




**Verification and certification report form for
CDM programme of activities
(version 02.0)**

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

BASIC INFORMATION

Title and UNFCCC reference number of the programme of activities (PoA)	Gigawatt Global Programme of Activities UNFCCC ref. no: 10202	
Version number(s) of the PoA-DD(s) to which this report applies	05	
Version number of the verification and certification report	02	
Completion date of the verification and certification report	22/11/2018	
Monitoring period number and duration of this monitoring period	2 nd monitoring period 01/03/2017-31/08/2018	
Number and version number of the monitoring report to which this report applies	Monitoring report number: 01 Version number of the monitoring report: 02	
Coordinating/managing entity (CME)	Gigawatt Global Coöperatief U.A.	
Host Parties	Host Parties of the PoA	Is this a host Party to a CPA covered in this report? (yes/no)
	Rwanda	yes
Applied methodologies and standardized baselines	No standardized baseline has been selected.	
Mandatory sectoral scopes linked to the applied methodologies	Scope 1: Energy industries (renewable- / non-renewable sources)	
Conditional sectoral scopes linked to the applied methodologies, if applicable	Not applicable	
Estimated amount of GHG emission reductions or GHG removals for this monitoring period in the included CPAs covered in this report	15,253	
Certified amount of GHG emission reductions or GHG removals for this monitoring period for the included CPAs covered in this report	13,526	
Name and UNFCCC reference number of the DOE	AENOR INTERNACIONAL S.A.U UNFCCC ref. no: E-0021	

Name, position and signature of the approver of the verification and certification report	 José Luis Fuentes Climate Change Manager
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SECTION A. Executive summary

AENOR INTERNACIONAL S.A.U., hereinafter AENOR, has performed the second verification of the PoA "Gigawatt Global Programme of Activities" (hereafter referred to as "the PoA") registered by the UNFCCC with reference No. 10202 with regard to the relevant requirements for CDM PoA. The PoA is located in the geographical area of Rwanda. The objectives of this verification are to verify and certify emission reductions reported for this PoA for the monitoring period of 01/03/2017 to 31/08/2018 (first and last day included); and to verify that the data reported are complete and transparent

GHG data for the monitoring period was verified in detailed manner applying the set of requirements, audit practices and principles as required under the Validation and Verification Standard of the UNFCCC.

The registered PoA aims to support the development and implementation of utility scale solar photovoltaic (PV) projects in Rwanda, thereby displacing grid-connected, fossil fuel based electricity generation, by promoting grid-connected renewable energy based electricity generation. As such, the PoA will contribute in reduction of greenhouse gas (GHG) emissions.

This monitoring period includes the implementation and monitoring of one CPA (10202-0001), as part of registered PoA.

Scope of the Verification

The verification, such as an independent and objective review, shall assess and verify that the implementation of the project activity and the steps taken to report emission reductions comply with the CDM criteria and relevant guidance provided by the CMP and the CDM Executive Board. The verification shall:

1. Ensure that the project activity has been implemented and operated as per the registered PoA and included CPA and that all physical features (technology, project equipment, and monitoring and metering equipment) are in place. It is therefore necessary to carry out:
 - Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan and the registered PoA /1/ and included CPA /2/.
 - A check of the monitoring equipment including calibration performance, sampling requirements and observations of monitoring practices against the requirements of the registered PoA and included CPA and the selected methodology.
 - A check that the manual operating provisions are duly followed (processes, routines, instructions, forms and the like).
2. Ensure that the Monitoring Report and other supporting documents provided are complete and verifiable and in accordance with applicable CDM requirements. It is therefore necessary to carry out a review of:
 - Relevant documentation as well as an on-site visit(s).
 - Data and information presented to verify their completeness.
 - Indicators that must be addressed in the monitoring plan.
 - Review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of surveys including sampling requirements, the quality of metering equipment, and the quality assurance and quality control procedures.
3. Ensure that actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology, carrying out:
 - Review of information flows for generating, aggregating and reporting the monitoring parameters.

- A cross-check between information provided in the Monitoring Report and data from other sources such as plant log books, inventories, purchase records or similar data sources.
 - Review of calculations and assumptions made in determining the GHG data and emission reductions
 - Review of the project documentation provided by the project participant to check that is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the Monitoring Report submitted to the DOE. Qualitative information comprises information on internal management controls, calculation procedures, and procedures for transfer of data, frequency of emissions reports, and review and internal audit of calculations.
4. Evaluate the data recorded and stored as per the monitoring methodology, carrying out:
- Evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.
 - Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.
5. Identify and inform the project participants of any concerns related to the project's activity and operation conformance with the registered PoA and included CPA. Project participants shall address the concerns and supply additional relevant information.
6. Provide a verification report to the project participants, the Parties involved and the CDM Executive Board. The report shall be made publicly available.

The verification is not meant to provide any consultancy services to the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the Monitoring Report.

AENOR, based on the Specific Instruction for the Validation, Verification and Certification of Clean Development Mechanism (CDM) Project Activities (IE/DTC/039) /3/, which is in turn based on the CDM validation and verification standard for programmes of activities version 01.0 /4/, has used a risk-based approach in the verification, focusing on the identification of significant risks for the generation of CERs and verifying the mitigation measures for these issues.

Verification Process

The verification was performed through means of the following the requirements of CDM validation and verification standard for programmes of activities version 01.0, the applied methodology, and relevant CDM rules. The process of the verification includes:

- I. A desk review of the monitoring report and all support documents.
- II. Follow-up interviews and site inspection.
- III. The resolution of outstanding issues and the issuance of the verification report and statement.

The verification of the emission reductions has assessed all factors and issues that constitute the basis for emission reductions from the project. These include:

- The emission reduction calculations and the relevant data records.
- The calibration and maintenance records for the monitoring instruments
- The management systems to support the programme operation and monitoring.

The audit team took into consideration the registered PoA and included CPA and verified that they have been adequately considered during this verification. The monitoring system is in place and the emission reductions are calculated without material misstatements.

A risk-based verification approach was employed to identify key risks to emission reduction estimations.

All Corrective Action Requests (CAR) and Clarification Actions (CL) have been checked by the verification team and have been adequately resolved.

In AENOR's opinion, the GHG emissions reductions for the monitoring period from 01/03/2017 to 31/08/2018, were calculated correctly and amount 13,526 tonnes of CO₂ equivalent on the basis of the approved methodology AMS-I.D version 18.0 /5/ and the final version of the monitoring report and the formulae given in the registered PoA and included CPA.

A risk based verification approach was employed to identify key risks to emission reduction estimations. During the on site visit it was verified the quality assurance of the data concern in the calculation of the emission reduction. The installation of the project was also verified and the proper use of the meters and procedure controls were also tested.

AENOR confirms that the project is implemented in accordance with the validated and registered PoA, included CPA and the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents.

Based on the information checked and evaluated, AENOR is able to certify that the emissions reductions from the PoA No. 1020 "Gigawatt Global Programme of Activities" during the period from 01/03/2017 - 31/08/2018 amount to 13,526 tonnes of CO₂ equivalent.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team members

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	Interview(s)	Verification findings
1.	Team Leader	IR	Pellitero Martinez	Marcelino	AENOR	Yes	No	Yes	Yes

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	IR	Arribas Alonso	Luis Javier	AENOR
2.	Approver	IR	Fuentes Perez	Jose Luis	AENOR

SECTION C. Application of materiality in conducting the verification

AENOR verification team has considered the CDM requirements on materiality concept according to:

- Decision 9/CMP.7 Materiality standard under the clean development mechanism.
- CDM Validation and Verification Standard for programmes of activities (VVS) version 01.0.

- Guideline: Application of materiality in verifications version 02.0 /6/.

Gigawatt Global Programme of Activities is a CDM PoA comprise, at the moment, only of small-scale CPA other than registered CDM PoAs covered under subparagraph (e); as such, a 5 per cent materiality threshold is applied for this verification as per paragraph 307 of CDM Validation and Verification Standard for Programme of activities version 01.0.

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.	Human error in the quantification of emissions	Low	Data used for the emissions reduction calculation are collected through automated systems so the risk for human error is reduced. Calculation spreadsheets are used to determine the emissions reductions.	<p>Verification has been focused on the assessment of:</p> <ul style="list-style-type: none"> Quality of raw data and procedures for its collection. Calculation spreadsheets. Controls established to detect and correct any error or omission in monitoring parameters. Monitoring procedures. Reliability of internal and external data. Internal data quality control for monitored parameters and metering systems. <p>The verification plan included a desk review, on-site inspection and interviews with relevant personnel.</p> <p>100% of data will be assessed, therefore sampling is not applicable.</p>
2	Undue reliance on a poorly designed information system, which may have few effective quality controls	Low	According to MR there are QC/QA procedures applied for monitoring parameters and data management.	<p>Verification has been focused on the assessment of:</p> <ul style="list-style-type: none"> Quality of raw data and procedures for its collection. Calculation spreadsheets. Controls established to detect and correct any error or omission in monitoring parameters. Monitoring procedures. Reliability of internal and external data. Internal data quality control and implementation of internal procedures for quality management. <p>The verification plan included a</p>

				<p>desk review, on-site inspection and interviews with relevant personnel.</p> <p>100% of data will be assessed, therefore sampling is not applicable.</p>
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C.2. Consideration of materiality in conducting the verification

The verification has been performed through a desk review and on-site inspection including interviews with relevant personnel.

The verification activities in which risks were assessed are the evaluations of:

- Monitoring system including project vehicle surveys.
- Calculation spreadsheets.
- Quality of raw data and procedures for its collection.
- Data flow.
- Data control procedures.

The risks identified were mitigated through the review of whole data set of the registers and calculation spreadsheets and crosscheck against relevant reports as well as real time verification of monitored parameters.

Some mistakes were identified and subsequently corrected. These findings are detailed in Appendix 4 and they were successfully closed. Therefore related identified mistakes as listed in findings in Appendix 4 to this report have been determined to be immaterial. All identified inconsistencies and clarification requests have been successfully closed.

Based on the assessment carried out, AENOR confirms with a reasonable level of assurance that the claimed emission reductions are free from material errors, omissions or misstatements.

SECTION D. Means of verification

D.1. Desk/document review

The desk review involved:

- Project documentation: Registered PoA /1/ and included CPA /2/, validation report of registered PoA-DD /7/, validation report of included CPA /8/ previous verification report /9/, initial version of monitoring report /10/ and final version of monitoring report /11/
- CDM project standard for programmes of activities version 01.0 /12/
- CDM PoA Monitoring report form version 02.0 and the instructions for filling it out /13/
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board.
- The Monitoring Plan and the applied monitoring methodology, paying close attention to the frequency of measurements, the quality of metering equipment, sampling requirements and the quality assurance and quality control procedures
- The data and information presented to verify their completeness, including the Monitoring Report and the measuring records of the different monitored parameters.
- The influence of data management and the quality assurance and quality control system on the generation and reporting of emission reductions.

A complete list of all documents reviewed is attached in Appendix 3.

D.2. On-site inspection

According to paragraph 320 VVS for CDM Project Activities version 01.0, it is mandatory for the DOE to conduct an on-site inspection at verification for the registered CDM project activity if:

1. It is the first verification for the DOE with regard to this project activity;
2. More than three years have elapsed since the last on-site inspection conducted for verification for the project activity; or
3. The project activity has achieved more than 300,000 t CO₂ eq of GHG emission reductions or net anthropogenic GHG removals since the last verification when an on-site inspection was conducted.

AENOR, complying with the above requirements, did not carry out an on-site visit to the project activity for the current verification process because:

1. This is the second verification process for the DOE with regard to this project activity.
2. No more than three years have elapsed since the last on-site inspection conducted for verification for the project activity. Last site inspection to the project activity was carried out on 29/05/2017.
3. The project activity has achieved less than 300,000 t CO₂ eq of GHG emission reductions (13,526 tCO₂ eq) since the last verification when an on-site inspection was conducted.

AENOR has used the following alternative means of verification to confirm that the project complies with the CDM rules:

1. Document review, involving:
 - a. A review of the data and information presented by the PP to verify their completeness;
 - b. A review of the registered monitoring plan, the applied methodology paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
 - c. An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of GHG emission reductions or net anthropogenic GHG removals;
 - d. An assessment of the implementation and operation of the registered CDM project activity as per the PoA-DD and CPA-DD and any possible change implemented from the last on site visit.
 - e. A review of information flows for generating, aggregating and reporting the monitoring parameters;
 - f. Cross checks between information provided in the monitoring report and data from other sources such as plant logbooks, and internal databases.
 - g. Evidence that the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the the PoA-DD and CPA-DD and the applied methodology.
 - h. A review of calculations and assumptions made in determining the GHG data and GHG emission reductions or net anthropogenic GHG removals.
 - i. An identification of quality control and quality assurance procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters.
2. Skype and telephone interviews (see section D.3 below) with relevant personnel to determine:

- a. The project activity is operating as per the PoA-DD and CPA-DD and the project boundaries remain the same.
- b. whether the operational and data collection procedures are implemented in accordance with the registered monitoring plan;
- c. the ERs calculation is correct according to the evidence provided and the applied methodology.

Duration of on-site inspection: DD/MM/YYYY to DD/MM/YYYY				
No.	Activity performed on-site	Site location	Date	Team member
1.	N/A	N/A	N/A	N/A

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Twagirimana	Twaha	Operation and Maintenance Technician SCATEC	16/10/2018	Verification of data generation.	Marcelino Pellitero Martinez
2.	Fichtenberg	Michael	Gigawatt Global Coöperatief U.A. (CME)		Testing of monitoring equipment and observation of monitoring practices.	
3.	Kibira	Dennis	Consultant - Carbon Africa Limited		Verification of compliance of calibration frequency against original certificates.	
4.	Mutungi	Alexandra	Consultant - Carbon Africa Limited		Verification of internal data quality control. Verification of controls established to detect and correct any error or omission in monitoring parameters. Crosscheck the information provided against monitoring report and data from monitoring system, plant log books, purchase records, etc. Overall organizational structure for data management and flow of information. Verification of	

					sector regulation change. Clarifications related to monitoring procedures. Verification of electrical energy generation	
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D.4. Sampling approach

N/A

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
General			
Compliance of the monitoring report with the monitoring report form		CAR 1	
Remaining forward action requests from validation and/or previous verification			
CPA(s) considered for verification and covered in this report			
Programme of activities			
Compliance of the programme implementation with the registered PoA-DD			
Implementation and operation of the management system			
Post-registration changes			
<ul style="list-style-type: none"> Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline 			
<ul style="list-style-type: none"> Corrections 			
<ul style="list-style-type: none"> Inclusion of a monitoring plan 			
<ul style="list-style-type: none"> Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools 			
<ul style="list-style-type: none"> Changes to the programme design or project design 			
<ul style="list-style-type: none"> Change of coordinating/managing entity 			
<ul style="list-style-type: none"> Changes specific to afforestation and reforestation activities 			
Component project activities			
Compliance of the CPA implementation with the included CPA design document			
Post-registration changes			
<ul style="list-style-type: none"> Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline 			
<ul style="list-style-type: none"> Corrections 			
<ul style="list-style-type: none"> Changes to the start date of the crediting period of component project activities 			
<ul style="list-style-type: none"> Inclusion of a monitoring plan 			
<ul style="list-style-type: none"> Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools 			
<ul style="list-style-type: none"> Changes to the programme design of project design 			

<ul style="list-style-type: none"> Changes specific to afforestation and reforestation component project activities 			
Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline			
Compliance of monitoring activities with the registered monitoring plan			
<ul style="list-style-type: none"> Data and parameters fixed ex ante or at renewal of crediting period 			
<ul style="list-style-type: none"> Data and parameters monitored 	CL 1		
<ul style="list-style-type: none"> Implementation of sampling plan 			
Compliance with the calibration frequency requirements for measuring instruments		CAR 2	
Assessment of data and calculation of emission reductions or net removals			
<ul style="list-style-type: none"> Calculation of baseline GHG emissions or baseline net GHG removals by sinks 			
<ul style="list-style-type: none"> Calculation of project GHG emissions or actual net GHG removals by sinks 			
<ul style="list-style-type: none"> Calculation of leakage GHG emissions 			
<ul style="list-style-type: none"> Summary of calculation of GHG emission reductions or net GHG removals by sinks 			
<ul style="list-style-type: none"> Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA 			
<ul style="list-style-type: none"> Remarks on difference from estimated value in included CPA 			
Assessment of reported sustainable development co-benefits			
Global stakeholder consultation			
Others (please specify)			
Total	1	2	0

SECTION E. Verification findings

E.1. General

E.1.1. Compliance of the monitoring report with the monitoring report form

Means of verification	The verification team has checked all sections of the MR and confirms by means of comparison with the valid version of the applicable monitoring report form listed in UNFCCC website.
Findings	The corrective action request CAR 1 was closed. For details refer to the respective tables in Appendix 4.
Conclusion	<p>Due to the corrective actions requested during the validation process, the project participants made a final version of the MR which includes corrections to all issues raised, so it can be confirmed that the Monitoring report is complete and transparent and in accordance with registered PoA-DD and CPA-DD and other relevant requirements as well as with the applicable monitoring report form.</p> <p>Therefore, according to Paragraph 338 of VVS version 01.0, AENOR verification team confirm that the monitoring report was compliance with relevant monitoring report form and instructions therein.</p>

E.1.2. Remaining forward action requests from validation and/or previous verifications

Not applicable.

E.1.3. CPAs considered for verification and covered in this report

Title and UNFCCC reference number of the CPA included in the PoA as of the end of this monitoring period	Is the CPA considered for this verification? (yes/no)	The date when the CPA was included	Version of the PoA-DD	Confirmation that a request for issuance including the CPA has been published for the previous monitoring period (Y/N)
ASYV 8.5MW Solar PV Project (CPA-001) UNFCCC ref. no: 10202-0001	Yes	23/10/2015	05	Y

E.2. Programme of activities**E.2.1. Compliance of the programme implementation with the registered programme design document**

Means of verification	<p>The verification team has performed a desk review and telephone interviews to verify if:</p> <ul style="list-style-type: none"> All physical features (technology, project equipment, and monitoring and metering equipment) of the registered CDM PoA are in place. The CME has operated the programme as per the registered PoA-DD. <p>Further it has been checked if relevant technical equipment of the programme has been exchanged or modified during the monitoring period in PoA-DD, MR and calculation spreadsheet are applied.</p> <p>Interviews with operational personnel have been carried out, management system records; maintenance records and related monitoring procedures were checked in this context.</p> <p>Special focus has further been laid to determine whether a potential phase wise implementation has occurred within the crediting period or any delays with respect to the starting dates have occurred.</p> <p>In addition, it has been checked whether any observed deviations from the registered project design have been correctly addressed as PRCs.</p>
Findings	<p>During desk review and telephone interviews, the assessment team verified the technology used at the project site and it was confirmed that procedures, approaches followed in the implementation and monitoring of the PoA were the same that those stated in the registered PoA-DD.</p> <p>The technical description included in the CPA is consistent with the documentation provided /14/15/. Scatec Solar ASA is responsible for the operation of the Solar Plant, and the CME is Gigawatt Global Cooperatief, who is the coordinating entity of the Programme of Activities. In addition it was confirmed by the letter from the utility (EUCL) /16/ that Commercial Operation Date (COD) has occurred on 18th September 2014. Therefore, the audit team confirms that the project activity is completely operational as per the registered PoA-DD and CPA-DD.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>According to paragraph 341 of VVS version 01.0, AENOR verification team confirms that:</p> <ul style="list-style-type: none"> The implementation status is consistent with the registered latest version of

	<p>the PoA-DD;</p> <ul style="list-style-type: none"> • The actual operation of the Programme is as per the registered latest version of the PoA-DD; • Information (data and variables) provided in the monitoring report is in accordance with that stated in the registered latest version of the PoA-DD.
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E.2.2. Implementation and operation of the management system

Means of verification	<p>The verification team has performed desk review and telephone interviews to verify if:</p> <ul style="list-style-type: none"> • The CME implemented and operated the management system as per the registered PoA-DD. • The organizational structure and roles and responsibilities for monitoring are in line with the situation on the ground as observed during the site visit, <p>Interviews with operational personnel have been carried out, management system records and related monitoring procedures were checked in this context.</p> <p>In addition, it has been checked whether any observed deviations from the registered management system have been correctly addressed as PRCs.</p>
Findings	<p>By means of review of the registered PoA-DD, validation report followed by an interview with the CME, CPA implementer including personnel involved in the PoA, the verification team observed that, the operation of the management system of the PoA was carried out as per the registered PoA design.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>According to paragraph 341 of VVS version 01.0, AENOR verification team confirms that:</p> <ul style="list-style-type: none"> • The implementation and operation of the management system is consistent with the registered latest version of the PoA-DD; • The actual operation of the management system is as per the registered latest version of the PoA-DD; • Information (data and variables) provided in the monitoring report is in accordance with that stated in the registered latest version of the PoA-DD

E.2.3. Post-registration changes

E.2.3.1. Temporary deviations from the registered monitoring plan, applied methodology or applied standardized baseline

N/A.

E.2.3.2. Corrections

N/A.

E.2.3.3. Inclusion of a monitoring plan

N/A.

E.2.3.4. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline or other applied standards or tools

N/A.

E.2.3.5. Changes to the programme design or project design

N/A.

E.2.3.6. Change of coordination/managing entity

N/A.

E.2.3.7. Changes specific to afforestation and reforestation activities

N/A.

E.3. Component project activities**E.3.1. Compliance of the CPA implementation with the included CPA design document**

Means of verification	<p>The verification team has performed a desk review and telephone interviews to verify if:</p> <ul style="list-style-type: none"> • All physical features (technology, project equipment, and monitoring and metering equipment) of the registered CPA are in place. • The CPA implementer has operated the CPA as per the registered PoA-D and CPA-DD. <p>Further it is has been checked if relevant technical equipment of the CPA has been exchanged or modified during the monitoring period in CPA-DD, MR and ER calculation spreadsheet are applied.</p> <p>Interviews with operational personnel have been carried out, management system records; maintenance records and related monitoring procedures were checked in this context.</p> <p>Special focus has further been laid to determine whether a potential phase wise implementation has occurred within the crediting period or any delays with respect to the starting dates have occurred.</p> <p>In addition, it has been checked whether any observed deviations from the registered project design have been correctly addressed as PRCs.</p>
Findings	<p>There is 1 specific CPA (10202-0001) that was included in the registered PoA at the end of the current monitoring period.</p> <p>The technical description included in the CPA is consistent with the documentation provided /14/15/. Scatec Solar ASA is responsible for the operation of the Solar Plant, and the CME is Gigawatt Global Cooperatief, who is the coordinating entity of the Programme of Activities. In addition it was confirmed by the letter from the utility (EUCL) /16/ that Commercial Operation Date (COD) has occurred on 18th September 2014. Therefore, the audit team confirms that the project activity has been implemented as per the registered CPA-DD.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>According to paragraph 341 of VVS version 01.0, AENOR verification team confirms that:</p> <ul style="list-style-type: none"> • The implementation status and equipment installation of the CPA 10202-0001 is consistent with the registered latest version of the CPA-DD; • The actual operation of the Programme is as per the registered latest version of the CPA-DD; • Information (data and variables) provided in the monitoring report is in accordance with that stated in the registered latest version of the CPA-DD.

E.3.2. Post-registration changes**E.3.2.1. Temporary deviations from registered monitoring plan, applied methodology or applied standardized baseline**

N/A

E.3.2.2. Corrections

For the CPA 10202-0001 a post-registration change notification with a correction on the number of modules was submitted during the last issuance request and successfully approved. The monitoring in the current issuance request has been done in accordance with the approved post-registration changes.

As per the submitted CDM-CPA-PRC-FORM the notification date of the post registration date was 16/11/2017. The approval date being the date of issuance 03/01/2018. The post-registration change documentation can be found on the PoA issuance page on the UNFCCC website http://cdm.unfccc.int/PoAIssuance/iss_db/poaiss385618334/view.

E.3.2.3. Changes to the start date of the crediting period of component project activities

For the CPA 10202-0001 a post-registration change notification with a change on the start date of the crediting period was submitted during the last issuance request and successfully approved. The monitoring in the current issuance request has been done in accordance with the approved post-registration changes.

As per the submitted CDM-CPA-PRC-FORM the notification date of the post registration date was 16/11/2017. The approval date being the date of issuance 03/01/2018. The post-registration change documentation can be found on the PoA issuance page on the UNFCCC website http://cdm.unfccc.int/PoAIssuance/iss_db/poaiss385618334/view

E.3.2.4. Inclusion of a monitoring plan

N/A

E.3.2.5. Permanent changes to the registered monitoring plan or permanent deviation of monitoring from the applied methodology, standardized baseline, or other applied standards or tools

For the CPA 10202-0001 a post-registration change notification on meter installation and accuracy of the main and back-up meters was submitted during the last issuance request and successfully approved. The monitoring in the current issuance request has been done in accordance with the approved post-registration changes.

As per the submitted CDM-CPA-PRC-FORM the notification date of the post registration date was 16/11/2017. The approval date being the date of issuance 03/01/2018. The post-registration change documentation can be found on the PoA issuance page on the UNFCCC website http://cdm.unfccc.int/PoAIssuance/iss_db/poaiss385618334/view.

E.3.2.6. Changes to the programme design or project design

N/A

E.3.2.7. Changes specific to afforestation and reforestation component project activities

N/A

E.3.3. Compliance of the registered monitoring plan with the methodology including applicable tool(s) and standardized baseline

Means of verification	The verification team has checked the actual monitoring plan against the latest approved monitoring plan and monitoring methodology and applicable tools. Furthermore the verification team has checked monitoring system during the onsite inspection by means of comparison with the information given in the monitoring plan and monitoring methodology.
Findings	By means of review of the registered PoA-DD, validation report followed by an interview with the CME, CPA implementer including personnel involved in the PoA, the verification team observed that, the monitoring plan complies with the applied methodology.

	No CARs/CLs/FARs raised in this section.
Conclusion	According to paragraph 342 of VVS version 01.0, AENOR verification team confirms that the monitoring plan complies with the applied methodology and the monitoring system and all applied procedures are completely in compliance to the latest approved monitoring plan and the methodology AMS-I.D version 18.0

E.3.4. Compliance of monitoring activities with the registered monitoring plan

E.3.4.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification	By means of comparison of the MR and the ER calculation with the latest version of the registered PoA-DD and CPA-DDs the verification team has checked whether the fixed ex-ante have been applied correctly.
Findings	<p>The document review and the site visit revealed that a complete set of data for the specified monitoring period is available. The correctness of information provided in the monitoring report has been crosschecked against the registered PoA-DD and/or included CPA-DDs.</p> <p>The following ex-ante parameters have been checked the compliance with the registered monitoring plan.</p> <ul style="list-style-type: none"> • $NCV_{i,y}$: Net calorific value (energy content) of fossil fuel type i in year y. IPCC default values are used, as there is no specific data from the fuel suppliers of the power plants and also not regional default values. Applicable only to grid emission factor calculations. • $EF_{CO_2,i,y} / EF_{CO_2,m,i,y}$: CO_2 emission factor of fossil fuel type i in year y. IPCC default values are used, applicable only to grid emission factor calculation. • $EG_{m,y}$: Net electricity generated by power plant/unit min year y. Data on electricity generation was obtained from EWSA, the utility company in Rwanda and owner of the power plants. This value was only used for the grid emission factor calculations. • $FC_{i,m,y}$: Amount of fossil fuel type i consumed by power plant / unit m in year y. Data on fuel consumption for electricity generation obtained from EWSA, the utility company in Rwanda an only used for the grid emission factor calculation. • $\eta_{m,y}$: Average net energy conversion efficiency of power unit m in year y. Default values from the tool for average net energy of combined cycle engines. The default value applied is 60%. As the other fixed factors, it is only used for the grid emission factor. <p>These values are consistent with registered PoA and CPA. Verification of data generation, aggregation and recording in this case is not applicable since they are fixed parameters from the registered PoA-DD and CPA-DD and used for the grid emission calculation, which value is: 0.66 tCO₂/MWh. The grid emission factor is correctly applied for the emission reduction calculations.</p> <p>No CARs/CLs/FARs raised in this section</p>
Conclusion	According to paragraph 349 of VVS version 01.0, AENOR verification team confirms that the MR /11/ and the ER calculation spreadsheet /17/ have considered the parameters fixed ex-ante correctly, no deviations have been observed.

E.3.4.2. Data and parameters monitored

Means of verification	<p>During the verification all relevant monitoring parameters (as listed in chapter B.7.1 of the PoA-DD and 2.5.1 of the CPA-DD) have been verified with regard to the</p> <ol style="list-style-type: none"> appropriateness of the applied measurement / determination method, the correctness of the values applied for ER calculation,
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	iii. the accuracy, and applied QA/QC measures.	
Findings		
	Data/Parameter	EG _{PJ,facility,y}
	Description	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
	Value applied	Values provided in ER sheet
	Measuring /Reading /Recording frequency	The quantity of electricity supplied to and imported from the grid is monitored continuously, measured hourly and recorded at least monthly.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes.
	Calibration frequency /interval:	The frequency of the testing/calibration of the meter is done according to the requirements stipulated in the PPA /18/ i.e. Testing and inspection of both the Metering System and Backup Metering System is done at intervals of not less than 90 days after the initial calibration.
If applicable, has the reported data been cross-checked with other available data?	<p>Records from the main meter of the quantity of electricity supplied by the project plant/unit to the grid are crosschecked against billing records of electricity to the utility company (REG) /19/. If necessary, records can also be crossed checked with those of the backup meter.</p> <p>Electricity consumed at the plant is derived from the metering system which reads both ways and therefore able to record both imported and exported electricity /25/. Records of electricity consumed by the project plant/unit are also sent to the CPA implementing entity from the utility company as electricity bills /20/. A quality check on such data has been carried out through comparison with minimum and maximum consumption during the last 12 months. In case a reading exceeds or is below the maximum or minimum consumption, the reading will be confirmed by dividing the amount billed by the applicable energy tariff. If such are not available or lead to a similar reading not within the applicable range, confirmation shall be sought with the utility.</p>	

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management system is reliable.
	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?	Not applicable
	Findings	Value stated in the MR is consistent along the document and with the provided ERs calculation spreadsheet. The clarification CL 1 was closed. For details refer to the respective tables in Appendix 4.
	Conclusion	It can be confirmed that the monitoring parameter have been measured / determined without material misstatements and in line the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan.
Conclusion	<p>According to paragraphs 348 and 349 of VVS version 01.0, AENOR verification team confirms that:</p> <ul style="list-style-type: none"> The monitoring has been carried out in accordance with the monitoring plan and the registered PoA-DD and CPA-DDs. All parameters required by the monitoring plan have been measured / determined without material misstatements and in line with all applicable standards and relevant requirements. 	

E.3.4.3. Implementation of sampling plan

Means of verification	Not applicable since no sampling is used.
Findings	N/A
Conclusion	N/A

E.3.4.4. Compliance with the calibration frequency requirements for measuring instruments

Means of verification	<p>AENOR has verified the information stated in all the calibration certificates of the different equipment installed in the project and also their technical specifications from manufacturer in the current verification process. The following information summarizes the assessment:</p> <p><u>Electricity Meters</u> Manufacturer: Landis+Gyr Instrument: Electricity Meter Type: Electricity Meter Calibration Frequency: At intervals of not less than 90 days /17/ after initial calibration. Calibration certificates: /20/21/22/23/24/</p> <table><tr><th>Site</th><th>Serial number</th><th>Accuracy</th><th>Initial Calibration</th><th>Testing and Inspections</th><th>Error applied</th></tr><tr><td>Metering System (Main Meter)</td><td>3507510704209</td><td>P: 0.2S Q: 0.5S</td><td>11/10/2016</td><td>24/07/2017 18/10/2017 24/01/2018 03/05/2018 14/08/2018</td><td>Calibration Valid</td></tr><tr><td>Backup Metering System (Backup Meter)</td><td>3507510704191</td><td>P: 0.2S Q: 0.5S</td><td>14/07/2015</td><td>24/07/2017 18/10/2017 24/01/2018 03/05/2018 14/08/2018</td><td>Calibration Valid</td></tr><tr><td>Auxiliary Meter (Secondary)</td><td>3507510704217</td><td></td><td>11/10/2016</td><td>N/A</td><td>N/A</td></tr></table>	Site	Serial number	Accuracy	Initial Calibration	Testing and Inspections	Error applied	Metering System (Main Meter)	3507510704209	P: 0.2S Q: 0.5S	11/10/2016	24/07/2017 18/10/2017 24/01/2018 03/05/2018 14/08/2018	Calibration Valid	Backup Metering System (Backup Meter)	3507510704191	P: 0.2S Q: 0.5S	14/07/2015	24/07/2017 18/10/2017 24/01/2018 03/05/2018 14/08/2018	Calibration Valid	Auxiliary Meter (Secondary)	3507510704217		11/10/2016	N/A	N/A
Site	Serial number	Accuracy	Initial Calibration	Testing and Inspections	Error applied																				
Metering System (Main Meter)	3507510704209	P: 0.2S Q: 0.5S	11/10/2016	24/07/2017 18/10/2017 24/01/2018 03/05/2018 14/08/2018	Calibration Valid																				
Backup Metering System (Backup Meter)	3507510704191	P: 0.2S Q: 0.5S	14/07/2015	24/07/2017 18/10/2017 24/01/2018 03/05/2018 14/08/2018	Calibration Valid																				
Auxiliary Meter (Secondary)	3507510704217		11/10/2016	N/A	N/A																				
Findings	<p>Three meters are in place at the project site:</p> <ol style="list-style-type: none">1. Main meter: Operated by the CPA implementer2. Back-up meter: Operated by the utility, Rwanda Energy Group (REG)3. Auxiliary meter: Operated by the CPA implementer to meter certain electrical loads at the facility including site facility building and lighting. This meter is only used for internal management purposes but is not used for any billing purposed of electricity export to or import from the grid. This meter is thus irrelevant for calculation of emission reductions for this CPA. <p>AENOR has verified that as indicated in the PPA, main and back-up meter comply with an accuracy class of 0.2S for active power and 0.5S for reactive power and that the calibration of the meters is carried out in accordance with the PPA and relevant industry standards.</p> <p>The corrective action request CAR 2 was closed. For details refer to the respective tables in Appendix 4.</p>																								
Conclusion	<p>According to paragraphs 346, 350 and 356 of VVS version 01.0, AENOR verification team confirms that:</p> <ul style="list-style-type: none">• The calibration of the measuring equipment that has an impact on the claimed GHG emission reductions or net anthropogenic GHG removals is																								

	<p>conducted at the frequency specified by the applied methodologies, the applied standardized baselines and/or the registered monitoring plan.</p> <ul style="list-style-type: none"> The equipment used for monitoring is controlled and calibrated in accordance with the registered monitoring plan, the applied methodologies, the applied standardized baselines, Board guidance, local/national standards, or as per the manufacturer's specification.
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E.3.5. Assessment of data and calculation of emission reductions or net removals

E.3.5.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	<p>During the verification the calculation of baseline GHG emissions has been checked. In detail the following has been verified:</p> <ul style="list-style-type: none"> Transparency: It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae. Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spread sheet. Correctness: It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology. Completeness: It has been checked whether all calculations are complete and without omissions.
Findings	<p>The emissions reductions are calculated in accordance with the methodology AMS I.D "Grid connected renewable electricity generation" - version 18. A spreadsheet has been also provided to the audit team which states that the baseline emissions are calculated using the formulae:</p> $BE_y = EG_{PJ,y} \times EF_{grid,y}$ <p>The Emission Factor of the grid ($EF_{grid,y}$) was determined ex-ante as a combined margin emission factor, consisting of the combination of operating margin ($EF_{OM,y}$) and build margin ($EF_{BM,y}$) emission factors with a fixed value of 0.66 tCO₂/MWh.</p> <p>According to the Monitoring Plan, the "$EG_{PJ,y}$" is be measured with meters installed at the site in which the plant's lines connect with the national grid. The energy generation of the project activity is obtained in accordance with the monitoring plan of the registered PoA and CPA, considering the measurements of the main energy meter. Therefore, the baseline emission for this monitoring period is:</p> $BE_y = 20,495 \text{ MWh} \times 0.66 \text{ tCO}_{2e}/\text{MWh} \text{ thus,}$ $BE_y = 13,526 \text{ tCO}_{2e}$ <p>No CARs/CLs/FARs raised in this section</p>
Conclusion	<p>According to paragraph 359 of VVS version 01.0, AENOR verification team confirms that:</p> <ul style="list-style-type: none"> A complete set of data for the monitoring period is available. Information on the baseline GHG emission calculation provided in the monitoring report 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. There are no assumptions in emission calculations. Appropriate emission factor, IPCC default values and other reference

	<p>values have been correctly applied</p> <ul style="list-style-type: none"> No errors, miscalculations, omissions, misstatements or incomplete information has been identified.
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E.3.5.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	According to the applied methodology and due to the fact that registered CPA consists of a solar power plant, there are no Project Emissions (PEy=0).
Findings	No CARs/CLs/FARs raised in this section
Conclusion	<p>The calculation of project GHG emissions is correct.</p> <p>According to paragraph 359 of VVS version 01.0, AENOR verification team confirms that the calculations of project GHG emissions have been carried out in accordance with the methods described in the latest approved monitoring plan and the applied methodology.</p>

E.3.5.3. Calculation of leakage GHG emissions

Means of verification	No leakage emissions are considered since the CPA is not a biomass project activity.
Findings	No CARs/CLs/FARs raised in this section
Conclusion	<p>The calculation of leakage GHG emissions is correct.</p> <p>According to paragraph 359 of VVS version 01.0, AENOR verification team confirms that the calculations of leakage GHG emissions have been carried out in accordance with the methods described in the latest approved monitoring plan and the applied methodology.</p>

E.3.5.4. Summary of calculation of GHG emission reductions or net GHG removals by sinks

Means of verification	<p>The verification team has checked if the MR includes a summary table of the emission reductions calculation specifying separately:</p> <ul style="list-style-type: none"> Total baseline emissions, Total project emissions, Total leakage, Total emission reductions. <p>It has been assessed whether the values are correct or need to be revised.</p>
Findings	<p>The verification team checked and recalculated the ER calculation sheets and confirms that the values as specified in the ER summary table are correct. The confirmed value of total GHG emission reductions is 13,526 tCO₂e.</p> <p>No CARs/CLs/FARs raised in this section.</p>
Conclusion	<p>According to paragraph 359 of VVS version 01.0, AENOR verification team confirms that:</p> <ul style="list-style-type: none"> A complete set of data for the monitoring period is available. 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. The summary table in the MR has been filled correctly and the values are in line with the related emissions reduction calculation spreadsheet.

	<ul style="list-style-type: none"> There are no assumptions in emission calculations. Appropriate emission factor, IPCC default values, GWPs and other reference values have been correctly applied
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Title and UNFCCC reference number of the CPA	Baseline emissions or baseline net GHG removals by sinks (tCO ₂ e)	Project emissions or actual net GHG removals by sinks (tCO ₂ e)	Leakage (tCO ₂ e)	GHG emission reductions or net GHG removals by sinks (tCO ₂ e)		
				Amount achieved before 1 January 2013	Amount achieved from 1 January 2013	Amount achieved in the entire monitoring period
ASYV 8.5MW Solar PV Project (CPA-001) UNFCCC ref. no: 10202-0001	13,526	0	0	0	13,526	13,526
Total	13,526	0	0	0	13,526	13,526

E.3.5.5. Comparison of actual GHG emission reductions or net GHG removals by sinks with estimates in included CPA

Means of verification	The comparison of actual GHG emission reductions with estimates in registered PoA-DD and CPA-DDs has been checked and re-calculated by the verification team.
Findings	<p>Based on the above assessment, the emission reduction during the monitoring period 01/03/2017 to 31/08/2018 is verified as 13,526 tCO_{2e}. Compared with the value of estimated emission reductions during the same period, in the CPA-DD which is 15,253 tCO_{2e}.</p> <p>The verified emission reductions are 11% lower than the estimated value in the monitoring period.</p> <p>No CARs/CLs/FARs raised in this section</p>
Conclusion	<p>According to paragraph 272 of PS version 01.0, AENOR verification team confirms that:</p> <p>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 registered PoA-DD and CPA-DDs has been provided.</p> <p>The verification team considers the calculation of the comparison is correct</p>

Title and UNFCCC reference number of the CPA	Value estimated in ex ante calculation in the included CPA-DD(s)	Actual values achieved by the CPAs during this monitoring period
ASYV 8.5MW Solar PV Project (CPA-001) UNFCCC ref. no: 10202-0001	15,253	13,526
Total	15,253	13,526

E.3.5.6. Remarks on difference from estimated value in included CPA

Means of verification	The emission reductions achieved during this monitoring period is lower than the estimation in the CPA-DD.
Findings	N/A
Conclusion	N/A

E.3.6. Assessment of reported sustainable development co-benefits

Means of verification	The CME has neither developed sustainable development co-benefits nor monitored sustainable development co-benefits of the project activity; the section is therefore not applicable in this verification period.
Findings	N/A
Conclusion	N/A

E.3.7. Global stakeholder consultation

Means of verification	There were no comments received with regard to the stakeholder consultation conducted after the publication of the first monitoring report in accordance with the “CDM project cycle procedure for programmes of activities version 01.0”, the section is therefore not applicable in this verification period
Findings	N/A
Conclusion	N/A

SECTION F. Internal quality control

Following the completion of the assessment process by the verification team, all documentation undergoes an internal quality control through a technical review before the request for Issuance of CERs is submitted. The Technical reviewer is a qualified member of AENOR, independent from the team that carried out the verification of the project activity. The technical reviewer or the team appointed for the technical review is qualified in the technical area(s) and sectoral scope(s) of the project activity.

The complete assessment prepared by the verification team is checked. The technical review team may raise Clarification Requests to the verification team and discuss these matters with Team Leader.

After the agreement of the responses on the Clarification Requests from the verification team as well as the PP(s), the finalized verification report is accepted and is authorized by the Climate Change Manager on behalf of AENOR for requesting issuance via the UNFCCC interface.

SECTION G. Verification opinion

Gigawatt Global Coöperatief U.A. has commissioned AENOR to carry out the second verification and certification of the emission reductions generated by PoA No. 10202 “Gigawatt Global Programme of Activities” in Rwanda for the period 01/03/2017 to 31/08/2018.

The verification report comprises the CPA (10202-0001), which was included at the UNFCCC webpage at the end of the current monitoring period. A single monitoring report has been prepared by the CME for the same in which implementation of the referred CPA along with monitoring results are included.

Verification is performed in accordance with the CDM validation and verification standard for programmes of activities version 01.0, and relevant decisions of the CDM EB and COP/MOP.

AENOR planned and performed the verification by obtaining the information and the explanations considered necessary that provided sufficient evidence to give reasonable assurance that the amount of GHG emission reductions for the reporting period, prepared on the basis of both the monitoring plan included in the registered PoA-DD and CPA-DDs and the monitoring report version 02, is fairly stated.

We conducted our verification having regard to the monitoring plan included in the registered PoA-DD and CPA-DD, and the applied baseline as registered for the PoA. This assessment included:

- Checking whether the design of the PoA and its CPA is implemented and installed as planned and described in the registered/included design documents
- Checking whether the provisions of the monitoring methodologies and the monitoring plan in the CPA-DD were consistently and appropriately applied.
- Collection of evidence supporting the reported data

AENOR has verified whether the information included in the monitoring report version 02 is correct and that the emissions reductions achieved have been determined correctly.

The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS-I.D version 18.0 and the monitoring plan and formulae provided in the registered PoA-DD and CPA-DD.

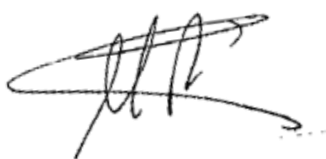
AENOR is able to certify that the emission reductions from the PoA No. 10202 "Gigawatt Global Programme of Activities" for the period 01/03/2017 to 31/08/2018 amount to 13,526 tCO₂ equivalent.

SECTION H. Certification statement

The verification is based on the draft monitoring report, revised monitoring report and the monitoring plan as set out in the registered PoA-DD and CPA-DD, the validation report, the ER calculation spreadsheet and supporting documents made available to AENOR by the CME.

AENOR confirms that the project is implemented as described in the validated and registered project design documents. Based on the information we have assessed, we confirm that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

Madrid, 22/11/2018



Marcelino Pellitero Martinez
Team leader



José Luis Fuentes
Authorized person

Appendix 1. Abbreviations

Abbreviations	Full texts
AENOR	AENOR INTERNACIONAL S.A.U.
ACM0002	Grid-connected electricity generation from renewable sources, version 16.0.0.
AMS-I.D	Grid connected renewable electricity generation, version 18.0.0
CAR	Corrective action request
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CER	Certified Emission Reduction(s)
CL	Clarification Request
CME	Coordinating or Managing Entity
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
COD	Commercial Operation Date
CO ₂	Carbon Dioxide
CO ₂ e	Carbon dioxide equivalent
CPA	Component project activity
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board of the CDM of the Kyoto Protocol
ER	Emission Reductions
EUCL	Energy Utility Corporation Limited
EWSA	Energy Water and Sanitation Authority
FAR	Forward action request
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel on Climate Change
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
N/A	Not applicable

PoA	Programme of Activities
CPA-DD	Component project activity design document form
PoA-DD	Programme of Activities Design Document form
PP	Project participants
PRC	Post-registration changes
PS	Clean Development Mechanism Project Standard for programme of activities, version 01.0
REG	Rwanda Energy Group
RSB	Rwanda Standards Board
tCO ₂ e	Carbon dioxide equivalent tonnes
UNFCCC	United Nations Framework Convention on Climate Change
VVS	CDM Validation and Verification Standard for Programme of Activities, version 01.0

Appendix 2. Competence of team members and technical reviewers

AENOR

CERTIFICATE OF QUALIFICATION

Subject: Verification and Technical Review Team for "Gigawatt Global Programme of Activities"

Madrid, 16 November 2018

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the verification process of the above mentioned project activity:

Name: **Marcelino Pellitero Martínez**

CDM Team Leader: Yes

CDM Validator: N/A

CDM Verifier: N/A

CDM Technical Reviewer: N/A

External Technical Expert: N/A

Technical areas related with the project activity:

TA 1.2: Renewables



José Luis Fuentes
Climate Change Manager

AENOR

CERTIFICATE OF QUALIFICATION

Subject: Verification and Technical Review Team for "Gigawatt Global Programme of Activities"

Madrid, 16 November 2018

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the verification process of the above mentioned project activity:

Name: **Luis Javier Arribas**

CDM Team Leader: N/A

CDM Validator: N/A

CDM Verifier: N/A

CDM Technical Reviewer: Yes

External Technical Expert: N/A

Technical areas related with the project activity:

TA 1.2: Renewables



José Luis Fuentes
Climate Change Manager

R-DTC-417.00

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Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	CME	Registered PoA-DD	http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/MCBLF2OG6KRY5HZ031UQ7PIW4NJVEA/view	UNFCCC website
2	CME	Registered CPA 10202-0001	http://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/V7HX6WLQ18P4ZE2RU039NMFICISTJDB/view	UNFCCC website
3	AENOR	Specific Instruction for Validation, Verification and Certification of Clean Development Mechanism (CDM) Project Activities (IE/DTC/039)		AENOR
4	UNFCCC	CDM validation and verification standard for programme of activities, version 01.0	http://cdm.unfccc.int/Reference/Standards/index.html	UNFCCC website
5	UNFCCC	AMS-I.D Grid connected renewable electricity generation version 18.0	http://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTFQOFQQH4SBK	UNFCCC website
6	UNFCCC	Guideline on the application of materiality in verifications	https://cdm.unfccc.int/filestorage/e/x/t/extfile-20150225171039012-iss_guid08.pdf?iss_guid08.pdf?t=REh8cDZscjlfDC_kf9pfjfw2DF-KiwWPpyTY	UNFCCC website
7	ERM	Validation report of the CDM-PoA Gigawatt Global Programme of Activities, version 02.	http://cdm.unfccc.int/ProgrammeOfActivities/poa_db/MCBLF2OG6KRY5HZ031UQ7PIW4NJVEA/view	UNFCCC website
8	ERM	Validation Report of the CDM Component Project Activity CPA ASYV 8.5MW Solar PV Project (CPA-001), version 02.	http://cdm.unfccc.int/ProgrammeOfActivities/cpa_db/V7HX6WLQ18P4ZE2RU039NMFICISTJDB/view	UNFCCC website
9	AENOR	Verification Report of the CDM Component Project Activity CPA ASYV 8.5MW Solar PV Project (CPA-001) version 04, for the period 23/10/2015 - 28/02/2017,	https://cdm.unfccc.int/ProjectActivities/iss_db/poai_ss385618334/view	UNFCCC website
10	CME	Monitoring Report version 01	https://cdm.unfccc.int/ProjectActivities/mon_db/poamon719568849/viewM	UNFCCC website

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11	CME	Monitoring Report version 02		CME
12	UNFCCC	CDM project standard for programme of activities, version 01.0	http://cdm.unfccc.int/Reference/Standards/index.html	UNFCCC website
13	UNFCCC	Attachment. Instructions for filling out the CDM PoA Monitoring report form version 02.0	https://cdm.unfccc.int/filestorage/e/x/t/extfile-20170607143636114-ISS_form14v2.pdf/ISS_form14v2.pdf?t=S0l8cDZscmc1fDCdkErZfeoCK_Ne7bP8gCP3	UNFCCC website
14	CME	Single Line Diagram	13/11/2014	CME
15	CME	Energy Yield Assessment report	08/01/2014	CME
16	EUCL	Letter from the Energy Utility Corporation Limited, EUCL, with reference number 11.07.23/256/14/DIR-MD/RN	18/09/2014	CME
17	CME	2018 10 04 GWG MR2 ER Calculations _V2		CME
18	CME	Power Purchase Agreement	2013	CME
19	SCATEC	Utility company electricity sales invoices for March 2017 to August 2018.	March 2017-August 2018	CME
20	EUCL	Utility company electricity consumption bills for March 2017 to August 2018.	March 2017-August 2018	CME
20	SANAS Calibration Laboratory	Calibration certificate of electricity main meter (SN 3507510704209)	11/10/2016	CME
21	RSB	Calibration certificates of electricity back up meter (SN 3507510704191)	14/07/2015	CME
22	SCATEC	Certificates of testing and inspections on the main meter.	July 2017, October 2017, January 2018, May 2018 and August 2018	CME
23	SCATEC	Certificates of testing and inspections on the back-up meter.	July 2017, October 2017, January 2018, May 2018 and August 2018	CME
24	SANAS Calibration Laboratory	Calibration certificates of auxiliary meter (SN 3507510704217)	11/10/2016	CME
25	SCATEC	Electricity meter readings.	01 March 2017- 31 August 2018	CME

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

Table 1. Remaining FARs from validation and/or previous verification

FAR ID	xx	Section no.		Date: DD/MM/YYYY
Description of FAR				
N/A				
CME response				Date: DD/MM/YYYY
N/A				
Documentation provided by the CME				
N/A				
DOE assessment				Date: DD/MM/YYYY
N/A				

Table 2. CLs from this verification

CL ID	01	Section no.	E.3.4.2	Date: 22/10/2018
Description of CL				
Billing records of electricity are required in order to verify the net electricity supplied to the grid. Records of electricity consumed by the project plant/unit was derived from the billing records sent to the CPA implementing entity from the utility company are also required.				
CME response				Date: 31/10/2018
The hourly electricity meter readings from the main meter showing electricity supplied to the grid (EG export M) and electricity supplied by the grid (EG import M) have been made available to the verification team as the billing records. Additionally, electricity sales invoices sent to the CPA implementing entity by the utility company and showing the net electricity output paid have been made available to the verification team.				
Documentation provided by the CME				
Utility company electricity sales invoices for March 2017 to August 2018. Excel file of hourly main meter readings from 01 March 2017 to 31 August 2018. The file name is electricity meter readings.				
DOE assessment				Date: 21/11/2018
The documented evidence /19/25/ has been provided and it is considered correct and appropriate. CL 1 is closed out.				

Table 3. CARs from this verification

CAR ID	01	Section no.	E.1.1	Date: 22/10/2018
Description of CAR				
Section C.3 of the MR does not comply with the Instructions for completing the form. According to the previous verification report, there have been approved post-registration changes in the period prior to this monitoring period.				
CME response				Date: 31/10/2018
The MR has been revised to comply with the form instructions. Specifically, section C.3 has been revised to reflect that a post-registration change notification was submitted (16/11/2017) via the DOE AENOR as part of the last issuance request and successfully approved (3/01/2018). Furthermore, monitoring in the period covered by this issuance request has been carried out in accordance with the approved post-registration changes.				
Documentation provided by the CME				
Monitoring report V2.0				

DOE assessment	Date: 21/11/2018
CME updated the MR correctly and appropriate evidence and justification has been provided. CAR 1 is closed out	

CAR ID	02	Section no.	E.3.4.4	Date: 22/10/2018
Description of CAR				
The MR does not include information about the number and dates of the testing and inspection of the meters carried out during the monitoring period. In addition, the testing and Inspection Certificates of the main and back up meters shall be provided to the verification team.				
CME response				Date: 31/10/2018
Section E.2 of the MR has been updated to include the dates when testing and inspection of the main and back-up meters was carried out during this monitoring period. Accordingly, all certificates pertaining to this testing and inspection have been made available to the verification team.				
Documentation provided by the CME				
Monitoring report V2.0 Certificates of testing and inspections on the main and back-up meter for July 2017, October 2017, January 2018, May 2018 and August 2018				
DOE assessment				Date: 21/11/2018
CME updated the MR correctly and appropriate evidence and justification has been provided /22/23/ CAR 2 is closed out				

Table 4. FARs from this verification

FAR ID	xx	Section No.		Date: DD/MM/YYYY
Description of FAR				
N/A				
CME response				Date: DD/MM/YYYY
N/A				
Documentation provided by the CME				
N/A				
DOE assessment				Date: DD/MM/YYYY
N/A				

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.0	29 December 2017	Revision to align with the requirements of the “CDM validation and verification standard for programme of activities” (version 01.0).
01.0	5 June 2015	Initial publication.
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