

CDM VALIDATION REPORT

RENEWAL OF THE CREDITING PERIOD OF THE PROJECT ACTIVITY:

CANDELARIA HYDROELECTRIC PROJECT

“Hidroelectrica Candelaria S.A.”

UNFCCC REFERENCE NUMBER: 0604

AENOR REFERENCE: 2013/049/CDM/01

VERSION: 02

VALIDATION REPORT

"Candelaria Hydroelectric Project"

Validation Report:	AENOR Reference n°:		Version of this report:		Date:	
	2013/049/CDM/01		02		28/01/2014	
PDD:	Title:		GSC publication date:		Comments received:	
	Candelaria Hydroelectric Project		-		<input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	
Parties involved:	Host Party:		Other involved Parties:			
	Guatemala		Switzerland			
Project Participant(s):	In host Party:		In other involved Parties:			
	Hidroelectrica Candelaria S.A.		Ecoinvest Carbon S.A.			
Size of the project activity:	<input checked="" type="checkbox"/> Small scale <input type="checkbox"/> Large scale					
Applied methodology/ies:	Title:		Code:		N° version	
	Grid Connected renewable electricity generation		AMS-I.D		17	
Applied tools:	Title:		Version:			
	"Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period"		03.0.1			
	Title:		Version:			
	"Tool to calculate the emission factor for an electricity system"		04.0.0			
Emission reductions (ER):		PDD sent for notification of renewal the crediting period:		Final PDD:		
		12,405		11,800		
<input checked="" type="checkbox"/> Annual average of the ER (tCO₂e) <input type="checkbox"/> Total ER (tCO₂e)						
Previous versions of this document:			Version:		Date:	
			1		10/01/2014	
			2			
			3			
			4			
Report prepared by:	Climate Change Unit. AENOR					

* The comments are detailed in Section 4 of this Validation Report

VALIDATION REPORT

"Candelaria Hydroelectric Project"

Abbreviations

AENOR	Spanish Association for Standardisation and Certification
AMM	Administrador del Mercado Mayorista (Wholesale Market Administrator)
AMS-I.D	Grid Connected renewable electricity generation version 17
BM	Build Margin
CAR	Corrective action request
CDM	Clean development mechanism
CER	Certified emission reductions
CL	Clarification request
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CNEE	National Commission of Electricity
CO ₂	Carbon dioxide
DNA	Designated operational entity
DOE	Designated Operational Entity
EB	Executive Board of the CDM of the Kyoto Protocol
ER	Emission reductions
FAR	Forward action request
GHG	Greenhouse gases
GNEG	Guatemalan National Electric Grid
GWh	Gigawatt hour
GWhe	Electrical Giga Watt hour
GWht	Thermal Giga Watt hour
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
Km	Kilometre
Kv	Kilovolts
MoV	Means of Validation
MP	Monitoring Plan

VALIDATION REPORT
"Candelaria Hydroelectric Project"

MR	Monitoring Report
MW	Megawatt
MWh	Megawatt hour
NGO	Non-governmental Organisation
PA	Project Activity
PDD	Project design document
PP	Project participant
PS	Clean Development Mechanism Project Standard
SCADA	Supervisory Control and Data Acquisition
SNI	Guatemalan Interconnected National System
tC	Carbon tonnes
tCO ₂ e	Carbon dioxide equivalent tonnes
TJ	Tera Joules
UNFCCC	United Nations Framework Convention for Climate Change
VVS	Validation and Verification Standard

Table 1: Abbreviations

VALIDATION REPORT
"Candelaria Hydroelectric Project"

<i>Table of Contents</i>	<i>Page</i>
1 INTRODUCTION.....	7
1.1 Objective	7
1.2 Scope	7
2 METHODOLOGY	9
2.1 Appointment of team members and technical reviewers	10
2.2 Document review	11
2.3 Follow-up actions	11
2.4 Findings	12
2.5 Internal Quality Control	12
3 VALIDATION FINDINGS	13
3.1 Approval and Participation	13
3.2 Project Design Document	13
3.3 Project description	13
3.4 Baseline methodology	13
3.5 Project boundary	16
3.6 Validity of the original baseline and its update at the renewal of the crediting period	17
3.6.1 Assessment of the validity of the current baseline for the next crediting period	17
3.6.2 Update the current baseline and the data and parameters	18
3.7 Additionality	19
3.8 Algorithms and/or formulae used to determine emission reductions	19
3.9 Calculation of GHG Emissions	26
3.10 Monitoring Plan	27
3.10.1 Parameters determined ex-ante	27
3.10.2 Parameters monitored ex-post	29
3.11 Comments by Local Stakeholders	29
3.12 Environmental Impacts	29
4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS.....	30
5 VALIDATION OPINION.....	31
6 CORRECTIVE ACTION REQUESTS, CLARIFICATIONS AND FORWARD ACTION REQUESTS.....	32

VALIDATION REPORT
"Candelaria Hydroelectric Project"

7	REFERENCES.....	41
	ANNEX 1: CDM VALIDATION PROTOCOL.....	42
	ANNEX 2: CERTIFICATES OF QUALIFICATION	87

1 INTRODUCTION

This validation concerns a project implemented by Hidroelectrica Candelaria, S.A., in Guatemala to reduce emissions of CO₂ by generating renewable energy coming from the utilization of the water of the Trece Aguas River by the run-of-river hydropower plant of the project activity, with an installed capacity of 4.3 MW. The objectives of the validation exercise are to confirm that the original baseline is still valid and has been updated taking into account the new applicable data, the project meets the necessary CDM criteria, the project follows the latest version of the approved methodology AMS-I.D, and that the proposals presented in the PDD will lead to a realistic determination of the emissions reductions.

1.1 Objective

The project participant Hidroelectrica Candelaria, S.A. has commissioned AENOR to perform a validation of the renewal of the crediting period of the project **"Candelaria Hydroelectric Project"**. The purpose of a revalidation is to have an independent third party assessment of the project in order to request the renewal of the project's crediting period. This validation opinion summarizes the findings of the revalidation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent operation, 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, in particular the CDM Project Cycle Procedure version 05.0, the CDM Project Standard version 05.0 and the tool "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.

"Candelaria Hydroelectric Project" was registered with reference number 0604 on 09/11/2006 as a CDM project with a renewable 7 years crediting period. The project's first crediting period was from 01/01/2007 to 31/12/2013. The second crediting period corresponds to the period from 01/01/2014 to 31/12/2020.

1.2 Scope

The scope of the validation is to assess all the aspects described in the CDM Project Standard version 05.0 related to the purpose of renewal of the crediting period project relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.

The following documents were reviewed as part of the scope of the activity:

- PDDs including baseline study and monitoring plan. /1/
- Approved Methodology: AMS-I.D (Version. 17)/3/
- CDM Project Cycle Procedure version 05.0. /4/
- CDM Project Standard version 05.0. /5/

VALIDATION REPORT

"Candelaria Hydroelectric Project"

- Tool "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"./6/
- Tool "Tool to calculate the emission factor for an electricity system" version 04.0.0. /7/
- CDM Validation and Verification Standard (Version 05.0) /8/

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. AENOR, based on the Specific Instruction for the "Validation, Verification and Certification of Clean Development Mechanism (CDM) Project Activities" (IE/DTC/039)/9/, and the Validation and Verification Standard, has used a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consultancy services to the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the PDD.

2 METHODOLOGY

The revalidation assessment aims at being a risk-based approach and is based on the methodology developed in the Validation and Verification Standard, which aims to harmonize the approach and quality of all such assessments.

The validation of the renewal of the crediting period began in June 2013 and was concluded in January 2014. The revalidation was performed in the manner of an audit, where, a desk review of the PDD was undertaken against the latest version of the approved methodology and CDM and other relevant criteria applying to the project.

In order to ensure transparency, a validation protocol was customized for the project, according to Specific Instruction (IE/DTC/039). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria.

The sequence of the validation is given in the table below:

Topic	Date
Notification by the PPs of their intention to request a renewal of crediting period of the registered CDM project activity by submitting an updated PDD	13/06/2013
Validation Protocol - Version 01.	26/11/2013
Final Validation Report	28/01/2014

Table 2: Sequence of the main validation activities

2.1 Appointment of team members and technical reviewers

The list of involved personnel and the qualification status are summarized in the table below:

Name	Qualification	
	Position in the team	Technical areas
Luis Javier Arribas Alonso	Chief Validator	1.2
M ^a Carmen González Galán	Technical Reviewer	1.2

Table 3: List of the personnel involved.

Technical areas (TA) mentioned above correspond to the following:

TA code	Technical area
TA 1.1	Thermal energy generation from fossil fuels and biomass including thermal electricity from solar (COMPLEX);
TA 1.2	Energy generation from renewable energy sources.
TA 2.1	Electricity distribution;
TA 2.2	Heat distribution
TA 3.1	Energy demand
TA 4. 1	Cement sector (COMPLEX);
TA 4.2	Aluminum (COMPLEX);
TA 4.3	Iron and steel (COMPLEX);
TA 4.4	Refinery (COMPLEX)
TA 5.1	Chemical process industries (COMPLEX).
TA 6.1	Construction.
TA 7.1	Transport.
TA 8.1	Mining and mineral processes, excluding those included in TA 8.2 below;
TA 8.2	Oil and gas industry, coal mine methane recovery and use (COMPLEX).
TA 9.1	Metal production.
TA 10.1	Mining and mineral processes, excluding those included in TA 10.2 below;
TA 10.2	Oil and gas industry, coal mine methane recovery and use (COMPLEX).
TA 11.1	Chemical process industries (COMPLEX);

VALIDATION REPORT
"Candelaria Hydroelectric Project"

TA 11.2	GHG capture and destruction.
TA 12.1	Chemical process industries (COMPLEX).
TA 13.1	Waste handling and disposal;
TA 13.2	Animal waste management.
TA 14.1	Forestry
TA 15.1	Agriculture
TA 15.2	Animal waste management.

Table 4: List of Technical Areas

2.2 Document review

The project design document submitted by the PP was reviewed against the approved methodology and against CDM and other relevant criteria. Additional background documents related to the project design and baseline were also requested. These documents were also reviewed.

To address the corrective actions and clarification requests that arose from the desk review, the PP revised the project design document several times before developing and submitting a final version.

The final validation findings are presented in this report related to the project as described in the project design document version 10.

The reviewed documents used during the entire validation process are detailed in the Chapter 7 of this report.

2.3 Follow-up actions

Interviewed organization Person/Position	Interview topics
Project Participant HIDROELECTRICA CANDELARIA S.A. Laura E. Ruiz Tato; CDM Project Coordinator	<ul style="list-style-type: none"> ✓ Updating Methodology issues. ✓ Baseline determination: waste management, waste reception, gas generation, electricity production, OM and BM, efficiencies, most recent data...). ✓ Updating monitoring plan

Table 5. Interview topics

2.4 Findings

As an outcome of the validation process, the team can raise different types of findings according to the CDM Validation and Verification Manual.

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Where a non-conformance arises the validation team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- b) The CDM requirements have not been met;
- c) There is a risk that emission reductions cannot be monitored or calculated.

Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

The project participants were requested to address all validation findings and finally provided the validation team with sufficient evidence to determine that the applicable CDM requirements have been met. The project participant modified the initial PDD to resolve the validation team concerns and resubmitted a final version of the PDD. AENOR has prepared this report based on the final PDD.

All the validation findings are summarized in section 3 below and documented in more detail in section 6 and in the validation protocol included in Annex 1.

2.5 Internal Quality Control

Following the completion of the assessment process by the validation team, all documentation undergoes an internal quality control through a technical review before submission to the CDM-EB. The Technical reviewer is a qualified member of AENOR, independent from the team that carried out the validation of the project activity. The technical reviewer or the team appointed for the technical review is qualified in the technical area and sectoral scope of the project activity.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

3 VALIDATION FINDINGS**3.1 Approval and Participation**

In accordance with paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period no new Letters of Approval are required, and all the documents provided at the moment of requesting registration and during the first crediting period are still valid.

AENOR team has verified by consulting the UNFCCC website that all Project Participants obtained the corresponding Letter of Approval and the Authorization of all the parties involved.

3.2 Project Design Document

The PDD of "Candelaria Hydroelectric Project" has been prepared in accordance with latest template (version 04.1) and the Guidelines for completing the CDM- PDD (version 01.0).

The initial version of the PDD for the renewal of the crediting period of the project /1/ was sent by the PPs, according to paragraph 244 of the CDM Project Cycle Procedure, to the UNFCCC Secretariat within the notification of the intention to request the renewal of crediting period of the project activity on 13/06/2013. The UNFCCC Secretariat acknowledged that notification on 18/06/2013.

Due to the clarifications and corrective actions requested during the validation process, the Project Participant has changed the PDD. The final version of the PDD includes all issues raised to the PP either corrected or clarified.

The latest version of the PDD, version 10 dated on 27/12/2013 /2/, is in compliance with relevant forms and guidance stated by the CDM documentation.

3.3 Project description

Since the current validation process is for the renewal of the crediting period of a project already registered, the assessment did not focus on the project design. The project activity is already implemented and it is generating CERs.

3.4 Baseline methodology

The project was originally registered based on the methodology AMS-I.D "Grid Connected renewable electricity generation" – Version 08, which was valid from 02 Mar 06 to 26 Jul 06.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

In this case, according to paragraph 230 of the CDM Project Standard version 05.0, AENOR confirms that the latest version of the methodology AMS-I.D, version 17, and the applicable tools stated in it have been correctly applied to the project activity.

The applicability of the methodology AMS-I.D-"Grid Connected renewable electricity generation" - Version 17 was re-assessed, based on the knowledge of the characteristics and operation of the project since its registration, as follow:

1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: (a) Supplying electricity to a national or a regional grid; or (b) Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.

The proposed project activity involves the construction and operation of a hydro power plant that supplies electricity to the Guatemalan Interconnected National System (Sistema Nacional Interconectado, SNI).

2. Illustration of respective situations under which each of the methodology (i.e. AMS-I.D, AMS-I.F and AMS-I.A) applies is included in table 2 of the methodology:

Methodology AMS-I.D applies in situation 1, i.e. the project activity supplies electricity to the SNI grid.

3. This methodology is applicable to 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).

The project activity is a new power plant at a site where there was no renewable energy power plant operating prior to the implementation of the Project (Greenfield plant).

4. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: The project activity is implemented in an existing reservoir with no change in the volume of reservoir; 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; 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.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

This condition does not apply to the proposed project activity. The proposed project activity is a run-of-river hydropower plant without a reservoir.

5. If the new unit 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 new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.

This condition does not apply to the proposed project activity since it only has a renewable component and the installed capacity is 4.3 MW, which is within the 15 MW limit for a small-scale CDM project activity.

6. Combined heat and power (co-generation) systems are not eligible under this category.

The project activity does not involve installation of co-generation systems. This condition does not apply to the project activity.

7. In the case of project activities that involve the 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.

The project activity does not involve addition of renewable generation units since it is a Greenfield project. This condition does not apply to the project activity.

8. 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 proposed project activity is neither a retrofit nor a replacement project. This condition does not apply to the project activity.

The applicability conditions of the "Tool to calculate the emission factor for an electricity system" (version 04.0) to the project activity) is also assessed as follow:

9. This tool may be applied to estimate the OM, BM and/or CM when calculating baseline emissions for a project activity that substitutes grid electricity that is where a project activity supplies electricity to a grid or a project activity that results in savings of electricity that would have been provided by the grid (e.g. demand-side energy efficiency projects).

VALIDATION REPORT

"Candelaria Hydroelectric Project"

The project consists in a hydroelectric power plant that supplies electricity to the national grid in Guatemala. Thus, this criterion is met.

10. Under this tool, the emission factor for the project electricity system can be calculated either for grid power plants only or, as an option, can include off-grid power plants. In the latter case, the conditions specified in "Appendix 2: Procedures related to off-grid power generation" should be met. Namely, the total capacity of off-grid power plants (in MW) should be at least 10 per cent of the total capacity of grid power plants in the electricity system; or the total electricity generation by off-grid power plants (in MWh) should be at least 10 per cent of the total electricity generation by grid power plants in the electricity system; and that factors which negatively affect the reliability and stability of the grid are primarily due to constraints in generation and not to other aspects such as transmission capacity.

In this case, the first option is selected, i.e.: the emission factor is calculated for grid power plants only, excluding off-grid power plants.

11. In case of CDM projects the tool is not applicable if the project electricity system is located partially or totally in an Annex I country.

The SNI is located totally in Guatemala, which is not an Annex I country. Thus, this criterion is met.

12. Under this tool, the value applied to the CO₂ emission factor of biofuels is zero.

No biofuels are currently consumed in the power plants connected to the SNI. Should this change during the second crediting period, the CO₂ emission factor of such biofuels would be set at zero.

In conclusion, AENOR confirms that the project applies the criteria stated in the methodology AMS-I.D version 17 and also the criteria stated in the applied tools included in it.

3.5 Project boundary

The project boundary remains the same as the one described for the first crediting period and it is in accordance with the applied methodology.

All the emission sources and GHGs related included and excluded from the project boundary are clearly identified and described in a complete manner in the latest version of the PDD. It also includes a simplified scheme of the project boundary. Moreover, it is indicated in a table the emission sources and GHGs included in the project boundary as per methodology AMS-I.D "Grid Connected renewable electricity generation" (version 17).

VALIDATION REPORT
"Candelaria Hydroelectric Project"

The validation team states that the identified boundary and the selected sources and gases are correctly justified by the project proponent in the PDD, and they are in accordance with the methodology AMS-I.D version 17.

3.6 Validity of the original baseline and its update at the renewal of the crediting period

3.6.1 Assessment of the validity of the current baseline for the next crediting period

The validity of the current baseline has been assessed using the following sub-steps in accordance with the tool "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):

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

There are no relevant mandatory policies that have come into effect after the submission of the project activity for validation. Thus, the mandatory policies applicable at the time of requesting the renewal of the crediting period are the same than those applicable at the time of the submission of the project for validation. This issue has been checked against the information available in the website of the National Commission Electrical (CNEE) (<http://www.cnee.gob.gt/xhtml/marco/marco.html>).

AENOR confirms that the current baseline complies with all relevant mandatory national and/or sectorial policies which have come into effect after the submission of the project activity for validation and are applicable at the time of requesting renewal of the crediting period.

Step 1.2 - Assess the impact of circumstances.

According to the information obtained from the Wholesale Market Administrator (AMM), mainly fossil fuel based power plants have been installed in Guatemala, which is the current practice in the country and it represents the scenario existing prior to the implementation of the project and the current baseline scenario. Thus, the electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants (including fossil fuel power plants) and by the addition of new generation sources into the grid.

AENOR confirms that the new market conditions, as well as the prevailing practice and the availability of alternative technologies to generate energy, continue to be the same as those that applied for the first crediting period. Therefore, there is not impact of existing circumstances, at the time of the requesting the renewal of the crediting period, on the current baseline emissions.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

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

According to the tool, this sub-step is applicable only if the baseline scenario identified at the time of validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

AENOR has verified that this step is not applicable to this project activity because that was not the baseline scenario identified for this project activity. There was no running equipment at the time and no investment was to be undertaken later on.

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

There is only one parameter that was determined at the start of the crediting period and not monitored during the first crediting period, the emission factor of the grid, which was determined as a combined margin emission factor, consisting of the combination of an operating margin and a build margin emission factor.

Therefore, this parameter should be updated for the second crediting period in accordance with the latest version of the "Tool to calculate the emission factor for an electricity system", as required by the latest version of the methodology AMS-I.D.

AENOR confirms that the current baseline has been updated for the subsequent crediting period.

3.6.2 Update the current baseline and the data and parameters

Step 2.1 – Update the current baseline

The baseline emissions for the second crediting period have been updated, without reassessing the baseline scenario, based on the latest approved version of the methodology AMS-I.D. This update was applied in the context of the sectoral policies and circumstances that are applicable at the time of requesting for renewal of the crediting period.

Step 2.2 – Update the data and parameters

As it has been explained above in step 1.4 and in section 3.6.1, there is only one parameter that was determined at the start of the crediting period and not monitored during the first crediting period, the

VALIDATION REPORT
"Candelaria Hydroelectric Project"

emission factor of the grid, which was determined as a combined margin emission factor, consisting of the combination of an operating margin and a build margin emission factor.

AENOR confirms that all the parameters included in the latest version of the PDD and involved in the ERs calculations have been properly updated in accordance with the applied methodology AMS-I.D version 17. For more details, please see section 3.10 of this report.

3.7 Additionality

According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology. AENOR confirms that in the updated PDD, section dedicated to additionality remains the same as in the PDD registered for the first crediting period.

3.8 Algorithms and/or formulae used to determine emission reductions

According to the methodology AMS-I.D version 17, the current baseline has been updated for the second crediting period using the tool "Tool to calculate the emission factor for an electricity system" version 04.

AENOR confirms that all the formulae and algorithms used to determine the ERs have been applied according to the methodology AMS-I.D version 17, and the tool cited above. Other inputs used for the emission reduction projection, as well as default values available in the methodology applied were verified to be correct.

AENOR has verified that all the data and parameters used for the ex ante calculation have been provided by truthful and appropriate sources. Data included in the latest version of the PDD and its annexed spreadsheet have been verified against the evidence provided to the DOE team and are deemed correct. All estimates of the baseline emissions can be replicated using the data and parameter values provided in the final version of the PDD.

The assessment of all data and parameters involved in the ERs determination is carried out in sections 3.10.1 and 3.10.2 of this report.

Baseline Emissions

According to the methodology AMS I.D version 17, the last version of the PDD states that the baseline emissions are calculated as the product of electrical energy baseline ($EG_{BL,y}$) of the electricity produced by the project activity multiplied by the grid emission factor, as it is shown in the formulae below:

VALIDATION REPORT
"Candelaria Hydroelectric Project"

$$BE_y = EG_{BL,y} * EF_{CO_2,grid,y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂).

$EG_{BL,y}$ = Quantity of net electricity generation supplied to the grid as a result of the implementation of the CDM project activity in year y (MWh).

$EF_{CO_2,grid,y}$ = CO₂ emission factor of the grid in year y (tCO₂/MWh).

Related to the value applied for the parameter $EG_{BL,y}$ after the assessment of the evidence provided by the PP, AENOR confirms that the value included in the PDD, 24,415 MWh per year, represents a reasonable estimation and it is appropriate.

According to the baseline methodology AMS I.D Version 17, the emission factor ($EF_{CO_2,grid,y}$) has been calculated as a combined margin (CM), consisting of the combination of operating margin (OM) and build margin (BM), according to the six steps stated by the "Tool to calculate the emission factor for an electricity system" version 04.

Step 1.-Identify the relevant electricity system.

According to the boundary definition of the applicable methodology, as it is indicated in section 3.5. of this report, the last version of the PDD identify the Guatemalan Interconnected National System (SNI) as the project electricity system and the Interconnected central American system as the connected electricity system. This issue was validated through the evidence provided by the official source of AMM and CNEE.

For Operating Margin emission factor calculation, the emission factor of the imports is considered equal to 0 tCO₂ per MWh because the electricity imports come from connected electricity systems in other countries in Central America.

Step 2.- Choose whether to include off grid power plants in the project electricity system.

Option I has been chosen and only grid power plants are included in the calculation.

Step 3.- Select a method to determine the operating margin (OM)

For the calculation of the OM emission factor $EF_{grid,OM}$, the simple adjusted OM emission factor calculation method has been correctly selected because low cost/ must-run projects constitute more than 50% of the total grid generation in average of the five most recent years, and there are not sufficient data available for using the Dispatch Data Analysis option.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

Ex-ante option is used for vintages of data. Therefore, the Operating Margin emission factor has been updated and calculated at the renewal of the crediting period. No monitoring and recalculation of the emission factor during the second crediting period is required. A 3-year generation-weighted average is used, based on the most recent data available at the time of submission of the request for renewal of the crediting period to the DOE, 2010-2012.

Step 4.- Calculate the operating margin emission factor according to the selected method

It has been validated that simple adjusted OM is correctly calculated using option A of the Simple OM (the net electricity generation of each power unit and an emission factor for each power unit), as the necessary data are totally available. Under this option, the emission factor of each power unit m or k ($EF_{EL,m,y}$ or $EF_{EL,k,y}$) has been determined, using option A2, based on the CO₂ emission factor of the fuel type used and the efficiency of the power unit, due to only data on electricity generation and the fuel types used is available, as follows:

$$EF_{EL,m,y} = \frac{EF_{CO_2,m,i,y} \times 3.6}{\eta_{m,y}}$$

Where:

$EF_{EL,m,y}$ = CO₂ emission factor of power unit m in year y (tCO₂/MWh).

$EF_{CO_2,m,i,y}$ = Average CO₂ emission factor of fuel type I used in power unit m in year y (tCO₂/GJ).

$\eta_{m,y}$ = Average net energy conversion efficiency of power unit m in year y (ratio)

m = All power units serving the grid in year y except low-cost/must-run power units.

k = All low-cost must run grid power units serving the grid in year y.

y = The relevant year as per the data vintage chosen.

Net electricity imports have been considered low-cost/must-run units k.

The emission factors for the fossil fuels type ($EF_{CO_2,m,i,y}$) used by the power plants have been obtained, following the procedures of the applied tool, from the 2006 IPCC Guidelines on National GHG Inventories/10/. In accordance with the Tool, where several fuel types are used in the power unit, the fuel type with the lowest CO₂ emission factor is used.

Default Efficiency factors ($\eta_{m,y}$) for power plants have been obtained from Appendix 1 of the "Tool for the calculation of the emission factor of the electricity system" Version 04.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

The simple adjusted OM emission factor ($EF_{grid,OM-adj,y}$) is calculated based on the net electricity generation of each power unit and an emission factor for each power unit, as follows:

$$EF_{grid,OM-adj,y} = (1 - \lambda_y) \times \frac{\sum_m EG_{m,y} \times EF_{EL,m,y}}{\sum_m EG_{m,y}} + \lambda_y \times \frac{\sum_k EG_{k,y} \times EF_{EL,k,y}}{\sum_k EG_{k,y}}$$

Where:

$EF_{grid,OM-adj,y}$ = Simple adjusted operating margin CO₂ emission factor in year y (tCO₂/MWh).

λ_y = Factor expressing the percentage of the time when low cost/must run power units are on the margin in year y.

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh).

$EG_{k,y}$ = Net quantity of electricity generated and delivered to the grid by power unit k in year y (MWh).

$EF_{EL,m,y}$ = CO₂ emission factor of power unit m in year y (tCO₂/MWh).

$EF_{EL,k,y}$ = CO₂ emission factor of power unit k in year y (tCO₂/MWh).

k = All low-cost must run grid power units serving the grid in year y.

m = All power units serving the grid in year y except low-cost/must-run power units.

y = The relevant year as per data vintage chosen

Calculation of Lambda (λ_y)

AENOR has validated that the Lambda factor is calculated according to the different steps defined in the applied tool, as follows:

$$\lambda_y (\%) = \frac{\text{Number of hours low - cost / must - run sources are on the margin in year y}}{8760 \text{ hours per year}}$$

For the calculation, only grid power units have been considered.

Hourly generation data of 2010, 2011 and 2012 /11/ used in the calculation have been provided by the official source AMM. AENOR has replicated the calculation and the duration curves and the values obtained are deemed correct.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

According to the tool, for grid power plants, $EG_{m,y}$ is determined as per the provisions in the monitoring tables. Data of the net electricity generation and energy imports have been obtained from official website of AMM.

The value for the $EF_{Grid,OM-adj,y}$ included in the latest version of the PDD and the calculation spreadsheet is 0.8085 tCO₂e/MWh

AENOR confirms that the operating margin emission factor ($EF_{Grid,OM-adj,y}$) has been calculated, according to the "Tool to calculate the emission factor for an electricity system" version 04, in a correct, transparent and conservative way. The latest version of the PDD includes a clear and complete explanation of the calculation, and all the formulae and factors used are deemed correct.

Step 5.- Calculate the build margin (BM) emission factor

According to the "Tool to calculate the emission factor for an electricity system" version 04, for the proposed project activity, option 1 has been chosen in terms of vintage of data so, for the second crediting period the BM emission factor ($EF_{grid,BM}$) has been updated based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE, year 2012. For the third crediting period, the BM emission factor calculated for the second crediting period should be used. This option does not require monitoring the emission factor during the crediting period.

The sample group of power units m used to calculate the build margin has been determined according to the following steps:

- Identify the set of five power units, excluding power units registered as CDM project activities that started to supply electricity to the grid most recently ($SET_{5-units}$) and determine their annual electricity generation ($AEG_{SET-5-units}$).
- Determine the annual electricity generation of the project electricity system, excluding power units registered as CDM project activities (AEG_{total}).
- Identify the set of power units, excluding power units registered as CDM project activities, that started to supply electricity to the grid most recently and that comprise 20% of AEG_{total} (if 20% falls on part of the generation of a unit, the generation of that unit is fully included in the calculation) ($SET_{\geq 20\%}$) and determine their annual electricity generation ($AEG_{SET-\geq 20\%}$).

Between $SET_{5-units}$ and $SET_{\geq 20\%}$, $SET_{\geq 20\%}$ is the set of power units that comprises the larger annual electricity generation (SET_{sample}), and it is the sample group of power units used to calculate build margin.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

The validation team checked data of the calculation spreadsheet against the information obtained from the website of AMM and found that this option has been correctly selected and that capacity additions from retrofits of power plants have not been included in the calculation of the build margin emission factor.

The build margin emissions factor has been calculated according to the tool using the following formula:

$$EF_{grid,BM,y} = \frac{\sum_m EG_{m,y} \cdot EF_{EL,m,y}}{\sum_m EG_{m,y}}$$

Where:

$EF_{grid,BM,y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh).

$EG_{m,y}$ = Net quantity of electricity generated and delivered to the grid by power unit m in year y (MWh).

$EF_{EL,m,y}$ = CO₂ emission factor of power unit m in year y (tCO₂/MWh).

m = Power units included in the build margin.

y = Most recent historical year for which power generation data is available.

Calculation of the $EF_{EL,m,y}$ has been carried out as it is explained above (following option A.2), using the most recent historical year for which power generation is available and using the power units m included in the build margin.

The emission factors for the fossil fuels type ($EF_{CO_2,m,i,y}$) used by the power plants have been obtained, following the procedures of the applied tool, from the 2006 IPCC Guidelines on National GHG Inventories, and where several fuel types are used in the power unit, the fuel type with the lowest CO₂ emission factor has been used.

Default Efficiency factors ($\eta_{m,y}$) for power plants have been obtained from Annex 1 of the "Tool for the calculation of the emission factor of the electricity system" Version 04.

The value for the $EF_{Grid,BM}$ included in the latest version of the PDD and the calculation spreadsheet is 0.3750 tCO₂e/MWh

AENOR confirms that the build margin emission factor $EF_{Grid,BM}$ has been calculated, according to the "Tool to calculate the emission factor for an electricity system" version 04, in a correct, transparent and conservative way. The latest version of the PDD includes a clear and complete explanation of the calculation, and all the formulae are deemed correct.

VALIDATION REPORT
"Candelaria Hydroelectric Project"

Step 6.-Calculate the combined margin (CM) emissions factor.

The combined margin emissions factor has been calculated according to method a) Weighted Average CM of the applied tool as follows:

$$EF_{Grid,CM,y} = EF_{grid,OM,y} * w_{OM} + EF_{grid,BM,y} * w_{BM}$$

Where:

$EF_{Grid,BM,y}$ = Build margin CO₂ emission factor in year y (tCO₂/MWh).

$EF_{Grid,OM,y}$ = Operating margin CO₂ emission factor in year y (tCO₂/MWh).

w_{BM} = Weighting of operating margin emissions factor (%).

w_{OM} = Weighting of build margin emissions factor (%).

According to the tool, as the project activity involves hydro power generation, the value of the weightings for the second crediting period are $w_{OM} = 0.25$ and $w_{BM} = 0.75$

$$EF_{Grid,CM,y} = 0.8085 \text{ tCO}_2/\text{MWh} \times 0.25 + 0.3750 \text{ tCO}_2/\text{MWh} \times 0.75$$

$$EF_{Grid,CM,y} = 0.4833 \text{ tCO}_2/\text{MWh}.$$

As it has been explained above, the baseline emissions include only CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity, and are calculated as follows:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

$$BE_y = 24,415 \text{ MWh/year} * 0.4833 \text{ tCO}_2/\text{MWh} = 11,800 \text{ tCO}_2/\text{year}.$$

Project Emissions

As per the methodology, project emissions in year y (PE_y) for hydroelectric power projects without reservoir are null. Thus, $PE_y = 0$.

Leakage

According to the AMS-I.D. methodology (version 17), no leakage emissions are considered as the equipment was not transferred from another activity.

VALIDATION REPORT
"Candelaria Hydroelectric Project"

Emission Reductions

According to the methodology AMS-I.D version 17, the emissions reductions have been calculated as follows:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

ER_y = Emissions reductions in year y (t CO₂/year).

BE_y = Baseline emissions in year y (t CO₂/year).

PE_y = Project emissions in year y (t CO₂/year).

LE_y = Leakage emissions in year y (t CO₂/year).

$$ER_y = 11,800 \text{ tCO}_2/\text{year} - 0 \text{ tCO}_2/\text{year} - 0 \text{ tCO}_2/\text{year} = 11,800 \text{ tCO}_2/\text{year}$$

3.9 Calculation of GHG Emissions

The methodology for calculating emission reductions is transparently documented and it complies with existing good practice. The calculation methods applied to the determination of emission reductions are explained in detail in the latest version of the PDD and they follow the procedures laid down in the approved methodology AMS-I.D (version 17) and the "Tool to calculate the emission factor for an electricity system" version 04.

The PDD clearly documents how each equation is applied and the actual calculations are clearly presented in the annexed spreadsheet. The selection of parameters and GHG calculations is complete and transparent. The accuracy of the calculations has been verified. The emissions estimated can be replicated using the data and parameter values provided in the PDD and supporting files submitted for revalidation. Data sources have been verified by AENOR.

AENOR confirms that the estimated amount of emission reductions for the second crediting period is 82,600 tCO₂e (11,800 tCO₂e/year). This estimation is in accordance with the documentation submitted and it has been verified by the validation team.

3.10 Monitoring Plan

The project applies the approved monitoring methodology AMS-I.D (version 17) – "Grid Connected renewable electricity generation". The original monitoring plan was updated based on AMS-I.D latest requirements.

Parameters and data available at validation were cross-checked with official sources and it was found consistent with the methodology. The monitoring plan proposed follows the same monitoring approach that in the first crediting period, and it was considered adequate. Authority and responsibilities are well defined and Quality Assurance and Quality Control procedures are managed in order to reduce the uncertainties of the emissions reduction monitored.

Provisions of calibration frequencies of all the equipment involved in the monitoring are included in the PDD and are deemed as appropriate by the DOE team because they are defined according to the specifications stated in the applied methodology and tool.

The project monitoring plan is in compliance with the monitoring methodology (version 17) – "Grid Connected renewable electricity generation".

It is AENOR's opinion, that the project participants are able to implement the monitoring plan.

3.10.1 Parameters determined ex-ante

Parameter	Value applied	Validation remarks
EF_{CO₂,grid,y} : CO ₂ emission factor of the grid electricity in year y	0.4833	It has been updated as the combined margin emissions factor (EF _{Grid,CM,y}), consisting of the combination of OM emissions factor (EF _{Grid,OM,y}) and BM (EF _{Grid,BM,y}) emission factor according to the procedures prescribed in the "Tool to calculate the emission factor for an electricity system", based on the latest information from AMM available at the time of submission of the request for renewal of the crediting period.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

Parameter	Value applied	Validation remarks
EF_{CO₂,m/k,i,y} : Average CO ₂ emission factor of fuel type i used in power unit m or k in year y:	Data from the 2006 IPCC Guidelines on National GHG Inventories, Table 1.4, Chapter 1, Vol. 2 (Energy)	As there is no data from fuel supplier of the power plants in invoices or local average default values, IPCC default values at the lower limit of the uncertainty at a 95 per cent confidence interval have been used. In accordance with the Tool, where several fuel types are used in the power unit, the fuel type with the lowest CO ₂ emission factor is used.
n_{m,y} and n_{k,y} : Average net energy conversion efficiency of power unit m or k in year y:	Data from the Appendix 1 of the tool	As the efficiencies are not directly available for the power plants, the default values provided in the Appendix 1 of the "Tool to calculate the emission factor for an electricity system" (version 04.0) have been used.
EG_{m,y} and EG_{k,y} : Net quantity of electricity generated and delivered to the grid by power plant/unit m or k in year y:	Data provided by AMM	According to the tool, data from utility or government records or official publications have been used..

Therefore, according to the Tool "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", all the parameters have been correctly updated and the current baseline complies with all relevant mandatory national and sectorial policies which have come into effect after the submission of the project activity for validation and are applicable at this moment, the time of requesting renewal of crediting period.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

3.10.2 Parameters monitored ex-post

Parameter	Monitoring frequency	Validation Remarks
EG_{facility,y} (EG_{BL,y}) : Quantity of net electricity supplied to the grid in year y:	Data monitored continuously, measured hourly and daily, and recorded hourly, daily, monthly and yearly	<p>3.10.3 Electricity meters (main a back-up) are used to monitor continuously this parameter. The meters should be authorized by the AMM, according to commercial norm no. 14/12/, and they are calibrated annually by a third party authorized by the AMM.</p> <p>3.10.4 In parallel, in order to satisfy the conditions set forth in the aforementioned norm and to guarantee the precision and quality required, both commercial meters are verified and calibrated once a year (regularly during the annual programmed maintenance) by a recognized calibration company at the expense of Candelaria Hydroelectric Project.</p> <p>3.10.5 Data measured by the meters are cross checked with the buyer's electricity reports, monthly invoices or through the records saved in the SCADA system, software utilized to control and monitor all the electricity delivered to the national grid.</p>

Apart from the information stated in the table above, it is important to mention that provisions of calibration frequencies of all the equipment involved in the monitoring are included in the PDD and are deemed as appropriate by the DOE team because they are defined according to the specifications stated in the applied methodology and tool.

3.11 Comments by Local Stakeholders

In accordance with the "CDM Project Cycle Procedure version 05.0", carrying out a local stakeholder consultation is not necessary for the renewal of the crediting period.

3.12 Environmental Impacts

According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology. Therefore, in the updated PDD, section dedicated to the Environmental Impacts derived from the project remains the same as in the PDD registered for the first crediting period.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

In any case, AENOR has verified that the project activity is still complying with the environmental legislation in Guatemala as it was crosschecked against the relevant regulation in the scope.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

In accordance with the "CDM Project Cycle Procedure version 05.0", carrying out a consultation to parties and NGOs is not necessary for the renewal of the crediting period.

VALIDATION REPORT

"Candelaria Hydroelectric Project"

5 VALIDATION OPINION

AENOR has performed the validation of the renewal of the crediting period of the project **"Candelaria Hydroelectric Project"**. The revalidation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation, and the subsequent follow-up interviews have provided AENOR with enough evidence to determine the fulfillment of stated criteria. In AENOR's opinion, the project meets the UNFCCC requirements for the renewal of the crediting period. Hence, AENOR recommends the renewal of the crediting period of the project activity.

AENOR can confirm that the project is implemented and maintained as designed and in accordance with the applied methodology AMS-I.D. "Grid Connected renewable electricity generation" version 17.

The estimated amount of emission reductions for the second crediting period 01/01/2014 to 31/12/2020 is 82,600 tCO₂e (11,800 tCO₂e/year) in accordance with the documentation submitted and verified by the validation team.

In AENOR's opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

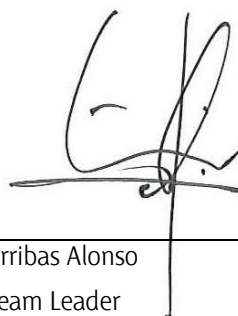
The validation has been performed using a risk based approach, as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, AENOR cannot be held liable by any party for decisions made or not made based on the validation opinion, which goes beyond the purpose.

28/01/2014



Luis Robles Olmos
Authorized person

28/01/2014



Luis Javier Arribas Alonso
Validation Team Leader

VALIDATION REPORT

"Candelaria Hydroelectric Project"

6 CORRECTIVE ACTION REQUESTS, CLARIFICATIONS AND FORWARD ACTION REQUESTS

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 1		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD shall be updated in accordance with the latest version of the Project Standard, and include the correct sectoral scope of the project activity.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	In version 8 of the PDD, version 03.0 of the CDM Project Standard was used since it was the latest version at the time of submission of the request for renewal of the crediting period to the DOE. Please find version 10 of the PDD that uses the latest version of the CDM Project Standard at this moment (version 05.0).		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	Version 10 of the PDD also includes the required correction to the sectoral scope of the project activity. PDD version 10.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The updated PDD is in accordance with the latest version of the Project Standard and includes the correct sectoral scope of the project activity.		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 2		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD and the calculation spreadsheet shall be updated in accordance with the latest version of the "Tool to calculate the emission factor for an electricity system".		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	In version 8 of the PDD, version 03.0.0 of the "Tool to calculate the emission factor for an electricity system" was used since it was the latest version at the time of submission of the request for renewal of the crediting period to the DOE. Please find version 10 of the PDD and the revised calculation spreadsheet that use the latest version of the Tool at this moment (version 04.0).		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	PDD version 10 and calculation spreadsheet "Grid EF and ER_Candelaria_Simple Adjusted OM_27Dec13"		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The final version of the PDD and the calculation spreadsheet are in accordance with the latest version of the "tool to calculate the emission factor for an electricity system".		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 3		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD shall include the conservative criterion adopted when several fuel types are used in a power unit, in accordance with the procedures provided in the methodology and tools.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	In accordance with the "Tool to calculate the emission factor for an electricity system", where several fuel types are used in a power unit, the fuel type with the lowest CO2 emission factor should be used. This is the criterion adopted in the calculation of the grid emission factor for this project activity, as stated in version 10 of the PDD.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	PDD version 10.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The final version of the PDD is complete in accordance with the methodology and tool applied, including the description of the conservative criterion adopted when several fuel types are used in a power unit.		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 4		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The calculation spreadsheet shall be updated with the correct formulae to calculate the lambda for 2012 and the EF of the plant "Arizona Vapor" used to determinate the Build Margin emission factor.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Please find version 9 of the PDD and the revised calculation spreadsheet that include the required correction to the EF of the plant "Arizona Vapor" used to determine the BM emission factor. Version 9 of the PDD also includes the following clarifications regarding the lambda calculation for year 2012: "It is important to note that, leap years have 366 days (8784 hours) instead of 365 days (8760 hours). As a consequence, the number of hours per year to be considered in the determination of the lambda for a leap year is 8784 instead of 8760." "Year 2012 is a leap year. Thus, the number of hours per year to be considered in the determination of the lambda for year 2012 is 8784 instead of 8760."		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	PDD version 9 and calculation spreadsheet "Grid EF and ER_Candelaria_Simple Adjusted OM_29Nov13"		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The audit team could verify that the version 9 of the PDD and the revised calculation spreadsheet include the required correction to the EF of the plant "Arizona Vapor", however, the calculation of the lambda for year 2012 is not correct yet, as the applied Tool required that the number of hours for which LC/MR sources are on the margin to be divided by 8760 hours per year, as a constant number instead of the number of hours each year.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>	The calculation of the lambda for year 2012 has been updated in the PDD version 10, applied the formulae required by the Tool.		
<i>Evidence proposed</i>	PDD version 10 and calculation spreadsheet "Grid EF and ER_Candelaria_Simple Adjusted OM_27Dec13"		
DOE Assessment #2	The final version of the PDD and the calculation spreadsheet has been updated with the correct formulae of the lambda for 2012 and with the correct emission factor of the plant "Arizona Vapor".		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 5		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD shall be updated with all the parameters required.		
PP RESPONSE #1 <i>It shall address the corrective action taken in details</i>	<i>This section shall be filled by the PP.</i>		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	Please find version 10 of the PDD that includes all the parameters required by the "Tool to calculate the emission factor for an electricity system".		
	PDD version 10		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The final version of the PDD includes a complete list of parameters in accordance with the requirements of the applied methodology and tool, including the information required for each one.		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 6		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The PDD and the calculation spreadsheet shall be updated with the correct values of: the annual average energy generated by the project activity, the LC/MR generation for 2009, the total generation without imports for 2008 and 2009, and the net imports.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Please find version 10 of the PDD and the revised calculation spreadsheet that include the required corrections to the annual average energy delivered by the project activity and the net imports. Regarding the LC/MR generation for 2009 and the total generation without imports for 2008 and 2009, the values used in the PDD and the calculation spreadsheet are correct and in accordance with the information provided by the original data source. There are some mistakes in the original data source, more specifically in the calculation of the total energy generated by each type of power plant. As a consequence, the values of generation used in the PDD and the calculation spreadsheet are not based on these values of total energy of each type of power plant. The values used are based on generation data from each individual power plant, also provided by this original data source.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	PDD version 10 and calculation spreadsheet "Grid EF and ER_Candelaria_Simple Adjusted OM_27Dec13"		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The final version of the calculation spreadsheet and the PDD have been updated with the correct values.		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 7		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The most conservative efficiency value shall be used in accordance with the appendix 1 of the tool.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Please find version 10 of the PDD and the revised calculation spreadsheet that include the required correction to the efficiency value of the plants "Libertad" and "Palmas 2". The highest of the possible values provided by the Appendix 1 of the "Tool to calculate the emission factor for an electricity system" is used.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	The calculation of the lambda for year 2012 has been updated in the PDD version 10, applied the formulae required by the Tool.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The most conservative efficiency values have been used in the final version of the PDD and the calculation spreadsheet.		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 1		
Classification	CAR <input type="checkbox"/>	CL <input checked="" type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Evidence of the new information included in the version 8 of the PDD shall be provided by the project participants, relating to the changes on the description of the project activity, the social benefits and the technology transference of the project activity.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	<p>Please find the following evidence of the new information included in the PDD, relating to changes on the description of the social benefits:</p> <ul style="list-style-type: none"> - Resumen Actividades Sociales Grupo Secacao.pdf: document that summarizes the social activities carried out by Fundación Trece Aguas (Health Center, Rural Electrification Project, and support to schools, education and infrastructure). The document also includes photos and an article from a newspaper. - Personal Casa de Salud Nuevo San Carlos.pdf: document that shows the people hired by Fundación Trece Aguas to work on the Health Center (two nurses, a doctor and two ambulance drivers). <p>Please also find the following evidence of the new information included in the PDD, relating to changes on the description of the technology transfer of the project activity:</p> <ul style="list-style-type: none"> - Francis Turbine - Gilkes.pdf: section of the User Manual developed by Gilkes for the project, showing that the turbine installed in the project plant was manufactured by Gilbert Gilkes & Gordon Ltd. - Generator - Leroy Sommer.pdf: section of the User Manual developed by Gilkes for the project, showing that the generator installed in the project plant was manufactured by Leroy Sommer. - EES Consulting Services.pdf: consulting services agreement signed by the project developer with EES Consulting Inc. 		
<i>It shall provide and identified the evidences proposed (if applicable)</i>	PDD version 10.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	<p>The Project Participants have changed the different information relating to the description of the project activity (altitude between the head pond and the turbine, longitude of the tunnel and the penstock), and the latest version of the PDD includes the same description of the project activity as the registered PDD.</p> <p>On the other hand, the Project Participants have provided proper evidence to justify the new information included in the latest version of the PDD relating to the social benefits and the technology transference of the project activity.</p>		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Candelaria Hydroelectric Project"

TITLE	"Candelaria Hydroelectric Project"		
FINDING	Nº 2		
Classification	CAR <input type="checkbox"/>	CL <input checked="" type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The project participant shall clarify the reason because Choloma plant has not been considered as CDM project.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	<p>The first version of the calculation spreadsheet was finished on 30/05/2013, before the date of the registration action of Choloma plant.</p> <p>According to the UNFCCC Website, the registration date of Choloma plant is 28/12/2012 and the date of the registration action is 05/07/2013.</p> <p>Please find version 10 of the PDD and the revised calculation spreadsheet that include the Choloma plant as a CDM project.</p>		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	<p>The calculation of the lambda for year 2012 has been updated in the PDD version 10, applied the formulae required by the Tool.</p>		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	<p>The final version of the PDD and the calculation spreadsheet have been updated, considering Choloma Plant as a CDM project.</p>		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	<p>To be checked during the first periodic verification <input type="checkbox"/></p>	

7 REFERENCES

Reference	Document Name	Author/Competent Authority
1	PDD version 8	Project Proponent
2	PDD version 10	Project Proponent
3	Approved Methodology: AMS-I.D (Version. 17.0.0)	CDM - EXECUTIVE BOARD
4	CDM Project Cycle Procedure version 05.0	CDM - EXECUTIVE BOARD
5	CDM Project Standard version 05.0.	CDM - EXECUTIVE BOARD
6	Tool "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.	CDM - EXECUTIVE BOARD
7	Tool to calculate the emission factor for an electricity system" version 04.0.0.	CDM - EXECUTIVE BOARD
8	CDM Validation and Verification Standard. Version 05.0.	CDM - EXECUTIVE BOARD
9	"Validation, Verification and Certification of Clean Development Mechanism (CDM) Project Activities" (IE/DTC/039)	AENOR
10	2006 IPCC Guidelines on National GHG Inventories	IPPC
11	Hourly generation data of 2010, 2011 and 2012	AMM
12	Commercial norm no. 14	AMM

ANNEX 1: CDM VALIDATION PROTOCOL

Validation Protocol

Project: "Candelaria Hydroelectric Project"
Date of Completion: 10/01/2014

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Asociación Española de
Normalización y Certificación

VALIDATION PROTOCOL**PROJECT:**

"Candelaria Hydroelectric Project"

PROJECT PARTICIPANTS:

HIDROELECTRICA CANDELARIA S.A.

ECOINVEST CARBON S.A.

Validation Type	
<input checked="" type="checkbox"/> Validation of a Project Activity	
Validation Team: Luis Javier ARRIBAS ALONSO	
Version of this Validation Protocol: 02	Date: 10/01/2014

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

CHECKLIST TOPIC / QUESTION	MoV/Ref*	COMMENTS	Draft Conclusion	Final Conclusion
A. GENERAL DESCRIPTION OF PROJECT ACTIVITY				
A.1. Approval				
A.1.1 Have all the Parties involved in the project activity provided a written Letter of Approval of the project activity? Are they valid for the project activity?	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.2 Do the Letters of Approval confirm that: <ul style="list-style-type: none"> The Party is a Party to the Kyoto Protocol The participation is voluntary The CDM project activity contributes to the sustainable development (host Party) The title of the project activity is precise and coincides with the title included in the PDD 	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.3 Has the Letter of Approval been obtained from the project participants or directly from the DNA? In case that it has been obtained from the project participant, how has its authenticity been assessed?	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.4. If LoA contains either additional specification or conditions of the project activity, then has the request for registration been based on the documents specified in the LoA?	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.5. If the LoA references a specific version of the Validation Report or PDD and this version cannot be submitted, then has either of the following been submitted? a) a statement indicating final LoA has not been received, or	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

b) an updated Validation Report/ PDD				
A.2. Authorization of Project participants				
A.2.1. Is the form required for the indication of project participants correctly applied in the PDD?	DR	Yes, the form required for the indication of project participants is correctly applied in the PDD.	OK	OK
A.2.2. Has each project participant been authorized in a letter of approval by at least one Party involved?	DR	Yes, each project participant has been authorized in a letter of approval by at least one Party involved.	OK	OK
A.2.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular Appendix 1)?	DR	All the information on participants / Parties provided in the PDD is consistent.	OK	OK
A.2.4. Are any other project participants approved but not listed in the PDD?	DR	No, all the PPs approved are listed in the PDD.	OK	OK
A. 3. Modalities of communication				
<p>A.3.1. Has the corporate and personal identity of all project participants and focal points included in the MoC statement been validated? Have the signatures and employment status been checked?</p> <p>This has been validated through:</p> <p>(a) Directly checking evidence for corporate, personal identity and other relevant documentation;</p> <p>(b) Notarized documentation; or</p> <p>(c) Written confirmation from the project participant or the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate. In this case, the official who signed the written confirmation (if a different</p>	DR	N/A	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

person that the signatory in the MoC) is duly authorized to do so.				
A.3.2. Has the MoC statement been received from the PP with whom the DOE has a contractual relationship?	DR	N/A	N/A	N/A
A.3.3. In the case of a CDM PoA, has the MoC statement been received from the coordinating/managing entity?	DR	N/A	N/A	N/A
A.3.4 Has the MoC statement been correctly completed and duly authorized? (a) The latest version of the form "Modalities of Communication statement" (F CDM MOC) has been used; (b) The information required as per the F-CDM-MOC, including its annex 1, is correctly completed; (c) The project participant's authorized signatories signing the F-CDM-MOC correspond to the project participant's authorized signatories included in F-CDM-MOC, annex 1.	DR	N/A	N/A	N/A
A.4. Project Design Document				
A.4.1. Does the used project title clearly enable to identify the unique CDM project activity? Is it consistent in all section of the PDD and in all documents?	DR	Yes, the used project title identifies clearly the unique CDM project activity	OK	OK
A.4.2. Is there any indication concerning the version number and the date of the version?	DR	Yes there is an indication of the date and the version number of the PDD.	OK	OK
A.4.3. Is this consistent with the time line of the project's history?	DR	Yes, it is in line with the time line of the project's history	OK	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

A.4.4. Is the PDD prepared in accordance with the latest template and requirements from the CDM Executive Board?	DR	<p>The PDD has been prepared using the latest template approved by the EB (F-CDM-SSC-PDD version 04.1) and has been correctly completed following the instructions stated in the "Guidelines for completing the project design document form for small-scale CDM project activities version 01.1"</p> <p>However, the PDD refers requirements of the version 03.0 of the Project Standard, which is not the latest version approved.</p> <p>Moreover, the sectoral scope indicated in the cover of the PDD is not correct.</p> <p>CAR 1: The PDD shall be updated in accordance with the latest version of the Project Standard, and include the correct sectoral scope of the project activity.</p> <p>CAR 1 is closed.</p> <p>The final version of the PDD is in accordance with the latest version of the Project Standard and includes the correct sectoral scope of the project activity.</p>	CAR 1	OK
A.4.5. Has the PDD been published for Global Stakeholder Consultation (GSC) in UNFCCC website?	DR	<p>N/A. According to the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to publish the PDD for Global Stakeholder Consultation (GSC) in UNFCCC website.</p> <p>However, according to paragraph 244 of the CDM project Cycle Procedure version 05.0, the project participants notified the secretariat by e-mail on 13/06/2013, of their intention to request a renewal of crediting period of the registered CDM project activity and informing the secretariat of their selection of AENOR as DOE to request the renewal of crediting period.</p>	OK	OK
A.4.6. Have there been any comments during the GSC process?	DR	<p>N/A. According to the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to publish the PDD for Global Stakeholder Consultation (GSC) in UNFCCC website.</p> <p>However, the secretariat informed by email on 18/06/2013 that the notification of their intention to request a renewal of crediting period</p>	OK	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		had been received correctly.		
A.4.7. Have they been correctly addressed by the validation team?	DR	<p>N/A. According to the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to publish the PDD for Global Stakeholder Consultation (GSC) in UNFCCC website.</p> <p>The audit team could verify that the project participants notified the secretariat their intention to request a renewal of crediting period by e-mail on 13/06/2013, 201 days prior to the date of expiration of the first crediting period on 31/12/2013, within 270 to 180 days, in accordance with paragraph 244 of the CDM project Cycle Procedure version 05.0.</p>	OK	OK
A.5. Description of the project activity The PDD (section A.1) shall contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity.				
A.5.1. Is the description delivering a transparent overview of the project activities? Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements? Is it accurate and does it provide the reader with a clear understanding of the nature of the proposed CDM project activity?	DR	<p>N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.</p> <p>Nevertheless, the audit team found some difference in the description of the project activity between the registered PDD and the PDD of the renewal of the crediting period version 8 (different altitude between the head pond and the turbine and different longitude of the tunnel and the penstock). This version of the PDD also includes new information about the social projects carried out by the "Fundación Trece Aguas" with the 10% of the funds generated through the sale of CERs of the project activity, and the technology and know-how transferred by the project to the host Party.</p> <p>CL 1: Evidence of the new information included in the version 8 of the PDD shall be provided by the project participants, relating to the changes on the description of the project activity, the social benefits and the technology transference of the project activity.</p> <p>CL 1 is closed.</p> <p>The information included in the latest version of the PDD is in</p>	CL 1	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		accordance with the registered PDD and the evidence provided by the Project Participants.		
A.5.2. What proofs are available for demonstrating that the project description is in compliance with the actual situation or planning?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	CL 1	OK
A.5.3. Is the information provided by these proofs consistent with the information provided by the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	CL 1	OK
A.5.4. Has the validation team conducted a physical site inspection to confirm the description of the PDD? If not, justify.	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.5. If the proposed CDM project activity involves the alteration of an existing installation or process, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.6. In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.7. Does the PDD explain how the proposed project activity reduces greenhouse gas emissions (i.e. what type of	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

technology is being employed, what measures are undertaken as part of the project activity, etc)?		baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
A.6. Technical description of the project activity				
The PDD (section A.2 and A.3) shall contain a clear description of the project activity that provides the reader a clear understanding of the technical aspects of its implementation.				
<i>A.6.1. Location of the project activity</i>				
A.6.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude on the site indicated (decimal points)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.1.2. How is it ensured and/or demonstrated that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<i>A.6.2. Category of the project activity</i>				
A.6.2.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 3/CMP.1 on the modalities and procedures for the CDM?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.2.2. To which category(ies) does the project activity belong to? Is this category correctly identified and indicated?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

A.6.2.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.2.4. In the case of a small scale project activity, is it justified that it is not a debundled component of a larger project activity?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.2.5. In case of small scale project activities, is the estimate of emissions reductions increasing during the crediting period? In affirmative case, have project participants demonstrated in the CDM-SSC-PDD that the project activity characteristics are defined in a way that precludes project activities to go beyond the limits for SSC Project activities (as stipulated in paragraph 3 of the General Guidelines to SSC CDM methodologies)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<i>A.6.3. Technology to be employed by the project activity</i>				
A.6.3.1. Does the description of the technology to be applied provide sufficient and transparent input/information to evaluate its impact on the greenhouse gas balance? And, is the explanation how the project will reduce greenhouse gas emission transparent and suitable?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

A.6.3.2. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period? If so, does the project make provisions for meeting training and maintenance needs?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.3.3. Is a schedule available for the implementation of the project and are there any risks for delays? Is the schedule consistent with the starting date of the crediting period?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<i>A.6.4. Estimated amount of emission reductions over the chosen crediting period</i>				
A.6.4.1. Is the form required for the indication of projected emission reductions correctly applied?	DR	Yes, the form required for the indication of projected emission reductions is correctly applied.	OK	OK
A.6.4.2. Are the figures provided consistent with other data presented in the PDD?	DR	Yes, the figures provided are consistent with other data presented in the PDD.	OK	OK
<i>A.6.5. Public funding of the project activity</i>				
A.6.5.1. In case of public funding from Annex I Parties, is it confirmed that such funding does not result in a diversion of official development assistance?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

B. BASELINE AND MONITORING METHODOLOGY
B.1. Title and reference of the approved baseline and monitoring methodology

B.1.1. Are reference number, version number, and title of the approved baseline and monitoring methodology clearly indicated?	DR	<p>According to the CDM Project Standard version 05.0 the project participants shall use the latest approved version of the methodology in the original PDD.</p> <p>Therefore, the updating related to baseline, estimated emission reductions and monitoring plan has been carried out according to the applied methodology AMS-I.D "Grid connected renewable electricity generation" (version 17). It is clearly indicated.</p>	OK	OK
B.1.2. Is the applied version the most recent one and / or is this version still applicable?	DR	The version 17 of the applied methodology is the most recent one.	OK	OK
B.1.3. Does the PDD refer to the corresponding tools with their latest approved versions?	DR	<p>The PDD refer to the corresponding tools:</p> <ul style="list-style-type: none"> - "Tool to calculate the emission factor for an electricity system" (version 03.0.0) - "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>However, the version of the "Tool to calculate the emission factor for an electricity system" is not the most recent one.</p> <p>CAR 2: The PDD and the calculation spreadsheet shall be updated in accordance with the latest version of the "Tool to calculate the emission factor for an electricity system".</p> <p>CAR 2 is closed.</p> <p>The final version of the PDD refers to the corresponding tools with their latest approved versions.</p>	CAR 2	OK
B.1.4. Have any sources of greenhouse gas emissions been identified by the DOE ,within the project boundary following	DR	No, they are not identified.	OK	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

project implementation, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and which are not addressed by the applied methodology?				
B.2. Applicability of the selected methodology to the project activity				
B.2.1. Are the chosen tools considered applicable in accordance with the design of the project and the provisions of the applied methodology?	DR	Yes, the chosen tools are considered applicable in accordance with the design of the project and the provisions of the applied methodology.	CAR 2	OK
B.2.2. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology and tools?	DR	Yes, the choice of the methodology is correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology and tools	OK	OK
B.2.3 Has been applied the specific guidance provided by the CDM Executive Board in respect to the approved methodology?	DR	Yes, it has been applied.	OK	OK
B.2.4. Is the evidence provided to the validation team enough to prove that all applicability criteria are completely met?	DR	Yes, evidence has been provided	OK	OK
B.2.5. In the case of project activities consisting in different sites or implementation phases, are all applicability criteria met for all the sites and phases?	DR	N/A	N/A	N/A
Fill in the required amount of sub checklists for applicability criteria as given by the methodology applied and comment at least every line answered with "No"				

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

B.2.6. Criterion 1 - Install a renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass.	DR		Applicability checklist	Yes/No		OK	OK
			Criterion discussed in the PDD?	Yes			
			Evidence provided?	Yes			
			Compliance verified?	Yes			
B.2.7. Criterion 2 – The project supplies electricity to: <ul style="list-style-type: none"> A national or a regional grid; or An identified consumer facility via national/regional grid through a contractual arrangement such as wheeling 	DR		Applicability checklist	Yes/No		OK	OK
			Criterion discussed in the PDD?	Yes			
			Evidence provided?	Yes			
			Compliance verified?	Yes			
B.2.8. Criterion 3 - The project activity: <p>(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);</p> <p>(b) Involve a capacity addition;</p> <p>(c) Involve a retrofit of (an) existing plant(s); or</p> <p>(d) Involve a replacement of (an) existing plant(s).</p>	DR		Applicability checklist	Yes/No		OK	OK
			Criterion discussed in the PDD?	Yes			
			Evidence provided?	Yes			
			Compliance verified?	Yes			
B.2.9. Criterion 4 – Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: <p>a. The project activity is implemented in an existing reservoir with no change in the volume of reservoir;</p>	DR		Applicability checklist	Yes/No		OK	OK
			Criterion discussed in the PDD?	Yes			
			Evidence provided?	Yes			
			Compliance verified?	Yes			

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

<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>														
B.2.10. Criterion 5 - If the new unit 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 new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	DR		<table><tr><th>Applicability checklist</th><th>Yes/No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Evidence provided?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes/No	Criterion discussed in the PDD?	Yes	Evidence provided?	Yes	Compliance verified?	Yes		OK	OK
Applicability checklist	Yes/No													
Criterion discussed in the PDD?	Yes													
Evidence provided?	Yes													
Compliance verified?	Yes													
B.2.11. Criterion 6 - In the case of project activities that involve the 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.	DR		<table><tr><th>Applicability checklist</th><th>Yes/No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Evidence provided?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes/No	Criterion discussed in the PDD?	Yes	Evidence provided?	Yes	Compliance verified?	Yes		OK	OK
Applicability checklist	Yes/No													
Criterion discussed in the PDD?	Yes													
Evidence provided?	Yes													
Compliance verified?	Yes													
B.2.12. Criterion 7 - 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.	DR		<table><tr><th>Applicability checklist</th><th>Yes/No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Evidence provided?</td><td>Yes</td></tr></table>	Applicability checklist	Yes/No	Criterion discussed in the PDD?	Yes	Evidence provided?	Yes		OK	OK		
Applicability checklist	Yes/No													
Criterion discussed in the PDD?	Yes													
Evidence provided?	Yes													

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		Compliance verified?	Yes		
B.2.12. Was there a request for clarification, revision or deviation made for the adopted methodology in relation to the proposed project activity? If so, were the correct procedures provided by the CDM EB followed?	DR	No there was not.		OK	OK
B.3. Description of the Project Boundary					
B.3.1 Are all the sources and gases included in the project boundary of the project activity (baseline scenario, project scenario and leakage) in accordance with the applied methodology?	DR	Yes, sources of gases are included in the project boundary of the project activity (baseline scenario, project scenario and leakage) in accordance with the applied methodology		OK	OK
B.3.2. Are the inclusion or exclusion of the sources of gases correctly justified?	DR	Yes they are.		OK	OK
B.3.3. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by the PDD?	DR	Yes they do.		OK	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

B.3.4. In case of grid connected electricity projects, is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?	DR	Yes, the grid is correctly identified in accordance with EB guidance and the underlying methodology	OK	OK
B.4. Description of the baseline scenario identification				
B.4.1. Is the baseline scenario clearly described?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.2. Have there been other alternative scenarios considered? Is it justified the selected scenario as the most likely one?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.3. Does the PDD follow the steps to determine the baseline scenario required by the methodology?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.4. Has the baseline scenario been determined using conservative assumptions where possible?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

		baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
B.4.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies? (<i>Note: refer Annex 3 EB 22</i>). Are they listed in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.6 If alternatives are excluded: a.- Is sufficient evidence/ justification provided to support every exclusion of alternatives? Is it reasonable? b.- Is it shown that at least one credible and feasible alternative does not face a barrier? Is this reasonable?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.7 Is the baseline scenario determination compatible with the available data and is all literature and sources clearly referenced?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):				
B.5.1 Is the start date defined in accordance with the "Glossary of CDM terms"? What evidence is provided to verify that this was the official start date? Is this considered	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

reliable and reasonable?		baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
B.5.2 Is it a new project activity (start date on or after August 2008) or an existing project?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.3 For a new project which does not require a new methodology and has not published its PDD for stakeholder comments prior to the start date, then:</p> <p>a. Have the project proponents informed the DNA and/or UNFCCC secretariat in writing? How has this notification been verified? (i.e. confirmation from the DNA or UNFCCC)</p> <p>b. Was the notification made within 6 months of the project activity start date?</p> <p>c. Does the letter/ notification indicate the precise geographic location and provide a brief description of the proposed project?</p> <p>d. Have the project proponents informed the DNA and/ or UNFCCC secretariat of the progress of the project activity every subsequent two years after the initial notification?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.4 For an existing project which has a start date prior to the publication of the PDD for global stakeholder comments,	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

has the project proponent provided the following: a. Evidence of awareness of the CDM prior to the project activity start date and that the benefits of the CDM were a decisive factor in the decision to proceed with the project? (e.g. Board minutes, notes etc) Is this sufficient? b. Reliable evidence that demonstrates real actions were taken to secure CDM status in parallel with the project's implementation? (e.g. contracts with consultants for CDM/PDD/methodology services, ERPAs, correspondence with CER buyers, DOEs, DNAs or the UNFCCC). Is this sufficient?		participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
B.5.5. Is the project additionality assessed according to the applicable methodology? Detail the Tool used to demonstrate the Additionality of the project activity.	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.6. In the case of a small scale project activity, is the additionality justified according to the applicable CDM requirements specific for small scale project activities?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.7 Have realistic and credible alternatives been identified providing comparable outputs or services?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
B.5.8. Is the project activity without CDM included in these alternatives?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.9. Is a discussion provided for all identified alternatives concerning the compliance with applicable laws and regulations?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.10. In case of using a FSR as a basis of the decision, is this analysis made in accordance with the EB Guidance?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.11. In case the PDD argues that specific laws are not enforced in the country or region: Is evidence available concerning that statement?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

B.5.12. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.13. In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income? a. Are the assumptions for all alternatives compared consistent (including discount rates if applicable)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.14. In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)? a. Are the assumptions for all alternatives compared consistent (including discount rates if applicable)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.15. In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)? a. If an IRR indicator is used, is the choice of benchmark appropriate to the type of IRR calculated? b. Is the choice of benchmark or discount rate justified with supporting evidence for its appropriateness?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

B.5.16 If risk premiums are applied in the development of the benchmark, are they reasonable and justified?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.17 Do the project participants justify the period of assessment in the context of the underlying project activity?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.18 Regarding the assessment:</p> <p>a. Complete the following time periods (years):</p> <ul style="list-style-type: none"> - Period of assessment: - Crediting period: - Technical lifetime of the project activity: <p>b. Are these periods consistent with paragraph 3 of the "Guidelines on the assessment of investment analysis (version 05)".</p> <p>c. Is the period of assessment appropriate?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.19 Is any residual value of the project activity assets included in the analysis? Are residual value calculations	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

reasonable and justified and consistent with local accounting rules or international best practice?		participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
B.5.20 Are depreciation and other non-cash items related to the project activity deducted from net profits used for calculating the financial indicator (e.g. IRR, NPV)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.21 Is the treatment of taxation consistent with the chosen benchmark? (i.e. taxation should only be treated as an expense in the IRR/NPV calculation if the chosen benchmark is intended for post-tax calculations?)	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.22 Recommended project: If the implementation of the project ceased and then recommenced due to consideration of the CDM, then:</p> <p>a. Are input values valid and applicable at the time of making the decision to recommence the project?</p> <p>b. Are capital costs incurred prior to the revised project activity start date input as the recoverable value of the assets (limited to the potential reuse/ resale of tangible assets)?</p> <p>c. How has the fair market value of the capital expenditures</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

been calculated and validated? (e.g. by chartered specialists). Is this fair market value reasonable and justified? d.- Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation?				
B.5.23 Has the project participant supplied unprotected and traceable spreadsheet versions of all investment analysis?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.24 From the investment analysis provided, is it possible to reproduce the results?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.25 Costs of financing expenditures (i.e. loan repayments and interest) should only be included in the cashflow as costs if an equity IRR is used, not if a project IRR is used. Are interest payments taken into account in the calculation of tax, if the benchmark is for after-tax comparison?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.26 If an Equity IRR has been used, is the debt portion of the investment cost included as a cash outflow? (i.e. as well as interest costs and principle repayments –	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

double counting)		using an approved baseline and monitoring methodology.		
<p>B.5.27 Sensitivity analysis:</p> <p>a. Are all variable and critical costs and revenues in the analysis included in the sensitivity analysis?</p> <p>b. Is the assessed range of variations reasonable in light of the reliability of the estimated input values and the likely range?</p> <p>c. Is the sensitivity analysis possible to reproduce?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.28 Are input values used in all the investment analysis valid and applicable at the time of the investment decision taken by the project participant?</p> <p>Is the time of investment decision appropriately justified by evidences?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B5.29 Does the PDD present the investment analysis in a transparent manner and provide all the relevant assumptions (preferably in the CDM-PDD form, or in separate appendices to the CDM-PDD)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.30 Have the listed input values been consistently applied in all calculations?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		using an approved baseline and monitoring methodology.		
B.5.31 Are all references made in the investment analysis correctly referenced/ sourced? Have these sources been verified?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.32 Have financial calculations been verified by: assessing all parameters and assumptions against the available evidence and expertise; crosschecking the parameters against 3rd party or publicly available sources; reviewing feasibility reports, public announcements and annual financial reports; assessing the correctness of computations and the sensitivity analysis?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.33 Have values from a feasibility study report (FSR) approved by national authorities been used? If so: a. Has the FSR been the basis of the decision to proceed with the investment in the project? How has this been verified? b. Are the values used in the PDD and associated annexes valid and consistent with the FSR? c. At the time of the investment decision, are the input values from the FSR valid and applicable (based on specific	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

local and sectoral expertise and knowledge)?				
B.5.34. In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.35. Do any such identified barriers have a clear and direct impact on the financial returns of the project activity? (these are not barriers and should be assessed in the investment analysis)	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.36 Are the identified barriers real and substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.37. Is it clearly explained how approval of the project in the CDM would enable the proposed project activity to surmount the barrier? Is the rationale reasonable and justified with evidence?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.38. Does the review of relevant background information on the nature of the company(ies) and entity(ies) involved	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real?		participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
B.5.39 Has common practice analysis been undertaken? Mention the tool or guidelines applied for this analysis.	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.40 Is the geographical and temporal scope of the common practice analysis appropriate for the assessment related to the project activity's technology or industry type? Which is the relevant geographical area assessed for the common practice analysis?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.41 Have all similar projects regarding the same technology and industrial sector been included in the common practice analysis? Which are these projects? What sources of information have been used to assess the existence of similar projects? (official sources, local and industry expertise). If some projects have been excluded as non comparable or not similar, is the exclusion reasonable and justified?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.42 Have similar and operational projects other than CDM	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

project activities been undertaken in the region?		participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
<p>B.5.43 Are these widely observed and commonly carried out?</p> <p>If so:</p> <p>a. How have the essential distinctions with the proposed CDM project activity been assessed?</p> <p>b. Are such distinctions justified with sufficient evidence?</p> <p>c. If inaccessibility of data is the reason why some projects have not been included in the analysis, is justification of this claim provided?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.44 Overall, is the proposed CDM project activity considered common practice?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.45. Is it demonstrated/justified that the project activity is not a likely baseline scenario?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

B.6. Emissions reductions				
B.6.1. Explanation of methodological choices				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	DR	<p>No. It is not explained the criterion followed when several fuel types are used in a power unit, as per example, in some cogeneration plants where are used biomass and fuel oil.</p> <p>CAR 3: The PDD shall include the conservative criterion adopted when several fuel types are used in a power unit, in accordance with the procedures provided in the methodology and tools.</p> <p>CAR 3 is closed.</p> <p>The final version of the PDD explains how the procedures provided in the methodology are applied by the proposed project activity.</p>	CAR 3	OK
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	DR	Yes, every selection of options is justified.	OK	OK
B.6.1.3. Are the formulae required for the determination of emissions reductions correctly presented and used? (<i>Open excel, traceability of data, etc</i>)	DR	<p>No. The formula used to calculate the lambda for 2012 is not in accordance with the one required in the "Tool to calculate the emission factor for an electricity system", as the number of hours for which LC/MR sources are on the margin in year 2012 has to be divided by 8760 hours per year.</p> <p>Moreover, in the determination of the BM, the formula used to calculate the emission factor of the plant "Arizona Vapor" is not in accordance with the formula established in the "Tool to calculate the emission factor for an electricity system".</p> <p>CAR 4: The calculation spreadsheet shall be updated with the correct formulae to calculate the lambda for 2012 and the EF of the plant "Arizona Vapor" used to determinate the Build Margin emission factor.</p> <p>CAR 4 is closed.</p>	CAR 4	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		The correct formulae required for the determination of emissions reductions is presented and used in the final version of the calculation spreadsheet, being an open excel and allowing the traceability of data..		
B.6.1.4 Are all the data and assumptions listed in the PDD? Are they appropriate and do calculations result in a conservative estimate of emission reductions?	DR	Yes, all data and assumptions listed in the PDD are appropriate and conservative.	OK	OK
<i>B.6.2. Data and parameters that are available at validation</i>				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology? Is all the information required for each parameter included?	DR	Some parameters derived from the application of the "Tool to calculate the emission factor for an electricity system" have not been included in section B.6.2 of the PDD. CAR 5: The PDD shall be updated with all the parameters required. The CAR 5 is closed. The section B.6.2 of the final version of the PDD includes a complete list of parameters in accordance with the requirements of the applied methodology and tool, including the information required for each one.	CAR 5	OK
B.6.2.2. Are all the data derived from official data sources or replicable records and have they been correctly quoted?	DR	Yes, all data are derived from official data sources or replicable records and have been correctly quoted.	OK	OK
B.6.2.3. For each parameter: a. Title in line with Methodology? b. Data unit correctly expressed? c. Appropriate description? d. Source clearly referenced? (and appropriate?)	DR	All the parameters available at the time of validation are correctly stated in the PDD; in accordance with the methodology and tool applied, as it is detailed below: <u>Parameter $EF_{CO_2,grid,y}/EF_{CO_2,y}$:</u> a. Yes. b. t CO ₂ /MWh c. CO ₂ emission factor of the grid electricity in year y d. Data provided by the Wholesale Market Administrator. e. 0.4833	CAR 5	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

<p>e. Correct value provided?</p> <p>f. Has this value been verified?</p> <p>g. Choice of data correctly justified?</p> <p>h. Measurement method correctly described?</p> <p>i. Purpose of data indicated?</p>		<p>f. It is the same as the one calculated in the spreadsheet.</p> <p>g. Official source.</p> <p>h. As described in paragraph 12 of this methodology, option (a) has been selected: a combined margin, consisting of the combination of operating margin and build margin is calculated based on the procedures prescribed in version 04.0 of the "Tool to calculate the emission factor for an electricity system".</p> <p>i. Data used to calculate baseline emissions.</p> <p>Parameter: $EF_{CO_2, m, k, y}$</p> <p>a. Yes.</p> <p>b. t CO₂/G]</p> <p>c. Average CO₂ emission factor of fuel type i used in power unit m or k in year y.</p> <p>d. IPCC default values at the lower limit of the uncertainty at a 95 per cent confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories</p> <p>e. The correct values have been provided in the appendix 4 of the PDD and the spreadsheet "Grid EF and ER_Candelaria_Simple Adjusted OM_27Dec13".</p> <p>f. Yes.</p> <p>g. Yes. According to version 04.0 of the "Tool to calculate the emission factor for an electricity system", if there is no data from fuel supplier of the power plants in invoices or local average default values, IPCC default values at the lower limit of the uncertainty at a 95 per cent confidence interval should be used.</p> <p>h. For the simple adjusted OM emission factor calculation: data updated once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM-PDD to the DOE for validation or request for renewal of the crediting period (ex ante option). For the BM emission factor calculation: for the second crediting period, data updated only once ex ante at the start of the second crediting period, based on the most recent information available on units already built at the time of submission of the request for</p>		
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		<p>renewal of the crediting period to the DOE.</p> <p>j. Data used to calculate baseline emissions.</p> <p><u>Parameter $EG_{m,y}/EG_{k,y}$</u></p> <p>a. Yes.</p> <p>b. MWh</p> <p>c. Net quantity of electricity generated and delivered to the grid by power unit m or k in year y</p> <p>d. Data provided by the Wholesale Market Administrator</p> <p>e. The correct values have been provided in the appendix 4 of the PDD and the spreadsheet "Grid EF and ER_Candelaria_Simple Adjusted OM_27Dec13".</p> <p>f. Yes.</p> <p>g. Data from utility or government records or official publications have been used.</p> <p>i. For the simple adjusted OM emission factor calculation: data updated once for each crediting period using the most recent three historical years for which data is available at the time of submission of the CDM-PDD to the DOE for validation or request for renewal of the crediting period (ex ante option). For the BM emission factor calculation: for the second crediting period, data updated only once ex ante at the start of the second crediting period, based on the most recent information available on units already built at the time of submission of the request for renewal of the crediting period to the DOE.</p> <p>k. Data used to calculate baseline emissions.</p> <p><u>Parameter $\eta_{m,y}$ and $\eta_{k,y}$</u></p> <p>a. Yes.</p> <p>b. N/A (Ratio).</p> <p>c. Average net energy conversion efficiency of power unit m or k in year y</p> <p>d. The default values provided in table of appendix 1.</p> <p>e. The correct values have been provided in the appendix 4 of the PDD and the spreadsheet "Grid EF and ER_Candelaria_Simple</p>		
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Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		<p>Adjusted OM_27Dec13".</p> <p>f. Yes.</p> <p>g. Yes. As the efficiencies are not directly available for the power plants, default values from the Appendix 1 of the Tool have been used.</p> <p>h. N/A.</p> <p>l. Data used to calculate baseline emissions.</p>		
B.6.2.4. Will the data and parameters result in a conservative estimate of emissions reductions?	DR	<p>The value of the annual average energy generated by the project activity is not in accordance with the data provided in the monitoring reports of the previous monitoring periods.</p> <p>The value of "LC/MR generation" for 2009 is not in accordance with the information provided by the original data source.</p> <p>The value of "Total generation without imports" is not correct for 2008 and 2009.</p> <p>The value of the imports used to calculate the emission factor is not the net value, as it is required by the "Tool to calculate the emission factor for an electricity system".</p> <p>CAR 6: The PDD and the calculation spreadsheet shall be updated with the correct values of: the annual average energy generated by the project activity, the LC/MR generation for 2009, the total generation without imports for 2008 and 2009, and the net imports.</p> <p>CAR 6 is closed.</p> <p>The estimation of emissions reductions, included in the final version of the PDD and the calculation spreadsheet, is conservative.</p>	CAR 6	OK
<p><i>B.6.3 Calculation of GHG Emission Reductions – Baseline Emissions</i></p> <p><i>It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i></p>				
B.6.3.1 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	DR	<p>Yes. The calculations have been documented according to the approved methodology and in a complete and transparent manner.</p>	<p>CAR 3</p> <p>CAR 4</p> <p>CAR 5</p>	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

			CAR 6	
B.6.3.2. Have conservative assumptions been used when calculating the baseline emissions?	DR	<p>In the determination of the BM emission factor, Choloma plant has not been considered as CDM project, although it was registered at the end of 2012.</p> <p>Moreover, the efficiency value of the plants "Libertad" and "Palmas 2" is not conservative, as it is not chosen the highest of the possible values provided by the appendix 1 of the tool for the technology used by those plants.</p> <p>CAR 7: The most conservative efficiency value shall be used in accordance with the appendix 1 of the tool.</p> <p>CL 2: The project participant shall clarify the reason because Choloma plant has not been considered as CDM project.</p> <p>CAR 7 and CL 2 are closed.</p> <p>Conservative assumptions have been used in the calculation of the baseline emissions included in the final version of the PDD and the final version of the calculation spreadsheet.</p>	CL 2 CAR 7	OK
B.6.3.3 Are uncertainties in the baseline emission estimates properly addressed?	DR	No uncertainties are detected.	CAR 3 CAR 4 CAR 5 CAR 6	OK
B.6.3.4. Is additional background information on baseline data provided in Appendix 4 of the PDD? Is this information consistent with data presented by other sections of the PDD?	DR	Yes information is included in Appendix 4 and it is consistent with other sections of the PDD.	CAR 3 CAR 4 CAR 5 CAR 6	OK
B.6.4 Calculation of GHG Emission Reductions – Project Emissions <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>				

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

B.6.4.1 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	DR	N/A. No project emissions are accounted for under this methodology, as the project activity is a hydroelectric power project without reservoir.	N/A	N/A
B.6.4.2. Have conservative assumptions been used when calculating the project emissions?	DR	N/A. No project emissions are accounted for under this methodology, as the project activity is an hydroelectric power project without reservoir.	N/A	N/A
B.6.4.3 Are uncertainties in the project emission estimates properly addressed?	DR	N/A. No project emissions are accounted for under this methodology, as the project activity is an hydroelectric power project without reservoir.	N/A	N/A
B.6.5. Calculation of GHG Emission Reductions – Leakage <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>				
B.6.5.1 Are the leakage calculations documented according to the approved methodology and in a complete and transparent manner?	DR	N/A. No leakage effects are accounted for under this methodology, as energy generating equipment was not transferred from another activity.	N/A	N/A
B.6.5.2. Have conservative assumptions been used when calculating the leakage emissions?	DR	N/A. No leakage effects are accounted for under this methodology.	N/A	N/A
B.6.5.3. Are uncertainties in the leakage emission estimates properly addressed?	DR	N/A. No leakage effects are accounted for under this methodology.	N/A	N/A
B.6.6. Ex-ante calculation of emission reductions				
B.6.6.1. Are the GHG calculations documented in a complete	DR	The final version of the PDD documents the GHG calculations in a complete and transparent manner, and the final version of the	CAR 3	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

and transparent manner? Are all the calculations correct?		calculation spreadsheet includes the correct calculations.	CAR 4 CAR 5 CAR 6 CAR 7 CL 2	
B.6.6.2. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	DR	Yes, all data are consistent.	CAR 3 CAR 4 CAR 5 CAR 6 CAR 7 CL 2	OK
<i>B.6.7. Summary of the ex-ante estimation of emission reductions</i>				
B.6.7.1. Will the project result in fewer GHG emissions than the baseline scenario?	DR	Yes, the project will result in fewer GHG emissions than the baseline scenario.	OK	OK
B.6.7.2. Are the emissions reductions projected in line with the envisioned time schedule for the project' implementation and the indicated crediting period?	DR	Yes, emissions reductions projected are in line with the envisioned time schedule for the project' implementation and the indicated crediting period.	OK	OK
B.7. Application of the monitoring methodology and description of the monitoring plan				
<i>B.7.1. Description of the monitoring plan</i>				
B.7.1.1 Is the monitoring plan documented according to the approved methodology and relevant tools and in a	DR	Yes, the monitoring plan is documented according to the approved methodology and relevant tools and in a complete and transparent	OK	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

complete and transparent manner?		manner		
B.7.1.2. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided in the PDD?	DR	Yes, the monitoring methodology provides a consistent approach in the context of all parameters to be monitored.	OK	OK
B.7.1.3. Does the monitoring plan provide a clear description of the organization structure involved in monitoring activities and their responsibilities?	DR	Yes, the monitoring plan provides a clear description of the organization structure involved in monitoring activities and their responsibilities	OK	OK
B.7.1.4. If applicable: Does appendix 5 provide useful information enabling a better understanding of the envisioned monitoring provisions?	DR	All the information about the monitoring plan is included in section B.7.	OK	OK
B.7.1.5. Is the registration, monitoring, measurement and reporting procedure defined?	DR	Yes, the registration, monitoring, measurement and reporting procedure is defined.	OK	OK
<i>B.7.2 Compliance of the monitoring plan with the approved methodology</i>				
B.7.2.1 Is the list of parameters considered to be complete with regard to the requirements of the applied methodology? Are all of them clearly described in the monitoring plan and in accordance with the methodology and tools?	DR	The list of parameters in the PDD is considered complete with regard to the requirements of the applied methodology and tools. All the parameters are clearly described in the monitoring plan.	OK	OK
B.7.2.2. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period?	DR	Yes, the monitoring plan provides for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting period	OK	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

<p>B.7.2.3. Parameter EG_{BL,y}/EG_{facility,y}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>	DR	<p>a. Yes.</p> <p>b. Yes. It is expressed in MWh/y</p> <p>c. Yes. It is described as the quantity of net electricity supplied to the grid in year y (as result of the implementation of the CDM project activity).</p> <p>d. Yes. Electricity meters onsite are referenced.</p> <p>e. 24,415 MWh (historical average of net electricity delivered from 2007 to 2012).</p> <p>f. Yes.</p> <p>g. In line with the methodology and tool, measurements are undertaken using energy meters. Continuous monitoring, hourly measurement and at least monthly recording</p> <p>h. Yes. Calibration and maintenance of the meters is carried out in accordance with the Commercial Coordination Norm number 14 (NCC-14), clause 14.12, issued by the wholesale Market Administrator.</p> <p>i. Yes. The meters have an accuracy of 0.2% (according to regulation).</p> <p>j. Yes. Measurement results are cross checked with the buyer's electricity reports, monthly invoices or through the records saved in the SCADA system, software utilized to control and monitor all the electricity delivered to the national grid.</p> <p>k. Data used to calculate baseline emissions.</p>	CAR 6	OK
B.7.3 Implementation of the Monitoring Plan				
B.7.3.1 Do the means of monitoring of each of the parameters included in the plan comply with the requirements of the methodology?	DR	Yes, monitoring of each of the parameters included in the plan comply with the requirements of the methodology.	OK	OK

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

B.7.3.2. Is the measurement equipment described and deemed appropriate?	DR	Yes, it is appropriate.	OK	OK
B.7.3.3. Are procedures identified for maintenance of monitoring equipment and installations? Are provisions regarding the calibration intervals included in the monitoring plan?	DR	Provisions regarding calibration frequencies have been including in the PDD.	OK	OK
B.7.3.4. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements or lack of data?	DR	Measurement accuracy is addressed and deemed appropriate.	OK	OK
B.7.3.5. Is the monitoring Plan sufficient to ensure the verification of a proper implementation of the monitoring plan?	DR	Yes, the monitoring Plan is sufficient to ensure the verification of a proper implementation of the monitoring plan.	OK	OK
C. DURATION OF THE PROJECT ACTIVITY / CREDITING PERIOD				
C.1. Duration of the project activity				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	DR	Yes, project's starting date and operational lifetime is clearly defined and reasonable	OK	OK
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting period clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10	DR	Yes, the assumed crediting period is clearly defined and reasonable. The starting date of the second crediting period is correctly considered (01/01/2014).	OK	OK

years)? And, is the starting date of the crediting period corrected considered?				
D. ENVIRONMENTAL IMPACTS				
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
D.1.1. Has the analysis of the environmental impacts of the project activity been sufficiently described in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if so, has an EIA been approved?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
D.1.3. Will the project create any adverse environmental effects? Has any environmental impact identified as significant?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
D.1.4. Are transboundary environmental impacts identified in the analysis?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

		baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
D.1.5. Does the project comply with any other environmental legislation in the host country?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party.				
D.2.1. Have the identified environmental impacts been sufficiently addressed in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E. STAKEHOLDERS' COMMENTS				
E.1. Brief description how comments by local stakeholders have been invited and compiled				
E.1.1. Have relevant local stakeholders been consulted prior to the publication of the PDD? Is the exact date of the consultation process included in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.1.2. Have appropriate media been used to invite comments	DR	N/A. According to paragraph 230 the CDM Project Standard version	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

by local stakeholders?		05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.1.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.2. Summary of the comments received				
E.2.1. Is a summary of the stakeholder comments received provided?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.3. Report on how due account was taken of any comments received				
E.3.1. Has due account been taken of any stakeholder	DR	N/A. According to paragraph 230 the CDM Project Standard version	N/A	N/A

Validation Protocol

Project: "Candelaria Hydroelectric Project"

Date of Completion: 10/01/2014

AENORAsociación Española de
Normalización y Certificación

comments received?		05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
E.4. Sampling				
E.4.1. Has sampling been applied as part of the validation activities? Explain where it has been applied.	DR	Sampling is not applicable to this project activity	N/A	N/A
E.4.2. Has the standard for sampling currently in force been applied?	DR	Sampling is not applicable to this project activity	N/A	N/A

*MoV/Ref: Means of Validation and references of background documents.

ANNEX 2: CERTIFICATES OF QUALIFICATION

CERTIFICATE OF QUALIFICATION

Subject: Validation and Technical Review Team for Candelaria Hydroelectric Project"

Madrid, 28/01/2014

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

Name: Luis Javier Arribas Alonso

CDM Chief Validator: YES

CDM Validator: YES

CDM Chief Verifier: N.A.

CDM Verifier: N.A.

External Technical Expert: N.A.

Technical areas related with the project activity:

TA1.2: Energy generation from renewable energy sources

A handwritten signature in black ink, consisting of a large, stylized loop followed by a horizontal line and a small flourish.

Luis ROBLES OLMOS
Authorized person

CERTIFICATE OF QUALIFICATION

Subject: Validation and Technical Review Team for Candelaria Hydroelectric Project"

Madrid, 28/01/2014

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

Name: M^a Carmen González Galán

CDM Chief Validator: YES

CDM Validator: YES

CDM Chief Verifier: N.A.

CDM Verifier: N.A.

External Technical Expert: N.A.

Technical areas related with the project activity:

TA1.2: Energy generation from renewable energy sources

A handwritten signature in black ink, consisting of a large, loopy 'L' followed by a series of smaller, connected loops and a final horizontal stroke.

Luis ROBLES OLMOS
Authorized person