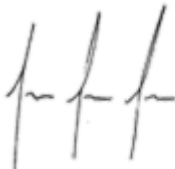




**Validation report form for renewal of crediting period for
CDM project activities
(Version 03.0)**

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

BASIC INFORMATION

Title and UNFCCC reference number of the project activity	Providencia I: 1.8MW Small Hydro Power Generation Plant 8756
Number and duration of the next crediting period	Second Crediting Period (17/02/2020 – 16/02/2027)
Version number of the validation report	02.0
Completion date of the validation report	07/02/2021
Version number of PDD to which this report applies	Version 7
Project participants	MINEROS ALUVIAL S.A.S. BIC The Andean Center for Economics in the Environment – CAEMA – ACEE
Host Party	Colombia
Applied methodologies and standardized baselines	Approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0
Mandatory sectoral scopes	1 : Energy industries (renewable - / non-renewable sources)
Conditional sectoral scopes, if applicable	N/A
Estimated amount of annual average GHG emission reductions or GHG removals by sinks in the next crediting period	6,391 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 validation report	 Juan Sebastián Salazar Technical Director

SECTION A. Executive summary

ICONTEC has performed the assessment for the renewal of crediting period of Providencia I: 1.8MW Small Hydro Power Generation Plant in Colombia on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board. This renewal of crediting period report summarizes the findings of this exercise.

The proposed project activity under the renewal process is based on the Approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0. The project involves the installation of a run-of-river hydroelectric power plant as capacity addition of an existing hydroelectric power plant, which take advantage of Anorí River. The hydroelectric power plant is located in the municipality of Anorí, in Departament of Antioquia in Colombia. The project activity has an installed capacity of 1,895 kWe. The energy produced by this project activity is delivered to the private electrical grid owned by MINEROS ALUVIAL S.A.S. BIC. Therefore this project activity is aimed to reduce the purchase of electricity from Colombian interconnected electrical grid and it is also displaced the use of fossil fuel in the power generation.

The renewal of crediting period process consisted of the following three phases: i) a desk review of the revised project design documents, ii) follow up interviews with project stakeholders and iii) the resolution of outstanding issues and the issuance of the final renewal of crediting period report and opinion. (See Appendix 4 on this report)

The total emission reductions from the project are estimated to be on average 6,391 tCO₂e per year for the second crediting period.

In summary, it is ICONTEC's opinion that Providencia I: 1.8MW Small Hydro Power Generation Plant, as described in the version 7 of the revised project design document, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology AMS-I.F, version 3.0. Hence, ICONTEC requests the renewal of crediting period of the project as CDM project activity.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

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

B.2. Technical reviewer and approver of the validation report for RCP

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	EI	Sandoval	John Jairo	Feelance
2.	Technical Expert Reviewer in Sectoral Scope 1.2	EI	Gaioli	Fabian	Freelance
3.	Approver	IR	Salazar	Juan Sebastian	Employee

SECTION C. Means of validation**C.1. Desk/document review**

The reviewing of the project documentation provided by the project proponent is based upon both quantitative and qualitative information on estimated emission reductions. Quantitative information comprises the reported numbers in the revised PDD submitted. Qualitative information comprises information about description of the project activity and the equipment related, and monitoring procedures.

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

- Approved PDD version 6, dated on August 31st/2020/1/
- Revised PDD version 7, dated on December 21st/2020/2/
- Spreadsheet used for the calculation of estimated ERs for the second crediting period /3/
- Validation report for registration purposes written by ICONTEC, version 02 dated on December 12th/2012 /4/
- Validation report for pos registration changes written by ICONTEC, version 02.1 dated on August 31st/2020/5/

In addition to the revised PDD documentation provided by the project proponent, ICONTEC utilized:

- Approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0/UN1/
- CDM validation and verification standard for project activities, version 02.0/UN2/
- CDM project standard for project activities, version 02.0/UN3/
- CDM project cycle procedure for project activities, version 02.0/UN4/
- Tool to calculate the emission factor for an electricity system, version 07.0.0/UN5/
- Methodological Tool for Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 03.0.1/UN6/
- Project Design Document form, version 11.0/UN7/

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

C.2. On-site inspection

In accordance with the statement issued by CDM Executive Board on March 20th/2020 with the aim to relax mandatory site visits by DOEs (since March 23rd/2020 to June 30th/2021) because of COVID-19¹, the site visit for this validation cannot be postponed and it is not conducted due to COVID-19 since the project activity is short of time as the deadline to submit request for renewal of crediting period of this project activity is February 15th/2021.

¹ https://cdm.unfccc.int/newsroom/latestnews/releases/2020/01041_index.html

Likewise, in accordance with the provisions stated in CDM validation an verification standard for project activities/UN2/ paragraphs 402 and 30, it is not mandatory to carry out an on-site inspection to Providencia I: 1.8MW Small Hydro Power Generation Plant since:

- Its estimated annual average of greenhouse gas (GHG) emission reductions is less than 100,000 tCO₂ eq; and
- There is no pre-project information that is relevant to the requirements for renewal of crediting period of the project activity that may not be traceable after the renewal.

Nevertheless, the audit team carried out a virtual inspection by means of:

- Video tour through the equipment involved with electrical energy generation and monitoring equipment described in the revised PDD,
- Interviews with personnel involved in the project activity operation,
- It was performed an exhaustive documental review of operational documentation (e.g. annual maintenance program and event reports)

These means of validation was used with the aim to ensure an assessment free of material misstatements.

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

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Espinosa	Hernán	Energy Director MINEROS	09/01/2021		Francy Ramírez
2.	Caycedo	Juan Carlos	Advisor CAEMA			
3.	Escobar	Juan	Head of Power Generation MINEROS			
4.	Sylva	Natalia	Sustainability Coordinator MINEROS			
5.	Bernal	Jessica	Process Analyst MINEROS			
6.	Osorio	Duvan	Maintenance Planning Manager MINEROS			
7.	Buritica	Nancy	Process Analyst MINEROS			
8.	Castañeda	Nelson	Social Coordinator			

		MINEROS			
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C.4. Sampling approach

No sampling approach was used during the validation.

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

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	CL 2	-	-
Application and selection of methodologies and standardized baselines	-	CAR 1	-
Validity of original baseline or its update	-	CAR 2	-
Estimated emission reductions or net anthropogenic removals	-	CAR3	-
Validity of monitoring plan	-	CAR 4	-
Crediting period	-	-	-
Project participants	CL 1	-	-
Post-registration changes	-	-	-
Others (please specify)	-	-	-
Total	2	4	0

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	The audit team checked the latest approved PDD form /UN7/ and the contents written by the PP in that form, besides the PDD approved for the FIRST crediting period, in order to assess if the project participants have updated the relevant sections of the PDD in accordance with relevant requirements in the Project standard for the request of the crediting period renewal.
Findings	CL 2 was raised since the PP did not follow the instructions for completing the PDD form in Section B.1 of revised PDD, later on, the PP updated the revised PDD and the finding was closed. More details on this finding in Appendix 4
Conclusion	The audit team deems that all information transferred to the latest valid version of the PDD form is materially the same as that in the approved PDD for the first crediting period. Likewise, the audit team confirms that the PDD Version 7 /1/ is in compliance with the relevant valid version of project design document form /UN7/ and instructions therein for filling out PDD.

D.2. Application and selection of methodologies and standardized baselines

Means of validation	<p>The project activity has been registered with the approved methodology, AMS-I.F, version 02. Since version 02 of AMS-I.F is no longer valid, the PDD for the renewal crediting period has been revised in line with the approved methodology AMS-I.F version 3.0 /UN1/, which is the latest version of the applied methodology at the time of submitting the revised PDD and is currently valid.</p> <p>ICONTEC has performed previously verification assessment, which can help to validate the applicability criteria of methodology AMS-I.F version 3.0 /UN1/</p> <p>The applicability criteria of this methodology, was verified by ICONTEC, as follows:</p> <table border="1"> <thead> <tr> <th>Applicability Condition</th><th>Means of Validation</th></tr> </thead> <tbody> <tr> <td></td><td></td></tr> </tbody> </table>	Applicability Condition	Means of Validation		
Applicability Condition	Means of Validation				

	<p>Illustration of respective situations under which each of the methodology (AMS-I.D., AMS-I.F. and AMS-I.A.) applies is included in Table 3.</p>	<p>The audit team reviewed the Table 3 in applied methodology AMS-I.F, and it was confirmed that project activity is a Project type 2 by means of:</p> <ul style="list-style-type: none"> • Basic topology of the 44 kV electrical system of Mineros S.A/6/ • Video tour and photos taken through the hydroelectric power plant facilities and the equipment involved with electrical energy generation and monitoring equipment/7/
	<p>Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology:</p> <p>(a) The project activity is implemented in an existing reservoir with no change in the volume of reservoir;</p> <p>(b) The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m²;</p> <p>(c) The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is greater than 4 W/m².</p>	<p>Providencia I is a run-of-river hydroelectric power plant (it does not have a reservoir), hence this condition is not applicable to the project activity. ICONTEC verified this statement by means of Video tour and photos taken through the hydroelectric power plant facilities and the equipment involved with electrical energy generation and monitoring equipment/7/, and by means of reviewing of Google maps.</p>
	<p>This methodology is applicable for project activities that: (a) Install a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the project activity (Greenfield plant); (b) Involve a capacity addition, (c) Involve a retrofit of (an) existing plant(s); or (d) Involve a replacement of (an) existing plant(s).</p>	<p>This project activity comprises a capacity addition of an existing hydroelectric power plant (option (b)). ICONTEC verified this statement by means of:</p> <ul style="list-style-type: none"> • Video tour and photos taken through the hydroelectric power plant facilities and the equipment involved with electrical energy generation and monitoring equipment/7/ • Basic topology of the 44 kV electrical system of Mineros S.A/6/
	<p>In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.</p>	<p>The capacity addition to Providencia I hydroelectric power plant involves the installation of a 1.8 MW, and it is physically distinct from existing 4 units of Providencia I hydroelectric power plant. ICONTEC verified this statement by means of:</p> <ul style="list-style-type: none"> • Video tour and photos taken through the hydroelectric power plant facilities and the equipment involved with electrical energy generation and monitoring equipment/7/ • Basic topology of the 44 kV electrical system of Mineros S.A/6/

	In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	The project involves the installation of a run-of-river hydroelectric power plant as capacity addition of an existing hydroelectric power plant. Hence, this applicability condition is not applicable to the project activity.
	If the unit added has both renewable and non-renewable components (e.g. a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the unit added co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	
	Combined heat and power (co-generation) systems are not eligible under this category	
	If electricity and/or steam/heat produced by the project activity is delivered to a third party, i.e. another facility or facilities within the project boundary, a contract between the supplier and consumer(s) of the energy will have to be entered that ensures that there is no double counting of emission reductions.	MINEROS is the owner of Providencia I hydroelectric power plant, and the electricity generated by this power plant is delivered to the private electrical grid owned by MINEROS. ICONTEC verified this statement by means of reviewing of basic topology of the 44 kV electrical system of Mineros S.A/6/
	In case biomass is sourced from dedicated plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	The project involves the installation of a run-of-river hydroelectric power plant as capacity addition of an existing hydroelectric power plant. Hence, this applicability condition is not applicable to the project activity.
	<p>The applicability conditions of this project activity regarding to the tool to calculate the emission factor for an electricity system /UN5/ will be discussed in Sections D.3, D.4 and D.5 of this report.</p> <p>The paragraph 280 of PS /UN3/ states: "The project participants are not required to reassess the additionality of the project activity and update the section relating to additionality", hence this report does not contain an assessment regarding to this issue.</p>	
Findings	CAR 1 was raised since in Section B:1 it was not demonstrated that the project activity complies with the applicability conditions of Tool to calculate the emission factor for an electricity system, version 07.0, later on the PP updated the revised PDD and added those applicability conditions, and the finding was closed . More details on this finding in Appendix 4	
Conclusion	The validation team confirms that the Project meets all the applicability conditions and is in line with all the requirements and stipulations mentioned in the applied methodology /UN1/ and the other methodological regulatory documents/UN5//UN6/.	

D.3. Validity of original baseline or its update

Means of validation	The baseline determination has been developed using methodology AMS-I.F, Version 3.0 /UN1/ and Tool for the Assessment of the validity of the original/current
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baseline and update of the baseline at the renewal of the crediting period – Version 03.0.1/UN6/

According to the tool /UN6/ the PP applied correctly the following steps:

Step 1: Assess the validity of the current baseline for the next crediting period

Step 1.1: Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies

There are no changes in the relevant national and/or sectoral policies since the date of registration of the project activity, which impacts the baseline scenario, as it was described by the PP in the revised PDD /2/, (pages 15 and 16). Although the national policies encourage the development of renewable energy /8/, using renewable energy resources for power generation is not mandatory. Power generation by fossil fuel based plants has a relevant role in Colombian power supply, especially in time when ENSO² occurs. Likewise, the audit team review the Colombian regulatory framework³ with the aim to verify the description provided by the PP in the revised PDD /1/. As conclusion current baseline still complies with all relevant Colombian policies.

Step 1.2: Assess the impact of circumstances

As it was described above, the circumstances at moment of request the renewal of crediting period are the same than validation moment; since the existing scenario is that the Colombian electrical interconnected electrical grid provides the same electricity service as the proposed project /4/, where the power generation by fossil fuels still has a relevant share in the Colombian electrical interconnected grid even with the efforts made by the Colombian Government to encourage the investment in electrical generation by the use of renewable energies/8/. PP assessed the impact of circumstances existing at the time of requesting renewal of the crediting period on the current baseline emissions, and they are still valid

Step 1.3: Assess whether the continuation of use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

In absence of the project activity, equivalent amount of electricity would have been generated by other power plants connected to Colombian electrical grid, therefore the baseline equipments, related with the baseline scenario defined in the applied methodology, would be those equipment related with the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources into the grid.

Step 1.4: Assessment of the validity of the data and parameters

The data and parameters used for the baseline calculations follow provisions of the Tool to calculate the emission factor for an electricity system /UN5/.

For the operating margin emission factor (EF_{OM}), it was considered that there are new power plants operating in the Colombian electrical grid since the renewal of crediting period with the existing power plants /2/. The baseline emissions of the project activity were updated, considering the Tool to calculate the emission factor for an electricity system /UN5/, data available in the Colombian administrator of the wholesale electric market (XM) and Colombian Unit for mining and energy planning (UPME) for the calculation of grid emission factor (please refer to Step 2.2 below).

² The El Niño-Southern Oscillation (ENSO) is a recurring climate pattern involving changes in the temperature of waters in the central and eastern tropical Pacific Ocean

³ <http://www.siel.gov.co/Inicio/Normatividad/tabid/65/Default.aspx>

	<p>Step 2: Update the current baseline and the data and parameters</p> <p>Step 2.1: Update the current baseline</p> <p>As per the applied methodology, AMS-I.F, version 3.0 /UN1/, the baseline emission is the product of amount electricity displaced with the electricity produced by the renewable generating unit and the combined margin emission factor of Colombian electrical grid. In accordance with applied methodology /UN1/ and applicable Tool /UN5/ an electricity baseline emission factor has been calculated by UPME/9/ as a combined margin emission coefficient, consisting of the combination of a simple adjusted operating margin (OM) emission coefficient and a build margin (BM) emission coefficient.</p> <p>Step 2.2: Update the data and parameters</p> <p>The simple adjusted OM was chosen by the UPME to calculate the operating margin emission factor, using 2019 data vintage for the estimation of emissions reductions. It is worth to draw attention in the fact that values from 2020 are not available at the moment at the moment submit the revised PDD to ICONTEC as the audit team verified by means of documental review of the Web page of the Electric wholesale market administrator (XM)⁴</p> <p>The operating emission factor was calculated in accordance with the parameters stated in the following equation:</p> $EF_{grid,OM-adj,y} = (1 - \lambda_y) \times \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} + \lambda_y \times \frac{\sum_k EG_{k,y} \times EF_{EL,k,y}}{\sum_k EG_{k,y}}$ <p>This emission factor will be monitored during the crediting period. It will require monitoring during the second crediting period.</p> <p>In accordance with Resolution 385/2020 /9/, calculations of OM emission factor were made according to the tool's specifications/UN5/.</p> <p>For BM emission factor (step 5) option 2 was chosen for the second crediting period. In accordance with paragraph 72 (b) of the Tool to calculate the emission factor for an electricity system: <i>"For the second crediting period, the build margin emissions factor shall be calculated ex ante, as described in Option 1 above. For the third crediting period, the build margin emission factor calculated for the second crediting period should be used."</i> That is it the build margin emission factor for second crediting period does not require monitoring during second crediting period.</p> <p>The grid emission factor for the project activity has been calculated to be 0.385 tCO₂e/MWh, considering a weighted of W_{OM} = 0.25 and W_{BM} = 0.75, as stipulated for renewable crediting period in the "Tool to calculate the emission factor for an electricity system" /UN5/.</p>
Findings	In the first version of revised PDD the PP did not demonstrate the validity of the original baseline or update it, hence CAR 2 was raised. Once PP updated and corrected the revised PDD the CAR was closed. More details about this issue on Appendix 4.
Conclusion	The audit team confirms the validity of updated baseline in the updated PDD/2/ in accordance with the applicable validation requirements related to the renewal of crediting period/UN6/ in the VVS /UN2/.

D.4. Estimated emission reductions or net anthropogenic removals

Means of validation	<p>According to equation 2 of the methodology AMS-I.F, version 3.0/UN1/, emission reductions shall be calculated as follows:</p> $ER_y = BE_y - PE_y - LE_y$
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⁴ <http://www1.upme.gov.co/siame/Paginas/calculo-factor-de-emision-de-Co2-del-SIN.aspx>

	<p>For this type of project activity, according to Methodology LE_y = 0 (AMS-I.F, version 3.0 section 5.4) and PE_y = 0 (AMS-I.F, version 3.0 section 5.3), since Providencia I: 1.8MW Small Hydro Power Generation Plant results in run-of-river hydroelectric power plant with no change in the volume of any reservoir as it was mentioned before (See section D.2 on this report). Hence, the emission reductions are calculated as:</p> $ER_y = BE_y$ <p>The baseline emissions are the product of electrical energy baseline EG_{BL,y} expressed in MWh of energy produced by the renewable generating unit multiplied by the grid emission factor.</p> $ER_y = BE_y = EG_{BL,y} \times EF_{CO_2,y}$ <p>For ex-ante estimation of baseline emissions, the electric energy baseline EG_{BL,y} was established as a total of electrical energy produced by the project activity estimated at registration time (16,600 MWh per year) /4/ and at the request of posregistration changes /5/. The audit team deemed the value used for parameter EG_{BL,y} as credible, reliable and traceable.</p> <p>The Grid emission factor was calculated by UPME for estimation of emission reduction/9/ as EF_{CO₂,y} = 0.385 tCO₂/MWh for the second crediting period.</p> <p>So the baseline emissions (and hence the emissions reductions) are:</p> $ER_y = BE_y = 16,600 \text{ MWh} \times 0.385 \text{ tCO}_2/\text{MWh} = 6,391 \text{ tCO}_2\text{e/year}$ <p>Therefore, it is estimated that during the second crediting period, Providencia I: 1.8MW Small Hydro Power Generation Plant will reduce 44,738 tCO₂e/year</p>
Findings	<p>CAR 4 was raised by the audit team since in the revised PDD delivered by the PP to ICONTEC for the desk review activities, it was not possible to trace the values used to Tool to calculate the emission factor for Colombian electrical interconnected system.</p> <p>To close this finding the PP referred to Resolution 385/2020, issued by UPME/9/,whereby the marginal greenhouse gas emission factor of the National Interconnected System is updated - 2019, for projects applicable to the Clean Development Mechanism-CDM. More details about this findin in Appendix 4</p>
Conclusion	<p>Based on the information reviewed, the audit team confirmed that in the revised PDD, the sources used were correctly quoted and interpreted, the calculation processes are complete and replicable, and the calculation outcomes are reasonable and accurate.</p> <p>The audit team also confirms that:</p> <ul style="list-style-type: none"> • All assumptions and data used by the project participants are listed in the revised PDD and its annexes, including their references and sources; • All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the revised PDD and its annexes; • All values used in the revised PDD and its annexes are considered reasonable in the context of the proposed CDM project activity; • The baseline methodology/UN1/ and applicable tools/UN5/ have been correctly applied to calculate baseline emissions, project emissions, leakage and emission reductions; • All estimates of the baseline emissions can be replicated using the data and parameter values provided in the PDD and its annexes.

D.5. Validity of monitoring plan

Means of validation	Monitoring plan presented on revised PDD complies with requirements of approved methodology AMS-I.F (version 3.0) /UN1/. Monitoring of GHG emission reductions
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	<p>is based on the electricity generation by the project activity, which is transparently presented in section B.7.1 of the revised PDD, version 7/2/.</p> <p>ICONTEC verified through interviews with relevant personnel that the project is equipped with an extensive monitoring system for electrical energy generation in accordance with the Colombian regulatory framework/7/. Despite of project activity does not delivered the electrical energy production to Colombian interconnected electrical grid, the PP has decided to follow the provision stated in the Colombian regulatory framework/10/, and it will be performed the calibration activities for the electricity meter every fours years, in accordance with the provisions of methodological tool for Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 03.0 /UN8/.</p> <p>Audit team checked the parameter ($EG_{BL,y}$) presented in the monitoring plan of the latest version of the revised PDD /1/, against methodology /UN1/ and applied tools /UN5/ requirements. No deviations to the project activity were found.</p>
Findings	CAR 5 was raised by the audit team since the PP did not follow the requirements stated in the methodological tool for baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation /UN8/, related to the calibration activities for electricity meter. Once the PP correct the revised PDD in Section B.7.1, the finding was close. More details about CAR 5 in Appendix 4
Conclusion	With the above information, ICONTEC confirmed that the monitoring plan established by the PP, is feasible and that the PP has the ability and sufficient means of implementation to ensure that the emission reductions expected as a result of the project activity, are reported and verified. It is according with provisions of VVS/UN2/ and PS /UN3/.

D.6. Crediting period

Means of validation	<p>The type of crediting period for this project activity is renewable two times by 7 years. The first crediting period of the project activity was 17/02/2013 – 16/02/2020.</p> <p>In accordance with the provisions stated in paragraph 278 of CDM project cycle procedure for project activities /UN4/, it is expected to submit through the dedicated interface on the UNFCCC CDM website, a request for renewal of crediting period of Providencia I: 1.8MW Small Hydro Power Generation Plant together with the new version of the PDD and this validation report before February 17th/2021 (no later than one year after the expiry of the crediting period).</p> <p>Therefore, the second crediting period commences on the day immediately after the expiration of the first crediting period (February 16th/2020).</p>
Findings	No findings were raised on this issue
Conclusion	The validation team confirms that the description of the second crediting period in the revised PDD complies with applicable requirements established by the CDM Executive Board.

D.7. Project participants

Means of validation	Audit team checked whether the names of the project participants included in the revised PDD /2/ were consistent with the names of the project participants in the UNFCCC Website ⁵ by means of desk review.
Findings	<p>CL 1 was raised by the audit team since in the revised PDD delivered by the PP to ICONTEC for the desk review activities, the name of the project participant “MINEROS ALUVIAL S.A.S. BIC” stated in the latest version of the MoC statement, it is not the same in the revised PDD version 7 on the cover page, section A.4 and Appendix 1.</p> <p>Once the PP correct the revised PDD, the finding was close. More details about CL 1 in Appendix 4</p>
Conclusion	The audit team concluded that the names of project participants in the revised PDD /2/ were consistent with the names of the project participants in the UNFCCC

⁵ <https://cdm.unfccc.int/Projects/DB/ICONTEC1355436169.82/view>

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents ⁶	N		
Corrections	N		
Change to the start date of the crediting period	N		
Inclusion of a monitoring plan	N		
Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents	N		
Changes to the project design	N		
Changes specific to afforestation and reforestation project activities	N		

SECTION E. Internal quality control

This report includes the validation findings that underwent a technical review before being submitted to the project participants.

The technical review and the quality control of the process was performed by an internal technical reviewer in accordance with ICONTEC internal procedures for carrying out validation, verification and certification audits of CDM project activities. The technical reviewers are qualified in accordance with the professional qualification scheme for CDM validation and verification activities established by ICONTEC.

SECTION F. Validation opinion

ICONTEC has performed the renewal of crediting period assessment of Providencia I: 1.8MW Small Hydro Power Generation Plant, in Colombia. The assessment of renewal of crediting period was performed on the basis of UNFCCC criteria for the Clean Development Mechanism and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the revised Project Design Documentation and the subsequent follow-up interviews has provided ICONTEC with sufficient evidence to determine the fulfilment of the stated criteria.

The project correctly applies the approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0.

The project involves the installation of a run-of-river hydroelectric power plant as capacity addition of an existing hydroelectric power plant, which take advantage of Anorí River. The hydroelectric power plant is located in the municipality of Anorí, in Departament of Antioquia in Colombia. The project activity has an installed capacity of 1,895 kW_e.

The total emission reductions from the project are estimated to be on the average of 6,391 tCO_{2e} per year over the selected 7 year – second crediting period. The emission reductions' forecast has been checked and it is deemed likely that the stated amount is achieved because the underlying assumptions do not change.

⁶ Other standards, methodologies, methodological tools and guidelines (to be) applied in accordance with the applied(selected) methodologies are collectively referred to as the other (applied) methodological regulatory documents).

In summary, it is ICONTEC's opinion that the project as described in the revised PDD version 7, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0. ICONTEC thus, requests the renewal of the crediting period of the project as a CDM project activity.

Appendix 1. Abbreviations

Abbreviations	Full texts
CAEMA	The Andean Center for Economics in the Environment – CAEMA – ACEE
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CERs	Certified emission reductions
CL	Clarification Request
CO ₂ e	Carbon dioxide equivalent
CREG	Colombian Regulatory Commission for energy and gas (Comisión de Regulación de Energía y Gas)
DNA	Designated National Authority
DOE	Designated Operational Entity
ERs	Emission Reductions
GHG	Greenhouse Gases
ICONTEC	Colombian Institute of Technical Standards and Certification (Instituto Colombiano de Normas Técnicas y Certificación)
IPCC	Intergovernmental Panel on Climate Change
MINEROS	MINEROS ALUVIAL S.A.S. BIC
MoC	Modalities of Communication
MR	Monitoring Report
PCP	CDM Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PRC	Post Registration Change
PS	CDM Project Standard for project activities
UNFCCC	United Nations Framework Convention for Climate Change
VVS	CDM Validation and Verification Standard for project activities
UPME	Colombian Unit for mining and energy planning (Unidad de Planeación Minero Energética)
XM	Abbreviation for “Market Experts”. XM is a company of the ISA Group that provides integral services. www.xm.com.co . It is Colombian administrator of the wholesale electric market

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

John Jairo Sandoval
Lead technical reviewer

Chemical Engineer.
 The University of the Valle, 2000

Post grade: Engineering-emphasis in engineering sanitary and enviromental
 The University of the Valle, 2009

Post grade: Master Civil and Environmental Engineering
 University of Southampton, UK, 2013

PhD in Environmental and Sanitary Engineering
 Universidad del Valle, Colombia, 2015-Present

PROFESSIONAL EXPERIENCE

- ICONTEC. (03/2020- actually)

Technical expert and lead auditor on verification of CDM projects for:

FEDEPALMA: Sectoral CDM umbrella project for methane capture, fossil fuel displacement and cogeneration of renewable energy, Colombia (Reg. number: 1942)

BRASCARBON: Methane Recovery Project BCA-BRA-14, Brazil (Reg. number: 5496)

ENKA: Recycling of Polyethylene Terephthalate (PET) at ENKA's plant in Colombia

Pure Earth (12/2016 – Present): <https://www.pureearth.org/>

- Independent investigator of contaminated sites in Colombia within the framework of the Toxic Site. Identification Program (TSIP) signed between Pure Earth and UNIDO, the European Commission, the World Bank and the Asian Development Bank.

- Identification and assessment of potentially polluted sites, and information input into Pure Earths online database following the organization's sampling protocols and guiding principles INNOVA S.A.S (07/2015 – 12/2015): <https://www.innovaambiental.com.co/>

- Consultant as technical expert for the design of a strategy for the management of environmental liabilities for Colombia. SATAREM (01/2016 – 12/2016): <https://www.satarem.co/>

- Design of a management plan for industrial and hazardous solid wastes for CINA cement plant in Haiti

- Characterization and quantification of wastes and design of a security cell for solid hazardous wastes Araujo Ibarra & Assoc. (2013). Environmental Compliance Plan for ALIAR S.A.

- Design of a landfill cell for disposal of domestic solid wastes. ECODES Ing. (2013). Environmental Compliance study for Oil field facility in Colombia ▪ Modelling of contaminants release and fate in infiltration fields receiving discharges from seven septic tanks in Palagua Oil Field ARCADIS. (2013): Phase I Environmental Site Assessment for Nexans Colombia.

- Desk study for environmental assessment of an industrial site in Acopi, Yumbo, Colombia Batteries MAC corp. (2003 – 2004): <https://www.bateriasmac.com/en-co>

- Manufacturing supervisor in recycling and lead smelting process for the production of accumulators

- Control and monitoring of wastewater and atmospheric contamination control systems.

- Worked with Environmental and Quality assessment indicators (ISO14000/9000).

- Led work team to implementation of successful cost-saving projects under Kaizen program. Colbesa corp. (2001 – 2002)

- Manufacturing supervisor for the processing, bottling and packing of Gatorade® for PEPSI Co. Batteries MAC corp. (1998 – 2000): <https://www.bateriasmac.com/en-co>

- Intern responsible for research project on implementation of alternative fluxes for secondary Lead smelting process Corporación Opción Colombia Org. (1997): <http://opcioncolombia.org>

- Junior advisor on social and infrastructure investment projects in small communities under coordination of the Colombian Financial Corp. for Territorial Development FINDETER:
www.findeter.gov.co/

ACADEMIC AND RESEARCH EXPERIENCE

PhD student @ Universidad del Valle: <http://www.univalle.edu.co/> (01/2015 – Present)

- Identification of sustainable management alternatives for landfills considering environmental and technoeconomic factors and assessment of its application in developing countries.
- Enhancement of degradation processes and evaluation of the appropriate parameters to assess the stabilization of disposed wastes in landfills from developing countries Internship @ Technische Universität Wien: <https://www.tuwien.at/en/> (2018- 2019)
- Simulation of strategies to improve the stabilization of MSW in sanitary landfills
- Modelling of biogas production and carbon balance for MSW stabilization alternatives for landfills Lecture and fellow researcher @ Universidad Central: <http://www.ucentral.edu.co/> (2012- 2014)
- Member of the Water & Sustainable Development (Agua y Desarrollo Sostenible) research group.
- Co-researcher project on bioremediation of contaminated soils from artisanal charcoal production
- Treatment of soils contaminated with hydrocarbons using constructed wetlands (CWs) planted with tropical species
- Environ. Engineering Lecture in Mass and Energy Balance and Process and Operations Analysis Postgraduate Researcher @ University of Southampton: <http://www.southampton.ac.uk/> (2008 - 2011)
- Research assistant in project "Science and strategies for the long-term management and remediation of landfills" funded by the UK EPSRC
- Study of enhanced waste management alternatives for the sustainable operations and long-term management of landfills Graduate Research Assistant @ Cinara Research Inst.:
<http://cinara.univalle.edu.co/english/> (2005 – 2007)
- Multidisciplinary research project on bioremediation of domestic wastewaters using nature-based constructed wetlands planted with tropical species.
- Determination of physicochemical parameters for the assessment of water quality and pollution problems: fieldwork and laboratory analysis.

AWARDS AND DISTINCTIONS

- MPhil Scholarship awarded by the EPSRC, United Kingdom (2009 – 2012)
- MSc thesis with distinction, Faculty of Engineering, Universidad del Valle, Cali, Colombia (2009)

EXPERIENCE IN THE ACTIVITIES CLIMAT CHANGE:

Lead Auditor and technical expert

- Validation BRASCARBON Methane Recovery Project BCA-BRA-14 Technical expert
- Validation Recycling of Polyethylene Terephthalate (PET) at ENKA's plant in Colombia
- Verification Fedepalma Sectoral CDM Umbrella Project for Methane Capture, Fossil Fuel Displacement and Cogeneration of Renewable Energy

Ana Isabel Aubad

Technical reviewer expert in sectoral scope 1.2

Education:

International Master (MSc.) “Material and Energy Flow Management”. Universidad Trier, Germany. Area of study in depth: “Use of solid waste for energy generation”. Master’s thesis with the biogas company Kompogas. 2005

“ISO 14000 and ISO 9000 Quality Auditor”. Universidad de Antioquia in association with Bureau Veritas, Medellin, Colombia. 1999

“Environmental Engineer”. Escuela de Ingeniería de Antioquia, Envigado, Colombia. 1998

Internship – November 2009: company specialized in design, construction and operation of biogas plants: Chfour Biogas Inc. Ontario, Canada.

Internship- September 2008: company specialized in design, construction and operation of biogas plants: Agraferm Ag-Luxemburgo.

Internship- April-May 2007: companies specialized in design, construction and operation of biogas plants (Agraferm, Biogasnord, Ökobit). Germany.

Practical training – November 2004: “Local Administration of the Environment, Agenda 21 and sustainable development (2 phase)”. Life Academy, San José, Costa Rica.

Practical training – April-May 2002: “Local Administration of the Environment, Agenda 21 and sustainable development (1 phase)”. Life Academy, Karstad, Sweden.

Internship – July- August 1999: “Practical training on Environmental Management Systems and Cleaner Production”. Federal Swiss Institute for Research and Materials Testing (EMPA). St. Gallen, Switzerland.

Professional Background

Environmental engineer and project management company G.P.R. S.A., Chile. (2006–2011). Project Manager (main subjects: energy, biogas and waste management projects).

ICONTEC S.A. (2006–Today). External professional ISO 9001/14001/Chilean Technical Standards/Education/Climate Change (CDM, voluntary programs, carbon footprint).

Deuman S.A., Chile. (2007). Team work engineering for development and implementation of CDM – Kyoto Protocol projects.

ISAGEN S.A. E.S.P, Colombia (2000–2006). Analysts of the national energy company. Fulda-Südwest“. Öko Institut (German Ecology Institute), Darmstadt-Germany. (July to September 2004). Co-realization of the feasibility study for the construction of an energy plant from the biomass potential of the region of Fulda.

MVR Müllverwertung Rugenberger Damm GmbH & Co. KG, Hamburg-Germany. (December 2003 to February 2004). Environmental engineering (professional internship), waste incineration with co-generation plant.

National Center of Cleaner Production and Environmental Technologies (CNPMLTA), Medellín-Colombia. (1999 – 2000). Environmental engineering.

ISAGEN S.A. E.S.P, Colombia. (1997 – 1998). Professional practice, work team member responsible for designing the EMS based on ISO 14001.

CDM Experience**Technical Reviewer:**

- Verification of three periods for “Agua Fresca Multipurpose and Environmental Services Project”
- Validation of “Fuel Switching through change of furnaces at Imusa S.A.”
- Validation of “Pirgua Landfill Gas Recovery and Flaring”
- Validation of “Installation of a high-pressure/high-efficiency bagasse boiler to cogenerate heat and power”

- Validation of “Methane Gas Capture and Fuel Switching at Compañía Argentina de Levaduras S.A.I.C. Plant Project”
- Validation of “Cueva Maria Hydroelectric Expansion Project”
- Validation of “Montenegro Landfill Gas Recovery and Flaring”
- Validation of “La Vegona Hydroelectric project”
- Validation of “Chamalecón 280 Hydroelectric project”
- Validation of “Metaldom Fossil fuel switch from reheat furnace”
- Verification of “Doña Juana Landfill gas-to-energy project”
- Verification of “La Vuelta and la Herradura hydroelectric project”
- Verification of “Landfill Gas to Energy Facility at the Nejapa Landfill Site, El Salvador”
- Verification of “Co-composting of EFB and POME project”
- Verification of “Biogas Project, Olmeca III, Tecun Uman”
- Verification of “Los Algarrobos hydroelectric project”
- Verification of “La Venta II Project2
- Verification of “Toachi – Pilaton Hydroelectric Project”
- Verification of VCS Scheme “Fuel-Switching Project from Fossil Fuels to Biomass in La Providencia, Arcor”
- Validation of “CTR Teresina landfill gas project”
- Validation of “CTR Maceio landfill gas project”
- Validation of “Santa Rita Hydroelectric Plant”

Specialist auditor:

- Verification of two periods “Biogas energy plant from palm oil mill effluent”
- Validation “Los Angeles Landfill Gas Flaring Project”
- Verification “Doña Juana Landfill gas-to-energy project”
- Verification “Landfill Gas to Energy Facility at the Nejapa Landfill Site, El Salvador”
- Verification “La Joya hydroelectric project”
- Verification “Hydroelectric Santa Ana”
- Verification “Biogas Project, Olmeca III, Tecún Uman”

Lead auditor:

- Verification “BRASCARBON Methane Recovery Project BCA-BRA-05, Brazil”
- Verification “BRASCARBON Methane Recovery Project BCA-BRA-07, Brazil”
- Verification “BRASCARBON Methane Recovery Project BCA-BRA-08, Brazil”
- Validation “Biogas Project, Olmeca I, Santa Rosa”
- Verification “Co-composting of EFB and POME project”
- Validation “CTR Rosario Landfill Gas Project2
- Validation “CTR Feira de Santana Landfill Gas Project”
- Validation “SHP Itaguaçu CDM project (JUN 1146), Brazil”
- Verification “Doña Juana Landfill gas-to-energy project”
- Verification of two periods for “Biogas Project, Olmeca III, Tecún Uman”
- Verification “Methane recovery and effective use of power generation project Norte III-B Landfill”
- Validation and verification of VCS “BRASCARBON Methane Recovery Project BCA-BRA-05, Brazil”
- Validation and verification of VCS “BRASCARBON Methane Recovery Project BCA-BRA-07, Brazil”
 - • Validation and verification of VCS “BRASCARBON Methane Recovery Project BCA-BRA-08, Brazil”

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
/1/	MINEROS and CAEMA	Approved Project Design Document (PDD) for Providencia I: 1.8MW Small Hydro Power Generation Plant	Version 6 dated on August 31 st /2020	PP
/2/	MINEROS and CAEMA	Revised Project Design Document (PDD) for Providencia I: 1.8MW Small Hydro Power Generation Plant	Version 7 dated on December 21 st /2020	PP
/3/	MINEROS and CAEMA	Spreadsheet used for the calculations of estimated ERs for the second crediting period of Providencia I: 1.8MW Small Hydro Power Generation Plant	Files: <ul style="list-style-type: none"> power generation providencia I 2020 - 2027 V2.xlsx power generation providencia I 2020 - 2027 rJCC17012021.xlsx 	PP
/4/	ICONTEC	Validation report for registration purposes of Providencia I: 1.8MW Small Hydro Power Generation Plant	Report N°. CDMVAL-052-02, dated on December 12 th /2012	Other
/5/	ICONTEC	Validation report for posregistration changes of Providencia I: 1.8MW Small Hydro Power Generation Plant	Version 02.1, dated on August 31 st /2020	Other
/6/	HMV Ingenieros	Basic topology of the 44 kV electrical system of Mineros S.A	Dated on September 17 th /2019	PP
/7/	MINEROS	Video tour and photos taken through the hydroelectric power plant facilities and the equipment involved with electrical energy generation and monitoring equipment described in the revised PDD	Dated on June 8 th /2020	PP
/8/	Congress of the Republic of Colombia	Law 1715, which promotes the development and use of non-conventional energy sources, mainly those of a renewable nature, in the national energy system.	Dated on May 13 th /2014	Other
/9/	UPME	Resolution 385/2020. Whereby the marginal greenhouse gas emission factor of the National Interconnected System is updated - 2019, for projects applicable to the Clean Development Mechanism-CDM	Dated on December 24 th /2020 Available at: https://www1.upme.gov.co/Normatividad/385_2020.pdf	Other
/10/	CREG	Resolution 038 (Colombian Regulatory Framework)	Dated on March 20 th /2014	Other
/UN1/	UNFCCC	Approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0		Other
/UN2/	UNFCCC	CDM validation and verification standard for project activities, version 02.0		Other

No.	Author	Title	References to the document	Provider
/UN3/	UNFCCC	CDM project standard for project activities, version 02.0		Other
/UN4/	UNFCCC	CDM project cycle procedure for project activities, version 02.0		Other
/UN5/	UNFCCC	Tool to calculate the emission factor for an electricity system, version 07.0.0		Other
/UN6/	UNFCCC	Methodological Tool for Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 03.0.1		Other
/UN7/	UNFCCC	Project Design Document form, version 11.0		Other
/UN8/	UNFCCC	Methodological tool for Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 03.0		Other

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

Table 1. CL from this validation

CL ID	1	Section no.	D.7	Date: 09/01/2021
Description of CL				
The name of the project participant "MINEROS ALUVIAL S.A.S. BIC" stated in the latest version of the MoC statement, it is not the same in the revised PDD version 7 on the cover page, section A.4 and Appendix 1.				
<i>CDM validation and verification standard for project activities, version 02.0, paragraph 406</i>				
Project participant response				Date: 15/01/2021
Name of the project participant was changed on the whole document				
Documentation provided by project participant				
CDM PDD for RCP process attached.				
DOE assessment				Date: 17/01/2021
In the updated version of revised PDD, the name of the project participant "MINEROS ALUVIAL S.A.S. BIC" stated in s in the latest version of the MoC statement is coherent along the revised PDD.				
Audit team conclusion Closed				
CL ID	2	Section no.	D.1	Date: 09/01/2021
Description of CL				
In section B.1 of the revised PDD version 7 are not referenced the following tools: <ul style="list-style-type: none"> • Methodological Tool to calculate the emission factor for an electricity system, version 07.0.0 • Methodological Tool for Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 03.0.1 				
<i>CDM validation and verification standard for project activities, version 02.0, paragraph 400.</i>				
<i>CDM project standard for project activities, version 02.0, paragraph 279.</i>				
<i>Project design document form, version 11.0. Attachment with instructions for completing this form, section B.1</i>				

Project participant response	Date: 14/01/2021
<p>Text in section B.1. in PDD was modified as follows:</p> <p><i>Methodology: AMS – I.F - Renewable electricity generation for captive use and mini-grid. (Version 3).</i></p> <p><i>Tools:</i></p> <ul style="list-style-type: none"> - <i>Tool 03 - Tool to calculate project or leakage CO2 emissions from fossil fuel combustion. Version 3.</i> - <i>Tool 05 - Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation Following Resolution No. 180947 issued on 4 June 2010 by National Energy and Mining Planning Unit (UPME) as part of the Ministry of Mines and Energy the “Tool to calculate the emission factor for an electricity system” version 7 EB 100 was used to calculate a combined margin (CM) grid emissions factor for the National Interconnected Electricity System in Colombia, consisting of the combination of operating margin (OM) and build margin (BM) according to the procedures prescribed. This project activity takes the UPME calculated emissions factor being UPME the national institution commissioned of doing such calculations by the designated national authority (DNA) for the CDM.</i> - <i>UPME (Mining and Power Planning Unit – as per its acronym in Spanish) resolutions for setting the yearly Colombian Grid emissions factor. Reference to yearly billed resolution can be found on section B.7.1 in section describing the ex post monitoring variables following Tool 07 “Tool to calculate the emission factor for an electricity system” simple adjusted method”.</i> - <i>Tool 19 Demonstration of additionality of Microscale project activities version 9.</i> - <i>Tool 11 “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period</i> <p>Tool 7 (for the calculation of the grid's emissions factor) and Tool 11 (to update the baseline for the RCP) were included as part of the text.</p>	
Documentation provided by project participant	
PDD Attached	
DOE assessment	Date: 17/07/2021
<p>In section B.1 of the updated version of revised PDD, it was included the corrected references for :</p> <ul style="list-style-type: none"> • Methodological Tool to calculate the emission factor for an electricity system, version 07.0.0 • Methodological Tool for Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 03.0.1. <p>Audit team conclusion Closed</p>	

Table 2. CAR from this validation

CAR ID	1	Section no.	D.2	Date: 09/01/2021
Description of CAR				
<p>In section B.2 of revised PDD version 7, the PP did not show how the project activity meets applicability conditions of selected methodology (AMS-I.F, version 03.0) and other methodological regulatory documents.</p> <p><i>CDM validation and verification standard for project activities, version 02.0, paragraph 400.</i></p> <p><i>CDM project standard for project activities, version 02.0, paragraph 279 (a).?</i></p> <p><i>Project design document form, version 11.0. Attachment with instructions for completing this form, section B.2.</i></p> <p><i>Approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0, section 2.2.</i></p>				
Project participant response				Date: 15/01/
A table containing each of the applicability conditions was introduced. Criteria in accordance with the project activity was filled in front of the respective item. Otherwise, criteria find a N/A answer.				
Documentation provided by project participant				
CDM PDD for RCP process attached.				
DOE assessment				Date: 17/01/2021
<p>In section B.2 of the updated version of revised PDD, it was included a description about how the project activity meets applicability conditions of selected methodology (AMS-I.F, version 03.0) and other methodological regulatory documents.</p> <p>Audit team conclusion Closed</p>				

CAR ID	2	Section no.	D.3	Date: 09/01/2021
Description of CAR				
The PP did not demonstrate the validity of the original baseline or update it.				
<i>CDM validation and verification standard for project activities, version 02.0, paragraph 404.</i> <i>CDM project standard for project activities, version 02.0, paragraph 282.</i> <i>Methodological Tool for Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period, version 03.0.1.</i>				
Project participant response				Date: 17/01/2021
Section B.4 was modified accordingly to stepwise procedure in Tool 11 v3.01				
Documentation provided by project participant				
PDD				
DOE assessment				Date: 17/01/2021
In the updated version of revised PDD, in section B.4, the PP included a demonstration about the validity of the original baseline.				
Audit team conclusion				
Closed				

CAR ID	3	Section no.	D.4	Date: 09/01/2021
Description of CAR				
It was not possible to trace the values used to Tool to calculate the emission factor for Colombian electrical interconnected system.				
<i>CDM validation and verification standard for project activities, version 02.0, paragraph 404.</i> <i>CDM project standard for project activities, version 02.0, paragraph 282.</i> <i>Approved small scale methodology AMS-I.F: Renewable electricity generation for captive use and mini-grid, version 3.0, paragraph 19.</i> <i>Methodological Tool to calculate the emission factor for an electricity system, version 07.0.0, paragraphs 42 and 72</i>				
Project participant response				Date: 15/01/2021
Since emission factor is set to be taken from UPME yearly resolution, the newly published bill along with its technical support document are attache to this document				
Documentation provided by project participant				
FACTORES DE EMISIÓN DEL SISTEMA INTERCONECTADO NACIONAL COLOMBIA – SIN 201.DOCx 385_2020.pdf				
DOE assessment				Date: 17/01/2021
The audit team reviewed Resolution 385 issued by UPME on December 15 th /2020. In this Resolution, UPME states to follow the requirements stated in the Methodological Tool to calculate the emission factor for an electricity system in the calculation of the emission factor for Colombian electrical interconnected system for year 2019.				
The revised PDD version 7 was delivered by PP to Icontec on January 2021, hence in accordance with paragraph 42 (b) of the applied tool /UN7/, the PP correctly used the data vintage of 2019 for CO ₂ emission factor for crediting period under assessment, since values from 2020 are not available at the moment at the moment to issue version 7 of revised PDD as the audit team verified by means of documental review of the Web page of the Electric wholesale market administrator (XM).				
Audit team conclusion				
Closed				

CAR ID	4	Section no.	D.5	Date: 09/01/2021
Description of CAR				

The provisions stated for calibration frequency of electricity meter of quantity of net electricity supplied by Unit 5 (Providencia I) Small HydroPower Plant (page 18 of revised PDD version 7) is not coherent with the requirements stated in the methodological tool for baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 03.0.

CDM validation and verification standard for project activities, version 02.0, paragraph 404.
CDM project standard for project activities, version 02.0, paragraph 282.
Methodological tool for Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation, version 03.0, section 7.2. Data / Parameter table 12.(pages 22 and 23)

Project participant response	Date: 15/01/2021
<i>PDD was changed to present new conditions for calibration and maintenance of electricity measurement equipment either in page 18 as well as in other sections of the PDD.</i>	
Documentation provided by project participant	
PDD	
DOE assessment	Date: 17/01/2021
In the revised PDD version 7 (dated on January 15 th /2021), the PP stated the calibration frequency of electricity meter of quantity of net electricity supplied by Unit 5 (Providencia I) Small Hydro Power Plant in accordance with the Colombian Measurement Code issued by CREG by Resolution 038 /2014.	
Audit team conclusion	
Closed	

Table 3. FAR from this validation

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>
03.0	31 May 2019	Revision to: <ul style="list-style-type: none">• Ensure consistency with version 02.0 of the “CDM validation and verification standard for project activities” (CDM-EB93-A05-STAN) and version 02.0 of the “CDM project cycle procedure for project activities” (CDM-EB93-A06-PROC);• Make editorial improvements.
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: Renewal of crediting period Keywords: crediting period, project activities, validation report		