



OAXACA IV WIND ENERGY PROJECT



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Summary:

4K Earth Science Private Limited (4KES) has been contracted by, “Kosher Climate India Private Limited¹” to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from ‘Oaxaca IV Wind Energy Project’ for the monitoring period 01-December-2019 to 30-November-2021 in the initial monitoring report version 1, dated: 10-December-2021/1/.

The project involves installation and operation of 68 Nos. of Wind Turbine Generators (WTGs) each of 1.50 MW capacity manufactured and supplied by ‘Acciona Energy S.A’. The total installed capacity of the project activity is 102.00 MW

The electricity generated from the project activity will be sold to Comisión Federal de Electricidad/ Federal Electricity Commission, whilst state-owned electric utility of Mexico.

The transmission of electricity will be through the infrastructure build and operated by CFE and the project is connected to Ixtepec substation power. The PP has signed a long term Power Purchase Agreement (PPA) /6/ to supply electricity to CFE

A risk-based approach has been followed to perform this 2nd verification of the project activity. In the course of the verification, 03 Corrective Action Requests (CARs) and 05 Clarification (CL) were raised and subsequently closed.

The management of ‘CE Oaxaca Tres S. de R.L. de C.V’ responsible for the preparation of the Electricity Generated data (hourly, monthly & yearly) and the reported GHG emissions reductions on the basis set out within the project Final Monitoring Report Version 3.0 dated 05-June-2022 /2/. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the Kosher Climate India Private Limited. The development and maintenance of records and reporting procedures are in accordance with the registered Monitoring Plan or registered PD.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01-December-2019 to 30-November-2021 based on the reported emission reductions in the final monitoring report Version 3.0 dated 05-June-2022 for the period stated above.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, 4KES planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

¹ Kosher Climate India Private Limited has contracted 4KES authorised by the project owner. Kosher Climate is responsible for drafting of Monitoring report and the contracting of the VVB.

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1 INTRODUCTION

1.1 Objective

4KES has been contracted by 'Kosher Climate India Private Limited.' to perform verification of its registered VCS project 'Oaxaca IV Wind Energy Project' VCS 1041, for the reported GHG emission reductions for the given monitoring period 01-December-2019 to 30-November-2021 (inclusive of both dates). The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The scope of verification is to assess the claims and assumptions made in the VCS monitoring report (MR) against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

The Verification is not meant to provide any consulting towards the project participants. However, stated requests for clarification and/or correction actions request may have provided inputs for improvement of the project design.

1.3 Level of Assurance

The verification team verified the complete monitoring data for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors. Therefore, 4KES confirms that the verification is conducted with reasonable level of assurance.

1.4 Summary Description of the Project

The Oaxaca IV Wind Energy Project' (herein after referred as Oaxaca IV) comprises of 68 WTGs each of 1500 kW / 1.50 MW capacity. The 68 WTGs are located in Santo Domingo Ingenio Municipality, windy region, in the Isthmus of Tehuantepec, state of Oaxaca, Mexico. The WTGs for this project activity was supplied by Acciona Energy S.A (model AW1500). The specifications of the WTGS were cross checked by the Verification Team during the remote audit.

The 68 WTGs were installed project with full capacity of 102 MW was commissioned and started commercial operations on 18th November 2011. The project activity coordinates are 16°36'36.21" N and 94°47'23.98" W (decimal coordinates: 16.61005925 latitude, - 94.78999567 longitude).

Verification team has verified the latitude and longitude using the web based search approach <https://www.gps-coordinates.net//> and found to be consistent.

The project proponent 'CE Oaxaca Tres S. de R.L. de C.V.', has signed the Power Purchase Agreement /6/ to sell the generated to CFE. The electricity generated from Oaxaca IV wind farm will be transmitted & distributed through the National Interconnected Grid via the Ixtepec Substation and delivered to the end consumer CFE

This is the second periodic verification of the project activity under VCS, the first verification was performed for the period 18-November-2011 to 15-May-2012. The chosen monitoring period i.e. 01-December-2019 to 30-November-2021

During the current monitoring period which started form 01-December-2019 to 30-November-2021 (inclusive of both i.e. first and last day), the project activity has supplied 804,749 MWh of electricity to the CFE through the regional grid, thereby resulted in an emission reduction of 467,156 tCO_{2e} /3/.

2 VERIFICATIONPROCESS

The registered VCS project is undergoing second verification under VCS (Fixed Crediting period), the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

4KES assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation/verification process consist of the following three phases;

- A desk review of the VCS PD and VCS MR
- follow up interviews with project stakeholders
- The resolution of outstanding issues and issuance of final report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control before being submitted to the Verra Secretariat for issuance of credits as per VCS standard version 4.1 /7/.

Duration of Verification:

Verification Contract	01/12/2021
Remote audit	15/12/2021
Findings raised	15/12/2021
Draft Verification Report	19/12/2021
Final Verification Report	05/06/2022

2.2 Document Review

The verification is performed primarily as a document review of the approved VCS PD /4/ and registered CDM PDD /8/, previous MR /9/ and Verification Report /10/ and associated documents as stated in detail in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, VCS PD and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

Due to COVID-19 pandemic lockdown and restrictions on travel Verification team could not conduct the site visit. Since the date of closure of lockdown was uncertain due to the increase spread of COVID-19 and travel restrictions Verification Team did not conduct site visit for this project activity

and also referring to COVID-19 Travel Guidance for Projects². However, the verification team performed the Zoom remote interview with the PP and site personnel and project representative to assess the information and review the documents to achieve a reasonable level of assurance in the verification. This is in line with Section 4.1.2 of the VCS Standard, v4.1 /7/ which does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications. No sampling procedures were adopted in document verification and all the document were cross checked to ensure conservative estimation of emission reduction. Kindly find below names of the persons interviewed (Zoom remote interview).

Location	Zoom Meeting	
Dates	15/12/2021	
Key points discussed	Name of person, interviewed	Designation, Organization
Implementation, Monitoring, Operational data, Calibration, Data collection, QA/QC procedures, Calculation of ERs, VCS requirements	Diana Martínez	Regulatory Analysis and Management of Renewable Attributes, Acciona
	Jorge Garcia	Operation and maintenance, Acciona
	Vamsi Krishna M	Project Representative, Kosher Climate India Private Limited

2.4 Site Inspections

As mentioned above, due lockdown due to COVID-19 pandemic and travel restrictions, Verification team could not conduct the site visit. Since the date of closure of lockdown was uncertain along with restrictions on travel and hence VVB could not perform physical verification of the site for this project activity. However, the verification team performed the Zoom remote interview with PP and site personnel and reviewed documents to achieve a reasonable level of assurance in the verification. This is in line with COVID-19 Travel Guidance for Projects³ and Section 4.1.2 of the VCS Standard, v4.1 which does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications.

² <https://verra.org/covid-19-travel-guidance/> published on 18th March 2021

³ <https://verra.org/covid-19-travel-guidance/> published on 18th March 2021

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and Zoom remote interview. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types;

CAR (Corrective Action Request) is raised if one of the following occurs:

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the 4KES during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

During the Verification process, total 03 CARs and 05 CLs were raised and resolved satisfactorily. No FAR has been raised in the verification. The list of CARs/CLs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix-II of this report.

2.5.1 Forward Action Requests

No FAR raised during the current verification.

2.6 Eligibility for Validation Activities

4KES conducted the verification activity, the validation was performed by the other VVB. 4KES has a valid UNFCCC accreditation in the sectoral scope from UNFCCC. The accreditation scope can be checked from the below link:

<http://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0069>

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The Project Proponent had opted issuance of GHG credits for the 1st monitoring period from 18-November-2011 to 15-May-2012 under VCS and for the current monitoring 01-December-2019 to 30-November-2021 has again chosen issuance through VCS.

The project is also registered as a CDM project with UNFCCC, reference no '62164', the project activity has successfully claimed issuance of CERs under CDM, and details are as follows:

- 16/05/2012 to 31/01/2014
- 01/02/2014 to 31/07/2017
- 01/08/2017 to 30/11/2019

The current monitoring period does not overlap with the above CDM monitoring period. Declaration dated 16/12/2021 /18/ for not claiming emission / GHG reductions under CDM or any other GHG programs for the current monitoring period '01-December-2019 to 30-November-2021' was made available to the verification team. Based on the declaration submitted by the PP the verification team confirms that there would be no double counting associated with project activity under CDM / I-REC / other programs for the above stated monitoring period.

3.2 Methodology Deviations

The verification team confirms that the registered PD complies with the requirements in the applied monitoring methodology ACM 0002 version 12.1.0. /5/ Therefore, no methodology deviations were applied during the monitoring period. The verification team confirms that no deviations were observed during the current monitoring period.

3.3 Project Description Deviations

The Verification Team based on the document review and discussions with the PP's technical team and Operation & Maintenance team of PP is able to conclude that the project activity has been installed and operated as per the description provided in the registered PD. There have been 'No deviations' found when compared to the previous monitoring period under VCS & CDM and the current claimable monitoring period.

3.4 Grouped Project

The project is not a grouped project. Therefore, this section is not applicable.

⁴ <https://cdm.unfccc.int/Projects/DB/AENOR1337004252.43/view>

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The 68 WTGs were installed project with full capacity of 102 MW was commissioned and started commercial operations from 18th November 2011.

During the process of verification, 4KES confirmed the following

- Capacity of WTGs,
- estimated power generation /4/,
- arrangement for evacuation of electricity generated,
- actual generation/13/,
- technical specifications /12/,
- date of commissioning,
- arrangements for Operation & Maintenance (O&M) and necessary clearances for operating the project activity.

List of documents reviewed during the course of verification is presented under Appendix I of this report.

The specifications of the WTGs were cross checked by the Verification Team during the remote audit.

The technical specifications of AW1500 are provided in below:

Total Power Capacity	102 MW
Rated Power of Turbine	1.5 MW
Cut-in Wind Speed	4 m/s
Cut-out Wind speed	25 m/s
Generator Voltage	12,000 V
No of Turbines	68
Equivalent annual operating hours	4056 Hrs
Annual Production	413,712 MWh
Capacity Factor	46.3%
Transmission line length	32.5 km
Transmission line voltage	230 kV

Diameter	70 m
Swept Area	3848.5 m ²
Hub height	80 m
Nominal rotational speed	20.2 rpm

Table: Technical Specification of WTG

There was no major breakdown or shutdowns during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions. The same was verified during the remote audit.

There was no change of the meters during this monitoring period as verified during the remote audit and the discussion with PP. The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period. The project design as mentioned in the registered VCS PD & monitoring report submitted is implemented and thus the same is acceptable to the assessment team. All required monitoring equipment's and procedures as mentioned in the registered VCS PD & monitoring report are available and implemented in an appropriate manner.

The organisational role and responsibility as mentioned in the registered VCS PD & monitoring report is followed onsite. All the monitoring equipment were calibrated as per the specified interval in the registered VCS PD & monitoring report. All the emergency preparedness as mentioned in the registered VCS PD & monitoring report is followed onsite and no discrepancies were found regarding the same.

The project is a wind project located in rural area where there was no economic activities prior to the implementation of the project. Through verification team's sectoral expertise and interview with PP, the verification team confirms the implementation of project results into following benefits:

- Use of renewable resources as energy source.
- Enforcement of environmental sustainability avoiding exploitation of natural resources such as coal and natural gas that would have been used to generate electricity in the fossil fuel-based power plants in absence of the project activity.
- Employment generation in the construction, operation and maintenance stages.
- An additional income to the landowners without sacrificing the current ground use.
- Attraction of foreign capital.
- Diversification of the national energy portfolio, which is currently mostly occupied by conventional fossil fuels.
- The project activity does not generate any significant negative environmental impact.

- Some regions within the country don't currently have energy generation infrastructure; the project activity contributes to the improvement of the current situation satisfying the growing demand for electricity enhancing energy distribution to more isolated zones.
- The project participant is implemented a social sustainability plan in Oaxaca to contribute to the development of the local communities in three different areas: basic rights, basic services, and sustainability.

The assessment team found that the project is in line with the registered VCS PD and registered CDM PDD & Monitoring Plan.

Opinion:

Assessment team concludes the following:

- a) There is no material discrepancies between project implementation and the project description provided in the registered PD/08/.
- b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.
- c) There is no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology.
- d) The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading.
- e) The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification.
- f) The project is registered under VCS only and other GHG programs. For the current monitoring period the claim of issuance will be through VCS.

In view of the information's as verified above the assessment team is able to conclude that the project has been implemented as described in the project description.

4.2 Safeguards

4.2.1 No Net Harm

The project activity is wind based electricity generation project and does not possess any activities which does not have any negative environmental and social impacts, hence the verification team is of the opinion this criteria is not applicable to this project activity.

4.2.2 Local Stakeholder Consultation

The local stakeholder consultation was held prior to the commissioning of the project. The consultation was in the form of interviews with the identified stakeholders. The Interministerial Commission on Climate Change (Mexican DNA) and the Mexican Energy Ministry (Secretaría de Energía, SENER) were interviewed on October 11, 2010.

Local government and community people were interviewed on October 20, 2010 to October 22, 2010 with the purpose of knowing their opinion about the project “Oaxaca IV Wind Farm”. The consultation was made at the zone where the project activity was proposed.

As per the section 2.2 of the MR, the projects have continuous feedback mechanism and kept a grievance register to receive any feedback/grievances from stakeholder.

As verified from the copy of project grievances register no grievances/feedback received on the operation of the project activity. Verification team also discussed with the site in-charge and confirmed that no grievances are received during the monitoring period.

4.3 AFOLU-Specific Safeguards

Not Applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The GHG emission reductions were calculated correctly on the basis of the Approved Consolidated baseline methodology for grid-connected electricity generation from renewable sources, ACM 0002 (Version 12.1.0), Dt., 26th November 2010, the formulae given in the monitoring report version and also based on the registered PDD, validation opinion stated in the VCS validation and 1st verification report /10/.

Parameters monitored:

Data / Parameter	EG _{facility, y}
Data unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant to the grid in year y
Source of data	Measured according to the calculation based on the EG _{output, y} , EG _{import, y} , EG _{project, y} and EG _{another, y} as the formula below..
Description of measurement methods and procedures to be applied	Net electricity supplied by the project activity to the grid. Continuous measurement and at least monthly recording. The metering equipment complies with CFE regulations and is properly calibrated by CFE. Calculated from energy exported by the project

	to the grid and energy imported by the project from the grid, directly obtained from the metering equipment installed in the Ixtepec substation. Oaxaca IV Wind Farm has two meters (1 main, 1 backup) at the exit of the wind farm and two meters (1 main, 1 backup) in Ixtepec Substation. The project activity shares the transmission line to Ixtepec Substation with another wind project. The energy production from the project activity is determined by CFE by means of CFE certified meters located in the Ixtepec Substation. The metering is cross-checked with the invoice of sales. The net electricity generation is measured in the meter installed at the delivery point of energy. As was mentioned before this project activity shares the transmission line with another project; for this reason the meter in the substation uses a software that calculates the net electricity exported to the grid by the project activity: $EG_{facility,y} = \left(\frac{EG_{project,y}}{EG_{project,y} + EG_{another,y}} * EG_{output,y} \right) - EG_{import,y}$ $EG_{output,y}$, $EG_{import,y}$, $EG_{project,y}$ and $EG_{another,y}$ are measured directly by electricity meters (please refer to the 3.3. for measurement breakdown.
Frequency of monitoring/recording	Continuous measurement and at least monthly recording
Value monitored	804,749
Monitoring equipment	Identification code for meters in CFE Ixtepec substation: Main Meter: MT-1011A383-01 Backup Meter: MT-1011A456-01 Identification code for meters in Oaxaca IV substation Main Meter: MT-1011A462-01 Backup Meter: MT-1011A388-01 Identification code for meters in 'another project B' (Oaxaca IV) substation: Main Meter: MT-1011A453-01 Backup Meter: MT-1011A560-01

	Main and backup meters are bidirectional and have 0.2% accuracy class.
QA/QC procedures to be applied	The metering equipment in Ixtepec Substation, Oaxaca II and Oaxaca IV Substation is properly calibrated and checked annually for accuracy, as per Mexican law and/or PPA, to ensure that any error resulting from such equipment shall not exceed +/- 0.2% of full-scale rating. To guarantee QA/QC, it is done double checked by invoice of electricity sales.
Purpose of the data	<i>Emission Reductions</i>
Calculation method	$EG_{facility,y} = \left(\frac{EG_{project,y}}{EG_{project,y} + EG_{another,y} - EG_{import,y}} * EG_{output,y} \right)$
Verification Team Assessment	The generation data for the years 2019, 2020 and 2021 were provided. The electricity generation value mentioned '804,749 MWh' is matching with generation data provided. The data is archived electronically. Archived data will be kept during the crediting period and two years later.

Data / Parameter	EG output, y
Data unit	MWh
Description	Electricity supplied to the grid by the proposed project and 'another project B'during year y
Source of data	Measured by power meter M3 main meter (maestro fiscal principal) or M3 backup meter (maestro fiscal respaldo)
Description of measurement methods and procedures to be applied	Continuous measurement and at least monthly recording. The metering equipment complies with CFE regulations and is properly calibrated by CFE. Directly obtained from the metering equipment installed in the Ixtepec substation.
Frequency of monitoring/recording	Continuous measurement and at least monthly recording
Value monitored	1,522,465
Monitoring equipment	Identification code for meters in CFE Ixtepec substation:

	Main Meter: MT-1011A383-01 Backup Meter: MT-1011A456-01 Main and backup meters are bidirectional and have 0.2% accuracy class.
QA/QC procedures to be applied	The metering equipment in Ixtepec Substation, are properly calibrated and checked annually for accuracy, as per Mexican law and/or PPA, to ensure that any error resulting from such equipment shall not exceed +/- 0.2% of full-scale rating. To guarantee QA/QC, it is done double checked by invoice of electricity sales. Main and Check meter has been tested and calibrated by LAPEM in 29/05/2019, 12/05/2020 and 03/04/2021. Next calibration is due on 02/04/2022.
Purpose of the data	Emission Reductions
Calculation method	Measured
Verification Team Assessment	The data for the years 2019, 2020 and 2021 were provided. The electricity generation value mentioned '1,522,465 MWh' is matching with generation data provided. The data is archived electronically. Archived data will be kept during the crediting period and two years later.

Data / Parameter	EG import, y
Data unit	MWh
Description	Electricity purchased from the grid by the proposed project and 'another project B' during year y
Source of data	Measured by power meter M3 main meter (maestro fiscal principal) or M3 backup meter (maestro fiscal respaldo)
Description of measurement methods and procedures to be applied	Continuous measurement and at least monthly recording. The metering equipment complies with CFE regulations and is properly calibrated by CFE. Directly obtained from the metering equipment installed in the Ixtepec substation.
Frequency of monitoring/recording	Continuous measurement and at least monthly recording

Value monitored	3,952
Monitoring equipment	Identification code for meters in CFE Ixtepec substation: Main Meter : MT-1011A383-01 Backup Meter: MT-1011A456-01 Main and backup meters are bidirectional and have 0.2% accuracy class.
QA/QC procedures to be applied	The metering equipment in Ixtepec Substation, are properly calibrated and checked annually for accuracy, as per Mexican law and/or PPA, to ensure that any error resulting from such equipment shall not exceed +/- 0.2% of full-scale rating. To guarantee QA/QC, it is done double checked by invoice of electricity sales. Main and Check meter has been tested and calibrated by LAPEM in 29/05/2019, 12/05/2020 and 03/04/2021. Next calibration is due on 02/04/2022.
Purpose of the data	Emission Reductions
Calculation method	Measured
Verification Team Assessment	The data for the years 2019, 2020 and 2021 were provided. The electricity generation value mentioned '3,952 MWh' is matching with generation data provided. The data is archived electronically. Archived data will be kept during the crediting period and two years later.

Data / Parameter	EG project, y
Data unit	MWh
Description	Electricity measured by meters installed at the project site Oaxaca IV substation
Source of data	Measured by power meter M2 main meter (esclavo principal) o M2 backup meter (esclavo respaldo))
Description of measurement methods	Continuous measurement and at least monthly recording. The metering equipment complies with CFE regulations and is properly

and procedures to be applied	calibrated by CFE. Directly obtained from the metering equipment installed in the Oaxaca IV substation.
Frequency of monitoring/recording	Continuous measurement and at least monthly recording
Value monitored	812251
Monitoring equipment	Identification code for meters in M2, Oaxaca IV substation: Main Meter : MT-1011A462-01 Backup Meter: MT-1011A388-01 Main and backup meters are bidirectional and have 0.2% accuracy class.
QA/QC procedures to be applied	The metering equipment in Oaxaca IV Substation, are properly calibrated and checked annually for accuracy, as per Mexican law and/or PPA, to ensure that any error resulting from such equipment shall not exceed +/- 0.2% of full-scale rating. To guarantee QA/QC, it is done double checked by invoice of electricity sales. Main and Check meter has been tested and calibrated by LAPEM in 31/05/2019, 15/05/2020 and 03/04/2021. Next calibration is due on 02/04/2022.
Purpose of the data	Emission Reductions
Calculation method	Measured
Verification Team Assessment	The data for the years 2019, 2020 and 2021 were provided. The electricity generation value mentioned '812,251 MWh' is matching with generation data provided. The data is archived electronically. Archived data will be kept during the crediting period and two years later.

Data / Parameter	EG another, y
Data unit	MWh
Description	Electricity measured by meters installed at 'another project B' project site substation

Source of data	Measured by power meter M1 main meter (esclavo principal) o M1 backup meter (esclavo respaldo))
Description of measurement methods and procedures to be applied	Continuous measurement and at least monthly recording. The metering equipment complies with CFE regulations and is properly calibrated by CFE. Directly obtained from the metering equipment installed in another project B substation.
Frequency of monitoring/recording	Continuous measurement and at least monthly recording
Value monitored	716867
Monitoring equipment	Identification code for meters M1 in another project B' (Oaxaca II) substation: Main Meter: MT-1011A453-01 Backup Meter: MT-1011A560-01 Main and backup meters are bidirectional and have 0.2% accuracy class.
QA/QC procedures to be applied	The metering equipment in 'another project B' (Oaxaca II) Substation, are properly calibrated and checked annually for accuracy, as per Mexican law and/or PPA, to ensure that any error resulting from such equipment shall not exceed +/- 0.2% of full-scale rating. To guarantee QA/QC, it is done double checked by invoice of electricity sales. Main and Check meter has been tested and calibrated by LAPEM in 30/05/2019, 14/05/2020 and 03/04/2021. Next calibration is due on 02/04/2022.
Purpose of the data	Emission Reductions
Calculation method	Measured
Verification Team Assessment	The data for the years 2019, 2020 and 2021 were provided. The electricity generation value mentioned '716867 MWh' is matching with generation data provided. The data is archived electronically. Archived data will be kept during the crediting period and two years later.

The net electricity supplied to the grid by the proposed project has been calculated as follows:

$$EG_{facility,y} = \left(\frac{EG_{project,y}}{EG_{project,y} + EG_{another,y}} * EG_{output,y} \right) - EG_{import,y}$$

Where:

EG_{facility,y} = Net electricity supplied by the proposed project in the period y.

EG_{output,y} = Total electricity supplied to the grid by the proposed project and ‘another project B’ in the period y.

EG_{import,y} = Total electricity imported from the grid by the proposed project and ‘another project B’ in the period y

EG_{project,y} = Electricity measured by meters installed at the Oaxaca IV substation

EG_{another,y} = Electricity measured by meters installed at the ‘another project B’ substation that share transmission facilities with Oaxaca IV.

Parameters **EG_{output,y}**, **EG_{import,y}**, **EG_{project,y}** and **EG_{another,y}** in the above formula which are used to calculate **EG_{facility,y}** have been measured by electricity meters.

EG_{output,y} and **EG_{import,y}** have been measured by bidirectional meters M3 installed in the project substation in Ixtepec.

EG_{project,y} has been measured by electricity bidirectional meters M1 installed at the Oaxaca IV substation. **EG_{another,y}** has been measured by electricity bidirectional meters M2 installed at the ‘another project B’ substation. **EG_{import,y}** is the total electricity imported from the grid by the Oaxaca IV and ‘another project B’ in period, to be conservative, when the **EG_{facility,y}** is calculated, **EG_{import,y}** is fully deducted including the electricity imported from the grid by ‘another project B’.

Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered PD;
- The monitoring complies with the requirement of the applied methodologies;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameters and confirms to the requirement of the PDD;
- The values included in the monitoring report and corresponding emission reduction sheets are verified and included under each monitoring parameter, wherever appropriate;

Parameters not monitored / fixed ex-ante:

Data / Parameter	EF _{grid,CM,y}
Data unit	tCO ₂ /MWh

Description	Combined margin CO2 emission factor for grid connected power generation in year y calculated using the “Tool to calculate the emission factor for an electricity system” (Ex-ante)
Source of data	Revised 2006 IPCC, CFE and SENER: “Prospectiva del Sector Eléctrico 2009-2024”, “Prospectiva del Sector Eléctrico 2008-2017” and “Prospectiva del Sector Eléctrico 2007-2016”.
Value applied	0.5805 tCO2/MWh
Justification of choice of data or description of measurement methods and procedures applied	We have chosen to calculate the emission factor ex-ante because it is simpler for the project development. The value was calculated as per the “Tool to calculate the emission factor for an electricity system”, the calculation data is provided in Annex 3
Purpose of Data	Baseline Emissions

Data / Parameter	FC _{i,y}	
Data unit	TJ	
Description	Amount of fossil fuel type i consumed by power plant in year y	
Source of data	SENER: “Prospectiva del Sector Eléctrico 2009-2024”, “Prospectiva del Sector Eléctrico 2008-2017” and “Prospectiva del Sector Eléctrico 2007-2016”.	
Value applied	2006	1,608,555 TJ
	2007	1,652,355 TJ
	2008	1,587,036 TJ
Justification of choice of data or description of measurement methods and procedures applied	As per Tool to calculate the emission factor for an electricity system once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM-PDD to the DOE for validation (ex ante option).	
Purpose of Data	Baseline Emissions	
Comments	In 2008 only fuel consumption is provided in other units (m3 and Ton) and converted into TJ using NCVs and Density information below. Calculations provided in PDD.	

Data / Parameter	NCV_{i,y}
Data unit	GJ/mass or volume unit
Description	Net calorific value (energy content) of fossil fuel type i in year y

Source of data	SENER, México, National Commission for Energy Efficiency ⁵		
Value applied	Fuel Oil	40,122	KJ/kg
	Natural Gas	34,353	KJ/m3
	Diesel	41,868	KJ/kg
	Coal	0.024	TJ/Ton
Justification of choice of data or description of measurement methods and procedures applied	Local net calorific values per fuel type are used. Once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM-PDD to the DOE for validation (ex ante option).		
Purpose of Data	Baseline Emissions		
Comments	The data is used for 2008 only, for other years the data for fossil fuel consumed by power plant in year y is reported in TJ.		

Data / Parameter	Density		
Data unit	Kg/m3		
Description	Density of fossil fuel type i in year y		
Source of data	SENER, México, National Commission for Energy Efficiency ⁶		
Value applied	Fuel Oil	982	Kg/m3
	Diesel	865	Kg/m3
Justification of choice of data or description of measurement methods and procedures applied	The data is used for 2008 only, for other years the data for fossil fuel consumed by power plant in year y is reported in TJ		
Purpose of Data	Baseline Emissions		
Comments	The data is used for 2008 only, for other years the data for fossil fuel consumed by power plant in year y is reported in TJ.		

Data / Parameter	EF _{CO2,y}		
Data unit	tCO ₂ /TJ		
Description	CO2 emission factor of fossil fuel type i in year y		
Source of data	Revised 2006 IPCC		
Value applied	Fuel Oil	75.5	tCO ₂ /TJ

⁵ http://www.conae.gob.mx/wb/CONAE/CONA_694_a2_tablas_y_figura?page=2

⁶ http://www.conae.gob.mx/wb/CONAE/CONA_694_a2_tablas_y_figura?page=2

	Natural Gas	54.3	tCO ₂ /TJ
	Diesel	72.6	tCO ₂ /TJ
	Coal	87.3	tCO ₂ /TJ
Justification of choice of data or description of measurement methods and procedures applied	As per Tool to calculate the emission factor for an electricity system, once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM-PDD to the DOE for validation (ex-ante option).		
Purpose of Data	Baseline Emissions		

Data / Parameter	EG_y		
Data unit	MWh		
Description	Net electricity generated by the project electricity system in year y		
Source of data	SENER: “Prospectiva del Sector Eléctrico 2009-2024”, “Prospectiva del Sector Eléctrico 2008-2017” and “Prospectiva del Sector Eléctrico 2007-2016”.		
Value applied	Year 2006	205,878,000	MWh
	Year 2007	211,454,000	MWh
	Year 2008	215,276,000	MWh
Justification of choice of data or description of measurement methods and procedures applied	As per Tool to calculate the emission factor for an electricity system, once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM-PDD to the DOE for validation (ex-ante option).		
Purpose of Data	Baseline Emissions		

Data / Parameter	EG_{m,y}		
Data unit	MWh		
Description	Net electricity generated by the power plant m in year y		
Source of data	SENER: “Prospectiva del Sector Eléctrico 2009-2024”.		
Value applied	Values provided in Annex 3 of PDD.		
Justification of choice of data or description of measurement methods and procedures applied	BM: Ex ante, following the guidance in Step 5 of the Tool to calculate the emission factor for an electricity system.		
Purpose of Data	Baseline Emissions		

Verification Team Opinion:

In the opinion of assessment team, values applied has not changed since all the values have been fixed ex-ante. The details were checked with registered PD and previous MR, the default values that were applied in the calculations are correctly applied and have been justified.

Assessment of Data and Calculation of GHG emission reductions:

Baseline Emissions

The emission reduction ER_y by the project activity during a given year y is the difference between baseline emissions (BE_y), project emissions (PE_y) and emissions due to leakage (Ly), as follows:

$$ER_y = BE_y - PE_y - Ly.$$

Baseline emissions include only CO_2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity. The baseline emissions are calculated as follows:

$$BE_y = EG_{P,J,y} \times EF_{grid,CM,y}$$

BE_y = Baseline emissions in a year y (tCO_2)

$EG_{P,J,y}$ or EG_y = Quantity of net electricity supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh)

$$EG_{P,J,y} = EG_y$$

$EF_{CO_2,grid,y}$ = CO_2 emission factor of the grid in year y (tCO_2/MWh)

Net electricity supply to the grid ($EG_{facility,y}$) is used to calculate VCUs.

Baseline emission factor (EF_y) has been calculated ex-ante and will not be updated during the crediting period of ten years. As per PDD registered, $EF_y = 0.5805$

$$BE_y = 804,749 \text{ MWh} \times 0.5805 \text{ tCO}_2 = 467,156 \text{ tCO}_2e$$

Hence the baseline emission calculated for the reported monitoring period is 467,156 tCO_2e

$$\text{i.e., } BE_y = 467,156 \text{ tCO}_2e$$

Project Emissions

No project emissions are applicable to this wind electric power project, since the electricity generation is based on wind resources, which does not involve in combustion or generation of emissions from fossil fuels. Hence, these emission sources are neglected.

$$\text{i.e. } PE_y = 0$$

Leakage

No leakage emissions are considered. The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction and upstream emissions from fossil fuel use (e.g. extraction, processing, and transport). These emission sources are neglected.

$$\text{i.e. } LE_y = 0$$

Net GHG Emission Reductions and Removals

The Formula used to calculate the net emission reduction for the project activity is

$$ER_y = BE_y - PE_y - LE_y$$

Where,

ER_y : Emission Reduction in tCO₂/year

BE_y : Baseline emission in tCO₂/year

PE_y : Project emissions in tCO₂/year

LE_y : Leakage Emissions in tCO₂/year

For the project activity during the current monitoring period, as per section 5.1

$$BE_y = 467,156 \text{ tCO}_2\text{e}$$

$$PE_y = 0 \text{ tCO}_2\text{e}$$

$$LE_y = 0 \text{ tCO}_2\text{e}$$

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net emission reductions or removals (tCO ₂ e)
Year 2019 (1 st Dec 2019 to 31 st Dec 2019)	29,291	0	0	29,291
Year 2020 (1 st Jan 2020 to 31 st Dec 2020)	230,496	0	0	230,496
Year 2021 (1 st Jan 2021 to 30 th Nov 2021)	207,369	0	0	207,369
Total	467,156	0	0	467,156

The estimated ERs for the same period would have been 491,737 tCO₂e and actual ERs lower than the estimated emission reductions for the same period.

Crediting Period

PP had claimed emission reductions starting from 18th November 2011 under VCS and end date of crediting period is deemed to be 17th November 2021.

The Verification Team also noted that the project was registered with UNFCCC as a CDM project on 15th May 2012, and the start date of the crediting period is 16th May 2012 and end date is 15th May 2022.

As per the paragraph 3.8.3 of the VCS standard version 3.3 /15/ and paragraph 3.8.7 of the latest VCS standard version 4.1, there is a provision where a VCS project's end date of crediting period can be the same end date of the CDM crediting period. Hence this approach adopted by the PP to end the crediting period on 15th May 2022 is acceptable to the Verification Team.

Verification Team Opinion:

The verification team confirms that

- The complete data set for the identified and required parameters for the operational days in the current monitoring period was available;
- The reported data has been cross checked with available records, as indicated in the section 4.4 above under each monitored data, wherever appropriate;
- The baseline, project and leakage emissions have been determined in accordance with the requirement of the applied methodologies, as contained in the final monitoring report and corresponding emission reductions spreadsheet;
- The assumptions, emission factors and default values used are justified, as indicated in the section 4.4 above

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

Evidences (Documents/Zoom interviews) referred for verification of individual monitoring parameter and fixed parameters are defined under section 4.4. We further confirm that, sufficient evidence covering the entire monitoring period and at the required frequency were available. A list of referred documents for verification is also included in Appendix 1 of this report.

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION CONCLUSION

4K Earth Science Pvt. Ltd (4KES), contracted by ‘Kosher Climate India Private Limited’, has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 1041) titled: “Oaxaca IV Wind Energy Project” for the monitoring period 01-December-2019 to 30-November-2021 as reported in the Monitoring Report Version 3.0. The project proponent whilst ‘CE Oaxaca Tres S. de R.L. de C.V.’ is responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

4KES commenced the verification on the basis of the baseline and monitoring methodology ACM 0002 version 12.1.0, the monitoring plan contained in the registered VCS PD /04/ and VCS Standard version 4.1 /7/, Monitoring Report (Version 3.0, Dated: 05-June-2022) as per the process described under Section 2 of this report.

4KES verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. 4KES planned and performed the verification by obtaining evidence and other information and explanations that 4KES considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 01-December-2019 to 30-November-2021 are fairly stated in the Monitoring Report Version 3.0 dated 05-June-2022. The GHG emission reductions were calculated correctly on the basis of Approved Consolidated baseline methodology for ‘Grid-connected electricity generation from renewable sources’, Version 12.1.0 /5/, and the VCS standard 4.1.

Verified GHG emission reductions and removals in the above verification period:

4KES confirms the following;

Reporting period: 01-December-2019 to 30-November-2021

Year	Baseline emissions or removals (tCO2e)	Project emissions or removals (tCO2e)	Leakage emissions (tCO2e)	Net GHG emission reductions or removals (tCO2e)
Year 2019 (1 st Dec 2019 to 31 st Dec 2019)	29,291	0	0	29,291
Year 2020 (1 st Jan 2020 to 31 st Dec 2020)	230,496	0	0	230,496

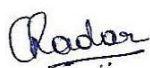
Year 2021 (1 st Jan 2021 to 30 th Nov 2021)	207,369	0	0	207,369
Total	467,156	0	0	467,156

Approved by

Chandrakala R.

Director

Date:05-June-2022



4K Earth Science Private Limited

Place: Bangalore, India

APPENDIX I: LIST OF DOCUMENTS

SI No.	Documents, References, Weblinks
1	Monitoring Report, Version 01, Dt:10-December-2021
2	Monitoring Report, Version 03, Dt:05-June-2022
3	Emission Reduction Calculation Sheet, Version 2.0
4	VCS Project Description (version 2.0 dated 14-May-2013)
5	Consolidated baseline methodology for grid-connected electricity generation from renewable sources” ACM0002 version 12.1.0
6	Power Purchase Agreement bw CE Oaxaca Tres S. de R.L. de C.V. and CFE, Dt: 08th April 2010
7	VCS Standard Version 4.1, 22nd April 2021
8	Registered CDM PDD, Version 2.0, Dt: 23-Dec-2011
9	1st Verification -Monitoring Report, Version 2.0, Dt: 14-May-2013
10	1st Verification Report, Version 1.0, Dt: 28-May-2013
11	Commissioning Certificates
12	Technical Specifications of Acciona Wind Turbines - 1500 KW / 1.5 MW https://mediacdn.acciona.com/media/1787906/awp-2015-in-oct.pdf
13	Generation Data Sheets December 2019 to November 2021
14	Emission Reduction Calculation Sheet, Version 1.0
15	VCS Standard Version 3.3, Dt 04th October 2012
16	URL: https://cdm.unfccc.int/Projects/DB/AENOR1337004252.43
17	URL: https://registry.verra.org/app/projectDetail/VCS/1041
18	Declaration on double counting
17	Grivance register
18	Calibration certificates of Energy meters

APPENDIX II: VERIFICATION FINDINGS

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

This is 2nd periodic verification of the project activity. There is no remaining FAR from the previous Verification.

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

Table 2. CL from this verification

CL ID	01	Section no.	-	Date:15/12/2021
Description of CL				
Project Proponent (PP) to clarify the delay between the 1st Monitoring Period and 2nd Monitoring Period.				
Project participant response				Date : 16/12/2021
The project activity has also been registration with UNFCCC under Clean Development Mechanism (CDM) program, with UN reference number is 6216. GHG credits for the period between the first and current monitoring period have been verified and issued under the following mechanisms. GHG credits for the monitoring period from 18th November 2011 till 15th May 2012 were issued under VCS and GHG credits from 16th May 2012 till 30th November 2019 were issued under CDM. The present VCS monitoring period covered in this report is for the period from 1st December 2019 till 30th November 2021 (including both the days).				
Documentation provided by project participant				
Revised MR				
DOE assessment				Date:17/12/2021

The time difference between the 1st issuance and 2nd issuance request under VCS is due to the PP's choice for sale & trade of carbon offset under different GHG offset programs. The verification team based on the documentary evidence provided and assessment of information from the public domain.

CDM Website

<https://cdm.unfccc.int/Projects/DB/AENOR1331632777.85/view>

The PP has obtained Issuance of CERs between 16/05/2012 to 30/11/2019

Based on the assessment verification team is able to conclude that the operation of project activity has been continuous and there have been no stoppages. Hence CL01 is closed.

CL ID	02	Section no.	1.9 of MR	Date: 15/12/2021
Description of CL				
Project Proponent (PP) is requested to submit undertaking letter to ascertain that the project proponent will not claim any GHG credits under for UNFCCC CDM during the current monitoring period covered under the VCS.				
Project participant response				Date: 16/12/2021
Undertaking letter have been submitted.				
Documentation provided by project participant				
Undertaking letter				
DOE assessment				Date: 17/12/2021
The undertaking letter has been submitted to the verification team, hence CL02 is closed.				

CL ID	03	Section no.	3.1	Date: 15/12/2021
Description of CL				
Since there was delay between the first and current monitoring period, PP to confirm whether there have been changes to project design.				
Project participant response				Date: 16/12/2021
PP confirms that there are no changes to the project design since commissioning till this monitoring period.				
Documentation provided by project participant				
NA				
DOE assessment				Date: 17/12/2021
The commissioning certificates were checked and subsequently the calibration certificates to ensure that the size and location of WTGS are intact and during the remote audit the same was confirmed from the technical and O&M team of PP. The verification team concludes that there are no changes to the to project design, location of WTGs and size of project, hence CL 03 is closed.				

CL ID	04	Section no.	4.1	Date: 15/12/2021
Description of CL				
PP to clarify the difference in Data and Parameters Available at Validation mentioned in the registered PD and MR.				
Project participant response				Date: 16/12/2021

All the parameters are included in the MR available in PDD at the time of validation.	
Documentation provided by project participant	
Revised MR (Version 2.0)	
DOE assessment	Date:17/12/2021
The parameters which were missing earlier have now been added in the revised MR. The same is checked and confirmed, hence CL 04 is closed.	

CL ID	05	Section no.	4.3	Date:15/12/2021
Description of CL				
Project Proponent to clarify if there were any delay in calibration during the current monitoring period.				
Project participant response				Date: 16/12/2021
There is no delay in calibration of meters during the current monitoring period. Calibration details are provided in section 4.2 of the MR and calibration reports are provided for verification.				
Documentation provided by project participant				
NA				
DOE assessment				Date:17/12/2021
The calibration certificates were made available to the Verification Team, the team assessed the certificates and concluded that there were no delays in calibration of energy meters, hence CL 05 is closed.				

Table 3. CAR from this verification

CAR ID	01	Section no.	1.10	Date: 15/12/2021
Description of CAR				
The CDM UNFCCC registration number mentioned in MR is not consistent.				
Project participant response				Date:16/12/2021
Made consistent across the MR where ever it is mentioned.				
Documentation provided by project participant				
Revised MR (Ver 2.0)				
DOE assessment				Date:17/12/2021
The verification team checked the section 1.10 of the revised MR and found the CDM UNFCCC Registration to consistent. Hence CAR 01 is closed.				

CAR ID	02	Section no.	4.2	Date: 15/12/2021
Description of CAR				
In section 4.2 of MR, there are no values mentioned for parameters EG Output, Import, EG Project, EG another.				
Project participant response				Date:16/12/2021
Values have been mentioned for all parameters.				

Documentation provided by project participant	
Revised MR (Ver 2.0)	
DOE assessment	Date:17/12/2021
Section 4.2 of the revised MR was checked and it is noted that the values for the parameters EG Output, Import, EG Project, EG another., have been added. Hence CAR 02 is closed.	

CAR ID	03	Section no.	5.4 and ER Sheet	Date: 15/12/2021
Description of CAR				
The PP is claiming ERs for the period post 01/01/2021. The Monitoring Report is silent on the requirements stated in section 3.14.4 (VCS Standard, Version 4.1) - Required use of IPCC - <u>Fifth Assessment Report</u> global warming potential values (revised from Fourth Assessment Report values)				
Project participant response				Date: 16/12/2021
Project activity avoids only CO ₂ emission reductions in the baseline, project scenario. CH ₄ and other GHG reductions are not applicable for the project case. As per the IPCC 5th assessment report GWP value for CO ₂ is 1. Which is same as applied during the validation of PDD. Same has been applied for the emission reduction calculations. If any revisions in future will be taken into consideration for future monitoring periods and report in the MR.				
Documentation provided by project participant				
NA				
DOE assessment				Date: 17/12/2021
The justification provided by the PP is acceptable to the verification team since the project activity GHG gas associated with is CO ₂ only in the baseline and project scenario. Hence CAR 03 is closed.				

Table 4. FAR from this verification

No FAR raised during this verification.

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

APPENDIX III: TEAM COMPETENCE

Certificate of Competence						
Name	☒ Mr. ☐ Ms.	Chetan Swaroop Sharma				
Qualification Procedure	Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	13-06-2020					
Authorized to work as Technical Expert for:						
Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope			
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation			
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables			
	Energy distribution	2.1	Energy distribution			
	Energy demand	3.1	Energy demand			
	Waste handling and disposal	13.1	Solid waste and wastewater			
Authorized to work as Local Expert for:						

Country/Countries	India
Compliance check by: Anand S. R.	

Certificate of Competence						
Name	☒ Mr. ☐ Ms.	Ma Paa Puratchikkanal				
Qualification Procedure	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	CDM Validator/Verifier	Team Leader	Team Member	Technical Expert	Technical Reviewer	Financial Expert
Appointed	Yes	Yes	Yes	Yes	Yes	No
Appointed Date	27-04-2021					
Authorized to work as Technical Expert for:						
Authorized Technical Area	Sectoral Scope	TA Code	Technical Area within the scope			
	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation			
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables			
	Energy demand	3.1	Energy demand			
	Construction	6.1	Construction			
	Waste handling and disposal	13.1	Solid waste and wastewater			
	Waste handling and disposal	13.2	Manure			
	Agriculture	15.1	Agriculture			
Authorized to work as Local Expert for:						

Country/Countries	India and Mexico
Compliance check by: Anand S. R.	

APPENDIX IV: ABBREVIATIONS

ACM	Approved Consolidated Methodology
AW	Acciona Wind S.A
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CFE	Comisión Federal de Electricidad / Federal Electricity Commission
CL	Clarification Request
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel for Climate Change
I-REC	International Renewable Energy Certificate
KW	Kilo Watt
MP	Monitoring Period
MR	Monitoring Report
MW	Mega Watt
MWh	Mega Watt hour
PD	Project Description
PDD	Project Design Document
PPA	Power Purchase Agreement
PP	Project Proponent
QA/QC	Quality Assurance/Quality Control
tCO ₂	Tonnes of Carbon Dioxide
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
4KES	4K Earth Science Private Limited

