



**Verification and certification report form for  
CDM project activities  
(Version 04.0)**

*Complete this form in accordance with the instructions attached at the end of this form.*

**BASIC INFORMATION**

<b>Title and UNFCCC reference number of the project activity</b>	Vaayu India Wind Power Project in Gujarat UNFCCC ref.No-4700		
<b>Scale of the project activity</b>	<input checked="" type="checkbox"/> Large-scale <input type="checkbox"/> Small-scale		
<b>Version number of the verification and certification report</b>	02		
<b>Completion date of the verification and certification report</b>	12/04/2021		
<b>Monitoring period number and duration of this monitoring period</b>	Sixth Monitoring period 01/04/2017 to 31/03/2018 (First and Last date included)		
<b>Version number of the monitoring report to which this report applies</b>	1.4		
<b>Crediting period of the project activity corresponding to this monitoring period</b>	Fixed crediting period Start date: 01/06/2011 Length: 10 years (01/06/2011 to 31/05/2021)		
<b>Project participants</b>	Vaayu (India) Power Corporation Private Limited Numerco Limited, (United Kingdom) ACT Financial Solutions B.V., (Netherlands) First Climate Markets A.G. (Germany)		
<b>Host Party</b>	India		
<b>Applied methodologies and standardized baselines</b>	Selected Methodology: ACM0002 Version 11 – “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” Selected standardized baseline: N/A		
<b>Mandatory sectoral scopes</b>	Sectoral scope : 1- Energy industries (renewable - / non-renewable sources)		
<b>Conditional sectoral scopes, if applicable</b>	NA		
<b>Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD</b>	106,378 tCO <sub>2</sub> e		
<b>Certified amount of GHG emission reductions or GHG removals for this monitoring period</b>	Amount before 1 January 2013	Amount from 1 January 2013 until 31 December 2020	Amount from 1 January 2021
	0	75,186 tCO <sub>2</sub> e	0
<b>Name and UNFCCC reference number of the DOE</b>	LGAI Technological Center, S.A. (Applus+ Certification) UNFCCC Ref. No.: E-0032		

**Name, position and signature of the approver  
of the verification and certification report**

Mr. Agustín Calle de Miguel

*Applus+ Certification CDM Technical Manager*

Signature:



## SECTION A. Executive summary

>> LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Vaayu (India) Power Corporation Private Limited to perform the sixth periodical verification of “Vaayu India Wind Power Project in Gujarat” (UNFCCC Ref. No. 4700) applying the methodology ACM0002 Version: 11. The management of Vaayu (India) Power Corporation Private Limited is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.

A desk review and a site visit have been conducted to verify the data submitted in the monitoring report. Applus+ Certification confirms the following has been reviewed:

- The approved registered PDD/1.3/, revised PDD/1.7/ including the monitoring plan and the corresponding validation report;
- Monitoring report of previous monitoring period as well as corresponding verification report;
- Monitoring report of this monitoring period;
- The applied monitoring methodology;
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;
- All information and references relevant to the project activity's resulting in emission reductions.

The project activity involves electricity generation by wind turbine generators (WTGs) and supplying the same to the NEWNE grid (Now part of integrated Indian Grid). This is renewable energy generation which can replace the fossil fuel dominated grid connected electricity generation.

The project activity consists of 64 WTGs (0.8 MW capacity each), making the total installed capacity to be 51.2 MW in Jamnagar and Rajkot district in Gujarat, India. The WTGs are of Enercon (E-53) make. Enercon India Limited is the supplier of WTGs and the O&M contractor for the project activity. It is to be noted that name of company “Enercon India Limited” is changed as “Wind World (India) Limited from 01/01/2013 onwards, the same is verified through the name change consent issued by Government of India/3.6/.

The generated electricity is evacuated to Gujarat state grid substation. The project activity generates power by using the kinetic energy of wind, thus resulting in zero emissions during electricity production. The power produced displaces an equivalent amount of power from the grid, which is fed mainly by fossil fuel fired power plants. Hence, it results in reduction of GHG emissions.

The current verification has been performed as per latest valid version of the CDM Standards i.e., CDM PS for PAs version 02.0 /2.2/, CDM VVS for PAs version 02.0 /2.1/.

Applus+ Certification confirms that the project is implemented in accordance with the validated and revised PDD/1.7/. The monitoring plan complies with the applied methodology ACM0002 Version: 11 and the monitoring have been carried out in accordance with the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 75,186 tCO<sub>2</sub>e emission reductions during period 01/04/2017 to 31/03/2018.

## SECTION B. Verification team, technical reviewer and approver

### B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk/document review	On-site inspection	Interviews	Verification findings
1.	Team Leader / Technical	OR	Ahirwar	Vivek Kumar	GCEES	Y	Y	Y	Y

	Expert								
2.	Auditor in Training	OR	Soni	Ravi Kant	GCEES	Y	Y	Y	Y

## B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical Reviewer	EI	Shen	Simon	Applus+ Certification
2.	Approver	IR	Calle de Miguel	Agustín	Applus+ Certification

## SECTION C. Application of materiality

### C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	<b>Manual adjustment of otherwise automatically recorded activity levels:</b> This error may be due to manually recording of actual readings in-to original records.	Low	Monitoring Equipment e.g. Energy Meters have totalizer which reduce the chance of error as initial readings and final readings can be cross –check in every records /3.3/, /3.4/. The reading of JMR is being recorded in the presence of representatives of DISCOM (GEDA/GETCO) and O&M contractor. So, chances of noting down incorrect reading diminish. Monthly share certificates are endorsed by state utility.	100 per cent of the data and information was checked from monthly share certificates/3.3/ and cross-checked from sold electricity invoices /3.4/
2.	<b>Human error in the quantification of emissions.</b> This error may be due to transfer of monitored data in-to Emission Reduction calculation sheet/4.2/ for calculation of actual emission reduction archived during monitoring period.	High	The monitoring data is transfer manually, so there is high potential risk of errors/errors, omissions or misstatements.	100 per cent of the data and information was checked from Monthly share certificates/3.3/and cross-checked from monthly invoices raised to state utility /3.4/.

### C.2. Consideration of materiality in conducting the verification

>> The project activity is large scale project and applicable threshold for materiality in accordance with CDM VVS for PAs Version 02.0 paragraph 326(c) is 2%. All the monthly reported figures for parameter **EG<sub>PJ,y</sub>** were verified with respective monthly share certificates and were found to be consistent. Therefore, it can be stated that the verified value is free from any potential error / omission / misstatement. The project activity, being a wind energy project, has assumed the project emission and leakages to be zero which is in line to the applied methodology/2.3/ and is also reasonable in the opinion of assessment team. Therefore, there are no additional factors which might lead to introduction of error in emission reduction estimation.

**SECTION D. Means of verification****D.1. Desk/document review**

>> The Monitoring Report version 1.1 dated 02/05/2018/1.0/ submitted by the PP was made publicly available on the UNFCCC website before the verification activities started. The published MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- verify the completeness of the data and the information presented in the MR;
- check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid;
- evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of documents reviewed or referenced is available in Appendix 3 of this report.

**D.2. On-site inspection**

Duration of on-site inspection: 31/05/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Confirm the implementation and operation of the project;	WTG project site at District- Jamnagar and Rajkot State-Gujarat ; India	31/05/2018	Vivek Kumar Ahirwar and Ravi Kant Soni
2.	Review the data flow for generating, aggregating and reporting the monitoring parameters;	WTG project site at District- Jamnagar and Rajkot State-Gujarat ; India	31/05/2018	Vivek Kumar Ahirwar and Ravi Kant Soni
3.	Confirm the correct implementation of procedures for operations and data collection;	WTG project site at District- Jamnagar and Rajkot State-Gujarat ; India	31/05/2018	Vivek Kumar Ahirwar and Ravi Kant Soni
4.	Cross-check the information provided in the MR documentation with other sources;	WTG project site at District- Jamnagar and Rajkot State-Gujarat ; India	31/05/2018	Vivek Kumar Ahirwar and Ravi Kant Soni
5.	Check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.;	WTG project site at District- Jamnagar and Rajkot State-Gujarat ; India	31/05/2018	Vivek Kumar Ahirwar and Ravi Kant Soni
6.	Review the calculations and assumptions used to obtain the GHG data and ER;	WTG project site at District- Jamnagar and Rajkot State-Gujarat ; India	31/05/2018	Vivek Kumar Ahirwar and Ravi Kant Soni
7.	Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.	WTG project site at District- Jamnagar and Rajkot State-Gujarat ; India	31/05/2018	Vivek Kumar Ahirwar and Ravi Kant Soni

**D.3. Interviews**

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Borah	Deep Jyoti	Vaayu (India) Power Corporation Private Limited	31/05/2018	Electricity Generation Records ( monthly energy statements, Invoices and break up sheets), Reliability & accuracy of readings considered for emission reduction calculations, Calibration procedure	Vivek Kumar Ahirwar and Ravi Kant Soni
2	Vasara	Kishore	Vaayu (India) Power Corporation Private Limited	31/05/2018	Monitoring and measuring system, Collection of measurements, Observations of established practices and Data Verification of monitoring parameters	Vivek Kumar Ahirwar and Ravi Kant Soni
3	Kumar	Ajay	WWIL	31/05/2018	Monitoring and measuring system, Collection of measurements, Observations of established practices and Data Verification of monitoring parameters	Vivek Kumar Ahirwar and Ravi Kant Soni
4	Kumar	Dharmendra	WWIL	31/05/2018	Monitoring and measuring system, Collection of measurements, Observations of established practices and Data Verification of monitoring parameters	
5	Jadeja	M.M	WWIL	31/05/2018	QA/QC procedures, data management, internal audits to maintain data quality & reliability, maintenance Practices Consideration of monitoring period, monitoring methodology, project documentation and emission reduction calculations	Vivek Kumar Ahirwar and Ravi Kant Soni

**D.4. Sampling approach**

>> Not Applicable, as all monitoring data as reported in MR and ER were verified and checked from actual records.

### D.5. Clarification requests (CLs), corrective action requests (CARs) and forward action requests (FARs) raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	CL #1	-	-
Compliance of the project implementation and operation with the registered PDD	-	-	-
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	CAR #4	-
Assessment of data and calculation of emission reductions or net removals	-	CAR #2	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (Documents missing and inconsistencies)	-	CAR #3	-
<b>Total</b>	<b>1</b>	<b>3</b>	<b>-</b>

## SECTION E. Verification findings

### E.1. Compliance of the monitoring report with the monitoring report form

<b>Means of verification</b>	The final Monitoring Report /1.2/ is compliant with Monitoring Report form (Version 08.0) /2.4/ and guidance as provided by UNFCCC. Applus+ Certification considers that the attachment "Instructions for filling out the monitoring report form" at the end of template "Monitoring report form (Version 06.0)" /2.4/ has been followed. Relevant information was provided by the project participant in the applicable Monitoring Report sections.
<b>Findings</b>	CL #1 and CAR #1 (PRC report) was raised and resolved
<b>Conclusion</b>	Applus+ Certification confirms that the monitoring report is in compliance with the relevant valid form and instructions therein as accordance to "Clean Development Mechanism Validation and Verification Standard for Project Activity" (CDM- VVS for PA) v02.0 §§ 352-353.

### E.2. Remaining forward action requests from validation and/or previous verifications

>> This is sixth periodic verification of the project. There are no pending issues from the validation or the previous verification/1.6/. This was verified and confirmed from the project documents on the UNFCCC project webpage /1.5/.

### E.3. Compliance of the project implementation and operation with the registered project design document

<b>Means of verification</b>	<p>The project activity is fully implemented according to the description presented in the revised PDD /1.7/. The assessment team confirms, through the visual inspection that all physical features of the CDM project activity including data collecting systems and storage have been implemented in accordance with the revised PDD /1.7/.</p> <p>This project activity involves generation of electricity from WTGs and supplying the generated electricity to the NEWNE grid (Now part of integrated Indian Grid). The project is located at Chattar, Narmana, Seth Wadala, Jam Ambardi, Mevasa, Dhun Dhoraji, Sadodar, Bodi, Padavala and Machharda villages in Jamnagar and Rajkot districts Gujarat state in India and has an installed capacity of 51.2 MW (64 WTGs x 0.8 MW/WTG). The project was registered as a CDM project on 09/05/2011 and the crediting period (fixed) chosen from 01/06/2011 to 31/05/2021. This is the sixth verification of the project activity covering the period from 01/04/2017 to</p>
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	<p>31/03/2018.</p> <p>The project has been implemented; equipment installed and is being operated as described in the revised PDD. The monitoring plan implemented during the current monitoring period is in compliance with the approved registered monitoring plan and the applied methodology. This was verified during the site visit.</p> <p>The project is located between latitude 21°, 55' to 22°, 08' N and longitude 70°, 05' to 70°, 19' E. Location of the project was verified through Google Maps (<a href="https://www.gps-coordinates.net/">https://www.gps-coordinates.net/</a>) and found consistent with the same mentioned in the registered PDD and MR.</p> <p>The project activity WTGs were commissioned from 25/06/2010 to 04/07/2011 as mentioned in the Monitoring Report, commissioning dates of WTGs have been verified against the commissioning certificates/3.1/ and is found to be correct. The line diagram of the metering system of the project activity showing metering points is indicated in section C of the MR/1.2/.</p> <p>During the site visit it is observed project WTGs are connected to various clusters at the site for the purpose of metering. Each cluster has dedicated main and the check meter at 33 kV. In all the clusters, only WTGs of project activity are connected and no WTGs of other project developer are there in the clusters. Similarly, the WTGs of other project developers (non-project activity) in the wind farm are also connected to separate clusters having exclusive dedicated metering arrangement at 33kV at project site. All the cluster meters (for the project activity and non-project activity) are further connected to 220 kV Wind World sub-station at Sadodar.</p> <p>The electricity generated by all the WTGs (project and non-project) is been fed to the NEWNE grid (now part of integrated Indian grid) at WWIL Sadodar substation.</p> <p>There are 4 main meters installed at WWIL pooling substation (220/33 kV), known as revenue meters. Electricity exported and imported by all the WTGs (including non-project WTGs) is recorded through the revenue meters.</p> <p>Net electricity supplied to the grid by each project developer is calculated by the state utility (GEDA) using apportioning procedure, adjusting the transmission loss between metering point at 33kV and the metering point at 220kV(Revenue Meters) at WWIL.</p> <p>Apportioning procedure used in the calculation of net electricity supplied to the grid is correctly described in section C of the MR/1.2/ and in section B.7.2 of the revised PDD/1.7/. This was also verified by interviewing the staff at the sub-station and the officials of the state utility/6.1/.</p> <p>During the site visit current status of each WTGs was verified by the verification team through the online CMS system maintained at project site and confirmed that all the 64 machines were functional.</p> <p>Actual emission reductions achieved during the current monitoring period are 29.32 % lesser than the same estimated in the revised CDM-PDD for comparable period. This is due to low plant load factor achieved during the current monitoring period and technical failure of some WTGs (Kindly refer section E.8.6 of this report for further details).</p> <p>No events or situations that may impact the applicability of the methodology occurred during this monitoring period, which was confirmed by checking the operational/shut down details available at site office and interviewing the site personnel. The project was checked against the applicability criteria in the applied methodology ACM0002 Version 11 and it is confirmed that the methodology is applicable to the project activity. The data and variables provided in the Monitoring Report are the same as stated in the registered monitoring plan.</p>
<b>Findings</b>	No non-conformability was observed during assessment for project implementation. Therefore, no finding was raised.
<b>Conclusion</b>	<p>Applus+ Certification confirms that the implementation of project activity is in compliance with the CDM requirement stipulated under CDM-VVS for PA v02.0 §§ 354-356.</p> <p>i. The implementation and operation of the project activity has been</p>

	<p>conducted in accordance with the description contained in the revised PDD.</p> <p>ii. By means of an on-site inspection the verification team is able to confirm that all physical features (technology, project equipment, and monitoring and metering equipment) of the registered CDM project activity are in place and that the project participants have operated the project activity as per the revised PDD.</p> <p>iii. No information with regard to data and variables was identified that may surpass the estimated quantity of ERs in the revised PDD.</p> <p>iv. The emission reductions achieved during the current monitoring period are 75,186 tCO<sub>2</sub>e, within the estimated quantity (106,378 tCO<sub>2</sub>e) in the revised PDD for the comparable period.</p>
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#### **E.4. Post-registration changes**

##### **E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents<sup>1</sup>**

>> There are no temporary deviations from the monitoring plan of revised PDD/1.7/ or applied methodology/2.3/ during the current monitoring period. It was verified and confirmed from the Monitoring Report/1.2/, revised PDD/1.7/, UNFCCC project webpage /1.5/ and on-site verification/6.1/ & /6.2/.

##### **E.4.2. Corrections**

>> There are corrections to the project information as described in the approved registered PDD/1.3/ with respect to the addition of PPs and name of grid, are identified during the current monitoring period. These changes are reported in the revised PDD/1.7/.

The corrections are assessed and opinion is provided in the validation report on post registration changes version 02, dated 12/04/2021 (Being submitted along with issuance request).

It is to be noted that the corrections to the registered PDD was also requested previously and approved by UNFCCC on 01/08/2013 (Ref: PRC-4700-001).

(Ref: Validation opinion on changes in PDD, Report No- 8109817473 – 13/029, dated 14/05/2013)/1.4/

##### **E.4.3. Changes to the start date of the crediting period**

>> There are no changes to the start date of crediting period identified during the current monitoring period. It was verified and confirmed from the UNFCCC project webpage /1.5/.

##### **E.4.4. Inclusion of a monitoring plan**

>> There is no inclusion of a monitoring plan identified during the current monitoring period.

##### **E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other methodological regulatory documents**

>> Permanent changes from the registered monitoring plan are identified during the current monitoring period. The approved registered PDD/1.3/ mentions that the meters will be calibrated and tested once in 3 years. In the revised PDD/1.7/, the PP has updated the calibration frequency as once in 5 years.

The changes are assessed and opinion is provided in the validation report on post registration changes version 02, dated 12/04/2021 (Being submitted along with issuance request).

It is to be noted that the revision in monitoring plan was also sought previously and approved by UNFCCC on 01/08/2013 (Ref: PRC-4700-001).

(Ref: Validation opinion on changes in PDD, Report No- 8109817473 – 13/029, dated 14/05/2013)/1.4/

<sup>1</sup> Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

**E.4.6. Changes to the project design**

>> There is no change to project design of the registered project activity identified during the current monitoring period. It was verified and confirmed from the Monitoring Report/1.2/, approved registered PDD/1.3/, UNFCCC project webpage /1.5/ and on-site verification/6.1/&/6.2/.

**E.4.7. Changes specific to afforestation and reforestation project activities**

>> Not Applicable.

**E.5. Compliance of the registered monitoring plan with applied methodologies, applied standardized baselines, and other applied methodological regulatory documents**

<b>Means of verification</b>	<p>The monitoring plan as contained in the revised PDD/1.7/ was reviewed against the monitoring requirements of the applied methodology ACM0002 version 11/2.3/. Based on this review it was found that the monitoring plan contained in the revised PDD includes all the required parameters to be monitored in the context of project design and description and allows proper determination of emission reductions in accordance with the PDD /1.7/ and applied methodology ACM0002 version 11 /2.3/.</p> <p>It was observed during the site visit that, the WTGs (project activity and non-project) are connected to the common metering system at 220/33 kV WWIL sub-station (At Sadodar).</p> <p>Hence, in order to calculate the net electricity exported to the grid by the WTGs of the project activity, the state electricity utility uses an apportioning procedure that has been correctly described in section C of the MR/1.2/ and in section B.7.2 of the revised PDD /1.7/. This was also verified by interviewing the staff at the sub-station and the officials of the state utility/6.1/.</p> <p>As verified through Article 5 of PPA/3.2/ and clause 3 in section C of share certificates issued by state utility/11/ that the apportioning procedure is carried out by the state utility and the PP has no role in this calculation. It was confirmed through the interviews of representatives of the O&amp;M provider during the site visit, that the procedure to derive the electricity exported to the grid by each project owner is completely under jurisdiction of the state utility.</p> <p>Values of the parameter "Net electricity supplied to the grid by project" is directly sourced from the monthly "Share certificates" issued by GETCO/3.3/ that indicates the share of electricity for project activity received at the WWIL sub-station.</p> <p>The Share certificates are prepared and endorsed by GETCO, an external government agency and the PP has no influence in the entire procedure. Hence, the data issued by the state electricity board through the Share certificate is deemed authentic.</p> <p>During the site visit, it was observed that, the WTGs belonging to the project activity are connected to the grid through an appropriate power evacuation system. Appropriate metering system and calculation procedures are transparently described in the monitoring plan to enable accurate determination of emission reductions achieved by the project activity.</p> <p>The approved registered monitoring plan was implemented and followed during previous monitoring period. This was checked from the verification available on the UNFCCC webpage of this project/1.5/. Hence, it can be assured that the monitoring plan of the registered project is in accordance with the applied methodology.</p> <p>A comparison between the requirement of the methodology, for the parameter <math>EG_{facility,y}</math>, and the description of the same parameter in the registered monitoring plan is provided in the table below:</p>			
	Revised PDD Approved Methodology	<b>Requirement in the applicable methodology and relevant EB documents</b>	<b>Requirement in the registered monitoring plan</b>	<b>Opinion</b>
	<b>Data/Parameter</b>	$EG_{facility,y}$	$EG_{PJ,y}$	In compliance with the applicable methodology.
	<b>Description</b>	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y	Net Quantity of Electricity exported to the grid	In compliance with the applicable methodology.
	<b>Measured/Calculate</b>	Directly measured	Calculated	This parameter is calculated using the directly measured

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	<b>d /Default</b>			values of electricity exports and imports (page 36 approved PDD) as per the actual practice on site by the state utility (GETCO), which is governed by the PPA signed specifically for this project activity. This approach has been described in section B.7.3 of the revised PDD, hence accepted.
	<b>Source of data</b>	Not Specified	Share certificate	This is as per the actual practice on site by the state utility, governed by the PPA signed for this project activity. Hence accepted.
	<b>Monitoring equipment</b>	Energy meters	Not Applicable since this is a calculated parameter	This parameter is calculated using the directly measured values of electricity exports and imports measured at 33 kV and 220/33 kV WWIL sub-station (Sadodar) metering points. Hence accepted.
	<b>Measuring/Reading/Recording frequency</b>	Hourly measurement and monthly Recording	Recording Frequency: Monthly	The Hourly measurement and monthly Recording is for the directly measured $EG_{PJ,y}$ as per the applicable methodology. However this parameter is calculated as justified in the row "Measured/Calculated /Default" above, hence the monthly recording frequency is acceptable since it is as per the actual practice on site by the state utility. Hence accepted.
	<b>Calculation method (if applicable)</b>	Not Applicable	$EG_{PJ,y} = EG_{PJ,export,y} - EG_{PJ,import,y}$	This is as per the actual practice on site by the state utility. Hence accepted. The same formula is mentioned in the registered monitoring plan and PPA as well.
	<b>QA/QC procedures</b>	Measurement results shall be cross-checked with records for sold electricity.	The values $EG_{PJ,y}$ mentioned in the share certificate will be cross-checked against values mentioned in the invoice raised on the state utility.	This is in compliance with the applicable methodology.
In view of the above assessment, the verification team is able to confirm that the registered monitoring plan of the registered project is in accordance with the applied methodology.				
<b>Findings</b>	No non-conformability was observed during assessment for monitoring plan against applied monitoring methodology. Therefore, no finding was raised.			
<b>Conclusion</b>	Applus+ Certification confirms that the monitoring plan is in accordance with the approved methodology /2.3/ and correctly applied by the registered CDM project activity and CDM-VVS for PA v02.0 §§ 360-362 have been met.			

**E.6. Compliance of monitoring activities with the registered monitoring plan**
**E.6.1. Data and parameters fixed ex ante or at renewal of crediting period**

<b>Means of verification</b>	The following three parameters are fixed ex-ante defined in revised PDD:			
	<b>Data/parameter:</b>	$EF_{gird,OM,y}$	$EF_{gird,BM,y}$	$EF_{grid,CM,y}$
	<b>Unit</b>	tCO <sub>2</sub> /MWh	tCO <sub>2</sub> /MWh	tCO <sub>2</sub> /MWh
	<b>Description</b>	Operating Margin Emission	Build Margin Emission Factor	Combined Margin Emission Factor

		Factor of NEWNE Regional Electricity Grid	of NEWNE Regional Electricity Grid	of NEWNE Regional Electricity Grid	
	<b>Source of data</b>	Central Electricity Authority: CO <sub>2</sub> Baseline database Version 05 /3.5/			
	<b>Value(s) applied)</b>	1.00498	0.67518	0.92252	
<b>Findings</b>	No non-conformability was observed during assessment for monitoring plan against applied monitoring methodology. Therefore, no finding was raised.				
<b>Conclusion</b>	Value of all 3 parameters reported in the monitoring report /1.2/ and corresponding emission reduction calculations spreadsheet /4.2/ are consistent with the revised PDD. The applied values are correct and justified.				

### E.6.2. Data and parameters monitored

<b>Means of verification</b>	The analysis of the compliance of the actual monitoring, of the monitoring parameter with the approved registered monitoring plan is provided as following: <b>(1) Net Quantity of Electricity exported to the grid , EG<sub>PJ,y</sub> (MWh)</b>			
	Monitoring Report onsite checks  Registered Monitoring Plan & Approved Methodology	<b>Requirement in the approved registered/revised monitoring plan/1.7/</b>	<b>Implementation of the project</b>	<b>Conclusion on the compliance of the implementation with the monitoring plan</b>
	<b>Data/Parameter</b>	EG <sub>PJ,y</sub>	EG <sub>PJ,y</sub>	In compliance
	<b>Description</b>	Net Quantity of Electricity exported to the grid	Net Quantity of Electricity exported to the grid	In compliance
	<b>Measured/Calculated /Default</b>	Calculated	Calculated	In compliance
	<b>Source of data</b>	Share certificate	Share certificate	In compliance
	<b>Monitoring equipment</b>	Not Applicable since this is a calculated parameter	Not Applicable since this is a calculated parameter	In compliance
	<b>Measuring/Recording/ Recording frequency</b>	Recording Frequency: Monthly	Recording Frequency: Monthly	In compliance
	<b>Calculation method (if applicable)</b>	EG <sub>PJ,y</sub> =EG <sub>PJ,,export,y</sub> – EG <sub>PJ,import,y</sub>	EG <sub>PJ,y</sub> =EG <sub>PJ,,export,y</sub> – EG <sub>PJ,import,y</sub>	In compliance
	<b>QA/QC procedures</b>	Net Quantity of Electricity exported to the grid indicated in share certificate will be crosschecked with the invoices raised by PP	Monthly values of “Net Quantity of Electricity exported to the grid “(EG <sub>PJ,y</sub> ) indicated in share certificate have been cross-checked against values mentioned in the invoice raised to the state utility and found consistent.	In compliance
EG <sub>PJ,y</sub> is a calculated parameter, as indicated in the table above. This calculation is carried out by the state utility (GETCO). The PP has no role in the calculation. This was verified by interviewing the GETCO officials during the site visit. The calculated monthly values of EG <sub>PJ,y</sub> are directly sourced from Form share certificates prepared and issued				

by GETCO/3.3/ at 33 kV metering points. The PP has correctly reported the monthly values from the Form share certificates in the emission reduction spread sheet/4.2/. Monthly values of  $EG_{PJ,y}$  have been cross checked with the monthly invoices/3.4/ raised by the PP and are found to be consistent.

The net electricity supplied to the grid by the project activity is a calculated value which is arrived by using the value of electricity supplied by project WTGs, non-project WTGs at individual energy meters and the cumulative value of electricity export of the entire number of WTGs connected to substations (i.e. including project and non-project WTGs) as measured at the pooling substations. Since the measurement of electricity supplied by non-project WTGs at energy meter is non- feasible for PP and The main meter & check meter reading at the substation are under the jurisdiction of GETCO only and are not shared with the individual project developers, hence, these parameter have not been included as the monitoring parameters in the approved monitoring plan.

The value of  $EG_{PJ,y}$  for the current monitoring period is 81,501.051 MWh. This parameter is directly used for the emission reduction calculations.

In summary, the actual of monitoring for  $EG_{PJ,y}$  is in compliance with the approved registered monitoring plan. The share certificates, from which the parameter  $EG_{PJ,y}$  is sourced, is prepared and endorsed by an external government agency i.e., the State Electricity Board and the PP has no influence in the entire procedure. Hence the data issued by the state electricity board through share certificate is considered to be authentic.

## 2) Net Electricity export recorded at Wind World (India) Limited Substation, $EG_{GETCO, Export}$ (kWh)

Monitoring Report onsite checks  Registered Monitoring Plan & Approved Methodology	Requirement in the approved registered/revised monitoring plan/1.7/	Implementation of the project	Conclusion on the compliance of the implementation with the monitoring plan
<b>Data/Parameter</b>	<b><math>EG_{GETCO, Export}</math></b>	<b><math>EG_{GETCO, Export}</math></b>	In compliance
<b>Description</b>	Net Electricity export recorded at Wind World (India) Limited Substation	Net Electricity export recorded at Wind World (India) Limited Substation	In compliance
<b>Measured/Calculated /Default</b>	Measured	Measured	In compliance
<b>Source of data</b>	Joint Meter Reading (JMR)	Joint Meter Reading (JMR)	In compliance
<b>Monitoring equipment</b>	Energy Meter	Energy Meter	In compliance
<b>Measuring/Reading/ Recording frequency</b>	Recording Frequency: Monthly	Recording Frequency: Monthly	In compliance
<b>Calculation method (if applicable)</b>	Not applicable	Not applicable	In compliance
<b>QA/QC procedures</b>	Calibration of all the meters will be undertaken once in five years and faulty meters will be duly replaced	Calibration of all the meters have been done as per the calibration frequency outlined in the revised PDD. No	In compliance

	immediately.	faulty meters identified in the current monitoring period.	
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The net electricity exported is recorded by main meter installed at WWIL sub-station metering point. Main energy meters have the capability of continuous measurement, which was verified during the site visit. The accuracy of the monitoring equipment used to measure the values is 0.2s, which is as per the revised PDD/1.7/ which is as per the norm defined in the PPA/3.2/.

Joint meter reading is taken by the officials of DISCOM in the presence of the WWIL representative at the metering points. The monthly values of this parameter are directly sourced from JMRs prepared by DISCOM/3.7/. The PP has correctly reported the monthly values in the emission reduction spread sheet/4.2/.it is to be noted that value of this parameter (EG<sub>GETCO, Export</sub>) is not directly used in the calculation of emission reductions.

The value of EG<sub>GETCO, Export</sub> for the current monitoring period is 732,287,950 kWh.

In summary, the actual of monitoring for EG<sub>GETCO, Export</sub> is in compliance with the approved monitoring plan.

**3) Net Electricity import recorded at Wind World (India) Limited Substation, EG<sub>GETCO, Import</sub> (kWh)**

Monitoring Report onsite checks  Registered Monitoring Plan & Approved Methodology	<b>Requirement in the approved registered/revised monitoring plan/1.7/</b>	<b>Implementation of the project</b>	<b>Conclusion on the compliance of the implementation with the monitoring plan</b>
<b>Data/Parameter</b>	EG <sub>GETCO, Import</sub>	EG <sub>GETCO, Import</sub>	In compliance
<b>Description</b>	Net Electricity import recorded at Wind World (India) Limited Substation	Net Electricity import recorded at Wind World (India) Limited Substation	In compliance
<b>Measured/Calculated /Default</b>	Measured	Measured	In compliance
<b>Source of data</b>	Joint Meter Reading (JMR)	Joint Meter Reading (JMR)	In compliance
<b>Monitoring equipment</b>	Energy Meter	Energy Meter	In compliance
<b>Measuring/Reading/ Recording frequency</b>	Recording Frequency: Monthly	Recording Frequency: Monthly	In compliance
<b>Calculation method (if applicable)</b>	Not applicable	Not applicable	In compliance
<b>QA/QC procedures</b>	Calibration of all the meters will be undertaken once in five years and faulty meters will be duly replaced	Calibration of all the meters have been done as per the calibration frequency outlined in the revised PDD.No	In compliance

		immediately.	faulty meters identified in the current monitoring period.	
	<p>The net electricity imported is recorded by main meter installed at WWIL sub-station metering point. Main energy meters have the capability of continuous measurement, which was verified during the site visit. The accuracy of the monitoring equipment used to measure the values is 0.2s, which is as per the revised PDD/1.7/ which is as per the norm defined in the PPA/3.2/.</p> <p>Joint meter reading is taken by the officials of DISCOM in the presence of the WWIL representative at the metering points. The monthly values of this parameter are directly sourced from JMRs prepared by DISCOM/3.7/. The PP has correctly reported the monthly values in the emission reduction spread sheet/4.2/.it is to be noted that value of this parameter (EG<sub>GETCO, Import</sub>) is not directly used in the calculation of emission reductions.</p> <p>The value of EG<sub>GETCO, Import</sub> for the current monitoring period is 9,725,000 kWh.</p> <p>In summary, the actual of monitoring for EG<sub>GETCO, Import</sub> is in compliance with the approved monitoring plan.</p>			
<b>Findings</b>	No non-conformability was observed during assessment for monitoring plan against applied monitoring methodology. Therefore, no finding was raised.			
<b>Conclusion</b>	<p>Applus+ Certification confirms that the actual monitoring activities observed on site are in compliance with the monitoring plan and as described in the revised PDD/1.7/ and the same is in line with the monitoring methodology /2.3/.</p> <p>The applicable parameters stated in the monitoring plan/1.7/ and the applied methodology/2.3/ have been sufficiently monitored. The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the revised PDD monitoring plan/1.7/. The information flow (data generation, aggregation, recording, calculation and reporting) for the parameters to be monitored including its values in the final version of the MR/1.2/ have been correctly reported and confirmed. Hence, the requirement of CDM-VVS for v02.0 §§ 363-364 have been met.</p>			

### E.6.3. Implementation of sampling plan

<b>Means of verification</b>	No sampling plan is defined in the registered monitoring plan. All the data and information has been checked during verification assessment; thus, no sampling plan has been applied in the Project.
<b>Findings</b>	Not Applicable
<b>Conclusion</b>	Not Applicable

### E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	As per the monitoring plan in the revised PDD/1.7/ the meters are to be tested and calibrated once in five years. The calibration frequency has been followed for the meters installed at Sadodar substation and for the cluster meters in the current monitoring period. The calibrations certificates/5.1/ of meters have been checked to confirm the same. The project activity metering has been physically inspected during the site visit. The details of monitoring equipment involved in the project activity and their calibration dates are mentioned in Section C of the MR/1.2/ and are summarised in the tables below. All the cluster meters and substation meters are of accuracy class of 0.2s and a calibration frequency of once in five years.				
	Cluster Meters installed at project site (33 kV) :				
	Meter serial No-	Make and accuracy class	Calibration date(s)	Calibration due date	Calibration delayed (Y/N)
	10059208		25/09/2013	25/09/2018	N

	10059203	L&T and 0.2s	25/09/2013			
	GJU60947	Secure and 0.2s	25/09/2013	26/09/2018	N	
	GJU61707		25/09/2013			
	GJU61698		25/09/2013			
	GJU61321		25/09/2013			
	GJU61313		25/09/2013			
	GJU61690		25/09/2013			
	GJU61699		25/09/2013			
	GJU61322		26/09/2013			
	GJU61696		26/09/2013			
	GJU61310		26/09/2013			
	GJU61701		26/09/2013			
	GJU61693		26/09/2013			
	GJU61692		26/09/2013			
	GJU61691		26/09/2013			
	GJU60943		26/09/2013			

**Meters installed at 220/33 kV WWIL substation (Revenue meters):**

Location	Meter serial No-	Make & Accuracy class	Calibration date(s)	Calibration due date	Calibration delayed (Y/N)
Sadodar substation	GJB01470	Secure and 0.2s	30/09/2016	30/09/2021	N
	GJU04175				
	GJU04176				
	KAB11082				

The installation and working condition of the meters were checked during the on-site inspection and it was found to be satisfactory. These meters are duly approved, installed, tested, sealed and in the custody of the state utility. The PP has no control over the same.

As evident from the calibration details provided in the above table, there is no delay in calibration of cluster meters and GETCO meters (Revenue meters identified during the current monitoring period).

The assessment team has verified the latest calibration certificates of cluster meters and GETCO meters (Revenue meters at substation) and confirmed that meters were working satisfactory and within acceptable limits of accuracy.

These meters are duly approved, installed, tested, sealed and in the custody of the state utility. The PP has no control over the same.

CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006/6.3/ which is considered as national standard mentions that "All interface meters shall be tested at least once in five years." Hence, the calibration frequency of once in 5 years, mentioned in the revised PDD for the meters is appropriate.

The assessment team has already verified above, that the meters are not in control of the PP. It is also observed that the PP receives payment, for the electricity supplied to the grid, from the state utility (which is a Government Organisation and a 3<sup>rd</sup> party with respect to this CDM project). This electricity supplied to the grid is obtained using directly measured values at the energy meters. Hence the state utility ensures that the energy meters are in proper working condition, since it has to make payments based on these meter readings.

<b>Findings</b>	CAR #4 and CAR #1 (PRC report) was raised and resolved.
<b>Conclusion</b>	Applus+ Certification confirms that the calibration is conducted at the frequency following the relevant industry standard as specified by the methodology /2.3/ and the monitoring plan contained in the revised PDD /1.7/. Therefore, the requirement of CDM-VVS for PA v02.0 §§ 370 have been met.

**E.8. Assessment of data and calculation of emission reductions or net removals****E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks**

<b>Means of verification</b>	<p>The verification team verified that</p> <ol style="list-style-type: none"> <li>A complete set of data for the monitoring period was available for the monitoring period and the verification of each monitoring parameter is elaborated under Section E.6.2 of this report. The complete monitoring data is also presented in the corresponding ER sheet /4.2/ of final Monitoring Report /1.2/.</li> <li>The information provided in the monitoring report was cross checked with other sources, wherever appropriate and available, and such information is also included under Section E.6.2 of this report.</li> <li>The calculations of baseline emissions as presented in the corresponding ER sheet of final Monitoring Report were checked and found to be consistent with the formulae and methods described in the registered monitoring plan and the applied methodology.</li> <li>All assumptions used in the emission calculations were found appropriate and therefore justified</li> <li>Appropriate emission factors and other reference values have been correctly applied. This has also been elaborated under Section E.6.1 of this report.</li> <li>No standardized baseline was prescribed in the revised PDD and therefore it has not been applied.</li> <li>There is no pro-rata approach is applied to the calculations of GHG emission reductions in the current monitoring period in as the monitoring period starts after 31 December 2012.</li> </ol> <p>The baseline emissions are the product of net electricity exported to the grid <math>EG_{PJ,y}</math> expressed in MWh of electricity produced by the renewable generating unit multiplied by the grid emission factor. Baseline emission factor is calculated as combined margin, consisting of a combination of operating margin (OM) and build margin (BM) factors.</p> $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$ <p>Where:  <math>BE_y</math>: Baseline Emissions in year y; t CO<sub>2</sub>  <math>EG_{PJ,y}</math> : Net Electricity supplied to the grid in year y  <math>EF_{grid,CM,y}</math> = Combined margin CO<sub>2</sub> emission factor (tCO<sub>2</sub>/MWh)</p> <p>As per the revised PDD, combined margin emission factor is 0.92252 tCO<sub>2</sub> /MWh. Hence, the baseline emissions for the project activity for the current monitoring period are as follows.</p> $BE_y = 81,501.051 * 0.92252 = 75,186 \text{ tCO}_2\text{e}$
<b>Findings</b>	CAR #2 was raised and resolved.
<b>Conclusion</b>	<p>Applus+ Certification confirms that the requirement outlined under CDM-VVS for v02.0 §§ 374 have been meet as:</p> <ul style="list-style-type: none"> <li>A complete set of data for the monitoring period is available.</li> <li>Information on the baseline GHG emission calculation provided in the monitoring report /1.2/ has been cross-checked with other sources.</li> <li>Calculations of baseline emissions have been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document.</li> <li>Appropriate emission factor of the power grid has been correctly applied.</li> </ul>

**E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks**

<b>Means of verification</b>	The revised PDD/1.7/ and applied monitoring methodology/2.3/ does not prescribe any project emissions to be considered. The onsite visit and project design also did not reveal any potential source to be considered in this regard.
<b>Findings</b>	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.

<b>Conclusion</b>	No project emissions were required to be calculated.
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### E.8.3. Calculation of leakage GHG emissions

<b>Means of verification</b>	The revised PDD/1.7/ and applied monitoring methodology/2.3/ does not prescribe any leakage emissions to be considered. The onsite visit and project design also did not reveal any potential source to be considered in this regard.
<b>Findings</b>	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.
<b>Conclusion</b>	No leakage emissions were required to be calculated.

### E.8.4. Summary calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

<b>Means of verification</b>	<p>As elaborated above, the entire emission reductions from the project activity were based on baseline emissions.</p> <p>According to applied methodology ACM0002 version 11, emission reductions are calculated using following formula:</p> $ER_y = BE_y - PE_y$ <p>Where:</p> <p><math>ER_y</math> = Emission reductions in year y (tCO<sub>2</sub>e/yr)</p> <p><math>BE_y</math> = Baseline emissions in year y (tCO<sub>2</sub>/yr)</p> <p><math>PE_y</math> = Project emissions in year y (tCO<sub>2</sub>e/yr)</p> <p>For most renewable power generation project activities, <math>PE_y = 0</math>. Hence <math>ER_y = BE_y</math></p> <p>The calculations presented in this regard in the final monitoring report and corresponding ER calculation sheet were found appropriate and complying with the provisions prescribed in the registered monitoring plan of revised PDD and applied methodology.</p> <p>The verification team confirms that an audit trail that contains the evidence and records that validated the stated figures were checked and found acceptable.</p>
<b>Findings</b>	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.
<b>Conclusion</b>	<p>Applus+ Certification confirms that the requirement outlined under CDM-VVS for PA v02.0 §§ 374 have been meet as:</p> <ul style="list-style-type: none"> <li>• A complete set of data for the monitoring period is available.</li> <li>• Information provided in the monitoring report /1.2/ has been cross-checked with other sources;</li> <li>• Calculations of baseline emissions, and project activity emissions and leakage, as appropriate, been carried out in accordance with the formulae and methods described in the monitoring plan and the applied methodology document.</li> <li>• There are no assumptions in emission reductions calculation.</li> <li>• Appropriate emission factor of the power grid has been correctly applied.</li> </ul>

### E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

<b>Means of verification</b>	As verified and evident from the final Monitoring Report /1.2/ and corresponding ER sheet /4.2/, the actual emission reductions achieved by the project activity in the current monitoring period were found lower than the estimated quantity in the revised PDD/1.3/ for the comparable period. This is largely due to low plant load factor achieved during the current monitoring period.			
	Annual CERs estimated in the registered PDD (tCO <sub>2</sub> e)	Estimated CERs for current monitoring period (365 days), tCO <sub>2</sub> e	Actual CERs achieved in the current monitoring period, tCO <sub>2</sub> e	Difference
	106,378	106,378	75,186	-29.32%
	Considering, there is no increase in ERs than the estimated amount; it was found acceptable to the assessment team.			
<b>Findings</b>	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.			
<b>Conclusion</b>	<p>Applus+ Certification confirms that the requirement outlined under CDM-PS for PA v02.0 §§ 266 have been meet as:</p> <ul style="list-style-type: none"> <li>A comparison of actual GHG emission reductions or net anthropogenic GHG removal of the project activity achieved during this monitoring period with the estimates in the revised PDD /1.7/ has been provided in the Monitoring Report /1.2/.</li> <li>The verification team confirms that the calculation of the comparison is correct.</li> </ul>			

### E.8.6. Remarks on difference from estimated value in registered PDD

<b>Means of verification</b>	<p>The verification team has assessed the cause of any variation in the actual GHG emission reductions achieved during the current monitoring period. There is decrease of 29.32 % in the actual emission reductions achieved during the current monitoring period from that stated in the revised PDD. This is largely due to low plant load factor achieved during the current monitoring period.</p> <p>It is to be noted that PLF is completely governed by the availability of wind, which is natural phenomenon and it is beyond the control of PP.</p> <p>The actual emission reductions were less than the estimation in the revised PDD for an equivalent length of the monitoring period therefore no further explanation is required.</p>
<b>Findings</b>	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.
<b>Conclusion</b>	<p>Applus+ Certification confirms that the requirement outlined under CDM-PS for PA v02.0 §§ 267 and CDM-VVS for PA v02.0 §§ 356 (d) have been meet as:</p> <ul style="list-style-type: none"> <li>The verified emission reductions are lesser than the estimated value in the monitoring period. The project participants have explained the cause of any decrease in the actual GHG emission reductions achieved during the current monitoring period, and including all information (i.e. data and/or parameters) that is different from that stated in the revised PDD /1.7/.</li> <li>The variation is deemed to be reasonable.</li> </ul>

### E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

<b>Means of verification</b>	Based on the assessment done in section E.8.1 to E.8.6, the verification team is able to certify that the emission reductions from the CDM project activity 4700 "Vaayu India Wind Power Project in Gujarat" in India during the period from 01/04/2017 to 31/03/2018 (including both days) is 75,186 tCO <sub>2</sub> e.
<b>Findings</b>	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.
<b>Conclusion</b>	Applus+ Certification confirms that the requirement outlined under CDM-PS for PA v02.0 §§ 265 as the project participants has calculated GHG emission reductions.

**E.9. Assessment of reported sustainable development co-benefits**

<b>Means of verification</b>	Not applicable
<b>Findings</b>	Not applicable
<b>Conclusion</b>	Not applicable

**E.10. Global stakeholder consultation**

<b>Means of verification</b>	Not applicable
<b>Findings</b>	Not applicable
<b>Conclusion</b>	Not applicable

**SECTION F. Internal quality control**

>> As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. In case one of these two persons is part of the assessment team, the approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the CDM-EB along with the relevant documents.

**SECTION G. Verification opinion**

>> Applus+ Certification has been contracted by Vaayu (India) Power Corporation Private Limited to perform the verification of the emission reductions reported for the CDM project "Vaayu India Wind Power Project in Gujarat" in the period 01/04/2017 to 31/03/2018.

Applus+ Certification concludes that the CDM Project "Vaayu India Wind Power Project in Gujarat", as described in the monitoring plan contained in the revised PDD /1.7/ (Version 6, dated 09/04/2021) and Monitoring Report /1.2/ (Version 1.4, 09/04/2021), meets all relevant requirements of the UNFCCC for CDM project activities including article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords) and the subsequent decisions by the COP/MOP and CDM Executive Board. The verification is conducted in line with the (CDM-VVS for PA) Version 02.0 /2.1/ requirements. The Project is implemented according to selected monitoring methodology /2.3/ and the revised PDD /1.7/. The monitoring equipment was installed, calibrated and maintained in a proper manner. The monitoring system is in place and the Project is generating GHG emission reductions as a CDM project.

Applus+ Certification confirms that the project is implemented in accordance with the validated and revised Project Design Document/1.7/ and revised monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 75,186 tCO<sub>2</sub>e emission reductions during the period 01/04/2017 to 31/03/2018 (both days included).

Applus+ Certification therefore issues the positive verification opinion expressed in the Certification statement in Section H.

**SECTION H. Certification statement**

>> Applus+ Certification has been engaged by Vaayu (India) Power Corporation Private Limited to perform the sixth periodical verification of the 'Vaayu India Wind Power Project in Gujarat' (UNFCCC Ref. No. 4700).

The management of Vaayu (India) Power Corporation Private Limited is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's revised PDD version 6 /1.7/, completed on 09/04/2021 and the applied methodology ACM0002 Version: 11 /2.3/.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. The verification can confirm that:

- the project is operated as planned and described in the project design document approved by the EB;
- the approved monitoring plan is as per the applied methodology;

- the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by the EB;
- the development and maintenance of records and reporting procedures are in accordance with the approved registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for 'Vaayu India Wind Power Project in Gujarat' for the monitoring period 01/04/2017 to 31/03/2018 as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period:	From 01/04/2017 to 31/03/2018
Verified emissions in the above reporting period:	
Leakage emissions	00,000 tCO <sub>2</sub> equivalents
Project emissions	00,000 tCO <sub>2</sub> equivalents
Baseline emissions	75,186 tCO <sub>2</sub> equivalents
Emission reductions in this monitoring period (i.e. 01/04/2017 to 31/03/2018)	75,186 tCO <sub>2</sub> equivalents
Emission reductions achieved during the period up to 31 December 2012.	Nil
Emission reductions achieved during the period from 1 January 2013 onwards. (i.e. 01/04/2017 to 31/03/2018)	75,186 tCO <sub>2</sub> equivalents

## Appendix 1. Abbreviations

Abbreviations	Full texts
ABT	Availability Based Tariff
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
EB	Executive Board
EF	Emission Factor
EPC	Engineering, Procurement and Construction
ER	Emission Reductions
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CL	Clarification Request
DOE	Designated Operational Entity
DNA	Designated National Authority
EIL	Enercon(India) Limited
FAR	Forward Action Request
GEDA	Gujarat Electricity Development Authority
GETCO	Gujarat Electricity Transmission Company
GHG	Greenhouse Gas(es)
GUVNL	Gujarat Urja Vikas Nigam Limited
GHG	Greenhouse Gas(es)
GOI	Government of India
IRR	Internal Rate of Return
IPCC	Intergovernmental Panel on Climate Change
JMR	Joint Meter Reading
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
PDD	Project Design Document
PPA	Power Purchase Agreement
PP	Project Participant
PRC	Post Registration Changes
PS	Project Standard
RMP	Revised Monitoring Plan
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
UID	Unique Identification number
UNFCCC	United Nations Framework Convention on Climate Change
WTG	Wind Turbine Generator
WEC	Wind Energy Convertor
WWIL	Wind World India Limited

## Appendix 2. Competence of team members and technical reviewers

According to the sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country Experience	Attendance to the On-Site Assessment
Vivek Kumar Ahirwar	Lead Auditor (LA)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Vivek Kumar Ahirwar	Technical Expert (TE)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Ravi Kant Soni	Auditor in Training (AiT)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Simon Shen	Technical Reviewer (TR)	Yes (1)	Yes (1.2)	N/A	N/A	N/A

The curricula vitae of the DOE's team members are provided below:

**Vivek Kumar Ahirwar** is a BEE-Certified Energy Auditor by Govt of India with over eight years of relevant experience in energy efficiency, energy audit, thermal and electrical energy generation technology from renewable source and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD. He has successfully audited more than 100 GHG (CDM/VCS/GS) projects in different states across the India. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India.

**Ravi Kant Soni** is a certified lead auditor for Lead Auditor ISO 14001:2004&Lead Auditor ISO 14064:2006 GHG Inventory and verification. He has more than 10 years of work experience across Climate Change, Environmental Management & Monitoring, Health & Safety Management, and Statutory Compliance. He was involved in more than 100 CDM validation and verifications activities and Gold Standard, VER projects as a team leader/technical reviewer / validator / verifier covering the sectoral scope 1 technical area 1.2. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from M.I.T.S Gwalior Jiwaji University Gwalior, India

**Meng (Simon) Shen** (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ Certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ Certification, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 5.5 years.

## Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	<b>Basic Documents (Monitoring Report, Project Design Documents, Previous Verification Reports)</b>			
1.0	VIPCPL	MR, version 1.1 (Published)	Dated 02/05/2018	PP
		MR, version 1.2	Dated 03/11/2018	
		MR, version 1.3	Dated 05/12/2018	
1.2	VIPCPL	MR, version (final), version 1.4	Dated 09/04/2021	PP
1.3	VIPCPL	Revised approved PDD, Version 4 (source: <a href="https://cdm.unfccc.int/PRCContainer/DB/prcp943999473/view">https://cdm.unfccc.int/PRCContainer/DB/prcp943999473/view</a> )	Dated 17/04/2013	Other: UNFCCC
1.4	TUV Nord	Validation Opinion on PRC, Report No-8109817473 – 13/029	Dated 14/05/2013	Other: UNFCCC
1.5	UNFCCC	CDM Project activity view page “Vaayu India Wind Power Project in Gujarat” <a href="https://cdm.unfccc.int/Projects/DB/DNV-CUK1303122887.18/view">https://cdm.unfccc.int/Projects/DB/DNV-CUK1303122887.18/view</a>	-	Other: UNFCCC
1.6	ESPL	Verification report for Fifth monitoring period (01/01/2015-31/03/2017), version 02	Dated 08/08/2017	Other: UNFCCC
1.7	VIPCPL	Revised PDD, Version 06	Dated 09/04/2021	PP
2.	<b>References and requirements at UNFCCC/IPCC/etc.</b>			
2.1	UNFCCC website	Clean Development Mechanism Validation and Verification Standard for Project Activity (CDM-VVS for PA), version 02.0 as per EB 101, Annex 2	Dated 29/11/2018	Other: UNFCCC
2.2	UNFCCC website	CDM Project Standard for Project Activity (CDM-PS for PA), version 02.0 as per EB 101, Annex 1	Dated 29/11/2018	Other: UNFCCC
2.3	UNFCCC website	Approved Consolidated Methodology ACM0002, Version 11	Dated 12/02/2010	Other: UNFCCC
2.4	UNFCCC website	Guidance to Complete “Monitoring Report Form (CDM-MR-FORM), Version 08.0” as accordance with the Attachment “Instructions for filling out the monitoring report form”	Dated 06/04/2021	Other: UNFCCC
3.	<b>Project implementation information</b>			
3.1	State utility	Commissioning certificates issued by GEDA (for all 64 WTGs):	-	PP
3.2	State utility	Power Purchase Agreement between GETCO and Vaayu (India) Power Corporation Private Limited	-	PP
3.3	State utility	Monthly Share certificates issued by GETCO	For the period 01/04/2017 - 31/03/2018	PP

3.4	VIPCPL	Monthly invoices issued by PP to GETCO	For the period 01/04/2017 - 31/03/2018	PP
3.5	CEA	CEA CO <sub>2</sub> Baseline Database for the Indian Power Sector Version 05	-	Other
3.6	Ministry of corporate Affairs, GOI	Name change consent issued by Government of India	Dated 01/01/2013	PP
3.7	State utility	Monthly JMRs issued by GETCO		PP
4.	<b>ER calculation and cross-checking issue</b>			
4.1	VIPCPL	Emission reduction calculation sheet, version 01	Dated 02/05/2018	PP
4.2	VIPCPL	Emission reduction calculation sheet, version 1.2	Dated 03/11/2018	PP
5.	<b>Calibration issues</b>			
5.1	State utility	Calibration certificates of cluster meters and substation meters. The dates of calibration have already been included in the report (Section E.7).	-	PP
6.	<b>Others</b>			
6.1	Applus+ Certifica tion	Site Visit Attendance Sheet	31/05/2018	-
6.2	Applus+ Certifica tion	Site Visit Photograph	-	-
6.3	CEA	Central Electricity Authority (Installation and Operation of Meters) Regulations - Notified on 17/03/2006 No.502/70/CEA/DP&D - Amendments Notified on 26/06/2010 No.502/6/2009/DP &D/D-I ( <a href="http://www.cea.nic.in/reports/regulation/meter_reg.pdf">http://www.cea.nic.in/reports/regulation/meter_reg.pdf</a> )	17/03/2006	Other: CEA
6.4	VIPCPL	Letter to GETCO requesting to conduct calibration of meters	06/10/2017	PP

## Appendix 4. Clarification requests, corrective action requests and forward action requests

**Table 1. Remaining FAR from validation and/or previous verifications**

FAR ID	xx	Section no.	xx	Date: DD/MM/YYYY
<b>Description of FAR</b>				
NA				
<b>Project participant response</b>				<b>Date: DD/MM/YYYY</b>
<b>Documentation provided by project participant</b>				
<b>DOE assessment</b>				
<b>Date: DD/MM/YYYY</b>				

**Table 2. CL from this verification**

CL ID	01	Section no.	E	Date : 02/06/2018
<b>Description of CL</b>				
1. Duration of the crediting period is not reported as per the instructions to fill CDM-MR-FORM in section A.5 of the MR.				
2. It is not clear if corrections to the registered PDD were also approved by UNFCCC on 01/08/2013.				

<b>Project participant response</b>	<b>Date : 03/11/2018</b>
<ol style="list-style-type: none"> <li>Duration of the crediting period has been reported as per the instructions to fill CDM-MR-FORM in section A.5 of the MR.</li> <li>PP has revised MR as permanent post registration changes (not corrections) were approved by UNFCCC during the second monitoring period. These changes were approved by UNFCCC on 1 Aug 2013 (Reference: PRC- 4700 -001).</li> </ol>	
<b>Documentation provided by project participant</b>	
MR Version 1.2	
<b>DOE assessment</b>	<b>Date: 10/11/2018</b>
Information about post registration changes approval is transparently updated in the MR and crediting period of the project activity is reported as per the instructions to fill CDM-MR-FORM. CL #1 is closed.	
<b>CL #1 re-opened</b>	<b>Date: 05/12/2018</b>
<b>Description of CL</b>	
<ol style="list-style-type: none"> <li>Numbers of project participants reported at page 1 and section A.3 of the MR are inconsistent with the same mentioned at project UNFCCC web page.</li> <li>Please clarify why location map of the project activity is not provided in section A.2 of the MR as per the instructions to fill CDM-MR-FORM.</li> <li>Exact reference with regards to the methodology/ tools referred is not provided in section A.5 of the MR.</li> </ol>	
<b>Project participant response</b>	<b>Date : 05/12/2018</b>
<ol style="list-style-type: none"> <li>PP has revised total numbers of project participants reported at page 1 and section A.3 of the MR as per UNFCCC web page.</li> <li>PP has included a location map of the project activity in section A.2 of the MR as per the instructions to fill CDM-MR-FORM.</li> <li>PP has now provided exact reference with regards to the applied methodology/ tools referred in section A.5 of the MR.</li> </ol>	
<b>Documentation provided by project participant</b>	
MR Version 1.3, dated 05/12/2018	
<b>DOE assessment</b>	<b>Date : 05/12/2018</b>
<ol style="list-style-type: none"> <li>The PP has reported all the project participants in the MR, consistent with the project webpage.</li> <li>Location map of the project is provided in section A.2 of the MR as per the instructions to fill CDM-MR-FORM.</li> <li>Reference of applied methodology/tool is updated in section A.5 of the MR, found satisfactory, hence accepted.</li> </ol>	
CL #1 is closed.	

Table 3. CAR from this verification

<b>CAR ID</b>	01	<b>Section no.</b>	E.8.1	<b>Date : 02/06/2018</b>
<b>Description of CAR</b>				
Please submit ER calculation sheet for the current monitoring period.				
<b>Project participant response</b>				<b>Date : 3/11/2018</b>
PP has submitted ER calculation sheet for the current monitoring period.				
<b>Documentation provided by project participant</b>				
ER sheet 1.2				
<b>DOE assessment</b>				<b>Date: 10/11/2018</b>
ER calculation sheet is submitted by the PP is found to be satisfactory, hence accepted. CAR#1 is closed.				

  

<b>CAR ID</b>	02	<b>Section no.</b>	NA	<b>Date : 02/06/2018</b>
<b>Description of CAR</b>				
Please submit the following documents:				
<ol style="list-style-type: none"> <li>Commissioning certificates and PPA</li> <li>Monthly share certificates issued by state utility covering the current monitoring period</li> <li>Monthly invoices issued to GEDA covering the current monitoring period</li> </ol>				
<b>Project participant response</b>				<b>Date : 03/11/2018</b>

PP has submitted following documents:	
1. Commissioning certificates and PPA	
2. Monthly share certificates issued by state utility covering the current monitoring period	
3. Monthly invoices issued to GEDA covering the current monitoring period	
<b>Documentation provided by project participant</b>	
Commissioning certificates and PPA GEDA Monthly share certificates Monthly Invoices	
<b>DOE assessment</b>	<b>Date:</b> 10/11/2018
The PP has submitted the requested documents found to be satisfactory, hence accepted. CAR #2 is closed	

<b>CAR ID</b>	03	<b>Section no.</b>	E.7	<b>Date :</b> 02/06/2018
<b>Description of CAR</b>				
Section C of the MR: Please clarify if the calibration of main meters is also delayed during the current monitoring period. Please submit the latest calibration certificates for all the meters covering the current monitoring period.				
<b>Project participant response</b>				<b>Date :</b> 3/11/2018
<p>In section C of MR, there is no delay in calibration of meters installed at Sadodar substation. However, cluster meter was not calibrated as per the calibration frequency. Therefore, PP has applied error factor in net export values of GETCO Share certificates from the month of April 2017 to March 2018. As per VVS requirement: error factor of "0.2%" should be applicable for both export &amp; import i.e., the measured vales. However, GEDA share certificate provides only net electricity generation, the separate export and import values are not available. Hence being conservative and to account for the error for both export &amp; import, a cumulative error of "-0.4%" on net electricity generation has been applied from the month April 2017 to March 2018. The Calibration of cluster meters are not under the purview of PP, the same is done by state utility. PP has intimated GEDA about calibration of Cluster Meter, but the same has not been calibrated yet. PP has no control over delay in Calibration.</p> <p>The calibration of cluster meters was delayed and not conducted in line with the frequency as mentioned in the registered PDD. Since, Calibration of cluster meter is not under the purview of PP, PP has intimated GEDA about calibration of Cluster Meter, but the same has not been calibrated yet. PP has no control over delay in Calibration. Hence, PP has applied max error on net electricity generation values during the current monitoring period. The cluster meters were last calibrated in month of September 2016. Moreover, The CEA Notification No. 502/70/CEA/DP&amp;D dated 17/03/2006/16/ which is considered as national standard mentions that "All interface meters shall be tested at least once in five years."</p>				
<b>Documentation provided by project participant</b>				
MR Version 1.2				
<b>DOE assessment</b>				<b>Date:</b> 10/11/2018
<p>It is verified through the calibration certificates and details provided in the MR that calibration of cluster meters is not conducted in line with the frequency as mentioned in the approved registered monitoring plan, however no calibration delay identified for the substation meters. Considering the delay in calibration the PP has applied the error factor (0.4%) to the parameter <math>EG_{PJ,y}</math> from 01/04/2017 to 31/03/2018 (complete monitoring period). The approach followed by the PP is accepted due to following reasons:</p> <ol style="list-style-type: none"> <li>1. As verified through the PPA, the calibration of meters completely under jurisdiction of GETCO (the state government nodal agency) and not under the control of PP.</li> <li>2. The PP had communicated to calibration agency (GETCO) to carry out the calibration of energy meters as verified from communication letter duly acknowledged by GETCO but the same yet not done.</li> <li>3. As per the Central Electricity Authority (CEA) Notification No. 502/70/CEA/DP&amp;D dated 17/03/2006/ which is considered as national standard mentions that "All interface meters shall be tested at least once in five years." Hence, the energy meters calibration can be considered still valid.</li> <li>4. State utility (GETCO) is a Government Organization and a 3rd party with respect to this CDM project and also the purchaser of electricity supplied to the grid by project, hence, the state utility ensures that the energy meters are in proper working condition, because all monetary transactions done based on these meter readings.</li> </ol> <p>CAR #3 is closed.</p>				
<b>DOE assessment</b>				<b>Date:</b> 11/04/2021

The PP has requested post registration changes in response to the issues raised by UNFCCC during information & reporting check. The calibration frequency is updated from once in 3 years to once in 5 years, kindly refer closure of CAR #1 under Appendix-4 of the PRC validation report (being submitted along with issuance request).

**Table 4. FAR from this verification**

<b>FAR ID</b>	<b>xx</b>	<b>Section No.</b>	<b>Date: DD/MM/YYYY</b>
<b>Description of FAR</b>			
<b>Project participant response</b>			<b>Date: DD/MM/YYYY</b>
<b>Documentation provided by project participant</b>			
<b>DOE assessment</b>			<b>Date: DD/MM/YYYY</b>

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### Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
04.0	6 April 2021	Revision to: <ul style="list-style-type: none"> <li>Reflect the “Clarification: Regulatory requirements under temporary measures for post-2020 cases” (CDM-EB109-A01-CLAR).</li> </ul>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none"> <li>Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN);</li> <li>Make structural and editorial improvements.</li> </ul>
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: project activities, verifying and certifying		