



**Verification and certification report form for
CDM project activities
(Version 02.1)**

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

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Agua Fresca Multipurpose and environmental services project 0122
Version number of the verification and certification report	02.0
Completion date of the verification and certification report	26/10/2018
Monitoring period number and duration of this monitoring period	Sixth monitoring period First monitoring period of the second crediting period 01/01/2013 – 31/12/2017
Version number of the monitoring report to which this report applies	2
Crediting period of the project activity corresponding to this monitoring period	Renewable, 01/01/2013 – 31/12/2019, 7 years.
Project participants	Energía del Río Piedras S.A. E.S.P. (Colombia)
Host Party	Colombia
Applied methodologies and standardized baselines	Approved small scale methodology AMS-I.D Grid connected renewable electricity generation, version 17.0
Mandatory sectoral scopes linked to the applied methodologies	1 : Energy industries (renewable - / non-renewable sources)
Conditional sectoral scope(s) linked to the applied methodologies	N/A
Estimated amount of GHG emission reductions or GHG removals for this monitoring duration in the registered PDD	54,040 tCO ₂ e
Certified amount of GHG emission reductions or GHG removals for this monitoring period	44,437 tCO ₂ e
Name and UNFCCC reference number of the DOE	Colombian Institute for Technical Standards and Certification (ICONTEC) E-0024

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



Julio Giraldo B.

Headship of Sustainable Development

SECTION A. Executive summary

ICONTEC performed the 6th periodic and consecutive¹ verification, the first of the second crediting period of the registered CDM project Agua Fresca Multipurpose and environmental services project in Colombia on the basis of UNFCCC criteria contained in Article 12 of the Kyoto Protocol and CDM modalities and procedures according to the Marrakech Agreement, the criteria of the CDM Executive Board and the host country, as well as the operational and technical monitoring criteria specific to this type of project.

The proposed project activity under verification process is based on the small scale methodology AMS-I.D Grid connected renewable electricity generation, version 17.0. The project consists of the small run-of-river hydroelectric plant connected to the Colombian electrical grid with an installed capacity of 7.49 MW, which is located in the municipality of Jerico (Department of Antioquia). The energy produced by this project activity is delivered to the Colombian electrical grid.

The verification process consisted of the following three phases:

- I. Desk review of the monitoring documentation, registered PDD, validation report and if apply, previous verification reports and relevant information (e.g. IPCC reports).
- II. On-site visit and follow up interviews with project stakeholders
- III. Resolution of outstanding issues and the issuance of the final verification and certification report.

The review of the monitoring documentation, approved PDD, validation report of renewal of crediting period, previous verification reports, relevant information and interviews allowed ICONTEC to collect enough evidence to completely assess the verification criteria and determinate that the project has been implemented as planned and as it has been described in the approved PDD version 3.1. Emission reductions were correctly calculated based on the PDD and the monitoring equipment with an impact on the claimed emission reductions work reliably. The monitoring system is in place and has been calibrated. ICONTEC can confirm that the GHG emission reductions are calculated without material misstatements.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader and Technical Expert in Sectoral Scope 1.2	IR	Ramirez	Francy	Employee	✓	✓	✓	✓

¹ This was verified by the audit team by means of reviewing on UNFCCC CDM website that the previous monitoring reports have been published

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.	Lead technical reviewer and Technical Expert Reviewer in Sectoral Scope 1.2	IR	Grisales	Cristian	Freelance
2.	Approver	IR	Giraldo	Julio	Employee

SECTION C. Application of materiality**C.1. Consideration of materiality in planning the verification**

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions	Low	The monitoring data is downloaded directly from the electricity meters located at Fredonia electrical Substation, so there is low potential risk of errors/errors, omissions or misstatements.	To cross check 100% of electricity generation stated in Excel ER spreadsheet with the receipts of sales issued by EPM to XM and also with the information available in XM page.
2.	Undue reliance on a designed information system, which may lead to Omissions and misstatements in data transfer from raw data into digital Excel ER spreadsheet	Low	Ineffective quality control of data transfer due to unclear QA/QC procedure.	Check Quality Management procedures and instructive. PP may demonstrate how to transfer data and how this is crosschecked. Conduct interview with related personnel whether procedure is actually conducted but not adequately described.
3.	Calibration delays on monitoring equipment	High	The PP sent calibrations certificates with delays	In the audit plan was included the reviewing of all calibration certificates (100%). In the assessment of emission reduction calculation it will be reviewed the proper applicability of paragraphs 369 and 370 of VVS PA /UN2/
4.	Missing data due to failure of measurement equipment	Low	The monitoring plan defines emergency procedures in case a meter fails. Besides back-up meters are either installed or available onsite for fast exchange.	Check if related meters are installed as per monitoring plan. Check if emergency procedure is known across related personnel via interviews.
5.	Possibility of post-registration changes	Low	Inasmuch as this is the 6 th verification process performed by ICONTEC , maybe the implementation of the project activity could not vary from the original project design described in the approved PDD	In the audit plan was included a tour by the facilities of the hydroelectric power plant

In order to assess possible material misstatements it was established a threshold based on the provisions stated in the VVS PA/UN2/ paragraph 329 (d), 5 per cent of the emission reductions, for this project activity:

$$44,437 \text{ tCO}_2\text{e} \times 5\% = 2,222 \text{ tCO}_2\text{e}$$

C.2. Consideration of materiality in conducting the verification

A risk assessment was undertaken by the verification team by means of document review. The audit team checked the 100% of the possible material misstatements, hence, no sampling plan was required in the monitoring plan. The verification team is able to confirm that all material misstatements were properly conducted and the required corrections were performed by the PP on the version 2 of the MR.

SECTION D. Means of verification

D.1. Desk/document review

The verification of the project documentation provided by the project proponent is based upon both quantitative and qualitative information on emission reductions. Quantitative information comprises the reported numbers in the monitoring report submitted. Qualitative information comprises information on internal management controls, calculation procedures, and procedures for transfer of data, frequency of emission reports, and review and internal audit of calculations.

Main documents reviewed during the desk review stage, provided by the project proponent, are:

- Monitoring report as submitted to UNFCCC, version 1, dated on June 29th/2018 /2/
- Emission reductions calculation files /3/
- Calibration certificates for measurement equipment /6//7//8/

In addition to the monitoring documentation provided by the project proponent, ICONTEC reviewed:

- Approved PDD, version 3.1, dated on July 2nd/2013 /1/
- Previous validation report for renewal of crediting period issued by ICONTEC, version 02 dated on September 3rd/2013 /4/
- Approved small scale methodology AMS-I.D Grid connected renewable electricity generation, version 17.0 /UN1/
- Previous verification report for fifth monitoring period of first crediting period (01/01/2012 – 31/12/2012) issued by ICONTEC, version 03 dated on July 24th/2013 /5/
- CDM validation and verification standard for project activities, version 01.0 /UN2/
- CDM project standard for project activities, version 01.0 /UN3/
- CDM project cycle procedure for project activities, version 01.0 /UN4/
- Guideline on the application of materiality in verifications, version 02.0 /UN5/
- Monitoring report form, version 06/UN6/

A compilation of the documents related to the verification activities have been compiled under Appendix 3.

D.2. On-site inspection

Duration of on-site inspection: 10/09/2018 to 11/09/2018				
No.	Activity performed on-site	Site location	Date	Team member
1.	Compliance of the monitoring report with the monitoring report form.	Energía del Río Piedras. Office located at Medellin	10/09/2018	Francy Ramírez
2.	Compliance of the project implementation and operation with the registered PDD			
3.	Possible post-registration changes			
4.	Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines			
5.	Assessment of data and calculation of emission reductions			
6.	Tour by the project's facility	Project's site located in Jerico Municipality in Departament of Antioquia in Colombia	11/09/2018	
7.	Visit to the interconnection Point of the project activity			
8.	Compliance of monitoring activities with the registered monitoring plan			
9.	Compliance of the project implementation with the registered project design document			
10.	Interview with personnel in charge of operational and maintenance activities			

D.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Ortega	Sergio	Manager Energía del Río Piedras	10/09/2018	<ul style="list-style-type: none"> • Compliance of the monitoring report with the monitoring report form. • Compliance of the project implementation and operation with the registered PDD • Possible post-registration changes • Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines • Assessment of data and calculation of emission reductions or net removals 	Francy Ramírez
2.	Rendon	Alejandra	Project Engineer Energía del Río Piedras			

3.	Mazo	Camilo	Project Engineer Energía del Río Piedras	10/09/2018 to 11/09/2018	<ul style="list-style-type: none"> • Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines • Tour by the project's facility • Visit to the interconnection Point of the project activity • Compliance of monitoring activities with the registered monitoring plan • Compliance of the project implementation with the registered project design document • Interview with personnel in charge of operational and maintenance activities 	
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4.	Correa	Juliana	Project Manager MGM Innova	<ul style="list-style-type: none"> • Compliance of the monitoring report with the monitoring report form. • Compliance of the project implementation and operation with the registered PDD • Possible post-registration changes • Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines • Tour by the project's facility • Visit to the interconnection Point of the project activity • Compliance of monitoring activities with the registered monitoring plan • Compliance of the project implementation with the registered project design document • Interview with personnel in charge of operational and maintenance activities • Assessment of data and calculation of emission reductions or net removals 	
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D.4. Sampling approach

ICONTEC checked the 100% of project's information relates with claimed emission reduction calculation hence, no sampling approach was required.

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

Areas of verification findings	No. of CL	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form	CL 1 CL 2 CL 3 CL 4	-	-
Compliance of the project implementation and operation with the registered PDD	-	CAR 1	-
Post-registration changes	-	-	-
Compliance of the registered monitoring plan with the methodologies including applicable tools and standardized baselines	-	-	-
Compliance of monitoring activities with the registered monitoring plan	-	-	-
Compliance with the calibration frequency requirements for measuring instruments	-	CAR 2	-
Assessment of data and calculation of emission reductions or net removals	-	-	-
Assessment of reported sustainable development co-benefits	-	-	-
Global stakeholder consultation	-	-	-
Others (please specify)	-	-	-
Total	4	2	0

SECTION E. Verification findings

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

Means of verification	Monitoring report version 1 was delivered to the ICONTEC by the project participants on July 10 th /2018. ICONTEC has made this report publicly available prior to the start of the verification activities on July 17 th /2018. No comments were received.
Findings	CL 1, CL 2, CL 3 and CL 4. More details about these findings on Appendix 4.
Conclusion	ICONTEC verified through documental review that the latest version of the MR form for the 6 th monitoring period was applied. It can be confirmed that the monitoring report is complete, transparent and in accordance with the approved PDD, relevant CDM requirements and applicable monitoring report form. ICONTEC confirms that the MR version 2 is free of material misstatements.

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

It has not been found remaining FARs from previous verification assessment or previous validation assessment of crediting period.

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

Means of verification	At the time of the desk review, the audit team assessed the implementation of the project reported on MR version 01, against the one established on the approved PDD. An inconsistency was found regarding to design flow stated in the approved PDD and the design flow stated in some Sections on MR version 1, hence CAR 1 was raised. Once an onsite inspection was performed and interviews were attended, the verification team confirmed that design flow for Agua Fresca Hydroelectric plant is 2.7 m ³ /s. This information was correctly quoted in the updated version of MR, and CAR 1 was closed.
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During the onsite visit, the implementation status and monitoring plan reported on MR version 1 were compared with the onsite evidence, physical inspection and interviews. No inconsistencies were found.

The status of implementation, progress and operation's starting date for each phase are shown on the next table:

Implementation Status

Phase/Site	Status of Implementation	Progress	Operation	Comments
Star of operation: A hydroelectric run-of river power generation project, with an installed capacity of 7.49 MW	Operation Started	There was no delay in the implementation	The starting date of the project operation was on April 10 th , 2008, without any abnormal scenarios during its operation. This information was verified by the lead auditor by means of documental review ² .	The project activity is already implemented and it is currently operating as it was described in the approved PDD.

During the onsite visit, ICONTEC checked the continuous operation of the project for the monitoring period under assessment and it was validated that the average project's availability was 98.16% for Agua Fresca Multipurpose and environmental services project /11/.

The audit team verified the electricity generation data with 0 MWh of generation³ in the spreadsheet with ERs calculation /3/ with the electricity generation reported in the information service about the Colombian Wholesale Power Market operated by XM. The information provided by the PP is coherent, traceable and reliable with other information sources.

Likewise, the audit team reviewed the maintenance activities planned and executed for hydroelectric power plant, in order to verify a proper management of the operations. These maintenance activities were developed under management systems/12//13/ implemented by Energía del Río Piedras S.A. E.S.P. The audit team deemed that the PP has the procedures to assure a proper operation for both hydroelectric power plants.

Findings	CAR 1. More details about this finding on Appendix 4.
Conclusion	<p>The audit team can confirm that:</p> <ul style="list-style-type: none"> • The implementation of the project is consistent with the information provided in the registered PDD (Physical features such as technology project equipment, monitoring and metering equipment. • The project is operated as per the registered PDD. • Information provided in the MR is in accordance with that stated in the registered PDD.

E.4. Post-registration changes

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

There are no temporary deviations from the registered monitoring plan, applied methodologies during the current monitoring period.

² <http://paratec.xm.com.co/paratec/SitePages/generacion.aspx?q=capacidad>

³ The most of the events with 0 MWh corresponds to overhauls, maintenance activities (predictive or corrective)

E.4.2. Corrections

There are no corrections to project information or parameters fixed at validation for this monitoring period, as it was described in the registered PDD made by the project participant during the current monitoring period.

E.4.3. Change to the start date of the crediting period of the project activity

The project participant did not change the start date of the crediting period during the current monitoring period.

E.4.4. Inclusion of a monitoring plan

No inclusion of a monitoring plan to the registered project activity has been requested to the Board during this monitoring period.

E.4.5. Permanent changes from registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines or other applied standards or tools

There are no permanent changes from the registered monitoring plan and/or methodology identified during the current monitoring period.

E.4.6. Changes to the project design

There are no permanent changes from the registered monitoring plan and/or methodology identified during the current monitoring period.

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

This kind of changes does not apply to this project.

E.5. Compliance of the registered monitoring plan with the methodology including applicable tools and standardized baselines

Means of verification	During the desk review phase, it was checked the monitoring plan against the monitoring methodology AMS-I.D, version 17.0./UN1/ page 11. ICONTEC declares that the approved monitoring plan /1/ is in accordance with the approved methodology AMS-I.D, version 17.0.
Findings	No finding was raised on this issue
Conclusion	According to the approved PDD /1/, the CDM project activity Agua Fresca Multipurpose and environmental services project was monitored following the guidelines of the small scale methodology AMS-I.D Grid connected renewable electricity generation, version 17.0.

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

Means of verification	The parameters fixed ex-ante related to the GHG emission reductions in the project activity have been implemented in accordance with the monitoring plan contained in the approved PDD /1/.										
	The following table describes the parameters that were determined ex-ante and not monitored during the monitoring period:										
	<table><tr><th>Parameter</th><th>Description</th><th>Value</th><th>Source</th></tr><tr><td>Emission Factor</td><td>Colombian Grid Emission Factor For Small Scale Project</td><td>0.1708 tCO₂e/MWh</td><td>This value was calculated once at the request of renewal of crediting period as it was established in the approved PDD.</td></tr></table>				Parameter	Description	Value	Source	Emission Factor	Colombian Grid Emission Factor For Small Scale Project	0.1708 tCO ₂ e/MWh
Parameter	Description	Value	Source								
Emission Factor	Colombian Grid Emission Factor For Small Scale Project	0.1708 tCO ₂ e/MWh	This value was calculated once at the request of renewal of crediting period as it was established in the approved PDD.								
Findings	No findings were identified for this section.										
Conclusion	ICONTEC can conclude that the parameter fixed ex-ante is appropriate and it was used correctly in ER calculations in the monitoring report version 2 and it results in a traceable estimate of the emission reductions.										

E.6.2. Data and parameters monitored

Means of verification	The following table includes all parameters monitored and describes how ICONTEC verified the fulfillment of each parameter with the registered monitoring plan, including the information flow and the values as reported in the MR.				
	Monitored Parameters				
	Monitored Parameter	Description	Value	Means of Verification	
	Electricity generated and delivered to the grid by the project activity	Power dispatched each year by Agua Fresca Hydropower Plant Project to the National Grid			Source of Data and Frequency: Hourly transmission of the information to XM ⁵ is done by EPM via Internet using the digital and coded mechanisms defined for all the agents of the Colombian Wholesale Power Market. The databases for recording the operations of the Colombian market are managed by XM. It is worth to mention that EPM performs the transmission of information based on the data transmitted by the measurement system located in Fredonia Electrical Substation. There is a transmission line of 44 kV, 15 km length, connecting Agua Fresca power plant with Fredonia Electrical Substation, in Fredonia municipality. This substation is owned by Empresas Públicas de Medellín – EPM, the local distributor and grid
			Year	Electricity Generation (kWh)	
2013			57,220,484		
2014			53,592,988		
2015			43,212,912		
2016	45,520,207				
2017	60,811,923 ⁴				

⁴ This is the actual value of electricity generation by Agua Fresca hydroelectric power plan on 2017. However, since there was a delay in the calibration activities, the electricity generation values was corrected in accordance with the paragraph 369 of VVS PA /UN2/

⁵ Colombian wholesale electrical market administrator

				<p>operator. ICONTEC verified that the connection point of the transmission line from Agua Fresca power plant to Fredonia substation is, in fact, the commercial frontier registered by the project responsible in the National Dispatch Center – CND.</p> <p>Used Equipment:</p> <p>Two power meters installed in the commercial frontier (Fredonia Electrical Sub-station) one served as main meter and the other as backup meter. These have identical ACTARIS features⁶, with an accuracy of 0.2 IEC.</p> <p>Data Cross Checking:</p> <p>In order to verify the data provided by the PP in the spreadsheet used for emissions reduction calculations, ICONTEC reviewed the electricity generation reported by the PP in the information service about the Colombian Wholesale Power Market operated by XM⁷. After this review the audit team concluded that the information provided by the PP is reliable, coherent, consistent and traceable with secondary sources of information.</p> <p>Consistency Between the QA/QC Defined in the Methodology:</p> <p>On page 11 of the methodology AMS-I.D version 17 is established that QA/QC procedures consists of Cross checking of measurement results with records for sold energy. The records for sold energy are issued by XM using the information platform. As it was explained above, the audit team reviewed the information in the information platform</p>
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⁶ Actaris Meter
Type SL761A061

Voltage: 3X57.7/100V – 240/415V

Current: 5(10)A

Class: 0.2S

⁷ Available at <http://informacioninteligente10.xm.com.co/oferta/Paginas/HistoricoOferta.aspx>

				<p>managed by XM, hence this requirement is fulfilled.</p> <p>Consistency Between the QA/QC Established by the Project Participants in the PDD:</p> <p>In section B.7.1 of the approved PDD, the methodology and monitoring plan are described as the performance of calibration activities for the measurement equipment. This issue is explained in Section E.7 on this report.</p> <p>ICONTEC verified that according to the monitoring plan approved in the PDD and the methodology AMS-I.D version 17.0, the data from electricity generation from the project activity can be check and it is available in the XM information platform, on the other hand, this monitoring plan is in accordance with the rules established by XM and CREG⁸.</p> <p>Application of Default Values:</p> <p>Not applicable.</p> <p>Findings:</p> <p>No finding was raised for this parameter.</p> <p>Conclusions:</p> <p>During the verification, ICONTEC checked that this parameter is properly applied according to the monitoring plan and the approved PDD, and that the information is consistent with the secondary information sources used to verify the information.</p>
Findings	No findings were raised regarding to this section.			
Conclusion	<p>ICONTEC could verify the completeness and integrity of the data used by the project proponents for the emission reductions calculations. During the verification, ICONTEC was able to verify that the parameter is properly measured according to the monitoring plan and the registered PDD, and that the information is consistent with the secondary information sources used to verify the information.</p> <p>ICONTEC can conclude that the data aggregation is appropriate to comply with the methodology and in accordance with the registered PDD and operation of metering equipment.</p>			

⁸ Colombian commission for energy and gas issues

	<p>As a general cross check of the data, ICONTEC verified the information of the ERs spreadsheet /3/ with raw data information generated by the XM platform which is fed by the measurement taken from the power meters located in the Fredonia electrical substation.</p> <p>In conclusion the process of data management, transfer, storage and reporting was carried out in compliance with the monitoring plan, the approved PDD and the methodology AMS-I.D version 17.0</p> <p>ICONTEC can thus conclude that:</p> <p>The monitoring parameters related to the GHG emission reductions in the project activity have been implemented in accordance with the monitoring plan contained in the approved PDD /1/.</p> <p>The monitoring has been carried out in accordance with the monitoring plan contained in the approved PDD.</p> <p>All parameters stated in the monitoring plan of the approved PDD have been correctly and sufficiently monitored and listed. The monitored data for required parameters have been verified by ICONTEC and have been found complete, reliable and consistent.</p>
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E.6.3. Implementation of sampling plan

Means of verification	The PP did not apply a sampling approach for the determination of data and parameters monitored.
Findings	There is no finding regarding to this issue
Conclusion	No sampling approach was applied by the PP in order to determine the monitored parameters.

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

Means of verification	<p>The following table includes the monitoring equipment for the parameter: <i>Electricity generated and delivered to the grid by the project activity</i>, above mentioned, and the information about equipment identification and calibration records. ICONTEC verified that the calibration covered the entire 6th monitoring period from 01/01/2013 to 31/12/2017:</p>				
	Monitoring Equipment				
	Parameter	Equipment	Calibration Frequency	Calibration Records	Date of Calibration
	Electricity generated and delivered to the grid by the project activity	Power Measurement meter with an accuracy of 0.2 IEC	5 years	Calibration Certificate N° 50607. /6/. Issued on September 29 th /2012	19/09/2012
		Serial number of Main measurement equipment: 36068848		Calibration Certificates N°20702197-1-1 N°20702197-1-2 N°20702197-1-3 N°20702197-1-4 /26/. Issued on March 16 th /2018	15/03/2018
		Power Measurement meter with an		Calibration Certificate N° 50607. /6/. Issued on	19/09/2012

	accuracy of 0.2 IEC		September 29 th /2012	
	Serial number of Back up measurement equipment: 36061873		Calibration Certificates: N°20702197-2-1 N°20702197-2-2 N°20702197-2-3 N°20702197-2-4 /27/. Issued on March 16 th /2018	15/03/2018

Although, at the moment of the renewal of crediting period for this project activity, it did not exist calibration frequencies defined for electricity meters on the applied methodology /UN1/ or international standards⁹ or national regulation, the PP decided to establish in the approved monitoring plan/1/ a calibration frequency for electricity meters located at Fredonia Electrical substation every five years at the moment of the renewal of crediting period for this project activity. However, there is a mandatory document in force since March 2014 for every commercial frontier (delivery point to electrical Colombian grid): Resolution 038 issued by CREG. In order to clarify how the project activity met the requirement of this mandatory document, the audit team raised CAR 2.

In Resolution 038 issued by CREG, it was established for every measurement equipment in the delivery points to electrical Colombian grid, to report the fulfilment of these equipments regarding to Resolution 038 issued by CREG. Energía del Río Piedras S.A. E.S.P. S.A. ESP contracted the inspection services from Applus Norcontrol Ltda; to carry out this task /14/. The audit team verified the conclusion from this report, and it is available to conclude that the measurements equipments installed in Agua Fresca Hydroelectric Power Plant facility (power meters: 36068848 and 36061873) met the Colombian mandatory requirements/6/.

On the other hand, the measurement point located in Fredonia Electrical Substation facility is classified, in accordance with Resolution 038 issued by CREG, as measurement point Type 2. It means that calibration frequency is four years. Since the last calibration activity performed to measurement equipment (after issuance of Resolution 038 by CREG) was on March 15th/2018, and the Resolution 038 was issued by CREG on March 20th/2014. The audit team concluded that the calibration frequency is aligned with the Colombian Regulatory framework.

In order to verify if the calibration activities described in the Table above were carried out by an accredited institution, ICONTEC find out in the public available information in the Web page of the Colombian National Accreditation Body¹⁰. By means of documental review, ICONTEC concluded that the calibration activities for two electrical measurement equipment were carried out by an accredited institution/9//10/.

In accordance with the calibration frequency defined in the monitoring plan /1/ there is a delay. Once the PP get the outcomes of the delayed calibration activities on March 15th/2018, the ERs calculation /3/ will be adjusted in accordance with paragraph 369 (a) of the VVS /UN2/. Since all errors detected are smaller than the maximum permissible error (0.2%), the maximum permissible error was applied to the measured values taken during the period between the scheduled date of

⁹ The audit team reviewed the standards developed by the technical committee TC-13 Electrical energy measurement and control from IEC (International Electrotechnical Commission). This committee has developed a family of standards related with Electricity metering equipment (a.c.). However, the documents reviewed by the audit team do not have any provisions regarding to the frequency for calibration activities of these types of equipments.

http://www.iec.ch/dyn/www/f?p=103:7:0:::FSP_ORG_ID:1258

¹⁰ ONAC : <http://www.onac.org.co/>

	calibration and the final date of the monitoring period under assessment. As audit team assessed in the spreadsheet used for emission reduction calculations/3/.
Findings	CAR 2. More details about this finding on Appendix 4
Conclusion	ICONTEC concluded that the detected calibration delays were penalized in accordance with the established guidelines in the latest version of VVS /UN2/ and PS /UN3/.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	<p>In accordance with AMS I.D, version 17.0 /UN1/, the baseline emissions are quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the Agua Fresca Hydroelectric Power Plant in year y (in kWh) multiplied by the combined margin CO₂ emission factor for Colombian grid in year y.</p> <p>It is worth to draw attention, that a discount was carried out by PP in the electricity delivered by the project activity to Colombian interconnected electrical grid, since there was a delay in the calibration activities, (See section E.7 on this report):</p> $BE_y = EG_{facility,y} \times EF_{grid,CM,y}$ $BE_y = 260,323,079 \text{ kWh} \times 0.1707 \text{ kgCO}_2\text{e/kWh}$ $BE_y = 44,437 \text{ tCO}_2\text{e}^{11}$
Findings	No finding was raised on this issued
Conclusion	<p>ICONTEC concludes that a complete set of data for the specified monitoring period is available, the audit team also concludes that baseline emission reductions have been correctly calculated without material misstatements. When a delay in the calibration activities was detected, the PP adjusted ERs calculation as it was described in Section E.7 on this report.</p> <p>The audit team confirmed that monitored parameter $EG_{facility,y}$ involved in the baseline GHG emissions calculation was cross checked as it was described in Section E.6.2 on this report.</p>

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

Means of verification	In accordance to the applied methodology AMS-I.D, version 17.0/UN1/ paragraph 20, emissions by sources of GHG due to this project activity are zero.
Findings	N/A
Conclusion	N/A

E.8.3. Calculation of leakage GHG emissions

Means of verification	In accordance with the provisions of applied methodology AMS-I.D, version 17.0 /UN1/ paragraph 22, no leakage effects need to be accounted under this methodology
Findings	There is no finding regarding to this issue
Conclusion	ICONTEC confirms that no leakage needs to be considered.

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

Means of verification	<p>In accordance with the applied methodology /UN1/ and the description provided in section E.8.1, E.8.2 and E.8.3:</p> $ER_y = BE_y$ $ER_y = 44,437 \text{ tCO}_2\text{e}$
Findings	No finding was raised on this issued.

¹¹ It is worth to draw attention that this value (44,437 tCO₂e) was rounded down in the spreadsheet used for emissions reductions calculation

Conclusion	<p>The data used for determination of the emission reductions are available and have been monitored in accordance with the registered monitoring plan and methodology AMS-I.D, version 17.0.</p> <p>The data used for the calculation of ERs in this monitoring period were verified and they were found consistent with those reported in the approved PDD.</p> <p>The appropriate methods and formulae for calculating baseline emissions, project emissions and leakage were followed in accordance with the approved PDD and applied methodology.</p> <p>The assumptions, emission factors and default values applied in the MR version 2 and the calculations were correctly justified.</p>
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E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	ICONTEC verified that the emission reductions achieved during the 6 th monitoring period (44,437 tCO ₂ e) are lower than the ex-ante value (54,040 tCO ₂ e) of emission reductions in Section B.6.4 on the approved PDD.
Findings	No findings were raised for this section.
Conclusion	During on site visit, ICONTEC validated the explanations for the difference provided by the PP in the monitoring report (Section E.6) and considered them as appropriate and consistent.

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

Means of verification	During the verification ICONTEC confirm that there was not an increase of emission reductions compared with the emissions reductions approved on the PDD, as it was explained in Section E.8.5. above
Findings	No finding was raised regarding to this issue
Conclusion	During the verification ICONTEC confirm that there was not increase of emission reductions compared with the emissions reductions registered on the PDD.

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

Means of verification	The overall ERs reported on the current MP are part of the period from 1 January 2013 onwards. ICONTEC checked the ER's calculation file /3/ and verified that all the reported ERs are part of the period between 01/01/2013 to 31/12/2017.
Findings	No finding was raised regarding to this issue.
Conclusion	ICONTEC deems that the current ERs have been correctly reported on the period from 1 January 2013 onwards.

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

Means of verification	The project activity does not have monitored sustainable development co-benefits.
Findings	No finding was raised on this issue.
Conclusion	Since there is not monitored sustainable development co-benefits of the project activity, it is no necessary to assess this issue by DOE

E.10. Global stakeholder consultation

Means of verification	<p>The MR version 1 /2/ submitted by Energía del Río Piedras S.A. ESP was made publicly available on the UNFCCC website from July 17th/2018 during the time specified in the Project Cycle Procedure/UN5/ paragraph 183 and 184.</p> <p>Parties, stakeholders and NGOs were invited to provide comments through the website. No comments were received neither during the public consultation nor at the moment, of submission of this report for issuance of certified emissions.</p>
Findings	No finding was raised on this issue.
Conclusion	Since there was no comments in comments in the global stakeholder consultation, it is no necessary to assess the actions taken regarding any comment

SECTION F. Internal quality control

This report includes the verification findings that underwent a technical review before being submitted to UNFCCC.

The technical review and the quality control process was performed by an internal technical reviewer team in accordance with the ICONTEC's internal procedures for carrying out validation, verification and certification audits of CDM project activities. After this step the submission for requesting for issuance has been conducted.

The technical reviewers are qualified in accordance with the ICONTEC's professional qualification scheme for CDM validation and verification.

SECTION G. Verification opinion

ICONTEC was engaged by Energía del Río Piedras S.A. E.S.P. to verify the greenhouse gas (GHG) emission reductions reported by the CDM project Agua Fresca Multipurpose and environmental services project, project registration number 0122, owned by PP for the period 01/01/2013 to 31/12/2018, equating to 44,437 tCO₂e.

The verification was performed based on the requirements set by the CDM and relevant guidance provided by CMP and the CDM Executive Board. ICONTEC considers that the project's GHG emissions and resulting GHG emissions reductions reported in the monitoring report version 2 dated on 24/09/2018, are fairly stated.

ICONTEC confirms that the project is implemented as described in the validated and registered PDD. Installed equipment essential for generating emission reductions are running reliably and calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions as a CDM project.

Energía del Río Piedras S.A. E.S.P. is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's monitoring and verification plan.

Energía del Río Piedras S.A. E.S.P. is responsible for developing and keeping records and reporting procedures in accordance with the monitoring plan.

ICONTEC received the information and asked for explanations deemed necessary to provide enough evidence about the amount of GHG emissions and the calculation of the GHG emission reductions.

The verification consisted of the three following phases: i) desk review of the PDD, the MR and the monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

It is ICONTEC's responsibility to set an independent GHG verification opinion on the GHG emissions from the project and approved a baseline for the monitoring period.

ICONTEC utilizes a risk-based approach that draws on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate them. ICONTEC's examination process includes test-based assessments of all evidence relevant to the amounts and disclosures of a project's GHG emissions and the calculations of such reductions for the reporting period.

ICONTEC can confirm that the GHG emissions reductions are calculated without material misstatements.

ICONTEC's opinion applies to the project's GHG emissions and the resulting GHG emission reductions reported and related to the validated and registered baseline, as well as the monitoring plan and its associated documents. ICONTEC confirms the following statements:

CDM project: Agua Fresca Multipurpose and environmental services project
Reporting period: 01/01/2013 to 31/12/2018
Baseline emissions: 44,437 tCO₂e
Project emissions: 0 tCO₂e
Leakage: 0 tCO₂e
Emission Reductions: 44,437 tCO₂e

SECTION H. Certification statement

ICONTEC has been engaged by Energía del Río Piedras S.A. E.S.P. to examine the greenhouse gas (GHG) emission reductions reported from Agua Fresca Multipurpose and environmental services project for the corresponding period, equating to 44,437 tonnes of CO₂ equivalent.

We consider that the project's GHG emissions and resulting GHG emissions reductions reported in the Monitoring Report version 2 (24/09/2018) are fairly stated. Monitoring Report first version was publicly available on July 17th/2018.

The owner of the project Agua Fresca Multipurpose and environmental services project is responsible for the preparation of the GHG emission data and the reported GHG emission reductions on the basis set out within the project's Monitoring and Verification Plan.

The owner of the project Agua Fresca Multipurpose and environmental services project is responsible for developing and keeping records and reporting procedures in accordance with the Monitoring Plan.

ICONTEC is responsible to set an independent GHG verification opinion on the GHG emissions from the Project activity and approved baseline for the same period.

For this verification audit ICONTEC was provided the information and asked for explanations we deemed necessary to provide enough evidence that the amount of GHG emission and the calculation of the GHG emission reductions, based on the Monitoring Report, are fairly stated for the reporting period.

Our verification approach was based on the Kyoto Protocol requirements, Marrakech Agreement, as well as those defined by the CDM Executive Board.

ICONTEC's approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate them. Our examination includes review and assessment, of the evidence related to the project's GHG emission and calculations for this reporting period.

ICONTEC is able to certify that the emission reductions from the Agua Fresca Multipurpose and environmental services project during the verification period from January 1st /2013 to December 31st/2017 equals to 44,437 tonnes of CO₂ equivalent.

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
ERs	Emission Reductions
CERs	Certified emission reductions
CL	Clarification Request
CO ₂ E	Carbon dioxide equivalent
CREG	Colombian commission for energy and gas issues (Comision Reguladora de Energía y Gas)
DNA	Designated National Authority
DOE	Designated Operational Entity
EPM	Empresas Publicas de Medellin E.S.P.
GHG	Greenhouse Gases
ICONTEC	Colombian Institute of Technical Standards and Certification (Instituto Colombiano de Normas Técnicas y Certificación)
MoC	Modalities of Communication
ONAC	Colombian national accreditation body (Organismo Nacional de Acreditación)
PDD	Project Design Document
MR	Monitoring Report
UNFCCC	United Nations Framework Convention for Climate Change
VVS PA	CDM Validation and Verification Standard for Project Activities
PP	Project Participant
IPCC	Intergovernmental Panel on Climate Change
PS PA	CDM Project Standard for Project Activities
PCP PA	CDM Project Cycle Procedure for Project Activities
PRC	Post Registration Change
UPME	Colombian Mining and Energy Planning Unit
XM	Colombian wholesale electrical market administrator

Appendix 2. Competence of team members and technical reviewers

Francy Ramírez

Lead auditor and Technical Expert in Sectoral Scope 1.2

Education:

Electrical Engineer. Universidad Los Andes, 2001

Post grade:

Assessment of Social Projects. Universidad Los Andes, 2005

Environmental Management. Universidad Los Andes, 2016

University of Oxford. Course: Applying Knowledge Management, Principle and Practices (December 1st/ 2009).

University of Oxford. Course: Successful Change Management for Engineers, Scientists and Staff in Hi-tech Companies (December 2nd 2009).

University of Oxford. Course: Essentials of Project Management for Engineers, Scientists and Staff in Hi-tech Companies (December 3rd 2009).

University of Oxford. Course: Advanced Project Management for Engineers, Scientists and Staff in Hi-tech Companies (December 4th 2009).

Climate Change, Trade and Standardization - in a development perspective". Stockholm, Sweden(23 and 25 November 2009)

ISO global workshop on Greenhouse Gas Schemes Addressing Climate Change – How ISO Standards Help, Stockholm, Sweden. (20 and 21st November 2009)

Conference on Climate Change – Deforestation and Standardization. Bali, Indonesia (31st May and 1st June 2010)

Professional Background:

ICONTEC (2005 - 2010)

Professional of Standardization

Planning, coordinate, implement and ensure compliance with the program of national standardization in technical committees among which are electrical installations, electrical power quality, electrical transformers, substations and equipment for medium and high voltage, lighting, appliances and electrical accessories, protection against lightning strikes and electrical equipment. Develop technical standards. Develop and manage special projects assigned. Participate in programs of regional and international standardization.

CODENSA (2002 - 2005)

Inspections and electrical works coordinator

Supervise field work and download the results in the central information system, evaluate the inspections performed, reconciled with contractors, addressing the results of inspections to different areas of the company, charging inspections and electrical work to clients of the firm , coordination and support group field sales engineers, technical training for technical staff, administrative support to department business processes and lost control, maintenance of the database for internal management inspections. Project Leader for the Optimization of Technical Processes and Regional Trade in Cundinamarca.

CDM Experience

Lead Auditor

- Validation of Guanaquitas 9.74 MW hydroelectric project, Colombia
- Validation of Fuel Switching through change of furnaces at Imusa S.A., Colombia
- Validation of Installation of a high-pressure/high-efficiency bagasse boiler to cogenerate heat and power, Argentina
- Validation of Cueva Maria Hydroelectric Expansion Project, Guatemala
- Validation of Paysandú Clean Energy, Uruguay
- Validation of La Vegona Hydroelectric project, Honduras
- Validation of Chamelecón 280 Hydroelectric project, Honduras
- Validation of Pardos SHPs and LOGICarbon CDM Project, Brazil
- Validation of Pequi and Sucupira SHPs and LOGICarbon CDM Project, Brazil
- Validation of Cambará and Embaúba SHPs and LOGICarbon CDM Project, Brazil
- Validation of Bonyic hydroelectric project, Panamá
- Validation of METALDOM Fossil fuel switch from reheat furnace, República Dominicana
- Validation of Toachi – Pilaton Hydroelectric Project, Ecuador
- Validation of EMGEA Small Hydropower (SHP) Run-of-the-River CDM Project Bundle, Colombia
- Validation of Energy efficiency at Malvinas Gas Plant, Perú
- Validation of Marañon Hydroelectric Project, Perú
- Validation of Santa Rita Hydroelectric Plant, Guatemala
- Validation of Ventana, Suba and Usaquén Hydroelectric CDM Bundled, Colombia
- Verification of Los Algarrobos hydroelectric project, Panamá
- Verification of Bio energy in General Deheza –Electric power generation from peanut hull and sunflower husk-, Argentina
- Validation of Taurichuco Hydropower Project, Perú
- Validation of Aguafresca Multipurpose and Environmental Service Project, Colombia
- Verification of Agua Fresca Multipurpose and Environmental Service Project, Colombia
- Verification of La Joya Hidroelectric project, Costa Rica
- Verification of Amaime Minor Hydroelectric Power Plant, Colombia

Specialist:

- Validation of Rio Bonito and Baitaca SHPs and LOGICarbon CDM Project, Brazil
- Validation VCS of Pequi and Sucupira SHPs and LOGICarbon CDM Project, Brazil
- Verification of three crediting periods of La Vuelta and la Herradura hydroelectric project, Colombia

CDM Technical Reviewer:

- Validation of improving energy efficiency in a new Gas Plant in Gibraltar - Colombia
- Validation of Tres Valles Cogeneration Project, Honduras
- Validation of Tunjita Diversion Hydroelectric Project, Colombia
- Validation of Ferreira Gomes Hydro Power Plant CDM Project, Brazil
- Verification of two crediting periods of La Venta II, México
- Verification of two crediting periods of La Joya Hidroelectric Project, Costa Rica
- Verification of Bio energy in General Deheza –Electric power generation from peanut hull and sunflower husk-, Argentina
- Verification of Tres Valles Cogeneration Project, Honduras
- Verification of Agua Fresca Multipurpose and Environmental Services, Colombia
- Verification of La Venta II, México
- Verification of two crediting periods of Fertinal Nitrous Oxide Abatement Project, México
- Verification of Co-composting of EFB and POME project, Guatemala
- Verification of Biogas Project, Olmeca III, Tecun Uman, Guatemala
- Verification of Jepirachi Wind Power Project, Colombia
- Verification of Biogas energy plant from palm oil mill effluent, Guatemala
- Verification of Santa Ana Hydroelectric Project, Colombia
- Validation of SHP Morro Azul CDM Project (JUN1164), Colombia
- Verification of Biogas Project, Olmeca III, Tecun Uman, Guatemala

Specialist Technical Reviewer

- Validation of Biogas project, Olmeca I, Santa Rosa, Guatemala
- Validation of CGR Catanduva Landfill Gas Project, Brazil
- Validation of Macaubas Landfill Gas Project, Brazil

Cristian Grisales**Lead technical reviewer and Technical Expert in Sectoral Scope 1.2**

Education:

Certified ISO 50001

ICONTEC-National University of Colombia

July 2016

Clean Technologies – Environmental technology, innovation and management systems as means for regional and local economic development

Weitz Center for Development Studies – Israel

July 2015

Master Executive in Renewable Energies

EOI-Madrid, Spain

February 2015

Certified ISO 14001

ICONTEC

May 2012

Certified ISO 9001

ICONTEC

August 2012

Electrical Engineer

National University of Colombia

Bogotá - Colombia

July 2009

Professional Background

Professional of Climate Change

ICONTEC

May 2012 – Today

Professional on developing validation and verification on CDM projects as lead auditor and as technical expert in the energy sector.

Electrical Maintenance Engineer

EMGESA S.A ESP. Colombia

November 2009 – May 2012

Electrical maintenance engineer in the Bogotá River Hydroelectric plants. Executing preventive, predictive and corrective maintenance of the generators, auxiliary services, power transformers and electrical substation. Developed the investment projects' inventory in accordance with the annual operating budget. Implementation of RCM maintenance programs. Monthly service availability in the plant, and full-time availability in failure care. Electrical testing of generators, transformers, motors and substation equipment.

CDM Experience

Auditor and Specialist:

- Validation of Biogas project, Olmeca I, Santa Rosa, Guatemala
- Validation of CGR Catanduva Landfill Gas Project, Brazil
- Validation of Macaubas Landfill Gas Project, Brazil
- Validation of Taurichuco Hydropower Project, Perú
- Validation of Teresina Landfill Gas Project, Brazil
- Validation of Maceio Landfill Gas Project, Brazil
- Validation of Doña Teresa Hydroelectric Power Plant, Colombia
- Validation of SHPs Poço Fundo and Providência CDM Project (JUN1133), Brazil
- Validation of SHPs Tambaú, das Pedras and Rio do Sapo CDM Project (JUN1132), Brazil
- Verification of Amaime Minor Hydroelectric Power Plant, Colombia
- Verification of Ciudad Juarez Landfill Gas to Energy Project, Mexico
- Verification of Santa Ana Hydroelectric Plant, Colombia
- Verification of Biogas Project, Olmeca III, Tecún Uman, Guatemala
- Verification of Berlin Geothermal Project, Phase Two, San Salvador

Technical Reviewer:

- Validation of Thuan Nhlen Phong Wind Farm, Viet Nam
- Validation of Phuong Mai 3 Wind Power Project, Viet Nam
- Validation of Chamelecón 280 Hydroelectric project, Honduras
- Validation of Providencia I: 1.8MW Small Hydro Power Generation Plant, Colombia
- Validation of Providencia III: 9.11MW Small Hydro Power Generation Plant, Colombia
- Validation of SHP Itaguacu CDM Project (JUN 1146), Brazil, Brazil
- Renewal of Aguafresca Multipurpose and Environmental Service Project, Colombia
- Validation of Feira de Santana Landfill Gas Project, Brazil
- Validation of SHP Morro Azul CDM Project (JUN1164), Colombia
- Verification of Santa Ana Hydroelectric Plant, Colombia
- Verification of Methane recovery and effective use of power generation project Norte III-B Landfill, Argentina.

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1	Aguas de la Cabana S.A. E.S.P.	Approved Project Design Document (PDD)	Version 3.1, dated on July 2 nd /2013	Other
2	Aguas de la Cabana S.A. E.S.P.	Monitoring Report for first monitoring period of second crediting period (01/01/2013 – 31/12/2017) of Agua Fresca Multipurpose and environmental services project	Version 1, dated on June 29 th /2018 Version 2, dated on September 24 th /2018	PP
3	Aguas de la Cabana S.A. E.S.P.	Emission reduction calculation files	<ul style="list-style-type: none"> • Annex I - Generation Agua Fresca Project 2013.xlsx • Annex I - Generation Agua Fresca Project 2014.xlsx • Annex I - Generation Agua Fresca Project 2015.xlsx • Annex I - Generation Agua Fresca Project 2016.xlsx • Annex I - Generation Agua Fresca Project 2017 -penalidad calibracion RESPALDO.xlsx 	PP
4	ICONTEC	Validation report for renewal of crediting period	Version 02, dated on September 3 rd /2013	Other
5	ICONTEC	Verification report for fifth monitoring period of first crediting period (01/01/2012 – 31/12/2012)	Version 03, dated on July 24 th /2013	Other
6	Calibration and testing laboratory for energy and gas measurement equipment Empresas Publicas de Medellin E.S.P.	Calibration certificate N°50607 Calibration activity performed on main and backup energy measurement equipments Actaris 36068848 and 36061873	Issued on September 29 th /2012	PP
7		Calibration certificates: N°20702197-1-1 N°20702197-1-2 N°20702197-1-3 N°20702197-1-4 Calibration activity performed on main energy measurement equipment Actaris 36068848	Issued on March 16 th /2018	PP
8		Calibration certificates: N°20702197-2-1 N°20702197-2-2 N°20702197-2-3 N°20702197-2-4 Calibration activity performed on backup energy measurement equipment Actaris 36061873	Issued on March 16 th /2018	PP
9	ONAC	Accreditation Certificate: 15-LAC-018 Grant date: January 18 th /2016 Last modification date: March 26 th /2018 Due date:	http://onac.org.co/certificados/15-LAC-018.pdf	Other

		January 17 th /2019		
10	ONAC	Accreditation Certificate: 15-LAB-016 Grant date: January 29 th /2016 Last modification date: October 12 th /2017 Due date: January 28 th /2019	http://onac.org.co/certificados/15-LAB-016.pdf	Other
11	Energía del Río Piedras S.A. ESP	Availability and plant load factor of Agua Fresca hydroelectric power plant	Issued on first quarter 2018	PP
12	EPM	Generator maintenance manual for Agua Fresca hydroelectric power plant	Issued on June 2008	PP
13	Energía del Río Piedras S.A. ESP	Maintenance procedures for Agua Fresca hydroelectric power plant	Issued on 2018	PP
14	Applus Norcontrol Ltda	Final Report of five-year verification of Electrical Energy Delivery Point Inspection of Agua Fresca hydroelectric power plant Report Number: 0246 Inspection date: June 22 th /2018	Issued on July 12 th /2018	PP
/UN1/	UNFCCC	Approved small scale methodology AMS-I.D Grid connected renewable electricity generation, version 17.0		Other
/UN2/	UNFCCC	CDM validation and verification standard for project activities, version 01.0		
/UN3/	UNFCCC	CDM project standard for project activities, version 01.0		Other
/UN4/	UNFCCC	CDM project cycle procedure for project activities, version 01.0		Other
/UN5/	UNFCCC	Guideline on the application of materiality in verifications, version 02.0		Other
/UN6/	UNFCCC	Monitoring report form, version 6.0		Other

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

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

FAR ID	N/A	Section no.	E.2	Date: DD/MM/YYYY
Description of FAR				
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	1	Section no.	E.1	Date: 31/08/2018
Description of CL				
<ul style="list-style-type: none"> The PP stated in the first page of MR version 1 and also in section A.3 of this MR: "Energía del Río Piedras S.A." is not the same PP stated in the project activity Web page in UNFCCC Also the list of PP in the first page of MR version 1 and also in section A.3 of this MR are incomplete 				
Monitoring report form for CDM project activity, Version 06.0. Attachment. Instructions for completing this form, Chapter 2 – Specific Instructions and Chapter 2 Section A.3				
Project participant response				Date: 20/09/2018
<ul style="list-style-type: none"> The name of the project participant change from Aguas de la Cabaña S.A. E.S.P. to Energía del Río Piedras S.A. E.S.P.(change of the companies trade name), the procedure is in process to be changed by the UNFCCC. The original response letter from DNA and MOC are with the client. The change is pending to be updated on the UNFCCC web page. The CDM MOC Annex 2 – Voluntary withdrawal of Kommunalkredit Public Consulting GmbH, (KPC), has been sent to the UNFCCC using the electronic interface. The change is pending to be updated on the UNFCCC web page. 				
Documentation provided by project participant				
1 – CDM-MOC-FORM form (Signed) - Energía Río Piedras S.A. E.S.P. 2 – Carta Energía Río Piedras al MADS 3 – DNA Original letter - Agua Fresca Project 0122 4 – CDM-MOC-Annex 2 - Withdraw (Signed) – Kommunalkredit Public Consulting GmbH				
DOE assessment				Date: 26/10/2018
<p>On October 25th/2018, the withdrawal of Kommunalkredit Public Consulting GmbH as PP of the project activity was updated in UNFCCC Website.</p> <p>Likewise, on October 26th/2018, the changes to MoC requested by the focal point of the project activity regarding to the name of the PP (Energía del Río Piedras S.A. ESP) was updated in UNFCCC Website.</p> <p>On MR version 2, the information related with the PP is in accordance with that change.</p> <p>Audit team conclusion: Closed</p>				
CL ID	2	Section no.	E.1	Date: 31/08/2018
Description of CL				

It was not followed the instruction regarding to complete the “Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period” in page 1 of MR version 01 since:

- *Since the monitoring period is 01/01/2013 – 31/12/2018, it was not achieved 128,503 tCO₂e during this monitoring period (before 1 January 2013).*
- *The monitoring report form for CDM project activity, version 06.0 was altered to adjust it to the monitoring period under assessment*

Monitoring report form for CDM project activity, Version 06.0. Attachment. Instructions for completing this form, Chapter 2 – Specific Instructions and Chapter 1 – General Instructions 5.

Project participant response	Date: 20/09/2018
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The information was updated in the MR version 2 (see first page of the monitoring report as presented below).

Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013
	0 tCO ₂ e	44, 437 tCO ₂ e

Documentation provided by project participant

5 - 27 09 2018 Monitoring report - Agua Fresca - v2

DOE assessment	Date: 01/10/2018
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In the updated version of MR (version 2), the PP has followed the instruction regarding to complete the “Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period”

Audit team conclusion:
Closed

CL ID	3	Section no.	E.1	Date: 31/08/2018
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Description of CL

The PP does not provide information allowing for unique identification of the project activity in Section A.2 of MR version 1

Monitoring report form for CDM project activity, Version 06.0. Attachment. Instructions for completing this form, Chapter 2 Section A.2.

Project participant response	Date: 20/09/2018
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Geographical coordinates were included in the description in section A.2 – The project is located in the municipality of Jerico – Antioquia, Colombia, whit geographic coordinates 5°49’53.66” North and 75°43’34,38” West (Power house). See section A.2 of the MR version 2.

Documentation provided by project participant

5 - 27 09 2018 Monitoring report - Agua Fresca – v2

DOE assessment	Date: 01/10/2018
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In the updated version of MR (version 2), the PP has included unique identification of the project activity in Section A.2. Likewise, the audit team verifier the truthfulness of the information provided by the PP by means of Google Earth.

Audit team conclusion:
Closed

CL ID	4	Section no.	E.1	Date: 31/08/2018
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Description of CL

- In section B.2.2 of MR Version 1, it was mentioned: "temporary corrections". The CDM Executive Board do not recognized this type of post-registration changes
- The texts in Section B.2.3 and B.2.4 are not coherent with the titles of these sections.
- The permanent changes described in section B.2.5. of MR version 1 are referred to the renewal of crediting period. These are not changes performed after that renewal.

Monitoring report form for CDM project activity, Version 06.0. Attachment. Instructions for completing this form, Chapter 2 Section B.2.

Project participant response	Date: 20/09/2018
<ul style="list-style-type: none"> • Sections B.2.2 – B.2.3 – B.2.4 and B.2.5 were modified at the MR version 2 according to clarifications made. • See section B.2 of MR version 2. Page 5. 	
Documentation provided by project participant	
5 - 27 09 2018 Monitoring report - Agua Fresca – v2	
DOE assessment	Date: 01/10/2018
Sections B.2.2, B.2.3, B.2.4 and B.2.5 in updated MR (version 2) were completed in accordance with the Instructions for completing the MR form.	
Audit team conclusion: Closed	

Table 3. CAR from this verification

CAR ID	1	Section no.	E.3	Date: 31/08/2018
Description of CAR				
The value stated in approved PDD (page 5) regarding to the design flow in Agua Fresca Hydroelectric plant (2.7 m ³ /s) is not coherent with the value described in the MR version 1 in:				
<ul style="list-style-type: none"> • Section A.1 page 2 • Section B.1 page 4 				
CDM validation and verification standard for project activities, version 01.0, paragraph 358				
Project participant response				Date: 20/09/2018
Values regarding the design flow in Agua Fresca Hydroelectric Power Plant (2.7 m ³ /s) were corrected in the MR version 2, according to PDD information				
<ul style="list-style-type: none"> • Section A.1 page 2 • Section B.1 page 4 				
Documentation provided by project participant				
5 - 27 09 2018 Monitoring report - Agua Fresca – v2				
DOE assessment				Date: 01/10/2018
In the updated MR version 2 it was mentioned consistently the design flow in Agua Fresca Hydroelectric plant (2.7 m ³ /s) along that document.				
Audit team conclusion: Closed				

CAR ID	2	Section no.	E.7	Date: 31/08/2018
Description of CAR				
Since 2014 in Colombia there is a new regulatory electrical measurement code (CREG Resolution 038), the PP shall explain how the measurement equipment installed at the delivery point to Colombian electrical grid is fulfilling the requirement stated in this regulatory document regarding the calibration frequency (CREG Resolution 038 /2014 Article 25).				
CDM validation and verification standard for project activities, version 01.0, paragraph 373				
Project participant response				Date: 20/09/2018

At the time of the project crediting period renewal in 2013, the current guideline did not present specifications regarding the frequency of calibration, therefore the stipulations of the initial methodology continued as established in the "Guidelines for Assessing Compliance With The calibration frequency requirements", Annex 60, Version 01, EB52. Number 8. – "if the country does not specify the frequency of calibration of the equipment, it is taken what is established by the technical specifications of the equipment or international standards. In accordance with the above, international standards were checked seen that periodicity consulted varies between 4 and 20 years, then decision was taken to perform the calibration of the measuring equipment every five (5) years. Therefore the penalty for calibration frequency was given to the power generation data, according to the stipulated in the methodology (calibration every 5 years).

Also in 2014 after the project second crediting period renewal, in Colombia was issued a new regulatory electrical measurement code (CREG Resolution 038/2014), which enters into force by 2016. According to this resolution, the equipment calibration frequency might be performed every 4 years for the measurement point type that holds Agua Fresca (type 2-3). Therefore, according to this resolution, next calibration of the meters might be performed in 2020.

It is important to note that Agua Fresca Hydropower Plant went through a five-year commercial boundary verification process in 2018, fulfilling the conditions of CREG Resolution 038/2014. During this process no anomalies were found in the measurement equipment (no findings), complying with everything established in resolution 038 of 2014.

Documentation provided by project participant

6 - Concepto definitivo – Negawatt

7 - Concepto definitivo – Applus

DOE assessment

Date: 01/10/2018

After reviewing the evidence and argumentation provided by the PP regarding to the adjustment of the monitoring and measuring equipment located in the commercial frontier for Agua Fresca Hydroelectric power plant, the audit team deemed that this monitoring equipment fulfils the Colombian electrical regulation.

Audit team conclusion:
Closed.

Table 4. FAR from this verification

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

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Document information

<i>Version</i>	<i>Date</i>	<i>Description</i>
02.1	11 January 2018	Editorial revision to correct the numbering of appendices in the instructions.
02.0	31 October 2017	Revision to align with the requirements of the “CDM validation and verification standard for project activities” (version 01.0).
01.0	23 March 2015	Initial publication.
Decision Class: Regulatory Document Type: Form Business Function: Issuance Keywords: project activities, verifying and certifying		