



Validation report form for renewal of crediting period for CDM project activities
(Version 01.0)

VALIDATION REPORT FOR RENEWAL OF CREDITING PERIOD (RCP)

Title of the project activity	Amayo 40 MW Wind Power Project - Nicaragua
Reference number of the project activity	2315
Number and duration of the next crediting period	2 nd Crediting Period (12/04/2016-11/04/2023)
Version number of the validation report for RCP	Version 01
Completion date of the validation report for RCP	02/09/2015
Version number of PDD to which this report applies	PDD version 06
Project participant(s)	Consorcio Eolico Amayo S.A. Shell Trading International Limited
Host Party	Nicaragua
Sectoral scope(s), selected methodology(ies), and where applicable, selected standardized baseline(s)	Sectoral scope 1: Energy Industries – Renewable Energy Applied methodology: ACM0002: “Consolidated baseline methodology for grid-connected electricity generation from renewable sources” (Version 16)
Estimated annual average GHG emission reductions or net anthropogenic GHG removals in the next crediting period	106,335 tCO ₂ e
Name of DOE	Colombian Institute for Technical Standards and Certifications (ICONTEC)
Name, position and signature of the approver of the validation report for RCP	Monica Vivas, Director of Conformity Assessment

SECTION A. Executive summary

The main objective of the Amayo Wind Power Project is to provide affordable electricity to the Nicaraguan grid using a clean and renewable energy source as the wind. For this purpose, the project makes use of nineteen 2.1 megawatt Suzlon S88 60HZ wind turbine generators, for a total power capacity of 39.9 MW.

The net power production provided to the national grid is expected to be approximately 169 GWh per year. The project activity involves every stage, from the development, design, engineering and financing, to the construction, operation and maintenance of the Amayo's power plant facilities.

The project's place is located 129 Km to the south of the capital city, Managua, on the Pan-American Highway near to Rivas. The site is located on the south west coast of Lake Nicaragua. The area for the implementation of the wind farm is centered at the geographical coordinates 11°19'32" N and 85°43'05" W (datum NAD83) and has a total area of 276.36 ha.

The renewal process consisted of the following three phases: i) a desk review of the updated PDD, ERs spreadsheets and support documentation ii) on site visit and follow up interviews and iii) the resolution of outstanding issues and the issuance of the final renewal report.

In summary, it is ICONTEC's opinion that the project Amayo 40 MW Wind Power Project - Nicaragua, as described in the version 06 of the project design document, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology ACM0002, version 16.0.0. Hence, ICONTEC requests the renewal of the crediting period of the project as CDM project activity.

SECTION B. Validation team, technical reviewer and approver

B.1. Validation team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Validation findings
1.	Team Leader	IR	Gisales	Cristian	Sustainable Development	x	x	x	x
2.	Validator	IR	Gisales	Cristian	Sustainable Development	x	x	x	x
3.	Technical Expert	IR	Gisales	Cristian	Sustainable Development	x	x	x	x

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

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of DOE or outsourced entity)
1.	Technical reviewer	IR	Ramirez	Francy	Sustainable Development
2.	Approver	IR	Ramirez	Francy	Sustainable Development

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

All documents reviewed during the validation are cited in appendix 3 below

C.2. On-site inspection

Duration of on-site inspection: 24/08/2015 to 25/08/2015				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening meeting,	Amayo Wind Power Project	24/05/2015	Cristian Grisales
2.	- Description of the project - Updating of the PDD • Baseline determination • Monitoring plan • Emissions reductions calculation - Compliance with PDD form - Project participants - Crediting period	Amayo Wind Power Project	24/05/2015	Cristian Grisales
3.	Site visit to the project: -Visit to each one of the turbines (19) - Visit to the operation and control room -Visit to the frontier (S/E Amayo)	Amayo Wind Power Project	24/05/2015	Cristian Grisales

C.3. Interviews

No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Barrios	Mariana	Amayo's CDM Coordinator	24/08/2015	-Description of the project -Updating of the PDD	Cristian Grisales
2.	Cerdas	Fabian	Project's CDM Consultant	24/08/2015	-Compliance with PDD form -Project participants -Crediting period -Application of baseline and monitoring methodology and standardized baseline -Estimated GHG emission reductions or net anthropogenic GHG removals -Validity of monitoring plan	Cristian Grisales
3.	Perez	Doris	Amayo's Operation Manager	24/08/2015	Description of the project	Cristian Grisales
4.	Montealegre	Eleazar	Amayo's Plant Manager	24/08/2015		Cristian Grisales

C.4. Clarification requests, corrective action requests and forward action requests raised

Area of validation findings	No. of CL	No. of CAR	No. of FAR
Compliance with PDD form	4		
Application of baseline and monitoring methodology and standardized baseline	1		

Validity of original baseline or its update	2	1	
Estimated GHG emission reductions or net anthropogenic GHG removals			
Validity of monitoring plan	1		
Crediting period			
Project participants	2		
Others (please specify)			
Total	10	1	0

SECTION D. Validation findings

D.1. Compliance with PDD form

Means of validation	ICONTEC during the desk review stage, raised findings about information missing in the PDD and non compliances with the PDD form. The raised findings were correct addressed by the PP and the finding was closed.
Findings	CL 3, CL 4, CL 5 and CL 6
Conclusion	ICONTEC deems that: -The updated PDD version 06 complies with the valid version of the applicable PDD form and instructions therein for filling out the PDD form. -The information transferred to the later valid version of the PDD form (version 06) is materially the same as that in the registered PDD (version 06).

D.2. Application of baseline and monitoring methodology and standardized baseline

Means of validation	ICONTEC verified the application of the version 16 (latest version) of the methodology ACM0002 for the renewal of the project as follows: <table border="1"> <thead> <tr> <th>Applicability Conditions</th><th>Validation done by ICONTEC</th></tr> </thead> <tbody> <tr> <td> This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s). </td><td> ICONTEC during the onsite visit verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm). The continuity of the above mentioned condition was validated during the onsite visit and it was not identified any change in the project. </td></tr> <tr> <td> The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit; </td><td> ICONTEC through visual inspection verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm) of 40 MW of installed capacity. </td></tr> <tr> <td> In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity </td><td> This condition does not apply. ICONTEC during the onsite visit verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm) of 40 MW of installed capacity. </td></tr> </tbody> </table>	Applicability Conditions	Validation done by ICONTEC	This methodology is applicable to grid-connected renewable energy power generation project activities that: (a) Install a Greenfield power plant; (b) Involve a capacity addition to (an) existing plant(s); (c) Involve a retrofit of (an) existing operating plants/units; (d) Involve a rehabilitation of (an) existing plant(s)/unit(s); or (e) Involve a replacement of (an) existing plant(s)/unit(s).	ICONTEC during the onsite visit verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm). The continuity of the above mentioned condition was validated during the onsite visit and it was not identified any change in the project.	The project activity may include renewable energy power plant/unit of one of the following types: hydro power plant/unit with or without reservoir, wind power plant/unit, geothermal power plant/unit, solar power plant/unit, wave power plant/unit or tidal power plant/unit;	ICONTEC through visual inspection verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm) of 40 MW of installed capacity.	In the case of capacity additions, retrofits, rehabilitations or replacements (except for wind, solar, wave or tidal power capacity addition projects the existing plant/unit started commercial operation prior to the start of a minimum historical reference period of five years, used for the calculation of baseline emissions and defined in the baseline emission section, and no capacity	This condition does not apply. ICONTEC during the onsite visit verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm) of 40 MW of installed capacity.
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		expansion, retrofit, or rehabilitation of the plant/unit has been undertaken between the start of this minimum historical reference period and the implementation of the project activity.		
		In case of hydro power plants, one of the following conditions shall apply: (a) The project activity is implemented in existing single or multiple reservoirs, with no change in the volume of any of the reservoirs; or (b) The project activity is implemented in existing single or multiple reservoirs, where the volume of the reservoir(s) is increased and the power density calculated using equation (3), is greater than 4 W/m²; or (c) The project activity results in new single or multiple reservoirs and the power density, calculated using equation (3), is greater than 4 W/m²; or (d) The project activity is an integrated hydro power project involving multiple reservoirs, where the power density for any of the reservoirs, calculated using equation (3), is lower than or equal to 4 W/m² In the case of integrated hydro power projects, project proponent shall: Demonstrate that water flow from upstream power plants/units spill directly to the downstream reservoir and that collectively constitute to the generation capacity of the integrated hydro power project; or Provide an analysis of the water balance covering the water fed to power units, with all possible combinations of reservoirs and without the construction of reservoirs. The purpose of water balance is to demonstrate the requirement of specific combination of reservoirs constructed under CDM project activity for the optimization of power output. This demonstration has to be carried out in the specific scenario of water availability in different seasons to optimize the water flow at the inlet of power units. Therefore this water balance will take into account	This condition does not apply. ICONTEC during the onsite visit verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm) of 40 MW of installed capacity.	

		seasonal flows from river, tributaries (if any), and rainfall for minimum five years prior to implementation of CDM project activity.	
		The methodology is not applicable to: Project activities that involve switching from fossil fuels to renewable energy sources at the site of the project activity, since in this case the baseline may be the continued use of fossil fuels at the site; Biomass fired power plants/units. In the case of retrofits, rehabilitations, replacements, or capacity additions, this methodology is only applicable if the most plausible baseline scenario, as a result of the identification of baseline scenario, is "the continuation of the current situation, that is to use the power generation equipment that was already in use prior to the implementation of the project activity and undertaking business as usual maintenance".	This condition does not apply. ICONTEC during the onsite visit verified that the project activity since its registration has consisted in the installation of a Greenfield Power Plant (Wind Farm) of 40 MW of installed capacity.
		Applicability conditions coming from the Tool to calculate the emission factor for an electricity system, Tool to determine the remaining lifetime of equipment and Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period.	ICONTEC verified the cited documents and did not identify any particular requirement to be complied by the project. The applicability conditions of the Tool to calculate the emission factor for an electricity system, Tool to determine the remaining lifetime of equipment and Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period were assessed by ICONTEC in section D.3 of this report
Findings	CL 7		
Conclusion	From the abovementioned ICONTEC deems as applicable for the renewal of the crediting period the version 16 of the methodology ACM0002 in accordance with the applicable requirements. The raised findings were correctly addressed by the PP in the version 06 of the PDD and closed by ICONTEC.		

D.3. Validity of original baseline or its update

Means of validation	The validity of the original / current baseline was assessed by the PP using methodology ACM0002, version 16, the tool for the 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. ICONTEC verified this assessment as follows:
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Step 1: Assess the validity of the current baseline for the next crediting period

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

ICONTEC verified that the legal framework for the energy sector, energy generation and renewable energies in Nicaragua is the same one existing at the time of the registration of the project.

Law 272¹ and Law 532² are still the only legal framework for the energy generation with renewable energies in Nicaragua and the project works in accordance with them.

Hence, given that the current baseline complies with all relevant mandatory national and/or sectoral 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, it is possible to continue with the step 1.2.

Step 1.2: Assess the impact of circumstances

The baseline scenario identified at the time of the registration and still valid in the version 16 of ACM0002 is:

“the electricity that would have been delivered to the grid in the absence of proposed project activity by other plants currently in the grid or by new additions to the system”

Given that the baseline scenario identified at the validation of the project activity was the continuation of the current practice without any investment, an assessment of the changes in market characteristics was developed by PP for the renewal of the crediting period and assessed by ICONTEC.

ICONTEC verified that despite the entering of new renewable energy projects to the Nicaraguan grid, all of them had taken advantage of the policy instruments that were already available at the time of the project's registration, like the Clean Development Mechanism and the incentives provided in Law 532.

ICONTEC verified the statistics reported by INE³ and the current CDM projects registered in Nicaragua⁴ and verified that all the wind farms have been registered as CDM projects, showing that the market characteristics are still similar to those at the time of the project registration and are still perceived as a risky investment requiring additional incentives as the CDM.

Given that the above mentioned it is possible to continue with the step 1.3.

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

The baseline scenario identified at the time of the registration is still valid in the version 16 of ACM0002 is:

“the electricity that would have been delivered to the grid in the absence of proposed project activity by other plants currently in the grid or by new additions to the system”

¹Law which governs generation, distribution, pricing and transmission of energy in Nicaragua. Please see <http://www.ine.gob.ni/leyIndustriaElectrica.html>

²Law for the promotion of renewable energies in force at the time of the registration of the project. Please see: http://www.ine.gob.ni/oaip/normasjuridicas/Ley_532_Renovables.pdf

³<http://www.ine.gob.ni/DGE/serieHistorica.html>

⁴<https://cdm.unfccc.int/Projects/projsearch.html>

In order to satisfy the electricity demand in the absence of the project activity (baseline scenario), an **investment** in new power plants to be added to the Nicaraguan Grid is the not **most likely scenario**. Therefore, the sub-step is not applicable to the project activity.

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

The emission factors have been updated by the project participants for the second crediting period of the project activity accordingly.

ICONTEC verified the updating of the following parameters:

Parameters Fixed Ex-Ante:

Parameter	Applied value in the registered PDD	Applied value in the updated PDD	Comment
D_i	Fuel oil: 0.993 g/cm ³ Diesel: 0.8473 g/cm ³	Fuel oil: 0.9634 kg/l Diesel: 0.8439 kg/l	Part of the updating was used for the CM emission factor.
$FC_{i,m,y}$	Data for 2005-2007	Data for 2012-2014	
$EG_{m,y}$	Data for 2005-2007	Data for 2012-2014	

Also, ICONTEC verified in the version 05 of the PDD (section B.6.1) and in the ER Calculation File the correct updating of the CM emission factor. It was not identified any material misstatement in the updating of the data and parameters for the renewal of the crediting period.

Step 2.-Update the current baseline and the data and parameters

Step 2.1: Update the current baseline

As per the requirement of the sub-step, the update for baseline emissions of the second crediting period is based on ACM0002 version 16.0.0 that is the latest approved version of the methodology applicable to the project activity at the time of request for renewal of the crediting period.

Step 2.2: Update the data and parameters

The emission factors for the project activity have been updated and determined ex ante as a combined margin consisting of combination of the operating margin and build margin for the second crediting period by the project participants as per the "Tool to calculate the emission factor for an electricity system", version 04.0.

ICONTEC verified the assumptions and calculations made on the PDD version 05 and agreed with the application of each one of the steps from the tool. It was not identified any material misstatement in the process followed.

ICONTEC was able to confirm that values applied in the calculation of the updated emission factors were in line with tool and official sources applied by the PP (see appendix 3, references 11-18). Those data sources are the latest ones at the time of the renewal.

The updated values for the Grid Emission Factor for the 2nd crediting period are the following:

$EF_{grid,OMsimple,2012-2014} (tCO_2/MWh)$	=	0.6934
$\omega_{OM} (%)$	=	75%
$EF_{grid,BM,2014} (tCO_2/MWh)$	=	0.4291
$\omega_{BM} (%)$	=	25%
$EF_{grid,CM,2014} (tCO_2/MWh)$	=	0.6273

Findings

CAR 1, CL 2, CL 8

Conclusion

The PP correctly applied the tool for the assessment of the original/current baseline in the version 06 of the PDD and addressed the raised findings. The findings were closed.

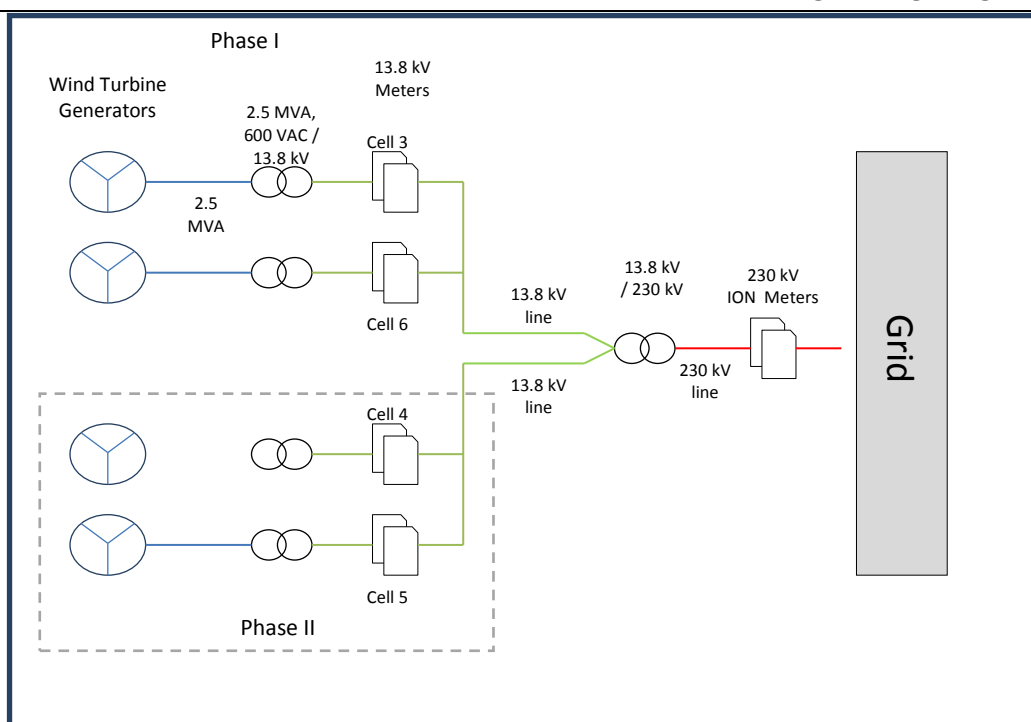
D.4. Estimated GHG emission reductions or net anthropogenic GHG removals

Means of validation	ICONTEC verified the spreadsheet for the calculation of the emission reductions provided by the PP (see appendix 3, reference 3) and was able to confirm that the estimated emission reductions are correctly calculated. All assumptions and data used by the project participants are listed in the updated PDD version 06 and/or supporting documents, including their references and sources. All documentation used by the project participants as the basis for assumptions and source of data was correctly quoted and interpreted in the updated PDD version 06. All values used in the updated PDD are considered reasonable in the context of the CDM project activity. The baseline methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions. All estimates of the baseline, project and leakage emissions can be replicated using the data and parameter values provided in the updated PDD version 06.
Findings	ICONTEC did not identify findings for this aspect.
Conclusion	ICONTEC deems that the baseline, the estimated GHG emission reductions and the monitoring plan in the updated PDD version 05 comply with the applicable requirements and the valid version of the methodology (ACM0002, version 16).

D.5. Validity of monitoring plan

Means of validation	The project applied the approved consolidated monitoring methodology ACM0002 version 16.0.0, Grid-connected electricity generation from renewable sources in combination with the "Tool to calculate the emission factor for an electricity system" version 04.0 for calculation of the grid emission factor. Parameters determined ex-ante: The combined margin emission factor of 0.6273 tCO₂e/MWh is determined ex-ante based on the most available information available at the time of requesting for the crediting period renewal (see Appendix 3, references 11-18). Parameters monitored ex-post: The main monitored data of the proposed project is the electricity delivered to the grid by the project activity (EG_y). The PP of the registered project activity (Amayo 40 MW Wind Power Project) registered in the same wind farm another CDM project (Amayo Phase II Wind Power Project). Given that both CDM projects share the same commercial frontier, it was necessary the development of the following monitoring scheme (revised monitoring plan approved by UNFCCC on 08/09/2011⁵):
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⁵ <https://cdm.unfccc.int/UserManagement/FileStorage/CSYKOUNT618PB4DG9ZEJALHX0FV7R2>



Where the calculation of the energy generated by the project requires the application of the following equation and the monitoring of its parameters:

$$EG_{PhaseI,y}^{230kV} = \frac{EG_{PhaseI,y}^{13.8kV}}{EG_{PhaseI,y}^{13.8kV} + EG_{PhaseII,y}^{13.8kV}} \cdot EG_{AMAYO,y}^{230kV}$$

$EG_{PhaseI,y}^{230kV}$	Gross energy delivered to the grid by Phase I in period y (MWh)
$EG_{AMAYO,y}^{230kV}$	Gross energy delivered by the entire wind farm (Phase I & II) in period y (MWh)
$EG_{PhaseI,y}^{13.8kV}$	Gross energy delivered by Phase I in period y as measured on the 13.8 kV internal meters (MWh)
$EG_{PhaseII,y}^{13.8kV}$	Gross energy delivered by Phase II in period y as measured on the 13.8 kV internal meters (MWh)

During the onsite visit ICONTEC assessed each one of the electricity meters and verified their maximum error ($\pm 0.2\%$) and their calibration frequency (in accordance with the regulation established by NIS, meters will be calibrated periodically).

Findings	CL 9
Conclusion	The monitoring plan contained in the updated PDD version 06 dated on 29/09/2015 is in accordance with the monitoring methodology and the monitoring plan contained in the registered PDD (version 3 and revised monitoring plan). ICONTEC deems that the monitoring plan will properly measure the relevant parameters for the calculation of the emission reductions.

D.6. Crediting period

Means of validation	The project activity was registered on 12/04/2009. The current crediting period will be expired on 11/04/2016. On 21/08/2015 the project participants notified the CDM secretariat by email message attached with the updated PDD version 04 dated on 22/07/2015 of their intention to renew the crediting period and the selected DOE for the process. The CDM secretariat confirmed receipt of the notification on 26/08/2015. ICONTEC verified that the notification was received by the secretariat between 180-270 days prior to the date of expiration of the current crediting period.
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	As per the Project Cycle Procedure version 09.0, the new crediting period will start on 12/04/2016. The new crediting period will be from 12/04/2016 to 11/04/2023.
Findings	ICONTEC did not identify findings for this aspect.
Conclusion	ICONTEC deems that the crediting period renewal request was developed in accordance with the latest versions of the CDM VVS, PCP and PS.

D.7. Project participants

Means of validation	The names of the project participants included in the updated PDD have been checked against the names of the project participants in the registered PDD. ICONTEC concluded that the same project participants involved in the project activity will continue for the renewal of the crediting period.
Findings	CL 1, CL 10
Conclusion	The reported CLs about missing information on the PDD version 04 were corrected by the PP in the latest version of the PDD (version 06) and the findings were closed. ICONTEC confirms that the names of the project participants included in the updated PDD are consistent with the names of the project participants in the registered PDD.

D.8. Post-registration changes

Type of post-registration changes (PRCs)	Confirmation (Y/N)	Validation report for PRCs	
		Version	Completion date
Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline	N	NA	NA
Corrections	N	NA	NA
Inclusion of a monitoring plan to a registered project activity	N	NA	NA
Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline	N	NA	NA
Changes to the project design of a registered project activity	N	NA	NA
Types of changes specific to afforestation and reforestation project activities	N	NA	NA

SECTION E. Internal quality control

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

The technical review and the quality control process was performed by an internal technical reviewer team in accordance with the ICONTEC's internal procedures for carrying out validation, verification and certification audits of CDM project activities.

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

SECTION F. Validation opinion

ICONTEC was engaged by Consorcio Eólico Amayo S.A to validate the renewal of crediting period and greenhouse gas (GHG) emission reductions reported by the CDM project Amayo 40 MW Wind Power Project - Nicaragua, registration number 2315, owned by the PP for the 2nd crediting period 12/04/2016 to 11/04/2023, equating an annual average of 106,335 tCO₂e.

The renewal was performed based on the requirements set by the CDM and relevant guidance provided by CMP and the CDM Executive Board. ICONTEC considers that the project's GHG

emissions and resulting GHG emissions reductions reported in the updated PDD version 06 dated on 29/09/2015, are fairly stated.

Consorcio Eólico Amayo S.A is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's monitoring and verification plan in the updated PDD.

ICONTEC received the information and asked for explanations deemed necessary to provide enough evidence about the compliance of the project with the requirements set for the renewal of crediting period.

The renewal consisted of the three following phases: i) desk review of the updated PDD, the ERS spreadsheet and support documentation ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final renewal report.

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

ICONTEC can confirm that the updating of the baseline, application of the monitoring methodology, validity of the monitoring plan and GHG emissions reductions estimations are calculated without material misstatements.

In summary, it is ICONTEC's opinion that the "Amayo 40 MW Wind Power Project - Nicaragua" in Nicaragua, as described in the updated PDD version 06, meets all relevant UNFCCC requirements for the CDM and all relevant host country criteria and correctly applies the baseline and monitoring methodology "ACM0002". Version 16.0.

ICONTEC thus, requests the renewal of the crediting period of the project as a CDM project activity.

Bogotá D.C., 10/11/2015,



Monica Vivas
Director of Conformity Assessment Services
ICONTEC

Appendix 1. Abbreviations

Abbreviations	Full texts
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CERs	Certified emission reductions
CL	Clarification Request
CO ₂ e	Equivalent Carbon Dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
MR	Monitoring Report
GHG	Greenhouse Gases
ICONTEC	Colombian Institute for Technical Standards and Certification (Instituto Colombiano de Normas Técnicas y Certificación)
IPCC	Intergovernmental Panel on Climate Change
MoC	Modalities of Communication
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change
VVS	CDM Validation and Verification Standard
PCP	CDM Project Cycle Procedure
PS	CDM Project Standard
INE	Nicaraguan Energy Institute (Instituto Nicaraguense de Energía)

Appendix 2. Competence of team members and technical reviewers

Cristian Grisales

Lead Auditor and Expert Sector 01

Education:

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

Weitz Center for Development Studies – Israel

June 16th - July 10th 2015

Master Executive in Renewable Energies

EOI-Madrid, Spain

February 2015

Certified ISO 14001

ICONTEC

May 2012

Certified ISO 9001

ICONTEC

August 2012

Electrical Engineer

National University of Colombia

Bogotá - Colombia

July 2009

Professional Background

Professional of Climate Change

ICONTEC

May 2012 – Today

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

Electrical Maintenance Engineer

EMGESA S.A ESP. Colombia

November 2009 – May 2012

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

Engineering Intern

INGENIERIA ESPECIALIZADA

Commercial visits to different industries, sales, design and assembly of shielding systems, grounding grids, power quality studies, calculation of electrical installations, RETIE inspections, diagnostic grounding systems, implementation, supervision and maintenance of the developed projects.

CDM Experience**Auditor and Specialist:**

- Validation of Biogas project, Olmeca I, Santa Rosa, Guatemala
- Validation of CGR Catanduva Landfill Gas Project, Brazil
- Validation of Macaubas Landfill Gas Project, Brazil
- Validation of Taurichuco Hydropower Project, Perú
- Validation of Teresina Landfill Gas Project, Brazil
- Validation of Maceio Landfill Gas Project, Brazil
- Validation of Doña Teresa Hydroelectric Power Plant, Colombia
- Validation of SHPs Poço Fundo and Providência CDM Project (JUN1133), Brazil
- Renewal of Lageo, S.A. de C.V., Berlin Geothermal Project, Phase Two, Salvador
- Validation of SHPs Tambaú, das Pedras and Rio do Sapó CDM Project (JUN1132), Brazil
- Verification of Amaime Minor Hydroelectric Power Plant, Colombia
- Verification of Ciudad Juárez Landfill Gas to Energy Project, Mexico
- Verification of Santa Ana Hydroelectric Plant, Colombia
- Verification of Biogas Project, Olmeca III, Tecún Uman, Guatemala
- Verification of Berlin Geothermal Project, Phase Two, San Salvador
- Verification of Doña Juana landfill gas-to-energy project, Colombia

Technical Reviewer:

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

Francy Ramirez
CDM Reviewer (Sector 1)

Education:

Electrical Engineer. Universidad Los Andes, 2001

Postgraduate: Assessment of Social Projects. Universidad Los Andes, 2005

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

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

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

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

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

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

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

Professional Background:

ICONTEC (2005 - Actually)

Professional of Standardization

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

CODENSA (2002 - 2005)

Inspections and electrical works coordinator

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

CDM Experience:

Lead Auditor:

Validation of Guanaquitas 9.74 MW hydroelectric project, Colombia

Validation of Fuel Switching through change of furnaces at Imusa S.A., Colombia

Validation of Installation of a high-pressure/high-efficiency bagasse boiler to cogenerate heat and power, Argentina

Validation of Cueva Maria Hydroelectric Expansion Project, Guatemala

Validation of Paysandú Clean Energy, Uruguay

Validation of La Vegona Hydroelectric project, Honduras

Validation of Chamelecón 280 Hydroelectric project, Honduras

Validation of Pardos SHPs and LOGICarbon CDM Project, Brazil

Validation of Pequí and Sucupira SHPs and LOGICarbon CDM Project, Brazil

Validation of Cambará and Embaúba SHPs and LOGICarbon CDM Project, Brazil

Validation of Bonyic hydroelectric project, Panamá

Validation of METALDOM Fossil fuel switch from reheat furnace, República Dominicana

Validation of Toachi – Pilaton Hydroelectric Project, Ecuador

Validation of EMGEA Small Hydropower (SHP) Run-of-the-River CDM Project Bundle, Colombia

Validation of Energy efficiency at Malvinas Gas Plant, Perú

Validation of Marañón Hydroelectric Project, Perú

Validation of Santa Rita Hydroelectric Plant, Guatemala

Validation of Ventana, Suba and Usaquén Hydroelectric CDM Bundled, Colombia

Verification of Los Algarrobos hydroelectric project, Panamá

Verification of Bio energy in General Deheza –Electric power generation from peanut hull and sunflower husk-, Argentina

Validation of Taurichuco Hydropower Project, Perú

Validation of Agua fresca Multipurpose and Environmental Service Project, Colombia

Verification of Agua Fresca Multipurpose and Environmental Service Project, Colombia

Verification of La Joya Hidroelectric project, Costa Rica

Verification of Amaime Minor Hydroelectric Power Plant, Colombia

Specialist:

Validation of Rio Bonito and Baitaca SHPs and LOGICarbon CDM Project, Brazil
 Validation VCS of Pequi and Sucupira SHPs and LOGICarbon CDM Project, Brazil
 Verification of three crediting periods of La Vuelta and la Herradura hydroelectric project, Colombia
 CDM Technical Reviewer:
 Validation of improving energy efficiency in a new Gas Plant in Gibraltar - Colombia
 Validation of Tres Valles Cogeneration Project, Honduras
 Validation of Tunjita Diversion Hydroelectric Project, Colombia
 Validation of Ferreira Gomes Hydro Power Plant CDM Project, Brazil
 Verification of two crediting periods of La Venta II, México
 Verification of two crediting periods of La Joya Hidroelectric Project, Costa Rica
 Verification of Bio energy in General Deheza –Electric power generation from peanut hull and sunflower husk-, Argentina
 Verification of Tres Valles Cogeneration Project, Honduras
 Verification of Agua Fresca Multipurpose and Environmental Services, Colombia
 Verification of La Venta II, México
 Verification of two crediting periods of Fertinal Nitrous Oxide Abatement Project, México
 Verification of Co-composting of EFB and POME project, Guatemala
 Verification of Biogas Project, Olmeca III, Tecun Uman, Guatemala
 Verification of Jepirachi Wind Power Project, Colombia
 Verification of Biogas energy plant from palm oil mill effluent, Guatemala
 Verification of Santa Ana Hydroelectric Project, Colombia
 Validation of SHP Morro Azul CDM Project (JUN1164), Colombia
 Verification of Biogas Project, Olmeca III, Tecun Uman, Guatemala
 Specialist Technical Reviewer:
 Validation of Biogas project, Olmeca I, Santa Rosa, Guatemala
 Validation of CGR Catanduva Landfill Gas Project, Brazil
 Validation of Macaubas Landfill Gas Project, Brazil

Appendix 3. Documents reviewed or referenced

No	Author	Title	References to the document	Provider
1	Consortio Eólico Amayo S.A.	PDD Version 3, 4 and 5.	PDD version 03, dated on 31/10/2008 PDD version 04, dated on 22/07/2015 PDD version 05, dated on 28/08/2015	Project participants
3	Consortio Eólico Amayo S.A.	Amayo_ER Calculation_Val2	ERs Calculation File, date on 31/07/2015	Project participants
4	UNFCCC	Intention of renewing crediting period notification form	CDM-RENN-FORM, version 01.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150317135525944/ren_form01.doc	Project participants
5	UNFCCC	Renewal of crediting period request form	CDM-REN-FORM, version 03.0 https://cdm.unfccc.int/sunsetcms/storage/contents/stored-file-20150317135607577/ren_form02.doc	Project participants
6	UNFCCC	Methodology ACM0002 version 07 and 16	https://cdm.unfccc.int/methodologies/PAmethodologies/approved	Others
7	UNFCCC	CDM VVS	Version 09.0 https://cdm.unfccc.int/Reference/Standards/index.html	Others
8	UNFCCC	CDM PCP	Version 09.0 https://cdm.unfccc.int/Reference/Procedures/index.html	Others
9	UNFCCC	CDM PS	Version 09.0 https://cdm.unfccc.int/Reference/Standards/index.html	Others
10	UNFCCC	Assessment of the validity of the original/current baseline	https://cdm.unfccc.int/Reference/tools/index.html	Others
11	INE (Nicaraguan Energy Institute)	Generacion_Neta_2005-2014_actAbr15	Net generation 2005-2014 in Nicaragua http://www.ine.gob.ni/	Others
12	INE (Nicaraguan Energy Institute)	Insumos2014_actAbr15	Fossil Fuel use in Generation 2014 http://www.ine.gob.ni/	Others
13	INE (Nicaraguan Energy Institute)	Capacidad_Instalada_2005-2014_actAbr15	Installed Capacity Nicaragua, 2005-2014 http://www.ine.gob.ni/	Others
14	INE (Nicaraguan Energy Institute)	Importaciones_Exportaciones_2005-2014_actAbr15	Exports, Imports Nicaraguan System 2005-2014 http://www.ine.gob.ni/	Others
15	INE (Nicaraguan Energy Institute)	Generacion_Neta_2014_actjul15	Net Generation 2014 in Nicaragua http://www.ine.gob.ni/	Others
16	INE (Nicaraguan Energy Institute)	Estadísticas 2013 para Geoingeniería CR	Fossil Fuel Use for Energy Generation 2013 http://www.ine.gob.ni/	Others
17	INE (Nicaraguan Energy Institute)	Estadísticas 2012 para Geoingeniería CR	Fossil Fuel Use for Energy Generation 2012 http://www.ine.gob.ni/	Others
18	INE (Nicaraguan Energy Institute)	Estadísticas 2014 para Geoingeniería CR	Fossil Fuel Use for Energy Generation 2014 http://www.ine.gob.ni/	Others

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

Table 1. CL from this validation

CL ID	1	Section no.	Cover page	Date: 05/08/2015
Description of CL				
On the PDD version 4, cover page, section "Project participant(s)" is missing the following project participant.				
• Shell Trading International Limited				
Project participant response				Date: 18/08/2015
The Project Participant "Shell Trading International Limited" was added in the cover page.				
Documentation provided by project participant				
PDD version 05, including the project participant "Shell Trading International Limited"				
DOE assessment				Date: 27/08/2015
The PP correctly included the PP that was missing. The finding was closed by ICONTEC.				

CL ID	2	Section no.	Cover page	Date: 05/08/2015
Description of CL				
On the PDD version 4, cover page, section "Sectoral scope and selected methodology, and where applicable, selected standardized baseline" is missing both, the applied methodology and the applicable version.				
Project participant response				Date: 18/08/2015
Corrected				
Documentation provided by project participant				
PDD version 05.				
DOE assessment				Date: 27/08/2015
On the version 05 of the PDD it was included the information that was missing. The finding was closed				

CL ID	3	Section no.	Section A.1	Date: 05/08/2015
Description of CL				
On PDD version 04, section A.1 is missing the following information:				
-The estimate of annual average and total GHG emission reductions for the chosen crediting period.				
-Confirmation about that the proposed CDM project activity is not a CPA that has been excluded from a registered CDM PoA as a result of erroneous inclusion of CPAs.				
Project participant response				Date: 18/08/2015
The missing information was included in version 05 of the PDD.				
-Added in section A.1.				
-Added in section A.1, as a footnote.				
Documentation provided by project participant				
PDD version 05.				
DOE assessment				Date: 27/08/2015
On the version 05 of the PDD it was included the information that was missing. The finding was closed				

CL ID	4	Section no.	Section A.3	Date: 05/08/2015
Description of CL				
On PDD version 04, section A.3 is missing the following information:				
-Age and average lifetime of the equipment based on manufacturer's specifications and industry standards				
-Load factors and efficiencies.				
-The monitoring equipments and their location in the systems				
Project participant response				Date: 18/08/2015
This information was included in section A.3.				
Documentation provided by project participant				
PDD version 05.				

DOE assessment			Date: 27/08/2015
On PDD version 05, the PP correctly included the technical description missing. The finding was closed.			

CL ID	5	Section no.	Section A.4	Date: 05/08/2015
Description of CL				
On PDD version 04, section A.4 is missing the following project participant:				
•Shell Trading International Limited				
Project participant response			Date: 18/08/2015	
The Project Participant "Shell Trading International Limited" was added in section A.4				
Documentation provided by project participant				
PDD version 05.				
DOE assessment			Date: 27/08/2015	
On PDD version 05, the PP correctly included the PP that was missing. The finding was closed.				

CL ID	6	Section no.	Section B.1	Date: 05/08/2015
Description of CL				
On PDD version 04, section B.1, the tools and other methodologies to which the selected methodology refers (ACM0002, version 16) were not included.				
Project participant response			Date: 18/08/2015	
As per CDM VVS, version 09.0, paragraph 446 (a) (ii)., "Information transferred to the later valid version of the PDD or PoA-DD form is materially the same as that in the registered PDD or PoA-DD, where applicable." The tools used in the current and previous version of the PDD are listed in the section B.1.				
The "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) was included.				
Documentation provided by project participant				
PDD version 05.				
DOE assessment			Date: 27/08/2015	
ICONTEC verified the correct application of the tool in order to assess the validity of the current baseline. The finding was closed.				

CL ID	7	Section no.	Section B.2	Date: 05/08/2015
Description of CL				
On PDD version 04, section B.2, are missing the justifications about the applicability or not for the following paragraphs from the methodology:				
• 3 b), c), d), e) • 4 b) • 5-10 • 11 and 14				
Project participant response			Date: 18/08/2015	
The project does not involve a capacity addition to (an) existing plant(s), nor retrofit, rehabilitation or replacement of an existing plant(s)/unit(s). Hence paragraphs 3 b), c), d) and e), paragraph 4 b) do not apply. • Regarding paragraphs 5-10, also do not apply for this project, this is stated in the PDD v.5 • Applicability of the tools is now discussed on section B.2.				
Documentation provided by project participant				
PDD version 05.				
DOE assessment			Date: 27/08/2015	
The PP correctly included the justifications for all the applicability conditions. The finding was closed.				

CL ID	8	Section no.	Section B.6.1	Date: 05/08/2015
Description of CL				
On PDD version 04, section B.6.1, step 1, is not clear enough the following:				
• The identification of any connected electricity systems. • How the PP demonstrated that there are no transmission constraints. • How the PP demonstrated that there are no legal restrictions for international electricity exchange				
Project participant response			Date: 18/08/2015	

In line with paragraph 18 of the tool, “the national grid definition should be used by default” in cases where the information required to demonstrate transmission constraints to define sub-grids is not available.	
The national grid in Nicaragua is unique, namely the “Sistema Interconectado Nacional” (National Interconnected System, NIS), i.e. there are no regional grids. A map of the NIS (including international connections) is available at http://www.cndc.org.ni/graficos/MapaSIN/index.php	
Electricity exports/imports to/from neighbor countries are allowed and are therefore considered in our calculations (see e.g. OM calculations). Nicaragua is a member of the SIEPAC project, which aims at facilitating energy exchanges between countries in the region (see e.g. http://proyectomesoamerica.org/joomla/index.php?option=com_content&view=article&id=171&Itemid=100).	
Documentation provided by project participant	
PDD version 05.	
DOE assessment	Date: 27/08/2015
The PP has correctly identified the relevant electricity system and the justifications for the tools’ constrains. The finding was closed.	

CL ID	9	Section no.	Section B.6.2	Date: 24/08/2015
Description of CL				
On PDD version 04, section B.6.2, are missing the following parameters: • Plant Name:				
Project participant response				Date: 27/08/2015
The parameters “Plant Name” for the calculation of Operating Margin (OM) and Build Margin (BM) were added to the parameters fixed ex-ante				
Documentation provided by project participant				
PDD version 05.				
DOE assessment				Date: 28/08/2015
The PP correctly included on the version 05 of the PDD the missing parameters.				

CL ID	10	Section no.	Appendix 1	Date: 24/08/2015
Description of CL				
On PDD version 04, appendix 1 is missing the contact information for the PP Shell Trading International Limited				
Project participant response				Date: 27/08/2015
The contact information for the project participant Shell Trading International Limited was added to the appendix 1 in the version 5 of the PDD.				
Documentation provided by project participant				
PDD version 05.				
DOE assessment				Date: 28/08/2015
The PP correctly included on the version 05 of the PDD the contact information of Shell Trading International Limited.				

Table 2. CAR from this validation

CAR ID	1	Section no.	Section B.4	Date: 05/08/2015
Description of CAR				
On PDD version 04, section B.4, it was not assessed the impact of new relevant national and/or sectoral policies and circumstances on the baseline.				
The abovementioned assessment shall be done through the application of the Methodological Tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period”. Please see: https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-11-v3.0.1.pdf				
Project participant response				Date: 18/08/2015
Assessment and application of the referred tool is now included on section B.4 of the PDD.				
Documentation provided by project participant				
PDD version 05.				
DOE assessment				Date: 28/08/2015
ICONTEC verified the application of the tool in the version 05 of the PDD. ICONTEC deems as correct the outcomes from the application of the tool. The finding was closed.				

Table 3. FAR from this validation

FAR ID	NA	Section no.	NA	Date: NA
Description of FAR				
NA				
Project participant response				Date: NA
NA				
Documentation provided by project participant				
NA				
DOE assessment				Date: NA
NA				