



**Verification and certification report form for
CDM project activities
(Version 03.0)**

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Vaayu India Wind Power Project in Andhra Pradesh UNFCCC ref. No- 4677
Scale of the project activity	☒ Large-scale ☐ Small-scale
Version number of the verification and certification report	02
Completion date of the verification and certification report	07/08/2020
Monitoring period number and duration of this monitoring period	Monitoring Period: 07 Period: 02/01/2019 to 01/04/2020 ¹ (both dates are included)
Version number of the monitoring report to which this report applies	02.1
Crediting period of the project activity corresponding to this monitoring period	25/04/2011 to 24/04/2021
Project participants	1. M/s Vaayu (India) Power Corporation Private Limited 2. First Climate Markets A.G.
Host Party	India
Applied methodologies and standardized baselines	Sectoral Scope: 1 Energy industries (renewable/ non-renewable sources)
Mandatory sectoral scopes	"Consolidated methodology for grid-connected electricity generation from renewable sources – ACM0002 - Version 11"
Conditional sectoral scopes, if applicable	NA
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	116,150 tCO ₂ e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	108,584 tCO ₂ e
Name and UNFCCC reference number of the DOE	LGAI Technological Center, S.A. (Applus+ Certification) UNFCCC Ref. No.: E-0032

¹ As per Joint meter reading (JMR) reporting practice, a particular day of the month (generally the start date of the new month) becomes the end date and the start date for two subsequent months' reading, respectively. Here 01/01/2019 was the end date of the last monitoring period as it was end reading date for the JMR produced for the month of Dec 2018. Similarly, 01/04/2020 is the end reading date for the JMR produced for the month of March 2020. The previous monitoring period includes 01/01/2019 as the end date. Thus, start date of the current monitoring period is considered as 02/01/2019 and end date as 01/04/2020, where both the dates are included.

Name, position and signature of the approver of the verification and certification report	Mr. Juan Sendín Caballero Applus+ Certification Business Unit Managing Director Signature: 
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SECTION A. Executive summary

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LGAI Technological Center, S.A. (hereafter referred as Applus+ Certification) has been contracted by Vaayu (India) Power Corporation Private Limited to perform the periodical verification of “Vaayu India Wind Power Project in Andhra Pradesh” (UNFCCC Ref. No. 4677) applying the methodology ACM 0002 version 11. The management of Vaayu (India) Power Corporation Private Limited responsible for the preparation of the GHG emissions data and the reported GHG emission reductions.

Scope of verification:

The verification is an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification includes the implementation and operation of the project activity as set out in the registered PDD in the monitoring period.

The verification tests the data and assertions set out in the monitoring report prepared for this monitoring period by the project participant and is based on the following:

- (i) The approved methodology ACM0002. Version 11 “Grid connected electricity generation from renewable sources”, applied in the PDD
- (ii) The registered PDD and monitoring plan
- (iii) UNFCCC criteria referred to in the Kyoto Protocol criteria and the CDM modalities and procedures as agreed in the Bonn Agreement and the Marrakech Accords
- (iv) The CDM Validation and Verification Standard (VVS) for Project Activity, version 2.0
- (v) The CDM Project Standard (PS) and Project Cycle Procedure (PCP) for Project Activity, version 2.0.
- (vi) Relevant decisions, guidance and clarifications of the CMP and CDM Executive Board and any other information and references relevant to the project activity's reported emission reductions.

The verification has considered both quantitative and qualitative aspects on stated/reported emission reductions. The monitoring report (all versions) and corresponding supporting documentation was assessed in accordance with the rules defined by UNFCCC, as appropriate to the Project activity. The verification is not meant to provide any consulting or recommendations to the project participant/others. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

Verification Process:

The verification process is conducted as per internal CDM Quality Manual, which includes the following steps;

- a) Contract with Vaayu (India) Power Corporation Private Limited and appointment of verification team and technical review team (refer Section B.1 and B.2 of this report)
- b) Completeness check of Monitoring Report
- c) Publication of Monitoring Report at UNFCCC website
- d) Desk review (refer Section D.1 of this report) of Monitoring Report and corresponding ER sheet by verification team and planning of remote audit due to COVID -19 pandemic (including sampling approach (refer Section C.4 of this report) to be applied)
- e) Remote audit (refer Section D.2 of this report) (physical implementation and interview with relevant stakeholders) by verification team consistent of Team Leader and all Technical Experts, as a minimum
- f) Follow up activities e.g., interviews (refer Section D.3 of this report)
- g) Reporting and closure of findings (CARs/CLs/FARs) and preparation of draft verification report (refer Section D.5 of this report)
- h) Independent technical review of the draft verification report and final/revised documentation (e.g., Monitoring Report, corresponding ER sheet and evidences)
- i) Reporting and closure of TR comments/findings (refer Section D.5 of this report) (CARs/CLs/FARs) and final approval for the decision made (refer Section E and F of this report).
- j) Issuance of final verification report to contracted CME (or authorized representatives) and submission of request for issuance, as appropriate.

Verification Conclusion:

Based on the outcome of the verification process of the registered Project activity “Vaayu India Wind Power Project in Andhra Pradesh” (UNFCCC Ref. No. 4677) for the monitoring period 02/01/2019 to 01/04/2020 (including both dates) we confirm that the implementation of referenced registered project activity is complying with applicable CDM rules and regulations as stated in the Monitoring Report (final) Version 3.0 dated 22/07/2020. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodologies, ACM0002. Version 11 and the monitoring plan contained in the registered PDD/1/.

LGAI Technological Center, S.A. is able to certify that the emission reductions from the registered CDM project activity “Vaayu India Wind Power Project in Andhra Pradesh” (UNFCCC Ref. No. 4677) during the period 02/01/2019 to 01/04/2020 (including both days) amount to 108,584 tCO₂e. Therefore, this is being submitted for request for issuance, as per UNFCCC procedures.

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.	Lead Auditor / Technical Expert	O R	Ahirwar	Vivek Kumar	GCEES (Outsourced entity)	Y	N	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 Technical Expert	EI	Shen	Simon	Central Office
2.	Approver	IR	Sendin	Juan	Central Office

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.	Manual adjustment of otherwise automatically recorded activity levels: This error may be due to manually recording of actual readings in-to original records.	Low	Monitoring Equipment e.g. Energy Meters have totalize which reduce the chance of error as initial readings and final readings can be cross –check in every records /10//11/. The plant data was verified by plant manager in regular interval, so low	100 per cent of the data and information was checked from JMR/10/ and cross checked from state electricity board invoices /11/

			potential risk of errors, omissions or misstatements. The plant data was verified by plant manager in regular interval, so low potential risk of errors, omissions or misstatements.	
2.	Human error in the quantification of emissions. This error may be due to transfer of monitored data in-to Emission Reduction calculation sheet/7/ 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 JMR/10/ and cross checked from state electricity board invoices /11/

C.2. Consideration of materiality in conducting the verification

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The project activity is large scale project and applicable threshold for materiality in accordance with CDM VVS for PAs Version 02.0 paragraph 329(c) is 2%. All the monthly reported figures for parameter $EG_{\text{facility},y}$ 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

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The Monitoring Report version 01 dated 27/05/2020/4/ 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 approved PDD/1/ 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

Due to the current situation with the global COVID-19 pandemic scenario and country wide lock down in India, an on-site inspection has not been performed by the assessment team. However, the representatives of the PP and O&M contractors were interviewed telephonically on 05/06/2020 i.e. personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure.

Duration of remote inspection: 05/06/2020				
No.	Activity performed on-site	Site location	Date	Team member
1.	Confirm the implementation and operation of the project;	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli villages in Kurnool district and Venkatampalli & Bhogasamudram villages in Anantapur district in Indian State of Andhra Pradesh	05/06/2020	Vivek Kumar Ahirwar
2.	Review the data flow for generating, aggregating and reporting the monitoring parameters;	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli villages in Kurnool district and Venkatampalli & Bhogasamudram villages in Anantapur district in Indian State of Andhra Pradesh	05/06/2020	Vivek Kumar Ahirwar
3.	Confirm the correct implementation of procedures for operations and data collection;	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli villages in Kurnool district and Venkatampalli & Bhogasamudram villages in Anantapur district in Indian State of Andhra Pradesh	05/06/2020	Vivek Kumar Ahirwar
4.	Cross-check the information provided in the MR documentation with other sources;	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli villages in Kurnool district and Venkatampalli & Bhogasamudram villages in Anantapur	05/06/2020	Vivek Kumar Ahirwar

		district in Indian State of Andhra Pradesh		
5.	Check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.;	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli villages in Kurnool district and Venkatampalli & Bhogasamudram villages in Anantapur district in Indian State of Andhra Pradesh	05/06/2020	Vivek Kumar Ahirwar
6.	Review the calculations and assumptions used to obtain the GHG data and ER;	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli villages in Kurnool district and Venkatampalli & Bhogasamudram villages in Anantapur district in Indian State of Andhra Pradesh	05/06/2020	Vivek Kumar Ahirwar
7.	Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli villages in Kurnool district and Venkatampalli & Bhogasamudram villages in Anantapur district in Indian State of Andhra Pradesh	05/06/2020	Vivek Kumar Ahirwar

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Rajanna	Adepu	Project Site In-charge	05/06/2020	Project Activity Description, implementation and operation of the project. Procurement Records & Consumption, Bill & Energy Bills/Records. Calculations and assumptions used to obtain the GHG data and ER	Vivek Kumar Ahirwar
2.	Bose	Mallika	PP-representative	05/06/2020		
3.	Borah	Deep	CDM Advisor	05/06/2020	Monitoring Data & Records Monitoring Plan, equipment, calibrations, maintenance, data records, certificates etc.;	Vivek Kumar Ahirwar

D.4. Sampling approach

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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	-	CAR#1 & CAR#4	-
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	CL#1	CAR#3	-
Assessment of data and calculation of emission reductions or net removals	-	CAR #2	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	1	4	-

SECTION E. Verification findings**E.1. Compliance of the monitoring report with the monitoring report form**

Means of verification	The Monitoring Report version 3.0/5/ is compliant with Monitoring Report form (Version 07.0)/22/ 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 07.0)” /22/ has been followed. Relevant information was provided by the project participant in the applicable Monitoring Report sections.
Findings	CAR#1 and CAR#4 Raised and resolved successfully
Conclusion	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

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This is seventh periodic verification of the project. There are no pending issues from the validation/2/ and previous verifications. This was verified and confirmed from the project documents on the UNFCCC project webpage /16/.

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

Means of verification	This project activity is the generation of electricity from WTGs supplying the generated electricity to the southern grid of India. The project is located at Anantapur and Kurnool district of Andhra Pradesh (63 WTGs) in India and has an installed capacity of 50.4 MW (63 WTGs x 0.8 MW/WTG). The generated electricity is supplied to Electricity Distribution Company (DISCOM) under a long-term power purchase agreement (PPA)/14/. The project was registered as a CDM project on 25/04/2011 /16/. The PP has considered a fixed crediting period for the project activity from 25/04/2011 to 24/04/2021 The rated capacities of transformers were also indicated at the metering points located at the WWIL substation/12/ and the same was found to be consistent with description given in the registered PDD/1/. Furthermore, capacity of transformers verified through the specifications mentioned at the name plate of transformers/20/ and found consistent with revised approved PDD/1/ and MR/5/. The commercial operation of the project activity had been started on 02/08/2010 – 04/05/2011, which was verified vide commissioning certificates/13/. This is the seventh verification of the project activity covering the period from 02/01/2019 to 01/04/2020 (both the dates included). The assessment team has verified and confirmed that 01/01/2019 was the end date of the last monitoring period as it was end reading date for the JMR produced for the month of Dec 2018 and therefore the start date of the current monitoring period is 02/01/2019. Similarly, 01/04/2020 is the end reading date for the JMR produced for the month of March 2020. Thus, end date of the current Monitoring Period is considered as 01/04/2020. The previous monitoring period includes 01/01/2019 as the end date. Thus, start date of the current monitoring period is considered as 02/01/2019 and end date 01/04/2020, where both the dates are included. This practice is adopted by the state utility for monthly JMR readings which is not under the control of PP. However, as there is no overlap of any generation data/reading, additionally based on the JMRs final billing is done; hence this practice is reasonable and accepted. This information has been reported under the MR under footnote 1.
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Project location as mentioned in the below table is verified through Latlong.net (<http://www.latlong.net>) and found consistent with the same mentioned in the revised approved PDD/1/ and MR/5/.

District	Village	Range geo-coordinates
Anantapur & Kurnool	Petnikota, Tummalapenta, Abdullapuram, Chintalayapalli, Venkatampalli & Bhogasamudram	Latitude: 14° 0' 0.5" & 15° 59' 58.2" N, Longitude 77° 1' 0.7" & 78° 59' 59.8" E

During the remote desktop assessment, the verification team randomly selected 11 numbers of WTGs. Verification team asked client to share photos of WTGs in working condition and verification team verifies their serial numbers. The sample size (11) was determined in accordance with the 'Sampling and survey for CDM project activities and programmes of activities' V08/21/ as per the assumptions marked below;

Producer Risk	10%
Consumer Risk	10%
AQL	0.5%
UQL	20%
Sample Size	11
Acceptance Number	0 (No discrepancy allowed)

The geo coordinates of the WTGs were verified using Latlong.net (Ref: <http://www.latlong.net>) and were found to be consistent with the same reported in the MR and under Appendix 1 of the registered PDD.

The 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 132 kV Wind World sub-station. Apportioning procedure used in the calculation of net electricity supplied to the grid is correctly described in section C of the MR/05/ and in section B.7.2 of the revised approved PDD/01/. This was also verified by remote interviewing the staff at the sub- station and the officials of the state utility/20/.

During the remote auditing current status of each WTG was verified by the verification team through the online CMS system maintained at project site and confirmed that all the 63 machines were functional. The WTGs were stopped during the current monitoring period for regular electrical and mechanical maintenance and visual inspection, the same was verified through the down time report submitted by the PP/19/. The verification team also confirmed that there are no events or situations encountered during the current monitoring period that may impact the applicability of methodology.

In addition to the remote inspection of the site, the following documents have been reviewed by the assessment team during the desk review to verify the project implementation:

- i. Commissioning certificates
- ii. Power Purchase Agreements

	iii. Invoices raised by the PP to APCPDCL iv. Testing certificates of all energy meters v. Meter replacement certificates, etc. The information relating to the project implementation, provided in the Monitoring Report /05/ is consistent with that stated in the revised approved PDD. The data and variables provided in the monitoring report are the same as stated in the revised approved PDD.
Findings	No non-conformability was observed during assessment for implementation of project activity against the description presented in the approved PDD/1/. Therefore, no finding was raised.
Conclusion	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. i. The implementation and operation of the project activity has been conducted in accordance with the description contained in the registered and approved PDD/1/. ii. By means of an remote inspection and project photographs 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 approved PDD/1/. iii. No information with regard to data and variables was identified that may surpass the estimated quantity of ERs in the approved PDD/1/. iv. The emission reductions achieved during the current monitoring period are 108,584 tCO₂e lower than the estimated quantity (116,150 tCO₂e) in the registered PDD for the comparable period.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents²

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There are no temporary deviations from the registered monitoring plan/1/ or applied methodology/3/ during the current monitoring period. It was verified and confirmed from the Monitoring Report/5/, registered PDD/1/, UNFCCC project webpage/16/ and remote site verification.

E.4.2. Corrections

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There are no corrections from the registered PDD during this monitoring period

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

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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/16/.

E.4.4. Inclusion of a monitoring plan

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

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The monitoring plan was revised. The revision in monitoring plan was done to change in calibration/testing frequency from once each year to once in five years as calibration frequency for monitoring equipment which is not under control of PP. Revised PDD version 5.0, dated 22/05/2012 was approved by UNFCCC on 22/11/2012. The PRC ref number of project activity is PRC-4677-001. (Link: <http://cdm.unfccc.int/Projects/DB/DNV-CUK1302613748.83/view>).

E.4.6. Changes to the project design

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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/5/, registered PDD/1/, UNFCCC project webpage /16/ and remote site verification/20/.

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

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Not Applicable.

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

Means of verification	The monitoring plan as contained in the revised approved PDD/01/ was reviewed against the monitoring requirements of the applied methodology ACM0002 version 11/3/. Based on this review it was found that the monitoring plan contained in the revised approved 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 /01/ and applied methodology ACM0002 version 11 /03/. The electricity supplied to the grid is metered from main and check meters at 33kV that are connected to the 63 turbines of the project activity. The electricity export and import for the project activity has been taken from the summation of the joint meter readings noted from the cluster meters (dedicated meters) connecting 63 turbines of the project activity. There are total seven (7) clusters, termed as from Phase 1 to 7. In addition to this there are main and check meters at Wind World pooling substation (132kV). Transmission loss between metering point at 33kV and the metering point at 132kV at Wind World pooling substation is applied to the meter reading taken at meters connected at 33 KV for the project activity. 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/05/ and in section B.7.2 of the revised approved PDD/01/. This was also verified by interviewing the staff at the sub-station and the officials of the state utility/21/. As verified through section C of monitoring report 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&M provider during the remote visit, that the procedure to derive the electricity exported to the grid by each project owner is completely under jurisdiction of the state utility. Values of the parameter "Net electricity supplied to the grid by project" is directly sourced from the monthly "Share certificates" issued by APCPDCL/11/ that indicates the share of electricity for project activity received at the Wind Word Substation. The Share certificates are prepared and endorsed by APCPDCL, an external government agency and the PP has no influence in the entire procedure.
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	Hence, the data issued by the state electricity board through the Share certificate is deemed authentic. During the remote/virtual inspection, 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.
Findings	No non-conformability was observed during assessment for monitoring plan against applied monitoring methodology. Therefore, no finding was raised.
Conclusion	Applus+ Certification confirms that the monitoring plan is in accordance with the approved methodology /3/ and correctly applied by the registered CDM project activity and CDM-VVS for PA v02.0 §§ 357-359 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

Means of verification	The following parameters are fixed ex-ante defined in PDD/1/:		
	Data/ parameter:	EF _{grid,OM,y}	
	Data Unit	tCO ₂ e/MWh	
	Description	Operating Margin Emission Factor of Southern Regional Electricity Grid	
	Source of data	“CO ₂ Baseline Database for Indian Power Sector”, version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm	
	Value(s) applied)	0.98756	
	Data/ parameter:	EF _{grid,BM,y}	
	Data Unit	tCO ₂ e/MWh	
	Description	Build Margin Emission Factor of Southern Regional Electricity Grid	
	Source of data	“CO ₂ Baseline Database for Indian Power Sector” version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm	
	Value(s) applied)	0.81792	
	Data/ parameter:	EF _{grid,CM,y}	
	Data Unit	tCO ₂ e/MWh	
	Description	Combined Margin Emission Factor of Southern Regional Electricity Grid	
	Source of data	The “CO ₂ Baseline Database for Indian Power Sector” version 5 published by the Central Electricity Authority, Ministry of Power, Government of India. The “CO ₂ Baseline Database for Indian Power Sector” is available at www.cea.nic.in/reports/planning/cdm_co2/cdm_co2.htm	
	Value(s) applied)	In case of wind power projects default weights of 0.75 for EF _{grid,OM} and 0.25 for EF _{grid,BM} are applicable as per ACM0002.	
		Combined Margin Emission Factor (EF _y or EF _{CM,y})	0.94515
The reported value is been verified and considered appropriately in the MR/5/ and			

	the ER calculation excel sheet/7/.
Findings	No non-conformability was observed during assessment for monitoring plan against applied monitoring methodology. Therefore, no finding was raised.
Conclusion	Value of parameter reported in the monitoring report /5/ and corresponding emission reduction calculations spreadsheet /7/ are consistent with the PDD/1/. The applied values are correct and justified.

E.6.2. Data and parameters monitored

Parameter 1: $EG_{PJ,y}$ Quantity of net electricity generation supplied by the project activity to the grid in year y

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of $EG_{PJ,y}$ are continuously monitored, hourly measured and monthly recorded. The WTGs belongs to project activity are installed at Anantapur and Kurnool district in Andhra Pradesh site and connected to various clusters and each cluster have exclusive dedicated metering arrangement at 33kV at project site. Similarly the WTGs of other project developers (non- project activity) 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 at 132 kV Wind World sub-station. At both the substations the electricity generated by all the WTGs (project and non-project) is been fed to the Southern grid through two separate lines. Each line having one set of meters (main and check meter) and monthly reading is taken by the representatives APCPDCL in the presence of WWIL officials in the form of JMR.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.
	Monitoring equipment	No monitoring equipment is used as this parameter is calculated using the measured values. The monitoring equipment's (Energy meters) discussed in this section are concerning to the input values (Used in calculation of $EG_{PJ,y}$) only. Additional details of energy meters are verified in section E.7 of this report.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment,	The accuracy of the monitoring equipment used to measure the input values used to calculate $EG_{PJ,y}$ is 0.2s as verified from the physical inspection of the project activity,

	does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	which is as per the revised approved CDM PDD/01/ which is as per the norm defined in the PPA/14/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. Calibration certificates/12/ are verified and confirmed that accuracy of monitoring instruments is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 5 years, as per registered (revised approved) PDD/01/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the revised approved PDD/1/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by grid authority through NABL Accredited Government agencies/14/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibrations of meters is valid for the whole monitoring period/12/.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately/12/.
	How were the values in the monitoring report verified?	Cumulative value of $EG_{PJ,y}$ for entire monitoring period is reported in the monitoring report, however monthly values are reported in the ER calculation sheet. The monthly values were verified from the share certificates issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 114,885.934 MWh.
	If applicable, has the reported data been cross- checked with other available data?	The monthly reported values of $EG_{PJ,y}$ were further cross checked with the monthly invoices raised by the PP /11/ to state utility and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented Discom/State utility pursuant to the provisions of the power purchase agreement except or otherwise explicitly stated in the PDD. All the main meter and check meters are calibrated by state utility once in five year and records are available with PP. Refer section C for an illustration of the provisions for QA/QC procedures.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding has been raised	
Conclusion	Applus+ Certification confirms that the actual monitoring activities observed on site are in compliance with the approved monitoring plan and the same is in line with the monitoring methodology /3/. The applicable parameter stated in the approved revised monitoring plan and the applied	

	methodology/3/ have been sufficiently monitored. The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the PDD/1/. 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/5/ have been correctly reported and confirmed. Hence, the requirement of CDM-VVS for v02.0 §§ 360-364 have been met.
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Parameter 2: $EG_{Export,y}$ Electricity exported by project activity to grid after apportioning of transmission losses between 33kV metering point (Cluster meter) & 132kV metering point (Bulk metering point)

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of $EG_{Export,y}$ are continuously monitored, hourly measured and monthly recorded. The WTGs belongs to project activity are installed at Anantapur and Kurnool district in Andhra Pradesh site and connected to various clusters and each cluster have exclusive dedicated metering arrangement at 33kV at project site. Similarly the WTGs of other project developers (non- project activity) 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 at 132 kV Wind World sub-station. At both the substations the electricity generated by all the WTGs (project and non-project) is been fed to the Southern grid through two separate lines. Each line having one set of meters (main and check meter) and monthly reading is taken by the representatives APCPDCL in the presence of WWIL officials in the form of JMR.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.
	Monitoring equipment	No monitoring equipment is used as this parameter is calculated using the measured values. The monitoring equipment's (Energy meters) discussed in this section are concerning to the input values (Used in calculation of $EG_{Export,y}$) only. Additional details of energy meters are verified in section E.7 of this report.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the	The accuracy of the monitoring equipment used to measure the input values used to

	monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	calculate $EG_{Export,y}$ is 0.2s as verified from the physical inspection of the project activity, which is as per the revised approved CDM PDD/01/ which is as per the norm defined in the PPA/14/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. Calibration certificates/12/ are verified and confirmed that accuracy of monitoring instruments is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 5 years/01/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the revised approved PDD/1/ (P.34).
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by grid authority through NABL Accredited Government agencies/14/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibrations of meters is valid for the whole monitoring period/12/.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately/12/.
	How were the values in the monitoring report verified?	Cumulative value of $EG_{Export,y}$ for entire monitoring period is reported in the monitoring report, however monthly values are reported in the ER calculation sheet. The monthly values were verified from the share certificates issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 115,026.742 MWh.
	If applicable, has the reported data been cross- checked with other available data?	The monthly reported values of $EG_{Export,y}$ were further cross checked with the monthly invoices raised by the PP /11/ to state utility and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by Discom/State utility pursuant to the provisions of the power purchase agreement except or otherwise explicitly stated in the PDD. The Joint meter reading at cluster metering points and at WWIL substation is taken by the representatives of APCPDCL in the presence of WWIL officials in the form of JMRs. Based on the data recorded in the JMRs, electricity supplied to the grid by the project activity is calculated by grid authority, using the apportioning procedure and share certificates for each project developer is prepared.

		Monthly share certificates issued by state utility provides the value of $EG_{Export,y}$ that is directly used for emission reduction calculations. It is to be noted that all the meters (cluster and substation) are sealed by grid authority and JMR readings taken at cluster meters & substation meters are solely kept with state utility and not shared with the PP.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding has been raised	
Conclusion	Applus+ Certification confirms that the actual monitoring activities observed on site are in compliance with the approved monitoring plan and the same is in line with the monitoring methodology /3/. The applicable parameter stated in the approved revised monitoring plan and the applied methodology/3/ have been sufficiently monitored. The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the PDD/1/. 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/5/ have been correctly reported and confirmed. Hence, the requirement of CDM-VVS for v02.0 §§ 360-364 have been met.	

Parameter 3: EG_{pe} Electricity Export recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of EG_{pe} are continuously monitored, hourly measured and monthly recorded. The WTGs belongs to project activity are installed at Anantapur and Kurnool district in Andhra Pradesh site and connected to various clusters and each cluster have exclusive dedicated metering arrangement at 33kV at project site. Similarly the WTGs of other project developers (non- project activity) 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 at 132 kV Wind World sub-station. At both the substations the electricity generated by all the WTGs (project and non-project) is been fed to the Southern grid through two separate lines. Each line

		having one set of meters (main and check meter) and monthly reading is taken by the representatives APCPDCL in the presence of WWIL officials in the form of JMR.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.
	Monitoring equipment	The monitoring equipment's (Energy meters) discussed in this section are concerning to the input values (Used in calculation of EGpe) only. Additional details of energy meters are verified in section E.7 of this report.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the monitoring equipment used to measure the input values used to calculate EGpe is 0.2s as verified from the physical inspection of the project activity, which is as per the revised approved CDM PDD/01/ which is as per the norm defined in the PPA/14/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. Calibration certificates/12/ are verified and confirmed that accuracy of monitoring instruments is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 5 years/01/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the revised approved PDD/1/.
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by grid authority through NABL Accredited Government institutions/14/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibrations of meters is valid for the whole monitoring period/12/.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately/12/.
	How were the values in the monitoring report verified?	Cumulative value of EGpe for entire monitoring period is reported in the monitoring report, however monthly values are reported in the ER calculation sheet. The monthly values were verified from the share certificates issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 116,071.304 MWh.
	If applicable, has the reported data been cross- checked with other available data?	The monthly reported values of EGpe were further cross checked with the monthly invoices raised by the PP /11/ to state utility and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the

	processes in place?	WWIL (O&M Contractor). The data transfer process for the said parameter is as follows: The Joint meter reading at cluster metering points and at WWIL substation is taken by the representatives of APCPDCL in the presence of WWIL officials in the form of JMRs. Based on the data recorded in the JMRs, electricity supplied to the grid by the project activity is calculated by grid authority, using the apportioning procedure and share certificates for each project developer is prepared. Monthly share certificates issued by state utility provides the value of EGpe that is directly used for emission reduction calculations. It is to be noted that all the meters (cluster and substation) are sealed by grid authority and JMR readings taken at cluster meters & substation meters are solely kept with state utility and not shared with the PP.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding has been raised	
Conclusion	Applus+ Certification confirms that the actual monitoring activities observed on site are in compliance with the approved monitoring plan and the same is in line with the monitoring methodology /3/. The applicable parameter stated in the approved revised monitoring plan and the applied methodology/3/ have been sufficiently monitored. The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the PDD/1/. 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/5/ have been correctly reported and confirmed. Hence, the requirement of CDM-VVS for v02.0 §§ 360-364 have been met.	

Parameter 4: EGpi Electricity Import recorded at 33kV (JMR at 33kV metering point) cluster metering points connecting total 63 machines of the project activity.

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of EGpi are continuously monitored, hourly measured and monthly recorded. The WTGs belongs to project activity are installed at Anantapur and Kurnool district in Andhra Pradesh site and connected to

		various clusters and each cluster have exclusive dedicated metering arrangement at 33kV at project site. Similarly the WTGs of other project developers (non- project activity) 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 at 132 kV Wind World sub-station. At both the substations the electricity generated by all the WTGs (project and non-project) is been fed to the Southern grid through two separate lines. Each line having one set of meters (main and check meter) and monthly reading is taken by the representatives APCPDCL in the presence of WWIL officials in the form of JMR.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.
	Monitoring equipment	The monitoring equipment's (Energy meters) discussed in this section are concerning to the input values (Used in calculation of EGpi) only. Additional details of energy meters are verified in section E.7 of this report.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the monitoring equipment used to measure the input values used to calculate EGpi is 0.2s as verified from the physical inspection of the project activity, which is as per the revised approved CDM PDD/01/ which is as per the norm defined in the PPA/14/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. Calibration certificates/12/ are verified and confirmed that accuracy of monitoring instruments is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 5 years/01/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Yes. The calibration frequency is in line with the monitoring plan as outlined in the revised approved PDD/1/ (P.34).
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by grid authority through NABL Accredited Government institutions/14/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibrations of meters is valid for the whole monitoring period/12/.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately/12/.

	How were the values in the monitoring report verified?	Cumulative value of EGpi for entire monitoring period is reported in the monitoring report, however monthly values are reported in the ER calculation sheet. The monthly values were verified from the share certificates issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 140.808 MWh.
	If applicable, has the reported data been cross- checked with other available data?	The monthly reported values of EGpi were further cross checked with the monthly invoices raised by the PP /11/ to state utility and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the WWIL (O&M Contractor). The data transfer process for the said parameter is as follows: The Joint meter reading at cluster metering points and at WWIL substation is taken by the representatives of APCPDCL in the presence of WWIL officials in the form of JMRs. Based on the data recorded in the JMRs, electricity supplied to the grid by the project activity is calculated by grid authority, using the apportioning procedure and share certificates for each project developer is prepared. Monthly share certificates issued by state utility provides the value of EGpi that is directly used for emission reduction calculations. It is to be noted that all the meters (cluster and substation) are sealed by grid authority and JMR readings taken at cluster meters & substation meters are solely kept with state utility and not shared with the PP.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding has been raised	
Conclusion	Applus+ Certification confirms that the actual monitoring activities observed on site are in compliance with the approved monitoring plan and the same is in line with the monitoring methodology /3/. The applicable parameter stated in the approved revised monitoring plan and the applied methodology/3/ have been sufficiently monitored. The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the PDD/1/. 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/5/ have been correctly reported and confirmed. Hence, the requirement of CDM-VVS for v02.0 §§ 360-364 have been met.	

Parameter 5: EGe Electricity Export recorded at 132 kV meters (main and check) at wind world pooling substation connecting machines of the project activity and machines commissioned by the other project developers.

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of EGe are continuously monitored, hourly measured and monthly recorded. The WTGs belongs to project activity are installed at Anantapur and Kurnool district in Andhra Pradesh site and connected to various clusters and each cluster have exclusive dedicated metering arrangement at 33kV at project site. Similarly the WTGs of other project developers (non- project activity) 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 at 132 kV Wind World sub-station. At both the substations the electricity generated by all the WTGs (project and non-project) is been fed to the Southern grid through two separate lines. Each line having one set of meters (main and check meter) and monthly reading is taken by the representatives APCPDCL in the presence of WWIL officials in the form of JMR.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.
	Monitoring equipment	The monitoring equipment's (Energy meters) discussed in this section are concerning to the input values (Used in calculation of EGe) only. Additional details of energy meters are verified in section E.7 of this report.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the monitoring equipment used to measure the input values used to calculate EGe is 0.2s as verified from the physical inspection of the project activity, which is as per the revised approved CDM PDD/01/ which is as per the norm defined in the PPA/14/.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes. Calibration certificates/12/ are verified and confirmed that accuracy of monitoring instruments is valid for the entire range.
	Calibration frequency /interval:	Calibration frequency of the meters is once in 5 years/01/.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the	Yes. The calibration frequency is in line with the monitoring plan as outlined in the

	monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	revised approved PDD/1/ (P.34).
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes the calibration is conducted by grid authority through NABL Accredited Government institutions/14/.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibrations of meters is valid for the whole monitoring period/12/.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately/12/.
	How were the values in the monitoring report verified?	Cumulative value of EGe for entire monitoring period is reported in the monitoring report, however monthly values are reported in the ER calculation sheet. The monthly values were verified from the share certificates issued by state utility and found to be consistent. Value of this parameter for the current monitoring period was verified as 186,216.410 MWh.
	If applicable, has the reported data been cross- checked with other available data?	The monthly reported values of EGe were further cross checked with the monthly invoices raised by the PP /11/ to state utility and found to be consistent.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the WWIL (O&M Contractor). The data transfer process for the said parameter is as follows: The Joint meter reading at cluster metering points and at WWIL substation is taken by the representatives of APCPDCL in the presence of WWIL officials in the form of JMRs. Based on the data recorded in the JMRs, electricity supplied to the grid by the project activity is calculated by grid authority, using the apportioning procedure and share certificates for each project developer is prepared. Monthly share certificates issued by state utility provides the value of EGe that is directly used for emission reduction calculations. It is to be noted that all the meters (cluster and substation) are sealed by grid authority and JMR readings taken at cluster meters & substation meters are solely kept with state utility and not shared with the PP.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by	No such issues.

	the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	
Findings	No finding has been raised	
Conclusion	Applus+ Certification confirms that the actual monitoring activities observed on site are in compliance with the approved monitoring plan and the same is in line with the monitoring methodology /3/. The applicable parameter stated in the approved revised monitoring plan and the applied methodology/3/ have been sufficiently monitored. The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the PDD/1/. 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/5/ have been correctly reported and confirmed. Hence, the requirement of CDM-VVS for v02.0 §§ 360-364 have been met.	

Parameter 6: Lep Total percentage of Transmission loss for export between the metering point at 33 kV metering points (sum of all the WECs connected to Bulk metering point including non-project activity as well as project activity WECs) and the metering point at 132 kV at the wind world pooling substation.

Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	The parameter is calculated and recorded on monthly basis, however, the input values used to calculate the value of Lep are continuously monitored, hourly measured and monthly recorded. The WTGs belongs to project activity are installed at Anantapur and Kurnool district in Andhra Pradesh site and connected to various clusters and each cluster have exclusive dedicated metering arrangement at 33kV at project site. Similarly the WTGs of other project developers (non- project activity) 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 at 132 kV Wind World sub-station. At both the substations the electricity generated by all the WTGs (project and non-project) is been fed to the Southern grid through two separate lines. Each line having one set of meters (main and check meter) and monthly reading is taken by the representatives APCPDCL in the presence of WWIL officials in the form of JMR.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the revised approved PDD/01/ and monitoring methodology/3/.
	Monitoring equipment	No monitoring equipment is used as this parameter is calculated using the measured values.
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the	No monitoring equipment is used as this parameter is calculated using the

	monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	measured values.
	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	NA
	Calibration frequency /interval:	NA
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	NA
	Is the calibration of measuring equipment carried out by an accredited person or institution?	NA
	Is(are) calibration(s) valid for the whole reporting period?	NA
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	NA
	How were the values in the monitoring report verified?	Cumulative value of Lep for entire monitoring period is reported in the monitoring report, however monthly values are reported in the ER calculation sheet.
	If applicable, has the reported data been cross- checked with other available data?	NA
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the WWIL (O&M Contractor). The data transfer process for the said parameter is as follows: QA/QC procedures have been as implemented by Discom/ State utility pursuant to the provisions of the power purchase agreement except or otherwise explicitly stated in the PDD.
	In case project participants have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	No such issues.
Findings	No finding has been raised	
Conclusion	Applus+ Certification confirms that the actual monitoring activities observed on site are in compliance with the approved monitoring plan and the same is in line with the monitoring methodology /3/. The applicable parameter stated in the approved revised monitoring plan and the applied methodology/3/ have been sufficiently monitored. The responsibilities and authorities for monitoring and reporting are in accordance with what is stated in the PDD/1/. 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/5/ have been correctly reported and confirmed. Hence, the requirement of CDM-VVS for v02.0 §§ 360-364 have been met.	

E.6.3. Implementation of sampling plan

As the parameter to be monitored does not require sampling approach for its determination this section is not applicable for the proposed project activity.

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

Means of verification	As per the monitoring plan in the revised approved PDD/01/ the meters are to be tested and calibrated once in 5 years. The calibration frequency has been followed for all the meters (cluster meters and substation meters) installed at Anantapur and Kurnool site in the current monitoring period.																																		
	The calibration certificates/12/ of meters have been checked to confirm the same. The details of monitoring equipment involved in the project activity and their calibration dates are mentioned in Section C of the MR/05/ 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 5 years.																																		
	Vaayu (India) Power Corporation Private Limited (Phase-1, Phase 4 and Phase 7)																																		
	Main Meter Serial Number- 02798585 Check Meter Serial Number- 02798586																																		
	Previous calibration dates: 06/03/2015 & 04/05/2019. Validity: 03/05/2024.																																		
	All the Vaayu phases were connected to above mentioned single 132 KV bulk metering point at S/S. The details of second metering point is provided below:																																		
	Vaayu (India) Power Corporation Private Limited (Phase-2, Phase 3, Phase 5 and Phase 6)																																		
	Main Meter Serial Number- 02798587 Check Meter Serial Number- 02798588																																		
	Previous calibration dates: 06/03/2015 & 04/05/2019. Validity: 03/05/2024.																																		
	Meters installed at both metering points are of accuracy class -0.2s and calibration frequency of meters is once in five years.																																		
The details of calibration of meters installed at 33kV for measuring export and import by WECs installed phase wise are provided below:																																			
<table><tr><th>S N</th><th>Customer Name</th><th>Meter Type</th><th>Meter Serial No.</th><th>Previous Calibration Dates</th><th>Validity of Calibration</th></tr><tr><td>1</td><td>Vaayu (India) Power Corporation Private Limited (Phase-1)</td><td>Main Meter</td><td>New Meter: APX00312</td><td>01/02/2015 03/05/2019</td><td>02/05/2024</td></tr><tr><td></td><td></td><td>Check Meter</td><td>New Meter: APX00345</td><td>01/02/2015 03/05/2019</td><td>02/05/2024</td></tr><tr><td>2</td><td>Vaayu (India) Power Corporation Private Limited (Phase-2)</td><td>Main Meter</td><td>New Meter: APW00090</td><td>16/09/2017 24/04/2019</td><td>23/04/2024</td></tr><tr><td></td><td></td><td>Check Meter</td><td>New Meter: APW00091</td><td>16/09/2017 24/04/2019</td><td>23/04/2024</td></tr></table>						S N	Customer Name	Meter Type	Meter Serial No.	Previous Calibration Dates	Validity of Calibration	1	Vaayu (India) Power Corporation Private Limited (Phase-1)	Main Meter	New Meter: APX00312	01/02/2015 03/05/2019	02/05/2024			Check Meter	New Meter: APX00345	01/02/2015 03/05/2019	02/05/2024	2	Vaayu (India) Power Corporation Private Limited (Phase-2)	Main Meter	New Meter: APW00090	16/09/2017 24/04/2019	23/04/2024			Check Meter	New Meter: APW00091	16/09/2017 24/04/2019	23/04/2024
S N	Customer Name	Meter Type	Meter Serial No.	Previous Calibration Dates	Validity of Calibration																														
1	Vaayu (India) Power Corporation Private Limited (Phase-1)	Main Meter	New Meter: APX00312	01/02/2015 03/05/2019	02/05/2024																														
		Check Meter	New Meter: APX00345	01/02/2015 03/05/2019	02/05/2024																														
2	Vaayu (India) Power Corporation Private Limited (Phase-2)	Main Meter	New Meter: APW00090	16/09/2017 24/04/2019	23/04/2024																														
		Check Meter	New Meter: APW00091	16/09/2017 24/04/2019	23/04/2024																														

3	Vaayu (India) Power Corporation Private Limited (Phase-3)	Main Meter	New Meter: APW00083	22/02/2016 04/05/2019	03/05/2024
		Check Meter	New Meter: APW00084	06/02/2016 04/05/2019	03/05/2024
4	Vaayu (India) Power Corporation Private Limited (Phase-4)	Main Meter	New Meter: APW00097	17/03/2016 04/05/2019	03/05/2024
		Check Meter	New Meter: APW00099 Old Meter: APW00098	17/03/2016 (for Old meter) 13/08/2018 (for New Meter) 03/05/2019 (latest calibration of new meter)	02/05/2024
5	Vaayu (India) Power Corporation Private Limited (Phase-5)	Main Meter	New Meter: APW00086	22/02/2016 03/05/2019	02/05/2019
		Check Meter	New Meter: APW00087	08/02/2016 04/05/2019	03/05/2024
6	Vaayu (India) Power Corporation Private Limited (Phase-6)	Main Meter	New Meter: APW00093	22/02/2016 03/05/2019	02/05/2024
		Check Meter	New Meter: APW00094	17/03/2016 03/05/2019	02/05/2024
7	Vaayu (India) Power Corporation Private Limited (Phase-7)	Main Meter	New Meter: APX00310	01/02/2015 04/05/2019	03/05/2024
		Check Meter	New Meter: APX00311	01/02/2015 03/05/2019	02/05/2024

No calibration delay observed during current monitoring period.

The above meter details have been verified through the following means:

- i. inspection of the meters through latest photos of meters
- ii. Interviewing the staff at the sub-station
- iii. Interview of CMS and O&M service provider located at the site
- iv. Calibration certificates of energy meters

The installation and working condition of the meters were discussed during the interview and further checked from the calibration certificates, it was found to be satisfactory. It is evident from the above table that calibration for all the meters installed at site has been conducted as per the calibration frequency mentioned in the revised approved PDD/1/.

The verification team has checked the latest calibration certificates of energy meters and confirmed that meter was working satisfactorily and error within the permissible limits. These meters are duly approved, installed, tested, sealed and in the custody of the state utility.

CEA Notification No. 502/70/CEA/DP&D dated 17/03/2006/19/ 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 approved PDD for the meters is appropriate.

Findings	CL#1 and CAR#3 was raised and resolved.
Conclusion	Applus+ Certification confirms that the calibration is conducted at the frequency following the relevant industry standard as specified by the methodology /3/ and the registered PDD monitoring plan /1/. Therefore, the requirement of CDM-VVS for PA v02.0 §§ 367 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

Means of verification	The verification team verified that - 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 /7/ of final Monitoring Report /5/. - 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. - The calculations of baseline emissions as presented in the corresponding ER sheet/7/ of final Monitoring Report/5/ were checked and found to be consistent with the formulae and methods described in the registered monitoring plan and the applied methodology. - All assumptions used in the emission calculations were found appropriate and therefore justified - Appropriate emission factors and other reference values have been correctly applied. This has also been elaborated under Section E.6.1 of this report. - No standardized baseline was prescribed in the registered PDD/1/ and therefore it has not been applied. - There is no pro-rate approach was applied in the current monitoring period as entire monitoring period falls into period that is after the end of first commitment period of Kyoto Protocol. The baseline emissions are the product of net electricity supplied to the grid $EG_{PJ,y}$ 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. $BE_y = EG_{PJ,y} * EF_{grid,CM,y}$ Where: BE_y: Baseline Emissions in year y; t CO₂ $EG_{PJ,y}$: Net electricity supplied to the grid by the CDM project activity in year y (MWh) $EF_{grid,CM,y}$ = Combined margin CO₂ emission factor (tCO₂/MWh) As per the revised approved PDD, combined margin emission factor is 0.94881 tCO₂/MWh. Hence the baseline emissions for the project activity for the current monitoring period are as follows. $BE_y = 114,885.934 \text{ (MWh)} * 0.94515 \text{ (tCO}_2\text{e/MWh)} = 108,584 \text{ tCO}_2\text{e.}$
Findings	CAR#2 raised and resolved successfully
Conclusion	Applus+ Certification confirms that the requirement outlined under CDM-VVS for v02.0 §§ 373 have been met as: - A complete set of data for the monitoring period is available. - Information on the baseline GHG emission calculation provided in the monitoring report /5/ has been cross-checked with other sources.

	• 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. • Appropriate emission factor of the power grid has been correctly applied.
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E.8.2. Calculation of project GHG emissions or actual net anthropogenic GHG removals by sinks

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

E.8.3. Calculation of leakage GHG emissions

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

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

Means of verification	The verification team has reviewed the calculation of GHG emission reductions in the final MR /5/ and ER spreadsheet /7/ as per the registered PDD /1/ and the applied methodology /3/. As per the applicable methodology ACM002 Version 11: The emission reduction is calculated as $ER_y = BE_y - PE_y - LE_y$ $ER_y = 108,584 \text{ tCO}_2\text{e}$ The assessment team verified that the ER excel spreadsheet /7/, the ER for each month has been calculated. The sum of the ER for each month has been rounded down to arrive at the total ER for the current monitoring period. Therefore, the PP has considered the conservative ER value as 108,584 tCO₂e.
Findings	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.
Conclusion	Applus+ Certification confirms that the requirement outlined under CDM-VVS for PA v02.0§§ 373 have been met as: • A complete set of data for the monitoring period is available. • Information provided in the monitoring report /5/ has been cross-checked with other sources; • 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. • There are no assumptions in emission reductions calculation. • Appropriate emission factor of the power grid has been correctly applied.

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

Means of verification	As verified and evident from the final Monitoring Report /05/ and corresponding ER sheet /07/, the actual emission reductions achieved by the project activity in the current monitoring period were found less than 6.51% (lower) the estimated quantity in the revised approved PDD/1/ for the comparable period. This is largely due to low plant load factor achieved during the current monitoring period.
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	Considering, there is no increase in ERs than the estimated amount; it was found acceptable to the assessment team.
Findings	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.
Conclusion	Applus+ Certification confirms that the requirement outlined under CDM-PS for PA v02.0 §§ 268 have been met as: - 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 approved PDD /1/ has been provided in the Monitoring Report /5/. - The verification team confirms that the calculation of the comparison is correct.

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

Means of verification	The verification team has assessed the cause of any variation in the actual GHG emission reductions achieved during the current monitoring period by reviewing the previous verification reports /5/ and the current monitoring report. There is decrease of 6.17% in the actual emission reductions achieved during the current monitoring period from that stated in the registered CDM-PDD. The variation is mainly due to low PLF during the current monitoring period and correspondingly decrease in electricity generation compared to expected or estimate in registered PDD /1/. The breakdown and outage of the plant was verified by assessment team and found to be appropriate, hence accepted.
Findings	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.
Conclusion	Applus+ Certification confirms that the requirement outlined under CDM-PS for PA v02.0 §§ 269 and CDM-VVS for PA v02.0 §§ 356 (d) have been met as: - The verified emission reductions are higher than the estimated value in the monitoring period. The project participants have explained the cause of any increase 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 approved PDD /1/. - The variation is deemed to be reasonable.

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

Means of verification	The verification team has reviewed the monitoring report with the daily/monthly reading records to assess whether the GHG emission reductions or removals has been correctly calculated based on a pro-rata approach. The assessment team is able to certify that the emission reductions from the CDM project activity 4677 “Vaayu India Wind Power Project in Andhra Pradesh” in India during the period 02/01/2019 to 01/04/2020 (First and last day included) amount to 108,584 tCO_{2e}. Verified and Certified GHG emission reductions or net GHG removals by sinks reported: <table border="1"> <tr> <td>up to 31/12/2012</td><td>Not Applicable</td></tr> <tr> <td>from 01/01/2013 onwards</td><td>108,584 tCO_{2e}</td></tr> </table> (Note: Current Monitoring period i.e 02/01/2019 to 01/04/2020 is not fall under first commitment period, therefore GHG emission reductions up to 31/12/2012 is Not Applicable)	up to 31/12/2012	Not Applicable	from 01/01/2013 onwards	108,584 tCO _{2e}
up to 31/12/2012	Not Applicable				
from 01/01/2013 onwards	108,584 tCO _{2e}				
Findings	No non-conformability was observed during assessment for this section. Therefore, no finding was raised.				
Conclusion	Applus+ Certification confirms that the requirement outlined under CDM-PS for PA v02.0 §§ 266 as the project participants has calculated GHG emission reductions.				

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

Means of verification	Not applicable
Findings	Not applicable
Conclusion	Not applicable

E.10. Global stakeholder consultation

Means of verification	Not applicable
Findings	Not applicable
Conclusion	Not applicable

SECTION F. Internal quality control

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A draft verification report prepared by verification team is reviewed by an independent technical review team (one or more members) to confirm whether all the internal procedures established and implemented by Applus+ Certification were duly complied with and such opinion/conclusion were reached in an objective manner that complies with the applicable CDM rules/requirements. The technical review team is collectively required to possess the technical expertise of all the technical area/sectoral scope the project activity relates to. All team members of technical review team are independent of the verification team.

During the technical review process, additional findings may be identified, or the closed-out findings may be opened, which needs to be satisfactorily resolved before the request for issuance is submitted to UNFCCC. The independent technical reviewer may either approve the report as such or reject/return the same in such case providing the comments/findings/issues that needs to be resolved by the verification team. The decision taken by the Technical Reviewer is final and is authorized by the Managing Director on behalf of LGAI Technological Center, S.A.

SECTION G. Verification opinion

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LGAI Technological Center, S.A. (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 Andhra Pradesh” in the period 02/01/2019 – 01/04/2020.

Applus+ Certification concludes that the CDM Project “Vaayu India Wind Power Project in Andhra Pradesh”, as described in the registered revised approved PDD /1/ (Version 05, 22/05/2012), and Monitoring Report /5/ (Version 3, 22/07/2020), 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 VVS /8/ requirements. The Project is implemented according to selected monitoring methodology /3/ and the monitoring plan contained in the approved revised PDD /1/. 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 approved Project Design Document/1/. 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 108,584 tCO₂e emission reductions during the period 02/01/2019 – 01/04/2020 (both days included).

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

SECTION H. Certification statement

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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 Andhra Pradesh' (UNFCCC Ref. No. 4677).

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 Monitoring Plan in the registered PDD /1/ (Version 05, 22/05/2012) and the applied methodology ACM 0002 version 11 /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 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 Andhra Pradesh' for the monitoring period 01/01/2019 – 31/03/2020 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 02/01/2019 – 01/04/2020

Verified emissions in the above reporting period:

Leakage emissions	00,000 tCO ₂ equivalents
Project emissions	00,000 tCO ₂ equivalents
Baseline emissions	108,584 tCO ₂ equivalents
	108,584 tCO ₂ equivalents

Emission reductions in this monitoring period:
(i.e. 02/01/2019 – 01/04/2020)

Emission reductions achieved during the period up to 31 December 2012	Nil
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Emission reductions achieved during the period from 1 January 2013 onwards. (i.e. 02/01/2019 – 01/04/2020)	108,584 tCO ₂ equivalents
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Appendix 1. Abbreviations

Abbreviations	Full texts
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CER	Certified Emission Reductions
CL	Clarification Request
CM	Combined Margin
CO _{2e}	Carbon Dioxide equivalent
CoP/MoP/CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	CDM Executive Board
EF	Emission Factor
ER	Emission Reductions
GCV	Gross Calorific Value
GHG	Greenhouse Gas(es)
GPS	Global Positioning System
APCPDCL	Central Power Distribution Corporation of Andhra Pradesh Ltd
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organisation for Standardisation
KWh	Kilowatt hour
MP	Monitoring Plan
MR	Monitoring Report
MW/MWh	Megawatt/ Megawatt hour
NEWNE	North East West and North-East
NCV	Net Calorific Value
OM	Operating Margin
PDD	Project Design Document
PP	Project Participant
PPA	Power Purchase Agreement
PLF	Plant Load Factor
PS	Project Standard
QMS	Quality Management System
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard
VWIL	Vish Wind Infrastructure
UID	Unique Identification number
WTG	Wind Turbine Generator
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) & Technical Expert (TE)	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 Master 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.

Simon Shen (Master Degree in Thermal Energy Engineering, Bachelor Degree in Environmental Engineering) is a Lead Auditor appointed by Applus+ LGAI 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+ LGAI, he had been worked for TÜV SÜD as a GHG Validator/Verifier and ISO 9001/14001 Lead Auditor for 3.5 years.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	VPCPL	Revised approved PDD	Version 5.0 ,Dated 22/05/2012	PP
2	DNV	Validation Report	Report No. 2010–0502 Revision 02 dated 08/04/2011	PP
2.1	SGS	Validation Opinion on PRC	Version 02,dated 20/07/2012	Other: DOE
2.2	ESPL	Verification report for previous (Fifth) monitoring period (6 th monitoring period has been conducted by PP, however issuance is yet to be processed. Hence, final Verification Report for the 6 th monitoring period is not publically available)	Version 03, dated 24/05/2017	Other: UNFCCC
3	UNFCCC	Approved Consolidated Methodology ACM0002	Version 11.0, dated 26/02/2010	PP
4	VPCPL	Monitoring Report (publication)	Version 1 dated 27/05/2020	PP
5	VPCPL	Monitoring Report (final)	Version 3 Dated 22/07/2020	PP
6	VPCPL	ER Spreadsheet (Initial version)	Version 1 dated 27/05/2020	PP
7	VPCPL	ER spreadsheet (final)	Version 3 Dated 22/07/2020	PP
8	UNFCCC website	Clean Development Mechanism Validation and Verification Standard for Project Activity (CDM-VVS for PA), version 02.0 as per EB 93, Annex 5	Dated 29/11/2018	Other: UNFCCC
9	UNFCCC website	CDM Project Standard for Project Activity (CDM-PS for PA), version 02.0 as per EB 93, Annex 4	Dated 29/11/2018	Other: UNFCCC
10	APCPDCL	Monthly Share certificates issued by state utility	For Period 01/01/2019 to 31/03/2020	PP
11	VPCPL	Monthly invoices raised by the PP to state utility for net export of electricity	For Period 01/01/2019 to 31/03/2020	PP
12	APCPDCL	Calibration certificates of cluster meters and substation meters	For Period 01/01/2019 to 31/03/2020	PP
13	APCPDCL	Commissioning certificates issued by grid authority (for all 63 WTGs)		PP
14	APCPDCL	Power Purchase Agreement between APCPDCL and M/s Vaayu (India) Power Corporation Private Limited		PP

CDM-VCR-FORM

15	CEA	CO2 Baseline Database for Indian Power Sector	Version 05	Others
16	UNFCCC	UNFCCC webpage for the project activity	https://cdm.unfccc.int/Projects/DB/DNV-CUK1302613748.83/view last accessed on 20/06/2020	Others
17	Ministry of Corporate Affairs, GOI	Name change consent issued by Government of India	Dated 01/01/2013	PP
18	CEA	CEA Notification No. 502/70/CEA/DP&D	Dated 17/03/2006	PP
19	VPCPL	Down time report of WTGs for current monitoring period	-	PP
20	Applus+ Certification	Remote Site visit observation	05/06/2020	
21	UNFCCC	Sampling and survey for CDM project activities and programmes of activities	Version 08	Others
22	UNFCCC	Monitoring report form for CDM Project activity along with instruction for filling out monitoring report form	Version 07 dated 31 st May 2019	

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

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

FAR ID	N/A	Section no.	N/A	Date : N/A
Description of FAR				
N/A				
Project participant response				Date :
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date:
N/A				

Table 2. CL from this verification

CL ID	01	Section no.	2.2	Date : 10/06/2020
Description of CL				
Please submit the following documents: - Monthly JMRs - Monthly invoices raised to the respective state utility in the current monitoring period. - Calibration Certificates of all WTGs.				
Project participant response				Date: 25/06/2020
All supporting documents pertaining to the current verification are submitted to DOE.				
Documentation provided by project participant				
1) Monthly JMRs 2) Monthly invoices to the utility. 3) Calibration Certificates of all WTGs.				
DOE assessment				Date: 01/07/2020
Verification team confirms that PP has submitted all required supporting documents and these are in line with the requirements. Hence accepted.				
CL#1 Closed				

Table 3. CAR from this verification

CAR ID	01	Section no.	A.3 and Appendix 2	Date : 10/06/2020
Description of CAR				
1. The reference number of the current monitoring period is incorrect in the last para of the page number 3. 2. The parties withdrawn from the project activity may be removed from the table under section A.3. of the MR 3. The date format in the Appendix 2 of the MR is not consistent with the date format used in other sections of the MR.				
Project participant response				Date : 25/06/2020
1) The reference number of the current monitoring period has been corrected in the page number 3 of the MR. 2) The Annex 1 parties which are already withdrawn have been removed from the section A.3 of the MR 3) The date format of the Appendix 2 of the MR has been made consistent with other section of the MR.				
Documentation provided by project participant				

Revised MR, version 02, dated 24 June 2020

DOE assessment	Date: 01/07/2020
1. Verification team confirms that PP has corrected reference number of the current monitoring period in the last para of the page number 3 under revised monitoring report. 2. Verification team confirm that PP has removed parties under section A.3 of the revised MR those who withdrawn from the project activity. 3. Verification team confirm that PP has corrected date format of the Appendix 2 of the revised MR. Hence accepted	
CAR#1 Closed	

CAR ID	02	Section no.	D.2	Date : 10/06/2020
Description of CAR				
1. PP is requested clarify why line loss values for the month of Feb & March 2019 are not considered. PP is requested to update the line loss calculation for the respective months. 2. The generation data for the month of March 2020 is not consistent with the supporting documents. Kindly clarify and revise appropriately				
Project participant response				Date : 25/06/2020
1) The line loss values for the month of Feb & March 2019 have been incorporated into the revised ER sheet. The revised calculation and updated results are now reported in the revised MR 2) The generation data for the month of March 2020 have been corrected. The revised ER sheet and the updated values are now reported in the MR.				
Documentation provided by project participant				
1) Revised ER sheet, version 02, dated 24 June 2020 2) Revised MR, dated 24 June 2020.				
DOE assessment				Date: 01/07/2020
1. Verification team confirm that PP has corrected line loss values for the month of Feb & March 2019 and incorporated into the revised ER sheet. 2. Verification team confirm that PP has corrected generation data for the month of March 2020 in revised ER sheet				
CAR#2 Closed				

CAR ID	03	Section no.	C	Date :10/06/2020
Description of CAR				
1. PP is requested to check the delay in meter testing for few months. The delay factor for such incidences to be accounted for and ER to be revised accordingly. 2. PP is requested to revised the ER sheet with updated data and MR sections to be revised accordingly.				
Project participant response				Date :25/06/2020
1) PP would like reconfirm that there is no delay in calibration scheduled as compared to the frequency prescribed under the registered PDD. There have been calibrations conducted in the year 2019 which falls within the due date of previous calibration that falls under the previous monitoring period. The calibration dates have been revised under the section C of the revised MR. 2) The ER sheet has been revised with corrected values and final results are updated in the MR document.				
Documentation provided by project participant				
1) Revised ER sheet, version 02, dated 24 June 2020 2) Revised MR, dated 24 June 2020.				
DOE assessment				Date: 01/07/2020

1. Verification team confirms that PP has included new meter calibration details of 2019 which falls within the due date of calibration, therefore no delay in calibration occurs in current monitoring period.
2. Verification team confirms that PP has revised ER sheet and MR according as per updated generation data of March 2020 and line loss data of Feb and March 2019.

However, PP is requested to clarify the following:

In Calibration Details table of MR; for Vaayu (India) Power Corporation Private Limited (Phase-2) main meter serial number is not matching with certificates 2016 (as it is mentioned meter number as "APW00098"), please clarify. Similarly for Phase 4 check meter number in 2016 certificate is APW00098 and in 2019 certificate it's APW00099 therefore PP is requested to include meter change detail (if any).

Project participant response	Date : 08/07/2020
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PP would like to clarify as follows:

- i) For Phase-2, the main meter number is APW00090. There was calibration conducted in the year 2017 (16/09/2017) for both main and check meters for Phase-2. The reports for this calibration are available and submitted to DOE. The information in the table has been updated as per this date.
- ii) For Phase-4, there was replacement of check meter "APW00098" with a new meter "APW00099" on 13/08/2018. This information is now included in the meter details section and supporting documents has been submitted to DOE.

Documentation provided by project participant
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- i) Meter Calibration Report for APW00090 and APW00091.
- ii) Meter replacement details for APW00098 and new meter "APW00099".
- iii) Revised MR, version 02.1, dated 07/07/2020.

DOE assessment	Date: 09/07/2020
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1. Assessment team confirm that in Phase 2 main meter and check meter calibration conducted on 16/09/2017 which PP has included in revised MR.
2. Assessment team confirm that Phase 4 check meter number APW00098 was replaced with new meter APW00099 on 13/08/2018, PP has included these details in revised MR. Hence accepted.

CAR#3 Closed

CAR ID	04	Section no.	E.1	Date : 27/07/2020
Description of CAR				
The PP has requested to clarify why the PP require change of the monitoring period as "02/01/2019 to 01/04/2020" as the PP has submitted the recent revised documents the MR (version 02.1) and ER sheet (version 02.1).				
Project participant response				Date : 27/07/2020

PP would like to clarify that as per Joint meter reading (JMR) reporting practice in the state, a particular day of the month (generally the start date of the new month) becomes the end date and the start date for two subsequent months' reading, respectively. Here 01/01/2019 was the end date of the last monitoring period as it was end reading date for the JMR produced for the month of Dec 2018. Similarly, 01/04/2020 is the end reading date for the JMR produced for the month of March 2020. Therefore, in order to keep the selection of monitoring period consistent with the date of JMR, the required revision in the current monitoring period is made.

Additionally, PP would like to confirm that the previous monitoring period includes 01/01/2019 as the end date. It was verified and confirmed by previous DOE at the time of verification process and while submitting the RFI request the end date of the previous MP was revised as 01/01/2019 (the confirmation received from previous DOE has been submitted for reference).

However, the completeness-check for the previous monitoring period is yet to be initiated, hence this revision is not yet reflected in the UNFCCC web interface. This is also the reason why the start date of current monitoring period was considered as 01/01/2019 at the time of public listing of the MR.

Thus, start date of the current monitoring period has been revised as 02/01/2019 and also the end date as 01/04/2020, where both the dates are included and consistent with the dates of JMR practice.

The changes are amended in the MR & ER sheet and revised versions (version 02.1) are submitted to DOE.

Documentation provided by project participant

Revised MR, version 3, dated 22/07/2020

Revised ER, version 3, dated 22/07/2020

Confirmation email from previous DOE on change of end date of the last monitoring period.

DOE assessment

Date: 07/08/2020

Verification team confirm that PP has corrected, start date of the current monitoring period has been revised as 02/01/2019 and also the end date as 01/04/2020, where both the dates are included and consistent with the dates of JMR practice in the MR and incorporated into the revised ER sheet. CAR#4 Closed

Table 4. FAR from this verification

FAR ID	N/A	Section No.	N/A	Date: N/A
Description of FAR				
N/A				
Project participant response				Date: N/A
N/A				
Documentation provided by project participant				
N/A				
DOE assessment				Date: N/A
N/A				

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
03.0	31 May 2019	Revision to: • Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN); • Make structural and editorial improvements.
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		