meter. But in this project, GETCO calculates the net electricity exported by the project activity and PP directly used this value for invoicing as well as baseline emission reduction purpose. Thus to comply Appendix-1 of the Annex-60 of EB 52, PP calculated the net export of electricity by the project activity considering the below approach.

Step: 1		
Estimation of Ratio Between Net Export of Electricity considering Annex 60 of EB 52 and Actual Net Export of Electricity measured by the main meter at Sadodar substation		
Total Export from June-11 to January-12 for the Feeder	A	MWh

Total Import from June-11 to January-12 for the Feeder	B	MWh
Net Export from June-11 to January-12 for the Feeder	$C=A-B$	MWh
Total Export for the Feeder from June-11 to January-12 para 4(a) considering EB 60 Annex 52	$D=A*(1-0.2\%)$	MWh
Total Import from for the Feeder June-11 to January-14 para 4(a) considering EB 60 Annex 52	$E=B*(1+0.2\%)$	MWh
Net Export for the Feeder from June-11 to January-12 para 4(a) considering EB 60 Annex 52	$F=D-E$	MWh
Ratio Between Net Export of Electricity considering Annex 60 of EB 52 and actual Net Export of Electricity	F/C	
Step:2		
Net electricity of the project activity from Share certificate issued by GETCO	Z	MWh
Net electricity of the project activity from June-11 to January-12 considering para 4(a) EB 60 Annex 52	$Z*F/C$	MWh

$Z*F/C$ has been used to estimate the baseline emission calculation conservatively and the results are mentioned below:

Step: 1		
Estimation of Ratio Between Net Export of Electricity considering Annex 60 of EB 52 and Actual Net Export of Electricity measured by the main meter at Sadodar substation		
Total Export from June-11 to January-12 (A)	484,281.0	MWh
Total Import from June-11 to January-12 (B)	157.00	MWh
Net Export from June-11 to January-12 ($C=A-B$)	484,124.00	MWh
Total Export from June-11 to January-12 considering para 4(a) EB 60 Annex 52 ($D=A*(1-0.2\%)$)	483,312.4	MWh
Total Import from June-11 to January-14 considering para 4(a) EB 60 Annex 52 ($E=B*(1+0.2\%)$)	157.3	MWh
Net Export from June-11 to January-12 para 4(a) considering EB 60 Annex 52 ($F=D-E$)	483,155.12	MWh
Ratio Between Net Export of Electricity considering Annex 60 of EB 52 and Actual Net Export of Electricity (F/C)	0.997999	

Step:2:

In line with the approach 0.997999 has been multiplied with the net electricity export value (from June-11 to January-12) to get the conservative figure. Further, monthwise calculated value has been compared with the Net Quantity of Electricity exported to the grid (as per share certificate) and the Net Quantity of Electricity exported to the grid (Applying para 4(a) of Annex-60 of EB 52 in net export of electricity) and the results are mentioned below:

Months	Net Quantity of Electricity exported to the grid as per share certificate (MWh)	Net Quantity of Electricity exported to the grid (Applying para 4(a) of Annex-60 of EB 52 in net export of electricity)	Net Quantity of Electricity exported to the grid (As calculated by PP) (MWh)
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		(MWh)	
Jun-11	9,864.62	9,844.89	9,844.87
Jul-11	8,586.82	8,569.64	8,569.63
Aug-11	8,359.93	8,343.21	8,343.20
Sep-11	4,437.00	4,428.13	4,428.12
Oct-11	4,361.32	4,352.60	4,352.60
Nov-11	4,874.25	4,864.51	4,864.50
Dec-11	8,682.50	8,665.14	8,665.12
Jan-12	8,216.34	8,199.91	8,199.90
Feb-12	9,053.49	9,053.49	9,053.49
Total	66,436.28	66,321.51	66,321.44

Therefore, PP has considered the 66,321.44 MWh to estimate the baseline estimation.

Further, assessment team made an independent assessment to cross check the acceptability of applied approach with the data available on the UNFCCC website. The verification team has selected the UNFCCC issued project activity (Ref No. 1009) and replicated the PP's approach only by considering the import and export electricity readings of substation meter (which encountered delayed calibration) and final value of net electricity exported by project activity to grid (based on JMR issued by state electricity board) and found below results³:

Step:1			
Estimation of Ratio Between Net Export of Electricity considering Annex 60 of EB 52 and Actual Net Export of Electricity measured by the main meter			
Total Export in the month of June-2010 (As per JMR data) (A)	6,261,280	kWh	
Total Import in the month of June-2010 (As per JMR data) (B)	3,120	kWh	
Net Export in the month of June-2010 (C=A-B)	6,258,160	kWh	
Total Export in the month of June-2010 considering para 4(a) EB 60 Annex 52 (D=A*(1-0.2%))	6,248,757	kWh	
Total Import in the month of June-2010 considering para 4(a) EB 60 Annex 52 (E=B*(1+0.2%))	3,126	kWh	
Net Export in the month of June-2010 para 4(a) considering EB 60 Annex 52 (F=D-E)	6,245,631	kWh	
Ratio Between Net Export of Electricity considering Annex 60 of EB 52 and Actual Net Export of Electricity (F/C)	0.997998		

Therefore, 0.997998 has been applied on the WTG wise electricity export and import data and same was cross checked with actual data mentioned in the JMR.

Step:2:

Export in the month of June-2010 (As per JMR data) (A)	298,688.00	kWh
Import in the month of June-2010 (As per JMR data) (B)	149.00	kWh
Net Export in the month of June-2010 (C=A-B)	298,539.00	kWh

³ <http://cdm.unfccc.int/Projects/DB/RWTUV1174400034.93/iProcess/RWTUV1294657556.27/view>, worksheet "K248"

Applying the ratio (0.997998) on the Net Export in the month of June-2010 (C* 0.997998)	297,941.33	kWh
Export in the month of June-2010 considering para 4(a) EB 60 Annex 52 ($D=A*(1-0.2\%)$)	298,090.62	kWh
Import in the month of June-2010 considering para 4(a) EB 60 Annex 52 ($E=B*(1+0.2\%)$)	149.30	kWh
Net Export in the month of June-2010 para 4(a) considering EB 60 Annex 52 ($F=D-E$)	297,941.33	kWh
Difference between actual value and the calculated value	0	kWh

Therefore, above assessment shows that the calculation procedure adopted by the PP is correct and, hence, same is acceptable to the assessment team.

The monitoring report^{/MR/} provides all the parameters that need to be monitored which are in line with the monitoring plan provided in the registered PDD. Appropriateness of these parameters was evaluated during the validation process. According to the registered monitoring plan, following parameters are monitored during the last periodic verification period:

1. Net Quantity of Electricity exported to the grid ($EG_{PJ,y}$) in MWh
2. Net Electricity export recorded at Enercon Substation ($EG_{GETCO, Export}$) in MWh
3. Net Electricity import recorded at Enercon Substation ($EG_{GETCO, Import}$) in MWh

$EG_{GETCO, Export}$ and $EG_{GETCO, Import}$ are only used for calculation of transmission loss by GEDA and is not directly used for calculation of emission reductions and Net Quantity of Electricity exported to the grid is directly sourced from the electricity share certificate. As the project WECs are under the supervision of the O&M service provider (Enercon) and under single cluster meter other WECs are also connected which are not included under this project activity. Therefore, individual WEC controller reading, cluster meter reading and Joint Meter Reading are provided by the O&M service provider to GETCO to conduct the apportioning estimation. The net electricity supplied to the grid by the wind farm is calculated by GEDA after adjusting transmission loss. Joint Meter Reading at the main meter is only used for calculation of transmission loss by and is not directly used for calculation of emission reductions. For adjustment of transmission loss, the electricity metered at the main meter is proportionally divided by GEDA among the customers connected to the same main meter. This is based on the pro rata readings taken at the cluster metering point. The net electricity generated by the project activity is taken directly from the share certificate issued by GETCO on monthly basis. Same certificates are available on the website (http://www.sldcgui.com/energyaccount/energy_block.asp) and PP generated the invoices^{/INV/} based on these certificates. These data are the basis of emission reduction calculation^{/XLS/}.

During the assessment, verification team observed that $EG_{GETCO, Export}$ and $EG_{GETCO, Import}$ are mentioned in the registered PDD but PP has not mentioned the values of the same in the monitoring report. Hence CL D2 has been raised. Subsequently, PP has incorporated these data in the revised MR and also added that as per the registered PDD, the apportioning calculation for the project activity is done by GEDA on the basis of GETCO main meter reading and the meter readings taken at individual cluster meters after adjusting transmission loss. Gujarat Electricity Development Authority apportions the net electricity supplied to the

grid connected to the Enercon substation for all the project owners after adjusting transmission loss. The net electricity generated by the project owners is provided by GETCO in the form of share certificate of electricity generated. Therefore, the value of the net electricity generated by the project activity has been taken directly from the share certificate provided by GETCO for calculation of emission reductions which is in line with registered PDD.

Furthermore, assessment team conducted a independent background investigation considering the registered project in the same location (project ref number 2400 and 3854) and found that these projects are also following the same procedure to use net electricity (no apportioning and use of share certificate by GEDA) for ER purpose which also proves that the procedure adopted by PP is correct. Thus CL was closed.

During this monitoring period the project activity has exported 66,321.44⁴ MWh of net electricity to the NEWNE grid. This was verified by the verification team during the on site visit by checking the electricity share certificates and electricity sales invoice^{INV/} which is issued by state utility and most authentic and reliable document for this project activity. The JMR is a monthly activity and this reading is used for calculation of transmission loss by GEDA and is not directly used for calculation of emission reductions. Same is in line with the registered monitoring plan.

The value of Grid Emission Factor of NEWNE grid ($EF_{Grid,CM,y}$) has been opted as ex-ante as per registered PDD. For this project, PP used 0.92252 tCO₂/MWh as emission factor for NEWNE grid of India which is the Combined Margin Emission Factor as per the CEA database (version 5) and same is used for emission reduction calculation^{XLS/}.

During the verification all relevant monitoring parameters (as listed in section B.7.1 of registered PDD) have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The results as well as the verification procedure are described parameter-wise in the monitoring report.

5.7. Monitoring report

A draft monitoring report^{MR/} was submitted to the verification team by the project participants. The team has made this report publicly available prior to the start of the verification activities. During this tenure no comments were received.

During the assessment, verification team observed that monitoring report template is not in line with EB 54 annex 34 and Project participant name mentioned in the section A.2 of the MR is not consistent with A.8 and the registered PDD. Hence, CAR A1 and CAR A2 have been raised. Replying to these CARs, PP revised the monitoring report^{MR/} which leads to closure of the CARs.

Further, during assessment it was also observed that section B.1 of the MR is not in line with the EB 54 annex 34. Hence, CAR B1 has been raised. Replying to this CAR, PP

⁴ Considering the error for delayed calibration according to para 4 (a) of EB 52, Annex 60 (Guidelines for assessing compliance with the calibration frequency requirements)

incorporated the description of the schedule maintenance of the project activity which leads to closure of the CAR.

Further, during assessment, verification team observed that emergency procedures of the monitoring system are absent in section C of the MR. Hence, CAR C1 has been raised. Subsequently, replying to these CARs, PP has carried out the requested corrections which confirmed that the Monitoring report^{/MR/} is complete, transparent and in accordance with the registered PDD and other relevant requirements. Hence, CAR C1 has satisfactory closed.

5.8. ER Calculation

The calculation of emission reductions is estimated as the difference of baseline emissions and the sum of project emissions and leakage. As there is no usage of fossil fuel during the project execution and the import of electricity are accounted to calculate the net electricity exported to the grid, project emissions from this project is considered as zero. Further, as per applied methodology, leakage is considered as zero. Thus for the project activity the emission reductions equals to the baseline emissions. The baseline emissions are calculates as the product of net electricity supplied to the grid and the ex-ante fixed emission factor of NEWNE grid.

During the verification site visit and subsequent document review it was observed that the electricity export is being monitored by the four main energy meters. However, the calibration of the main energy meters was delayed by 12 months. Out of this duration, 8 months (from June-2011 to January-12) belongs to this monitoring period. Further, during assessment, verification team observed that PP has wrongly considered the accuracy class of the energy meters which leads to erroneous emission reduction. Hence CAR C2 has been raised in this regard. Subsequently, PP revised the emission reduction sheet^{/XLS/} which leads to closure of the CAR.

Further, assessment team observed that, in the delayed calibration report^{/CAL/} measured accuracy of the meters were within the acceptable range. Hence, considering para 4(a) of Annex 60 of EB 52, PP considered the maximum permissible error of the instrument (0.2%). Besides this delay in calibration, verification team confirms that all other data are considered appropriately for the emission reduction calculation^{/XLS/}.

Further, during assessment of the monitoring report, verification team observed that detailed baseline emission, project emission and emission reduction calculation^{/XLS/} are not mentioned in the section E (E.1, E.2 and E.4) of the MR. Hence, assessment team raised CAR E1. Subsequently, PP incorporated the detailed calculations which lead to closure of the CAR.

During the review of emission reduction spread sheet^{/XLS/}, assessment team found that net generation of electricity from the project activity for the month of Feb-12 is not matching with the value mentioned in the invoice^{/INV/}. In this regard, verification team raised CAR D1. Replying to this CAR, PP revised the emission reduction sheet^{/XLS/} and monitoring report^{/MR/} which leads to closure of the CAR.

Further, during assessment of the emission reduction spread sheet^{/XLS/}, assessment team observed several inconsistencies in the ER sheet. Hence, CAR E2 has been raised. Subsequently, PP revised the emission reduction sheet^{/XLS/} which leads to closure of the CAR.

Based on the above corrections and justification of the CAR it was observed that the values used in the emission reduction calculation^{/XLS/} are correct and formula and justification used for the calculation is consistent with the registered PDD.

5.9. Quality Management

Quality Management procedures for measurements, collection and compilation of data, data storage and archiving, calibration^{/CAL/}, maintenance and training of personnel^{/TR/} in the framework of this CDM project activity have been defined. The procedures defined can be assessed as appropriate for the purpose. No significant deviations thereof have been observed during the verification.

During the verification site visit and subsequent document review it was observed that the electricity export is being monitored by the four main energy meters. Previous calibration of the energy meters were conducted on 22/01/2010 (for energy meter no GJB01470, GJU04175 and GJU04176) and 29/05/2010 (for energy meter no KAB11082). Further, next calibration conducted on 17/01/2012 shows that all the energy meters are within the acceptable limit^{/CAL/}. Hence, in this monitoring period (01/06/2011 to 29/02/2012) the calibration of the main energy meters was delayed by 8 months (from June-2011 to January-12). Hence, considering para 4 (a) of Annex 60 of EB 52, PP considered the maximum permissible error of the instrument (0.2%). Besides this delay in calibration, verification team confirms that all other data are considered appropriately for the emission reduction calculation^{/XLS/}.

Further, it is evident from the monitoring data that the monitoring system ensures for continuous (except some breakdowns or outage) operation. All internal data are subjected to QA/QC measures. No significant deviations thereof have been observed during the verification. All monitored data are archived appropriately in line with the revised monitoring plan.

5.10. Comparison with ex-ante estimated emission reductions

The monitoring report^{/MR/} includes a comparison of the actual emission reductions with the ex-ante calculated values in the registered PDD. The actual emission reduction in this monitoring period is 61,182 tCO_{2e} for monitoring period (01/06/2011 to 29/02/2012 (including first and last day)) as compared to 78,856 tCO_{2e} in PDD which is 22.41% lower than the estimated CER as in PDD. Verification team assessed the same calculation and found correct. Further, CAR E1 was raised for the application of appropriate comparison between expected emission reduction and the actual scenario. PP has appropriately revised the MR which leads to closure of the CAR.

5.11. Overall Aspects of the Verification

All necessary and requested documentation was provided by the project participants so that a complete verification of all relevant issues could be carried out.

Access was granted to all installations of the plant which are relevant for the project performance and the monitoring activities.

No issues have been identified indicating that the implementation of the project activity and the steps to claim emission reductions are not compliant with the UNFCCC criteria and relevant guidance provided by the COP/CMP and the CDM EB (clarifications and/or guidance).

5.12. Hints for next periodic Verification

No FAR has been raised during the course of 1st periodic verification.

6. VERIFICATION OPINION

Vaayu (India) Power Corporation Private Limited has commissioned the TÜV NORD JI/CDM Certification Program to carry out the 1st periodic verification of the project: "Vaayu India Wind Power Project in Gujarat", with regard to the relevant requirements for CDM project activities. The project reduces GHG emissions due to generation of electricity from wind energy. This verification covers the period from 1st Verification (including both days).

In the course of the verification 8 Corrective Action Requests (CAR) and 1 Clarification (CL) were raised and successfully closed. Furthermore no FAR is raised to improve the monitoring system in the future. The verification is based on the draft monitoring report, revised monitoring report, the monitoring plan as set out in the registered PDD, the validation report, emission reduction calculation spreadsheet and supporting documents made available to the TÜV NORD JI/CDM CP by the project participant.

As a result of this verification, the verifier confirms that:

- all operations of the project are implemented and installed as planned and described in the validated project design document.
- the monitoring plan is in accordance with the applied approved CDM methodology ,i.e, Consolidated baseline methodology for grid-connected electricity generation from renewable sources (ACM0002 ver 11)
- the installed equipment essential for measuring parameters required for calculating emission reductions are calibrated appropriately.
- the monitoring system is in place and functional. The project has generated GHG emission reductions.

As the result of the 1st periodic verification, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. TÜV NORD JI/CDM CP herewith confirms that the project has achieved emission reductions in the above mentioned reporting period as follows:

Emission reductions: **61,182 t** CO_{2e}

Mumbai, 2012-08-14

Essen, 2012-08-14



Prasad Jakkaraju
TÜV NORD JI/CDM Certification Program
Verification Team Leader



Stefan Winter
TÜV NORD JI/CDM Certification Program
Final Approval

7. REFERENCES

Table 7-1: Documents provided by the project participant(s)

Reference	Document
/BR/	Break Down and maintenance Records of the project activity WECs during the monitoring period.
/CAL/	Calibration certificates for the GETCO meters (main meter) under the project activity dated 22/01/2010, 29/05/2010 and 17/01/2012
/CC/	Commissioning certificate of all 64 WECs involved in the project activity dated 06/07/2010, 11/07/2010, 19/05/2011, 01/04/2011 and 18/06/2011
/GEN/	Generation at the Online meter for individual WECs for specific months covering the entire monitoring period.
/INV/	Invoices raised to GETCO during the monitoring period i.e. 01/06/2011 to 29/02/2012
/ISO/	ISO 9001:2008 of O&M contractor i.e. Enercon (India) Limited dated 08/02/2010 valid till 08/02/2013
/LS/	Project layout Design and metering cluster arrangement for the project activity.
/LAND/	Application for transfer of land from Vish Wind Infrastructure Limited to Vaayu India power project in Gujarat
/MR/	<ul style="list-style-type: none"> Monitoring Report Version 01, dated 21/03/2012 based on which project assessment is carried out. MR Version 02, dated 25/04/2012 based on which final verification report is prepared.
/O&M/	Operation and maintenance contract signed between Vaayu (India) Power Corporation Private Limited (VIPCPL) and Enercon (India) Limited.
/PPA/	Power Purchase Agreement between the Gujarat Urja Vikas Nigam Limited (GUVNL) and Vaayu (India) Power Corporation Private Limited (VIPCPL) dated 09/06/2010, 06/07/2010 and 06/01/2011
/GETCO/	Share certificate issued by GETCO during the monitoring period i.e. 01/06/2011 to 29/02/2012

Reference	Document
/TR/	Training records of the personal working onsite for the project activity.
/TS/	Technical specifications of the WECs
/XLS/	<ul style="list-style-type: none"> Emission reduction calculation sheet for the project activity version 1, dated 21/02/2012 on which project assessment is carried out. Emission reduction calculation sheet version 02, dated 25/04/2012 based on which final verification report is prepared.

Table 7-2: Background investigation and assessment documents

Reference	Document
/ACM0002/	"Consolidated baseline methodology for grid-connected electricity generation from renewable sources" version11,
/CAL-G/	Guidelines for assessing compliance with the calibration frequency Requirement. EB 52 Annex 60 version 1
/KP/	Kyoto Protocol (1997)
/PDD/	Project Design Document for CDM project: " <i>Vaayu India Wind Power Project in Gujarat</i> " version 03, dated 2011-01-19
/VAL/	Validation Report for CDM project " <i>Vaayu India Wind Power Project in Gujarat version 2</i> ", dated 2011-04-09
/VVS/	UNFCCC Validation and Verification Standard (Version 2, EB 65, Annex 4)

Table 7-3: Websites used

Reference	Link	Organisation
/GEDA/	www.geda.org.in	Gujarat Energy Development Agency
/GETCO/	www.getcogujarat.com	Gujarat Energy Transmission Corporation
/GUVNL/	www.gseb.com	Gujarat Urja Vikas Nigam Limited
/UNFCCC/	http://cdm.unfccc.int	UNFCCC
/IPCC/	www.ipcc-nggip.iges.or.jp	IPCC publications
/SLDC/	http://www.sldcgui.com/energyaccount/energy_block.asp	State Load Despatch Centre (SLDC), Gujarat

Table 7-4: List of interviewed persons

Reference	Mol ¹		Name	Organisation / Function
/IM01/	V	<input type="checkbox"/> Mr. <input checked="" type="checkbox"/> Ms	Ms. Anushree Mishra	Assistant Manager- CDM Corporate, Enercon (India) Limited
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Mr. Kishor Vasara	Deputy Manager, Enercon (India) Limited
/IM01/	V	<input checked="" type="checkbox"/> Mr. <input type="checkbox"/> Ms	Mr. Kishor Vasara	Deputy Manager, Enercon (India) Limited

¹⁾ Means of Interview: (Telephone, E-Mail, Visit)

ANNEX

- A1:** Verification Protocol
- A2:** Appointment / Authorisation statements

ANNEX 1: VERIFICATION PROTOCOL

Table A-1: GHG calculation procedures and management control testing / detailed audit testing of residual risk areas and random testing

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
Raw data generation				
<ul style="list-style-type: none"> • Installation of measuring equipment • Dysfunction of installed equipment • Maloperation by operational personnel • Downtimes of equipment • Exchange of equipment • Change of measurement equipment characteristic • Insufficient accuracy • Change of technology 	<ul style="list-style-type: none"> • Installation of modern and state of the art equipment • Process control automation • Internal data review • Regular visual inspections of installed equipment • Only skilled and trained personnel operates the relevant equipment • Daily raw data checks • Immediate exchange of dysfunctional equipment • Stand-by duty is 	<ul style="list-style-type: none"> • Inadequate installation / operation of the monitoring equipment • Inadequate exchange of equipment • Change of personnel • Undetected measurement errors • Inappropriateness of Management system procedures w.r.t. monitoring plan requirements (e.g. substitute value strategies) • Non-application of management system procedures • Insufficient accuracy • Inappropriate QA/QC 	<ul style="list-style-type: none"> • Site – visit • Check of equipment • Check of technical data sheets • Check of suppliers information / guarantees • Check of calibration records, if applicable • Check of maintenance records • Counter-check of raw data and commercial data • Check of CDM management system • Check of CDM related procedures 	<ul style="list-style-type: none"> • See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Accuracy of values supplied by Third Parties 	<ul style="list-style-type: none"> organized Training Internal audit procedures Internal check of QA/QC measures of involved Third Parties 	<ul style="list-style-type: none"> measures of Third Parties 	<ul style="list-style-type: none"> Application of CDM management system procedures Check of trainings Check of responsibilities Check of QA/QC documentation / evidences of involved Third Parties 	
Raw data collection and data aggregation				
<ul style="list-style-type: none"> Wrong data transfer from raw data to daily and monthly aggregated reporting forms IT Systems Spread sheet programming Manual data transmission Data protection Responsibilities 	<ul style="list-style-type: none"> Cross-check of data Plausibility checks of various parameters. Appropriate archiving system Clear allocation of responsibilities Application of CDM Management system procedures Usage of standard software solutions 	<ul style="list-style-type: none"> Unintended usage of old data that has been revised Incomplete documentation Ex-post corrections of records Ambiguous sources of information Non-application of management system procedures Manual data transfer mistakes 	<ul style="list-style-type: none"> Check of data aggregation steps Counter-calculation Data integrity checks by means of graphical data analysis and calculation of specific performance figures Check of management system certification Check of data archiving system 	<ul style="list-style-type: none"> See Table A-2

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
	(Spreadsheets) <ul style="list-style-type: none"> Limited access to IT systems Data protection procedures 	<ul style="list-style-type: none"> Unintended change of spread sheet programming or data base entries Problems caused by updating/upgrading or change of applied software 	<ul style="list-style-type: none"> Check of application of Management system procedures 	
Other calculation parameters				
<ul style="list-style-type: none"> Emission factors, oxidation factors, coefficients 	<ul style="list-style-type: none"> The values and data sources applied are defined in the PDD and monitoring plan 	<ul style="list-style-type: none"> Unintended or intended Modification of calculation parameters Wrong application of values Misinterpretations of the applied methodology and/ or the PDD Missing update of applicable regulatory framework (e.g. IPCC values) 	<ul style="list-style-type: none"> Update-check of regulatory framework Countercheck of the applied MP in the MR against the methodology and the PDD 	<ul style="list-style-type: none"> See Table A-2
Calculation Methods				

Identification of potential reporting risk	Identification, assessment and testing of management controls	Areas of residual risks	Additional verification testing	Conclusions and Areas Requiring Improvement (including <i>Forward Action Requests</i>)
<ul style="list-style-type: none"> Applied formulae Miscalculation Mistakes in spread-sheet calculation 	<ul style="list-style-type: none"> Advanced calculation and reporting tools A CDM coordinator is in charge of the CDM related calculations Usage of tested / counterchecked Excel spreadsheets Involvement of external consultants 	<ul style="list-style-type: none"> The danger of miscalculation can only be minimized. 	<ul style="list-style-type: none"> Countercheck on the basis of own calculation. Spread sheet walk-through. Plausibility checks Check of plots 	<ul style="list-style-type: none"> See Table A-2
Monitoring reporting				
<ul style="list-style-type: none"> Data transfer to the author of the monitoring report Data transfer to the monitoring report Unintended use of outdated versions 	<ul style="list-style-type: none"> An experienced CDM consultant is responsible for monitoring reporting. CDM QMS procedures are defined 	<ul style="list-style-type: none"> The danger of data transfer mistakes can only be minimized Inappropriate application of QMS procedures 	<ul style="list-style-type: none"> Counter check with evidences provided. Audit of procedure application 	<ul style="list-style-type: none"> See Table A-2

Table A-2: (Project specific) Periodic Verification Checklist

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
A. General Description of the project activity				
A.1. Brief description of the project activity (EB 54 Annex 34, A.1) Check if section A.1 of the MR includes the following: <ul style="list-style-type: none"> - Purpose of the PA and the measures taken to reduce GHG emissions - Brief description of the installed technology and equipments - Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc. - Total emission reductions achieved in this monitoring period 	/MR/ /PDD/	The verification team has checked section A.1 of the MR and confirms that the information provided is complete and correct with regards to the following: <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Purpose of the PA and the measures taken to reduce GHG emissions <input checked="" type="checkbox"/> Brief description of the installed technology and equipments <input checked="" type="checkbox"/> Relevant dates for the project activity (e.g. construction, commissioning, continued operation periods etc <input checked="" type="checkbox"/> Total emission reductions achieved in this monitoring period In this context the following findings have been identified: Further, during assessment of the monitoring report, verification team found that monitoring report template is not in line with EB 54 annex 34. Hence CAR A1 has been raised.	CAR A1	OK
A.2. Project Participants (EB 54 Annex 34, A.2) Check if section A.2 of the MR includes the following: <ul style="list-style-type: none"> - All PPs as displayed on the UNFCCC website 	/MR/ /PDD/ /UNFCCC/ C/	The verification team has checked section A.2 of the MR and confirms that the information provided is complete and correct with regards to the following: <ul style="list-style-type: none"> <input type="checkbox"/> All PPs as displayed on the project related UNFCCC website are correctly listed In this context the following findings have been identified:	CAR A2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		Project participant name mentioned in the section A.2 of the MR is not consistent with A.8 and the registered PDD. Hence, CAR A2 has been raised.		
A.3. Location of the Project Activity (EB 54 Annex 34, A.3) <i>Check if section A.3 of the MR reflects correctly the following:</i> <ul style="list-style-type: none"> - Address of the project location - Latitude and Longitude 	/MR/ /PDD/ /IM01/	<p>The verification team has checked section A.3 of the MR and confirms by means of comparison with the information given in the PDD and information gathered during the site visit that the information provided is complete and correct with regards to the following:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> The address has been correctly given in the MR <input checked="" type="checkbox"/> Latitude and Longitude are in line with the information given in the PDD and reflects the actual location of the PA. <p>In this context the following findings have been identified:</p> <p>Further, after commissioning, the coordinates of the project activity match with those stated in the registered PDD. Assessment team checked the same with GPS coordinates onsite and found correct.</p>	OK	OK
A.4. Technical description of the project (EB 54 Annex 34, A.4) <i>Check if section A.4 of the MR correctly describes / includes the following:</i> <ul style="list-style-type: none"> - Detailed description of the technology applied - Diagrams 	/MR/ /PDD/ /IM01/	<p>The verification team has checked section A.4 of the MR and confirms by means of comparison with the information given in the PDD and information gathered during the site visit that the information provided is complete and correct with regards to the following:</p> <ul style="list-style-type: none"> <input type="checkbox"/> The description of the technology applied is complete and appropriate <input checked="" type="checkbox"/> Appropriate diagrams have been included in the description – N/A 	Pending closure of CAR A+	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		In this context the following findings have been identified: During assessment of the monitoring report, verification team found that section A.4 of the MR is not in line with the EB 54 annex 34. Hence, pending CAR A1 has been raised.		
A.5. Title, reference and version of the baseline and monitoring methodology applied to the project (EB 54 Annex 34, A.5) <i>Check if section A.5 of the MR correctly describes / includes the following:</i> <ul style="list-style-type: none"> - Reference to the applicable version of the methodology - Reference to the applicable version(s) of relevant methodological tools - Relevant EB decisions, if applicable 	/MR/ /PDD/ /UNFCCC/ C/	<p>The verification team has checked section A.5 of the MR and confirms by means of comparison with the information given in the PDD and displayed on the UNFCCC website that the information provided is complete and correct with regards to the following:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Name and version of the applicable CDM Methodology <input checked="" type="checkbox"/> Name and version of applicable CDM methodological tools <input checked="" type="checkbox"/> Relevant EB decisions <p>In this context the following findings have been identified: N/A</p>	OK	OK
A.6. Registration date of the project activity (EB 54 Annex 34, A.6) <i>Check if section A.6 of the MR correctly includes the following:</i> <ul style="list-style-type: none"> - Registration date 	/MR/ /UNFCCC/ C/	<p>The verification team has checked section A.6 of the MR and confirms by means of comparison with the information displayed on the UNFCCC website that the information provided is complete and correct with regards to the following:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Registration date <p>In this context the following findings have been identified: N/A</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
A.7. Crediting period of the PA and related information (EB 54 Annex 34, A.7) <i>Check if section A.7 of the MR correctly includes the following:</i> <ul style="list-style-type: none"> - <i>Start date of the crediting period. In this context please check, if applicable, whether post registration changes to the start date have been accepted by the EB.</i> - <i>Length and type of the crediting period</i> 	/MR/ /UNFCCC/ C/	<p>The verification team has checked section A.7 of the MR and confirms by means of comparison with the information displayed on the UNFCCC website that the information provided is complete and correct with regards to the following:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Start date of the crediting period. <input checked="" type="checkbox"/> Type and length of the crediting period <p>In this context the following findings have been identified: N/A</p>	OK	OK
A.8. Name of the responsible person(s) /4 entity/(ies) (EB 54 Annex 34, A.8) <i>Check if section A.8 of the MR correctly includes the following:</i> <ul style="list-style-type: none"> - <i>Contact information of the person(s)/entity(ies) responsible for completing the MR.</i> 	/MR/ /IM01/	<p>The verification team has checked section A.8 of the MR and confirms by means of interviews with the PP that the information provided is complete and correct with regards to the following:</p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Contact information of the person(s) / entity/(ies) responsible for completing the MR.. <p>In this context the following findings have been identified: N/A</p>	OK	OK
B. Implementation of the project activity				

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.1. Implementation status of the project				
<p>B.1.1. Initial project implementation (EB 55 Annex 1, §§ 182, 195-201)</p> <p><i>Assess whether the project has been implemented and operated as per the registered PDD and are all physical features of the project in place?</i></p> <p><i>Further focus on the potential phase wise implementation and check the reporting on the corresponding status and starting dates accordingly.</i></p> <p><i>Also, discuss – if applicable – any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i></p>	/IM01/ /PDD/ /CC/	<p><i>Description:</i> The project is implemented as described in the PDD as well as all the physical features of the project are in place. The project includes 64 WECs from which 41 WECs were commissioned before registration of the project and 23 were installed after the registration of the project i.e. 09/05/2011. The first WEC under the project activity was commissioned on 25/06/2010 and last WEC under the project activity was commissioned on 04/07/2011 which is confirmed from the commissioning certificates.</p> <p><i>Justification of evidences:</i> Crosschecked with the physical implementation of project during the site visit. The commissioning dates of the WECs installed under this project are confirmed from the commissioning certificates.</p> <p><i>Conclusion:</i> 23 WECs are commissioned after the registration of the project activity and rest of them already commissioned prior to that. Moreover, there is no change in project implementation since registration of the project activity. The total geographic coordinates are checked onsite with GPS system and found correct as per the registered PDD Latitude and longitude.</p>	OK	OK
<p>B.1.2. Technical equipment changes (EB 55 Annex 1, § 187)</p>	/IM01/ /MR/	<p><i>Description:</i> The project activity consists of 64 WECs of 800 kW capacities each aggregating a total installed capacity of 51.2 MW. Technical equipment of the project activity has not been</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>Check if relevant technical equipment of the project activity has been exchanged or modified during the monitoring period. Further ensure that consistent notations of key equipment (meters etc.) in PDD, MR and calculation spreadsheet are applied</i></p> <p><i>Consider e.g. interviews with operational personnel, QMS records, maintenance records, instrument specifications.</i></p> <p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these changes have been considered in the monitoring report and the emission reduction calculation.</i></p> <p><i>Also, discuss –if applicable- any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i></p>	/TS/ /PDD/	<p>changed or modified during the monitoring period. The project is in line with the registered PDD in terms of operation.</p> <p><i>Justification of evidences:</i> According to the discussions carried out with plant personnel onsite and subsequent document review it is found that relevant technical equipment of the project activity has not been exchanged or modified during the monitoring period.</p> <p><i>Conclusion:</i> No technical equipment in the project have been changed</p>		
<p>B.1.3. Operation of the project activity (EB 55 Annex 1, § 195)</p> <p><i>Check if relevant operation modes of the project activity have been exchanged or modified during the monitoring period.</i></p> <p><i>Consider e.g. interviews with operational personnel, operation log sheets, data management system records.</i></p> <p><i>In case of changes, check whether the project is still in line with the registered PDD and assure that these</i></p>	/IM01/ /MR/ /PDD/ /TS/	<p><i>Description:</i> The project activity consists of 64 WECs of 800 kW capacities each, and the operation of the project activity is in line with the monitoring plan in terms of operation. The operation mode of the project have not been changed / replaced during the monitoring period.</p> <p><i>Justification of evidences:</i> As stated in the interview with the operational personnel no change in the project equipment is observed.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>changes have been considered in the monitoring report and the emission reduction calculation.</i></p> <p><i>Also, discuss – if applicable – any approvals of the necessary request of notification or request for approval of changes from the project activity as described in the registered PDD (EB 48 Annex 66/67).</i></p>		<p><i>Conclusion:</i> All the operation modes are as per the registered PDD. During the onsite visit the subsequent documents are cross checked and found ok.</p>		
<p>B.1.4. Incidents (EB 55 Annex 1, § 187, 208a)</p> <p><i>Identify if there have been any significant incidents, deviant operation modes and / or downtimes of the equipment?</i></p> <p><i>Consider e.g. interviews with operational personnel, operational log sheets, analysis of performance data.</i></p>	<p>/IM01/ /O&M/ /MR/ /GEN/ /GETCO/</p>	<p><i>Description:</i> During the onsite visit and discussion with PP, it was found that there were no such significant forced downtime occurred for this monitoring period except for the scheduled maintenance and operational breakdowns.</p> <p>Moreover, section B.1 of the MR does not mention brief description of events or situations occurred during the monitoring period which may impact the applicability of the methodology in line with EB 54 annex 34. Thus CAR B1 has been raised.</p> <p><i>Justification of evidences:</i> The O&M contractor, Enercon (India) limited maintains the record of the project operation. During the site visit the same was checked and found correct.</p> <p><i>Conclusion:</i> There were no significant breakdowns observed for the project activity during this monitoring period. However CAR B1 is raised during the verification process.</p>	CAR B1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.1.5. Legislation Find out whether relevant legislation with effect on the project activity in the host country has been changed. Assess, in case of changes, whether consequences for the PA with regard to relevant CDM requirements have been accounted for. In case of changes data sources shall be referenced.	/IM01/ /PPA/ /CC/ /VAL/	<p><i>Description:</i> The legislation has not changed w.r.t projects for which the PPA is already signed and is valid for a period of 20 years from commissioning. No regulation with impact on the project could be identified.</p> <p><i>Justification of evidences:</i> The legislation for projects already implemented remains as described in the PPA.</p> <p><i>Conclusion:</i> Relevant legislation associated with this project activity has not changed during this monitoring period.</p>	OK	OK
B.1.6. Open issues from validation (EB 55 Annex 1, §§ 181-183, 188c, 190c) <i>Check (esp. in case of 1st periodic verification) whether there are any open issues indicated in the validation report (e.g. FAR)?</i>	/VAL/	<p><input type="checkbox"/> There were no open issues addressed in the validation report</p> <p><input type="checkbox"/> All open issues from the validation have been appropriately addressed.</p> <p><input checked="" type="checkbox"/> The following issue related to the validation has not yet been appropriately addressed:</p> <p>During the validation, validation team observed that the Ministry of Environment and Forest clearance for the project activity has been provided in the name of Vish Wind Infrastructure Limited. In response to the clarification, project proponent submitted an undertaking issued by Vish Wind Infrastructure Limited to Ministry of Environment and Forest (DNA of India), that all the formalities to ensure transfer of lease pertaining to "Vaayu India power project in Gujarat" in favor of VIPCPL will be completed as per prevailing norms.</p> <p>Therefore CAR B2 has been raised.</p>	CAR B2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.1.7. Open issues from previous verification <i>(EB 55 Annex 1, § 193)</i> <i>Check in case of further periodic verifications whether there are any open issues indicated in previous verification reports (FAR) and take into consideration the guidance as specified in VVM.</i>	/PDD/ /UNFCCC/ C/	<input checked="" type="checkbox"/> There were no open issues addressed in the previous verification report <input type="checkbox"/> All open issues from the previous verification have been appropriately addressed. <input type="checkbox"/> The following issues related to the previous verification have not yet been appropriately addressed: The project is the 1 st Verification activity thus open issues from previous verifications are not applicable.	N/A	N/A
B.1.8. Publication of the Monitoring Report <i>Check if the monitoring report has been made publicly available on the UNFCCC website before the verification commenced.</i> <i>Check if comments have been received and if yes, how they have been addressed.</i>	/UNFCCC/ C/ /MR/	<i>Description:</i> The monitoring report has been webhosted on the UNFCCC website at the project page, the verification activity commences after the web-hosting and no comment was received during the webhosting period. <i>Justification of evidences:</i> http://cdm.unfccc.int/Projects/DB/DNV-CUK1303122887.18/view has been checked by the assessment team and found that no comment has been received during the period of webhosting. <i>Conclusion:</i> The draft monitoring report, as received from the project participants, has been made publicly available prior to the start of the verification activities. No comments have been received.	OK	OK
B.2. Requests for Revisions of MP	/UNFCCC/ C/		OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.	
<p>(EB 55 Annex 1, §§ 201, 203, 219)</p> <p><i>Check (i) if there have been any requests for revisions of the monitoring plan in the past.and/or (ii) if there is a need for a RfRev. Make sure that the monitoring report reflects the application of the revision as approved by the EB, where applicable. Check in case of approved revisions if the date of approval has been included.</i></p>		<div><input checked="" type="checkbox"/></div> <div>No requests for revisions of the MP have been submitted to the UNFCCC prior to the current monitoring period</div>			
		<div><input type="checkbox"/></div> <div>The following RfRev have been approved or are under approval by the UNFCCC</div>			
		<div>1</div> <div>Title</div> <div>Status</div> <div>Appr.date</div> <div><input type="checkbox"/> under approval; <input type="checkbox"/> approved</div>			
		<div>2</div> <div>Title</div> <div>Status</div> <div>Appr.date</div> <div><input type="checkbox"/> under approval; <input type="checkbox"/> approved</div>			
		<div><input checked="" type="checkbox"/></div> <div>During the verification of the current MP no need for a RfRev has been identified. The monitoring plan is in accordance with the approved methodology applied by the PA</div>			
		<div><input type="checkbox"/></div> <div>The following revisions of the MP are to be requested from the EB for the current MP</div>			
		<div>1</div> <div>Issue</div>			
		In this context the following findings have been identified: N/A			
B.3. Requests for Deviations applied to this MP	/UNFCC C/	<div><input checked="" type="checkbox"/></div> <div>No requests for deviations have been submitted to the</div>	OK	OK	

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.																																										
<p>(EB 55 Annex 1, §§ 203, 211-219)</p> <p>Check (i) if there have been any requests for deviations in the past.and/or (ii) if there is a need for a RfDev. Make sure that the monitoring report reflects the application of the deviation as approved by the EB, where applicable. Check in case of approved deviations if the approval date and reference number has been included.</p> <p>Further check in case of approved RfDev whether the MR appropriately reflects the application of the EB guidance.</p>		<table border="1"> <tr> <td></td> <td colspan="2">UNFCCC prior to the current monitoring period</td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">The following RfDev have been approved or are under approval by the UNFCCC</td> </tr> <tr> <td>1</td> <td>Title</td> <td></td> </tr> <tr> <td></td> <td>Status</td> <td><input type="checkbox"/> under approval; <input type="checkbox"/> approved</td> </tr> <tr> <td></td> <td>Ref. No.</td> <td></td> </tr> <tr> <td></td> <td>Appr.date</td> <td></td> </tr> <tr> <td>2</td> <td>Title</td> <td></td> </tr> <tr> <td></td> <td>Status</td> <td><input type="checkbox"/> under approval; <input type="checkbox"/> approved</td> </tr> <tr> <td></td> <td>Ref. No.</td> <td></td> </tr> <tr> <td></td> <td>Appr.date</td> <td></td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">In case of approved guidance of the EB: The monitoring report reflects the application of the EB guidance regarding the RfDev.</td> </tr> <tr> <td><input checked="" type="checkbox"/></td> <td colspan="2">During the verification of the current MP no need for a RfDev has been indentified</td> </tr> <tr> <td><input type="checkbox"/></td> <td colspan="2">The following deviations are to be requested from the EB for the current MP</td> </tr> <tr> <td>1</td> <td>Issue</td> <td></td> </tr> </table> <p>In this context the following findings have been identified: N/A</p>		UNFCCC prior to the current monitoring period		<input type="checkbox"/>	The following RfDev have been approved or are under approval by the UNFCCC		1	Title			Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved		Ref. No.			Appr.date		2	Title			Status	<input type="checkbox"/> under approval; <input type="checkbox"/> approved		Ref. No.			Appr.date		<input type="checkbox"/>	In case of approved guidance of the EB: The monitoring report reflects the application of the EB guidance regarding the RfDev.		<input checked="" type="checkbox"/>	During the verification of the current MP no need for a RfDev has been indentified		<input type="checkbox"/>	The following deviations are to be requested from the EB for the current MP		1	Issue			
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1	Issue																																													

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
B.4. Initial verification <i>In case an initial verification has been carried out, check if all FARs, recommendations etc. can be confirmed as existent for the periodic verification.</i>	/IM01/	<input checked="" type="checkbox"/> No initial verification has been carried out. <input type="checkbox"/> There are no open issues, recommendations etc. pending from the initial verification <input type="checkbox"/> The following issues related to the initial verification have to be addressed:	OK	OK
C. Description of the monitoring system				
C.1. Management System (EB 55 Annex 1, § 184 a (iii)) <i>Check if the GHG data monitoring system can be assessed as appropriate.</i> <i>In case reference is made to a (certified) company quality management system, check if all CDM related monitoring procedures have been fully integrated in the project participant's quality management system.</i> <i>In case of a stand-alone system, check how the GHG management system has been implemented and effectiveness is ensured.</i>	/ISO/ /CAL/ /TR/ /IM02/ /PPA/	<i>Description:</i> Enercon (India) Limited is responsible for maintaining all the monitoring data, recording, reporting, and archiving the data. It is ISO 9001:2008 certified organization and have management structure for managing the monitoring data. The meter reading is being taken jointly by the representatives of Enercon and GETCO in the form of JMR. The net electricity generated by the project owners is being provided to Enercon by GETCO in form of share certificate of electricity generated. Subsequently Enercon provide the same to individual Project owners. <i>Justification of evidences:</i> ISO certificate of Enercon (India) Limited is crosschecked along with the calibration reports and interview with the O&M officials to confirm that proper Management systems are being followed. <i>Conclusion:</i> GHG data monitoring system is appropriate.	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
C.2. Metering diagram (EB 54 Annex 34, C) <i>Check first if the MR includes a metering diagram showing all relevant monitoring points..</i> <i>Check further if this diagram reflects the actual situation and is in line with the registered PDD and with the requirements of the applied methodology.</i>	/SLD/ /IM01/ /MR/	<p><i>Description:</i> The project activity have various clusters and each cluster has exclusive metering arrangement and the meter readings taken at these metering points have been provided by the representatives of Enercon to GEDA. Further, there are four main meter installed in the EIL substation. These meters are used to generate the JMR. The same has been described in the section C of the MR, which is in line with the approved registered PDD.</p> <p><i>Justification of evidences:</i> The metering positions have been confirmed during the site visit and found correct.</p> <p><i>Conclusion:</i> The diagram presented in the MR reflects the actual situation and is in line with the registered PDD.</p>	OK	OK
C.3. Roles and Responsibilities (EB 54 Annex 34, C) <i>Check if all roles and positions of each person in the GHG data management process are clearly defined and implemented as stated in the monitoring plan. Please consider the complete data trail from raw data generation to submission of the final data.</i> <i>Identify, if relevant personnel w.r.t. monitoring has</i>	/MR/ /ISO/ /TR/ /IM01/	<p><i>Description:</i> EIL has the operation and maintenance contract for monitoring related to the project. EIL is ISO 9000:2008 certified organization. Responsibilities for measurements, collection and compilation of data, data storage and archiving, calibration, maintenance and training of personnel are in place as mentioned in the registered PDD.</p> <p><i>Justification of evidences:</i> ISO certificate and Training records are cross-checked and are acceptable. Also during the site visit it was observed that all the data acquired is in the safe custody of the project participant.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>been exchanged?</i></p> <p><i>If so, have appropriate training measures been carried out.</i></p> <p><i>In case of changes, assure that the implemented monitoring procedures have not been affected.</i></p>		<p><i>Conclusion:</i> The role for each person starting from the data archiving to consolidate data is in place for the project activity as per the registered PDD. The assessment team found it correct and accurate.</p>		
<p>C.4. Emergency procedures for the monitoring system (EB 54 Annex 34, C)</p> <p><i>Check, as appropriate, whether relevant emergency procedures for the monitoring system have been included in the MR and assess whether these procedures have been implemented, when required</i></p>	<p>/MR/ /IM01/ /PDD/</p>	<p><i>Description:</i> There is no emergency procedure mentioned in the monitoring report. Hence CAR C1 was raised during the verification process.</p> <p><i>Justification of evidences:</i> MR has been checked by the assessment team.</p> <p><i>Conclusion:</i> CAR C1 is raised.</p>	CAR C1	OK
<p>C.5. Data archive and data protection</p> <p>Check whether all records of monitoring parameters are archived according to the monitoring plan.</p> <p>Assess further whether appropriate measures have been taken in order to avoid unintended or intended manipulation or loss of the measured data.</p>	<p>/MR/ /IM01/</p>	<p><i>Description:</i> The data (electricity supplied to the grid) will be archived on electronic media as well as on paper. The archive will be kept for the period up to two years after the completion of the crediting period.</p> <p><i>Justification of evidences:</i> During the site visit it was observed that the data archiving procedure and data management structure is as per the registered PDD</p> <p><i>Conclusion:</i> All records of monitoring parameters are archived according to the monitoring plan</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
D. Data and parameters monitored				
D.1. $EG_{PJ,y}$		Description: Net Quantity of Electricity exported to the grid		
<p>a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /PDD/ /MR/ /PPA/ /XLS/ /GETCO/</p>	<p><i>Description:</i> The net electricity generated by the project activity has been taken directly from the share certificate issued by GETCO on monthly basis. It has been calculated by GEDA on the basis of GETCO main meter reading located at EIL substation and the meter readings taken at individual cluster meters after adjusting transmission loss.</p> <p>The WECs of VIPCPL has been divided into clusters and each cluster has dedicated metering system. Different clusters are connected to different Vacuum Circuit Breaker metering yards (VCB) which ultimately lead to the shared main GETCO meter at the Sadodar substation maintained by Enercon (India) Limited. Data monitoring takes place at the cluster metering points and GETCO main meter at the EIL substation.</p> <p><i>Justification of evidences:</i> The measurement procedure has been verified by interview by the O&M team during onsite verification conducted by the verification team. The GEDA certificates of share of electricity for the entire monitoring period are verified by the verification team and found to be appropriate.</p> <p><i>Conclusion:</i> The verification team concludes that the measurement method of the parameter is in line with the registered monitoring plan and the applied methodology, ACM0002, Version 11</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
b) Accuracy (EB 55 Annex 1, §§ 205c, 206a) <i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i>	/MR/ /PDD/	<p><i>Description:</i> This parameter is monitored by the energy meter located at Sadodar substation. The meter installed to monitor this data is calibrated once in a year as per the monitoring plan and the accuracy class of this meter is $\pm 0.2\%$. Moreover, calibration of the main meter was delayed 12 months. Out of this duration, 8 months (from June-2011 to January-12) belongs to this monitoring period. Hence, PP considered guidance para 4(a) of Annex 60 of EB 52.</p> <p><i>Justification of evidences:</i> Energy meter and the calibration of energy meters are checked During site visit by the verification team.</p> <p><i>Conclusion:</i> Accuracy of the energy meters are in line during the monitoring period.</p>	OK	OK



Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p>	<p>/CAL/ /MR/ /ISO/ /CAL-G/</p>	<p><i>Description:</i> All the necessary QA/QC procedures required for the monitoring of the parameter are adequately met. The frequency of the calibration of the meters is once in a year as per the requirement but calibrations of the main meters were delayed by 12 months. Out of this duration, 8 months (from June-2011 to January-12) belongs to this monitoring period.. The latest test certificate shows that meters are operating within their accuracy class 0.2%. Further, verification team observed that, PP has considered 0.5% error in net quantity of electricity exported to the grid in line with para 4a of Annex 60 of EB 52. But calibration certificate mentioned that accuracy class of the energy meter is 0.2%. Hence, CAR C2 has been raised.</p> <p><i>Justification of evidences:</i> The calibration certificates are checked and found correct. ISO certificate for Enercon (India) limited is available and is valid. Further, justification will be provided after the closure of the CAR C2.</p> <p><i>Conclusion:</i> CAR C2 has been raised.</p>	<p>CAR C2</p>	<p>OK</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
d) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i> <i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i>	/MR/ /GETCO/ /INV/ /XLS/	<input type="checkbox"/> Correct <input checked="" type="checkbox"/> Not correct <i>Description:</i> Verification team assessed the values given in the monitoring report and emission reduction calculation sheet and found that net generation of electricity from the project activity for the month of Feb-12 is not matching with the GEDA certificates and invoice value. Hence CAR D1 has been raised. <i>Justification of evidences:</i> The GEDA certificates of share of electricity for the entire monitoring period are verified by the verification team. <i>Conclusion:</i> CAR D1 has been raised.	CAR D1	OK
D.2. EG_{GETCO, Export}		Description: Net Electricity export recorded at Enercon Substation		
a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203) <i>Describe how the monitoring parameter was measured / determined.</i> <i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i> <i>Assess whether the measurement / determination method is in line with the registered monitoring plan</i>	/IM01/ /PDD/ /INV/ /XLS/ /ACM000 2/ /GETCO/	<i>Description:</i> Net Electricity export recorded at Enercon Substation is recorded from the energy meter installed on monthly basis in presence of the representatives of Enercon and GETCO. The same reading is used by GEDA to prepare the monthly Certificate of Share of Electricity Generation. This reading is used for calculation of transmission loss by GEDA and is not directly used for calculation of emission reductions. The energy meters used for the measurement have not been replaced during the monitoring period and no failure of the equipment occurred. The measurement method is in line with the registered monitoring plan of the PDD and the applied	CLD2	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>of the PDD and the applied methodology.</i>		<p>methodology. Further, CL D2 has been raised.</p> <p><i>Justification of evidences:</i> This has been confirmed during onsite verification by interview with the operation and maintenance staff. Further justification will be provided after the closure of the CL.</p> <p><i>Conclusion:</i> The verification team concludes that the parameter has been monitored as per the procedure defined in the registered PDD and applied methodology ACM0002, version 11. And no relevant key equipment has been changed/ replaced during the monitoring period. Further, CL D2 has been raised.</p>		
<p>b) Accuracy (EB 55 Annex 1, §§ 205c, 206a)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	<p>/CAL/ /GETCO/ /PPA/ /CAL/</p>	<p><i>Description:</i> This parameter is monitored by the energy meter located at EIL substation. The meter installed to monitor this data is calibrated once in a year as per the monitoring plan and the accuracy class of this meter is $\pm 0.2\%$.</p> <p><i>Justification of evidences:</i> Energy meter and the calibration of energy meters are checked During site visit by the verification team.</p> <p><i>Conclusion:</i> Accuracy of the energy meters are in line with the registered monitoring plan.</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p>c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206) <i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the monitoring equipment has been carried out in line with the latest EB guidance.</i></p>	<p>/CAL/ /MR/ /ISO/ /IM01/</p>	<p><i>Description:</i> All the necessary QA/QC procedures required for the monitoring of the parameter are adequately met. The frequency of the calibration of the meters is once in a year as per the requirement but calibration for the year 2011 was not done for the main meters installed at Sadodar Sub-station. The latest test certificate shows that meters are operating within their accuracy class 0.2%, therefore in accordance with Annex 60 to EB 52, a correction factor of +0.2% for the year 2011 is applied.</p> <p><i>Justification of evidences:</i> The calibration certificates are checked and found correct.</p> <p><i>Conclusion:</i> Proper QA/QC procedures are in place.</p>	OK	OK
<p>d) Correctness (EB 55 Annex 1, §§ 202, 206, 221e) <i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i> <i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should</i></p>	<p>/MR/ /GETCO/</p>	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct</p> <p><i>Description:</i> This value has been monitored from the main meter at Sadodar Substation. This reading is used for calculation of transmission loss by GEDA and is not directly used for calculation of emission reductions. The same reading is used by GEDA to prepare the monthly Certificate of Share of Electricity Generation.</p> <p><i>Justification of evidences:</i> The monthly Certificate of the Share of the Electricity Generation for the entire of the monitoring</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>be given.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>		<p>period have been verified by the assessment team and the values considered in the monitoring report are found to be consistent.</p> <p><i>Conclusion:</i> The verification team concludes that the values given in the monitoring report is correct and justified.</p>		
D.3. EG_{GETCO}, Import		Description: Net Electricity import recorded at Enercon Substation		
<p>a) Measurement / Determination method (EB 55 Annex 1, §§ 184-185, 202-203)</p> <p><i>Describe how the monitoring parameter was measured / determined.</i></p> <p><i>Check if relevant equipment has been exchanged and if in cases of failures / downtimes of standard equipment other measurement / determination methods have been used. Furthermore, verify the frequency of measurements as per the requirements.</i></p> <p><i>Assess whether the measurement / determination method is in line with the registered monitoring plan of the PDD and the applied methodology.</i></p>	<p>/IM01/ /PDD/ /INV/ /XLS/ /GETCO/ /ACM000 2/</p>	<p><i>Description:</i></p> <p>Net Electricity import recorded at Enercon Substation is recorded from the energy meter installed on monthly basis in presence of the representatives of Enercon and GETCO. This value has been taken from the JMR at Enercon Substation. The same reading is used by GEDA to prepare the monthly Certificate of Share of Electricity Generation. This reading is used for calculation of transmission loss by GEDA and is not directly used for calculation of emission reductions.</p> <p>The energy meters used for the measurement been found not to be replaced during the monitoring period and no failure of the equipment occurred. The measurement method is in line with the registered monitoring plan of the PDD and the applied methodology. Further, pending CL D2 has been raised.</p> <p><i>Justification of evidences:</i> This has been confirmed during onsite verification by interview with the operation and</p>	<p>Pending g Closur e of CL D2</p>	<p>OK</p>

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p>maintenance staff and from document review of calibration and Certificate of Share of Electricity Generation. Further justification will be provided after the closure of the pending CL.</p> <p><i>Conclusion:</i> The verification team concludes that the parameter has been monitored as per the procedure defined in the registered PDD and applied methodology ACM0002, version 11. And no relevant key equipment has been changed/ replaced during the monitoring period. Further, pending CL D2 has been raised.</p>		
<p>b) Accuracy (EB 55 Annex 1, §§ 205c, 206a)</p> <p><i>In case of measured (or estimated) values, check whether the accuracy of equipment used for monitoring is controlled and calibrated in accordance with the monitoring plan or if significant inaccuracies occur; in this case, make sure that the most conservative assumptions theoretically possible have been made for calculating ERs.</i></p>	<p>/CAL/ /GETCO/ /CAL-G/ /PPA/</p>	<p><i>Description:</i> This parameter is monitored by the energy meter located at Sadodar substation. The meter installed to monitor this data is calibrated once in a year as per the revised monitoring plan and the accuracy class of this meter is $\pm 0.2\%$.</p> <p><i>Justification of evidences:</i> Energy meter and the calibration of energy meters are checked During site visit by the verification team.</p> <p><i>Conclusion:</i> Accuracy of the energy meters are in line with the registered monitoring plan.</p>	OK	OK
<p>c) QA/QC Procedure (EB 55 Annex 1, §§ 184b (vii), 205c, 206)</p> <p><i>Describe whether all applicable QA/QC procedures are met. Assess further if the calibration of the</i></p>	<p>/CAL/ /MR/ /ISO/ /IM01/</p>	<p><i>Description:</i> All the necessary QA/QC procedures required for the monitoring of the parameter are adequately met. The calibration of the meters is once in a year as per the requirement. Further, the calibration was delayed for 12 months. Out of this duration, 8 months (from June-2011 to January-12)</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<i>monitoring equipment has been carried out in line with the latest EB guidance.</i>	/CAL-G/	<p>belongs to this monitoring period.. The latest test certificate shows that meters are operating within their accuracy class 0.2%, therefore in accordance with Annex 60 to EB 52, a correction factor of +0.2% is applied.</p> <p><i>Justification of evidences:</i> The calibration certificates of all the energy meters submitted by the project proponent are verified by the verification team.</p> <p><i>Conclusion:</i> Proper QA/QC procedures are in place.</p>		
<p>d) Correctness (EB 55 Annex 1, §§ 202, 206, 221e)</p> <p><i>Determine whether the value given in the monitoring report is correct or determined in a conservative manner.</i></p> <p><i>In case of conservative approaches used in lieu of the monitoring as per registered MP detailed assessment of the conservativeness of the approach used should be given.</i></p> <p><i>In case of mistakes / deviations pl. provide details and descriptions of the CARs raised.</i></p>	/MR/ /PPA/	<p><input checked="" type="checkbox"/> Correct <input type="checkbox"/> Not correct</p> <p><i>Description:</i> This value has been monitored from the main meter at Sadodar Substation. The same reading is used by GEDA to prepare the monthly Certificate of Share of Electricity Generation. This reading is used for calculation of transmission loss by GEDA and is not directly used for calculation of emission reductions.</p> <p><i>Justification of evidences:</i> The monthly Certificate of the Share of the Electricity Generation for the entire of the monitoring period have been verified by the assessment team and the values considered in the monitoring report are found to be consistent.</p> <p><i>Conclusion:</i> The verification team concludes that the values</p>	OK	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		given in the monitoring report is correct and justified.		
E. Emission reductions calculation				
E.1. Traceability (EB 55 Annex 1, § 182) <i>Assess if the calculation is fully traceable. In case of complex calculations an Excel calculation spreadsheet shall be used. All applied formulae must be visible.</i>	/MR/ /XLS/ /PDD/	<p><i>Description:</i> The calculation of the emission reduction is traceable. An emission reduction calculation spread sheet is submitted by the project proponent along with the monitoring report. The formulae applied for the emission reduction calculation are clearly correct. Moreover detailed emission reduction calculation has not mentioned in the MR. hence, CAR E1 has been raised.</p> <p><i>Justification of evidences:</i> The registered PDD has been checked in order to ensure correctness the formulae applied for the calculation.</p> <p><i>Conclusion:</i> CAR E1 has been raised.</p>	CAR E1	OK
E.2. Parameter consistency (EB 55 Annex 1, § 186; EB 54 Annex 34 Pt.1) <i>Assess whether all internal and external parameters and data used for calculation are applied consistently in the monitoring report and the calculation spreadsheet?</i> <i>Consider only the correct data exchange between the monitoring report and the calculation spreadsheet (if any). Further ensure the consistency of notations for all parameters in the PDD, MR, calculation spreadsheet.</i>	/XLS/ /MR/ /PDD/	<p><i>Description:</i> All the internal and external parameters and data used for the calculation are verified by the verification team. All the values are found to be considered correctly. The data between the monitoring report and the emission reduction calculation sheet are also assessed. Designations of the parameters are also used consistently in the MR in line with the registered PDD. Moreover emission reduction calculation has not mentioned in the MR. hence, pending CAR E1 has been raised.</p>	Pending CAR E1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		<p><i>Justification of evidences:</i> The registered PDD, monitoring report and the emission reduction calculation spread sheet are checked by the verification team to confirm the same.</p> <p><i>Conclusion:</i> Pending CAR E1 has been raised.</p>		
<p>E.3. Parameter presentation (EB 54 Annex 34 Pt.1)</p> <p>Check if all values included in the MR are presented as per international standards</p> <ul style="list-style-type: none"> - Format: Standard format (e.g. 1,000 representing one thousand and 1.0 representing one). - Units: Values shall be directly given in SI units – or additionally to original units transferred to SI. - Short scale naming system: (Only) million = 10^6 and billion 10^9 shall be used. 	/MR/ /XLS/	<p><i>Description:</i> All the values included in the MR are presented as per international standards. The units used are SI units.</p> <p><i>Justification of evidences:</i> Every format, units etc. is crosschecked with the monitoring report and confirmed as the international standard.</p> <p><i>Conclusion:</i> Each parameter in the monitoring report is presented as international presentation.</p>	OK	OK
<p>E.4. Correctness of calculation (EB 55 Annex 1, §§ 204-206)</p> <p>Check if the applied formulae and methods for calculating baseline emissions, project emissions and leakage are in accordance with the monitoring plan and / or the approved methodology.</p> <p>Assess whether the provided calculations are complete and reflect all requirements of the</p>	/XLS/ /MR/ /PDD/	<p><i>Description:</i> The applied formulae and methods for calculating baseline emissions are as per the Monitoring plan. Further project emissions and leakage are zero as per the registered PDD. Moreover emission reduction calculation has not mentioned in the MR. hence, pending CAR E1 has been raised.</p> <p><i>Justification of evidences:</i> The formulae in the MR are checked with the approved Monitoring plan.</p>	Pending CAR E1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
<p><i>monitoring plan.</i></p> <p><i>Check especially that no standard or old values have been used for calculation where calculations based on up-to-date data is required.</i></p>		<p><i>Conclusion:</i> Pending CAR E1 has been raised.</p>		
<p>E.5. Emission reductions table (EB 54 Annex 34, E.4)</p> <p><i>Check if the MR includes a summary table of the emission reductions calculation specifying separately</i></p> <ul style="list-style-type: none"> - Total baseline emissions - Total project emissions: - Total leakage - Total emission reductions. <p><i>Assess whether the values are correct or need to be revised as a consequence of issues identified above.</i></p>	/MR/	<p><input type="checkbox"/> The MR includes in section E.4 a summary table of the emission reductions calculation.</p> <p><input checked="" type="checkbox"/> The summary specifies the total baseline, project and leakage emissions as well as the total emission reductions separately.</p> <p><input checked="" type="checkbox"/> The values as specified in the ER summary table are correct; no issues have been identified during the verification which requires changes in the ER calculation.</p> <p><input type="checkbox"/> During the verification issues with impact on the ER calculation have been identified. Thus subject to the closure of above listed findings the summary table in E.4 needs to be revised.</p> <p>In this context the following additional findings have been identified:</p> <p>Further project emissions and leakage are zero as per the registered PDD. Moreover emission reduction calculation has not mentioned in the MR. hence, pending CAR E1 has been raised.</p> <p><i>Justification of evidences:</i> The formulae in the MR are checked</p>	Pending CAR E1	OK

Checklist Item (incl. guidance for the verification team)	Reference	Verification Team Comments (Means and results of assessment)	Draft Concl.	Final Concl.
		with the approved Monitoring plan. <i>Conclusion:</i> Pending CAR E1 has been raised.		
E.6. Comparison with ex-ante determined emission reductions (EB 54 Annex 34, E.5; E.6) <i>Check if the MR includes a comparison of actual values of the monitoring period with the estimations in the registered PDD.</i> <i>Check further whether in case of an increase an appropriate explanation is included in the MR.</i> <i>Assess in case of a significant increase whether this is due to technical or organisational changes within or outside the control of the PP which might require a notification / approval of changes (as per EB 48 Annex 66/67).</i>	/XLS/ /MR/ /PDD/	<i>Description:</i> The MR includes the comparison of values of the monitoring period with the estimations in the registered PDD. The emission reductions during the current monitoring period are lower than the PDD estimates. Further, CAR E1 has been raised. <i>Justification of evidences:</i> It has been checked with the monitoring report. Further, justification will be reserved for the closure of the CAR <i>Conclusion:</i> CAR E1 has been raised	Pending CAR E1	OK



ANNEX 2: STATEMENTS OF COMPETENCE OF ALL INVOLVED PERSONNEL

TÜV NORD Certification		
<p align="center">Statement of Competence Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program</p>		
<p align="center">Mr. Prasad Jakkaraju</p>		
SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor	2014-02-02
VCS	Lead Assessor	2014-02-02
<p>Authorization status for technical areas within sectoral scopes:</p>		
CODE	TECHNICAL AREA	
1.2	Renewable Energies	
2.1	Electricity Distribution	
<p>103 – Rev. 0, Date: 2011-03-25</p>		
<p align="right">S01-F003 rev0 / 2010-04-19</p>		

TÜV NORD Certification		
<p align="center">Statement of Competence Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program</p>		
<p align="center">Mr. Jimmy Sah</p>		
SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor	2014-02-03
VCS	Lead Assessor	2014-02-03
<p>Authorization status for technical areas within sectoral scopes:</p>		
CODE	TECHNICAL AREA	
1.2	Renewable Energies	
<p>091 – Rev. 1, Date: 2011-07-27</p>		
<p align="right">S01-F003 rev0 / 2010-04-19</p>		

TÜV NORD Certification		
<p align="center">Statement of Competence Appointment and authorization according to the procedures of the TÜV NORD JI/CDM Certification Program</p>		
<p align="center">Mr. Sukanta Das</p>		
SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor	2014-03-08
VCS/ ISO 14064-2	Lead Assessor	2014-03-08
<p>Authorization status for technical areas within sectoral scopes:</p>		
CODE	TECHNICAL AREA	
1.2	Renewable Energies	
<p>089 – Rev. 1, Date: 2012-06-18</p>		
<p align="right">S01-F003 rev2 / 2012-04-05</p>		



Statement of Competence
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program

Mr. Sandip Saha

SCHEME	STATUS	VALID UNTIL
CDM	Trainee	09-01-2015
VCS	Trainee	09-01-2015

275 – Rev. 0, Date: 2012-01-10

275_S01-F003_2012-01-10_rev0.doc

S01-F003 rev1 / 2011-08-02



Statement of Competence
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program

Mr. Stefan Winter

SCHEME	STATUS	VALID UNTIL
CDM	Senior Assessor (Validation, Verification) Technical Reviewer	2014-06-30
VCS	Senior Assessor (Validation, Verification) Technical Reviewer	2014-06-30

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA	TR SUBCATEGORIES
1.1	Thermal energy generation	
1.2	Renewable Energy	1.2.1 Hydro 1.2.2 Wind 1.2.3 Geothermal 1.2.4 Solar 1.2.5 Tidal
2.2	Heat distribution	
3.1	Energy demand	
13.1	Waste handling and disposal	13.1.1 Waste management 13.1.2 Waste water management
13.2	Animal waste management	
15.2	Animal waste management	

163 – Rev. 2, Date: 2011-08-10

163_S01-F003_2011-08-10_rev2

S01-F003 rev1 / 2011-08-02



Statement of Competence
Appointment and authorization according to the procedures
of the TÜV NORD JI/CDM Certification Program

Mr. Swapnil Thanekar

SCHEME	STATUS	VALID UNTIL
CDM	Lead Assessor (Validation, Verification)	2014-02-02
VCS	Lead Assessor	2014-02-02

Authorization status for technical areas within sectoral scopes:

CODE	TECHNICAL AREA
1.2	Renewable Energies

047 – Rev. 1, Date: 2011-08-02

047_S01-F003_2011-08-02_rev1

S01-F003 rev0 / 2010-04-19